WL-TR-96-1017

EYE-SAFE 2-MICRON LASER COMMUNICATIONS SYSTEM

GARY D. WILKINS
LASER APPLICATIONS BRANCH
ELECTRO-OPTICS TECHNOLOGY DIVISION

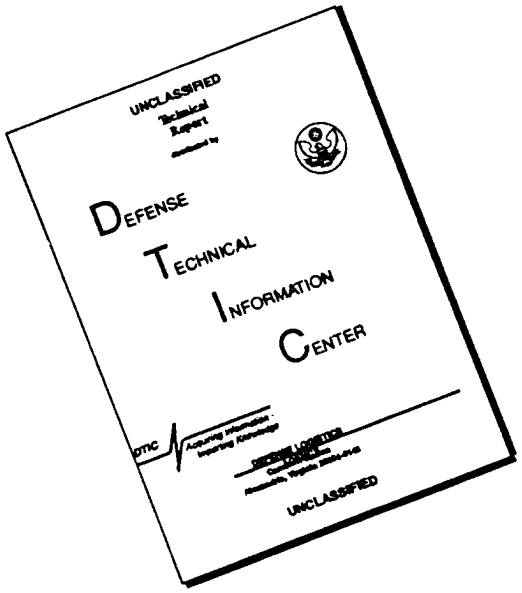
JANUARY 1996

Final Report for the Period January 1993 - December 1995

Approved for Public Release; distribution is unlimited.

AVIONICS DIRECTORATE
WRIGHT LABORATORY
AIR FORCE MATERIEL COMMAND
WRIGHT PATTERSON AIR FORCE BASE OHIO 45433-7409

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

NOTICE

WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITE GOVERNMENT-RELATED PROCUREMENT, THE UNITED STATES GOVERNMENT INCURS NO RESPONSIBILITY OR ANY OBLIGATION WHATSOEVER. THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED OR IN ANYWAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA, IS NOT TO BE REGARDED BY IMPLICATION, OR OTHERWISE IN ANY MANNER CONSTRUED, AS LICENSING THE HOLDER, OR ANY OTHER PERSON OR CORPORATION; OR AS CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

THIS REPORT IS RELEASABLE TO THE NATIONAL TECHNICAL INFORMATION SERVICE (NTIS). AT NTIS, IT WILL BE AVAILABLE TO THE GENERAL PUBLIC, INCLUDING FOREIGN NATIONS.

THIS TECHNICAL REPORT HAS BEEN REVIEWED AND IS APPROVED FOR PUBLICATION.

GARY D. WILKINS, GS-12, DAF
Laser Communications Engineer
Electro-Optics Laser Applications Branch

DALE L. FENIMORE, Major, USAF
Chief, Electro-Optics Laser Applications
Electro-Optics Technology Division

JAMES J. STEWART, Acting Chief
Electro-Optics Technology Division
Avionics Directorate

IF YOUR ADDRESS HAS CHANGED, IF YOU WISH TO BE REMOVED FROM OUR MAILING LIST, OR IF THE ADDRESSEE IS NO LONGER EMPLOYED BY YOUR ORGANIZATION, PLEASE NOTIFY WL/AAJL, WRIGHT-PATTERSON AFB OH 45433-7318, TO HELP MAINTAIN A CURRENT MAILING LIST.

Copies of this report should not be returned unless return is required by security considerations, contractual obligations, or notice on a specific document.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	JANUARY 1996	FINAL 01/01/93--12/31/95

4. TITLE AND SUBTITLE

EYE-SAFE 2-MICRON LASER COMMUNICATIONS SYSTEM

5. FUNDING NUMBERS

PE 61101
PR 0100
TA AA
WU 22

6. AUTHOR(S)

GARY D. WILKINS

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Avionics Directorate
Wright Laboratory
Air Force Materiel Command
Wright Patterson Air Force Base, Ohio 45433-7409

8. PERFORMING ORGANIZATION REPORT NUMBER

WL-TR-96-1017

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

Avionics Directorate
Wright Laboratory
Air Force Materiel Command
Wright Patterson Air Force Base, Ohio 45433-7409

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

WL-TR-96-1017

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT

Approved for Public Release; Distribution is Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

This paper summarizes the Wright Laboratory In-house Laboratory Independent Research (ILIR) conducted to develop an eye-safe laser communication system which is minimally affected by atmospheric turbulence and absorption. Details concerning the 8 kilometer pulsed laser communications link established between the Wright-Patterson AFB Trebein site and Area B, building 620, Laser Communications Laboratory (LCL) are described.

14. SUBJECT TERMS

15. NUMBER OF PAGES
86

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	SAR

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

Contents

LIST OF ILLUSTRATIONS

LIST OF TABLES

1 Introduction

Free space laser communications is potentially one of the most versatile forms of communications available at the present time. Because of the narrow divergence of the laser beam, the communications channel has an inherent low probability of intercept (LPI) by those who are not the intended recipients. In addition, the short wavelength of the carrier produces a bandwidth which vastly exceeds our present capability to exhaust. Also, the channel is free from sources of electromagnetic interference which plague the radio frequency (RF) spectrum. Although guided laser communications using fiber-optic cables has been around for years and the feasibility of using free space laser communications for air-to-air applications was proven in the mid 1980s, operational organizations in the military were reluctant to accept laser communications has a source of LPI communications which can be used during RF comm-out scenarios. Much of this reluctance is based upon the fact that most laser communications equipment developed, up to this point, has not been eye-safe. This is a high priority requirement for those that need to maintain and use the equipment.

One other extremely important item to consider when using free space laser communications in an atmospheric environment is the atmosphere. Whether communication is from air-to-air or air-to-ground, the atmosphere plays a major role in corrupting it. Moisture and aerosols cause absorption and scattering losses while temperature and pressure changes produce refractive index variations in the air by causing random variations in density. The net effect is a warping of the isophase surface of a decrease of the transmittance of the atmosphere and a corresponding decrease in irradiance at the receiver.

As a consequence of a requirement for laser communications to be eye-safe, we launched an effort to study the eye-safe region of the infrared spectrum to determine its susceptibility to atmospheric turbulence and absorption and to develop an eye-safe-laser communications system. The wavelength being explored is the 2-micron region which according to MODTRAN models is a window which can be exploited for long distance laser communications requirements. A 2 micron, 1 watt laser diode was purchased and a communications system built and tested over our 8 km laser communications test range to gather propagation statistics.

2 Background

The feasibility of airborne laser data links was demonstrated in the mid-80s by the Wright Laboratory HAVE LACE (Laser Airborne Communications Experiment) Program. This program developed and tested two laser communications terminals that operated at 19.2 kilobits per second (Kbps). The terminals were tested using two KC-135 aircraft that nominally flew at 20,000 to 25,000 ft altitudes with separation distances out to 100 miles. An operator initiated acquisition was performed once the gimbaled optics were steered to an acceptable acquisition window. Once signal acquisition was accomplished, tracking proved to be extremely robust and communications performance was

consistently measured at 10^{-6} bit error rate or better. The most significant result of the HAVE LACE Program was that the difficulty of achieving initial acquisition between the two moving platforms was quantified. This remains today the most challenging problem with regard to narrow beam communications systems.

Actual propagation of the laser beam through the high altitude atmosphere during the flight tests also allowed for a greater appreciation of the stratospheric phenomenology associated with laser beam acquisition. As a result, the following conclusions were reached: High altitude bulk atmospheric scintillations are easily mitigated by providing sufficient signal margin. Localized aircraft boundary layer scintillations are not appropriately modeled, but can also be easily mitigated with signal margin. In general, link outages occurred only when the aircraft had clouds between them. (Note: the occurrence of clouds becomes less with increasing altitude.)

In an effort to decrease the expense of airborne testing and increase the probability of mission success, the Wright Laboratory Laser Communications Laboratory (LCL), figure 2-1, was founded in 1981 to establish a testbed for Air Force Free Space Laser Communications developmental systems such as Have Lace. The nerve center of the LCL is the control/receiver facility located on the twelfth floor of the Wright Patterson Air Force Base (WPAFB), Area B, Building 620 tower 3 miles East of Dayton Ohio. The LCL Control/Receiver Facility (LCLCRF) contains 400 square feet of enclosed working space with 240 square feet of additional working space on each of the attached balconies. The balconies are located on the east and west sides of the LCLCRF and are separated from it by 240 square feet of glass in the windows and doors making the area surrounding Building 620 visible on the east and west sides of the LCLCRF. From the LCLCRF and its balconies, connectivity is achievable to just about everywhere in the 200 square kilometer area surrounding Building 620, which includes the Air Force Museum runway, WPAFP Area C runway, and WPAFB Trebein Test Site.

The Trebein Test Facility (TTF), an area of land with buildings which is part of the LCL, is located 8 kilometers to the east of the LCLCRF. Trebein contains 95 acres of fenced-in land with five buildings. One of the buildings, No.356, is elevated 10 feet above ground level and functions as the LCL Transmit Facility (LCLTF). The link between the LCLCRF and the LCLTF is line-of-sight and the atmospheric turbulence in the channel is monitored through real-time measurements of the diffraction limited aperture of the atmosphere, r_0 [10]. Meteorological measurements of temperature, humidity, and atmospheric pressure are also monitored at the LCL to provide additional data for the analysis of the received communications signal.

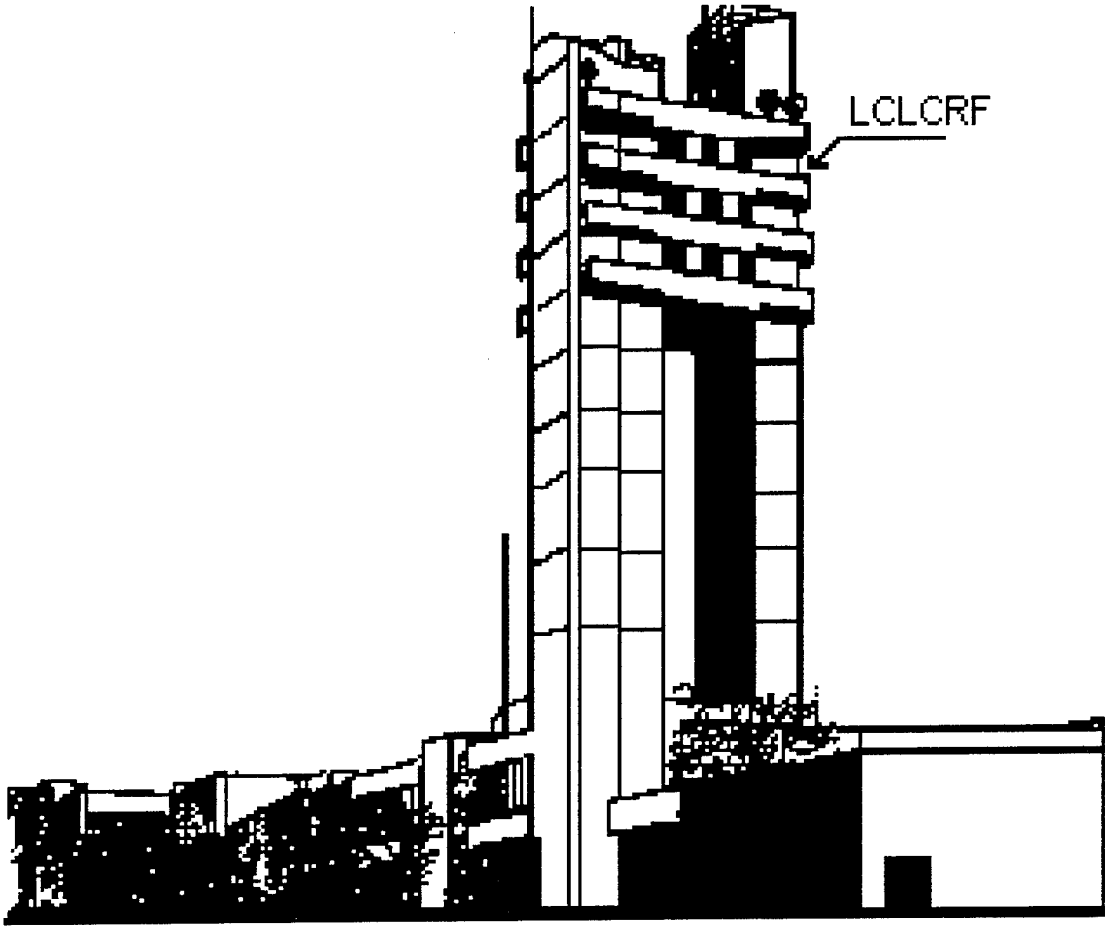


Figure 2-1. WL Laser Communications Control/Receiver Facility (LCLCRF)

The LCL has made a profound impact on all laser communications projects which have been accomplished by the Wright Laboratory Avionics Directorate. The HAVE LACE Program utilized the LCL to perform preflight testing of the laser communication equipment to be used in the air-to-air laser communications feasibility demonstration. Before take-off, the laser communications equipment on the two C-135 aircraft on the runway in Area C were checked by establishing communication between the aircraft laser communication equipment and a like system stationed on the east balcony of the LCL. Once communications were established, and last minute tweaking was accomplished, the two planes took off to accomplish their testing to evaluate/prove the feasibility of air-to-air laser communications .

Another program which benefited from the LCL was the Scattered-light Test Airborne Receiver (STAR) program [6]. The test was a cooperative effort between the Naval Ocean Systems Center (NOSC) and Wright Laboratory to demonstrate scattered-light communications in an airborne platform, scientifically evaluate the receiver, and to characterize the channel. Upon delivery, the STAR equipment was thoroughly tested in the LCL before integration into the aircraft where it was flight tested to examine the effects of beam spreading and pulse stretching when communicating through clouds. Upon

conclusion of the flight test, the data was taken to the LCL for processing where it was found that previous methods of obtaining cloud probe data grossly under estimated the scattering losses and that when using radiometric derived cloud optical thickness, the Stotts equation over-predicted measured pulse widths by a factor of two to ten.

Testing of the Hand Held Laser Communicators (HHLC) [5] which we had developed for helicopter refueling missions was done extensively using all the LCL resources. Initially we tested them in the LCLCRF to determine their wavelength, output power, pulse repetition frequency, and modulation characteristics. We then took them out to the Air Force Museum for ground testing. We stationed one person in the LCLCRF and another person on the runway for distance checking and pointing ability. We were able to communicate the full 2 miles without tripod support so we decided to attempt communications from the LCLCRF at Area B to the LCLTF at the TTF. We were able to communicate over the 5 mile range with exceptional quality. However, acquisition and tracking requirements were a little more stringent and we had to stabilize the HHLCs on tripods. After the test in the LCL, the units were field tested on two helicopters. These tests were so successful that funding was approved to build eight preproduction models. There were some design changes made to make the communicators lighter, smaller, and eye-safe. Once these units were redesigned, fabricated and delivered, testing resumed in the LCL, checking the divergence and receive/transmitter alignment.

2.1 Objective of the LCL In-House Research Effort

The original objective of this in-house project was to test the performance characteristics of a commercially purchased 2 micron, diodepumped, solid-state laser for communications and radar applications. The plan involved the purchase a commercial off-the-shelf laser to investigate the effects of atmospheric conditions on the quality of the received laser communications signal. A second task involved the investigation of the technical problems associated with using a laser radar to identify targets based upon the Doppler signal due to vibrations of the target surface.

Due to funding reductions and difficulties in obtaining a diode pumped solid-state 2 micron laser, the program scope was reduced to testing the performance of a 1 watt 2 micron laser diode for laser communications applications. The laser radar applications were dropped because the required laser 52 microsecond coherence length could not be achieved using a laser diode.

2.2 Approach

Since the money was not available for the 1 watt diode pumped solid state 2.01 micron laser we wanted, and a 1 watt 2.01 micron laser diode was not available off-the-shelf, we decided to purchase three protype laser diodes from SDL. Early in the development of the protypes, it became evident that they were not going to achieve the desired wavelength, so a great deal of atmospheric modeling was accomplished to provide SDL

with an alternative wavelength which would allow us to have an eye-safe laser transmitter design and communicate without excess atmospheric losses. Upon receipt of the laser diodes the laser transmitter and receiver were built and an 8 kilometer laser communications link established between the LCLCRF on the twelfth floor of WPAFB Area B Building 620, and the LCLTF at the WPAFB Trebein Test Site, as shown in Figure 2-2.

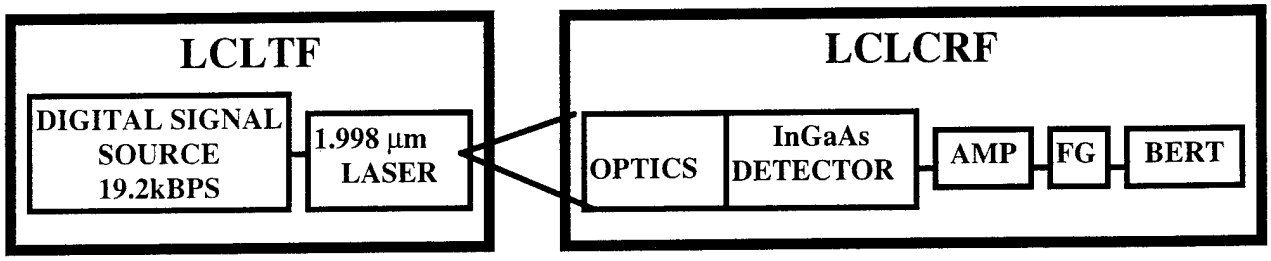


Figure 2-2. Free Space Laser Communications Link

3 Equipment Design and Development

3.1 Eye-Safety:

There is a common misconception that wavelengths beyond 1.5 microns are eye-safe. The fact that these long wavelengths are not focused on the retina make them somewhat retina safe, in that energy is not concentrated on one spot such as the fovea, but does not make them totally eye-safe. The reason for this is that different wavelengths are treated differently by various parts of the eye. Some are absorbed by the water in the eye and cause heating and painful swelling and drying, and some wavelengths are absorbed by specific parts of the eye such as the lens or cornea and could cause permanent loss of vision. Given enough energy in the laser beam any laser wavelength could cause eye damage. The converse of this is that by restricting the amount of energy irradiated on the eye to a level below the Maximum Permissible Exposure (MPE) level as provided in American National Standards Institute (ANSI) Standard Z136.1-1993, any wavelength laser can be made eye-safe. The problem lies in the fact that with visible and near-infrared lasers, the MPE is very small for Nominal Ocular Hazard Distances (NOHD) which are close enough to the equipment to accomplish operational and maintenance procedures. Since there is a certain minimum amount of energy which is required to be radiated to provide an acceptable signal margin at the receiver, a communications transmitter using a visible or infrared wavelength will not be eye-safe unless the output radiated energy is either decreased, the divergence is increased or the transmitter exit aperture is increased. The first two of these approaches reduce the amount of energy at the receiver causing a decrease in the acceptable communication range while the third requires an investment of more space at the transmitter to accommodate a larger aperture.

In an effort to determine the optimum laser specifications required to build the eye-safe laser communications transmitter, the Armstrong Laboratory LHAZ Version 2.0 Integrated Laser Hazard Assessment Program was used to generate MPE and NOHD data for a continuous wave (CW) 1 watt laser with a 1 centimeter aperture and divergence of 1 milliradian for 0.25, 1, 10 and 30000 second exposures of some of the more popular laser wavelengths. Table 3.1 is a result of that exercise with Figures 3-1, 3-3, 3-5 and 3-7 providing a graphical depiction of the MPE and Figures 3-2, 3-4, 3-6, and 3-8 illustrating the corresponding NOHD. Table 3-1 and Figure 3-2, even a 1 watt Carbon Dioxide laser with a wavelength of 10.6 microns and a divergence of 1 milliradian requires an NOHD of over half a meter when the beam is observed for only 0.25 seconds. For a person performing maintenance on such a transmitter that requires 8 hours of exposure, an NOHD of 25.7 meters is required which means the operator had better be wearing eye and skin protection.

Table 3-1. MPE and NOHD for a 1 cm aperture. Data generated using the Armstrong Laboratory LHAZ Version 2.0 Integrated Laser Hazard Assessment Program for 0.25, 1, 10, and 30000 second laser exposures with a 1 cm aperture.

Wavelength (microns)	MPE (J/cm2) .25 Sec	NOHD (meters) .25 Sec	MPE (J/cm2) 1 Sec	NOHD (meters) 1 Sec	MPE (J/cm2) 10 Sec	NOHD (meters) 10 Sec	MPE (J/cm2) 30000 Sec	NOHD (meters) 30000 Sec
0.275	0.003000	93.000	0.00300	196.000	0.0030	641.000	0.003	35700.000
0.325	0.396000	79.000	0.56000	168.000	0.9960	554.000	1.000	30900.000
0.351	0.396000	7.840	0.56000	25.700	0.9960	1.030	1.000	6170.000
0.442	0.000636	0.000	0.00180	5.080	0.0100	25.800	0.030	1940.000
0.514	0.000636	214.000	0.00180	256.000	0.0100	347.000	0.030	11300.000
0.632	0.000636	214.000	0.00180	256.000	0.0101	347.000	0.509	11300.000
0.647	0.000636	214.000	0.00180	256.000	0.0101	345.000	0.855	2730.000
0.670	0.000636	214.000	0.00180	256.000	0.0101	345.000	1.890	1410.000
0.905	0.001640	129.000	0.00463	156.000	0.0260	211.000	24.700	383.000
1.000	0.002530	102.000	0.00717	123.000	0.0040	168.000	38.200	306.000
1.064	0.003180	90.000	0.00900	109.000	0.0506	149.000	48.000	272.000
1.310	0.003180	90.000	0.00900	109.000	0.0506	149.000	48.000	272.000
1.350	0.003180	90.000	0.00900	109.000	0.0506	149.000	48.000	272.000
1.390	0.003180	0.000	0.00900	5.080	0.0506	25.800	0.003	25.700
1.400	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
1.450	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
1.500	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
1.550	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
1.600	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
1.700	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
1.800	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
1.900	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
2.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
2.100	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
2.600	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
3.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
4.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
5.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
6.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
7.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
8.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
9.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
10.000	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700
10.600	0.396000	0.000	0.56000	5.080	0.9960	25.800	0.003	25.700

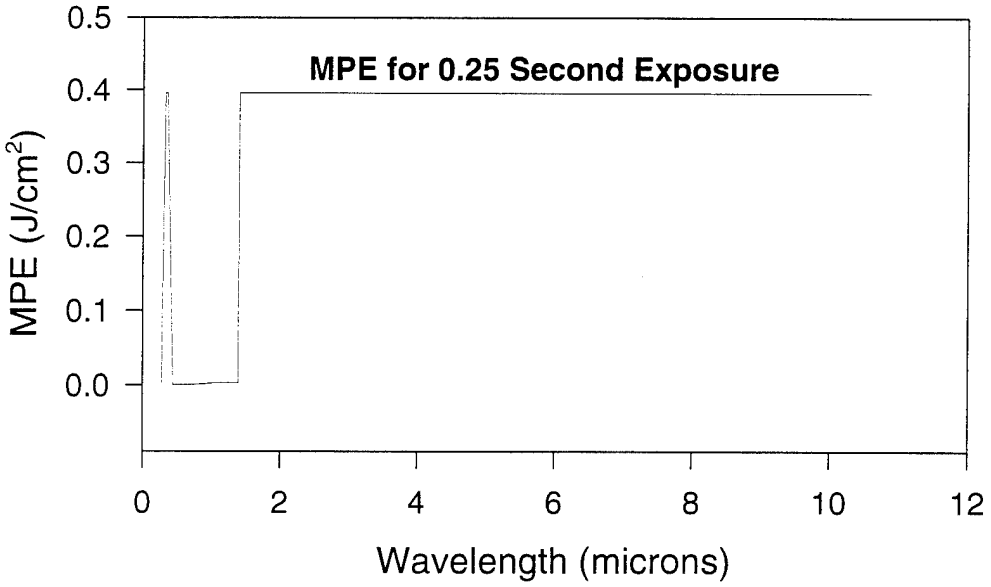


Figure 3-1. MPE for 0.25 Second Direct Ocular Exposure

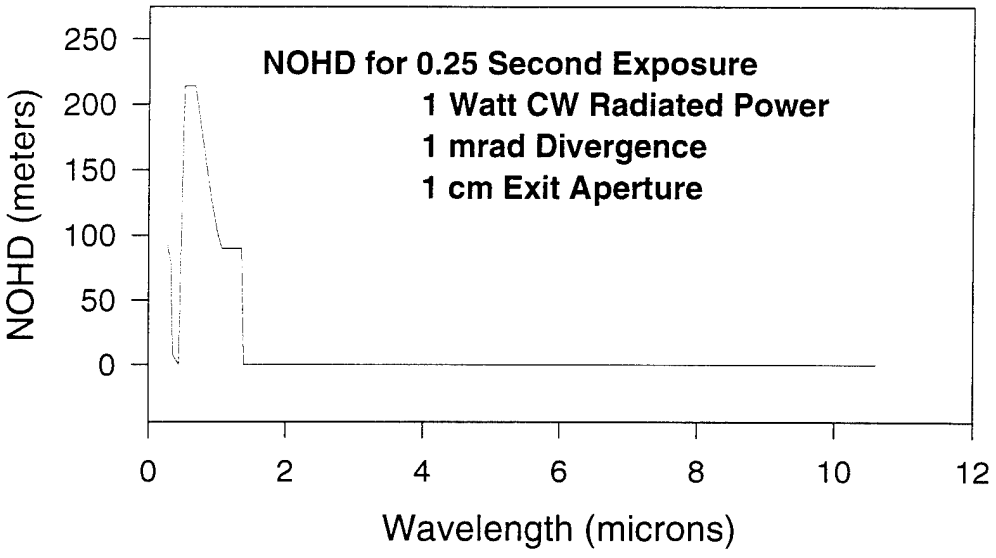


Figure 3-2. NOHD for 0.25 Second Direct Ocular Exposure

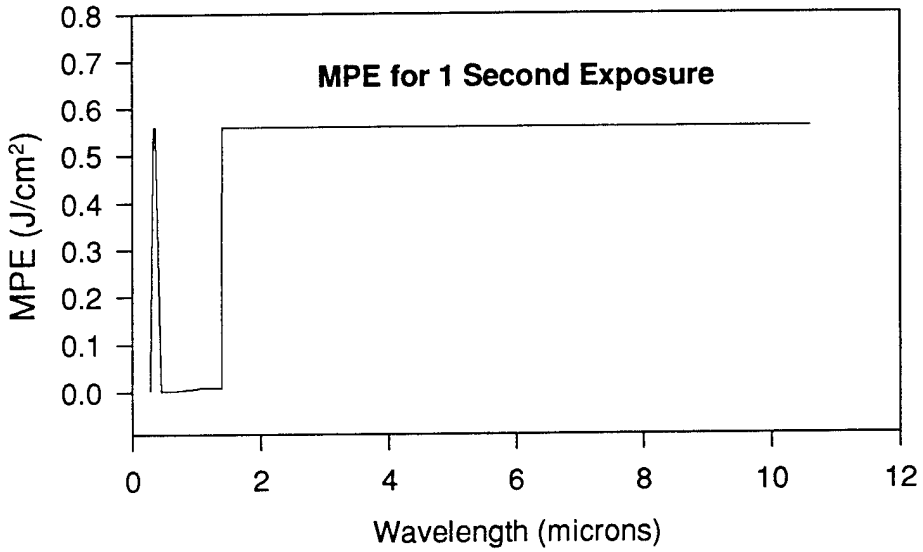


Figure 3-3. MPE for 1 Second Direct Ocular Exposure

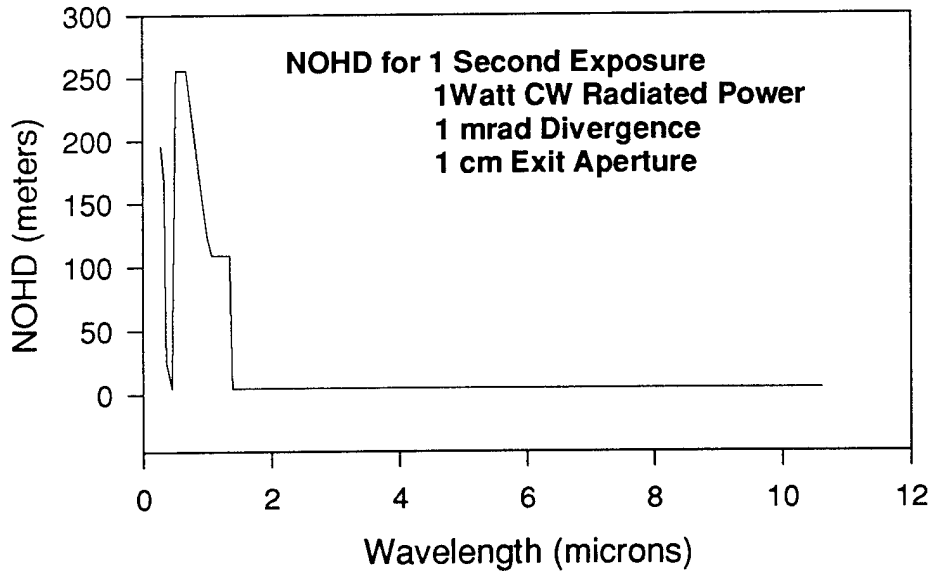


Figure 3-4. NOHD for 1 Second Direct Ocular Exposure

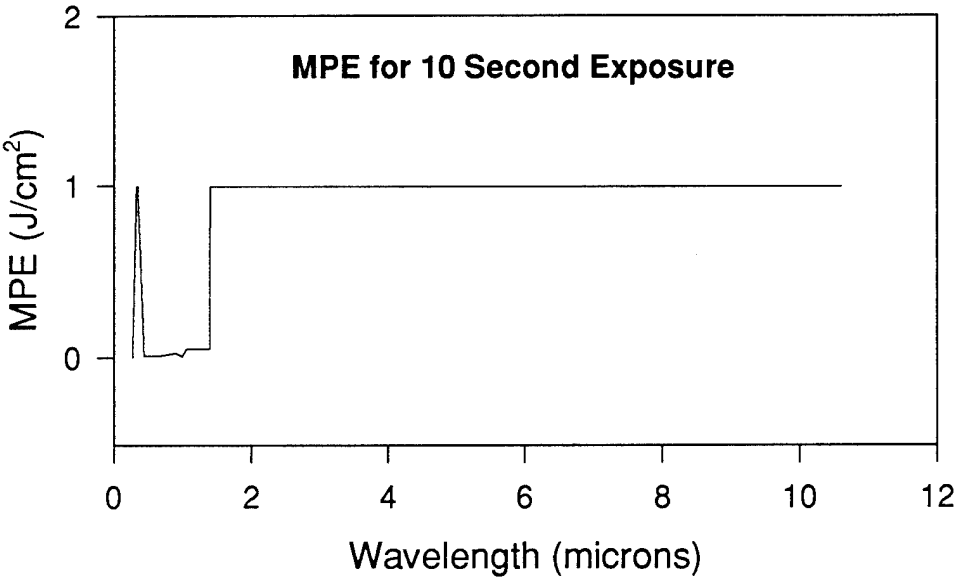


Figure 3-5. MPE for 10 Second Direct Ocular Exposure

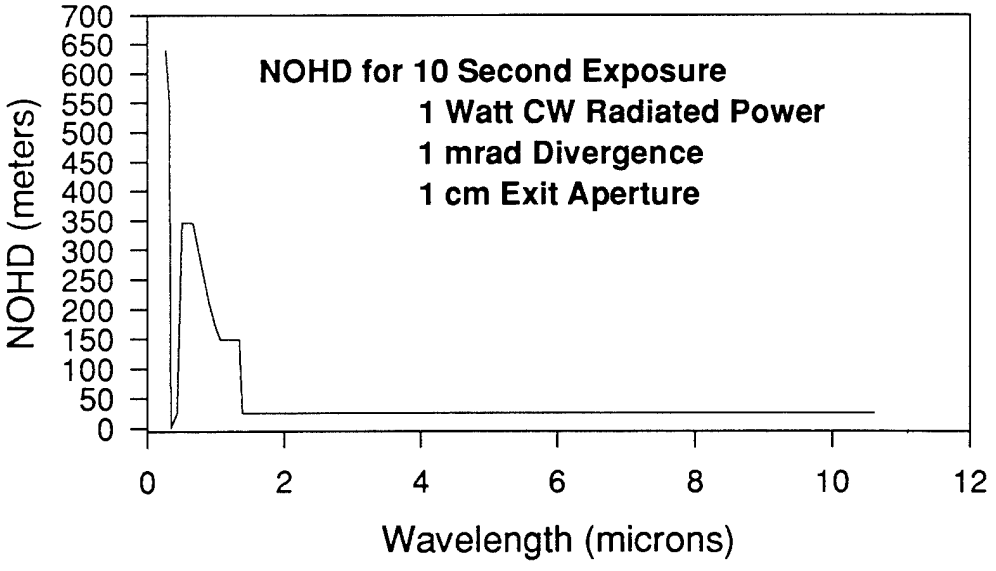


Figure 3-6. NOHD for 10 Second Direct Ocular Exposure

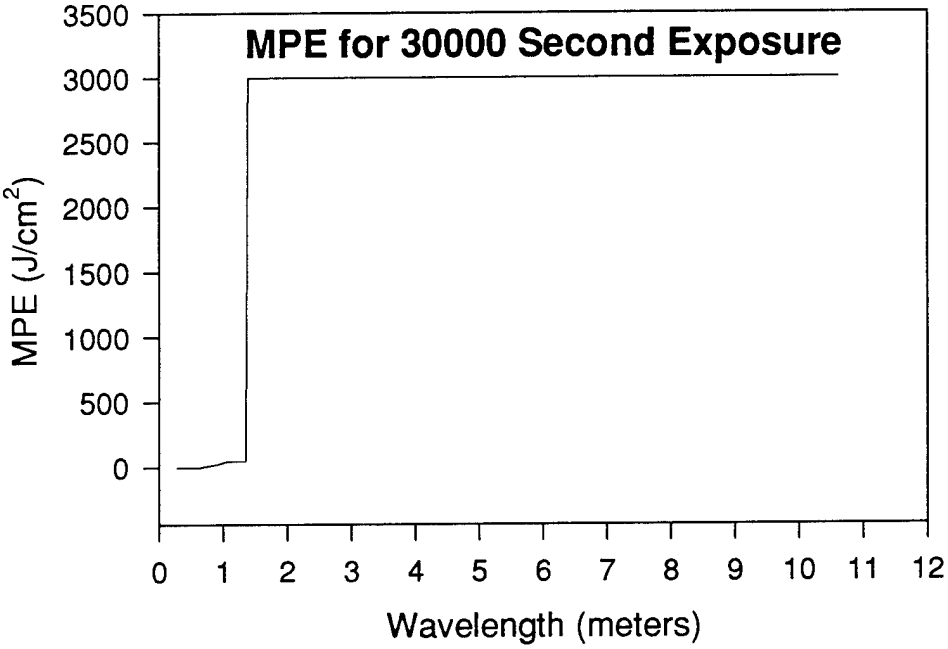


Figure 3-7. MPE for 30000 Second Direct Ocular Exposure

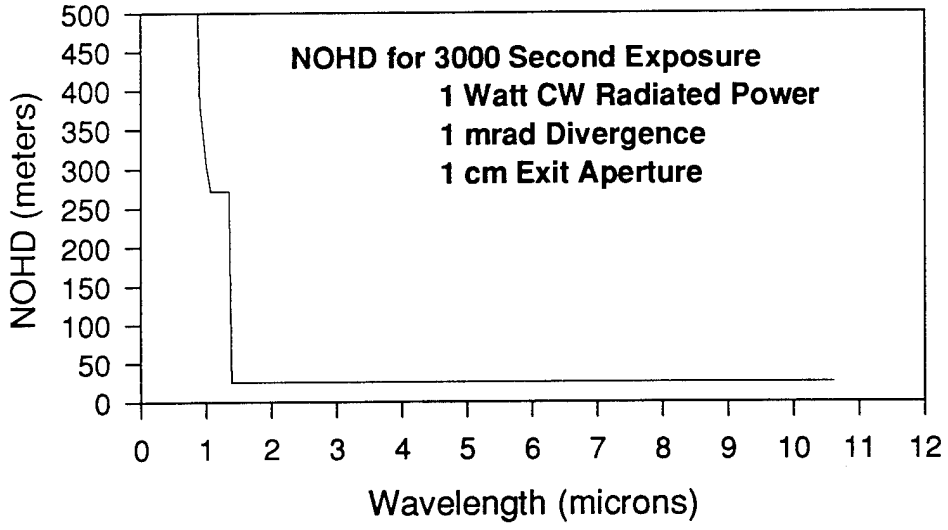


Figure 3-8. NOHD for 30000 Second Direct Ocular Exposure

Since it was quite obvious from the NOHD that a 1 watt laser transmitter with divergence of 1 mrad and an exit aperture of 1 cm was not eye-safe, the aperture setting of LHAZ 2.0 was increased in increments of 1 cm until the output of a 2 micron wavelength, 1 watt CW laser with a divergence of 1 mrad was eye-safe, i.e. the NOHD was 0 for a 30000 second exposure. This occurred at 4 cm. The aperture size was then tweaked a little more until the smallest aperture which gave an NOHD of 0 was obtained. The result was an aperture of 3.58 cm. Table 3-2 and Figures 3-9 through 3-12 provide the 0.25, 1, 10, and 3000 second NOHD for the 3.58 cm exit aperture for the wavelengths used in Table 3-1. From Table 3-2 it is obvious that a 1 watt CW laser transmitter with a divergence of 1 mrad and an exit aperture greater than 3.58 cm is eye-safe for any working distance over a period of 8 hours (the normal working man's workday). Table 3-3 is an actual output of LHAZ 2.0.

Table 3-2. MPE and NOHD data for 0.25, 1, 10, and 30000 second exposures of a laser with a 3.58 cm exit aperture

wave Length (microns)	MPE (J/cm2) .25 Sec	NOHD (meters) .25 Sec	MPE (J/cm2) 1 Sec	NOHD (meters) 1 Sec	MPE (J/cm2) 10 Sec	NOHD (meters) 10 Sec	MPE (J/cm2) 3e4 Sec	NOHD (meters) 30000 Sec
0.275	0.003000	67.200	0.00300	170.000	0.0030	616.000	0.003	35600.000
0.325	0.396000	53.400	0.56000	143.000	0.9960	528.000	1.000	30900.000
0.351	0.396000	0.000	0.56000	0.000	0.9960	77.000	1.000	6140.000
0.442	0.000636	0.000	0.00180	0.000	0.0100	0.000	0.030	1920.000
0.514	0.000636	788.000	0.00180	230.000	0.0100	321.000	0.030	11200.000
0.632	0.000636	188.000	0.00180	230.000	0.0101	321.000	0.509	11200.000
0.647	0.000636	188.000	0.00180	230.000	0.0101	319.000	0.855	2700.000
0.670	0.000636	188.000	0.00180	230.000	0.0101	319.000	1.890	1380.000
0.905	0.001640	1.400	0.00463	130.000	0.0260	185.000	24.700	358.000
1.000	0.002530	76.300	0.00717	97.500	0.0040	142.000	38.200	280.000
1.064	0.003180	64.200	0.00900	83.100	0.0506	123.000	48.000	246.000
1.310	0.003180	64.200	0.00900	83.100	0.0506	123.000	48.000	246.000
1.350	0.003180	64.200	0.00900	83.100	0.0506	123.000	48.000	246.000
1.390	0.003180	0.000	0.00900	0.000	0.0506	0.000	0.003	0.000
1.400	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
1.450	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
1.500	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
1.550	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
1.600	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
1.700	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
1.800	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
1.900	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
2.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
2.100	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
2.600	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
3.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
4.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
5.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
6.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
7.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
8.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
9.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
10.000	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000
10.600	0.396000	0.000	0.56000	0.000	0.9960	0.000	0.003	0.000

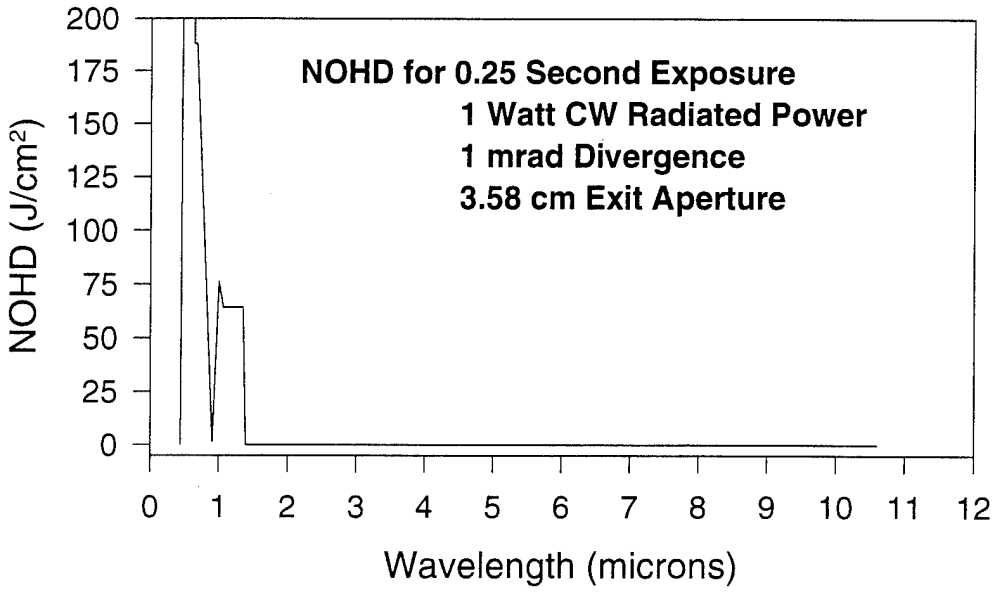


Figure 3-9. NOHD for 0.25 Second OcularExposure and 3.58 cm Exit Aperture

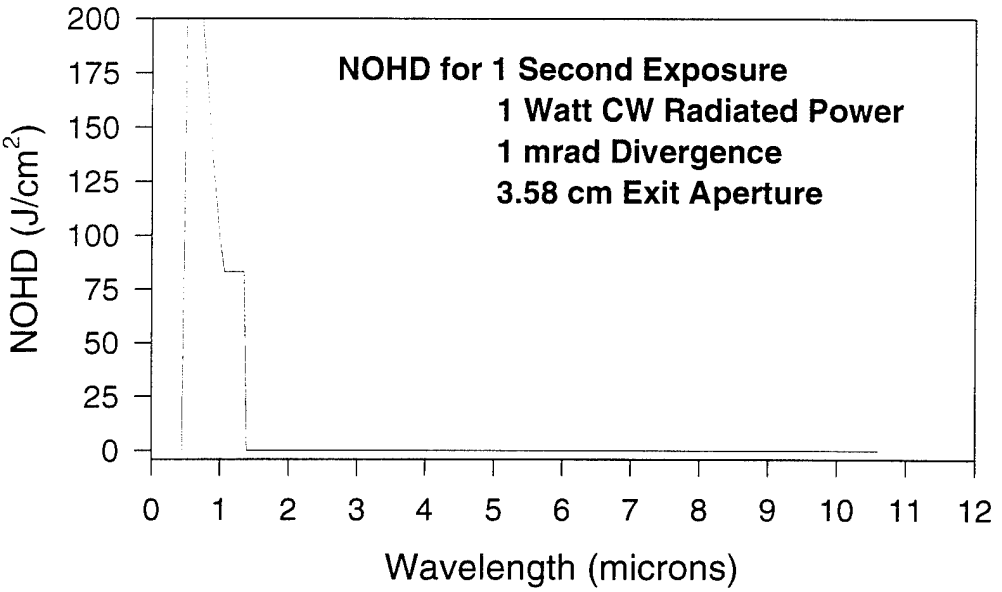


Figure 3-10. NOHD for 1 Second OcularExposure and 3.58 cm Exit Aperture

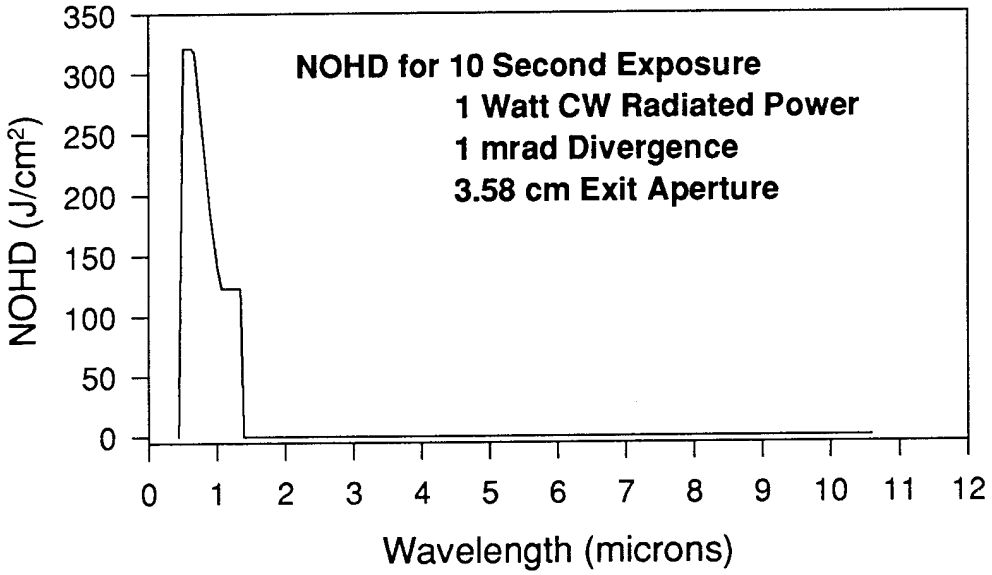


Figure 3-11. NOHD for 10 Second OcularExposure and 3.58 cm Exit Aperture

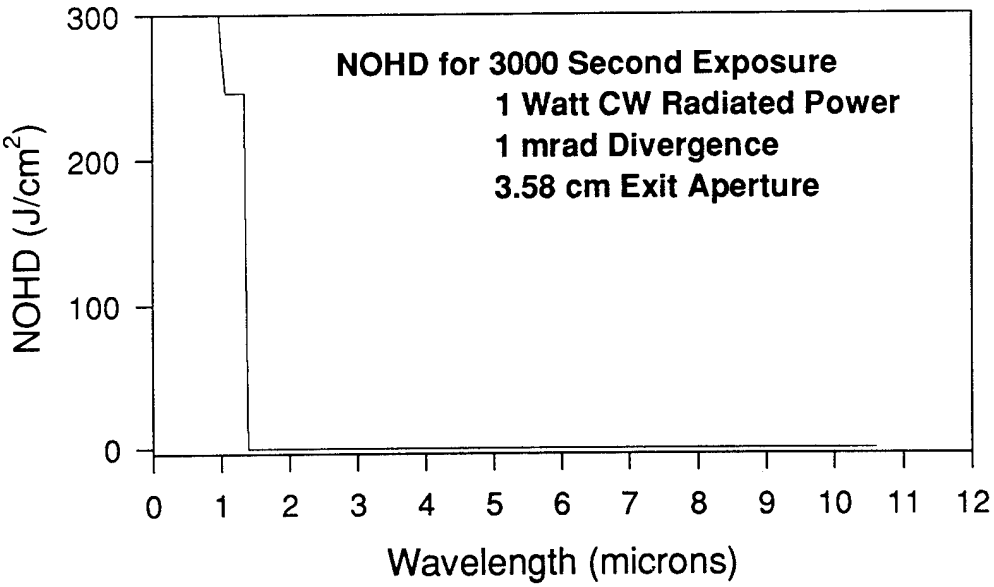


Figure 3-12. NOHD for 3000Second OcularExposure and 3.58 cm Exit Aperture

Table 3-3. Laser Hazard Evaluation

LHAZ ver 2.0
SDL 2000 nm laser

A. A hazard evaluation was accomplished for a laser with the following operational characteristics:

Wavelength = 2000.0 nanometers
CW Laser
Power = 1.00E+00 Watts
Beam diameter = 3.58E+00 cm at 1/e point
Divergence = 1.00E-03 radians at 1/e point

B. This is an ANSI Class 4 Laser and should be operated in accordance with the safety measures outlined in AFOSH STD 161-10 along with such other safety procedures required by the responsible safety officer.

C. The Maximum Permissible Exposure (MPE) limits are listed below. The MPE is defined as the radiant exposure which personnel may receive biological effects.

Type of MPE	**Exposure Duration (s)**	**MPE (J/cm^2)**
Ocular point source	0.25	3.96E-01 J/cm2
Ocular point source	10.0	9.96E-01 J/cm2
Ocular point source	30,000	3.00E+03 J/cm2
Ocular point source	1.000	5.60E-01J/cm2
Ocular extended source	0.25	3.96E-01 J/cm2/sr
Ocular extended source	10.0	9.96E-01 J/cm2/sr
Ocular extended source	30.000	3.00E+03 J/cm2/sr
Ocular extended source	1.000	5.60E-01J/cm2/sr
Skin	0.25	3.96E-01 J/cm2
Skin	10.0	9.96E-01 J/cm2
Skin	30,000	3.00E+03 J/cm2
Skin	1.000	5.60E-01J/cm2

D. The Safe Exposure Distance (SED)/(NOHD) for various exposure conditions is listed below The SED is defined as the distance an operating laser at which the radiant exposure is equal the MPE.

Type of SED/NOHD	Exposure Duration (s)	SED/NOHD(m)
Ocular point	0.25	0.00E+00
Ocular point	10.0	0.00E+00
Ocular point	30,000	0.00E+00
Ocular point	1.000	0.00E+00
Diffuse reflection	0.25	0.00E+00
Diffuse reflection	10.0	0.00E+00
Diffuse reflection	30,000	0.00E+00
Diffuse reflection	1.000	0.00E+00
Skin	0.25	0.00E+00
Skin	10.0	0.00E+00
Skin	30,000	0.00E+00
Skin	1.000	0.00E+00

Table 3-3 Continued

E. The optical density (OD) is a measure of the opacity to radiation in logarithmic units. The following are OD values required at distances listed.

OD Required at the Laser Aperture

Wavelength(nm)	Exposure Time (s)	Ocular OD	Skin OD
2000.0	0.25	0.00	0.00
2000.0	10.0	0.00	0.00
2000.0	30,000	0.00	0.00
2000.0	1.000	0.00	0.00

OD Required at 1.0 km

Wavelength(nm)	Exposure Time (s)	Ocular OD	Skin OD
2000.0	0.25	0.00	0.00
2000.0	10.0	0.00	0.00
2000.0	30,000	0.00	0.00
2000.0	1.000	0.00	0.00

OD Required at 5.0 km

Wavelength(nm)	Exposure Time (s)	Ocular OD	Skin OD
2000.0	0.25	0.00	0.00
2000.0	10.0	0.00	0.00
2000.0	30,000	0.00	0.00
2000.0	1.000	0.00	0.00

3.2 Atmospheric Propagation Analysis

No laser communications system design can be complete without knowledge of the conditions under which the system will be required to communicate. One large consideration is the atmospheric transmittance. In an effort to determine the best wavelength to use for our eye-safe laser communications system, we used the atmospheric modeling algorithm called MODTRAN to assess the transmittance of the atmosphere between the LCLCRF and LCLTF. We had originally requested a 2.01 micron laser because we knew of the exceptional transmittance from previous modeling exercises. When the Laser Manufacturer told us that they may not be able to reach the 2 micron goal for their 1 watt laser diode, we decided to use MODTRAN to determine the transmittance of all wavelengths between 1.4 and 2.1 to ascertain the best wavelength to shoot for if we had to settle for a shorter wavelength. Table 3-4 summarizes the worst case MODTRAN inputs we made for our design and Table A-1 in Appendix A provides the transmittance for each wavelength.

TABLE 3-4. Transmittance Model Input Data

MODEL ATMOSPHERE - STANDARD MIDLATITUDE SUMMER
TYPE OF PATH - HORIZONTAL
PROGRAM EVALUATION MODE - TRANSMITTANCE
HAZE MODEL - AEROSOL ATTENUATION FOR RURAL 23 KM.
SEASONAL PARAMETER - SPRING - SUMMER
VOLCANIC PARAMETER - STRATOSPHERIC BACKGROUND
CLOUD/RAIN PARAMETER - NO CLOUDS OR RAIN
ARMY VERTICAL STRUCTURE - NO
VISIBILITY - 23 KM
RAIN RATE - 0 mm/HR
ALTITUDE OF SURFACE ABOVE SEA LEVEL - .330 KM
ALTITUDE OF TRANSMITTER ABOVE SEA LEVEL - .333 KM
ALTITUDE OF RECEIVER ABOVE SEA LEVEL - .366 KM
INITIAL ZENITH ANGLE - 90 DEGREES
RADIUS OF EARTH - 6371.23 KM
PATH LENGTH - 8 KM
EARTH CENTER ANGLE - 0 DEGREES
INITIAL WAVELENGTH - 4000 CM-1 (2.5 MICRONS)
FINAL WAVELENGTH IN WAVENUMBERS 6666 CM^{-1} (1.5 MICRONS)
STEP SIZE - 1 CM-1
FULL WIDTH AT HALF MAX - 1 CM-1

As can be seen from Table A-1 and the graphically depicted data in Figures 3-13 through 3-19, the best wavelengths to shoot for were in the range 1.97 - 2.0 microns, with 1.9928 providing the best atmospheric transmittance. This information was provided to the laser manufacturer and 3 diodes were delivered in October 1994. The center wavelengths of the diodes included one at 1.992, Figure 3-22, and two at 1.988 microns, Figures 3-20 and 3-21. Each diode has about a 40 nanometer wavelength spread.

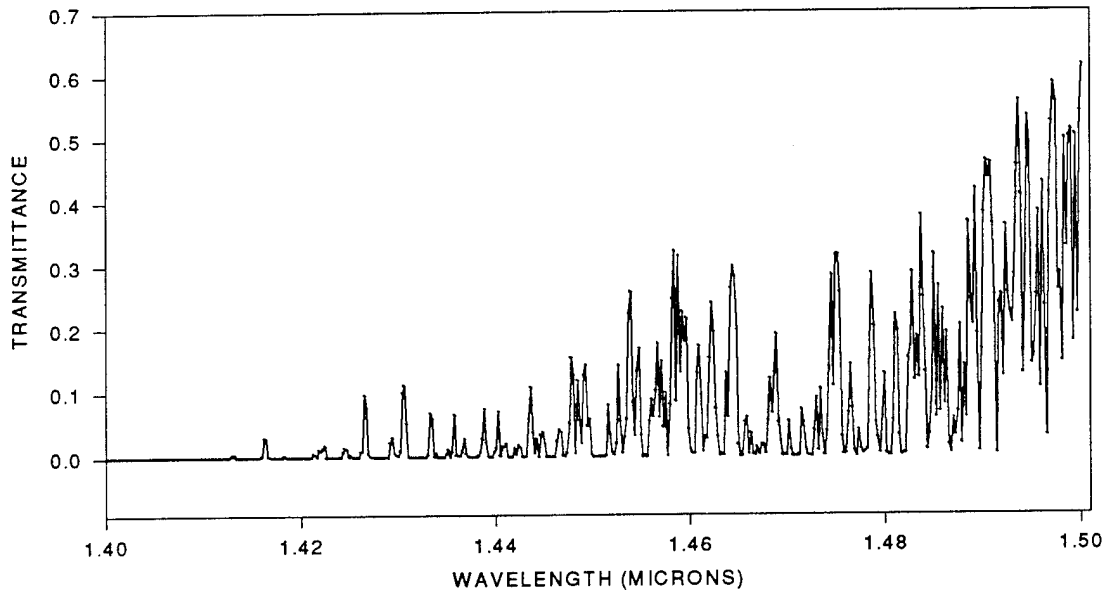


Figure 3-13. Atmospheric Transmittance Characteristics for 1.4 - 1.5 Micron Laser Wavelengths

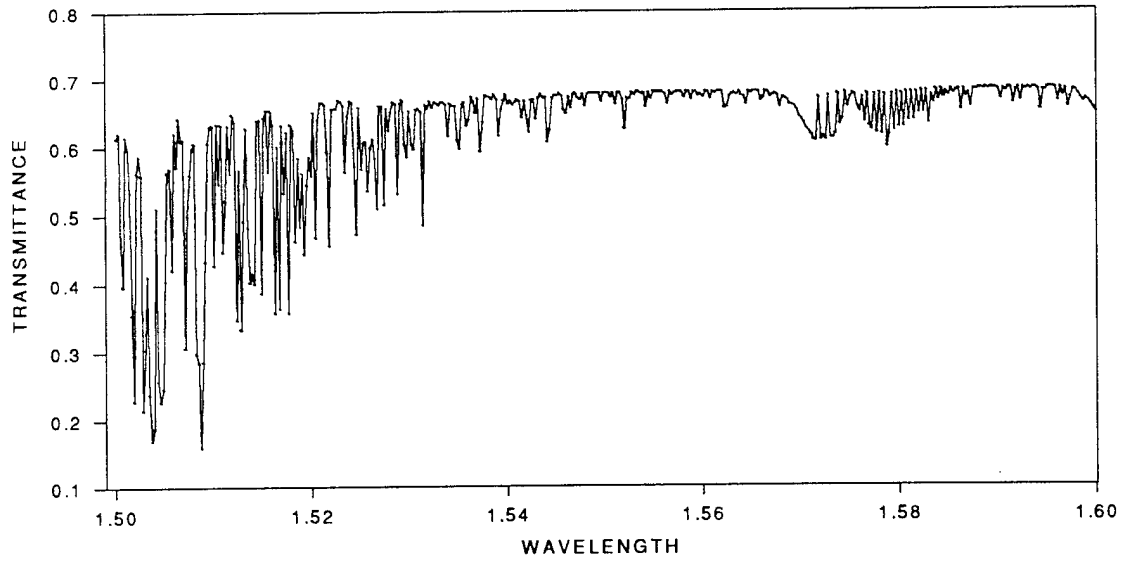


Figure 3-14. Atmospheric Transmittance Characteristics for 1.5 - 1.6 Micron Laser Wavelengths

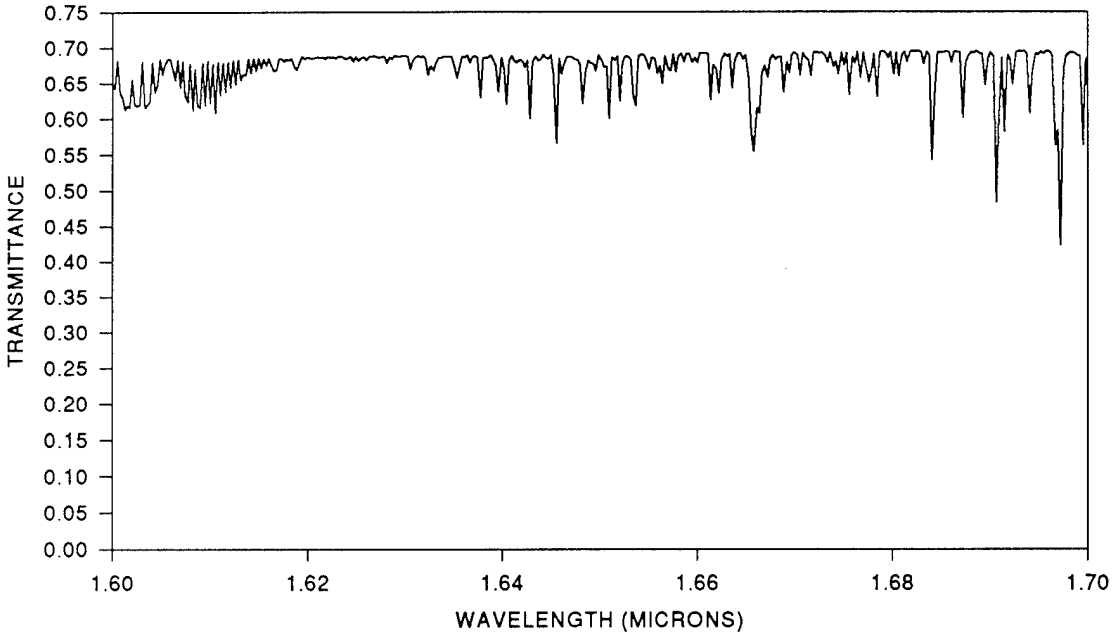


Figure 3-15. Atmospheric Transmittance Characteristics for 1.6 - 1.7 Micron Laser Wavelengths

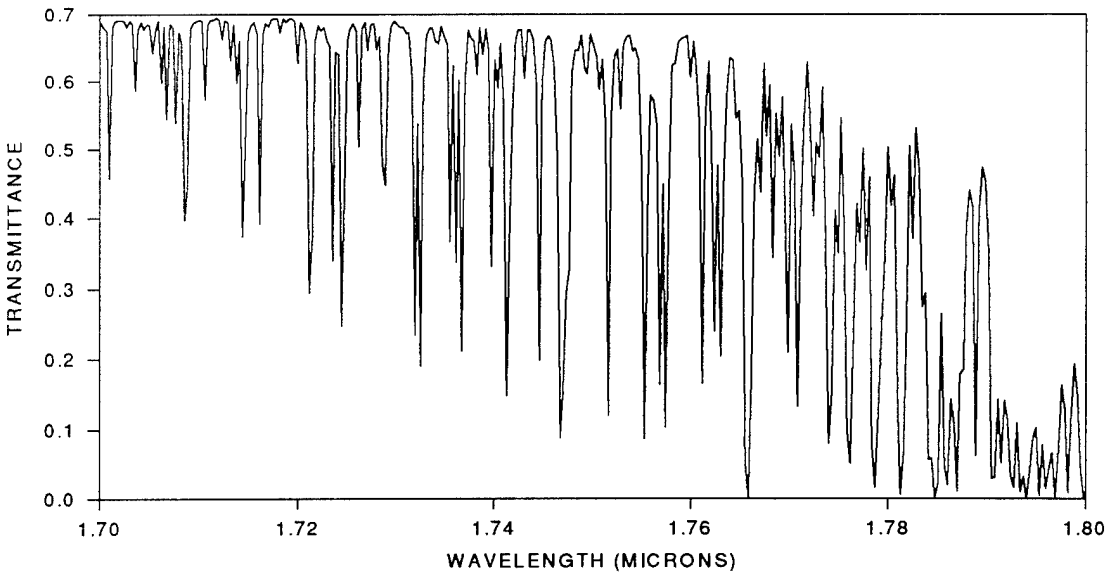


Figure 3-16. Atmospheric Transmittance Characteristics for 1.7 - 1.8 Micron Laser Wavelengths

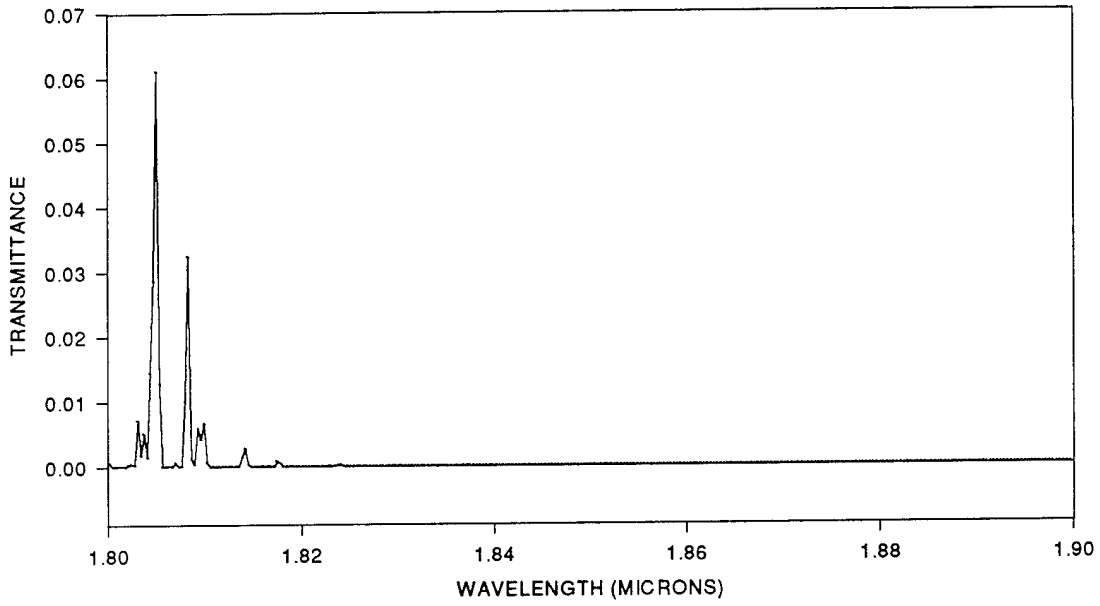


Figure 3-17. Atmospheric Transmittance Characteristics for 1.8 - 1.9 Micron Laser Wavelengths

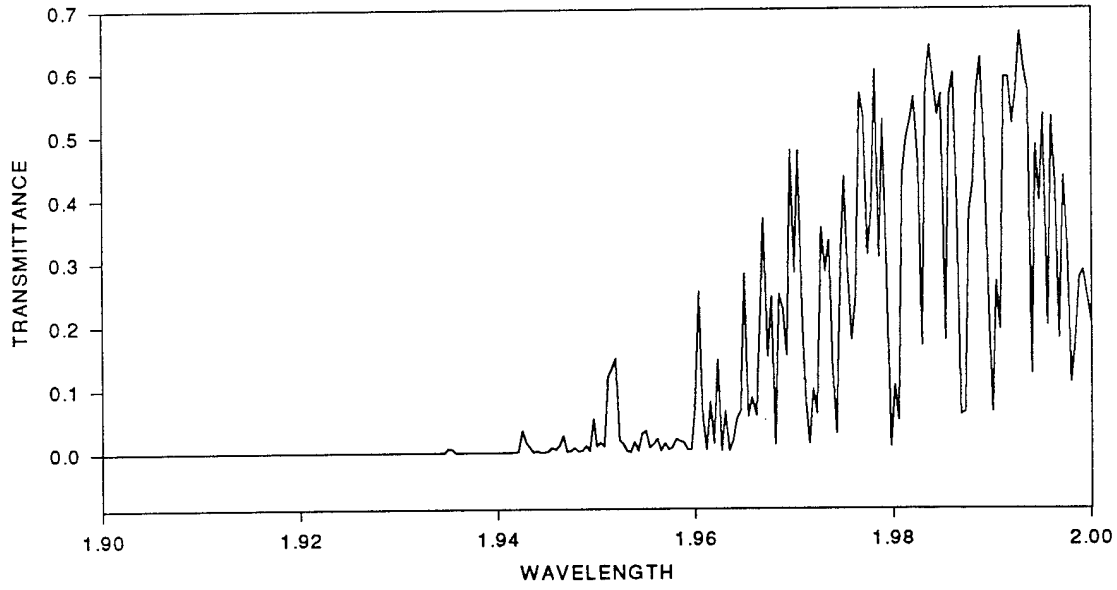


Figure 3-18. Atmospheric Transmittance Characteristics for 1.9 - 2.0 Micron Laser Wavelengths

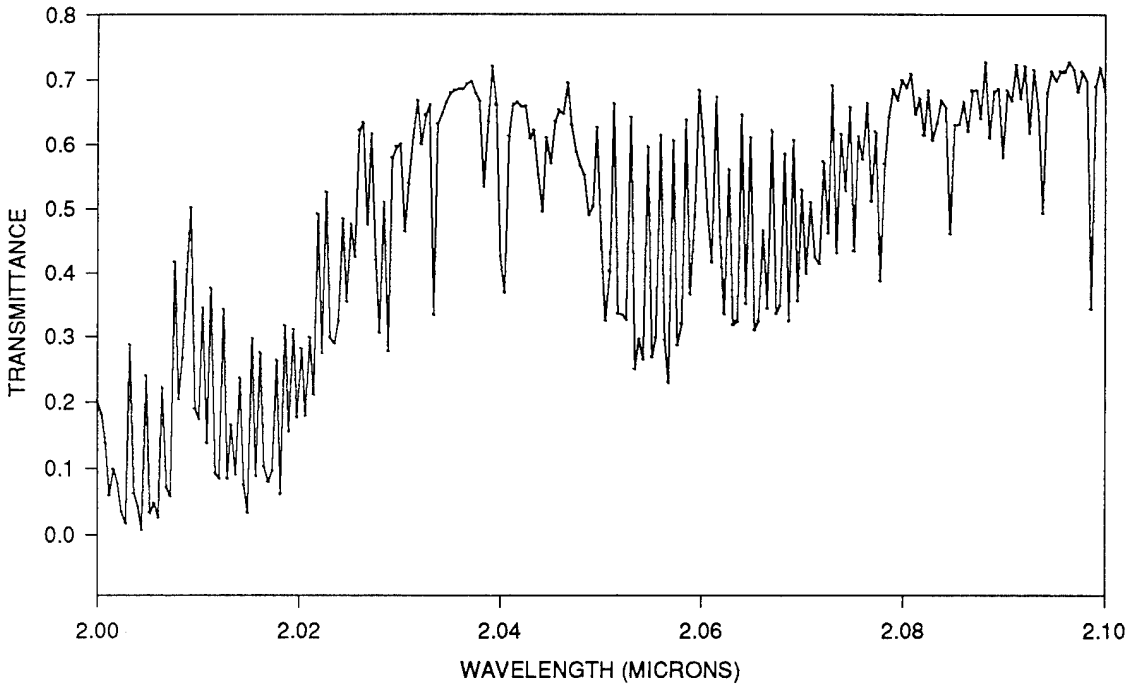


Figure 3-19. Atmospheric Transmittance Characteristics for 2.0 - 2.1 Micron Laser Wavelengths

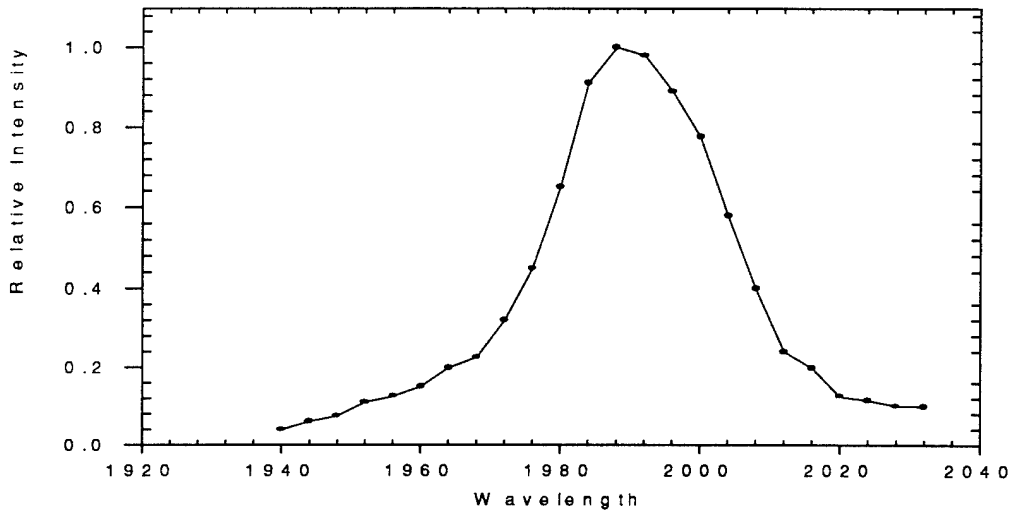


Figure 3-20 Spectral Characteristics of SDL 1 Watt 1.988 μm Laser Diode Number AL942

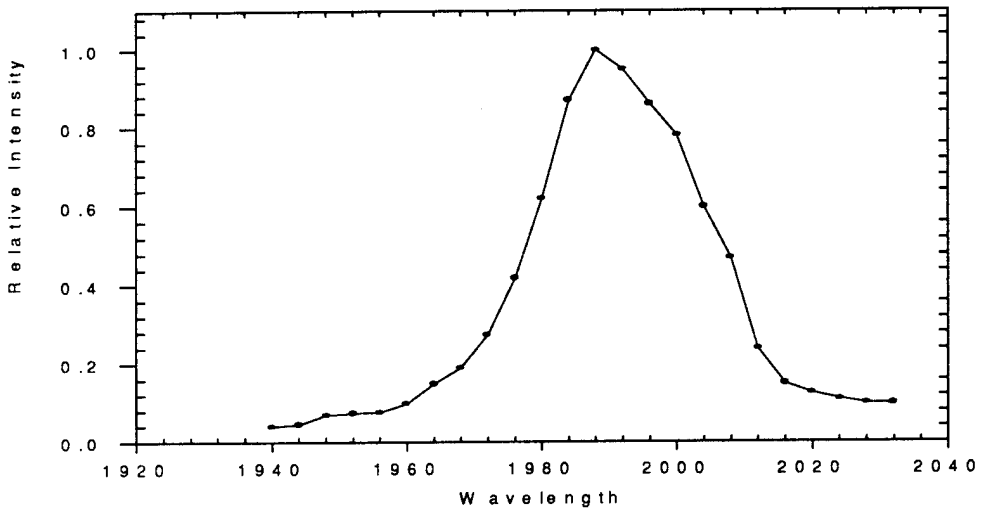


Figure 3-21 Spectral Characteristics of SDL 1 Watt 1.988 μm Laser Diode Number AL946

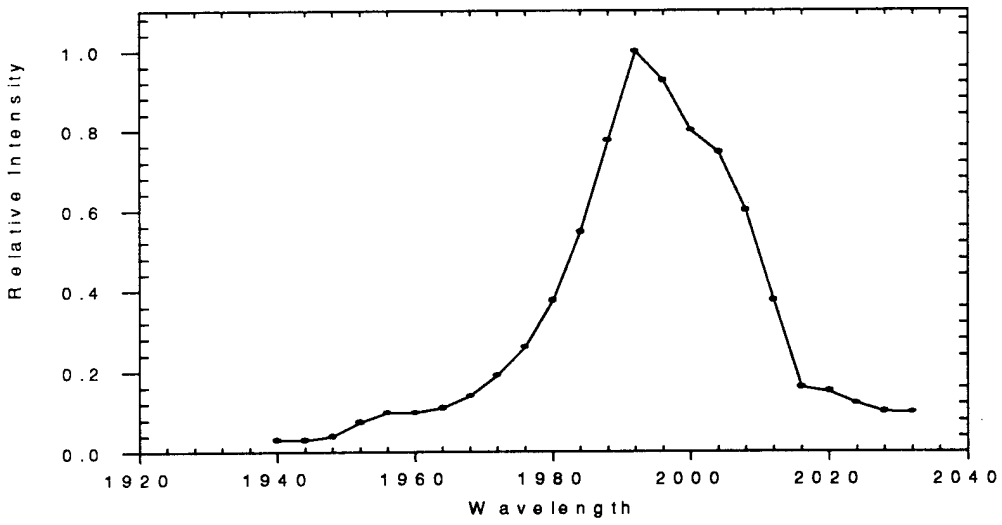


Figure 3-22 Spectral Characteristics of SDL 1 Watt 1.992 μm Laser Diode Number AL944

After the diodes were delivered with their specifications, Modtran was again used to determine the integrated transmittance over the wavelength range which each diode radiates at. An Initial wavelength of 4975 cm-1 (2010 nm) and a final wavelength of 5076 cm-1 (1970 nm) with were used for the analysis. All parameters in Table 3-4 remained the same. The resulting transmittance was approximately 30%. In other words, we are loosing more than two thirds of our signal to atmospheric absorption.

3.3 Communications Equipment

The equipment used for the data communications portion of the project consisted of the laser diode purchased from SDL, an in-house built receiver and off-the-shelf protocol analyzers equipment for measuring the quality of the communications link.

3.3.1 Transmitter

The laser transmitteris a Spectra Diode Laboratory AL944 laser diode(1) mounted on a a thermal-electrically cooled heatsink and powered by an SDL-820 laser diode driver and is capable of 1 watt CW optical output power. The transmitter is triggered by the return to zero TTL output of a an RS232 - TTL interface connected to the RS232 output of an HP4957A protocol analyzer and emits a 40-nanosecond pulse for each positive transition of the data input signal. Light radiated by the laser diode is columinated by a 3.58 inch diameter Infrared grade plano-convex lens. The maximum pulse repetition frequency of the transmitter has been determined by laboratory experimentation to be 16,800 pulses per second. Technical specifications for the SD-820 are provided in appendix B with the specifications for the laser diodes, as well as other major equipment used for the receiver such as the Epitax InGaAs photodetector.

3.3.2 Receiver

The laser receiver was designed and built in-house. It consists of Celestron 90mm Maksutov Cassegrain spotter scope adapted to focus the incoming laser radiation onto an EPITAX Corporation Indium Gallium Arsenide photodiode housed with a bandpass filter in a Melles Griot modular photodetection system. A Stanford Reserch System Model SR530 Low Noise Current Amplifier supplies current to the detector and acts as the first stage amplifier. The signal is then amplified by a Stanford Research Systems Model SR560 low noise amplifier which supplies the needed gain and electronic filtering. The resulting Gaussian shaped pulses are fed into the trigger input of Tektronix FG507 function generator where the leading edge of the pulse causes the function generator to output one TTL compatible pulse of preset duration for every Gaussian shaped pulse of a certain preset minimum amplitude at the input. The output of the function generator was subsequently fed into a TTL - RS232 converter and then into an HP 4957A Bit Error Rate Tester for analysis.

4 Bit Error Rate Testing

Two HP 4957A Protocol Analyzers were used to measure the quality of the communications link. One HP 4957A was interfaced with the laser transmitter at the Trebein Test Site and the second HP 4957A was interfaced with the in-house built receiver in the LCL. Since the laser transmitter is edge triggered from the leading edge of a TTL pulse, an interface had to be built to convert the RS-232 Non-Return-to-Zero (NRZ) bit stream provided by the protocol analyzers to the TTL Return-to-Zero (RZ) format required by the Transmitter. At the receiver, the received signal was then converted to NRZ and RS-232 format by an in-house designed and built TTL-to-RS232 converter. Synchronizing was not a big problem because the protocol analyzers were asynchronous. Although the sometimes low Bit-error-rate of 10^{-2} can probably be attributed to scintillation induced frequency jitter caused by a small diffraction limited aperture of the atmosphere. Bit error rates nominally were in the 10^{-5} range for atmospheric conditions similar to those programmed into the MODTRAN model, with several 10^{-6} Bit-error-rate exceptions.

5 Observations and Conclusions

The eye-safe laser communications system developed during this program is truly eye-safe as can be seen by the LHAZ results in Table 3-3. The bit-error rate approached a nominal 10-5 during periods of weather similar to the MODTRAN model discussed earlier. This is mainly due to the fact that the laser diode is a multi-wavelength device and some of the spectral bandwidth falls in the areas where absorption is high. The system signal margin could be increased by about 3 dB, and the BER substantially reduced, by decreasing the laser diode spectral bandwidth to within just a few nanometers of the center wavelength. Another way to pick up at least 3 dB would be to select different wavelengths altogether. Table 3-2 and Figures 3-9 - 3-12 show that the same levels of eye-safety can be achieved with any wavelength over 1.4 μm using the 3.58 cm exit aperture. Examination of Figures 3-14 and 3-15 show that there is exceptional atmospheric Transmittance between 1.53 and 1.72 μm that can be exploited to provide greater than 65% transmittance using wide spectral bandwidth laser diodes. The fastest and easiest way to achieve communications in this wavelength region would be to adapt 1.54 μm laser diode technology which has already been developed for the fiber optic industry. A nominal 63% transmittance could be achieved with diodes having a spectral bandwidth of 30 - 40 nm. An additional 3 - 5 percent of transmittance could be realized by using laser diodes in the 1.6 to 1.65 μm region.

Another alternative for achieving the higher transmittances would be to use solid state lasers with extremely narrow bandwidths. However, even with a best case match, only another 3-5% of transmittance could be achieved. This would be at a cost of greater size, weight, and power requirements for the laser transmitter, and is probably not worth the effort for direct detection laser communications applications.

Further improvements in BER could also be achieved by implementing a synchronous pulse position modulation format. An ascychronous communications format was implemented for this project because the LCL did not have rhe required equipment to perform sychronous communications over the 8 km range.

6 Future LCL Efforts

The existence of the LCL has been a tremendous asset in the research and development of past and present laser communications systems and will play an even more important role in the years to come as these developmental systems become operational. Plans are to accomplish projects to improve acquisition and tracking of laser communications signals, improve optical antenna designs to allow for near omni-directional coverage, and do further research into the role that atmospheric turbulence plays in corrupting the signal.

7 Summary

We set out in this project to develop a laser communications system which would be capable of operating in an atmospheric environment, over short-to-medium distances, and be eye-safe for operations and maintenance personnel. We did extensive analysis using the ANSI Standard and LHAZ 2.0 to ensure that the laser transmitter would be eye-safe over an entire 8 hour workday.

We have also attempted during this program to ascertain how free space laser communications using direct photodetection is affected by the presence of the atmosphere. A great deal of effort was expended in the early part of the program to select the optimum wavelength to use in our eye-safe laser communications system. By doing this we were able to design and build our system to meet the atmospheric challenges which our modeling had predicted. We hope to carry the process a step further and accomplish atmospheric turbulence modeling and testing to be able to gather enough insight into the problems of direct photodetection free space laser communications so we can develop an automated system which can adapt itself to obtain an optimum link in the presence of low atmospheric transmittance and high atmospheric turbulence.

Appendix A MODTRAN Tranmittance Table

Table A-1 Atmospheric Transmittance Data

wave number	wave length	trans	H20	CO2	H2O cont	MOL SCAT	Aer-Hyd	Aer-Hyd abs
4761	2.100399	0.5961	0.8212	0.9802	0.9583	0.9996	0.7731	0.1288
4762	2.099958	0.6883	0.9483	0.9802	0.9583	0.9996	0.7731	0.1288
4763	2.099517	0.7174	0.9816	0.9869	0.9583	0.9996	0.7731	0.1288
4764	2.099076	0.6878	0.9490	0.9787	0.9583	0.9996	0.7730	0.1288
4765	2.098636	0.3428	0.4722	0.9803	0.9583	0.9996	0.7730	0.1288
4766	2.098196	0.6973	0.9562	0.9849	0.9583	0.9996	0.7730	0.1289
4767	2.097755	0.7112	0.9844	0.9757	0.9583	0.9996	0.7729	0.1289
4768	2.097315	0.6804	0.9392	0.9785	0.9583	0.9996	0.7729	0.1289
4769	2.096876	0.7160	0.9951	0.9718	0.9584	0.9996	0.7729	0.1289
4770	2.096436	0.7267	0.9973	0.9842	0.9584	0.9996	0.7728	0.1289
4771	2.095997	0.7113	0.9952	0.9655	0.9584	0.9996	0.7728	0.1289
4772	2.095557	0.7111	0.9845	0.9756	0.9584	0.9996	0.7728	0.1290
4773	2.095118	0.6973	0.9853	0.9561	0.9584	0.9996	0.7727	0.1290
4774	2.094680	0.7114	0.9836	0.9770	0.9584	0.9996	0.7727	0.1290
4775	2.094241	0.6786	0.9636	0.9514	0.9584	0.9996	0.7726	0.1290
4776	2.093802	0.4923	0.6855	0.9703	0.9584	0.9996	0.7726	0.1290
4777	2.093364	0.6540	0.9363	0.9437	0.9584	0.9996	0.7726	0.1290
4778	2.092926	0.7141	0.9896	0.9749	0.9584	0.9996	0.7725	0.1290
4779	2.092488	0.6168	0.8986	0.9274	0.9584	0.9996	0.7725	0.1291
4780	2.092050	0.7199	0.9941	0.9786	0.9584	0.9996	0.7725	0.1291
4781	2.091613	0.6692	0.9885	0.9147	0.9584	0.9996	0.7724	0.1291
4782	2.091175	0.7224	0.9940	0.9822	0.9584	0.9996	0.7724	0.1291
4783	2.090738	0.6660	0.9926	0.9068	0.9584	0.9996	0.7724	0.1291
4784	2.090301	0.6825	0.9895	0.9322	0.9585	0.9996	0.7723	0.1291
4785	2.089864	0.5785	0.8319	0.9399	0.9585	0.9996	0.7723	0.1292
4786	2.089427	0.6849	0.9893	0.9358	0.9585	0.9996	0.7723	0.1292
4787	2.088991	0.6801	0.9862	0.9321	0.9585	0.9996	0.7722	0.1292
4788	2.088555	0.6092	0.9321	0.8834	0.9585	0.9996	0.7722	0.1292
4789	2.088119	0.7249	0.9970	0.9828	0.9585	0.9996	0.7722	0.1292
4790	2.087683	0.6394	0.9849	0.8776	0.9585	0.9996	0.7721	0.1292
4791	2.087247	0.6827	0.9955	0.9270	0.9585	0.9996	0.7721	0.1293
4792	2.086811	0.6827	0.9954	0.9272	0.9585	0.9996	0.7721	0.1293
4793	2.086376	0.6199	0.9153	0.9156	0.9586	0.9996	0.7720	0.1293
4794	2.085941	0.6649	0.9738	0.9230	0.9586	0.9996	0.7720	0.1293
4795	2.085506	0.6302	0.9911	0.8596	0.9586	0.9996	0.7719	0.1293
4796	2.085071	0.6288	0.9365	0.9078	0.9586	0.9996	0.7719	0.1293
4797	2.084636	0.4606	0.6795	0.9164	0.9586	0.9996	0.7719	0.1293
4798	2.084202	0.6563	0.9685	0.9161	0.9587	0.9996	0.7718	0.1294
4799	2.083767	0.6671	0.9881	0.9129	0.9587	0.9996	0.7718	0.1294
4800	2.083333	0.6318	0.9848	0.8674	0.9587	0.9996	0.7718	0.1294

4801	2.082899	0.6052	0.8909	0.9186	0.9587	0.9996	0.7717	0.1294
4802	2.082466	0.6815	0.9913	0.9296	0.9587	0.9996	0.7717	0.1294
4803	2.082032	0.6134	0.9045	0.9171	0.9587	0.9996	0.7717	0.1294
4804	2.081599	0.6702	0.9574	0.9466	0.9587	0.9996	0.7716	0.1295
4805	2.081165	0.6463	0.9659	0.9049	0.9587	0.9996	0.7716	0.1295
4806	2.080732	0.7082	0.9978	0.9599	0.9587	0.9996	0.7716	0.1295
4807	2.080300	0.6867	0.9984	0.9302	0.9587	0.9996	0.7715	0.1295
4808	2.079867	0.6987	0.9980	0.9469	0.9587	0.9996	0.7715	0.1295
4809	2.079434	0.6674	0.9969	0.9056	0.9587	0.9996	0.7715	0.1295
4810	2.079002	0.6840	0.9667	0.9570	0.9588	0.9996	0.7714	0.1295
4811	2.078570	0.6408	0.9862	0.8789	0.9588	0.9996	0.7714	0.1296
4812	2.078138	0.5688	0.8482	0.9071	0.9587	0.9996	0.7714	0.1296
4813	2.077706	0.3873	0.6314	0.8298	0.9587	0.9996	0.7713	0.1296
4814	2.077275	0.6187	0.9050	0.9249	0.9587	0.9996	0.7713	0.1296
4815	2.076843	0.5116	0.8866	0.7808	0.9587	0.9996	0.7713	0.1296
4816	2.076412	0.6638	0.9890	0.9082	0.9587	0.9996	0.7712	0.1296
4817	2.075981	0.5764	0.9950	0.7838	0.9587	0.9996	0.7712	0.1297
4818	2.075550	0.6118	0.9809	0.8440	0.9587	0.9996	0.7712	0.1297
4819	2.075119	0.4339	0.8333	0.7047	0.9587	0.9996	0.7711	0.1297
4820	2.074689	0.6573	0.9888	0.8996	0.9587	0.9996	0.7711	0.1297
4821	2.074258	0.5279	0.9962	0.7172	0.9587	0.9996	0.7711	0.1297
4822	2.073828	0.6152	0.9943	0.8375	0.9587	0.9996	0.7710	0.1297
4823	2.073398	0.4313	0.8888	0.6568	0.9587	0.9996	0.7710	0.1297
4824	2.072968	0.6904	0.9838	0.9499	0.9587	0.9996	0.7709	0.1298
4825	2.072539	0.4625	0.9953	0.6290	0.9587	0.9996	0.7709	0.1298
4826	2.072109	0.5713	0.9123	0.8478	0.9587	0.9996	0.7709	0.1298
4827	2.071680	0.4148	0.9403	0.5972	0.9587	0.9996	0.7708	0.1298
4828	2.071251	0.4241	0.9468	0.6065	0.9587	0.9996	0.7708	0.1298
4829	2.070822	0.5100	0.8044	0.8585	0.9586	0.9996	0.7708	0.1298
4830	2.070393	0.3988	0.9644	0.5600	0.9586	0.9996	0.7707	0.1299
4831	2.069965	0.5284	0.8231	0.8692	0.9586	0.9996	0.7707	0.1299
4832	2.069536	0.3559	0.8753	0.5506	0.9586	0.9996	0.7707	0.1299
4833	2.069108	0.6062	0.9408	0.8726	0.9586	0.9996	0.7706	0.1299
4834	2.068680	0.3247	0.8368	0.5255	0.9586	0.9996	0.7706	0.1299
4835	2.068252	0.5832	0.9041	0.8736	0.9586	0.9996	0.7706	0.1299
4836	2.067825	0.3483	0.9779	0.4824	0.9586	0.9996	0.7705	0.1299
4837	2.067397	0.3357	0.9642	0.4716	0.9586	0.9996	0.7705	0.1300
4838	2.066970	0.6206	0.9644	0.8717	0.9586	0.9996	0.7705	0.1300
4839	2.066543	0.3442	0.9794	0.4761	0.9586	0.9996	0.7704	0.1300
4840	2.066116	0.4663	0.7244	0.8721	0.9586	0.9996	0.7704	0.1300
4841	2.065689	0.3238	0.9746	0.4500	0.9586	0.9996	0.7704	0.1300
4842	2.065262	0.3102	0.9344	0.4498	0.9586	0.9996	0.7703	0.1300
4843	2.064836	0.6104	0.9393	0.8804	0.9586	0.9996	0.7703	0.1301
4844	2.064410	0.3511	0.9953	0.4780	0.9586	0.9996	0.7703	0.1301
4845	2.063983	0.6450	0.9896	0.8832	0.9586	0.9996	0.7702	0.1301
4846	2.063558	0.3244	0.9177	0.4790	0.9586	0.9996	0.7702	0.1301

4847	2.063132	0.3181	0.8551	0.5040	0.9586	0.9996	0.7702	0.1301
4848	2.062706	0.5602	0.8422	0.9015	0.9586	0.9996	0.7701	0.1301
4849	2.062281	0.3352	0.8138	0.5583	0.9586	0.9996	0.7701	0.1301
4850	2.061856	0.4559	0.9853	0.6271	0.9586	0.9996	0.7701	0.1302
4851	2.061431	0.6734	0.9774	0.9338	0.9586	0.9996	0.7700	0.1302
4852	2.061006	0.4169	0.7427	0.7609	0.9586	0.9996	0.7700	0.1302
4853	2.060581	0.4949	0.7046	0.9522	0.9586	0.9996	0.7700	0.1302
4854	2.060157	0.6109	0.9768	0.8478	0.9586	0.9996	0.7699	0.1302
4855	2.059732	0.6819	0.9844	0.9391	0.9586	0.9996	0.7699	0.1302
4856	2.059308	0.4890	0.9860	0.6723	0.9586	0.9996	0.7699	0.1302
4857	2.058884	0.3668	0.8596	0.5784	0.9586	0.9996	0.7698	0.1303
4858	2.058460	0.6371	0.9543	0.9051	0.9585	0.9996	0.7698	0.1303
4859	2.058037	0.3202	0.8599	0.5049	0.9585	0.9996	0.7698	0.1303
4860	2.057613	0.2872	0.8178	0.4762	0.9585	0.9996	0.7697	0.1303
4861	2.057190	0.6055	0.9704	0.8462	0.9585	0.9996	0.7697	0.1303
4862	2.056767	0.2291	0.7008	0.4433	0.9585	0.9996	0.7697	0.1303
4863	2.056344	0.2949	0.9486	0.4216	0.9585	0.9996	0.7696	0.1304
4864	2.055921	0.6139	0.9695	0.8588	0.9585	0.9996	0.7696	0.1304
4865	2.055498	0.2990	0.9834	0.4123	0.9584	0.9996	0.7696	0.1304
4866	2.055076	0.2687	0.8657	0.4210	0.9584	0.9996	0.7695	0.1304
4867	2.054654	0.5958	0.9868	0.8190	0.9584	0.9996	0.7695	0.1304
4868	2.054232	0.2653	0.8419	0.4276	0.9584	0.9996	0.7695	0.1304
4869	2.053810	0.2971	0.9833	0.4099	0.9584	0.9996	0.7694	0.1304
4870	2.053388	0.2501	0.7686	0.4415	0.9583	0.9996	0.7694	0.1305
4871	2.052967	0.6419	0.9901	0.8798	0.9583	0.9996	0.7694	0.1305
4872	2.052545	0.3259	0.9446	0.4681	0.9583	0.9996	0.7693	0.1305
4873	2.052124	0.3348	0.9215	0.4931	0.9583	0.9996	0.7693	0.1305
4874	2.051703	0.3355	0.8801	0.5174	0.9583	0.9996	0.7693	0.1305
4875	2.051282	0.6625	0.9868	0.9112	0.9582	0.9996	0.7692	0.1305
4876	2.050861	0.4031	0.9856	0.5551	0.9582	0.9996	0.7692	0.1305
4877	2.050441	0.3250	0.7383	0.5975	0.9582	0.9996	0.7692	0.1306
4878	2.050021	0.4487	0.9842	0.6189	0.9582	0.9996	0.7691	0.1306
4879	2.049600	0.6264	0.9527	0.8927	0.9581	0.9996	0.7691	0.1306
4880	2.049180	0.5040	0.9944	0.6882	0.9581	0.9996	0.7691	0.1306
4881	2.048760	0.4908	0.9607	0.6936	0.9581	0.9996	0.7690	0.1306
4882	2.048341	0.5528	0.9947	0.7547	0.9581	0.9996	0.7690	0.1306
4883	2.047921	0.5655	0.9977	0.7697	0.9580	0.9996	0.7690	0.1307
4884	2.047502	0.5885	0.9980	0.8008	0.9580	0.9996	0.7689	0.1307
4885	2.047083	0.6289	0.9911	0.8620	0.9580	0.9996	0.7689	0.1307
4886	2.046664	0.6946	0.9856	0.9573	0.9580	0.9996	0.7689	0.1307
4887	2.046245	0.6467	0.9976	0.8806	0.9579	0.9996	0.7688	0.1307
4888	2.045827	0.6520	0.9890	0.8955	0.9579	0.9996	0.7688	0.1307
4889	2.045408	0.6350	0.9370	0.9207	0.9579	0.9996	0.7688	0.1307
4890	2.044990	0.5700	0.8436	0.9180	0.9579	0.9996	0.7687	0.1308
4891	2.044572	0.6099	0.9130	0.9078	0.9578	0.9996	0.7687	0.1308
4892	2.044154	0.4958	0.7040	0.9572	0.9578	0.9996	0.7687	0.1308

4893	2.043736	0.5522	0.8115	0.9248	0.9577	0.9996	0.7686	0.1308
4894	2.043318	0.6217	0.9172	0.9213	0.9577	0.9995	0.7686	0.1308
4895	2.042901	0.6084	0.8519	0.9708	0.9576	0.9995	0.7686	0.1308
4896	2.042484	0.6598	0.9886	0.9073	0.9575	0.9995	0.7685	0.1308
4897	2.042067	0.6581	0.9751	0.9176	0.9575	0.9995	0.7685	0.1309
4898	2.041650	0.6649	0.9834	0.9193	0.9574	0.9995	0.7685	0.1309
4899	2.041233	0.6617	0.9201	0.9781	0.9574	0.9995	0.7684	0.1309
4900	2.040816	0.6124	0.9125	0.9127	0.9573	0.9995	0.7684	0.1309
4901	2.040400	0.3690	0.5447	0.9216	0.9572	0.9995	0.7684	0.1309
4902	2.039984	0.4253	0.6233	0.9283	0.9572	0.9995	0.7683	0.1309
4903	2.039568	0.6604	0.9698	0.9265	0.9571	0.9995	0.7683	0.1310
4904	2.039152	0.7197	0.9883	0.9909	0.9570	0.9995	0.7683	0.1310
4905	2.038736	0.6348	0.9216	0.9374	0.9570	0.9995	0.7682	0.1310
4906	2.038320	0.5335	0.7713	0.9414	0.9569	0.9995	0.7682	0.1310
4907	2.037905	0.6667	0.9599	0.9454	0.9568	0.9995	0.7682	0.1310
4908	2.037490	0.6782	0.9872	0.9353	0.9567	0.9995	0.7681	0.1310
4909	2.037075	0.6970	0.9973	0.9516	0.9567	0.9995	0.7681	0.1310
4910	2.036660	0.6931	0.9933	0.9502	0.9566	0.9995	0.7681	0.1311
4911	2.036245	0.6849	0.9917	0.9405	0.9565	0.9995	0.7680	0.1311
4912	2.035831	0.6853	0.9858	0.9469	0.9564	0.9995	0.7680	0.1311
4913	2.035416	0.6833	0.9933	0.9372	0.9563	0.9995	0.7680	0.1311
4914	2.035002	0.6786	0.9922	0.9319	0.9562	0.9995	0.7679	0.1311
4915	2.034588	0.6645	0.9373	0.9661	0.9561	0.9995	0.7679	0.1311
4916	2.034174	0.6477	0.9763	0.9042	0.9560	0.9995	0.7679	0.1311
4917	2.033760	0.6308	0.8875	0.9689	0.9559	0.9995	0.7678	0.1312
4918	2.033347	0.3342	0.5030	0.9059	0.9558	0.9995	0.7678	0.1312
4919	2.032934	0.6606	0.9611	0.9371	0.9557	0.9995	0.7678	0.1312
4920	2.032520	0.6443	0.9741	0.9021	0.9556	0.9995	0.7677	0.1312
4921	2.032107	0.5999	0.8769	0.9331	0.9554	0.9995	0.7677	0.1312
4922	2.031694	0.6676	0.9657	0.9431	0.9553	0.9995	0.7677	0.1312
4923	2.031282	0.6106	0.9755	0.8540	0.9552	0.9995	0.7676	0.1312
4924	2.030869	0.5381	0.7793	0.9424	0.9550	0.9995	0.7676	0.1313
4925	2.030457	0.4649	0.7933	0.7999	0.9549	0.9995	0.7676	0.1313
4926	2.030045	0.6004	0.8497	0.9647	0.9548	0.9995	0.7675	0.1313
4927	2.029633	0.5950	0.9198	0.8832	0.9546	0.9995	0.7675	0.1313
4928	2.029221	0.5775	0.9342	0.8443	0.9545	0.9995	0.7675	0.1313
4929	2.028809	0.2781	0.4216	0.9011	0.9544	0.9995	0.7674	0.1313
4930	2.028398	0.5101	0.9001	0.7743	0.9542	0.9995	0.7674	0.1313
4931	2.027986	0.3064	0.4740	0.8831	0.9541	0.9995	0.7674	0.1314
4932	2.027575	0.4193	0.7922	0.7233	0.9540	0.9995	0.7673	0.1314
4933	2.027164	0.6152	0.9703	0.8667	0.9538	0.9995	0.7673	0.1314
4934	2.026753	0.4750	0.9840	0.6601	0.9537	0.9995	0.7673	0.1314
4935	2.026342	0.6325	0.9860	0.8772	0.9536	0.9995	0.7672	0.1314
4936	2.025932	0.6209	0.9887	0.8590	0.9534	0.9995	0.7672	0.1314
4937	2.025522	0.4247	0.9659	0.6015	0.9533	0.9995	0.7672	0.1315
4938	2.025111	0.4757	0.7898	0.8241	0.9531	0.9995	0.7671	0.1315

4939	2.024701	0.3544	0.8928	0.5433	0.9530	0.9995	0.7671	0.1315
4940	2.024291	0.4844	0.8102	0.8184	0.9529	0.9995	0.7671	0.1315
4941	2.023882	0.3254	0.9118	0.4886	0.9527	0.9995	0.7670	0.1315
4942	2.023472	0.2900	0.5049	0.7866	0.9526	0.9995	0.7670	0.1315
4943	2.023063	0.2977	0.9364	0.4353	0.9524	0.9995	0.7670	0.1315
4944	2.022654	0.5244	0.9724	0.7387	0.9523	0.9995	0.7669	0.1316
4945	2.022245	0.2749	0.9764	0.3858	0.9522	0.9995	0.7669	0.1316
4946	2.021836	0.4918	0.9634	0.6996	0.9520	0.9995	0.7669	0.1316
4947	2.021427	0.2107	0.9369	0.3082	0.9519	0.9995	0.7668	0.1316
4948	2.021019	0.2989	0.5327	0.7693	0.9517	0.9995	0.7668	0.1316
4949	2.020610	0.1791	0.9207	0.2666	0.9516	0.9995	0.7668	0.1316
4950	2.020202	0.2820	0.6027	0.6418	0.9515	0.9995	0.7667	0.1316
4951	2.019794	0.1762	0.9458	0.2555	0.9512	0.9995	0.7667	0.1317
4952	2.019386	0.3112	0.7090	0.6022	0.9510	0.9995	0.7667	0.1317
4953	2.018978	0.1548	0.9578	0.2218	0.9508	0.9995	0.7666	0.1317
4954	2.018571	0.3172	0.7327	0.5944	0.9505	0.9995	0.7666	0.1317
4955	2.018163	0.0609	0.4292	0.1949	0.9503	0.9995	0.7666	0.1317
4956	2.017756	0.2634	0.7604	0.4758	0.9501	0.9995	0.7666	0.1317
4957	2.017349	0.0964	0.7611	0.1741	0.9498	0.9995	0.7665	0.1317
4958	2.016942	0.0791	0.1997	0.5442	0.9496	0.9995	0.7665	0.1318
4959	2.016536	0.1019	0.8776	0.1596	0.9494	0.9995	0.7665	0.1318
4960	2.016129	0.2743	0.7080	0.5328	0.9491	0.9995	0.7664	0.1318
4961	2.015723	0.0876	0.8607	0.1400	0.9488	0.9995	0.7664	0.1318
4962	2.015316	0.2974	0.7958	0.5143	0.9486	0.9995	0.7664	0.1318
4963	2.014910	0.0327	0.3982	0.1129	0.9483	0.9995	0.7663	0.1318
4964	2.014504	0.0743	0.9229	0.1108	0.9480	0.9995	0.7663	0.1318
4965	2.014099	0.2349	0.6865	0.4714	0.9477	0.9995	0.7663	0.1319
4966	2.013693	0.0899	0.9068	0.1366	0.9475	0.9995	0.7662	0.1319
4967	2.013288	0.1646	0.4224	0.5373	0.9472	0.9995	0.7662	0.1319
4968	2.012882	0.0836	0.8584	0.1342	0.9469	0.9995	0.7662	0.1319
4969	2.012477	0.3424	0.9622	0.4908	0.9466	0.9995	0.7661	0.1319
4970	2.012072	0.0840	0.9375	0.1236	0.9464	0.9995	0.7661	0.1319
4971	2.011668	0.0922	0.9895	0.1287	0.9461	0.9995	0.7661	0.1319
4972	2.011263	0.3746	0.9675	0.5347	0.9458	0.9995	0.7660	0.1320
4973	2.010859	0.1367	0.9652	0.1957	0.9455	0.9995	0.7660	0.1320
4974	2.010454	0.3436	0.9897	0.4798	0.9452	0.9995	0.7660	0.1320
4975	2.010050	0.1738	0.9714	0.2473	0.9449	0.9995	0.7659	0.1320
4976	2.009646	0.1890	0.9021	0.2898	0.9446	0.9995	0.7659	0.1320
4977	2.009243	0.5019	0.9825	0.7067	0.9443	0.9995	0.7659	0.1320
4978	2.008839	0.4037	0.9457	0.5908	0.9440	0.9995	0.7658	0.1320
4979	2.008435	0.2674	0.9667	0.3829	0.9437	0.9995	0.7658	0.1321
4980	2.008032	0.2041	0.9593	0.2947	0.9434	0.9995	0.7658	0.1321
4981	2.007629	0.4165	0.9456	0.6102	0.9430	0.9995	0.7657	0.1321
4982	2.007226	0.0574	0.4609	0.1725	0.9427	0.9995	0.7657	0.1321
4983	2.006823	0.0702	0.6804	0.1431	0.9424	0.9995	0.7657	0.1321
4984	2.006421	0.2210	0.6764	0.4532	0.9420	0.9995	0.7657	0.1321

4985	2.006018	0.0255	0.3164	0.1119	0.9417	0.9995	0.7656	0.1321
4986	2.005616	0.0471	0.7079	0.0924	0.9414	0.9995	0.7656	0.1322
4987	2.005214	0.0322	0.4742	0.0944	0.9410	0.9995	0.7656	0.1322
4988	2.004812	0.2386	0.7844	0.4225	0.9407	0.9995	0.7655	0.1322
4989	2.004410	0.0077	0.1142	0.0934	0.9404	0.9995	0.7655	0.1322
4990	2.004008	0.0431	0.7536	0.0794	0.9400	0.9995	0.7655	0.1322
4991	2.003606	0.0613	0.8370	0.1019	0.9396	0.9995	0.7654	0.1322
4992	2.003205	0.2874	0.7884	0.5075	0.9391	0.9995	0.7654	0.1322
4993	2.002804	0.0174	0.2080	0.1164	0.9386	0.9995	0.7654	0.1323
4994	2.002403	0.0336	0.4279	0.1095	0.9382	0.9995	0.7653	0.1323
4995	2.002002	0.0774	0.8579	0.1257	0.9377	0.9995	0.7653	0.1323
4996	2.001601	0.0985	0.9099	0.1510	0.9372	0.9995	0.7653	0.1323
4997	2.001201	0.0589	0.4566	0.1801	0.9368	0.9995	0.7652	0.1323
4998	2.000800	0.1369	0.8845	0.2161	0.9363	0.9995	0.7652	0.1323
4999	2.000400	0.1807	0.9735	0.2594	0.9358	0.9995	0.7652	0.1323
5000	2.000000	0.2013	0.8944	0.3146	0.9354	0.9995	0.7651	0.1324
5001	1.999600	0.2451	0.9440	0.3633	0.9348	0.9995	0.7651	0.1324
5002	1.999200	0.2841	0.9436	0.4215	0.9342	0.9995	0.7650	0.1324
5003	1.998801	0.2731	0.7717	0.4957	0.9337	0.9995	0.7649	0.1324
5004	1.998401	0.1677	0.4318	0.5444	0.9331	0.9995	0.7649	0.1325
5005	1.998002	0.1092	0.2532	0.6049	0.9325	0.9995	0.7648	0.1325
5006	1.997603	0.3260	0.6892	0.6640	0.9319	0.9995	0.7647	0.1325
5007	1.997204	0.4332	0.8431	0.7219	0.9314	0.9995	0.7646	0.1326
5008	1.996805	0.1775	0.3136	0.7955	0.9308	0.9995	0.7646	0.1326
5009	1.996406	0.4239	0.8099	0.7364	0.9302	0.9995	0.7645	0.1326
5010	1.996008	0.5262	0.8488	0.8728	0.9296	0.9995	0.7644	0.1326
5011	1.995610	0.1977	0.3188	0.8736	0.9291	0.9995	0.7644	0.1327
5012	1.995211	0.5309	0.7926	0.9443	0.9286	0.9995	0.7643	0.1327
5013	1.994813	0.3957	0.5877	0.9500	0.9280	0.9995	0.7642	0.1327
5014	1.994416	0.4823	0.7031	0.9683	0.9275	0.9995	0.7642	0.1328
5015	1.994018	0.1230	0.1774	0.9795	0.9270	0.9995	0.7641	0.1328
5016	1.993620	0.5686	0.8163	0.9846	0.9265	0.9995	0.7640	0.1328
5017	1.993223	0.6026	0.8627	0.9879	0.9259	0.9995	0.7639	0.1328
5018	1.992826	0.6616	0.9470	0.9887	0.9254	0.9995	0.7639	0.1329
5019	1.992429	0.5672	0.8106	0.9911	0.9249	0.9995	0.7638	0.1329
5020	1.992032	0.5169	0.7395	0.9907	0.9243	0.9995	0.7637	0.1329
5021	1.991635	0.5885	0.8426	0.9907	0.9236	0.9995	0.7637	0.1330
5022	1.991239	0.5899	0.8435	0.9928	0.9229	0.9995	0.7636	0.1330
5023	1.990842	0.1923	0.2755	0.9916	0.9223	0.9995	0.7635	0.1330
5024	1.990446	0.2674	0.3831	0.9927	0.9216	0.9995	0.7635	0.1330
5025	1.990050	0.0632	0.0910	0.9893	0.9209	0.9995	0.7634	0.1331
5026	1.989654	0.2348	0.3368	0.9933	0.9202	0.9995	0.7633	0.1331
5027	1.989258	0.4882	0.7019	0.9917	0.9195	0.9995	0.7632	0.1331
5028	1.988862	0.6205	0.8912	0.9935	0.9188	0.9995	0.7632	0.1332
5029	1.988467	0.5677	0.8180	0.9911	0.9181	0.9995	0.7631	0.1332
5030	1.988072	0.4235	0.6120	0.9890	0.9174	0.9995	0.7630	0.1332

5031	1.987676	0.3766	0.5437	0.9909	0.9166	0.9995	0.7630	0.1332
5032	1.987281	0.0619	0.0893	0.9937	0.9157	0.9995	0.7629	0.1333
5033	1.986887	0.0581	0.0842	0.9897	0.9149	0.9995	0.7628	0.1333
5034	1.986492	0.3902	0.5645	0.9919	0.9140	0.9995	0.7628	0.1333
5035	1.986097	0.5968	0.8646	0.9916	0.9132	0.9995	0.7627	0.1334
5036	1.985703	0.5585	0.8096	0.9920	0.9123	0.9995	0.7626	0.1334
5037	1.985309	0.1763	0.2566	0.9893	0.9115	0.9995	0.7625	0.1334
5038	1.984915	0.5621	0.8160	0.9926	0.9106	0.9995	0.7625	0.1334
5039	1.984521	0.5302	0.7683	0.9955	0.9098	0.9995	0.7624	0.1335
5040	1.984127	0.5826	0.8526	0.9865	0.9090	0.9995	0.7623	0.1335
5041	1.983733	0.6407	0.9290	0.9971	0.9078	0.9995	0.7623	0.1335
5042	1.983340	0.5815	0.8549	0.9849	0.9066	0.9995	0.7622	0.1336
5043	1.982947	0.1675	0.2445	0.9931	0.9055	0.9995	0.7621	0.1336
5044	1.982554	0.4579	0.6754	0.9842	0.9043	0.9995	0.7621	0.1336
5045	1.982161	0.5584	0.8194	0.9907	0.9032	0.9995	0.7620	0.1336
5046	1.981768	0.5201	0.7748	0.9771	0.9020	0.9995	0.7619	0.1337
5047	1.981375	0.4929	0.7256	0.9902	0.9009	0.9995	0.7618	0.1337
5048	1.980983	0.4352	0.6582	0.9653	0.8997	0.9995	0.7618	0.1337
5049	1.980590	0.0500	0.0739	0.9882	0.8986	0.9995	0.7617	0.1337
5050	1.980198	0.1035	0.1592	0.9514	0.8974	0.9995	0.7616	0.1338
5051	1.979806	0.0076	0.0114	0.9873	0.8959	0.9995	0.7616	0.1338
5052	1.979414	0.2840	0.4469	0.9335	0.8944	0.9995	0.7615	0.1338
5053	1.979022	0.5230	0.7806	0.9860	0.8929	0.9995	0.7614	0.1339
5054	1.978631	0.3065	0.4977	0.9078	0.8914	0.9995	0.7614	0.1339
5055	1.978239	0.6017	0.8996	0.9878	0.8899	0.9995	0.7613	0.1339
5056	1.977848	0.3786	0.6273	0.8930	0.8884	0.9995	0.7612	0.1339
5057	1.977457	0.3100	0.4659	0.9862	0.8869	0.9995	0.7612	0.1340
5058	1.977066	0.5263	0.9030	0.8652	0.8854	0.9995	0.7611	0.1340
5059	1.976675	0.5647	0.8560	0.9813	0.8840	0.9995	0.7610	0.1340
5060	1.976285	0.2411	0.4306	0.8343	0.8825	0.9995	0.7610	0.1341
5061	1.975894	0.1758	0.2684	0.9787	0.8800	0.9995	0.7609	0.1341
5062	1.975504	0.2758	0.5176	0.7986	0.8774	0.9995	0.7608	0.1341
5063	1.975114	0.4331	0.6693	0.9727	0.8749	0.9995	0.7607	0.1341
5064	1.974724	0.2809	0.5570	0.7604	0.8724	0.9995	0.7607	0.1342
5065	1.974334	0.0289	0.0453	0.9658	0.8699	0.9995	0.7606	0.1342
5066	1.973944	0.1277	0.2700	0.7175	0.8674	0.9995	0.7605	0.1342
5067	1.973554	0.3320	0.5258	0.9606	0.8650	0.9995	0.7605	0.1343
5068	1.973165	0.2836	0.6403	0.6757	0.8625	0.9995	0.7604	0.1343
5069	1.972776	0.3519	0.5686	0.9470	0.8600	0.9995	0.7603	0.1343
5070	1.972387	0.0598	0.1446	0.6352	0.8575	0.9995	0.7603	0.1343
5071	1.971998	0.0977	0.1608	0.9357	0.8543	0.9995	0.7602	0.1344
5072	1.971609	0.0128	0.0336	0.5922	0.8511	0.9995	0.7601	0.1344
5073	1.971220	0.0812	0.1368	0.9217	0.8478	0.9995	0.7601	0.1344
5074	1.970832	0.2303	0.6490	0.5532	0.8446	0.9995	0.7600	0.1344
5075	1.970443	0.4742	0.8132	0.9125	0.8414	0.9995	0.7599	0.1345
5076	1.970055	0.2823	0.8593	0.5161	0.8382	0.9995	0.7599	0.1345

5077	1.969667	0.4756	0.8449	0.8878	0.8350	0.9995	0.7598	0.1345
5078	1.969279	0.1519	0.5225	0.4604	0.8318	0.9995	0.7597	0.1346
5079	1.968892	0.2244	0.8160	0.4371	0.8287	0.9995	0.7596	0.1346
5080	1.968504	0.2469	0.4581	0.8599	0.8255	0.9995	0.7596	0.1346
5081	1.968117	0.0122	0.0452	0.4321	0.8215	0.9995	0.7595	0.1346
5082	1.967729	0.2443	0.4649	0.8467	0.8174	0.9995	0.7594	0.1347
5083	1.967342	0.1504	0.5891	0.4135	0.8134	0.9995	0.7594	0.1347
5084	1.966955	0.3677	0.7187	0.8329	0.8094	0.9995	0.7593	0.1347
5085	1.966568	0.1898	0.7785	0.3990	0.8053	0.9995	0.7592	0.1348
5086	1.966182	0.0569	0.1151	0.8134	0.8014	0.9995	0.7592	0.1348
5087	1.965795	0.0844	0.3807	0.3666	0.7974	0.9995	0.7591	0.1348
5088	1.965409	0.0562	0.2592	0.3602	0.7935	0.9995	0.7590	0.1348
5089	1.965023	0.2805	0.5603	0.8358	0.7896	0.9995	0.7590	0.1349
5090	1.964637	0.0639	0.2757	0.3891	0.7856	0.9995	0.7589	0.1349
5091	1.964251	0.0519	0.1043	0.8396	0.7808	0.9995	0.7588	0.1349
5092	1.963865	0.0171	0.0757	0.3845	0.7760	0.9995	0.7588	0.1349
5093	1.963479	0.0018	0.0073	0.4204	0.7712	0.9995	0.7587	0.1350
5094	1.963094	0.0643	0.1364	0.8116	0.7664	0.9995	0.7586	0.1350
5095	1.962709	0.0020	0.0072	0.4942	0.7616	0.9995	0.7586	0.1350
5096	1.962323	0.1453	0.3071	0.8242	0.7570	0.9995	0.7585	0.1351
5097	1.961938	0.0125	0.0401	0.5447	0.7523	0.9995	0.7584	0.1351
5098	1.961554	0.0792	0.2149	0.6502	0.7477	0.9995	0.7584	0.1351
5099	1.961169	0.0037	0.0073	0.8972	0.7430	0.9995	0.7583	0.1351
5100	1.960784	0.0546	0.1287	0.7579	0.7384	0.9995	0.7582	0.1352
5101	1.960400	0.2519	0.5166	0.8797	0.7315	0.9995	0.7582	0.1352
5102	1.960016	0.0780	0.2495	0.5693	0.7247	0.9995	0.7581	0.1352
5103	1.959632	0.0037	0.0141	0.4874	0.7179	0.9995	0.7580	0.1352
5104	1.959248	0.0040	0.0092	0.8009	0.7110	0.9995	0.7580	0.1353
5105	1.958864	0.0148	0.0706	0.3917	0.7042	0.9995	0.7579	0.1353
5106	1.958480	0.0165	0.0790	0.3960	0.6976	0.9995	0.7578	0.1353
5107	1.958097	0.0192	0.0532	0.6913	0.6911	0.9995	0.7578	0.1354
5108	1.957713	0.0067	0.0373	0.3473	0.6846	0.9995	0.7577	0.1354
5109	1.957330	0.0034	0.0198	0.3356	0.6780	0.9995	0.7576	0.1354
5110	1.956947	0.0135	0.0362	0.7349	0.6715	0.9995	0.7575	0.1354
5111	1.956564	0.0020	0.0124	0.3273	0.6626	0.9995	0.7575	0.1355
5112	1.956182	0.0209	0.1368	0.3091	0.6537	0.9995	0.7574	0.1355
5113	1.955799	0.0113	0.0723	0.3204	0.6448	0.9995	0.7573	0.1355
5114	1.955417	0.0064	0.0177	0.7509	0.6358	0.9995	0.7573	0.1355
5115	1.955034	0.0324	0.1917	0.3562	0.6269	0.9995	0.7572	0.1356
5116	1.954652	0.0289	0.1732	0.3566	0.6186	0.9995	0.7571	0.1356
5117	1.954270	0.0015	0.0085	0.3961	0.6102	0.9995	0.7571	0.1356
5118	1.953888	0.0159	0.0458	0.7621	0.6019	0.9995	0.7570	0.1357
5119	1.953507	0.0002	0.0009	0.4373	0.5935	0.9995	0.7569	0.1357
5120	1.953125	0.0021	0.0107	0.4542	0.5852	0.9995	0.7569	0.1357
5121	1.952744	0.0124	0.0579	0.4952	0.5736	0.9995	0.7568	0.1357
5122	1.952362	0.0183	0.0784	0.5493	0.5621	0.9995	0.7567	0.1358

5123	1.951981	0.1464	0.4072	0.8637	0.5505	0.9995	0.7567	0.1358
5124	1.951600	0.1305	0.5245	0.6103	0.5390	0.9995	0.7566	0.1358
5125	1.951220	0.1189	0.4730	0.6301	0.5274	0.9995	0.7565	0.1358
5126	1.950839	0.0088	0.0349	0.6460	0.5170	0.9995	0.7565	0.1359
5127	1.950458	0.0149	0.0559	0.6962	0.5065	0.9995	0.7564	0.1359
5128	1.950078	0.0085	0.0308	0.7326	0.4961	0.9995	0.7563	0.1359
5129	1.949698	0.0513	0.1959	0.7137	0.4857	0.9995	0.7563	0.1360
5130	1.949318	0.0013	0.0048	0.7797	0.4752	0.9995	0.7562	0.1360
5131	1.948938	0.0094	0.0370	0.7265	0.4648	0.9995	0.7561	0.1360
5132	1.948558	0.0016	0.0057	0.8087	0.4543	0.9995	0.7561	0.1360
5133	1.948178	0.0004	0.0018	0.7547	0.4438	0.9995	0.7560	0.1361
5134	1.947799	0.0063	0.0227	0.8460	0.4333	0.9995	0.7559	0.1361
5135	1.947420	0.0014	0.0050	0.8604	0.4229	0.9995	0.7559	0.1361
5136	1.947040	0.0011	0.0044	0.7877	0.4135	0.9995	0.7558	0.1361
5137	1.946661	0.0253	0.1038	0.7994	0.4042	0.9995	0.7557	0.1362
5138	1.946283	0.0101	0.0382	0.8891	0.3949	0.9995	0.7557	0.1362
5139	1.945904	0.0040	0.0155	0.8908	0.3855	0.9995	0.7556	0.1362
5140	1.945525	0.0067	0.0281	0.8328	0.3762	0.9995	0.7555	0.1363
5141	1.945147	0.0011	0.0048	0.8455	0.3660	0.9995	0.7555	0.1363
5142	1.944769	0.0000	0.0000	0.8632	0.3558	0.9995	0.7554	0.1363
5143	1.944390	0.0000	0.0002	0.9866	0.3456	0.9995	0.7553	0.1363
5144	1.944012	0.0020	0.0089	0.8815	0.3354	0.9995	0.7553	0.1364
5145	1.943635	0.0000	0.0001	0.8931	0.3252	0.9995	0.7552	0.1364
5146	1.943257	0.0077	0.0356	0.9108	0.3163	0.9994	0.7551	0.1364
5147	1.942879	0.0158	0.0736	0.9256	0.3075	0.9994	0.7551	0.1364
5148	1.942502	0.0336	0.1595	0.9359	0.2987	0.9994	0.7550	0.1365
5149	1.942125	0.0005	0.0025	0.9720	0.2898	0.9994	0.7550	0.1365
5150	1.941748	0.0001	0.0007	0.9522	0.2810	0.9994	0.7549	0.1365
5151	1.941371	0.0000	0.0001	0.9642	0.2705	0.9994	0.7548	0.1366
5152	1.940994	0.0001	0.0003	0.9682	0.2599	0.9994	0.7548	0.1366
5153	1.940617	0.0002	0.0011	0.9782	0.2494	0.9994	0.7547	0.1366
5154	1.940241	0.0000	0.0001	0.9793	0.2389	0.9994	0.7546	0.1366
5155	1.939864	0.0000	0.0000	0.9867	0.2283	0.9994	0.7546	0.1367
5156	1.939488	0.0000	0.0000	0.9864	0.2197	0.9994	0.7545	0.1367
5157	1.939112	0.0000	0.0003	0.9918	0.2112	0.9994	0.7544	0.1367
5158	1.938736	0.0000	0.0000	0.9901	0.2026	0.9994	0.7544	0.1367
5159	1.938360	0.0000	0.0000	0.9927	0.1940	0.9994	0.7543	0.1368
5160	1.937984	0.0001	0.0008	0.9960	0.1854	0.9994	0.7542	0.1368
5161	1.937609	0.0000	0.0002	0.9948	0.1773	0.9994	0.7542	0.1368
5162	1.937234	0.0002	0.0017	0.9957	0.1692	0.9994	0.7541	0.1368
5163	1.936858	0.0000	0.0000	0.9979	0.1610	0.9994	0.7540	0.1369
5164	1.936483	0.0000	0.0000	0.9971	0.1529	0.9994	0.7540	0.1369
5165	1.936108	0.0000	0.0000	0.9975	0.1448	0.9994	0.7539	0.1369
5166	1.935734	0.0001	0.0013	0.9980	0.1384	0.9994	0.7538	0.1370
5167	1.935359	0.0053	0.0535	0.9985	0.1320	0.9994	0.7538	0.1370
5168	1.934985	0.0053	0.0559	0.9988	0.1257	0.9994	0.7537	0.1370

5169	1.934610	0.0000	0.0004	0.9990	0.1193	0.9994	0.7536	0.1370
5170	1.934236	0.0000	0.0000	0.9993	0.1129	0.9994	0.7536	0.1371
5171	1.933862	0.0001	0.0009	0.9995	0.1059	0.9994	0.7535	0.1371
5172	1.933488	0.0000	0.0000	0.9996	0.0988	0.9994	0.7534	0.1371
5173	1.933114	0.0000	0.0001	0.9997	0.0917	0.9994	0.7534	0.1371
5174	1.932741	0.0001	0.0008	0.9997	0.0846	0.9994	0.7533	0.1372
5175	1.932367	0.0001	0.0022	0.9997	0.0775	0.9994	0.7532	0.1372
5176	1.931994	0.0000	0.0002	0.9999	0.0726	0.9994	0.7532	0.1372
5177	1.931621	0.0000	0.0000	0.9999	0.0677	0.9994	0.7531	0.1372
5178	1.931248	0.0000	0.0000	0.9999	0.0629	0.9994	0.7531	0.1373
5179	1.930875	0.0000	0.0000	0.9999	0.0580	0.9994	0.7530	0.1373
5180	1.930502	0.0000	0.0000	0.9999	0.0531	0.9994	0.7529	0.1373
5181	1.930129	0.0000	0.0000	0.9999	0.0505	0.9994	0.7529	0.1374
5182	1.929757	0.0000	0.0000	1.0000	0.0480	0.9994	0.7528	0.1374
5183	1.929385	0.0000	0.0001	0.9999	0.0454	0.9994	0.7527	0.1374
5184	1.929012	0.0000	0.0000	1.0000	0.0428	0.9994	0.7527	0.1374
5185	1.928640	0.0000	0.0000	0.9999	0.0402	0.9994	0.7526	0.1375
5186	1.928268	0.0000	0.0000	1.0000	0.0383	0.9994	0.7525	0.1375
5187	1.927897	0.0000	0.0000	0.9999	0.0363	0.9994	0.7525	0.1375
5188	1.927525	0.0000	0.0000	0.9999	0.0344	0.9994	0.7524	0.1375
5189	1.927154	0.0000	0.0000	1.0000	0.0324	0.9994	0.7523	0.1376
5190	1.926782	0.0000	0.0000	0.9998	0.0305	0.9994	0.7523	0.1376
5191	1.926411	0.0000	0.0000	1.0000	0.0286	0.9994	0.7522	0.1376
5192	1.926040	0.0000	0.0001	0.9998	0.0267	0.9994	0.7521	0.1376
5193	1.925669	0.0002	0.0105	1.0000	0.0248	0.9994	0.7521	0.1377
5194	1.925298	0.0001	0.0082	0.9998	0.0229	0.9994	0.7520	0.1377
5195	1.924928	0.0000	0.0000	1.0000	0.0211	0.9994	0.7519	0.1377
5196	1.924557	0.0000	0.0000	0.9997	0.0198	0.9994	0.7519	0.1377
5197	1.924187	0.0000	0.0000	1.0000	0.0185	0.9994	0.7518	0.1378
5198	1.923817	0.0000	0.0000	0.9997	0.0172	0.9994	0.7518	0.1378
5199	1.923447	0.0000	0.0000	0.9996	0.0159	0.9994	0.7517	0.1378
5200	1.923077	0.0000	0.0005	1.0000	0.0146	0.9994	0.7516	0.1379
5201	1.922707	0.0000	0.0007	0.9996	0.0138	0.9994	0.7516	0.1379
5202	1.922338	0.0000	0.0003	1.0000	0.0130	0.9994	0.7515	0.1379
5203	1.921968	0.0000	0.0000	0.9996	0.0123	0.9994	0.7514	0.1379
5204	1.921599	0.0000	0.0000	1.0000	0.0115	0.9994	0.7514	0.1380
5205	1.921230	0.0000	0.0000	0.9996	0.0108	0.9994	0.7513	0.1380
5206	1.920861	0.0000	0.0000	0.9996	0.0102	0.9994	0.7512	0.1380
5207	1.920492	0.0000	0.0000	1.0000	0.0096	0.9994	0.7512	0.1380
5208	1.920123	0.0000	0.0000	0.9996	0.0091	0.9994	0.7511	0.1381
5209	1.919754	0.0000	0.0000	1.0000	0.0085	0.9994	0.7510	0.1381
5210	1.919386	0.0000	0.0000	0.9996	0.0079	0.9994	0.7510	0.1381
5211	1.919017	0.0000	0.0000	0.9997	0.0074	0.9994	0.7509	0.1381
5212	1.918649	0.0000	0.0003	1.0000	0.0069	0.9994	0.7509	0.1382
5213	1.918281	0.0000	0.0024	0.9998	0.0063	0.9994	0.7508	0.1382
5214	1.917913	0.0000	0.0048	1.0000	0.0058	0.9994	0.7507	0.1382

5215	1.917546	0.0000	0.0003	0.9998	0.0052	0.9994	0.7507	0.1382
5216	1.917178	0.0000	0.0000	0.9999	0.0049	0.9994	0.7506	0.1383
5217	1.916810	0.0000	0.0000	1.0000	0.0045	0.9994	0.7505	0.1383
5218	1.916443	0.0000	0.0000	1.0000	0.0042	0.9994	0.7505	0.1383
5219	1.916076	0.0000	0.0000	1.0000	0.0038	0.9994	0.7504	0.1384
5220	1.915709	0.0000	0.0000	0.9999	0.0034	0.9994	0.7503	0.1384
5221	1.915342	0.0000	0.0000	1.0000	0.0032	0.9994	0.7503	0.1384
5222	1.914975	0.0000	0.0000	0.9998	0.0030	0.9994	0.7502	0.1384
5223	1.914608	0.0000	0.0000	0.9997	0.0027	0.9994	0.7502	0.1385
5224	1.914242	0.0000	0.0000	0.9996	0.0025	0.9994	0.7501	0.1385
5225	1.913876	0.0000	0.0000	1.0000	0.0023	0.9994	0.7500	0.1385
5226	1.913509	0.0000	0.0000	0.9996	0.0021	0.9994	0.7500	0.1385
5227	1.913143	0.0000	0.0000	0.9996	0.0020	0.9994	0.7499	0.1386
5228	1.912777	0.0000	0.0000	1.0000	0.0018	0.9994	0.7498	0.1386
5229	1.912412	0.0000	0.0000	0.9995	0.0017	0.9994	0.7498	0.1386
5230	1.912046	0.0000	0.0000	0.9996	0.0015	0.9994	0.7497	0.1386
5231	1.911680	0.0000	0.0000	0.9999	0.0015	0.9994	0.7496	0.1387
5232	1.911315	0.0000	0.0000	0.9996	0.0014	0.9994	0.7496	0.1387
5233	1.910950	0.0000	0.0000	0.9995	0.0014	0.9994	0.7495	0.1387
5234	1.910585	0.0000	0.0000	0.9996	0.0013	0.9994	0.7495	0.1387
5235	1.910220	0.0000	0.0000	0.9999	0.0013	0.9994	0.7494	0.1388
5236	1.909855	0.0000	0.0000	0.9996	0.0012	0.9994	0.7493	0.1388
5237	1.909490	0.0000	0.0000	0.9996	0.0012	0.9994	0.7493	0.1388
5238	1.909126	0.0000	0.0001	0.9997	0.0011	0.9994	0.7492	0.1388
5239	1.908761	0.0000	0.0000	0.9997	0.0011	0.9994	0.7491	0.1389
5240	1.908397	0.0000	0.0002	0.9999	0.0011	0.9994	0.7491	0.1389
5241	1.908033	0.0000	0.0000	0.9997	0.0011	0.9994	0.7490	0.1389
5242	1.907669	0.0000	0.0000	0.9996	0.0011	0.9994	0.7489	0.1389
5243	1.907305	0.0000	0.0000	0.9997	0.0011	0.9994	0.7489	0.1390
5244	1.906941	0.0000	0.0000	0.9995	0.0010	0.9994	0.7488	0.1390
5245	1.906578	0.0000	0.0000	0.9998	0.0010	0.9994	0.7488	0.1390
5246	1.906214	0.0000	0.0000	0.9994	0.0010	0.9994	0.7487	0.1391
5247	1.905851	0.0000	0.0000	0.9994	0.0010	0.9994	0.7486	0.1391
5248	1.905488	0.0000	0.0000	0.9997	0.0010	0.9994	0.7486	0.1391
5249	1.905125	0.0000	0.0000	1.0000	0.0010	0.9994	0.7485	0.1391
5250	1.904762	0.0000	0.0000	1.0000	0.0010	0.9994	0.7484	0.1392
5251	1.904399	0.0000	0.0000	1.0000	0.0010	0.9994	0.7484	0.1392
5252	1.904037	0.0000	0.0000	0.9999	0.0010	0.9994	0.7483	0.1392
5253	1.903674	0.0000	0.0000	1.0000	0.0011	0.9994	0.7483	0.1392
5254	1.903312	0.0000	0.0000	0.9999	0.0011	0.9994	0.7482	0.1393
5255	1.902950	0.0000	0.0000	0.9999	0.0011	0.9994	0.7481	0.1393
5256	1.902588	0.0000	0.0000	0.9999	0.0011	0.9994	0.7481	0.1393
5257	1.902226	0.0000	0.0000	0.9998	0.0011	0.9994	0.7480	0.1393
5258	1.901864	0.0000	0.0000	1.0000	0.0011	0.9994	0.7479	0.1394
5259	1.901502	0.0000	0.0000	0.9998	0.0011	0.9994	0.7479	0.1394
5260	1.901141	0.0000	0.0000	0.9998	0.0011	0.9994	0.7478	0.1394

5261	1.900779	0.0000	0.0000	0.9998	0.0011	0.9994	0.7478	0.1394
5262	1.900418	0.0000	0.0000	0.9998	0.0011	0.9994	0.7477	0.1395
5263	1.900057	0.0000	0.0000	0.9997	0.0011	0.9994	0.7476	0.1395
5264	1.899696	0.0000	0.0000	0.9998	0.0011	0.9994	0.7476	0.1395
5265	1.899335	0.0000	0.0000	0.9998	0.0011	0.9994	0.7475	0.1395
5266	1.898975	0.0000	0.0000	0.9997	0.0011	0.9994	0.7474	0.1396
5267	1.898614	0.0000	0.0000	0.9998	0.0011	0.9994	0.7474	0.1396
5268	1.898254	0.0000	0.0000	0.9997	0.0011	0.9994	0.7473	0.1396
5269	1.897893	0.0000	0.0000	0.9998	0.0011	0.9994	0.7473	0.1396
5270	1.897533	0.0000	0.0000	0.9999	0.0011	0.9994	0.7472	0.1397
5271	1.897173	0.0000	0.0000	0.9997	0.0012	0.9994	0.7471	0.1397
5272	1.896813	0.0000	0.0004	1.0000	0.0012	0.9994	0.7471	0.1397
5273	1.896454	0.0000	0.0001	0.9997	0.0012	0.9994	0.7470	0.1397
5274	1.896094	0.0000	0.0005	1.0000	0.0013	0.9994	0.7469	0.1398
5275	1.895735	0.0000	0.0025	0.9999	0.0013	0.9994	0.7469	0.1398
5276	1.895375	0.0000	0.0033	0.9997	0.0014	0.9994	0.7468	0.1398
5277	1.895016	0.0000	0.0002	0.9999	0.0014	0.9994	0.7468	0.1398
5278	1.894657	0.0000	0.0001	0.9996	0.0015	0.9994	0.7467	0.1399
5279	1.894298	0.0000	0.0000	0.9999	0.0015	0.9994	0.7466	0.1399
5280	1.893939	0.0000	0.0001	0.9995	0.0015	0.9994	0.7466	0.1399
5281	1.893581	0.0000	0.0000	0.9999	0.0016	0.9994	0.7465	0.1400
5282	1.893222	0.0000	0.0000	0.9999	0.0017	0.9994	0.7464	0.1400
5283	1.892864	0.0000	0.0000	0.9993	0.0017	0.9994	0.7464	0.1400
5284	1.892506	0.0000	0.0000	0.9998	0.0018	0.9994	0.7463	0.1400
5285	1.892148	0.0000	0.0000	0.9991	0.0018	0.9994	0.7463	0.1401
5286	1.891790	0.0000	0.0000	0.9998	0.0019	0.9994	0.7462	0.1401
5287	1.891432	0.0000	0.0000	0.9988	0.0020	0.9994	0.7461	0.1401
5288	1.891074	0.0000	0.0000	0.9995	0.0021	0.9994	0.7461	0.1401
5289	1.890717	0.0000	0.0000	0.9994	0.0021	0.9994	0.7460	0.1402
5290	1.890359	0.0000	0.0002	0.9981	0.0022	0.9994	0.7459	0.1402
5291	1.890002	0.0000	0.0000	0.9992	0.0022	0.9994	0.7459	0.1402
5292	1.889645	0.0000	0.0000	0.9988	0.0022	0.9994	0.7458	0.1402
5293	1.889288	0.0000	0.0000	0.9998	0.0022	0.9994	0.7458	0.1403
5294	1.888931	0.0000	0.0003	0.9986	0.0023	0.9994	0.7457	0.1403
5295	1.888574	0.0000	0.0049	0.9999	0.0023	0.9994	0.7456	0.1403
5296	1.888218	0.0000	0.0132	0.9984	0.0023	0.9994	0.7456	0.1403
5297	1.887861	0.0000	0.0072	0.9998	0.0023	0.9994	0.7455	0.1404
5298	1.887505	0.0000	0.0001	0.9982	0.0023	0.9994	0.7455	0.1404
5299	1.887149	0.0000	0.0000	0.9998	0.0024	0.9994	0.7454	0.1404
5300	1.886792	0.0000	0.0003	0.9982	0.0024	0.9994	0.7453	0.1404
5301	1.886437	0.0000	0.0000	0.9997	0.0022	0.9994	0.7453	0.1405
5302	1.886081	0.0000	0.0000	0.9980	0.0021	0.9994	0.7452	0.1405
5303	1.885725	0.0000	0.0000	0.9996	0.0019	0.9994	0.7451	0.1405
5304	1.885370	0.0000	0.0000	0.9980	0.0017	0.9994	0.7451	0.1405
5305	1.885014	0.0000	0.0000	0.9994	0.0015	0.9994	0.7450	0.1406
5306	1.884659	0.0000	0.0000	0.9978	0.0014	0.9994	0.7450	0.1406

5307	1.884304	0.0000	0.0005	0.9971	0.0013	0.9994	0.7449	0.1406
5308	1.883949	0.0000	0.0000	0.9988	0.0012	0.9994	0.7448	0.1406
5309	1.883594	0.0000	0.0000	0.9974	0.0011	0.9994	0.7448	0.1407
5310	1.883239	0.0000	0.0001	0.9965	0.0010	0.9994	0.7447	0.1407
5311	1.882885	0.0000	0.0002	0.9966	0.0009	0.9994	0.7447	0.1407
5312	1.882530	0.0000	0.0044	0.9943	0.0009	0.9994	0.7446	0.1407
5313	1.882176	0.0000	0.0014	0.9920	0.0008	0.9994	0.7445	0.1408
5314	1.881822	0.0000	0.0000	0.9871	0.0007	0.9994	0.7445	0.1408
5315	1.881468	0.0000	0.0000	0.9823	0.0007	0.9994	0.7444	0.1408
5316	1.881114	0.0000	0.0000	0.9960	0.0006	0.9994	0.7444	0.1408
5317	1.880760	0.0000	0.0000	0.9997	0.0006	0.9994	0.7443	0.1409
5318	1.880406	0.0000	0.0000	0.9990	0.0005	0.9994	0.7442	0.1409
5319	1.880053	0.0000	0.0003	0.9987	0.0005	0.9994	0.7442	0.1409
5320	1.879699	0.0000	0.0004	0.9999	0.0004	0.9994	0.7441	0.1409
5321	1.879346	0.0000	0.0001	0.9983	0.0004	0.9994	0.7440	0.1410
5322	1.878993	0.0000	0.0001	0.9979	0.0004	0.9994	0.7440	0.1410
5323	1.878640	0.0000	0.0000	0.9998	0.0004	0.9994	0.7439	0.1410
5324	1.878287	0.0000	0.0000	0.9977	0.0004	0.9994	0.7439	0.1410
5325	1.877934	0.0000	0.0000	0.9974	0.0003	0.9994	0.7438	0.1411
5326	1.877582	0.0000	0.0000	0.9973	0.0003	0.9994	0.7437	0.1411
5327	1.877229	0.0000	0.0000	0.9973	0.0003	0.9994	0.7437	0.1411
5328	1.876877	0.0000	0.0000	0.9974	0.0003	0.9994	0.7436	0.1411
5329	1.876525	0.0000	0.0000	0.9975	0.0003	0.9994	0.7436	0.1412
5330	1.876173	0.0000	0.0000	0.9998	0.0003	0.9994	0.7435	0.1412
5331	1.875821	0.0000	0.0000	0.9977	0.0003	0.9994	0.7434	0.1412
5332	1.875469	0.0000	0.0000	0.9961	0.0003	0.9994	0.7434	0.1412
5333	1.875117	0.0000	0.0000	0.9983	0.0002	0.9994	0.7433	0.1413
5334	1.874766	0.0000	0.0000	0.9986	0.0002	0.9994	0.7433	0.1413
5335	1.874414	0.0000	0.0000	0.9988	0.0002	0.9994	0.7432	0.1413
5336	1.874063	0.0000	0.0000	0.9990	0.0002	0.9994	0.7431	0.1413
5337	1.873712	0.0000	0.0000	0.9986	0.0002	0.9994	0.7431	0.1414
5338	1.873361	0.0000	0.0000	0.9991	0.0002	0.9994	0.7430	0.1414
5339	1.873010	0.0000	0.0000	0.9997	0.0002	0.9994	0.7430	0.1414
5340	1.872659	0.0000	0.0000	0.9995	0.0002	0.9994	0.7429	0.1414
5341	1.872309	0.0000	0.0000	0.9998	0.0002	0.9994	0.7428	0.1415
5342	1.871958	0.0000	0.0000	1.0000	0.0002	0.9994	0.7428	0.1415
5343	1.871608	0.0000	0.0000	1.0000	0.0002	0.9994	0.7427	0.1415
5344	1.871257	0.0000	0.0000	1.0000	0.0002	0.9994	0.7427	0.1415
5345	1.870907	0.0000	0.0000	1.0000	0.0001	0.9994	0.7426	0.1416
5346	1.870557	0.0000	0.0000	1.0000	0.0001	0.9994	0.7425	0.1416
5347	1.870208	0.0000	0.0000	1.0000	0.0001	0.9994	0.7425	0.1416
5348	1.869858	0.0000	0.0000	1.0000	0.0001	0.9994	0.7424	0.1416
5349	1.869508	0.0000	0.0000	1.0000	0.0001	0.9994	0.7424	0.1417
5350	1.869159	0.0000	0.0000	1.0000	0.0001	0.9994	0.7423	0.1417
5351	1.868810	0.0000	0.0000	1.0000	0.0001	0.9994	0.7422	0.1417
5352	1.868460	0.0000	0.0000	1.0000	0.0001	0.9994	0.7422	0.1417

5353	1.868111	0.0000	0.0000	1.0000	0.0001	0.9994	0.7421	0.1418
5354	1.867762	0.0000	0.0000	1.0000	0.0001	0.9994	0.7421	0.1418
5355	1.867414	0.0000	0.0000	1.0000	0.0001	0.9994	0.7420	0.1418
5356	1.867065	0.0000	0.0000	1.0000	0.0001	0.9994	0.7419	0.1418
5357	1.866716	0.0000	0.0000	1.0000	0.0001	0.9994	0.7419	0.1419
5358	1.866368	0.0000	0.0001	1.0000	0.0001	0.9994	0.7418	0.1419
5359	1.866020	0.0000	0.0004	1.0000	0.0001	0.9994	0.7418	0.1419
5360	1.865672	0.0000	0.0002	1.0000	0.0001	0.9994	0.7417	0.1419
5361	1.865324	0.0000	0.0000	1.0000	0.0001	0.9994	0.7416	0.1420
5362	1.864976	0.0000	0.0000	1.0000	0.0001	0.9994	0.7416	0.1420
5363	1.864628	0.0000	0.0000	1.0000	0.0001	0.9994	0.7415	0.1420
5364	1.864280	0.0000	0.0000	1.0000	0.0001	0.9994	0.7415	0.1420
5365	1.863933	0.0000	0.0000	1.0000	0.0001	0.9993	0.7414	0.1421
5366	1.863586	0.0000	0.0000	1.0000	0.0001	0.9993	0.7413	0.1421
5367	1.863238	0.0000	0.0000	1.0000	0.0001	0.9993	0.7413	0.1421
5368	1.862891	0.0000	0.0000	1.0000	0.0001	0.9993	0.7412	0.1421
5369	1.862544	0.0000	0.0000	1.0000	0.0001	0.9993	0.7412	0.1422
5370	1.862197	0.0000	0.0002	1.0000	0.0001	0.9993	0.7411	0.1422
5371	1.861851	0.0000	0.0001	1.0000	0.0001	0.9993	0.7410	0.1422
5372	1.861504	0.0000	0.0000	1.0000	0.0001	0.9993	0.7410	0.1422
5373	1.861158	0.0000	0.0000	1.0000	0.0001	0.9993	0.7409	0.1422
5374	1.860811	0.0000	0.0000	1.0000	0.0001	0.9993	0.7409	0.1423
5375	1.860465	0.0000	0.0000	1.0000	0.0001	0.9993	0.7408	0.1423
5376	1.860119	0.0000	0.0000	1.0000	0.0001	0.9993	0.7407	0.1423
5377	1.859773	0.0000	0.0000	1.0000	0.0001	0.9993	0.7407	0.1423
5378	1.859427	0.0000	0.0000	1.0000	0.0001	0.9993	0.7406	0.1424
5379	1.859082	0.0000	0.0000	1.0000	0.0001	0.9993	0.7406	0.1424
5380	1.858736	0.0000	0.0000	1.0000	0.0001	0.9993	0.7405	0.1424
5381	1.858391	0.0000	0.0000	1.0000	0.0001	0.9993	0.7404	0.1424
5382	1.858045	0.0000	0.0000	1.0000	0.0001	0.9993	0.7404	0.1425
5383	1.857700	0.0000	0.0000	1.0000	0.0001	0.9993	0.7403	0.1425
5384	1.857355	0.0000	0.0000	1.0000	0.0001	0.9993	0.7403	0.1425
5385	1.857010	0.0000	0.0000	1.0000	0.0001	0.9993	0.7402	0.1425
5386	1.856665	0.0000	0.0000	1.0000	0.0001	0.9993	0.7401	0.1426
5387	1.856321	0.0000	0.0000	1.0000	0.0001	0.9993	0.7401	0.1426
5388	1.855976	0.0000	0.0000	1.0000	0.0001	0.9993	0.7400	0.1426
5389	1.855632	0.0000	0.0000	1.0000	0.0001	0.9993	0.7400	0.1426
5390	1.855288	0.0000	0.0000	1.0000	0.0001	0.9993	0.7399	0.1427
5391	1.854943	0.0000	0.0000	1.0000	0.0001	0.9993	0.7399	0.1427
5392	1.854599	0.0000	0.0000	1.0000	0.0001	0.9993	0.7398	0.1427
5393	1.854256	0.0000	0.0000	1.0000	0.0001	0.9993	0.7397	0.1427
5394	1.853912	0.0000	0.0000	1.0000	0.0001	0.9993	0.7397	0.1428
5395	1.853568	0.0000	0.0000	1.0000	0.0001	0.9993	0.7396	0.1428
5396	1.853225	0.0000	0.0000	1.0000	0.0001	0.9993	0.7396	0.1428
5397	1.852881	0.0000	0.0000	1.0000	0.0001	0.9993	0.7395	0.1428
5398	1.852538	0.0000	0.0000	1.0000	0.0001	0.9993	0.7394	0.1429

5399	1.852195	0.0000	0.0000	1.0000	0.0001	0.9993	0.7394	0.1429
5400	1.851852	0.0000	0.0000	1.0000	0.0001	0.9993	0.7393	0.1429
5401	1.851509	0.0000	0.0000	1.0000	0.0001	0.9993	0.7393	0.1429
5402	1.851166	0.0000	0.0000	1.0000	0.0001	0.9993	0.7392	0.1430
5403	1.850824	0.0000	0.0000	1.0000	0.0001	0.9993	0.7391	0.1430
5404	1.850481	0.0000	0.0000	1.0000	0.0001	0.9993	0.7391	0.1430
5405	1.850139	0.0000	0.0000	1.0000	0.0001	0.9993	0.7390	0.1430
5406	1.849797	0.0000	0.0000	1.0000	0.0001	0.9993	0.7390	0.1431
5407	1.849454	0.0000	0.0000	1.0000	0.0001	0.9993	0.7389	0.1431
5408	1.849112	0.0000	0.0000	1.0000	0.0001	0.9993	0.7389	0.1431
5409	1.848771	0.0000	0.0000	1.0000	0.0001	0.9993	0.7388	0.1431
5410	1.848429	0.0000	0.0000	1.0000	0.0000	0.9993	0.7387	0.1432
5411	1.848087	0.0000	0.0000	1.0000	0.0000	0.9993	0.7387	0.1432
5412	1.847746	0.0000	0.0000	1.0000	0.0000	0.9993	0.7386	0.1432
5413	1.847404	0.0000	0.0000	1.0000	0.0000	0.9993	0.7386	0.1432
5414	1.847063	0.0000	0.0000	1.0000	0.0000	0.9993	0.7385	0.1432
5415	1.846722	0.0000	0.0000	1.0000	0.0000	0.9993	0.7384	0.1433
5416	1.846381	0.0000	0.0000	1.0000	0.0000	0.9993	0.7384	0.1433
5417	1.846040	0.0000	0.0000	1.0000	0.0000	0.9993	0.7383	0.1433
5418	1.845700	0.0000	0.0000	1.0000	0.0000	0.9993	0.7383	0.1433
5419	1.845359	0.0000	0.0000	1.0000	0.0000	0.9993	0.7382	0.1434
5420	1.845018	0.0000	0.0001	1.0000	0.0000	0.9993	0.7382	0.1434
5421	1.844678	0.0000	0.0002	1.0000	0.0000	0.9993	0.7381	0.1434
5422	1.844338	0.0000	0.0000	1.0000	0.0001	0.9993	0.7380	0.1434
5423	1.843998	0.0000	0.0000	1.0000	0.0001	0.9993	0.7380	0.1435
5424	1.843658	0.0000	0.0000	1.0000	0.0001	0.9993	0.7379	0.1435
5425	1.843318	0.0000	0.0000	1.0000	0.0001	0.9993	0.7379	0.1435
5426	1.842978	0.0000	0.0000	1.0000	0.0001	0.9993	0.7378	0.1435
5427	1.842639	0.0000	0.0000	1.0000	0.0001	0.9993	0.7377	0.1436
5428	1.842299	0.0000	0.0000	1.0000	0.0001	0.9993	0.7377	0.1436
5429	1.841960	0.0000	0.0000	1.0000	0.0001	0.9993	0.7376	0.1436
5430	1.841621	0.0000	0.0000	1.0000	0.0001	0.9993	0.7376	0.1436
5431	1.841282	0.0000	0.0000	1.0000	0.0001	0.9993	0.7375	0.1437
5432	1.840943	0.0000	0.0000	1.0000	0.0001	0.9993	0.7375	0.1437
5433	1.840604	0.0000	0.0000	1.0000	0.0001	0.9993	0.7374	0.1437
5434	1.840265	0.0000	0.0000	1.0000	0.0001	0.9993	0.7373	0.1437
5435	1.839926	0.0000	0.0000	1.0000	0.0001	0.9993	0.7373	0.1438
5436	1.839588	0.0000	0.0000	1.0000	0.0001	0.9993	0.7372	0.1438
5437	1.839250	0.0000	0.0000	1.0000	0.0001	0.9993	0.7372	0.1438
5438	1.838911	0.0000	0.0000	1.0000	0.0001	0.9993	0.7371	0.1438
5439	1.838573	0.0000	0.0000	1.0000	0.0001	0.9993	0.7371	0.1438
5440	1.838235	0.0000	0.0000	1.0000	0.0001	0.9993	0.7370	0.1439
5441	1.837897	0.0000	0.0000	1.0000	0.0001	0.9993	0.7369	0.1439
5442	1.837560	0.0000	0.0000	1.0000	0.0001	0.9993	0.7369	0.1439
5443	1.837222	0.0000	0.0000	1.0000	0.0002	0.9993	0.7368	0.1439
5444	1.836885	0.0000	0.0000	1.0000	0.0002	0.9993	0.7368	0.1440

5445	1.836547	0.0000	0.0000	1.0000	0.0002	0.9993	0.7367	0.1440
5446	1.836210	0.0000	0.0000	1.0000	0.0002	0.9993	0.7366	0.1440
5447	1.835873	0.0000	0.0000	1.0000	0.0002	0.9993	0.7366	0.1440
5448	1.835536	0.0000	0.0000	1.0000	0.0002	0.9993	0.7365	0.1441
5449	1.835199	0.0000	0.0000	1.0000	0.0003	0.9993	0.7365	0.1441
5450	1.834862	0.0000	0.0000	1.0000	0.0003	0.9993	0.7364	0.1441
5451	1.834526	0.0000	0.0000	1.0000	0.0003	0.9993	0.7364	0.1441
5452	1.834189	0.0000	0.0000	1.0000	0.0004	0.9993	0.7363	0.1442
5453	1.833853	0.0000	0.0000	1.0000	0.0004	0.9993	0.7362	0.1442
5454	1.833517	0.0000	0.0000	1.0000	0.0004	0.9993	0.7362	0.1442
5455	1.833181	0.0000	0.0000	1.0000	0.0004	0.9993	0.7361	0.1442
5456	1.832845	0.0000	0.0000	1.0000	0.0005	0.9993	0.7361	0.1443
5457	1.832509	0.0000	0.0000	1.0000	0.0005	0.9993	0.7360	0.1443
5458	1.832173	0.0000	0.0000	1.0000	0.0006	0.9993	0.7360	0.1443
5459	1.831837	0.0000	0.0000	1.0000	0.0006	0.9993	0.7359	0.1443
5460	1.831502	0.0000	0.0000	1.0000	0.0007	0.9993	0.7358	0.1443
5461	1.831166	0.0000	0.0000	1.0000	0.0008	0.9993	0.7358	0.1444
5462	1.830831	0.0000	0.0000	1.0000	0.0009	0.9993	0.7357	0.1444
5463	1.830496	0.0000	0.0000	1.0000	0.0010	0.9993	0.7357	0.1444
5464	1.830161	0.0000	0.0000	1.0000	0.0011	0.9993	0.7356	0.1444
5465	1.829826	0.0000	0.0000	1.0000	0.0012	0.9993	0.7356	0.1445
5466	1.829491	0.0000	0.0000	1.0000	0.0013	0.9993	0.7355	0.1445
5467	1.829157	0.0000	0.0000	1.0000	0.0015	0.9993	0.7354	0.1445
5468	1.828822	0.0000	0.0000	1.0000	0.0016	0.9993	0.7354	0.1445
5469	1.828488	0.0000	0.0000	1.0000	0.0018	0.9993	0.7353	0.1446
5470	1.828154	0.0000	0.0000	1.0000	0.0019	0.9993	0.7353	0.1446
5471	1.827819	0.0000	0.0000	1.0000	0.0023	0.9993	0.7352	0.1446
5472	1.827485	0.0000	0.0000	1.0000	0.0026	0.9993	0.7352	0.1446
5473	1.827151	0.0000	0.0000	1.0000	0.0029	0.9993	0.7351	0.1447
5474	1.826818	0.0000	0.0000	1.0000	0.0032	0.9993	0.7350	0.1447
5475	1.826484	0.0000	0.0000	1.0000	0.0036	0.9993	0.7350	0.1447
5476	1.826150	0.0000	0.0000	1.0000	0.0042	0.9993	0.7349	0.1447
5477	1.825817	0.0000	0.0000	1.0000	0.0047	0.9993	0.7349	0.1447
5478	1.825484	0.0000	0.0000	1.0000	0.0053	0.9993	0.7348	0.1448
5479	1.825151	0.0000	0.0005	1.0000	0.0059	0.9993	0.7348	0.1448
5480	1.824818	0.0000	0.0003	1.0000	0.0065	0.9993	0.7347	0.1448
5481	1.824485	0.0000	0.0067	1.0000	0.0072	0.9993	0.7346	0.1448
5482	1.824152	0.0002	0.0319	1.0000	0.0079	0.9993	0.7346	0.1449
5483	1.823819	0.0002	0.0377	1.0000	0.0086	0.9993	0.7345	0.1449
5484	1.823487	0.0001	0.0078	1.0000	0.0093	0.9993	0.7345	0.1449
5485	1.823154	0.0000	0.0000	1.0000	0.0100	0.9993	0.7344	0.1449
5486	1.822822	0.0000	0.0000	1.0000	0.0110	0.9993	0.7344	0.1450
5487	1.822490	0.0000	0.0000	1.0000	0.0121	0.9993	0.7343	0.1450
5488	1.822157	0.0000	0.0000	1.0000	0.0132	0.9993	0.7343	0.1450
5489	1.821825	0.0000	0.0000	1.0000	0.0142	0.9993	0.7342	0.1450
5490	1.821494	0.0000	0.0000	1.0000	0.0153	0.9993	0.7341	0.1451

5491	1.821162	0.0000	0.0000	1.0000	0.0167	0.9993	0.7341	0.1451
5492	1.820830	0.0000	0.0000	1.0000	0.0182	0.9993	0.7340	0.1451
5493	1.820499	0.0000	0.0000	1.0000	0.0196	0.9993	0.7340	0.1451
5494	1.820167	0.0000	0.0000	1.0000	0.0210	0.9993	0.7339	0.1451
5495	1.819836	0.0000	0.0000	1.0000	0.0225	0.9993	0.7339	0.1452
5496	1.819505	0.0000	0.0001	1.0000	0.0246	0.9993	0.7338	0.1452
5497	1.819174	0.0000	0.0002	1.0000	0.0267	0.9993	0.7337	0.1452
5498	1.818843	0.0000	0.0000	1.0000	0.0288	0.9993	0.7337	0.1452
5499	1.818512	0.0000	0.0000	1.0000	0.0310	0.9993	0.7336	0.1453
5500	1.818182	0.0000	0.0000	1.0000	0.0331	0.9993	0.7336	0.1453
5501	1.817851	0.0005	0.0195	0.9984	0.0359	0.9993	0.7335	0.1453
5502	1.817521	0.0008	0.0266	0.9986	0.0387	0.9993	0.7335	0.1453
5503	1.817191	0.0000	0.0004	0.9999	0.0415	0.9993	0.7334	0.1454
5504	1.816860	0.0000	0.0000	0.9995	0.0443	0.9993	0.7334	0.1454
5505	1.816530	0.0000	0.0002	0.9998	0.0471	0.9993	0.7333	0.1454
5506	1.816201	0.0000	0.0000	0.9998	0.0511	0.9993	0.7332	0.1454
5507	1.815871	0.0000	0.0000	0.9998	0.0552	0.9993	0.7332	0.1455
5508	1.815541	0.0000	0.0000	1.0000	0.0592	0.9993	0.7331	0.1455
5509	1.815211	0.0000	0.0000	0.9990	0.0632	0.9993	0.7331	0.1455
5510	1.814882	0.0000	0.0000	0.9999	0.0672	0.9993	0.7330	0.1455
5511	1.814553	0.0003	0.0054	0.9998	0.0714	0.9993	0.7330	0.1455
5512	1.814224	0.0028	0.0517	0.9930	0.0756	0.9993	0.7329	0.1456
5513	1.813894	0.0015	0.0256	0.9945	0.0799	0.9993	0.7328	0.1456
5514	1.813565	0.0000	0.0005	0.9958	0.0841	0.9993	0.7328	0.1456
5515	1.813237	0.0000	0.0000	0.9980	0.0883	0.9993	0.7327	0.1456
5516	1.812908	0.0000	0.0000	0.9992	0.0939	0.9993	0.7327	0.1457
5517	1.812579	0.0000	0.0000	0.9993	0.0994	0.9993	0.7326	0.1457
5518	1.812251	0.0000	0.0001	0.9999	0.1050	0.9993	0.7326	0.1457
5519	1.811922	0.0000	0.0002	0.9987	0.1105	0.9993	0.7325	0.1457
5520	1.811594	0.0000	0.0003	0.9990	0.1161	0.9993	0.7325	0.1458
5521	1.811266	0.0000	0.0000	0.9999	0.1234	0.9993	0.7324	0.1458
5522	1.810938	0.0000	0.0000	0.9997	0.1308	0.9993	0.7323	0.1458
5523	1.810610	0.0000	0.0000	0.9899	0.1382	0.9993	0.7323	0.1458
5524	1.810282	0.0006	0.0059	0.9961	0.1456	0.9993	0.7322	0.1458
5525	1.809955	0.0067	0.0602	0.9934	0.1529	0.9993	0.7322	0.1459
5526	1.809627	0.0042	0.0355	0.9988	0.1626	0.9993	0.7321	0.1459
5527	1.809300	0.0060	0.0474	0.9999	0.1724	0.9993	0.7321	0.1459
5528	1.808973	0.0004	0.0030	0.9999	0.1821	0.9993	0.7320	0.1459
5529	1.808645	0.0012	0.0086	0.9999	0.1918	0.9993	0.7320	0.1460
5530	1.808318	0.0324	0.2206	0.9978	0.2015	0.9993	0.7319	0.1460
5531	1.807991	0.0100	0.0651	0.9973	0.2104	0.9993	0.7318	0.1460
5532	1.807664	0.0001	0.0008	0.9999	0.2193	0.9993	0.7318	0.1460
5533	1.807338	0.0000	0.0000	0.9998	0.2281	0.9993	0.7317	0.1461
5534	1.807011	0.0006	0.0035	0.9951	0.2370	0.9993	0.7317	0.1461
5535	1.806685	0.0000	0.0000	0.9935	0.2458	0.9993	0.7316	0.1461
5536	1.806358	0.0001	0.0003	0.9990	0.2566	0.9993	0.7316	0.1461

5537	1.806032	0.0000	0.0000	0.9999	0.2674	0.9993	0.7315	0.1461
5538	1.805706	0.0000	0.0000	0.9999	0.2783	0.9993	0.7315	0.1462
5539	1.805380	0.0128	0.0604	0.9987	0.2891	0.9993	0.7314	0.1462
5540	1.805054	0.0611	0.2787	0.9999	0.2999	0.9993	0.7313	0.1462
5541	1.804728	0.0286	0.1263	1.0000	0.3096	0.9993	0.7313	0.1462
5542	1.804403	0.0144	0.0619	0.9999	0.3193	0.9993	0.7312	0.1463
5543	1.804077	0.0015	0.0062	0.9999	0.3290	0.9993	0.7312	0.1463
5544	1.803752	0.0051	0.0207	0.9998	0.3387	0.9993	0.7311	0.1463
5545	1.803427	0.0018	0.0073	0.9960	0.3484	0.9993	0.7311	0.1463
5546	1.803101	0.0072	0.0279	0.9861	0.3597	0.9993	0.7310	0.1464
5547	1.802776	0.0003	0.0012	0.9996	0.3710	0.9993	0.7310	0.1464
5548	1.802451	0.0004	0.0014	0.9999	0.3823	0.9993	0.7309	0.1464
5549	1.802127	0.0003	0.0011	0.9997	0.3936	0.9993	0.7309	0.1464
5550	1.801802	0.0000	0.0001	0.9995	0.4049	0.9993	0.7308	0.1464
5551	1.801477	0.0001	0.0003	1.0000	0.4139	0.9993	0.7307	0.1465
5552	1.801153	0.0001	0.0003	1.0000	0.4229	0.9993	0.7307	0.1465
5553	1.800828	0.0000	0.0000	0.9999	0.4319	0.9993	0.7306	0.1465
5554	1.800504	0.0000	0.0000	0.9999	0.4409	0.9993	0.7306	0.1465
5555	1.800180	0.0006	0.0018	0.9997	0.4499	0.9993	0.7305	0.1466
5556	1.799856	0.0001	0.0002	0.9896	0.4599	0.9993	0.7305	0.1466
5557	1.799532	0.0402	0.1176	0.9958	0.4700	0.9993	0.7304	0.1466
5558	1.799208	0.1477	0.4222	0.9988	0.4800	0.9993	0.7304	0.1466
5559	1.798885	0.1927	0.5390	0.9999	0.4900	0.9993	0.7303	0.1466
5560	1.798561	0.1211	0.3321	0.9994	0.5000	0.9992	0.7302	0.1467
5561	1.798238	0.0089	0.0239	0.9992	0.5088	0.9992	0.7302	0.1467
5562	1.797914	0.1285	0.3404	0.9999	0.5176	0.9992	0.7301	0.1467
5563	1.797591	0.1628	0.4241	0.9998	0.5264	0.9992	0.7301	0.1467
5564	1.797268	0.0684	0.1754	0.9995	0.5352	0.9992	0.7300	0.1468
5565	1.796945	0.0005	0.0013	0.9998	0.5440	0.9992	0.7300	0.1468
5566	1.796622	0.0661	0.1638	0.9998	0.5536	0.9992	0.7299	0.1468
5567	1.796300	0.0430	0.1056	0.9921	0.5632	0.9992	0.7299	0.1468
5568	1.795977	0.0152	0.0365	0.9996	0.5728	0.9992	0.7298	0.1469
5569	1.795655	0.0773	0.1821	0.9991	0.5824	0.9992	0.7298	0.1469
5570	1.795332	0.0043	0.0099	0.9998	0.5919	0.9992	0.7297	0.1469
5571	1.795010	0.1027	0.2350	0.9998	0.5996	0.9992	0.7296	0.1469
5572	1.794688	0.0871	0.1973	0.9966	0.6073	0.9992	0.7296	0.1469
5573	1.794366	0.0394	0.0882	0.9966	0.6150	0.9992	0.7295	0.1470
5574	1.794044	0.0005	0.0011	0.9978	0.6226	0.9992	0.7295	0.1470
5575	1.793722	0.0323	0.0708	0.9922	0.6303	0.9992	0.7294	0.1470
5576	1.793400	0.0100	0.0216	0.9943	0.6385	0.9992	0.7294	0.1470
5577	1.793079	0.1089	0.2313	0.9985	0.6467	0.9992	0.7293	0.1471
5578	1.792757	0.0168	0.0356	0.9910	0.6549	0.9992	0.7293	0.1471
5579	1.792436	0.0334	0.0697	0.9908	0.6631	0.9992	0.7292	0.1471
5580	1.792115	0.1146	0.2373	0.9876	0.6713	0.9992	0.7292	0.1471
5581	1.791794	0.1405	0.2857	0.9949	0.6785	0.9992	0.7291	0.1471
5582	1.791473	0.0525	0.1055	0.9974	0.6858	0.9992	0.7291	0.1472

5583	1.791152	0.1425	0.2869	0.9841	0.6930	0.9992	0.7290	0.1472
5584	1.790831	0.0315	0.0629	0.9816	0.7003	0.9992	0.7289	0.1472
5585	1.790510	0.0297	0.0586	0.9827	0.7075	0.9992	0.7289	0.1472
5586	1.790190	0.3545	0.6941	0.9806	0.7152	0.9992	0.7288	0.1473
5587	1.789869	0.4533	0.8723	0.9872	0.7229	0.9992	0.7288	0.1473
5588	1.789549	0.4728	0.8896	0.9991	0.7305	0.9992	0.7287	0.1473
5589	1.789229	0.4083	0.7621	0.9968	0.7382	0.9992	0.7287	0.1473
5590	1.788909	0.0620	0.1143	0.9988	0.7458	0.9992	0.7286	0.1474
5591	1.788589	0.4160	0.7630	0.9976	0.7508	0.9992	0.7286	0.1474
5592	1.788269	0.4391	0.7997	0.9981	0.7557	0.9992	0.7285	0.1474
5593	1.787949	0.3881	0.7016	0.9991	0.7606	0.9992	0.7285	0.1474
5594	1.787630	0.1852	0.3338	0.9958	0.7656	0.9992	0.7284	0.1474
5595	1.787310	0.1773	0.3169	0.9979	0.7705	0.9992	0.7283	0.1475
5596	1.786991	0.0113	0.0201	0.9996	0.7756	0.9992	0.7283	0.1475
5597	1.786671	0.1090	0.1930	0.9941	0.7807	0.9992	0.7282	0.1475
5598	1.786352	0.1424	0.2497	0.9972	0.7858	0.9992	0.7282	0.1475
5599	1.786033	0.0203	0.0354	0.9982	0.7909	0.9992	0.7281	0.1476
5600	1.785714	0.0474	0.0820	0.9981	0.7960	0.9992	0.7281	0.1476
5601	1.785395	0.2639	0.4552	0.9962	0.7999	0.9992	0.7280	0.1476
5602	1.785077	0.0209	0.0360	0.9939	0.8038	0.9992	0.7280	0.1476
5603	1.784758	0.0009	0.0015	0.9962	0.8078	0.9992	0.7279	0.1476
5604	1.784440	0.0585	0.0995	0.9963	0.8117	0.9992	0.7279	0.1477
5605	1.784121	0.0570	0.0964	0.9972	0.8156	0.9992	0.7278	0.1477
5606	1.783803	0.2933	0.4925	0.9992	0.8196	0.9992	0.7278	0.1477
5607	1.783485	0.2736	0.4594	0.9944	0.8236	0.9992	0.7277	0.1477
5608	1.783167	0.4698	0.7821	0.9984	0.8276	0.9992	0.7276	0.1478
5609	1.782849	0.5305	0.8788	0.9984	0.8316	0.9992	0.7276	0.1478
5610	1.782531	0.3711	0.6110	0.9999	0.8356	0.9992	0.7275	0.1478
5611	1.782214	0.5038	0.8276	0.9990	0.8382	0.9992	0.7275	0.1478
5612	1.781896	0.2923	0.4786	0.9992	0.8408	0.9992	0.7274	0.1478
5613	1.781578	0.0648	0.1057	0.9994	0.8434	0.9992	0.7274	0.1479
5614	1.781261	0.0068	0.0110	0.9996	0.8460	0.9992	0.7273	0.1479
5615	1.780944	0.1629	0.2644	0.9988	0.8486	0.9992	0.7273	0.1479
5616	1.780627	0.4612	0.7522	0.9911	0.8512	0.9992	0.7272	0.1479
5617	1.780310	0.4176	0.6736	0.9993	0.8539	0.9992	0.7272	0.1480
5618	1.779993	0.5027	0.8082	0.9995	0.8565	0.9992	0.7271	0.1480
5619	1.779676	0.3419	0.5480	0.9996	0.8591	0.9992	0.7271	0.1480
5620	1.779359	0.2438	0.3896	0.9997	0.8618	0.9992	0.7270	0.1480
5621	1.779043	0.1191	0.1899	0.9994	0.8639	0.9992	0.7270	0.1480
5622	1.778726	0.0168	0.0268	0.9988	0.8660	0.9992	0.7269	0.1481
5623	1.778410	0.0797	0.1275	0.9912	0.8681	0.9992	0.7268	0.1481
5624	1.778094	0.4589	0.7296	0.9953	0.8703	0.9992	0.7268	0.1481
5625	1.777778	0.3257	0.5180	0.9925	0.8724	0.9992	0.7267	0.1481
5626	1.777462	0.5002	0.7916	0.9952	0.8745	0.9992	0.7267	0.1482
5627	1.777146	0.3647	0.5739	0.9984	0.8767	0.9992	0.7266	0.1482
5628	1.776830	0.4201	0.6621	0.9945	0.8788	0.9992	0.7266	0.1482

5629	1.776514	0.2313	0.3619	0.9995	0.8810	0.9992	0.7265	0.1482
5630	1.776199	0.0515	0.0806	0.9959	0.8832	0.9992	0.7265	0.1482
5631	1.775884	0.1000	0.1561	0.9968	0.8849	0.9992	0.7264	0.1483
5632	1.775568	0.3941	0.6173	0.9923	0.8866	0.9992	0.7264	0.1483
5633	1.775253	0.5451	0.8550	0.9889	0.8883	0.9992	0.7263	0.1483
5634	1.774938	0.3495	0.5482	0.9870	0.8900	0.9992	0.7263	0.1483
5635	1.774623	0.4102	0.6372	0.9947	0.8918	0.9992	0.7262	0.1484
5636	1.774308	0.1506	0.2326	0.9985	0.8935	0.9992	0.7262	0.1484
5637	1.773993	0.0799	0.1235	0.9962	0.8953	0.9992	0.7261	0.1484
5638	1.773679	0.3746	0.5781	0.9957	0.8970	0.9992	0.7261	0.1484
5639	1.773364	0.5913	0.9097	0.9971	0.8987	0.9992	0.7260	0.1484
5640	1.773050	0.4879	0.7503	0.9955	0.9005	0.9992	0.7259	0.1485
5641	1.772735	0.5090	0.7788	0.9990	0.9020	0.9992	0.7259	0.1485
5642	1.772421	0.4029	0.6166	0.9973	0.9034	0.9992	0.7258	0.1485
5643	1.772107	0.5546	0.8548	0.9886	0.9049	0.9992	0.7258	0.1485
5644	1.771793	0.6281	0.9582	0.9974	0.9064	0.9992	0.7257	0.1486
5645	1.771479	0.5405	0.8219	0.9990	0.9078	0.9992	0.7257	0.1486
5646	1.771165	0.3967	0.6035	0.9970	0.9093	0.9992	0.7256	0.1486
5647	1.770852	0.1324	0.2014	0.9959	0.9108	0.9992	0.7256	0.1486
5648	1.770538	0.4634	0.7056	0.9930	0.9123	0.9992	0.7255	0.1486
5649	1.770225	0.5362	0.8137	0.9947	0.9138	0.9992	0.7255	0.1487
5650	1.769912	0.2095	0.3160	0.9993	0.9153	0.9992	0.7254	0.1487
5651	1.769598	0.3814	0.5747	0.9992	0.9163	0.9992	0.7254	0.1487
5652	1.769285	0.5767	0.8689	0.9983	0.9174	0.9992	0.7253	0.1487
5653	1.768972	0.4890	0.7360	0.9984	0.9184	0.9992	0.7253	0.1488
5654	1.768659	0.5528	0.8335	0.9954	0.9195	0.9992	0.7252	0.1488
5655	1.768347	0.3436	0.5185	0.9936	0.9205	0.9992	0.7252	0.1488
5656	1.768034	0.5947	0.8968	0.9932	0.9216	0.9992	0.7251	0.1488
5657	1.767721	0.5189	0.7794	0.9960	0.9226	0.9992	0.7250	0.1488
5658	1.767409	0.6264	0.9382	0.9978	0.9237	0.9992	0.7250	0.1489
5659	1.767097	0.4366	0.6519	0.9999	0.9248	0.9992	0.7249	0.1489
5660	1.766784	0.5141	0.7667	0.9999	0.9258	0.9992	0.7249	0.1489
5661	1.766472	0.4376	0.6532	0.9984	0.9265	0.9992	0.7248	0.1489
5662	1.766160	0.1646	0.2472	0.9920	0.9271	0.9992	0.7248	0.1490
5663	1.765848	0.0015	0.0022	0.9968	0.9278	0.9992	0.7247	0.1490
5664	1.765537	0.0518	0.0772	0.9988	0.9285	0.9992	0.7247	0.1490
5665	1.765225	0.4525	0.6750	0.9967	0.9291	0.9992	0.7246	0.1490
5666	1.764914	0.5560	0.8267	0.9992	0.9298	0.9992	0.7246	0.1490
5667	1.764602	0.5452	0.8113	0.9977	0.9305	0.9992	0.7245	0.1491
5668	1.764291	0.6311	0.9393	0.9968	0.9311	0.9992	0.7245	0.1491
5669	1.763980	0.6349	0.9456	0.9955	0.9318	0.9992	0.7244	0.1491
5670	1.763668	0.5900	0.8745	0.9997	0.9325	0.9992	0.7244	0.1491
5671	1.763357	0.4666	0.6914	0.9996	0.9330	0.9992	0.7243	0.1491
5672	1.763047	0.2039	0.3027	0.9971	0.9335	0.9992	0.7243	0.1492
5673	1.762736	0.4755	0.7044	0.9987	0.9340	0.9992	0.7242	0.1492
5674	1.762425	0.2397	0.3560	0.9960	0.9345	0.9992	0.7242	0.1492

5675	1.762115	0.5193	0.7696	0.9974	0.9350	0.9992	0.7241	0.1492
5676	1.761804	0.6301	0.9313	0.9997	0.9355	0.9992	0.7241	0.1493
5677	1.761494	0.5523	0.8163	0.9994	0.9360	0.9992	0.7240	0.1493
5678	1.761184	0.1651	0.2439	0.9991	0.9365	0.9992	0.7240	0.1493
5679	1.760873	0.5432	0.8038	0.9973	0.9370	0.9992	0.7239	0.1493
5680	1.760563	0.6212	0.9174	0.9986	0.9375	0.9992	0.7238	0.1493
5681	1.760253	0.6597	0.9749	0.9977	0.9379	0.9992	0.7238	0.1494
5682	1.759944	0.6063	0.8939	0.9995	0.9383	0.9992	0.7237	0.1494
5683	1.759634	0.6677	0.9839	0.9997	0.9388	0.9992	0.7237	0.1494
5684	1.759324	0.6647	0.9797	0.9991	0.9392	0.9992	0.7236	0.1494
5685	1.759015	0.6630	0.9776	0.9982	0.9396	0.9992	0.7236	0.1495
5686	1.758706	0.6579	0.9699	0.9981	0.9401	0.9992	0.7235	0.1495
5687	1.758396	0.6268	0.9228	0.9991	0.9405	0.9992	0.7235	0.1495
5688	1.758087	0.6236	0.9175	0.9992	0.9410	0.9992	0.7234	0.1495
5689	1.757778	0.4265	0.6270	0.9996	0.9414	0.9992	0.7234	0.1495
5690	1.757469	0.1034	0.1518	1.0000	0.9418	0.9992	0.7233	0.1496
5691	1.757160	0.4485	0.6586	0.9999	0.9423	0.9992	0.7233	0.1496
5692	1.756852	0.1632	0.2395	0.9999	0.9428	0.9992	0.7232	0.1496
5693	1.756543	0.5362	0.7867	0.9999	0.9433	0.9992	0.7232	0.1496
5694	1.756235	0.5717	0.8384	1.0000	0.9438	0.9992	0.7231	0.1496
5695	1.755926	0.5790	0.8489	0.9998	0.9443	0.9992	0.7231	0.1497
5696	1.755618	0.4360	0.6403	0.9977	0.9448	0.9992	0.7230	0.1497
5697	1.755310	0.0866	0.1270	0.9987	0.9453	0.9992	0.7230	0.1497
5698	1.755002	0.4833	0.7082	0.9988	0.9458	0.9992	0.7229	0.1497
5699	1.754694	0.6323	0.9292	0.9955	0.9463	0.9992	0.7229	0.1498
5700	1.754386	0.6492	0.9505	0.9987	0.9468	0.9992	0.7228	0.1498
5701	1.754078	0.6448	0.9446	0.9980	0.9472	0.9992	0.7228	0.1498
5702	1.753771	0.6681	0.9793	0.9970	0.9476	0.9992	0.7227	0.1498
5703	1.753463	0.6657	0.9735	0.9991	0.9480	0.9992	0.7227	0.1498
5704	1.753156	0.6534	0.9551	0.9991	0.9483	0.9992	0.7226	0.1499
5705	1.752848	0.5591	0.8164	0.9999	0.9487	0.9992	0.7226	0.1499
5706	1.752541	0.6475	0.9454	0.9996	0.9491	0.9992	0.7225	0.1499
5707	1.752234	0.6369	0.9298	0.9995	0.9495	0.9992	0.7225	0.1499
5708	1.751927	0.5427	0.7922	0.9992	0.9499	0.9992	0.7224	0.1500
5709	1.751620	0.1199	0.1750	0.9991	0.9502	0.9992	0.7223	0.1500
5710	1.751313	0.5420	0.7905	0.9993	0.9506	0.9992	0.7223	0.1500
5711	1.751007	0.6329	0.9234	0.9988	0.9509	0.9992	0.7222	0.1500
5712	1.750700	0.5886	0.8585	0.9989	0.9511	0.9992	0.7222	0.1500
5713	1.750394	0.6369	0.9282	0.9995	0.9514	0.9992	0.7221	0.1501
5714	1.750088	0.6543	0.9573	0.9954	0.9517	0.9992	0.7221	0.1501
5715	1.749781	0.6705	0.9781	0.9982	0.9519	0.9992	0.7220	0.1501
5716	1.749475	0.6106	0.8900	0.9988	0.9522	0.9992	0.7220	0.1501
5717	1.749169	0.6179	0.9022	0.9968	0.9525	0.9992	0.7219	0.1501
5718	1.748863	0.6689	0.9761	0.9972	0.9527	0.9992	0.7219	0.1502
5719	1.748557	0.6461	0.9401	0.9999	0.9530	0.9992	0.7218	0.1502
5720	1.748252	0.6465	0.9407	0.9996	0.9533	0.9992	0.7218	0.1502

5721	1.747946	0.6118	0.8901	0.9994	0.9536	0.9992	0.7217	0.1502
5722	1.747641	0.3262	0.4755	0.9973	0.9539	0.9992	0.7217	0.1503
5723	1.747335	0.2917	0.4245	0.9989	0.9542	0.9992	0.7216	0.1503
5724	1.747030	0.1456	0.2120	0.9984	0.9545	0.9992	0.7216	0.1503
5725	1.746725	0.0875	0.1271	0.9999	0.9548	0.9992	0.7215	0.1503
5726	1.746420	0.4917	0.7145	0.9994	0.9552	0.9992	0.7215	0.1503
5727	1.746115	0.6193	0.9071	0.9912	0.9555	0.9992	0.7214	0.1504
5728	1.745810	0.6608	0.9627	0.9964	0.9558	0.9992	0.7214	0.1504
5729	1.745505	0.6679	0.9707	0.9985	0.9561	0.9992	0.7213	0.1504
5730	1.745201	0.6599	0.9598	0.9976	0.9564	0.9992	0.7213	0.1504
5731	1.744896	0.5981	0.8691	0.9983	0.9566	0.9992	0.7212	0.1504
5732	1.744592	0.1981	0.2882	0.9969	0.9569	0.9992	0.7212	0.1505
5733	1.744287	0.5944	0.8648	0.9968	0.9571	0.9992	0.7211	0.1505
5734	1.743983	0.6615	0.9597	0.9994	0.9573	0.9992	0.7211	0.1505
5735	1.743679	0.6759	0.9819	0.9979	0.9575	0.9992	0.7210	0.1505
5736	1.743375	0.6771	0.9822	0.9992	0.9577	0.9991	0.7210	0.1506
5737	1.743071	0.6044	0.8777	0.9981	0.9580	0.9991	0.7209	0.1506
5738	1.742768	0.6765	0.9821	0.9981	0.9582	0.9991	0.7209	0.1506
5739	1.742464	0.6756	0.9790	0.9997	0.9584	0.9991	0.7208	0.1506
5740	1.742160	0.6620	0.9672	0.9915	0.9586	0.9991	0.7208	0.1506
5741	1.741857	0.5430	0.7889	0.9969	0.9588	0.9991	0.7207	0.1507
5742	1.741553	0.3500	0.5070	0.9998	0.9589	0.9991	0.7207	0.1507
5743	1.741250	0.1481	0.2145	0.9994	0.9591	0.9991	0.7206	0.1507
5744	1.740947	0.5682	0.8246	0.9978	0.9592	0.9991	0.7206	0.1507
5745	1.740644	0.6555	0.9510	0.9979	0.9593	0.9991	0.7205	0.1507
5746	1.740341	0.5899	0.8568	0.9968	0.9595	0.9991	0.7205	0.1508
5747	1.740038	0.6317	0.9197	0.9943	0.9596	0.9991	0.7204	0.1508
5748	1.739736	0.3312	0.4822	0.9944	0.9598	0.9991	0.7204	0.1508
5749	1.739433	0.6473	0.9415	0.9951	0.9599	0.9991	0.7203	0.1508
5750	1.739130	0.6773	0.9812	0.9991	0.9601	0.9991	0.7203	0.1508
5751	1.738828	0.6391	0.9269	0.9977	0.9603	0.9991	0.7202	0.1509
5752	1.738526	0.6791	0.9881	0.9943	0.9606	0.9991	0.7202	0.1509
5753	1.738224	0.6105	0.8893	0.9929	0.9609	0.9991	0.7201	0.1509
5754	1.737921	0.6598	0.9610	0.9928	0.9612	0.9991	0.7201	0.1509
5755	1.737619	0.6647	0.9619	0.9990	0.9615	0.9991	0.7200	0.1510
5756	1.737318	0.6756	0.9771	0.9995	0.9618	0.9991	0.7200	0.1510
5757	1.737016	0.6008	0.8695	0.9986	0.9620	0.9991	0.7199	0.1510
5758	1.736714	0.2107	0.3056	0.9959	0.9623	0.9991	0.7199	0.1510
5759	1.736413	0.6007	0.8705	0.9968	0.9626	0.9991	0.7198	0.1510
5760	1.736111	0.3366	0.4891	0.9937	0.9629	0.9991	0.7198	0.1511
5761	1.735810	0.6227	0.9035	0.9952	0.9631	0.9991	0.7197	0.1511
5762	1.735509	0.3663	0.5298	0.9982	0.9633	0.9991	0.7197	0.1511
5763	1.735207	0.6553	0.9512	0.9946	0.9634	0.9991	0.7196	0.1511
5764	1.734906	0.6665	0.9739	0.9878	0.9636	0.9991	0.7196	0.1511
5765	1.734605	0.6823	0.9877	0.9971	0.9638	0.9991	0.7195	0.1512
5766	1.734305	0.6557	0.9513	0.9948	0.9640	0.9991	0.7195	0.1512

5767	1.734004	0.6594	0.9531	0.9982	0.9642	0.9991	0.7194	0.1512
5768	1.733703	0.6791	0.9843	0.9953	0.9644	0.9991	0.7194	0.1512
5769	1.733403	0.6783	0.9816	0.9968	0.9646	0.9991	0.7193	0.1512
5770	1.733102	0.6678	0.9664	0.9967	0.9648	0.9991	0.7193	0.1513
5771	1.732802	0.5956	0.8614	0.9972	0.9649	0.9991	0.7192	0.1513
5772	1.732502	0.1899	0.2749	0.9965	0.9651	0.9991	0.7192	0.1513
5773	1.732202	0.5372	0.7786	0.9949	0.9653	0.9991	0.7191	0.1513
5774	1.731902	0.2351	0.3426	0.9893	0.9654	0.9991	0.7191	0.1514
5775	1.731602	0.6073	0.8805	0.9943	0.9656	0.9991	0.7190	0.1514
5776	1.731302	0.6720	0.9723	0.9963	0.9657	0.9991	0.7190	0.1514
5777	1.731002	0.6716	0.9838	0.9839	0.9659	0.9991	0.7189	0.1514
5778	1.730703	0.6806	0.9913	0.9896	0.9661	0.9991	0.7189	0.1514
5779	1.730403	0.6805	0.9897	0.9908	0.9662	0.9991	0.7188	0.1515
5780	1.730104	0.6843	0.9911	0.9948	0.9664	0.9991	0.7188	0.1515
5781	1.729805	0.6891	0.9939	0.9990	0.9666	0.9991	0.7187	0.1515
5782	1.729505	0.6810	0.9869	0.9942	0.9667	0.9991	0.7187	0.1515
5783	1.729206	0.6512	0.9449	0.9928	0.9669	0.9991	0.7186	0.1515
5784	1.728907	0.4472	0.6492	0.9922	0.9670	0.9991	0.7186	0.1516
5785	1.728608	0.4779	0.6958	0.9893	0.9672	0.9991	0.7185	0.1516
5786	1.728310	0.6669	0.9721	0.9880	0.9673	0.9991	0.7185	0.1516
5787	1.728011	0.6480	0.9370	0.9958	0.9675	0.9991	0.7184	0.1516
5788	1.727713	0.6861	0.9937	0.9942	0.9676	0.9991	0.7184	0.1516
5789	1.727414	0.6837	0.9944	0.9899	0.9678	0.9991	0.7183	0.1517
5790	1.727116	0.6468	0.9509	0.9793	0.9679	0.9991	0.7183	0.1517
5791	1.726817	0.6874	0.9935	0.9960	0.9681	0.9991	0.7182	0.1517
5792	1.726519	0.6786	0.9818	0.9949	0.9682	0.9991	0.7182	0.1517
5793	1.726221	0.5030	0.7326	0.9882	0.9683	0.9991	0.7181	0.1518
5794	1.725923	0.6739	0.9819	0.9877	0.9685	0.9991	0.7181	0.1518
5795	1.725626	0.6857	0.9910	0.9958	0.9686	0.9991	0.7180	0.1518
5796	1.725328	0.6772	0.9840	0.9903	0.9687	0.9991	0.7180	0.1518
5797	1.725030	0.6601	0.9603	0.9891	0.9689	0.9991	0.7179	0.1518
5798	1.724733	0.4222	0.6104	0.9953	0.9690	0.9991	0.7179	0.1519
5799	1.724435	0.2479	0.3596	0.9919	0.9691	0.9991	0.7178	0.1519
5800	1.724138	0.6401	0.9253	0.9953	0.9693	0.9991	0.7178	0.1519
5801	1.723841	0.6427	0.9336	0.9903	0.9694	0.9991	0.7177	0.1519
5802	1.723544	0.3397	0.4921	0.9928	0.9695	0.9991	0.7177	0.1519
5803	1.723247	0.6521	0.9475	0.9899	0.9697	0.9991	0.7176	0.1520
5804	1.722950	0.6593	0.9571	0.9908	0.9698	0.9991	0.7176	0.1520
5805	1.722653	0.6804	0.9895	0.9890	0.9700	0.9991	0.7175	0.1520
5806	1.722356	0.6751	0.9848	0.9858	0.9701	0.9991	0.7175	0.1520
5807	1.722060	0.6829	0.9866	0.9953	0.9702	0.9991	0.7174	0.1520
5808	1.721763	0.6591	0.9504	0.9973	0.9704	0.9991	0.7174	0.1521
5809	1.721467	0.3707	0.5365	0.9935	0.9705	0.9991	0.7173	0.1521
5810	1.721170	0.2944	0.4247	0.9966	0.9706	0.9991	0.7173	0.1521
5811	1.720874	0.6558	0.9471	0.9954	0.9707	0.9991	0.7172	0.1521
5812	1.720578	0.6786	0.9837	0.9917	0.9708	0.9991	0.7172	0.1521

5813	1.720282	0.6876	0.9907	0.9976	0.9710	0.9991	0.7171	0.1522
5814	1.719986	0.6278	0.9055	0.9965	0.9711	0.9991	0.7171	0.1522
5815	1.719690	0.6883	0.9917	0.9976	0.9712	0.9991	0.7170	0.1522
5816	1.719395	0.6930	0.9973	0.9987	0.9713	0.9991	0.7170	0.1522
5817	1.719099	0.6925	0.9967	0.9985	0.9714	0.9991	0.7169	0.1523
5818	1.718804	0.6879	0.9922	0.9964	0.9715	0.9991	0.7169	0.1523
5819	1.718508	0.6930	0.9979	0.9981	0.9716	0.9991	0.7168	0.1523
5820	1.718213	0.6720	0.9680	0.9978	0.9717	0.9991	0.7168	0.1523
5821	1.717918	0.6927	0.9966	0.9989	0.9718	0.9991	0.7167	0.1523
5822	1.717623	0.6936	0.9980	0.9986	0.9719	0.9991	0.7167	0.1524
5823	1.717328	0.6918	0.9970	0.9972	0.9719	0.9991	0.7166	0.1524
5824	1.717033	0.6815	0.9851	0.9941	0.9720	0.9991	0.7166	0.1524
5825	1.716738	0.6855	0.9853	0.9997	0.9721	0.9991	0.7165	0.1524
5826	1.716444	0.6696	0.9640	0.9981	0.9722	0.9991	0.7165	0.1524
5827	1.716149	0.3919	0.5632	0.9999	0.9723	0.9991	0.7164	0.1525
5828	1.715854	0.6703	0.9632	0.9999	0.9724	0.9991	0.7164	0.1525
5829	1.715560	0.6881	0.9890	0.9997	0.9725	0.9991	0.7163	0.1525
5830	1.715266	0.6821	0.9896	0.9903	0.9726	0.9991	0.7163	0.1525
5831	1.714972	0.6704	0.9635	0.9996	0.9727	0.9991	0.7162	0.1525
5832	1.714678	0.4918	0.7069	0.9994	0.9728	0.9991	0.7162	0.1526
5833	1.714384	0.3738	0.5372	0.9997	0.9729	0.9991	0.7161	0.1526
5834	1.714090	0.6603	0.9537	0.9945	0.9730	0.9991	0.7161	0.1526
5835	1.713796	0.5979	0.8678	0.9898	0.9731	0.9991	0.7160	0.1526
5836	1.713502	0.6844	0.9877	0.9953	0.9732	0.9991	0.7160	0.1526
5837	1.713209	0.6324	0.9121	0.9958	0.9733	0.9991	0.7159	0.1527
5838	1.712915	0.6865	0.9883	0.9977	0.9734	0.9991	0.7159	0.1527
5839	1.712622	0.6906	0.9963	0.9955	0.9735	0.9991	0.7159	0.1527
5840	1.712329	0.6628	0.9565	0.9953	0.9736	0.9991	0.7158	0.1527
5841	1.712036	0.6917	0.9980	0.9955	0.9737	0.9991	0.7158	0.1527
5842	1.711743	0.6939	0.9986	0.9980	0.9738	0.9991	0.7157	0.1528
5843	1.711450	0.6908	0.9961	0.9961	0.9738	0.9991	0.7157	0.1528
5844	1.711157	0.6912	0.9978	0.9948	0.9739	0.9991	0.7156	0.1528
5845	1.710864	0.6828	0.9829	0.9977	0.9740	0.9991	0.7156	0.1528
5846	1.710571	0.5732	0.8377	0.9827	0.9740	0.9991	0.7155	0.1528
5847	1.710279	0.6896	0.9932	0.9972	0.9741	0.9991	0.7155	0.1529
5848	1.709986	0.6904	0.9969	0.9947	0.9742	0.9991	0.7154	0.1529
5849	1.709694	0.6885	0.9963	0.9925	0.9743	0.9991	0.7154	0.1529
5850	1.709402	0.6862	0.9933	0.9921	0.9743	0.9991	0.7153	0.1529
5851	1.709110	0.6781	0.9765	0.9973	0.9744	0.9991	0.7153	0.1530
5852	1.708817	0.4404	0.6393	0.9894	0.9745	0.9991	0.7152	0.1530
5853	1.708526	0.3978	0.5796	0.9857	0.9745	0.9991	0.7152	0.1530
5854	1.708234	0.6572	0.9606	0.9826	0.9746	0.9991	0.7151	0.1530
5855	1.707942	0.6723	0.9790	0.9862	0.9746	0.9991	0.7151	0.1530
5856	1.707650	0.5393	0.7821	0.9902	0.9747	0.9991	0.7150	0.1531
5857	1.707359	0.6799	0.9866	0.9897	0.9748	0.9991	0.7150	0.1531
5858	1.707067	0.6853	0.9897	0.9944	0.9748	0.9991	0.7149	0.1531

5859	1.706776	0.5445	0.8008	0.9766	0.9749	0.9991	0.7149	0.1531
5860	1.706485	0.6811	0.9885	0.9896	0.9750	0.9991	0.7148	0.1531
5861	1.706193	0.5984	0.8686	0.9895	0.9750	0.9991	0.7148	0.1532
5862	1.705902	0.6899	0.9946	0.9961	0.9751	0.9991	0.7147	0.1532
5863	1.705611	0.6769	0.9841	0.9879	0.9751	0.9991	0.7147	0.1532
5864	1.705321	0.6425	0.9458	0.9757	0.9752	0.9991	0.7146	0.1532
5865	1.705030	0.6836	0.9896	0.9922	0.9753	0.9991	0.7146	0.1532
5866	1.704739	0.6843	0.9855	0.9972	0.9753	0.9991	0.7145	0.1533
5867	1.704449	0.6765	0.9825	0.9889	0.9754	0.9991	0.7145	0.1533
5868	1.704158	0.6873	0.9973	0.9898	0.9754	0.9991	0.7144	0.1533
5869	1.703868	0.6769	0.9776	0.9945	0.9755	0.9991	0.7144	0.1533
5870	1.703578	0.5865	0.8525	0.9881	0.9756	0.9991	0.7144	0.1533
5871	1.703287	0.6852	0.9929	0.9912	0.9756	0.9991	0.7143	0.1534
5872	1.702997	0.6892	0.9965	0.9934	0.9757	0.9991	0.7143	0.1534
5873	1.702707	0.6808	0.9988	0.9790	0.9757	0.9991	0.7142	0.1534
5874	1.702417	0.6900	0.9989	0.9922	0.9758	0.9991	0.7142	0.1534
5875	1.702128	0.6905	0.9987	0.9930	0.9758	0.9991	0.7141	0.1534
5876	1.701838	0.6901	0.9979	0.9934	0.9759	0.9991	0.7141	0.1535
5877	1.701548	0.6887	0.9931	0.9961	0.9759	0.9991	0.7140	0.1535
5878	1.701259	0.6792	0.9807	0.9949	0.9760	0.9991	0.7140	0.1535
5879	1.700970	0.4573	0.6645	0.9887	0.9760	0.9991	0.7139	0.1535
5880	1.700680	0.6750	0.9790	0.9904	0.9761	0.9991	0.7139	0.1535
5881	1.700391	0.6794	0.9832	0.9926	0.9761	0.9991	0.7138	0.1536
5882	1.700102	0.6865	0.9960	0.9901	0.9762	0.9991	0.7138	0.1536
5883	1.699813	0.6821	0.9894	0.9904	0.9762	0.9991	0.7137	0.1536
5884	1.699524	0.5635	0.8123	0.9966	0.9763	0.9991	0.7137	0.1536
5885	1.699235	0.6878	0.9894	0.9987	0.9764	0.9991	0.7136	0.1536
5886	1.698947	0.6884	0.9929	0.9960	0.9764	0.9991	0.7136	0.1537
5887	1.698658	0.6915	0.9966	0.9969	0.9765	0.9991	0.7135	0.1537
5888	1.698370	0.6922	0.9984	0.9960	0.9765	0.9991	0.7135	0.1537
5889	1.698081	0.6920	0.9979	0.9962	0.9766	0.9991	0.7134	0.1537
5890	1.697793	0.6876	0.9899	0.9979	0.9766	0.9991	0.7134	0.1537
5891	1.697505	0.6687	0.9844	0.9759	0.9767	0.9991	0.7133	0.1538
5892	1.697217	0.4232	0.6211	0.9790	0.9767	0.9991	0.7133	0.1538
5893	1.696929	0.5845	0.8420	0.9973	0.9768	0.9991	0.7133	0.1538
5894	1.696641	0.5636	0.8132	0.9958	0.9768	0.9991	0.7132	0.1538
5895	1.696353	0.6880	0.9894	0.9991	0.9768	0.9991	0.7132	0.1538
5896	1.696065	0.6936	0.9972	0.9994	0.9769	0.9991	0.7131	0.1539
5897	1.695778	0.6945	0.9984	0.9995	0.9769	0.9991	0.7131	0.1539
5898	1.695490	0.6911	0.9945	0.9986	0.9770	0.9990	0.7130	0.1539
5899	1.695203	0.6932	0.9991	0.9970	0.9770	0.9990	0.7130	0.1539
5900	1.694915	0.6889	0.9991	0.9909	0.9771	0.9990	0.7129	0.1539
5901	1.694628	0.6909	0.9978	0.9951	0.9771	0.9990	0.7129	0.1540
5902	1.694341	0.6660	0.9586	0.9985	0.9772	0.9990	0.7128	0.1540
5903	1.694054	0.6077	0.9129	0.9567	0.9772	0.9990	0.7128	0.1540
5904	1.693767	0.6904	0.9945	0.9977	0.9772	0.9990	0.7127	0.1540

5905	1.693480	0.6941	0.9991	0.9985	0.9773	0.9990	0.7127	0.1540
5906	1.693193	0.6937	0.9993	0.9977	0.9773	0.9990	0.7126	0.1541
5907	1.692907	0.6947	0.9992	0.9993	0.9774	0.9990	0.7126	0.1541
5908	1.692620	0.6927	0.9982	0.9973	0.9774	0.9990	0.7125	0.1541
5909	1.692334	0.6475	0.9394	0.9907	0.9774	0.9990	0.7125	0.1541
5910	1.692047	0.6814	0.9863	0.9930	0.9775	0.9990	0.7124	0.1541
5911	1.691761	0.6894	0.9919	0.9990	0.9775	0.9990	0.7124	0.1542
5912	1.691475	0.5823	0.8401	0.9963	0.9776	0.9990	0.7124	0.1542
5913	1.691189	0.6858	0.9878	0.9980	0.9776	0.9990	0.7123	0.1542
5914	1.690903	0.5974	0.8603	0.9982	0.9776	0.9990	0.7123	0.1542
5915	1.690617	0.4838	0.7300	0.9527	0.9777	0.9990	0.7122	0.1542
5916	1.690331	0.6867	0.9887	0.9984	0.9777	0.9990	0.7122	0.1543
5917	1.690046	0.6930	0.9969	0.9994	0.9778	0.9990	0.7121	0.1543
5918	1.689760	0.6835	0.9867	0.9959	0.9778	0.9990	0.7121	0.1543
5919	1.689475	0.6468	0.9302	0.9997	0.9778	0.9990	0.7120	0.1543
5920	1.689189	0.6904	0.9950	0.9976	0.9779	0.9990	0.7120	0.1543
5921	1.688904	0.6909	0.9992	0.9942	0.9779	0.9990	0.7119	0.1544
5922	1.688619	0.6941	0.9982	0.9997	0.9780	0.9990	0.7119	0.1544
5923	1.688334	0.6915	0.9950	0.9992	0.9780	0.9990	0.7118	0.1544
5924	1.688049	0.6928	0.9993	0.9969	0.9780	0.9990	0.7118	0.1544
5925	1.687764	0.6875	0.9918	0.9967	0.9781	0.9990	0.7117	0.1544
5926	1.687479	0.6775	0.9948	0.9792	0.9781	0.9990	0.7117	0.1545
5927	1.687194	0.6011	0.8994	0.9610	0.9782	0.9990	0.7116	0.1545
5928	1.686910	0.6926	0.9974	0.9985	0.9782	0.9990	0.7116	0.1545
5929	1.686625	0.6934	0.9993	0.9979	0.9782	0.9990	0.7116	0.1545
5930	1.686341	0.6932	0.9991	0.9978	0.9783	0.9990	0.7115	0.1545
5931	1.686056	0.6780	0.9757	0.9993	0.9783	0.9990	0.7115	0.1546
5932	1.685772	0.6928	0.9980	0.9985	0.9783	0.9990	0.7114	0.1546
5933	1.685488	0.6934	0.9996	0.9978	0.9784	0.9990	0.7114	0.1546
5934	1.685204	0.6926	0.9995	0.9967	0.9784	0.9990	0.7113	0.1546
5935	1.684920	0.6925	0.9991	0.9969	0.9784	0.9990	0.7113	0.1546
5936	1.684636	0.6928	0.9971	0.9993	0.9785	0.9990	0.7112	0.1547
5937	1.684352	0.6412	0.9252	0.9969	0.9785	0.9990	0.7112	0.1547
5938	1.684069	0.5433	0.8487	0.9209	0.9785	0.9990	0.7111	0.1547
5939	1.683785	0.6883	0.9944	0.9957	0.9786	0.9990	0.7111	0.1547
5940	1.683502	0.6933	0.9984	0.9989	0.9786	0.9990	0.7110	0.1547
5941	1.683218	0.6764	0.9734	0.9996	0.9786	0.9990	0.7110	0.1548
5942	1.682935	0.6934	0.9993	0.9983	0.9786	0.9990	0.7109	0.1548
5943	1.682652	0.6941	0.9997	0.9989	0.9787	0.9990	0.7109	0.1548
5944	1.682369	0.6942	0.9998	0.9991	0.9787	0.9990	0.7109	0.1548
5945	1.682086	0.6943	0.9998	0.9991	0.9787	0.9990	0.7108	0.1548
5946	1.681803	0.6932	0.9996	0.9978	0.9788	0.9990	0.7108	0.1549
5947	1.681520	0.6795	0.9824	0.9953	0.9788	0.9990	0.7107	0.1549
5948	1.681237	0.6937	0.9996	0.9987	0.9788	0.9990	0.7107	0.1549
5949	1.680955	0.6893	0.9944	0.9975	0.9789	0.9990	0.7106	0.1549
5950	1.680672	0.6597	0.9979	0.9513	0.9789	0.9990	0.7106	0.1549

5951	1.680390	0.6929	0.9986	0.9985	0.9789	0.9990	0.7105	0.1550
5952	1.680108	0.6621	0.9532	0.9996	0.9790	0.9990	0.7105	0.1550
5953	1.679825	0.6936	0.9984	0.9998	0.9790	0.9990	0.7104	0.1550
5954	1.679543	0.6852	0.9864	0.9998	0.9790	0.9990	0.7104	0.1550
5955	1.679261	0.6937	0.9994	0.9991	0.9790	0.9990	0.7103	0.1550
5956	1.678979	0.6941	0.9992	0.9998	0.9791	0.9990	0.7103	0.1551
5957	1.678697	0.6917	0.9969	0.9988	0.9791	0.9990	0.7102	0.1551
5958	1.678416	0.6305	0.9083	0.9992	0.9791	0.9990	0.7102	0.1551
5959	1.678134	0.6907	0.9948	0.9995	0.9791	0.9990	0.7102	0.1551
5960	1.677852	0.6653	0.9609	0.9967	0.9792	0.9990	0.7101	0.1551
5961	1.677571	0.6508	0.9980	0.9387	0.9792	0.9990	0.7101	0.1552
5962	1.677290	0.6744	0.9751	0.9957	0.9792	0.9990	0.7100	0.1552
5963	1.677008	0.6923	0.9982	0.9986	0.9792	0.9990	0.7100	0.1552
5964	1.676727	0.6563	0.9453	0.9997	0.9793	0.9990	0.7099	0.1552
5965	1.676446	0.6934	0.9987	0.9997	0.9793	0.9990	0.7099	0.1552
5966	1.676165	0.6775	0.9760	0.9996	0.9793	0.9990	0.7098	0.1553
5967	1.675884	0.6859	0.9880	0.9998	0.9793	0.9990	0.7098	0.1553
5968	1.675603	0.6331	0.9126	0.9991	0.9794	0.9990	0.7097	0.1553
5969	1.675322	0.6913	0.9970	0.9986	0.9794	0.9990	0.7097	0.1553
5970	1.675042	0.6744	0.9717	0.9996	0.9794	0.9990	0.7096	0.1553
5971	1.674761	0.6927	0.9992	0.9985	0.9794	0.9990	0.7096	0.1553
5972	1.674481	0.6617	0.9993	0.9536	0.9795	0.9990	0.7096	0.1554
5973	1.674201	0.6800	0.9809	0.9985	0.9795	0.9990	0.7095	0.1554
5974	1.673920	0.6730	0.9706	0.9988	0.9795	0.9990	0.7095	0.1554
5975	1.673640	0.6923	0.9986	0.9986	0.9795	0.9990	0.7094	0.1554
5976	1.673360	0.6787	0.9787	0.9990	0.9795	0.9990	0.7094	0.1554
5977	1.673080	0.6878	0.9918	0.9991	0.9796	0.9990	0.7093	0.1555
5978	1.672800	0.6930	0.9996	0.9988	0.9796	0.9990	0.7093	0.1555
5979	1.672520	0.6919	0.9981	0.9987	0.9796	0.9990	0.7092	0.1555
5980	1.672241	0.6929	0.9996	0.9987	0.9796	0.9990	0.7092	0.1555
5981	1.671961	0.6925	0.9988	0.9990	0.9796	0.9990	0.7091	0.1555
5982	1.671682	0.6594	0.9511	0.9991	0.9797	0.9990	0.7091	0.1556
5983	1.671402	0.6815	0.9986	0.9835	0.9797	0.9990	0.7090	0.1556
5984	1.671123	0.6841	0.9881	0.9977	0.9797	0.9990	0.7090	0.1556
5985	1.670844	0.6914	0.9987	0.9978	0.9797	0.9990	0.7090	0.1556
5986	1.670565	0.6605	0.9554	0.9965	0.9797	0.9990	0.7089	0.1556
5987	1.670286	0.6877	0.9937	0.9975	0.9798	0.9990	0.7089	0.1557
5988	1.670007	0.6930	0.9993	0.9995	0.9798	0.9990	0.7088	0.1557
5989	1.669728	0.6898	0.9985	0.9958	0.9798	0.9990	0.7088	0.1557
5990	1.669449	0.6635	0.9599	0.9965	0.9798	0.9990	0.7087	0.1557
5991	1.669170	0.6788	0.9815	0.9970	0.9798	0.9990	0.7087	0.1557
5992	1.668892	0.6372	0.9191	0.9994	0.9799	0.9990	0.7086	0.1558
5993	1.668613	0.6859	0.9982	0.9907	0.9799	0.9990	0.7086	0.1558
5994	1.668335	0.6863	0.9995	0.9899	0.9799	0.9990	0.7085	0.1558
5995	1.668057	0.6831	0.9997	0.9852	0.9799	0.9990	0.7085	0.1558
5996	1.667779	0.6887	0.9994	0.9937	0.9799	0.9990	0.7085	0.1558

5997	1.667500	0.6840	0.9996	0.9866	0.9800	0.9990	0.7084	0.1559
5998	1.667222	0.6579	0.9958	0.9527	0.9800	0.9990	0.7084	0.1559
5999	1.666944	0.6740	0.9993	0.9727	0.9800	0.9990	0.7083	0.1559
6000	1.666667	0.6640	0.9963	0.9611	0.9800	0.9990	0.7083	0.1559
6001	1.666389	0.6071	0.9401	0.9314	0.9800	0.9990	0.7082	0.1559
6002	1.666111	0.6148	0.9697	0.9144	0.9801	0.9990	0.7082	0.1560
6003	1.665834	0.5552	0.9680	0.8272	0.9801	0.9990	0.7081	0.1560
6004	1.665556	0.5819	0.9928	0.8455	0.9801	0.9990	0.7081	0.1560
6005	1.665279	0.6560	0.9931	0.9529	0.9801	0.9990	0.7080	0.1560
6006	1.665002	0.6894	0.9992	0.9953	0.9801	0.9990	0.7080	0.1560
6007	1.664724	0.6829	0.9870	0.9981	0.9801	0.9990	0.7079	0.1560
6008	1.664447	0.6915	0.9993	0.9983	0.9802	0.9990	0.7079	0.1561
6009	1.664170	0.6914	0.9990	0.9986	0.9802	0.9990	0.7079	0.1561
6010	1.663894	0.6804	0.9844	0.9972	0.9802	0.9990	0.7078	0.1561
6011	1.663617	0.6429	0.9287	0.9989	0.9802	0.9990	0.7078	0.1561
6012	1.663340	0.6900	0.9975	0.9981	0.9802	0.9990	0.7077	0.1561
6013	1.663063	0.6870	0.9926	0.9987	0.9803	0.9990	0.7077	0.1562
6014	1.662787	0.6906	0.9987	0.9979	0.9803	0.9990	0.7076	0.1562
6015	1.662510	0.6815	0.9876	0.9958	0.9803	0.9990	0.7076	0.1562
6016	1.662234	0.6350	0.9356	0.9795	0.9803	0.9990	0.7075	0.1562
6017	1.661958	0.6682	0.9657	0.9986	0.9803	0.9990	0.7075	0.1562
6018	1.661682	0.6753	0.9757	0.9990	0.9803	0.9990	0.7075	0.1563
6019	1.661406	0.6261	0.9050	0.9985	0.9804	0.9990	0.7074	0.1563
6020	1.661130	0.6897	0.9964	0.9991	0.9804	0.9990	0.7074	0.1563
6021	1.660854	0.6916	0.9991	0.9992	0.9804	0.9990	0.7073	0.1563
6022	1.660578	0.6921	0.9995	0.9997	0.9804	0.9990	0.7073	0.1563
6023	1.660302	0.6917	0.9990	0.9996	0.9804	0.9990	0.7072	0.1564
6024	1.660027	0.6784	0.9811	0.9983	0.9804	0.9990	0.7072	0.1564
6025	1.659751	0.6857	0.9935	0.9966	0.9805	0.9990	0.7071	0.1564
6026	1.659476	0.6783	0.9996	0.9798	0.9805	0.9990	0.7071	0.1564
6027	1.659200	0.6912	0.9997	0.9984	0.9805	0.9990	0.7070	0.1564
6028	1.658925	0.6904	0.9995	0.9974	0.9805	0.9990	0.7070	0.1565
6029	1.658650	0.6790	0.9834	0.9971	0.9805	0.9990	0.7070	0.1565
6030	1.658375	0.6911	0.9992	0.9989	0.9805	0.9990	0.7069	0.1565
6031	1.658100	0.6873	0.9945	0.9981	0.9806	0.9990	0.7069	0.1565
6032	1.657825	0.6644	0.9605	0.9990	0.9806	0.9990	0.7068	0.1565
6033	1.657550	0.6895	0.9974	0.9986	0.9806	0.9990	0.7068	0.1565
6034	1.657275	0.6670	0.9665	0.9968	0.9806	0.9990	0.7067	0.1566
6035	1.657001	0.6697	0.9709	0.9965	0.9806	0.9990	0.7067	0.1566
6036	1.656726	0.6876	0.9980	0.9952	0.9807	0.9990	0.7066	0.1566
6037	1.656452	0.6490	0.9829	0.9539	0.9807	0.9990	0.7066	0.1566
6038	1.656178	0.6742	0.9803	0.9936	0.9807	0.9990	0.7065	0.1566
6039	1.655903	0.6626	0.9631	0.9940	0.9807	0.9990	0.7065	0.1567
6040	1.655629	0.6840	0.9967	0.9916	0.9807	0.9990	0.7065	0.1567
6041	1.655355	0.6851	0.9988	0.9911	0.9807	0.9990	0.7064	0.1567
6042	1.655081	0.6684	0.9722	0.9933	0.9808	0.9990	0.7064	0.1567

6043	1.654807	0.6813	0.9888	0.9956	0.9808	0.9990	0.7063	0.1567
6044	1.654533	0.6887	0.9993	0.9959	0.9808	0.9990	0.7063	0.1568
6045	1.654260	0.6901	0.9994	0.9979	0.9808	0.9990	0.7062	0.1568
6046	1.653986	0.6864	0.9990	0.9930	0.9808	0.9990	0.7062	0.1568
6047	1.653713	0.6180	0.9924	0.9001	0.9809	0.9989	0.7061	0.1568
6048	1.653439	0.6307	0.9185	0.9924	0.9809	0.9989	0.7061	0.1568
6049	1.653166	0.6830	0.9892	0.9981	0.9809	0.9989	0.7061	0.1569
6050	1.652893	0.6868	0.9985	0.9942	0.9809	0.9989	0.7060	0.1569
6051	1.652619	0.6860	0.9982	0.9934	0.9809	0.9989	0.7060	0.1569
6052	1.652346	0.6780	0.9809	0.9992	0.9810	0.9989	0.7059	0.1569
6053	1.652073	0.6242	0.9091	0.9926	0.9810	0.9989	0.7059	0.1569
6054	1.651800	0.6874	0.9956	0.9982	0.9810	0.9989	0.7058	0.1569
6055	1.651528	0.6822	0.9990	0.9873	0.9810	0.9989	0.7058	0.1570
6056	1.651255	0.6855	0.9995	0.9917	0.9810	0.9989	0.7057	0.1570
6057	1.650982	0.6002	0.9994	0.8684	0.9810	0.9989	0.7057	0.1570
6058	1.650710	0.6731	0.9920	0.9811	0.9811	0.9989	0.7057	0.1570
6059	1.650437	0.6716	0.9769	0.9942	0.9811	0.9989	0.7056	0.1570
6060	1.650165	0.6817	0.9990	0.9867	0.9811	0.9989	0.7056	0.1571
6061	1.649893	0.6891	0.9978	0.9987	0.9811	0.9989	0.7055	0.1571
6062	1.649621	0.6662	0.9793	0.9839	0.9811	0.9989	0.7055	0.1571
6063	1.649349	0.6763	0.9988	0.9794	0.9812	0.9989	0.7054	0.1571
6064	1.649077	0.6770	0.9853	0.9939	0.9812	0.9989	0.7054	0.1571
6065	1.648805	0.6804	0.9978	0.9863	0.9812	0.9989	0.7053	0.1572
6066	1.648533	0.6675	0.9873	0.9780	0.9812	0.9989	0.7053	0.1572
6067	1.648261	0.6214	0.9991	0.8997	0.9812	0.9989	0.7053	0.1572
6068	1.647989	0.6750	0.9929	0.9835	0.9812	0.9989	0.7052	0.1572
6069	1.647718	0.6831	0.9920	0.9962	0.9813	0.9989	0.7052	0.1572
6070	1.647446	0.6830	0.9997	0.9884	0.9813	0.9989	0.7051	0.1573
6071	1.647175	0.6856	0.9997	0.9922	0.9813	0.9989	0.7051	0.1573
6072	1.646904	0.6863	0.9944	0.9986	0.9813	0.9989	0.7050	0.1573
6073	1.646633	0.6863	0.9990	0.9941	0.9813	0.9989	0.7050	0.1573
6074	1.646362	0.6767	0.9825	0.9966	0.9814	0.9989	0.7049	0.1573
6075	1.646091	0.6625	0.9619	0.9968	0.9814	0.9989	0.7049	0.1573
6076	1.645820	0.6845	0.9968	0.9937	0.9814	0.9989	0.7049	0.1574
6077	1.645549	0.5661	0.9702	0.8445	0.9814	0.9989	0.7048	0.1574
6078	1.645278	0.6611	0.9658	0.9908	0.9814	0.9989	0.7048	0.1574
6079	1.645007	0.6886	0.9982	0.9985	0.9815	0.9989	0.7047	0.1574
6080	1.644737	0.6840	0.9972	0.9927	0.9815	0.9989	0.7047	0.1574
6081	1.644466	0.6843	0.9997	0.9908	0.9815	0.9989	0.7046	0.1575
6082	1.644196	0.6899	0.9999	0.9989	0.9815	0.9989	0.7046	0.1575
6083	1.643926	0.6826	0.9999	0.9882	0.9815	0.9989	0.7045	0.1575
6084	1.643655	0.6812	0.9999	0.9863	0.9815	0.9989	0.7045	0.1575
6085	1.643385	0.6873	0.9995	0.9956	0.9816	0.9989	0.7045	0.1575
6086	1.643115	0.6788	0.9999	0.9829	0.9816	0.9989	0.7044	0.1576
6087	1.642845	0.6009	0.9998	0.8703	0.9816	0.9989	0.7044	0.1576
6088	1.642576	0.6819	0.9919	0.9954	0.9816	0.9989	0.7043	0.1576

6089	1.642306	0.6719	0.9878	0.9850	0.9816	0.9989	0.7043	0.1576
6090	1.642036	0.6801	0.9994	0.9854	0.9817	0.9989	0.7042	0.1576
6091	1.641767	0.6827	0.9899	0.9987	0.9817	0.9989	0.7042	0.1576
6092	1.641497	0.6782	0.9960	0.9861	0.9817	0.9989	0.7041	0.1577
6093	1.641228	0.6809	0.9997	0.9864	0.9817	0.9989	0.7041	0.1577
6094	1.640958	0.6885	0.9998	0.9974	0.9817	0.9989	0.7041	0.1577
6095	1.640689	0.6806	0.9998	0.9860	0.9817	0.9989	0.7040	0.1577
6096	1.640420	0.6203	0.9995	0.8988	0.9818	0.9989	0.7040	0.1577
6097	1.640151	0.6693	0.9948	0.9745	0.9818	0.9989	0.7039	0.1578
6098	1.639882	0.6850	0.9967	0.9956	0.9818	0.9989	0.7039	0.1578
6099	1.639613	0.6372	0.9312	0.9913	0.9818	0.9989	0.7038	0.1578
6100	1.639344	0.6737	0.9840	0.9919	0.9818	0.9989	0.7038	0.1578
6101	1.639076	0.6819	0.9989	0.9890	0.9819	0.9989	0.7038	0.1578
6102	1.638807	0.6887	0.9996	0.9982	0.9819	0.9989	0.7037	0.1579
6103	1.638538	0.6850	0.9998	0.9927	0.9819	0.9989	0.7037	0.1579
6104	1.638270	0.6851	0.9975	0.9952	0.9819	0.9989	0.7036	0.1579
6105	1.638002	0.6858	0.9999	0.9940	0.9819	0.9989	0.7036	0.1579
6106	1.637733	0.6290	0.9999	0.9116	0.9819	0.9989	0.7035	0.1579
6107	1.637465	0.6856	0.9999	0.9937	0.9820	0.9989	0.7035	0.1579
6108	1.637197	0.6878	0.9998	0.9970	0.9820	0.9989	0.7034	0.1580
6109	1.636929	0.6859	0.9960	0.9981	0.9820	0.9989	0.7034	0.1580
6110	1.636661	0.6783	0.9906	0.9925	0.9820	0.9989	0.7034	0.1580
6111	1.636393	0.6892	0.9998	0.9992	0.9820	0.9989	0.7033	0.1580
6112	1.636126	0.6859	0.9999	0.9943	0.9820	0.9989	0.7033	0.1580
6113	1.635858	0.6870	0.9999	0.9960	0.9821	0.9989	0.7032	0.1581
6114	1.635590	0.6727	0.9996	0.9755	0.9821	0.9989	0.7032	0.1581
6115	1.635323	0.6565	0.9936	0.9579	0.9821	0.9989	0.7031	0.1581
6116	1.635056	0.6718	0.9758	0.9981	0.9821	0.9989	0.7031	0.1581
6117	1.634788	0.6868	0.9993	0.9965	0.9821	0.9989	0.7031	0.1581
6118	1.634521	0.6868	0.9998	0.9959	0.9821	0.9989	0.7030	0.1582
6119	1.634254	0.6870	0.9995	0.9967	0.9822	0.9989	0.7030	0.1582
6120	1.633987	0.6874	0.9983	0.9984	0.9822	0.9989	0.7029	0.1582
6121	1.633720	0.6856	0.9998	0.9944	0.9822	0.9989	0.7029	0.1582
6122	1.633453	0.6852	0.9984	0.9952	0.9822	0.9989	0.7028	0.1582
6123	1.633186	0.6794	0.9976	0.9876	0.9822	0.9989	0.7028	0.1582
6124	1.632920	0.6674	0.9960	0.9718	0.9822	0.9989	0.7028	0.1583
6125	1.632653	0.6737	0.9818	0.9952	0.9823	0.9989	0.7027	0.1583
6126	1.632387	0.6615	0.9620	0.9974	0.9823	0.9989	0.7027	0.1583
6127	1.632120	0.6834	0.9950	0.9962	0.9823	0.9989	0.7026	0.1583
6128	1.631854	0.6885	0.9995	0.9992	0.9823	0.9989	0.7026	0.1583
6129	1.631588	0.6862	0.9983	0.9970	0.9823	0.9989	0.7025	0.1584
6130	1.631321	0.6877	0.9999	0.9977	0.9823	0.9989	0.7025	0.1584
6131	1.631055	0.6864	0.9991	0.9967	0.9824	0.9989	0.7024	0.1584
6132	1.630789	0.6810	0.9994	0.9885	0.9824	0.9989	0.7024	0.1584
6133	1.630523	0.6695	0.9984	0.9729	0.9824	0.9989	0.7024	0.1584
6134	1.630258	0.6870	0.9999	0.9969	0.9824	0.9989	0.7023	0.1584

6135	1.629992	0.6881	1.0000	0.9985	0.9824	0.9989	0.7023	0.1585
6136	1.629726	0.6885	1.0000	0.9990	0.9824	0.9989	0.7022	0.1585
6137	1.629461	0.6875	1.0000	0.9978	0.9825	0.9989	0.7022	0.1585
6138	1.629195	0.6876	1.0000	0.9979	0.9825	0.9989	0.7021	0.1585
6139	1.628930	0.6881	1.0000	0.9986	0.9825	0.9989	0.7021	0.1585
6140	1.628664	0.6839	1.0000	0.9926	0.9825	0.9989	0.7021	0.1586
6141	1.628399	0.6860	1.0000	0.9957	0.9825	0.9989	0.7020	0.1586
6142	1.628134	0.6782	1.0000	0.9845	0.9825	0.9989	0.7020	0.1586
6143	1.627869	0.6873	0.9988	0.9988	0.9826	0.9989	0.7019	0.1586
6144	1.627604	0.6874	1.0000	0.9979	0.9826	0.9989	0.7019	0.1586
6145	1.627339	0.6855	1.0000	0.9951	0.9826	0.9989	0.7018	0.1586
6146	1.627075	0.6865	1.0000	0.9967	0.9826	0.9989	0.7018	0.1587
6147	1.626810	0.6881	1.0000	0.9990	0.9826	0.9989	0.7018	0.1587
6148	1.626545	0.6869	1.0000	0.9974	0.9826	0.9989	0.7017	0.1587
6149	1.626281	0.6869	1.0000	0.9974	0.9826	0.9989	0.7017	0.1587
6150	1.626016	0.6815	0.9999	0.9896	0.9827	0.9989	0.7016	0.1587
6151	1.625752	0.6867	0.9998	0.9973	0.9827	0.9989	0.7016	0.1588
6152	1.625488	0.6850	0.9968	0.9979	0.9827	0.9989	0.7015	0.1588
6153	1.625223	0.6804	0.9905	0.9976	0.9827	0.9989	0.7015	0.1588
6154	1.624959	0.6872	0.9989	0.9991	0.9827	0.9989	0.7015	0.1588
6155	1.624695	0.6802	0.9885	0.9994	0.9827	0.9989	0.7014	0.1588
6156	1.624431	0.6868	0.9991	0.9985	0.9827	0.9989	0.7014	0.1589
6157	1.624168	0.6858	0.9999	0.9962	0.9828	0.9989	0.7013	0.1589
6158	1.623904	0.6835	0.9991	0.9937	0.9828	0.9989	0.7013	0.1589
6159	1.623640	0.6862	0.9999	0.9968	0.9828	0.9989	0.7012	0.1589
6160	1.623377	0.6869	1.0000	0.9979	0.9828	0.9989	0.7012	0.1589
6161	1.623113	0.6872	1.0000	0.9985	0.9828	0.9989	0.7012	0.1589
6162	1.622850	0.6849	0.9991	0.9960	0.9828	0.9989	0.7011	0.1590
6163	1.622586	0.6866	0.9982	0.9993	0.9828	0.9989	0.7011	0.1590
6164	1.622323	0.6852	0.9999	0.9957	0.9829	0.9989	0.7010	0.1590
6165	1.622060	0.6869	0.9999	0.9983	0.9829	0.9989	0.7010	0.1590
6166	1.621797	0.6839	0.9978	0.9959	0.9829	0.9989	0.7009	0.1590
6167	1.621534	0.6860	0.9999	0.9970	0.9829	0.9989	0.7009	0.1591
6168	1.621271	0.6852	1.0000	0.9958	0.9829	0.9989	0.7009	0.1591
6169	1.621008	0.6859	1.0000	0.9969	0.9829	0.9989	0.7008	0.1591
6170	1.620746	0.6855	1.0000	0.9964	0.9829	0.9989	0.7008	0.1591
6171	1.620483	0.6849	1.0000	0.9956	0.9830	0.9989	0.7007	0.1591
6172	1.620220	0.6845	0.9999	0.9950	0.9830	0.9989	0.7007	0.1591
6173	1.619958	0.6866	0.9999	0.9982	0.9830	0.9989	0.7006	0.1592
6174	1.619695	0.6840	0.9999	0.9945	0.9830	0.9989	0.7006	0.1592
6175	1.619433	0.6870	0.9997	0.9990	0.9830	0.9989	0.7006	0.1592
6176	1.619171	0.6800	0.9971	0.9915	0.9830	0.9989	0.7005	0.1592
6177	1.618909	0.6681	0.9732	0.9981	0.9830	0.9989	0.7005	0.1592
6178	1.618647	0.6728	0.9880	0.9901	0.9831	0.9989	0.7004	0.1593
6179	1.618385	0.6841	0.9995	0.9952	0.9831	0.9989	0.7004	0.1593
6180	1.618123	0.6816	0.9998	0.9912	0.9831	0.9989	0.7003	0.1593

6181	1.617861	0.6840	0.9999	0.9947	0.9831	0.9989	0.7003	0.1593
6182	1.617599	0.6802	0.9999	0.9893	0.9831	0.9989	0.7003	0.1593
6183	1.617338	0.6843	0.9998	0.9954	0.9831	0.9989	0.7002	0.1593
6184	1.617076	0.6833	0.9993	0.9944	0.9831	0.9989	0.7002	0.1594
6185	1.616815	0.6681	0.9876	0.9840	0.9831	0.9989	0.7001	0.1594
6186	1.616554	0.6667	0.9749	0.9947	0.9832	0.9988	0.7001	0.1594
6187	1.616292	0.6751	0.9972	0.9848	0.9832	0.9988	0.7000	0.1594
6188	1.616031	0.6841	0.9997	0.9954	0.9832	0.9988	0.7000	0.1594
6189	1.615770	0.6747	0.9999	0.9817	0.9832	0.9988	0.7000	0.1595
6190	1.615509	0.6840	0.9999	0.9952	0.9832	0.9988	0.6999	0.1595
6191	1.615248	0.6707	0.9999	0.9759	0.9832	0.9988	0.6999	0.1595
6192	1.614987	0.6846	0.9997	0.9963	0.9832	0.9988	0.6998	0.1595
6193	1.614726	0.6663	0.9956	0.9738	0.9833	0.9988	0.6998	0.1595
6194	1.614466	0.6846	0.9996	0.9965	0.9833	0.9988	0.6998	0.1595
6195	1.614205	0.6635	0.9969	0.9686	0.9833	0.9988	0.6997	0.1596
6196	1.613944	0.6837	0.9996	0.9954	0.9833	0.9988	0.6997	0.1596
6197	1.613684	0.6603	0.9986	0.9624	0.9833	0.9988	0.6996	0.1596
6198	1.613424	0.6620	0.9677	0.9957	0.9833	0.9988	0.6996	0.1596
6199	1.613163	0.6544	0.9986	0.9538	0.9833	0.9988	0.6995	0.1596
6200	1.612903	0.6824	0.9983	0.9950	0.9833	0.9988	0.6995	0.1597
6201	1.612643	0.6479	0.9998	0.9432	0.9834	0.9988	0.6995	0.1597
6202	1.612383	0.6822	0.9999	0.9931	0.9834	0.9988	0.6994	0.1597
6203	1.612123	0.6434	0.9999	0.9367	0.9834	0.9988	0.6994	0.1597
6204	1.611863	0.6792	0.9999	0.9888	0.9834	0.9988	0.6993	0.1597
6205	1.611604	0.6374	0.9996	0.9283	0.9834	0.9988	0.6993	0.1597
6206	1.611344	0.6781	0.9999	0.9874	0.9834	0.9988	0.6992	0.1598
6207	1.611084	0.6322	0.9998	0.9207	0.9834	0.9988	0.6992	0.1598
6208	1.610825	0.6792	0.9989	0.9900	0.9835	0.9988	0.6992	0.1598
6209	1.610565	0.6088	0.9734	0.9107	0.9835	0.9988	0.6991	0.1598
6210	1.610306	0.6767	0.9989	0.9865	0.9835	0.9988	0.6991	0.1598
6211	1.610047	0.6217	0.9997	0.9056	0.9835	0.9988	0.6990	0.1599
6212	1.609788	0.6806	0.9982	0.9929	0.9835	0.9988	0.6990	0.1599
6213	1.609528	0.6194	0.9998	0.9022	0.9835	0.9988	0.6990	0.1599
6214	1.609269	0.6775	0.9998	0.9870	0.9835	0.9988	0.6989	0.1599
6215	1.609010	0.6156	0.9973	0.8991	0.9835	0.9988	0.6989	0.1599
6216	1.608752	0.6181	0.9993	0.9010	0.9836	0.9988	0.6988	0.1599
6217	1.608493	0.6690	0.9846	0.9897	0.9836	0.9988	0.6988	0.1600
6218	1.608234	0.6117	0.9814	0.9081	0.9836	0.9988	0.6987	0.1600
6219	1.607976	0.6777	0.9982	0.9890	0.9836	0.9988	0.6987	0.1600
6220	1.607717	0.6238	0.9949	0.9135	0.9836	0.9988	0.6987	0.1600
6221	1.607459	0.6330	0.9997	0.9226	0.9836	0.9988	0.6986	0.1600
6222	1.607200	0.6813	0.9999	0.9927	0.9836	0.9988	0.6986	0.1600
6223	1.606942	0.6442	0.9999	0.9387	0.9836	0.9988	0.6985	0.1601
6224	1.606684	0.6826	0.9999	0.9947	0.9837	0.9988	0.6985	0.1601
6225	1.606426	0.6542	0.9982	0.9551	0.9837	0.9988	0.6984	0.1601
6226	1.606168	0.6692	0.9999	0.9753	0.9837	0.9988	0.6984	0.1601

6227	1.605910	0.6833	0.9991	0.9967	0.9837	0.9988	0.6984	0.1601
6228	1.605652	0.6838	0.9995	0.9971	0.9837	0.9988	0.6983	0.1602
6229	1.605394	0.6769	1.0000	0.9866	0.9837	0.9988	0.6983	0.1602
6230	1.605136	0.6617	1.0000	0.9645	0.9837	0.9988	0.6982	0.1602
6231	1.604879	0.6832	1.0000	0.9959	0.9837	0.9988	0.6982	0.1602
6232	1.604621	0.6473	1.0000	0.9437	0.9838	0.9988	0.6982	0.1602
6233	1.604364	0.6371	0.9999	0.9289	0.9838	0.9988	0.6981	0.1602
6234	1.604107	0.6791	0.9982	0.9919	0.9838	0.9988	0.6981	0.1603
6235	1.603849	0.6249	0.9975	0.9133	0.9838	0.9988	0.6980	0.1603
6236	1.603592	0.6188	0.9999	0.9023	0.9838	0.9988	0.6980	0.1603
6237	1.603335	0.6152	0.9999	0.8971	0.9838	0.9988	0.6979	0.1603
6238	1.603078	0.6797	0.9999	0.9912	0.9838	0.9988	0.6979	0.1603
6239	1.602821	0.6203	0.9998	0.9047	0.9838	0.9988	0.6979	0.1604
6240	1.602564	0.6171	0.9980	0.9017	0.9839	0.9988	0.6978	0.1604
6241	1.602307	0.6201	0.9985	0.9056	0.9839	0.9988	0.6978	0.1604
6242	1.602051	0.6552	0.9636	0.9917	0.9839	0.9988	0.6977	0.1604
6243	1.601794	0.6155	0.9985	0.8991	0.9839	0.9988	0.6977	0.1604
6244	1.601537	0.6180	0.9991	0.9023	0.9839	0.9988	0.6977	0.1604
6245	1.601281	0.6131	0.9830	0.9097	0.9839	0.9988	0.6976	0.1605
6246	1.601025	0.6287	0.9993	0.9177	0.9839	0.9988	0.6976	0.1605
6247	1.600768	0.6360	0.9998	0.9280	0.9839	0.9988	0.6975	0.1605
6248	1.600512	0.6819	0.9999	0.9950	0.9839	0.9988	0.6975	0.1605
6249	1.600256	0.6425	0.9999	0.9374	0.9840	0.9988	0.6975	0.1605
6250	1.600000	0.6475	0.9999	0.9447	0.9840	0.9988	0.6974	0.1605
6251	1.599744	0.6532	0.9999	0.9531	0.9840	0.9988	0.6974	0.1606
6252	1.599488	0.6594	0.9999	0.9623	0.9840	0.9988	0.6973	0.1606
6253	1.599232	0.6634	0.9998	0.9682	0.9840	0.9988	0.6973	0.1606
6254	1.598977	0.6666	0.9982	0.9745	0.9840	0.9988	0.6972	0.1606
6255	1.598721	0.6624	0.9868	0.9796	0.9840	0.9988	0.6972	0.1606
6256	1.598465	0.6672	0.9991	0.9746	0.9840	0.9988	0.6972	0.1607
6257	1.598210	0.6737	0.9917	0.9915	0.9841	0.9988	0.6971	0.1607
6258	1.597955	0.6798	0.9993	0.9928	0.9841	0.9988	0.6971	0.1607
6259	1.597699	0.6806	0.9989	0.9946	0.9841	0.9988	0.6970	0.1607
6260	1.597444	0.6688	0.9821	0.9940	0.9841	0.9988	0.6970	0.1607
6261	1.597189	0.6550	0.9585	0.9975	0.9841	0.9988	0.6970	0.1607
6262	1.596934	0.6816	0.9975	0.9975	0.9841	0.9988	0.6969	0.1608
6263	1.596679	0.6726	0.9833	0.9986	0.9841	0.9988	0.6969	0.1608
6264	1.596424	0.6829	0.9981	0.9989	0.9841	0.9988	0.6968	0.1608
6265	1.596169	0.6634	0.9692	0.9992	0.9842	0.9988	0.6968	0.1608
6266	1.595914	0.6833	0.9986	0.9991	0.9842	0.9988	0.6968	0.1608
6267	1.595660	0.6839	0.9991	0.9994	0.9842	0.9988	0.6967	0.1608
6268	1.595405	0.6844	0.9997	0.9997	0.9842	0.9988	0.6967	0.1609
6269	1.595151	0.6842	0.9995	0.9996	0.9842	0.9988	0.6966	0.1609
6270	1.594896	0.6794	0.9925	0.9997	0.9842	0.9988	0.6966	0.1609
6271	1.594642	0.6805	0.9942	0.9997	0.9842	0.9988	0.6965	0.1609
6272	1.594388	0.6514	0.9517	0.9996	0.9842	0.9988	0.6965	0.1609

6273	1.594134	0.6814	0.9954	0.9998	0.9843	0.9988	0.6965	0.1610
6274	1.593880	0.6841	0.9995	0.9997	0.9843	0.9988	0.6964	0.1610
6275	1.593625	0.6842	0.9996	0.9998	0.9843	0.9988	0.6964	0.1610
6276	1.593372	0.6814	0.9957	0.9996	0.9843	0.9988	0.6963	0.1610
6277	1.593118	0.6841	0.9995	0.9999	0.9843	0.9988	0.6963	0.1610
6278	1.592864	0.6812	0.9955	0.9997	0.9843	0.9988	0.6963	0.1610
6279	1.592610	0.6833	0.9985	0.9998	0.9843	0.9988	0.6962	0.1611
6280	1.592357	0.6647	0.9713	0.9999	0.9843	0.9988	0.6962	0.1611
6281	1.592103	0.6830	0.9984	0.9996	0.9844	0.9988	0.6961	0.1611
6282	1.591850	0.6806	0.9946	0.9999	0.9844	0.9988	0.6961	0.1611
6283	1.591596	0.6607	0.9661	0.9994	0.9844	0.9988	0.6961	0.1611
6284	1.591343	0.6830	0.9981	0.9999	0.9844	0.9988	0.6960	0.1611
6285	1.591090	0.6832	0.9988	0.9997	0.9844	0.9988	0.6960	0.1612
6286	1.590837	0.6795	0.9936	0.9995	0.9844	0.9988	0.6959	0.1612
6287	1.590584	0.6828	0.9984	0.9996	0.9844	0.9988	0.6959	0.1612
6288	1.590331	0.6673	0.9759	0.9993	0.9844	0.9988	0.6958	0.1612
6289	1.590078	0.6818	0.9970	0.9996	0.9845	0.9988	0.6958	0.1612
6290	1.589825	0.6836	0.9993	0.9999	0.9845	0.9988	0.6958	0.1613
6291	1.589572	0.6831	0.9999	0.9986	0.9845	0.9988	0.6957	0.1613
6292	1.589320	0.6839	0.9999	0.9999	0.9845	0.9988	0.6957	0.1613
6293	1.589067	0.6827	0.9999	0.9982	0.9845	0.9988	0.6956	0.1613
6294	1.588815	0.6839	0.9999	0.9999	0.9845	0.9988	0.6956	0.1613
6295	1.588562	0.6822	0.9999	0.9975	0.9845	0.9988	0.6956	0.1613
6296	1.588310	0.6835	0.9999	0.9995	0.9845	0.9988	0.6955	0.1614
6297	1.588058	0.6837	0.9998	0.9998	0.9846	0.9988	0.6955	0.1614
6298	1.587806	0.6813	0.9997	0.9966	0.9846	0.9988	0.6954	0.1614
6299	1.587554	0.6827	0.9985	0.9998	0.9846	0.9988	0.6954	0.1614
6300	1.587302	0.6560	0.9638	0.9953	0.9846	0.9988	0.6954	0.1614
6301	1.587050	0.6758	0.9887	0.9997	0.9846	0.9988	0.6953	0.1614
6302	1.586798	0.6716	0.9885	0.9936	0.9846	0.9988	0.6953	0.1615
6303	1.586546	0.6823	0.9987	0.9993	0.9846	0.9988	0.6952	0.1615
6304	1.586294	0.6516	0.9610	0.9917	0.9847	0.9988	0.6952	0.1615
6305	1.586043	0.6826	0.9990	0.9994	0.9847	0.9988	0.6952	0.1615
6306	1.585791	0.6801	0.9953	0.9996	0.9847	0.9988	0.6951	0.1615
6307	1.585540	0.6757	0.9997	0.9887	0.9847	0.9988	0.6951	0.1615
6308	1.585289	0.6828	0.9999	0.9991	0.9847	0.9988	0.6950	0.1616
6309	1.585037	0.6732	0.9997	0.9852	0.9847	0.9988	0.6950	0.1616
6310	1.584786	0.6777	0.9927	0.9988	0.9847	0.9988	0.6950	0.1616
6311	1.584535	0.6701	0.9997	0.9807	0.9848	0.9988	0.6949	0.1616
6312	1.584284	0.6821	0.9999	0.9982	0.9848	0.9988	0.6949	0.1616
6313	1.584033	0.6667	0.9999	0.9757	0.9848	0.9988	0.6948	0.1617
6314	1.583782	0.6817	0.9998	0.9977	0.9848	0.9988	0.6948	0.1617
6315	1.583531	0.6622	0.9995	0.9696	0.9848	0.9988	0.6948	0.1617
6316	1.583281	0.6744	0.9902	0.9967	0.9848	0.9987	0.6947	0.1617
6317	1.583030	0.6320	0.9602	0.9632	0.9848	0.9987	0.6947	0.1617
6318	1.582779	0.6796	0.9987	0.9960	0.9848	0.9987	0.6946	0.1617

6319	1.582529	0.6483	0.9930	0.9555	0.9849	0.9987	0.6946	0.1618
6320	1.582278	0.6796	0.9997	0.9951	0.9849	0.9987	0.6946	0.1618
6321	1.582028	0.6472	0.9998	0.9476	0.9849	0.9987	0.6945	0.1618
6322	1.581778	0.6775	0.9976	0.9942	0.9849	0.9987	0.6945	0.1618
6323	1.581528	0.6380	0.9936	0.9399	0.9849	0.9987	0.6944	0.1618
6324	1.581278	0.6781	0.9997	0.9931	0.9849	0.9987	0.6944	0.1618
6325	1.581028	0.6362	0.9999	0.9316	0.9849	0.9987	0.6944	0.1619
6326	1.580778	0.6773	0.9998	0.9919	0.9849	0.9987	0.6943	0.1619
6327	1.580528	0.6271	0.9934	0.9243	0.9850	0.9987	0.6943	0.1619
6328	1.580278	0.6755	0.9983	0.9908	0.9850	0.9987	0.6942	0.1619
6329	1.580028	0.6264	0.9999	0.9173	0.9850	0.9987	0.6942	0.1619
6330	1.579779	0.6773	0.9999	0.9919	0.9850	0.9987	0.6942	0.1619
6331	1.579529	0.6214	0.9999	0.9102	0.9850	0.9987	0.6941	0.1620
6332	1.579280	0.6748	0.9998	0.9885	0.9850	0.9987	0.6941	0.1620
6333	1.579030	0.6156	0.9955	0.9057	0.9850	0.9987	0.6940	0.1620
6334	1.578781	0.5977	0.9729	0.8998	0.9850	0.9987	0.6940	0.1620
6335	1.578532	0.6744	0.9956	0.9922	0.9851	0.9987	0.6939	0.1620
6336	1.578283	0.6157	0.9997	0.9021	0.9851	0.9987	0.6939	0.1621
6337	1.578034	0.6770	0.9992	0.9926	0.9851	0.9987	0.6939	0.1621
6338	1.577785	0.6178	0.9999	0.9051	0.9851	0.9987	0.6938	0.1621
6339	1.577536	0.6752	0.9999	0.9892	0.9851	0.9987	0.6938	0.1621
6340	1.577287	0.6226	0.9999	0.9122	0.9851	0.9987	0.6937	0.1621
6341	1.577038	0.6284	0.9994	0.9213	0.9851	0.9987	0.6937	0.1621
6342	1.576790	0.6759	0.9997	0.9906	0.9851	0.9987	0.6937	0.1622
6343	1.576541	0.6344	0.9923	0.9368	0.9852	0.9987	0.6936	0.1622
6344	1.576293	0.6711	0.9914	0.9919	0.9852	0.9987	0.6936	0.1622
6345	1.576044	0.6499	0.9995	0.9528	0.9852	0.9987	0.6935	0.1622
6346	1.575796	0.6573	0.9941	0.9690	0.9852	0.9987	0.6935	0.1622
6347	1.575548	0.6738	0.9929	0.9945	0.9852	0.9987	0.6935	0.1622
6348	1.575299	0.6768	0.9964	0.9954	0.9852	0.9987	0.6934	0.1623
6349	1.575051	0.6708	0.9999	0.9833	0.9852	0.9987	0.6934	0.1623
6350	1.574803	0.6567	0.9999	0.9626	0.9852	0.9987	0.6934	0.1623
6351	1.574555	0.6776	0.9998	0.9934	0.9852	0.9987	0.6933	0.1623
6352	1.574307	0.6396	0.9969	0.9405	0.9853	0.9987	0.6933	0.1623
6353	1.574059	0.6312	0.9983	0.9270	0.9853	0.9987	0.6932	0.1623
6354	1.573812	0.6760	0.9995	0.9915	0.9853	0.9987	0.6932	0.1624
6355	1.573564	0.6169	0.9904	0.9133	0.9853	0.9987	0.6932	0.1624
6356	1.573317	0.6102	0.9945	0.8997	0.9853	0.9987	0.6931	0.1624
6357	1.573069	0.6115	0.9996	0.8969	0.9853	0.9987	0.6931	0.1624
6358	1.572822	0.6732	0.9965	0.9906	0.9853	0.9987	0.6930	0.1624
6359	1.572574	0.6074	0.9998	0.8909	0.9853	0.9987	0.6930	0.1624
6360	1.572327	0.6136	0.9999	0.8998	0.9853	0.9987	0.6930	0.1625
6361	1.572080	0.6074	0.9983	0.8923	0.9853	0.9987	0.6929	0.1625
6362	1.571833	0.6704	0.9971	0.9860	0.9854	0.9987	0.6929	0.1625
6363	1.571586	0.6071	0.9939	0.8959	0.9854	0.9987	0.6928	0.1625
6364	1.571339	0.6077	0.9946	0.8961	0.9854	0.9987	0.6928	0.1625

6365	1.571092	0.6165	0.9986	0.9057	0.9854	0.9987	0.6928	0.1625
6366	1.570845	0.6207	0.9996	0.9108	0.9854	0.9987	0.6927	0.1626
6367	1.570598	0.6246	0.9928	0.9229	0.9854	0.9987	0.6927	0.1626
6368	1.570352	0.6329	0.9959	0.9323	0.9854	0.9987	0.6926	0.1626
6369	1.570105	0.6391	0.9996	0.9379	0.9854	0.9987	0.6926	0.1626
6370	1.569859	0.6419	0.9949	0.9466	0.9854	0.9987	0.6926	0.1626
6371	1.569612	0.6527	0.9990	0.9585	0.9855	0.9987	0.6925	0.1627
6372	1.569366	0.6580	0.9999	0.9656	0.9855	0.9987	0.6925	0.1627
6373	1.569120	0.6603	0.9998	0.9691	0.9855	0.9987	0.6924	0.1627
6374	1.568874	0.6613	0.9952	0.9751	0.9855	0.9987	0.6924	0.1627
6375	1.568627	0.6674	0.9994	0.9801	0.9855	0.9987	0.6924	0.1627
6376	1.568381	0.6704	0.9997	0.9842	0.9855	0.9987	0.6923	0.1627
6377	1.568135	0.6708	0.9967	0.9878	0.9855	0.9987	0.6923	0.1628
6378	1.567890	0.6567	0.9712	0.9925	0.9855	0.9987	0.6922	0.1628
6379	1.567644	0.6736	0.9985	0.9902	0.9855	0.9987	0.6922	0.1628
6380	1.567398	0.6755	0.9964	0.9951	0.9855	0.9987	0.6922	0.1628
6381	1.567152	0.6745	0.9936	0.9965	0.9856	0.9987	0.6921	0.1628
6382	1.566907	0.6720	0.9896	0.9968	0.9856	0.9987	0.6921	0.1628
6383	1.566661	0.6796	0.9995	0.9982	0.9856	0.9987	0.6920	0.1629
6384	1.566416	0.6798	0.9994	0.9987	0.9856	0.9987	0.6920	0.1629
6385	1.566171	0.6703	0.9852	0.9989	0.9856	0.9987	0.6920	0.1629
6386	1.565925	0.6666	0.9794	0.9993	0.9856	0.9987	0.6919	0.1629
6387	1.565680	0.6802	0.9992	0.9996	0.9856	0.9987	0.6919	0.1629
6388	1.565435	0.6806	0.9997	0.9996	0.9856	0.9987	0.6918	0.1629
6389	1.565190	0.6806	0.9996	0.9998	0.9856	0.9987	0.6918	0.1630
6390	1.564945	0.6777	0.9953	0.9999	0.9856	0.9987	0.6918	0.1630
6391	1.564700	0.6799	0.9986	0.9999	0.9857	0.9987	0.6917	0.1630
6392	1.564456	0.6606	0.9703	0.9999	0.9857	0.9987	0.6917	0.1630
6393	1.564211	0.6731	0.9887	1.0000	0.9857	0.9987	0.6917	0.1630
6394	1.563966	0.6729	0.9883	1.0000	0.9857	0.9987	0.6916	0.1630
6395	1.563722	0.6801	0.9990	1.0000	0.9857	0.9987	0.6916	0.1631
6396	1.563477	0.6750	0.9915	1.0000	0.9857	0.9987	0.6915	0.1631
6397	1.563233	0.6782	0.9963	1.0000	0.9857	0.9987	0.6915	0.1631
6398	1.562988	0.6760	0.9931	1.0000	0.9857	0.9987	0.6915	0.1631
6399	1.562744	0.6727	0.9883	1.0000	0.9857	0.9987	0.6914	0.1631
6400	1.562500	0.6576	0.9662	0.9999	0.9857	0.9987	0.6914	0.1631
6401	1.562256	0.6549	0.9623	1.0000	0.9858	0.9987	0.6913	0.1632
6402	1.562012	0.6793	0.9981	1.0000	0.9858	0.9987	0.6913	0.1632
6403	1.561768	0.6802	0.9995	0.9999	0.9858	0.9987	0.6913	0.1632
6404	1.561524	0.6803	0.9997	1.0000	0.9858	0.9987	0.6912	0.1632
6405	1.561280	0.6780	0.9965	0.9999	0.9858	0.9987	0.6912	0.1632
6406	1.561037	0.6799	0.9993	0.9999	0.9858	0.9987	0.6911	0.1632
6407	1.560793	0.6689	0.9831	1.0000	0.9858	0.9987	0.6911	0.1633
6408	1.560549	0.6799	0.9993	0.9999	0.9858	0.9987	0.6911	0.1633
6409	1.560306	0.6799	0.9995	0.9999	0.9858	0.9987	0.6910	0.1633
6410	1.560062	0.6719	0.9876	1.0000	0.9858	0.9987	0.6910	0.1633

6411	1.559819	0.6760	0.9939	0.9999	0.9858	0.9987	0.6909	0.1633
6412	1.559576	0.6741	0.9910	0.9999	0.9859	0.9987	0.6909	0.1633
6413	1.559333	0.6799	0.9996	1.0000	0.9859	0.9987	0.6909	0.1634
6414	1.559089	0.6797	0.9993	0.9999	0.9859	0.9987	0.6908	0.1634
6415	1.558846	0.6685	0.9829	1.0000	0.9859	0.9987	0.6908	0.1634
6416	1.558603	0.6796	0.9993	0.9999	0.9859	0.9987	0.6908	0.1634
6417	1.558361	0.6792	0.9988	1.0000	0.9859	0.9987	0.6907	0.1634
6418	1.558118	0.6712	0.9871	1.0000	0.9859	0.9987	0.6907	0.1634
6419	1.557875	0.6797	0.9995	1.0000	0.9859	0.9987	0.6906	0.1635
6420	1.557632	0.6794	0.9991	1.0000	0.9859	0.9987	0.6906	0.1635
6421	1.557390	0.6798	0.9998	1.0000	0.9859	0.9987	0.6906	0.1635
6422	1.557147	0.6788	0.9984	1.0000	0.9859	0.9987	0.6905	0.1635
6423	1.556905	0.6750	0.9928	1.0000	0.9860	0.9987	0.6905	0.1635
6424	1.556663	0.6791	0.9989	1.0000	0.9860	0.9987	0.6904	0.1635
6425	1.556420	0.6617	0.9733	1.0000	0.9860	0.9987	0.6904	0.1636
6426	1.556178	0.6769	0.9957	1.0000	0.9860	0.9987	0.6904	0.1636
6427	1.555936	0.6795	0.9997	1.0000	0.9860	0.9987	0.6903	0.1636
6428	1.555694	0.6796	0.9998	1.0000	0.9860	0.9987	0.6903	0.1636
6429	1.555452	0.6796	0.9999	1.0000	0.9860	0.9987	0.6902	0.1636
6430	1.555210	0.6795	0.9998	1.0000	0.9860	0.9987	0.6902	0.1636
6431	1.554968	0.6792	0.9994	1.0000	0.9860	0.9987	0.6902	0.1637
6432	1.554726	0.6696	0.9854	1.0000	0.9860	0.9987	0.6901	0.1637
6433	1.554485	0.6784	0.9984	1.0000	0.9860	0.9987	0.6901	0.1637
6434	1.554243	0.6569	0.9667	1.0000	0.9860	0.9987	0.6901	0.1637
6435	1.554002	0.6785	0.9986	1.0000	0.9861	0.9987	0.6900	0.1637
6436	1.553760	0.6771	0.9966	1.0000	0.9861	0.9987	0.6900	0.1637
6437	1.553519	0.6792	0.9997	1.0000	0.9861	0.9987	0.6899	0.1638
6438	1.553277	0.6791	0.9996	1.0000	0.9861	0.9986	0.6899	0.1638
6439	1.553036	0.6754	0.9941	1.0000	0.9861	0.9986	0.6899	0.1638
6440	1.552795	0.6787	0.9991	1.0000	0.9861	0.9986	0.6898	0.1638
6441	1.552554	0.6691	0.9850	1.0000	0.9861	0.9986	0.6898	0.1638
6442	1.552313	0.6698	0.9861	1.0000	0.9861	0.9986	0.6897	0.1638
6443	1.552072	0.6256	0.9211	1.0000	0.9861	0.9986	0.6897	0.1639
6444	1.551831	0.6682	0.9838	1.0000	0.9861	0.9986	0.6897	0.1639
6445	1.551590	0.6783	0.9988	1.0000	0.9861	0.9986	0.6896	0.1639
6446	1.551350	0.6783	0.9988	1.0000	0.9861	0.9986	0.6896	0.1639
6447	1.551109	0.6615	0.9741	0.9999	0.9861	0.9986	0.6896	0.1639
6448	1.550868	0.6781	0.9987	1.0000	0.9861	0.9986	0.6895	0.1639
6449	1.550628	0.6720	0.9898	0.9999	0.9861	0.9986	0.6895	0.1640
6450	1.550388	0.6786	0.9995	1.0000	0.9861	0.9986	0.6894	0.1640
6451	1.550147	0.6786	0.9997	0.9999	0.9861	0.9986	0.6894	0.1640
6452	1.549907	0.6783	0.9991	1.0000	0.9862	0.9986	0.6894	0.1640
6453	1.549667	0.6654	0.9803	0.9998	0.9862	0.9986	0.6893	0.1640
6454	1.549427	0.6783	0.9992	1.0000	0.9862	0.9986	0.6893	0.1640
6455	1.549187	0.6784	0.9998	0.9997	0.9862	0.9986	0.6892	0.1641
6456	1.548947	0.6786	0.9998	1.0000	0.9862	0.9986	0.6892	0.1641

6457	1.548707	0.6783	0.9998	0.9996	0.9862	0.9986	0.6892	0.1641
6458	1.548467	0.6785	0.9997	1.0000	0.9862	0.9986	0.6891	0.1641
6459	1.548227	0.6772	0.9984	0.9995	0.9862	0.9986	0.6891	0.1641
6460	1.547988	0.6591	0.9713	1.0000	0.9862	0.9986	0.6891	0.1641
6461	1.547748	0.6771	0.9986	0.9992	0.9862	0.9986	0.6890	0.1642
6462	1.547509	0.6682	0.9848	0.9999	0.9862	0.9986	0.6890	0.1642
6463	1.547269	0.6714	0.9906	0.9989	0.9862	0.9986	0.6889	0.1642
6464	1.547030	0.6779	0.9992	0.9999	0.9862	0.9986	0.6889	0.1642
6465	1.546790	0.6765	0.9986	0.9986	0.9862	0.9986	0.6889	0.1642
6466	1.546551	0.6563	0.9675	0.9999	0.9862	0.9986	0.6888	0.1642
6467	1.546312	0.6718	0.9922	0.9981	0.9862	0.9986	0.6888	0.1643
6468	1.546073	0.6483	0.9559	0.9999	0.9862	0.9986	0.6887	0.1643
6469	1.545834	0.6536	0.9661	0.9975	0.9862	0.9986	0.6887	0.1643
6470	1.545595	0.6748	0.9982	0.9968	0.9862	0.9986	0.6887	0.1643
6471	1.545356	0.6776	0.9993	0.9998	0.9862	0.9986	0.6886	0.1643
6472	1.545117	0.6750	0.9993	0.9960	0.9862	0.9986	0.6886	0.1643
6473	1.544879	0.6751	0.9958	0.9997	0.9862	0.9986	0.6886	0.1644
6474	1.544640	0.6709	0.9943	0.9951	0.9862	0.9986	0.6885	0.1644
6475	1.544402	0.6242	0.9209	0.9997	0.9862	0.9986	0.6885	0.1644
6476	1.544163	0.6062	0.8995	0.9940	0.9862	0.9986	0.6884	0.1644
6477	1.543925	0.6727	0.9926	0.9996	0.9862	0.9986	0.6884	0.1644
6478	1.543686	0.6712	0.9972	0.9928	0.9862	0.9986	0.6884	0.1644
6479	1.543448	0.6764	0.9982	0.9995	0.9862	0.9986	0.6883	0.1645
6480	1.543210	0.6707	0.9981	0.9914	0.9862	0.9986	0.6883	0.1645
6481	1.542972	0.6403	0.9540	0.9902	0.9862	0.9986	0.6883	0.1645
6482	1.542734	0.6689	0.9875	0.9994	0.9862	0.9986	0.6882	0.1645
6483	1.542496	0.6678	0.9961	0.9892	0.9862	0.9986	0.6882	0.1645
6484	1.542258	0.6205	0.9162	0.9993	0.9862	0.9986	0.6881	0.1645
6485	1.542020	0.6447	0.9627	0.9881	0.9862	0.9986	0.6881	0.1646
6486	1.541782	0.6664	0.9842	0.9992	0.9862	0.9986	0.6881	0.1646
6487	1.541545	0.6425	0.9608	0.9869	0.9862	0.9986	0.6880	0.1646
6488	1.541307	0.6670	0.9980	0.9863	0.9862	0.9986	0.6880	0.1646
6489	1.541070	0.6684	0.9875	0.9991	0.9862	0.9986	0.6880	0.1646
6490	1.540832	0.6652	0.9954	0.9864	0.9862	0.9986	0.6879	0.1646
6491	1.540595	0.6605	0.9759	0.9990	0.9862	0.9986	0.6879	0.1647
6492	1.540357	0.6670	0.9985	0.9862	0.9862	0.9986	0.6878	0.1647
6493	1.540120	0.6629	0.9919	0.9867	0.9862	0.9986	0.6878	0.1647
6494	1.539883	0.6760	0.9990	0.9991	0.9862	0.9986	0.6878	0.1647
6495	1.539646	0.6671	0.9969	0.9881	0.9862	0.9986	0.6877	0.1647
6496	1.539409	0.6541	0.9668	0.9991	0.9861	0.9986	0.6877	0.1647
6497	1.539172	0.6151	0.9180	0.9895	0.9861	0.9986	0.6876	0.1648
6498	1.538935	0.6693	0.9970	0.9914	0.9861	0.9986	0.6876	0.1648
6499	1.538698	0.6760	0.9990	0.9994	0.9861	0.9986	0.6876	0.1648
6500	1.538462	0.6691	0.9942	0.9940	0.9861	0.9986	0.6875	0.1648
6501	1.538225	0.6728	0.9942	0.9996	0.9861	0.9986	0.6875	0.1648
6502	1.537988	0.6739	0.9988	0.9967	0.9861	0.9986	0.6875	0.1648

6503	1.537752	0.6747	0.9970	0.9998	0.9861	0.9986	0.6874	0.1648
6504	1.537515	0.6355	0.9409	0.9979	0.9860	0.9986	0.6874	0.1649
6505	1.537279	0.5923	0.8792	0.9954	0.9860	0.9986	0.6873	0.1649
6506	1.537043	0.6703	0.9915	0.9990	0.9860	0.9986	0.6873	0.1649
6507	1.536807	0.6499	0.9678	0.9923	0.9860	0.9986	0.6873	0.1649
6508	1.536570	0.6668	0.9961	0.9893	0.9860	0.9986	0.6872	0.1649
6509	1.536334	0.6733	0.9966	0.9985	0.9860	0.9986	0.6872	0.1649
6510	1.536098	0.6398	0.9576	0.9876	0.9860	0.9986	0.6872	0.1650
6511	1.535862	0.6304	0.9460	0.9852	0.9859	0.9986	0.6871	0.1650
6512	1.535627	0.6658	0.9854	0.9989	0.9859	0.9986	0.6870	0.1650
6513	1.535391	0.6619	0.9948	0.9838	0.9859	0.9986	0.6869	0.1650
6514	1.535155	0.5966	0.8966	0.9841	0.9859	0.9986	0.6869	0.1651
6515	1.534919	0.6082	0.9016	0.9977	0.9858	0.9986	0.6868	0.1651
6516	1.534684	0.6599	0.9923	0.9838	0.9858	0.9986	0.6867	0.1651
6517	1.534448	0.6601	0.9939	0.9826	0.9858	0.9986	0.6867	0.1651
6518	1.534213	0.6627	0.9964	0.9840	0.9858	0.9986	0.6866	0.1652
6519	1.533978	0.6153	0.9121	0.9983	0.9857	0.9986	0.6865	0.1652
6520	1.533742	0.6617	0.9942	0.9850	0.9857	0.9986	0.6864	0.1652
6521	1.533507	0.6648	0.9981	0.9859	0.9857	0.9986	0.6864	0.1652
6522	1.533272	0.6656	0.9986	0.9867	0.9857	0.9986	0.6863	0.1653
6523	1.533037	0.6613	0.9807	0.9984	0.9856	0.9986	0.6862	0.1653
6524	1.532802	0.6634	0.9934	0.9890	0.9856	0.9986	0.6861	0.1653
6525	1.532567	0.6655	0.9955	0.9902	0.9856	0.9986	0.6861	0.1653
6526	1.532332	0.6573	0.9818	0.9916	0.9855	0.9986	0.6860	0.1654
6527	1.532097	0.6663	0.9884	0.9988	0.9855	0.9986	0.6859	0.1654
6528	1.531863	0.6562	0.9796	0.9924	0.9855	0.9986	0.6859	0.1654
6529	1.531628	0.6614	0.9858	0.9942	0.9854	0.9986	0.6858	0.1654
6530	1.531394	0.4844	0.7214	0.9952	0.9854	0.9986	0.6857	0.1654
6531	1.531159	0.6519	0.9701	0.9962	0.9853	0.9986	0.6856	0.1655
6532	1.530925	0.6558	0.9732	0.9989	0.9853	0.9986	0.6856	0.1655
6533	1.530690	0.6543	0.9729	0.9971	0.9853	0.9986	0.6855	0.1655
6534	1.530456	0.5952	0.8847	0.9977	0.9852	0.9986	0.6854	0.1655
6535	1.530222	0.6034	0.8965	0.9982	0.9852	0.9986	0.6853	0.1656
6536	1.529988	0.6511	0.9676	0.9982	0.9852	0.9986	0.6853	0.1656
6537	1.529754	0.5843	0.8680	0.9986	0.9851	0.9986	0.6852	0.1656
6538	1.529520	0.6029	0.8956	0.9990	0.9851	0.9986	0.6851	0.1656
6539	1.529286	0.6684	0.9923	0.9997	0.9850	0.9986	0.6851	0.1657
6540	1.529052	0.6626	0.9846	0.9989	0.9850	0.9986	0.6850	0.1657
6541	1.528818	0.5300	0.7875	0.9992	0.9849	0.9986	0.6849	0.1657
6542	1.528585	0.6632	0.9861	0.9986	0.9849	0.9986	0.6848	0.1657
6543	1.528351	0.6653	0.9888	0.9991	0.9848	0.9986	0.6848	0.1658
6544	1.528117	0.6508	0.9676	0.9990	0.9848	0.9986	0.6847	0.1658
6545	1.527884	0.6238	0.9281	0.9984	0.9847	0.9986	0.6846	0.1658
6546	1.527650	0.6563	0.9761	0.9990	0.9846	0.9986	0.6845	0.1658
6547	1.527417	0.5142	0.7650	0.9989	0.9846	0.9986	0.6845	0.1659
6548	1.527184	0.6604	0.9833	0.9981	0.9845	0.9986	0.6844	0.1659

6549	1.526951	0.6597	0.9823	0.9983	0.9845	0.9986	0.6843	0.1659
6550	1.526718	0.5089	0.7569	0.9997	0.9844	0.9986	0.6843	0.1659
6551	1.526485	0.5830	0.8685	0.9982	0.9843	0.9986	0.6842	0.1660
6552	1.526252	0.6108	0.9100	0.9983	0.9842	0.9986	0.6841	0.1660
6553	1.526019	0.5974	0.8902	0.9985	0.9841	0.9986	0.6840	0.1660
6554	1.525786	0.5346	0.7956	0.9998	0.9840	0.9985	0.6840	0.1660
6555	1.525553	0.6074	0.9052	0.9986	0.9839	0.9985	0.6839	0.1661
6556	1.525320	0.6053	0.9021	0.9988	0.9838	0.9985	0.6838	0.1661
6557	1.525088	0.5666	0.8445	0.9989	0.9838	0.9985	0.6837	0.1661
6558	1.524855	0.6582	0.9806	0.9995	0.9837	0.9985	0.6837	0.1661
6559	1.524623	0.4712	0.7023	0.9992	0.9836	0.9985	0.6836	0.1662
6560	1.524390	0.5716	0.8519	0.9996	0.9835	0.9985	0.6835	0.1662
6561	1.524158	0.6658	0.9925	0.9994	0.9834	0.9985	0.6835	0.1662
6562	1.523926	0.6674	0.9949	0.9998	0.9833	0.9985	0.6834	0.1662
6563	1.523693	0.6451	0.9619	0.9996	0.9832	0.9985	0.6833	0.1662
6564	1.523461	0.5627	0.8392	0.9997	0.9831	0.9985	0.6832	0.1663
6565	1.523229	0.6606	0.9854	0.9998	0.9830	0.9985	0.6832	0.1663
6566	1.522997	0.6674	0.9957	0.9998	0.9829	0.9985	0.6831	0.1663
6567	1.522765	0.6685	0.9974	0.9999	0.9828	0.9985	0.6830	0.1663
6568	1.522533	0.6565	0.9797	1.0000	0.9827	0.9985	0.6830	0.1664
6569	1.522302	0.6564	0.9798	0.9999	0.9826	0.9985	0.6829	0.1664
6570	1.522070	0.6555	0.9786	1.0000	0.9825	0.9985	0.6828	0.1664
6571	1.521838	0.4545	0.6786	1.0000	0.9823	0.9985	0.6827	0.1664
6572	1.521607	0.5918	0.8839	1.0000	0.9822	0.9985	0.6827	0.1665
6573	1.521375	0.6616	0.9884	1.0000	0.9821	0.9985	0.6826	0.1665
6574	1.521144	0.6652	0.9941	1.0000	0.9819	0.9985	0.6825	0.1665
6575	1.520913	0.6644	0.9931	1.0000	0.9818	0.9985	0.6825	0.1665
6576	1.520681	0.6382	0.9541	1.0000	0.9817	0.9985	0.6824	0.1666
6577	1.520450	0.4664	0.6974	1.0000	0.9815	0.9985	0.6823	0.1666
6578	1.520219	0.6507	0.9733	1.0000	0.9814	0.9985	0.6822	0.1666
6579	1.519988	0.5575	0.8341	1.0000	0.9813	0.9985	0.6822	0.1666
6580	1.519757	0.5848	0.8751	1.0000	0.9812	0.9985	0.6821	0.1667
6581	1.519526	0.5429	0.8126	1.0000	0.9810	0.9985	0.6820	0.1667
6582	1.519295	0.4422	0.6620	1.0000	0.9809	0.9985	0.6820	0.1667
6583	1.519064	0.5607	0.8397	1.0000	0.9807	0.9985	0.6819	0.1667
6584	1.518834	0.4830	0.7235	1.0000	0.9806	0.9985	0.6818	0.1668
6585	1.518603	0.5831	0.8737	1.0000	0.9804	0.9985	0.6817	0.1668
6586	1.518372	0.4615	0.6917	1.0000	0.9803	0.9985	0.6817	0.1668
6587	1.518142	0.6255	0.9376	1.0000	0.9801	0.9985	0.6816	0.1668
6588	1.517911	0.6329	0.9490	1.0000	0.9800	0.9985	0.6815	0.1668
6589	1.517681	0.3568	0.5352	1.0000	0.9799	0.9985	0.6815	0.1669
6590	1.517451	0.6214	0.9323	1.0000	0.9797	0.9985	0.6814	0.1669
6591	1.517220	0.5320	0.7984	1.0000	0.9795	0.9985	0.6813	0.1669
6592	1.516990	0.6318	0.9485	1.0000	0.9792	0.9985	0.6812	0.1669
6593	1.516760	0.3628	0.5449	1.0000	0.9790	0.9985	0.6812	0.1670
6594	1.516530	0.5993	0.9004	1.0000	0.9788	0.9985	0.6811	0.1670

6595	1.516300	0.3568	0.5363	1.0000	0.9785	0.9985	0.6810	0.1670
6596	1.516070	0.6332	0.9519	1.0000	0.9783	0.9985	0.6810	0.1670
6597	1.515841	0.6529	0.9819	1.0000	0.9780	0.9985	0.6809	0.1671
6598	1.515611	0.5638	0.8481	1.0000	0.9778	0.9985	0.6808	0.1671
6599	1.515381	0.6544	0.9849	1.0000	0.9776	0.9985	0.6807	0.1671
6600	1.515152	0.6434	0.9687	1.0000	0.9773	0.9985	0.6807	0.1671
6601	1.514922	0.3860	0.5814	1.0000	0.9771	0.9985	0.6806	0.1672
6602	1.514693	0.6407	0.9653	1.0000	0.9768	0.9985	0.6805	0.1672
6603	1.514463	0.6384	0.9621	1.0000	0.9766	0.9985	0.6805	0.1672
6604	1.514234	0.3992	0.6018	1.0000	0.9763	0.9985	0.6804	0.1672
6605	1.514005	0.4146	0.6253	1.0000	0.9760	0.9985	0.6803	0.1673
6606	1.513775	0.4013	0.6055	1.0000	0.9758	0.9985	0.6802	0.1673
6607	1.513546	0.4817	0.7270	1.0000	0.9755	0.9985	0.6802	0.1673
6608	1.513317	0.6269	0.9465	1.0000	0.9753	0.9985	0.6801	0.1673
6609	1.513088	0.4908	0.7414	1.0000	0.9750	0.9985	0.6800	0.1673
6610	1.512859	0.3323	0.5021	1.0000	0.9748	0.9985	0.6800	0.1674
6611	1.512630	0.5669	0.8570	1.0000	0.9744	0.9985	0.6799	0.1674
6612	1.512402	0.3461	0.5234	1.0000	0.9741	0.9985	0.6798	0.1674
6613	1.512173	0.6373	0.9644	1.0000	0.9737	0.9985	0.6798	0.1674
6614	1.511944	0.6474	0.9801	1.0000	0.9734	0.9985	0.6797	0.1675
6615	1.511716	0.5611	0.8499	1.0000	0.9730	0.9985	0.6796	0.1675
6616	1.511487	0.6312	0.9564	1.0000	0.9726	0.9985	0.6795	0.1675
6617	1.511259	0.5206	0.7892	1.0000	0.9723	0.9985	0.6795	0.1675
6618	1.511031	0.4466	0.6774	1.0000	0.9719	0.9985	0.6794	0.1676
6619	1.510802	0.6328	0.9601	1.0000	0.9716	0.9985	0.6793	0.1676
6620	1.510574	0.5458	0.8286	1.0000	0.9712	0.9985	0.6793	0.1676
6621	1.510346	0.6336	0.9624	1.0000	0.9709	0.9985	0.6792	0.1676
6622	1.510118	0.4266	0.6482	1.0000	0.9705	0.9985	0.6791	0.1677
6623	1.509890	0.6321	0.9609	1.0000	0.9701	0.9985	0.6790	0.1677
6624	1.509662	0.6287	0.9562	1.0000	0.9698	0.9985	0.6790	0.1677
6625	1.509434	0.6060	0.9222	1.0000	0.9694	0.9985	0.6789	0.1677
6626	1.509206	0.4318	0.6574	1.0000	0.9690	0.9985	0.6788	0.1677
6627	1.508978	0.2852	0.4344	1.0000	0.9687	0.9985	0.6788	0.1678
6628	1.508751	0.1584	0.2415	1.0000	0.9683	0.9985	0.6787	0.1678
6629	1.508523	0.2842	0.4334	1.0000	0.9680	0.9985	0.6786	0.1678
6630	1.508296	0.2968	0.4528	1.0000	0.9676	0.9985	0.6786	0.1678
6631	1.508068	0.6054	0.9239	1.0000	0.9672	0.9985	0.6785	0.1679
6632	1.507841	0.5976	0.9124	1.0000	0.9669	0.9985	0.6784	0.1679
6633	1.507613	0.5590	0.8539	1.0000	0.9665	0.9985	0.6783	0.1679
6634	1.507386	0.4994	0.7632	1.0000	0.9662	0.9985	0.6783	0.1679
6635	1.507159	0.3055	0.4670	1.0000	0.9658	0.9985	0.6782	0.1680
6636	1.506932	0.6117	0.9357	1.0000	0.9655	0.9985	0.6781	0.1680
6637	1.506705	0.6087	0.9316	1.0000	0.9651	0.9985	0.6781	0.1680
6638	1.506478	0.6417	0.9825	1.0000	0.9648	0.9985	0.6780	0.1680
6639	1.506251	0.5714	0.8752	1.0000	0.9644	0.9985	0.6779	0.1681
6640	1.506024	0.6205	0.9509	1.0000	0.9641	0.9985	0.6779	0.1681

6641	1.505797	0.4197	0.6437	1.0000	0.9635	0.9985	0.6778	0.1681
6642	1.505571	0.5685	0.8725	1.0000	0.9629	0.9985	0.6777	0.1681
6643	1.505344	0.5624	0.8638	1.0000	0.9623	0.9985	0.6776	0.1681
6644	1.505117	0.4040	0.6209	1.0000	0.9617	0.9985	0.6776	0.1682
6645	1.504891	0.2455	0.3776	1.0000	0.9611	0.9985	0.6775	0.1682
6646	1.504664	0.2264	0.3485	1.0000	0.9605	0.9985	0.6774	0.1682
6647	1.504438	0.2564	0.3949	1.0000	0.9599	0.9985	0.6774	0.1682
6648	1.504212	0.5105	0.7869	1.0000	0.9593	0.9985	0.6773	0.1683
6649	1.503986	0.1880	0.2899	1.0000	0.9587	0.9985	0.6772	0.1683
6650	1.503759	0.1695	0.2616	1.0000	0.9582	0.9985	0.6772	0.1683
6651	1.503533	0.2372	0.3664	1.0000	0.9575	0.9985	0.6771	0.1683
6652	1.503307	0.4105	0.6347	1.0000	0.9567	0.9985	0.6770	0.1684
6653	1.503081	0.3031	0.4691	1.0000	0.9560	0.9985	0.6770	0.1684
6654	1.502855	0.2140	0.3314	1.0000	0.9553	0.9985	0.6769	0.1684
6655	1.502630	0.5582	0.8653	1.0000	0.9546	0.9985	0.6768	0.1684
6656	1.502404	0.5863	0.9097	1.0000	0.9539	0.9985	0.6767	0.1685
6657	1.502178	0.5617	0.8722	1.0000	0.9532	0.9985	0.6767	0.1685
6658	1.501953	0.2282	0.3547	0.9999	0.9525	0.9985	0.6766	0.1685
6659	1.501727	0.3537	0.5502	1.0000	0.9518	0.9985	0.6765	0.1685
6660	1.501502	0.5351	0.8330	0.9999	0.9511	0.9985	0.6765	0.1685
6661	1.501276	0.5962	0.9290	1.0000	0.9503	0.9985	0.6764	0.1686
6662	1.501051	0.6156	0.9602	0.9999	0.9494	0.9985	0.6763	0.1686
6663	1.500825	0.3957	0.6179	1.0000	0.9486	0.9985	0.6763	0.1686
6664	1.500600	0.4574	0.7149	0.9999	0.9477	0.9984	0.6762	0.1686
6665	1.500375	0.6197	0.9696	1.0000	0.9468	0.9984	0.6761	0.1687
6666	1.500150	0.6134	0.9607	0.9999	0.9460	0.9984	0.6761	0.1687
6667	1.499925	0.5396	0.8459	1.0000	0.9451	0.9984	0.6760	0.1687
6668	1.499700	0.2224	0.3491	0.9999	0.9443	0.9984	0.6759	0.1687
6669	1.499475	0.5022	0.7889	1.0000	0.9434	0.9984	0.6758	0.1688
6670	1.499250	0.1785	0.2807	0.9999	0.9426	0.9984	0.6758	0.1688
6671	1.499026	0.5108	0.8044	0.9998	0.9414	0.9984	0.6757	0.1688
6672	1.498801	0.4998	0.7880	0.9999	0.9402	0.9984	0.6756	0.1688
6673	1.498576	0.3277	0.5175	0.9998	0.9390	0.9984	0.6756	0.1688
6674	1.498352	0.4968	0.7856	0.9997	0.9379	0.9984	0.6755	0.1689
6675	1.498127	0.1460	0.2312	0.9997	0.9367	0.9984	0.6754	0.1689
6676	1.497903	0.2867	0.4547	0.9995	0.9355	0.9984	0.6754	0.1689
6677	1.497679	0.2594	0.4121	0.9993	0.9343	0.9984	0.6753	0.1689
6678	1.497454	0.5551	0.8833	0.9989	0.9332	0.9984	0.6752	0.1690
6679	1.497230	0.5847	0.9322	0.9984	0.9320	0.9984	0.6752	0.1690
6680	1.497006	0.5236	0.8349	0.9996	0.9308	0.9984	0.6751	0.1690
6681	1.496782	0.4106	0.6556	1.0000	0.9292	0.9984	0.6750	0.1690
6682	1.496558	0.0309	0.0494	0.9999	0.9275	0.9984	0.6750	0.1691
6683	1.496334	0.2342	0.3754	0.9999	0.9259	0.9984	0.6749	0.1691
6684	1.496110	0.4283	0.6877	1.0000	0.9243	0.9984	0.6748	0.1691
6685	1.495886	0.1063	0.1711	0.9998	0.9227	0.9984	0.6747	0.1691
6686	1.495663	0.3833	0.6179	0.9998	0.9210	0.9984	0.6747	0.1692

6687	1.495439	0.2512	0.4057	1.0000	0.9194	0.9984	0.6746	0.1692
6688	1.495215	0.1572	0.2544	0.9997	0.9178	0.9984	0.6745	0.1692
6689	1.494992	0.1431	0.2321	0.9997	0.9162	0.9984	0.6745	0.1692
6690	1.494768	0.4893	0.7948	0.9997	0.9146	0.9984	0.6744	0.1692
6691	1.494545	0.5331	0.8683	0.9997	0.9122	0.9984	0.6743	0.1693
6692	1.494322	0.2647	0.4323	0.9996	0.9099	0.9984	0.6743	0.1693
6693	1.494098	0.1278	0.2093	0.9997	0.9075	0.9984	0.6742	0.1693
6694	1.493875	0.4084	0.6706	0.9997	0.9051	0.9984	0.6741	0.1693
6695	1.493652	0.5572	0.9173	0.9997	0.9028	0.9984	0.6741	0.1694
6696	1.493429	0.4541	0.7496	0.9997	0.9005	0.9984	0.6740	0.1694
6697	1.493206	0.2831	0.4686	0.9997	0.8981	0.9984	0.6739	0.1694
6698	1.492983	0.2071	0.3438	0.9998	0.8958	0.9984	0.6739	0.1694
6699	1.492760	0.2257	0.3757	0.9998	0.8935	0.9984	0.6738	0.1695
6700	1.492537	0.2555	0.4265	0.9997	0.8911	0.9984	0.6737	0.1695
6701	1.492315	0.3611	0.6041	0.9999	0.8888	0.9984	0.6737	0.1695
6702	1.492092	0.1243	0.2086	0.9998	0.8864	0.9984	0.6736	0.1695
6703	1.491869	0.2519	0.4239	0.9998	0.8840	0.9984	0.6735	0.1695
6704	1.491647	0.2380	0.4015	1.0000	0.8816	0.9984	0.6734	0.1696
6705	1.491424	0.0041	0.0069	1.0000	0.8792	0.9984	0.6734	0.1696
6706	1.491202	0.2514	0.4266	0.9999	0.8769	0.9984	0.6733	0.1696
6707	1.490980	0.3632	0.6179	0.9999	0.8745	0.9984	0.6732	0.1696
6708	1.490757	0.4599	0.7845	1.0000	0.8722	0.9984	0.6732	0.1697
6709	1.490535	0.4358	0.7457	0.9999	0.8698	0.9984	0.6731	0.1697
6710	1.490313	0.4630	0.7944	0.9999	0.8675	0.9984	0.6730	0.1697
6711	1.490091	0.3816	0.6569	0.9999	0.8645	0.9984	0.6730	0.1697
6712	1.489869	0.1661	0.2869	1.0000	0.8616	0.9984	0.6729	0.1697
6713	1.489647	0.0072	0.0125	0.9999	0.8587	0.9984	0.6728	0.1698
6714	1.489425	0.1897	0.3301	0.9999	0.8557	0.9984	0.6728	0.1698
6715	1.489203	0.4183	0.7304	0.9999	0.8528	0.9984	0.6727	0.1698
6716	1.488982	0.2051	0.3593	0.9999	0.8499	0.9984	0.6726	0.1698
6717	1.488760	0.2443	0.4297	0.9999	0.8470	0.9984	0.6726	0.1699
6718	1.488538	0.3660	0.6459	0.9999	0.8441	0.9984	0.6725	0.1699
6719	1.488317	0.0596	0.1056	0.9997	0.8412	0.9984	0.6724	0.1699
6720	1.488095	0.1414	0.2513	0.9999	0.8384	0.9984	0.6724	0.1699
6721	1.487874	0.0194	0.0346	0.9999	0.8342	0.9984	0.6723	0.1700
6722	1.487652	0.2048	0.3676	1.0000	0.8301	0.9984	0.6722	0.1700
6723	1.487431	0.0693	0.1250	0.9997	0.8259	0.9984	0.6722	0.1700
6724	1.487210	0.0319	0.0578	0.9998	0.8218	0.9984	0.6721	0.1700
6725	1.486989	0.0589	0.1073	0.9998	0.8177	0.9984	0.6720	0.1700
6726	1.486768	0.0053	0.0096	0.9996	0.8136	0.9984	0.6720	0.1701
6727	1.486547	0.0174	0.0320	0.9998	0.8096	0.9984	0.6719	0.1701
6728	1.486326	0.1929	0.3570	0.9998	0.8055	0.9984	0.6718	0.1701
6729	1.486105	0.0810	0.1509	0.9995	0.8015	0.9984	0.6718	0.1701
6730	1.485884	0.2292	0.4287	0.9998	0.7974	0.9984	0.6717	0.1702
6731	1.485663	0.0690	0.1296	1.0000	0.7940	0.9984	0.6716	0.1702
6732	1.485443	0.2675	0.5051	0.9993	0.7905	0.9984	0.6716	0.1702

6733	1.485222	0.0595	0.1129	0.9998	0.7870	0.9984	0.6715	0.1702
6734	1.485001	0.3159	0.6015	0.9998	0.7835	0.9984	0.6714	0.1703
6735	1.484781	0.1034	0.1978	0.9992	0.7801	0.9984	0.6714	0.1703
6736	1.484561	0.0344	0.0661	0.9997	0.7767	0.9984	0.6713	0.1703
6737	1.484340	0.0101	0.0194	0.9998	0.7733	0.9984	0.6712	0.1703
6738	1.484120	0.1305	0.2533	0.9990	0.7699	0.9984	0.6712	0.1703
6739	1.483900	0.2489	0.4848	0.9999	0.7665	0.9984	0.6711	0.1704
6740	1.483680	0.3775	0.7386	0.9999	0.7631	0.9984	0.6710	0.1704
6741	1.483459	0.1225	0.2408	0.9988	0.7601	0.9984	0.6709	0.1704
6742	1.483239	0.1873	0.3694	0.9999	0.7572	0.9984	0.6709	0.1704
6743	1.483019	0.1184	0.2344	0.9999	0.7542	0.9984	0.6708	0.1705
6744	1.482800	0.2887	0.5747	0.9986	0.7512	0.9984	0.6707	0.1705
6745	1.482580	0.1713	0.3420	0.9999	0.7483	0.9984	0.6707	0.1705
6746	1.482360	0.1519	0.3049	0.9983	0.7454	0.9984	0.6706	0.1705
6747	1.482140	0.0046	0.0092	0.9999	0.7425	0.9984	0.6705	0.1705
6748	1.481921	0.0044	0.0089	0.9999	0.7396	0.9984	0.6705	0.1706
6749	1.481701	0.0023	0.0047	0.9978	0.7367	0.9984	0.6704	0.1706
6750	1.481481	0.0321	0.0654	0.9998	0.7338	0.9984	0.6703	0.1706
6751	1.481262	0.1963	0.4016	0.9997	0.7308	0.9984	0.6703	0.1706
6752	1.481043	0.2210	0.4549	0.9974	0.7279	0.9984	0.6702	0.1707
6753	1.480823	0.0553	0.1141	0.9995	0.7249	0.9984	0.6701	0.1707
6754	1.480604	0.0006	0.0013	0.9969	0.7220	0.9984	0.6701	0.1707
6755	1.480385	0.0014	0.0029	0.9995	0.7190	0.9984	0.6700	0.1707
6756	1.480166	0.0042	0.0088	0.9995	0.7161	0.9984	0.6699	0.1708
6757	1.479947	0.1278	0.2688	0.9964	0.7132	0.9984	0.6699	0.1708
6758	1.479728	0.0609	0.1282	0.9995	0.7103	0.9984	0.6698	0.1708
6759	1.479509	0.0051	0.0109	0.9961	0.7074	0.9984	0.6697	0.1708
6760	1.479290	0.0281	0.0597	0.9993	0.7045	0.9984	0.6697	0.1708
6761	1.479071	0.0523	0.1122	0.9959	0.7002	0.9984	0.6696	0.1709
6762	1.478852	0.2024	0.4353	0.9995	0.6959	0.9984	0.6695	0.1709
6763	1.478634	0.2858	0.6207	0.9961	0.6916	0.9984	0.6695	0.1709
6764	1.478415	0.1633	0.3556	0.9999	0.6873	0.9984	0.6694	0.1709
6765	1.478197	0.0101	0.0222	0.9999	0.6829	0.9984	0.6693	0.1710
6766	1.477978	0.0067	0.0149	0.9960	0.6787	0.9984	0.6693	0.1710
6767	1.477760	0.0037	0.0083	0.9998	0.6746	0.9984	0.6692	0.1710
6768	1.477541	0.0112	0.0251	0.9961	0.6704	0.9984	0.6691	0.1710
6769	1.477323	0.0409	0.0919	0.9998	0.6662	0.9983	0.6691	0.1710
6770	1.477105	0.0002	0.0005	0.9962	0.6620	0.9983	0.6690	0.1711
6771	1.476887	0.0082	0.0186	0.9997	0.6588	0.9983	0.6690	0.1711
6772	1.476669	0.0746	0.1711	0.9965	0.6555	0.9983	0.6689	0.1711
6773	1.476451	0.1426	0.3284	0.9969	0.6523	0.9983	0.6688	0.1711
6774	1.476233	0.0669	0.1543	0.9998	0.6491	0.9983	0.6688	0.1712
6775	1.476015	0.0047	0.0110	0.9976	0.6458	0.9983	0.6687	0.1712
6776	1.475797	0.0028	0.0065	0.9999	0.6427	0.9983	0.6686	0.1712
6777	1.475579	0.0299	0.0702	0.9984	0.6395	0.9983	0.6686	0.1712
6778	1.475361	0.2566	0.6043	0.9999	0.6364	0.9983	0.6685	0.1712

6779	1.475144	0.3170	0.7510	0.9991	0.6332	0.9983	0.6684	0.1713
6780	1.474926	0.3146	0.7483	0.9999	0.6301	0.9983	0.6684	0.1713
6781	1.474709	0.1095	0.2608	0.9995	0.6294	0.9983	0.6683	0.1713
6782	1.474491	0.2843	0.6785	0.9987	0.6288	0.9983	0.6682	0.1713
6783	1.474274	0.1377	0.3286	0.9999	0.6282	0.9983	0.6682	0.1714
6784	1.474057	0.0389	0.0931	0.9978	0.6276	0.9983	0.6681	0.1714
6785	1.473839	0.0021	0.0051	0.9971	0.6270	0.9983	0.6680	0.1714
6786	1.473622	0.0325	0.0782	0.9966	0.6264	0.9983	0.6680	0.1714
6787	1.473405	0.1045	0.2504	0.9997	0.6258	0.9983	0.6679	0.1714
6788	1.473188	0.0088	0.0212	0.9961	0.6252	0.9983	0.6678	0.1715
6789	1.472971	0.0910	0.2196	0.9957	0.6246	0.9983	0.6678	0.1715
6790	1.472754	0.0400	0.0966	0.9955	0.6240	0.9983	0.6677	0.1715
6791	1.472537	0.0001	0.0002	0.9954	0.6237	0.9983	0.6676	0.1715
6792	1.472320	0.0008	0.0018	0.9918	0.6234	0.9983	0.6676	0.1716
6793	1.472104	0.0020	0.0048	0.9960	0.6231	0.9983	0.6675	0.1716
6794	1.471887	0.0110	0.0267	0.9964	0.6229	0.9983	0.6674	0.1716
6795	1.471670	0.0528	0.1281	0.9943	0.6226	0.9983	0.6674	0.1716
6796	1.471454	0.0717	0.1740	0.9941	0.6223	0.9983	0.6673	0.1716
6797	1.471237	0.0018	0.0044	0.9957	0.6220	0.9983	0.6672	0.1717
6798	1.471021	0.0000	0.0001	0.9999	0.6217	0.9983	0.6672	0.1717
6799	1.470805	0.0001	0.0003	1.0000	0.6214	0.9983	0.6671	0.1717
6800	1.470588	0.0001	0.0002	1.0000	0.6211	0.9983	0.6670	0.1717
6801	1.470372	0.0101	0.0243	1.0000	0.6210	0.9983	0.6670	0.1718
6802	1.470156	0.0538	0.1300	1.0000	0.6208	0.9983	0.6669	0.1718
6803	1.469940	0.0006	0.0015	1.0000	0.6207	0.9983	0.6668	0.1718
6804	1.469724	0.0029	0.0069	1.0000	0.6205	0.9983	0.6668	0.1718
6805	1.469508	0.0006	0.0014	1.0000	0.6204	0.9983	0.6667	0.1718
6806	1.469292	0.0242	0.0586	1.0000	0.6203	0.9983	0.6666	0.1719
6807	1.469076	0.0526	0.1275	1.0000	0.6201	0.9983	0.6666	0.1719
6808	1.468860	0.1901	0.4609	1.0000	0.6200	0.9983	0.6665	0.1719
6809	1.468644	0.1295	0.3139	1.0000	0.6198	0.9983	0.6665	0.1719
6810	1.468429	0.0667	0.1619	1.0000	0.6197	0.9983	0.6664	0.1720
6811	1.468213	0.1212	0.2937	1.0000	0.6205	0.9983	0.6663	0.1720
6812	1.467998	0.0562	0.1359	1.0000	0.6212	0.9983	0.6663	0.1720
6813	1.467782	0.0046	0.0111	1.0000	0.6220	0.9983	0.6662	0.1720
6814	1.467567	0.0183	0.0442	1.0000	0.6228	0.9983	0.6661	0.1720
6815	1.467351	0.0191	0.0460	1.0000	0.6236	0.9983	0.6661	0.1721
6816	1.467136	0.0028	0.0068	1.0000	0.6243	0.9983	0.6660	0.1721
6817	1.466921	0.0134	0.0322	1.0000	0.6251	0.9983	0.6659	0.1721
6818	1.466706	0.0016	0.0039	1.0000	0.6259	0.9983	0.6659	0.1721
6819	1.466491	0.0033	0.0078	1.0000	0.6267	0.9983	0.6658	0.1722
6820	1.466276	0.0355	0.0850	1.0000	0.6275	0.9983	0.6657	0.1722
6821	1.466061	0.0037	0.0088	1.0000	0.6300	0.9983	0.6657	0.1722
6822	1.465846	0.0608	0.1447	1.0000	0.6325	0.9983	0.6656	0.1722
6823	1.465631	0.0529	0.1255	1.0000	0.6351	0.9983	0.6655	0.1722
6824	1.465416	0.0008	0.0018	1.0000	0.6376	0.9983	0.6655	0.1723

6825	1.465201	0.0001	0.0003	1.0000	0.6401	0.9983	0.6654	0.1723
6826	1.464987	0.0185	0.0434	1.0000	0.6427	0.9983	0.6653	0.1723
6827	1.464772	0.1973	0.4604	1.0000	0.6453	0.9983	0.6653	0.1723
6828	1.464558	0.2828	0.6574	1.0000	0.6479	0.9983	0.6652	0.1724
6829	1.464343	0.2995	0.6934	1.0000	0.6504	0.9983	0.6652	0.1724
6830	1.464129	0.2636	0.6080	1.0000	0.6530	0.9983	0.6651	0.1724
6831	1.463915	0.0615	0.1413	1.0000	0.6555	0.9983	0.6650	0.1724
6832	1.463700	0.1295	0.2964	1.0000	0.6580	0.9983	0.6650	0.1724
6833	1.463486	0.0022	0.0051	1.0000	0.6605	0.9983	0.6649	0.1725
6834	1.463272	0.0036	0.0082	1.0000	0.6630	0.9983	0.6648	0.1725
6835	1.463058	0.0014	0.0031	1.0000	0.6654	0.9983	0.6648	0.1725
6836	1.462844	0.0311	0.0701	1.0000	0.6680	0.9983	0.6647	0.1725
6837	1.462630	0.0739	0.1660	1.0000	0.6705	0.9983	0.6646	0.1726
6838	1.462416	0.1940	0.4345	1.0000	0.6730	0.9983	0.6646	0.1726
6839	1.462202	0.2400	0.5355	1.0000	0.6756	0.9983	0.6645	0.1726
6840	1.461988	0.1532	0.3407	1.0000	0.6781	0.9983	0.6644	0.1726
6841	1.461775	0.0283	0.0628	1.0000	0.6785	0.9983	0.6644	0.1726
6842	1.461561	0.0307	0.0683	1.0000	0.6789	0.9983	0.6643	0.1727
6843	1.461347	0.0082	0.0182	1.0000	0.6793	0.9983	0.6642	0.1727
6844	1.461134	0.0954	0.2118	1.0000	0.6797	0.9983	0.6642	0.1727
6845	1.460920	0.1719	0.3812	1.0000	0.6801	0.9983	0.6641	0.1727
6846	1.460707	0.1299	0.2881	0.9999	0.6805	0.9983	0.6641	0.1728
6847	1.460494	0.0049	0.0108	1.0000	0.6809	0.9983	0.6640	0.1728
6848	1.460280	0.0052	0.0116	0.9999	0.6813	0.9983	0.6639	0.1728
6849	1.460067	0.0108	0.0238	0.9999	0.6817	0.9983	0.6639	0.1728
6850	1.459854	0.0429	0.0949	0.9999	0.6821	0.9983	0.6638	0.1728
6851	1.459641	0.2165	0.4799	0.9999	0.6810	0.9983	0.6637	0.1729
6852	1.459428	0.1797	0.3989	0.9998	0.6800	0.9983	0.6637	0.1729
6853	1.459215	0.2261	0.5028	0.9999	0.6789	0.9983	0.6636	0.1729
6854	1.459002	0.1310	0.2918	0.9998	0.6778	0.9983	0.6635	0.1729
6855	1.458789	0.3152	0.7032	0.9998	0.6768	0.9983	0.6635	0.1730
6856	1.458576	0.0862	0.1927	0.9998	0.6757	0.9983	0.6634	0.1730
6857	1.458364	0.3228	0.7226	0.9998	0.6747	0.9983	0.6633	0.1730
6858	1.458151	0.2456	0.5509	0.9997	0.6736	0.9983	0.6633	0.1730
6859	1.457938	0.0809	0.1817	0.9998	0.6726	0.9983	0.6632	0.1730
6860	1.457726	0.0009	0.0021	0.9997	0.6715	0.9983	0.6632	0.1731
6861	1.457513	0.0991	0.2239	0.9997	0.6689	0.9983	0.6631	0.1731
6862	1.457301	0.0463	0.1051	0.9995	0.6663	0.9983	0.6630	0.1731
6863	1.457089	0.1478	0.3367	0.9997	0.6636	0.9983	0.6630	0.1731
6864	1.456876	0.0607	0.1389	0.9997	0.6610	0.9983	0.6629	0.1731
6865	1.456664	0.1765	0.4054	0.9993	0.6584	0.9983	0.6628	0.1732
6866	1.456452	0.1027	0.2368	0.9995	0.6558	0.9983	0.6628	0.1732
6867	1.456240	0.0622	0.1440	0.9996	0.6532	0.9983	0.6627	0.1732
6868	1.456028	0.0875	0.2035	0.9995	0.6506	0.9983	0.6626	0.1732
6869	1.455816	0.0552	0.1290	0.9990	0.6480	0.9982	0.6626	0.1733
6870	1.455604	0.0002	0.0005	0.9991	0.6454	0.9982	0.6625	0.1733

6871	1.455392	0.0019	0.0045	0.9993	0.6439	0.9982	0.6625	0.1733
6872	1.455180	0.0005	0.0011	0.9993	0.6424	0.9982	0.6624	0.1733
6873	1.454969	0.0341	0.0806	0.9992	0.6408	0.9982	0.6623	0.1733
6874	1.454757	0.1693	0.4011	0.9986	0.6393	0.9982	0.6623	0.1734
6875	1.454545	0.1327	0.3153	0.9987	0.6378	0.9982	0.6622	0.1734
6876	1.454334	0.0332	0.0791	0.9990	0.6363	0.9982	0.6621	0.1734
6877	1.454122	0.0845	0.2018	0.9986	0.6348	0.9982	0.6621	0.1734
6878	1.453911	0.2582	0.6175	0.9994	0.6332	0.9982	0.6620	0.1735
6879	1.453700	0.2230	0.5354	0.9979	0.6317	0.9982	0.6619	0.1735
6880	1.453488	0.0586	0.1410	0.9984	0.6302	0.9982	0.6619	0.1735
6881	1.453277	0.0308	0.0745	0.9988	0.6255	0.9982	0.6618	0.1735
6882	1.453066	0.0059	0.0144	0.9973	0.6209	0.9982	0.6618	0.1735
6883	1.452855	0.0559	0.1378	0.9973	0.6162	0.9982	0.6617	0.1736
6884	1.452644	0.1422	0.3525	0.9990	0.6115	0.9982	0.6616	0.1736
6885	1.452433	0.0206	0.0514	0.9975	0.6068	0.9982	0.6616	0.1736
6886	1.452222	0.0028	0.0071	0.9961	0.6023	0.9982	0.6615	0.1736
6887	1.452011	0.0066	0.0166	0.9988	0.5978	0.9982	0.6614	0.1736
6888	1.451800	0.0354	0.0906	0.9968	0.5932	0.9982	0.6614	0.1737
6889	1.451589	0.0805	0.2078	0.9975	0.5887	0.9982	0.6613	0.1737
6890	1.451379	0.0017	0.0045	0.9962	0.5842	0.9982	0.6612	0.1737
6891	1.451168	0.0002	0.0004	0.9961	0.5813	0.9982	0.6612	0.1737
6892	1.450958	0.0000	0.0001	0.9993	0.5784	0.9982	0.6611	0.1738
6893	1.450747	0.0000	0.0000	0.9932	0.5754	0.9982	0.6611	0.1738
6894	1.450537	0.0001	0.0001	0.9954	0.5725	0.9982	0.6610	0.1738
6895	1.450326	0.0000	0.0000	0.9942	0.5696	0.9982	0.6609	0.1738
6896	1.450116	0.0004	0.0010	0.9989	0.5667	0.9982	0.6609	0.1738
6897	1.449906	0.0028	0.0075	0.9907	0.5639	0.9982	0.6608	0.1739
6898	1.449696	0.0588	0.1598	0.9943	0.5610	0.9982	0.6607	0.1739
6899	1.449485	0.0483	0.1314	0.9983	0.5582	0.9982	0.6607	0.1739
6900	1.449275	0.1432	0.3936	0.9931	0.5553	0.9982	0.6606	0.1739
6901	1.449065	0.1270	0.3530	0.9881	0.5522	0.9982	0.6606	0.1740
6902	1.448855	0.0214	0.0597	0.9918	0.5490	0.9982	0.6605	0.1740
6903	1.448646	0.0568	0.1583	0.9978	0.5459	0.9982	0.6604	0.1740
6904	1.448436	0.1193	0.3387	0.9847	0.5428	0.9982	0.6604	0.1740
6905	1.448226	0.0054	0.0153	0.9899	0.5396	0.9982	0.6603	0.1740
6906	1.448016	0.1275	0.3645	0.9894	0.5366	0.9982	0.6602	0.1741
6907	1.447807	0.1547	0.4412	0.9972	0.5335	0.9982	0.6602	0.1741
6908	1.447597	0.0518	0.1512	0.9792	0.5304	0.9982	0.6601	0.1741
6909	1.447387	0.0065	0.0190	0.9873	0.5274	0.9982	0.6601	0.1741
6910	1.447178	0.0012	0.0036	0.9864	0.5243	0.9982	0.6600	0.1741
6911	1.446969	0.0017	0.0051	0.9728	0.5227	0.9982	0.6599	0.1742
6912	1.446759	0.0388	0.1135	0.9962	0.5211	0.9982	0.6599	0.1742
6913	1.446550	0.0420	0.1246	0.9847	0.5194	0.9982	0.6598	0.1742
6914	1.446341	0.0241	0.0732	0.9661	0.5178	0.9982	0.6597	0.1742
6915	1.446132	0.0000	0.0001	0.9848	0.5162	0.9982	0.6597	0.1743
6916	1.445922	0.0000	0.0000	0.9847	0.5146	0.9982	0.6596	0.1743

6917	1.445713	0.0000	0.0000	0.9839	0.5130	0.9982	0.6596	0.1743
6918	1.445504	0.0000	0.0000	0.9586	0.5114	0.9982	0.6595	0.1743
6919	1.445296	0.0002	0.0006	0.9827	0.5098	0.9982	0.6594	0.1743
6920	1.445087	0.0210	0.0638	0.9832	0.5082	0.9982	0.6594	0.1744
6921	1.444878	0.0378	0.1192	0.9500	0.5071	0.9982	0.6593	0.1744
6922	1.444669	0.0345	0.1040	0.9969	0.5060	0.9982	0.6592	0.1744
6923	1.444460	0.0005	0.0016	0.9837	0.5049	0.9982	0.6592	0.1744
6924	1.444252	0.0278	0.0892	0.9400	0.5038	0.9982	0.6591	0.1744
6925	1.444043	0.0056	0.0173	0.9839	0.5027	0.9982	0.6591	0.1745
6926	1.443835	0.0374	0.1164	0.9727	0.5016	0.9982	0.6590	0.1745
6927	1.443626	0.1094	0.3578	0.9288	0.5005	0.9982	0.6589	0.1745
6928	1.443418	0.0593	0.1829	0.9863	0.4994	0.9982	0.6589	0.1745
6929	1.443210	0.0013	0.0040	0.9862	0.4983	0.9982	0.6588	0.1746
6930	1.443001	0.0004	0.0013	0.9166	0.4973	0.9982	0.6587	0.1746
6931	1.442793	0.0000	0.0001	0.9882	0.4959	0.9982	0.6587	0.1746
6932	1.442585	0.0148	0.0461	0.9882	0.4945	0.9982	0.6586	0.1746
6933	1.442377	0.0184	0.0629	0.9032	0.4932	0.9982	0.6586	0.1746
6934	1.442169	0.0036	0.0113	0.9902	0.4918	0.9982	0.6585	0.1747
6935	1.441961	0.0139	0.0438	0.9873	0.4904	0.9982	0.6584	0.1747
6936	1.441753	0.0000	0.0001	0.8986	0.4891	0.9982	0.6584	0.1747
6937	1.441545	0.0001	0.0002	0.9821	0.4877	0.9982	0.6583	0.1747
6938	1.441338	0.0001	0.0002	0.8788	0.4864	0.9982	0.6582	0.1747
6939	1.441130	0.0213	0.0683	0.9790	0.4850	0.9982	0.6582	0.1748
6940	1.440922	0.0168	0.0537	0.9831	0.4837	0.9982	0.6581	0.1748
6941	1.440715	0.0163	0.0602	0.8496	0.4837	0.9982	0.6581	0.1748
6942	1.440507	0.0020	0.0064	0.9795	0.4837	0.9982	0.6580	0.1748
6943	1.440300	0.0713	0.2325	0.9652	0.4836	0.9982	0.6579	0.1749
6944	1.440092	0.0137	0.0520	0.8267	0.4836	0.9982	0.6579	0.1749
6945	1.439885	0.0080	0.0263	0.9560	0.4836	0.9982	0.6578	0.1749
6946	1.439678	0.0000	0.0000	0.8100	0.4836	0.9982	0.6577	0.1749
6947	1.439470	0.0000	0.0000	0.9485	0.4836	0.9982	0.6577	0.1749
6948	1.439263	0.0010	0.0032	0.9510	0.4835	0.9982	0.6576	0.1750
6949	1.439056	0.0229	0.0911	0.7930	0.4835	0.9982	0.6576	0.1750
6950	1.438849	0.0749	0.2512	0.9396	0.4835	0.9982	0.6575	0.1750
6951	1.438642	0.0279	0.1146	0.7698	0.4824	0.9982	0.6574	0.1750
6952	1.438435	0.0082	0.0266	0.9781	0.4814	0.9982	0.6574	0.1750
6953	1.438228	0.0018	0.0072	0.7926	0.4803	0.9982	0.6573	0.1751
6954	1.438021	0.0000	0.0000	0.9869	0.4792	0.9982	0.6573	0.1751
6955	1.437815	0.0000	0.0001	0.9863	0.4781	0.9982	0.6572	0.1751
6956	1.437608	0.0000	0.0000	0.7852	0.4771	0.9982	0.6571	0.1751
6957	1.437401	0.0004	0.0015	0.9767	0.4760	0.9982	0.6571	0.1752
6958	1.437195	0.0008	0.0033	0.7808	0.4749	0.9982	0.6570	0.1752
6959	1.436988	0.0050	0.0166	0.9759	0.4739	0.9982	0.6569	0.1752
6960	1.436782	0.0289	0.1192	0.7818	0.4728	0.9982	0.6569	0.1752
6961	1.436575	0.0094	0.0309	0.9761	0.4733	0.9982	0.6568	0.1752
6962	1.436369	0.0024	0.0097	0.7883	0.4738	0.9982	0.6568	0.1753

6963	1.436163	0.0020	0.0065	0.9774	0.4742	0.9982	0.6567	0.1753
6964	1.435956	0.0026	0.0106	0.8007	0.4747	0.9982	0.6566	0.1753
6965	1.435750	0.0660	0.2163	0.9793	0.4752	0.9981	0.6566	0.1753
6966	1.435544	0.0091	0.0356	0.8201	0.4756	0.9981	0.6565	0.1753
6967	1.435338	0.0003	0.0010	0.9816	0.4761	0.9981	0.6565	0.1754
6968	1.435132	0.0116	0.0440	0.8442	0.4766	0.9981	0.6564	0.1754
6969	1.434926	0.0050	0.0183	0.8799	0.4770	0.9981	0.6563	0.1754
6970	1.434720	0.0002	0.0005	0.9899	0.4775	0.9981	0.6563	0.1754
6971	1.434514	0.0001	0.0003	0.9259	0.4766	0.9981	0.6562	0.1754
6972	1.434309	0.0000	0.0000	0.9944	0.4756	0.9981	0.6561	0.1755
6973	1.434103	0.0001	0.0002	0.9595	0.4747	0.9981	0.6561	0.1755
6974	1.433897	0.0063	0.0205	0.9923	0.4737	0.9981	0.6560	0.1755
6975	1.433692	0.0006	0.0023	0.9026	0.4728	0.9981	0.6560	0.1755
6976	1.433486	0.0597	0.2248	0.8601	0.4719	0.9981	0.6559	0.1756
6977	1.433281	0.0677	0.2238	0.9812	0.4709	0.9981	0.6558	0.1756
6978	1.433075	0.0041	0.0162	0.8208	0.4700	0.9981	0.6558	0.1756
6979	1.432870	0.0004	0.0018	0.7898	0.4691	0.9981	0.6557	0.1756
6980	1.432665	0.0000	0.0000	0.7710	0.4681	0.9981	0.6557	0.1756
6981	1.432460	0.0000	0.0000	0.7595	0.4684	0.9981	0.6556	0.1757
6982	1.432254	0.0000	0.0000	0.7544	0.4686	0.9981	0.6555	0.1757
6983	1.432049	0.0006	0.0027	0.7540	0.4689	0.9981	0.6555	0.1757
6984	1.431844	0.0000	0.0001	0.7522	0.4691	0.9981	0.6554	0.1757
6985	1.431639	0.0000	0.0000	0.6160	0.4694	0.9981	0.6554	0.1757
6986	1.431434	0.0000	0.0002	0.7784	0.4697	0.9981	0.6553	0.1758
6987	1.431229	0.0000	0.0001	0.6738	0.4699	0.9981	0.6552	0.1758
6988	1.431025	0.0011	0.0060	0.5885	0.4702	0.9981	0.6552	0.1758
6989	1.430820	0.0530	0.2189	0.7872	0.4704	0.9981	0.6551	0.1758
6990	1.430615	0.1123	0.3688	0.9898	0.4707	0.9981	0.6550	0.1758
6991	1.430411	0.0995	0.3250	0.9977	0.4691	0.9981	0.6550	0.1759
6992	1.430206	0.0095	0.0311	0.9990	0.4676	0.9981	0.6549	0.1759
6993	1.430001	0.0022	0.0072	0.9994	0.4660	0.9981	0.6549	0.1759
6994	1.429797	0.0042	0.0139	0.9996	0.4644	0.9981	0.6548	0.1759
6995	1.429593	0.0067	0.0223	0.9997	0.4629	0.9981	0.6547	0.1760
6996	1.429388	0.0308	0.1020	0.9998	0.4613	0.9981	0.6547	0.1760
6997	1.429184	0.0228	0.0758	0.9999	0.4598	0.9981	0.6546	0.1760
6998	1.428980	0.0000	0.0000	0.9999	0.4583	0.9981	0.6546	0.1760
6999	1.428776	0.0011	0.0036	0.9999	0.4567	0.9981	0.6545	0.1760
7000	1.428571	0.0003	0.0009	0.9999	0.4552	0.9981	0.6544	0.1761
7001	1.428367	0.0000	0.0000	0.9999	0.4538	0.9981	0.6544	0.1761
7002	1.428163	0.0000	0.0000	0.9999	0.4523	0.9981	0.6543	0.1761
7003	1.427959	0.0002	0.0007	1.0000	0.4509	0.9981	0.6543	0.1761
7004	1.427756	0.0001	0.0003	1.0000	0.4494	0.9981	0.6542	0.1761
7005	1.427552	0.0004	0.0014	1.0000	0.4480	0.9981	0.6541	0.1762
7006	1.427348	0.0007	0.0023	1.0000	0.4466	0.9981	0.6541	0.1762
7007	1.427144	0.0010	0.0034	1.0000	0.4452	0.9981	0.6540	0.1762
7008	1.426941	0.0064	0.0220	1.0000	0.4437	0.9981	0.6540	0.1762

7009	1.426737	0.0778	0.2694	1.0000	0.4423	0.9981	0.6539	0.1762
7010	1.426534	0.0974	0.3385	1.0000	0.4409	0.9981	0.6538	0.1763
7011	1.426330	0.0097	0.0340	1.0000	0.4374	0.9981	0.6538	0.1763
7012	1.426127	0.0089	0.0316	1.0000	0.4340	0.9981	0.6537	0.1763
7013	1.425923	0.0000	0.0001	1.0000	0.4305	0.9981	0.6537	0.1763
7014	1.425720	0.0000	0.0001	1.0000	0.4270	0.9981	0.6536	0.1763
7015	1.425517	0.0001	0.0004	1.0000	0.4236	0.9981	0.6535	0.1764
7016	1.425314	0.0000	0.0000	1.0000	0.4202	0.9981	0.6535	0.1764
7017	1.425110	0.0034	0.0124	1.0000	0.4169	0.9981	0.6534	0.1764
7018	1.424907	0.0011	0.0040	1.0000	0.4135	0.9981	0.6534	0.1764
7019	1.424704	0.0130	0.0487	1.0000	0.4102	0.9981	0.6533	0.1765
7020	1.424501	0.0152	0.0572	1.0000	0.4069	0.9981	0.6532	0.1765
7021	1.424299	0.0086	0.0329	1.0000	0.4028	0.9981	0.6532	0.1765
7022	1.424096	0.0000	0.0000	1.0000	0.3988	0.9981	0.6531	0.1765
7023	1.423893	0.0000	0.0000	1.0000	0.3947	0.9981	0.6531	0.1765
7024	1.423690	0.0000	0.0000	1.0000	0.3907	0.9981	0.6530	0.1766
7025	1.423488	0.0000	0.0001	1.0000	0.3866	0.9981	0.6529	0.1766
7026	1.423285	0.0000	0.0001	1.0000	0.3828	0.9981	0.6529	0.1766
7027	1.423082	0.0002	0.0007	1.0000	0.3789	0.9981	0.6528	0.1766
7028	1.422880	0.0001	0.0004	1.0000	0.3751	0.9981	0.6527	0.1766
7029	1.422677	0.0000	0.0002	1.0000	0.3712	0.9981	0.6527	0.1767
7030	1.422475	0.0181	0.0756	1.0000	0.3674	0.9981	0.6526	0.1767
7031	1.422273	0.0138	0.0584	1.0000	0.3622	0.9981	0.6526	0.1767
7032	1.422071	0.0102	0.0438	1.0000	0.3571	0.9981	0.6525	0.1767
7033	1.421868	0.0118	0.0517	1.0000	0.3519	0.9981	0.6525	0.1767
7034	1.421666	0.0007	0.0030	1.0000	0.3468	0.9981	0.6524	0.1768
7035	1.421464	0.0054	0.0241	1.0000	0.3417	0.9981	0.6523	0.1768
7036	1.421262	0.0065	0.0296	1.0000	0.3369	0.9981	0.6523	0.1768
7037	1.421060	0.0001	0.0005	1.0000	0.3321	0.9981	0.6522	0.1768
7038	1.420858	0.0000	0.0002	1.0000	0.3273	0.9981	0.6522	0.1768
7039	1.420656	0.0001	0.0004	1.0000	0.3225	0.9981	0.6521	0.1769
7040	1.420455	0.0001	0.0005	1.0000	0.3177	0.9981	0.6520	0.1769
7041	1.420253	0.0010	0.0050	1.0000	0.3111	0.9981	0.6520	0.1769
7042	1.420051	0.0000	0.0002	1.0000	0.3045	0.9981	0.6519	0.1769
7043	1.419849	0.0000	0.0000	1.0000	0.2980	0.9981	0.6519	0.1769
7044	1.419648	0.0000	0.0001	1.0000	0.2914	0.9981	0.6518	0.1770
7045	1.419446	0.0000	0.0000	1.0000	0.2848	0.9981	0.6517	0.1770
7046	1.419245	0.0000	0.0000	1.0000	0.2789	0.9981	0.6517	0.1770
7047	1.419044	0.0000	0.0000	1.0000	0.2729	0.9981	0.6516	0.1770
7048	1.418842	0.0000	0.0000	1.0000	0.2670	0.9981	0.6516	0.1771
7049	1.418641	0.0000	0.0000	1.0000	0.2611	0.9981	0.6515	0.1771
7050	1.418440	0.0014	0.0083	1.0000	0.2552	0.9981	0.6514	0.1771
7051	1.418239	0.0033	0.0204	1.0000	0.2503	0.9981	0.6514	0.1771
7052	1.418037	0.0000	0.0001	1.0000	0.2455	0.9981	0.6513	0.1771
7053	1.417836	0.0000	0.0000	1.0000	0.2406	0.9981	0.6513	0.1772
7054	1.417635	0.0001	0.0005	1.0000	0.2358	0.9981	0.6512	0.1772

7055	1.417434	0.0001	0.0003	1.0000	0.2309	0.9981	0.6511	0.1772
7056	1.417234	0.0006	0.0044	1.0000	0.2265	0.9981	0.6511	0.1772
7057	1.417033	0.0001	0.0004	1.0000	0.2221	0.9980	0.6510	0.1772
7058	1.416832	0.0009	0.0061	1.0000	0.2177	0.9980	0.6510	0.1773
7059	1.416631	0.0017	0.0121	1.0000	0.2133	0.9980	0.6509	0.1773
7060	1.416431	0.0304	0.2240	1.0000	0.2089	0.9980	0.6508	0.1773
7061	1.416230	0.0300	0.2291	1.0000	0.2016	0.9980	0.6508	0.1773
7062	1.416029	0.0030	0.0240	1.0000	0.1943	0.9980	0.6507	0.1773
7063	1.415829	0.0007	0.0057	1.0000	0.1870	0.9980	0.6507	0.1774
7064	1.415629	0.0001	0.0005	1.0000	0.1797	0.9980	0.6506	0.1774
7065	1.415428	0.0000	0.0000	1.0000	0.1725	0.9980	0.6505	0.1774
7066	1.415228	0.0000	0.0001	1.0000	0.1664	0.9980	0.6505	0.1774
7067	1.415028	0.0000	0.0000	1.0000	0.1604	0.9980	0.6504	0.1774
7068	1.414827	0.0000	0.0000	1.0000	0.1544	0.9980	0.6504	0.1775
7069	1.414627	0.0000	0.0000	1.0000	0.1483	0.9980	0.6503	0.1775
7070	1.414427	0.0000	0.0000	1.0000	0.1423	0.9980	0.6502	0.1775
7071	1.414227	0.0000	0.0000	1.0000	0.1373	0.9980	0.6502	0.1775
7072	1.414027	0.0000	0.0000	1.0000	0.1323	0.9980	0.6501	0.1775
7073	1.413827	0.0000	0.0000	1.0000	0.1272	0.9980	0.6501	0.1776
7074	1.413627	0.0000	0.0000	1.0000	0.1222	0.9980	0.6500	0.1776
7075	1.413428	0.0000	0.0003	1.0000	0.1172	0.9980	0.6500	0.1776
7076	1.413228	0.0048	0.0659	1.0000	0.1130	0.9980	0.6499	0.1776
7077	1.413028	0.0035	0.0494	1.0000	0.1089	0.9980	0.6498	0.1776
7078	1.412828	0.0032	0.0466	1.0000	0.1047	0.9980	0.6498	0.1777
7079	1.412629	0.0000	0.0004	1.0000	0.1006	0.9980	0.6497	0.1777
7080	1.412429	0.0000	0.0000	1.0000	0.0964	0.9980	0.6497	0.1777
7081	1.412230	0.0000	0.0001	1.0000	0.0926	0.9980	0.6496	0.1777
7082	1.412030	0.0000	0.0000	1.0000	0.0887	0.9980	0.6495	0.1777
7083	1.411831	0.0002	0.0028	1.0000	0.0848	0.9980	0.6495	0.1778
7084	1.411632	0.0001	0.0015	1.0000	0.0809	0.9980	0.6494	0.1778
7085	1.411433	0.0000	0.0002	1.0000	0.0770	0.9980	0.6494	0.1778
7086	1.411233	0.0000	0.0003	1.0000	0.0739	0.9980	0.6493	0.1778
7087	1.411034	0.0000	0.0002	1.0000	0.0708	0.9980	0.6492	0.1779
7088	1.410835	0.0001	0.0022	1.0000	0.0677	0.9980	0.6492	0.1779
7089	1.410636	0.0000	0.0002	1.0000	0.0646	0.9980	0.6491	0.1779
7090	1.410437	0.0000	0.0000	1.0000	0.0615	0.9980	0.6491	0.1779
7091	1.410238	0.0000	0.0001	1.0000	0.0594	0.9980	0.6490	0.1779
7092	1.410039	0.0000	0.0000	1.0000	0.0573	0.9980	0.6490	0.1780
7093	1.409841	0.0000	0.0000	1.0000	0.0553	0.9980	0.6489	0.1780
7094	1.409642	0.0000	0.0000	1.0000	0.0532	0.9980	0.6488	0.1780
7095	1.409443	0.0000	0.0000	1.0000	0.0511	0.9980	0.6488	0.1780
7096	1.409245	0.0000	0.0000	1.0000	0.0494	0.9980	0.6487	0.1780
7097	1.409046	0.0000	0.0000	1.0000	0.0477	0.9980	0.6487	0.1781
7098	1.408848	0.0000	0.0000	1.0000	0.0459	0.9980	0.6486	0.1781
7099	1.408649	0.0000	0.0005	1.0000	0.0442	0.9980	0.6485	0.1781
7100	1.408451	0.0000	0.0002	1.0000	0.0425	0.9980	0.6485	0.1781

7101	1.408252	0.0000	0.0001	1.0000	0.0407	0.9980	0.6484	0.1781
7102	1.408054	0.0000	0.0011	1.0000	0.0388	0.9980	0.6484	0.1782
7103	1.407856	0.0000	0.0003	1.0000	0.0370	0.9980	0.6483	0.1782
7104	1.407658	0.0000	0.0000	1.0000	0.0351	0.9980	0.6483	0.1782
7105	1.407460	0.0000	0.0000	1.0000	0.0333	0.9980	0.6482	0.1782
7106	1.407261	0.0000	0.0000	1.0000	0.0319	0.9980	0.6481	0.1782
7107	1.407063	0.0000	0.0000	1.0000	0.0304	0.9980	0.6481	0.1783
7108	1.406866	0.0000	0.0000	1.0000	0.0290	0.9980	0.6480	0.1783
7109	1.406668	0.0000	0.0000	1.0000	0.0275	0.9980	0.6480	0.1783
7110	1.406470	0.0000	0.0001	1.0000	0.0261	0.9980	0.6479	0.1783
7111	1.406272	0.0000	0.0002	1.0000	0.0247	0.9980	0.6478	0.1783
7112	1.406074	0.0001	0.0037	1.0000	0.0233	0.9980	0.6478	0.1784
7113	1.405877	0.0000	0.0002	1.0000	0.0219	0.9980	0.6477	0.1784
7114	1.405679	0.0000	0.0000	1.0000	0.0206	0.9980	0.6477	0.1784
7115	1.405481	0.0000	0.0000	1.0000	0.0192	0.9980	0.6476	0.1784
7116	1.405284	0.0000	0.0000	1.0000	0.0182	0.9980	0.6476	0.1784
7117	1.405086	0.0000	0.0000	1.0000	0.0171	0.9980	0.6475	0.1785
7118	1.40488[illegible]	0.0000	0.0000	1.0000	0.0161	0.9980	0.6474	0.1785
7119	1.4046[illegible]	0.0000	0.0000	1.0000	0.0151	0.9980	0.6474	0.1785
7120	1.4044[illegible]	0.0000	0.0000	1.0000	0.0141	0.9980	0.6473	0.1785
7121	1.40429[illegible]	0.0000	0.0000	1.0000	0.0136	0.9980	0.6473	0.1785
7122	1.404100	0.0000	0.0000	1.0000	0.0132	0.9980	0.6472	0.1786
7123	1.403903	0.0000	0.0000	1.0000	0.0127	0.9980	0.6472	0.1786
7124	1.403706	0.0000	0.0001	1.0000	0.0123	0.9980	0.6471	0.1786
7125	1.403509	0.0000	0.0048	1.0000	0.0118	0.9980	0.6470	0.1786
7126	1.403312	0.0000	0.0001	1.0000	0.0115	0.9980	0.6470	0.1786
7127	1.403115	0.0000	0.0001	1.0000	0.0111	0.9980	0.6469	0.1787
7128	1.402918	0.0000	0.0001	1.0000	0.0107	0.9980	0.6469	0.1787
7129	1.402721	0.0000	0.0040	1.0000	0.0103	0.9980	0.6468	0.1787
7130	1.402525	0.0002	0.0372	1.0000	0.0100	0.9980	0.6467	0.1787
7131	1.402328	0.0001	0.0115	1.0000	0.0094	0.9980	0.6467	0.1787
7132	1.402131	0.0000	0.0002	1.0000	0.0089	0.9980	0.6466	0.1788
7133	1.401935	0.0000	0.0000	1.0000	0.0084	0.9980	0.6466	0.1788
7134	1.401738	0.0000	0.0000	1.0000	0.0079	0.9980	0.6465	0.1788
7135	1.401542	0.0000	0.0000	1.0000	0.0074	0.9980	0.6465	0.1788
7136	1.401345	0.0000	0.0000	1.0000	0.0070	0.9980	0.6464	0.1788
7137	1.401149	0.0000	0.0000	1.0000	0.0066	0.9980	0.6463	0.1789
7138	1.400953	0.0000	0.0000	1.0000	0.0062	0.9980	0.6463	0.1789
7139	1.400756	0.0000	0.0000	1.0000	0.0058	0.9980	0.6462	0.1789
7140	1.400560	0.0000	0.0000	1.0000	0.0054	0.9980	0.6462	0.1789
7141	1.400364	0.0000	0.0000	1.0000	0.0054	0.9980	0.6461	0.1789
7142	1.400168	0.0000	0.0000	1.0000	0.0053	0.9980	0.6461	0.1790

Appendix B Equipment Specifications

Current Control Mode

Average/Peak Current Range	0.05 to 9.95 A
Average/Peak Current Resolution	0.01 A
Average Current Accuracy	± 0.02 A + 1% of reading
Peak Current Accuracy	± 0.03 A + 2% of reading, for frequency >10 Hz
Analog Input[1]	
Scale Factor (Accuracy)	1V/A, 10 V Full Scale (± 0.03 A + 2% of reading)
Input Impedance	20 kΩ nominal
Bandwidth	25 kHz typical
Transition Times	12 µsec typical
Maximum Output Voltage	4 V at connector, 3 V end of cable
Noise	20 mA p-p @ laser connector typical

Power Control Mode

Average/Peak Power Range	0.01 to 2 W
Average/Peak Power Resolution	0.002 W (0.002 setpoint)
Average Power Accuracy	± 0.002 W + 2% of reading
Peak Power Accuracy	± 0.01 W + 3% of reading (0.02 W if MPD ≤ 0.5)
Analog Input	
Scale Factor (Accuracy)	2 V/W, 4 V Full Scale (± 0.01 W + 3% of reading)
Input Impedance	20 kΩ nominal
Bandwidth	25 kHz typical
Transition Times	10 µsec typical
Maximum Output Voltage	4 V at connector, 3 V end of cable
Noise	5 mW p-p @ laser connector typical (10 mW if MPD ≤ 0.5)

Monitor Photodiode

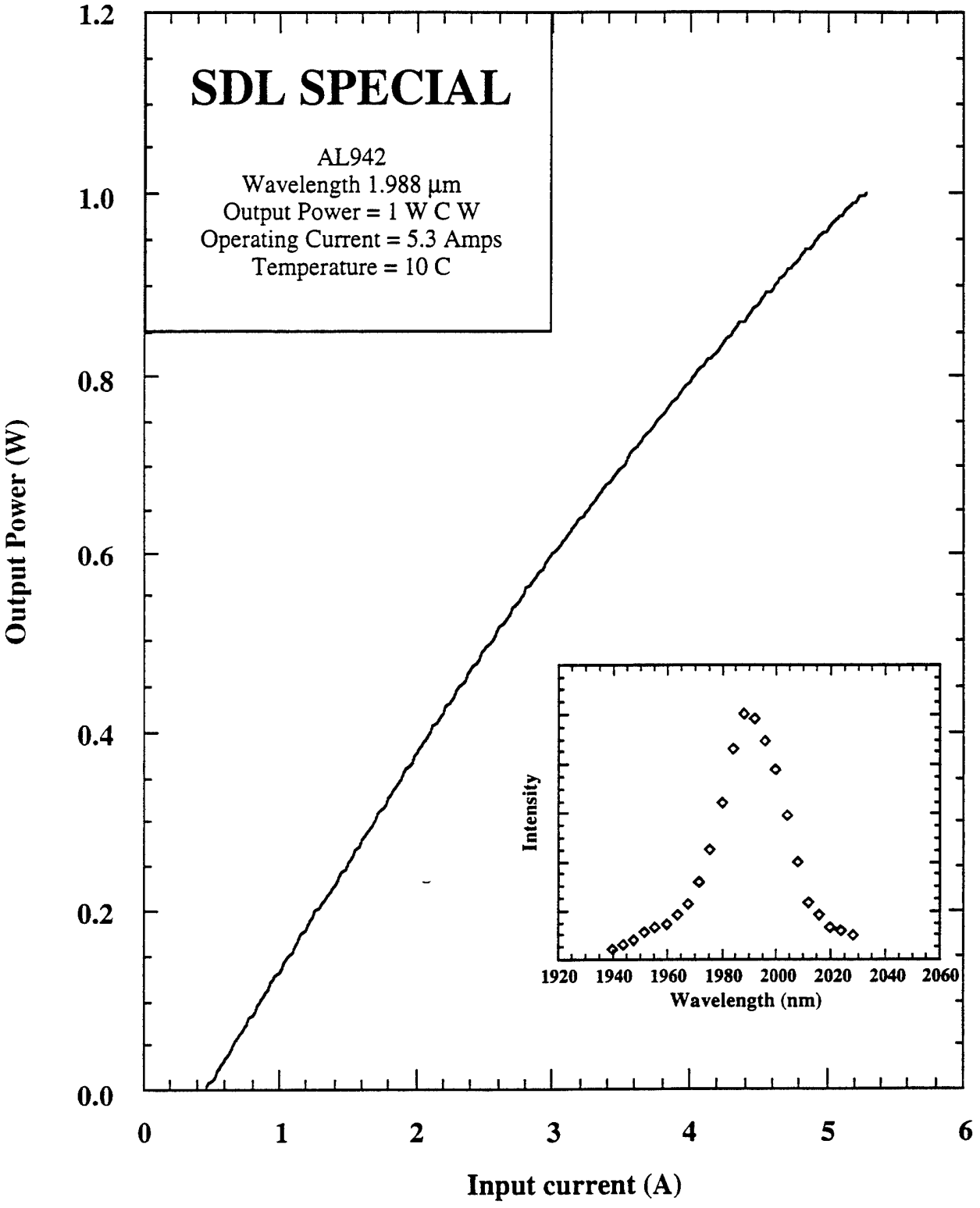
Control Range	0.1 to 20 µA/mW (mA/W)
Two Internal Ranges[2]	0.1 to 0.50 and 0.52 to 20 µA/mW
Resolution	0.02 µA/mW
Maximum Input Current	10 mA

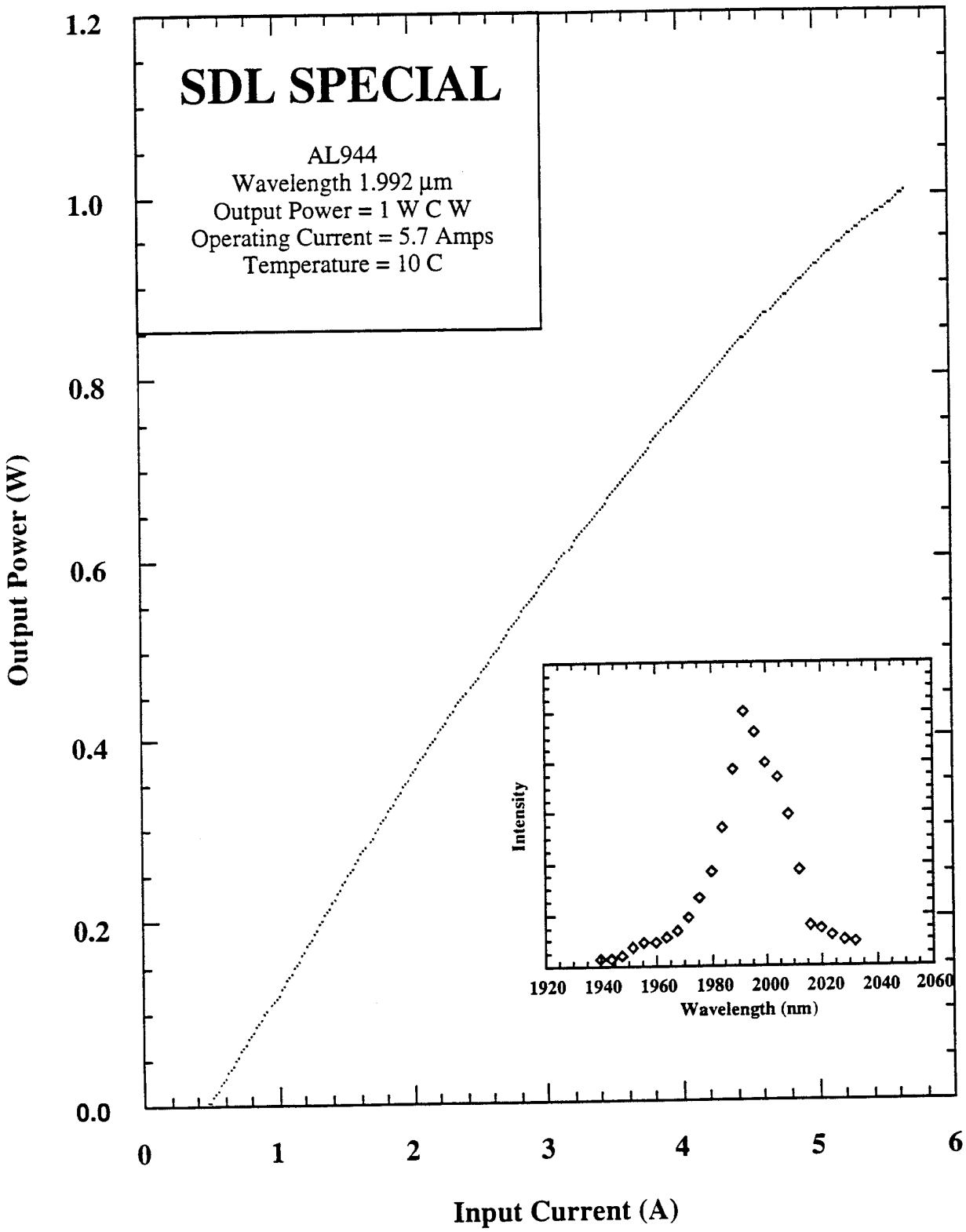
Current Limit

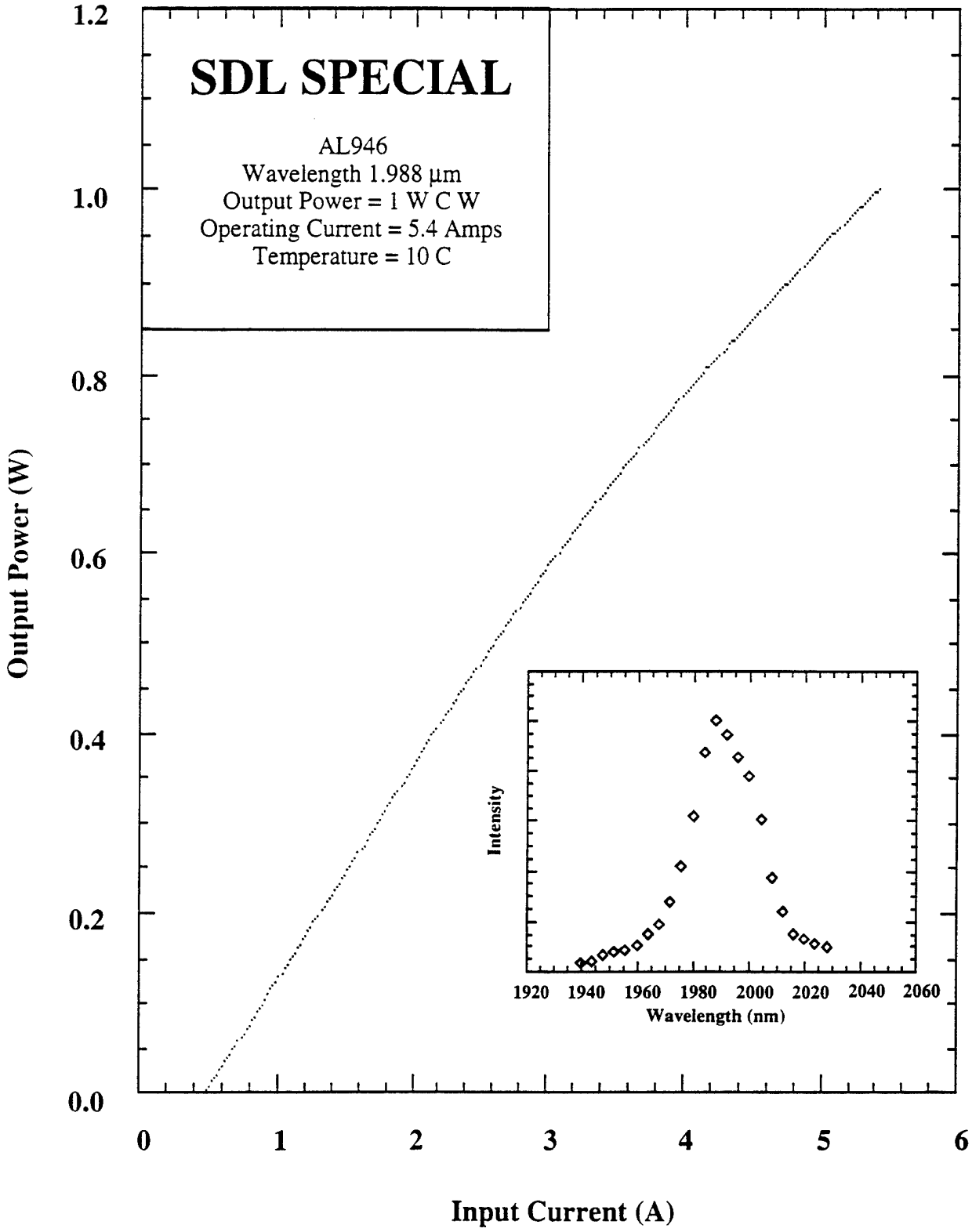
Range	0.25 to 10 A
Resolution (Accuracy[3])	0.01 A (± 0.02 A + 1% of reading)

Temperature Control

Actual/Setpoint Range	-20 to 40 °C
Reading Range	-25 to 50 °C
Resolution (Accuracy[4])	0.1 °C (± 1 °C)
Maximum Voltage Drive	10.5 V at connector, 10 V end of cable
Maximum Current Drive	5 A
TEC Drive Limit Range	0 to 10 V
Resolution (Accuracy)	0.01 V (± 0.02 V + 2% of setting)

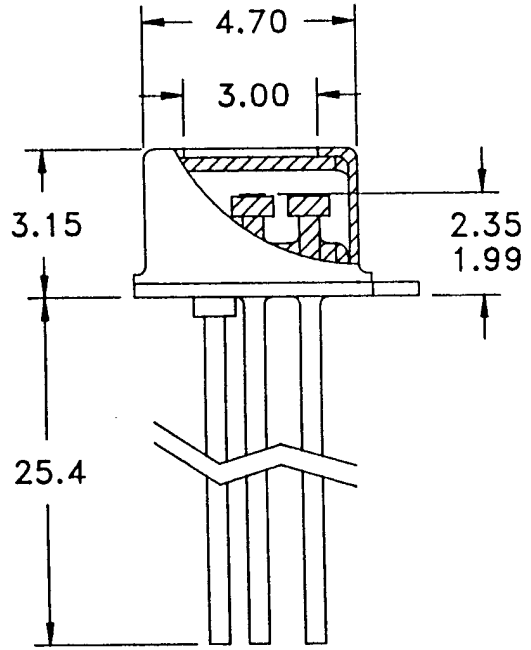

SDL SPECIAL
AL942
Wavelength 1.988 µm
Output Power = 1 W C W
Operating Current = 5.3 Amps
Temperature = 10 C
Output Power (W)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
6
Input current (A)
Intensity
1920
1940
1960
1980
2000
2020
2040
2060
Wavelength (nm)

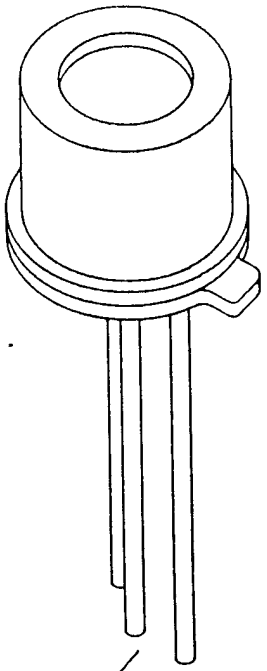

SDL SPECIAL
AL944
Wavelength 1.992 µm
Output Power = 1 W C W
Operating Current = 5.7 Amps
Temperature = 10 C
Output Power (W)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
6
Input Current (A)
Intensity
1920
1940
1960
1980
2000
2020
2040
2060
Wavelength (nm)


SDL SPECIAL
AL946
Wavelength 1.988 µm
Output Power = 1 W C W
Operating Current = 5.4 Amps
Temperature = 10 C
Output Power (W)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
6
Input Current (A)
Intensity
1920
1940
1960
1980
2000
2020
2040
2060
Wavelength (nm)

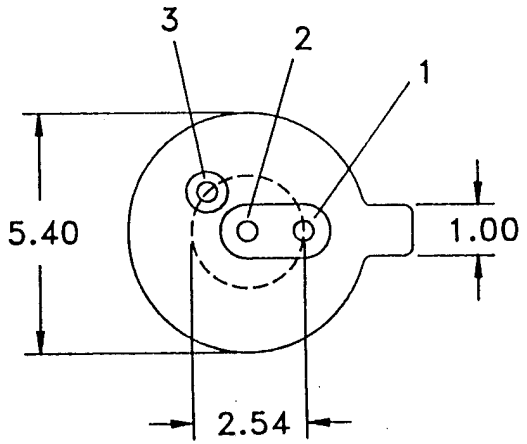
ETX 500T, ETX 1000T

All Dimensions in mm

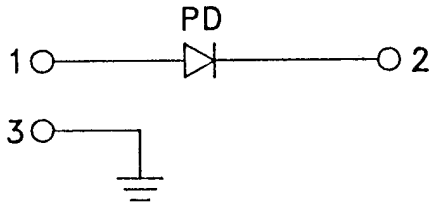




Leads
(0.42 mm O.D. Typ.)



Electrical Schematic



EPITAX
OPTOELECTRONIC DEVICES
7 Graphics Drive ▪ West Trenton, NJ 08628
TEL (609) 538-1800 ▪ FAX (609) 538-8122

Bibliography

1. Barnoski, Michael K., Fundamentals of Optical Fiber Communications, New York, Academic Press, Inc., 1976.

2. Cathey, W. Thomas, Optical Information Processing and Holography, New York, John Wiley and Sons, 1974.

3. Dereniak, Eustace L. and Crowe, Devon G., Optical Radiation Detectors, New York, John Wiley and Sons, 1984.

4. Demers, H. , Feldmann; R.J., Fisher, K.; Holt, K.; Mercer, L.; Sebald, P. "HAVE LACE" AFWAL-TR-87-1128, Air Force Wright Aeronautical Laborities.

5. Feldmann, R.J. "Evaluation of Hand Held Laser Communicators for Airborne Applications," SPIE Vol 1218 , January 1990

6. Fisher,K "Scattered-Light Test Airborne Receiver," AFWAL TM-86-04, March 1986

7 Gagliardi, Robert M. and Karp, Sherman, Optical Communications, New York, John Wiley and Sons, 1976.

8 Goodman, Joseph W., Introduction to Fourier Optics , New York, McGraw-Hill Book Co., 1968.

9 Goodman, Joseph W., Statistical Optics, New York, John Wiley and Sons, 1985.

10. Wilkins, G.D. "The Diffraction Limited Aperture of the Atmosphere and its Effects on Free Space Laser Communications,"NAECON 92 Proceedings, Vol 3, May 1992