



**USING MULTIPLE ROBUST PARAMETER DESIGN TECHNIQUES
TO IMPROVE HYPERSPECTRAL ANOMALY DETECTION
ALGORITHM PERFORMANCE**

THESIS

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AFIT/GOR/ENS/09-05

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Degree of Master of Science in Operations Research

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Abstract

Detecting and identifying objects of interest is the goal of all remote sensing. New advances, specifically in hyperspectral imaging technology have provided the analyst with immense amounts of data requiring evaluation. Several filtering techniques or anomaly detection algorithms have been proposed. However, most new algorithms are insufficiently verified to be robust to the broad range of hyperspectral data being made available. One such algorithm, AutoGAD, is tested here via two separate robust parameter design techniques to determine optimal parameters for consistent performance on a range of data with large attribute variances. Additionally, the results of the two techniques are compared for overall effectiveness. The results of the test as well as optimal parameters for AutoGAD are presented and future research efforts proposed.

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1. Introduction

The overarching goal of all remote sensing, regardless of the specific technology employed, is the ability to detect and identify objects of interest within a relatively large area while maintaining some measure of separation between the sensor and the area of interest. The increasing availability and quality of hyperspectral remote sensing technology has created a need for ways to quickly and accurately detect and identify objects of interest within a rapidly growing library of hyperspectral data. This research seeks to improve upon the speed, accuracy, and robustness of autonomous detection methods previously proposed in the technical literature. Robust parameter design is a technique well suited to optimizing existing detection methods.

1.1 Background

The past two decades have seen the development of various methods for target detection in hyperspectral imagery (HSI). The motivations for these methods are as varied as the methods themselves, but the problem is essentially universal; find a small number of unique objects scattered across a relatively large area [12]. Regardless of the specific object of interest, HSI and its subsequent analysis has proven an effective tool for extracting object location and type from an area of interest.

Historically, analysis methods have framed the problem of target detection in mainly two ways. The first approach uses the unique spectral signatures of the mate-

rials within the image and compares them to known reference signatures in order to identify an object [13]. Most of the time, however, reference signatures are unavailable and some other methodology must be employed to detect and identify objects of interest. This leads to the second approach proposed in the literature. In this approach, the spectral signatures of pixels within an image are compared to the other pixels within the image. Anomalous pixels are identified by their relative nonhomogeneity with respect to the other pixels in the image. This particular approach can be further divided into two separate methodologies that will be explained in greater detail in Ch. 2.

1.2 Methodology

The idea of detecting anomalous pixels within an image without *a priori* knowledge of targets' unique spectral signatures is a more appropriate approach to the problem faced by the Department of Defense. Within the military context, detection and identification of targets takes on added complexity in that targets 'do not wish to be found' and will typically be concealed within the background in some way. The methods for concealment are varied, but appropriate application of target detection techniques to hyperspectral data can locate all but the most well hidden targets. Additional constraints are placed on the DoD problem instance by the need for fast solutions. Johnson [5] highlights this with his assertion that some future evolution of the autonomous global anomaly detector (AutoGAD) algorithm could potentially be run by a UAV's processing software and provide information on potential targets in real time. This kind of real time detection is critical to meaningful employment of HSI technology at the tactical and operational level.

With any new algorithm or approach to solving a problem, the quality of the method should be evaluated solely on observed performance. In order to make quantitative assessments, the solution methodology should be tested on problem instances with known solutions so that comparisons to known optimal values can

be made. Based on this comparison to ground truth, performance statistics are developed. These performance statistics are then used to evaluate the quality of the proposed method relative to existing methods and their performance statistics on the same problem instances.

While this practice is widely used in the literature, Hooker [4] suggests that this competitive testing approach leads researchers to tweak the parameters of their algorithm to outperform others on the test problems. This over-specification of the algorithm can lead to very poor performance on a broader set of real world problems.

The anomaly detection algorithm, AutoGAD, developed by Johnson [5] was shown to work well for the four images used during initial testing. However, as with most algorithms, similarities between the development and test data, combined with limited test data led to a situation where the algorithm is known to work very well for data similar to the development and test data, but its solution quality for other data types is unknown.

One alternative to this competitive testing is using Design of Experiments (DOE) to evaluate the performance of an algorithm. DOE provides a methodology allowing the researcher to make statistically sound inferences about algorithm performance over a range of problem instances using a relatively small number of test runs. A subset of the DOE framework, Robust Parameter Design (RPD), is a general method developed by Taguchi in the early 1980s that emphasizes choosing the levels of controllable parameters to: (1) ensure that the mean of the output response is at a desired level and (2) ensure that the variability around this target value is as small as possible [8].

Framing anomaly detection using AutoGAD as a RPD problem facilitates the selection of optimal user defined parameters within AutoGAD making the algorithm robust to a wide variety of image types. Additionally, these parameters reduce the variability of AutoGAD's performance. Therefore, the result is twofold; the

optimized parameters allow AutoGAD to perform anomaly detection not only well, but more importantly, perform consistently over a wide variety of image types.

1.3 Research Objectives

This research will employ robust parameter design to develop additional testing scenarios for AutoGAD in order to determine its applicability and effectiveness over a wide range of image types. Additionally, optimal settings for the multiple user adjustable parameters present in the algorithm will be determined.

The remainder of this thesis is organized as follows. Chapter 2 contains a discussion on the basics of HSI, a more detailed description of the detection methodologies proposed in the current literature, and a discussion of robust parameter design based on a review of the literature. Chapter 3 describes how robust parameter design was specifically applied to AutoGAD including a detailed description of the experiment performed. Chapter 4 includes the results of the experiment and the resultant optimized algorithm parameters. Chapter 5 summarizes the work and suggests directions for future research.

2. Literature Review

2.1 *HSI Basics*

HSI is, at the most basic level, a digital photograph. Like a digital photo, HSI is composed of picture elements, or pixels, which divide the two dimensional space of the scene into smaller regions. The pixels create a grid which can be indexed in both dimensions to form a referencing structure allowing each pixel within an image to be individually referenced. In a standard digital photo, each pixel contains information about a portion of the electromagnetic (EM) spectrum, namely the visible portion. The visible portion, can be subdivided into bands, for instance the red, green, and blue. Each pixel is assigned an intensity level within each band, the combination of which determines the overall color or reflectance signature of the pixel. HSI is based on these same ideas, however, it differs from ordinary photos in several ways.

The first, and most important difference between standard digital photographs and HSI is the number of bands. Where standard photos can be represented in as few as one band (black and white photos), HSI is composed of anywhere from tens to hundreds of contiguous bands [12]. The second difference between standard photography and hyperspectral imaging is the range of EM energy represented within a single image. While standard photos only represent energy from the visible wavelengths, HSI, in general, contains contiguous data from mid-wave infra-red to ultra-violet wavelengths. Figure 2.1 highlights the portion of the EM spectrum used by HSI sensors.

Now that a basic analogy for HSI has been drawn from standard photography, The reader should be familiarized with how the data from an HSI image is organized for processing and analysis. HSI data can be thought of as a cube or 3-dimensional matrix of data. The front face of the cube is defined by the spatial dimensions of the image. Viewing the data from this orientation is analogous to looking at the image printed on a page or displayed on a screen. The third dimension of the data

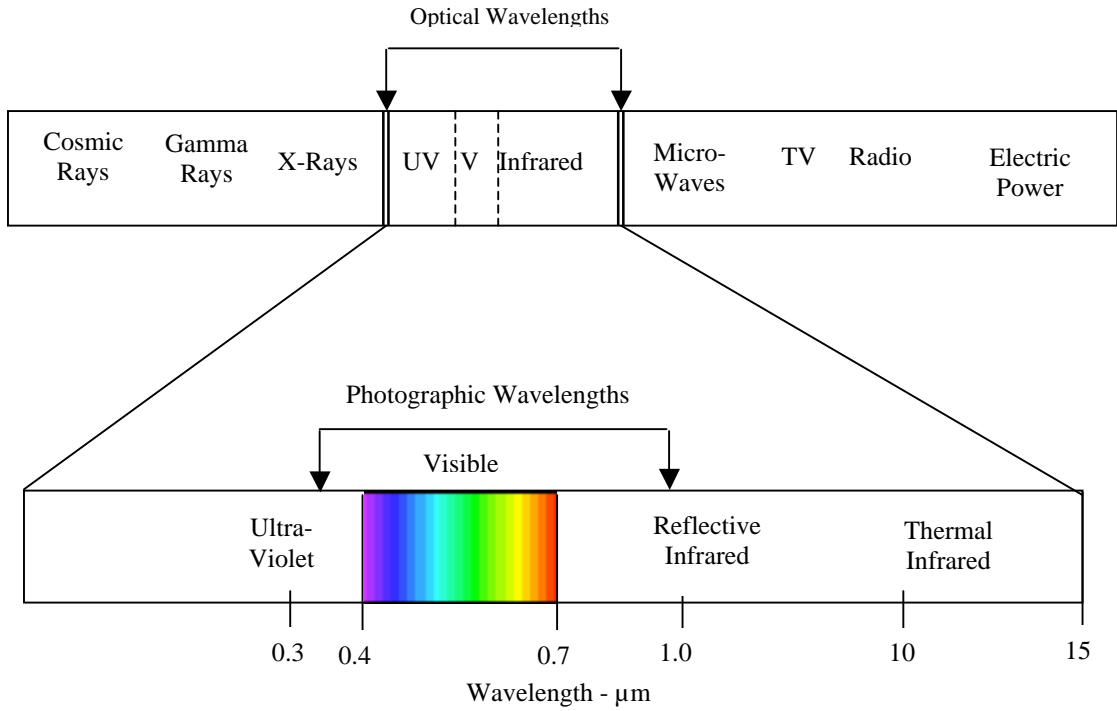


Figure 2.1 Electromagnetic Spectrum [6]

represents the spectral dimension of the data. This dimension can be thought of as a stack of images, each capturing a very narrow piece of the scene's EM reflectance spectra. Figures 2.2 and 2.3 illustrate this idea. According to these definitions, each cell within the data cube can now be indexed, first by its two spatial dimension values, and then by its spectral dimension. Each cell can now be referenced by a coordinate triple, (i, j, k) , where i and j represent the spatial coordinates of a pixel within the image and the value within the cell is the pixel's reflectance response in the k^{th} spectral band.

Visualizing the data as a cube is useful for understanding where the data comes from and how it is organized spatially, but maintaining the data in this format is not useful for analysis. The most efficient structure for doing the various manipulations is a two-dimensional matrix. Transforming the data to this format is straightforward and will be illustrated by example. Let C be the data from a hyperspectral image 100 pixels wide by 150 pixels long and containing 200 contiguous spectral bands resulting

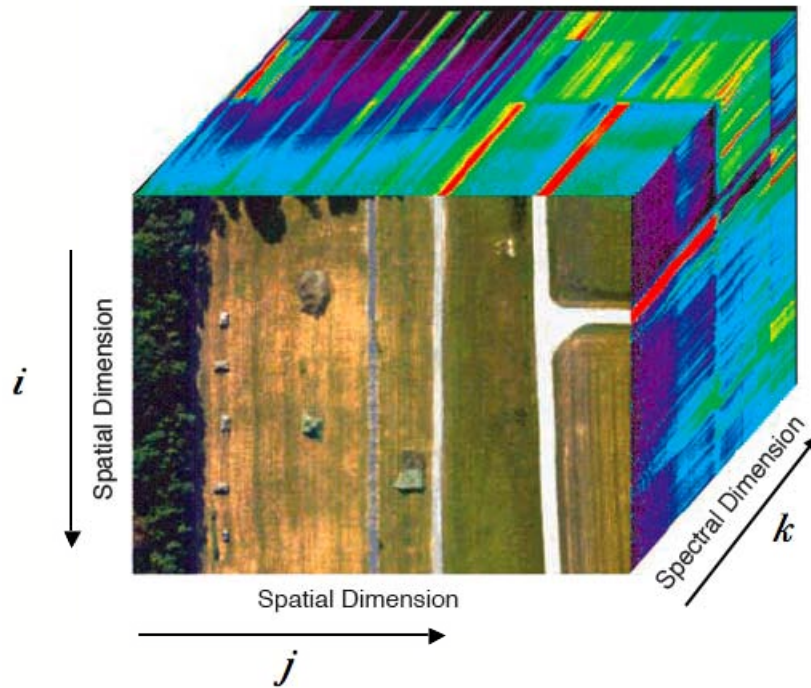


Figure 2.2 Dimensions of Hyperspectral Data Cube [11]

in 15000 pixels each containing 200 elements of spectral data. Each of these 15000 200 by 1 pixel vectors can then be made a column in a new matrix. This new matrix is 200 rows by 15000 columns and each column contains the spectral data of a single pixel from the original image. The transformation process is visualized in Figure 2.4

2.2 Approaches to HSI Analysis

There are currently two major approaches to finding objects of interest. One approach taken by some is to develop or obtain ground truth signatures for particular objects or materials of interest then compare this true signature to the signature of each pixel within an image. Pixels whose signatures match the ground truth signature to within some statistical threshold are nominated as potential target locations. While this technique seems logical, there are several situations where this methodology breaks down. The first and most frequent problem encountered when employing this technique in an autonomous way is the lack of ground truth signature

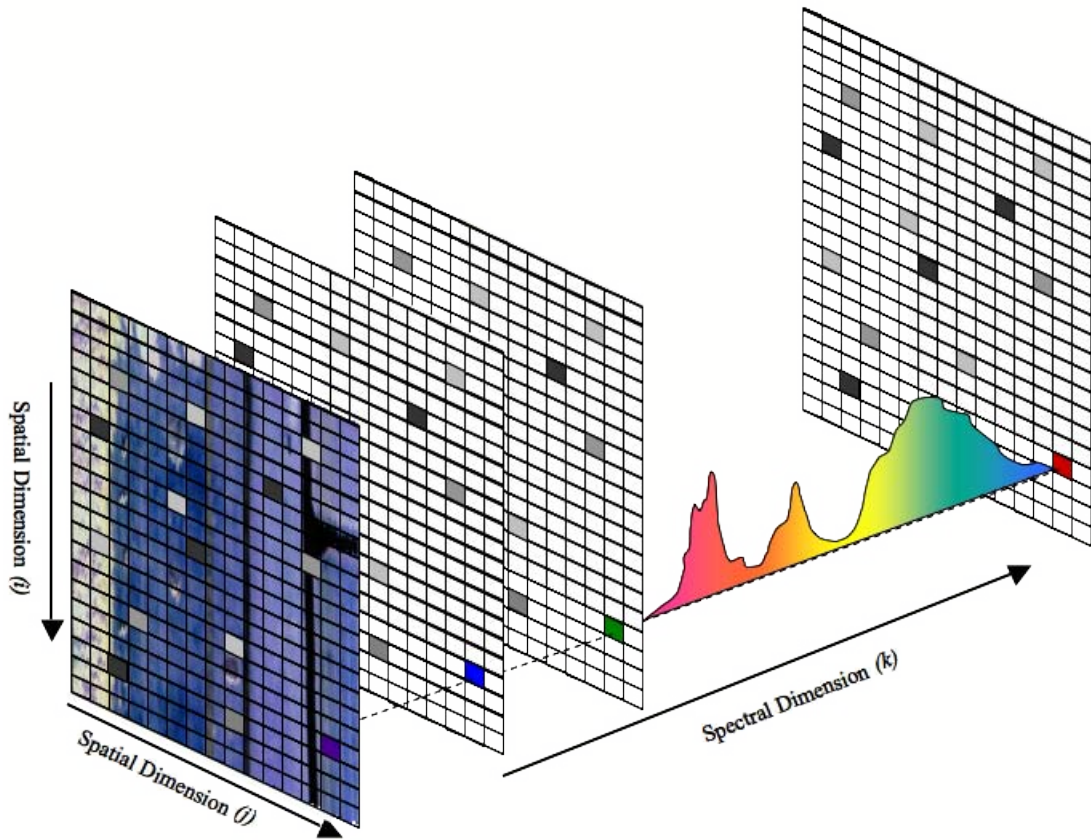
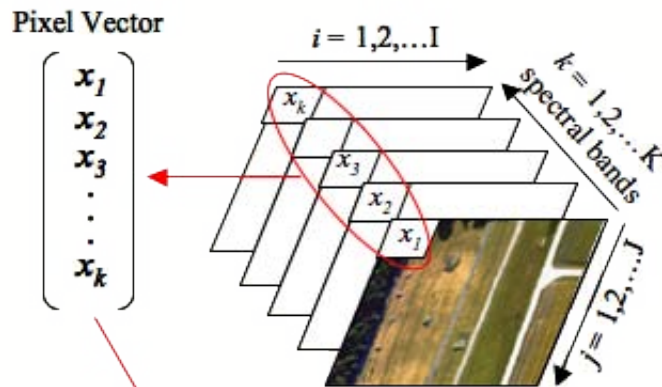


Figure 2.3 Spectral Layers of Hyperspectral Data Cube [7]

data for the objects within a particular scene that may be of interest. Secondly, high spectral resolution sensors are significantly impacted by environmental effects at the time the image of interest is created. Time of year, time of day, relative humidity, and imaging angle are just a few of the factors that effect how much and what type of reflectance data reach the sensor during a given image capture sequence. Since these environmental factors vary through time, reflectances from the materials of a particular area can vary greatly from one image to the next.

These obstacles make the development of a robust autonomous signature matching algorithm difficult. The other family of detection methodologies is referred to as Anomaly Detection. This approach can be subdivided further into two types; distribution based anomaly detectors (local or global) that assume a distribution

Data cube:



Matrix form:

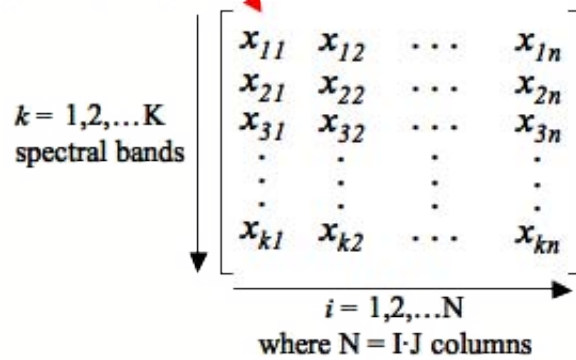


Figure 2.4 Transforming a HSI data cube into a data matrix [7]

(typically normal) of the pixel vectors, and global linear mixture model detectors [5].

Local anomaly detectors consider each pixel individually comparing its reflectance values to the mean and covariance values of its neighboring pixels. Multivariate statistical tests are used to declare the pixel an outlier with respect to its neighborhood. The definition of the neighborhood is unique to each instance of this type of detector, but is usually 8~50 of the pixel's nearest neighbors. These types of models are usually referred to as local normal models since they assume Gaussian distributions of the pixel vectors [5].

The other type of distribution based detectors are referred to as global normal mixture models. These models assume an image contains some number C of material types, or endmembers. These endmembers each have a specific spectral signature within the image. Each pixel is then assumed to be composed of a random vector having one of several multivariate Gaussian (normal) distributions. The probability density function (pdf) of the scene is a Gaussian mixture distribution:

$$g(\underline{x}) = \sum_{c=1}^C \pi_c N(\underline{x}|\underline{u}_c, \Sigma_c); \pi_c \geq 0; \sum_{c=1}^C \pi_c = 1 \quad (2.1)$$

where π_c is the probability of belonging to endmember c [15]. This methodology is effective, but Smetek [13] notes that no guidance is available for determining the number of endmembers $|C|$ in a particular image.

The remaining methodology is an approach known as global linear mixture model anomaly detection. Like global normal mixture models, this approach assumes the image contains some deterministic number of endmembers, C . However, the global linear mixture model assumes each pixel's total reflectance is linear combination of the reflectances' of each of the endmembers present in the image. The coefficients of each of the C terms in the linear combination that makes up a particular pixel's total reflectance can be interpreted as the fractional abundance of the endmembers within that pixel [15].

This global linear mixture approach is used by Johnson [5] to develop Auto-GAD. Since the subject of this research is not to develop a new approach, but rather to optimize the application of Johnson's algorithm, more rigorous development of these methodologies are omitted.

2.3 Overview of AutoGAD

The AutoGAD algorithm developed by Johnson [5], is a multi-step approach to assisting imagery analysts by identifying potential targets within raw hyperspectral image data. There are several user-adjustable parameters built in to the algorithm and these will be central to the Robust Parameter Design problem to be developed later. However, in order to make these parameters meaningful to the reader, an overview of AutoGAD is appropriate.

The reader should note that the following is entirely a paraphrase of Johnson's work and as such will only be referenced here [5], however, his references to other works are repeated where appropriate.

Recalling section 2.2, the initial step of any HSI analysis tool is to prepare the data for analysis by converting it from a 3-dimensional cube to a 2-dimensional matrix. Once this conversion is complete, the detection algorithm consists of four phases. These phases are depicted in the flow diagram in Figure 2.5.

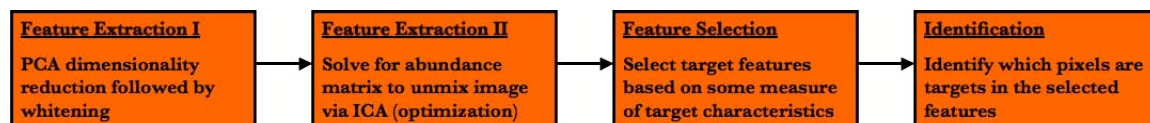


Figure 2.5 Process Flow for Target Detection [5]

The first step, Feature Extraction I, involves dimensionality reduction and whitening of the data. Dimensionality is typically reduced using Principal Components Analysis (PCA). PCA is a widely used analysis technique that projects data into a subspace whose dimensions maximize the variance of the data. The dimensions of this new subspace are ordered according the variance of the data captured by each dimension or principal component. Thus, the first principal component contains the most variance, the second principal component contains the second most variance and so on. Once the data is projected into this new, variance-ordered space,

it is whitened. Whitening of the data simply means that the data is centered and scaled so that it has mean 0 and unit variance.

Now that the data has been whitened in a projection space where variance is maximized, the amount of variance to be retained must be determined. This number of dimensions and subsequent amount of variance to be retained is determined by Johnson's Maximum Distance Secant Line (MDSL) method [5]. The proper dimensionality suggested by may be adjusted by the user to consistently keep more or less dimensions than the technique suggests as appropriate.

The second step, Feature Extraction II, utilizes a piece of software called FastICA to conduct Independent Component Analysis (ICA). Further projecting the data into independent components rather than the uncorrelated ones that result from PCA serves to comply with the assumption of the Linear Mixture Model (LMM) that the components are, in fact, independent. The LMM is one of several ways of characterizing imagery data where multiple types of objects, each with their own distinct spectral signatures, make up the spatial region of a scene. For instance, one particular image may contain grass, dirt, concrete, rocks, and vehicles. Each of these would have a distinct spectral signature and ideally each of their signatures would be represented by a dimension of the data after ICA is performed. If this occurs, then when each of the components is spatially plotted, one image shows only grass, another only concrete, another only the vehicles, and so on. Thus, the vehicles, presumably of interest to the analyst, have been isolated from the rest of the image.

Feature Selection, the third step, takes the data plotted on the components generated by FastICA and determines which components or features within the data have the potential to be targets. It does this by exploiting the assumption that targets are rare and small within the scene. If these properties hold for the targets within an image, the number of pixels that have high a percentage of a target's spectral signature will be small, while the number of pixels that contain a high percentage of non-target signatures will be significantly higher. By plotting the

frequency histogram of pixel scores for a particular dimension and distinguishing targets from background by finding the first score bin without any pixels, a portion of the pixels can be classified as background while the remaining are classified as potential targets. Placing these two values in ratio, a Potential Target Signal to Noise ratio is created. Thus, a noise floor for SNR can be set and applied to the by-component histogram plots. Any plot with an SNR below the noise floor is determined to be representative of a non-target spectral signature. Plots with SNR's above the noise floor represent potential target signatures.

The fourth and final step, Identification, reexamines the plots with SNR's above the noise floor and the high scoring pixels within those plots are considered as targets. Pixels whose scores are very close to zero bin cut line have high potential for misclassification. To mitigate this misclassification potential, Johnson employed an amplification technique called Iterative Adaptive Noise Filtering. This process iteratively multiplies any score above the cut line by a number greater than 1 while scores below the cut line are multiplied by a number smaller than one. After many replications, all pixels scores are well separated and visual representations of these new scores are near black and white when plotted on a gray scale. This gives potential targets high contrast from the background improving the designation capability of AutoGAD.

2.4 Robust Parameter Design

In almost all processes, whether manufacturing, transportation, or anomaly detection, process managers desire some optimized process output that varies as little as possible between products, shipments, or images. Robust Parameter Design (RPD) is a method for reducing process or product variation developed by Genichi Taguchi and introduced in the United States in the early 1980's. While Taguchi's philosophy was met with great interest and was implemented by several large corporations, his methodology became a source of contention within the community of

statisticians and quality engineers. The questionable analysis techniques Taguchi suggested were unacceptable to some and as a result, the response surface approach has been suggested as a collection of tools that allow Taguchi's concepts to be applied using a more statistically sound and efficient approach to analysis [10]. Both approaches will be used during this research, and each will be developed in more detail in the following sections.

In general, RPD seeks to simultaneously produce some target response from the system while minimizing the variance of that response. These, at times competing, objectives are achieved by adjusting settings of controllable factors to both manipulate the value of the response and dampen the effect of uncontrollable, or noise factors within the system. RPD takes advantage of this two class variable structure and correlation between the classes to locate optimized settings. The two classes of variables are control variables and noise variables. Control variables are those variables in a process that remain unchanged once selected, therefore adding no variation. Noise variables are factors that are difficult to control during normal process operation and may change without warning [2].

A critical piece of the variable structure is correlation between at least some of the control and noise variables. If all the noise variables are completely independent of the control variables, then their variance will remain constant across the entire range of the control variables. If however, some interaction between control and noise variables exists, then some point or set of points in the control space produces minimum variance across the range of noise variables. This point is well illustrated in Figure 2.6, where the change in response across the range of noise from low to high is minimized when the control is set to high.

Given this interaction between control and noise factors, controls can be classified into at least one of three groups, otherwise they are insignificant and removed from consideration. The first classification of control factors is determined by their influence on the response. If control factors influence a change in response as they

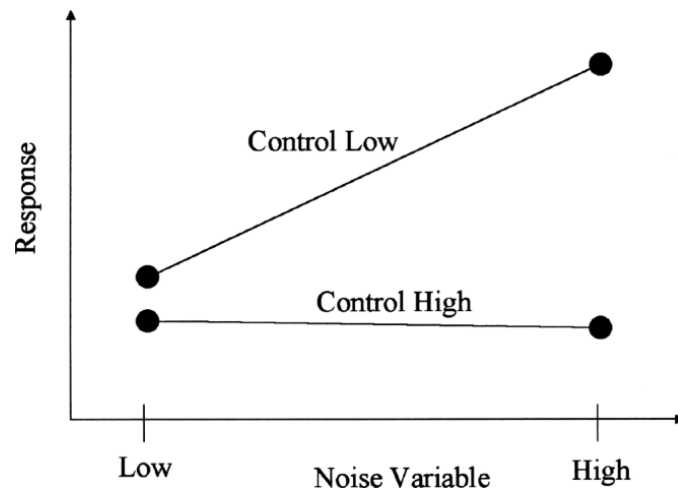


Figure 2.6 Control-by-Noise Interaction Plot [2]

move across their range, then they are said to be location factors. Control factors that interact with noise variables are called dispersion factors. Finally, control factors that are location factors (affect mean process response), but are not dispersion factors (do not interact with noise factors) are called adjustment factors [2].

2.4.1 Crossed Array Designs — The Taguchi Approach

The use of orthogonal arrays in experimental design is central to the methodology suggested by Taguchi. Specifically, an orthogonal array for the control variables called the inner array is crossed with an orthogonal array for the noise variables called the outer array [10]. An example experiment of this type is illustrated in Figure 2.7. In this example a 2^2 inner array is crossed with a 2^2 outer array. The resultant 16-run experiment consists of 4 repetitions of the outer array; one at each of the inner array design points. Designs of this type are not necessarily full factorial in nature. Reduced resolution designs can, and often are, used in both the inner and outer arrays. However, the outer array design, whatever its size, must be completed at each of the inner array design points.

Taguchi suggested that the data collected from each outer array could be rolled into a single summary statistic providing information about the mean and variance.

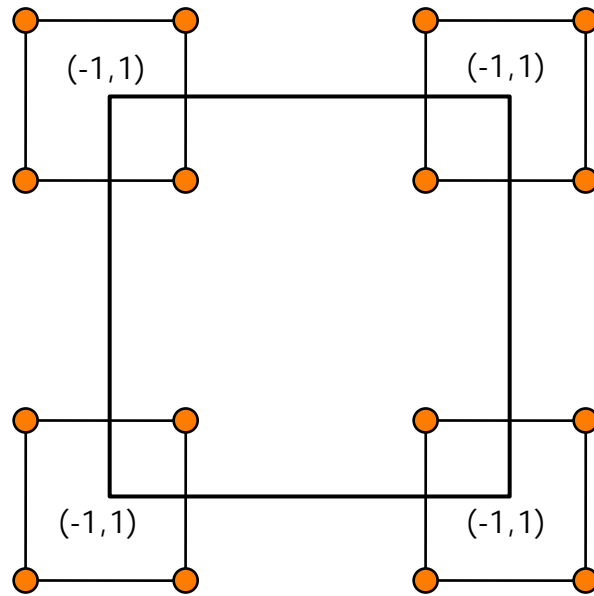


Figure 2.7 $2^2 \times 2^2$ crossed array [10]

For instance, in Figure 2.7 each dot represents an observation, so each block of 4 dots would have its own summary statistic which Taguchi calls a signal-to-noise ratio (SNR) [10].

SNR is a broad term defined in myriad ways by authors across a wide variety of technical disciplines. However, Taguchi suggests 4 primary definitions for SNR. He categorizes them by the optimality conditions defined for the response of interest:

Smaller is better – Optimality is a minimized response

Larger is better – Optimality is a maximized response

Target is best – Optimality is a response equal to some target value

Before beginning a discussion of the types of problems and the SNR's Taguchi proposed to help solve them, it is important to determine how potential robust solutions will be compared to each other. It is intuitive to simply compute the difference between the response of the current solution and the optimal response and use these differences to rank potential solutions. However, in cases where multiple potential solutions may exist, some smaller and some larger than the optimal one, simply

computing the difference by subtracting the optimal solution from the potential responses may lead negative distance to optimality. Thus, a squared distance function, known as a quadratic loss function is used to evaluate the quality of potential solutions. The generalized quadratic loss function expressed in terms of the expected value of the response is given in Equation 2.2 where L is the square of the distance between the expected value of the response and the target value.

$$L = E_z(y - t)^2 \quad (2.2)$$

2.4.1.1 Smaller is Better

In the case where a smaller response is better the target value of the response, t is assumed to be zero. Thus, Eq 2.2 reduces to $L = E_z(y)^2$ and the SNR for this case is given below in Equation 2.3.

$$\text{SNR}_s = -10 \log \sum_{i=1}^n \frac{y_i^2}{n} \quad (2.3)$$

This formulation for SNR results from a need to find control variable values that minimize the expected square error $E_z(y)^2$, where E_z is the expectation of response across the noise variable distribution. Thus, the SNR is computed by summing the square errors observed in each outer array and dividing that sum by the number of observations or points in the outer array, n . An SNR is then computed at each design point in the inner array and maximized, since the $-10 \log$ transformation is used [10].

2.4.1.2 *Larger is Better*

In problems where maximization of the response is the goal, y in Eq 2.2 is replaced by $1/y$. This allows L to approach zero as the value of y increases and, again the expected square error reduces to $E_z(1/y)^2$. The SNR for problems where larger response is better is given in Equation 2.4. Just as before, control variable settings that maximize the SNR are best [10].

$$\text{SNR}_l = -10 \log \sum_{i=1}^n \frac{1/y_i^2}{n} \quad (2.4)$$

2.4.1.3 *Target is Best*

In this instance, the control variables are adjusted to bring the response to some target level. This can be thought of as the Goldilocks case: ‘Not too hot, not too cold, but just right’ [14]. Taguchi proposed two different SNRs for this case with the nature of the system determining which is proper.

The first system to be considered is one where the mean and variance of the response can be altered independently. Because of this independence, a two step analysis is employed to locate on target and robust control factors. Taguchi suggests as a first step in the analysis to adjust the controls that affect mean response, called tuning factors, such that $E_z(y) = t$. Adjusting these tuning factors has no effect on variance, so the SNR remains unchanged during this step. The second step is adjust the remaining factors such that the SNR is maximized. If the first step is successful, the tuning factors are set such that $y = t$ and the square error loss function, $E_z(y - t)^2$, reduces to $\text{Var}(y)$, thus the SNR is given by Equation 2.5, where s^2 is the sample variance of the responses in each outer array. Once again, the $-10 \log$ transformation is used so that minimizing s^2 maximizes SNR [10].

$$\text{SNR}_{T_1} = -10 \log s^2 \quad (2.5)$$

The second type of target-is-best system is one where response variance is related to response mean. This relationship is hopefully linear, but nonetheless prevents the independent adjustment of tuning factors to bring the mean on target. If the mean variance relationship is linear, a coefficient of variation is easily computed by σ_y/μ_y . The two step analysis can again be accomplished by adjusting tuning factors to bring the mean on target while leaving the variation coefficient unchanged. The SNR is now computed using the Equation 2.6, where \bar{y}^2/s^2 is the squared inverse of the sample coefficient of variation [10].

$$\text{SNR}_{T_2} = 10 \log \left(\frac{\bar{y}^2}{s^2} \right) \quad (2.6)$$

For a variety of reasons, Taguchi's suggested SNRs described above are criticized in later literature. First, with the exception of the SNR in Eq 2.6, they contain some transformation of the units of the response of interest. Despite these questionable formulations, the critique most often encountered in the literature is the confounding of mean and variance into a single measure. Many authors propose the development of separate models for mean and variance[1, 9, 16]. The motivation being to gain better understanding of the process itself and thus be able to make better decisions about where tradeoffs between mean and variance of the response can be made. A final problem with the confounding of mean and variance is that multiple control factor setting combinations may produce identical SNRs, thus the interpretation of a particular SNR is unclear with regard to the specific control settings that produced it [10].

2.4.2 Combined Array Designs – Response Surface Methods

One alternative the previously mentioned authors propose is the use of response surface methodology (RSM), which has become widespread in solving RPD problems. RSM gives the analyst the ability to develop a designed experiment so the relationship between controls, noise, and response can be modeled. Typically, a second order response surface model is developed. This provides linear effects from controls and noise, as well as quadratic effects from controls, and interaction effects between controls and noise. The general form of the model is given by Eq. 2.7.

$$y(\mathbf{x}, \mathbf{z}) = \beta_0 + \mathbf{x}'\beta + \mathbf{x}'\mathbf{B}\mathbf{x} + \mathbf{z}'\gamma + \mathbf{x}'\Delta\mathbf{z} + \epsilon \quad (2.7)$$

In Eq. 2.7, β and γ are vectors of coefficients for control and noise main effects, \mathbf{B} is a matrix of coefficients of the quadratic control effects, Δ is a matrix of control-by-noise interaction coefficients, and pure error is given by $\epsilon_i \sim N(0, \sigma^2)$. The variance of Eq. 2.7 is now easily obtained by treating the noise \mathbf{z} as a random variable [9] and applying the variance operator to Eq 2.7. The variance equation is

$$\text{Var}_z[y(\mathbf{x}, \mathbf{z})] = (\gamma' + \mathbf{x}'\Delta)\text{Var}_z(\mathbf{z})(\gamma' + \mathbf{x}'\Delta)' + \sigma^2, \quad (2.8)$$

where $\text{Var}_z(\mathbf{z})$ is the variance-covariance matrix of \mathbf{z} . Expanding this equation for multiple noise factors (z_i, z_j) , yields the following result,

$$\begin{aligned} \text{Var}_z[y(\mathbf{x}, z_i, z_j)] &= (\gamma_i + \mathbf{x}\Delta_i)^2\text{Var}(z_i) + (\gamma_j + \mathbf{x}\Delta_j)^2\text{Var}(z_j) \\ &\quad + 2(\gamma_i + \mathbf{x}\Delta_i)(\gamma_j + \mathbf{x}\Delta_j)\text{Cov}(z_i, z_j) + \sigma^2. \end{aligned} \quad (2.9)$$

2.4.2.1 Types of Noise

Eq. 2.9 above maintains the treatment of \mathbf{z} as a random variable. However, there are a couple assumptions made about noise when it is known to be a continuous variable

that help to reduce the complexity of the variance computation suggested by Eq. 2.9. The first and broadest assumption is that certain attributes of the distribution of \mathbf{z} are known. Specifically, the variance-covariance matrix of \mathbf{z} is assumed to be known. Additionally, it is often assumed that the covariance between noise variables is zero. Taking these assumptions into account the new variance model is given by Eq. 2.10. [2]

$$\text{Var}_z[y(\mathbf{x}, z_i, z_j)] = (\gamma_i + \mathbf{x}\Delta_i)^2\text{Var}(z_i) + (\gamma_j + \mathbf{x}\Delta_j)^2\text{Var}(z_j) + \sigma^2 \quad (2.10)$$

If however, the noise variables are categoric instead of continuous, the assumptions made above can be avoided. In general, making less assumptions provides a more accurate analysis. Generating a variance model with categorical noise variables is not difficult, especially since any number of categorical variables with any number of categories can always be reduced to a single categorical variable with r_z categories, where r_i is the number of categories of the i^{th} of n noise variables, and

$$r_z = \prod_{i=1}^n r_i - 1 \quad (2.11)$$

where 1 is subtracted to account for a baseline category.

Since all noise is now captured within a single categorical variable with multiple categories, the probability of occurrence for each category can be computed. In most cases, the probabilities of each categorical noise factor are known *a priori*, and if they aren't, a uniform distribution is a reasonable assumption since it provides equal opportunity for each type of noise and thus a uniformly robust solution should result. These probabilities, $P(\text{Category } i) = p_i$, have a multinomial distribution, thus the variance-covariance matrix is fully characterized as long as the p_i 's are known.

Using dummy variables:

$$z_i = \begin{cases} 1, & \text{Category} = i \\ 0, & \text{otherwise} \end{cases} \quad i = 1, 2, \dots, r_z, \quad (2.12)$$

the variance-covariance matrix is given by

$$\mathbf{Var}_{\mathbf{z}}(\mathbf{z}) = \begin{bmatrix} p_1(1-p_1) & -p_1p_2 & \cdots & -p_1p_{r_z} \\ -p_2p_1 & p_2(1-p_2) & \cdots & -p_2p_{r_z} \\ \vdots & \vdots & \ddots & \vdots \\ -p_{r_z}p_1 & -p_{r_z}p_2 & \cdots & p_{r_z}(1-p_{r_z}) \end{bmatrix} \quad (2.13)$$

The test range for continuous noise variables is generally selected such that the center of the range is the estimated mean and the high and low levels are ± 1 or ± 2 standard deviations from the mean. These values are set prior to conducting the experiment, thus failing to account for observed process variation and inducing error in the analysis. Additionally, if more than one noise variable exists, any covariance between them is assumed to be zero, inducing even more error in the model. These error inducing assumptions that must be made to conduct continuous noise analysis are, in the categorical noise case, traded for a single, much less risky assumption that must only be made in rare cases where the p_i 's for each category cannot be computed. Furthermore, when the assumption of equal probability must be made, it leads to conservative analysis in that it provides a solution that is robust across all noise categories.

3. Methodology

The previous chapter gave a brief overview of the AutoGAD algorithm and two approaches to RPD. This chapter will begin with a description of the input variables from AutoGAD that will serve as the control and noise space and give a short description of the Measures of Performance used to quantify response. Then a description of how, using the two approaches, RPDs are developed for AutoGAD.

3.1 *Inputs*

As described in Ch. 2, the AutoGAD algorithm is rather complex and highly customizable. This end-user flexibility creates myriad sources of response adjustment as well as a large control-noise interaction space. Table 3.1 lists both the control and noise input parameters.

The first control factor, Dimension Adjust, allows the user to keep more or less dimensions for analysis than suggested by the MDSL technique employed during the FE I phase. The second control, Max Score Threshold, is the cut line for raw IC pixel scores above which a pixel becomes a candidate to be a potential target. Bin Width SNR determines the bin width used during the zero-detection histogram method for determining which IC maps contain targets. PT SNR Threshold is similar to Max Score Threshold, but is on the SNR scale and is used only on IC's nominated as containing targets. It is used to decide which pixels have a high enough SNR to actually be targets. Likewise, Bin Width Identify, determines bin width during the zero-detection histogram procedure during the Identification phase. Smooth Iterations High and Low determine the number of iterations of the IAN filtering process for low and high SNR objects respectively. Low SNR is the decision point between low and high SNR. The ninth control, Window Size, determines the window size used for the IAN Filtering subroutine. Both the tenth and eleventh controls are binary, on/off, controls. Threshold both sides makes a decision about considering

| Input Parameter | Type | Classification | Test Range |
|------------------------|-------------|-----------------------|--------------------------|
| Dimension Adjust | Discrete | Control | [-2, 2] |
| Max Score Threshold | Continuous | Control | [6, 14] |
| Bin Width SNR | Continuous | Control | [0.01, 0.1] |
| PT SNR Threshold | Continuous | Control | [1, 6] |
| Bin Width Indentify | Continuous | Control | [0.01, 0.1] |
| Smooth Iterations High | Discrete | Control | [50, 150] |
| Smooth Iterations Low | Discrete | Control | [5, 45] |
| Low SNR | Continuous | Control | [4, 14] |
| Window Size | Discrete | Control | [1, 9] |
| Threshold Both Sides | Categorical | Control | [0, 1] |
| Clean Signal | Categorical | Control | [0, 1] |
| Image | Categorical | Noise | [1, 2, 3, 4, 5, 6, 7, 8] |

Table 3.1 Control and Noise Factors and their ranges

pixels with large negative IC scores as potential targets. On (1), considers any pixel with large magnitude score, while off (0) only considers pixels in the direction of the largest magnitude score. Finally, Clean Signal turns the IAN Filtering subroutine on and off.

For this analysis, the single noise factor considered is the image data presented to the algorithm. While other noise variables exist within this problem instance, they are for the most part controllable relative to the presumably infinite space of possible image data that may be encountered during a real world implementation of this algorithm. Additionally, during this analysis the noise space was limited to 8 images taken from single set of image data. Similarities in the image data may lead to over-specification of the controls from a global perspective, but the data set is sufficient to illustrate the technique.

3.2 *Outputs*

While the single product of the AutoGAD algorithm is a scene map identifying potential target locations, this product is not directly quantifiable. Therefore, 4

| Output Parameter | Units | Range |
|-------------------------|--------------|---------------|
| Time | Seconds | $[0, \infty]$ |
| True Positive Fraction | N/A | $[0, 1]$ |
| False Positive Fraction | N/A | $[0, 1]$ |
| Target Fraction Percent | Percent (%) | $[0, 100]$ |

Table 3.2 Measures of Performance and their ranges

performance parameters related to target prediction map were collected and used to quantify algorithm performance.

The first and most intuitive parameter is time, measured in seconds from the instantiation to completion of the algorithm. The second parameter is True Positive Fraction (TPF) and is based on a comparison of AutoGAD predictions to ground truth. TPF is computed by dividing the number of pixels AutoGAD correctly calls targets by the number of target pixels in the ground truth image. False Positive Fraction (FPF) is the third measure of performance and is computed by dividing the number of non-target pixels erroneously declared targets by the algorithm by the number of non-target pixels in the ground truth data. The final measure of algorithm performance is Target Fraction Percent (TFP). TFP is simply the ratio of correct target declarations (the number of true positives) to all declared pixels (true positives plus false positives). Table 3.2 shows each measure of algorithm performance and its corresponding response range.

3.3 Crossed Array Method

Using the controls, noise, and responses described above a Taguchi-style crossed array RPD was developed. The details for development were adapted from the *Response Surface Methodology* text by Myers and Montgomery [10].

The design begins with the inner array, and Tbl. 3.1 suggests 11 control variables to be accounted for in the inner array. A two level, full factorial experiment on 11 variables would include $2^{11} = 2048$ runs per replication. Additionally, in order to

estimate quadratic curvature of the response across the variable range, a three level design is desirable but increases the number of runs required to $3^9 \times 2^2 = 78,732$. Thus, some fractional factorial experiment is necessary in order to make the experiment size practical. One such experiment type incorporating both three level structure and fractional designs are Central Composite Designs (CCD). CCDs are widely used to fit second-order models because of their high efficiency compared to other quadratic model generation techniques [8].

The development of a CCD inner array is complicated by the categorical nature of two of the eleven control variables, as shown in Table 3.1. These two controls must be tested externally to the CCD, thus nine variables remain. In order to avoid aliasing of main effects or two-factor interactions with either each other or themselves, a resolution V CCD must be selected. The smallest design available for nine factor problems maintaining the proper resolution contains 64 runs. This design is drastically smaller than the full factorial design leaving room for center points to be added as well. Six center points were added for a total of 70 runs within the CCD. These center points combined with the face points generated by setting the CCD alpha to one ensure sufficient variation of interacting control settings at any one control's observed levels. In order to properly account for the two level factors, the CCD must be replicated at each of the four level combinations of the categorical factors (Threshold Both Sides and Clean Signal). Replicating the 70 original CCD runs four times yields 280 runs total in the inner array.

In a standard Taguchi-style experiment, the outer array is simply a factorial (full or fractional) design based on the noise variables under consideration. In this case, only one variable (Noise) is being considered. This variable has 8 discrete levels which are representative of the potentially infinite real world image library that AutoGAD may encounter. Since there is only one factor at 8 levels, the outer array becomes an 8^1 full factorial design. This design consists of 8 runs, one at each image level.

When the the inner and outer arrays are crossed the resultant experiment is 8 replications of the inner array, one at each noise level. The total number of runs in the crossed array is $280 \times 8 = 2240$.

Development of the designed experiment was conducted using DesignExpert[®] Version 7.1.5 (DX7). This software package contains many useful tools for designing and analyzing experiments of this type. The desired experiment type; resolution; number of replications, blocks and center points; and control factor and response labels are input, and one of several outputs is a fillable spreadsheet for use during the data collection portion of the experiment. The sheet generated for the crossed array is provided in a blockwise manner in Figures A.1 through A.8 in the Appendix A.

Now that control and noise levels have been developed for each of the 2240 runs, a means must be devised to pass them to AutoGAD. For this purpose slight modifications were made to the AutoGAD function itself in the way that it reports the responses of interest. Additionally, a master function was built to iteratively load each run's control and noise levels and pass them to AutoGAD for execution. This master function then recorded the response values reported by AutoGAD and loaded up the next runs values until each run combination was completed and it's responses recorded. A copy of the MATLAB[®] code for AutoGAD and the master function are included in App. C.

Upon completion of the experiment, the collected response data along with it's corresponding control and noise parameter levels were exported to Microsoft Excel[®] for analysis. While the remainder of the analysis is straightforward, it nonetheless requires several steps detailed below.

The first step is to compute each response's mean at each design point in the inner array (IA). Recall the entire experiment is composed of 8 identical blocks which vary only in the noise factor. Therefore, the inner array, consisting of 280 design points was repeated at each level of the noise variable, and a mean response at each

of these points can be computed by summing the response values observed at each of the noise levels and dividing by 8. This computation is expressed mathematically in Eq. 3.1 where y_{ij} is the observed response at design point i and noise level j .

$$\bar{y} = \sum_{j=1}^n \frac{y_{ij}}{n} \quad (3.1)$$

The mean response given by Eq. 3.1 is computed for each of the four responses at each of the 280 IA design points. Additionally, SNR's are computed for each response at each point on the IA. The SNR equation used for this analysis is given in Eq. 2.6. This particular SNR was chosen for two reasons. First, using a SNR with a target-is-best approach allows it to be applied to all the responses of interest, even though two of the response have target values of zero while the other two responses have target values of one. Second, as noted by Myers and Montgomery [10], this is the only one of Taguchi's suggested SNR formulations that is truly unitless.

The second portion of the analysis is a technique called marginal means modeling. This analysis computes the marginal mean of the \bar{y} 's for each level of a particular control variable. This idea is illustrated in Tbl. 3.3 where the IA points are sorted based on *Dim Adj*. Then all mean time responses for IA points where *Dim Adj* = -2 are averaged to find the marginal mean response when *Dim Adj* = -2. Marginal means are computed for each level of *Dim Adj* observed in the IA. This process is repeated for each response at each level of each control variable in the IA.

Once marginal means for \bar{y} 's and SNR's are computed at each level of each control variable, they are then compared either within the table or by plotting the values across each control space in a pick-the-winner analysis [10]. The idea here is to pick the level of each control that has the desired effect on either the mean response, SNR, or both. Example plots generated using the data in Tbl. 3.3 are shown in Fig. 3.1.

| | Control Variables | | | IA point response | | Marginal Means | |
|---------------|-------------------|-----|--------------|-------------------|---------------------|----------------|---------------------|
| | Dim Adj | ... | Clean Signal | Mean Time | SNR _{Time} | Time | SNR _{Time} |
| Levels | -2 | | 0 | 29.0887 | -3.0449 | | |
| | ⋮ | ... | ⋮ | ⋮ | ⋮ | | |
| | -2 | | 1 | 35.6386 | -4.7822 | 32.3637 | -3.9136 |
| | 0 | | 0 | 18.7123 | -5.4859 | | |
| | ⋮ | ... | ⋮ | ⋮ | ⋮ | | |
| | 0 | | 1 | 25.1975 | -4.4763 | 21.9549 | -4.9811 |
| 2 | | 1 | 17.8785 | -5.6364 | | | |
| ⋮ | ... | ⋮ | ⋮ | ⋮ | | | |
| 2 | | 0 | 17.4854 | -7.0809 | 17.6820 | -6.3587 | |

Table 3.3 Sample IA point means and their subsequent Marginal Means

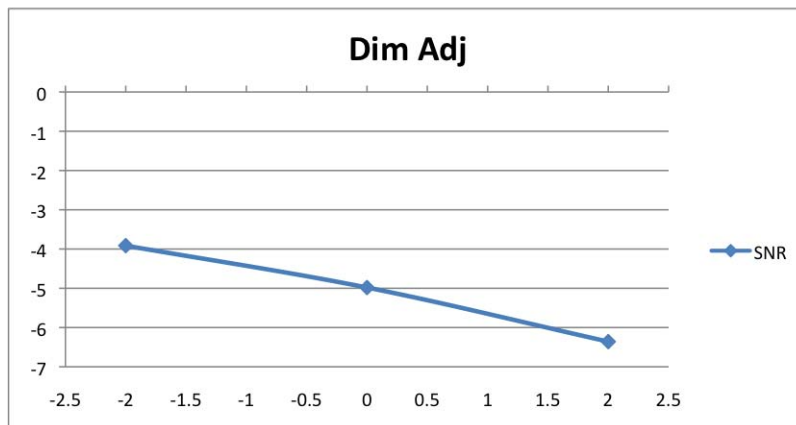
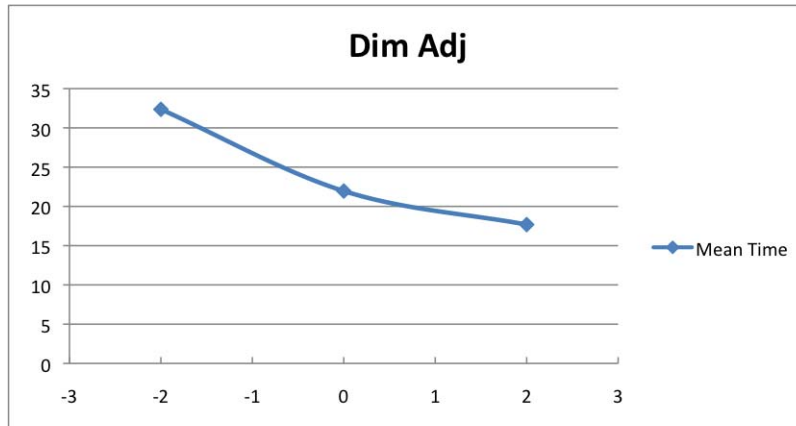


Figure 3.1 Sample Mean and SNR Plots

All that remains is to select control variables that, in our example, minimize time while maximizing SNR. Using the plots in Fig. 3.1, the correct setting is to let $Dim Adj = 0$. This setting provides a trade off between the two competing objectives. While giving up ~ 3 seconds from the optimal time, the SNR is improved ~ 1.5 . Maximizing SNR only improves it's solution by about 1, but has an expected time cost more than 10 seconds higher. Plotting the marginal means helps the analyst visualize the impacts of one setting versus another and make decisions about which control variable settings have the greatest impact on the response.

3.4 Combined Array Method

Recall from Subsection 2.4.2 that the response surface approach has become a widely adopted technique for locating robust parameter settings. Although RSM is widely used for RPD problems, the literature is sparse with regard to problems where the noise parameter(s) are categoric in nature. Brenneman and Myers [2] published a technique in 2003 that will be adapted for use in the AutoGAD problem where the noise variable is defined to be the image of interest. Images are discrete points in the noise space and therefore are easily translated in a single categorical variable.

Recall that eight images are being used, thus each can be thought of as a category of a single noise variable, image. In the real world implementation of the algorithm, the probability of any one image from the infinite population of images that may exist being presented to the algorithm is essentially zero. However, within this experiment, the population is limited to 8 and each image has an equal chance of being presented to the algorithm at any time.

Just as with the Crossed Array approach, the first step is to develop a test design. Development of this design was also conducted in DX7. Initially, a full factorial design was generated, consisting of ~ 16000 runs. These runs became the

| Input Parameter | Classification | Designator |
|------------------------|-----------------------|-------------------|
| Dimension Adjust | Control | A |
| Max Score Threshold | Control | B |
| Bin Width SNR | Control | C |
| PT SNR Threshold | Control | D |
| Bin Width Identify | Control | E |
| Smooth Iterations High | Control | F |
| Smooth Iterations Low | Control | G |
| Low SNR | Control | H |
| Window Size | Control | J |
| Threshold Both Sides | Control | K |
| Clean Signal | Control | L |
| Image | Noise | M |

Table 3.4 Control and Noise Factor Designators

solution space for DX7's D-Optimal Design algorithm. This algorithm first selects a minimum number of runs needed to approximate a user-specified model complexity. As described earlier, a 2-factor interaction model was specified. The algorithm selects the appropriate number of runs from the solution space and then by substitution, seeks to minimize the determinant of the coded factor matrix generated by the currently selected runs. An initial design of 174 runs was suggested by the software, however in order to better estimate quadratic effects, the design was augmented with 32 center-point runs for a total of 206 runs.

The first phase of analysis for the RSM approach is develop a response model using standard Analysis of Variance (ANOVA) techniques. In this case, ANOVA was accomplished using backward stepwise regression on a second order full factorial model with an $\alpha = 0.1$. Once again, the analysis process will be illustrated using the time response. For conciseness and clarity during analysis, each control and noise variable was assigned a letter designator for use in equations. Table 3.4 maps each variable to it's assigned letter.

Backward stepwise regression ANOVA was performed on the 206 time responses and their corresponding control variables. A Box-Cox test was conducted

on the initial model. The results of the Box-Cox suggested the data be transformed using an inverse square transformation. Eq. 3.2 gives the transformation where x is the raw response data and y is the transformed response.

$$y = \frac{1}{x^2} \tag{3.2}$$

After transforming the data, ANOVA was again used to generate a potential model. The resultant ANOVA table is shown in Table 3.5.

This analysis provided a better fitting model than the raw data ANOVA. The adjusted R^2 for this model was .78372. The equation for the transformed time model is given in Eq. 3.3.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | F Value | p-value Prob < F |
|----------------|----------------|--------------------|-------------|-------------|------------------|
| Model | 3.698975258 | 47 | 0.078701601 | 16.8048762 | < 0.0001 |
| A | 0.328445766 | 1 | 0.328445766 | 70.13186954 | < 0.0001 |
| B | 0.007349487 | 1 | 0.007349487 | 1.56931005 | 0.2122 |
| C | 0.001340472 | 1 | 0.001340472 | 0.286226338 | 0.5934 |
| D | 0.000242661 | 1 | 0.000242661 | 0.051814559 | 0.8202 |
| G | 0.000322735 | 1 | 0.000322735 | 0.068912395 | 0.7933 |
| H | 0.024956423 | 1 | 0.024956423 | 5.328857211 | 0.0223 |
| J | 5.36656E-05 | 1 | 5.36656E-05 | 0.011459036 | 0.9149 |
| K | 0.003996599 | 1 | 0.003996599 | 0.853379639 | 0.3570 |
| L | 0.116145608 | 1 | 0.116145608 | 24.80016322 | < 0.0001 |
| M | 2.362236712 | 7 | 0.337462387 | 72.05715708 | < 0.0001 |
| AG | 0.023995272 | 1 | 0.023995272 | 5.123626024 | 0.0250 |
| AM | 0.27178284 | 7 | 0.03882612 | 8.290404882 | < 0.0001 |
| BC | 0.044829954 | 1 | 0.044829954 | 9.57238256 | 0.0023 |
| BK | 0.014034979 | 1 | 0.014034979 | 2.996839694 | 0.0854 |
| BL | 0.073198798 | 1 | 0.073198798 | 15.62988193 | 0.0001 |
| CH | 0.011877226 | 1 | 0.011877226 | 2.53610232 | 0.1133 |
| CK | 0.01527487 | 1 | 0.01527487 | 3.261589385 | 0.0728 |
| DG | 0.026201225 | 1 | 0.026201225 | 5.59465546 | 0.0192 |
| DJ | 0.02874754 | 1 | 0.02874754 | 6.138361227 | 0.0143 |
| GK | 0.01841259 | 1 | 0.01841259 | 3.931575534 | 0.0491 |
| HM | 0.08947022 | 7 | 0.01278146 | 2.729180214 | 0.0106 |
| LM | 0.163885904 | 7 | 0.023412272 | 4.999140129 | < 0.0001 |
| G ² | 0.028935945 | 1 | 0.028935945 | 6.178590651 | 0.0140 |
| Residual | 0.739955049 | 158 | 0.00468326 | | |
| Lack of Fit | 0.715930196 | 151 | 0.00474126 | 1.381436854 | 0.3481 |
| Pure Error | 0.024024853 | 7 | 0.003432122 | | |
| Corr Total | 4.438930307 | 205 | | | |

Table 3.5 ANOVA for Time Response

$$\begin{aligned}
\mathbf{Time}^{-2} = & 0.095959953 - 0.049083154 \times A + 0.008216574 \times B \\
& + 0.004174205 \times C + 0.002180937 \times D + 0.000517243 \times G - 0.014463039 \times H \\
& + 0.000586791 \times J + 0.005116137 \times K - 0.024563611 \times L \\
& - 0.05387493 \times M[1] - 0.088532213 \times M[2] + 0.257884684 \times M[3] \\
& + 0.024603022 \times M[4] + 0.004100322 \times M[5] - 0.121417776 \times M[6] \\
& - 0.068272658 \times M[7] - 0.013658435 \times AG + 0.02726298 \times AM[1] \\
& + 0.043139191 \times AM[2] - 0.108957117 \times AM[3] + 0.026570975 \times AM[4] \\
& + 0.000394792 \times AM[5] + 0.033802758 \times AM[6] - 0.012433922 \times AM[7] \\
& - 0.018644844 \times BC - 0.010028052 \times BK + 0.023304115 \times BL \\
& - 0.010093548 \times CH - 0.010361026 \times CK + 0.014214098 \times DG \\
& + 0.01556147 \times DJ - 0.012026222 \times GK + 0.011086521 \times HM[1] \\
& + 0.017455334 \times HM[2] - 0.062479388 \times HM[3] + 0.017475338 \times HM[4] \\
& + 0.023545491 \times HM[5] - 0.01122123 \times HM[6] + 0.005579995 \times HM[7] \\
& - 0.007668634 \times LM[1] + 0.013823052 \times LM[2] - 0.008619933 \times LM[3] \\
& + 0.051810785 \times LM[4] - 0.031730238 \times LM[5] + 0.019003705 \times LM[6] \\
& + 0.01267563 \times LM[7] + 0.03056574 \times G^2, \tag{3.3}
\end{aligned}$$

Notice that each time the noise variable, M , occurs it is represented with seven different coefficients and variable representations ($M[1]...M[7]$). This notation is a result of the dummy variable structure developed in Eq. 2.12 where each category of the noise is represented as a 1 or 0 in the equation. When the image M equals the first category, $M[1] = 1$ and all other M 's are zero. The eighth category is the baseline where $M[1]$ through $M[7]$ are all set to zero. This structure allows the model to more accurately predict the response from each category of the noise space, since those categories are not continuous or even ordinal in nature.

3.4.1 Mean Model

Now that a model for predicting the time response has been developed, the technique suggested by Brenneman and Myers [2] will be adapted to create mean response. Utilizing the dummy variable structure developed in Eq. 2.12, along with the expected value for multinomial distributions, $E(y) = \sum_i p_i y_i$, the general model for estimated mean response across the entire noise space is:

$$\begin{aligned}
\widehat{E}_z[y(\mathbf{x}, \mathbf{z})] &= p_1 \hat{y}(\mathbf{x}, z_1 = 1, z_2 = 0, z_3 = 0, z_4 = 0, z_5 = 0, z_6 = 0, z_7 = 0) \\
&+ p_2 \hat{y}(\mathbf{x}, z_1 = 0, z_2 = 1, z_3 = 0, z_4 = 0, z_5 = 0, z_6 = 0, z_7 = 0) \\
&+ p_3 \hat{y}(\mathbf{x}, z_1 = 0, z_2 = 0, z_3 = 1, z_4 = 0, z_5 = 0, z_6 = 0, z_7 = 0) \\
&+ p_4 \hat{y}(\mathbf{x}, z_1 = 0, z_2 = 0, z_3 = 0, z_4 = 1, z_5 = 0, z_6 = 0, z_7 = 0) \\
&+ p_5 \hat{y}(\mathbf{x}, z_1 = 0, z_2 = 0, z_3 = 0, z_4 = 0, z_5 = 1, z_6 = 0, z_7 = 0) \\
&+ p_6 \hat{y}(\mathbf{x}, z_1 = 0, z_2 = 0, z_3 = 0, z_4 = 0, z_5 = 0, z_6 = 1, z_7 = 0) \\
&+ p_7 \hat{y}(\mathbf{x}, z_1 = 0, z_2 = 0, z_3 = 0, z_4 = 0, z_5 = 0, z_6 = 0, z_7 = 1) \\
&+ p_8 \hat{y}(\mathbf{x}, z_1 = 0, z_2 = 0, z_3 = 0, z_4 = 0, z_5 = 0, z_6 = 0, z_7 = 0), \quad (3.4)
\end{aligned}$$

where $p_1 \dots p_8 = \frac{1}{8}$ for noise categories with equal probability of occurrence. However, when developing a model for the mean time response from the observed data the probability of occurrence for each category is easily calculated by dividing the number of times each image was used by the total number of runs. The probabilities of occurrence for each category are given in Table 3.6.

| Noise Category | Occurrence Probability |
|----------------|------------------------|
| M[1] | 0.121359223 |
| M[2] | 0.126213592 |
| M[3] | 0.13592233 |
| M[4] | 0.121359223 |
| M[5] | 0.126213592 |
| M[6] | 0.116504854 |
| M[7] | 0.121359223 |
| M[8] | 0.131067961 |

Table 3.6 Observed Probability of Occurrence for Noise Categories

Plugging the probabilities from Table 3.6 into Eq. 3.4 and combining the terms results in the reduced estimated mean model given in Eq. 3.5.

$$\begin{aligned}
\widehat{E}_z[y(\mathbf{x}, \mathbf{z})] = & 0.094372095 \\
& - 0.049435818 \times A \\
& + 0.008216574 \times B \\
& + 0.004174205 \times C \\
& + 0.002180937 \times D \\
& + 0.000517243 \times G \\
& - 0.01494442 \times H \\
& + 0.000586791 \times J \\
& + 0.027060476 \times K \\
& + 0.011679743 \times L \\
& - 0.013658435 \times AG \\
& - 0.018644844 \times BC \\
& - 0.010028052 \times BK \\
& + 0.023304115 \times BL \\
& - 0.010093548 \times CH \\
& - 0.010361026 \times CK \\
& + 0.014214098 \times DG \\
& + 0.01556147 \times DJ \\
& - 0.012026222 \times GK
\end{aligned}$$

Since each of the categorical noise variables in Eq. 3.3 are assigned a value of 1 or 0 during this step, the noise factor interaction terms can be reduced to a single term where the marginal probability for each noise category is multiplied by the coefficient of it's corresponding control×noise interaction term and the resultant coefficients are summed along with the coefficient for the control variable to yield a single coefficient for the control term. This idea is illustrated in Eq. 3.6 where Γ is the sum of all the coefficients and each M is evaluated as 1. Each of the coefficients for the interaction terms results from multiplying the adjustment coefficient for each interaction term found in Eq. 3.3 by the appropriate occurrence probability from Table 3.6.

$$\begin{aligned}
\Gamma \times A = & - 0.049083154 \times A \\
& + 0.003308614 \times AM[1] \\
& + 0.005444752 \times AM[2] \\
& - 0.014809705 \times AM[3] \\
& + 0.003224633 \times AM[4] \\
& + 4.98281 * 10^{-05} \times AM[5] \\
& + 0.003938185 \times AM[6] \\
& - 0.001508971 \times AM[7]
\end{aligned} \tag{3.6}$$

3.4.2 Variance Model

Now that a mean model has been generated, the variance model follows directly from Eq. 2.9. This version of the variance model is used since the noise is categorical and the p_i 's are known, so the variance-covariance matrix is fully characterized and its components are easily substituted into equation. The estimated variance model is:

$$\begin{aligned}
\widehat{\text{Var}}_z [y(\mathbf{x}, \mathbf{z})] &= \sum_i \left[(\gamma_i + \mathbf{x}\Delta_i)^2 \text{Var}(z_i) \right] \\
&\quad + 2 \sum_{i \neq j} \left[(\gamma_i + \mathbf{x}\Delta_i)(\gamma_j + \mathbf{x}\Delta_j) \text{Cov}(z_i, z_j) \right] \\
&\quad + \sigma^2
\end{aligned} \tag{3.7}$$

where $\text{Var}(z_i) = p_i(1 - p_i)$ and $\text{Cov}(z_i, z_j) = -p_i p_j$. Recall that γ is a vector of main effect coefficients which in the case of variance is only the coefficient of the noise main effect. Additionally, Δ is a matrix of control-by-noise interaction coefficients. Therefore, the coefficients in Eq. 3.5 provide all the elements of both γ and Δ . The remaining term, σ^2 , is simply the Mean Square Error (MSE) or Residual of the ANOVA model. The coefficients of the variance model in Eq. 3.7 are thus computable and the constant terms are known, so all that remains is to determine control variable levels that minimize the estimated variance. Due to the large number of terms in this model (over 200), it will not be given here. However, the ExcelTM spreadsheet used for the step by step analysis is included in App. B

Once both the mean and variance models are built, Brenneman and Myers [2] suggest first minimizing the variance first by adjusting the control factors that interact with the noise. This problem is notionally expressed in Eq. 3.8.

$$\begin{aligned}
\mathbf{min} \quad & \widehat{\text{Var}}_z [y(\mathbf{x}, \mathbf{z})] \\
\text{s.t.} \quad & \text{Dispersion Controls within range of Designed Experiment}
\end{aligned} \tag{3.8}$$

The levels for the dispersion factors solved for in Eq. 3.8 are then inserted into Eq. 3.5 and the remaining adjustment control factors are used to bring the estimated mean response up, down, or on target. All significant controls as determined by the

| Response | Transformation | Adjusted R ² |
|-------------------------|---|-------------------------|
| Time | $y = \text{Time}^{-2}$ | 0.7837 |
| True Positive Fraction | $y = \ln \frac{\text{TPF}+80}{1.001-1}$ | 0.9679 |
| False Positive Fraction | $y = (\text{FPF} + 0.001)^{-1}$ | 0.7730 |
| Target Fraction Percent | $y = \sqrt{\text{TFP} + 0.01}$ | 0.6466 |

Table 3.7 Transformations and Resultant Adjusted R²'s

ANOVA in Table 3.5 have now been assigned values resulting in minimized response variance and optimized response performance (min, max, target).

3.5 Reducing Multiple Responses to a Single Dimension

Recall from section 3.2 that there are four responses of interest. These responses measure different aspects of AutoGAD performance that can be used in aggregate to quantify overall algorithm performance. Initial analysis efforts using four independent responses proved problematic, especially within the Combined Array approach.

First, the ANOVA models generated for each of the responses fit the data poorly, and as noted in section 3.4, the models failed Box-Cox goodness of fit tests. DX7 provided suggested transformations along with the results of the Box-Cox test. After transforming the data for each response according to suggestions, the resultant models were better, but not sufficient. Table 3.7 provides the transformation performed along with the adjusted R²'s for each transformed response's model.

Secondly, when the transformed response models were used to produce mean response and expected variance models according to technique described in subsections 3.4.1 and 3.4.2, these models were poorly behaved. The initial minimization of the expected variance model suggested control settings within the ranges observed

during testing, but the generated responses often appeared improbable, although technically feasible. Further, when the dispersion factor values were inserted into the mean response model, no feasible solution could be found. Adjustment factor values located on the ranges observed during the course of the designed experiment did not produce feasible response values. Thus, when adjustment factor values were forced onto the observed range, the resultant mean response was infeasible (*e.g.* negative time values, $TPF \gg 1$).

Section 3.2 suggests the true measure of performance for AutoGAD is how accurately the algorithm identifies potential targets within a scene. Quantifying this performance resulted in the four responses listed in Table 3.2. However, the difficulties detailed above precluded further analysis of individual responses. Therefore, some simplification of the responses was necessary in order to complete the analysis and locate robust parameter settings.

The most intuitive simplification technique is to reduce the dimensionality of the responses. This is most easily accomplished by developing some function where the responses listed in Table 3.2 are linearly combined in some fashion resulting in a single response.

There are two issues that must be dealt with in order to make evaluation of this function valid. First, the units of the response data must be either uniform or removed. Secondly, the scale of each response must be uniform. The outlier in both regards is the time response. While the three other responses are essentially percentages and can only exist on the $[0, 1]$ interval, the time response is reported in seconds and could theoretically be of infinite size.

A relatively simple and common transformation performed in multivariate analysis is data standardization [3]. This process begins by computing the sample mean and variance for each response. Next, the sample mean for each respective response is subtracted from each data point in the sample. This effectively centers each responses data around its sample mean. The sample mean for this adjusted

data, known as mean corrected data, is zero. Finally, each mean corrected data point is divided by the square root of its respective sample variance. This step scales the data so that each observation is now expressed in terms of standard deviations from the corrected mean of zero. So, if the data is approximately normally distributed, one would expect that $\sim 67\%$ of the data points would be on the interval $[-1, 1]$. Letting \hat{x}_i represent the standardized form of x_i , the entire standardization process is expressed in a single step in Eq. 3.9.

$$\hat{x}_i = \frac{x_i - \bar{x}}{\sqrt{s^2}} \quad (3.9)$$

Standardizing the data solves both the unit and scale problems discussed above. The standardized data is unitless since the units in the numerator are divided by the square root of squared units in the denominator. The scale of standardized data is now in terms of standard deviations for all four responses. Each standard deviation is computed using data from a single response, so it scales its respective data according to the variance of the underlying distribution from which the data comes.

The final step before the response terms can be combined is to determine the influence each individual response will have on the combined response. This influence is easily quantified using a weighting coefficient for each response. The size of the weightings is arbitrary, but it is common to select them such that they sum to one. Doing so allows each weighting coefficient to be intuitively translated into a percentage that each response will contribute to the combined response. These weights are commonly assigned by a process decision maker. For instance, in the case of AutoGAD, the analyst responsible for interpreting the output from AutoGAD would be the decision maker. As such, they would assign weights to each of the four responses according to their individual preferences for speed, accuracy, false alarm

rate, or some combination thereof. For the analysis here, each of the four responses will be assigned an equal weight coefficient of 1. This will give equal importance to each in determining the combined response value from a particular combination of parameter settings.

Generating the objective function is now a straightforward matter, however care must be taken to ensure each response contributes to the function in the proper direction. Considering each of the four responses independently, the sign their respective terms carry into the objective function is determined. Before this can begin the objective function type is determined and subsequently determines the sign for each of its contributing responses. Maximizing the objective function is intuitive for optimizing a target detection algorithm and thus will be used here.

The first response under consideration is the time response which is optimized by minimizing the run time of the algorithm and delivering solutions to the user as quickly as possible. Therefore, the time term in the objective function should have a negative sign so that as the time response grows smaller the objective function experiences smaller penalties from the observed time response. Recall the time responses have been standardized, so the smallest times will enter the objective function as negative values since they are smaller than the mean which was shifted to zero. Subtracting this already negative value effectively adds it thereby maximizing the resultant objective function value.

Next is the true positive fraction response. Since this response is optimized at its maximum value of one, adding its term within the objective function further increases the objective function's value. Standardizing the TPF data has a similar but opposite effect to what was observed in the time response. Since the largest TPF values are most desirable, they are larger than the standardized mean response of zero and will therefore be positive. Adding this positive value has the desired effect on the objective function value.

The third response considered is false positive fraction. This response is optimized at its minimum value of zero. Thus, its standardized term within the objective function is treated in the same manner as the time response term. Its optimal standardized value is below the mean and therefore negative. Once again, by subtracting this negative value it is effectively added and the objective function value increases accordingly.

The final response considered is target fraction percent. This response behaves like TPF and is optimized at its maximum value of one. The optimal standardized TFP response is greater than its standardized mean and thus positive. Therefore, like TPF its term is added within the objective function and serves to further maximize the objective function value.

All four responses are now sufficiently prepared such that they can be combined into a single objective function. This function is mathematically expressed in general form in Eq. 3.10 where \hat{O} represents the objective function's response value and \hat{x} represents the standardized individual responses. Maximizing this one dimensional response will drive the individual responses toward their respective optimality values.

$$\mathbf{max} \hat{O} = - \left[1 \times \widehat{\text{Time}} \right] + \left[1 \times \widehat{\text{TPF}} \right] - \left[1 \times \widehat{\text{FPF}} \right] + \left[1 \times \widehat{\text{TFP}} \right] \quad (3.10)$$

Creating this new one dimensional response for each point in the design space generates a new data set that can be analyzed in exactly the same manner as the original responses. Within the Combined Array approach detailed in Section 3.4, ANOVA can be performed to generate a predictive model. Analysis of the resultant model to generate models for expected mean response and expected variance is performed in exactly the same manner. The subsequent determination of control variable settings is also accomplished according to the methods previously discussed.

While the Crossed Array approach did not necessarily exhibit the same severe pathology during initial analysis of the individual responses, similar dimensionality reduction was conducted for the sake of consistency. Recall from Section 3.3, \bar{y} 's and SNR's were computed for each response at each of the 280 design points in the IA. The 2240 responses were standardized using Eq. 3.9 prior to computing \bar{y} 's and SNR's for each of the 280 IA design points. The objective function for combining the \hat{y} 's accordingly uses the procedure detailed above for determining the signs of each response's term within the objective function. So, the standardized single dimension objective value is computed using Eq. 3.11.

$$\mathbf{max} \hat{y} = -\widehat{y}_{\text{Time}} + \widehat{y}_{\text{TPF}} - \widehat{y}_{\text{FPF}} + \widehat{y}_{\text{TFP}} \quad (3.11)$$

SNR's are already unitless and scaled by the sample variance according to Eq. 2.6, thus they do not require standardization. Additionally, regardless of the optimal value of the response that produced a particular SNR, it is optimized by maximization. Thus, the objective function for the combined SNR's is simply a sum as shown in Eq. 3.12.

$$\mathbf{max} \text{SNR}_{\text{Total}} = \text{SNR}_{\text{Time}} + \text{SNR}_{\text{TPF}} + \text{SNR}_{\text{FPF}} + \text{SNR}_{\text{TFP}} \quad (3.12)$$

4. Analysis of Results

This chapter provides detailed analysis of experimental results from two separate RPD techniques. The analysis methodology employed within each technique is detailed in Chapter 3.

All experimental AutoGAD runs for both methodologies were conducted on a Dell Precision™ 490 PC with a 3.0 GHz Intel® Xeon® 5160 with 3.0 GB of RAM running Windows™ XP SP3. The performance data was collected and recorded during the run execution, but the computation time for data collection did not contribute to the per run algorithm performance time.

4.1 *Analysis of the Crossed Array*

Within this section the results of the Crossed Array analysis are presented in keeping with the steps of the analysis procedure detailed in Section 3.3. Recall from Table 3.1 there are 11 control variables and the inner array is a 70 run CCD_V replicated four times yielding 280 design points on the inner array. The control variable levels for each design point can be found along with their corresponding raw responses in Tables A.1 through A.8 in App. A.

The rows in each of the eight tables correspond to each other, meaning the control variable levels in row one of A.1 are exactly the same as the levels found in row one of the other seven tables. This set of rows make up the design points in the outer array of the experimental design. The data in all of the tables are first standardized with respect to the set of all 2240 points. These standardized responses across the eight matching rows of the tables can be averaged to find a mean standardized response across the noise space. Doing so for each of the 2240 data points captured by the tables referenced above reduces the data to 280 points, one mean response for each inner array design point. The overall mean and variance of these 280 mean responses is now easily computed and used to produce a SNR for

each point. The SNR's were computed using Eq. 2.6 and are provided along with the mean responses for each of the 4 algorithm outputs in Table A.9 in App. A.

The data for mean response is now a set of 280, four dimensional vectors where each dimension represents one of the four responses of interest. At this point, the dimensionality reduction process detailed in section 3.5 was used to reduce the four dimensional response data to a single response according to Eq. 3.11. The individual response SNR's were also combined using Eq. 3.12. Both of these new one dimensional data sets are provide in Table 4.1.

The next step in the crossed array analysis is to compute the marginal means for each of the levels of the control variables. This is easily done by concatenating the data in Table 4.1 with the levels of the control variable of interest and then resorting the new table by the control variable column. Now the response data is grouped by control variable level and the mean of each group is easily computed. Repeatedly resorting the data using a new control variable for each iteration produces marginal mean responses for each level of the control variables. These marginal means are shown in Table 4.2.

The marginal means for each control variable can now be plotted, vizualizing the relationship between the response and the control of interest. This visualization communicates more clearly the control \times response relationship and assists in the pick-the-winner analysis. The marginal means of the SNR's are also plotted to assist in selecting control variable settings that maximize SNR, thereby minimizing response variance. The mean response and SNR plots for each control variables are given in Figures 4.1 through 4.11.

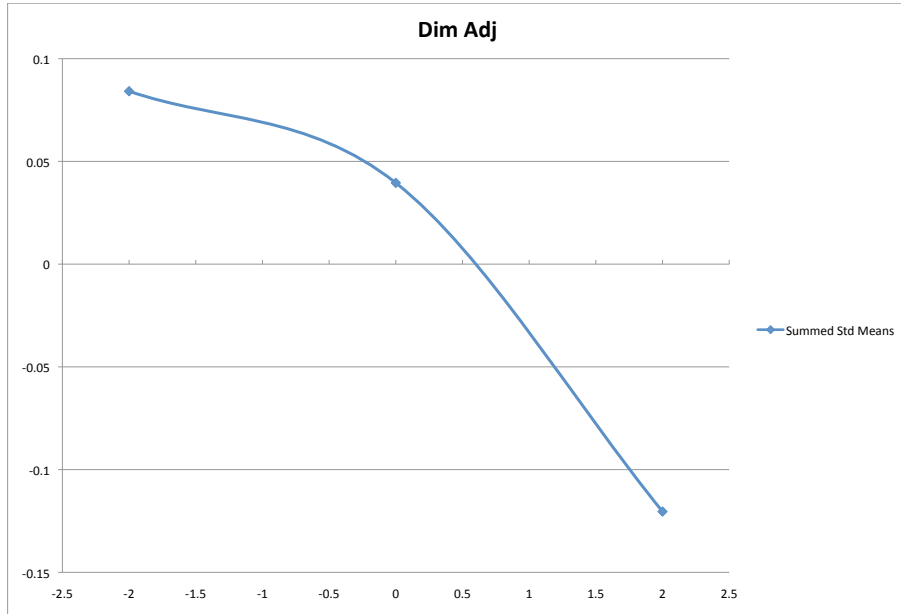
Now that the marginal means for mean response have been computed and plotted, decisions must be made about which control variables will be used to bring the mean responses to target (maximize the objective function of standardized responses) and which will be used to maximize SNR, or minimize response variance. Even though Myers and Montgomery suggest simultaneous mean response and SNR

| Run | Summed Std Means | Summed SNRs | Run | Summed Std Means | Summed SNRs | Run | Summed Std Means | Summed SNRs | Run | Summed Std Means | Summed SNRs |
|-----|------------------|---------------|-----|------------------|--------------|-----|------------------|--------------|-----|------------------|--------------|
| 1 | 0.167490866 | -68.68018497 | 71 | 0.359452577 | -81.88113504 | 141 | -0.385459391 | -46.97569487 | 211 | -1.532958652 | -36.96910486 |
| 2 | 0.43247392 | -50.86710022 | 72 | -1.661642317 | -61.44823209 | 142 | 0.209096854 | -75.97631302 | 212 | -0.102495347 | -76.04069189 |
| 3 | -1.475964427 | -59.98940148 | 73 | 0.32693422 | -52.08113201 | 143 | -0.302678613 | -17.18930107 | 213 | 1.340071013 | -11.01833206 |
| 4 | -0.423155471 | -84.22641974 | 74 | 0.0427316 | -56.61957211 | 144 | -0.152829872 | -45.37047022 | 214 | -0.153078555 | -24.93500636 |
| 5 | -0.865821793 | -10.36401404 | 75 | -1.002863973 | -14.01865182 | 145 | 0.431961998 | -26.16829706 | 215 | 0.520655319 | -63.02692864 |
| 6 | 0.126705182 | -3.223114945 | 76 | 0.438638627 | -33.95417154 | 146 | 1.299145213 | -17.18573367 | 216 | -1.687966101 | -46.59987214 |
| 7 | -1.272567142 | -13.43290864 | 77 | 0.713783529 | -65.43198514 | 147 | 0.43316236 | -42.43600742 | 217 | -1.000577247 | -16.22445876 |
| 8 | -0.714242327 | 98.7758339 | 78 | -0.244732452 | -69.25729349 | 148 | -0.61081448 | -32.73280375 | 218 | -0.375403449 | -39.26444577 |
| 9 | -1.291217747 | -58.10549898 | 79 | -0.624597314 | -96.78771938 | 149 | 1.261690126 | -24.91917975 | 219 | -0.341098518 | -40.28433249 |
| 10 | -1.274876887 | -54.57572264 | 80 | -1.056185006 | -17.07356802 | 150 | 1.419376282 | -13.25579461 | 220 | -0.223952141 | -37.5735844 |
| 11 | -1.006905912 | -24.02089928 | 81 | 0.32380038 | -60.94340843 | 151 | 0.304531447 | -77.78593462 | 221 | -0.558900537 | -56.2106208 |
| 12 | -0.851549321 | -56.75485408 | 82 | -0.185354477 | -54.34484069 | 152 | -0.10540833 | -95.60106157 | 222 | -0.557999836 | -39.12564767 |
| 13 | -0.912438743 | -41.09795254 | 83 | -0.098622674 | -70.25234981 | 153 | 1.183658451 | -13.54710196 | 223 | 0.253377141 | -17.97947867 |
| 14 | 0.449198801 | -51.46450153 | 84 | -2.228668894 | -32.24705654 | 154 | -1.057064769 | -58.75612591 | 224 | -0.114738627 | -8.82892657 |
| 15 | -2.175993877 | 2.944451956 | 85 | 0.340187769 | -48.6304648 | 155 | -0.976049812 | -56.81684434 | 225 | 0.956554974 | -40.9361939 |
| 16 | -1.035294684 | -39.29791692 | 86 | -0.384062466 | -37.99870654 | 156 | -0.369337933 | -28.83477028 | 226 | -1.687966101 | -90.37779174 |
| 17 | 1.240612211 | -29.53434677 | 87 | 0.420146843 | -36.1979395 | 157 | 1.264568368 | -14.85721767 | 227 | -0.035507283 | -82.40650367 |
| 18 | 1.350029394 | -10.05942784 | 88 | 0.538258943 | -59.335434 | 158 | 0.665277985 | -13.63596233 | 228 | 0.399853396 | -74.10523174 |
| 19 | 0.733173894 | -8.096842112 | 89 | -1.142762916 | -82.94635351 | 159 | 1.081265636 | -53.13627276 | 229 | 1.070889518 | -22.37624356 |
| 20 | -0.571347987 | -84.78819564 | 90 | -0.84115702 | -52.80578911 | 160 | -1.03422301 | -82.94634892 | 230 | 0.697256224 | -17.1412427 |
| 21 | -0.332759344 | -23.32023837 | 91 | 1.340027011 | 0.287876096 | 161 | 1.615038987 | 3.506423736 | 231 | 0.466620308 | -40.55979132 |
| 22 | -0.081374223 | -90.76581322 | 92 | -0.136808333 | -43.94703371 | 162 | -0.552805961 | -84.29619592 | 232 | 0.640615481 | -30.57712292 |
| 23 | -1.607715837 | -51.14304535 | 93 | 1.021360223 | -39.89002439 | 163 | -0.715617092 | -60.38231894 | 233 | 0.329359401 | -80.85220783 |
| 24 | -1.022453579 | -47.60222078 | 94 | -1.098908671 | -62.41949094 | 164 | 0.16830093 | -44.3861619 | 234 | 0.706177565 | -41.10965615 |
| 25 | -0.387085691 | -42.8104341 | 95 | 1.036657717 | -2.625243637 | 165 | -0.900101746 | -47.32202306 | 235 | 0.093214258 | -80.53802792 |
| 26 | -0.384777651 | -63.3248773 | 96 | 0.154507146 | -58.50844089 | 166 | 0.766711878 | -36.31927661 | 236 | 1.051381382 | -7.997924567 |
| 27 | 1.379649609 | -22.134268 | 97 | -0.454408826 | -70.91850658 | 167 | 1.642870623 | 19.97218516 | 237 | 0.320006671 | -64.23641949 |
| 28 | 0.440512198 | -44.36181812 | 98 | 1.274210429 | -8.908705297 | 168 | 1.203984752 | -12.27822147 | 238 | -0.75372455 | -31.33641369 |
| 29 | 0.132054507 | -52.25641604 | 99 | 0.767088053 | -66.45824768 | 169 | 1.138335886 | -20.7675684 | 239 | 0.062513719 | -2.450860459 |
| 30 | -0.944833397 | -85.08825777 | 100 | -1.207177063 | -46.30125196 | 170 | 1.787933024 | 27.08410726 | 240 | 1.179932221 | -32.12131117 |
| 31 | 1.581393501 | 0.246975404 | 101 | 0.5195634 | -34.00998834 | 171 | -0.047131523 | -84.798662 | 241 | 0.114156052 | -29.05245416 |
| 32 | 0.399114324 | -56.72203174 | 102 | 0.280995113 | -111.4060113 | 172 | -0.016963111 | -66.53949982 | 242 | -0.315280215 | -68.58478092 |
| 33 | -1.049830944 | -68.05572052 | 103 | -0.451486239 | -58.4529208 | 173 | 0.365169056 | -44.90442186 | 243 | 0.371308299 | -51.22554132 |
| 34 | -0.424298216 | 2.438586625 | 104 | -0.864721568 | -51.37522778 | 174 | -1.28313677 | -34.85911905 | 244 | -1.565265524 | -35.18902039 |
| 35 | 0.948007309 | -33.96070283 | 105 | -0.074898286 | -25.37320739 | 175 | 0.164930804 | -48.23276754 | 245 | 0.627729123 | -39.40945214 |
| 36 | 0.528468709 | -39.58130512 | 106 | -0.930433857 | -70.88094962 | 176 | -1.469773527 | -70.02972027 | 246 | 0.451675349 | -57.09866882 |
| 37 | 1.55344953 | -13.46801799 | 107 | -0.120175751 | -94.79505576 | 177 | -0.529098278 | -74.52789903 | 247 | -0.619416669 | -32.34973289 |
| 38 | 1.422072939 | 2.472434771 | 108 | -1.762078101 | -41.81118407 | 178 | -0.034626245 | -70.15889954 | 248 | 0.654098034 | -41.68003445 |
| 39 | 0.331647924 | -40.76856952 | 109 | -1.135759779 | -26.99771377 | 179 | 0.064839957 | -68.26227597 | 249 | 0.062513719 | -59.89379431 |
| 40 | -0.991975371 | -38.30978014 | 110 | 0.872473861 | -60.0306535 | 180 | 0.541325356 | -39.81398473 | 250 | 0.693359928 | -30.71830906 |
| 41 | 0.296052248 | -19.14627811 | 111 | -0.776548999 | -22.44685293 | 181 | 0.588986194 | -46.41936011 | 251 | 1.71111942 | -4.267731525 |
| 42 | -1.191990612 | -50.25199615 | 112 | -0.602451391 | -78.87270543 | 182 | -0.294577111 | -122.966282 | 252 | -0.17354619 | -54.41110569 |
| 43 | -1.153923091 | -80.857682591 | 113 | -0.012898977 | -73.79352424 | 183 | -0.008812783 | -38.77674112 | 253 | 0.779343454 | -71.72336868 |
| 44 | -0.228336808 | -76.3020916 | 114 | 0.546111532 | -26.49649566 | 184 | 0.820277969 | -50.41663634 | 254 | 1.511120617 | 23.73359879 |
| 45 | -0.59031371 | -15.71126846 | 115 | 1.233242034 | -10.48645859 | 185 | -1.095405636 | -43.11666374 | 255 | -0.640618222 | -16.63582879 |
| 46 | 0.261285707 | -48.9797643 | 116 | 1.064664514 | -23.00064896 | 186 | 0.648967307 | -35.10581099 | 256 | 0.609708405 | -63.75118754 |
| 47 | 0.084302351 | -57.40017881 | 117 | -0.311507549 | -38.26447445 | 187 | 0.266851545 | -17.07180848 | 257 | -1.507666632 | -50.33349786 |
| 48 | -1.997048166 | -42.1084305 | 118 | 0.483964964 | -15.91170162 | 188 | 0.424617704 | -85.9166712 | 258 | -0.599809085 | -34.21638406 |
| 49 | 1.924805093 | 16.62415719 | 119 | 0.413390187 | -62.30630167 | 189 | -0.185649041 | -31.31362475 | 259 | 0.558468752 | -19.79668572 |
| 50 | 0.157616228 | -66.43637686 | 120 | 0.002460612 | -63.28521761 | 190 | -0.837849279 | -37.9526951 | 260 | 0.292026698 | -37.88334964 |
| 51 | -0.06074629 | -37.09936242 | 121 | 1.261322503 | -42.40153026 | 191 | -0.185572231 | -22.27012747 | 261 | 0.824135651 | -32.94496958 |
| 52 | 0.273063125 | -53.07052003 | 122 | -0.738349171 | -35.40871188 | 192 | 0.288595622 | -54.64127892 | 262 | -1.530472545 | -38.20670788 |
| 53 | -0.50852189 | -76.24068583 | 123 | -1.354935639 | -67.08000044 | 193 | -2.048558878 | -56.16907924 | 263 | 1.196301233 | 14.21760949 |
| 54 | -0.504834952 | -24.95073459 | 124 | -0.634354533 | -70.80860799 | 194 | 0.142129129 | -33.16338036 | 264 | 1.83386557 | 33.56463273 |
| 55 | -0.350125921 | -64.57741508 | 125 | 0.442051457 | -39.57496328 | 195 | 1.439595698 | -15.49133982 | 265 | -0.328005752 | -83.50350901 |
| 56 | -0.095054906 | -52.94813533 | 126 | -0.662946103 | -77.02233759 | 196 | -1.389423248 | -29.17588017 | 266 | -0.173303714 | -110.2637689 |
| 57 | 0.68039304 | -9.318750123 | 127 | 0.424369327 | -71.91469678 | 197 | -0.536223597 | -81.76708224 | 267 | 0.799435094 | -5.167729317 |
| 58 | -1.758333257 | -28.16890731 | 128 | -0.241906304 | -60.2050598 | 198 | 0.758260591 | -21.26987935 | 268 | -0.077732983 | -66.82067371 |
| 59 | -0.437141551 | -86.92790743 | 129 | 1.558318477 | 4.440382217 | 199 | -1.368463836 | -65.67214658 | 269 | -1.733105132 | -7.524267988 |
| 60 | -0.756971219 | -24.93994675 | 130 | -0.303691598 | -66.78725398 | 200 | -0.445590175 | -77.3894462 | 270 | -1.179904043 | -63.11897869 |
| 61 | 0.102161657 | -52.08996107 | 131 | -0.086777646 | -61.47511333 | 201 | 1.522685516 | 1.966589232 | 271 | -0.003167298 | -97.12300564 |
| 62 | 1.644279586 | 20.61176811 | 132 | -0.858067555 | -39.54561608 | 202 | 1.026266858 | -32.56352378 | 272 | 0.623707695 | -24.38408899 |
| 63 | 0.980932764 | -38.57692714 | 133 | -0.855351737 | -45.49482725 | 203 | -0.724267635 | -64.19372213 | 273 | -1.295357602 | -57.79203774 |
| 64 | -0.428001985 | -57.98841084 | 134 | 0.586952864 | -72.090623 | 204 | -0.176009404 | -27.31353232 | 274 | 0.717202452 | -6.031695521 |
| 65 | 0.334685029 | -53.02719121 | 135 | 0.148901256 | -67.81409502 | 205 | -1.451031745 | -42.87771641 | 275 | -0.726532496 | -32.31194 |
| 66 | -0.108400001 | -67.6993738 | 136 | -0.051319188 | -67.21593806 | 206 | 1.545815198 | 9.286474723 | 276 | 1.028656355 | -56.3533817 |
| 67 | 1.682518632 | 5.767818855 | 137 | 0.174526236 | -54.92455577 | 207 | -1.687643208 | -38.50560214 | 277 | -0.031963248 | -16.00370282 |
| 68 | 0.48946526 | -93.64314742 | 138 | 0.731909417 | -36.61131246 | 208 | 1.364430122 | 2.880584423 | 278 | -0.319270023 | -67.39422981 |
| 69 | 0.302990927 | -44.85683084 | 139 | 0.163945327 | -35.53210086 | 209 | 0.603135179 | -49.79559266 | 279 | 1.084173269 | 1.179483512 |
| 70 | 1.535821388 | -3.035088258 | 140 | -0.168564946 | -5.534704469 | 210 | -1.195273831 | -25.48655465 | 280 | 0.408991039 | -41.70344649 |

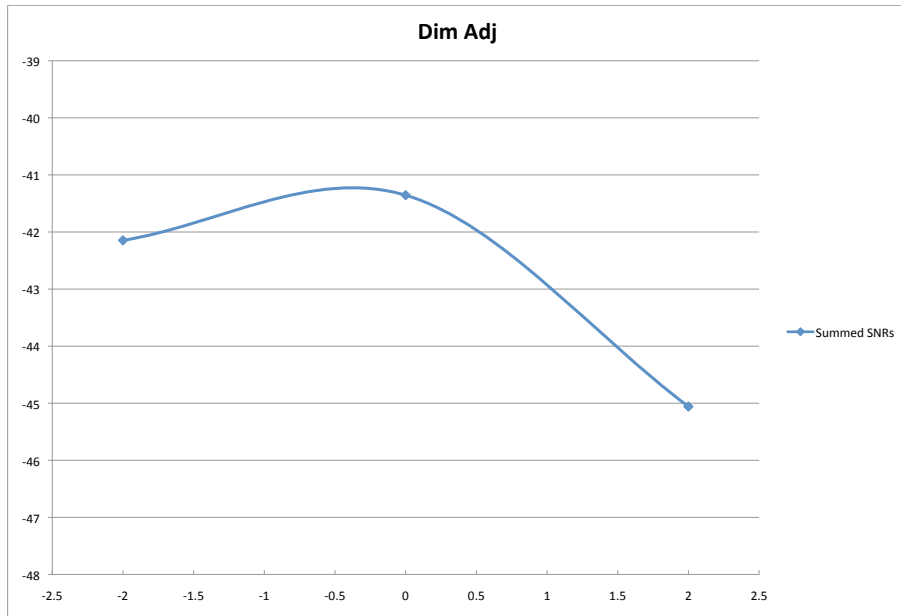
Table 4.1 One Dimensional Standardized Mean Responses and SNR's

| | | Summed Std Means | Summed SNR's |
|-----------------------------|-------|------------------|--------------|
| Dim Adj | -2 | 0.084166467 | -42.14639153 |
| | 0 | 0.039545297 | -41.35544867 |
| | 2 | -0.120416323 | -45.05818494 |
| | | | |
| Max Score | 6 | 0.05696234 | -39.66950536 |
| | 10 | -0.022745204 | -41.7971879 |
| | 14 | -0.036112569 | -47.13014347 |
| | | | |
| Bin width SNR | 0.01 | -0.003171626 | -42.81204913 |
| | 0.055 | 0.002178575 | -41.64158433 |
| | 0.1 | 0.001174598 | -44.13023631 |
| | | | |
| PT SNR thresh | 1 | -0.031688919 | -41.60877376 |
| | 3.5 | 0.025029559 | -42.04400436 |
| | 6 | 0.008745156 | -44.96462666 |
| | | | |
| Bin Width Ident | 0.01 | -0.09418153 | -46.42787791 |
| | 0.055 | 0.016373906 | -39.86301966 |
| | 0.1 | 0.079172116 | -42.14475848 |
| | | | |
| Smooth iter hi | 50 | 0.05862537 | -45.65963224 |
| | 100 | 0.003129879 | -41.31670285 |
| | 150 | -0.061494426 | -41.58046122 |
| | | | |
| Smooth iter lo | 5 | -0.013080957 | -43.73116596 |
| | 25 | 0.056707338 | -40.82480755 |
| | 45 | -0.038900769 | -43.95983153 |
| | | | |
| Low SNR | 4 | 0.045094616 | -43.01592808 |
| | 9 | -0.041447699 | -41.99885998 |
| | 14 | -0.007100891 | -43.59885468 |
| | | | |
| Window Size | 1 | -0.010374623 | -43.0572426 |
| | 5 | 0.017245359 | -41.03432788 |
| | 9 | -0.005433623 | -44.44169459 |
| | | | |
| Threshold Both Sides | 0 | 0.007724825 | -44.80122353 |
| | 1 | -0.007724825 | -40.99105378 |
| | | | |
| Clean Signal | 0 | -0.090871599 | -44.98163628 |
| | 1 | 0.090871599 | -40.81064103 |

Table 4.2 Marginal Mean Responses for all Control Variable Levels

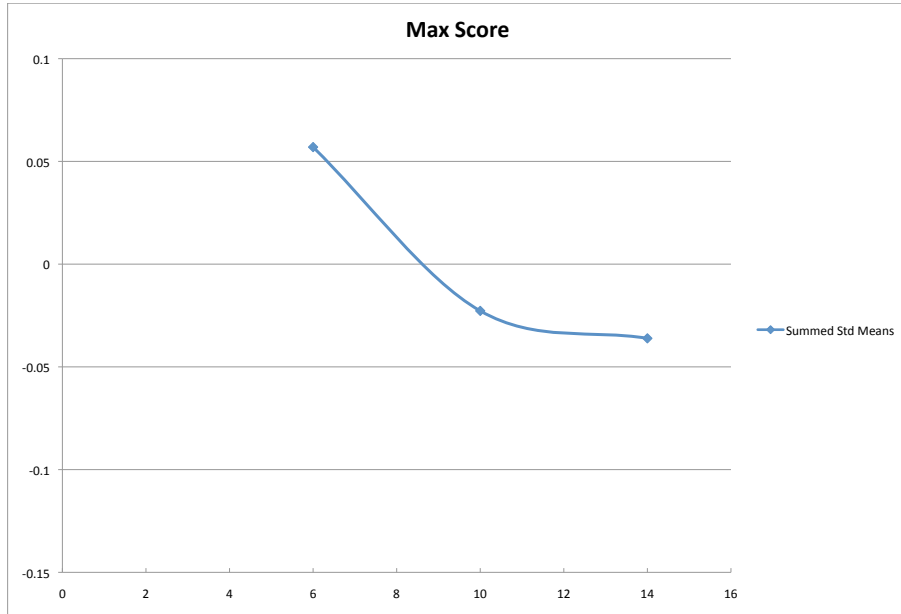


(a) Dimension Adjust vs. Mean Response

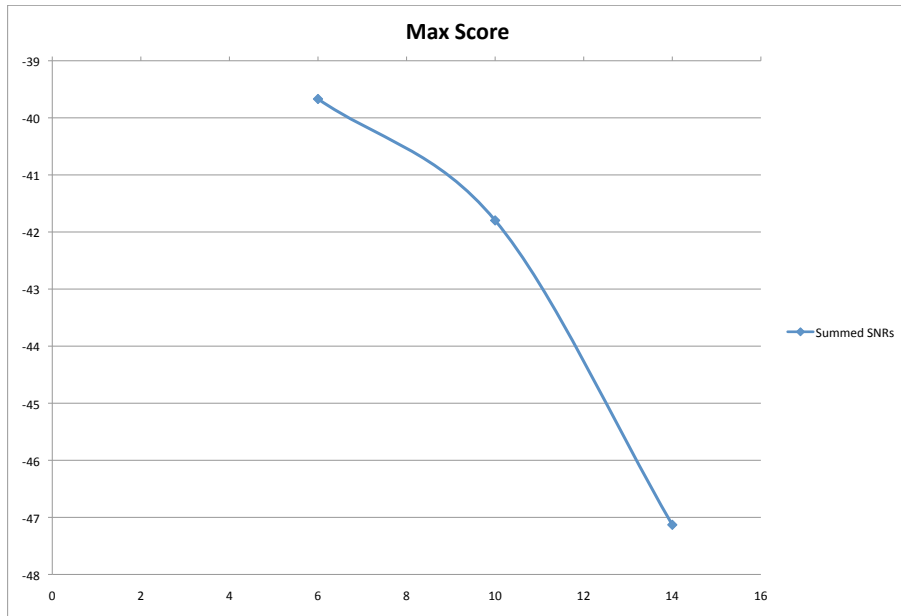


(b) Dimension Adjust vs. SNR

Figure 4.1 Dimension Adjust vs. Marginal Means of Mean Response and SNR

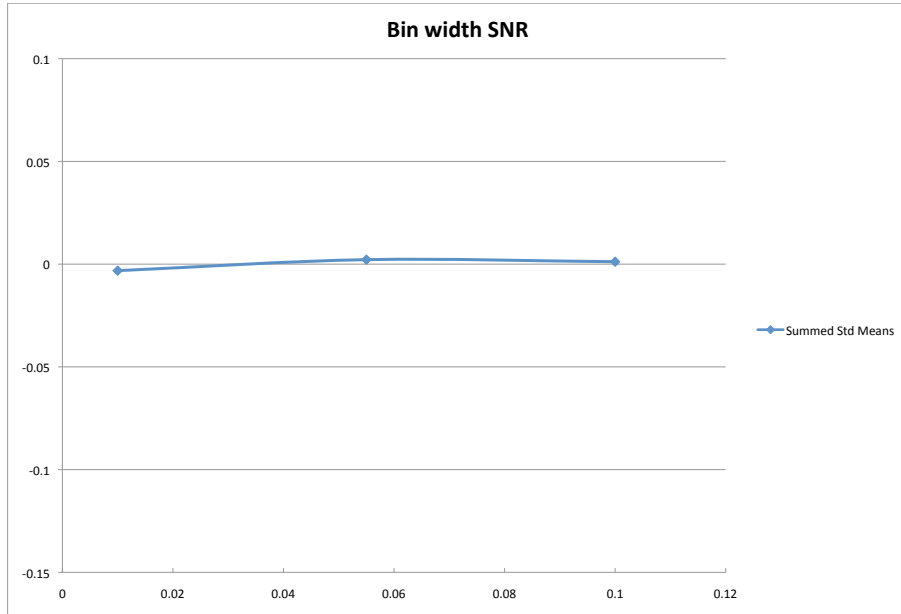


(a) Max Score vs. Mean Response

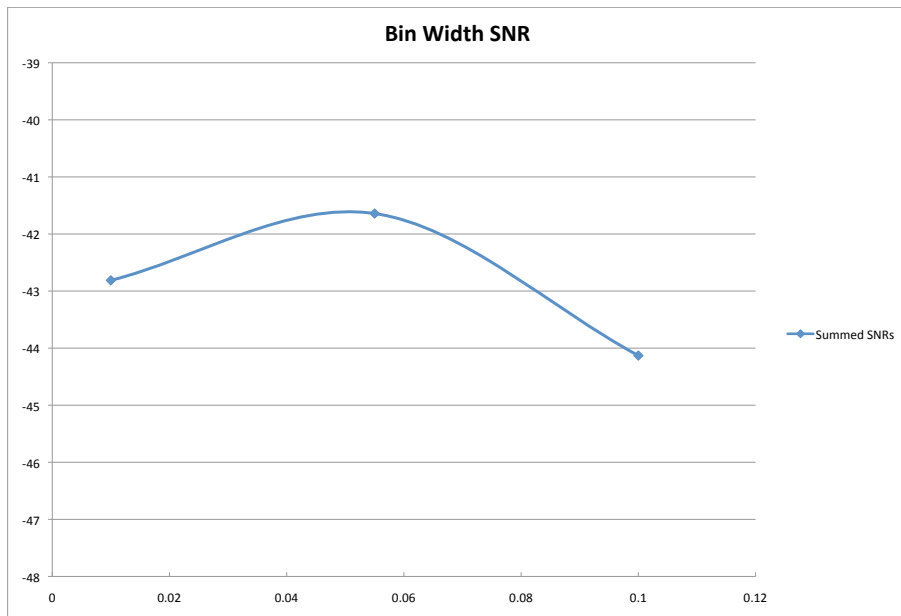


(b) Max Score vs. SNR

Figure 4.2 Max Score vs. Marginal Means of Mean Response and SNR

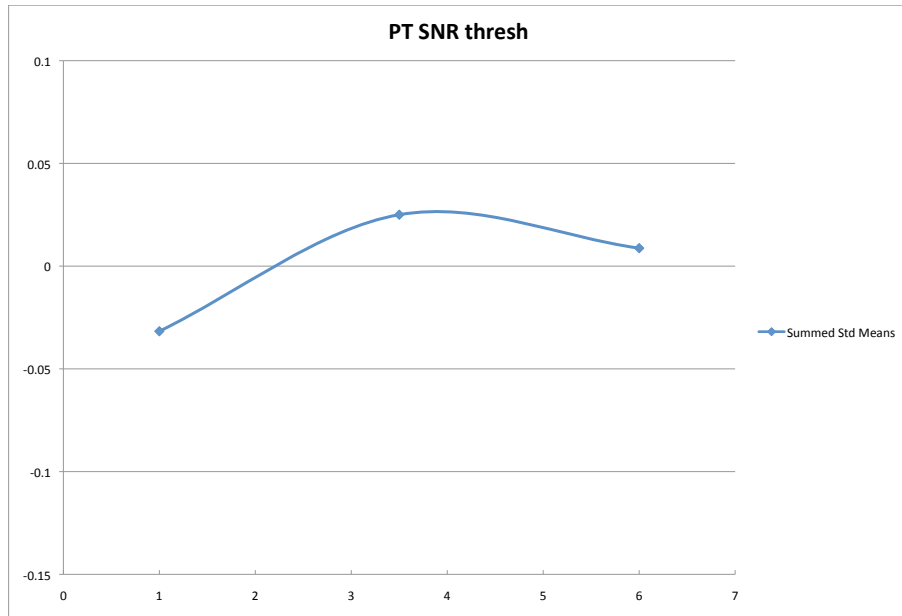


(a) Bin Width SNR vs. Mean Response

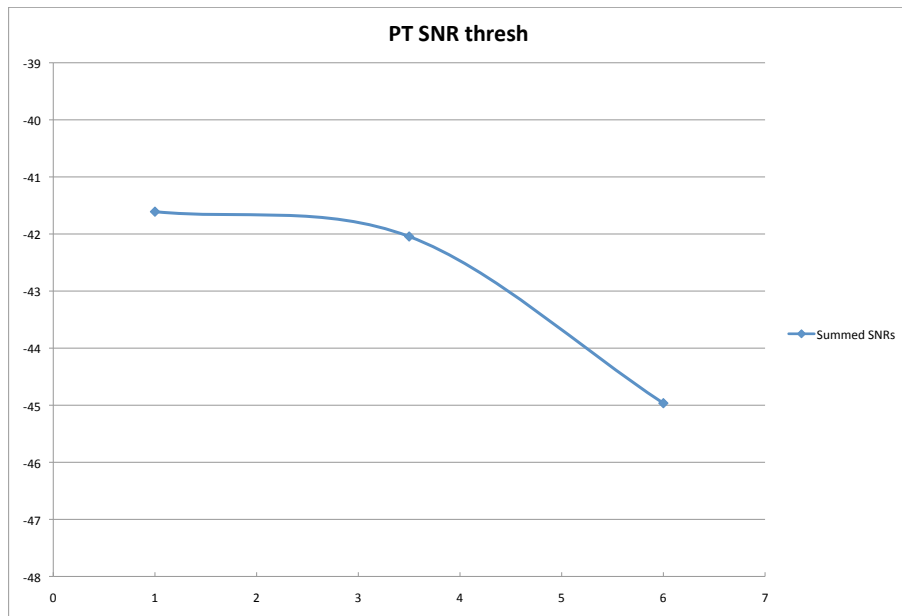


(b) Bin Width SNR vs. SNR

Figure 4.3 Bin Width SNR vs. Marginal Means of Mean Response and SNR



(a) PT SNR Threshold vs. Mean Response

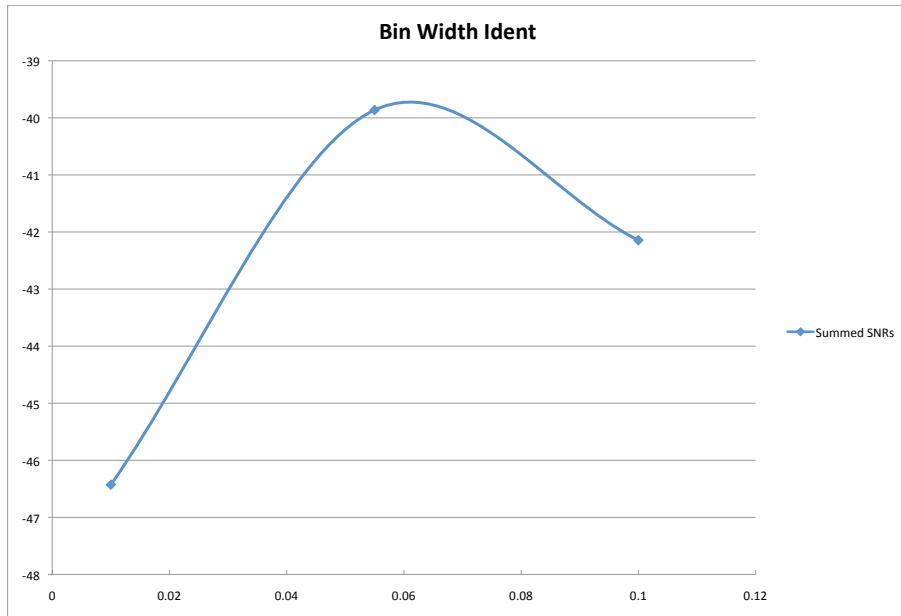


(b) PT SNR Threshold vs. SNR

Figure 4.4 PT SNR Threshold vs. Marginal Means of Mean Response and SNR

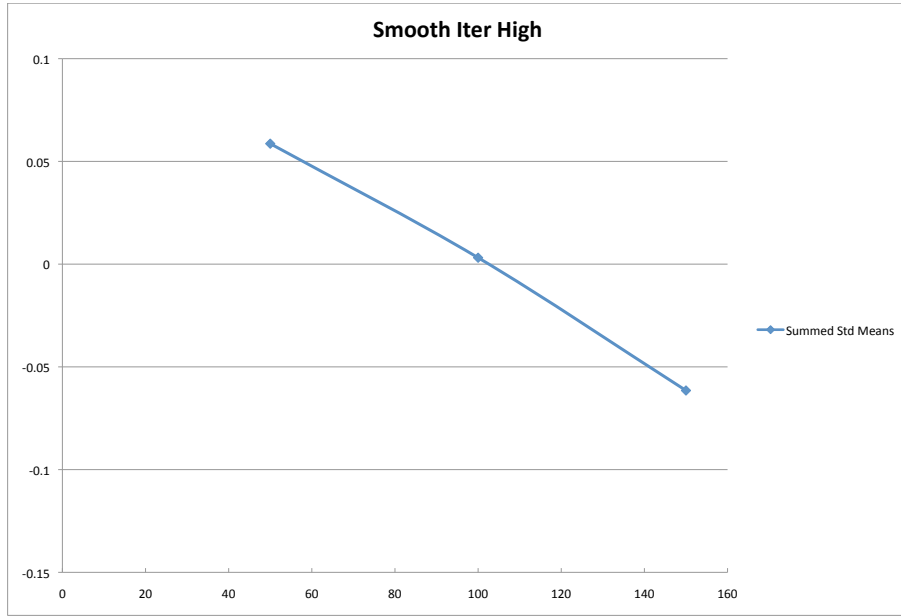


(a) Bin Width Ident vs. Mean Response

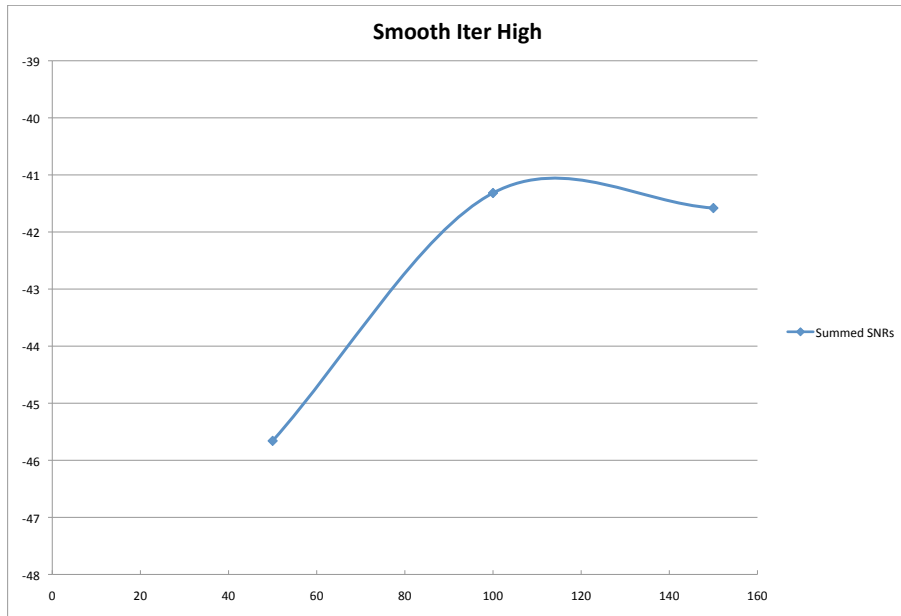


(b) Bin Width Ident vs. SNR

Figure 4.5 Bin Width Ident vs. Marginal Means of Mean Response and SNR

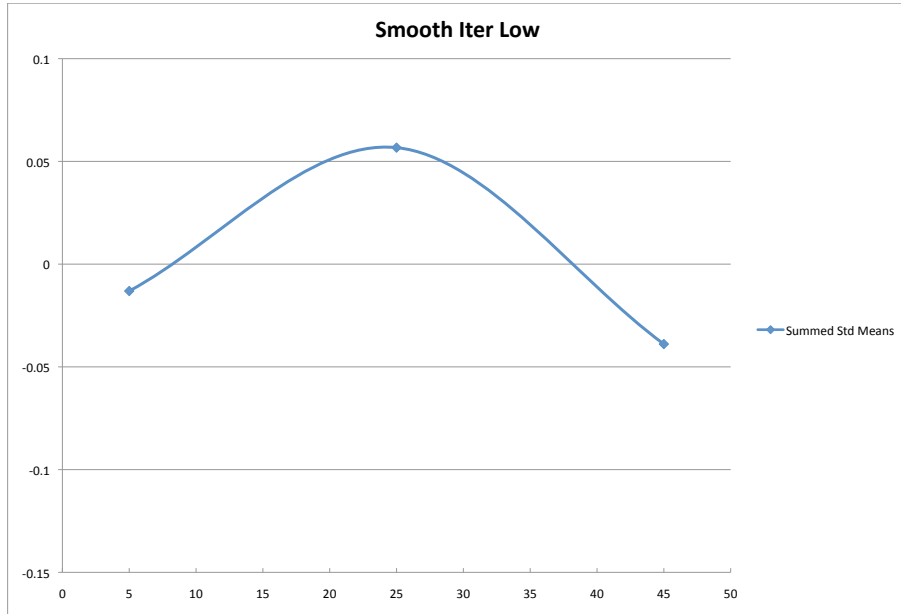


(a) Smooth Iter High vs. Mean Response

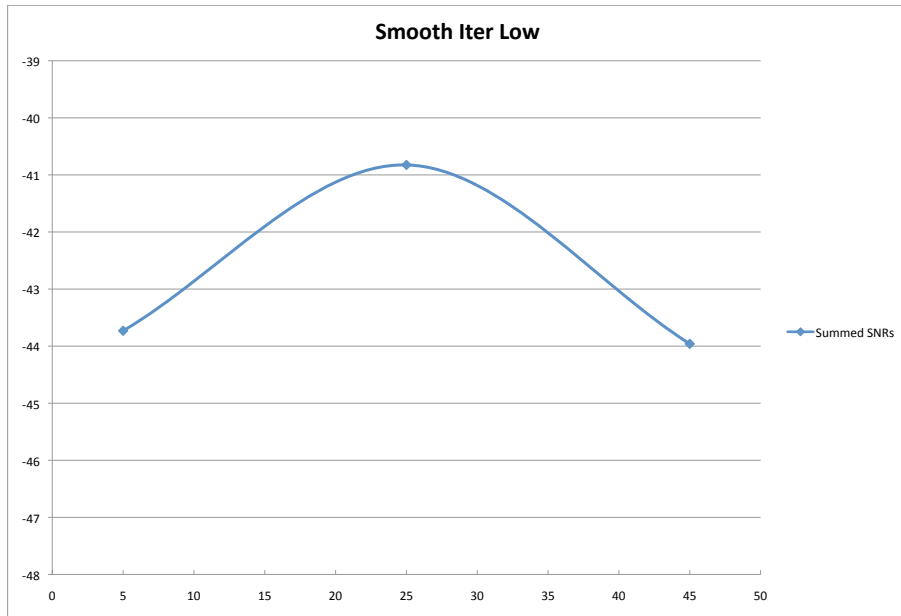


(b) Smooth Iter High vs. SNR

Figure 4.6 Smooth Iter High vs. Marginal Means of Mean Response and SNR

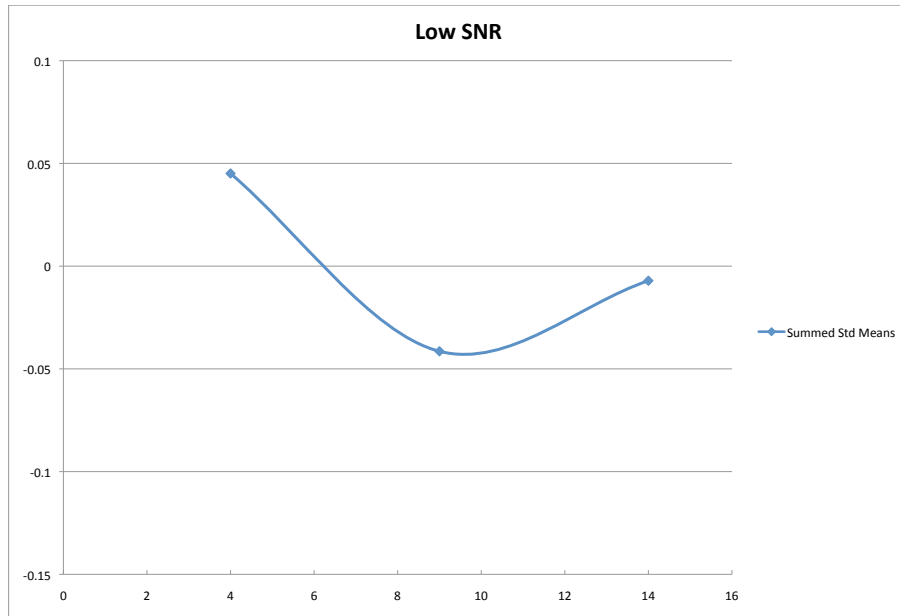


(a) Smooth Iter Low vs. Mean Response

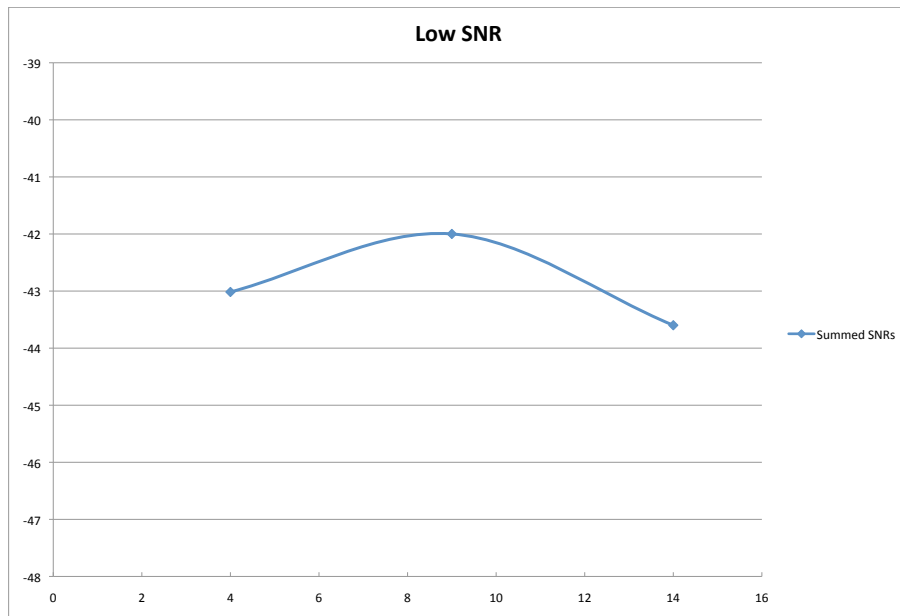


(b) Smooth Iter Low vs. SNR

Figure 4.7 Smooth Iter Low vs. Marginal Means of Mean Response and SNR

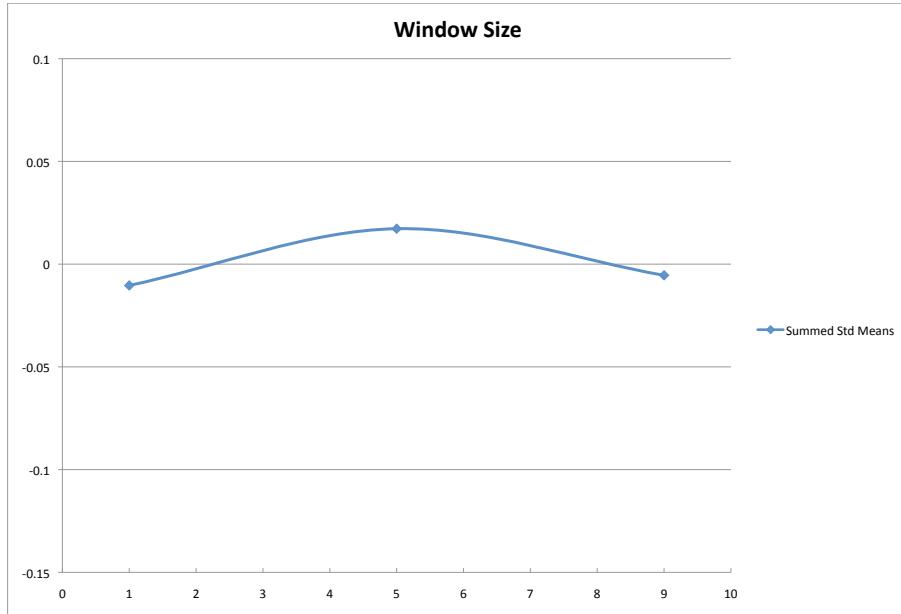


(a) Low SNR vs. Mean Response

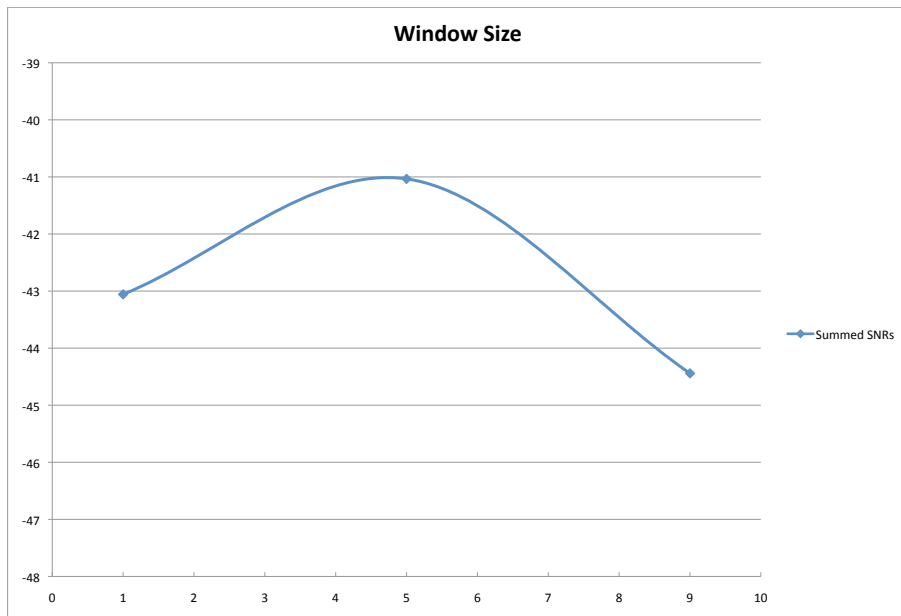


(b) Low SNR vs. SNR

Figure 4.8 Low SNR vs. Marginal Means of Mean Response and SNR

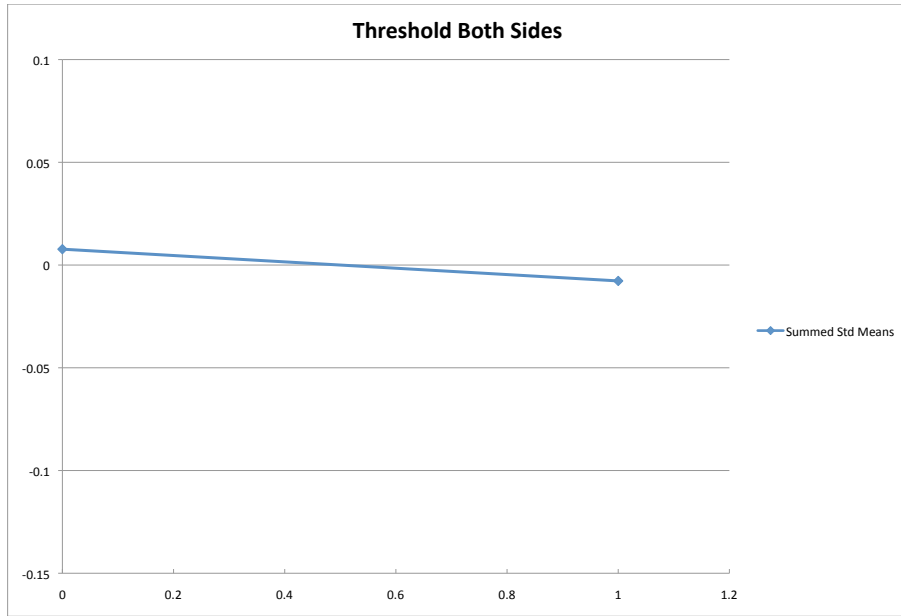


(a) Window Size vs. Mean Response

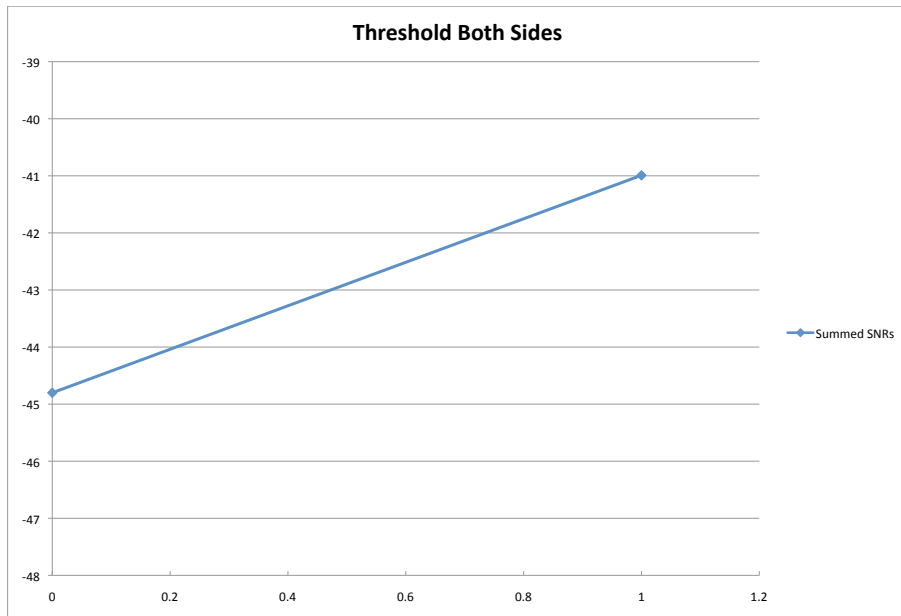


(b) Window Size vs. SNR

Figure 4.9 Window Size vs. Marginal Means of Mean Response and SNR

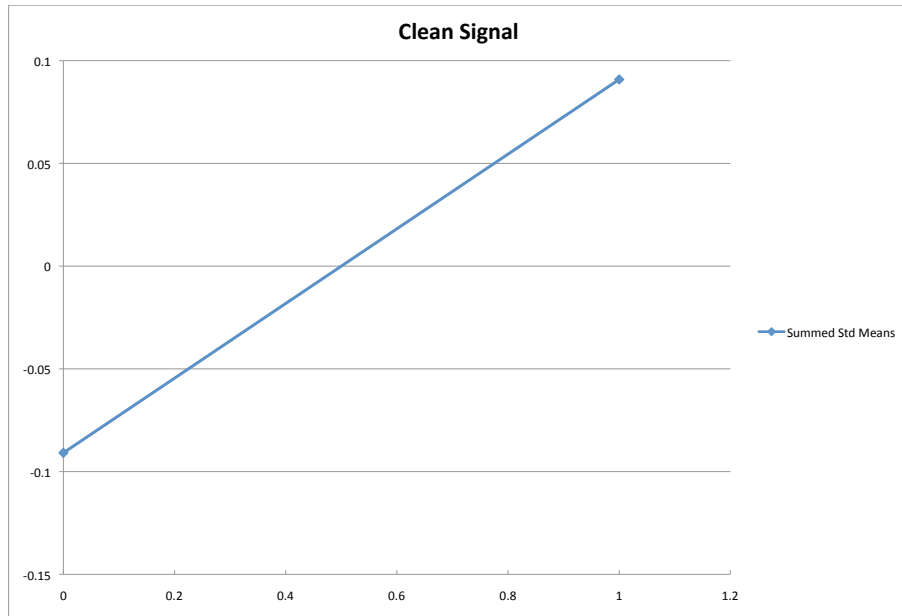


(a) Threshold Both Sides vs. Mean Response

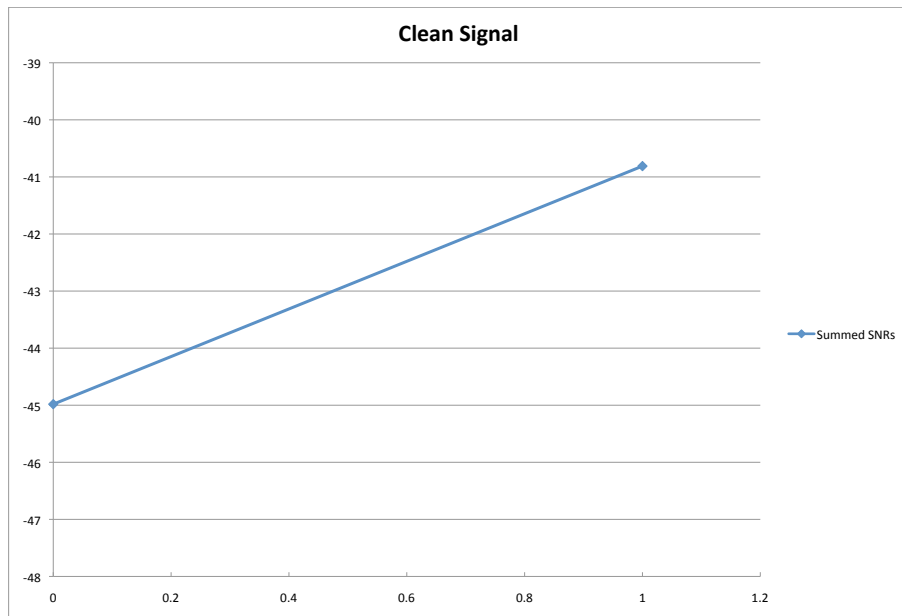


(b) Threshold Both Sides vs. SNR

Figure 4.10 Threshold Both Sides vs. Marginal Means of Mean Response and SNR



(a) Clean Signal vs. Mean Response



(b) Clean Signal vs. SNR

Figure 4.11 Clean Signal vs. Marginal Means of Mean Response and SNR

| Control Variable | Selected Level | Expected Standardized Mean Response |
|-------------------------|-----------------------|--|
| Dimension Adjust | -2 | 0.084166467 |
| Max Score | 6 | 0.05696234 |
| Bin Width Identify | 0.1 | 0.079172116 |
| Smooth Iterations High | 50 | 0.05862537 |
| Smooth Iteration Low | 25 | 0.056707338 |
| Low SNR | 4 | 0.045094616 |
| Clean Signal | 1 | 0.090871599 |

Table 4.3 Significant Controls Variables, Their Levels, and Expected Standardized Mean Responses

analysis to determine control variable levels [10], after close examination of the data in Table 4.2 and Figures 4.1 through 4.11, levels were first selected to adjust mean response appropriately, while the remaining control variables were used to maximize SNR.

Regardless of selection methodology, criteria must be developed to determine which control variables exert large enough influence on either mean response or SNR to be categorized as significant to one or both measures. Only one heuristic required development during analysis, since mean response was maximized prior to considering SNR. The heuristic developed for determining which control variables were significant contributors in maximizing mean response was simple and straightforward. If any observed level for a particular control produced a standardized marginal mean response ≥ 0.04 , then the control was deemed significant to mean response and the level producing the max response selected as robust in the design space. Applying this heuristic to the marginal mean responses in Table 4.2 resulted in selecting seven of 11 control variables as significant to mean response. These controls, along with their selected levels and the expected mean response at these levels are presented in Table 4.3.

Selecting mean response controls is the first half of the selection process. Analysis of the remaining controls must now be done to determine the appropriate levels

to maximize the SNR and thus minimize response variance. This portion of the analysis is truly a pick-the-winner exercise and the plots of control vs. SNR in Figures 4.1 through 4.11 make the analysis elementary. Selecting the point in each of the appropriate plots and noting it's corresponding level resulted in the expected SNR's presented in Table 4.4.

| Control Variable | Selected Level | Expected SNR |
|-------------------------|-----------------------|---------------------|
| Bin Width SNR | 0.06 | -41.64158433 |
| PT SNR Threshold | 3.5 | -42.04400436 |
| Window Size | 5 | -41.03432788 |
| Threshold Both Sides | 1 | -40.99105378 |

Table 4.4 Significant Controls Variables, Their Levels, and Expected SNR

4.2 *Combined Array*

Analysis of the results of the combined array RPD problem for AUTOGAD will be provided in this section. Recall from section 3.4 the technique utilized is adapted from a methodology presented by Brennehan and Myers [2] and is unique in that it treats noise as a categorical variable. Development of the experimental design is also detailed in section 3.4. The end result of the experimental design was a 174-run D-Optimal design augmented with 32 center point runs for a total of 206 runs.

The runs were conducted assigning control variable levels according to the randomized experimental design. Both control levels and response results for each of the 206 runs is presented in Table B.1 in App. B.

As discussed at length in section 3.5, analysis of the individual response parameters was problematic and a dimension reduction strategy was therefore employed. In a fashion similar to the response transformations for the crossed array analysis, the combined array data was first standardized to deal with response unit and scal-

ing issues. This standardized data reported in Table 4.5 was computed using Eq. 3.9.

These standardized response data were then reduced in dimensionality according to Eq. 3.10 to develop a one dimensional response. The one dimensional standardized response data used in completion of the combined array analysis are provided in Table 4.6.

The first step in the remaining analysis is to perform ANOVA on the data in Table 4.6. As detailed in Section 3.4, ANOVA was accomplished using a backward stepwise regression with an $\alpha = 0.1$. The ANOVA resulted in a quadratic model with 17 terms and an adjusted R^2 of 0.663196. The ANOVA table is shown in Table 4.7.

While the adj- R^2 for this model is lower than three of the four from the individual responses, recall both the raw and transformed response models produced infeasible predictions. The equation for the one dimensional standardized response model is given in Eq. 4.1.

| Std Run | Std Time | Std TPF | Std FPF | Std TFP | Std Run | Std Time | Std TPF | Std FPF | Std TFP | Std Run | Std Time | Std TPF | Std FPF | Std TFP |
|---------|-----------|-----------|-----------|-----------|---------|-----------|-----------|-----------|------------|---------|-----------|-----------|-----------|-----------|
| 1 | -0.484213 | 0.782758 | 1.4288377 | -0.040918 | 70 | -0.379729 | -0.005904 | -0.419613 | 1.065599 | 139 | -0.47928 | 0.8337966 | 4.9913062 | -1.268384 |
| 2 | -0.449006 | -1.730957 | -0.458022 | -1.268384 | 71 | 1.7209448 | 0.7463384 | 2.0721945 | -0.954353 | 140 | -0.462898 | 0.6096371 | -0.405209 | 1.0471408 |
| 3 | -0.486735 | 0.8337966 | -0.458022 | 1.1603184 | 72 | -0.478035 | 0.2339006 | -0.419613 | 0.7709974 | 141 | 2.0317395 | 0.4844771 | -0.3668 | 0.5679579 |
| 4 | -0.421206 | -1.730957 | -0.458022 | -1.268384 | 73 | -0.462983 | -0.396516 | -0.44842 | 1.0403405 | 142 | 1.1071804 | 0.3008407 | -0.227566 | -0.170853 |
| 5 | -0.511818 | 0.8337966 | -0.458022 | 1.1603184 | 74 | -0.479962 | -0.57374 | -0.381204 | 0.9361492 | 143 | -0.472266 | 0.2746802 | 0.142124 | -0.448211 |
| 6 | -0.478797 | 0.8337966 | 0.0364982 | -1.268384 | 75 | -0.386502 | -0.459352 | -0.294783 | 0.8028134 | 144 | -0.28353 | -1.730957 | -0.458022 | -1.268384 |
| 7 | -0.462464 | -0.397285 | -0.443619 | 1.1166017 | 76 | -0.423464 | -0.410366 | -0.381204 | 0.0984898 | 145 | -0.320189 | -1.730957 | -0.458022 | -1.268384 |
| 8 | -0.473456 | -0.556557 | -0.429215 | 1.0770139 | 77 | -0.503836 | 0.8337966 | -0.458022 | 1.1603184 | 146 | -0.367784 | -1.730957 | -0.458022 | -1.268384 |
| 9 | -0.461664 | 0.3364908 | -0.049923 | -0.444325 | 78 | -0.486764 | 0.8337966 | 0.9055101 | -1.268384 | 147 | -0.508011 | 0.8337966 | -0.458022 | 1.1603184 |
| 10 | -0.350101 | -1.730957 | -0.438818 | -1.268384 | 79 | -0.484007 | 0.8337966 | 1.5248611 | -0.157253 | 148 | -0.437747 | 0.8337966 | -0.458022 | 1.1603184 |
| 11 | -0.48769 | 0.7922475 | 0.8238902 | 0.0355864 | 80 | 2.8934945 | -1.730957 | -0.458022 | -1.268384 | 149 | 0.0402206 | -1.730957 | -0.458022 | -1.268384 |
| 12 | -0.494466 | 0.787118 | 0.3917848 | 0.2556268 | 81 | 1.4007234 | -1.730957 | -0.458022 | -1.268384 | 150 | 2.6038295 | 0.4118945 | -0.410011 | 0.8436156 |
| 13 | -0.020063 | -1.730957 | -0.458022 | -1.268384 | 82 | -0.490903 | 0.370602 | -0.261174 | 0.2891429 | 151 | -0.402083 | 0.2523668 | -0.381204 | 0.4287933 |
| 14 | -0.432139 | 0.0607797 | -0.270777 | 0.0695882 | 83 | -0.460052 | -1.730957 | -0.458022 | -1.268384 | 152 | -0.493773 | 0.2987889 | -0.184356 | 0.0542874 |
| 15 | -0.473169 | 0.8337966 | -0.169952 | -1.268384 | 84 | -0.486417 | 0.8337966 | -0.458022 | 1.1603184 | 153 | -0.408022 | -0.139528 | 0.136344 | 0.6832213 |
| 16 | -0.415683 | -0.048222 | -0.443619 | 1.1238878 | 85 | -0.403774 | -1.687357 | 0.2621532 | -1.257212 | 154 | -0.442489 | -1.730957 | -0.410011 | -1.268384 |
| 17 | 2.3886538 | 0.5532125 | -0.155549 | -0.066419 | 86 | -0.489071 | 0.8337966 | -0.390806 | -1.268384 | 155 | -0.49088 | 0.8337966 | -0.405209 | -1.268384 |
| 18 | -0.144327 | -1.730957 | -0.458022 | -1.268384 | 87 | -0.475066 | 0.8337966 | 2.1010016 | -1.268384 | 156 | -0.48487 | 0.8337966 | -0.458022 | 1.1603184 |
| 19 | -0.36335 | -1.730957 | -0.458022 | -1.268384 | 88 | -0.458812 | 0.8337966 | 2.9988205 | -0.40498 | 157 | -0.467741 | 0.485503 | -0.434016 | 1.1032439 |
| 20 | -0.485375 | -1.730957 | -0.458022 | -1.268384 | 89 | 2.3844474 | 0.771473 | 4.1799084 | -1.071416 | 158 | 2.0201006 | 0.4844771 | -0.424414 | 0.9174482 |
| 21 | 2.7567682 | -1.730957 | -0.458022 | -1.268384 | 90 | 1.4641153 | 0.3077655 | -0.342794 | 0.2602413 | 159 | -0.398356 | 0.3734232 | -0.400408 | 0.6043884 |
| 22 | -0.154444 | -1.730957 | -0.381204 | -1.268384 | 91 | -0.463037 | -0.098748 | -0.280379 | 0.2381401 | 160 | -0.493963 | 0.7171003 | 2.7155514 | -0.939295 |
| 23 | -0.489209 | 0.8337966 | -0.458022 | 1.1603184 | 92 | -0.215228 | -1.730957 | -0.458022 | -1.268384 | 161 | -0.488047 | 0.7171003 | 3.4549317 | -0.994426 |
| 24 | -0.455948 | 0.8337966 | -0.400408 | -1.268384 | 93 | -0.397473 | -1.687357 | 0.2333462 | -1.256726 | 162 | -0.313691 | -1.730957 | -0.458022 | -1.268384 |
| 25 | -0.449047 | 0.474218 | -0.458022 | 1.1603184 | 94 | -0.506839 | 0.8337966 | 1.7793231 | -1.268384 | 163 | -0.335817 | -1.730957 | -0.102736 | -1.268384 |
| 26 | 2.3836287 | 0.7555716 | 1.2559955 | -0.818102 | 95 | -0.476588 | 0.8337966 | -0.458022 | 1.1603184 | 164 | -0.466671 | -0.501414 | -0.395607 | 0.9890949 |
| 27 | -0.482906 | 0.276219 | -0.189157 | -0.234485 | 96 | -0.488167 | 0.7922475 | 0.5214164 | 0.1910233 | 165 | -0.36877 | 0.4475446 | -0.328391 | 0.2604842 |
| 28 | -0.483648 | 0.8337966 | -0.458022 | 1.1603184 | 97 | 2.398119 | 0.7504421 | 0.2765567 | -0.197812 | 166 | -0.486474 | 0.6232303 | 2.7731654 | -0.907964 |
| 29 | -0.454326 | -0.582204 | -0.414812 | 1.0267398 | 98 | -0.470695 | -0.102082 | -0.405209 | 0.5293415 | 167 | -0.297638 | -1.730957 | -0.458022 | -1.268384 |
| 30 | -0.457406 | -1.730957 | -0.458022 | -1.268384 | 99 | -0.50025 | 0.7335147 | 2.2066273 | -0.87882 | 168 | -0.436581 | 0.5326944 | -0.371601 | 1.0325686 |
| 31 | -0.356282 | -1.730957 | -0.458022 | -1.268384 | 100 | -0.324106 | -1.328804 | -0.410011 | -0.342077 | 169 | -0.419876 | 0.532438 | -0.371601 | 1.0347545 |
| 32 | 0.1149563 | 0.8337966 | -0.458022 | 1.1603184 | 101 | -0.467317 | 0.8337966 | -0.458022 | 1.1603184 | 170 | -0.442074 | 0.6870926 | -0.376402 | 1.0483552 |
| 33 | -0.49848 | 0.8337966 | -0.458022 | 1.1603184 | 102 | -0.496909 | 0.8337966 | -0.458022 | 1.1603184 | 171 | -0.396932 | 0.6870926 | -0.376402 | 1.0483552 |
| 34 | -0.443365 | 0.6740124 | 0.0172935 | 0.640819 | 103 | -0.149806 | -1.730957 | -0.458022 | -1.268384 | 172 | -0.427773 | -0.136193 | -0.361999 | 0.0880463 |
| 35 | 3.0643035 | 0.5678316 | -0.256373 | 0.1798513 | 104 | 3.2566992 | -1.730957 | -0.458022 | -1.268384 | 173 | -0.414094 | -0.136193 | -0.3668 | 0.1303058 |
| 36 | -0.455242 | -1.730957 | -0.458022 | -1.268384 | 105 | 1.216217 | 0.0902744 | 0.1229193 | -0.506986 | 174 | -0.37387 | -0.868687 | -0.32359 | -0.472255 |
| 37 | -0.496108 | 0.3947107 | -0.208361 | 0.582358 | 106 | -0.138909 | -1.730957 | -0.458022 | -1.268384 | 175 | -0.343927 | -0.868687 | -0.3668 | -0.247843 |
| 38 | -0.477678 | 0.7212039 | -0.189157 | 0.8370581 | 107 | -0.472189 | 0.7288981 | 0.2381474 | 0.4705669 | 176 | -0.481194 | 0.8337966 | -0.458022 | 1.1603184 |
| 39 | -0.456579 | -0.209545 | -0.458022 | 1.1603184 | 108 | -0.434723 | -0.629909 | -0.410011 | 0.10119247 | 177 | -0.507472 | 0.8337966 | -0.458022 | 1.1603184 |
| 40 | -0.486928 | 0.7229992 | 4.9192887 | -1.052715 | 109 | -0.45527 | 0.4696015 | -0.458022 | 1.1603184 | 178 | -0.502814 | 0.8337966 | -0.458022 | 1.1603184 |
| 41 | -0.51035 | 0.8337966 | -0.458022 | 1.1603184 | 110 | -0.021341 | -1.730957 | -0.458022 | -1.268384 | 179 | -0.501282 | 0.8337966 | -0.458022 | 1.1603184 |
| 42 | -0.498231 | 0.8337966 | -0.458022 | 1.1603184 | 111 | -0.494648 | 0.8337966 | -0.458022 | 1.1603184 | 180 | 0.2935956 | 0.8337966 | -0.040321 | -1.268384 |
| 43 | -0.464813 | 0.7799367 | 0.0845099 | 0.6621915 | 112 | -0.480424 | 0.8337966 | -0.458022 | 1.1603184 | 181 | -0.484639 | 0.8337966 | -0.145946 | -1.268384 |
| 44 | 3.0829541 | 0.6465695 | -0.333192 | 0.5154979 | 113 | -0.461625 | 0.6011734 | -0.434016 | 1.1022724 | 182 | -0.409744 | 0.8337966 | -0.256373 | -1.268384 |
| 45 | -0.407321 | 0.5644974 | 0.0797088 | -0.334548 | 114 | 3.6107827 | -1.730957 | -0.458022 | -1.268384 | 183 | 0.3673073 | 0.8337966 | -0.198759 | -1.268384 |
| 46 | -0.282896 | -1.730957 | -0.458022 | -1.268384 | 115 | -0.471755 | 0.537311 | 3.6661832 | -1.134562 | 184 | -0.484562 | 0.7391571 | -0.361999 | 0.9835089 |
| 47 | -0.42956 | 0.3913765 | 1.0639487 | -1.017256 | 116 | -0.480789 | 0.313408 | -0.289981 | 0.3314023 | 185 | -0.49002 | 0.6840149 | -0.390806 | 1.0264969 |
| 48 | 0.2140991 | -1.730957 | -0.458022 | -1.268384 | 117 | -0.471401 | -0.572202 | -0.458022 | 1.1552181 | 186 | -0.444809 | 0.4421586 | -0.453221 | 1.151575 |
| 49 | -0.484995 | 0.7240251 | -0.381204 | 0.1058106 | 118 | -0.346891 | -0.517829 | -0.337993 | 0.8594022 | 187 | -0.455738 | 0.4308737 | -0.453221 | 1.1513322 |
| 50 | -0.509261 | 0.8337966 | -0.458022 | 1.1603184 | 119 | -0.433299 | -1.709157 | -0.357198 | -1.22831 | 188 | 2.5440615 | 0.6201525 | 0.3245685 | -0.573289 |
| 51 | -0.474375 | 0.8337966 | -0.458022 | 1.1603184 | 120 | -0.404236 | 0.8337966 | -0.458022 | 1.1603184 | 189 | 2.3518865 | 0.6270774 | -0.275578 | 0.2614557 |
| 52 | -0.486848 | 0.8153303 | 0.7038609 | 0.1065045 | 121 | 0.1265824 | 0.8337966 | -0.458022 | 1.1603184 | 190 | 2.4399859 | 0.7178697 | -0.309186 | 0.5424565 |
| 53 | 0.707886 | -1.730957 | -0.458022 | -1.268384 | 122 | -0.466902 | 0.4708839 | -0.429215 | 1.0937719 | 191 | 2.622788 | 0.7424913 | -0.424414 | 0.9932327 |
| 54 | -0.089728 | -1.730957 | -0.458022 | -1.268384 | 123 | 2.4112978 | 0.5375675 | -0.213163 | 0.0676453 | 192 | -0.376706 | 0.4672932 | -0.222765 | -0.10455 |
| 55 | -0.488006 | 0.333413 | 2.1922238 | -0.889992 | 124 | 1.3327041 | 0.3631642 | -0.275578 | 0.015671 | 193 | -0.456538 | 0.4195888 | -0.361999 | 0.4040562 |
| 56 | -0.442097 | 0.751468 | 0.6462469 | 0.2578126 | 125 | -0.441743 | 0.2408254 | -0.289981 | 0.3911484 | 194 | -0.39559 | 0.4152287 | -0.333192 | 0.3610325 |
| 57 | -0.446293 | -0.651709 | -0.458022 | 1.1547324 | 126 | -0.473243 | -0.572202 | -0.405209 | 1.0007526 | 195 | -0.406602 | 0.2931464 | -0.443619 | 1.0046386 |
| 58 | -0.464569 | -1.730957 | -0.458022 | -1.268384 | 127 | -0.444499 | 0.8337966 | -0.458022 | 1.1603184 | 196 | 0.1354085 | 0.4919148 | 0.2141415 | -0.384093 |
| 59 | -0.488853 | 0.8337966 | -0.458022 | 1.1603184 | 128 | -0.468016 | 0.6191266 | 0.1037146 | 0.5439138 | 197 | -0.493221 | 0.5360286 | -0.179554 | 0.1720794 |
| 60 | -0.476711 | 0.8337966 | -0.458022 | 1.1603184 | 129 | -0.512708 | 0.8337966 | -0.458022 | 1.1603184 | 198 | 0.1898562 | 0.2654471 | -0.145946 | 0.1640647 |
| 61 | -0.465205 | -0.062585 | 0.3917848 | -0.548031 | 130 | -0.481705 | 0.8337966 | -0.458022 | 1.1603184 | 199 | 0.1610732 | 0.2533927 | -0.169952 | 0.1949092 |
| 62 | 2.0872318 | 0.6511861 | -0.184356 | 0.3792477 | 131 | -0.500256 | 0.5801424 | -0.405209 | 1.0454408 | 200 | 2.4185917 | 0.7627529 | 0.3005626 | -0.261687 |
| 63 | -0.474139 | 0.0538549 | -0.395607 | 0.4810104 | 132 | 1.915622 | 0.7447996 | 2.1250074 | -0.964796 | 201 | 2.3331769 | -1.730957 | -0.458022 | -1.268384 |
| 64 | -0.502144 | 0.7027376 | 3.2628848 | -0.98374 | 133 | 1.0125032 | 0.589632 | 1.0351417 | -0.933709 | 202 | 3.6034169 | -1.730957 | -0.458022 | -1.268384 |
| 65 | -0.27699 | -1.730957 | -0.458022 | -1.268384 | 134 | -0.481066 | 0.7263334 | 3.7622066 | -0.991755 | 203 | -0.510955 | 0.8337966 | -0.458022 | 1.1603184 |
| 66 | -0. | | | | | | | | | | | | | |

| Std Run | Std Total | Std Run | Std Total | Std Run | Std Total | Std Run | Std Total | Std Run | Std Total |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| 1 | -0.202785 | 43 | 1.8224309 | 84 | 2.9385544 | 125 | 1.3636977 | 166 | -2.571426 |
| 2 | -2.092313 | 44 | -1.587695 | 85 | -2.802948 | 126 | 1.3070039 | 167 | -2.243681 |
| 3 | 2.9388727 | 45 | 0.5575618 | 86 | 0.4452896 | 127 | 2.8966362 | 168 | 2.3734457 |
| 4 | -2.120113 | 46 | -2.258423 | 87 | -2.060523 | 128 | 1.5273413 | 169 | 2.3586699 |
| 5 | 2.9639548 | 47 | -1.260269 | 88 | -2.111192 | 129 | 2.9648454 | 170 | 2.5539239 |
| 6 | 0.0077118 | 48 | -2.755418 | 89 | -6.864299 | 130 | 2.9338424 | 171 | 2.5087822 |
| 7 | 1.6253994 | 49 | 2.6060346 | 90 | -0.553314 | 131 | 2.5310482 | 172 | 0.7416251 |
| 8 | 1.4231291 | 50 | 2.9613986 | 91 | 0.8828077 | 132 | -4.260626 | 173 | 0.7750064 |
| 9 | 0.4037519 | 51 | 2.9265125 | 92 | -2.326091 | 133 | -2.391722 | 174 | -0.643483 |
| 10 | -2.210422 | 52 | 0.7048222 | 93 | -2.779955 | 134 | -3.546562 | 175 | -0.405804 |
| 11 | 0.4916339 | 53 | -3.249205 | 94 | -1.707072 | 135 | 2.2595772 | 176 | 2.9333317 |
| 12 | 1.1454256 | 54 | -2.451591 | 95 | 2.9287248 | 136 | -2.522298 | 177 | 2.9596098 |
| 13 | -2.521256 | 55 | -2.260797 | 96 | 0.9500219 | 137 | -3.019912 | 178 | 2.9549516 |
| 14 | 0.8332834 | 56 | 0.8051304 | 97 | -2.122046 | 138 | 2.9606672 | 179 | 2.9534194 |
| 15 | 0.2085339 | 57 | 1.4073386 | 98 | 1.3031638 | 139 | -4.946614 | 180 | -0.687862 |
| 16 | 1.9349669 | 58 | -2.07675 | 99 | -1.851682 | 140 | 2.5248854 | 181 | 0.1959976 |
| 17 | -1.746312 | 59 | 2.94099 | 100 | -0.936765 | 141 | -0.612504 | 182 | 0.2315297 |
| 18 | -2.396992 | 60 | 2.928848 | 101 | 2.9194547 | 142 | -0.749627 | 183 | -0.603135 |
| 19 | -2.177969 | 61 | -0.537195 | 102 | 2.9490462 | 143 | 0.1566107 | 184 | 2.5692265 |
| 20 | -2.055944 | 62 | -0.872442 | 103 | -2.391513 | 144 | -2.257789 | 185 | 2.5913382 |
| 21 | -5.298087 | 63 | 1.4046115 | 104 | -5.798018 | 145 | -2.22113 | 186 | 2.4917643 |
| 22 | -2.202694 | 64 | -3.041743 | 105 | -1.755848 | 146 | -2.173534 | 187 | 2.4911646 |
| 23 | 2.9413467 | 65 | -2.264329 | 106 | -2.40241 | 147 | 2.9601487 | 188 | -2.821767 |
| 24 | 0.421769 | 66 | -2.353729 | 107 | 1.4335063 | 148 | 2.8898838 | 189 | -1.187776 |
| 25 | 2.5416055 | 67 | -2.826959 | 108 | 1.22675 | 149 | -2.58154 | 190 | -0.870474 |
| 26 | -3.702155 | 68 | 2.9468801 | 109 | 2.5432126 | 150 | -0.938309 | 191 | -0.462659 |
| 27 | 0.7137967 | 69 | 2.3641341 | 110 | -2.519978 | 151 | 1.4644465 | 192 | 0.962214 |
| 28 | 2.9357852 | 70 | 1.8590369 | 111 | 2.9467851 | 152 | 1.0312045 | 193 | 1.6426322 |
| 29 | 1.3136734 | 71 | -4.001154 | 112 | 2.9325617 | 153 | 1.0881592 | 194 | 1.5050428 |
| 30 | -2.083913 | 72 | 1.902546 | 113 | 2.5990873 | 154 | -2.146841 | 195 | 2.1480062 |
| 31 | -2.185037 | 73 | 1.5552272 | 114 | -6.152102 | 155 | 0.4615024 | 196 | -0.241729 |
| 32 | 2.337181 | 74 | 1.2235748 | 115 | -3.79168 | 156 | 2.9370068 | 197 | 1.3808834 |
| 33 | 2.9506168 | 75 | 1.0247453 | 116 | 1.4155805 | 157 | 2.4905042 | 198 | 0.3856018 |
| 34 | 1.7409024 | 76 | 0.4927919 | 117 | 1.5124396 | 158 | -0.193761 | 199 | 0.4571809 |
| 35 | -2.060247 | 77 | 2.9559731 | 118 | 1.0264573 | 159 | 1.7765763 | 200 | -2.218088 |
| 36 | -2.086077 | 78 | -0.853334 | 119 | -2.146971 | 160 | -2.443783 | 201 | -4.874496 |
| 37 | 1.2574161 | 79 | -0.36431 | 120 | 2.8563734 | 161 | -3.244211 | 202 | -6.144736 |
| 38 | 2.2250971 | 80 | -5.434813 | 121 | 2.3255549 | 162 | -2.227628 | 203 | 2.9630925 |
| 39 | 1.8653747 | 81 | -3.942042 | 122 | 2.4607728 | 163 | -2.560789 | 204 | -2.089906 |
| 40 | -4.762077 | 82 | 1.4118226 | 123 | -1.592922 | 164 | 1.3499583 | 205 | 2.9363524 |
| 41 | 2.9624868 | 83 | -2.081267 | 124 | -0.678291 | 165 | 1.4051896 | 206 | 2.95151 |
| 42 | 2.9503679 | | | | | | | | |

Table 4.6 Combined Array One Dimensional Standardized Response Data

| Source | Sum of Squares | Degrees of Freedom | Mean Square | F Value | p-value Prob < F |
|----------------|----------------|--------------------|-------------|-------------|---------------------|
| Model | 878.7585661 | 41 | 21.43313576 | 10.84543387 | < 0.0001 |
| A | 3.792812756 | 1 | 3.792812756 | 1.919210533 | 0.1678 |
| B | 13.07239132 | 1 | 13.07239132 | 6.614792961 | 0.0110 |
| C | 5.018482374 | 1 | 5.018482374 | 2.539414639 | 0.1130 |
| D | 2.118686367 | 1 | 2.118686367 | 1.072081712 | 0.3020 |
| E | 59.59742067 | 1 | 59.59742067 | 30.15703777 | < 0.0001 |
| F | 0.328422092 | 1 | 0.328422092 | 0.166185673 | 0.6841 |
| G | 0.521041485 | 1 | 0.521041485 | 0.263653486 | 0.6083 |
| H | 0.063147215 | 1 | 0.063147215 | 0.031953278 | 0.8584 |
| J | 21.27632813 | 1 | 21.27632813 | 10.76608725 | 0.0013 |
| K | 1.135396085 | 1 | 1.135396085 | 0.574524572 | 0.4496 |
| L | 4.774900156 | 1 | 4.774900156 | 2.416159 | 0.1220 |
| M | 559.7014493 | 7 | 79.9573499 | 40.45941575 | < 0.0001 |
| BE | 11.23480116 | 1 | 11.23480116 | 5.684949432 | 0.0183 |
| BM | 44.58736527 | 7 | 6.36962361 | 3.223108947 | 0.0032 |
| EM | 42.77769292 | 7 | 6.111098989 | 3.092292266 | 0.0043 |
| JM | 51.3238605 | 7 | 7.331980072 | 3.710073313 | 0.0009 |
| J ² | 47.93661496 | 1 | 47.93661496 | 24.25652472 | < 0.0001 |
| Residual | 324.1026876 | 164 | 1.9762359 | | |
| Lack of Fit | 320.9456241 | 157 | 2.044239644 | 4.532591004 | 0.0199 |
| Pure Error | 3.157063475 | 7 | 0.451009068 | | |
| Cor Total | 1202.861254 | 205 | | | |

Table 4.7 ANOVA for One Dimensional Standardized Response

$$\begin{aligned}
\widehat{O} = & 0.928732608 - 0.16093589 \times A \\
& + 0.287762309 \times B + 0.18357479 \times C \\
& + 0.118276589 \times D + 0.622239684 \times E \\
& + 0.047485806 \times F - 0.059166689 \times G \\
& + 0.021716595 \times H + 0.365644744 \times J \\
& + 0.076358805 \times K - 0.160423161 \times L \\
& + 0.774824531 \times M[1] - 1.779421789 \times M[2] \\
& + 2.456865236 \times M[3] + 1.464838509 \times M[4] \\
& + 1.22827625 \times M[5] - 2.906496946 \times M[6] \\
& - 0.28650865 \times M[7] - 0.29846376 \times BE \\
& - 0.145106798 \times BM[1] - 0.609422884 \times BM[2] \\
& + 0.050601077 \times BM[3] + 1.104654031 \times BM[4] \\
& + 0.391108084 \times BM[5] - 0.258359334 \times BM[6] \\
& + 0.165166983 \times BM[7] - 0.661393958 \times EM[1] \\
& - 0.21250146 \times EM[2] - 0.483520254 \times EM[3] \\
& + 0.220174878 \times EM[4] - 0.493187564 \times EM[5] \\
& + 0.435434061 \times EM[6] + 0.235208103 \times EM[7] \\
& + 0.519721233 \times JM[1] - 0.185781319 \times JM[2] \\
& - 0.688586044 \times JM[3] - 1.094824113 \times JM[4] \\
& + 0.459949215 \times JM[5] + 0.782221794 \times JM[6] \\
& + 0.01039305 \times JM[7] - 1.197693658 \times J^2
\end{aligned} \tag{4.1}$$

This model was converted using the techniques from section 3.4.1 into an estimated mean response model for predicting the expected value of the mean response

across all noise categories. Once again, the observed probabilities of occurrence given in Table 3.6 were used within Eq. 3.4 to produce a reduced estimated mean model for the one dimensional response provided in Eq. 4.2. Figures containing the step-by-step analysis conducted in Excel[®] are included in App. B, Figures B.1 and B.2.

$$\begin{aligned}
\widehat{E}_z \left[y \left(\widehat{O}, \mathbf{z} \right) \right] &= 1.091525694 \\
&- 0.16093589 \times A \\
&+ 0.373480157 \times B \\
&+ 0.18357479 \times C \\
&+ 0.118276589 \times D \\
&+ 0.493179787 \times E \\
&+ 0.047485806 \times F \\
&- 0.059166689 \times G \\
&+ 0.021716595 \times H \\
&+ 0.32925413 \times J \\
&+ 0.076358805 \times K \\
&- 0.160423161 \times L \\
&- 0.29846376 \times BE \\
&- 1.197693658 \times J^2
\end{aligned} \tag{4.2}$$

The next step in the analysis is to develop a variance model from Eq. 4.1. Continuing the procedure layed out in section 3.4.2, Eq. 3.7 is used to generate a variance model since the p_i is known for each category of the noise. Once again, this model is extremely large due to the number of variance and covariance terms generated within the summations, therefore it is not included here in equation form.

| Variance Model | | | | | P | Q |
|----------------|--------------|-----------------|----------------|----------------|-------------|-------------|
| | Estimate | Interaction (B) | Interaction(E) | Interaction(J) | | |
| M[1] | 0.774824531 | -0.145106798 | -0.661393958 | 0.519721233 | 0.121359223 | 0.878640777 |
| M[2] | -1.779421789 | -0.609422884 | -0.21250146 | -0.185781319 | 0.126213592 | 0.873786408 |
| M[3] | 2.456865236 | 0.050601077 | -0.483520254 | -0.688586044 | 0.13592233 | 0.86407767 |
| M[4] | 1.464838509 | 1.104654031 | 0.220174878 | -1.094824113 | 0.121359223 | 0.878640777 |
| M[5] | 1.22827625 | 0.391108084 | -0.493187564 | 0.459949215 | 0.126213592 | 0.873786408 |
| M[6] | -2.906496946 | -0.258359334 | 0.435434061 | 0.782221794 | 0.116504854 | 0.883495146 |
| M[7] | -0.28650865 | 0.165166983 | 0.235208103 | 0.01039305 | 0.121359223 | 0.878640777 |

Figure 4.12 Elements of γ and Δ within the Variance Model

| Squared Terms *PQ |
|-------------------|
| 0.391828773 |
| 4.239763716 |
| 0.000209398 |
| 1.487914038 |
| 3.174797899 |
| 0.169757375 |
| 0.063153693 |

Figure 4.13 Products of Squared terms, p , and q within first summation term in Eq. 3.7

However, the terms of the variance model are included in Figures 4.12, 4.13, and 4.14.

The values in Fig. 4.12 are taken directly from Eq. 4.1 and are the elements of γ and Δ in Eq. 3.7. They are appropriately multiplied by the control variable levels, then the entire term is squared before being multiplied by the product of the appropriate elements of the P and Q columns. Recall from Eq. 2.13 multinomial variance is given by diagonal elements, pq , and covariance by the off-diagonal terms, $-p_i p_j$. The values in Fig. 4.13 are the results of these computations and represent the first term in Eq. 3.7.

The double sum term is computed in a similar manner, however instead of squaring a row's result, it is multiplied by another row's result. This product is then

| Covariance Terms Matrix (Upper and lower combined) | | | | | | |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| V(M[1]) | -0.364107918 | -0.002670326 | 0.210925221 | 0.315077462 | -0.069613445 | 0.043454921 |
| | V(M[2]) | 0.008982694 | -0.709530194 | -1.059887347 | 0.234172287 | -0.146177771 |
| | | V(M[3]) | -0.005203613 | -0.007773092 | 0.001717393 | -0.001072051 |
| | | | V(M[4]) | 0.613985474 | -0.1356544 | 0.084679781 |
| | | | | V(M[5]) | -0.20263885 | 0.126493599 |
| | | | | | V(M[6]) | -0.027947588 |
| | | | | | | V(M[7]) |

Figure 4.14 Covariance terms summed within the second term of Eq. 3.7

| Parameter | Type | Test Range |
|---------------------|------------|-------------|
| Max Score Threshold | Continuous | [6, 14] |
| Bin Width Identify | Continuous | [0.01, 0.1] |
| Window Size | Discrete | [1, 9] |

Table 4.8 Variance Model Control Factors and their ranges

multiplied by 2 and it's appropriate covariance. The values in Fig. 4.14 represent these covariance products and their sum is the second term in Eq. 3.7.

The final term is simply the variance from the model and is found in the ANOVA table, 4.7, as the Mean Square of Residual. In this case $\sigma^2 = 1.9762359$.

All the components of the variance model are now present, so all that remains is to minimize the sum of the elements in Fig. 4.13 and Fig. 4.14, and σ^2 . This minimization is subject to bounding constraints on the ranges of the control variables present in the variance model. These variables along with their upper and lower bounds are restated in Table 4.8.

Evaluation of the minimization was conducted using an EXCEL[®] add-in called WHAT'S BEST![®] 9.0 developed by LINDO SYSTEMS, INC. This software makes a powerful LP/IP solver available within a spreadsheet. It is therefore ideal to solve the mixed integer minimization problem presented by the variance model developed above. The minimized variance returned by the solver was 11.54013698. The actual value of the minimized variance doesn't convey much information in and of itself. What is important is the levels of the control variables that produce it. These

| Parameter | Level |
|---------------------|--------------|
| Max Score Threshold | 6 |
| Bin Width Indentify | 0.1 |
| Window Size | 4 |

Table 4.9 Control Factor Levels producing Minimized Variance

| Parameter | Type | Test Range |
|------------------------|-------------|-------------------|
| Dimension Adjust | Discrete | [-2, 2] |
| Bin Width SNR | Continuous | [0.01, 0.1] |
| PT SNR Threshold | Continuous | [1, 6] |
| Smooth Iterations High | Discrete | [50, 150] |
| Smooth Iterations Low | Disrete | [5, 45] |
| Low SNR | Continuous | [4, 14] |
| Threshold Both Sides | Categorical | [0, 1] |
| Clean Signal | Categorical | [0, 1] |

Table 4.10 Estimated Mean Model Control Factors and their ranges

levels represent the region on the response surface where variance is minimized, and consistent algorithm performance can be expected, regardless of the image of interest. The control variable levels producing minimized response variance are presented in Table 4.9.

The next and final step in analysis of the Combined Array is to maximize the estimated mean response. This is done by fixing the dispersion factors at the levels determined above to minimize response variance and then maximizing Eq. 4.2 by manipulating the remaining adjustment factors. This maximization was done using the WHAT'S BEST![®] add-in described earlier. For this problem the remaining significant controls were varied across their respective ranges given in Table 4.10.

The solver software produced a maximized estimated mean response of -6.3861 . Recall that this is the one dimensional standardized response and as such, expresses the summation of four individual standardized responses as shown in Eq. 3.10. So, even though a negative result from a maximization problem seems nonintuitive, its underlying cause is relatively straightforward. Since each of the responses was given equal weight in the objective function, none is allowed to excel at the expense of the

| Parameter | Level |
|------------------------|-------|
| Dimension Adjust | -2 |
| Max Score Threshold | 6 |
| Bin Width SNR | 0.1 |
| PT SNR Threshold | 6 |
| Bin Width Identify | 0.1 |
| Smooth Iterations High | 150 |
| Smooth Iterations Low | 5 |
| Low SNR | 14 |
| Window Size | 4 |
| Threshold Both Sides | 1 |
| Clean Signal | 0 |

Table 4.11 Control Factor Levels producing Minimized Variance and Optimized Response

others. Therefore, each response settles on a value below it's sample mean and thus produces a negative standardized response. Summing four negative responses together inevitably results in a negative estimated mean response. It should be noted that dividing the maximized response by four reveals the individual responses all contributing ~ -1.59 to the total. In other words, each response is within 2 standard deviations of its mean, which is a reasonable expectation given the equal weighting between them and the constraint to the minimized variance region of the response surface.

Finally, the control variable levels producing minimized variance and subsequently optimized response are summarized in Table 4.11.

4.3 Verification Experiment

Control factors enabling both optimized and robust algorithm performance have now been located using two separate RPD techniques. There are however, a few questions that remain:

- Is one technique better than another from an experimental design perspective (*e.g.* design matrix size, difficulty of analysis)?

- Which technique produced better parameter settings?
- Are the settings from either or both techniques better than those suggested by Johnson?

Answering the first question is a somewhat subjective matter. While quantifying the design size is objective enough; the Crossed Array required 2240 replications while the Combined Array required only 206, this is only a portion of the answer. Because of the one-[noise]factor-at-a-time nature of the Crossed Array designs, they will always be larger than a Combined Array design of the same resolution for a particular system. For this particular analysis, the difference in number of replications was not of particular consequence, since each replication only required an average of ~ 21 seconds to complete. So even 2240 runs could be completed in less than 14 hours. However, as the techniques are applied to other algorithms with longer per replication execution times, design size becomes more important.

Measuring the difficulty of analysis is where the first question becomes more subjective. Most analysts would agree the Taguchi methodology is generally less tedious and therefore more expedient with regard to complete the analysis. However, the underlying source of the difference in required analysis effort is also the point of greatest criticism for Taguchi's methods. Not only has the statistical validity of the proposed SNR's been questioned, but they are also the point within the analysis where response and variance are confounded. This aggregation precludes the development of separate response and variance models, and as Myers and Montgomery [10] point out, development of separate models often provides significant insight into system processes.

For this particular analysis, the mixed variable nature of the control and noise factors required specialized techniques for the Combined Array analysis, whereas the Crossed Array analysis was somewhat indifferent to these characteristics. Once again, as these techniques are applied to the general algorithm with more standard control and noise spaces, the Combined Array analysis is more straightforward in

| Image | Crossed Array Statistics | | | | | | | |
|----------------|--------------------------|----------|--------|------------------------|--------|------------------------|--------|------------------------|
| | Time | | TPF | | FPF | | TFP | |
| | Mean | Variance | Mean | Variance | Mean | Variance | Mean | Variance |
| ARES 1C | 1.2121 | 0.0030 | 1 | 0 | 0 | 0 | 1 | 0 |
| ARES 1D | 6.0014 | 1.8244 | 0 | 0 | 0 | 0 | 0 | 0 |
| ARES 1F | 3.0394 | 0.0299 | 0.4604 | 3.17×10^{-17} | 0.0015 | 4.84×10^{-22} | 0.9165 | 0 |
| ARES 2C | 2.2088 | 0.1912 | 1 | 0 | 0 | 0 | 1 | 0 |
| ARES 2D | 3.4996 | 0.1342 | 0.8235 | 2.13×10^{-6} | 0 | 0 | 1 | 0 |
| ARES 2F | 104.82 | 66.1218 | 0.9274 | 0.0001 | 0.0024 | 2.88×10^{-07} | 0.7569 | 0.0020 |
| ARES 3F | 3.5923 | 0.2642 | 0.7137 | 7.97×10^{-06} | 0.0004 | 0 | 0.9146 | 7.71×10^{-08} |
| ARES 4F | 2.2397 | 0.0951 | 0.7363 | 8.26×10^{-06} | 0.0021 | 1.14×10^{-08} | 0.7685 | 6.81×10^{-05} |
| Total | 15.8262 | 1158.68 | 0.7077 | 0.1010 | 0.0008 | 9.91×10^{-07} | 0.7946 | 0.1005 |

Table 4.12 Mean and Variances from Crossed Array Verification Experiment

nature; effectively closing the analysis effort gap on Crossed Array analysis. Given these analysis attributes combined with significant difference in design sizes, the Combined Array is, in general, better than the Crossed Array with regard to experimental design.

The best way to answer two remaining questions is to conduct another designed experiment. However, development and analysis of this experiment is significantly less involved than those previously discussed. The experiment used for verifying algorithm performance at the suggested levels consisted of 64 runs at each of three sets of suggested control settings. Within each 64-run block, each noise category was tested eight times. Eight noise categories each tested eight times on three groups of control factor settings yields 192 total runs. The entire 192-run experiment was randomized to satisfy the independence assumption. The response data for each run was collected and resorted to restore the control setting blocks and the noise category groupings. Mean and variance was then computed for each technique's suggested settings both at the by image level and across the entire noise space.

Table 4.12 gives the mean and variance results from the Crossed Array block for each response both by image and as an aggregated total of all images. Tables

| Image | Combined Array Statistics | | | | | | | |
|----------------|---------------------------|----------|--------|------------------------|--------|------------------------|-----------|------------------------|
| | Time | | TPF | | FPF | | TFP | |
| | Mean | Variance | Mean | Variance | Mean | Variance | Mean | Variance |
| ARES 1C | 1.2078 | 0.0028 | 1 | 0 | 0 | 0 | 1 | 0 |
| ARES 1D | 6.4289 | 4.7663 | 0 | 0 | 0 | 0 | 0 | 0 |
| ARES 1F | 2.5197 | 0.0760 | 0.4195 | 0 | 0.0011 | 0 | 0.9295 | 0 |
| ARES 2C | 7.8425 | 108.02 | 1 | 0 | 0 | 0 | 1 | 0 |
| ARES 2D | 2.1147 | 0.1772 | 0.9023 | 9.16×10^{-05} | 0.0008 | 5.0×10^{-09} | 0.9664 | 8.25×10^{-06} |
| ARES 2F | 99.744 | 0.9181 | 0.8718 | 0.0001 | 0.0045 | 2.57×10^{-07} | 0.5710875 | 0.0005 |
| ARES 3F | 2.8082 | 0.1066 | 0.6883 | 0.0005 | 0.0013 | 9.82×10^{-09} | 0.717 | 0.0004 |
| ARES 4F | 1.8884 | 0.0237 | 0.8241 | 1.56×10^{-05} | 0.0055 | 4.98×10^{-08} | 0.5699 | 0.0001 |
| Total | 15.569 | 1045.9 | 0.7133 | 0.1059 | 0.0017 | 4.19×10^{-06} | 0.7192 | 0.1048 |

Table 4.13 Mean and Variances from Combined Array Verification Experiment

4.13 and 4.16 do likewise for the Combined Array and Johnson’s suggested setting blocks, respectively.

Answering the second question: “Which technique produced better parameter settings?” is now simply a matter of comparing the performance statistics in Tables 4.12 and 4.13. However, it is instructive to first examine the differences in parameter settings suggested by each of the techniques. Therefore, a complete list of the suggested parameters for each technique is given in Table 4.14 where differences are highlighted in red.

The first difference is in ‘Bin Width SNR’ which effects the smoothness of the signal histogram. The smaller bin sizes selected by the Crossed Array produce a less smooth histogram and reduce the SNR required for a map to be nominated as containing potential targets. Next is ‘PT SNR Threshold’ which draws the line separating target and non-target pixels within target maps. The Crossed Array selections for both these parameters favor a more liberal approach to potential target nomination.

| Parameter | Crossed Array Level | Combined Array Level |
|------------------------------|---------------------|----------------------|
| Dimension Adjust | -2 | -2 |
| Max Score Threshold | 6 | 6 |
| Bin Width SNR | 0.06 | 0.1 |
| PT SNR Threshold | 3.5 | 6 |
| Bin Width Identify | 0.1 | 0.1 |
| Smooth Iterations High | 150 | 150 |
| Smooth Iterations Low | 25 | 5 |
| Low SNR | 4 | 14 |
| Window Size | 5 | 4 |
| Threshold Both Sides | 1 | 1 |
| Clean Signal | 1 | 0 |

Table 4.14 Control Factor Level Differences between Crossed and Combined Array Techniques

The four remaining parameters are all related in that the first three: ‘Smooth Iterations Low’, ‘Low SNR’, and ‘Window Size’ are only used if ‘Clean Signal’ is set to 1. Therefore, the ‘Clean Signal’ setting suggested by the Combined Array analysis renders the other three parameters’ settings irrelevant, and their suggested settings are secondary effects from other parameters influencing them through the test design framework.

Comparing the performance statistics from the two RPD techniques reveals only slight differences in performance in any one response, and neither technique outperformed the other for every response. The Combined Array setting was an average of ~ 0.26 seconds faster and produced $\sim 1\%$ greater TPF than the Crossed Array setting. However, the Crossed Array setting produced a slightly smaller variance with regard to TPF. Additionally, the Crossed Array setting outperformed the Combined Array on FPF by about 0.1% and TFP by almost 7%. The variance of these two response was also slightly lower with the Crossed Array than the Combined Array setting. The overall differences in performance between the two sets of parameter settings are small enough that, even though a rigorous multivariate analysis was not performed, they can be said to be insignificant. However, since

| Parameter | Johnson's Level |
|------------------------|------------------------|
| Dimension Adjust | 0 |
| Max Score Threshold | 10 |
| Bin Width SNR | 0.05 |
| PT SNR Threshold | 2 |
| Bin Width Identify | 0.05 |
| Smooth Iterations High | 100 |
| Smooth Iterations Low | 20 |
| Low SNR | 10 |
| Window Size | 3 |
| Threshold Both Sides | 0 |
| Clean Signal | 1 |

Table 4.15 Johnson's Suggested Control Factor Levels

the second question from the previous list should be answered, the Time difference was transformed into a percentage to provide some objective method of comparison. The Combined Array settings were $\sim 1.6\%$ faster than the Crossed Array. This combined with the 1% advantage in TPF was compared to the $\sim 7.1\%$ advantage of the Crossed Array from FPF and TFP. The results of the performance comparison show the Crossed Array settings provide better, more robust algorithm performance than the Combined Array settings. The most intuitive reason for enhanced performance from the Crossed Array settings is the difference in design sizes. The Crossed Array's design is a full order of magnitude larger than the Combined Array design resulting in enhanced resolution of the control \times response interaction.

The final question is whether or not the parameters suggested by the RPD techniques improve performance over Johnson's suggested settings. The settings suggested by Johnson [5] are given in Table 4.15.

Comparing these settings to those suggested by the RPDs, Johnson's recommendations match those of the RPD for only one control, 'Clean Signal'. Furthermore, this setting is only matched by the Crossed Array and it is one of two binary variables, making the intersection likelihood rather high.

| Image | Johnson Settings Statistics | | | | | | | |
|----------------|-----------------------------|----------|--------|------------------------|--------|------------------------|--------|------------------------|
| | Time | | TPF | | FPF | | TFP | |
| | Mean | Variance | Mean | Variance | Mean | Variance | Mean | Variance |
| ARES 1C | 1.5710 | 0.1043 | 1 | 0 | 0 | 0 | 1 | 0 |
| ARES 1D | 5.5502 | 0.2338 | 0.84 | 0 | 0.0023 | 1.44×10^{-07} | 0.6125 | 0.0015 |
| ARES 1F | 4.2262 | 0.5895 | 0.9623 | 1.27×10^{-16} | 0.0017 | 4.84×10^{-22} | 0.9563 | 2.54×10^{-16} |
| ARES 2C | 3.5078 | 0.0782 | 1 | 0 | 0.0056 | 1.24×10^{-06} | 0 | 0 |
| ARES 2D | 2.9759 | 0.1232 | 0.9085 | 6.85×10^{-06} | 0.0003 | 5.14×10^{-08} | 0.9889 | 7.07×10^{-05} |
| ARES 2F | 122.61 | 0.4541 | 0.9704 | 3.43×10^{-06} | 0.0025 | 1.28×10^{-06} | 0.7772 | 0.0053 |
| ARES 3F | 5.1454 | 0.4610 | 0.8456 | 5.65×10^{-05} | 0.0004 | 1.25×10^{-09} | 0.9242 | 4.16×10^{-06} |
| ARES 4F | 27.538 | 0.3373 | 0.8441 | 0 | 0.0037 | 1.15×10^{-06} | 0.7272 | 0.0029 |
| Total | 21.640 | 1542.2 | 0.9214 | 0.0044 | 0.0021 | 3.71×10^{-06} | 0.7483 | 0.0995 |

Table 4.16 Mean and Variances from Johnson Verification Experiment

Comparing the statistics in Table 4.16 with those in Tables 4.12 and 4.13 shows significant differences in mean response between Johnson and the RPDs. First, Johnson’s settings yield an average Time response approximately 6 seconds higher than those of the RPDs indicating an improvement in average algorithm run time with RPD. However, Johnson’s settings produced an average TPF over 20% higher than either of the RPDs. FPF was slightly higher using Johnson’s settings, but all of the FPFs are very small with virtually no variance. Finally, Johnson’s settings produced an average TFP lower than the Crossed Array, but higher than Combined Array settings.

These results suggest that while the RPDs did not enhance performance in each response category, neither did they degrade overall algorithm performance. The differences in performance observed in the Time and TPF responses are most likely the result of the objective functions given in Eq.’s 3.10 and 3.11. Recall these equations give equal weight to each of the four responses. These weightings are key to driving the algorithm toward a response(s) of interest. For this particular analysis, no user input was available in terms of required analysis time or minimum TPF, so each of the responses was treated as equally important. From the results

shown in Table 4.16 it seems apparent that Johnson was somewhat more concerned with TPF than Time. In other words, his objective function, had it been explicitly stated, would have a larger weight on TPF than on the Time response.

In conclusion, the relative equality of performance demonstrated by the suggested settings from the RPD techniques combined with the large variation in design size and the additional system level insight gained by generating mean and variance models leads to selection of the Combined Array RSM technique as preferable to Taguchi's Crossed Array method.

5. Conclusions

This final chapter reviews the previous four, summarizes the contributions of the research efforts, and suggests possible future research areas.

5.1 *Review*

Chapter 1 began by introducing remote sensing, specifically the proliferation of hyperspectral technology and the analysis problems it creates. A previously developed method, AUTOGAD, is introduced as potential piece of future analysis techniques, but has not yet evolved into a real time analysis tool ready for deployment. Design of Experiments, specifically Robust Parameter Design, is proposed as a technique for improving AUTOGAD's capability. Finally, the location of robust operating parameters via two distinct RPD methods was presented as the overarching research goal.

Chapter 2 provided a short description of hyperspectral imagery as well as common techniques for analysis of HSI. This was followed by an overview of the AUTOGAD algorithm developed by Johnson for autonomous detection of anomalous pixels within HSI. Robust Parameter Design's history, application, and techniques were discussed. This discussion included development of the mathematical basis for two separate RPD techniques: Taguchi's Method, or Crossed Arrays; and Response Surface Methods, or Combined Arrays.

Chapter 3 cast AUTOGAD as a RPD problem. Inputs (controls and noise) were developed as well as responses to quantify algorithm performance. These variables were then employed to develop RPDs for AUTOGAD using both Crossed and Combined Array approaches. Finally, the dimensionality of the response space was reduced using standardization and a simple linear program.

Chapter 4 provided detailed analysis of the experimental results. Both RPD techniques were described in detail with regard to their application to AUTOGAD. The results from both designed experiments were presented along with analysis of these results. The suggested robust parameter settings were provided and then compared using a verification experiment. This experiment included a comparison of both RPD techniques to Johnson's suggested settings. Finally, the results of the verification were presented and techniques' performances were compared to each other and to the performance of Johnson's settings.

5.2 Research Contributions

The list given below summarizes the contributions to the body of knowledge made by this research:

- Developed Methodology for evaluating new evolutions of AUTOGAD.
- RPD can provide better settings, or at least match the performance of settings suggested by algorithm creators by giving flexibility to the end-user through objective function weight manipulation.
- RPD has been shown as a viable technique for enhancing anomaly detection algorithm performance. It is reasonable to assume the techniques are extensible to other types of algorithms.
- Conducted head-to-head comparison of two distinct RPD techniques; forming and supporting conclusions about which technique is better suited to problems of similar type and size.
- Developed a method for reducing the dimensionality of the response space for multi-objective problems. Specifically, standardizing response data to enable creation of a simple, one-dimensional objective function where all responses of interest become terms of a linear combination.

5.3 *Future Research*

- Conduct a large scale validation experiment using different imagery collected at different times, using different sensors and targets/backgrounds.
- The low R^2 of the Combined Array model suggests misspecification. Employ different model generation techniques to locate robust parameter settings, *i.e.* Neural Networks.
- Develop a more sophisticated heuristic for selection of significant parameters. These heuristics can be used within both techniques to decide which parameters will adjust mean response and which will be used to reduce response variation.

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Appendix A. Additional Data Tables and Analysis from the Crossed Array Design

Crossed Array Inner Array Design Points and Responses (Block 1)

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | TTime | TPF | FPF | TFP | Std Time | Std TPF | Std FPF | Std TFP |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|---------|-------------|----------------------|--------------|---------------|--------|--------|--------|----------|----------|----------|----------|----------|
| 1 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 13.1776 | 0 | 0 | 0 | 0 | -0.22474 | -1.91807 | -0.43401 | -1.32603 |
| 2 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 2.0119 | 0.8194 | 0.0041 | 0.6413 | 0 | -0.51211 | 0.297434 | -0.25171 | 0.24601 |
| 3 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 3.8542 | 0 | 0 | 0 | 0 | -0.46469 | -1.91807 | -0.43401 | -1.32603 |
| 4 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 7.8086 | 0.2298 | 0.0006 | 0.6 | 0 | -0.36292 | -1.29674 | -0.40733 | 0.14477 |
| 5 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 14.9828 | 0 | 0 | 0 | 0 | -0.17828 | -1.91807 | -0.43401 | -1.32603 |
| 6 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 10.4432 | 0 | 0 | 0 | 0 | -0.29511 | -1.91807 | -0.43401 | -1.32603 |
| 7 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 2.8327 | 0.75 | 0.0013 | 0.7303 | 0 | -0.49098 | 0.109789 | -0.37621 | 0.464178 |
| 8 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 3.8392 | 1 | 0.0012 | 0 | 0 | -0.46508 | 0.785743 | -0.38065 | -1.32603 |
| 9 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 20.2714 | 0 | 0 | 0 | 0 | -0.04217 | -1.91807 | -0.43401 | -1.32603 |
| 10 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 1.9932 | 0.9415 | 0.0012 | 0.9516 | 0 | -0.51259 | 0.62757 | -0.38065 | 1.006656 |
| 11 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 2.6285 | 1 | 0.004 | 0 | 0 | -0.49624 | 0.785743 | -0.25616 | -1.32603 |
| 12 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 4.8055 | 0.8696 | 0.0044 | 0.5072 | 0 | -0.44021 | 0.433165 | -0.23837 | -0.08271 |
| 13 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 112.0733 | 0 | 0 | 0 | 0 | 2.320493 | -1.91807 | -0.43401 | -1.32603 |
| 14 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 1.9084 | 1 | 0 | 1 | 0 | -0.51477 | 0.785743 | -0.43401 | 1.125301 |
| 15 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 101.7496 | 0.9649 | 0.0566 | 0.1182 | 2.054797 | 0.690839 | 2.082596 | -1.03628 | |
| 16 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 3.9023 | 0.8352 | 0.0195 | 0.1626 | 0 | -0.46345 | 0.340154 | 0.43302 | -0.92744 |
| 17 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 1.3927 | 1 | 0 | 1 | 0 | -0.52804 | 0.785743 | -0.43401 | 1.125301 |
| 18 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 1.2262 | 1 | 0 | 1 | 0 | -0.53233 | 0.785743 | -0.43401 | 1.125301 |
| 19 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 1.2353 | 1 | 0 | 1 | 0 | -0.53209 | 0.785743 | -0.43401 | 1.125301 |
| 20 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 1.1623 | 1 | 0 | 1 | 0 | -0.53397 | 0.785743 | -0.43401 | 1.125301 |
| 21 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 1.9752 | 1 | 0.0002 | 0 | 0 | -0.51305 | 0.785743 | -0.42512 | -1.32603 |
| 22 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 5.28 | 0 | 0 | 0 | 0 | -0.428 | -1.91807 | -0.43401 | -1.32603 |
| 23 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 5.4989 | 0.9428 | 0.0017 | 0.9539 | 0 | -0.42236 | 0.631085 | -0.35842 | 1.012294 |
| 24 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 3.3528 | 1 | 0 | 1 | 0 | -0.4776 | 0.785743 | -0.43401 | 1.125301 |
| 25 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 3.6689 | 0.0851 | 0.0005 | 0.3922 | -0.46946 | -1.68798 | -0.41178 | -0.36462 | |
| 26 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 114.885 | 0.8845 | 0.0063 | 0.4932 | 2.392856 | 0.473452 | -0.15389 | -0.11703 | |
| 27 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 0 | 24.6365 | 1 | 0 | 1 | 0 | 0.070173 | 0.785743 | -0.43401 | 1.125301 |
| 28 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 3.0996 | 0.8439 | 0.0003 | 0.9891 | -0.48411 | 0.363677 | -0.42067 | 1.098581 | |
| 29 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 3.7952 | 0.4479 | 0 | 0.9978 | -0.46621 | -0.70703 | -0.43401 | 1.119908 | |
| 30 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 3.4206 | 0.1578 | 0 | 1 | 0 | -0.47585 | -1.49141 | -0.43401 | 1.125301 |
| 31 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 1.1463 | 1 | 0 | 1 | 0 | -0.53438 | 0.785743 | -0.43401 | 1.125301 |
| 32 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 0 | 64.6679 | 0.9371 | 0.0788 | 0.0637 | 1.100442 | 0.615673 | 3.069674 | -1.16988 | |
| 33 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 114.9218 | 0.9083 | 0.0109 | 0.3744 | 2.393804 | 0.537803 | 0.050638 | -0.40825 | |
| 34 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 0 | 4.4663 | 0.941 | 0.0017 | 0.9531 | -0.44894 | 0.626218 | -0.35842 | 1.010333 | |
| 35 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 3.3109 | 0 | 0 | 0 | 0 | -0.47867 | -1.91807 | -0.43401 | -1.32603 |
| 36 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 25.7124 | 1 | 0 | 1 | 0 | 0.097863 | 0.785743 | -0.43401 | 1.125301 |
| 37 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 3.1298 | 0.9331 | 0.0255 | 0.6244 | -0.48334 | 0.604858 | 0.699798 | 0.204582 | |
| 38 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 4.0474 | 0.7892 | 0.0003 | 0.9481 | -0.45972 | 0.215778 | -0.42067 | 0.998077 | |
| 39 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 114.4513 | 0.9732 | 0.1379 | 0.0581 | 2.381695 | 0.713281 | 5.697436 | -1.1836 | |
| 40 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 4.5646 | 0.8826 | 0.0018 | 0.9474 | -0.44641 | 0.468315 | -0.35397 | 0.996361 | |
| 41 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 2.8429 | 0.7487 | 0.0028 | 0.7644 | -0.49072 | 0.106274 | -0.30951 | 0.547768 | |
| 42 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 1.2173 | 1 | 0 | 1 | 0 | -0.53256 | 0.785743 | -0.43401 | 1.125301 |
| 43 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 5.9812 | 0.7892 | 0.0005 | 0.9068 | -0.40995 | 0.215778 | -0.41178 | 0.896837 | |
| 44 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 3.7297 | 0 | 0 | 0 | 0 | -0.4679 | -1.91807 | -0.43401 | -1.32603 |
| 45 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 115.7943 | 0.9042 | 0.0027 | 0.7056 | 2.416259 | 0.526717 | -0.31396 | 0.40363 | |
| 46 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 3.5526 | 0.9217 | 0.0022 | 0.9398 | -0.47245 | 0.574034 | -0.33619 | 0.977731 | |
| 47 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 122.4336 | 0.9207 | 0.0073 | 0.6552 | 2.587131 | 0.57133 | -0.10943 | 0.280083 | |
| 48 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6.3808 | 0.9439 | 0.1165 | 0.0494 | -0.39967 | 0.634059 | 4.745929 | -1.20493 | |
| 49 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 1.6765 | 1 | 0 | 1 | 0 | -0.52074 | 0.785743 | -0.43401 | 1.125301 |
| 50 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3.1461 | 0.6201 | 0.0057 | 0.7995 | -0.48292 | -0.24144 | -0.18057 | 0.63381 | |
| 51 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5.9297 | 0.9428 | 0.0017 | 0.9539 | -0.41128 | 0.631085 | -0.35842 | 1.012294 | |
| 52 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2.9791 | 0.7661 | 0.0012 | 0.7798 | -0.48721 | 0.15332 | -0.38065 | 0.585518 | |
| 53 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6.4238 | 0.3362 | 0.0019 | 0.4202 | -0.39856 | -1.00905 | -0.34953 | -0.29598 | |
| 54 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4.2979 | 0 | 0 | 0 | 0 | -0.45327 | -1.91807 | -0.43401 | -1.32603 |
| 55 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 0 | 89.8928 | 0.7045 | 0.009 | 0.3875 | 1.749644 | -0.01323 | -0.03384 | -0.37614 | |
| 56 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 0 | 116.9492 | 0.9535 | 0.0033 | 0.7467 | 2.445982 | 0.660015 | -0.28728 | 0.504379 | |
| 57 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 0 | 4.8267 | 0 | 0.0065 | 0 | 0 | -0.43966 | -1.91807 | -0.145 | -1.32603 |
| 58 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 0 | 2.6143 | 0.9561 | 0.0056 | 0.8669 | -0.4966 | 0.667045 | -0.18502 | 0.799029 | |
| 59 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 0 | 2.9985 | 1 | 0.0602 | 0 | 0 | -0.48671 | 0.785743 | 2.242663 | -1.32603 |
| 60 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 0 | 2.6099 | 0.7971 | 0.0052 | 0.567 | -0.49672 | 0.237139 | -0.2028 | 0.063876 | |
| 61 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 0 | 1.4046 | 1 | 0.0049 | 0 | 0 | -0.45989 | 0.785743 | -0.21614 | -1.32603 |
| 62 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 0 | 2.2676 | 1 | 0 | 1 | 0 | -0.50553 | 0.785743 | -0.43401 | 1.125301 |
| 63 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 0 | 5.6479 | 0.8469 | 0.0238 | 0.6457 | -0.41853 | 0.371789 | 0.624211 | 0.256795 | |
| 64 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 0 | 4.442 | 1 | 0.0072 | 0 | 0 | -0.44956 | 0.785743 | -0.11387 | -1.32603 |

| | | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|----------|
| 65 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 1 | 1.2743 | | 1 | 0 | 1 | -0.53109 | 0.785743 | -0.43401 | 1.125301 |
| 66 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 1 | 2.9349 | | 0.75 | 0.0048 | 0.6176 | -0.48835 | 0.109789 | -0.22059 | 0.187913 |
| 67 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 1 | 2.4358 | 0.7558 | 0.0014 | 0.8497 | -0.5012 | 0.125471 | -0.37176 | 0.756866 | |
| 68 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 1 | 123.9118 | 0.9541 | 0.0051 | 0.6361 | 2.625175 | 0.661638 | -0.20725 | 0.233263 | |
| 69 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 1 | 2.3699 | 0.9131 | 0.0011 | 0.9537 | -0.50289 | 0.550781 | -0.3851 | 1.011804 | |
| 70 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 1 | 4.8675 | 0.8385 | 0.0021 | 0.6818 | -0.43861 | 0.349077 | -0.34064 | 0.345288 | |
| 71 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 1 | 3.1662 | 0.9021 | 0.0004 | 0.986 | -0.4824 | 0.521039 | -0.41622 | 1.090982 | |
| 72 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 1 | 121.2711 | 0.9167 | 0.0142 | 0.3153 | 2.557213 | 0.560515 | 0.197366 | -0.55312 | |
| 73 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 1 | 3.9173 | | 1 | 0.0048 | 0 | -0.46307 | 0.785743 | -0.22059 | -1.32603 |
| 74 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 1 | 1.7825 | 0.956 | 0.1001 | 0.0968 | -0.51801 | 0.666775 | 0.416736 | -1.08874 | |
| 75 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 1 | 25.6992 | | 1 | 0.0033 | 0 | 0.097523 | 0.785743 | -0.28728 | -1.32603 |
| 76 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 1 | 2.2955 | 0.9452 | 0.0015 | 0.9436 | -0.50481 | 0.637574 | -0.36731 | 0.987046 | |
| 77 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 1 | 3.9136 | 0.8368 | 0.0022 | 0.7004 | -0.46316 | 0.34448 | -0.33619 | 0.390883 | |
| 78 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 1 | 3.6817 | 0.9664 | 0.0075 | 0.8313 | -0.46913 | 0.694895 | -0.10054 | 0.711762 | |
| 79 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 1 | 114.8904 | 0.9694 | 0.0368 | 0.1801 | 2.392995 | 0.703006 | 1.202229 | -0.88454 | |
| 80 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 0 | 1 | 4.0117 | 0.4847 | 0.0003 | 0.8876 | -0.46064 | -0.60753 | -0.42067 | 0.849771 | |
| 81 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 1 | 3.713 | 0.8275 | 0.0253 | 0.1263 | -0.46833 | 0.319335 | 0.690905 | -1.01642 | |
| 82 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 1 | 3.3966 | 0.4479 | 0 | 0.9978 | -0.47647 | -0.70703 | -0.43401 | 1.119908 | |
| 83 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 1 | 3.3589 | 0.6218 | 0.0029 | 0.4669 | -0.47744 | -0.23684 | -0.30507 | -0.1815 | |
| 84 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 1 | 64.6008 | 0.873 | 0.0929 | 0.0721 | 1.098901 | 0.442358 | 3.696602 | -1.14929 | |
| 85 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 0 | 1 | 3.2039 | 0.8825 | 0.0018 | 0.9483 | -0.48143 | 0.468044 | -0.35397 | 0.998567 | |
| 86 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 1 | 5.1276 | | 0 | 0 | 0 | -0.43076 | -1.91807 | -0.43401 | -1.32603 |
| 87 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 1 | 2.5012 | 0.851 | 0.0004 | 0.9807 | -0.49951 | 0.382874 | -0.41622 | 1.07799 | |
| 88 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 1 | 6.2126 | | 0 | 0.0011 | 0 | -0.40399 | -1.91807 | -0.3851 | -1.32603 |
| 89 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 1 | 4.0849 | 0.8432 | 0.0001 | 0.9963 | -0.45875 | 0.361785 | -0.42956 | 1.116231 | |
| 90 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 1 | 75.2561 | 0.9271 | 0.1394 | 0.0401 | 1.372946 | 0.588635 | 5.764131 | -1.22773 | |
| 91 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 1 | 5.0678 | 0.8696 | 0.0046 | 0.4965 | -0.43346 | 0.433165 | -0.22948 | -0.10894 | |
| 92 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 0 | 1 | 2.095 | | 1 | 0.045 | 0 | -0.50997 | 0.785743 | 1.566826 | -1.32603 |
| 93 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 1 | 1.4592 | | 1 | 0 | 1 | -0.52633 | 0.785743 | -0.43401 | 1.125301 |
| 94 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 1 | 122.0324 | 0.8333 | 0.0014 | 0.8268 | 2.576806 | 0.335017 | -0.37176 | 0.700731 | |
| 95 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 1 | 3.1854 | 0.8826 | 0.0018 | 0.9474 | -0.4819 | 0.468315 | -0.35397 | 0.996361 | |
| 96 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 1 | 3.4226 | | 1 | 0.006 | 0 | -0.4758 | 0.785743 | -0.16723 | -1.32603 |
| 97 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 0 | 1 | 3.7721 | 0.4479 | 0 | 0.9978 | -0.4668 | -0.70703 | -0.43401 | 1.119908 | |
| 98 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 1 | 4.0598 | 0.8268 | 0.0305 | 0.1066 | -0.4594 | 0.317442 | 0.922113 | -1.06477 | |
| 99 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 1 | 1.2448 | | 1 | 0 | 1 | -0.53185 | 0.785743 | -0.43401 | 1.125301 |
| 100 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 1 | 2.5082 | 0.782 | 0.0121 | 0.3455 | -0.49933 | 0.196311 | 0.103994 | -0.47909 | |
| 101 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 1 | 3.0389 | | 1 | 0 | 1 | -0.48567 | 0.785743 | -0.43401 | 1.125301 |
| 102 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 1 | 7.0427 | | 0 | 0 | 0 | -0.38263 | -1.91807 | -0.43401 | -1.32603 |
| 103 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 1 | 113.5641 | 0.9753 | 0.0495 | 0.1451 | 2.358861 | 0.718959 | 1.766909 | -0.97034 | |
| 104 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 1 | 2.7872 | 0.6959 | 0.0011 | 0.7574 | -0.49215 | -0.03649 | -0.3851 | 0.530609 | |
| 105 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 1 | 5.3592 | 0.8967 | 0.0031 | 0.6371 | -0.42596 | 0.506439 | -0.29617 | 0.235714 | |
| 106 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 1 | 28.7016 | 0.7784 | 0.0065 | 0.5898 | 0.174794 | 0.186577 | -0.145 | 0.119766 | |
| 107 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 1 | 3.367 | 0.6218 | 0.0022 | 0.5362 | -0.47723 | -0.23684 | -0.33619 | -0.01162 | |
| 108 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 0 | 1 | 3.2137 | 0.9663 | 0.0053 | 0.8741 | -0.48118 | 0.694624 | -0.19835 | 0.816679 | |
| 109 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 1 | 4.1389 | 0.7757 | 0.0114 | 0.752 | -0.45736 | 0.179277 | 0.07287 | 0.517372 | |
| 110 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 1 | 25.8223 | | 1 | 0 | 1 | 0.100691 | 0.785743 | -0.43401 | 1.125301 |
| 111 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 1 | 27.4616 | 0.744 | 0.0053 | 0.5924 | 0.142881 | 0.093566 | -0.19835 | 0.12614 | |
| 112 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 1 | 2.1377 | 0.7515 | 0.0008 | 0.9071 | -0.50887 | 0.113845 | -0.39844 | 0.897572 | |
| 113 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 1 | 34.1786 | | 0 | 0 | 0 | 0.315753 | -1.91807 | -0.43401 | -1.32603 |
| 114 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 1 | 73.8819 | 0.8768 | 0.0038 | 0.6126 | 1.337579 | 0.452633 | -0.26505 | 0.175657 | |
| 115 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 1 | 2.3139 | | 1 | 0 | 1 | -0.50433 | 0.785743 | -0.43401 | 1.125301 |
| 116 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 1 | 2.6516 | 0.4195 | 0.0011 | 0.9295 | -0.49564 | -0.78382 | -0.3851 | 0.952482 | |
| 117 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 2.6099 | 0.9164 | 0.0081 | 0.8075 | -0.49672 | 0.559704 | -0.07386 | 0.65342 | |
| 118 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 2.9172 | 0.6959 | 0.0014 | 0.7055 | -0.48881 | -0.03649 | -0.37176 | 0.403385 | |
| 119 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 15.7692 | | 0 | 0 | 0 | -0.15804 | -1.91807 | -0.43401 | -1.32603 |
| 120 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 27.7151 | 0.8758 | 0.013 | 0.3873 | 0.149405 | 0.449929 | 0.14401 | -0.37663 | |
| 121 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 2.2803 | | 1 | 0 | 1 | -0.5052 | 0.785743 | -0.43401 | 1.125301 |
| 122 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 5.1011 | 0.9428 | 0.0017 | 0.9539 | -0.4326 | 0.631085 | -0.35842 | 1.012294 | |
| 123 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 103.3446 | | 0 | 0 | 0 | 2.095847 | -1.91807 | -0.43401 | -1.32603 |
| 124 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 1.2696 | | 1 | 0 | 1 | -0.53121 | 0.785743 | -0.43401 | 1.125301 |
| 125 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 3.6442 | 0.7799 | 0.0159 | 0.3872 | -0.4701 | 0.190633 | 0.272953 | -0.37687 | |
| 126 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 3.4184 | 0.6218 | 0.0017 | 0.6016 | -0.47591 | -0.23684 | -0.35842 | 0.148692 | |
| 127 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 0 | 1 | 2.7417 | 0.6034 | 0.0114 | 0.3686 | -0.49332 | -0.28659 | 0.07287 | -0.42247 | |
| 128 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 0 | 1 | 5.1318 | 0.8571 | 0.0038 | 0.5412 | -0.43181 | 0.399368 | -0.26505 | 0.006632 | |
| 129 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 0 | 1 | 2.2621 | | 1 | 0 | 1 | -0.50567 | 0.785743 | -0.43401 | 1.125301 |
| 130 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 0 | 1 | 3.4719 | 0.8826 | 0.0018 | 0.9474 | -0.47453 | 0.468315 | -0.35397 | 0.996361 | |
| 131 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 0 | 1 | 157.2884 | | 0 | 0 | 0 | 3.484173 | -1. | | |

| | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|-----------|
| 209 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 1 | 3.6955 | 1 | 0.0038 | 0 | -0.46878 | 0.785743 | -0.26505 | -1.32603 |
| 210 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 1 | 37.2415 | 0 | 0 | 0 | 0.394582 | -1.91807 | -0.43401 | -1.32603 |
| 211 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 1 | 1 | 3.4882 | 0 | 0.0011 | 0 | -0.47411 | -1.91807 | -0.3851 | -1.32603 |
| 212 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 1 | 3.5036 | 0.8826 | 0.0007 | 0.9795 | -0.47372 | 0.468315 | -0.40288 | 1.075048 |
| 213 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 1 | 64.9455 | 0.7908 | 0.004 | 0.5 | 1.107587 | 0.220105 | -0.25616 | -0.10036 |
| 214 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 1 | 2.9729 | 0.9988 | 0.0655 | 0.3738 | -0.48737 | 0.782498 | 2.478317 | -0.40972 |
| 215 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 1 | 3.4241 | 1 | 0.0037 | 0 | -0.47576 | 0.785743 | -0.2695 | -1.32603 |
| 216 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 1 | 119.7511 | 0 | 0 | 0 | 2.518093 | -1.91807 | -0.43401 | -1.32603 |
| 217 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 1 | 2.5549 | 0.782 | 0.0033 | 0.6624 | -0.49813 | 0.196311 | -0.28728 | 0.297733 |
| 218 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 1 | 9.4354 | 0 | 0 | 0 | -0.32105 | -1.91807 | -0.43401 | -1.32603 |
| 219 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 1 | 4.9036 | 0.8509 | 0.0041 | 0.5209 | -0.43768 | 0.382604 | -0.25171 | -0.04913 |
| 220 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 1 | 2.4401 | 1 | 0 | 1 | -0.50109 | 0.785743 | -0.43401 | 1.125301 |
| 221 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 1 | 4.9733 | 0.6082 | 0.0015 | 0.6887 | -0.43589 | -0.27361 | -0.36731 | 0.362203 |
| 222 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 1 | 113.9284 | 0.8906 | 0.0063 | 0.4949 | 2.368237 | 0.489945 | -0.15389 | -0.11286 |
| 223 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 1 | 4.6927 | 1 | 0.0048 | 0 | -0.44311 | 0.785743 | -0.22059 | -1.32603 |
| 224 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 1 | 1.4924 | 0.9548 | 0.0836 | 0.1107 | -0.52548 | 0.66353 | 3.283097 | -1.05466 |
| 225 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 1 | 1 | 1.1657 | 1 | 0 | 1 | -0.53388 | 0.785743 | -0.43401 | 1.125301 |
| 226 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 1 | 2.7212 | 0.6959 | 0.0013 | 0.7153 | -0.49385 | -0.03649 | -0.37621 | 0.427408 |
| 227 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 1 | 2.1266 | 0.7885 | 0.0053 | 0.5885 | -0.50915 | 0.213886 | -0.19835 | 1.11658 |
| 228 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 1 | 5.572 | 0.941 | 0.0017 | 0.9531 | -0.42048 | 0.626218 | -0.35842 | 1.010333 |
| 229 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 1 | 116.2332 | 0.9312 | 0.0013 | 0.8523 | 2.427554 | 0.59972 | -0.37621 | 0.76324 |
| 230 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 1 | 3.557 | 0 | 0 | 0 | -0.47234 | -1.91807 | -0.43401 | -1.32603 |
| 231 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 1 | 5.1122 | 0.8852 | 0.0211 | 0.2007 | -0.43232 | 0.475345 | 0.504161 | -0.83405 |
| 232 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 1 | 3.5319 | 0.492 | 0.0018 | 0.9099 | -0.47299 | -0.5878 | -0.35397 | 0.904436 |
| 233 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 1 | 115.2914 | 0.9107 | 0.0154 | 0.2965 | 2.403316 | 0.544292 | 0.250722 | -0.59921 |
| 234 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 1 | 1.7341 | 0.9854 | 0.0267 | 0.5383 | -0.51926 | 0.746267 | 0.753153 | -0.00648 |
| 235 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 1 | 105.3759 | 0.9187 | 0.0125 | 0.5236 | 2.148125 | 0.565923 | 0.121779 | -0.04251 |
| 236 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 1 | 4.956 | 0.9544 | 0.0055 | 0.902 | -0.43634 | 0.662449 | -0.18946 | 0.885071 |
| 237 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 1 | 1 | 4.1703 | 1 | 0.0039 | 0 | -0.45656 | 0.785743 | -0.2606 | -1.32603 |
| 238 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 1 | 26.5067 | 0.8758 | 0.0164 | 0.335 | 0.118305 | 0.449929 | 0.295185 | -0.50483 |
| 239 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 1 | 15.8938 | 0 | 0 | 0 | -0.15483 | -1.91807 | -0.43401 | -1.32603 |
| 240 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 1 | 5.2205 | 0.9428 | 0 | 0 | -0.42953 | 0.631085 | -0.43401 | 1.125301 |
| 241 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 1 | 1.215 | 1 | 0 | 1 | -0.53262 | 0.785743 | -0.43401 | 1.125301 |
| 242 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 1 | 1 | 4.1411 | 0.8268 | 0.0249 | 0.1277 | -0.45731 | 0.317442 | 0.67312 | -0.101299 |
| 243 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 1 | 1.197 | 1 | 0 | 1 | -0.53308 | 0.785743 | -0.43401 | 1.125301 |
| 244 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 1 | 83.0619 | 0.7352 | 0.0127 | 0.3246 | 1.57384 | 0.069772 | 0.130672 | -0.53033 |
| 245 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 1 | 1 | 3.1367 | 0.9683 | 0.037 | 0.1167 | -0.48316 | 0.700032 | 1.211122 | -0.05943 |
| 246 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 1 | 4.497 | 0.8385 | 0.002 | 0.6888 | -0.44815 | 0.349077 | -0.34508 | 0.362448 |
| 247 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 1 | 26.4659 | 0.8758 | 0.0164 | 0.335 | 0.117255 | 0.449929 | 0.295185 | -0.50483 |
| 248 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 1 | 5.3772 | 0.9544 | 0.0055 | 0.902 | -0.4255 | 0.662449 | -0.18946 | 0.885071 |
| 249 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 1 | 98.8065 | 0.8869 | 0.0011 | 0.843 | 1.979052 | 0.479941 | -0.3851 | 0.740442 |
| 250 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 1 | 69.6294 | 0.6278 | 0.0003 | 0.9339 | 1.228134 | -0.22062 | -0.42067 | 0.963268 |
| 251 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 1 | 2.6986 | 0.4636 | 0.0014 | 0.9228 | -0.49443 | -0.66458 | -0.37176 | 0.936058 |
| 252 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 1 | 4.895 | 0.6218 | 0.0017 | 0.6016 | -0.43791 | -0.23684 | -0.35842 | 1.148692 |
| 253 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 1 | 2.609 | 1 | 0 | 1 | -0.49674 | 0.785743 | -0.43401 | 1.125301 |
| 254 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 1 | 3.429 | 0.1192 | 0 | 1 | -0.47563 | -1.59578 | -0.43401 | 1.125301 |
| 255 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 1 | 18.6557 | 0 | 0 | 0 | -0.08375 | -1.91807 | -0.43401 | -1.32603 |
| 256 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 1 | 25.7072 | 1 | 0 | 1 | 0.097729 | 0.785743 | -0.43401 | 1.125301 |
| 257 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 5.5824 | 0.8368 | 0.0023 | 0.6974 | -0.42021 | 0.34448 | -0.33174 | 0.383529 |
| 258 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 5.7245 | 0.3362 | 0.0019 | 0.4202 | -0.41656 | -1.00905 | -0.34953 | -0.29598 |
| 259 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 27.5057 | 0.7701 | 0.006 | 0.5975 | 0.144016 | 0.164136 | -0.16723 | 0.138641 |
| 260 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 28.6668 | 0.717 | 0.0021 | 0.7703 | 0.173899 | 0.020563 | -0.34064 | 0.562231 |
| 261 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 6.3856 | 0.3362 | 0.0019 | 0.4202 | -0.39954 | -1.00905 | -0.34953 | -0.29598 |
| 262 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 2.5656 | 0.5754 | 0.0149 | 0.5862 | -0.49786 | -0.3623 | 0.22849 | 0.110941 |
| 263 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 5.7826 | 0.8368 | 0.002 | 0.7227 | -0.41506 | 0.34448 | -0.34508 | 0.445548 |
| 264 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 2.4122 | 0.7971 | 0.0035 | 0.6587 | -0.5018 | 0.237139 | -0.27839 | 0.288663 |
| 265 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 7.4857 | 0 | 0 | 0 | -0.37123 | -1.91807 | -0.43401 | -1.32603 |
| 266 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 114.0308 | 0.9742 | 0.0322 | 0.1995 | 2.370872 | 0.715984 | 0.9977 | -0.83699 |
| 267 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 1 | 1 | 6.8593 | 1 | 0 | 1 | -0.38735 | 0.785743 | -0.43401 | 1.125301 |
| 268 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 1 | 1 | 18.3694 | 0 | 0 | 0 | -0.09112 | -1.91807 | -0.43401 | -1.32603 |
| 269 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 1 | 1 | 4.7547 | 0.0681 | 0.0289 | 0.0095 | -0.44152 | -1.73394 | 0.850972 | -1.30274 |
| 270 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 1 | 1 | 105.8576 | 0.9247 | 0.0027 | 0.7335 | 2.160522 | 0.582145 | -0.31396 | 0.472023 |
| 271 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 1 | 1 | 1.9983 | 0.8264 | 0.0057 | 0.5613 | -0.51246 | 0.31636 | -0.18057 | 0.049903 |
| 272 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 1 | 1 | 2.4405 | 0.4195 | 0.0011 | 0.9295 | -0.50108 | -0.78382 | -0.3851 | 0.952482 |
| 273 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 1 | 1 | 3.4255 | 1 | 0.004 | 0 | -0.47573 | 0.785743 | -0.25616 | -1.32603 |
| 274 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 0 | 1 | 1 | 5.4053 | 0.7892 | 0.0003 | 0.9481 | -0.42477 | 0.215778 | -0.42067 | 0.998077 |
| 275 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 3.5601 | 0 | 0 | 0 | -0.47226 | -1.91807 | -0.43401 | -1.32603 |
| 276 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | | | | | | | | | | | | | |

Crossed Array Inner Array Design Points and Responses (Block 2)

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | Time | TPF | FPE | TPP | Std Time | Std TPF | Std FPE | Std TPP |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|---------|-------------|----------------------|--------------|---------------|----------|--------|--------|--------|----------|----------|----------|----------|
| 281 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 2 | 2.6128 | 1 | 0 | 1 | -0.49664 | 0.785743 | -0.43401 | 1.125301 |
| 282 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 2 | 2.22 | 0.4655 | 0.0018 | 0.9044 | -0.50675 | -0.65945 | -0.35397 | 0.890954 |
| 283 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 2 | 3.7059 | 0 | 0 | 0 | -0.46851 | -1.91807 | -0.43401 | -1.32603 |
| 284 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 2 | 4.3897 | 0 | 0.0011 | 0 | -0.45091 | -1.91807 | -0.3851 | -1.32603 |
| 285 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 2 | 2.745 | 1 | 0 | 1 | -0.49324 | 0.785743 | -0.43401 | 1.125301 |
| 286 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 2 | 3.7632 | 0.4572 | 0.0001 | 0.9937 | -0.46703 | -0.68189 | -0.42956 | 1.109857 |
| 287 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 2 | 7.7178 | 0 | 0.0011 | 0 | -0.36526 | -1.91807 | -0.3851 | -1.32603 |
| 288 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 2 | 3.0899 | 0 | 0 | 0 | -0.48436 | -1.91807 | -0.43401 | -1.32603 |
| 289 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 2 | 65.6367 | 0.8052 | 0.0023 | 0.6359 | 1.125376 | 0.25904 | -0.33174 | 0.232772 |
| 290 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 2 | 119.1528 | 0.9102 | 0.0026 | 0.7119 | 2.502695 | 0.54294 | -0.3184 | 0.419073 |
| 291 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 2 | 2.412 | 1 | 0 | 1 | -0.50181 | 0.785743 | -0.43401 | 1.125301 |
| 292 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 2 | 2.1214 | 1 | 0 | 1 | -0.50929 | 0.785743 | -0.43401 | 1.125301 |
| 293 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 2 | 122.9508 | 0 | 0 | 0 | 2.600442 | -1.91807 | -0.43401 | -1.32603 |
| 294 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 2 | 1.6176 | 0.8636 | 0.0005 | 0.9788 | -0.52225 | 0.416942 | -0.41178 | 1.073333 |
| 295 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 2 | 4.2794 | 0.8621 | 0 | 1 | -0.45375 | 0.412887 | -0.43401 | 1.125301 |
| 296 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 2 | 3.2134 | 0.848 | 0.0003 | 0.9894 | -0.48118 | 0.374763 | -0.42067 | 1.099317 |
| 297 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 2 | 2.9714 | 0.9871 | 0.0215 | 0.5964 | -0.48741 | 0.750864 | 0.521946 | 0.135945 |
| 298 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 2 | 4.3496 | 0.6959 | 0.0013 | 0.7203 | -0.45194 | -0.03649 | -0.37621 | 0.439664 |
| 299 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 2 | 1.157 | 1 | 0.0018 | 0 | -0.53411 | 0.785743 | -0.35397 | -1.32603 |
| 300 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 2 | 5.9068 | 0 | 0.0024 | 0 | -0.41186 | -1.91807 | -0.3273 | -1.32603 |
| 301 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 2 | 2.1707 | 1 | 0 | 1 | -0.50802 | 0.785743 | -0.43401 | 1.125301 |
| 302 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 2 | 1.8361 | 0.9538 | 0.0544 | 0.1574 | -0.51663 | 0.660827 | 1.984778 | -0.94019 |
| 303 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 2 | 1.243 | 1 | 0 | 1 | -0.5319 | 0.785743 | -0.43401 | 1.125301 |
| 304 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 2 | 5.1157 | 0 | 0 | 0 | -0.43223 | -1.91807 | -0.43401 | -1.32603 |
| 305 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 2 | 3.3712 | 1 | 0.004 | 0 | -0.47712 | 0.785743 | -0.25616 | -1.32603 |
| 306 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 2 | 2.2273 | 1 | 0 | 1 | -0.50656 | 0.785743 | -0.43401 | 1.125301 |
| 307 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 0 | 2 | 108.4569 | 0.8433 | 0.0001 | 0.9878 | 2.227419 | 0.362055 | -0.42956 | 1.095394 |
| 308 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 2 | 3.9371 | 0.6359 | 0.0618 | 0.1101 | -0.46256 | -0.19872 | 2.313804 | -1.05614 |
| 309 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 2 | 1.8516 | 1 | 0 | 1 | -0.51623 | 0.785743 | -0.43401 | 1.125301 |
| 310 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 2 | 26.539 | 0.8758 | 0.0163 | 0.3358 | 0.119136 | 0.449929 | 0.290738 | -0.50287 |
| 311 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 2 | 1.9706 | 1 | 0 | 1 | -0.51317 | 0.785743 | -0.43401 | 1.125301 |
| 312 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 0 | 2 | 25.7818 | 1 | 0 | 1 | 0.099649 | 0.785743 | -0.43401 | 1.125301 |
| 313 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 2 | 5.2815 | 0.168 | 0 | 1 | -0.42796 | -1.46383 | -0.43401 | 1.125301 |
| 314 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 0 | 2 | 5.1643 | 0.7486 | 0.0003 | 0.9424 | -0.43097 | 0.106004 | -0.42067 | 0.984104 |
| 315 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 2 | 1.723 | 1 | 0 | 1 | -0.51954 | 0.785743 | -0.43401 | 1.125301 |
| 316 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 2 | 100.2439 | 0.8537 | 0.0045 | 0.5668 | 2.016045 | 0.390175 | -0.23392 | 0.063386 |
| 317 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 2 | 1.3849 | 1 | 0 | 1 | -0.52824 | 0.785743 | -0.43401 | 1.125301 |
| 318 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 2 | 4.2783 | 0.8105 | 0.0023 | 0.6018 | -0.45378 | 0.27337 | -0.33174 | 0.149182 |
| 319 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 2 | 1.4815 | 1 | 0 | 1 | -0.52576 | 0.785743 | -0.43401 | 1.125301 |
| 320 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 0 | 2 | 26.4651 | 0.8742 | 0.0112 | 0.4204 | 0.117234 | 0.445603 | 0.063977 | -0.29549 |
| 321 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 2 | 5.5558 | 0 | 0 | 0 | -0.4209 | -1.91807 | -0.43401 | -1.32603 |
| 322 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 2 | 25.1201 | 0 | 0 | 0 | 0.082619 | -1.91807 | -0.43401 | -1.32603 |
| 323 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 2 | 24.172 | 0 | 0 | 0 | 0.058218 | -1.91807 | -0.43401 | -1.32603 |
| 324 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 2 | 99.8286 | 0.8537 | 0.0011 | 0.8434 | 2.005357 | 0.390175 | -0.3851 | 0.741423 |
| 325 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 2 | 2.3906 | 1 | 0.0049 | 0 | -0.50236 | 0.785743 | -0.21614 | -1.32603 |
| 326 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 2 | 3.3019 | 0 | 0 | 0 | -0.47891 | -1.91807 | -0.43401 | -1.32603 |
| 327 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 2.6561 | 0.8289 | 0.0204 | 0.3189 | -0.49553 | 0.32312 | 0.473036 | -0.5443 |
| 328 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 5.8809 | 0 | 0 | 0 | -0.41253 | -1.91807 | -0.43401 | -1.32603 |
| 329 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 1.7554 | 0.9121 | 0.0008 | 0.9663 | -0.51871 | 0.548077 | -0.39844 | 1.042691 |
| 330 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 1.9408 | 0.956 | 0.0833 | 0.1141 | -0.51394 | 0.666775 | 3.269758 | -1.04633 |
| 331 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 6.0519 | 0 | 0 | 0 | -0.40813 | -1.91807 | -0.43401 | -1.32603 |
| 332 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 6.0791 | 0.7892 | 0.0003 | 0.9481 | -0.40743 | 0.215778 | -0.42067 | 0.998077 |
| 333 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 4.2988 | 0 | 0.0004 | 0 | -0.45325 | -1.91807 | -0.41622 | -1.32603 |
| 334 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 5.0323 | 0 | 0 | 0 | -0.43437 | -1.91807 | -0.43401 | -1.32603 |
| 335 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 1.5463 | 0.9617 | 0.0843 | 0.1141 | -0.52409 | 0.682187 | 3.314221 | -1.04633 |
| 336 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 4.6678 | 0.8825 | 0.0018 | 0.9483 | -0.44375 | 0.468044 | -0.35397 | 0.998567 |
| 337 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 0 | 2 | 1.5835 | 1 | 0 | 1 | -0.52213 | 0.785743 | -0.43401 | 1.125301 |
| 338 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 0 | 2 | 9.0039 | 0 | 0 | 0 | -0.33216 | -1.91807 | -0.43401 | -1.32603 |
| 339 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 0 | 2 | 3.2605 | 1 | 0 | 1 | -0.47997 | 0.785743 | -0.43401 | 1.125301 |
| 340 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 0 | 2 | 1.6644 | 1 | 0 | 1 | -0.52105 | 0.785743 | -0.43401 | 1.125301 |
| 341 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 0 | 2 | 100.2243 | 0.8673 | 0.0008 | 0.8809 | 2.015541 | 0.426946 | -0.39844 | 0.833348 |
| 342 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 0 | 2 | 3.1422 | 1 | 0.0047 | 0 | -0.48302 | 0.785743 | -0.22503 | -1.32603 |
| 343 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 0 | 2 | 1.3617 | 1 | 0.0013 | 0 | -0.52884 | 0.785743 | -0.37621 | -1.32603 |
| 344 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 0 | 2 | 3.4701 | 0.8509 | 0.0036 | 0.5547 | -0.47458 | 0.382604 | -0.27394 | 0.033725 |
| 345 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 3.7963 | 0.6218 | 0.0031 | 0.4512 | -0.46618 | -0.23684 | -0.29617 | -0.21999 |

| | | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|----------|
| 346 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 2.2773 | | 1 | 0 | 1 | -0.50528 | 0.785743 | -0.43401 | 1.125301 |
| 347 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 4.3725 | 0.8825 | 0.0007 | 0.9795 | -0.45135 | 0.468044 | -0.40288 | 1.075048 | |
| 348 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 1.6921 | 0.8264 | 0.0058 | 0.5561 | -0.52034 | 0.31636 | -0.17612 | 0.037157 | |
| 349 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 2.3236 | | 1 | 0.004 | 0 | -0.50408 | 0.785743 | -0.25616 | -1.32603 |
| 350 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 2.3362 | | 1 | 0.0059 | 0 | -0.50376 | 0.785743 | -0.17168 | -1.32603 |
| 351 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 2 | 1.3567 | | 1 | 0 | 1 | -0.52897 | 0.785743 | -0.43401 | 1.125301 |
| 352 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 2 | 3.5943 | 0.6873 | 0.0004 | 0.9791 | -0.47138 | -0.05974 | -0.41622 | 1.074068 | |
| 353 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 2 | 27.414 | 0.845 | 0.0304 | 0.3079 | 0.141656 | 0.366651 | 0.917666 | -0.57126 | |
| 354 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 2 | 2.5214 | | 1 | 0.0589 | 0 | -0.49899 | 0.785743 | 2.184861 | -1.32603 |
| 355 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 2 | 9.0432 | | 0 | 0 | 0 | -0.33114 | -1.91807 | -0.43401 | -1.32603 |
| 356 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 2 | 25.3765 | | 1 | 0 | 1 | 0.089218 | 0.785743 | -0.43401 | 1.125301 |
| 357 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 2 | 2.0156 | | 1 | 0 | 1 | -0.51201 | 0.785743 | -0.43401 | 1.125301 |
| 358 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 2 | 4.0364 | 0.9428 | 0.0017 | 0.9539 | -0.46 | 0.631085 | -0.35842 | 1.012294 | |
| 359 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 4 | 9 | 0 | 0 | 2 | 31.2901 | | 0 | 0 | 0.241413 | -1.91807 | -0.43401 | -1.32603 | |
| 360 | 2 | 6 | 0.01 | 6 | 0.1 | 150 | 5 | 14 | 1 | 0 | 0 | 2 | 2.7875 | 0.8825 | 0.0018 | 0.9483 | -0.49214 | 0.468044 | -0.35397 | 0.998567 | |
| 361 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 2 | 1.813 | 0.9577 | 0.0014 | 0.946 | -0.51723 | 0.671371 | -0.37176 | 0.992929 | |
| 362 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 2 | 3.2704 | 0.5371 | 0.0005 | 0.9777 | -0.47972 | -0.46585 | -0.41178 | 1.070636 | |
| 363 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 2 | 3.434 | 0.8144 | 0.0129 | 0.2566 | -0.47551 | 0.283915 | 0.139564 | -0.69702 | |
| 364 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 2 | 19.3106 | | 0 | 0 | -0.0669 | -1.91807 | -0.43401 | -1.32603 | |
| 365 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 2 | 2.4687 | | 1 | 0 | 1 | -0.50035 | 0.785743 | -0.43401 | 1.125301 |
| 366 | 2 | 14 | 0.01 | 1 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 2 | 3.3711 | | 1 | 0.0068 | 0 | -0.47713 | 0.785743 | -0.13166 | -1.32603 |
| 367 | -2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 2 | 2.8847 | 0.9113 | 0.0014 | 0.9426 | -0.48964 | 0.545914 | -0.37176 | 0.984594 | |
| 368 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 2 | 1.6738 | | 1 | 0 | 1 | -0.52081 | 0.785743 | -0.43401 | 1.125301 |
| 369 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 2 | 4.0166 | 0.6218 | 0.002 | 0.5585 | -0.46051 | -0.23684 | -0.34508 | 0.04304 | |
| 370 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 2 | 3.4387 | 0.6218 | 0.0019 | 0.5759 | -0.47539 | -0.23684 | -0.34953 | 0.085693 | |
| 371 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 2 | 3.9499 | | 1 | 0.0062 | 0 | -0.46223 | 0.785743 | -0.15834 | -1.32603 |
| 372 | 2 | 6 | 0.01 | 6 | 0.1 | 150 | 5 | 4 | 9 | 0 | 0 | 2 | 8.8833 | | 0 | 0 | 0 | -0.33526 | -1.91807 | -0.43401 | -1.32603 |
| 373 | 2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 2 | 2.3431 | | 1 | 0 | 1 | -0.50358 | 0.785743 | -0.43401 | 1.125301 |
| 374 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 2 | 76.1336 | 0.7184 | 0.0467 | 0.1101 | 1.39553 | 0.024348 | 1.642413 | -1.05614 | |
| 375 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 2 | 1.3972 | | 1 | 0 | 1 | -0.52793 | 0.785743 | -0.43401 | 1.125301 |
| 376 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 2 | 10.7631 | | 1 | 0 | 1 | -0.28688 | 0.785743 | -0.43401 | 1.125301 |
| 377 | 2 | 6 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 2 | 6.0525 | 0.8701 | 0.0001 | 0.9963 | -0.40812 | 0.434517 | -0.42956 | 1.116231 | |
| 378 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 2 | 4.2788 | 0.8437 | 0.0001 | 0.9963 | -0.45376 | 0.363136 | -0.42956 | 1.116231 | |
| 379 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 2 | 2.1449 | 0.9959 | 0.0483 | 0.4093 | -0.50868 | 0.774657 | 1.713553 | -0.3227 | |
| 380 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 2 | 1.8703 | 0.8623 | 0.0005 | 0.9765 | -0.51575 | 0.413427 | -0.41178 | 1.067694 | |
| 381 | 2 | 14 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 9 | 0 | 0 | 2 | 115.274 | 0.9519 | 0.0006 | 0.9296 | 2.402868 | 0.655689 | -0.40733 | 0.952727 | |
| 382 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 2 | 2.2838 | 0.7971 | 0.0052 | 0.567 | -0.50511 | 0.237139 | -0.2028 | 0.063876 | |
| 383 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 2 | 26.4622 | 0.8742 | 0.007 | 0.5366 | 0.11716 | 0.445603 | -0.12277 | -0.01064 | |
| 384 | 2 | 6 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 2 | 8.5523 | | 0 | 0 | 0 | -0.34378 | -1.91807 | -0.43401 | -1.32603 |
| 385 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 2 | 4.4412 | | 1 | 0.0038 | 0 | -0.44958 | 0.785743 | -0.26505 | -1.32603 |
| 386 | -2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 2 | 2.3219 | | 1 | 0 | 1 | -0.50413 | 0.785743 | -0.43401 | 1.125301 |
| 387 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 2 | 2.6178 | 0.9859 | 0.0323 | 0.5004 | -0.49651 | 0.747619 | 1.002146 | -0.09938 | |
| 388 | -2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 2 | 4.3024 | | 0 | 0.0016 | 0 | -0.45316 | -1.91807 | -0.36287 | -1.32603 |
| 389 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 2 | 5.4408 | | 0 | 0.0007 | 0 | -0.42386 | -1.91807 | -0.40288 | -1.32603 |
| 390 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 2 | 5.5916 | 0.3362 | 0.0019 | 0.4202 | -0.41998 | -1.00905 | -0.34953 | -0.29598 | |
| 391 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 2 | 1.2422 | | 1 | 0 | 1 | -0.53192 | 0.785743 | -0.43401 | 1.125301 |
| 392 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 2 | 2.4385 | 0.4195 | | 0.9977 | -0.50113 | -0.78382 | -0.43401 | 1.119663 | |
| 393 | -2 | 6 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 2 | 2.3454 | 0.7643 | 0.005 | 0.597 | -0.50352 | 0.148453 | -0.21169 | 0.137416 | |
| 394 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 2 | 2.0484 | | 1 | 0 | 1 | -0.51117 | 0.785743 | -0.43401 | 1.125301 |
| 395 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 2 | 2.1235 | | 1 | 0 | 1 | -0.50923 | 0.785743 | -0.43401 | 1.125301 |
| 396 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 2 | 2.3574 | | 1 | 0.0045 | 0 | -0.50321 | 0.785743 | -0.23392 | -1.32603 |
| 397 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 9.5027 | | 0 | 0 | 0 | -0.31932 | -1.91807 | -0.43401 | -1.32603 |
| 398 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 2.4601 | 0.8972 | 0.0006 | 0.9736 | -0.50057 | 0.507791 | -0.40733 | 1.060586 | |
| 399 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 72.6393 | 0.7045 | 0.0591 | 0.0881 | 1.305598 | -0.01323 | 2.193754 | -1.11006 | |
| 400 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 165.7737 | | 0 | 0 | 3.702555 | -1.91807 | -0.43401 | -1.32603 | |
| 401 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 5.9736 | 0.9428 | 0.0022 | 0.9428 | -0.41015 | 0.631085 | -0.33619 | 0.985085 | |
| 402 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 3.0731 | 0.8095 | 0.0105 | 0.2976 | -0.48479 | 0.270666 | 0.032853 | -0.59651 | |
| 403 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 1.7722 | | 1 | 0 | 1 | -0.51828 | 0.785743 | -0.43401 | 1.125301 |
| 404 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 108.4037 | | 0 | 0 | 0 | 2.22605 | -1.91807 | -0.43401 | -1.32603 |
| 405 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 4.3459 | 0.4714 | 0.0014 | 0.9229 | -0.45204 | -0.64349 | -0.37176 | 0.936303 | |
| 406 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 5.2562 | 0.9051 | 0.0017 | 0.9524 | -0.42861 | 0.529151 | -0.35842 | 1.008617 | |
| 407 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 0 | 2 | 3.6557 | 0.0511 | 0.0131 | 0.0156 | -0.4698 | -1.77991 | 0.148457 | -1.28779 | |
| 408 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 0 | 2 | 1.6713 | | 1 | 0 | 1 | -0.52087 | 0.785743 | -0.43401 | 1.125301 |
| 409 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 0 | 2 | 2.3899 | 0.9564 | 0.0082 | 0.817 | -0.50238 | 0.667856 | -0.06941 | 0.676708 | |
| 410 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 0 | 2 | 2.2184 | | 1 | 0.0231 | 0 | -0.50679 | 0.785743 | 0.593086 | -1.32603 |
| 411 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 0 | 2 | 4.0021 | 0.2468 | 0.0015 | 0.4085 | -0.46089 | -1.25077 | -0.36731 | -0.32466 | |
| 412 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 0 | 2 | 2.8331 | | 1 | 0.004 | 0 | -0.49097 | 0.785743 | -0.25616 | -1.32603 |
| 413 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 0 | 2 | 1.6156 | </ | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|----------|
| 492 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 2 | 81.7533 | 0.5852 | 0.0002 | 0.945 | 1.540161 | -0.3358 | -0.42512 | 0.990478 | |
| 493 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 2 | 1.6493 | 1 | 0 | 1 | -0.52144 | 0.785743 | -0.43401 | 1.125301 | |
| 494 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 2 | 4.6908 | 0.7757 | 0.0114 | 0.7513 | -0.44316 | 0.179277 | 0.07287 | 0.515656 | |
| 495 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 2 | 2.6544 | 0.9679 | 0.0271 | 0.6325 | -0.49557 | 0.69895 | 0.770938 | 0.224438 | |
| 496 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 2 | 3.3716 | 0.8825 | 0.0018 | 0.9483 | -0.47711 | 0.468044 | -0.35397 | 0.998567 | |
| 497 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 2 | 82.5733 | 0 | 0 | 0 | 1.561265 | -1.91807 | -0.43401 | -1.32603 | |
| 498 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 2 | 1.9142 | 0.8264 | 0.0057 | 0.5613 | -0.51462 | 0.31636 | -0.18057 | 0.049903 | |
| 499 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 2 | 3.0855 | 0.6283 | 0.0178 | 0.2941 | -0.48448 | -0.21927 | 0.357433 | -0.60509 | |
| 500 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 2 | 3.1467 | 0.7515 | 0.0079 | 0.498 | -0.4829 | 0.113845 | -0.08275 | -0.10527 | |
| 501 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 2 | 5.2372 | 0.8368 | 0.002 | 0.7227 | -0.4291 | 0.34448 | -0.34508 | 0.445548 | |
| 502 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 2 | 4.6337 | 0.8368 | 0.0022 | 0.7004 | -0.44463 | 0.34448 | -0.33619 | 0.390883 | |
| 503 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 2 | 3.8548 | 0.4293 | 0.0001 | 0.9933 | -0.46468 | -0.75732 | -0.42956 | 1.108877 | |
| 504 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 2 | 4.3556 | 0.8385 | 0.0018 | 0.7068 | -0.45179 | 0.349077 | -0.35397 | 0.406572 | |
| 505 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 1 | 2 | 18.0338 | 0 | 0 | 0 | -0.09976 | -1.91807 | -0.43401 | -1.32603 | |
| 506 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 2 | 100.3889 | 0.8673 | 0.0045 | 0.5688 | 2.019777 | 0.426946 | -0.23392 | 0.068288 | |
| 507 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 2 | 122.68 | 0.9645 | 0.0047 | 0.6312 | 2.593473 | 0.689757 | -0.22503 | 0.221251 | |
| 508 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 2 | 1.8858 | 0.782 | 0.0037 | 0.6341 | -0.51535 | 0.196311 | -0.2695 | 0.22836 | |
| 509 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 2 | 1.4436 | 1 | 0 | 1 | -0.52673 | 0.785743 | -0.43401 | 1.125301 | |
| 510 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 2 | 1.9557 | 1 | 0.0096 | 0 | -0.51355 | 0.785743 | -0.00716 | -1.32603 | |
| 511 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 2 | 1.9845 | 0.9631 | 0.0017 | 0.9368 | -0.51281 | 0.685972 | -0.35842 | 0.970377 | |
| 512 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 2 | 2.3811 | 1 | 0 | 1 | -0.5026 | 0.785743 | -0.43401 | 1.125301 | |
| 513 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 2 | 6.3695 | 1 | 0 | 1 | -0.39996 | 0.785743 | -0.43401 | 1.125301 | |
| 514 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 2 | 3.4244 | 0.9846 | 0.0329 | 0.5567 | -0.47575 | 0.744104 | 1.028824 | 0.038627 | |
| 515 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 2 | 3.7745 | 0.492 | 0 | 0 | 1 | -0.46674 | -0.5878 | -0.43401 | 1.125301 |
| 516 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 2 | 1.2064 | 1 | 0 | 1 | -0.53284 | 0.785743 | -0.43401 | 1.125301 | |
| 517 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 1 | 2 | 3.5623 | 0.9664 | 0.0075 | 0.8313 | -0.4722 | 0.694895 | -0.10054 | 0.711762 | |
| 518 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 2 | 6.5516 | 0 | 0 | 0 | -0.39527 | -1.91807 | -0.43401 | -1.32603 | |
| 519 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 2 | 6.5363 | 0.4199 | 0.0011 | 0.9346 | -0.39566 | -0.78274 | -0.3851 | 0.964984 | |
| 520 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 2 | 1.8636 | 1 | 0 | 0 | 1 | -0.51592 | 0.785743 | -0.43401 | 1.125301 |
| 521 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 2 | 3.2128 | 0.8209 | 0 | 1 | -0.4812 | 0.301489 | -0.43401 | 1.125301 | |
| 522 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 1 | 2 | 1.9787 | 1 | 0 | 1 | -0.51296 | 0.785743 | -0.43401 | 1.125301 | |
| 523 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 2 | 2.616 | 1 | 0 | 0 | -0.49656 | 0.785743 | -0.43401 | 1.125301 | |
| 524 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 2 | 18.1198 | 0 | 0 | 0 | -0.09754 | -1.91807 | -0.43401 | -1.32603 | |
| 525 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 1 | 2 | 19.7422 | 0 | 0 | 0 | -0.05579 | -1.91807 | -0.43401 | -1.32603 | |
| 526 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 2 | 2.8053 | 0.8807 | 0.0017 | 0.9501 | -0.49169 | 0.463178 | -0.35842 | 1.002979 | |
| 527 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 2 | 2.1715 | 0.9579 | 0.1171 | 0.0875 | -0.508 | 0.671912 | 4.772606 | -1.11154 | |
| 528 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 2 | 6.1361 | 0.9428 | 0.0017 | 0.9539 | -0.40596 | 0.631085 | -0.35842 | 1.012294 | |
| 529 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 2 | 65.6849 | 0.8052 | 0.0047 | 0.4644 | 1.126616 | 0.25904 | -0.22503 | -0.18763 | |
| 530 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 2 | 2.3502 | 1 | 0 | 0 | -0.5034 | 0.785743 | -0.43401 | 1.125301 | |
| 531 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 2 | 5.7973 | 0.78 | 0.0113 | 0.7573 | -0.41468 | 0.190903 | 0.068423 | 0.530364 | |
| 532 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 2 | 2.1244 | 0.9838 | 0.0204 | 0.6009 | -0.50921 | 0.741941 | 0.473036 | 1.046976 | |
| 533 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 2 | 3.0168 | 1 | 0.0045 | 0 | -0.48624 | 0.785743 | -0.23392 | -1.32603 | |
| 534 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 2 | 6.0063 | 0.8826 | 0.0018 | 0.9474 | -0.4093 | 0.468315 | -0.35397 | 0.996361 | |
| 535 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 2 | 3.672 | 0.8826 | 0.0018 | 0.9474 | -0.46938 | 0.468315 | -0.35397 | 0.996361 | |
| 536 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 2 | 2.0228 | 0.9538 | 0.0544 | 0.1574 | -0.51183 | 0.660827 | 1.984778 | -0.94019 | |
| 537 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 5.3833 | 0.017 | 0.015 | 0.0046 | -0.42534 | -1.87211 | 0.232936 | -1.31475 | |
| 538 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 6.4706 | 0 | 0.001 | 0 | -0.39735 | -1.91807 | -0.38955 | -1.32603 | |
| 539 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 3.0205 | 0.9168 | 0.0009 | 0.9631 | -0.48615 | 0.560785 | -0.39399 | 1.034847 | |
| 540 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 4.2325 | 1 | 0 | 1 | -0.45496 | 0.785743 | -0.43401 | 1.125301 | |
| 541 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 3.6515 | 0.8825 | 0.0018 | 0.9483 | -0.46991 | 0.468044 | -0.35397 | 0.998567 | |
| 542 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 3.8947 | 0.492 | 0.0018 | 0.9099 | -0.46365 | -0.5878 | -0.35397 | 0.904436 | |
| 543 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 25.7089 | 1 | 0 | 1 | 0.097772 | 0.785743 | -0.43401 | 1.125301 | |
| 544 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 2.6229 | 0.947 | 0.0018 | 0.9322 | -0.49638 | 0.642441 | -0.35397 | 0.959101 | |
| 545 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 26.1241 | 1 | 0 | 1 | 0.108458 | 0.785743 | -0.43401 | 1.125301 | |
| 546 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 7.1203 | 0.9428 | 0.0013 | 0.9652 | -0.38063 | 0.631085 | -0.37621 | 1.039994 | |
| 547 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 1 | 2 | 5.5176 | 0.8385 | 0.0018 | 0.7068 | -0.42188 | 0.349077 | -0.35397 | 0.406572 | |
| 548 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 1 | 2 | 2.2197 | 1 | 0.0541 | 0 | -0.50676 | 0.785743 | 1.971439 | -1.32603 | |
| 549 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 1 | 2 | 2.9415 | 0.9176 | 0.0324 | 0.136 | -0.48818 | 0.562948 | 1.006592 | -0.99265 | |
| 550 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 1 | 2 | 83.3298 | 0.6344 | 0.0006 | 0.8741 | 1.580735 | -0.20277 | -0.40733 | 0.816679 | |
| 551 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 1 | 2 | 3.4072 | 0 | 0 | 0 | -0.4762 | -1.91807 | -0.43401 | -1.32603 | |
| 552 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 1 | 2 | 113.8261 | 0.8976 | 0.005 | 0.5591 | 2.365604 | 0.508872 | -0.21169 | 0.044511 | |
| 553 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 1 | 2 | 168.7245 | 0 | 0 | 0 | 3.778499 | -1.91807 | -0.43401 | -1.32603 | |
| 554 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 0 | 1 | 2 | 2.7367 | 0.8281 | 0.0137 | 0.305 | -0.49345 | 0.320957 | 0.175135 | -0.57837 | |
| 555 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 104.0536 | 0.9483 | 0.0024 | 0.77 | 2.114094 | 0.645956 | -0.3273 | 0.561495 | |
| 556 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 119.0906 | 0.9104 | 0.0025 | 0.7176 | 2.501094 | 0.543481 | -0.32285 | 0.433046 | |
| 557 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 94.1596 | 0.8649 | 0.0044 | 0.583 | 1.859456 | 0.420457 | -0.23837 | 0.103097 | |
| 558 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 3.0645 | 0.4302 | 0.001 | 0.9391 | -0.48502 | -0.75489 | -0.38955 | 0.976015 | |
| 559 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | | | | | | | | | | | | | | | |

Crossed Array Inner Array Design Points and Responses (Block 3)

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | Time | TPF | FPE | FPF | TPP | Std Time | Std TPF | Std FPE | Std TPF |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|---------|-------------|----------------------|--------------|---------------|----------|--------|--------|--------|----------|----------|----------|----------|---------|
| 561 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 3 | 77.4162 | 0.8408 | 0.0019 | 0.6984 | 1.428539 | 0.355295 | -0.34953 | 0.38598 | |
| 562 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 3 | 1.4742 | 1 | 0 | 1 | -0.52594 | 0.785743 | -0.43401 | 1.125301 | |
| 563 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 3 | 5.7049 | 0.9428 | 0.0017 | 0.9539 | -0.41706 | 0.631085 | -0.35842 | 1.012294 | |
| 564 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 3 | 27.4505 | 0.765 | 0.007 | 0.5534 | 0.142595 | 0.150346 | -0.12277 | 0.030538 | |
| 565 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 3 | 105.2287 | 0 | 0 | 0 | 2.144337 | -1.91807 | -0.43401 | -1.32603 | |
| 566 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 3 | 7.1295 | 0 | 0.001 | 0 | -0.3804 | -1.91807 | -0.38955 | -1.32603 | |
| 567 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 3 | 2.3958 | 0.7971 | 0.0121 | 0.3583 | -0.50223 | 0.237139 | 0.103994 | -0.44772 | |
| 568 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 3 | 98.5794 | 0.8838 | 0.0014 | 0.8141 | 1.973207 | 0.471559 | -0.37176 | 0.669599 | |
| 569 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 3 | 97.9672 | 0.9675 | 0.0111 | 0.477 | 1.957451 | 0.697869 | 0.059531 | -0.15674 | |
| 570 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 3 | 8.3949 | 0 | 0 | 0 | -0.34783 | -1.91807 | -0.43401 | -1.32603 | |
| 571 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 3 | 169.4264 | 0 | 0 | 0 | 3.796563 | -1.91807 | -0.43401 | -1.32603 | |
| 572 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 3 | 4.4235 | 0 | 0.0015 | 0 | -0.45004 | -1.91807 | -0.36731 | -1.32603 | |
| 573 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 3 | 2.2925 | 1 | 0 | 1 | -0.50488 | 0.785743 | -0.43401 | 1.125301 | |
| 574 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 3 | 2.2911 | 1 | 0.0059 | 0 | -0.50492 | 0.785743 | -0.17168 | -1.32603 | |
| 575 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 3 | 2.8793 | 1 | 0 | 1 | -0.48978 | 0.785743 | -0.43401 | 1.125301 | |
| 576 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 3 | 3.2397 | 0 | 0 | 0 | -0.48051 | -1.91807 | -0.43401 | -1.32603 | |
| 577 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 3 | 4.2313 | 0.5993 | 0.0001 | 0.9941 | -0.45499 | -0.29768 | -0.42956 | 1.110838 | |
| 578 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 3 | 2.695 | 1 | 0 | 1 | -0.49453 | 0.785743 | -0.43401 | -1.32603 | |
| 579 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 3 | 5.6902 | 0.017 | 0.0144 | 0.0048 | -0.41744 | -1.87211 | 0.206259 | -1.31426 | |
| 580 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 3 | 3.7824 | 0.6667 | 0.0608 | 0.1166 | -0.46654 | -0.11544 | 2.269341 | -1.0402 | |
| 581 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 3 | 4.1154 | 0 | 0.0018 | 0 | -0.45797 | -1.91807 | -0.35397 | -1.32603 | |
| 582 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 3 | 122.4541 | 0.9541 | 0.0006 | 0.9327 | 2.587659 | 0.661638 | -0.40733 | 0.960326 | |
| 583 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 3 | 5.8947 | 0 | 0 | 0 | -0.41218 | -1.91807 | -0.43401 | -1.32603 | |
| 584 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 3 | 3.8842 | 0.5175 | 0.0038 | 0.5441 | -0.46392 | -0.51885 | -0.26505 | 0.007741 | |
| 585 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 3 | 1.9123 | 0.9928 | 0.0242 | 0.5661 | -0.51467 | 0.766275 | 0.641996 | 0.06167 | |
| 586 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 3 | 2.3652 | 0.9632 | 0.002 | 0.9274 | -0.50301 | 0.686242 | -0.34508 | 0.947334 | |
| 587 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 0 | 3 | 1.5521 | 1 | 0 | 1 | -0.52394 | 0.785743 | -0.43401 | 1.125301 | |
| 588 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 3 | 69.8842 | 0.5906 | 0.0006 | 0.8417 | 1.234692 | -0.3212 | -0.40733 | 0.737256 | |
| 589 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 3 | 104.1027 | 0 | 0 | 0 | 2.115357 | -1.91807 | -0.43401 | -1.32603 | |
| 590 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 3 | 99.982 | 0.9184 | 0.009 | 0.417 | 2.009305 | 0.565111 | -0.03384 | -0.30382 | |
| 591 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 3 | 1.2651 | 1 | 0 | 1 | -0.53133 | 0.785743 | -0.43401 | 1.125301 | |
| 592 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 3 | 9.9644 | 0 | 0 | 0 | -0.30744 | -1.91807 | -0.43401 | -1.32603 | |
| 593 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 3 | 119.9208 | 0.9167 | 0.0163 | 0.2862 | 2.52246 | 0.560515 | 0.290738 | -0.62446 | |
| 594 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 0 | 3 | 33.6544 | 0 | 0 | 0 | 0.302262 | -1.91807 | -0.43401 | -1.32603 | |
| 595 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 3 | 2.3869 | 1 | 0.0059 | 0 | -0.50246 | 0.785743 | -0.17168 | -1.32603 | |
| 596 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 3 | 4.1394 | 0 | 0.0018 | 0 | -0.45735 | -1.91807 | -0.35397 | -1.32603 | |
| 597 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 3 | 3.771 | 1 | 0 | 1 | -0.46683 | 0.785743 | -0.43401 | 1.125301 | |
| 598 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 3 | 2.0637 | 0.8264 | 0.0057 | 0.5613 | -0.51077 | 0.31366 | -0.18057 | 0.049903 | |
| 599 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 3 | 4.1226 | 0.8521 | 0.0224 | 0.1447 | -0.45778 | 0.385848 | 0.561962 | -0.97132 | |
| 600 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 0 | 3 | 116.515 | 0.9697 | 0.0204 | 0.3895 | 2.434807 | 0.703817 | 0.479036 | -0.37123 | |
| 601 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 3 | 3.4906 | 0.9326 | 0.0006 | 0.9854 | -0.47405 | 0.603506 | -0.40733 | 1.089511 | |
| 602 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 3 | 6.4134 | 0 | 0.0024 | 0 | -0.39883 | -1.91807 | -0.3273 | -1.32603 | |
| 603 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 3 | 160.9852 | 0 | 0 | 0 | 3.579316 | -1.91807 | -0.43401 | -1.32603 | |
| 604 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 3 | 27.7538 | 0.8774 | 0.0188 | 0.3077 | 0.150401 | 0.454255 | 0.401896 | -0.57175 | |
| 605 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 3 | 2.1248 | 0.9452 | 0.0014 | 0.9469 | -0.5092 | 0.637574 | -0.37176 | 0.995135 | |
| 606 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 3 | 11.6765 | 0.9612 | 0.0035 | 0.6804 | -0.26337 | 0.680835 | -0.27839 | 0.341857 | |
| 607 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 3.8909 | 0.8825 | 0.0018 | 0.9483 | -0.46375 | 0.468044 | -0.35397 | 0.998567 | |
| 608 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 118.4215 | 0.9611 | 0.0058 | 0.6198 | 2.483874 | 0.680564 | -0.17612 | 0.193306 | |
| 609 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 2.6702 | 1 | 0.0055 | 0 | -0.49516 | 0.785743 | -0.18946 | -1.32603 | |
| 610 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 5.1728 | 0.017 | 0.0144 | 0.0048 | -0.43076 | -1.87211 | 0.206259 | -1.31426 | |
| 611 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 5.052 | 0.8826 | 0.0018 | 0.9474 | -0.4222 | 0.468315 | -0.35397 | 0.996361 | |
| 612 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 2.7053 | 1 | 0 | 1 | -0.49426 | 0.785743 | -0.43401 | 1.125301 | |
| 613 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 115.0784 | 0.9701 | 0.039 | 0.1754 | 2.397834 | 0.704899 | 1.300048 | -0.89606 | |
| 614 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 3.6904 | 0.7688 | 0.0035 | 0.6833 | -0.46891 | 0.160621 | -0.27839 | 0.348965 | |
| 615 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 3.2744 | 1 | 0 | 1 | -0.47961 | 0.785743 | -0.43401 | 1.125301 | |
| 616 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 114.7225 | 0.9548 | 0.006 | 0.6107 | 2.388674 | 0.66353 | -0.16723 | 0.170999 | |
| 617 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 0 | 3 | 2.9222 | 0.7711 | 0.0015 | 0.8366 | -0.48868 | 0.166839 | -0.36731 | 0.724754 | |
| 618 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 0 | 3 | 2.6493 | 1 | 0.0048 | 0 | -0.4957 | 0.785743 | -0.22059 | -1.32603 | |
| 619 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 0 | 3 | 6.8595 | 0.8385 | 0.0018 | 0.7068 | -0.38735 | 0.349077 | -0.35397 | 0.406572 | |
| 620 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 0 | 3 | 27.6752 | 0.8758 | 0.013 | 0.3873 | 0.148378 | 0.449929 | 0.14401 | -0.37663 | |
| 621 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 0 | 3 | 123.7927 | 0.9194 | 0.0405 | 0.2526 | 2.62211 | 0.567815 | 1.366742 | -0.70682 | |
| 622 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 0 | 3 | 2.1513 | 0.8965 | 0.0007 | 0.97 | -0.50852 | 0.505898 | -0.40288 | 1.051761 | |
| 623 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 0 | 3 | 3.0834 | 0.8189 | 0.0091 | 0.7677 | -0.48453 | 0.296082 | -0.0294 | 0.555857 | |
| 624 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 0 | 3 | 164.4685 | 0 | 0 | 0 | 3.668964 | -1.91807 | -0.43401 | -1.32603 | |
| 625 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 3.0653 | 1 | 0.004 | 0 | -0.485 | 0.785743 | -0.25616 | -1.32603 | |

| | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 626 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 6.3404 | 0.9116 | 0.005 | 0.6005 | -0.40071 | 0.546725 | -0.21169 | 0.145995 |
| 627 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 1.49 | 0.8194 | 0.0042 | 0.631 | -0.52554 | 0.297434 | -0.24726 | 0.220761 |
| 628 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 2.606 | 0.4195 | 0.0011 | 0.9295 | -0.49682 | -0.78382 | -0.3851 | 0.952482 |
| 629 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 5.973 | 0.8368 | 0.002 | 0.726 | -0.41983 | 0.34448 | -0.34508 | 0.453637 |
| 630 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 1.3949 | 1 | 0 | 1 | -0.52799 | 0.785743 | -0.43401 | 1.125301 |
| 631 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 3 | 62.1435 | 0.7935 | 0.0031 | 0.5668 | 1.035473 | 0.227405 | -0.29617 | 0.063386 |
| 632 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 3 | 4.0409 | 0.4915 | 0 | 1 | -0.45989 | -0.58915 | -0.43401 | 1.125301 |
| 633 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 3 | 2.5931 | 0.9986 | 0.0269 | 0.5537 | -0.49715 | 0.781957 | 0.762046 | 0.031273 |
| 634 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 3 | 3.7262 | 0.5707 | 0.0026 | 0.9081 | -0.46799 | -0.37501 | -0.3184 | 0.900024 |
| 635 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 3 | 1.5106 | 1 | 0 | 1 | -0.52501 | 0.785743 | -0.43401 | 1.125301 |
| 636 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 3 | 125.0119 | 0.9569 | 0.003 | 0.7482 | 2.653488 | 0.669208 | -0.30062 | 0.508056 |
| 637 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 3 | 2.7186 | 0.6959 | 0.0011 | 0.7518 | -0.49392 | -0.03649 | -0.3851 | 0.516881 |
| 638 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 3 | 3.2617 | 0.7661 | 0.001 | 0.8086 | -0.47994 | 0.15332 | -0.38955 | 0.656117 |
| 639 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 3 | 12.6233 | 0 | 0 | 0 | -0.23901 | -1.91807 | -0.43401 | -1.32603 |
| 640 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 0 | 3 | 1.5234 | 0.8264 | 0.0062 | 0.5434 | -0.52468 | 0.31636 | -0.15834 | 0.006025 |
| 641 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 3 | 18.1901 | 0.9036 | 0.0006 | 0.9282 | -0.09574 | 0.525095 | -0.40733 | 0.949295 |
| 642 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 3 | 4.1795 | 0.6218 | 0.0022 | 0.5362 | -0.45632 | -0.23684 | -0.33619 | -0.01162 |
| 643 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 3 | 3.0839 | 0.5203 | 0.0001 | 0.9747 | -0.48452 | -0.51128 | -0.42956 | 1.063282 |
| 644 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 3 | 114.8086 | 0.8906 | 0.0062 | 0.4991 | 0.489945 | -0.15834 | -0.10257 | 0.900024 |
| 645 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 0 | 3 | 1.7054 | 1 | 0 | 1 | -0.51999 | 0.785743 | -0.43401 | 1.125301 |
| 646 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 3 | 98.9745 | 0.8875 | 0.0051 | 0.5499 | 1.983375 | 0.481564 | -0.20725 | 0.021958 |
| 647 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 3 | 3.5554 | 0.7487 | 0.0011 | 0.8066 | -0.47238 | 0.106274 | -0.3851 | 0.651214 |
| 648 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 3 | 2.3669 | 1 | 0.0416 | 0 | -0.50297 | 0.785743 | 1.415652 | -1.32603 |
| 649 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 3 | 5.7825 | 0.3362 | 0.0038 | 0.266 | -0.41506 | -1.00905 | -0.26505 | -0.67397 |
| 650 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 3 | 7.5199 | 0.8105 | 0.0135 | 0.2055 | -0.37035 | 0.27337 | 0.166242 | -0.82228 |
| 651 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 3 | 1.8718 | 0.9414 | 0.0013 | 0.9481 | -0.51571 | 0.627299 | -0.37621 | 0.998077 |
| 652 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 0 | 3 | 1.9066 | 0.9017 | 0.0005 | 0.9759 | -0.51482 | 0.519958 | -0.41178 | 1.066224 |
| 653 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 3 | 2.271 | 0.4636 | 0.0014 | 0.9228 | -0.66458 | -0.37176 | 0.936058 | |
| 654 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 3 | 166.1748 | 0 | 0 | 0 | 3.712878 | -1.91807 | -0.43401 | -1.32603 |
| 655 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 3 | 3.4436 | 0.9892 | 0.0658 | 0.367 | -0.47526 | 0.756542 | 2.491656 | -0.42639 |
| 656 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 3 | 2.833 | 1 | 0 | 1 | -0.49097 | 0.785743 | -0.43401 | 1.125301 |
| 657 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 0 | 3 | 9.5645 | 0 | 0 | 0 | -0.31773 | -1.91807 | -0.43401 | -1.32603 |
| 658 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 3 | 1.5111 | 1 | 0 | 1 | -0.525 | 0.785743 | -0.43401 | 1.125301 |
| 659 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 3 | 4.7647 | 1 | 0.0055 | 0 | -0.44126 | 0.785743 | -0.18946 | -1.32603 |
| 660 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 3 | 1.9492 | 1 | 0 | 1 | -0.51372 | 0.785743 | -0.43401 | 1.125301 |
| 661 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 3 | 4.3378 | 0.8368 | 0.0019 | 0.7294 | -0.45225 | 0.34448 | -0.34953 | 0.461972 |
| 662 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 3 | 117.7168 | 0.9749 | 0.0561 | 0.1817 | 2.465737 | 0.717877 | 2.060365 | -0.88062 |
| 663 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 3 | 115.2095 | 0.9711 | 0.0586 | 0.1277 | 2.401208 | 0.707603 | 2.171522 | -1.01299 |
| 664 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 3 | 9.7017 | 0 | 0 | 0 | -0.3142 | -1.91807 | -0.43401 | -1.32603 |
| 665 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 3 | 98.9539 | 0.9683 | 0.0522 | 0.1298 | 1.982845 | 0.700032 | 1.886959 | -1.00784 |
| 666 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 3 | 2.4644 | 1 | 0.0048 | 0 | -0.50046 | 0.785743 | -0.22059 | -1.32603 |
| 667 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 3 | 2.4399 | 1 | 0.0059 | 0 | -0.50109 | 0.785743 | -0.17168 | -1.32603 |
| 668 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 0 | 3 | 22.8092 | 0 | 0 | 0 | 0.023144 | -1.91807 | -0.43401 | -1.32603 |
| 669 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 3 | 18.9598 | 0 | 0 | 0 | -0.07593 | -1.91807 | -0.43401 | -1.32603 |
| 670 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 3 | 8.7868 | 0 | 0 | 0 | -0.33774 | -1.91807 | -0.43401 | -1.32603 |
| 671 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 3 | 1.9847 | 1 | 0 | 1 | -0.51281 | 0.785743 | -0.43401 | 1.125301 |
| 672 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 3 | 72.9 | 0.8246 | 0.0012 | 0.7877 | 1.312308 | 0.311494 | -0.38065 | 0.604884 |
| 673 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 3 | 2.7325 | 1 | 0 | 1 | -0.49356 | 0.785743 | -0.43401 | 1.125301 |
| 674 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 3 | 5.8246 | 0.3362 | 0.0019 | 0.4202 | -0.41398 | -1.00905 | -0.34953 | -0.29598 |
| 675 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 3 | 2.2824 | 0.9835 | 0.0223 | 0.5763 | -0.50514 | 0.74113 | 0.557516 | 0.086673 |
| 676 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 3 | 2.6953 | 0.8849 | 0.0007 | 0.969 | -0.49452 | 0.474534 | -0.40288 | 1.04931 |
| 677 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 1.7778 | 1 | 0 | 1 | -0.51813 | 0.785743 | -0.43401 | 1.125301 |
| 678 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 4.4202 | 1 | 0.0074 | 0 | -0.45012 | 0.785743 | -0.10498 | -1.32603 |
| 679 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 2.844 | 1 | 0.0356 | 0 | -0.49069 | 0.785743 | 1.148874 | -1.32603 |
| 680 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 3.5372 | 0.8473 | 0.0001 | 0.9964 | -0.47285 | 0.37287 | -0.42956 | 1.116476 |
| 681 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 2.5509 | 1 | 0.0536 | 0 | -0.49823 | 0.785743 | 1.949207 | -1.32603 |
| 682 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 2.2127 | 0.9888 | 0.0557 | 0.3985 | -0.50694 | 0.75546 | 2.04258 | -0.34917 |
| 683 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 119.819 | 0.9167 | 0.0163 | 0.2862 | 2.519841 | 0.560515 | 0.290738 | -0.62446 |
| 684 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 100.2759 | 0.9681 | 0.0766 | 0.0917 | 2.016869 | 0.699491 | 2.971856 | -1.10124 |
| 685 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 2.3816 | 0.6034 | 0.0113 | 0.3699 | -0.50259 | -0.28659 | 0.068423 | -0.41928 |
| 686 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 26.4592 | 0.8742 | 0.007 | 0.5366 | 0.117083 | 0.445603 | -0.12277 | -0.01064 |
| 687 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 0 | 3 | 1.2421 | 1 | 0 | 1 | -0.53192 | 0.785743 | -0.43401 | 1.125301 |
| 688 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 0 | 3 | 2.2951 | 1 | 0 | 1 | -0.50482 | 0.785743 | -0.43401 | 1.125301 |
| 689 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 0 | 3 | 2.5377 | 1 | 0 | 1 | -0.49857 | 0.785743 | -0.43401 | 1.125301 |
| 690 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 0 | 3 | 2.3706 | 1 | 0.0625 | 0 | -0.50287 | 0.785743 | 2.344928 | -1.32603 |
| 691 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 0 | 3 | 8.1166 | 0 | 0 | 0 | -0.35499 | -1.91807 | -0.43401 | -1.32603 |
| 692 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 0 | 3 | 2.6126 | 1 | 0.0492 | 0 | -0.49665 | 0.785743 | 1.75357 | -1.32603 |
| 693 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 0 | 3 | 64.9343 | 0.7922 | 0.002 | 0.663 | 1.107 | | | |

| | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 699 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 5.6012 | 0.7892 | 0.0005 | 0.9068 | -0.41973 | 0.215778 | -0.41178 | 0.896837 |
| 700 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 3.8944 | 0.7688 | 0.0044 | 0.6308 | -0.46366 | 0.160621 | -0.23837 | 0.220271 |
| 701 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 1 | 3 | 1.9444 | 0.8707 | 0.0194 | 0.2889 | -0.51384 | 0.436139 | 0.428573 | -0.61784 |
| 702 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 3 | 1.9724 | 0.8654 | 0.0005 | 0.9747 | -0.51312 | 0.421809 | -0.41178 | 1.063282 |
| 703 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 3 | 4.3966 | 0 | 0.0064 | 0 | -0.45073 | -1.91807 | -0.14945 | -1.32603 |
| 704 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 3 | 4.3939 | 0.8696 | 0.0044 | 0.5072 | -0.4508 | 0.433165 | -0.23837 | -0.08271 |
| 705 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 3 | 111.8725 | 0.905 | 0.0094 | 0.4072 | 2.315325 | 0.52888 | -0.01606 | -0.32785 |
| 706 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 3 | 64.8079 | 0.8052 | 0.0024 | 0.6263 | 1.104045 | 0.25904 | -0.3273 | 0.20924 |
| 707 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 3 | 18.0028 | 0 | 0 | 0 | -0.10056 | -1.91807 | -0.43401 | -1.32603 |
| 708 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 3 | 2.5274 | 1 | 0.0096 | 0 | -0.49884 | 0.785743 | -0.00716 | -1.32603 |
| 709 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 3 | 3.2876 | 1 | 0 | 0 | -0.47927 | 0.785743 | -0.43401 | 1.125301 |
| 710 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 1 | 3 | 2.6526 | 1 | 0 | 0 | -0.49562 | 0.785743 | -0.43401 | 1.125301 |
| 711 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 3 | 29.4438 | 0 | 0 | 0 | 0.193896 | -1.91807 | -0.43401 | -1.32603 |
| 712 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 3 | 4.5321 | 1 | 0 | 0 | -0.44725 | 0.785743 | -0.43401 | 1.125301 |
| 713 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 3 | 6.359 | 0.3362 | 0.0019 | 0.4202 | -0.40023 | -1.00905 | -0.34953 | -0.29598 |
| 714 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 3 | 1.2999 | 1 | 0.0018 | 0 | -0.53043 | 0.785743 | -0.35397 | -1.32603 |
| 715 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 1 | 3 | 4.2763 | 0.8825 | 0.0018 | 0.9483 | -0.45383 | 0.468044 | -0.35397 | 0.998567 |
| 716 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 3 | 122.936 | 0.9576 | 0.0033 | 0.7471 | 2.600061 | 0.671101 | -0.28728 | 0.50536 |
| 717 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 3 | 1.2301 | 1 | 0 | 0 | -0.5323 | 0.785743 | -0.43401 | 1.125301 |
| 718 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 3 | 1.6698 | 0.9617 | 0.0863 | 0.1117 | -0.52091 | 0.682187 | 3.403147 | -1.05221 |
| 719 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 3 | 1.8518 | 1 | 0 | 0 | -0.51623 | 0.785743 | -0.43401 | 1.125301 |
| 720 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 3 | 113.3085 | 0.905 | 0.0028 | 0.7011 | 2.352283 | 0.52888 | -0.30951 | 0.392599 |
| 721 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 3 | 3.0662 | 0.9812 | 0.0002 | 0.9942 | -0.48497 | 0.734911 | -0.42512 | 1.111083 |
| 722 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 1 | 3 | 2.9672 | 1 | 0 | 0 | -0.48752 | 0.785743 | -0.43401 | 1.125301 |
| 723 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 3 | 96.267 | 0 | 0 | 0 | 1.913694 | -1.91807 | -0.43401 | -1.32603 |
| 724 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 3 | 124.9481 | 0.9569 | 0.0003 | 0.7482 | 2.651846 | 0.669208 | -0.30062 | 0.508056 |
| 725 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 3 | 113.5743 | 0.9077 | 0.0003 | 0.6839 | 2.359124 | 0.536181 | -0.30062 | 0.350436 |
| 726 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 3 | 1.2726 | 1 | 0 | 0 | -0.53113 | 0.785743 | -0.43401 | 1.125301 |
| 727 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 1 | 3 | 2.0143 | 1 | 0 | 0 | -0.51204 | 0.785743 | -0.43401 | 1.125301 |
| 728 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 1 | 3 | 3.0278 | 0.8566 | 0.0004 | 0.9808 | -0.48596 | 0.398016 | -0.41622 | 1.078235 |
| 729 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 3 | 26.4589 | 0.8758 | 0.0156 | 0.3463 | 0.117075 | 0.449929 | 0.259614 | -0.47713 |
| 730 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 3 | 2.5552 | 1 | 0 | 0 | -0.49812 | 0.785743 | -0.43401 | 1.125301 |
| 731 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 3 | 26.4404 | 0.8649 | 0.0076 | 0.51 | 0.116599 | 0.420457 | -0.09609 | -0.07585 |
| 732 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 1 | 3 | 5.3483 | 0.2191 | 0.0016 | 0.8286 | -0.42624 | -1.32567 | -0.36287 | 0.705143 |
| 733 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 3 | 24.8836 | 0 | 0 | 0 | 0.076532 | -1.91807 | -0.43401 | -1.32603 |
| 734 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 1 | 3 | 66.6817 | 0 | 0 | 0 | 1.15227 | -1.91807 | -0.43401 | -1.32603 |
| 735 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 1 | 3 | 2.69 | 1 | 0 | 0 | -0.49465 | 0.785743 | -0.43401 | 1.125301 |
| 736 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 3 | 148.9675 | 0 | 0 | 0 | 3.270022 | -1.91807 | -0.43401 | -1.32603 |
| 737 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 3 | 11.6851 | 0 | 0 | 0 | -0.26315 | -1.91807 | -0.43401 | -1.32603 |
| 738 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 1 | 3 | 1.9437 | 1 | 0 | 0 | -0.51386 | 0.785743 | -0.43401 | 1.125301 |
| 739 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 3 | 6.1205 | 0 | 0 | 0 | -0.40637 | -1.91807 | -0.43401 | -1.32603 |
| 740 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 1 | 3 | 120.0349 | 0.9167 | 0.0163 | 0.2862 | 2.525397 | 0.560515 | 0.290738 | -0.62446 |
| 741 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 3 | 2.2579 | 1 | 0 | 0 | -0.50578 | 0.785743 | -0.43401 | 1.125301 |
| 742 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 3 | 2.0954 | 0.9452 | 0.0015 | 0.9436 | -0.50996 | 0.637574 | -0.36731 | 0.987046 |
| 743 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 3 | 2.4595 | 1 | 0 | 0 | -0.50059 | 0.785743 | -0.43401 | 1.125301 |
| 744 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 3 | 7.1467 | 0.3362 | 0.0019 | 0.4202 | -0.37995 | -1.00905 | -0.34953 | -0.29598 |
| 745 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 3 | 114.1915 | 0.9742 | 0.0331 | 0.1953 | 2.375008 | 0.715984 | 1.037716 | -0.84728 |
| 746 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 3 | 2.3993 | 0.7515 | 0.0008 | 0.9071 | -0.50214 | 0.113845 | -0.39844 | 0.897572 |
| 747 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 2.3825 | 0.8858 | 0.0005 | 0.9773 | -0.50257 | 0.476967 | -0.41178 | 1.069656 |
| 748 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 2.6399 | 0.8682 | 0.0006 | 0.9726 | -0.49594 | 0.42938 | -0.40733 | 1.058134 |
| 749 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 2.5749 | 0.9561 | 0.0056 | 0.8669 | -0.49762 | 0.667045 | -0.18502 | 0.799029 |
| 750 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 170.8368 | 0 | 0 | 0 | 3.832862 | -1.91807 | -0.43401 | -1.32603 |
| 751 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 9.5196 | 0 | 0 | 0 | -0.31888 | -1.91807 | -0.43401 | -1.32603 |
| 752 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 1.6501 | 1 | 0 | 0 | -0.52142 | 0.785743 | -0.43401 | 1.125301 |
| 753 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 3.787 | 0.4683 | 0.0018 | 0.9049 | -0.46642 | -0.65188 | -0.35397 | 0.892179 |
| 754 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 68.537 | 0.5673 | 0.0005 | 0.8739 | 1.200019 | -0.3842 | -0.41178 | 0.816188 |
| 755 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 2.5569 | 1 | 0 | 0 | -0.49808 | 0.785743 | -0.43401 | 1.125301 |
| 756 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 115.1557 | 0.974 | 0.031 | 0.2048 | 2.399823 | 0.715444 | 0.944344 | -0.82399 |
| 757 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 1 | 3 | 3.6053 | 0.8385 | 0.002 | 0.6888 | -0.4711 | 0.349077 | -0.34508 | 0.362448 |
| 758 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 1 | 3 | 5.7135 | 1 | 0.0042 | 0 | -0.41684 | 0.785743 | -0.24726 | -1.32603 |
| 759 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 1 | 3 | 11.9535 | 0 | 0 | 0 | -0.25624 | -1.91807 | -0.43401 | -1.32603 |
| 760 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 1 | 3 | 22.5505 | 0 | 0 | 0 | 0.016486 | -1.91807 | -0.43401 | -1.32603 |
| 761 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 1 | 3 | 1.2303 | 1 | 0 | 0 | -0.53222 | 0.785743 | -0.43401 | 1.125301 |
| 762 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 1 | 3 | 18.408 | 0 | 0 | 0 | -0.09013 | -1.91807 | -0.43401 | -1.32603 |
| 763 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 1 | 3 | 2.1089 | 0.8325 | 0.0727 | 0.1189 | -0.50961 | 0.332854 | 2.79845 | -1.03456 |
| 764 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 1 | 3 | 3.8956 | 0.9986 | 0.0275 | 0.5464 | -0.46363 | 0.781957 | 0.788724 | 0.013379 |
| 765 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 119.0318 | 0.9107 | 0.0089 | 0.4221 | 2.499581 | 0.544292 | -0.03829 | -0.29132 |
| 766 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 4.1011 | 0.6092 | 0.0001 | 0.9942 | -0.45834 | -0.27091 | -0.42956 | 1.111083 |

| | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 772 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 3 | 6.4967 | 0.3362 | 0.0019 | 0.4202 | -0.39668 | -1.00905 | -0.34953 | -0.29598 |
| 773 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 3 | 5.0578 | 1 | 0.0062 | 0 | -0.43372 | 0.785743 | -0.15834 | -1.32603 |
| 774 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 3 | 1.9278 | 1 | 0 | 1 | -0.51427 | 0.785743 | -0.43401 | 1.125301 |
| 775 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 3 | 6.4099 | 0.8122 | 0.0067 | 0.8444 | -0.39892 | 0.277966 | -0.13611 | 0.743874 |
| 776 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 3 | 2.598 | 1 | 0.0136 | 0 | -0.49702 | 0.785743 | 0.170688 | -1.32603 |
| 777 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 3 | 1.9833 | 0.8194 | 0.0041 | 0.6413 | -0.51284 | 0.297434 | -0.25171 | 0.24601 |
| 778 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 3 | 2.3665 | 0.5948 | 0.0009 | 0.8667 | -0.50298 | -0.30984 | -0.39399 | 0.798539 |
| 779 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 3 | 3.087 | 1 | 0 | 1 | -0.48444 | 0.785743 | -0.43401 | 1.125301 |
| 780 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 3 | 100.0568 | 0.9677 | 0.0607 | 0.112 | 2.01123 | 0.69841 | 2.264894 | -1.05148 |
| 781 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 3 | 2.082 | 0.9572 | 0.1251 | 0.0811 | -0.5103 | 0.670019 | 5.12831 | -1.12722 |
| 782 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 3 | 4.8697 | 1 | 0.0053 | 0 | -0.43856 | 0.785743 | -0.19835 | -1.32603 |
| 783 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 3 | 15.6896 | 0 | 0 | 0 | -0.16009 | -1.91807 | -0.43401 | -1.32603 |
| 784 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 3 | 2.736 | 0.815 | 0.0152 | 0.2327 | -0.49347 | 0.285537 | 0.241829 | -0.7556 |
| 785 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 1 | 3 | 2.096 | 0.9631 | 0.0021 | 0.9226 | -0.50994 | 0.685972 | -0.34064 | 0.935568 |
| 786 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 3 | 4.7046 | 1 | 0 | 1 | -0.44281 | 0.785743 | -0.43401 | 1.125301 |
| 787 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 3 | 2.0769 | 1 | 0 | 1 | -0.51043 | 0.785743 | -0.43401 | 1.125301 |
| 788 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 3 | 120.5344 | 0.8194 | 0.002 | 0.7709 | 2.538252 | 0.297434 | -0.34508 | 0.563702 |
| 789 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 3 | 1.2442 | 1 | 0 | 1 | -0.53186 | 0.785743 | -0.43401 | 1.125301 |
| 790 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 3 | 11.117 | 0 | 0 | 1 | -0.27777 | -1.91807 | -0.43401 | -1.32603 |
| 791 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 3 | 2.5426 | 0.8218 | 0 | 1 | -0.49845 | 0.303923 | -0.43401 | 1.125301 |
| 792 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 3 | 123.4932 | 0.9525 | 0.0011 | 0.8833 | 2.614402 | 0.657312 | -0.3851 | 0.839231 |
| 793 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 3 | 5.3328 | 0 | 0.0012 | 0 | -0.42664 | -1.91807 | -0.38065 | -1.32603 |
| 794 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 3 | 27.0817 | 0 | 0 | 0 | 0.133104 | -1.91807 | -0.43401 | -1.32603 |
| 795 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 3 | 6.5659 | 0.7976 | 0.0019 | 0.648 | -0.3949 | 0.238491 | -0.34953 | 0.262434 |
| 796 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 3 | 7.1727 | 0 | 0 | 0 | -0.37929 | -1.91807 | -0.43401 | -1.32603 |
| 797 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 1 | 3 | 100.8563 | 0.9649 | 0.0566 | 0.1182 | 2.031806 | 0.690839 | 2.082596 | -1.03628 |
| 798 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 3 | 73.055 | 0.8165 | 0.0019 | 0.6862 | 1.316297 | 0.289593 | -0.34953 | 0.356074 |
| 799 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 3 | 3.6272 | 0.6959 | 0.0015 | 0.6913 | -0.47053 | -0.03649 | -0.36731 | 0.368576 |
| 800 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 3 | 3.0716 | 0.7688 | 0.0039 | 0.6578 | -0.48483 | 0.160621 | -0.2606 | 0.286457 |
| 801 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 3 | 62.7653 | 0.8065 | 0.0035 | 0.5388 | 1.051476 | 0.262554 | -0.27839 | -0.00525 |
| 802 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 1 | 3 | 26.5803 | 0 | 0 | 0 | 0.120199 | -1.91807 | -0.43401 | -1.32603 |
| 803 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 3 | 1.9778 | 1 | 0 | 1 | -0.51298 | 0.785743 | -0.43401 | 1.125301 |
| 804 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 3 | 15.2221 | 0 | 0 | 0 | -0.17212 | -1.91807 | -0.43401 | -1.32603 |
| 805 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 1 | 3 | 2.7657 | 1 | 0.0508 | 0.4078 | -0.49271 | 0.785743 | 1.824711 | -0.32638 |
| 806 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 3 | 1.9908 | 1 | 0 | 1 | -0.51265 | 0.785743 | -0.43401 | 1.125301 |
| 807 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 3 | 2.8672 | 1 | 0 | 1 | -0.49009 | 0.785743 | -0.43401 | 1.125301 |
| 808 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 3 | 26.5002 | 0.8758 | 0.0146 | 0.3612 | 0.118138 | 0.449929 | 0.215151 | -0.44061 |
| 809 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 3 | 1.7304 | 0.963 | 0.0017 | 0.9366 | -0.51935 | 0.685702 | -0.35842 | 0.969887 |
| 810 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 3 | 2.2424 | 0.9415 | 0.0017 | 0.9365 | -0.50617 | 0.62757 | -0.35842 | 0.969641 |
| 811 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 3 | 3.9863 | 0.4208 | 0 | 0.9977 | -0.46129 | -0.78031 | -0.43401 | 1.119663 |
| 812 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 3 | 98.8806 | 0.9636 | 0.0473 | 0.143 | 1.980959 | 0.687324 | 1.669091 | -0.97549 |
| 813 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 3 | 2.1203 | 1 | 0.0563 | 0 | -0.50932 | 0.785743 | 2.069257 | -1.32603 |
| 814 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 3 | 3.1249 | 0.8487 | 0.0005 | 0.9808 | -0.48346 | 0.376655 | -0.41178 | 1.078235 |
| 815 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 3 | 4.2444 | 0 | 0 | 0 | -0.45002 | -1.91807 | -0.43401 | -1.32603 |
| 816 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 3 | 2.2663 | 0.7443 | 0.0002 | 0.9906 | -0.50556 | 0.094377 | -0.42512 | 1.102258 |
| 817 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 1.6365 | 1 | 0 | 1 | -0.52177 | 0.785743 | -0.43401 | 1.125301 |
| 818 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 2.2116 | 1 | 0.0094 | 0 | -0.50697 | 0.785743 | -0.01606 | -1.32603 |
| 819 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 4.0379 | 0 | 0.0165 | 0 | -0.45996 | -1.91807 | 0.299631 | -1.32603 |
| 820 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 5.4992 | 0 | 0.0065 | 0 | -0.42236 | -1.91807 | -0.145 | -1.32603 |
| 821 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 62.7494 | 0.8141 | 0.001 | 0.7987 | 1.051067 | 0.283103 | -0.38955 | 0.631849 |
| 822 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 5.1586 | 0 | 0 | 0 | -0.43112 | -1.91807 | -0.43401 | -1.32603 |
| 823 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 105.2665 | 0.8589 | 0.0044 | 0.5789 | 2.14531 | 0.404234 | -0.23837 | 0.093047 |
| 824 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 1.4274 | 1 | 0 | 1 | -0.52715 | 0.785743 | -0.43401 | 1.125301 |
| 825 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 3.7813 | 0.8826 | 0.0018 | 0.9474 | -0.46657 | 0.468315 | -0.35397 | 0.996361 |
| 826 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 4.7075 | 0.4566 | 0.0011 | 0.9386 | -0.45912 | -0.68351 | -0.3851 | 0.974789 |
| 827 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 1 | 3 | 24.5826 | 1 | 0 | 1 | 0.068785 | 0.785743 | -0.43401 | 1.125301 |
| 828 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 1 | 3 | 4.4206 | 0.8696 | 0.0046 | 0.4965 | -0.45011 | 0.433165 | -0.22948 | -0.10894 |
| 829 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 1 | 3 | 2.648 | 0.4655 | 0.0018 | 0.9044 | -0.49574 | -0.65945 | -0.35397 | 0.890954 |
| 830 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 1 | 3 | 118.1739 | 0.9675 | 0.0439 | 0.2159 | 2.477501 | 0.697869 | 1.517916 | -0.79678 |
| 831 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 1 | 3 | 115.3133 | 0.8882 | 0.0048 | 0.5665 | 2.403879 | 0.483456 | -0.22059 | 0.06265 |
| 832 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 1 | 3 | 114.0285 | 0.8886 | 0.0072 | 0.466 | 2.370813 | 0.484538 | -0.11387 | -0.18371 |
| 833 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 1 | 3 | 4.483 | 0.74 | 0.0007 | 0.8346 | -0.44851 | 0.082751 | -0.40288 | 0.719851 |
| 834 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 0 | 1 | 3 | 3.6084 | 0.8494 | 0.0025 | 0.6528 | -0.47102 | 0.378548 | -0.32285 | 0.2742 |
| 835 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 13.2412 | 0 | 0 | 0 | -0.2231 | -1.91807 | -0.43401 | -1.32603 |
| 836 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 1.6279 | 1 | 0 | 1 | -0.52199 | 0.785743 | -0.43401 | 1.125301 |
| 837 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 3.7607 | 0.967 | 0.0156 | 0.7433 | -0.4671 | 0.696517 | 0.259614 | 0.496045 |
| 838 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 3.7607 | 0.4293 | 0.0001 | 0.9933 | -0.4671 | -0.75732 | -0.42956 | 1.108877 |
| 839 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 3.0298 | 1 | 0 | 1 | -0.48591 | 0 | | |

Crossed Array Inner Array Design Points and Responses (Block 4)

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | Time | TPF | FPE | TPP | Std Time | Std TPF | Std FPE | Std TPP |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|---------|-------------|----------------------|--------------|---------------|----------|--------|--------|--------|----------|----------|----------|----------|
| 841 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 4 | 3.9916 | 0.8825 | 0.0018 | 0.9483 | -0.46116 | 0.468044 | -0.35397 | 0.998567 |
| 842 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 4 | 15.3932 | 0 | 0 | 0 | -0.16772 | -1.91807 | -0.43401 | -1.32603 |
| 843 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 4 | 4.02 | 0 | 0 | 0 | -0.46042 | -1.91807 | -0.43401 | -1.32603 |
| 844 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 4 | 3.3424 | 0.8489 | 0.0007 | 0.974 | -0.47786 | 0.377196 | -0.40288 | 1.061566 |
| 845 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 4 | 2.6941 | 0.8596 | 0.0004 | 0.9808 | -0.49455 | 0.406127 | -0.41622 | 1.078235 |
| 846 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 4 | 6.6086 | 0.9777 | 0.0081 | 0.43 | -0.3938 | 0.725448 | -0.07386 | -0.27196 |
| 847 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 4 | 62.9869 | 0.8408 | 0.0077 | 0.3587 | 1.057179 | 0.355295 | -0.09164 | -0.44674 |
| 848 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 4 | 2.6022 | 0.9818 | 0.0166 | 0.6421 | -0.49691 | 0.736533 | 0.304077 | 0.247971 |
| 849 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 4 | 100.31 | 0.9679 | 0.0699 | 0.0991 | 2.017746 | 0.69895 | 2.673954 | -1.0831 |
| 850 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 4 | 99.968 | 0.9677 | 0.0556 | 0.1209 | 2.008945 | 0.69841 | 2.038133 | -1.02966 |
| 851 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 4 | 19.6047 | 0 | 0 | 0 | -0.05933 | -1.91807 | -0.43401 | -1.32603 |
| 852 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 4 | 165.754 | 0 | 0 | 0 | 3.702048 | -1.91807 | -0.43401 | -1.32603 |
| 853 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 4 | 3.2081 | 0.5203 | 0.0004 | 0.9167 | -0.48132 | -0.51128 | -0.41622 | 0.921105 |
| 854 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 4 | 18.0492 | 0.8921 | 0.0003 | 0.9658 | -0.09936 | 0.494001 | -0.42067 | 1.041465 |
| 855 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 4 | 113.8874 | 0.8886 | 0.0072 | 0.466 | 2.367182 | 0.484538 | -0.11387 | -0.18371 |
| 856 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 4 | 5.4242 | 0 | 0 | 0 | -0.42429 | -1.91807 | -0.43401 | -1.32603 |
| 857 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 4 | 4.551 | 0.9663 | 0.0053 | 0.8741 | -0.44676 | 0.694624 | -0.19835 | 0.816679 |
| 858 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 4 | 3.2885 | 0 | 0.036 | 0 | -0.47925 | 0.785743 | 1.166659 | -1.32603 |
| 859 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 4 | 1.4883 | 1 | 0 | 1 | -0.52558 | 0.785743 | -0.43401 | 1.125301 |
| 860 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 4 | 66.2345 | 0.7922 | 0.0021 | 0.6559 | 1.140761 | 0.22389 | -0.34064 | 0.281799 |
| 861 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 4 | 9.6321 | 0 | 0 | 0 | -0.31599 | -1.91807 | -0.43401 | -1.32603 |
| 862 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 4 | 3.418 | 1 | 0.0062 | 0 | -0.47592 | 0.785743 | -0.15834 | -1.32603 |
| 863 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 4 | 2.2854 | 0.9548 | 0.0824 | 0.1123 | -0.50507 | 0.66353 | 3.229741 | -1.05074 |
| 864 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 4 | 176.7845 | 0 | 0 | 0 | 3.985935 | -1.91807 | -0.43401 | -1.32603 |
| 865 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 4 | 2.633 | 1 | 0.0045 | 0 | -0.49612 | 0.785743 | -0.23392 | -1.32603 |
| 866 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 4 | 182.3727 | 0 | 0 | 0 | 4.129756 | -1.91807 | -0.43401 | -1.32603 |
| 867 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 0 | 4 | 6.8347 | 0 | 0 | 0 | -0.38798 | -1.91807 | -0.43401 | -1.32603 |
| 868 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 4 | 1.2688 | 1 | 0.0554 | 0 | -0.53123 | 0.785743 | 2.029241 | -1.32603 |
| 869 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 4 | 3.4215 | 0.8432 | 0.0001 | 0.9963 | -0.47583 | 0.361785 | -0.42956 | 1.116231 |
| 870 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 4 | 1.2605 | 1 | 0 | 0 | -0.53144 | 0.785743 | -0.43401 | -1.32603 |
| 871 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 4 | 2.9762 | 0.6959 | 0.0011 | 0.7518 | -0.48729 | -0.03649 | -0.3851 | 0.516881 |
| 872 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 0 | 4 | 29.0999 | 0.768 | 0.0057 | 0.6183 | 0.185045 | 0.158458 | -0.18057 | 0.189629 |
| 873 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 4 | 2.1795 | 0.4518 | 0 | 0.9979 | -0.50779 | -0.69649 | -0.43401 | 1.120153 |
| 874 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 0 | 4 | 5.568 | 0.168 | 0 | 1 | -0.42058 | -1.46383 | -0.43401 | 1.125301 |
| 875 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 4 | 1.992 | 1 | 0 | 1 | -0.51262 | 0.785743 | -0.43401 | 1.125301 |
| 876 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 4 | 4.6216 | 0.709 | 0.0029 | 0.5118 | -0.44494 | -0.00107 | -0.30507 | -0.07144 |
| 877 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 4 | 4.8661 | 0.6032 | 0 | 1 | -0.43865 | -0.28713 | -0.43401 | 1.125301 |
| 878 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 4 | 1.4645 | 1 | 0 | 1 | -0.52619 | 0.785743 | -0.43401 | 1.125301 |
| 879 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 4 | 1.9263 | 0.8846 | 0.0111 | 0.4326 | -0.51431 | 0.473722 | 0.059531 | -0.26558 |
| 880 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 0 | 4 | 34.078 | 0 | 0 | 0 | 0.313164 | -1.91807 | -0.43401 | -1.32603 |
| 881 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 4 | 3.5922 | 0.8483 | 0.0003 | 0.9894 | -0.47143 | 0.375574 | -0.42067 | 1.099317 |
| 882 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 4 | 120.417 | 0.9167 | 0.0163 | 0.2862 | 2.535231 | 0.560515 | 0.290738 | -0.62446 |
| 883 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 4 | 2.9448 | 0 | 0 | 0 | -0.4881 | -1.91807 | -0.43401 | -1.32603 |
| 884 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 4 | 4.7105 | 0.6468 | 0.0002 | 0.9896 | -0.44265 | -0.16924 | -0.42512 | 1.099807 |
| 885 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 4 | 3.7521 | 0.9428 | 0.0022 | 0.9411 | -0.46732 | 0.631085 | -0.33619 | 0.980917 |
| 886 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 4 | 3.1061 | 1 | 0.004 | 0 | -0.48395 | 0.785743 | -0.25616 | -1.32603 |
| 887 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 1.6386 | 1 | 0 | 1 | -0.52171 | 0.785743 | -0.43401 | 1.125301 |
| 888 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 4.1442 | 0 | 0.0012 | 0 | -0.45723 | -1.91807 | -0.38065 | -1.32603 |
| 889 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 2.0581 | 1 | 0 | 1 | -0.51092 | 0.785743 | -0.43401 | 1.125301 |
| 890 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 1.4019 | 1 | 0 | 1 | -0.52781 | 0.785743 | -0.43401 | 1.125301 |
| 891 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 11.4418 | 0 | 0 | 0 | -0.26941 | -1.91807 | -0.43401 | -1.32603 |
| 892 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 8.9668 | 0 | 0 | 0 | -0.33311 | -1.91807 | -0.43401 | -1.32603 |
| 893 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 1.6439 | 0.9607 | 0.0537 | 0.1641 | -0.52158 | 0.679483 | 1.953654 | -0.92376 |
| 894 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 10.9482 | 0 | 0 | 0 | -0.28212 | -1.91807 | -0.43401 | -1.32603 |
| 895 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 10.7227 | 0 | 0.0032 | 0 | -0.28792 | -1.91807 | -0.29173 | -1.32603 |
| 896 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 3.815 | 1 | 0.0074 | 0 | -0.4657 | 0.785743 | -0.10498 | -1.32603 |
| 897 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 0 | 4 | 25.7475 | 1 | 0 | 1 | 0.098766 | 0.785743 | -0.43401 | 1.125301 |
| 898 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 0 | 4 | 101.636 | 0.9677 | 0.0584 | 0.1156 | 2.051873 | 0.69841 | 2.16263 | -1.04265 |
| 899 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 0 | 4 | 104.5729 | 0 | 0 | 0 | 2.127459 | -1.91807 | -0.43401 | -1.32603 |
| 900 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 0 | 4 | 4.0571 | 0 | 0.0015 | 0 | -0.45947 | -1.91807 | -0.36731 | -1.32603 |
| 901 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 0 | 4 | 3.9238 | 0.6218 | 0.0022 | 0.5362 | -0.4629 | -0.23684 | -0.33619 | -0.01162 |
| 902 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 0 | 4 | 3.6008 | 0.8439 | 0.0003 | 0.9891 | -0.47121 | 0.363677 | -0.42067 | 1.098581 |
| 903 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 0 | 4 | 4.8751 | 0.8032 | 0.0157 | 0.7073 | -0.43842 | 0.253632 | 0.26406 | 0.407797 |
| 904 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 0 | 4 | 119.3926 | 0.9107 | 0.0094 | 0.4091 | 2.508866 | 0.544292 | -0.01606 | -0.32319 |
| 905 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 79.2803 | 0.7195 | 0.0492 | 0.1055 | 1.476515 | 0.027323 | 1.75357 | -1.06741 |

| | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|-------|-----|-------|-------|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 906 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 3.6664 | 0.8385 | 0.002 | 0.6853 | -0.46953 | 0.349077 | -0.34508 | 0.353868 |
| 907 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 1.863 | 1 | 0 | 1 | -0.51594 | 0.785743 | -0.43401 | 1.125301 |
| 908 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 4.8386 | 0 | 0 | 0 | -0.43936 | -1.91807 | -0.43401 | -1.32603 |
| 909 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 3.6386 | 0.8144 | 0.0111 | 0.2857 | -0.47024 | 0.283915 | 0.059531 | -0.62568 |
| 910 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 3.9735 | 0.9663 | 0.0053 | 0.8741 | -0.46162 | 0.694624 | -0.19835 | 0.816679 |
| 911 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 4 | 5.1565 | 0.8368 | 0.0022 | 0.7004 | -0.43118 | 0.34448 | -0.33619 | 0.390883 |
| 912 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 4 | 2.6799 | 1 | 0.1516 | 0 | -0.49491 | 0.785743 | 6.306579 | -1.32603 |
| 913 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 4 | 2.8783 | 1 | 0.0048 | 0 | -0.48981 | 0.785743 | -0.22059 | -1.32603 |
| 914 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 4 | 2.2144 | 1 | 0 | 1 | -0.50689 | 0.785743 | -0.43401 | 1.125301 |
| 915 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 4 | 147.4971 | 0 | 0 | 0 | 3.232179 | -1.91807 | -0.43401 | -1.32603 |
| 916 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 4 | 1.9903 | 0.782 | 0.0097 | 0.3985 | -0.51266 | 0.196311 | -0.00272 | -0.34917 |
| 917 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 4 | 2.6384 | 1 | 0 | 1 | -0.49598 | 0.785743 | -0.43401 | 1.125301 |
| 918 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 4 | 119.5543 | 0.9045 | 0.0024 | 0.7266 | 2.513028 | 0.527528 | -0.3273 | 0.455108 |
| 919 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 4 | 4.4527 | 0.8215 | 0 | 1 | -0.44929 | 0.303112 | -0.43401 | 1.125301 |
| 920 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 0 | 4 | 3.7462 | 0 | 0.0018 | 0 | -0.46747 | -1.91807 | -0.35397 | -1.32603 |
| 921 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 4 | 3.3772 | 0 | 0 | 0 | -0.47697 | -1.91807 | -0.43401 | -1.32603 |
| 922 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 4 | 4.2268 | 0.9273 | 0.0249 | 0.1573 | -0.4551 | 0.589175 | 0.67312 | -0.94043 |
| 923 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 4 | 4.3062 | 0.8462 | 0.0001 | 0.9964 | -0.45306 | 0.369896 | -0.42956 | 1.116476 |
| 924 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 4 | 5.4812 | 0.1872 | 0.0019 | 0.2876 | -0.42282 | -1.41192 | -0.34953 | 0.62102 |
| 925 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 0 | 4 | 10.0324 | 0 | 0 | 0 | -0.30569 | -1.91807 | -0.43401 | -1.32603 |
| 926 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 4 | 66.5807 | 0.8 | 0.0024 | 0.6294 | 1.149671 | 0.24498 | -0.3273 | 0.216839 |
| 927 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 4 | 113.944 | 0.8886 | 0.0072 | 0.466 | 2.368638 | 0.484538 | -0.11387 | -0.18371 |
| 928 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 4 | 2.4318 | 1 | 0 | 1 | -0.5013 | 0.785743 | -0.43401 | 1.125301 |
| 929 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 4 | 7.7628 | 0.017 | 0.015 | 0.0046 | -0.3641 | -1.87211 | 0.232936 | -1.31475 |
| 930 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 4 | 2.106 | 0.8707 | 0.0124 | 0.3879 | -0.50968 | 0.436139 | 0.117333 | -0.37516 |
| 931 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 4 | 2.6501 | 0.4636 | 0.0014 | 0.9228 | -0.49568 | -0.66458 | -0.37176 | 0.936058 |
| 932 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 0 | 4 | 5.9084 | 0 | 0 | 0 | -0.41182 | -1.91807 | -0.43401 | -1.32603 |
| 933 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 4 | 1.9322 | 0.9452 | 0.0017 | 0.9337 | -0.51416 | 0.637574 | -0.35842 | 0.962778 |
| 934 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 4 | 1.5141 | 1 | 0 | 1 | -0.52492 | 0.785743 | -0.43401 | 1.125301 |
| 935 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 4 | 4.0975 | 0.9663 | 0.0053 | 0.8741 | -0.45843 | 0.694624 | -0.19835 | 0.816679 |
| 936 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 4 | 1.4914 | 1 | 0.0006 | 0 | -0.5255 | 0.785743 | -0.40733 | -1.32603 |
| 937 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 0 | 4 | 4.7004 | 0.0681 | 0.028 | 0.0098 | -0.44291 | -1.73394 | 0.810955 | -1.302 |
| 938 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 4 | 2.4416 | 1 | 0 | 1 | -0.50105 | 0.785743 | -0.43401 | 1.125301 |
| 939 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 4 | 3.9381 | 0.6577 | 0.0074 | 0.3925 | -0.46253 | -0.13977 | -0.10498 | -0.36388 |
| 940 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 4 | 1.6509 | 0.956 | 0.103 | 0.0943 | -0.5214 | 0.666775 | 4.145678 | -1.09487 |
| 941 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 4 | 3.3354 | 0.4208 | 0 | 0.9977 | -0.47804 | -0.78031 | -0.43401 | 1.119663 |
| 942 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 4 | 4.8659 | 0.8826 | 0.0018 | 0.9474 | -0.43865 | 0.468315 | -0.35397 | 0.996361 |
| 943 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 4 | 2.7176 | 1 | 0 | 1 | -0.49394 | 0.785743 | -0.43401 | 1.125301 |
| 944 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 4 | 113.8739 | 0.9751 | 0.049 | 0.1453 | 2.366834 | 0.718418 | 1.744678 | -0.96985 |
| 945 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 4 | 1.7984 | 1 | 0 | 1 | -0.5176 | 0.785743 | -0.43401 | 1.125301 |
| 946 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 4 | 2.2234 | 0.9548 | 0.0879 | 0.106 | -0.50666 | 0.66353 | 3.474287 | -1.06619 |
| 947 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 4 | 2.4486 | 0.8224 | 0.0095 | 0.3769 | -0.50087 | 0.305545 | -0.01161 | -0.40212 |
| 948 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 0 | 4 | 67.5886 | 0.9594 | 0.1671 | 0.0357 | 1.175611 | 0.675968 | 6.995755 | -1.23851 |
| 949 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 4 | 12.5306 | 0 | 0 | 0 | -0.24139 | -1.91807 | -0.43401 | -1.32603 |
| 950 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 4 | 2.2961 | 0.9564 | 0.0082 | 0.817 | -0.50479 | 0.667856 | -0.06941 | 0.676708 |
| 951 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 4 | 99.059 | 0.9683 | 0.0902 | 0.0796 | 1.98555 | 0.700032 | 3.576552 | -1.1309 |
| 952 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 4 | 3.8645 | 0 | 0.0012 | 0 | -0.46443 | -1.91807 | -0.38065 | -1.32603 |
| 953 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 4 | 1.148 | 1 | 0 | 1 | -0.53434 | 0.785743 | -0.43401 | 1.125301 |
| 954 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 4 | 1.2183 | 1 | 0 | 1 | -0.53253 | 0.785743 | -0.43401 | 1.125301 |
| 955 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 4 | 11.065 | 0 | 0 | 0 | -0.27911 | -1.91807 | -0.43401 | -1.32603 |
| 956 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 4 | 1.5089 | 0.8194 | 0.0053 | 0.5784 | -0.52505 | 0.297434 | -0.19835 | 0.091821 |
| 957 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 1.4345 | 1 | 0 | 1 | -0.52697 | 0.785743 | -0.43401 | 1.125301 |
| 958 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 1.4831 | 1 | 0.0006 | 0 | -0.52572 | 0.785743 | -0.40733 | -1.32603 |
| 959 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 2.7563 | 0.6959 | 0.0011 | 0.7518 | -0.49295 | -0.03649 | -0.3851 | 0.516881 |
| 960 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 2.4313 | 0 | 0 | 0 | -0.50131 | -1.91807 | -0.43401 | -1.32603 |
| 961 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 4.3231 | 0.9841 | 0.0001 | 0.9984 | -0.45262 | 0.742752 | -0.42956 | 1.121379 |
| 962 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 1.7554 | 1 | 0 | 1 | -0.51871 | 0.785743 | -0.43401 | 1.125301 |
| 963 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 2.2328 | 1 | 0 | 1 | -0.50642 | 0.785743 | -0.43401 | 1.125301 |
| 964 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 3.1891 | 1 | 0 | 1 | -0.48181 | 0.785743 | -0.43401 | 1.125301 |
| 965 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 2.2453 | 1 | 0 | 1 | -0.5061 | 0.785743 | -0.43401 | 1.125301 |
| 966 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 19.9223 | 0 | 0 | 0 | -0.05115 | -1.91807 | -0.43401 | -1.32603 |
| 967 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 0 | 4 | 1.7159 | 1 | 0 | 1 | -0.51972 | 0.785743 | -0.43401 | 1.125301 |
| 968 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 0 | 4 | 120.2925 | 0.817 | 0.0016 | 0.8063 | 2.532027 | 0.290945 | -0.36287 | 0.650479 |
| 969 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 0 | 4 | 1.5298 | 1 | 0 | 1 | -0.52451 | 0.785743 | -0.43401 | 1.125301 |
| 970 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 0 | 4 | 117.6432 | 0.8739 | 0.0046 | 0.5751 | 2.463843 | 0.444792 | -0.22948 | 0.083732 |
| 971 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 0 | 4 | 3.025 | 0.5267 | 0.0005 | 0.908 | -0.48603 | -0.49397 | -0.41178 | 0.899779 |
| 972 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 0 | 4 | 10.716 | 1 | 0 | 1 | -0.28809 | 0.785743 | -0.43401 | 1.125301 |
| 973 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 0 | 4 | 3.5253 | 0 | 0 | 0 | -0.47316 | -1.91807 | -0.43401 | -1.32603 |
| 974 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100</ | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|----------|
| 979 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 1.333 | 1 | 0 | 0 | 1 | -0.52958 | 0.785743 | -0.43401 | 1.125301 |
| 980 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 38.2498 | 0 | 0 | 0 | 0 | 0.420532 | -1.91807 | -0.43401 | -1.32603 |
| 981 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 1 | 4 | 5.5002 | 0.8324 | 0.0013 | 0.7897 | -0.42233 | 0.332583 | -0.37621 | 0.609787 | |
| 982 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 4 | 3.9895 | 0 | 0 | 0 | 0 | -0.46121 | -1.91807 | 0.135118 | -1.32603 |
| 983 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 4 | 3.1095 | 0.8479 | 0 | 0.9981 | -0.48386 | 0.374492 | -0.43401 | 1.120643 | |
| 984 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 4 | 1.4651 | 1 | 0 | 0 | 1 | -0.52618 | 0.785743 | -0.43401 | 1.125301 |
| 985 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 4 | 96.2394 | 0.9616 | 0.0273 | 0.2148 | 1.912983 | 0.681916 | 0.779831 | -0.79948 | |
| 986 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 4 | 1.273 | 1 | 0 | 0 | 1 | -0.53112 | 0.785743 | -0.43401 | 1.125301 |
| 987 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 4 | 26.4745 | 0.8742 | 0.0095 | 0.4599 | 0.117476 | 0.445603 | -0.01161 | -0.19866 | |
| 988 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 4 | 119.3281 | 0 | 0 | 0 | 0 | 2.507206 | -1.91807 | -0.43401 | -1.32603 |
| 989 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 4 | 113.2027 | 0.9083 | 0.01 | 0.3936 | 2.34956 | 0.537803 | 0.010621 | -0.36118 | |
| 990 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 1 | 4 | 3.8014 | 0.6218 | 0.0015 | 0.6325 | -0.46605 | -0.23684 | -0.36731 | 0.224438 | |
| 991 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 4 | 2.7123 | 0.8826 | 0.0018 | 0.9474 | -0.49408 | 0.468315 | -0.35397 | 0.996361 | |
| 992 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 4 | 1.763 | 1 | 0 | 0 | 1 | -0.51851 | 0.785743 | -0.43401 | 1.125301 |
| 993 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 4 | 26.4786 | 0.8758 | 0.0146 | 0.3612 | 0.117582 | 0.449929 | 0.215151 | -0.44061 | |
| 994 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 4 | 1.3867 | 1 | 0 | 0 | 1 | -0.5282 | 0.785743 | -0.43401 | 1.125301 |
| 995 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 1 | 4 | 7.7158 | 0.2681 | 0.0011 | 0.4922 | -0.36531 | -1.19318 | -0.3851 | -0.11948 | |
| 996 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 4 | 6.1809 | 0 | 0 | 0 | 0 | -0.40481 | -1.91807 | -0.43401 | -1.32603 |
| 997 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 4 | 2.4859 | 0.782 | 0.0086 | 0.4262 | -0.49991 | 0.196311 | -0.05163 | -0.28127 | |
| 998 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 4 | 2.4515 | 1 | 0 | 0 | 1 | -0.50079 | 0.785743 | -0.43401 | 1.125301 |
| 999 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 4 | 28.3069 | 0.6852 | 0.0021 | 0.7655 | 0.164636 | -0.06542 | -0.34064 | 0.550464 | |
| 1000 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 4 | 2.1232 | 0.8951 | 0.0007 | 0.9676 | -0.50924 | 0.502113 | -0.40288 | 1.045878 | |
| 1001 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 4 | 1.3318 | 1 | 0 | 0 | 1 | -0.52961 | 0.785743 | -0.43401 | 1.125301 |
| 1002 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 1 | 4 | 118.5504 | 0.9077 | 0.0037 | 0.6381 | 2.487191 | 0.536181 | -0.2695 | 0.238165 | |
| 1003 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 4 | 1.444 | 0.9615 | 0.0514 | 0.1734 | -0.52672 | 0.681646 | 1.851389 | -0.90097 | |
| 1004 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 4 | 29.5202 | 0 | 0 | 0 | 0 | 0.195862 | -1.91807 | -0.43401 | -1.32603 |
| 1005 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 4 | 3.5918 | 0.1192 | 0 | 0 | 1 | -0.47145 | -1.59578 | -0.43401 | 1.125301 |
| 1006 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 4 | 4.1838 | 0.8528 | 0.0023 | 0.7351 | -0.45621 | 0.387741 | -0.33174 | 0.475944 | |
| 1007 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 1 | 4 | 2.0859 | 0.9631 | 0.0017 | 0.9368 | -0.5102 | 0.685972 | -0.35842 | 0.970377 | |
| 1008 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 1 | 4 | 5.2425 | 0.6601 | 0.0012 | 0.8347 | -0.49845 | -0.13328 | -0.38065 | 0.720096 | |
| 1009 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 4 | 7.9121 | 0 | 0.0004 | 0 | 0 | -0.36026 | -1.91807 | -0.41622 | -1.32603 |
| 1010 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 4 | 3.1911 | 1 | 0.0038 | 0 | 0 | -0.48176 | 0.785743 | -0.26505 | -1.32603 |
| 1011 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 4 | 2.6517 | 0.9889 | 0.0573 | 0.3928 | -0.49564 | 0.75573 | 2.11372 | -0.36315 | |
| 1012 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 1 | 4 | 1.6204 | 0.9837 | 0.0233 | 0.5684 | -0.52218 | 0.741671 | 0.601979 | 0.067308 | |
| 1013 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 4 | 5.5633 | 0.8571 | 0.005 | 0.4726 | -0.42071 | 0.399368 | -0.21169 | -0.16753 | |
| 1014 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 1 | 4 | 3.0367 | 1 | 0 | 0 | 1 | -0.48573 | 0.785743 | -0.43401 | 1.125301 |
| 1015 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 1 | 4 | 4.033 | 0.8505 | 0.0002 | 0.992 | -0.46009 | 0.381522 | -0.42512 | 1.10569 | |
| 1016 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 4 | 2.7324 | 0.8144 | 0.0137 | 0.2455 | -0.49356 | 0.283915 | 0.175135 | -0.72423 | |
| 1017 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 4 | 1.81 | 1 | 0 | 0 | 1 | -0.5173 | 0.785743 | -0.43401 | 1.125301 |
| 1018 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 1 | 4 | 1.288 | 1 | 0 | 0 | 1 | -0.53074 | 0.785743 | -0.43401 | 1.125301 |
| 1019 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 4 | 2.1729 | 0.9452 | 0.0017 | 0.9337 | -0.50796 | 0.637574 | -0.35842 | 0.962778 | |
| 1020 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 1 | 4 | 3.9033 | 0.4174 | 0 | 0 | 1 | -0.46343 | -0.7895 | -0.43401 | 1.125301 |
| 1021 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 4 | 6.8172 | 0.9051 | 0.0017 | 0.9524 | -0.38843 | 0.529151 | -0.35842 | 1.008617 | |
| 1022 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 4 | 3.6274 | 0.6218 | 0.0019 | 0.5759 | -0.47053 | -0.23684 | -0.34953 | 0.085693 | |
| 1023 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 4 | 1.1688 | 1 | 0 | 0 | 1 | -0.5338 | 0.785743 | -0.43401 | 1.125301 |
| 1024 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 4 | 2.3418 | 0.782 | 0.0131 | 0.3281 | -0.50362 | 0.196311 | 0.148457 | -0.52175 | |
| 1025 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 4 | 5.3538 | 0.7297 | 0.0004 | 0.9247 | -0.4261 | 0.054901 | -0.41622 | 0.940716 | |
| 1026 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 4 | 9.8879 | 0 | 0 | 0 | 0 | -0.30941 | -1.91807 | -0.43401 | -1.32603 |
| 1027 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 150.3153 | 0 | 0 | 0 | 0 | 3.30471 | -1.91807 | -0.43401 | -1.32603 |
| 1028 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 1.924 | 1 | 0 | 0 | 1 | -0.51437 | 0.785743 | -0.43401 | 1.125301 |
| 1029 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 34.0183 | 0 | 0 | 0 | 0 | 0.311628 | -1.91807 | -0.43401 | -1.32603 |
| 1030 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 7.3126 | 0 | 0.0011 | 0 | 0 | -0.37568 | -1.91807 | -0.3851 | -1.32603 |
| 1031 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 7.2571 | 0 | 0 | 0 | 0 | -0.37711 | -1.91807 | -0.43401 | -1.32603 |
| 1032 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 2.0772 | 1 | 0.0015 | 0 | 0 | -0.51043 | 0.785743 | -0.36731 | -1.32603 |
| 1033 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 67.8157 | 0.9261 | 0.0505 | 0.0955 | 1.181456 | 0.585931 | 1.811372 | -1.09192 | |
| 1034 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 26.3858 | 0.863 | 0.0044 | 0.6396 | 0.115194 | 0.41532 | -0.23837 | 0.241842 | |
| 1035 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 24.648 | 1 | 0 | 0 | 1 | 0.070469 | 0.785743 | -0.43401 | 1.125301 |
| 1036 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 5.4707 | 0.7892 | 0.0002 | 0.9542 | -0.42309 | 0.215778 | -0.42512 | 1.01303 | |
| 1037 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 1 | 4 | 2.5984 | 0.9927 | 0.0226 | 0.5824 | -0.49701 | 0.766005 | 0.570855 | 0.101626 | |
| 1038 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 1 | 4 | 2.7262 | 0.9064 | 0.0007 | 0.9699 | -0.49372 | 0.532666 | -0.40288 | 1.051516 | |
| 1039 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 1 | 4 | 1.9812 | 0.8194 | 0.0043 | 0.6277 | -0.5129 | 0.297434 | -0.24282 | 0.212672 | |
| 1040 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 1 | 4 | 119.0997 | 0.911 | 0.0089 | 0.4229 | 2.501328 | 0.545103 | -0.03829 | -0.28936 | |
| 1041 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 1 | 4 | 1.6087 | 0.8194 | 0.0041 | 0.6413 | -0.52248 | 0.297434 | -0.25171 | 0.24601 | |
| 1042 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 1 | 4 | 2.413 | 0.9927 | 0.0226 | 0.5824 | -0.50178 | 0.766005 | 0.570855 | 0.101626 | |
| 1043 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 1 | 4 | 28.3409 | 0.7414 | 0.0025 | 0.7588 | 0.165511 | 0.086536 | -0.32285 | 0.534041 | |
| 1044 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 1 | 4 | 1.768 | 0.8839 | 0.0058 | 0.5931 | -0.51838 | 0.47183 | -0.17612 | 0.127856 | |
| 1045 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 2.6384 | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 1052 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 4 | 100.054 | 0.965 | 0.0428 | 0.1508 | 2.011158 | 0.691109 | 1.469007 | -0.95637 |
| 1053 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 4 | 7.3269 | 1 | 0 | 1 | -0.37532 | 0.785743 | -0.43401 | 1.125301 |
| 1054 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 4 | 4.4199 | 1 | 0.0554 | 0 | -0.45013 | 0.785743 | 2.029241 | -1.32603 |
| 1055 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 4 | 2.7389 | 0.6078 | 0.0059 | 0.7897 | -0.4934 | -0.27469 | -0.17168 | 0.609787 |
| 1056 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 4 | 1.3931 | 1 | 0 | 1 | -0.52803 | 0.785743 | -0.43401 | 1.125301 |
| 1057 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 4 | 5.8905 | 0 | 0.0002 | 0 | -0.41228 | -1.91807 | -0.42512 | -1.32603 |
| 1058 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 4 | 68.0258 | 0 | 0 | 0 | 1.186863 | -1.91807 | -0.43401 | -1.32603 |
| 1059 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 4 | 3.5185 | 0.9892 | 0.0439 | 0.4361 | -0.47333 | 0.756542 | 1.517916 | -0.257 |
| 1060 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 4 | 117.4967 | 0.974 | 0.0131 | 0.4779 | 2.460073 | 0.715444 | 0.148457 | -0.15454 |
| 1061 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 4 | 124.847 | 0.9526 | 0.0008 | 0.9116 | 2.649244 | 0.657582 | -0.39844 | 0.908603 |
| 1062 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 4 | 1.9843 | 1 | 0 | 1 | -0.51282 | 0.785743 | -0.43401 | 1.125301 |
| 1063 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 4 | 2.2533 | 0.7821 | 0.0039 | 0.6595 | -0.50589 | 0.196581 | -0.2606 | 0.290624 |
| 1064 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 4 | 2.274 | 0.9558 | 0.0655 | 0.1401 | -0.50536 | 0.666234 | 2.478317 | -0.9826 |
| 1065 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 1 | 4 | 1.2196 | 1 | 0 | 1 | -0.5325 | 0.785743 | -0.43401 | 1.125301 |
| 1066 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 4 | 65.3503 | 0 | 0 | 0 | 1.118005 | -1.91807 | -0.43401 | -1.32603 |
| 1067 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 4 | 4.4101 | 1 | 0.0205 | 0 | -0.45038 | 0.785743 | 0.477483 | -1.32603 |
| 1068 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 4 | 4.5843 | 0.9428 | 0.0017 | 0.9539 | -0.4459 | 0.631085 | -0.35842 | 1.012294 |
| 1069 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 4 | 4.7643 | 0.9428 | 0.0015 | 0.96 | -0.44127 | 0.631085 | -0.36731 | 1.027248 |
| 1070 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 4 | 3.1691 | 0.8432 | 0.0002 | 0.9927 | -0.48232 | 0.361785 | -0.42512 | 1.107406 |
| 1071 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 4 | 1.4404 | 1 | 0 | 1 | -0.52681 | 0.785743 | -0.43401 | 1.125301 |
| 1072 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 4 | 3.2007 | 1 | 0 | 1 | -0.48151 | 0.785743 | -0.43401 | 1.125301 |
| 1073 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 4 | 2.3798 | 0.9835 | 0.0193 | 0.6102 | -0.50264 | 0.74113 | 0.424127 | 0.169773 |
| 1074 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 4 | 4.5694 | 0.4953 | 0 | 1 | -0.44629 | -0.57887 | -0.43401 | 1.125301 |
| 1075 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 4 | 3.8137 | 0.6066 | 0.0065 | 0.3938 | -0.46573 | -0.27794 | -0.145 | -0.36069 |
| 1076 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 4 | 3.7716 | 0.9074 | 0.0007 | 0.9826 | -0.46682 | 0.535369 | -0.40288 | 1.082648 |
| 1077 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 1 | 4 | 4.8522 | 0 | 0 | 0 | -0.43901 | -1.91807 | -0.43401 | -1.32603 |
| 1078 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 4 | 2.4462 | 0.7971 | 0.0052 | 0.567 | -0.50093 | 0.237139 | -0.2028 | 0.063876 |
| 1079 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 4 | 5.1874 | 0.9581 | 0.0003 | 0.9928 | -0.43038 | 0.672453 | -0.42067 | 1.107651 |
| 1080 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 4 | 4.0834 | 1 | 0.0072 | 0 | -0.45879 | 0.785743 | -0.11387 | -1.32603 |
| 1081 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 4 | 21.1603 | 0 | 0 | 0 | -0.01929 | -1.91807 | -0.43401 | -1.32603 |
| 1082 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 1 | 4 | 119.1256 | 0.911 | 0.0089 | 0.4234 | 2.501995 | 0.545103 | -0.03829 | -0.28813 |
| 1083 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 4 | 114.0559 | 0.8906 | 0.0045 | 0.5825 | 2.371518 | 0.489945 | -0.23392 | 0.101872 |
| 1084 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 4 | 2.1573 | 0.9384 | 0.0009 | 0.9628 | -0.50836 | 0.619188 | -0.39399 | 1.034111 |
| 1085 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 1 | 4 | 2.3133 | 0.7971 | 0.0085 | 0.4435 | -0.50435 | 0.237139 | -0.05607 | -0.23886 |
| 1086 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 4 | 98.8298 | 0.8838 | 0.0052 | 0.5392 | 1.979651 | 0.471559 | -0.2028 | -0.00427 |
| 1087 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 4 | 3.854 | 0.6824 | 0.0015 | 0.808 | -0.4647 | -0.07299 | -0.36731 | 0.654646 |
| 1088 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 4 | 1.306 | 1 | 0 | 1 | -0.53027 | 0.785743 | -0.43401 | 1.125301 |
| 1089 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 4 | 8.6753 | 0 | 0 | 0 | -0.34061 | -1.91807 | -0.43401 | -1.32603 |
| 1090 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 4 | 2.9577 | 0.9924 | 0.0478 | 0.4571 | -0.48776 | 0.765194 | 1.691322 | -0.20552 |
| 1091 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 4 | 3.9049 | 0.8825 | 0.0018 | 0.9483 | -0.46339 | 0.468044 | -0.35397 | 0.998567 |
| 1092 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 4 | 114.6884 | 0.9711 | 0.0586 | 0.1277 | 2.387797 | 0.707603 | 2.171522 | -1.01299 |
| 1093 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 4 | 1.4512 | 1 | 0 | 1 | -0.52654 | 0.785743 | -0.43401 | 1.125301 |
| 1094 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 4 | 9.1952 | 0 | 0 | 0 | -0.32723 | -1.91807 | -0.43401 | -1.32603 |
| 1095 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 4 | 97.0446 | 0.9382 | 0.0001 | 0.9831 | 1.933706 | 0.618647 | -0.42956 | 1.083873 |
| 1096 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 4 | 119.0823 | 0.9107 | 0.0091 | 0.4163 | 2.50088 | 0.544292 | -0.0294 | -0.30554 |
| 1097 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 119.8552 | 0 | 0 | 0 | 2.520772 | -1.91807 | -0.43401 | -1.32603 |
| 1098 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 3.0994 | 1 | 0 | 1 | -0.48412 | 0.785743 | -0.43401 | 1.125301 |
| 1099 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 2.8862 | 1 | 0 | 1 | -0.4896 | 0.785743 | -0.43401 | 1.125301 |
| 1100 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 2.1691 | 0.9538 | 0.0544 | 0.1574 | -0.50806 | 0.660827 | 1.984778 | -0.94019 |
| 1101 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 2.6654 | 0.9818 | 0.0166 | 0.6421 | -0.49529 | 0.736533 | 0.304077 | 0.247971 |
| 1102 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 3.106 | 0.4174 | 0 | 1 | -0.48395 | -0.7895 | -0.43401 | 1.125301 |
| 1103 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 3.9978 | 0.8105 | 0.0026 | 0.5759 | -0.461 | 0.27337 | -0.3184 | 0.085693 |
| 1104 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 4.4438 | 0.78 | 0.012 | 0.7443 | -0.44952 | 0.190903 | 0.099547 | 0.498496 |
| 1105 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 3.0503 | 0.6283 | 0.0178 | 0.2941 | -0.48538 | -0.21927 | 0.357433 | -0.60509 |
| 1106 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 6.8556 | 1 | 0 | 1 | -0.38745 | 0.785743 | -0.43401 | 1.125301 |
| 1107 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 1 | 4 | 1.8505 | 0.9415 | 0.0013 | 0.9482 | -0.51626 | 0.62757 | -0.37621 | 0.998322 |
| 1108 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 1 | 4 | 79.3828 | 0 | 0 | 0 | 1.479153 | -1.91807 | -0.43401 | -1.32603 |
| 1109 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 1 | 4 | 1.9895 | 0.9595 | 0.0625 | 0.1407 | -0.51268 | 0.676238 | 2.344928 | -0.98112 |
| 1110 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 1 | 4 | 156.9635 | 0 | 0 | 0 | 3.475811 | -1.91807 | -0.43401 | -1.32603 |
| 1111 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 1 | 4 | 2.6318 | 0.9986 | 0.033 | 0.5083 | -0.49615 | 0.781957 | 1.03327 | -0.08002 |
| 1112 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 1 | 4 | 1.4786 | 1 | 0 | 1 | -0.52583 | 0.785743 | -0.43401 | 1.125301 |
| 1113 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 1 | 4 | 79.4692 | 0.9503 | 0.0844 | 0.0625 | 1.481376 | 0.651363 | 3.318667 | -1.17282 |
| 1114 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 0 | 1 | 4 | 4.1831 | 0 | 0.0165 | 0 | -0.45623 | -1.91807 | 0.299631 | -1.32603 |
| 1115 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 1.8567 | 1 | 0 | 1 | -0.5161 | 0.785743 | -0.43401 | 1.125301 |
| 1116 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 34.6455 | 0 | 0 | 0 | 0.32777 | -1.91807 | -0.43401 | -1.32603 |
| 1117 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 64.4675 | 0.9337 | 0.1593 | 0.0336 | 1.095285 | 0.60648 | 6.648944 | -1.24366 |
| 1118 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 130.2815 | 0 | 0 | 0 | 2.789109 | -1.91807 | -0.43401 | -1.32603 |
| 1119 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | | | | | | | | | | |

Crossed Array Inner Array Design Points and Responses (Block 5)

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | Time | TPF | FPE | TPP | Std Time | Std TPF | Std FPE | Std TPP |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|---------|-------------|----------------------|--------------|---------------|----------|--------|--------|--------|----------|----------|----------|----------|
| 1121 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 5 | 3.9219 | 0.6218 | 0.002 | 0.5585 | -0.46295 | -0.23684 | -0.34508 | 0.04304 |
| 1122 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 5 | 1.7126 | 1 | 0 | 1 | -0.51981 | 0.785743 | -0.43401 | 1.125301 |
| 1123 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 5 | 5.5819 | 0 | 0 | 0 | -0.42023 | -1.91807 | -0.43401 | -1.32603 |
| 1124 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 5 | 4.0001 | 1 | 0 | 1 | -0.46094 | 0.785743 | -0.43401 | 1.125301 |
| 1125 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 5 | 113.6599 | 0 | 0 | 0 | 2.361327 | -1.91807 | -0.43401 | -1.32603 |
| 1126 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 5 | 3.2772 | 0 | 0 | 0 | -0.47954 | -1.91807 | -0.43401 | -1.32603 |
| 1127 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 5 | 12.4979 | 0 | 0 | 0 | -0.24223 | -1.91807 | -0.43401 | -1.32603 |
| 1128 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 5 | 118.9498 | 0 | 0 | 0 | 2.49747 | -1.91807 | -0.43401 | -1.32603 |
| 1129 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 5 | 6.8325 | 0.4142 | 0.0008 | 0.9474 | -0.38804 | -0.79815 | -0.39844 | 0.996361 |
| 1130 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 5 | 6.0578 | 0.5191 | 0.0014 | 0.61 | -0.40798 | -0.51452 | -0.37176 | 0.169283 |
| 1131 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 5 | 2.6431 | 0.8281 | 0.0038 | 0.612 | -0.49586 | 0.320957 | -0.26505 | 0.174186 |
| 1132 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 5 | 3.0092 | 1 | 0 | 1 | -0.48644 | 0.785743 | -0.43401 | 1.125301 |
| 1133 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 5 | 6.3506 | 0.7792 | 0.0129 | 0.7305 | -0.40044 | 0.18874 | 0.139564 | 0.464668 |
| 1134 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 5 | 2.2043 | 0.9415 | 0.0012 | 0.9516 | -0.50715 | 0.62757 | -0.38065 | 1.006656 |
| 1135 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 5 | 90.9647 | 0.9711 | 0.0566 | 0.122 | 1.777231 | 0.707603 | 2.082596 | -1.02696 |
| 1136 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 5 | 65.4847 | 0 | 0 | 0 | 1.121464 | -1.91807 | -0.43401 | -1.32603 |
| 1137 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 5 | 3.0239 | 0.9857 | 0.0196 | 0.6194 | -0.48606 | 0.747078 | 0.437466 | 0.192326 |
| 1138 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 5 | 4.1034 | 0.4847 | 0.0004 | 0.8681 | -0.45828 | -0.60753 | -0.41622 | 0.801971 |
| 1139 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 5 | 8.1723 | 0 | 0 | 0 | -0.35356 | -1.91807 | -0.43401 | -1.32603 |
| 1140 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 5 | 64.2518 | 0.8153 | 0.0044 | 0.4885 | 1.089733 | 0.286348 | -0.23837 | -0.12855 |
| 1141 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 5 | 2.9749 | 0.4199 | 0.0009 | 0.9416 | -0.48732 | -0.78274 | -0.39399 | 0.982143 |
| 1142 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 5 | 2.8322 | 1 | 0 | 1 | -0.49099 | 0.785743 | -0.43401 | 1.125301 |
| 1143 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 5 | 65.6207 | 0.9579 | 0.1516 | 0.0378 | 1.124964 | 0.671912 | 6.306579 | -1.23337 |
| 1144 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 5 | 2.3507 | 0.9928 | 0.031 | 0.5073 | -0.50339 | 0.766275 | 0.944344 | -0.08247 |
| 1145 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 5 | 4.1475 | 0.9206 | 0.0011 | 0.9696 | -0.45714 | 0.57106 | -0.3851 | 1.05078 |
| 1146 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 5 | 1.9556 | 0.8854 | 0.0086 | 0.5 | -0.51356 | 0.475886 | -0.05163 | -0.10036 |
| 1147 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 0 | 5 | 5.3728 | 0.682 | 0.005 | 0.4901 | -0.07407 | -0.21169 | -0.12463 | |
| 1148 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 5 | 2.8588 | 1 | 0.0015 | 0 | -0.49031 | 0.785743 | -0.36731 | -1.32603 |
| 1149 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 5 | 27.5488 | 0.8758 | 0.013 | 0.3873 | 0.145125 | 0.449929 | 0.14401 | -0.37663 |
| 1150 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 5 | 3.4235 | 0.8509 | 0.0041 | 0.5249 | -0.47578 | 0.382604 | -0.25171 | -0.03932 |
| 1151 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 5 | 3.6509 | 0.5932 | 0 | 1 | -0.46992 | -0.31417 | -0.43401 | 1.125301 |
| 1152 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 0 | 5 | 1.2034 | 1 | 0 | 1 | -0.53291 | 0.785743 | -0.43401 | 1.125301 |
| 1153 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 5 | 6.0738 | 0 | 0 | 0 | -0.40757 | -1.91807 | -0.43401 | -1.32603 |
| 1154 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 0 | 5 | 18.3003 | 0 | 0 | 0 | -0.0929 | -1.91807 | -0.43401 | -1.32603 |
| 1155 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 5 | 1.3944 | 1 | 0 | 1 | -0.528 | 0.785743 | -0.43401 | 1.125301 |
| 1156 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 5 | 7.7444 | 0.9428 | 0.0013 | 0.9652 | -0.36457 | 0.631085 | -0.37621 | 1.039994 |
| 1157 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 5 | 4.7741 | 0.8368 | 0.0022 | 0.7067 | -0.44102 | 0.34448 | -0.33619 | 0.406326 |
| 1158 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 5 | 6.0885 | 0.8079 | 0.0005 | 0.9051 | -0.40719 | 0.26634 | -0.41178 | 0.89267 |
| 1159 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 5 | 1.6914 | 1 | 0.0015 | 0 | -0.52035 | 0.785743 | -0.36731 | -1.32603 |
| 1160 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 0 | 5 | 4.0797 | 0 | 0.0019 | 0 | -0.45889 | -1.91807 | -0.34953 | -1.32603 |
| 1161 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 5 | 3.069 | 0.75 | 0.0018 | 0.6647 | -0.4849 | 0.109789 | -0.35397 | 0.303371 |
| 1162 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 5 | 65.197 | 0.954 | 0.0788 | 0.0645 | 1.114059 | 0.661367 | 3.069674 | -1.16792 |
| 1163 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 5 | 2.9437 | 0.6351 | 0.0011 | 0.7402 | -0.48812 | -0.20088 | -0.3851 | 0.488446 |
| 1164 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 5 | 1.6278 | 0.9505 | 0.0012 | 0.9522 | -0.52199 | 0.651904 | -0.38065 | 1.008127 |
| 1165 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 5 | 99.773 | 0.966 | 0.1035 | 0.0704 | 2.003926 | 0.693813 | 4.16791 | -1.15345 |
| 1166 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 5 | 6.3367 | 0.3362 | 0.0028 | 0.3278 | -0.4008 | -1.00905 | -0.30951 | -0.52248 |
| 1167 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 3.9025 | 0.6218 | 0.0017 | 0.6016 | -0.46345 | -0.23684 | -0.35842 | 0.148692 |
| 1168 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 2.3871 | 1 | 0.0541 | 0 | -0.50245 | 0.785743 | 1.971439 | -1.32603 |
| 1169 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 20.7215 | 1 | 0 | 1 | -0.03059 | 0.785743 | -0.43401 | 1.125301 |
| 1170 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 2.4 | 1 | 0 | 1 | -0.50212 | 0.785743 | -0.43401 | 1.125301 |
| 1171 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 4.125 | 0.9428 | 0.0017 | 0.9539 | -0.45772 | 0.631085 | -0.35842 | 1.012294 |
| 1172 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 77.0674 | 0.918 | 0.0443 | 0.1103 | 1.419562 | 0.56403 | 1.535702 | -1.05565 |
| 1173 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 2.426 | 0.5628 | 0.005 | 0.8045 | -0.50145 | -0.39637 | -0.21169 | 0.646066 |
| 1174 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 7.4101 | 1 | 0 | 1 | -0.37318 | 0.785743 | -0.43401 | 1.125301 |
| 1175 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 3.5792 | 1 | 0 | 1 | -0.47177 | 0.785743 | -0.43401 | 1.125301 |
| 1176 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 2.1946 | 1 | 0 | 1 | -0.5074 | 0.785743 | -0.43401 | 1.125301 |
| 1177 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 0 | 5 | 1.7267 | 1 | 0 | 1 | -0.51945 | 0.785743 | -0.43401 | 1.125301 |
| 1178 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 0 | 5 | 1.7626 | 0.9681 | 0.0891 | 0.1119 | -0.51852 | 0.699491 | 3.527643 | -1.05172 |
| 1179 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 0 | 5 | 122.834 | 0.9637 | 0.0007 | 0.93 | 2.597436 | 0.687594 | -0.40288 | 0.953708 |
| 1180 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 0 | 5 | 4.6935 | 0 | 0 | 0 | -0.44309 | -1.91807 | -0.43401 | -1.32603 |
| 1181 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 0 | 5 | 2.1869 | 1 | 0 | 1 | -0.5076 | 0.785743 | -0.43401 | 1.125301 |
| 1182 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 0 | 5 | 3.601 | 0.1578 | 0 | 1 | -0.47121 | -1.49141 | -0.43401 | 1.125301 |
| 1183 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 0 | 5 | 2.4475 | 0.9561 | 0.0056 | 0.8669 | -0.5009 | 0.667045 | -0.18502 | 0.799029 |
| 1184 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 0 | 5 | 2.3741 | 0.9598 | 0.0263 | 0.5921 | -0.50278 | 0.677049 | 0.735368 | 0.125404 |
| 1185 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 2.4704 | 1 | 0.0075 | 0 | -0.50031 | 0.785743 | -0.10054 | -1.32603 |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 1186 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 3.754 | 0.6667 | 0.0225 | 0.2626 | -0.46727 | -0.11544 | 0.566409 | -0.68231 |
| 1187 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 1.6617 | 0.8194 | 0.0041 | 0.6413 | -0.52112 | 0.297434 | -0.25171 | 0.24601 |
| 1188 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 1.3998 | 1 | 0 | 1 | -0.52786 | 0.785743 | -0.43401 | 1.125301 |
| 1189 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 86.5637 | 0 | 0 | 0 | 1.663964 | -1.91807 | -0.43401 | -1.32603 |
| 1190 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 3.2714 | 0.8439 | 0.0001 | 0.9964 | -0.47969 | 0.363677 | -0.42956 | 1.116476 |
| 1191 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 5 | 3.878 | 0 | 0 | 0 | -0.46408 | -1.91807 | -0.43401 | -1.32603 |
| 1192 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 5 | 3.0603 | 0.9209 | 0.0002 | 0.9932 | -0.48512 | 0.571871 | -0.42512 | 1.108632 |
| 1193 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 5 | 101.8905 | 0.8934 | 0.0007 | 0.9033 | 2.058423 | 0.497516 | -0.40288 | 0.888257 |
| 1194 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 5 | 3.9015 | 0.9664 | 0.0075 | 0.8313 | -0.46347 | 0.694895 | -0.10054 | 0.711762 |
| 1195 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 5 | 27.8646 | 0.7554 | 0.0005 | 0.6318 | 0.153253 | 0.12439 | -0.21169 | 0.222722 |
| 1196 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 5 | 26.4906 | 0.8639 | 0.0073 | 0.5163 | 0.117891 | 0.417753 | -0.10943 | -0.06041 |
| 1197 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 5 | 34.6646 | 1 | 0.0057 | 0 | 0.328261 | 0.785743 | -0.18057 | -1.32603 |
| 1198 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 5 | 13.0627 | 0 | 0 | 0 | -0.2277 | -1.91807 | -0.43401 | -1.32603 |
| 1199 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 5 | 1.2192 | 1 | 0 | 1 | -0.53251 | 0.785743 | -0.43401 | 1.125301 |
| 1200 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 0 | 5 | 8.7076 | 0 | 0 | 0 | -0.33978 | -1.91807 | -0.43401 | -1.32603 |
| 1201 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 5 | 1.973 | 0.9548 | 0.0824 | 0.1123 | -0.51311 | 0.66353 | 3.229741 | -1.05074 |
| 1202 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 5 | 1.563 | 1 | 0 | 1 | -0.52366 | 0.785743 | -0.43401 | 1.125301 |
| 1203 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 5 | 119.5665 | 0 | 0 | 0 | 2.513342 | -1.91807 | -0.43401 | -1.32603 |
| 1204 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 5 | 4.84 | 0 | 0.0019 | 0 | -0.43932 | -1.91807 | -0.34953 | -1.32603 |
| 1205 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 0 | 5 | 4.0729 | 1 | 0.0029 | 0 | -0.45906 | 0.785743 | -0.30507 | -1.32603 |
| 1206 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 5 | 2.8226 | 0.7661 | 0.0001 | 0.8086 | -0.49124 | 0.15332 | -0.38955 | 0.656117 |
| 1207 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 5 | 3.3384 | 0 | 0 | 0 | -0.47797 | -1.91807 | -0.43401 | -1.32603 |
| 1208 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 5 | 4.6187 | 0.7892 | 0.0003 | 0.9481 | -0.44502 | 0.215778 | -0.42067 | 0.998077 |
| 1209 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 5 | 2.3097 | 0.7515 | 0.0008 | 0.9071 | -0.50444 | 0.113845 | -0.39844 | 0.897572 |
| 1210 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 5 | 1.9504 | 1 | 0 | 1 | -0.51369 | 0.785743 | -0.43401 | 1.125301 |
| 1211 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 5 | 1.9797 | 1 | 0 | 1 | -0.51293 | 0.785743 | -0.43401 | 1.125301 |
| 1212 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 0 | 5 | 2.6231 | 1 | 0 | 1 | -0.49638 | 0.785743 | -0.43401 | 1.125301 |
| 1213 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 5 | 85.7073 | 0.8832 | 0.0018 | 0.7784 | 1.641924 | 0.469937 | -0.35397 | 0.582087 |
| 1214 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 5 | 2.7874 | 1 | 0.0596 | 0 | -0.49215 | 0.785743 | 2.215985 | -1.32603 |
| 1215 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 5 | 4.0177 | 0.8268 | 0.0289 | 0.1119 | -0.46048 | 0.317442 | 0.850972 | -1.05172 |
| 1216 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 5 | 2.3629 | 0.9574 | 0.087 | 0.1131 | -0.50307 | 0.67056 | 3.434271 | -1.04878 |
| 1217 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 0 | 5 | 4.261 | 0.8268 | 0.0289 | 0.1119 | -0.45422 | 0.317442 | 0.850972 | -1.05172 |
| 1218 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 5 | 2.0166 | 1 | 0 | 1 | -0.51199 | 0.785743 | -0.43401 | 1.125301 |
| 1219 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 5 | 4.4553 | 0.6128 | 0.0023 | 0.5199 | -0.44922 | -0.26117 | -0.33174 | -0.05158 |
| 1220 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 5 | 2.7363 | 0.6351 | 0.0012 | 0.7176 | -0.49346 | -0.20088 | -0.38065 | 0.433046 |
| 1221 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 5 | 120.4524 | 0.9541 | 0.0022 | 0.819 | 2.536142 | 0.661638 | -0.33619 | 0.68161 |
| 1222 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 5 | 3.4223 | 1 | 0 | 1 | -0.47581 | 0.785743 | -0.43401 | 1.125301 |
| 1223 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 5 | 2.2845 | 0.9384 | 0.0107 | 0.775 | -0.50509 | 0.619188 | 0.041746 | 0.573752 |
| 1224 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 5 | 2.4174 | 0.8897 | 0.0006 | 0.9734 | -0.50167 | 0.487512 | -0.40733 | 1.060095 |
| 1225 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 5 | 2.7612 | 1 | 0.0519 | 0 | -0.49282 | 0.785743 | 1.87362 | -1.32603 |
| 1226 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 5 | 4.0435 | 0.9273 | 0.0155 | 0.231 | -0.45982 | 0.589175 | 0.255168 | -0.75977 |
| 1227 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 5 | 26.4977 | 0.8758 | 0.0164 | 0.335 | 0.118073 | 0.449929 | 0.295185 | -0.50483 |
| 1228 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 0 | 5 | 6.2383 | 0.5939 | 0 | 1 | -0.40333 | -0.31228 | -0.43401 | 1.125301 |
| 1229 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 5 | 6.6251 | 0.3362 | 0.0028 | 0.3278 | -0.39338 | -1.00905 | -0.30951 | -0.52248 |
| 1230 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 5 | 1.4997 | 1 | 0 | 1 | -0.52529 | 0.785743 | -0.43401 | 1.125301 |
| 1231 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 5 | 1.6907 | 0.8806 | 0.0219 | 0.3333 | -0.52037 | 0.462907 | 0.539731 | -0.509 |
| 1232 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 5 | 3.8455 | 0 | 0.0174 | 0 | -0.46492 | -1.91807 | 0.339648 | -1.32603 |
| 1233 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 5 | 27.5905 | 0.8758 | 0.013 | 0.3873 | 0.146198 | 0.449929 | 0.14401 | -0.37663 |
| 1234 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 5 | 4.2003 | 1 | 0 | 1 | -0.45578 | 0.785743 | -0.43401 | 1.125301 |
| 1235 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 5 | 4.2172 | 0.9428 | 0.0017 | 0.9539 | -0.45535 | 0.631085 | -0.35842 | 1.012294 |
| 1236 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 5 | 27.5163 | 0.765 | 0.007 | 0.5534 | 0.144289 | 0.150346 | -0.12277 | 0.903538 |
| 1237 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 3.0263 | 1 | 0.0072 | 0 | -0.486 | 0.785743 | -0.11387 | -1.32603 |
| 1238 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 2.6438 | 0.9121 | 0.0007 | 0.9702 | -0.49584 | 0.548077 | -0.40288 | 1.052251 |
| 1239 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 5.1543 | 0.9428 | 0.0017 | 0.9539 | -0.43123 | 0.631085 | -0.35842 | 1.012294 |
| 1240 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 4.1303 | 0.6201 | 0.0057 | 0.7995 | -0.45759 | -0.24144 | -0.18057 | 0.63381 |
| 1241 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 2.2743 | 0.8598 | 0.0005 | 0.9787 | -0.50535 | 0.406668 | -0.41178 | 1.073087 |
| 1242 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 17.9684 | 0 | 0 | 0 | -0.10144 | -1.91807 | -0.43401 | -1.32603 |
| 1243 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 2.5953 | 1 | 0.0589 | 0 | -0.49709 | 0.785743 | 2.184861 | -1.32603 |
| 1244 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 120.826 | 0 | 0 | 0 | 2.545757 | -1.91807 | -0.43401 | -1.32603 |
| 1245 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 26.4713 | 0.8649 | 0.0076 | 0.51 | 0.117394 | 0.420457 | -0.09609 | -0.07585 |
| 1246 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 1.4142 | 1 | 0 | 1 | -0.52749 | 0.785743 | -0.43401 | 1.125301 |
| 1247 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 0 | 5 | 119.7124 | 0.9045 | 0.0024 | 0.7266 | 2.517097 | 0.527528 | -0.3273 | 0.455108 |
| 1248 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 0 | 5 | 2.2207 | 1 | 0.0799 | 0.3331 | -0.50673 | 0.785743 | 3.118584 | -0.50949 |
| 1249 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 0 | 5 | 6.2352 | 0.1702 | 0.0012 | 0.3636 | -0.40341 | -1.45788 | -0.38065 | -0.43472 |
| 1250 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 0 | 5 | 8.8063 | 0 | 0 | 0 | -0.33724 | -1.91807 | -0.43401 | -1.32603 |
| 1251 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 0 | 5 | 5.1592 | 1 | 0 | 1 | -0.52479 | 0.785743 | -0.43401 | 1.125301 |
| 1252 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 0 | 5 | 107.5381 | 0.9261 | 0.0133 | 0.5344 | 2.203773 | 0.585931 | 0.157349 | -0.01604 |
| 1253 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 1259 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 1.692 | 0.9801 | 0.015 | 0.6625 | -0.52034 | 0.731937 | 0.232936 | 0.297978 |
| 1260 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 3.7831 | 0.8385 | 0.002 | 0.6853 | -0.46652 | 0.349077 | -0.34508 | 0.353868 |
| 1261 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 1 | 5 | 116.632 | 0.9491 | 0.0033 | 0.7371 | 2.437818 | 0.648119 | -0.28728 | 0.480847 |
| 1262 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 5 | 10.0656 | 0 | 0 | 0 | -0.30483 | -1.91807 | -0.43401 | -1.32603 |
| 1263 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 5 | 6.2683 | 0.9609 | 0.0121 | 0.2977 | -0.40256 | 0.680024 | 0.103994 | -0.59627 |
| 1264 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 5 | 8.1896 | 0.9612 | 0.0035 | 0.6804 | -0.35311 | 0.680835 | -0.27839 | 0.341857 |
| 1265 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 5 | 60.6386 | 0.9333 | 0.0621 | 0.0813 | 0.996742 | 0.605398 | 2.327143 | -1.12673 |
| 1266 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 5 | 2.8909 | 1 | 0.0055 | 0 | -0.48948 | 0.785743 | -0.18946 | -1.32603 |
| 1267 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 5 | 2.5228 | 0.7544 | 0.0013 | 0.86 | -0.49896 | 0.121686 | -0.37621 | 0.782115 |
| 1268 | -2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 5 | 105.7633 | 0.8455 | 0.0014 | 0.8325 | 2.158095 | 0.368003 | -0.37176 | 0.714703 |
| 1269 | -2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 5 | 2.6132 | 0.7544 | 0.006 | 0.5708 | -0.49663 | 0.121686 | -0.16723 | 0.073191 |
| 1270 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 1 | 5 | 1.2956 | 1 | 0.0013 | 0 | -0.53054 | 0.785743 | -0.37621 | -1.32603 |
| 1271 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 5 | 2.3952 | 1 | 0 | 0 | -0.50224 | 0.785743 | -0.43401 | 1.125301 |
| 1272 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 5 | 6.5272 | 0 | 0 | 0 | -0.3959 | -1.91807 | -0.43401 | -1.32603 |
| 1273 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 5 | 27.5423 | 0.7737 | 0.006 | 0.6025 | 0.144958 | 0.173869 | -0.16723 | 0.150898 |
| 1274 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 5 | 2.4718 | 0.8879 | 0.0005 | 0.9774 | -0.50027 | 0.482645 | -0.41178 | 1.069901 |
| 1275 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 1 | 5 | 102.0943 | 0 | 0 | 0 | 2.063668 | -1.91807 | -0.43401 | -1.32603 |
| 1276 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 5 | 1.3083 | 1 | 0 | 1 | -0.53021 | 0.785743 | -0.43401 | 1.125301 |
| 1277 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 5 | 3.4912 | 1 | 0.004 | 0 | -0.47403 | 0.785743 | -0.25616 | -1.32603 |
| 1278 | -2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 5 | 1.8434 | 1 | 0 | 1 | -0.51644 | 0.785743 | -0.43401 | 1.125301 |
| 1279 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 5 | 4.4982 | 0.889 | 0 | 0 | -0.44812 | 0.485619 | -0.43401 | 1.125301 |
| 1280 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 5 | 7.4076 | 0 | 0 | 0 | -0.37324 | -1.91807 | -0.43401 | -1.32603 |
| 1281 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 5 | 1.2992 | 1 | 0 | 0 | -0.53045 | 0.785743 | -0.43401 | 1.125301 |
| 1282 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 1 | 5 | 7.886 | 0.017 | 0.015 | 0.0046 | -0.36093 | -1.87211 | 0.232936 | -1.31475 |
| 1283 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 5 | 4.0327 | 0.4479 | 0 | 0.9978 | -0.4601 | -0.70703 | -0.43401 | 1.119908 |
| 1284 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 5 | 119.868 | 0.905 | 0.0089 | 0.4213 | 2.521102 | 0.52888 | -0.03829 | -0.29328 |
| 1285 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 5 | 7.0538 | 0.6473 | 0.0354 | 0.1183 | -0.38235 | -0.16789 | 1.139981 | -1.03603 |
| 1286 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 5 | 5.9333 | 0.8385 | 0.002 | 0.6888 | -0.41118 | 0.349077 | -0.34508 | 0.362448 |
| 1287 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 1 | 5 | 2.9182 | 1 | 0 | 1 | -0.48878 | 0.785743 | -0.43401 | 1.125301 |
| 1288 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 1 | 5 | 5.7414 | 0.8494 | 0.0025 | 0.6468 | -0.41612 | 0.378548 | -0.32285 | 0.259492 |
| 1289 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 5 | 1.3744 | 1 | 0 | 1 | -0.52851 | 0.785743 | -0.43401 | 1.125301 |
| 1290 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 5 | 3.1087 | 0.6623 | 0.0022 | 0.7391 | -0.48388 | -0.12734 | -0.33619 | 0.485749 |
| 1291 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 5 | 4.8691 | 0 | 0.0012 | 0 | -0.43857 | -1.91807 | -0.38065 | -1.32603 |
| 1292 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 1 | 5 | 2.7207 | 0.6283 | 0.0202 | 0.2679 | -0.49386 | -0.21927 | 0.464144 | -0.66932 |
| 1293 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 5 | 119.3635 | 0.9102 | 0.0026 | 0.7119 | 2.508118 | 0.54294 | -0.3184 | 0.419073 |
| 1294 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 1 | 5 | 2.4288 | 0.9583 | 0.1385 | 0.0758 | -0.50138 | 0.672994 | 5.724114 | -1.14022 |
| 1295 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 1 | 5 | 27.9075 | 0.8232 | 0.0057 | 0.5921 | 0.154357 | 0.307708 | -0.18057 | 0.125404 |
| 1296 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 5 | 5.1098 | 0.6437 | 0.0001 | 0.9947 | -0.43238 | -0.17763 | -0.42956 | 1.112309 |
| 1297 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 5 | 6.8794 | 0.8368 | 0.0023 | 0.6974 | -0.38683 | 0.34448 | -0.33174 | 0.383529 |
| 1298 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 1 | 5 | 1.464 | 1 | 0 | 1 | -0.52621 | 0.785743 | -0.43401 | 1.125301 |
| 1299 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 5 | 1.2341 | 1 | 0 | 1 | -0.53212 | 0.785743 | -0.43401 | 1.125301 |
| 1300 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 1 | 5 | 2.274 | 0.7643 | 0.0039 | 0.6557 | -0.50536 | 0.148453 | -0.2606 | 0.281309 |
| 1301 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 5 | 6.5814 | 0.1234 | 0.0014 | 0.2685 | -1.58442 | -0.37176 | -0.66785 | |
| 1302 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 5 | 4.0327 | 0.9846 | 0.0385 | 0.5192 | -0.4601 | 0.744104 | 1.277816 | -0.0533 |
| 1303 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 5 | 3.058 | 0.6959 | 0.0011 | 0.7518 | -0.48518 | -0.03649 | -0.3851 | 0.516881 |
| 1304 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 5 | 2.4703 | 0.9812 | 0.0005 | 0.9828 | -0.50031 | 0.734911 | -0.41178 | 1.083138 |
| 1305 | -2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 5 | 3.295 | 0.6959 | 0.0011 | 0.7518 | -0.47908 | -0.03649 | -0.3851 | 0.516881 |
| 1306 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 5 | 3.5402 | 1 | 0.0053 | 0 | -0.47277 | 0.785743 | -0.19835 | -1.32603 |
| 1307 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 3.3537 | 0.8607 | 0 | 0.9981 | -0.47757 | 0.409101 | -0.43401 | 1.120643 |
| 1308 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 2.0251 | 0.8264 | 0.006 | 0.5484 | -0.51177 | 0.31636 | -0.16723 | 0.018281 |
| 1309 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 1.6572 | 1 | 0 | 1 | -0.52123 | 0.785743 | -0.43401 | 1.125301 |
| 1310 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 1.1833 | 1 | 0 | 1 | -0.53343 | 0.785743 | -0.43401 | 1.125301 |
| 1311 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 5.1593 | 0.8178 | 0.0216 | 0.6467 | -0.4311 | 0.293108 | 0.526392 | 0.259247 |
| 1312 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 126.6152 | 0.895 | 0.0025 | 0.7761 | 2.694751 | 0.501842 | -0.32285 | 0.576449 |
| 1313 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 5.6274 | 0.4199 | 0.0011 | 0.9346 | -0.41906 | -0.78274 | -0.3851 | 0.964984 |
| 1314 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 28.1071 | 0.6467 | 0.0099 | 0.4015 | 0.159494 | -0.16952 | 0.006175 | -0.34182 |
| 1315 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 1.3614 | 1 | 0 | 1 | -0.52885 | 0.785743 | -0.43401 | 1.125301 |
| 1316 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 7.1239 | 0 | 0.001 | 0 | -0.38054 | -1.91807 | -0.38955 | -1.32603 |
| 1317 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 1 | 5 | 98.945 | 0.8875 | 0.0014 | 0.8134 | 1.982616 | 0.481564 | -0.37176 | 0.667883 |
| 1318 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 1 | 5 | 4.0058 | 0.8587 | 0.0001 | 0.9965 | -0.46079 | 0.403694 | -0.42956 | 1.116721 |
| 1319 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 1 | 5 | 119.1738 | 0.9104 | 0.0033 | 0.6645 | 2.503235 | 0.543481 | -0.28728 | 0.30288 |
| 1320 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 1 | 5 | 2.7815 | 1 | 0.051 | 0 | -0.4923 | 0.785743 | 1.833604 | -1.32603 |
| 1321 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 1 | 5 | 2.5665 | 0.9086 | 0.0007 | 0.9701 | -0.49783 | 0.538614 | -0.40288 | 1.052006 |
| 1322 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 1 | 5 | 63.32 | 0.8065 | 0.0029 | 0.5814 | 1.065752 | 0.262554 | -0.30507 | 0.099175 |
| 1323 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 1 | 5 | 5.3273 | 0 | 0.0141 | 0 | -0.42678 | -1.91807 | 0.19292 | -1.32603 |
| 1324 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 1 | 5 | 3.6801 | 0.8483 | 0.0001 | 0.9964 | -0.46917 | 0.375574 | -0.42956 | 1.116476 |
| 1325 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 3.5652 | 0.9664 | 0.0075 | 0.8313 | -0.47213 | 0.694895 | -0.10054 | 0.711762 |
| 1 | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|----------|
| 1332 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 5 | 4.8149 | 0.9581 | 0.0003 | 0.9928 | -0.43997 | 0.672453 | -0.42067 | 1.107651 | |
| 1333 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 5 | 3.8403 | 0.6218 | 0.0022 | 0.5362 | -0.46505 | -0.23684 | -0.33619 | -0.01162 | |
| 1334 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 5 | 3.7397 | 1 | 0 | 0 | 1 | -0.46764 | 0.785743 | -0.43401 | 1.125301 |
| 1335 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 5 | 2.022 | 0.8264 | 0.0057 | 0.5613 | -0.51185 | 0.31636 | -0.18057 | 0.049903 | |
| 1336 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 5 | 4.2188 | 0 | 0.0011 | 0 | 0 | -0.45531 | -1.91807 | -0.3851 | -1.32603 |
| 1337 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 5 | 119.7087 | 0.983 | 0.0066 | 0.7094 | 2.517002 | 0.739778 | -0.14055 | 0.412945 | |
| 1338 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 5 | 114.0317 | 0.8906 | 0.0045 | 0.5825 | 2.370895 | 0.489945 | -0.23392 | 0.101872 | |
| 1339 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 5 | 2.1712 | 0.9886 | 0.0304 | 0.5122 | -0.50801 | 0.754919 | 0.917666 | -0.07046 | |
| 1340 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 5 | 1.9111 | 1 | 0 | 1 | -0.5147 | 0.785743 | -0.43401 | 1.125301 | |
| 1341 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 5 | 2.4387 | 1 | 0.0505 | 0 | -0.50112 | 0.785743 | 1.811372 | -1.32603 | |
| 1342 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 5 | 114.1965 | 0.8906 | 0.0063 | 0.4949 | 2.375137 | 0.489945 | -0.15389 | -0.11286 | |
| 1343 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 5 | 2.4166 | 1 | 0.0049 | 0 | -0.50169 | 0.785743 | -0.21614 | -1.32603 | |
| 1344 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 5 | 27.5548 | 0.7425 | 0.0052 | 0.5962 | 0.14528 | 0.08951 | -0.2028 | 0.135455 | |
| 1345 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 1 | 5 | 125.3346 | 0.9539 | 0.0021 | 0.7972 | 2.661793 | 0.661097 | -0.34064 | 0.628172 | |
| 1346 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 5 | 3.6147 | 0.9428 | 0 | 0 | 1 | -0.47086 | 0.631085 | -0.43401 | 1.125301 |
| 1347 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 5 | 2.9535 | 1 | 0.0055 | 0 | -0.48787 | 0.785743 | -0.18946 | -1.32603 | |
| 1348 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 5 | 86.9547 | 0 | 0 | 0 | 0 | -1.91807 | -0.43401 | -1.32603 | |
| 1349 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 5 | 5.5752 | 0.7892 | 0.0003 | 0.9481 | -0.4204 | 0.215778 | -0.42067 | 0.998077 | |
| 1350 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 5 | 2.0568 | 1 | 0 | 1 | -0.51095 | 0.785743 | -0.43401 | 1.125301 | |
| 1351 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 5 | 120.083 | 0.9167 | 0.0142 | 0.3153 | 2.526635 | 0.560515 | 0.197366 | -0.55312 | |
| 1352 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 5 | 1.2303 | 1 | 0 | 1 | -0.53222 | 0.785743 | -0.43401 | 1.125301 | |
| 1353 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 5 | 3.9724 | 0.8826 | 0.0018 | 0.9474 | -0.46165 | 0.468315 | -0.35397 | 0.996361 | |
| 1354 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 5 | 2.015 | 0.9821 | 0.0183 | 0.6233 | -0.51203 | 0.737344 | 0.379664 | 0.201886 | |
| 1355 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 5 | 1.3719 | 0.95 | 0.0759 | 0.122 | -0.52858 | 0.650552 | 2.940732 | -1.02696 | |
| 1356 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 5 | 2.0131 | 1 | 0 | 1 | -0.51208 | 0.785743 | -0.43401 | 1.125301 | |
| 1357 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 1 | 5 | 1.9936 | 1 | 0 | 1 | -0.51258 | 0.785743 | -0.43401 | 1.125301 | |
| 1358 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 5 | 12.3763 | 0 | 0 | 0 | -0.24536 | -1.91807 | -0.43401 | -1.32603 | |
| 1359 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 5 | 5.3555 | 0 | 0 | 0 | -0.42605 | -1.91807 | -0.43401 | -1.32603 | |
| 1360 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 5 | 4.2093 | 1 | 0.0503 | 0 | -0.45555 | 0.785743 | 1.802479 | -1.32603 | |
| 1361 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 5 | 3.8629 | 0 | 0.0013 | 0 | -0.46447 | -1.91807 | -0.37621 | -1.32603 | |
| 1362 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 1 | 5 | 6.2453 | 0.7892 | 0.0003 | 0.9481 | -0.40315 | 0.215778 | -0.42067 | 0.998077 | |
| 1363 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 5 | 2.4946 | 0.8522 | 0.0002 | 0.992 | -0.49968 | 0.386119 | -0.42512 | 1.10569 | |
| 1364 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 5 | 68.2091 | 0.6971 | 0.0617 | 0.0819 | 1.19158 | -0.03324 | 2.309357 | -1.12526 | |
| 1365 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 1 | 5 | 6.0981 | 0.7742 | 0.0018 | 0.7236 | -0.40694 | 0.175221 | -0.35397 | 0.447754 | |
| 1366 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 5 | 2.0406 | 0.861 | 0.026 | 0.2766 | -0.51137 | 0.409912 | 0.722029 | -0.64799 | |
| 1367 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 5 | 1.4333 | 1 | 0 | 1 | -0.527 | 0.785743 | -0.43401 | 1.125301 | |
| 1368 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 5 | 4.4055 | 0 | 0 | 0 | -0.4505 | -1.91807 | -0.43401 | -1.32603 | |
| 1369 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 5 | 1.2039 | 1 | 0 | 1 | -0.5329 | 0.785743 | -0.43401 | 1.125301 | |
| 1370 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 5 | 2.533 | 1 | 0 | 1 | -0.49869 | 0.785743 | -0.43401 | 1.125301 | |
| 1371 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 5 | 1.469 | 1 | 0 | 1 | -0.52608 | 0.785743 | -0.43401 | 1.125301 | |
| 1372 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 5 | 1.8383 | 1 | 0 | 1 | -0.51657 | 0.785743 | -0.43401 | 1.125301 | |
| 1373 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 5 | 3.574 | 0.5474 | 0.0037 | 0.8438 | -0.4719 | -0.438 | -0.2895 | 0.742403 | |
| 1374 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 5 | 1.6257 | 1 | 0 | 1 | -0.52205 | 0.785743 | -0.43401 | 1.125301 | |
| 1375 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 5 | 3.772 | 1 | 0 | 1 | -0.46681 | 0.785743 | -0.43401 | 1.125301 | |
| 1376 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 5 | 25.7034 | 1 | 0 | 1 | 0.097631 | 0.785743 | -0.43401 | 1.125301 | |
| 1377 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 3.6444 | 0.6505 | 0.0563 | 0.117 | -0.47009 | -0.15924 | 2.069257 | -1.03922 | |
| 1378 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 2.4948 | 1 | 0.0589 | 0 | -0.49968 | 0.785743 | 2.184861 | -1.32603 | |
| 1379 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 2.7893 | 0.4518 | 0 | 0.9979 | -0.4921 | -0.69649 | -0.43401 | 1.120153 | |
| 1380 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 2.3894 | 1 | 0 | 1 | -0.50239 | 0.785743 | -0.43401 | 1.125301 | |
| 1381 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 4.928 | 0.9101 | 0.0114 | 0.2774 | -0.43706 | 0.54267 | 0.07287 | -0.64603 | |
| 1382 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 105.3094 | 0.9203 | 0.0006 | 0.928 | 2.146414 | 0.570249 | -0.40733 | 0.948805 | |
| 1383 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 3.0583 | 0.8825 | 0.0018 | 0.9483 | -0.48518 | 0.468044 | -0.35397 | 0.998567 | |
| 1384 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 3.9581 | 0.5707 | 0.0026 | 0.9081 | -0.46202 | -0.37501 | -0.3184 | 0.900024 | |
| 1385 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 69.8599 | 0.9392 | 0.0514 | 0.0976 | 1.234066 | 0.621351 | 1.851389 | -1.08678 | |
| 1386 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 5.5176 | 0.1872 | 0.0019 | 0.2876 | -0.42188 | -1.41192 | -0.34953 | -0.62102 | |
| 1387 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 1 | 5 | 98.485 | 0.973 | 0.0135 | 0.4608 | 1.970777 | 0.71274 | 0.166242 | -0.19645 | |
| 1388 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 1 | 5 | 4.3162 | 0.7892 | 0.0003 | 0.9359 | -0.4528 | 0.215778 | -0.42067 | 0.968171 | |
| 1389 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 1 | 5 | 26.568 | 1 | 0.0899 | 0 | 0.119883 | 0.785743 | 3.563213 | -1.32603 | |
| 1390 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 1 | 5 | 1.9026 | 1 | 0 | 1 | -0.51492 | 0.785743 | -0.43401 | 1.125301 | |
| 1391 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 1 | 5 | 5.9546 | 1 | 0.0001 | 0 | -0.41063 | 0.785743 | -0.42956 | -1.32603 | |
| 1392 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 1 | 5 | 4.082 | 0.8825 | 0.0018 | 0.9483 | -0.45883 | 0.468044 | -0.35397 | 0.998567 | |
| 1393 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 1 | 5 | 15.9049 | 0 | 0 | 0 | -0.15455 | -1.91807 | -0.43401 | -1.32603 | |
| 1394 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 0 | 1 | 5 | 2.2238 | 1 | 0 | 1 | -0.50665 | 0.785743 | -0.43401 | 1.125301 | |
| 1395 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 27.4147 | 0.7882 | 0.0078 | 0.5575 | 0.141674 | 0.213075 | -0.0872 | 0.040588 | |
| 1396 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 3.493 | 0.9132 | 0.0058 | 0.8934 | -0.47399 | 0.551052 | -0.17612 | 0.863989 | |
| 1397 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 3.6006 | 0.8451 | 0.0003 | 0.9892 | -0.47122 | 0.366922 | -0.42067 | 1.098826 | |
| 1398 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 26.4647 | 0.8742 | 0.0095 | 0.4599 | 0.117224 | 0.445603 | -0.01161 | -0.19866 | |
| 1399 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | | | | | | | | | | | |

Crossed Array Inner Array Design Points and Responses (Block 6)

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | Time | TPF | FPF | TFP | Std Time | Std TPF | Std FPF | Std TFP |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|---------|-------------|----------------------|--------------|---------------|----------|--------|--------|--------|----------|----------|----------|----------|
| 1401 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 6 | 5.9092 | 0 | 0.0047 | 0 | -0.4118 | -1.91807 | -0.22503 | -1.32603 |
| 1402 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 6 | 5.1741 | 0 | 0.0028 | 0 | -0.43072 | -1.91807 | -0.30951 | -1.32603 |
| 1403 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 6 | 3.9575 | 1 | 0.0828 | 0.3261 | -0.46203 | 0.785743 | 3.247526 | -0.52665 |
| 1404 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 6 | 64.9293 | 0.9294 | 0.0449 | 0.1032 | 1.10717 | 0.594853 | 1.562379 | -1.07305 |
| 1405 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 6 | 11.8274 | 0 | 0 | 0 | -0.25949 | -1.91807 | -0.43401 | -1.32603 |
| 1406 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 6 | 6.5691 | 0.8368 | 0.0023 | 0.6974 | -0.39482 | 0.34448 | -0.33174 | 0.383529 |
| 1407 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 6 | 3.4947 | 1 | 0.0074 | 0 | -0.47394 | 0.785743 | -0.10498 | -1.32603 |
| 1408 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 6 | 1.9282 | 0.956 | 0.1097 | 0.0891 | -0.51426 | 0.666775 | 4.44358 | -1.10761 |
| 1409 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 6 | 100.5485 | 0 | 0 | 0 | 2.023885 | -1.91807 | -0.43401 | -1.32603 |
| 1410 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 6 | 3.0976 | 0 | 0 | 0 | -0.48416 | -1.91807 | -0.43401 | -1.32603 |
| 1411 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 6 | 5.9816 | 0.5286 | 0.0001 | 0.9933 | -0.40994 | -0.48884 | -0.42956 | 1.108877 |
| 1412 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 6 | 2.1371 | 0.9609 | 0.0509 | 0.1725 | -0.50888 | 0.680024 | 1.829157 | -0.90317 |
| 1413 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 6 | 6.5592 | 0.3362 | 0.0028 | 0.3278 | -0.39507 | -1.00905 | -0.30951 | -0.52248 |
| 1414 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 6 | 67.4734 | 0.9494 | 0.0755 | 0.0682 | 1.172646 | 0.64893 | 2.922946 | -1.15885 |
| 1415 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 6 | 1.9083 | 0.956 | 0.0851 | 0.112 | -0.51477 | 0.666775 | 3.349791 | -1.05148 |
| 1416 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 6 | 3.1095 | 0.8084 | 0.009 | 0.3293 | -0.48386 | 0.267692 | -0.03384 | -0.5188 |
| 1417 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 6 | 68.0794 | 0 | 0 | 0 | 1.188242 | -1.91807 | -0.43401 | -1.32603 |
| 1418 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 6 | 2.1506 | 0.9452 | 0.0017 | 0.9337 | -0.50854 | 0.637574 | -0.35842 | 0.962778 |
| 1419 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 6 | 3.8444 | 0.4847 | 0.0001 | 0.9634 | -0.46494 | -0.60753 | -0.42956 | 1.035582 |
| 1420 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 6 | 114.0154 | 0.9697 | 0.0882 | 0.0848 | 2.370476 | 0.703817 | 3.487626 | -1.11815 |
| 1421 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 6 | 10.6473 | 0 | 0 | 0 | -0.28986 | -1.91807 | -0.43401 | -1.32603 |
| 1422 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 6 | 1.9507 | 1 | 0 | 1 | -0.51368 | 0.785743 | -0.43401 | 1.125301 |
| 1423 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 6 | 5.0767 | 0.7892 | 0.0003 | 0.9481 | -0.43323 | 0.215778 | -0.42067 | 0.998077 |
| 1424 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 6 | 8.3602 | 0 | 0.013 | 0 | -0.34872 | -1.91807 | 0.14401 | -1.32603 |
| 1425 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 6 | 109.428 | 0.7755 | 0.0001 | 0.9834 | 2.252412 | 0.178736 | -0.42956 | 1.084609 |
| 1426 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 6 | 3.5104 | 0.8487 | 0.0005 | 0.9808 | -0.47354 | 0.376655 | -0.41178 | 1.078235 |
| 1427 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 0 | 6 | 2.2061 | 1 | 0 | 1 | -0.50711 | 0.785743 | -0.43401 | 1.125301 |
| 1428 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 6 | 3.3673 | 0.4847 | 0.0001 | 0.9753 | -0.47722 | -0.60753 | -0.42956 | 1.064753 |
| 1429 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 6 | 2.0992 | 0.9452 | 0.0017 | 0.9337 | -0.50986 | 0.637574 | -0.35842 | 0.962778 |
| 1430 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 6 | 165.1322 | 0 | 0 | 0 | 3.686045 | -1.91807 | -0.43401 | -1.32603 |
| 1431 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 6 | 1.9799 | 0.8264 | 0.0057 | 0.5613 | -0.51293 | 0.31636 | -0.18057 | 0.049903 |
| 1432 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 0 | 6 | 1.2906 | 1 | 0 | 1 | -0.53067 | 0.785743 | -0.43401 | 1.125301 |
| 1433 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 6 | 4.2139 | 0.6959 | 0.0013 | 0.7153 | -0.45543 | -0.03649 | -0.37621 | 0.427408 |
| 1434 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 0 | 6 | 2.9379 | 0 | 0.0005 | 0 | -0.48827 | -1.91807 | -0.41178 | -1.32603 |
| 1435 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 6 | 1.2079 | 1 | 0 | 1 | -0.5328 | 0.785743 | -0.43401 | 1.125301 |
| 1436 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 6 | 2.6948 | 0.9561 | 0.0056 | 0.8669 | -0.49453 | 0.667045 | -0.18502 | 0.799029 |
| 1437 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 6 | 27.7082 | 0.8774 | 0.0188 | 0.3077 | 0.149228 | 0.454255 | 0.401896 | -0.57175 |
| 1438 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 6 | 3.8016 | 1 | 0.0033 | 0 | -0.46605 | 0.785743 | -0.28728 | -1.32603 |
| 1439 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 6 | 1.4517 | 1 | 0 | 1 | -0.52652 | 0.785743 | -0.43401 | 1.125301 |
| 1440 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 0 | 6 | 2.888 | 0.6959 | 0.0013 | 0.7203 | -0.48956 | -0.03649 | -0.37621 | 0.439664 |
| 1441 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 6 | 10.0414 | 0 | 0 | 0 | -0.30545 | -1.91807 | -0.43401 | -1.32603 |
| 1442 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 6 | 10.5645 | 0 | 0 | 0 | -0.29199 | -1.91807 | -0.43401 | -1.32603 |
| 1443 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 6 | 1.9681 | 0.9121 | 0.0008 | 0.9663 | -0.51323 | 0.548077 | -0.39844 | 1.042691 |
| 1444 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 6 | 64.2929 | 0.8217 | 0.0022 | 0.6582 | 1.090791 | 0.303652 | -0.33619 | 0.287437 |
| 1445 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 6 | 2.4197 | 1 | 0.0056 | 0 | -0.50161 | 0.785743 | -0.18502 | -1.32603 |
| 1446 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 6 | 1.2571 | 1 | 0.0505 | 0 | -0.53153 | 0.785743 | 1.811372 | -1.32603 |
| 1447 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 121.8827 | 0 | 0 | 0 | 2.572953 | -1.91807 | -0.43401 | -1.32603 |
| 1448 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 5.2503 | 0 | 0 | 0 | -0.42876 | -1.91807 | -0.43401 | -1.32603 |
| 1449 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 3.1456 | 0.6218 | 0.0017 | 0.6016 | -0.48293 | -0.23684 | -0.35842 | 0.148692 |
| 1450 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 114.9727 | 0.8845 | 0.0042 | 0.5939 | 2.395114 | 0.473452 | -0.24726 | 0.129817 |
| 1451 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 3.3264 | 1 | 0.0498 | 0 | -0.47828 | 0.785743 | 1.780248 | -1.32603 |
| 1452 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 2.2268 | 1 | 0 | 1 | -0.50658 | 0.785743 | -0.43401 | 1.125301 |
| 1453 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 76.0894 | 0.7149 | 0.0131 | 0.303 | 1.394392 | 0.014885 | 0.148457 | -0.58327 |
| 1454 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 71.8929 | 0.8438 | 0.004 | 0.5233 | 1.286389 | 0.363407 | -0.25616 | -0.04325 |
| 1455 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 3.0326 | 0 | 0 | 0 | -0.48584 | -1.91807 | -0.43401 | -1.32603 |
| 1456 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 2.7655 | 0.9776 | 0.0024 | 0.9161 | -0.49271 | 0.725177 | -0.3273 | 0.919634 |
| 1457 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 0 | 6 | 7.5626 | 0 | 0 | 0 | -0.36925 | -1.91807 | -0.43401 | -1.32603 |
| 1458 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 0 | 6 | 2.7704 | 0.9845 | 0.0282 | 0.5339 | -0.49259 | 0.743834 | 0.819848 | -0.01726 |
| 1459 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 0 | 6 | 6.6336 | 0 | 0.0004 | 0 | -0.39316 | -1.91807 | -0.41622 | -1.32603 |
| 1460 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 0 | 6 | 2.6752 | 0.8495 | 0.0808 | 0.1179 | -0.49504 | 0.378819 | 3.1586 | -1.03702 |
| 1461 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 0 | 6 | 3.69 | 0.9742 | 0.0017 | 0.9555 | -0.46892 | 0.715984 | -0.35842 | 1.016217 |
| 1462 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 0 | 6 | 4.7526 | 1 | 0 | 1 | -0.44157 | 0.785743 | -0.43401 | 1.125301 |
| 1463 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 0 | 6 | 3.4609 | 0.5046 | 0.0005 | 0.9742 | -0.47481 | -0.55373 | -0.41178 | 1.062056 |
| 1464 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 0 | 6 | 6.9764 | 0.3362 | 0.0033 | 0.2926 | -0.38434 | -1.00905 | -0.28728 | -0.60877 |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 1465 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 5.6766 | 0.3362 | 0.0019 | 0.4202 | -0.41779 | -1.00905 | -0.34953 | -0.29598 |
| 1466 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 8.0305 | 0 | 0 | 0 | -0.35721 | -1.91807 | -0.43401 | -1.32603 |
| 1467 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 1.2162 | 1 | 0 | 1 | -0.53258 | 0.785743 | -0.43401 | 1.125301 |
| 1468 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 3.4593 | 0.6218 | 0.0019 | 0.5759 | -0.47486 | -0.23684 | -0.34953 | 0.085693 |
| 1469 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 1.2022 | 1 | 0 | 1 | -0.53295 | 0.785743 | -0.43401 | 1.125301 |
| 1470 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 114.7745 | 0.9312 | 0.0054 | 0.5828 | 2.390013 | 0.59972 | -0.19391 | 0.102607 |
| 1471 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 6 | 3.4788 | 1 | 0.0045 | 0 | -0.47435 | 0.785743 | -0.23392 | -1.32603 |
| 1472 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 6 | 97.2058 | 0.8845 | 0.0055 | 0.531 | 1.937855 | 0.473452 | -0.18946 | -0.02437 |
| 1473 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 6 | 2.4847 | 0.7558 | 0.0085 | 0.4851 | -0.49994 | 0.125471 | -0.05607 | -0.13689 |
| 1474 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 6 | 2.5102 | 0.4195 | 0 | 0.9977 | -0.49928 | -0.78382 | -0.43401 | 1.119663 |
| 1475 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 6 | 122.2231 | 0.8487 | 0.0029 | 0.7073 | 2.581714 | 0.376655 | -0.30507 | 0.407797 |
| 1476 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 6 | 2.3331 | 0.9586 | 0.0193 | 0.6623 | -0.50384 | 0.673805 | 0.424127 | 0.297487 |
| 1477 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 6 | 101.0417 | 0.9689 | 0.067 | 0.1061 | 2.036578 | 0.701654 | 2.545011 | -1.06594 |
| 1478 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 6 | 3.805 | 0 | 0.0014 | 0 | -0.46596 | -1.91807 | -0.37176 | -1.32603 |
| 1479 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 6 | 98.534 | 0.9624 | 0.0342 | 0.1818 | 1.972038 | 0.684079 | 1.086626 | -0.88038 |
| 1480 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 0 | 6 | 14.8365 | 1 | 0 | 1 | -0.18205 | 0.785743 | -0.43401 | 1.125301 |
| 1481 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 6 | 4.5019 | 0.8825 | 0.0018 | 0.9483 | -0.44802 | 0.468044 | -0.35397 | 0.998567 |
| 1482 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 6 | 65.0604 | 0.954 | 0.0788 | 0.0645 | 1.110544 | 0.661367 | 3.069674 | -1.16792 |
| 1483 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 6 | 3.2843 | 0.9168 | 0.0009 | 0.9631 | -0.47936 | 0.560785 | -0.39399 | 1.034847 |
| 1484 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 6 | 4.129 | 0 | 0.0018 | 0 | -0.45762 | -1.91807 | -0.35397 | -1.32603 |
| 1485 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 0 | 6 | 72.7234 | 0.8013 | 0.0038 | 0.5187 | 1.307763 | 0.248495 | -0.26505 | -0.05452 |
| 1486 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 6 | 2.8489 | 0.75 | 0.0016 | 0.6894 | -0.49056 | 0.109789 | -0.36287 | 0.363918 |
| 1487 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 6 | 5.1072 | 0.9206 | 0.0011 | 0.9696 | -0.43244 | 0.57106 | -0.3851 | 1.05078 |
| 1488 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 6 | 3.9326 | 0.784 | 0.031 | 0.0989 | -0.46267 | 0.201719 | 0.944344 | -1.08359 |
| 1489 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 6 | 2.4711 | 0.9583 | 0.1394 | 0.0753 | -0.50029 | 0.672994 | 5.764131 | -1.14144 |
| 1490 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 6 | 1.1733 | 1 | 0 | 1 | -0.53369 | 0.785743 | -0.43401 | 1.125301 |
| 1491 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 6 | 2.9686 | 1 | 0 | 1 | -0.48748 | 0.785743 | -0.43401 | 1.125301 |
| 1492 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 0 | 6 | 26.4869 | 0.8758 | 0.0146 | 0.3612 | 0.117796 | 0.449929 | 0.215151 | -0.44061 |
| 1493 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 6 | 2.1567 | 0.8264 | 0.006 | 0.5484 | -0.50838 | 0.31636 | -0.16723 | 0.018281 |
| 1494 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 6 | 8.0203 | 0 | 0.0002 | 0 | -0.35747 | -1.91807 | -0.42512 | -1.32603 |
| 1495 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 6 | 5.2843 | 0.9428 | 0.0017 | 0.9539 | -0.42789 | 0.631085 | -0.35842 | 1.012294 |
| 1496 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 6 | 93.2786 | 0.8896 | 0.0006 | 0.9062 | 1.836783 | 0.487242 | -0.40733 | 0.895366 |
| 1497 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 0 | 6 | 65.2068 | 0.7974 | 0.0043 | 0.4784 | 1.114312 | 0.23795 | -0.24282 | -0.15331 |
| 1498 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 6 | 7.7039 | 0 | 0.001 | 0 | -0.36561 | -1.91807 | -0.38955 | -1.32603 |
| 1499 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 6 | 1.2261 | 1 | 0 | 1 | -0.53233 | 0.785743 | -0.43401 | 1.125301 |
| 1500 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 6 | 2.666 | 1 | 0.0042 | 0 | -0.49527 | 0.785743 | -0.24726 | -1.32603 |
| 1501 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 6 | 2.3983 | 0.782 | 0.0085 | 0.4298 | -0.50216 | 0.196311 | -0.05607 | -0.27245 |
| 1502 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 6 | 3.2438 | 0.5208 | 0.0008 | 0.8523 | -0.4804 | -0.50993 | -0.39844 | 0.76324 |
| 1503 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 6 | 3.7266 | 0.6218 | 0.0022 | 0.5362 | -0.46798 | -0.23684 | -0.33619 | -0.01162 |
| 1504 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 6 | 1.8758 | 1 | 0 | 1 | -0.51561 | 0.785743 | -0.43401 | 1.125301 |
| 1505 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 6 | 1.8937 | 1 | 0 | 1 | -0.51515 | 0.785743 | -0.43401 | 1.125301 |
| 1506 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 6 | 4.2708 | 0.9428 | 0.0017 | 0.9539 | -0.45397 | 0.631085 | -0.35842 | 1.012294 |
| 1507 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 6 | 2.9155 | 1 | 0 | 1 | -0.48885 | 0.785743 | -0.43401 | 1.125301 |
| 1508 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 0 | 6 | 1.9264 | 0.8264 | 0.006 | 0.5484 | -0.51431 | 0.31636 | -0.16723 | 0.018281 |
| 1509 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 6 | 3.9624 | 0.9663 | 0.0053 | 0.8741 | -0.46191 | 0.694624 | -0.19835 | 0.816679 |
| 1510 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 6 | 3.9971 | 0.5149 | 0.0012 | 0.6402 | -0.46101 | -0.52588 | -0.38065 | 0.243313 |
| 1511 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 6 | 113.7956 | 0.9754 | 0.0967 | 0.0801 | 2.364819 | 0.719229 | 3.865562 | -1.12968 |
| 1512 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 6 | 2.1811 | 1 | 0 | 1 | -0.50775 | 0.785743 | -0.43401 | 1.125301 |
| 1513 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 6 | 2.7976 | 1 | 0 | 1 | -0.49189 | 0.785743 | -0.43401 | 1.125301 |
| 1514 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 6 | 3.1099 | 0.8802 | 0.029 | 0.1424 | -0.48385 | 0.461826 | 0.855418 | -0.97696 |
| 1515 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 6 | 4.7272 | 0.9428 | 0.0017 | 0.9539 | -0.44222 | 0.631085 | -0.35842 | 1.012294 |
| 1516 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 6 | 26.4614 | 0.8649 | 0.0076 | 0.51 | 0.117139 | 0.420457 | -0.09609 | -0.07585 |
| 1517 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 2.3943 | 1 | 0.0065 | 0 | -0.50226 | 0.785743 | -0.145 | -1.32603 |
| 1518 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 3.1066 | 0.8826 | 0.0018 | 0.9474 | -0.48393 | 0.468315 | -0.35397 | 0.996361 |
| 1519 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 24.6474 | 1 | 0 | 1 | 0.070453 | 0.785743 | -0.43401 | 1.125301 |
| 1520 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 1.888 | 1 | 0 | 1 | -0.51529 | 0.785743 | -0.43401 | 1.125301 |
| 1521 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 103.7558 | 0.8455 | 0.0004 | 0.9444 | 2.106429 | 0.368003 | -0.41622 | 0.989007 |
| 1522 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 7.0254 | 0 | 0.0066 | 0 | -0.38308 | -1.91807 | -0.14055 | -1.32603 |
| 1523 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 10.8202 | 0 | 0 | 0 | -0.28541 | -1.91807 | -0.43401 | -1.32603 |
| 1524 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 3.4308 | 0.4572 | 0.0001 | 0.9937 | -0.47559 | -0.68189 | -0.42956 | 1.109857 |
| 1525 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 29.1986 | 0.7611 | 0.0052 | 0.6199 | 0.187585 | 0.139801 | -0.2028 | 0.193551 |
| 1526 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 113.7897 | 0.9751 | 0.0488 | 0.1459 | 2.364667 | 0.718418 | 1.735785 | -0.96838 |
| 1527 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 0 | 6 | 2.2144 | 0.9632 | 0.002 | 0.9274 | -0.50689 | 0.686242 | -0.34508 | 0.947334 |
| 1528 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 0 | 6 | 3.8036 | 0.6667 | 0.0225 | 0.2626 | -0.46599 | -0.11544 | 0.566409 | -0.68231 |
| 1529 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 0 | 6 | 3.9833 | 0.4572 | 0.0001 | 0.9937 | -0.46137 | -0.68189 | -0.42956 | 1.109857 |
| 1530 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 0 | 6 | 26.1505 | 1 | 0.0009 | 0 | 0.109138 | 0.785743 | -0.39399 | -1.32603 |
| 1531 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 0 | 6 | 2.7438 | 0.6959 | 0.0015 | 0.6913 | -0.49327 | -0.03649 | -0.367 | |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 1537 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 3.1912 | 0.8385 | 0.002 | 0.6853 | -0.48176 | 0.349077 | -0.34508 | 0.353868 |
| 1538 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 3.2858 | 0.9254 | 0.0101 | 0.7879 | -0.47932 | 0.584038 | 0.015068 | 0.605374 |
| 1539 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 3.7362 | 0.6048 | 0.0047 | 0.4721 | -0.46773 | -0.28281 | -0.22503 | -0.16875 |
| 1540 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 3.0298 | 0.4518 | 0 | 0.9979 | -0.48591 | -0.69649 | -0.43401 | 1.120153 |
| 1541 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 1 | 6 | 2.547 | 1 | 0.124 | 0 | -0.49833 | 0.785743 | 5.079401 | -1.32603 |
| 1542 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 6 | 5.1627 | 0.8368 | 0.002 | 0.7227 | -0.43102 | 0.34448 | -0.34508 | 0.445548 |
| 1543 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 6 | 28.7068 | 0.7784 | 0.0065 | 0.5898 | 0.174928 | 0.186577 | -0.145 | 0.119766 |
| 1544 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 6 | 5.8663 | 0 | 0 | 0 | -0.41291 | -1.91807 | -0.43401 | -1.32603 |
| 1545 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 6 | 1.9828 | 1 | 0 | 0 | -0.51286 | 0.785743 | -0.43401 | 1.125301 |
| 1546 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 6 | 3.6335 | 0.8429 | 0.0001 | 0.9963 | -0.47037 | 0.360973 | -0.42956 | 1.116231 |
| 1547 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 6 | 1.8182 | 0.9943 | 0.0355 | 0.4758 | -0.51709 | 0.770331 | 1.144427 | -0.15969 |
| 1548 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 6 | 4.5444 | 0 | 0.0019 | 0 | -0.44693 | -1.91807 | -0.34953 | -1.32603 |
| 1549 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 6 | 2.8358 | 1 | 0 | 1 | -0.4909 | 0.785743 | -0.43401 | 1.125301 |
| 1550 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 1 | 6 | 3.7573 | 1 | 0 | 1 | -0.46719 | 0.785743 | -0.43401 | 1.125301 |
| 1551 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 6 | 4.7377 | 0.8696 | 0.0044 | 0.5072 | -0.44195 | 0.433165 | -0.23837 | -0.08271 |
| 1552 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 6 | 6.4003 | 0.8571 | 0.0039 | 0.5391 | -0.39916 | 0.399368 | -0.2606 | -0.00452 |
| 1553 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 6 | 2.9693 | 1 | 0 | 1 | -0.48747 | 0.785743 | -0.43401 | 1.125301 |
| 1554 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 6 | 134.8883 | 0 | 0 | 0 | 2.907672 | -1.91807 | -0.43401 | -1.32603 |
| 1555 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 1 | 6 | 1.9085 | 0.9574 | 0.1274 | 0.0802 | -0.51477 | 0.67056 | 5.230575 | -1.12943 |
| 1556 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 6 | 2.5234 | 0 | 0 | 0 | -0.49894 | -1.91807 | -0.43401 | -1.32603 |
| 1557 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 6 | 3.7568 | 0.8566 | 0.0004 | 0.9808 | -0.4672 | 0.398016 | -0.41622 | 1.078235 |
| 1558 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 6 | 5.7187 | 0 | 0 | 0 | -0.41671 | -1.91807 | -0.43401 | -1.32603 |
| 1559 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 6 | 3.7658 | 0 | 0.0018 | 0 | -0.46697 | -1.91807 | -0.35397 | -1.32603 |
| 1560 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 6 | 2.4051 | 1 | 0 | 1 | -0.50199 | 0.785743 | -0.43401 | 1.125301 |
| 1561 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 6 | 1.224 | 1 | 0 | 1 | -0.53238 | 0.785743 | -0.43401 | 1.125301 |
| 1562 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 1 | 6 | 2.6081 | 0.8275 | 0.015 | 0.6821 | -0.49676 | 0.319335 | 0.232936 | 0.346024 |
| 1563 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 6 | 1.264 | 1 | 0 | 1 | -0.53135 | 0.785743 | -0.43401 | 1.125301 |
| 1564 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 6 | 4.1325 | 0.9664 | 0.0075 | 0.8313 | -0.45753 | 0.694895 | -0.10054 | 0.711762 |
| 1565 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 6 | 3.5953 | 0 | 0.0019 | 0 | -0.47135 | -1.91807 | -0.34953 | -1.32603 |
| 1566 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 6 | 3.3503 | 0.8294 | 0 | 0 | -0.47766 | 0.324472 | -0.43401 | 1.125301 |
| 1567 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 1 | 6 | 3.0516 | 1 | 0.0053 | 0 | -0.48535 | 0.785743 | -0.19835 | -1.32603 |
| 1568 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 1 | 6 | 4.2623 | 0.7626 | 0.0162 | 0.3656 | -0.45419 | 0.143857 | 0.286292 | -0.42982 |
| 1569 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 6 | 3.6915 | 0.5191 | 0.0014 | 0.61 | -0.46888 | -0.51452 | -0.37176 | 0.169283 |
| 1570 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 6 | 5.422 | 1 | 0 | 1 | -0.42434 | 0.785743 | -0.43401 | 1.125301 |
| 1571 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 6 | 4.1163 | 1 | 0 | 1 | -0.45795 | 0.785743 | -0.43401 | 1.125301 |
| 1572 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 1 | 6 | 9.6445 | 0 | 0.0032 | 0 | -0.31567 | -1.91807 | -0.29173 | -1.32603 |
| 1573 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 6 | 74.1522 | 0.8785 | 0.0023 | 0.7315 | 1.344535 | 0.457229 | -0.33174 | 0.467119 |
| 1574 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 1 | 6 | 1.8988 | 0.8846 | 0.0111 | 0.4326 | -0.51502 | 0.473722 | 0.059531 | -0.26558 |
| 1575 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 1 | 6 | 1.1852 | 1 | 0 | 1 | -0.53338 | 0.785743 | -0.43401 | 1.125301 |
| 1576 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 6 | 26.7385 | 0 | 0 | 0 | 0.124271 | -1.91807 | -0.43401 | -1.32603 |
| 1577 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 6 | 112.074 | 0 | 0 | 0 | 2.320511 | -1.91807 | -0.43401 | -1.32603 |
| 1578 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 1 | 6 | 19.7633 | 0 | 0 | 0 | -0.05525 | -1.91807 | -0.43401 | -1.32603 |
| 1579 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 6 | 3.4029 | 0.9306 | 0.0087 | 0.8559 | -0.47631 | 0.598098 | -0.04718 | 0.772064 |
| 1580 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 1 | 6 | 1.901 | 0.9582 | 0.0023 | 0.9151 | -0.51496 | 0.672723 | -0.33174 | 0.917183 |
| 1581 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 6 | 113.8857 | 0.9753 | 0.0495 | 0.1451 | 2.367138 | 0.718959 | 1.766909 | -0.97034 |
| 1582 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 6 | 148.0995 | 0 | 0 | 0 | 3.247683 | -1.91807 | -0.43401 | -1.32603 |
| 1583 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 6 | 3.6893 | 0.4847 | 0.0001 | 0.9753 | -0.46894 | -0.60753 | -0.42956 | 1.064753 |
| 1584 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 6 | 27.6419 | 0.8758 | 0.013 | 0.3873 | 0.147521 | 0.449929 | 0.14401 | -0.37663 |
| 1585 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 6 | 10.1528 | 0.9035 | 0.0056 | 0.5374 | -0.30259 | 0.524825 | -0.18502 | -0.00868 |
| 1586 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 6 | 11.5425 | 0 | 0 | 0 | -0.26682 | -1.91807 | -0.43401 | -1.32603 |
| 1587 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 82.7214 | 0 | 0 | 0 | 1.565077 | -1.91807 | -0.43401 | -1.32603 |
| 1588 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 119.1149 | 0.911 | 0.0089 | 0.4234 | 2.501719 | 0.545103 | -0.03829 | -0.28813 |
| 1589 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 3.888 | 0.9315 | 0.0141 | 0.7423 | -0.46382 | 0.600531 | 0.19292 | 0.493594 |
| 1590 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 27.5034 | 0.7913 | 0.0078 | 0.5621 | 0.143957 | 0.221456 | -0.0872 | 0.051865 |
| 1591 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 28.6576 | 0.7784 | 0.0065 | 0.5898 | 0.173662 | 0.186577 | -0.145 | 0.119766 |
| 1592 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 5.58 | 0.6492 | 0.0002 | 0.9897 | -0.42028 | -0.16276 | -0.42512 | 1.100052 |
| 1593 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 5.2093 | 0 | 0.0004 | 0 | -0.42982 | -1.91807 | -0.41622 | -1.32603 |
| 1594 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 3.2974 | 0.4199 | 0.0009 | 0.9416 | -0.47902 | -0.78274 | -0.39399 | 0.982143 |
| 1595 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 2.9446 | 0.9093 | 0.0005 | 0.9761 | -0.4881 | 0.540507 | -0.41178 | 1.066714 |
| 1596 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 116.598 | 0 | 0 | 0 | 2.436943 | -1.91807 | -0.43401 | -1.32603 |
| 1597 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 1 | 6 | 11.9123 | 0 | 0 | 0 | -0.2573 | -1.91807 | -0.43401 | -1.32603 |
| 1598 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 1 | 6 | 2.9225 | 0.4309 | 0.0012 | 0.9296 | -0.48867 | -0.753 | -0.38065 | 0.952727 |
| 1599 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 1 | 6 | 4.8509 | 0 | 0.0012 | 0 | -0.43904 | -1.91807 | -0.38065 | -1.32603 |
| 1600 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 1 | 6 | 3.6196 | 0.6218 | 0.0022 | 0.5362 | -0.47073 | -0.23684 | -0.33619 | -0.01162 |
| 1601 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 1 | 6 | 1.2268 | 1 | 0 | 1 | -0.53231 | 0.785743 | -0.43401 | 1.125301 |
| 1602 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 1 | 6 | 2.7888 | 1 | 0 | 1 | -0.50524 | 0.785743 | -0.43401 | 1.125301 |
| 1603 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 1 | 6 | 1.4912 | 1 | 0 | 1 | -0.52551 | 0.785743 | -0.43401 | 1.125301 |
| 1604 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 1 | 6 | 2.9393 | 1 | 0 | 1 | -0.48824 | 0.785743 | | |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 1609 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 1.7112 | 1 | 0 | 1 | -0.51985 | 0.785743 | -0.43401 | 1.125301 |
| 1610 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 2.3613 | 1 | 0 | 1 | -0.50311 | 0.785743 | -0.43401 | 1.125301 |
| 1611 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 1 | 6 | 9.8719 | 0 | 0 | 0 | -0.30982 | -1.91807 | -0.43401 | -1.32603 |
| 1612 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 6 | 1.7675 | 0.9632 | 0.0022 | 0.9181 | -0.5184 | 0.686242 | -0.33619 | 0.924537 |
| 1613 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 6 | 2.7423 | 0.4195 | 0.0011 | 0.9295 | -0.49331 | -0.78382 | -0.3851 | 0.952482 |
| 1614 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 6 | 3.2645 | 1 | 0.0911 | 0.3109 | -0.47987 | 0.785743 | 3.616569 | -0.56391 |
| 1615 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 6 | 2.3466 | 1 | 0 | 1 | -0.50349 | 0.785743 | -0.43401 | 1.125301 |
| 1616 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 6 | 2.994 | 1 | 0.0427 | 0 | -0.48683 | 0.785743 | 1.464561 | -1.32603 |
| 1617 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 6 | 3.3126 | 0 | 0 | 0 | -0.47863 | -1.91807 | -0.43401 | -1.32603 |
| 1618 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 6 | 6.0167 | 0.9428 | 0.0014 | 0.9617 | -0.40904 | 0.631085 | -0.37176 | 1.031415 |
| 1619 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 6 | 100.2659 | 0.9705 | 0.077 | 0.0909 | 2.016611 | 0.70598 | 2.989641 | -1.1032 |
| 1620 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 6 | 1.2152 | 1 | 0.0013 | 0 | -0.53261 | 0.785743 | -0.37621 | -1.32603 |
| 1621 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 6 | 4.656 | 0.6302 | 0.0538 | 0.1219 | -0.44406 | -0.21413 | 1.9581 | -1.02721 |
| 1622 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 6 | 5.8005 | 0 | 0.0011 | 0 | -0.4146 | -1.91807 | -0.3851 | -1.32603 |
| 1623 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 6 | 27.4628 | 0.7737 | 0.006 | 0.6025 | 0.142912 | 0.173869 | -0.16723 | 0.150898 |
| 1624 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 6 | 25.9266 | 1 | 0 | 1 | 0.103375 | 0.785743 | -0.43401 | 1.125301 |
| 1625 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 1 | 6 | 4.2175 | 1 | 0.0048 | 0 | -0.45534 | 0.785743 | -0.22059 | -1.32603 |
| 1626 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 6 | 1.6466 | 1 | 0 | 1 | -0.52151 | 0.785743 | -0.43401 | 1.125301 |
| 1627 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 6 | 4.4812 | 0 | 0 | 0 | -0.44856 | -1.91807 | -0.43401 | -1.32603 |
| 1628 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 6 | 2.3448 | 0.9558 | 0.0655 | 0.1401 | -0.50354 | 0.666234 | 2.478317 | -0.9826 |
| 1629 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 6 | 5.8424 | 0.6795 | 0.0001 | 0.9951 | -0.41352 | -0.08083 | -0.42956 | 1.113289 |
| 1630 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 6 | 2.3672 | 0.4636 | 0.0014 | 0.9228 | -0.50296 | -0.66458 | -0.37176 | 0.996058 |
| 1631 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 6 | 123.6265 | 0.9539 | 0.0021 | 0.9772 | 2.617832 | 0.661097 | -0.34064 | 0.628172 |
| 1632 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 6 | 3.5095 | 0.6218 | 0.0022 | 0.5362 | -0.47356 | -0.23684 | -0.33619 | -0.01162 |
| 1633 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 6 | 1.8996 | 0.7688 | 0.003 | 0.7151 | -0.515 | 0.160621 | -0.30062 | 0.426918 |
| 1634 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 6 | 2.2179 | 0.9632 | 0.002 | 0.9274 | -0.5068 | 0.686242 | -0.34508 | 0.947334 |
| 1635 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 6 | 3.4629 | 0.8826 | 0.0018 | 0.9474 | -0.47476 | 0.468315 | -0.35397 | 0.996361 |
| 1636 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 6 | 9.9097 | 0 | 0 | 0 | -0.30884 | -1.91807 | -0.43401 | -1.32603 |
| 1637 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 1 | 6 | 3.3688 | 1 | 0.0007 | 0 | -0.47718 | 0.785743 | -0.40288 | -1.32603 |
| 1638 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 6 | 105.0839 | 0.9471 | 0.0006 | 0.9307 | 2.14061 | 0.642711 | -0.40733 | 0.955424 |
| 1639 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 6 | 5.1702 | 0.9428 | 0.0017 | 0.9539 | -0.43082 | 0.631085 | -0.35842 | 1.012294 |
| 1640 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 6 | 24.692 | 1 | 0 | 1 | 0.071601 | 0.785743 | -0.43401 | 1.125301 |
| 1641 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 6 | 10.3507 | 0 | 0 | 0 | -0.29749 | -1.91807 | -0.43401 | -1.32603 |
| 1642 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 1 | 6 | 2.0403 | 0.9632 | 0.0022 | 0.9181 | -0.51138 | 0.686242 | -0.33619 | 0.924537 |
| 1643 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 6 | 3.9067 | 0 | 0 | 0 | -0.46334 | -1.91807 | -0.43401 | -1.32603 |
| 1644 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 6 | 77.3281 | 0.8052 | 0.0013 | 0.7607 | 1.426272 | 0.25904 | -0.37621 | 0.538698 |
| 1645 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 1 | 6 | 5.5347 | 0.4714 | 0.0014 | 0.9229 | -0.42144 | -0.64349 | -0.37176 | 0.936303 |
| 1646 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 6 | 13.3418 | 0 | 0 | 0 | -0.22051 | -1.91807 | -0.43401 | -1.32603 |
| 1647 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 6 | 25.7533 | 1 | 0.0989 | 0 | 0.098915 | 0.785743 | 3.96338 | -1.32603 |
| 1648 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 6 | 4.0604 | 0 | 0 | 0 | -0.45938 | -1.91807 | -0.43401 | -1.32603 |
| 1649 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 6 | 2.5618 | 0.782 | 0.0049 | 0.5652 | -0.49795 | 0.196311 | -0.21614 | 0.059464 |
| 1650 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 6 | 3.6762 | 0.8509 | 0.0043 | 0.5131 | -0.46927 | 0.382604 | -0.24282 | -0.46254 |
| 1651 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 6 | 108.216 | 0.9328 | 0.0011 | 0.8741 | 2.221219 | 0.604046 | -0.3851 | 0.816679 |
| 1652 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 6 | 2.0533 | 0.8295 | 0.007 | 0.5615 | -0.51104 | 0.324742 | -0.12277 | 0.050394 |
| 1653 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 6 | 2.59 | 1 | 0 | 1 | -0.49723 | 0.785743 | -0.43401 | 1.125301 |
| 1654 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 6 | 3.1898 | 0.5175 | 0.0001 | 0.9867 | -0.48179 | -0.51885 | -0.42956 | 1.092698 |
| 1655 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 6 | 140.179 | 0 | 0 | 0 | 3.043836 | -1.91807 | -0.43401 | -1.32603 |
| 1656 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 6 | 2.7525 | 0.8735 | 0.027 | 0.1496 | -0.49305 | 0.44371 | 0.766492 | -0.95931 |
| 1657 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 114.0552 | 0.9726 | 0.0958 | 0.0798 | 2.3715 | 0.711658 | 3.825545 | -1.13041 |
| 1658 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 1.6807 | 1 | 0 | 1 | -0.52063 | 0.785743 | -0.43401 | 1.125301 |
| 1659 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 3.3497 | 0.6048 | 0.0047 | 0.4721 | -0.47768 | -0.28281 | -0.22503 | -0.16875 |
| 1660 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 2.7497 | 0.9587 | 0.0201 | 0.654 | -0.49312 | 0.674075 | 0.459698 | 0.277141 |
| 1661 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 2.6457 | 0.4518 | 0 | 0.9979 | -0.49579 | -0.69649 | -0.43401 | 1.120153 |
| 1662 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 128.1766 | 0 | 0 | 0 | 2.734936 | -1.91807 | -0.43401 | -1.32603 |
| 1663 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 2.0362 | 0.9415 | 0.0017 | 0.9365 | -0.51148 | 0.62757 | -0.35842 | 0.969641 |
| 1664 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 2.5798 | 0.7451 | 0.0036 | 0.5089 | -0.49749 | 0.09654 | -0.27394 | -0.07855 |
| 1665 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 4.971 | 0.9428 | 0.0017 | 0.9539 | -0.43595 | 0.631085 | -0.35842 | 1.012294 |
| 1666 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 4.0203 | 0.8275 | 0.0419 | 0.0803 | -0.46042 | 0.319335 | 1.42899 | -1.12918 |
| 1667 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 1 | 6 | 2.8143 | 0.4684 | 0.0015 | 0.9168 | -0.49146 | -0.65161 | -0.36731 | 0.92135 |
| 1668 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 1 | 6 | 2.0652 | 0.9649 | 0.0017 | 0.9353 | -0.51073 | 0.690839 | -0.35842 | 0.9667 |
| 1669 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 1 | 6 | 6.0138 | 0 | 0 | 0 | -0.40911 | -1.91807 | -0.43401 | -1.32603 |
| 1670 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 1 | 6 | 59.3566 | 0.9071 | 0.0413 | 0.1162 | 0.963748 | 0.534558 | 1.402313 | -1.04118 |
| 1671 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 1 | 6 | 5.3452 | 0 | 0.0015 | 0 | -0.42632 | -1.91807 | -0.36731 | -1.32603 |
| 1672 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 1 | 6 | 5.9653 | 0.3362 | 0.0028 | 0.3278 | -0.41036 | -1.00905 | -0.30951 | -0.52248 |
| 1673 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 1 | 6 | 11.0889 | 1 | 0 | 1 | -0.2785 | 0.785743 | -0.43401 | 1.125301 |
| 1674 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 0 | 1 | 6 | 5.1911 | 0.7892 | 0.0005 | 0.9068 | -0.43028 | 0.215778 | -0.41178 | 0.896837 |
| 1675 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 1.7866 | 1 | 0 | 1 | -0.5179 | 0.785743 | -0.43401 | 1.125301 |
| 1676 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | | | | | | | | | | | |

Crossed Array Inner Array Design Points and Responses (Block 7)

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | Time | TPF | PPF | TFP | Std Time | Std TPF | Std PPF | Std TFP |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|---------|-------------|----------------------|--------------|---------------|----------|--------|--------|--------|----------|----------|----------|----------|
| 1681 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 7 | 3.0813 | 0.6959 | 0.0011 | 0.7518 | -0.48458 | -0.03649 | -0.3851 | 0.516881 |
| 1682 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 7 | 110.9383 | 0.9193 | 0.0183 | 0.4312 | 2.291282 | 0.567545 | 0.379664 | -0.26901 |
| 1683 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 7 | 120.0136 | 0.9498 | 0.0005 | 0.9476 | 2.524849 | 0.650011 | -0.41178 | 0.996851 |
| 1684 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 7 | 113.8012 | 0.8882 | 0.0048 | 0.5665 | 2.364963 | 0.483456 | -0.22059 | 0.06265 |
| 1685 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 7 | 4.1633 | 0.9742 | 0.0017 | 0.9555 | -0.45674 | 0.715984 | -0.35842 | 1.016217 |
| 1686 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 7 | 2.3968 | 0.8596 | 0.0007 | 0.9663 | -0.5022 | 0.406127 | -0.40288 | 1.042691 |
| 1687 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 7 | 38.8519 | 0 | 0 | 0 | 0.436028 | -1.91807 | -0.43401 | -1.32603 |
| 1688 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 7 | 1.1807 | 1 | 0 | 1 | -0.5335 | 0.785743 | -0.43401 | 1.125301 |
| 1689 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 7 | 1.8154 | 1 | 0 | 1 | -0.51716 | 0.785743 | -0.43401 | 1.125301 |
| 1690 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 7 | 27.4352 | 0.7737 | 0.006 | 0.6025 | 0.142201 | 0.173869 | -0.16723 | 0.150898 |
| 1691 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 7 | 120.6033 | 0.9245 | 0.0119 | 0.5231 | 2.540026 | 0.581605 | 0.095101 | -0.04374 |
| 1692 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 7 | 8.4675 | 0.2298 | 0.0004 | 0.6835 | -0.34596 | -1.29674 | -0.41622 | 0.349456 |
| 1693 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 7 | 2.0325 | 1 | 0.0062 | 0 | -0.51158 | 0.785743 | -0.15834 | -1.32603 |
| 1694 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 7 | 120.0529 | 0.9167 | 0.0163 | 0.2862 | 2.52586 | 0.560515 | 0.290738 | -0.62446 |
| 1695 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 7 | 101.1349 | 0.9677 | 0.0747 | 0.0929 | 2.038976 | 0.69841 | 2.887376 | -1.0983 |
| 1696 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 7 | 7.5889 | 1 | 0 | 1 | -0.36857 | 0.785743 | -0.43401 | 1.125301 |
| 1697 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 7 | 2.565 | 0.9088 | 0.0008 | 0.9663 | -0.49787 | 0.539155 | -0.39844 | 1.042691 |
| 1698 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 7 | 15.1626 | 0.9194 | 0.003 | 0.7321 | -0.17365 | 0.567815 | -0.30062 | 0.46859 |
| 1699 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 7 | 2.413 | 0.4518 | 0 | 0.9979 | -0.50178 | -0.69649 | -0.43401 | 1.120153 |
| 1700 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 7 | 1.2587 | 1 | 0 | 1 | -0.53149 | 0.785743 | -0.43401 | 1.125301 |
| 1701 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 7 | 6.6806 | 0 | 0 | 0 | -0.39195 | -1.91807 | -0.43401 | -1.32603 |
| 1702 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 7 | 11.9495 | 0 | 0 | 0 | -0.25635 | -1.91807 | -0.43401 | -1.32603 |
| 1703 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 7 | 2.659 | 0.9032 | 0.1009 | 0.0517 | -0.49545 | 0.524013 | 4.052306 | -1.19929 |
| 1704 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 7 | 6.3437 | 0.2131 | 0.0014 | 0.8491 | -0.40062 | -1.34189 | -0.37176 | 0.755395 |
| 1705 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 7 | 5.0454 | 0 | 0 | 0 | -0.43403 | -1.91807 | -0.43401 | -1.32603 |
| 1706 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 7 | 4.2894 | 0 | 0.0174 | 0 | -0.45349 | -1.91807 | 0.339648 | -1.32603 |
| 1707 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 0 | 7 | 1.7536 | 1 | 0 | 1 | -0.51875 | 0.785743 | -0.43401 | 1.125301 |
| 1708 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 7 | 5.7734 | 0.9858 | 0.0051 | 0.894 | -0.4153 | 0.747349 | -0.20725 | 0.86546 |
| 1709 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 7 | 3.699 | 0 | 0.017 | 0 | -0.46869 | -1.91807 | 0.321862 | -1.32603 |
| 1710 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 7 | 115.3305 | 0.9711 | 0.0586 | 0.1277 | 2.404322 | 0.707603 | 2.171522 | -0.10299 |
| 1711 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 7 | 4.6091 | 0 | 0 | 0 | -0.44526 | -1.91807 | -0.43401 | -1.32603 |
| 1712 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 0 | 7 | 2.9366 | 0.8605 | 0.0266 | 0.154 | -0.48831 | 0.408561 | 0.748707 | -0.94852 |
| 1713 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 7 | 2.6564 | 0.9581 | 0.0879 | 0.1139 | -0.49552 | 0.672453 | 3.474287 | -1.04682 |
| 1714 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 0 | 7 | 6.453 | 0 | 0 | 0 | -0.39781 | -1.91807 | -0.43401 | -1.32603 |
| 1715 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 7 | 23.2048 | 0 | 0 | 0 | 0.033326 | -1.91807 | -0.43401 | -1.32603 |
| 1716 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 7 | 2.8841 | 1 | 0.0051 | 0 | -0.48966 | 0.785743 | -0.20725 | -1.32603 |
| 1717 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 7 | 3.2565 | 0.9842 | 0.023 | 0.5785 | -0.48007 | 0.743022 | 0.58864 | 0.092066 |
| 1718 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 7 | 5.2729 | 0.9387 | 0.0026 | 0.9455 | -0.42818 | 0.619999 | -0.3184 | 0.991703 |
| 1719 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 7 | 4.5013 | 0.8826 | 0.0018 | 0.9474 | -0.44804 | 0.468315 | -0.35397 | 0.996361 |
| 1720 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 0 | 7 | 24.3758 | 0 | 0 | 0 | 0.063463 | -1.91807 | -0.43401 | -1.32603 |
| 1721 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 7 | 14.9493 | 0 | 0 | 0 | -0.17914 | -1.91807 | -0.43401 | -1.32603 |
| 1722 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 7 | 2.4309 | 0.8242 | 0.0143 | 0.3927 | -0.50132 | 0.310412 | 0.201812 | -0.36339 |
| 1723 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 7 | 3.0333 | 0 | 0 | 0 | -0.48582 | -1.91807 | -0.43401 | -1.32603 |
| 1724 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 7 | 19.9485 | 0 | 0 | 0 | -0.05048 | -1.91807 | -0.43401 | -1.32603 |
| 1725 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 7 | 1.8602 | 0.9548 | 0.0498 | 0.173 | -0.51601 | 0.66353 | 1.780248 | -0.90195 |
| 1726 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 7 | 3.2366 | 0.6959 | 0.0011 | 0.7574 | -0.48059 | -0.03649 | -0.3851 | 0.530609 |
| 1727 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 15.6063 | 1 | 0 | 1 | -0.16223 | 0.785743 | -0.43401 | 1.125301 |
| 1728 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 5.0832 | 0.7892 | 0.0003 | 0.9481 | -0.43306 | 0.215778 | -0.42067 | 0.998077 |
| 1729 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 3.2162 | 1 | 0 | 1 | -0.48111 | 0.785743 | -0.43401 | 1.125301 |
| 1730 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 2.5877 | 1 | 0.0257 | 0 | -0.49729 | 0.785743 | 0.70869 | -1.32603 |
| 1731 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 2.5439 | 0.8 | 0.0122 | 0.3518 | -0.49841 | 0.24498 | 0.10844 | -0.46365 |
| 1732 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 3.2734 | 0.8432 | 0.0001 | 0.9963 | -0.47964 | 0.361785 | -0.42956 | 1.116231 |
| 1733 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 7.5345 | 1 | 0 | 1 | -0.36997 | 0.785743 | -0.43401 | 1.125301 |
| 1734 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 27.6201 | 0.8758 | 0.013 | 0.3873 | 0.14696 | 0.449929 | 0.14401 | -0.37663 |
| 1735 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 2.6601 | 0.9598 | 0.0249 | 0.6046 | -0.49542 | 0.677049 | 0.67312 | 0.156046 |
| 1736 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 6.2995 | 0.2255 | 0.0018 | 0.3376 | -0.40176 | -1.30836 | -0.35397 | -0.49846 |
| 1737 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 0 | 7 | 2.4022 | 0.7654 | 0.0019 | 0.8155 | -0.50206 | 0.151428 | -0.34953 | 0.673031 |
| 1738 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 0 | 7 | 2.2949 | 0.9588 | 0.1048 | 0.0987 | -0.50482 | 0.674346 | 4.225712 | -1.08408 |
| 1739 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 0 | 7 | 1.3515 | 1 | 0 | 1 | -0.5291 | 0.785743 | -0.43401 | 1.125301 |
| 1740 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 0 | 7 | 4.8546 | 0.8385 | 0.0021 | 0.6818 | -0.43894 | 0.349077 | -0.34064 | 0.345288 |
| 1741 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 0 | 7 | 2.9415 | 0.9545 | 0.0549 | 0.1586 | -0.48818 | 0.662719 | 2.007009 | -0.93725 |
| 1742 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 0 | 7 | 2.3666 | 0.4655 | 0.0014 | 0.9213 | -0.50298 | -0.65945 | -0.37176 | 0.932381 |
| 1743 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 0 | 7 | 1.4119 | 1 | 0 | 1 | -0.52755 | 0.785743 | -0.43401 | 1.125301 |
| 1744 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 0 | 7 | 4.5764 | 0.8116 | 0.0001 | 0.996 | -0.4461 | 0.276344 | -0.42956 | 1.115495 |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|-----------|
| 1745 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 2.5829 | 0.74 | 0.002 | 0.6453 | -0.49741 | 0.082751 | -0.34508 | 0.255815 |
| 1746 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 3.9022 | 0.8826 | 0.0018 | 0.9474 | -0.46346 | 0.468315 | -0.35397 | 0.996361 |
| 1747 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 1.1722 | 1 | 0 | 1 | -0.53372 | 0.785743 | -0.43401 | 1.125301 |
| 1748 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 1.2557 | 1 | 0 | 1 | -0.53157 | 0.785743 | -0.43401 | 1.125301 |
| 1749 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 5.1631 | 0.7892 | 0.0003 | 0.9481 | -0.43101 | 0.215778 | -0.42067 | 0.998077 |
| 1750 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 3.5034 | 0.8826 | 0.0018 | 0.9474 | -0.47372 | 0.468315 | -0.35397 | 0.996361 |
| 1751 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 7 | 1.5579 | 0.9677 | 0.0879 | 0.1121 | -0.52379 | 0.69841 | 3.474287 | -1.05123 |
| 1752 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 7 | 62.7751 | 0.9071 | 0.1157 | 0.0449 | 1.051728 | 0.534558 | 4.710358 | -1.21596 |
| 1753 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 7 | 2.4614 | 0.782 | 0.0033 | 0.6624 | -0.50054 | 0.196311 | -0.28728 | 0.297733 |
| 1754 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 7 | 4.1861 | 1 | 0.0037 | 0 | -0.45615 | 0.785743 | -0.2695 | -1.32603 |
| 1755 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 7 | 6.2677 | 0 | 0.0018 | 0 | -0.40258 | -1.91807 | -0.35397 | -1.32603 |
| 1756 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 7 | 4.4006 | 0.8385 | 0.0021 | 0.6818 | -0.45063 | 0.349077 | -0.34064 | 0.345288 |
| 1757 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 7 | 2.4677 | 1 | 0.0112 | 0 | -0.50038 | 0.785743 | 0.063977 | -1.32603 |
| 1758 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 7 | 16.4977 | 0 | 0 | 0 | -0.13929 | -1.91807 | -0.43401 | -1.32603 |
| 1759 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 7 | 4.0678 | 1 | 0.0055 | 0 | -0.45919 | 0.785743 | -0.18946 | -1.32603 |
| 1760 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 0 | 7 | 166.22 | 0 | 0 | 0 | 3.714042 | -1.91807 | -0.43401 | -1.32603 |
| 1761 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 7 | 2.1422 | 0.9631 | 0.0017 | 0.9368 | -0.50875 | 0.685972 | -0.35842 | 0.970377 |
| 1762 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 7 | 113.9563 | 0.8882 | 0.0048 | 0.5665 | 2.368955 | 0.483456 | -0.22059 | 0.06265 |
| 1763 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 7 | 3.7423 | 0.8268 | 0.0232 | 0.1358 | -0.46757 | 0.317442 | 0.597533 | -0.99314 |
| 1764 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 7 | 19.3413 | 0 | 0 | 0 | -0.06611 | -1.91807 | -0.43401 | -1.32603 |
| 1765 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 0 | 7 | 27.4641 | 0.7701 | 0.006 | 0.5975 | 0.142945 | 0.164136 | -0.16723 | 1.38641 |
| 1766 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 7 | 1.17 | 1 | 0.0018 | 0 | -0.53377 | 0.785743 | -0.35397 | -1.32603 |
| 1767 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 7 | 3.5727 | 0.6596 | 0.002 | 0.744 | -0.47194 | -0.13464 | -0.34508 | 0.497761 |
| 1768 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 7 | 3.4888 | 0.6505 | 0.0177 | 0.2966 | -0.4741 | -0.15924 | 0.352986 | -0.59896 |
| 1769 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 7 | 141.4622 | 0 | 0 | 0 | 3.076862 | -1.91807 | -0.43401 | -1.32603 |
| 1770 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 7 | 122.4357 | 0.9762 | 0.1205 | 0.0676 | 2.587185 | 0.721392 | 4.92378 | -1.16032 |
| 1771 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 7 | 1.7292 | 1 | 0 | 1 | -0.51938 | 0.785743 | -0.43401 | 1.125301 |
| 1772 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 0 | 7 | 2.9719 | 0.9 | 0.0319 | 0.1358 | -0.4874 | 0.515361 | 0.984361 | -0.99314 |
| 1773 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 7 | 28.6216 | 0.8543 | 0.0249 | 0.3442 | 0.172735 | 0.391797 | 0.67312 | -0.48228 |
| 1774 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 7 | 2.7549 | 0.8531 | 0.0006 | 0.9721 | -0.49298 | 0.388552 | -0.40733 | 1.056909 |
| 1775 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 7 | 4.0122 | 0.4479 | 0 | 0.9978 | -0.46063 | -0.70703 | -0.43401 | -1.119908 |
| 1776 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 7 | 6.0333 | 0 | 0 | 0 | -0.40861 | -1.91807 | -0.43401 | -1.32603 |
| 1777 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 0 | 7 | 3.7185 | 0.6218 | 0.0015 | 0.6245 | -0.46818 | -0.23684 | -0.36731 | 0.204827 |
| 1778 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 7 | 2.8156 | 0.7661 | 0.001 | 0.8086 | -0.49142 | 0.15332 | -0.38955 | 0.656117 |
| 1779 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 7 | 1.4791 | 1 | 0 | 1 | -0.52582 | 0.785743 | -0.43401 | 1.125301 |
| 1780 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 7 | 142.2861 | 0 | 0 | 0 | 3.098066 | -1.91807 | -0.43401 | -1.32603 |
| 1781 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 7 | 6.1178 | 0.3362 | 0.0028 | 0.3278 | -0.40643 | -1.00905 | -0.30951 | -0.52248 |
| 1782 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 7 | 4.042 | 0.7253 | 0.0011 | 0.7952 | -0.45986 | 0.043005 | -0.3851 | 0.623269 |
| 1783 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 7 | 18.2094 | 0 | 0 | 0 | -0.09524 | -1.91807 | -0.43401 | -1.32603 |
| 1784 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 7 | 3.1672 | 0 | 0 | 0 | -0.48237 | -1.91807 | -0.43401 | -1.32603 |
| 1785 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 7 | 120.6706 | 0.9709 | 0.0524 | 0.1296 | 2.541758 | 0.707062 | 1.895852 | -1.00833 |
| 1786 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 7 | 86.5079 | 0 | 0 | 0 | 1.662528 | -1.91807 | -0.43401 | -1.32603 |
| 1787 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 7 | 19.0612 | 0 | 0 | 0 | -0.07332 | -1.91807 | -0.43401 | -1.32603 |
| 1788 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 0 | 7 | 87.2237 | 0 | 0 | 0 | 1.68095 | -1.91807 | -0.43401 | -1.32603 |
| 1789 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 7 | 28.0149 | 0 | 0 | 0 | 0.157121 | -1.91807 | -0.43401 | -1.32603 |
| 1790 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 7 | 2.0003 | 1 | 0 | 1 | -0.5124 | 0.785743 | -0.43401 | 1.125301 |
| 1791 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 7 | 6.4237 | 0.939 | 0.0111 | 0.3014 | -0.39856 | 0.62081 | 0.059531 | -0.5872 |
| 1792 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 7 | 100.0841 | 0.8638 | 0.002 | 0.744 | 2.011933 | 0.417483 | -0.34508 | 0.497761 |
| 1793 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 7 | 6.7644 | 1 | 0.0038 | 0 | -0.38979 | 0.785743 | -0.26505 | -1.32603 |
| 1794 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 7 | 99.1188 | 0.8838 | 0.0053 | 0.5382 | 1.987089 | 0.471559 | -0.19835 | -0.00672 |
| 1795 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 7 | 1.8454 | 1 | 0.0029 | 0 | -0.51639 | 0.785743 | -0.30507 | -1.32603 |
| 1796 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 7 | 3.1684 | 0.9986 | 0.0289 | 0.5364 | -0.48234 | 0.781957 | 0.850972 | -0.01113 |
| 1797 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 2.4215 | 0 | 0 | 0 | -0.50156 | -1.91807 | -0.43401 | -1.32603 |
| 1798 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 18.6784 | 0 | 0 | 0 | -0.08317 | -1.91807 | -0.43401 | -1.32603 |
| 1799 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 1.9215 | 1 | 0 | 1 | -0.51443 | 0.785743 | -0.43401 | 1.125301 |
| 1800 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 1.8379 | 1 | 0.0031 | 0 | -0.51658 | 0.785743 | -0.29617 | -1.32603 |
| 1801 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 3.4059 | 0.5046 | 0.0005 | 0.9742 | -0.47623 | -0.55373 | -0.41178 | 1.062056 |
| 1802 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 6.1533 | 0 | 0 | 0 | -0.40552 | -1.91807 | -0.43401 | -1.32603 |
| 1803 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 3.5083 | 0.8429 | 0.0001 | 0.9963 | -0.47359 | 0.360973 | -0.42956 | 1.116231 |
| 1804 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 3.9138 | 0.9617 | 0.0222 | 0.6283 | -0.46316 | 0.682187 | 0.55307 | 0.214142 |
| 1805 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 4.5009 | 0.8084 | 0.0001 | 0.996 | -0.44805 | 0.267692 | -0.42956 | 1.115495 |
| 1806 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 116.3318 | 0.9694 | 0.1119 | 0.0673 | 2.430092 | 0.703006 | 4.541399 | -1.16105 |
| 1807 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 0 | 7 | 2.1852 | 0.9987 | 0.046 | 0.4393 | -0.50765 | 0.782228 | 1.611289 | -0.24916 |
| 1808 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 0 | 7 | 117.3718 | 0.9499 | 0.0046 | 0.6493 | 2.456858 | 0.650282 | -0.22948 | 0.26562 |
| 1809 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 0 | 7 | 1.2313 | 1 | 0 | 1 | -0.5322 | 0.785743 | -0.43401 | 1.125301 |
| 1810 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 0 | 7 | 1.6613 | 1 | 0.0002 | 0 | -0.52113 | 0.785743 | -0.42512 | -1.32603 |
| 1811 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 0 | 7 | 2.0622 | 1 | 0 | 1 | -0.51081 | 0.785743 | -0.43401 | 1.125301 |
| 1812 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 0 | 7 | 121.6958 | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 1817 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 4.9772 | 0 | 0.0028 | 0 | -0.43579 | -1.91807 | -0.30951 | -1.32603 |
| 1818 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 109.8967 | 0 | 0 | 0 | 2.264475 | -1.91807 | -0.43401 | -1.32603 |
| 1819 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 3.6195 | 0.4479 | 0 | 0.9978 | -0.47073 | -0.70703 | -0.43401 | 1.119908 |
| 1820 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 3.5298 | 1 | 0.0037 | 0 | -0.47304 | 0.785743 | -0.2695 | -1.32603 |
| 1821 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 1 | 7 | 3.8518 | 1 | 0.1109 | 0 | -0.46475 | 0.785743 | 4.496936 | -1.32603 |
| 1822 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 7 | 2.2118 | 0.9632 | 0.0017 | 0.9353 | -0.50696 | 0.686242 | -0.35842 | 0.9667 |
| 1823 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 7 | 8.254 | 0 | 0.0177 | 0 | -0.35146 | -1.91807 | 0.352986 | -1.32603 |
| 1824 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 7 | 2.5663 | 1 | 0.0064 | 0 | -0.49784 | 0.785743 | -0.14945 | -1.32603 |
| 1825 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 7 | 2.6265 | 0.7145 | 0 | 0 | -0.49629 | 0.013803 | -0.43401 | 1.125301 |
| 1826 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 7 | 2.6219 | 1 | 0 | 1 | -0.49641 | 0.785743 | -0.43401 | 1.125301 |
| 1827 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 7 | 5.7441 | 0.1532 | 0.0012 | 0.3396 | -0.41605 | -1.50385 | -0.38065 | -0.49356 |
| 1828 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 7 | 3.9568 | 1 | 0 | 1 | -0.46205 | 0.785743 | -0.43401 | 1.125301 |
| 1829 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 7 | 2.8058 | 1 | 0 | 1 | -0.49167 | 0.785743 | -0.43401 | 1.125301 |
| 1830 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 1 | 7 | 106.9136 | 0.9152 | 0.0072 | 0.6474 | 2.1877 | 0.556459 | -0.11387 | 0.260963 |
| 1831 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 7 | 115.0941 | 0.9551 | 0.0052 | 0.6343 | 2.398238 | 0.664341 | -0.2028 | 0.22885 |
| 1832 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 7 | 6.7299 | 0.1234 | 0.0014 | 0.2685 | -0.39068 | -1.58442 | -0.37176 | -0.66785 |
| 1833 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 7 | 3.9877 | 0.6218 | 0.0017 | 0.6016 | -0.46126 | -0.23684 | -0.35842 | 0.148692 |
| 1834 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 7 | 1.7534 | 0.9526 | 0.0857 | 0.1153 | -0.51876 | 0.657582 | 3.376469 | -1.04339 |
| 1835 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 1 | 7 | 20.7547 | 0 | 0 | 0 | -0.02973 | -1.91807 | -0.43401 | -1.32603 |
| 1836 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 7 | 3.456 | 1 | 0.0037 | 0 | -0.47494 | 0.785743 | -0.2695 | -1.32603 |
| 1837 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 7 | 5.9011 | 0.3362 | 0.0028 | 0.3278 | -0.41201 | -1.00905 | -0.30951 | -0.52248 |
| 1838 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 7 | 2.2998 | 0.9574 | 0.0556 | 0.1665 | -0.5047 | 0.67056 | 2.038133 | -0.91788 |
| 1839 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 7 | 108.614 | 0.9173 | 0.0059 | 0.6945 | 2.231463 | 0.562137 | -0.17168 | 0.37642 |
| 1840 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 7 | 98.8166 | 0.9656 | 0.0845 | 0.0841 | 1.979311 | 0.692732 | 3.323113 | -1.11987 |
| 1841 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 7 | 6.4621 | 0.9428 | 0.0017 | 0.9539 | -0.39757 | 0.631085 | -0.35842 | 1.012294 |
| 1842 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 1 | 7 | 5.0921 | 0.9681 | 0.0255 | 0.6066 | -0.43283 | 0.699491 | 0.699798 | 0.160949 |
| 1843 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 7 | 2.6585 | 0.8596 | 0.0005 | 0.9745 | -0.49546 | 0.406127 | -0.41178 | 1.062792 |
| 1844 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 7 | 1.8308 | 0.7971 | 0.0039 | 0.6322 | -0.51677 | 0.237139 | -0.2606 | 0.223703 |
| 1845 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 7 | 128.7538 | 0 | 0 | 0 | 2.749791 | -1.91807 | -0.43401 | -1.32603 |
| 1846 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 7 | 3.7682 | 0.9844 | 0.0308 | 0.5695 | -0.46691 | 0.743563 | 0.935451 | 0.070004 |
| 1847 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 1 | 7 | 3.0529 | 1 | 0 | 1 | -0.48531 | 0.785743 | -0.43401 | 1.125301 |
| 1848 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 1 | 7 | 4.8215 | 0.7652 | 0.0075 | 0.8148 | -0.4398 | 0.150887 | -0.10054 | 0.671315 |
| 1849 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 7 | 2.4489 | 1 | 0 | 1 | -0.50086 | 0.785743 | -0.43401 | 1.125301 |
| 1850 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 7 | 4.5924 | 0.6218 | 0.002 | 0.5585 | -0.44569 | -0.23684 | -0.34508 | 0.04304 |
| 1851 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 7 | 1.8845 | 0.8846 | 0.0111 | 0.4326 | -0.51539 | 0.473722 | 0.059531 | -0.26558 |
| 1852 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 1 | 7 | 2.2712 | 0.9452 | 0.0017 | 0.9337 | -0.50543 | 0.637574 | -0.35842 | 0.962778 |
| 1853 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 7 | 2.0589 | 1 | 0.0062 | 0 | -0.5109 | 0.785743 | -0.15834 | -1.32603 |
| 1854 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 1 | 7 | 3.1668 | 0 | 0 | 0 | -0.48238 | -1.91807 | -0.43401 | -1.32603 |
| 1855 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 1 | 7 | 5.8 | 0 | 0 | 0 | -0.41461 | -1.91807 | -0.43401 | -1.32603 |
| 1856 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 7 | 2.9697 | 0.8633 | 0.0005 | 0.9788 | -0.48746 | 0.416131 | -0.41178 | 1.073333 |
| 1857 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 7 | 2.4298 | 0.9563 | 0.0896 | 0.1075 | -0.50135 | 0.667586 | 3.549874 | -0.06251 |
| 1858 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 1 | 7 | 2.5204 | 0.9526 | 0.1231 | 0.0831 | -0.49902 | 0.657582 | 5.039384 | -1.12232 |
| 1859 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 7 | 2.3366 | 0.9631 | 0.0021 | 0.9226 | -0.50375 | 0.685972 | -0.34064 | 0.935568 |
| 1860 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 1 | 7 | 25.6928 | 1 | 0 | 1 | 0.097358 | 0.785743 | -0.43401 | 1.125301 |
| 1861 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 7 | 2.1426 | 0.9548 | 0.0824 | 0.1123 | -0.50874 | 0.66353 | 3.229741 | -1.05074 |
| 1862 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 7 | 2.6472 | 1 | 0.051 | 0 | -0.49576 | 0.785743 | 1.833604 | -1.32603 |
| 1863 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 7 | 4.1366 | 1 | 0.0254 | 0 | -0.45742 | 0.785743 | 0.695351 | -1.32603 |
| 1864 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 7 | 6.4712 | 0.8173 | 0 | 0.998 | -0.39734 | 0.291756 | -0.43401 | 1.120398 |
| 1865 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 7 | 116.6729 | 0.9762 | 0.0828 | 0.1368 | 2.438871 | 0.721392 | 3.247526 | -0.99068 |
| 1866 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 7 | 1.9754 | 0.9632 | 0.002 | 0.9274 | -0.51305 | 0.686242 | -0.34508 | 0.947334 |
| 1867 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 1.7079 | 1 | 0 | 1 | -0.51993 | 0.785743 | -0.43401 | 1.125301 |
| 1868 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 4.7956 | 0.6059 | 0.0007 | 0.8374 | -0.44046 | -0.27983 | -0.40288 | 0.726715 |
| 1869 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 20.9588 | 0 | 0 | 0 | -0.02448 | -1.91807 | -0.43401 | -1.32603 |
| 1870 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 26.4227 | 0.8742 | 0.0112 | 0.4204 | 0.116143 | 0.445603 | 0.063977 | -0.29549 |
| 1871 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 17.1094 | 0.9434 | 0.0057 | 0.5988 | -0.12355 | 0.632707 | -0.18057 | 0.141828 |
| 1872 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 105.1418 | 0.9077 | 0.003 | 0.6839 | 2.1421 | 0.536181 | -0.30062 | 0.350436 |
| 1873 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 67.6219 | 0.9594 | 0.1786 | 0.0335 | 1.176468 | 0.675968 | 7.507079 | -1.24391 |
| 1874 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 1.2341 | 1 | 0 | 1 | -0.53212 | 0.785743 | -0.43401 | 1.125301 |
| 1875 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 3.6851 | 0.9986 | 0.0275 | 0.5464 | -0.46904 | 0.781957 | 0.788724 | 0.013379 |
| 1876 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 3.701 | 1 | 0.0012 | 0 | -0.46863 | 0.785743 | -0.38065 | -1.32603 |
| 1877 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 1 | 7 | 4.1842 | 0 | 0.0014 | 0 | -0.4562 | -1.91807 | -0.37176 | -1.32603 |
| 1878 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 1 | 7 | 9.9783 | 0 | 0 | 0 | -0.30708 | -1.91807 | -0.43401 | -1.32603 |
| 1879 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 1 | 7 | 3.6024 | 0.8473 | 0.0001 | 0.9964 | -0.47117 | 0.37287 | -0.42956 | 1.116476 |
| 1880 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 1 | 7 | 3.2436 | 0.9217 | 0.0022 | 0.9381 | -0.48041 | 0.574034 | -0.33619 | 0.973564 |
| 1881 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 1 | 7 | 19.363 | 0 | 0 | 0 | -0.06555 | -1.91807 | -0.43401 | -1.32603 |
| 1882 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 1 | 7 | 3.9663 | 1 | 0.0014 | 0 | -0.46181 | 0.785743 | -0.37176 | -1.32603 |
| 1883 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 1 | 7 | 106.5106 | 0.9163 | 0.008 | 0.6253 | 2.177328 | 0.559433 | -0.0783 | 0.206788 |
| 1884 | 0 | 10 | 0.055 | 3.5 | 0.0 | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 1889 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 2.8319 | 0.782 | 0.0037 | 0.6341 | -0.491 | 0.196311 | -0.2695 | 0.22836 |
| 1890 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 2.4469 | 0.951 | 0.0017 | 0.9406 | -0.50091 | 0.653256 | -0.35842 | 0.979692 |
| 1891 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 1 | 7 | 6.3624 | 0.3362 | 0.0028 | 0.3278 | -0.40014 | -1.00905 | -0.30951 | -0.52248 |
| 1892 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 7 | 2.7157 | 1 | 0 | 1 | -0.49399 | 0.785743 | -0.43401 | 1.125301 |
| 1893 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 7 | 1.8055 | 1 | 0 | 1 | -0.51742 | 0.785743 | -0.43401 | 1.125301 |
| 1894 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 7 | 14.3153 | 0 | 0 | 0 | -0.19546 | -1.91807 | -0.43401 | -1.32603 |
| 1895 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 7 | 4.0258 | 0.8825 | 0.0018 | 0.9483 | -0.46028 | 0.468044 | -0.35397 | 0.998567 |
| 1896 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 7 | 63.6376 | 0.913 | 0.1187 | 0.0443 | 1.073926 | 0.550511 | 4.843747 | -1.21743 |
| 1897 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 7 | 119.5283 | 0.9102 | 0.0026 | 0.7119 | 2.512359 | 0.54294 | -0.3184 | 0.419073 |
| 1898 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 7 | 6.0089 | 0.8385 | 0.002 | 0.6853 | -0.40924 | 0.349077 | -0.34508 | 0.353868 |
| 1899 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 7 | 2.0892 | 0.963 | 0.0017 | 0.9366 | -0.51012 | 0.685702 | -0.35842 | 0.969887 |
| 1900 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 7 | 122.8998 | 0.9578 | 0.0033 | 0.7479 | 2.59913 | 0.671642 | -0.28728 | 0.507321 |
| 1901 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 7 | 4.6534 | 0.6218 | 0.002 | 0.5585 | -0.44412 | -0.23684 | -0.34508 | 0.43404 |
| 1902 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 7 | 7.8132 | 0.017 | 0.0144 | 0.0048 | -0.3628 | -1.87211 | 0.206259 | -1.31426 |
| 1903 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 7 | 5.2582 | 0.0705 | 0.0008 | 0.7474 | -0.42856 | -1.72745 | -0.39844 | 0.506095 |
| 1904 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 7 | 2.6182 | 0.98 | 0.031 | 0.5635 | -0.4965 | 0.731666 | 0.944344 | 0.055296 |
| 1905 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 1 | 7 | 3.4128 | 1 | 0.0049 | 0 | -0.47605 | 0.785743 | -0.21614 | -1.32603 |
| 1906 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 7 | 115.5805 | 0.9695 | 0.0887 | 0.0837 | 2.410756 | 0.703276 | 3.509858 | -1.12085 |
| 1907 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 7 | 4.1969 | 0.9074 | 0.0007 | 0.9826 | -0.45587 | 0.535369 | -0.40288 | 1.082648 |
| 1908 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 7 | 3.4901 | 0.8483 | 0.0003 | 0.9894 | -0.47406 | 0.375574 | -0.42067 | 1.099317 |
| 1909 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 7 | 9.9933 | 0 | 0 | 0 | -0.30669 | -1.91807 | -0.43401 | -1.32603 |
| 1910 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 7 | 6.4086 | 0.7976 | 0.0019 | 0.648 | -0.39895 | 0.238491 | -0.34953 | 0.262434 |
| 1911 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 7 | 5.5279 | 0 | 0 | 0 | -0.42162 | -1.91807 | -0.43401 | -1.32603 |
| 1912 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 7 | 90.7615 | 0 | 0 | 0 | 1.772001 | -1.91807 | -0.43401 | -1.32603 |
| 1913 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 7 | 1.7216 | 0.8839 | 0.0058 | 0.5931 | -0.51958 | 0.47183 | -0.17612 | 0.127856 |
| 1914 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 7 | 2.7944 | 0.8133 | 0.0106 | 0.2948 | -0.49197 | 0.28094 | 0.037299 | -0.60338 |
| 1915 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 7 | 3.7895 | 0.4592 | 0.0018 | 0.903 | -0.46636 | -0.67648 | -0.35397 | 0.887522 |
| 1916 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 7 | 3.4583 | 0.9664 | 0.0075 | 0.8313 | -0.47488 | 0.694895 | -0.10054 | 0.711762 |
| 1917 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 1 | 7 | 1.25 | 1 | 0 | 1 | -0.53171 | 0.785743 | -0.43401 | 1.125301 |
| 1918 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 7 | 4.6875 | 0 | 0.0028 | 0 | -0.44325 | -1.91807 | -0.30951 | -1.32603 |
| 1919 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 7 | 4.9312 | 0 | 0 | 0 | -0.43697 | -1.91807 | -0.43401 | -1.32603 |
| 1920 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 7 | 65.3278 | 0.7922 | 0.0014 | 0.7394 | 1.117426 | 0.22389 | -0.37176 | 0.486485 |
| 1921 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 7 | 3.9627 | 0.4681 | 0.0018 | 0.9026 | -0.4619 | -0.65242 | -0.35397 | 0.886541 |
| 1922 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 1 | 7 | 1.5044 | 1 | 0 | 1 | -0.52517 | 0.785743 | -0.43401 | 1.125301 |
| 1923 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 7 | 114.8515 | 0.8845 | 0.0042 | 0.5939 | 2.391994 | 0.473452 | -0.24726 | 1.029817 |
| 1924 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 7 | 2.9458 | 0.9801 | 0.0386 | 0.5106 | -0.48807 | 0.731937 | 1.282263 | -0.07438 |
| 1925 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 1 | 7 | 2.5138 | 1 | 0 | 1 | -0.49919 | 0.785743 | -0.43401 | 1.125301 |
| 1926 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 7 | 4.6616 | 1 | 0.006 | 0 | -0.44391 | 0.785743 | -0.16723 | -1.32603 |
| 1927 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 7 | 5.4773 | 0 | 0.0174 | 0 | -0.42292 | -1.91807 | 0.339648 | -1.32603 |
| 1928 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 7 | 5.4272 | 0.9643 | 0.0093 | 0.8211 | -0.42421 | 0.689217 | -0.0205 | 0.686758 |
| 1929 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 7 | 5.0283 | 0 | 0.0064 | 0 | -0.43447 | -1.91807 | -0.14945 | -1.32603 |
| 1930 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 7 | 2.7048 | 1 | 0.0744 | 0.3465 | -0.49427 | 0.785743 | 2.874037 | -0.47664 |
| 1931 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 7 | 1.2195 | 1 | 0 | 1 | -0.5325 | 0.785743 | -0.43401 | 1.125301 |
| 1932 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 7 | 3.5496 | 0.6218 | 0.0022 | 0.5362 | -0.47253 | -0.23684 | -0.33619 | -0.01162 |
| 1933 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 7 | 5.5685 | 0.8571 | 0.0049 | 0.4792 | -0.42057 | 0.399368 | -0.21614 | -0.15135 |
| 1934 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 7 | 3.8627 | 0.8413 | 0.0001 | 0.9964 | -0.46447 | 0.356647 | -0.42956 | 1.16476 |
| 1935 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 7 | 2.1027 | 1 | 0 | 1 | -0.50977 | 0.785743 | -0.43401 | 1.125301 |
| 1936 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 7 | 1.4105 | 1 | 0 | 1 | -0.52758 | 0.785743 | -0.43401 | 1.125301 |
| 1937 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 1.5334 | 1 | 0 | 1 | -0.52442 | 0.785743 | -0.43401 | 1.125301 |
| 1938 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 18.8934 | 0 | 0 | 0 | -0.07763 | -1.91807 | -0.43401 | -1.32603 |
| 1939 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 1.3861 | 1 | 0 | 1 | -0.52821 | 0.785743 | -0.43401 | 1.125301 |
| 1940 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 2.6682 | 1 | 0.0391 | 0 | -0.49522 | 0.785743 | 1.304494 | -1.32603 |
| 1941 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 3.1349 | 0.6218 | 0.0019 | 0.5759 | -0.4832 | -0.23684 | -0.34953 | 0.085693 |
| 1942 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 7.8621 | 0 | 0.0004 | 0 | -0.36154 | -1.91807 | -0.41622 | -1.32603 |
| 1943 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 123.5875 | 0.9669 | 0.0033 | 0.7512 | 2.616829 | 0.696246 | -0.28728 | 0.51541 |
| 1944 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 2.636 | 0.9093 | 0.0005 | 0.9761 | -0.49604 | 0.540507 | -0.41178 | 1.066714 |
| 1945 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 4.5507 | 0.4572 | 0.0001 | 0.9937 | -0.44677 | -0.68189 | -0.42956 | 1.109857 |
| 1946 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 18.7858 | 0 | 0 | 0 | -0.0804 | -1.91807 | -0.43401 | -1.32603 |
| 1947 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 1 | 7 | 100.87 | 0.9307 | 0.0003 | 0.9573 | 2.032159 | 0.598368 | -0.42067 | 1.020629 |
| 1948 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 1 | 7 | 6.5765 | 0.8323 | 0.0018 | 0.709 | -0.39463 | 0.332313 | -0.35397 | 0.411964 |
| 1949 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 1 | 7 | 4.1144 | 0.6218 | 0.0019 | 0.5759 | -0.458 | -0.23684 | -0.34953 | 0.085693 |
| 1950 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 1 | 7 | 2.6198 | 0.8826 | 0.0018 | 0.9474 | -0.49646 | 0.468315 | -0.35397 | 0.996361 |
| 1951 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 1 | 7 | 2.958 | 1 | 0 | 1 | -0.48776 | 0.785743 | -0.43401 | 1.125301 |
| 1952 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 1 | 7 | 5.3155 | 0.9428 | 0.0017 | 0.9539 | -0.42708 | 0.631085 | -0.35842 | 1.012294 |
| 1953 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 1 | 7 | 4.3576 | 0.4949 | 0 | 1 | -0.45174 | -0.57995 | -0.43401 | 1.125301 |
| 1954 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 5.8911 | 0.3362 | 0.0028 | 0.3278 | -0.41227 | -1.00905 | -0.30951 | -0.52248 |
| 1955 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 111.8357 | 0 | 0 | 0 | 2.314378 | -1.91807 | -0.43401 | -1.32603 |
| 1956 | 0 | 10 | 0.055 | 3.5 | 0.055 | 10 | | | | | | | | | | | | | | |

Crossed Array Inner Array Design Points and Responses (Block 8)

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | Time | TPF | FPF | TFP | Std Time | Std TPF | Std FPF | Std TFP |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|---------|-------------|----------------------|--------------|---------------|----------|--------|--------|--------|----------|----------|----------|----------|
| 1961 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 8 | 27.6122 | 0.8758 | 0.013 | 0.3873 | 0.146757 | 0.449929 | 0.14401 | -0.37663 |
| 1962 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 8 | 2.5583 | 1 | 0 | 1 | -0.49804 | 0.785743 | -0.43401 | 1.125301 |
| 1963 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 8 | 6.0757 | 0.0894 | 0.0017 | 0.175 | -0.40752 | -1.67635 | -0.35842 | -0.89704 |
| 1964 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 8 | 122.6073 | 0.9665 | 0.0035 | 0.7376 | 2.591602 | 0.695165 | -0.27839 | 0.482072 |
| 1965 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 8 | 4.4399 | 0.6218 | 0.002 | 0.5585 | -0.44962 | -0.23684 | -0.34508 | 0.04304 |
| 1966 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 8 | 4.0178 | 0.8826 | 0.0018 | 0.9474 | -0.46048 | 0.468315 | -0.35397 | 0.996361 |
| 1967 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 0 | 8 | 9.2121 | 0 | 0 | 0 | -0.3268 | -1.91807 | -0.43401 | -1.32603 |
| 1968 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 8 | 2.3487 | 0.8612 | 0.0005 | 0.9745 | -0.50344 | 0.410453 | -0.41178 | 1.062792 |
| 1969 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 8 | 3.4933 | 1 | 0.002 | 0 | -0.47398 | 0.785743 | -0.34508 | -1.32603 |
| 1970 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 8 | 3.968 | 0 | 0.0174 | 0 | -0.46176 | -1.91807 | 0.339648 | -1.32603 |
| 1971 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 8 | 5.0097 | 0 | 0 | 0 | -0.43495 | -1.91807 | -0.43401 | -1.32603 |
| 1972 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 8 | 23.8435 | 0 | 0 | 0 | 0.049764 | -1.91807 | -0.43401 | -1.32603 |
| 1973 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 8 | 4.3248 | 0.8268 | 0.0289 | 0.1119 | -0.45258 | 0.317442 | 0.850972 | -1.05172 |
| 1974 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 8 | 3.042 | 0.4208 | 0.0009 | 0.9417 | -0.4856 | -0.78031 | -0.39399 | 0.982388 |
| 1975 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 8 | 114.7571 | 0.9742 | 0.0322 | 0.1995 | 2.389565 | 0.715984 | 0.9977 | -0.83699 |
| 1976 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 8 | 26.465 | 0.933 | 0.1063 | 0.0883 | 0.117232 | 0.604587 | 4.292406 | -1.09597 |
| 1977 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 8 | 1.2183 | 1 | 0 | 1 | -0.53253 | 0.785743 | -0.43401 | 1.125301 |
| 1978 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 8 | 3.6482 | 0.8214 | 0.0118 | 0.276 | -0.46999 | 0.302841 | 0.090655 | -0.64946 |
| 1979 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 8 | 1.8486 | 0.9121 | 0.0007 | 0.9702 | -0.51631 | 0.548077 | -0.40288 | 1.052251 |
| 1980 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 8 | 3.2951 | 0.8422 | 0 | 1 | -0.47908 | 0.359081 | -0.43401 | 1.125301 |
| 1981 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 0 | 8 | 1.4786 | 1 | 0 | 1 | -0.52583 | 0.785743 | -0.43401 | -1.32603 |
| 1982 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 8 | 1.8885 | 0.9928 | 0.0228 | 0.5818 | -0.51528 | 0.766275 | 0.579748 | 0.100156 |
| 1983 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 8 | 9.6926 | 0 | 0 | 0 | -0.31443 | -1.91807 | -0.43401 | -1.32603 |
| 1984 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 8 | 3.3884 | 0.6218 | 0.0022 | 0.5362 | -0.47668 | -0.23684 | -0.33619 | -0.01162 |
| 1985 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 8 | 11.3077 | 0 | 0 | 0 | -0.27286 | -1.91807 | -0.43401 | -1.32603 |
| 1986 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 0 | 8 | 3.8686 | 1 | 0.0022 | 0 | -0.46432 | 0.785743 | -0.33619 | -1.32603 |
| 1987 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 0 | 8 | 2.1193 | 0.9452 | 0.0015 | 0.9436 | -0.50934 | 0.637574 | -0.36731 | 0.987046 |
| 1988 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 8 | 4.3861 | 1 | 0 | 1 | -0.451 | 0.785743 | -0.43401 | -1.32603 |
| 1989 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 8 | 3.8672 | 0.6218 | 0.0033 | 0.4405 | -0.46436 | -0.23684 | -0.28728 | -0.24622 |
| 1990 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 0 | 8 | 4.4998 | 0.8385 | 0.002 | 0.6888 | -0.44808 | 0.349077 | -0.34508 | 0.362448 |
| 1991 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 8 | 24.6577 | 1 | 0 | 1 | 0.070718 | 0.785743 | -0.43401 | 1.125301 |
| 1992 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 0 | 8 | 1.2196 | 1 | 0 | 1 | -0.5325 | 0.785743 | -0.43401 | 1.125301 |
| 1993 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 8 | 122.6117 | 0.9541 | 0.0006 | 0.9327 | 2.591715 | 0.661638 | -0.40733 | 0.960326 |
| 1994 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 0 | 8 | 3.6046 | 0.8826 | 0.0018 | 0.9474 | -0.47112 | 0.468315 | -0.35397 | 0.996361 |
| 1995 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 8 | 1.6082 | 0.8194 | 0.005 | 0.59 | -0.5225 | 0.297434 | -0.21169 | 0.120257 |
| 1996 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 0 | 8 | 2.4423 | 1 | 0.001 | 0 | -0.50103 | 0.785743 | -0.38955 | -1.32603 |
| 1997 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 8 | 2.1852 | 1 | 0 | 1 | -0.50765 | 0.785743 | -0.43401 | 1.125301 |
| 1998 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 8 | 72.7543 | 0.7821 | 0.0018 | 0.6854 | 1.308558 | 0.196581 | -0.35397 | 0.354113 |
| 1999 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 8 | 1.3998 | 1 | 0 | 1 | -0.52786 | 0.785743 | -0.43401 | 1.125301 |
| 2000 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 0 | 8 | 7.8812 | 0.8696 | 0.0174 | 0.1797 | -0.36105 | 0.433165 | 0.339648 | -0.88552 |
| 2001 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 8 | 25.7782 | 1 | 0 | 1 | 0.099556 | 0.785743 | -0.43401 | 1.125301 |
| 2002 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 8 | 2.3323 | 1 | 0 | 1 | -0.50386 | 0.785743 | -0.43401 | 1.125301 |
| 2003 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 0 | 8 | 126.7987 | 0.886 | 0.0008 | 0.9075 | 2.699474 | 0.477508 | -0.39844 | 0.898553 |
| 2004 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 8 | 2.5855 | 0.9928 | 0.031 | 0.507 | -0.49734 | 0.766275 | 0.943444 | -0.0832 |
| 2005 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 8 | 27.7706 | 0.8774 | 0.0188 | 0.3077 | 0.150833 | 0.454255 | 0.401896 | -0.57175 |
| 2006 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 8 | 4.6886 | 0.8368 | 0.002 | 0.7227 | -0.44322 | 0.34448 | -0.34508 | 0.445548 |
| 2007 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 1.898 | 0.8839 | 0.0268 | 0.2395 | -0.51504 | 0.47183 | 0.757599 | -0.73893 |
| 2008 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 9.1149 | 0 | 0.0004 | 0 | -0.3293 | -1.91807 | -0.41622 | -1.32603 |
| 2009 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 2.7271 | 0.4309 | 0.0012 | 0.9277 | -0.4937 | -0.753 | -0.38065 | 0.94807 |
| 2010 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 1.1803 | 1 | 0 | 1 | -0.53351 | 0.785743 | -0.43401 | 1.125301 |
| 2011 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 2.677 | 0.8876 | 0.0315 | 0.1346 | -0.49499 | 0.481834 | 0.966575 | -0.99608 |
| 2012 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 2.5201 | 0.8962 | 0.0871 | 0.058 | -0.49903 | 0.505087 | 3.438717 | -1.18385 |
| 2013 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 1.8173 | 1 | 0 | 1 | -0.51711 | 0.785743 | -0.43401 | 1.125301 |
| 2014 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 4.4367 | 1 | 0.0038 | 0 | -0.4497 | 0.785743 | -0.26505 | -1.32603 |
| 2015 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 4.0532 | 0.4538 | 0.0009 | 0.9439 | -0.45957 | -0.69108 | -0.39399 | 0.987781 |
| 2016 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 1.9018 | 0.9574 | 0.1223 | 0.0833 | -0.51494 | 0.67056 | 5.003814 | -1.12183 |
| 2017 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 0 | 8 | 4.9158 | 0.2681 | 0.002 | 0.358 | -0.43737 | -1.19318 | -0.34508 | -0.44845 |
| 2018 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 0 | 8 | 121.5354 | 0.928 | 0.0139 | 0.4985 | 2.564015 | 0.591068 | 0.184027 | -0.10404 |
| 2019 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 0 | 8 | 117.5571 | 0.9485 | 0.0007 | 0.9247 | 2.461627 | 0.646496 | -0.40288 | 0.940716 |
| 2020 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 0 | 8 | 9.4202 | 0.017 | 0.0144 | 0.0048 | -0.32144 | -1.87211 | 0.206259 | -1.31426 |
| 2021 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 0 | 8 | 2.8718 | 0.6078 | 0.0059 | 0.7897 | -0.48998 | -0.27469 | -0.17168 | 0.609787 |
| 2022 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 0 | 8 | 4.5474 | 0.6542 | 0.0017 | 0.6157 | -0.44685 | -0.14924 | -0.35842 | 0.183256 |
| 2023 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 0 | 8 | 119.9014 | 0.9167 | 0.0043 | 0.6051 | 2.521961 | 0.560515 | -0.24282 | 0.157272 |
| 2024 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 1 | 0 | 8 | 25.6977 | 1 | 0 | 1 | 0.097484 | 0.785743 | -0.43401 | 1.125301 |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|-----------|
| 2025 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 1.8544 | 1 | 0 | 1 | -0.51616 | 0.785743 | -0.43401 | 1.125301 |
| 2026 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 164.4733 | 0 | 0 | 0 | 3.669088 | -1.91807 | -0.43401 | -1.32603 |
| 2027 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 2.2192 | 0.9468 | 0.0577 | 0.1598 | -0.50677 | 0.6419 | 2.131505 | -0.9343 |
| 2028 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 35.6694 | 1 | 0.0057 | 0 | 0.354121 | 0.785743 | -0.18057 | -1.32603 |
| 2029 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 3.9572 | 0 | 0 | 0 | -0.46204 | -1.91807 | -0.43401 | -1.32603 |
| 2030 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 4.6703 | 0.9428 | 0.0017 | 0.9539 | -0.44369 | 0.631085 | -0.35842 | 1.012294 |
| 2031 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 0 | 8 | 38.5002 | 1 | 0 | 1 | 0.426976 | 0.785743 | -0.43401 | 1.125301 |
| 2032 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 8 | 4.9625 | 0 | 0 | 0 | -0.43617 | -1.91807 | -0.43401 | -1.32603 |
| 2033 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 8 | 1.7296 | 0.8125 | 0.0032 | 0.6923 | -0.51937 | 0.278777 | -0.29173 | 0.371027 |
| 2034 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 8 | 114.7766 | 0.9434 | 0.0034 | 0.6938 | 2.390067 | 0.632707 | -0.28283 | 0.374704 |
| 2035 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 8 | 4.6839 | 0.8385 | 0.0018 | 0.7068 | -0.44334 | 0.349077 | -0.35397 | 0.406572 |
| 2036 | -2 | 6 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 8 | 65.4577 | 0.9444 | 0.0492 | 0.1016 | 1.120769 | 0.635411 | 1.75357 | -1.07697 |
| 2037 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 8 | 2.0654 | 1 | 0 | 1 | -0.51073 | 0.785743 | -0.43401 | 1.125301 |
| 2038 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 8 | 5.6434 | 0.984 | 0.024 | 0.6469 | -0.41864 | 0.742482 | 0.633103 | 0.259737 |
| 2039 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 8 | 3.3774 | 0.8439 | 0.0003 | 0.9891 | -0.47696 | 0.363677 | -0.42067 | 1.098581 |
| 2040 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 0 | 8 | 68.1893 | 0 | 0 | 0 | 1.191071 | -1.91807 | -0.43401 | -1.32603 |
| 2041 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 8 | 100.9635 | 0.8673 | 0.0008 | 0.8809 | 2.034565 | 0.426946 | -0.39844 | 0.833348 |
| 2042 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 8 | 66.5218 | 0.8 | 0.0046 | 0.4662 | 1.148155 | 0.24498 | -0.22948 | -0.18322 |
| 2043 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 8 | 111.8718 | 0.9042 | 0.0035 | 0.6467 | 2.315307 | 0.526717 | -0.27839 | 0.259247 |
| 2044 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 8 | 2.7772 | 0.6959 | 0.0016 | 0.6776 | -0.49241 | -0.03649 | -0.36287 | 0.334993 |
| 2045 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 0 | 8 | 9.423 | 0 | 0 | 0 | -0.32137 | -1.91807 | -0.43401 | -1.32603 |
| 2046 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 8 | 9.6024 | 0 | 0 | 0 | -0.31675 | -1.91807 | -0.43401 | -1.32603 |
| 2047 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 8 | 4.2574 | 0 | 0 | 0 | -0.45431 | -1.91807 | -0.43401 | -1.32603 |
| 2048 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 8 | 2.5155 | 0.8889 | 0.0008 | 0.9652 | -0.49915 | 0.485349 | -0.39844 | 1.039994 |
| 2049 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 8 | 5.9946 | 0.8122 | 0.0059 | 0.8608 | -0.40961 | 0.277966 | -0.17168 | 0.784076 |
| 2050 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 8 | 2.9154 | 0.9389 | 0.0014 | 0.9472 | -0.48885 | 0.62054 | -0.37176 | 0.995871 |
| 2051 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 8 | 12.1301 | 0 | 0 | 0 | -0.2517 | -1.91807 | -0.43401 | -1.32603 |
| 2052 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 0 | 8 | 3.9463 | 0.4847 | 0.0001 | 0.9634 | -0.46232 | -0.60753 | -0.42956 | 1.035582 |
| 2053 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 8 | 2.5369 | 0.8663 | 0.0309 | 0.1364 | -0.49859 | 0.424243 | 0.939898 | -0.99167 |
| 2054 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 0 | 8 | 3.4389 | 0.9093 | 0.0006 | 0.9723 | -0.47538 | 0.540507 | -0.40733 | 1.057399 |
| 2055 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 0 | 8 | 4.0069 | 1 | 0.0074 | 0 | -0.46076 | 0.785743 | -0.10498 | -1.32603 |
| 2056 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 8 | 7.7083 | 0.8571 | 0.0038 | 0.5412 | -0.3655 | 0.399368 | -0.26505 | 0.006632 |
| 2057 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 0 | 8 | 97.1645 | 0.8831 | 0.0011 | 0.8491 | 1.936792 | 0.469667 | -0.3851 | 0.755395 |
| 2058 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 0 | 8 | 1.9614 | 0.8194 | 0.0043 | 0.6277 | -0.51341 | 0.297434 | -0.24282 | -0.212612 |
| 2059 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 8 | 4.3455 | 0 | 0 | 0 | -0.45205 | -1.91807 | -0.43401 | -1.32603 |
| 2060 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 0 | 8 | 114.7814 | 0.9702 | 0.0903 | 0.0843 | 2.39019 | 0.705169 | 3.580999 | -1.11938 |
| 2061 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 0 | 8 | 4.6235 | 0.5208 | 0.0047 | 0.4934 | -0.44489 | -0.50993 | -0.22503 | -0.11654 |
| 2062 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 8 | 27.7709 | 0.7456 | 0.0033 | 0.7039 | 0.150841 | 0.097892 | -0.28728 | 0.399463 |
| 2063 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 8 | 1.6417 | 1 | 0 | 1 | -0.52163 | 0.785743 | -0.43401 | -1.32603 |
| 2064 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 8 | 113.920 | 0.8886 | 0.0072 | 0.466 | 2.368252 | 0.484538 | -0.11387 | -0.18371 |
| 2065 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 8 | 1.2445 | 1 | 0 | 1 | -0.53186 | 0.785743 | -0.43401 | 1.125301 |
| 2066 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 8 | 122.4207 | 0 | 0 | 0 | 2.586799 | -1.91807 | -0.43401 | -1.32603 |
| 2067 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 0 | 8 | 114.8529 | 0.8906 | 0.0062 | 0.4991 | 2.39203 | 0.489945 | -0.15834 | -0.10257 |
| 2068 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 0 | 8 | 26.4813 | 0.8758 | 0.0164 | 0.335 | 0.117651 | 0.449929 | 0.295185 | -0.50483 |
| 2069 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 8 | 116.815 | 0.9349 | 0.0018 | 0.8086 | 2.442528 | 0.609724 | -0.35397 | 0.656117 |
| 2070 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 0 | 8 | 26.5215 | 0.8758 | 0.0163 | 0.3358 | 0.118686 | 0.449929 | 0.290738 | -0.50287 |
| 2071 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 0 | 8 | 2.6748 | 1 | 0.0064 | 0 | -0.49505 | 0.785743 | -0.14945 | -1.32603 |
| 2072 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 0 | 8 | 1.8075 | 0.9551 | 0.1141 | 0.0841 | -0.51737 | 0.664341 | 4.639217 | -1.11987 |
| 2073 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 0 | 8 | 162.6023 | 0 | 0 | 0 | 3.620934 | -1.91807 | -0.43401 | -1.32603 |
| 2074 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 0 | 8 | 116.9653 | 0.9669 | 0.0029 | 0.735 | 2.446396 | 0.696246 | -0.30507 | 0.475699 |
| 2075 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 0 | 8 | 3.8347 | 0.6218 | 0.0017 | 0.6016 | -0.46519 | -0.23684 | -0.35842 | 0.148692 |
| 2076 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 0 | 8 | 2.2108 | 1 | 0 | 1 | -0.50699 | 0.785743 | -0.43401 | 1.125301 |
| 2077 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 121.6957 | 0 | 0 | 0 | 2.56814 | -1.91807 | -0.43401 | -1.32603 |
| 2078 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 2.6468 | 0 | 0 | 0 | -0.49577 | -1.91807 | -0.43401 | -1.32603 |
| 2079 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 2.1061 | 1 | 0 | 1 | -0.50968 | 0.785743 | -0.43401 | 1.125301 |
| 2080 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 1.8634 | 0.9631 | 0.0019 | 0.9304 | -0.51593 | 0.685972 | -0.34953 | 0.954688 |
| 2081 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 1.9332 | 0.8846 | 0.0111 | 0.4326 | -0.51413 | 0.473722 | 0.059531 | -0.26558 |
| 2082 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 4.7326 | 0 | 0 | 0 | -0.44208 | -1.91807 | -0.43401 | -1.32603 |
| 2083 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 161.4533 | 0 | 0 | 0 | 3.591363 | -1.91807 | -0.43401 | -1.32603 |
| 2084 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 1.7085 | 1 | 0 | 1 | -0.51991 | 0.785743 | -0.43401 | 1.125301 |
| 2085 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 4.7936 | 0 | 0.0165 | 0 | -0.44051 | -1.91807 | 0.299631 | -1.32603 |
| 2086 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 2.2452 | 1 | 0 | 1 | -0.5061 | 0.785743 | -0.43401 | 1.125301 |
| 2087 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 0 | 8 | 90.9264 | 0.8829 | 0.0007 | 0.9018 | 1.776245 | 0.469126 | -0.40288 | 0.88458 |
| 2088 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 0 | 8 | 5.6802 | 0.017 | 0.0144 | 0.0048 | -0.4177 | -1.87211 | 0.206259 | -1.31426 |
| 2089 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 0 | 8 | 6.877 | 0.3362 | 0.0042 | 0.2446 | -0.3869 | -1.00905 | -0.24726 | -0.72643 |
| 2090 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 0 | 8 | 3.6256 | 0.8496 | 0.0007 | 0.9741 | -0.47058 | 0.379089 | -0.40288 | 1.061811 |
| 2091 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 0 | 8 | 5.4684 | 0.8329 | 0.0209 | 0.6709 | -0.42315 | 0.333935 | 0.495268 | 0.318569 |
| 2092 | 0 | 10 | 0.055 | 3.5 | 0.055 | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 2097 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 2.2744 | 0.9855 | 0.0305 | 0.5078 | -0.50535 | 0.746537 | 0.922113 | -0.08124 |
| 2098 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 3.3697 | 0.5203 | 0.0003 | 0.939 | -0.47716 | -0.51128 | -0.42067 | 0.97577 |
| 2099 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 2.9233 | 1 | 0.1611 | 0 | -0.48865 | 0.785743 | 6.728977 | -1.32603 |
| 2100 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 6.3638 | 0 | 0 | 0 | -0.4001 | -1.91807 | -0.43401 | -1.32603 |
| 2101 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 1 | 8 | 3.266 | 0.9326 | 0.0006 | 0.9854 | -0.47983 | 0.603506 | -0.40733 | 1.089511 |
| 2102 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 8 | 4.8769 | 0.8696 | 0.0044 | 0.5072 | -0.43837 | 0.433165 | -0.23837 | -0.08271 |
| 2103 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 8 | 1.1744 | 1 | 0.0013 | 0 | -0.53366 | 0.785743 | -0.37621 | -1.32603 |
| 2104 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 8 | 1.2637 | 1 | 0 | 1 | -0.53136 | 0.785743 | -0.43401 | 1.125301 |
| 2105 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 8 | 26.3429 | 1 | 0 | 1 | 0.114089 | 0.785743 | -0.43401 | 1.125301 |
| 2106 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 8 | 1.2005 | 1 | 0 | 1 | -0.53299 | 0.785743 | -0.43401 | 1.125301 |
| 2107 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 1 | 1 | 8 | 5.1461 | 0.7892 | 0.0003 | 0.9481 | -0.43144 | 0.215778 | -0.42067 | 0.998077 |
| 2108 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 8 | 103.3234 | 0 | 0 | 0 | 2.095301 | -1.91807 | -0.43401 | -1.32603 |
| 2109 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 8 | 2.6473 | 0.9927 | 0.0226 | 0.5824 | -0.49575 | 0.766005 | 0.570855 | 0.101626 |
| 2110 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 1 | 1 | 8 | 4.53 | 1 | 0 | 1 | -0.4473 | 0.785743 | -0.43401 | 1.125301 |
| 2111 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 8 | 2.4985 | 0.782 | 0.0049 | 0.5652 | -0.49958 | 0.196311 | -0.21614 | 0.059464 |
| 2112 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 8 | 119.6259 | 0.9102 | 0.0025 | 0.717 | 2.514871 | 0.54294 | -0.32285 | 0.431575 |
| 2113 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 8 | 1.7333 | 0.9148 | 0.0009 | 0.963 | -0.51928 | 0.555378 | -0.39399 | 1.034602 |
| 2114 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 8 | 4.1468 | 0.8405 | 0.0293 | 0.1133 | -0.45716 | 0.354484 | 0.868757 | -1.04829 |
| 2115 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 1 | 1 | 8 | 4.2206 | 0 | 0.0017 | 0 | -0.45526 | -1.91807 | -0.35842 | -1.32603 |
| 2116 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 8 | 122.8044 | 0.9539 | 0.0005 | 0.9402 | 2.596674 | 0.661097 | -0.41778 | 0.978711 |
| 2117 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 8 | 3.2452 | 0.8424 | 0 | 1 | -0.48037 | 0.359621 | -0.43401 | 1.125301 |
| 2118 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 8 | 2.8709 | 0.4518 | 0 | 0.9979 | -0.49 | -0.69649 | -0.43401 | 1.120153 |
| 2119 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 8 | 1.4699 | 1 | 0 | 1 | -0.52606 | 0.785743 | -0.43401 | 1.125301 |
| 2120 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 8 | 59.7558 | 0.927 | 0.0685 | 0.0731 | 0.974022 | 0.588364 | 2.611706 | -1.14683 |
| 2121 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 8 | 3.6465 | 1 | 0.0044 | 0 | -0.47004 | 0.785743 | -0.23837 | -1.32603 |
| 2122 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 1 | 1 | 8 | 27.5542 | 0.7882 | 0.0078 | 0.5575 | 0.145264 | 0.213075 | -0.0872 | 0.040588 |
| 2123 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 8 | 115.9663 | 0.9697 | 0.0882 | 0.0848 | 2.420685 | 0.703817 | 3.487626 | -1.11815 |
| 2124 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 1 | 8 | 1.5732 | 0.8933 | 0.0006 | 0.9715 | -0.5234 | 0.497246 | -0.40733 | 1.05438 |
| 2125 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 8 | 5.737 | 0.9428 | 0.0017 | 0.9539 | -0.41624 | 0.631085 | -0.35842 | 1.012294 |
| 2126 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 1 | 1 | 8 | 1.4665 | 1 | 0 | 1 | -0.52614 | 0.785743 | -0.43401 | 1.125301 |
| 2127 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 1 | 1 | 8 | 2.4162 | 0.7515 | 0.0008 | 0.9071 | -0.5017 | 0.113845 | -0.39844 | 0.897572 |
| 2128 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 1 | 8 | 1.2543 | 1 | 0 | 1 | -0.5316 | 0.785743 | -0.43401 | 1.125301 |
| 2129 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 8 | 7.536 | 0.7892 | 0.0003 | 0.9481 | -0.36994 | 0.215778 | -0.42067 | 0.998077 |
| 2130 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 1 | 1 | 8 | 1.672 | 1 | 0 | 1 | -0.52085 | 0.785743 | -0.43401 | 1.125301 |
| 2131 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 1 | 8 | 68.4554 | 0.593 | 0.0002 | 0.9533 | 1.197919 | -0.31471 | -0.42512 | 1.010824 |
| 2132 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 1 | 1 | 8 | 27.6425 | 0.8774 | 0.0188 | 0.3077 | 0.147537 | 0.454255 | 0.401896 | -0.57175 |
| 2133 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 8 | 3.5387 | 0.6218 | 0.0017 | 0.6016 | -0.47281 | -0.23684 | -0.35842 | 0.148692 |
| 2134 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 1 | 1 | 8 | 1.9694 | 0.9631 | 0.002 | 0.9257 | -0.5132 | 0.685972 | -0.34508 | 0.943167 |
| 2135 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 1 | 8 | 119.0764 | 0.9335 | 0.0004 | 0.9486 | 2.500729 | 0.605939 | -0.41622 | 0.999302 |
| 2136 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 8 | 27.4867 | 0.7913 | 0.0078 | 0.5621 | 0.143527 | 0.221456 | -0.0872 | 0.051865 |
| 2137 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 8 | 5.7358 | 0.4601 | 0.0017 | 0.9068 | -0.41627 | -0.67405 | -0.35842 | 0.898637 |
| 2138 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 1 | 8 | 2.2929 | 0.6198 | 0.0165 | 0.5814 | -0.50487 | -0.24225 | 0.299631 | 0.099175 |
| 2139 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 8 | 128.4562 | 0.9572 | 0.0037 | 0.721 | 2.742132 | 0.670019 | -0.2695 | 0.44138 |
| 2140 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 1 | 8 | 3.6954 | 0 | 0.0002 | 0 | -0.46878 | -1.91807 | -0.42512 | -1.32603 |
| 2141 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 8 | 2.2515 | 1 | 0 | 1 | -0.50594 | 0.785743 | -0.43401 | 1.125301 |
| 2142 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 8 | 6.6474 | 0.3362 | 0.0028 | 0.3278 | -0.3928 | -1.00905 | -0.30951 | -0.52248 |
| 2143 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 8 | 106.0601 | 0.841 | 0.0001 | 0.9781 | 2.165734 | 0.355836 | -0.42956 | 1.071617 |
| 2144 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 1 | 8 | 4.6771 | 0.8587 | 0.0006 | 0.8927 | -0.44351 | 0.403694 | -0.40733 | 0.862273 |
| 2145 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 1 | 1 | 8 | 14.4794 | 0 | 0 | 0 | -0.19124 | -1.91807 | -0.43401 | -1.32603 |
| 2146 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 1 | 1 | 8 | 4.9482 | 0.7486 | 0.0003 | 0.9357 | -0.43654 | 0.106004 | -0.42067 | 0.96768 |
| 2147 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 24.9732 | 1 | 0 | 1 | 0.078838 | 0.785743 | -0.43401 | 1.125301 |
| 2148 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 12.7294 | 1 | 0 | 1 | -0.23627 | 0.785743 | -0.43401 | 1.125301 |
| 2149 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 15.4144 | 0.9041 | 0.003 | 0.7264 | -0.16717 | 0.526447 | -0.30062 | 0.454618 |
| 2150 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 2.4713 | 0.698 | 0.0011 | 0.7591 | -0.50028 | -0.03081 | -0.3851 | 0.534776 |
| 2151 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 2.4698 | 0.7558 | 0.0014 | 0.8497 | -0.50032 | 0.125471 | -0.37176 | 0.756866 |
| 2152 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 2.0025 | 0.9415 | 0.0012 | 0.9516 | -0.51235 | 0.62757 | -0.38065 | 1.006656 |
| 2153 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 119.3873 | 0.9045 | 0.0024 | 0.7266 | 2.50873 | 0.527528 | -0.3273 | 0.455108 |
| 2154 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 9.4094 | 0 | 0 | 0 | -0.32172 | -1.91807 | -0.43401 | -1.32603 |
| 2155 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 2.4416 | 1 | 0 | 1 | -0.50105 | 0.785743 | -0.43401 | 1.125301 |
| 2156 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 20.4349 | 0 | 0 | 0 | -0.03796 | -1.91807 | -0.43401 | -1.32603 |
| 2157 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 1 | 1 | 8 | 113.9094 | 0.974 | 0.031 | 0.2048 | 2.367748 | 0.715444 | 0.944344 | -0.82399 |
| 2158 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 1 | 1 | 8 | 4.0041 | 0.6066 | 0.0065 | 0.3938 | -0.46083 | -0.27794 | -0.145 | -0.36069 |
| 2159 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 1 | 1 | 8 | 19.9535 | 0 | 0 | 0 | -0.05035 | -1.91807 | -0.43401 | -1.32603 |
| 2160 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 1 | 1 | 8 | 2.0719 | 0.8194 | 0.0041 | 0.6413 | -0.51056 | 0.297434 | -0.25171 | 0.24601 |
| 2161 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 1 | 1 | 8 | 1.8003 | 1 | 0 | 1 | -0.51755 | 0.785743 | -0.43401 | 1.125301 |
| 2162 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 1 | 1 | 8 | 2.234 | 0.9452 | 0.0017 | 0.9337 | -0.50639 | 0.637574 | -0.35842 | 0.962778 |
| 2163 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 1 | 1 | 8 | 6.2667 | 0 | 0 | 0 | -0.4026 | -1.91807 | -0.43401 | -1.32603 |
| 2164 | 0 | 10 | 0.0 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|------|----|----|-------|-----|-------|-----|----|----|---|---|---|---|----------|--------|--------|--------|----------|----------|----------|----------|
| 2169 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 4.407 | 0.9387 | 0.0026 | 0.9455 | -0.45046 | 0.619999 | -0.3184 | 0.991703 |
| 2170 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 3.021 | 0.6034 | 0.0113 | 0.3699 | -0.48614 | -0.28659 | 0.068423 | -0.41928 |
| 2171 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 0 | 1 | 8 | 1.9327 | 0.9927 | 0.0213 | 0.5951 | -0.51414 | 0.766005 | 0.513053 | 0.132758 |
| 2172 | 2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 8 | 162.1921 | 0 | 0 | 0 | 3.610377 | -1.91807 | -0.43401 | -1.32603 |
| 2173 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 8 | 2.7292 | 0.4518 | 0 | 0.9979 | -0.49365 | -0.69649 | -0.43401 | 1.120153 |
| 2174 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 8 | 2.0923 | 0.8194 | 0.0041 | 0.6413 | -0.51004 | 0.297434 | -0.25171 | 0.24601 |
| 2175 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 8 | 123.8185 | 0 | 0 | 0 | 2.622774 | -1.91807 | -0.43401 | -1.32603 |
| 2176 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 8 | 14.76 | 0 | 0 | 0 | -0.18401 | -1.91807 | -0.43401 | -1.32603 |
| 2177 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 8 | 2.4357 | 0.782 | 0.0049 | 0.5652 | -0.5012 | 0.196311 | -0.21614 | 0.059464 |
| 2178 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 8 | 98.9581 | 0.8838 | 0.0053 | 0.5382 | 1.982953 | 0.471559 | -0.19835 | -0.00672 |
| 2179 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 8 | 106.0642 | 0.9162 | 0.0245 | 0.3483 | 2.16584 | 0.559163 | 0.655335 | -0.47223 |
| 2180 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 8 | 124.902 | 0.9526 | 0.0006 | 0.9306 | 2.650659 | 0.657582 | -0.40733 | 0.955179 |
| 2181 | -2 | 14 | 0.01 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 8 | 2.5567 | 1 | 0 | 1 | -0.49808 | 0.785743 | -0.43401 | 1.125301 |
| 2182 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 8 | 4.522 | 0.6048 | 0.0047 | 0.4721 | -0.4475 | -0.28281 | -0.22503 | -0.16875 |
| 2183 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 0 | 1 | 8 | 3.6442 | 0.6836 | 0.0002 | 0.9882 | -0.4701 | -0.06974 | -0.42512 | 1.096375 |
| 2184 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 8 | 6.2635 | 0.9331 | 0.0114 | 0.2877 | -0.40268 | 0.604858 | 0.07287 | -0.62078 |
| 2185 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 1 | 8 | 1.1824 | 1 | 0 | 1 | -0.53345 | 0.785743 | -0.43401 | 1.125301 |
| 2186 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 8 | 4.0545 | 0.0681 | 0.028 | 0.0098 | -0.45954 | -1.73394 | 0.810955 | -1.302 |
| 2187 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 8 | 6.1697 | 0 | 0 | 0 | -0.4051 | -1.91807 | -0.43401 | -1.32603 |
| 2188 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 8 | 1.7529 | 1 | 0 | 1 | -0.51877 | 0.785743 | -0.43401 | 1.125301 |
| 2189 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 8 | 4.9802 | 0.0705 | 0.0008 | 0.7474 | -0.43571 | -1.72745 | -0.39844 | 0.506095 |
| 2190 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 8 | 2.6998 | 1 | 0 | 1 | -0.4944 | 0.785743 | -0.43401 | 1.125301 |
| 2191 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 8 | 2.3479 | 0.9452 | 0.0015 | 0.9436 | -0.50346 | 0.637574 | -0.36731 | 0.987046 |
| 2192 | 2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 8 | 3.0532 | 1 | 0.0044 | 0 | -0.48531 | 0.785743 | -0.23837 | -1.32603 |
| 2193 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 8 | 8.932 | 0.1901 | 0.001 | 0.4381 | -0.33401 | -1.40408 | -0.38955 | -0.2521 |
| 2194 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 0 | 1 | 8 | 4.3753 | 0.9841 | 0.0001 | 0.9968 | -0.45128 | 0.742752 | -0.42956 | 1.117456 |
| 2195 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 4 | 9 | 0 | 1 | 8 | 35.6394 | 1 | 0.0054 | 0 | 0.353349 | 0.785743 | -0.19391 | -1.32603 |
| 2196 | -2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 9 | 0 | 1 | 8 | 2.343 | 0.5628 | 0.005 | 0.8045 | -0.50358 | -0.39637 | -0.21169 | 0.646066 |
| 2197 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 1 | 8 | 5.1947 | 0.76 | 0.0021 | 0.6441 | -0.43019 | 0.136827 | -0.34064 | 0.252873 |
| 2198 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 8 | 2.3534 | 0.4518 | 0 | 0.9979 | -0.50332 | -0.69649 | -0.43401 | 1.120153 |
| 2199 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 8 | 3.6653 | 0.8571 | 0.0063 | 0.4157 | -0.46955 | 0.399368 | -0.15389 | -0.30701 |
| 2200 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 8 | 3.8089 | 0.8669 | 0.0005 | 0.9812 | -0.46586 | 0.425865 | -0.41178 | 1.079216 |
| 2201 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 0 | 1 | 8 | 1.661 | 1 | 0 | 1 | -0.52114 | 0.785743 | -0.43401 | 1.125301 |
| 2202 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 9 | 0 | 1 | 8 | 65.2671 | 0.9355 | 0.1217 | 0.0447 | 1.115864 | 0.611347 | 4.977136 | -1.21645 |
| 2203 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 8 | 13.3555 | 0 | 0 | 0 | -0.22016 | -1.91807 | -0.43401 | -1.32603 |
| 2204 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 8 | 10.3972 | 0 | 0 | 0 | -0.2963 | -1.91807 | -0.43401 | -1.32603 |
| 2205 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 4 | 1 | 0 | 1 | 8 | 1.7737 | 1 | 0 | 1 | -0.51824 | 0.785743 | -0.43401 | 1.125301 |
| 2206 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 1 | 8 | 1.801 | 0.782 | 0.0037 | 0.6341 | -0.51753 | 0.196311 | -0.2695 | 0.22836 |
| 2207 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 0 | 1 | 8 | 5.2948 | 0.9839 | 0.0231 | 0.656 | -0.42762 | 0.742211 | 0.593086 | 0.282044 |
| 2208 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 8 | 5.3849 | 0.7818 | 0.0123 | 0.7419 | -0.4253 | 0.19577 | 0.112886 | 0.192613 |
| 2209 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 8 | 2.2276 | 1 | 0 | 1 | -0.50655 | 0.785743 | -0.43401 | 1.125301 |
| 2210 | -2 | 6 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 8 | 125.6071 | 0.9663 | 0.0016 | 0.8498 | 2.668806 | 0.694624 | -0.36287 | 0.175111 |
| 2211 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 8 | 1.4412 | 1 | 0 | 1 | -0.52679 | 0.785743 | -0.43401 | 1.125301 |
| 2212 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 8 | 2.7627 | 0.4518 | 0 | 0.9979 | -0.49278 | -0.69649 | -0.43401 | 1.120153 |
| 2213 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 8 | 3.2985 | 0 | 0 | 0 | -0.47899 | -1.91807 | -0.43401 | -1.32603 |
| 2214 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 8 | 2.8684 | 1 | 0 | 1 | -0.49006 | 0.785743 | -0.43401 | 1.125301 |
| 2215 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 8 | 3.5548 | 0 | 0 | 0 | -0.4724 | -1.91807 | -0.43401 | -1.32603 |
| 2216 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 8 | 3.3851 | 1 | 0.0048 | 0 | -0.47676 | 0.785743 | -0.22059 | -1.32603 |
| 2217 | -2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 114.7499 | 0.8845 | 0.0042 | 0.5939 | 2.389379 | 0.473452 | -0.24726 | 0.129817 |
| 2218 | 2 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 10.716 | 0 | 0 | 0 | -0.28809 | -1.91807 | -0.43401 | -1.32603 |
| 2219 | 0 | 6 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 12.1571 | 0 | 0 | 0 | -0.251 | -1.91807 | -0.43401 | -1.32603 |
| 2220 | 0 | 14 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 15.935 | 0.9612 | 0.0082 | 0.4728 | -0.15377 | 0.680835 | -0.06941 | -0.16704 |
| 2221 | 0 | 10 | 0.01 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 11.8806 | 0.9552 | 0.0088 | 0.6095 | -0.25812 | 0.664612 | -0.04273 | 0.168057 |
| 2222 | 0 | 10 | 0.1 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 120.2371 | 0.9678 | 0.0387 | 0.1653 | 2.530601 | 0.69868 | 1.286709 | -0.92082 |
| 2223 | 0 | 10 | 0.055 | 1 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 4.0799 | 0.8466 | 0 | 1 | -0.45888 | 0.370977 | -0.43401 | 1.125301 |
| 2224 | 0 | 10 | 0.055 | 6 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 3.4199 | 0.8412 | 0 | 1 | -0.47587 | 0.356377 | -0.43401 | 1.125301 |
| 2225 | 0 | 10 | 0.055 | 3.5 | 0.01 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 2.1114 | 0.9626 | 0.1065 | 0.0944 | -0.50955 | 0.68462 | 4.301299 | -1.09462 |
| 2226 | 0 | 10 | 0.055 | 3.5 | 0.1 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 5.0596 | 0.8368 | 0.002 | 0.726 | -0.43367 | 0.34448 | -0.34508 | 0.453637 |
| 2227 | 0 | 10 | 0.055 | 3.5 | 0.055 | 50 | 25 | 9 | 5 | 0 | 1 | 8 | 113.6106 | 0.9083 | 0.0099 | 0.3982 | 2.360058 | 0.537803 | 0.006175 | -0.34991 |
| 2228 | 0 | 10 | 0.055 | 3.5 | 0.055 | 150 | 25 | 9 | 5 | 0 | 1 | 8 | 1.8859 | 0.8194 | 0.0041 | 0.6413 | -0.51535 | 0.297434 | -0.25171 | 0.24601 |
| 2229 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 5 | 9 | 5 | 0 | 1 | 8 | 7.7902 | 0 | 0 | 0 | -0.36339 | -1.91807 | -0.43401 | -1.32603 |
| 2230 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 45 | 9 | 5 | 0 | 1 | 8 | 2.659 | 0.9903 | 0.0351 | 0.4847 | -0.49545 | 0.759516 | 1.126642 | -0.13787 |
| 2231 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 4 | 5 | 0 | 1 | 8 | 2.4573 | 0.9564 | 0.0068 | 0.8425 | -0.50064 | 0.667856 | -0.13166 | 0.739217 |
| 2232 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 14 | 5 | 0 | 1 | 8 | 4.2825 | 0.6218 | 0.0017 | 0.6016 | -0.45367 | -0.23684 | -0.35842 | 0.148692 |
| 2233 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 1 | 0 | 1 | 8 | 115.1862 | 0.8845 | 0.0051 | 0.5501 | 2.400608 | 0.473452 | -0.20725 | 0.022449 |
| 2234 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 9 | 0 | 1 | 8 | 2.5998 | 0.5203 | 0.0006 | 0.8953 | -0.49698 | -0.51128 | -0.40733 | 0.868647 |
| 2235 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 123.1613 | 0.9669 | 0.0033 | 0.7512 | 2.60586 | 0.696246 | -0.28728 | 0.51541 |
| 2236 | 0 | 10 | 0.055 | 3.5 | | | | | | | | | | | | | | | | |

| Std Run | Image | Std Mean Time | SNR Time | Mean TPF | SNR TPF | Mean FPF | SNR FPF | Mean TFP | SNR TFP |
|---------|-------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1 | 1...8 | -0.120822 | -14.78317 | -0.256308 | -12.43445 | -0.29784 | 3.8945552 | 0.0051361 | -45.35712 |
| 2 | 1...8 | -0.108727 | -19.072 | -0.159173 | -17.44728 | -0.283946 | 0.2155395 | 0.1989748 | -14.56336 |
| 3 | 1...8 | -0.071952 | -23.27925 | -0.910225 | -3.277874 | 0.0478592 | -28.63455 | -0.589832 | -4.797729 |
| 4 | 1...8 | 0.5567125 | -7.374325 | -0.016006 | -36.04361 | -0.086085 | -17.88543 | 0.0634777 | -22.92305 |
| 5 | 1...8 | 0.271719 | -13.11194 | -0.75016 | -4.67746 | -0.411221 | 20.82756 | -0.255164 | -13.40217 |
| 6 | 1...8 | -0.421674 | 15.816219 | -0.561467 | -6.566535 | -0.356198 | 9.4372336 | -0.0897 | -21.91003 |
| 7 | 1...8 | -0.113529 | -13.91323 | -0.773041 | -4.097923 | -0.269495 | 2.2313397 | -0.882551 | 2.3469044 |
| 8 | 1...8 | 0.1841408 | -16.79981 | 0.0025826 | -53.29502 | 0.2851804 | -15.50121 | -0.247504 | -13.17979 |
| 9 | 1...8 | 0.7128879 | -4.420438 | -0.175869 | -16.65609 | 0.0445245 | -27.65689 | -0.357936 | -9.372078 |
| 10 | 1...8 | 0.3049397 | -12.10692 | -0.528244 | -7.210588 | 0.0339646 | -27.96081 | -0.407729 | -7.297409 |
| 11 | 1...8 | 0.4923075 | -10.7214 | -0.471126 | -8.569282 | -0.323962 | 4.7999095 | -0.367435 | -9.530125 |
| 12 | 1...8 | 0.1263738 | -21.23339 | -0.545785 | -7.679418 | -0.116098 | -16.64382 | -0.295489 | -11.19822 |
| 13 | 1...8 | 0.2718821 | -13.94204 | -0.409851 | -8.674167 | -0.149445 | -9.594966 | -0.380151 | -8.886776 |
| 14 | 1...8 | 0.1330563 | -18.5666 | 0.442392 | -1.245468 | 0.1251137 | -19.31912 | 0.2649768 | -12.33332 |
| 15 | 1...8 | 1.1461809 | -1.520945 | 0.6453472 | 14.084735 | 1.302271 | -1.309817 | -0.372889 | -8.309521 |
| 16 | 1...8 | -0.182896 | -9.789974 | -0.42266 | -9.410869 | 0.3168602 | -14.2595 | -0.53866 | -5.837571 |
| 17 | 1...8 | -0.280678 | -6.516066 | 0.2609322 | -11.24814 | -0.171121 | -7.591663 | 0.5278816 | -4.178482 |
| 18 | 1...8 | -0.446063 | 11.908163 | 0.4026797 | -1.870324 | -0.132772 | -12.38826 | 0.3685147 | -7.709012 |
| 19 | 1...8 | -0.480727 | 17.370817 | -0.273612 | -12.62524 | -0.339524 | 3.6786708 | 0.1865343 | -16.52109 |
| 20 | 1...8 | 0.2722527 | -12.2445 | 0.1388887 | -16.12231 | 0.4435797 | -10.80659 | 0.0055957 | -45.6148 |
| 21 | 1...8 | -0.436249 | 13.463497 | -0.762225 | -4.887891 | -0.41789 | 23.085309 | -0.424673 | -9.340676 |
| 22 | 1...8 | -0.076149 | -23.0339 | 0.0762278 | -24.17018 | 0.032853 | -28.38695 | -0.200898 | -15.17479 |
| 23 | 1...8 | -0.248706 | -7.037777 | -0.04301 | -28.68745 | 1.4384388 | -5.462038 | -0.374973 | -9.955777 |
| 24 | 1...8 | 0.110348 | -23.04475 | -0.787472 | -3.358661 | -0.148334 | -10.2276 | -0.272967 | -10.9712 |
| 25 | 1...8 | -0.108626 | -18.89886 | -0.304571 | -12.53672 | -0.242817 | -3.574349 | -0.433958 | -7.800511 |
| 26 | 1...8 | 0.4510161 | -12.00091 | -0.031553 | -31.41268 | -0.228367 | -1.391067 | -0.130576 | -18.52022 |
| 27 | 1...8 | -0.071893 | -22.42029 | 0.2688071 | -10.82316 | -0.397326 | 14.086404 | 0.6416232 | -2.977221 |
| 28 | 1...8 | -0.25963 | -7.343886 | 0.2926006 | -5.97063 | 0.2596142 | -13.1862 | 0.1478952 | -17.86111 |
| 29 | 1...8 | -0.080086 | -21.14941 | -0.318124 | -10.77162 | -0.238927 | -1.965072 | 0.1311649 | -18.37031 |
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| 32 | 1...8 | -0.125836 | -13.19014 | 0.3009487 | -9.75713 | 0.1834713 | -16.56686 | 0.1558008 | -17.20791 |
| 33 | 1...8 | 0.6517135 | -7.435433 | -0.210309 | -13.81212 | 0.2162628 | -15.8724 | 0.0284543 | -30.93577 |
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| 35 | 1...8 | -0.445407 | 7.2107294 | 0.0487503 | -28.00733 | -0.373427 | 10.406993 | 0.0804225 | -23.57109 |
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| 45 | 1...8 | 0.2593146 | -13.5201 | 0.6473074 | 14.991922 | 0.6158738 | -8.33564 | -0.36244 | -8.847448 |
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| 67 | 1...8 | -0.511027 | 25.637185 | 0.5234389 | 5.9794281 | -0.055517 | -24.07101 | 0.5925353 | -1.77778 |
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| 90 | 1...8 | 0.1335601 | -18.96826 | 0.4968401 | 3.1689086 | 1.1727725 | -6.899023 | -0.031664 | -30.10741 |
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| 107 | 1...8 | -0.003471 | -49.16479 | 0.1762014 | -14.27529 | -0.031063 | -23.82119 | -0.33091 | -7.533784 |
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| 138 | 1...8 | -0.119026 | -18.16761 | -0.116757 | -18.52719 | -0.327297 | 6.7308161 | 0.402343 | -6.497143 |
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| 156 | 1...8 | 0.307384 | -13.26541 | -0.258099 | -14.53338 | -0.392324 | 14.860017 | -0.196179 | -15.89599 |
| 157 | 1...8 | -0.268272 | -6.998704 | 0.2430532 | -8.386472 | -0.344527 | 8.0631986 | 0.4087164 | -7.535241 |
| 158 | 1...8 | -0.494133 | 23.549183 | 0.2351446 | -12.63879 | 0.3546538 | -12.55578 | 0.2906544 | -11.99058 |
| 159 | 1...8 | 0.0082772 | -41.11451 | 0.2020904 | -13.07139 | -0.312291 | 4.2790348 | 0.5751616 | -3.229405 |
| 160 | 1...8 | 0.3712187 | -10.32696 | -0.005461 | -46.72236 | 0.4652554 | -10.49839 | -0.192288 | -15.39864 |
| 161 | 1...8 | -0.095052 | -21.4208 | 0.7454897 | 21.566781 | -0.355086 | 11.712749 | 0.4194104 | -8.352309 |
| 162 | 1...8 | 0.1825834 | -15.46167 | 0.1721119 | -13.91182 | 0.5380636 | -9.158767 | -0.004271 | -45.76394 |
| 163 | 1...8 | 0.5236076 | -8.693904 | 0.1082004 | -18.82346 | 0.3941147 | -11.46772 | 0.0939048 | -21.39723 |
| 164 | 1...8 | 0.4020948 | -10.65307 | 0.2659681 | -10.56886 | -0.271163 | 5.7483523 | 0.0332651 | -28.91259 |
| 165 | 1...8 | 0.2966529 | -13.46531 | -0.460412 | -8.082185 | -0.117765 | -13.30305 | -0.260802 | -12.47148 |
| 166 | 1...8 | -0.117804 | -18.69778 | 0.607122 | 9.1108019 | 0.2045912 | -14.94732 | 0.2463773 | -11.78497 |
| 167 | 1...8 | -0.480287 | 23.225853 | 0.3319749 | -9.014744 | -0.380097 | 13.511692 | 0.4505116 | -7.750616 |
| 168 | 1...8 | -0.447569 | 15.026881 | 0.0739296 | -21.36017 | -0.279499 | 0.8025775 | 0.4029865 | -6.747512 |
| 169 | 1...8 | -0.390224 | 5.1847399 | 0.0983315 | -19.48109 | -0.306177 | 2.0395537 | 0.3436031 | -8.510775 |
| 170 | 1...8 | -0.471424 | 19.601552 | 0.3613113 | -4.489432 | -0.380097 | 15.502634 | 0.5751003 | -3.530646 |
| 171 | 1...8 | -0.179363 | -10.38454 | -0.155895 | -17.26914 | 0.0428571 | -26.00544 | -0.027742 | -31.13955 |
| 172 | 1...8 | -0.386585 | 4.6625205 | -0.135075 | -17.49566 | -0.002717 | -43.71988 | -0.27119 | -9.986471 |
| 173 | 1...8 | 0.1904729 | -15.48347 | 0.1712331 | -14.44005 | -0.332299 | 10.266807 | 0.0521096 | -25.24771 |
| 174 | 1...8 | -0.269096 | -6.655176 | -0.30937 | -12.69927 | 0.7109134 | -9.768021 | -0.53195 | -5.736654 |
| 175 | 1...8 | 0.3277104 | -11.97947 | -0.05413 | -26.64127 | -0.327297 | 4.0889976 | 0.219474 | -13.70102 |
| 176 | 1...8 | 0.4956349 | -8.821804 | -0.540884 | -6.663155 | -0.003829 | -46.9264 | -0.437083 | -7.618361 |
| 177 | 1...8 | -0.081161 | -21.58252 | -0.41857 | -8.53357 | 0.1023264 | -22.68522 | -0.089363 | -21.72659 |
| 178 | 1...8 | -0.071985 | -23.34861 | 0.2207467 | -12.49482 | 0.414123 | -13.17391 | 0.0867653 | -21.14156 |
| 179 | 1...8 | -0.061807 | -25.27562 | -0.291356 | -13.22435 | -0.260603 | 0.8002869 | 0.033786 | -30.56259 |
| 180 | 1...8 | 0.2681873 | -13.3692 | 0.081534 | -21.40979 | -0.302287 | 1.7344182 | 0.4256919 | -6.76941 |
| 181 | 1...8 | -0.118905 | -18.54703 | 0.4337736 | -5.535679 | 0.3163045 | -12.93718 | 0.3526117 | -9.399474 |
| 182 | 1...8 | 0.0086848 | -43.56813 | -0.177728 | -14.91349 | 0.1028822 | -18.93258 | -0.005282 | -45.55208 |
| 183 | 1...8 | 0.1987459 | -16.17006 | 0.4462449 | -1.309605 | 0.5241689 | -9.477932 | 0.2678571 | -11.81914 |
| 184 | 1...8 | -0.34726 | 3.7609807 | -0.008097 | -41.40515 | -0.272274 | 0.4075466 | 0.2088414 | -13.18001 |
| 185 | 1...8 | 0.657158 | -6.811385 | 0.1635948 | -14.73996 | 0.3896684 | -10.18663 | -0.212174 | -11.37869 |

| | | | | | | | | | |
|-----|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 186 | 1...8 | -0.41784 | 12.584432 | -0.084717 | -22.76414 | -0.341748 | 7.9950878 | -0.025904 | -32.9212 |
| 187 | 1...8 | 0.491685 | -9.01073 | -0.075862 | -23.61612 | -0.419002 | 23.993005 | 0.4153963 | -8.437959 |
| 188 | 1...8 | -0.029916 | -30.80169 | 0.1656565 | -14.79226 | -0.041623 | -26.01829 | 0.1874229 | -14.30443 |
| 189 | 1...8 | -0.247116 | -1.433078 | -0.354287 | -11.29861 | -0.181681 | -6.284753 | -0.260159 | -12.29718 |
| 190 | 1...8 | 0.2173145 | -16.70211 | -0.625683 | -5.271304 | -0.214472 | -2.18165 | -0.209324 | -13.79763 |
| 191 | 1...8 | -0.281974 | 1.7979745 | -0.49715 | -7.570009 | -0.235036 | -2.922977 | -0.205433 | -13.57512 |
| 192 | 1...8 | 0.2382454 | -15.09252 | 0.1982375 | -13.1972 | -0.255045 | -2.964547 | 0.0735587 | -23.38702 |
| 193 | 1...8 | 0.9825084 | -2.22371 | -0.111349 | -18.37019 | 0.90266 | -9.752956 | -0.052041 | -25.82223 |
| 194 | 1...8 | -0.087008 | -16.5436 | -0.447636 | -7.273203 | -0.341748 | 6.8896192 | 0.1610098 | -16.2362 |
| 195 | 1...8 | -0.420098 | 6.4760116 | 0.4166382 | -7.134035 | -0.236704 | -5.188748 | 0.3661553 | -9.644568 |
| 196 | 1...8 | 0.3165662 | -12.30861 | -0.646198 | -6.537118 | -0.237815 | -6.07616 | -0.664475 | -4.253988 |
| 197 | 1...8 | 0.2078644 | -15.3814 | -0.112194 | -20.25885 | -0.011054 | -33.92849 | -0.227219 | -12.19834 |
| 198 | 1...8 | -0.44595 | 17.24093 | -0.065249 | -22.74414 | -0.326186 | 10.004385 | 0.0513742 | -25.77105 |
| 199 | 1...8 | -0.025192 | -32.2649 | -0.724473 | -4.947682 | 0.0789833 | -24.04929 | -0.590199 | -4.410275 |
| 200 | 1...8 | -0.039006 | -28.52612 | -0.190199 | -15.29923 | -0.042734 | -25.09742 | -0.33713 | -8.466682 |
| 201 | 1...8 | -0.454688 | 9.1573165 | 0.0930928 | -20.01384 | -0.396771 | 16.082326 | 0.5781338 | -3.259211 |
| 202 | 1...8 | -0.23991 | -7.139681 | 0.301895 | -9.704562 | -0.265049 | -2.188699 | 0.2194127 | -13.53058 |
| 203 | 1...8 | 0.2546791 | -13.11167 | -0.158058 | -16.8894 | 0.2151512 | -14.06447 | -0.09638 | -20.12819 |
| 204 | 1...8 | 0.1764163 | -17.4117 | 0.6369653 | 12.244286 | 0.8315192 | -7.948968 | 0.1949607 | -14.19715 |
| 205 | 1...8 | 0.365832 | -10.95843 | -0.31809 | -12.40548 | 0.2151512 | -16.0048 | -0.551959 | -3.508996 |
| 206 | 1...8 | -0.480491 | 27.756453 | 0.2419379 | -7.580802 | -0.200578 | -8.88681 | 0.6228092 | -2.002365 |
| 207 | 1...8 | 0.4710246 | -9.069068 | -0.119596 | -19.48692 | 0.5519582 | -5.742193 | -0.545064 | -4.20742 |
| 208 | 1...8 | -0.467743 | 21.522689 | 0.2921275 | -9.771569 | -0.278944 | 1.6397381 | 0.3256165 | -10.51027 |
| 209 | 1...8 | -0.294762 | 1.545884 | -0.039191 | -29.57201 | -0.366758 | 13.642302 | -0.019193 | -35.41177 |
| 210 | 1...8 | 0.6604189 | -8.349769 | -0.463454 | -8.581651 | -0.257824 | 1.0237684 | -0.329225 | -9.578903 |
| 211 | 1...8 | 0.2801715 | -12.58862 | -0.713557 | -4.665072 | -0.073858 | -18.05248 | -0.613089 | -1.662936 |
| 212 | 1...8 | 0.6048678 | -8.374107 | 0.0051175 | -45.84811 | -0.166675 | -11.9797 | 0.3305804 | -9.838774 |
| 213 | 1...8 | -0.274038 | -6.212828 | 0.2057406 | -10.51351 | -0.358977 | 10.827921 | 0.5013153 | -5.119915 |
| 214 | 1...8 | -0.443493 | 12.647709 | 0.3105134 | -9.567918 | 0.8304076 | -5.824706 | -0.076677 | -22.19009 |
| 215 | 1...8 | -0.089561 | -21.75807 | 0.1425051 | -16.04009 | -0.151113 | -8.244331 | 0.1374771 | -16.98444 |
| 216 | 1...8 | 0.1204625 | -19.28185 | -0.297304 | -13.12447 | 0.5547372 | -10.4717 | -0.715462 | -3.721854 |
| 217 | 1...8 | 0.5234422 | -8.649727 | -0.472681 | -8.16795 | -0.313402 | 9.0573405 | -0.317857 | -8.464123 |
| 218 | 1...8 | 0.4229732 | -9.228995 | -0.235995 | -13.17102 | -0.323962 | 9.8355917 | -0.040397 | -26.70003 |
| 219 | 1...8 | 0.16055 | -17.41708 | 0.5514234 | 4.2344518 | 0.6742314 | -4.697108 | -0.05774 | -22.4046 |
| 220 | 1...8 | 0.9612243 | -4.327798 | 0.6517687 | 9.2938078 | 0.0489708 | -25.46332 | 0.1344742 | -17.07627 |
| 221 | 1...8 | -0.076679 | -23.14948 | 0.3148733 | -3.677258 | 0.8759822 | -7.17011 | -0.074471 | -22.21377 |
| 222 | 1...8 | 0.265308 | -13.80881 | -0.147141 | -17.69998 | -0.210026 | 0.4764717 | -0.355577 | -8.093321 |
| 223 | 1...8 | -0.353901 | 3.7626502 | -0.316332 | -10.43615 | -0.31896 | 8.9962608 | -0.103151 | -20.30224 |
| 224 | 1...8 | -0.328328 | 1.3169936 | 0.5220194 | 6.428969 | 0.753709 | -5.367878 | -0.211377 | -11.20701 |
| 225 | 1...8 | -0.059892 | -25.35345 | 0.4197138 | -7.058675 | -0.356754 | 11.525223 | 0.1201952 | -20.04929 |
| 226 | 1...8 | 0.3949976 | -10.04596 | -0.044464 | -28.12215 | 0.2468311 | -14.98471 | 0.0153397 | -37.22498 |
| 227 | 1...8 | -0.084237 | -22.17872 | -0.004988 | -47.59825 | -0.230034 | -2.495083 | -0.344791 | -10.13445 |
| 228 | 1...8 | 0.1667715 | -17.2816 | 0.2075656 | -12.57312 | -0.017724 | -35.11607 | 0.3413356 | -9.13444 |
| 229 | 1...8 | -0.08108 | -21.96042 | -0.088536 | -21.97488 | -0.411777 | 23.502899 | 0.6665654 | -1.943839 |
| 230 | 1...8 | -0.456657 | 15.016311 | -0.192903 | -15.63859 | -0.3612 | 7.8196557 | 0.0723024 | -24.33862 |
| 231 | 1...8 | 0.2811254 | -14.03595 | 0.2740119 | -10.30822 | -0.208359 | -4.668309 | 0.2653751 | -11.54731 |
| 232 | 1...8 | 0.1797762 | -16.93404 | 0.1321968 | -17.4767 | -0.381208 | 14.716575 | 0.3069864 | -10.88297 |
| 233 | 1...8 | -0.094518 | -20.58719 | -0.018778 | -34.87196 | -0.170009 | -5.650705 | 0.0836092 | -19.74235 |

| | | | | | | | | | |
|-----|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 234 | 1...8 | -0.408784 | 5.3567494 | 0.1800881 | -14.57544 | 0.0695349 | -18.53036 | 0.1868407 | -13.36061 |
| 235 | 1...8 | -0.03695 | -28.00802 | 0.145851 | -11.97647 | 0.1540146 | -17.38472 | 0.0644276 | -23.16882 |
| 236 | 1...8 | -0.451833 | 15.576436 | -0.096039 | -21.84959 | -0.330076 | 7.5204348 | 0.3655118 | -9.245209 |
| 237 | 1...8 | -0.160954 | -14.82128 | 0.3434324 | -8.744793 | -0.040511 | -26.59547 | -0.22489 | -14.07487 |
| 238 | 1...8 | 0.185886 | -14.59615 | -0.603917 | -5.642229 | -0.284502 | 1.2009302 | -0.248423 | -12.29896 |
| 239 | 1...8 | -0.401852 | 11.850021 | -0.608818 | -5.725069 | -0.373427 | 11.982641 | -0.103948 | -20.55845 |
| 240 | 1...8 | -0.202683 | -8.926598 | 0.5730539 | 6.6426394 | -0.082195 | -19.43115 | 0.3220008 | -10.40622 |
| 241 | 1...8 | -0.215829 | -7.95827 | -0.533888 | -7.24363 | -0.397326 | 16.779125 | 0.0348891 | -30.62968 |
| 242 | 1...8 | 0.1660116 | -16.4257 | 0.2536657 | -11.0135 | 0.4441355 | -12.49098 | 0.0412012 | -28.6546 |
| 243 | 1...8 | 0.2547132 | -14.26783 | -0.016175 | -37.29381 | -0.384543 | 12.713875 | 0.2576534 | -12.37778 |
| 244 | 1...8 | 0.3286617 | -8.765557 | -0.513441 | -7.304437 | 0.2062586 | -14.0206 | -0.516905 | -5.098429 |
| 245 | 1...8 | -0.422726 | 8.7953959 | 0.1135067 | -18.52338 | 0.119 | -17.45341 | 0.210496 | -12.22806 |
| 246 | 1...8 | -0.14577 | -15.46021 | 0.1929312 | -13.14986 | -0.186127 | -6.196791 | -0.073153 | -22.2918 |
| 247 | 1...8 | -0.328019 | 1.6390832 | 0.2787774 | -10.51106 | 1.0910718 | -5.567295 | -0.135141 | -17.91046 |
| 248 | 1...8 | -0.375373 | 5.3376656 | -0.052744 | -26.88552 | -0.192797 | -2.762624 | 0.1386721 | -17.36956 |
| 249 | 1...8 | 0.0342274 | -29.01705 | -0.080458 | -23.1444 | -0.32952 | 9.1295226 | 0.1475888 | -16.86186 |
| 250 | 1...8 | 0.1171701 | -20.16476 | 0.5758253 | 4.3295089 | 0.2890709 | -12.8693 | 0.5237756 | -2.013765 |
| 251 | 1...8 | -0.149744 | -16.12836 | 0.2719164 | -7.531356 | -0.347305 | 6.1482923 | 0.972154 | 13.243688 |
| 252 | 1...8 | 0.1785887 | -16.85253 | 0.2596479 | -6.88688 | 0.3285318 | -9.965164 | 0.0739264 | -20.70653 |
| 253 | 1...8 | -0.485942 | 23.758453 | 0.2465006 | -11.92858 | -0.048292 | -25.02377 | -0.001391 | -58.52947 |
| 254 | 1...8 | -0.456751 | 17.468872 | -0.157449 | -16.6477 | -0.420114 | 23.598707 | 0.7917057 | -0.686278 |
| 255 | 1...8 | 0.3156773 | -12.81497 | -0.62673 | -6.881857 | -0.423448 | 23.557377 | -0.121659 | -20.49638 |
| 256 | 1...8 | 0.0226826 | -33.20638 | 0.6107721 | 7.895342 | 0.0967685 | -19.03368 | 0.1183874 | -19.40647 |
| 257 | 1...8 | 0.6149775 | -7.754997 | -0.106043 | -20.67878 | 0.5308383 | -9.468437 | -0.255808 | -12.43129 |
| 258 | 1...8 | -0.398879 | 8.4342496 | -0.452537 | -9.537265 | -0.038288 | -27.51424 | -0.584439 | -5.599131 |
| 259 | 1...8 | -0.380086 | 4.425926 | -0.314879 | -10.98438 | -0.277832 | 0.7033851 | 0.2154293 | -13.94162 |
| 260 | 1...8 | -0.356996 | 3.2861585 | 0.3094319 | -9.605389 | 0.2907382 | -9.833716 | -0.083663 | -21.7304 |
| 261 | 1...8 | -0.248481 | -6.595534 | 0.094073 | -16.94611 | -0.192797 | -2.93958 | 0.2887853 | -6.46375 |
| 262 | 1...8 | 0.6467293 | -7.418567 | -0.77811 | -2.816677 | -0.120544 | -14.11097 | -0.226177 | -13.86049 |
| 263 | 1...8 | 0.3160392 | -12.2557 | 0.4963331 | 8.5876527 | -0.346194 | 14.253877 | 0.6698134 | 3.6317793 |
| 264 | 1...8 | -0.488284 | 25.939813 | 0.3093305 | -1.408637 | -0.300619 | 4.7388799 | 0.7356316 | 4.2945773 |
| 265 | 1...8 | -0.171614 | -10.90534 | 0.0464858 | -26.17149 | 0.5625182 | -9.629834 | 0.0164122 | -36.79639 |
| 266 | 1...8 | -0.031588 | -29.82148 | -0.152109 | -16.7728 | 0.0128446 | -35.33385 | -0.039938 | -28.33564 |
| 267 | 1...8 | 0.5768539 | -7.0326 | 0.4681796 | -0.118558 | -0.27672 | 1.6037059 | 0.6313889 | 0.3797224 |
| 268 | 1...8 | -0.180294 | -11.59175 | -0.135109 | -18.35029 | -0.063854 | -22.2372 | -0.186772 | -14.64143 |
| 269 | 1...8 | -0.381091 | 5.2490264 | -0.555181 | -6.564308 | 0.7742731 | -5.746908 | -0.784743 | -0.462079 |
| 270 | 1...8 | 1.1439357 | -2.582865 | 0.2134126 | -12.65913 | 0.2629489 | -10.75072 | 0.0135625 | -37.12626 |
| 271 | 1...8 | -0.113285 | -19.06922 | -0.001879 | -56.06509 | -0.145555 | -10.57487 | -0.260128 | -11.41382 |
| 272 | 1...8 | 0.2449462 | -14.57082 | 0.1060712 | -16.25773 | -0.315626 | 9.6539626 | 0.4469572 | -3.209502 |
| 273 | 1...8 | 0.7314337 | -6.981026 | -0.204631 | -14.99074 | 0.0895433 | -23.29066 | -0.26975 | -12.52962 |
| 274 | 1...8 | -0.461456 | 22.103434 | -0.190199 | -13.46684 | -0.228923 | -2.151492 | 0.2170227 | -12.5168 |
| 275 | 1...8 | 0.6808295 | -6.266688 | -0.328432 | -12.13898 | -0.358977 | 9.2117743 | -0.076248 | -23.11804 |
| 276 | 1...8 | -0.006258 | -44.51239 | 0.1300675 | -17.45664 | -0.341192 | 8.9437052 | 0.5511386 | -3.32806 |
| 277 | 1...8 | 0.3466895 | -10.16128 | 0.5640637 | 12.19732 | 0.6342147 | -11.70637 | 0.3848773 | -6.333376 |
| 278 | 1...8 | 0.3920769 | -11.36958 | -0.129972 | -17.18774 | -0.068856 | -21.00055 | 0.1339227 | -17.83636 |
| 279 | 1...8 | -0.48837 | 30.297874 | 0.6148278 | 8.6756182 | 0.134562 | -17.86376 | 0.1155377 | -19.93024 |
| 280 | 1...8 | -0.23132 | -7.74555 | -0.188712 | -13.86903 | -0.295061 | 2.4520601 | 0.0713219 | -22.54093 |

Table A.9 Mean Responses and SNR's Across the Noise Space

Appendix B. Additional Figures and Analysis from the Combined Array Design

The following Appendix contains additional figures, analysis, and results.

| Std Run | Dim Adj | Max Score | Bin width SNR | PT SNR thresh | Bin Width Ident | Smooth iter hi | Smooth iter lo | Low SNR | Window Size | Threshold Both Sides | Clean Signal | Image (Noise) | Time | TPF | FPF | TFP |
|---------|---------|-----------|---------------|---------------|-----------------|----------------|----------------|-----------|-------------|----------------------|--------------|---------------|----------|--------|--------|--------|
| 1 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 14 | 9 | 1 | 0 | 3 | 2.2723 | 0.9801 | 0.0393 | 0.5054 |
| 2 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 5 | 4 | 1 | 1 | 1 | 3 | 3.6441 | 0 | 0 | 0 |
| 3 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 5 | 14 | 1 | 0 | 1 | 1 | 2.174 | 1 | 0 | 1 |
| 4 | -2 | 14 | 0.06 | 6 | 0.1 | 50 | 5 | 14 | 1 | 0 | 1 | 2 | 4.7273 | 0 | 0 | 0 |
| 5 | -2 | 14 | 0.01 | 1 | 0.1 | 50 | 5 | 7.3333333 | 1 | 0 | 1 | 1 | 1.1967 | 1 | 0 | 1 |
| 6 | 2 | 6 | 0.1 | 6 | 0.01 | 83 | 45 | 4 | 1 | 0 | 0 | 4 | 2.4833 | 1 | 0.0103 | 0 |
| 7 | 2 | 14 | 0.01 | 3.2222222 | 0.08 | 50 | 5 | 4 | 1 | 1 | 0 | 3 | 3.1197 | 0.52 | 0.0003 | 0.982 |
| 8 | -2 | 14 | 0.07 | 6 | 0.06 | 150 | 45 | 4 | 1 | 1 | 0 | 3 | 2.6914 | 0.4579 | 0.0006 | 0.9657 |
| 9 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 4 | 6 | 0 | 0 | 7 | 3.1509 | 0.8061 | 0.0085 | 0.3393 |
| 10 | -2 | 14 | 0.01 | 6 | 0.1 | 139 | 45 | 4 | 1 | 0 | 0 | 2 | 7.4978 | 0 | 0.0004 | 0 |
| 11 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 1 | 0 | 0 | 5 | 2.1368 | 0.9838 | 0.0267 | 0.5369 |
| 12 | -2 | 14 | 0.01 | 6 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 5 | 1.8728 | 0.9818 | 0.0177 | 0.6275 |
| 13 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 1 | 0 | 1 | 2 | 20.3574 | 0 | 0 | 0 |
| 14 | -2 | 6 | 0.1 | 1 | 0.01 | 50 | 32 | 4 | 9 | 1 | 1 | 7 | 4.3013 | 0.6986 | 0.0039 | 0.5509 |
| 15 | 2 | 6 | 0.01 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 4 | 2.7026 | 1 | 0.006 | 0 |
| 16 | 2 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 5 | 4.9425 | 0.6561 | 0.0003 | 0.985 |
| 17 | 2 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 1 | 1 | 0 | 6 | 114.2106 | 0.8906 | 0.0063 | 0.4949 |
| 18 | -2 | 6 | 0.01 | 2.628176 | 0.1 | 50 | 45 | 14 | 1 | 1 | 1 | 7 | 15.5156 | 0 | 0 | 0 |
| 19 | -2 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 14 | 1 | 1 | 1 | 8 | 6.9816 | 0 | 0 | 0 |
| 20 | -2 | 11.333333 | 0.1 | 1 | 0.1 | 50 | 5 | 4 | 1 | 0 | 1 | 8 | 2.227 | 0 | 0 | 0 |
| 21 | -2 | 14 | 0.1 | 1 | 0.1 | 150 | 5 | 14 | 1 | 0 | 1 | 6 | 128.5538 | 0 | 0 | 0 |
| 22 | 2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 14 | 9 | 1 | 1 | 2 | 4.9518 | 0 | 0.0016 | 0 |
| 23 | 2 | 8.6409842 | 0.1 | 4.8888889 | 0.1 | 150 | 5 | 14 | 1 | 1 | 0 | 1 | 2.0776 | 1 | 0 | 1 |
| 24 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 45 | 14 | 9 | 0 | 1 | 4 | 3.3736 | 1 | 0.0012 | 0 |
| 25 | -2 | 6 | 0.01 | 1 | 0.0799151 | 50 | 14 | 14 | 5 | 0 | 1 | 5 | 3.6425 | 0.8598 | 0 | 1 |
| 26 | 2 | 14 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 6 | 114.0148 | 0.9695 | 0.0357 | 0.1854 |
| 27 | -2 | 14 | 0.01 | 1 | 0.0284708 | 150 | 32 | 4 | 1 | 0 | 0 | 7 | 2.3232 | 0.7826 | 0.0056 | 0.4257 |
| 28 | -2 | 6 | 0.1 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 4 | 2.2943 | 1 | 0 | 1 |
| 29 | 2 | 10.434934 | 0.06 | 1 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 3 | 3.4368 | 0.4479 | 0.0009 | 0.945 |
| 30 | -2 | 6 | 0.1 | 6 | 0.01 | 50 | 45 | 14 | 1 | 1 | 1 | 2 | 3.3168 | 0 | 0 | 0 |
| 31 | -2 | 14 | 0.07 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 2 | 7.257 | 0 | 0 | 0 |
| 32 | 2 | 14 | 0.1 | 1 | 0.1 | 83 | 45 | 14 | 7 | 0 | 0 | 1 | 25.6183 | 1 | 0 | 1 |
| 33 | -2 | 14 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 1 | 1 | 1 | 4 | 1.7164 | 1 | 0 | 1 |
| 34 | -2 | 12.222222 | 0.1 | 2.1111111 | 0.01 | 139 | 5 | 14 | 9 | 1 | 1 | 5 | 3.8639 | 0.9377 | 0.0099 | 0.7861 |
| 35 | 1 | 14 | 0.1 | 6 | 0.1 | 150 | 5 | 6.2222222 | 8 | 1 | 0 | 6 | 140.5366 | 0.8963 | 0.0042 | 0.5963 |
| 36 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 5 | 10.666667 | 1 | 0 | 1 | 7 | 3.4011 | 0 | 0 | 0 |
| 37 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 5 | 8.4444444 | 1 | 1 | 0 | 8 | 1.8088 | 0.8288 | 0.0052 | 0.5874 |
| 38 | -2 | 13.111111 | 0.01 | 1 | 0.01 | 150 | 5 | 14 | 1 | 0 | 0 | 3 | 2.5269 | 0.9561 | 0.0056 | 0.8669 |
| 39 | -2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 7.3333333 | 9 | 0 | 1 | 5 | 3.349 | 0.5932 | 0 | 1 |
| 40 | 2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 9 | 0 | 0 | 8 | 2.1665 | 0.9568 | 0.112 | 0.0888 |
| 41 | -2 | 14 | 0.01 | 4.8888889 | 0.1 | 150 | 45 | 14 | 5 | 1 | 1 | 1 | 1.2539 | 1 | 0 | 1 |
| 42 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 1 | 1 | 4 | 1.7261 | 1 | 0 | 1 |
| 43 | 2 | 14 | 0.03 | 1 | 0.01 | 150 | 5 | 4 | 4 | 0 | 1 | 5 | 3.0282 | 0.979 | 0.0113 | 0.7949 |
| 44 | 1 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 9 | 0 | 1 | 6 | 141.2633 | 0.927 | 0.0026 | 0.7345 |
| 45 | 0 | 14 | 0.01 | 6 | 0.01 | 50 | 5 | 14 | 5 | 1 | 1 | 7 | 5.2683 | 0.895 | 0.0112 | 0.3845 |
| 46 | -1 | 6 | 0.02 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 8 | 10.1164 | 0 | 0 | 0 |
| 47 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 5 | 14 | 5 | 0 | 0 | 2 | 4.4018 | 0.8275 | 0.0317 | 0.1034 |
| 48 | 2 | 6.8888889 | 0.1 | 1 | 0.1 | 94 | 45 | 11.77778 | 1 | 0 | 1 | 5 | 29.4813 | 0 | 0 | 0 |
| 49 | 2 | 14 | 0.1 | 1 | 0.06 | 50 | 5 | 4 | 1 | 1 | 0 | 5 | 2.2418 | 0.9572 | 0.0016 | 0.9405 |
| 50 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 1 | 1.2963 | 1 | 0 | 1 |
| 51 | 2 | 14 | 0.0302406 | 6 | 0.01 | 50 | 5 | 4 | 9 | 1 | 1 | 4 | 2.6556 | 1 | 0 | 1 |
| 52 | -2 | 14 | 0.01 | 6 | 0.01 | 106 | 23 | 4 | 9 | 1 | 0 | 5 | 2.1696 | 0.9928 | 0.0242 | 0.5661 |
| 53 | 2 | 6 | 0.01 | 1 | 0.01 | 150 | 45 | 14 | 1 | 0 | 1 | 2 | 48.7212 | 0 | 0 | 0 |
| 54 | 2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 1 | 7 | 17.643 | 0 | 0 | 0 |
| 55 | -2 | 6 | 0.01 | 6 | 0.01 | 50 | 5 | 14 | 9 | 1 | 1 | 8 | 2.1245 | 0.8049 | 0.0552 | 0.1558 |
| 56 | 2 | 6 | 0.1 | 1 | 0.01 | 50 | 45 | 14 | 1 | 0 | 0 | 3 | 3.9133 | 0.9679 | 0.023 | 0.6284 |
| 57 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 14 | 5 | 1 | 0 | 3 | 3.7498 | 0.4208 | 0 | 0.9977 |
| 58 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 9 | 1 | 0 | 2 | 3.0377 | 0 | 0 | 0 |
| 59 | 2 | 14 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 1 | 0 | 1 | 1 | 2.0915 | 1 | 0 | 1 |
| 60 | -2 | 6 | 0.1 | 6 | 0.01 | 50 | 5 | 14 | 1 | 1 | 0 | 4 | 2.5646 | 1 | 0 | 1 |
| 61 | 2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 7.3521778 | 9 | 0 | 1 | 8 | 3.0129 | 0.6505 | 0.0177 | 0.2966 |
| 62 | -2 | 14 | 0.01 | 6 | 0.01 | 150 | 14 | 12.888889 | 9 | 0 | 1 | 6 | 102.466 | 0.9288 | 0.0057 | 0.6784 |
| 63 | -2 | 14 | 0.1 | 6 | 0.1 | 50 | 45 | 14 | 9 | 1 | 0 | 7 | 2.6648 | 0.6959 | 0.0013 | 0.7203 |
| 64 | -2 | 14 | 0.1 | 1 | 0.01 | 150 | 5 | 4 | 9 | 1 | 0 | 8 | 1.5736 | 0.9489 | 0.0775 | 0.1172 |
| 65 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 8 | 10.3465 | 0 | 0 | 0 |
| 66 | 2 | 7.777778 | 0.01 | 6 | 0.01 | 94 | 45 | 14 | 1 | 1 | 1 | 3 | 13.8299 | 0 | 0 | 0 |
| 67 | -2 | 14 | 0.01 | 5.4444444 | 0.01 | 150 | 5 | 14 | 1 | 1 | 0 | 2 | 5.7714 | 0.017 | 0.0153 | 0.0045 |
| 68 | 2 | 14 | 0.01 | 6 | 0.1 | 50 | 5 | 14 | 9 | 1 | 0 | 1 | 1.862 | 1 | 0 | 1 |
| 69 | -2 | 14 | 0.03 | 1 | 0.1 | 150 | 5 | 4 | 9 | 1 | 0 | 4 | 24.5681 | 1 | 0 | 1 |
| 70 | 2 | 8.6666667 | 0.01 | 6 | 0.06 | 150 | 45 | 4 | 9 | 0 | 1 | 5 | 6.3434 | 0.6726 | 0.0008 | 0.961 |
| 71 | -2 | 6 | 0.1 | 1 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 6 | 88.194 | 0.9659 | 0.0527 | 0.1293 |
| 72 | -2 | 10.468985 | 0.06 | 6 | 0.1 | 150 | 5 | 4 | 9 | 0 | 1 | 7 | 2.513 | 0.7661 | 0.0008 | 0.8397 |
| 73 | -2 | 6 | 0.1 | 1 | 0.1 | 50 | 45 | 14 | 9 | 1 | 1 | 8 | 3.0995 | 0.5203 | 0.0002 | 0.9506 |
| 74 | -2 | 6 | 0.1 | 6 | 0.06 | 50 | 5 | 14 | 9 | 0 | 0 | 3 | 2.4379 | 0.4512 | 0.0016 | 0.9077 |
| 75 | -1 | 6 | 0.1 | 6 | 0.01 | 150 | 5 | 14 | 9 | 1 | 1 | 3 | 6.0795 | 0.4958 | 0.0034 | 0.8528 |
| 76 | 2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 14 | 9 | 1 | 0 | 2 | 4.6393 | 0.5149 | 0.0016 | 0.5628 |
| 77 | 0 | 14 | 0.1 | 3.2222222 | 0.1 | 94 | 5 | 4 | 9 | 1 | 1 | 1 | 1.5077 | 1 | 0 | 1 |
| 78 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 4 | 2.1729 | 1 | 0.0284 | 0 |

| | | | | | | | | | | | | | | | | |
|-----|----|-----------|-----------|-----------|-----------|-----|----|------------|---|---|---|---|----------|--------|--------|--------|
| 79 | 2 | 6 | 0.1 | 6 | 0.01 | 150 | 45 | 14 | 1 | 1 | 0 | 5 | 2.2803 | 1 | 0.0413 | 0.4575 |
| 80 | -2 | 6 | 0.1 | 6 | 0.1 | 150 | 32 | 4 | 1 | 1 | 1 | 6 | 133.8812 | 0 | 0 | 0 |
| 81 | 2 | 6 | 0.01 | 1 | 0.07 | 73 | 5 | 4 | 1 | 0 | 1 | 7 | 75.7169 | 0 | 0 | 0 |
| 82 | -2 | 14 | 0.01 | 6 | 0.1 | 50 | 45 | 4 | 9 | 0 | 0 | 8 | 2.0116 | 0.8194 | 0.0041 | 0.6413 |
| 83 | -2 | 14 | 0.01 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 1 | 3 | 3.2137 | 0 | 0 | 0 |
| 84 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 9 | 14 | 9 | 1 | 1 | 1 | 2.1864 | 1 | 0 | 1 |
| 85 | -2 | 6 | 0.01 | 2.6666667 | 0.01 | 150 | 45 | 4 | 9 | 1 | 0 | 2 | 5.4065 | 0.017 | 0.015 | 0.0046 |
| 86 | 2 | 6 | 0.01 | 1 | 0.1 | 50 | 45 | 4 | 1 | 1 | 0 | 1 | 2.083 | 1 | 0.0014 | 0 |
| 87 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 18 | 4 | 1 | 0 | 0 | 4 | 2.6287 | 1 | 0.0533 | 0 |
| 88 | 2 | 6 | 0.01 | 3.2222222 | 0.01 | 50 | 5 | 8.5081415 | 1 | 1 | 0 | 5 | 3.262 | 1 | 0.072 | 0.3555 |
| 89 | 2 | 6 | 0.01 | 6 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 6 | 114.0467 | 0.9757 | 0.0966 | 0.0811 |
| 90 | 2 | 12.222222 | 0.01 | 6 | 0.1 | 50 | 32 | 8.4444444 | 9 | 0 | 0 | 7 | 78.1869 | 0.7949 | 0.0024 | 0.6294 |
| 91 | 2 | 10.444444 | 0.01 | 1 | 0.1 | 150 | 18 | 4 | 9 | 1 | 1 | 8 | 3.0974 | 0.6364 | 0.0037 | 0.6203 |
| 92 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 5 | 4 | 1 | 0 | 1 | 2 | 12.753 | 0 | 0 | 0 |
| 93 | -2 | 6 | 0.1 | 1 | 0.01 | 116 | 5 | 14 | 9 | 0 | 0 | 2 | 5.652 | 0.017 | 0.0144 | 0.0048 |
| 94 | -1 | 6 | 0.01 | 4.3333333 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 1 | 1.3907 | 1 | 0.0466 | 0 |
| 95 | -2 | 14 | 0.01 | 6 | 0.1 | 94 | 5 | 14 | 9 | 0 | 1 | 4 | 2.5694 | 1 | 0 | 1 |
| 96 | -2 | 6 | 0.01 | 6 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 5 | 2.1182 | 0.9838 | 0.0204 | 0.6009 |
| 97 | 2 | 6 | 0.1 | 1 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 6 | 114.5794 | 0.9675 | 0.0153 | 0.4408 |
| 98 | -2 | 14 | 0.01 | 6 | 0.1 | 150 | 5 | 14 | 1 | 0 | 0 | 7 | 2.799 | 0.6351 | 0.0011 | 0.7402 |
| 99 | -2 | 9.5555556 | 0.1 | 6 | 0.01 | 150 | 45 | 14 | 5 | 0 | 0 | 8 | 1.6474 | 0.9609 | 0.0555 | 0.1604 |
| 100 | -2 | 6 | 0.01 | 1 | 0.1 | 50 | 45 | 4 | 9 | 1 | 1 | 2 | 8.5107 | 0.1568 | 0.001 | 0.3814 |
| 101 | 2 | 7.7777778 | 0.1 | 1 | 0.01 | 150 | 45 | 10.6666667 | 9 | 1 | 1 | 1 | 2.9306 | 1 | 0 | 1 |
| 102 | -2 | 6 | 0.1 | 1 | 0.0699764 | 150 | 5 | 4 | 1 | 0 | 1 | 4 | 1.7776 | 1 | 0 | 1 |
| 103 | 2 | 14 | 0.01 | 6 | 0.1 | 150 | 5 | 14 | 1 | 1 | 1 | 5 | 15.3021 | 0 | 0 | 0 |
| 104 | -1 | 6 | 0.01 | 1 | 0.01 | 50 | 45 | 7.3333333 | 1 | 1 | 1 | 6 | 148.0331 | 0 | 0 | 0 |
| 105 | 2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 4 | 9 | 1 | 1 | 7 | 68.5278 | 0.7101 | 0.0121 | 0.3135 |
| 106 | 2 | 6 | 0.08 | 1 | 0.01 | 150 | 5 | 14 | 1 | 1 | 1 | 8 | 15.7267 | 0 | 0 | 0 |
| 107 | 1 | 11.387844 | 0.1 | 1 | 0.01 | 50 | 45 | 4 | 9 | 1 | 0 | 3 | 2.7408 | 0.9591 | 0.0145 | 0.716 |
| 108 | 2 | 6 | 0.1 | 6 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 3 | 4.2006 | 0.4293 | 0.001 | 0.9389 |
| 109 | -2 | 14 | 0.01 | 6 | 0.04 | 50 | 45 | 4 | 9 | 1 | 1 | 3 | 3.4 | 0.858 | 0 | 1 |
| 110 | 2 | 6 | 0.07 | 1 | 0.1 | 150 | 5 | 4 | 1 | 1 | 1 | 2 | 20.3076 | 0 | 0 | 0 |
| 111 | 2 | 14 | 0.01 | 1 | 0.01 | 150 | 5 | 4 | 6 | 1 | 0 | 1 | 1.8657 | 1 | 0 | 1 |
| 112 | 2 | 14 | 0.1 | 1 | 0.0299968 | 150 | 45 | 14 | 9 | 1 | 1 | 4 | 2.4199 | 1 | 0 | 1 |
| 113 | 2 | 14 | 0.01 | 1 | 0.1 | 150 | 45 | 14 | 1 | 1 | 0 | 5 | 3.1524 | 0.9093 | 0.0005 | 0.9761 |
| 114 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 6 | 161.8296 | 0 | 0 | 0 |
| 115 | -2 | 6 | 0.01 | 1 | 0.01 | 50 | 5 | 14 | 9 | 0 | 0 | 7 | 2.7577 | 0.8844 | 0.0859 | 0.0551 |
| 116 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 8 | 2.4057 | 0.7971 | 0.0035 | 0.6587 |
| 117 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 5 | 4 | 5 | 0 | 0 | 3 | 2.7715 | 0.4518 | 0 | 0.9979 |
| 118 | 2 | 6 | 0.1 | 1 | 0.07 | 150 | 45 | 4 | 5 | 1 | 1 | 3 | 7.6229 | 0.473 | 0.0025 | 0.8761 |
| 119 | 2 | 6 | 0.1 | 2.6666667 | 0.1 | 50 | 45 | 4 | 9 | 0 | 0 | 2 | 4.2561 | 0.0085 | 0.0021 | 0.0165 |
| 120 | -2 | 6 | 0.01 | 6 | 0.01 | 107 | 5 | 14 | 1 | 1 | 1 | 1 | 5.3885 | 1 | 0 | 1 |
| 121 | -2 | 14 | 0.1 | 1 | 0.01 | 50 | 45 | 14 | 9 | 0 | 0 | 4 | 26.0713 | 1 | 0 | 1 |
| 122 | 2 | 14 | 0.1 | 6 | 0.1 | 50 | 5 | 14 | 9 | 0 | 0 | 5 | 2.9468 | 0.8585 | 0.0006 | 0.9726 |
| 123 | 2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 4 | 1 | 0 | 0 | 6 | 115.0929 | 0.8845 | 0.0051 | 0.5501 |
| 124 | 2 | 14 | 0.1 | 1 | 0.1 | 150 | 5 | 7.3333333 | 9 | 1 | 0 | 7 | 73.0666 | 0.8165 | 0.0038 | 0.5287 |
| 125 | 2 | 6 | 0.1 | 5.4444444 | 0.1 | 150 | 5 | 14 | 9 | 0 | 1 | 8 | 3.9271 | 0.7688 | 0.0035 | 0.6833 |
| 126 | -2 | 6 | 0.01 | 2.6666667 | 0.1 | 150 | 45 | 4 | 9 | 0 | 0 | 3 | 2.6997 | 0.4518 | 0.0011 | 0.9343 |
| 127 | 2 | 6 | 0.01 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 1 | 4 | 3.8197 | 1 | 0 | 1 |
| 128 | -2 | 6 | 0.1 | 6 | 0.01 | 50 | 5 | 4 | 9 | 0 | 1 | 5 | 2.9034 | 0.9163 | 0.0117 | 0.7462 |
| 129 | -2 | 6 | 0.1 | 3.7777778 | 0.01 | 50 | 5 | 4 | 6 | 1 | 0 | 1 | 1.162 | 1 | 0 | 1 |
| 130 | 2 | 14 | 0.01 | 6 | 0.0692935 | 150 | 45 | 14 | 1 | 0 | 0 | 4 | 2.37 | 1 | 0 | 1 |
| 131 | -2 | 6 | 0.06 | 6 | 0.1 | 50 | 45 | 8.4444444 | 5 | 1 | 0 | 5 | 1.6472 | 0.9011 | 0.0011 | 0.9527 |
| 132 | -2 | 14 | 0.01 | 1 | 0.01 | 50 | 5 | 4 | 9 | 1 | 0 | 6 | 95.7794 | 0.9653 | 0.0538 | 0.125 |
| 133 | 2 | 6 | 0.059493 | 6 | 0.02 | 117 | 9 | 14 | 9 | 1 | 0 | 7 | 60.5903 | 0.9048 | 0.0311 | 0.1378 |
| 134 | 2 | 14 | 0.01 | 1 | 0.01 | 50 | 45 | 4 | 3 | 1 | 0 | 8 | 2.3949 | 0.9581 | 0.0879 | 0.1139 |
| 135 | 2 | 14 | 0.01 | 6 | 0.01 | 150 | 45 | 14 | 9 | 0 | 0 | 3 | 3.4453 | 0.9663 | 0.0053 | 0.8741 |
| 136 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 27 | 14 | 1 | 1 | 1 | 3 | 20.398 | 0 | 0 | 0 |
| 137 | 2 | 14 | 0.04 | 1 | 0.01 | 50 | 45 | 7.3333333 | 1 | 1 | 0 | 2 | 4.9915 | 0 | 0.0186 | 0 |
| 138 | -2 | 14 | 0.1 | 6 | 0.01 | 50 | 45 | 10.665771 | 1 | 1 | 0 | 1 | 1.3248 | 1 | 0 | 1 |
| 139 | 2 | 6 | 0.01 | 3.2222222 | 0.01 | 150 | 5 | 14 | 9 | 0 | 0 | 4 | 2.4645 | 1 | 0.1135 | 0 |
| 140 | 2 | 6 | 0.1 | 1 | 0.1 | 150 | 5 | 4 | 9 | 1 | 0 | 5 | 3.1028 | 0.9126 | 0.0011 | 0.9534 |
| 141 | -2 | 13.111111 | 0.01 | 6 | 0.1 | 50 | 45 | 14 | 1 | 1 | 0 | 6 | 100.3038 | 0.8638 | 0.0019 | 0.7561 |
| 142 | 2 | 6 | 0.01 | 6 | 0.1 | 150 | 45 | 4 | 1 | 1 | 0 | 7 | 64.2793 | 0.7922 | 0.0048 | 0.4519 |
| 143 | 2 | 6 | 0.1 | 6 | 0.1 | 50 | 32 | 4 | 1 | 1 | 0 | 8 | 2.7378 | 0.782 | 0.0125 | 0.3377 |
| 144 | -1 | 14 | 0.01 | 1 | 0.1 | 50 | 45 | 14 | 1 | 0 | 1 | 3 | 10.0917 | 0 | 0 | 0 |
| 145 | -2 | 6 | 0.09 | 1 | 0.1 | 50 | 5 | 4 | 1 | 1 | 1 | 3 | 8.6633 | 0 | 0 | 0 |
| 146 | -2 | 14 | 0.1 | 1 | 0.1 | 150 | 45 | 14 | 3 | 1 | 0 | 2 | 6.8088 | 0 | 0 | 0 |
| 147 | -2 | 14 | 0.1 | 6 | 0.01 | 150 | 28 | 4 | 9 | 0 | 0 | 1 | 1.345 | 1 | 0 | 1 |
| 148 | 2 | 14 | 0.1 | 1 | 0.01 | 150 | 5 | 4 | 1 | 1 | 0 | 4 | 4.0828 | 1 | 0 | 1 |
| 149 | -2 | 6 | 0.01 | 1 | 0.1 | 150 | 45 | 4 | 1 | 1 | 1 | 5 | 22.7063 | 0 | 0 | 0 |
| 150 | 2 | 14 | 0.01 | 1 | 0.1 | 128 | 45 | 14 | 9 | 1 | 1 | 6 | 122.5947 | 0.8355 | 0.001 | 0.8696 |
| 151 | 0 | 6 | 0.1 | 6 | 0.1 | 50 | 5 | 4 | 1 | 1 | 0 | 7 | 5.4724 | 0.7733 | 0.0016 | 0.6988 |
| 152 | 0 | 14 | 0.06 | 1 | 0.1 | 50 | 14 | 14 | 9 | 1 | 0 | 8 | 1.8998 | 0.7914 | 0.0057 | 0.5446 |
| 153 | -2 | 6 | 0.07 | 1.5555556 | 0.01 | 106 | 45 | 14 | 9 | 0 | 1 | 3 | 5.241 | 0.6205 | 0.0067 | 0.8036 |
| 154 | 1 | 14 | 0.01 | 2.1111111 | 0.1 | 150 | 5 | 14 | 9 | 0 | 0 | 2 | 3.898 | 0 | 0.001 | 0 |
| 155 | 2 | 6 | 0.01 | 6 | 0.1 | 150 | 5 | 6.3571644 | 9 | 0 | 1 | 1 | 2.0125 | 1 | 0.0011 | 0 |
| 156 | 2 | 14 | 0.01 | 1 | 0.1 | 106 | 45 | 4 | 9 | 0 | 1 | 4 | 2.2467 | 1 | 0 | 1 |
| 157 | -2 | 14 | 0.1 | 5.4444444 | 0.1 | 150 | 5 | 4 | 1 | 0 | 0 | 5 | 2.9141 | 0.8642 | 0.0005 | 0.9765 |
| 158 | -2 | 14 | 0.1 | 1 | 0.1 | 50 | 45 | 6.2222222 | 9 | 0 | 0 | 6 | 99.8503 | 0.8638 | 0.0007 | 0.9 |
| 159 | 0 | 6 | 0.1 | 1 | 0.08 | 150 | 45 | 14 | 9 | 0 | 0 | 7 | 5.6176 | 0.8205 | 0.0012 | 0.7711 |
| 160 | 2 | 12.222222 | 0.01 | 6 | 0.01 | 150 | 5 | 4 | 1 | 0 | 0 | 8 | 1.8924 | 0.9545 | 0.0661 | 0.1355 |
| 161 | -2 | 14 | 0.01 | 1 | 0.01 | 150 | 45 | 14 | 9 | 1 | 0 | 8 | 2.1229 | 0.9545 | 0.0815 | 0.1128 |
| 162 | -2 | 11.23182 | 0.01 | 6 | 0.02125 | 50 | 5 | 4 | 1 | 0 | 1 | 2 | 8.9165 | 0 | 0 | 0 |
| 163 | -2 | 11.659824 | 0.1 | 1 | 0.01 | 150 | 45 | 6.5595674 | 2 | 0 | 1 | 2 | 8.0544 | 0 | 0.0074 | 0 |
| 164 | -2 | 6 | 0.0212614 | 6 | 0.0881126 | 150 | 40 | 12.749848 | 1 | 0 | 0 | 3 | 2.9558 | 0.4794 | 0.0013 | 0.9295 |
| 165 | 0 | 10.253087 | 0.0662487 | 3.3682634 | 0.0537223 | 112 | 21 | 7.956887 | 4 | 0 | 0 | 7 | 6.7704 | 0.8494 | 0.0027 | 0.6295 |

| | | | | | | | | | | | | | | | | |
|-----|----|----|----------|-----|-------|-----|----|-----------|---|---|---|---|----------|--------|--------|--------|
| 166 | -1 | 14 | 0.086875 | 6 | 0.01 | 150 | 5 | 4 | 2 | 1 | 1 | 8 | 2.1842 | 0.9179 | 0.0673 | 0.1484 |
| 167 | 2 | 14 | 0.1 | 6 | 0.1 | 150 | 40 | 10.24523 | 1 | 1 | 1 | 8 | 9.542 | 0 | 0 | 0 |
| 168 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 3 | 4.1282 | 0.8826 | 0.0018 | 0.9474 |
| 169 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 3 | 4.7791 | 0.8825 | 0.0018 | 0.9483 |
| 170 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 3 | 3.9142 | 0.9428 | 0.0017 | 0.9539 |
| 171 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 3 | 5.6731 | 0.9428 | 0.0017 | 0.9539 |
| 172 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 2 | 4.4714 | 0.6218 | 0.002 | 0.5585 |
| 173 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 2 | 5.0044 | 0.6218 | 0.0019 | 0.5759 |
| 174 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 2 | 6.5717 | 0.3362 | 0.0028 | 0.3278 |
| 175 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 2 | 7.7384 | 0.3362 | 0.0019 | 0.4202 |
| 176 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 1 | 2.3899 | 1 | 0 | 1 |
| 177 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 1 | 1.366 | 1 | 0 | 1 |
| 178 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 1 | 1.5475 | 1 | 0 | 1 |
| 179 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 1 | 1.6072 | 1 | 0 | 1 |
| 180 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 4 | 32.5788 | 1 | 0.0087 | 0 |
| 181 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 4 | 2.2557 | 1 | 0.0065 | 0 |
| 182 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 4 | 5.1739 | 1 | 0.0042 | 0 |
| 183 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 4 | 35.4509 | 1 | 0.0054 | 0 |
| 184 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 5 | 2.2587 | 0.9631 | 0.002 | 0.9272 |
| 185 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 5 | 2.046 | 0.9416 | 0.0014 | 0.9449 |
| 186 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 5 | 3.8076 | 0.8473 | 0.0001 | 0.9964 |
| 187 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 5 | 3.3818 | 0.8429 | 0.0001 | 0.9963 |
| 188 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 6 | 120.2659 | 0.9167 | 0.0163 | 0.2862 |
| 189 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 6 | 112.778 | 0.9194 | 0.0038 | 0.6299 |
| 190 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 6 | 116.2107 | 0.9548 | 0.0031 | 0.7456 |
| 191 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 6 | 123.3334 | 0.9644 | 0.0007 | 0.9312 |
| 192 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 7 | 6.4612 | 0.8571 | 0.0049 | 0.4792 |
| 193 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 7 | 3.3506 | 0.8385 | 0.002 | 0.6888 |
| 194 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 7 | 5.7254 | 0.8368 | 0.0026 | 0.6709 |
| 195 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 7 | 5.2963 | 0.7892 | 0.0003 | 0.9359 |
| 196 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 0 | 8 | 26.4152 | 0.8667 | 0.014 | 0.3641 |
| 197 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 0 | 8 | 1.9213 | 0.8839 | 0.0058 | 0.5931 |
| 198 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 1 | 1 | 8 | 28.5367 | 0.7784 | 0.0065 | 0.5898 |
| 199 | 0 | 10 | 0.055 | 3.5 | 0.055 | 100 | 25 | 9 | 5 | 0 | 1 | 8 | 27.4152 | 0.7737 | 0.006 | 0.6025 |
| 200 | 2 | 6 | 0.1 | 1 | 0.01 | 150 | 5 | 4 | 9 | 0 | 1 | 6 | 115.3771 | 0.9723 | 0.0158 | 0.4145 |
| 201 | -2 | 14 | 0.1 | 1 | 0.1 | 150 | 5 | 14 | 1 | 0 | 1 | 6 | 112.049 | 0 | 0 | 0 |
| 202 | 2 | 14 | 0.1 | 6 | 0.01 | 150 | 45 | 4 | 1 | 0 | 1 | 6 | 161.5426 | 0 | 0 | 0 |
| 203 | -2 | 6 | 0.1 | 6 | 0.1 | 50 | 45 | 4 | 1 | 0 | 1 | 1 | 1.2303 | 1 | 0 | 1 |
| 204 | -2 | 6 | 0.1 | 6 | 0.01 | 150 | 5 | 10.666667 | 1 | 0 | 1 | 7 | 3.5503 | 0 | 0 | 0 |
| 205 | 2 | 6 | 0.01 | 6 | 0.1 | 150 | 5 | 6.3571644 | 9 | 0 | 1 | 1 | 2.2722 | 1 | 0 | 1 |
| 206 | -2 | 14 | 0.01 | 6 | 0.1 | 94 | 5 | 14 | 9 | 0 | 1 | 4 | 1.6816 | 1 | 0 | 1 |

Table B.1 Combined Array Control Levels and Raw Responses

| Standardized Total Response = | M[1] | M[2] | M[3] | M[4] | M[5] | M[6] | M[7] | M[8] | |
|-------------------------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 0.928732608 | 0.112710268 | 0.117218679 | 0.1262355 | 0.112710268 | 0.117218679 | 0.108201857 | 0.112710268 | 0.121727089 | 0.928732608 |
| -0.16093589 | * A | -0.019531055 | -0.020312297 | -0.021874781 | -0.019531055 | -0.020312297 | -0.018749812 | -0.021093539 | -0.16093589 |
| 0.287762309 | * B | 0.03492261 | 0.036319515 | 0.039113324 | 0.03492261 | 0.036319515 | 0.033525706 | 0.03492261 | 0.287762309 |
| 0.18357479 | * C | 0.022278494 | 0.023169634 | 0.024951913 | 0.022278494 | 0.023169634 | 0.021387354 | 0.022278494 | 0.18357479 |
| 0.118276589 | * D | 0.014353955 | 0.014928113 | 0.01607643 | 0.014353955 | 0.014928113 | 0.013779797 | 0.014353955 | 0.118276589 |
| 0.622239684 | * E | 0.075514525 | 0.078535106 | 0.084576268 | 0.075514525 | 0.078535106 | 0.072493944 | 0.075514525 | 0.622239684 |
| 0.047485806 | * F | 0.00576284 | 0.005993354 | 0.006454381 | 0.00576284 | 0.005993354 | 0.005532327 | 0.00576284 | 0.047485806 |
| -0.059166689 | * G | -0.007180423 | -0.00746764 | -0.008042074 | -0.007180423 | -0.00746764 | -0.006893207 | -0.007180423 | -0.059166689 |
| 0.021716595 | * H | 0.002635509 | 0.002740929 | 0.00295177 | 0.002635509 | 0.002740929 | 0.002530089 | 0.002635509 | 0.021716595 |
| 0.365644744 | * J | 0.044374362 | 0.046149337 | 0.049699286 | 0.044374362 | 0.046149337 | 0.042599388 | 0.044374362 | 0.365644744 |
| 0.076358805 | * K | 0.009266845 | 0.009637519 | 0.010378867 | 0.009266845 | 0.009637519 | 0.008896171 | 0.009266845 | 0.076358805 |
| -0.160423161 | * L | -0.01946883 | -0.020247583 | -0.02180509 | -0.01946883 | -0.020247583 | -0.018690077 | -0.01946883 | -0.160423161 |
| 0.774824531 | * M[1] | 0.094032103 | 0 | 0 | 0 | 0 | 0 | 0 | 0.774824531 |
| -1.779421789 | * M[2] | 0 | -0.224587216 | 0 | 0 | 0 | 0 | 0 | -1.779421789 |
| 2.456865236 | * M[3] | 0 | 0 | 0.333942848 | 0 | 0 | 0 | 0 | 2.456865236 |
| 1.464838509 | * M[4] | 0 | 0 | 0 | 0.177771664 | 0 | 0 | 0 | 1.464838509 |
| 1.22827625 | * M[5] | 0 | 0 | 0 | 0 | 0.155025158 | 0 | 0 | 1.22827625 |
| -2.906496946 | * M[6] | 0 | 0 | 0 | 0 | 0 | -0.338621003 | 0 | -2.906496946 |
| -0.28650865 | * M[7] | 0 | 0 | 0 | 0 | 0 | 0 | -0.034770467 | -0.28650865 |
| -0.29846376 | * BE | -0.03622133 | -0.037670183 | -0.04056789 | -0.03622133 | -0.037670183 | -0.034772477 | -0.03622133 | -0.29846376 |
| -0.145106798 | * BM[1] | -0.017610048 | 0 | 0 | 0 | 0 | 0 | 0 | -0.145106798 |
| -0.609422884 | * BM[2] | 0 | -0.076917451 | 0 | 0 | 0 | 0 | 0 | -0.609422884 |
| 0.050601077 | * BM[3] | 0 | 0 | 0.006877816 | 0 | 0 | 0 | 0 | 0.050601077 |
| 1.104654031 | * BM[4] | 0 | 0 | 0 | 0.134059955 | 0 | 0 | 0 | 1.104654031 |
| 0.391108084 | * BM[5] | 0 | 0 | 0 | 0 | 0.049363156 | 0 | 0 | 0.391108084 |
| -0.258359334 | * BM[6] | 0 | 0 | 0 | 0 | 0 | -0.030100117 | 0 | -0.258359334 |
| 0.165166983 | * BM[7] | 0 | 0 | 0 | 0 | 0 | 0.020044537 | 0 | 0.165166983 |
| -0.661393958 | * EM[1] | -0.080266257 | 0 | 0 | 0 | 0 | 0 | 0 | -0.661393958 |
| -0.21250146 | * EM[2] | 0 | -0.026820573 | 0 | 0 | 0 | 0 | 0 | -0.21250146 |
| -0.483520254 | * EM[3] | 0 | 0 | -0.0657212 | 0 | 0 | 0 | 0 | -0.483520254 |
| 0.220174878 | * EM[4] | 0 | 0 | 0 | 0.026720252 | 0 | 0 | 0 | 0.220174878 |
| -0.493187564 | * EM[5] | 0 | 0 | 0 | 0 | -0.062246974 | 0 | 0 | -0.493187564 |
| 0.435434061 | * EM[6] | 0 | 0 | 0 | 0 | 0 | 0.050730182 | 0 | 0.435434061 |
| 0.235208103 | * EM[7] | 0 | 0 | 0 | 0 | 0 | 0.028544673 | 0 | 0.235208103 |
| 0.519721233 | * JM[1] | 0.063072965 | 0 | 0 | 0 | 0 | 0 | 0 | 0.519721233 |
| -0.185781319 | * JM[2] | 0 | -0.023448128 | 0 | 0 | 0 | 0 | 0 | -0.185781319 |
| -0.688586044 | * JM[3] | 0 | 0 | -0.09359422 | 0 | 0 | 0 | 0 | -0.688586044 |
| -1.094824113 | * JM[4] | 0 | 0 | 0 | -0.132867004 | 0 | 0 | 0 | -1.094824113 |
| 0.459949215 | * JM[5] | 0 | 0 | 0 | 0 | 0.058051843 | 0 | 0 | 0.459949215 |
| 0.782221794 | * JM[6] | 0 | 0 | 0 | 0 | 0 | 0.091132636 | 0 | 0.782221794 |
| 0.01039305 | * JM[7] | 0 | 0 | 0 | 0 | 0 | 0.001261292 | 0 | 0.01039305 |
| -1.197693658 | * J^2 | -0.145351172 | -0.151165219 | -0.162793313 | -0.145351172 | -0.151165219 | -0.139537125 | -0.145351172 | -1.197693658 |

Figure B.1 Table lays out steps for developing the Mean Model from the General Model

| Standardized Total Response = |
|-------------------------------|
| 1.091525694 |
| -0.16093589 |
| 0.373480157 |
| 0.18357479 |
| 0.118276589 |
| 0.493179787 |
| 0.047485806 |
| -0.059166689 |
| 0.021716595 |
| 0.32925413 |
| 0.076358805 |
| -0.160423161 |
| -0.29846376 |
| -1.197693658 |

Figure B.2 Reduced Mean Model

Appendix C. Code for AutoGAD and Iterative Master Function

The following Appendix contains MATLAB[®] code for executing the AUTOGAD algorithm as well as code for the master function used to feed parameters to and record responses from AUTOGAD. It should be noted that the AUTOGAD code was modified slightly to enable recording the results of hundreds of sequential replications.

```

%This is a modified AutoGAD script for use in RPD experiments where a
%parameter matrix is used to feed multiple runs of AutoGAD iteratively and
%record the results for analysis
%
%
%Mods by: Capt Matt Davis
%Jan 2009

%*****%
%AutoGAD version 1.0
%
%
%
%Hyperspectral Autonomous Global Anomaly Detector (AutoGAD)
%Using FastICA
%
%
%Author: Capt Robert Joseph Johnson
%Feb 2008
%*****%

%Tactical Decisions By User-----
functn=params(10);%objective function in ICA to use. Options [1=tanh, 2=pow3]
orthogonalization=params(11);%find ICs in parallel (symm) or one by one (delf).
%Options [symm=1, defl=2]
dim_adjustment=params(1);%how much to adjust max distance log scale secant line (MDLS)
%dimensionality decision
max_score_thresh=params(2);%threshold above which decision is made to declare target
bin_width_SNR=params(3);%bin width when using zero-detection histogram method to
%determine breakpoint between background and potential targets for
%calculating potential target SNR (PT SNR)
PT_SNR_thresh=params(4);%2;%threshold above which decision is made to declare target
bin_width_ident=params(5);%bin width when using zero-detection histogram method to
%determine breakpoint between background and targets for identifying target
%pixels from selected target signals
threshold_both_sides=params(12);%1=identify outliers on both sides of IC signal,
%0=identify outliers on side with highest magnitude scores only
clean_sig=params(13);%0 = no signal smoothing, 1 = signal smoothing prior to target
%identification
smooth_iter_high=params(6);%number of iterations to complete for iterative smoothing
%of low SNR object
smooth_iter_low=params(7);%20;%number of iterations to complete for iterative smoothing
%of high SNR object
low_SNR=params(8);%Threshold decision for choosing smooth_iter_low or smooth_iter_high
window_size=params(9);%image window size for smoothing
show_plots=2;%1=yes, 2=no
%-----

switch num2str(functn)
    case '1'
        funct='tanh';
    case '2'
        funct='pow3';
end

switch num2str(orthogonalization)
    case '1'
        orthog='symm';
    case '2'
        orthog='defl';
end
end

```

```

switch num2str(params(14))
    case '1'
        temp1 = 'ARES1C';
        temp3 = 'ARES1C_mask';
    case '2'
        temp1 = 'ARES1D';
        temp3 = 'ARES1D_mask';
    case '3'
        temp1 = 'ARES1F';
        temp3 = 'ARES1F_mask';
    case '4'
        temp1 = 'ARES2C';
        temp3 = 'ARES2C_mask';
    case '5'
        temp1 = 'ARES2D';
        temp3 = 'ARES2D_mask';
    case '6'
        temp1 = 'ARES2F';
        temp3 = 'ARES2F_mask';
    case '7'
        temp1 = 'ARES3F';
        temp3 = 'ARES3F_mask';
    case '8'
        temp1 = 'ARES4F';
        temp3 = 'ARES4F_mask';
end
%-----Solicit User Input to Load HSI Image File-----
%display('This program requires the Image Processing Toolbox for MATLAB. ');
%display('Make sure your version of MATLAB has this toolbox. ');
%display(' ');
%display('Make sure you have in your working directory the all the files for');
%display('FastICA and the Center_and_PCA.m file');
%display(' ');
%display('The first several lines in the AutoGAD algorithm detail default');
%display('settings for AutoGAD. If you would like to experiment');
%display('changing these settings, hit ctrl c to interrupt this run. Open');
%display('up AutoGAD in the the editor and make changes. ');
%display(' ');
%display('Please hit enter');
%display(' ');
%answer=input(' ');
%display('Enter you image cube file name to be processed. ');
%display('File should be in .mat format ');
%display(' ');
%display('!Make sure to put it in single quotes!')
%display('!Make sure the image cube is in the same directory as this code!');
%display(' ');
%temp1=input(' ');
temp2=struct2cell(load(temp1));
im_cube=temp2{1};
%display(' ');
%display('Enter truth mask');
%display(' ');
%display('If you do not have a truth mask and this is a real target search');
%display('with no truth knowledge, enter 0');
%display(' ');
%temp3=input(' ');
if temp3~=0;
    temp4=struct2cell(load(temp3));
    truth=temp4{1};
end
end

```

```

clear temp1
clear temp2
clear temp4
%clc;
%display(' ');
%display('Please enter the good bands for this HSI sensor');
%display('These are the bands that are NOT the atmospheric absorption bands');
%display(' ');
%display('If this the the 210 band HYDICE sensor, LtCol Tim Smetek concluded');
%display('that the good_bands = [5:72, 78:85, 92:99, 116:134,158:199]');
%display(' ');
%display('If this is HYDICE data and you would like to keep these bands, type');
%display('1 and hit enter');
%display(' ');
%display('If this is not HYDICE data or you do not want to keep those bands');
%display('just hit enter and then enter the bands you wish to keep');
%display(' ');
answer=1; %input('');
if answer==1
    good_bands=[5:72,78:85,92:99,116:134,158:199];
else
    good_bands=input('good_bands = ');
end
%-----

%-----Ask User if they want to see color image-----
%display(' ');
%display('Do you want to see a RGB image of your HSI file?');
%display(' ');
%display('If so, enter 1. If not just hit enter. ');
%display(' ');
answer= 2; %input('');
if answer==1
    Red=input('Please enter the band number for red, HYDICE is 50 ');
    display(' ');
    Green=input('Please enter the band number for green, HYDICE is 29 ');
    display(' ');
    Blue=input('Please enter the band number for blue, HYDICE is 22 ');

    R=im_cube(:,:,Red);
    G=im_cube(:,:,Green);
    B=im_cube(:,:,Blue);

    %Borrowed from Lt Col Tim Smetek, lines 142 - 163, offer a way to make
    %an RGB image look better. The following lines are used in conjunction
    %with the mat2gray function to perform a 2% linear stretch on the image
    %data

    m1=size(R,1);
    n=size(R,2);
    low_id=floor(0.02*m1*n);
    hi_id=floor(0.98*m1*n);

    r_vec=reshape(R,m1*n,1);
    r_vec=sort(r_vec);
    r_vec=double(r_vec);
    min_R=r_vec(low_id);
    max_R=r_vec(hi_id);

    g_vec=reshape(G,m1*n,1);

```

```

g_vec=sort(g_vec);
g_vec=double(g_vec);
min_G=g_vec(low_id);
max_G=g_vec(hi_id);

b_vec=reshape(B,m1*n,1);
b_vec=sort(b_vec);
b_vec=double(b_vec);
min_B=b_vec(low_id);
max_B=b_vec(hi_id);

%The IPT function mat2gray to scales the values in each matrix between 0
%and 1. This is necessary because the matrices are of type double and
%imshow requires double value matrices to be scaled between 0 and 1

R=mat2gray(double(R),[min_R max_R]);
G=mat2gray(double(G),[min_G max_G]);
B=mat2gray(double(B),[min_B max_B]);

%**Now stack the three matrices into a 3D array and display the image
RGB=cat(3,R,G,B);
figure(1)
imshow(RGB,[]);
title('True Color Image');
impixelinfo;
%**Turn-on the interactive pixel value utility
clear R G B
clear RGB
clear r_vec g_vec b_vec
end
%-----

tic;
%----Resize Image Cube into matrix where each row is a pixels-----
%-----signature in the spectral bands-----
dims=size(im_cube,3);
num_pixels=size(im_cube,1)*size(im_cube,2);
num_lines=size(im_cube,1);
num_col=size(im_cube,2);

%**Place all the pixel vectors into a single matrix where each row
%corresponds to a pixel vector
data_matrix=zeros(num_pixels,dims);
data_matrix_truth=zeros(num_pixels,1);
for x=1:dims
    data_matrix(:,x)=reshape(im_cube(:,:,x),num_pixels,1);
end
clear im_cube;
%If HSI cube is too large for MATLAB since MATLAB converts variables to
%double precision, this will make file smaller so that MATLAB can
%operate on it.
if num_pixels*dims > 25*10^6
    data_matrix=single(data_matrix);
end
%%%%%%%%%%%%%%

if temp3~=0;
    data_matrix_truth=reshape(truth,num_pixels,1);
end
%-----

```

```

%-----Keep bands that are not atmospheric absorption bands-----
data_matrix_new=data_matrix(:,good_bands);
dims=size(data_matrix_new,2);
clear data_matrix;
%-----

%-----Set negative pixel values = 0 (remove bad pixels) -----
[m,n] = size(data_matrix_new);
for i =1:m
    for j= 1:n
        if data_matrix_new(i,j) < 0
            data_matrix_new(i,j) = 0;
        end
    end
end
end
%-----

%-----Perform PCA-----
[Ac,Lc,TotVarCompC,YscorC]=Center_and_PCA(data_matrix_new);
%Function written by Capt Johnson does PCA on covariance matrix

Lplot=diag(Lc);
%checks for eigenvalues 10^-4 and smaller and moves the endpoint of the
%eigenvalue curve to the point where eigenvalues are greater than 10^-4
%so that the MDSL method in the next section is not biased by pathological
%cases where the endpoint of the log scale eigenvalue curve has extremely
%small endpoints and grossly alters the theoretical shape of the curve that
%should arise for eigenvalues of covariance matrices of spectral data
%that follow the LMM
while Lplot(dims)<=10^-4;
    dims=dims-1;
end
L=log10(Lplot);
clear data_matrix_new;
clear Ac;
clear Lc;
%-----

%-----Dimensionality Assessment-----
%slope of line connecting endpoints of scree plot of eigenvalues
m_slope = (L(1)- L(dims))/(1-dims);

%calculate Euclidean distances from scree plot curve to line connecting
%endpoints
Eqdist=[];
for i=1:dims
    x_int=(L(i) - L(1)+ m_slope + (i/m_slope))/(m_slope + (1/m_slope));
    y_int=L(1)+ m_slope*(x_int-1);
    Eqdist(i)=sqrt((i-x_int)^2+(L(i)-y_int)^2);
end
%find the point on the log scale eigencurve curve with the largest distance
%from the line connecting the endpoints
[max_Eqdist, index_dim]=max(Eqdist);
reduced_dim = index_dim;
k=reduced_dim-1;
k=k+dim_adjustment;
percent_var=TotVarCompC(k,1);
Y=YscorC(:,1:k);

```

```

clear YscorC;
if show_plots==1
    figure(3);
    semilogy(Lplot(1:dims), '-');
    title({'Plot of Eigenvalue vs. PC Component',...
        sprintf('Dimensionality = %i',k)}, 'fontweight', 'b');
end
%-----

%-----Perform ICA on reduced PCA space-----
[icasig, A, W]=fastica(Y,'approach',orthog, 'g', funct, 'epsilon',...
    .00001, 'stabilization', 'on', 'verbose', 'off');
icasig=icasig';
%If an IC score has a high signals, make them always positive
for j=1:k
    if abs(min(icasig(:,j)))>max(icasig(:,j))
        icasig(:,j)=-icasig(:,j);
    end
end
clear Y
%-----

%-----Find the Kurtosis of Each Signal-----
kurt=zeros(k,1);
for j=1:k
    kurt(j)=abs(kurtosis(icasig(:,j)));
end
%this statistic will not be used in AutoGAD, but is included if the user
%wishes to compare this value to the PT SNR and max pixel score values
%-----

%-----Find the Max Score of Each Signal-----
maxim=zeros(k,1);
for j=1:k
    maxim(j)=max(icasig(:,j));
end
%-----

%-----Find the PT SNR of each signal-----
for j=1:k
    bins=[];
    freq=[];
    bins=min(icasig(:,j)):bin_width_SNR:max(icasig(:,j));
    freq=hist(icasig(:,j),bins);
    count=1;
    %find the bin that is at center (mean) of the ICA signal
    for i=1:size(bins,2)
        if bins(i)<0
            count=count+1;
        else
            break
        end
    end
    %from the center of the signal keep counting until the first zero
    %bin is found
    count1=1;
    for i=count+1:size(freq,2)
        if freq(i)> 0;

```

```

        count1=count1+1;
    else
        break
    end
end
%if there are no zero bins until the very end of the tail then the
%threshpoint is set above the last data point
if count+count1 > size(bins,2)
    thresh_pt(j)=max(icasig(:,j));
else
%otherwise use the first bin were a zero value occurs
    thresh_pt(j)=bins(count+count1);
end
end
PT_SNR=zeros(k,1);
for j=1:k
    potent_target=[];
    potent_bkrd=[];
    %find the indices of those pixels greater than threshold
    ind = icasig(:,j)>thresh_pt(j);
    %store those pixels greater than threshold in vector
    potent_target=icasig(ind,j);
    if size(potent_target,1)==0
        potent_target=0;
    end
    %find the indices of those pixels less than threshold
    ind2 = icasig(:,j)<=thresh_pt(j);
    %store those pixels less than threshold in vector
    potent_bkrd=icasig(ind2,j);
    power_target(j)=var(potent_target);
    power_bkrd(j)=var(potent_bkrd);
    PT_SNR(j)=10*log10(power_target(j)/power_bkrd(j));
end
%-----
one=ones(num_pixels,1);

%---Plot Abundance Maps from ICs Frames with PT SNR and Max Pixel Score---
if show_plots==1
    figure(4)
    d=ceil(sqrt(k));
    for j=1:k
        subplot(d,d,j)
        ICsig(:, :, j)=reshape(icasig(:,j),num_lines,num_col);
        ICsig_grey(:, :, j)=mat2gray(double(ICsig(:, :, j)));
        imshow(ICsig_grey(:, :, j));
        if maxim(j)>=max_score_thresh && PT_SNR(j)>=PT_SNR_thresh
            title(sprintf('Map %i \n SNR %4.3f \n Max Score %4.3f',j,PT_SNR(j)...
                ,maxim(j)), 'Potential Target', 'fontweight', 'b');
        else
            title(sprintf('Map %i \n SNR %4.3f \n Max Score %4.3f',j,PT_SNR(j)...
                ,maxim(j)), 'Non-Target', 'fontweight', 'b');
        end
    end
    clear ICsig;
    clear ICsig_grey;
%-----

%-----Plot IC signals-----
figure(5)

```

```

PT_SNR_line=[];
for j=1:k
    PT_SNR_line(:,j)=thresh_pt(j)*one;
end
for j=1:k
    subplot(d,d,j)
    plot(icasig(:,j),'.','MarkerEdgeColor','r');
    hold on
    plot(PT_SNR_line(:,j),'LineWidth',2);
    xlabel('Pixel');
    ylabel('Abundance (IC Score)');
    if maxim(j)>=max_score_thresh && PT_SNR(j)>=PT_SNR_thresh
        title(sprintf('Map %i \n SNR %4.3f \n Max Score %4.3f',j,PT_SNR(j)...
            ,maxim(j)),'Potential Target'),'fontweight','b');
    else
        title(sprintf('Map %i \n SNR %4.3f \n Max Score %4.3f',j,PT_SNR(j)...
            ,maxim(j)),'Non-Target'),'fontweight','b');
    end
    axis([0,num_pixels,-10,30]);
end
clear PT_SNR_line
%-----
end

%-----Keep only Those Signals Above Both Thresholds-----
ind_max=[];
ind_SNR=[];
ind_both=[];
ind_max = maxim>=max_score_thresh;
ind_SNR = PT_SNR>=PT_SNR_thresh;
ind_both=ind_max+ind_SNR;
[rind,cind]= find(ind_both==2);
if size(rind,1)==0
    display('NO TARGETS')
    target_sig=zeros(num_pixels,1);
    target_vec=zeros(num_pixels,1);
else
    target_sig=icasig(:,rind);
end
clear icasig;
num_tgt_maps=size(target_sig,2);
for j=1:num_tgt_maps
    tgt_sig_map(:,j)=reshape(target_sig(:,j),num_lines,num_col);
end
%-----
target_sig_clean=[]; %Place here to make available outside if statement --mtd
if size(rind,1)~=0
%-----Show Abundance Maps of Retained Target Signals-----
    if show_plots==1
        d=ceil(sqrt(num_tgt_maps));
        tgt_gray=[];
        figure(6)
        for j=1:num_tgt_maps
            subplot(d,d,j);
            tgt_sig_map_gray(:,j)=mat2gray(tgt_sig_map(:,j));
            imshow(tgt_sig_map_gray(:,j));
            title(sprintf('Map %i \n SNR %4.3f \n Max Score %4.3f',rind(j),...
                PT_SNR(rind(j)),maxim(rind(j))),'Potential Target'),...
                'fontweight','b');
        end
        clear tgt_sig_map_gray

```

```

end
clear target_sig
%-----

%----Clean (IAN Filtering)Target Signals prior to Identification-----
if clean_sig==1
    for j=1:num_tgt_maps
        if PT_SNR(rind(j))<low_SNR
            for c=1:smooth_iter_high
                [tgt_sig_map(:, :, j)]=wiener2(tgt_sig_map(:, :, j), ...
                    [window_size,window_size]);
            end
        else
            for c=1:smooth_iter_low
                [tgt_sig_map(:, :, j)]=wiener2(tgt_sig_map(:, :, j), ...
                    [window_size,window_size]);
            end
        end
    end
end
%-----

%-----Plot IAN Filtered Target Maps-----
if show_plots==1
    for j=1:num_tgt_maps
        clean_map_gray(:, :, j)=mat2gray(tgt_sig_map(:, :, j));
    end
    figure(7)
    for j=1:num_tgt_maps
        subplot(d,d,j);
        imshow(clean_map_gray(:, :, j));
        title(sprintf('Filtered Map %i',rind(j)), 'fontweight', 'b');
    end
end
%-----

%-----Identify Target Pixels from Selected Target Maps-----
%-----
%Move from 527 to 470
%target_sig_clean=[];
for j=1:num_tgt_maps
    target_sig_clean(:, j)=reshape(tgt_sig_map(:, :, j), num_pixels, 1);
end
for j=1:num_tgt_maps
    bins=[];
    freq=[];
    bins=(min(target_sig_clean(:, j)):bin_width_ident:...
        max(target_sig_clean(:, j)));
    freq=hist(target_sig_clean(:, j),bins);
    count=1;
    %find the bin that is at center (mean) of the ICA signal
    for i=1:size(bins,2)
        if bins(i)<0
            count=count+1;
        else
            break
        end
    end
end
end

```

```

%from the center of the signal keep counting until the first zero
%bin is found
count1=1;
for i=count+1:size(freq,2)
    if freq(i)> 0;
        count1=count1+1;
    else
        break
    end
end
%if there are no zero bins until the very end of the tail then the
%threshpoint is set above the last data point
if count+count1 > size(bins,2)
    thresh_pt_ident(j)=max(target_sig_clean(:,j))+.01;
else
%otherwise use the first bin were a zero value occurs
    thresh_pt_ident(j)=bins(count+count1);
end
end

target=zeros(num_pixels, num_tgt_maps);
for j=1:num_tgt_maps
    ind_tgt = target_sig_clean(:,j)>thresh_pt_ident(j);
    target(:,j)=ind_tgt;
end

target_vec=zeros(num_pixels,1);
for j=1:num_tgt_maps
    target_vec=target_vec + target(:,j);
end
%end
%-----
%Checks both sides of the selected target signals for target pixels if user
%specified this option
if threshold_both_sides==1
    target_sig_clean_left=-target_sig_clean;
    for j=1:num_tgt_maps
        bins=[];
        freq=[];
        bins=(min(target_sig_clean_left(:,j)):bin_width_ident:...
            max(target_sig_clean_left(:,j)));
        freq=hist(target_sig_clean_left(:,j),bins);
        count=1;
        for i=1:size(bins,2)
            if bins(i)<0
                count=count+1;
            else
                break
            end
        end
        count1=1;
        for i=count+1:size(freq,2)
            if freq(i)> 0;
                count1=count1+1;
            else
                break
            end
        end
        if count+count1 > size(bins,2)
            thresh_pt_ident_left(j)=max(target_sig_clean_left(:,j))+.01;
        else

```

```

        thresh_pt_ident_left(j)=bins(count+count1);
    end
end

target_left=zeros(num_pixels, num_tgt_maps);
for j=1:num_tgt_maps
    ind_tgt = target_sig_clean_left(:,j)>thresh_pt_ident_left(j);
    target_left(:,j)=ind_tgt;
end

target_vec_left=zeros(num_pixels,1);
for j=1:num_tgt_maps
    target_vec_left=target_vec_left + target_left(:,j);
end
target_vec=target_vec+target_vec_left;
end
%-----
target_pic = reshape(target_vec,num_lines,num_col);
%-----
%-----
end
%-----Plot Target Signals with Calculated Thresholds-----
if show_plots ==1
    if size(rind,1)~=0
        d=ceil(sqrt(num_tgt_maps));
        linetrh_ident=[];
        for j=1:num_tgt_maps
            linetrh_ident(:,j)=thresh_pt_ident(j)*one;
        end
        if threshold_both_sides==1
            for j=1:num_tgt_maps
                linetrh_ident_left(:,j)=-thresh_pt_ident_left(j)*one;
            end
        end
        figure(8)
        for j=1:num_tgt_maps
            subplot(d,d,j)
            plot(target_sig_clean(:,j),'.', 'MarkerEdgeColor','r');
            hold on
            plot(linetrh_ident(:,j),'LineWidth',2);
            if threshold_both_sides==1
                hold on
                plot(linetrh_ident_left(:,j),'LineWidth',2);
            end
            xlabel('Pixel');
            ylabel('Abundance (IC Score)');
            title({sprintf('Map %i \n SNR %4.3f \n Max Score %4.3f',rind(j),...
                PT_SNR(rind(j)),maxim(rind(j))),'Potential Target'},...
                'fontweight','b');
            axis([0,num_pixels,-10,30]);
        end
        clear linetrh_ident
    end
    clear one
end
%-----
%-----Grade Performance of AutoGAD if Truth Mask was Provided-----
if temp3~=0;
%-----Confusion Matrix Calculation-----

```

```

ConfusMat=[];
ConfusMat(1,1)=0; %(TP)
ConfusMat(1,2)=0; %(FP)
ConfusMat(2,1)=0; %(FN)
ConfusMat(2,2)=0; %(TN)

for i=1:num_pixels
    if target_vec(i,1)>= 1 && data_matrix_truth(i,1) >= 1
        ConfusMat(1,1)=ConfusMat(1,1)+1;
    else
        if target_vec(i,1)>= 1 && data_matrix_truth(i,1) == 0
            ConfusMat(1,2)=ConfusMat(1,2)+1;
        else
            if target_vec(i,1)== 0 && data_matrix_truth(i,1) == 1
                ConfusMat(2,1)=ConfusMat(2,1)+1;
            else
                if target_vec(i,1)== 0 && data_matrix_truth(i,1) == 0 || 2
                    ConfusMat(2,2)=ConfusMat(2,2)+1;
                end
            end
        end
    end
end
end

APER = (ConfusMat(1,2)+ConfusMat(2,1))/(num_pixels);
TPF = ConfusMat(1,1)/(ConfusMat(1,1)+ConfusMat(2,1));
FPF = ConfusMat(1,2)/(ConfusMat(1,2)+ConfusMat(2,2));
Perc_tgt = ConfusMat(1,1)/(ConfusMat(1,1)+ConfusMat(1,2));
%-----

%-----Show Target Locations to the User-----
% target_vec_color=zeros(num_pixels,1);
% for i=1:num_pixels
%     if target_vec(i,1)>=1 && data_matrix_truth(i,1)>=1
%         target_vec_color(i,1)=4;
%     elseif target_vec(i,1)>=1 && data_matrix_truth(i,1)==0
%         target_vec_color(i,1)=2;
%     end
% end
% target_pic_color = uint8(reshape(target_vec_color,num_lines,num_col));
% if size(rind,1)~=0
%     figure(9)
%     imshow(mat2gray(target_pic_color));
%     colormap('Hot')
%     title(sprintf('TPF = %4.6f \n FPF = %4.6f \n Percent TGT = %4.6f',...
%         TPF, FPF,Perc_tgt),'fontweight','b');
%     impixelinfo;
% elseif size(rind,1)==0
%     figure(9)
%     imshow(target_pic);
%     title('No Targets Detected')
% end
% figure (2)
% imshow(truth,[]);
% title('Truth Mask');
% impixelinfo;
%else
% if size(rind,1)~=0
%     figure(9)
%     imshow(target_pic)

```

```

%         title({'Suspected Target Pixels'});
%         impixelinfo;
%     elseif size(rind,1)==0
%         figure(9)
%         imshow(target_pic)
%         title({'No Targets Detected'});
%         impixelinfo;
%     end
end
time=toc;

newres = [time,TPF,FPF,Perc_tgt];
load RPDresults; %loads the results matrix stored in RPDresults.mat
results = [results; newres]; %adds the current runs results to the results matrix
save RPDresults results; %saves the modified results matrix before it is cleared for th
next run

clear all;
close all;
clc;

```

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```

function [] = RPDFunc(params)
%This function iteratively calls a modified AutoGAD to test multiple
%settings for the algorithm in a single execution. The results of AutoGAD
%are stored in the results matrix which is iteratively saved to
%'RPDresults.mat'

%Capt Matt Davis
%Jan 2009

[r,c] = size(params); %obtain dimensions of Design Matrix

for i = 1:r %runs AutoGAD using the parameters in RPDmatrix and saves results
to 'results'
    load RPDparams;
    params = params(i,:);
    i %displays iteration

    RPD_AutoGAD;

    %load RPDresults; %loads the results matrix stored in RPDresults.mat
    %results = [results; newres]; %adds the current runs results to the results matrix
    %save RPDresults results; %saves the modified results matrix before it is cleared
for the next run

end

%phonetext;

end

```

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The code above controlled the passing of parameters to AUTOGAD and recording output during testing.

Appendix D. Blue Dart

Its nighttime in Iraq and the darkness conceals an insurgent hard at work on a nondescript roadside. As he concludes his work planting an improvised explosive device (IED), he takes great pains to cover all evidence of his handiwork. Early the next morning an Unmanned Aerial Vehicle (UAV) armed to the teeth with cameras and sensors making its rounds at 50,000 feet captures a hyperspectral image of the piece of road where IED lies in wait.

Recent research efforts proposed several techniques to automatically detect anomalous objects like IEDs within hyperspectral images. However, most new algorithms are insufficiently verified to be robust to the broad range of data being made available. While finding ships in the ocean is one thing, locating tanks under camouflage netting at the edge of a tree line or well disguised roadside bombs is quite another.

The problem of noise (variation in inputs or operating environment) and the need for systems to be robust regardless of it, reaches far beyond software on a sensor platform. Consistent performance regardless of operating conditions is something all weapon systems should be designed for.

General Patton said, “A good plan, violently executed now, is better than a perfect plan next week.” By extension, always finding 80% of the ships, tanks, and IEDs regardless of time of day or location is preferable to finding all the ships, tanks, and IEDs, but only when the conditions are just right.

Researchers at AFIT apply techniques known as Robust Parameter Design (RPD) to determine optimal system settings that maximize performance while minimizing output variance. The goal of this research is to improve upon the speed, accuracy, and robustness of automated systems to locate anomalies quickly and consistently regardless of the characteristics of the image presented to it.

By leveraging the power of RPD during the design phase of the detection algorithm, the AFIT researchers expect to improve algorithm performance and deliver an algorithm to the warfighter that can locate anomalies within a scene quickly and consistently.

The use of RPD is widespread, including everything from packaging toothpaste to high speed fluid dynamics. While future engagements will continue to require the development of specialized weapons, RPD can ensure those weapons are consistently effective wherever and whenever the engagement occurs.

Back at 50,000 feet, onboard image processing hardware executes a few lines of code that quickly scan the acres big image of the earth below and in a matter of seconds passes on to a user the exact location of a spot on the side of the road that doesnt look quite like it should. Despite the insurgents efforts, the UAV spots that somethings amiss with a particular stretch of road and an Explosive Ordinance Disposal (EOD) team is dispatched to investigate and safely dispose of the IED.

The most amazing part of this scenario is not the sensor laden, but pilotless aircraft; or even the fearless EOD team; but the 1000 or so lines of code sitting in a computer at 50,000 feet that instantly identified something suspicious within the collected image. This little piece of software wouldve been easily fooled if not for the training via RPD it received during its development.

Vita

Captain Matthew Davis graduated from Salina Central High School in Salina, Kansas in 1997. He entered undergraduate studies at Southwest Baptist University in Bolivar, Missouri where he graduated Cum Laude with a Bachelor of Science degree in Mathematics in May 2001. He was commissioned through Officer's Training School at Maxwell AFB, Alabama.

His first assignment was at the Space Vehicles Directorate of the Air Force Research Laboratory, Hanscom AFB, MA. As an Optical Turbulence Engineer at AFRL, he oversaw campaigns to collect upper atmospheric optical turbulence data enabling development of a predictive optical turbulence model for the Airborne Laser program. He also served as Deputy Program Manager for Weather Impact Decision Aids at AFRL. He provided direct support to warfighters during the initial phases of OIF who used WIDA tools to prepare for the first missions of the invasion. In December 2004, he moved on to become Lead Analyst for Military Satellite Communications and Space Force Enhancement at Detachment 4, Operational Test and Evaluation Center, Peterson AFB, CO. While at Det 4, he oversaw the planning, execution, and analysis of multi-service operational tests for the Wideband Global Satellite and Global Broadcast Service programs. In August 2007, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation, he will be assigned to the Warrior Preparation Center, Einsiedlerhof Air Station, Germany.

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