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HELMET-MOUNTED DISPLAYS: A COMPUTER-ASSISTED ANALYSIS OF DAY-NIGHT VISUAL REQUIREMENTS

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FOR THE COMMANDER

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FOREWORD

Honeywell has conducted a computer-assisted analysis in order to predict the range of ambient luminance conditions under which Helmet Mounted Display (HMD) imagery can be usefully resolved by an observer. This report examines those variables relating to ambient luminance, display luminance, and the attenuation of each in terms of optimizing display contrast and minimizing differences in luminance to the two eyes.

Visual performance predictions were made based upon comparing the analytically-derived data with criteria values obtained from a limited number of technical reports. These criteria values were used even though it was recognized that the monocular see-through HMD is a unique system, thus limiting the applicability of data obtained from studies of related but still dissimilar systems such as head-up displays (HUDs) and occluded monocular HMDs.

Among the factors affecting the quality of the displayed imagery, those variables most crucial to display luminance and contrast were systematically varied on a computer. This was done to analytically determine those light attenuation-display luminance combinations that would yield the best visual performance across external luminances ranging from 1 foot-Lambert to 10,000 foot-Lamberts. The independent variables that were manipulated were:

1) V_x = Visor transmittance

2) L_D = Display luminance (at the observer's eye position)

3) B_x = Beamsplitter transmittance (that portion of the visor that reflects the CRT image back to the eye)

The study results are presented here in both figures and tables. Appendix A contains the raw data from the computer runs. The reader is cautioned to use the data presented herein for guidance only. Firm design decisions should be based upon the results of empirical studies conducted at the Honeywell Vision Research Laboratory. These will be published in a separate report.

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SECTION I
INTRODUCTION

BACKGROUND

The Helmet Mounted Display (HMD) is a unique display system that projects a collimated cathode ray tube (CRT) image onto a partially reflective beamsplitter. While the HMD has been mechanized in a number of different configurations, the following characteristics are typical of recent "project-on-visor" displays and illustrate problems affecting all HMDs. The beamsplitter reflects approximately 90 percent of the display luminance projected to it, and also transmits approximately 7 percent of the light from the outside world so that the observer can see through the display. It is mechanized as a thin metallic film, vacuum-deposited over one eye on a helmet visor of uniform density which transmits approximately 14 percent of the external light to both eyes. Thus the two eyes are exposed to differing luminance levels.

A significant problem in the design of HMDs is the control of this interocular differential which varies as a function of ambient luminance, display luminance, visor transmittance, and beamsplitter reflectance/transmittance. These four variables, if properly optimized, will allow the observer to see his display against background luminance conditions ranging from 10,000 foot-Lamberts in bright sunlight at high altitudes, to cockpit lighting levels during night operations of 10 foot-Lamberts. Table 1 summarizes some representative luminance values which can be expected to occur in the operational environment of the airborne HMD.

This study provides data which have not been developed either analytically or empirically by previous investigators. Other studies of luminance and contrast requirements have been performed for Head-up Displays (Kelley et al., 1965) and a limited investigation of HMD requirements was conducted

Table 1. Representative Luminance Values

Condition	Luminance (Ft.-L.)	Reference
"Average" CRT under night flying conditions	10	Webb, 1964
Average earth on a cloudy day	100	VanCott and Kinkade, 1972
Average sky 60° above horizon	600	Christensen, 1946
Average earth on a clear day	1000	VanCott and Kinkade, 1972
Average sky 30° above horizon	1250	Christensen, 1946
Representative luminance of clear sky	3000	Ketchel, 1967
Average sky at 15,000 feet	7000	Ibid. 1967
Average luminance above cloud level (30,000 feet)	10,000	Semple, et al., 1971

(Jacobs et al., 1971). However, the present study represents the first systematic evaluation of 480 possible combinations of display luminance, background luminance, and light attenuation variables expressed in terms of anticipated visual performance. These predictions are intended to be used in conjunction with empirical results obtained from a study, conducted at the Honeywell Vision Research Laboratory, which has looked at the same variables under systematically controlled laboratory conditions. As HMD design concepts continue to evolve, we intend that the data provided herein and in the laboratory-based study will be used as guidelines in establishing optical system design criteria.

STATEMENT OF THE PROBLEM

The wide ranges of background luminance to which the operator is exposed produce a variety of problems unique to "see-through displays." High ambient

luminance tends to "wash out" the displayed imagery unless extensive filtering is used to improve the contrast between display and backgrounds. If the filtering reduces the transmission of the visor too much, the pilot is unable to see the outside world when ambient luminance is reduced. For example, if a pilot were flying above white clouds into the sun at high altitudes (10,000 foot-Lamberts ambient luminance) and descended through the clouds into an overcast environment (1000 foot-Lamberts), ambient luminance would decrease by 90 percent, and if his HMD were incorrectly designed, he would essentially be flying blindfolded.

Another way to increase display contrast is to reduce beamsplitter transmission. If carried to the extreme, this approach occludes the view of the ambient scene by one eye. In this case four related problems occur:

1) The pilot sees different things with each eye

2) With high external luminance and low display luminance, the amount of light presented to the display eye is considerably less than that presented to the other eye. Although display contrast may be sufficient to allow the display to be seen, the non-display eye becomes dominant and the pilot may find it difficult (if not impossible) to fix his attention on the display. The effect is compounded by decreasing ambient luminance. As external luminance decreases, the interocular luminance difference also decreases until the net luminance to the display eye is significantly higher than that to the non-display eye. The display eye becomes dominant and the observer may have difficulty in fixing his attention on the ambient scene.

3) Loss of external vision in the display eye combined with structural obstructions in cockpit can dangerously reduce the pilot's view of the world. This is particularly true in the F106 where the longitudinal wind-screen baffle splits normal vision and thus requires unobstructed vision for each eye separately.

4) A problem of particular difficulty to the helmet mounted display, which necessarily must use very small cathode ray tubes, is the limited luminance available from these tubes. Where other see-through displays such as "HUDs", with fewer limitations on weight and volume may be able to overpower the ambient brightness, the HMD must achieve readability by other means. The design of HMDs is thus more difficult than other types of displays.

SECTION II
VARIABLES AFFECTING VISUAL PERFORMANCE

INDEPENDENT VARIABLES

Under ideal conditions, we would like to maximize the contrast of the HMD-displayed imagery and at the same time deliver equal amounts of light energy to the two eyes. To do this we must recognize that the visor-transmitted light going to both eyes, and the CRT imagery going to the display eye must be modulated in some fashion in order to permit acceptable visual performance under a wide variety of background luminance conditions. Figure 1 represents the manner in which this modulation occurs. Here, ambient light, which can be expressed in terms of background luminance (L_B) reaches the observer's eyes by passing through the helmet visor. The visor, in turn, reduces the amount of incoming light by only transmitting a portion of the light. This attenuation is expressed in terms of visor transmittance (V_x). The resultant visor transmitted light (B_v) is equal to the product of(L_B)(V_x). Thus,

$$B_v = (L_B)(V_x). \qquad (1)$$

The visor-transmitted light than goes to the non-display eye without further attenuation. The visor has a partially reflective, partially transmissive combining or "beamsplitter" surface in front of the display eye that further reduces the incoming light. This reduction is expressed in terms of beamsplitter transmittance (B_x). The net background luminance on the beamsplitter (B_B) is equal to the product of B_x and the visor transmitted light, that is,

$$B_B = (B_v)(B_x) \qquad (2)$$

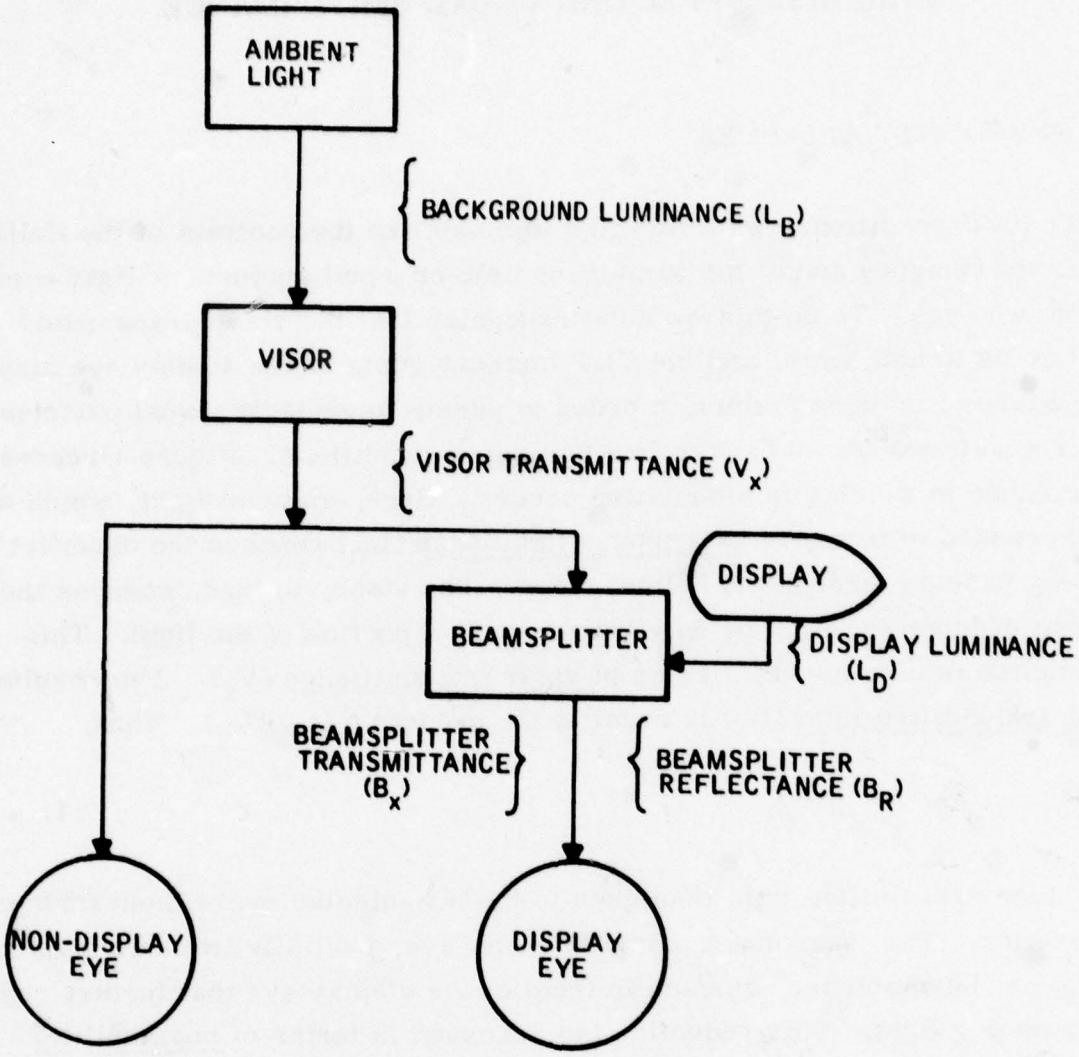


Figure 1. Block Diagram of Independent Variables Which Influence HMD Luminance and Contrast

The beamsplitter, in addition to reducing visor-transmitted light, also reflects the light projected to it from the face of the CRT display to the observer's display eye. The amount of display luminance (L_D) transmitted to the observer is a function of how much of the display energy is reflected from the posterior surface of the beamsplitter, how much is transmitted through the anterior surface of the beamsplitter, and how much is absorbed by the beamsplitter. It was assumed that absorption (which typically amounts to 1-2 percent) could be ignored to help simplify the present analysis. Since the sum of beamsplitter transmittance (B_x) and beamsplitter reflectance (B_R) was assumed to equal unity, i.e., $B_x + B_R = 1$, than it follows that:

$$B_R = 1-B_x \tag{3}$$

Therefore, the net display luminance on the beamsplitter (B_D) is equal to the product of display luminance and beamsplitter reflectance, i.e.,

$$B_D = (L_D)(B_R) \tag{4}$$

Since the beamsplitter combines the visor-transmitted light and the display-transmitted light, Equation (4) only applies when no external light is transmitted through the beamsplitter. This represents the occluded monocular display where $B_x = O$. The more general case addressed by the present study is that of the see-through monocular display where $B_x > O$. In this case, total light energy transmitted to the display eye consists of the net background luminance on the beamsplitter (B_B) plus the display luminance reflected from the posterior surface of the beamsplitter, and:

$$B_D = (L_D)(B_R) + B_B \tag{5}$$

In summary then, there are four major independent variables that were systematically varied in the present study. They are:

1) Background luminance = L_B

2) Visor transmittance = V_x

3) Beamsplitter transmittance = B_x

4) Display luminance = L_D

These, in turn, are used to derive the following:

1) Visor-transmitted light = $B_v = (L_B)(V_x)$

2) Net Background luminance on the beamsplitter = $B_B = (B_v)(B_x)$

3) Beamsplitter reflectance = $B_R = 1-B_x$

4) Net Display luminance on the beamsplitter = $B_D = (L_D)(B_R)$
where $B_x = O$ and

5) $B_D = (L_D)(B_R) + B_B$ where $B_x > O$

DEPENDENT VARIABLES

Given selected values of L_D, B_x, V_x, and L_B, Equations (1) through (5) were then used to predict human visual performance in terms of two major dependent variables, viz., Display Contrast, and Interocular Luminance Differences.

Contrast, which is an expression of the relative luminance of a figure with respect to the luminance of its background, is usually given in the form of a ratio. Typically, the two luminance values are independent so that the figure may be brighter or darker than its surround. There are a number of ways of expressing contrast, but the most common is to express it as the proportional increase in overall luminance contributed by the figure, i. e.,

$$\text{contrast} = \frac{L_{\text{figure}} - L_{\text{background}}}{L_{\text{background}}} \qquad (6)$$

The resultant contrast, which is usually expressed as a percentage, can vary from 0 to 100 percent for figures darker than their backgrounds, and from 0 to ∞ for figures lighter than their backgrounds. Classical contrast studies, such as those of Blackwell (1946) and Carel (1965) have concentrated on this type of contrast expression. Another way of expressing contrast is in terms of contrast modulation which has been defined (Van Nes and Bouman, 1967) as

$$C = \frac{B_{max} - B_{min}}{B_{max} + B_{min}} \qquad (7)$$

where B_{max} is the highest luminance value of the display and B_{min} is the lowest. Equation (7) is another way of expressing the ratio of the incremental change in luminance to the average luminance, i.e.,

$$C = \frac{\Delta L}{\bar{L}} \qquad (8)$$

which is analogous to the familiar "Weber Fraction", $\frac{\Delta S}{S}$ (Kling and Riggs, 1971) used to psychophysically express the ratio of the minimal noticeable difference in stimulus intensity to the average stimulus intensity.

With a see-through display, the display luminance will always be greater than the background luminance so that using Equation (6), the contrast values obtained in the present study could take any value between zero and infinity. To make the data compatible with contrast values used in engineering specifications for CRT displays, however, it was decided that all contrast values in the present study should be expressed in terms of contrast modulation (Equation 7). It was also pointed out[1] that any Equation (6) contrast value (C_D) could be converted to modulation contrast (C_M) by the equation

[1] H. L. Task, Private Communication, May 8, 1973.

$$C_D = \frac{2\,C_M}{1-C_M} \qquad (9)$$

To derive contrast for the see-through HMD, it is necessary to know both the maximum and minimum luminances of the display that could be obtained given a fixed value of L_B, L_D, B_x, and V_x. Given these maximum and minimum luminances, the resulting contrast is now the maximum possible contrast (C_{max}). By definition, the maximum luminance would be transmitted when maximum net background luminance is combined with maximum display luminance on the inner (posterior) surface of the beamsplitter. Thus, maximum luminance would be equal to B_D. Minimum luminance, on the other hand would be the net background luminance alone, B_B, and

$$C_{max} = \frac{B_D - B_B}{B_D + B_B} \times 100^1 \qquad (10)$$

Thus, for any combination of values assigned to the independent variables, it is now possible to compute C_{max}. This is precisely what was done in the present study.

The introduction to this report points out that display contrast was one of two considerations of critical importance to monocular see-through HMD design. The other important consideration is the net luminance finally transmitted to each eye. For any given combination of independent variables, the maximum luminance transmitted to the display eye is B_D, which is the sum of reflected display luminance and transmitted external luminance. On the other hand, for the same combination of independent variables, the maximum luminance transmitted to the non-display eye is B_v, which is the visor-transmitted light.

Various combinations of L_D, B_x, V_x, and L_B produce situations in which B_D and B_v are equal, or at least close enough in luminance for the observer not to feel an effect. Thus, if C_{max} is high enough for the observer to comfortably

[1] C_{max} is expressed as a % value.

see the display, and B_D is close to B_v, then we have a reasonably good visual environment, and optimum visual performance would be anticipated. On the other hand,if B_D and B_v differed greatly, even an ideal C_{max} value would not guarantee optimum visual performance. Presumably, differences in luminance would lead to such phenomena as "binocular rivalry" (Cohen and Markoff, 1972) where the observer's attention would alternate from one eye to the other and he would be unable to maintain constant attention with one eye. Similarly, if the interocular luminance difference were great enough, alternation would give way to "suppression" and the dimmer field of view would not be seen at all. Such a situation could be particularly bad in the air-to-air combat situation where a highly occluded and bright display might completely suppress a pilot's vision with his non-display eye and he would be essentially flying blind. The most convenient expression for the difference in luminance to the two eyes is the interocular luminance difference ratio (B_Δ) which is the ratio of B_D to B_v, i.e.,

$$B_\Delta = \frac{B_D}{B_v} \tag{11}$$

Thus when $B_\Delta = 1$, the two eyes would be receiving equal light energy. When $B_\Delta > 1$ more luminance would be transmitted to the display eye, and the reverse situation would occur when $B_\Delta < 1$.

VISUAL PERFORMANCE CRITERIA

A previous section of this report points out that there is a minimum value of C_{max}, below which the display would be so degraded or "washed out" that effective visual performance could not be reliably obtained. Similarly, there are values of B_Δ which will produce unacceptable visual performance if exceeded. The determinations of acceptable levels of both C_{max} and B_Δ, were done for the present study using the best data available from previous research. Unfortunately, the see-through monocular HMD is a unique system, and data directly applicable to it are almost non-existent.

Table 2 summarizes results from two studies of the Head-up Display (HUD). Since the HUD is a see-through display, many of the comments applicable to the HMD are applicable for the display eye only. Nevertheless, it was decided that the criterion of "comfortable viewing" established by Kelley, et al. (1965) would provide a conservative estimate of the acceptability of various combinations of the independent variables. Therefore, C_{max} = 23% was chosen as the lower cutoff point for seeing an image projected on the beamsplitter against a background of beamsplitter-transmitted light.

Table 2. C_{max} Requirements

Criterion	Standard Combiner	Trichroic Combiner
• Comfortable[1] viewing	23%	6%
• 99% Threshold[2] acuity (1 mil)	12%	--
• 90% Threshold[2] acuity (1 mil)	9%	--
• 90% Threshold[1] perception of pointer position	5%	2%

[1]Kelley, Ketchel, and Strudwick, 1965

[2]Carel, 1965 (based on data from Blackwell, 1946)

Determining an acceptable set of upper and lower B_Δ limits was a bit more difficult. Ideally, B_Δ = 1.0 would be a good criterion value against which to evaluate anticipated visual performance. However, B_Δ = 1 occurs only under a few circumstances (e.g., L_D = 25 foot-Lamberts, B_x = 4 percent, V_x = 25

percent, and L_B = 100 foot-Lamberts). Therefore, it would be unrealistic to conclude that one and only one value of B_Δ would be acceptable, since no previous research has specifically addressed the problem of interocular differences in luminance with a monocular see-through HMD. The only study at all relevant was that of Jacobs et al., (1971) who found "marked retinal rivalry effects" (pp. 62) with an occluded display with L_D = 20 foot-Lamberts and L_B = 8000 foot-Lamberts. Since they used an occluded, side-mounted display, $L_D = B_D$ and $L_B = B_v$, therefore $B_\Delta = \frac{L_D}{L_B} = \frac{20}{8000} = 0.0025$.

Based on this finding, it could be concluded that B_Δ was unacceptable if <0.0025, or if $B_\Delta > 400$ (i.e., $\frac{8000}{20}$). Jacobs et al., (1971) found, however, that a 1 percent transmission filter over the non-display eye "allowed subjects to gain satisfactory information from the HMD (and) rivalry was considerably reduced -- " (pp. 62). What this finding meant to the present study was that a nominally "satisfactory" B_Δ had been found, namely $\frac{20}{(8000)(0.01)} = \frac{20}{80} = 0.25$ when $B_D < B_v$ and 80/20 = 4.00 when $B_D > B_v$.*

This range of B_Δ values between 0.25 and 4.00 were chosen as the upper and lower cutoff points for an acceptable B_Δ; but, it must be recognized that these values are based on some very broad assumptions. Hopefully, they represent conservative values so that the data in the present study will probably not result in a system that will induce binocular rivalry.

In summary, any combination of L_D, B_x, V_x, and L_B that results in a C_{max} < 23 percent or a $0.25 > B_\Delta > 4.00$ would not be acceptable from the standpoint of visual performance.

---

*It has been assumed that the same degree of binocular rivalry would exist if the inputs were switched from one eye to the other.

SECTION III
METHOD

TEST CONDITIONS

Section II of this report identified the following independent variables as crucial to visual performance with a see-through, monocular HMD:

1) L_B (background luminance)

2) L_D (display luminance)

3) V_x (visor transmittance)

4) B_x (beamsplitter transmittance)

Representative values (levels) of each independent variable were then selected and these levels were systematically varied against each other on a computer (SDS Model 9300) using the program shown in Appendix A. The levels used in the present study were as follows:

1) L_B: 10 foot-Lamberts, 100 foot-Lamberts, 1000 foot-Lamberts, and 10,000 foot-Lamberts (10^1, 10^2, 10^3, and 10^4 foot-Lamberts.

2) L_D: 25 foot-Lamberts, 50 foot-Lamberts, 100 foot-Lamberts, 200 foot-Lamberts, and 400 foot-Lamberts.

3) V_x: 13 percent, 25 percent, 50 percent, and 100 percent ("Clear").

4) B_x: 2 percent, 4 percent, 8 percent, 25 percent, 50 percent, and 75 percent.

JUSTIFICATION OF LEVELS EVALUATED

The independent variables and their associated levels produced 4 x 5 x 4 x 6 = 480 possible combinations. The levels used were chosen for the following reasons:

1) The upper and lower L_B values represented the likely upper and lower background luminances against which the HMD would be used. The upper represented a 30,000-foot altitude above white clouds reflecting sunlight (Semple et al.,1971, pp. 448) and the lower represented average cockpit instrument luminance under low ambient illumination conditions (Webb, 1964, pp. 310). The intermediate values were chosen because of their exponential relationship to the end point values and the ease with which such values could be plotted on logarithmic graph paper.

2) The display luminance value of 400 foot-Lamberts was chosen because it is anticipated that such a tube brightness may someday become operational with a realistic tube life expectancy. The 25 foot-Lambert lower limit is also realistic because occluded displays presently use L_Ds of approximately this magnitude (Jacobs et al., 1971, pp. 2). The intermediate values were chosen because of their direct linear relationship to the two limit values. Also, it should be pointed out that each value below 400 represents a 50 percent light loss which is the approximate magnitude of loss that occurs using a fiber optic bundle to transmit CRT imagery to the observer's eye.

3) The 13 percent V_x is representative of the "standard" Air Force visor which varies in transmittance between 12 percent and 15 percent. The "clear" (100 percent V_x) visor was chosen to evaluate maximum visor transmitted light. The intermediate

V_x values represent a doubling of each previous value for convenience in plotting the final results.

4) The 8 percent B_x has frequently been considered in conjunction with the 13 percent visor because it produces approximately 1 percent beamsplitter transmitted light. Evaluating such a combination is therefore very important. The other values of B_x were chosen so that a wide latitude of possible conditions could be explored.

PREDICTIONS OF VISUAL PERFORMANCE

C_{max} and B_Δ were computed for each of the 480 combinations of the independent variables. Computations were based on Equations (10) and (11). The resultant estimates were then compared to the visual performance criteria, i.e.:

$$C_{max} \geq 23\%$$

and

$$0.25 < B_\Delta < 4.00$$

Those values of L_D, V_x, and B_x that met the criteria for all levels of background luminance (L_B) were considered acceptable design parameters for the HMD.

A NUMERICAL EXAMPLE

Assume:

L_B = 10,000 foot-Lamberts

L_D = 50 foot-Lamberts

V_x = 50 percent

B_x = 2 percent

Solve for:

$\underline{B_v} = (L_B)(V_x) = (10,000)(0.5) = \underline{5000 \text{ foot-Lamberts}}$ (Equation 1)

$\underline{B_B} = (B_v)(B_x) = (5000 \text{ foot-Lamberts})(0.02) = \underline{100 \text{ foot-Lamberts}}$ (Equation 2)

$\underline{B_R} = 1 - B_x = 1 - 0.02 = \underline{0.98}$ (Equation 3)

$B_D = (L_D)(B_R) + B_B = (50 \text{ foot-Lamberts})(0.98) + 100 \text{ foot-Lamberts}$

$= \underline{149 \text{ foot-Lamberts}}$ (Equation 5)

Then solve for:

$$\underline{C_{max}} = \frac{B_D - B_B}{B_D + B_B} = \frac{49 \text{ foot-Lamberts}}{249 \text{ foot-Lamberts}} = 19.68 \text{ percent (Equation 10)}$$

and

$$B_A = \frac{B_D}{B_v} = \frac{149 \text{ foot-Lamberts}}{5000 \text{ foot-Lamberts}} = 0.03 \text{ (Equation 11)}$$

The resultant C_{max} = 19.68 percent falls below the minimum cutoff point for acceptable contrast, but only by a small amount so that the image could probably be seen, but at the expense of viewer comfort (see Table 2). On the other hand, B_{Δ} is far below the minimum acceptable cutoff of 0.25. In fact, the nondisplay eye would experience over 33 times as much light energy as the display eye.

Changing the levels slightly, e.g., increasing B_x from 2 percent to 25 percent results in an acceptable B_{Δ} (0.26) but an even more unacceptable C_{max} of 1.48 percent. If, however, background luminance is reduced to 100 foot-Lamberts, then C_{max} and B_{Δ} turn out to be a very acceptable 60 percent and 1.00, respectively. Thus, this combination of B_x, V_x, and L_D would produce acceptable visual performance, but not for the entire range of day-night luminance conditions the present study has addressed.

SECTION IV
RESULTS

CALCULATIONS OF RESULTS

Appendix A contains the printout of the computer run in which all levels of L_D, L_B, V_x, and B_x were varied. Examining these output data reveals a great deal of information about various combinations of the independent variables. For example, in addition to C_{max} and B_Δ, absolute contrast (C_{ABS}) and shades of Gray (SOG) have also been computed. The former is a contrast expression based on Equation (6) and produces values that can range from zero (no contrast between figure and background, i.e., $B_D = B_B$) to infinity (no background luminance transmitted, i.e., $B_B = 0$). "Shades of gray" is an expression of CRT brightness contrast used by the television industry. Levine et al.(1969) has defined a shade of gray as being $\sqrt{2}$ times brighter than the preceding brightness level and is related to C_{max} in that the number of shades of gray = N+1, where

$$N = \frac{\log_{10} \frac{(1+C_{max})}{(1-C_{max})}^{1}}{\log_{10} \sqrt{2}} \qquad (12)$$

C_{ABs} and SOG have been included in the analyses but have not, however, been employed in evaluating the various combinations of dependent variables, since it was felt that C_{max} and B_Δ provided a more understandable approach to predicting visual performance.

[1] Personal communication, H. L. Task USAF (AMRL), December 1972.

CURVES OF EXPECTED VISUAL PERFORMANCE

Appendix A data were used to generate two types of curves:

1) C_{max} as a function of B_v for all combinations of B_x and L_D. (See Figures 2 through 10.)

2) $\hat{B}$ as a function of B_v for all combinations of B_x and L_D. (See Figures 11 through 19.)

It should be noted that Figures 2 through 5 and 11 through 14 utilize display luminance (L_D) values of less than 25 foot-Lamberts. These values are valid, but were obtained during earlier computer runs. They have been included in the performance curves, however, to provide some additional basic data for the case of the relatively dim CRT.

To use these curves, two sets of loose transparent templates have been included with this report. One set is used to predict visual performance in terms of C_{max} for L_B conditions ranging from 10 to 10,000 foot-Lamberts. The other set is used to predict visual performance in terms of $\hat{B}$ for the same range of L_B values. Each set consists of five templates, each template corresponding to a different visor transmittance (V_x).

To use the C_{max} curves, select the C_{max} template having the desired V_x printed on it. Select the set of C_{max} curves (Figures 2 through 10) having the desired level of display luminance printed on it. Lay the template over the curves by carefully lining up the index marks with the side and bottom margins of the curves. Those curves (each corresponding to a different value of B_x) passing above and to the right of the upper of the two lines on the template define a B_x, V_x, L_D combination that will produce a "comfortable" level of C_{max} for all levels of background luminance considered (i.e., 10^1 to 10^4 foot-Lamberts). Those passing above and to the right of the bottom line only, produce a display that can be seen, but not without observer discomfort.

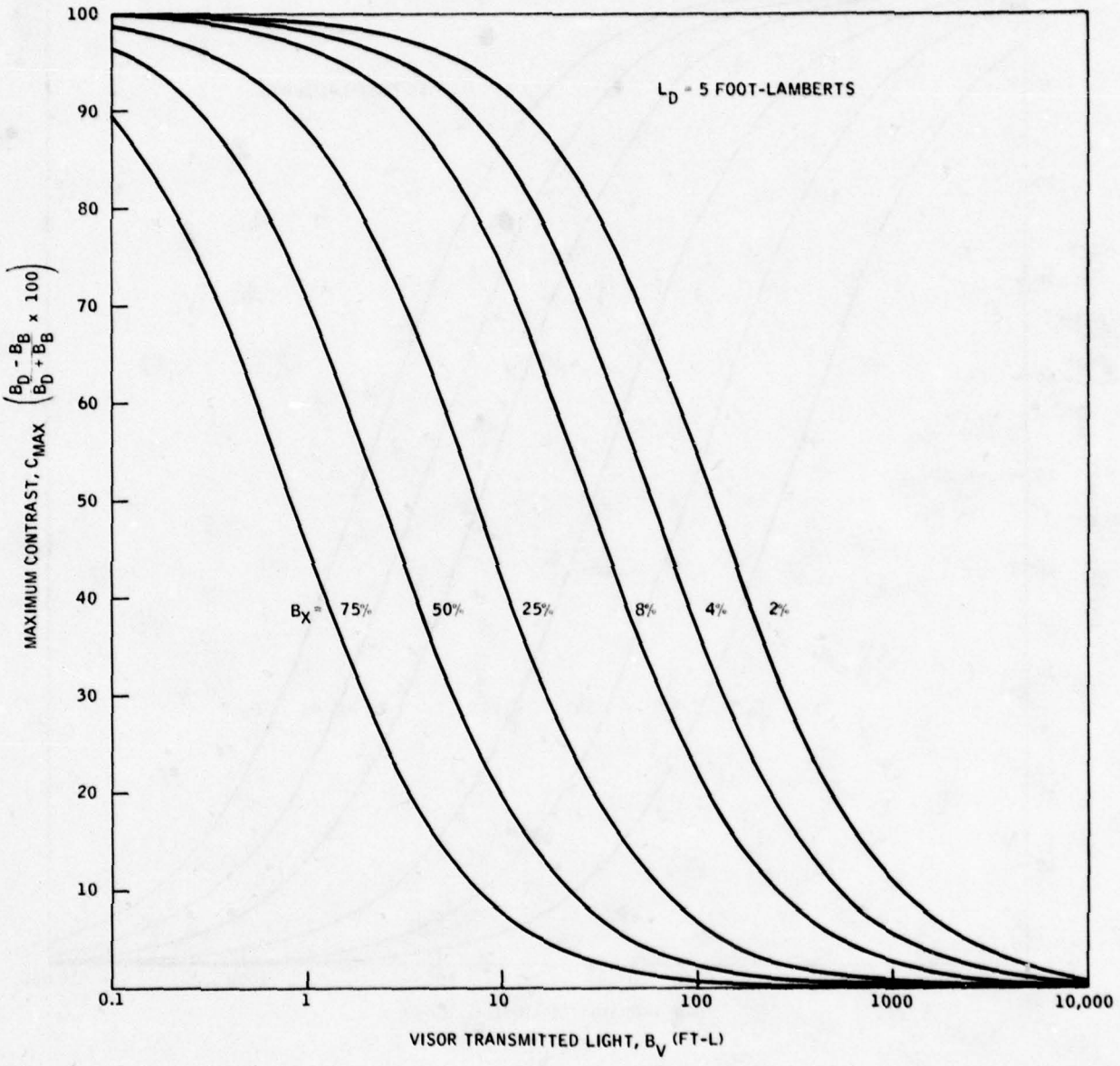


Figure 2. C_{max}, When L_D = 5 Foot-Lamberts

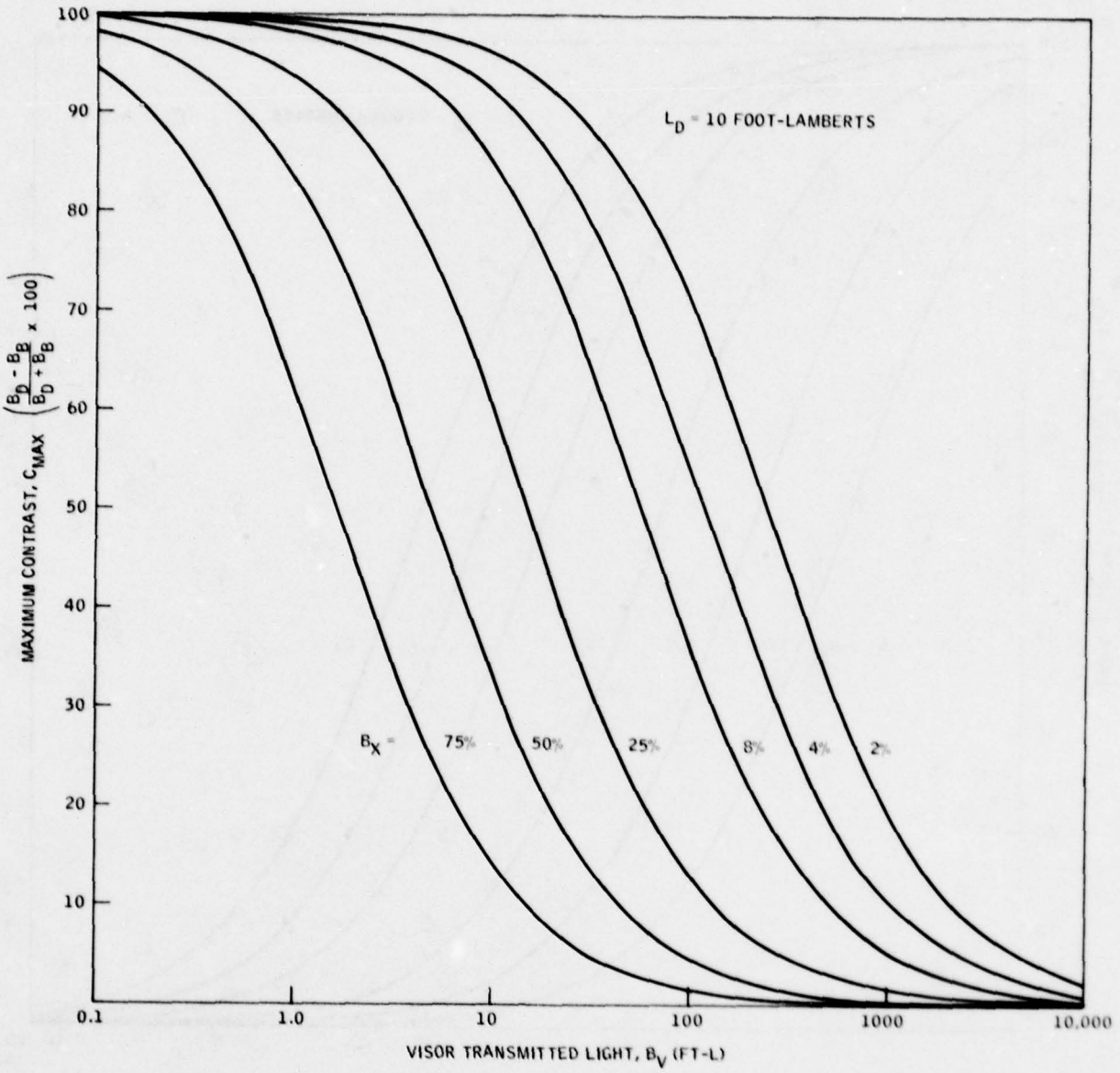


Figure 3. C_{max}, When L_D = 10 Foot-Lamberts

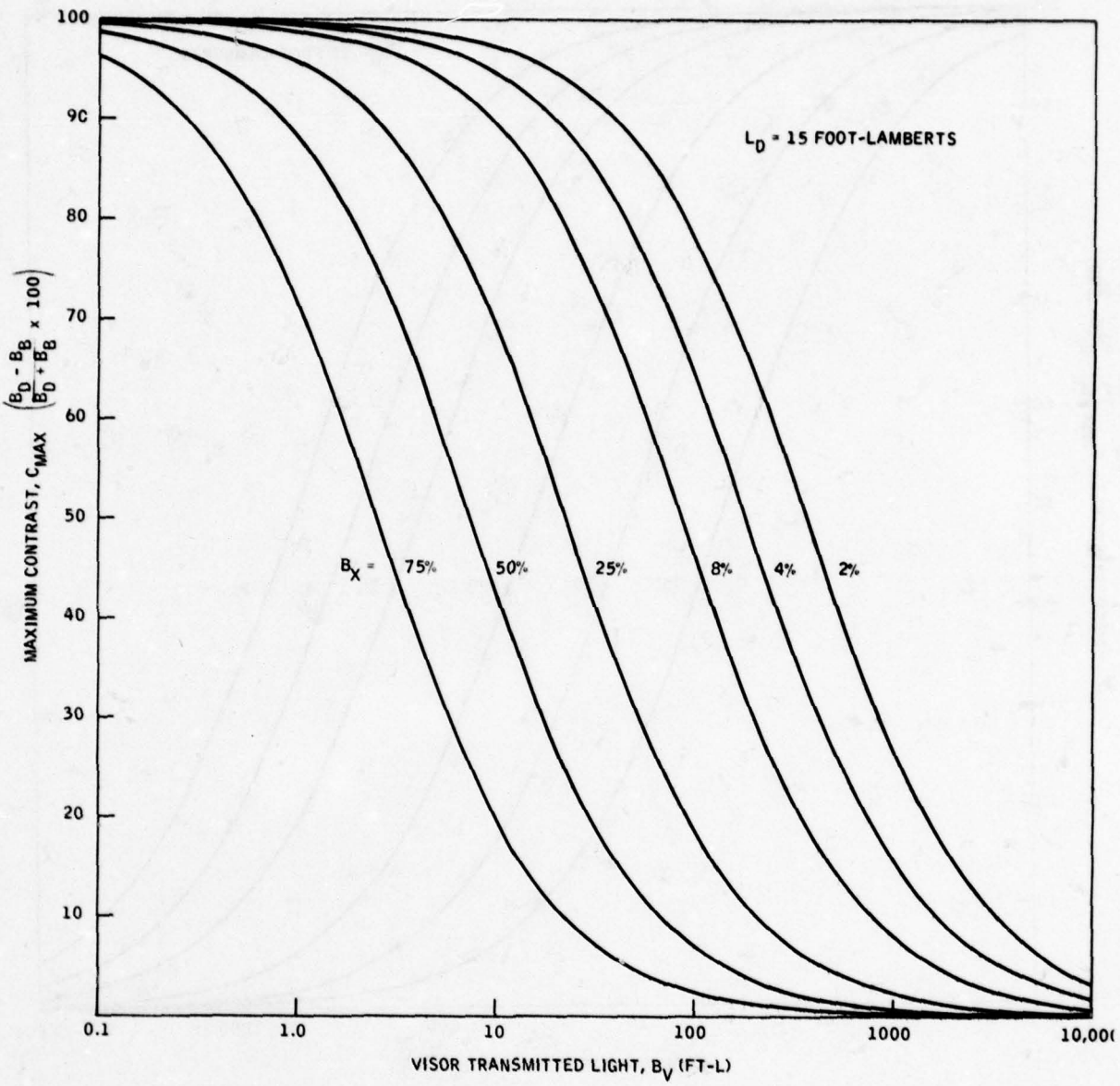


Figure 4. C_{max} , When L_D = 15 Foot-Lamberts

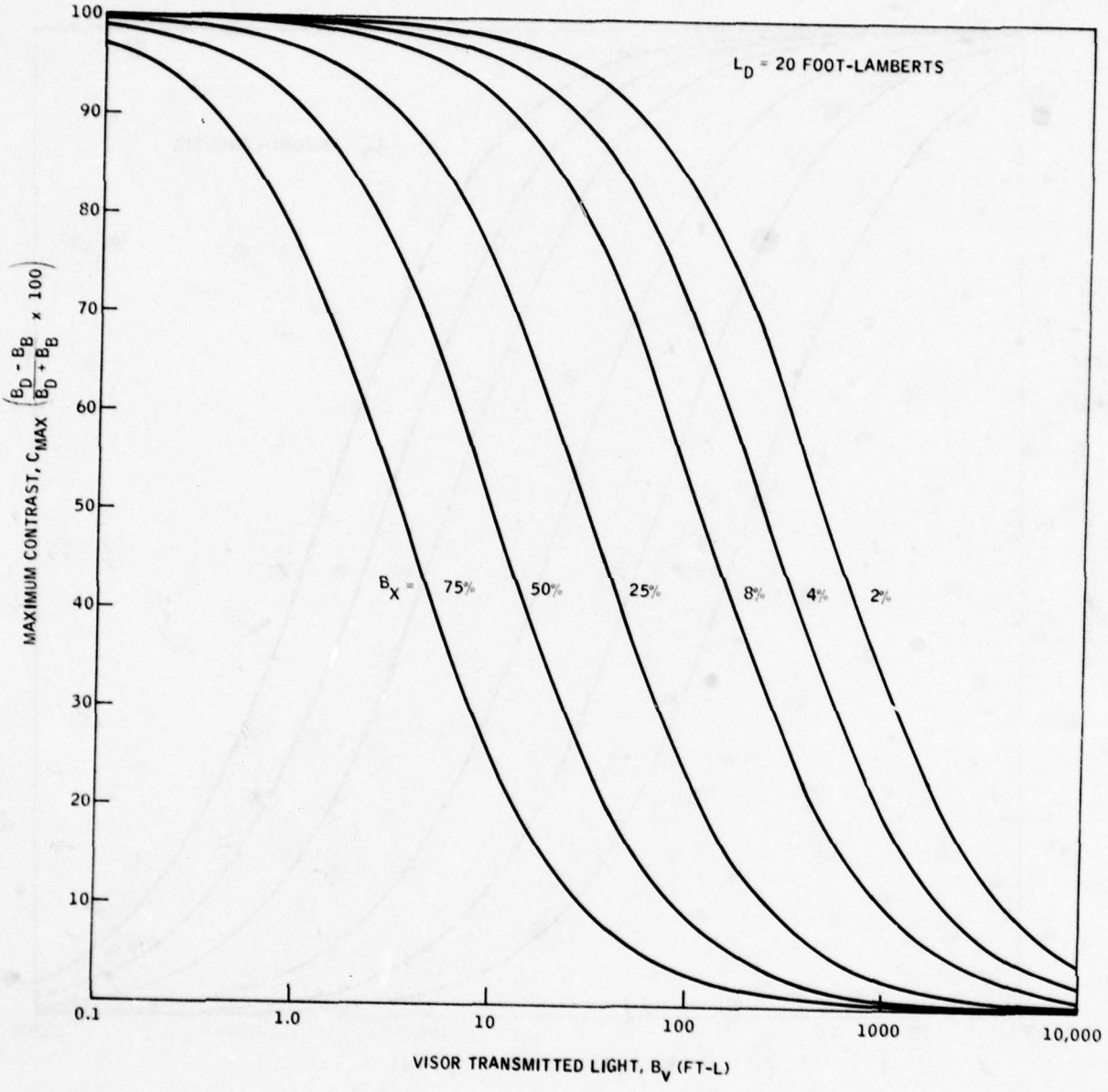


Figure 5. C_{max} , When L_D = 20 Foot-Lamberts

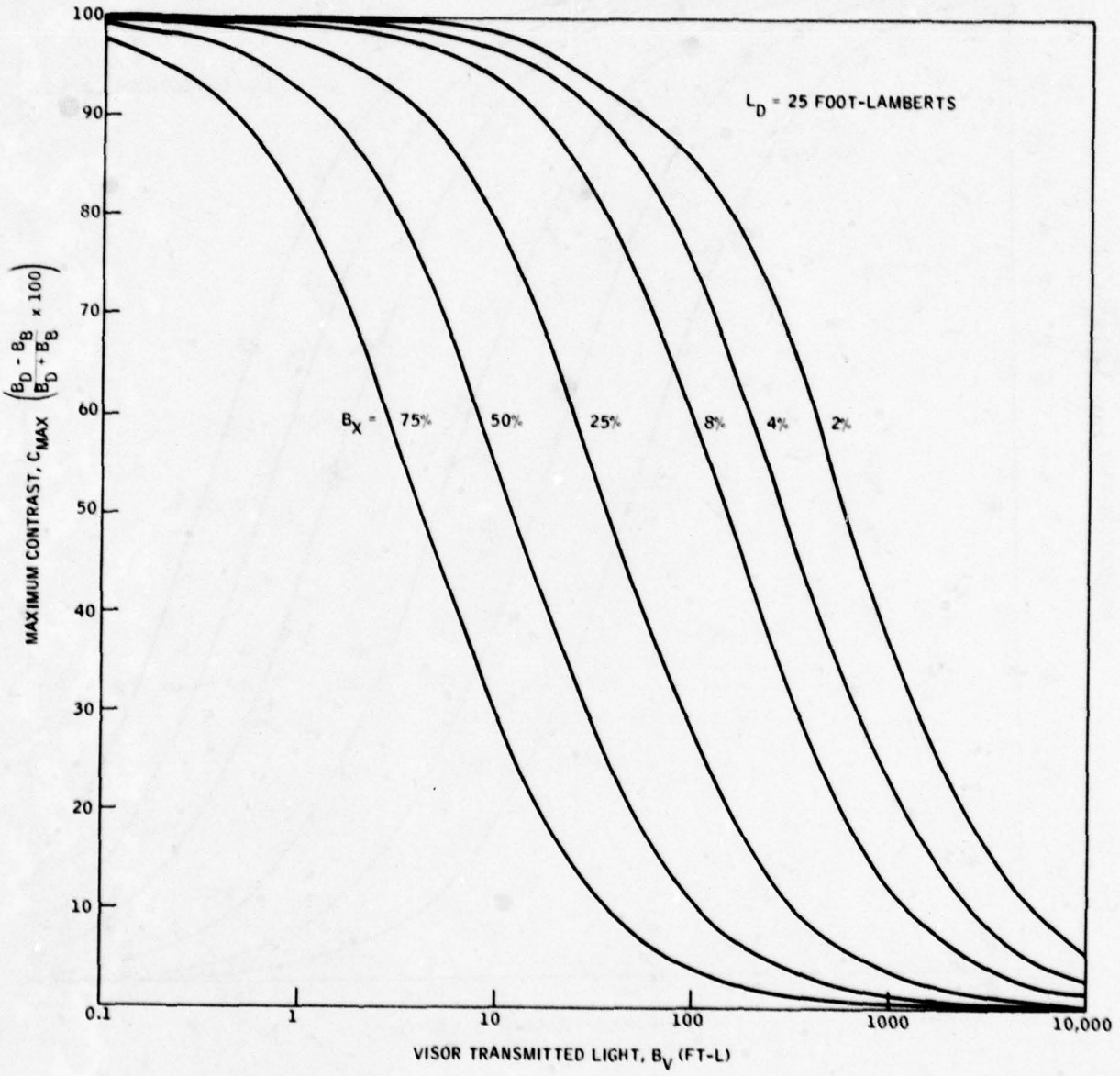


Figure 6. C_{max}, When L_D = 25 Foot-Lamberts

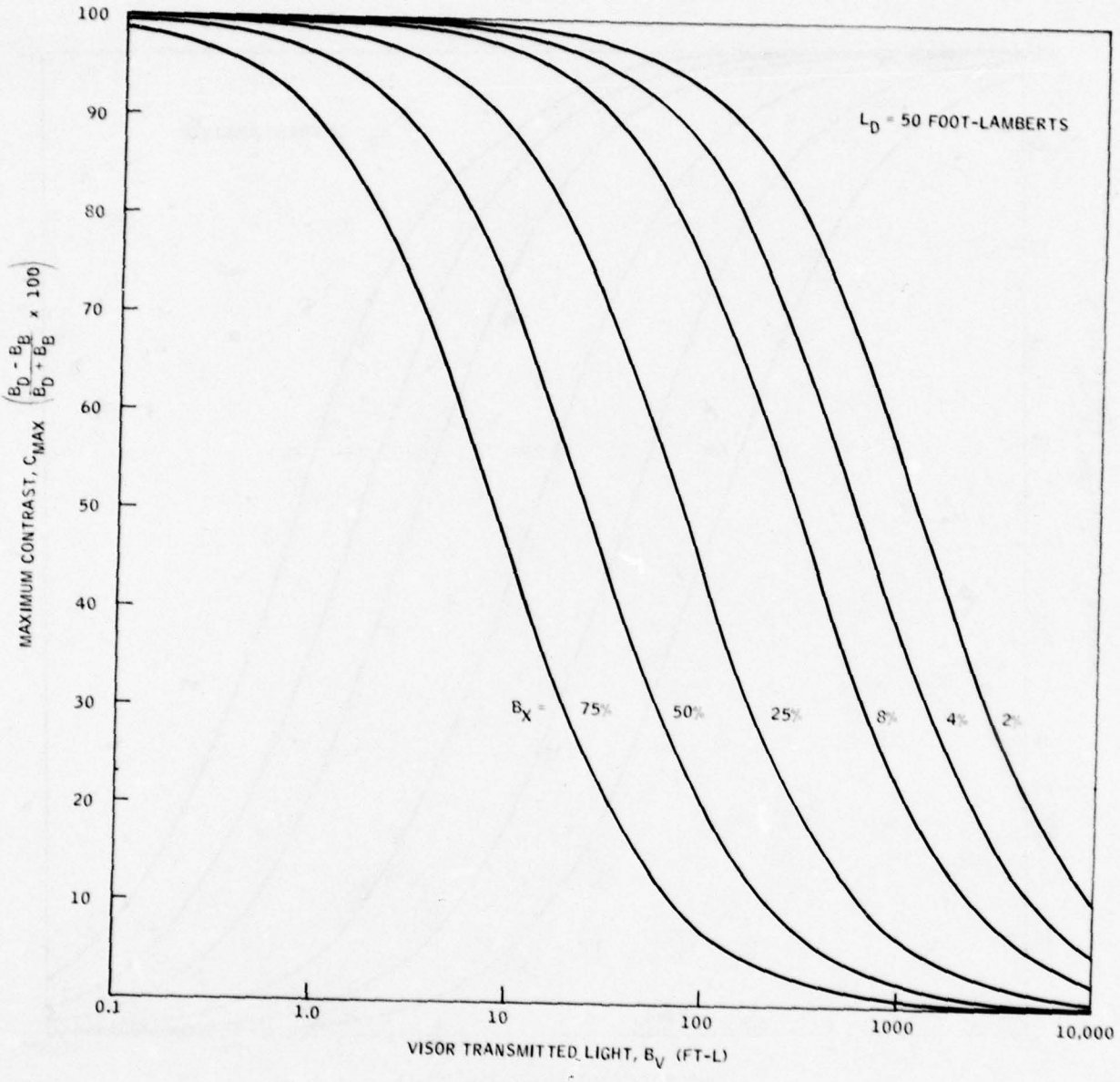


Figure 7. C_{max}, When L_D = 50 Foot-Lamberts

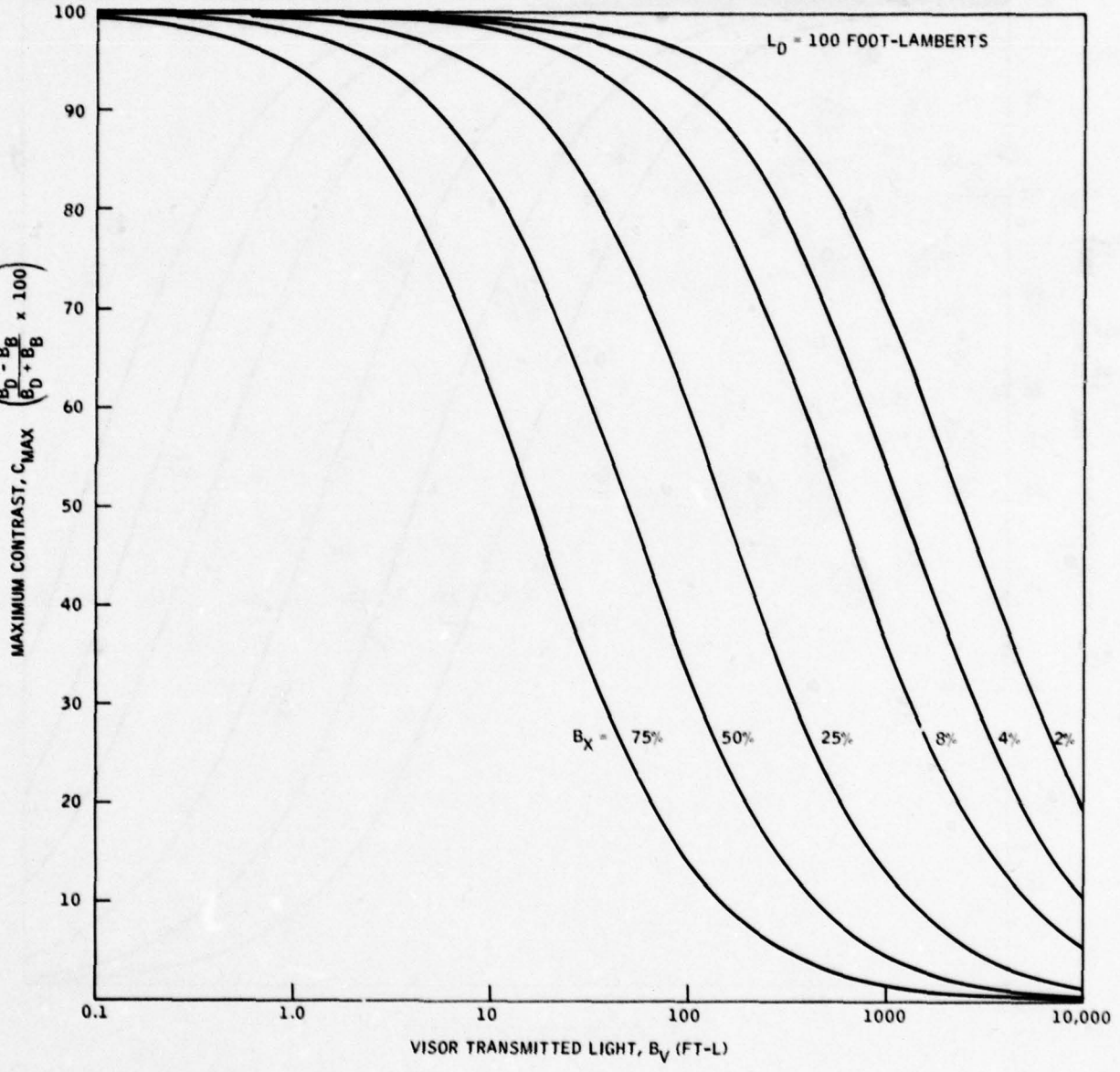


Figure 8. C_{max} , When L_D = 100 Foot-Lamberts

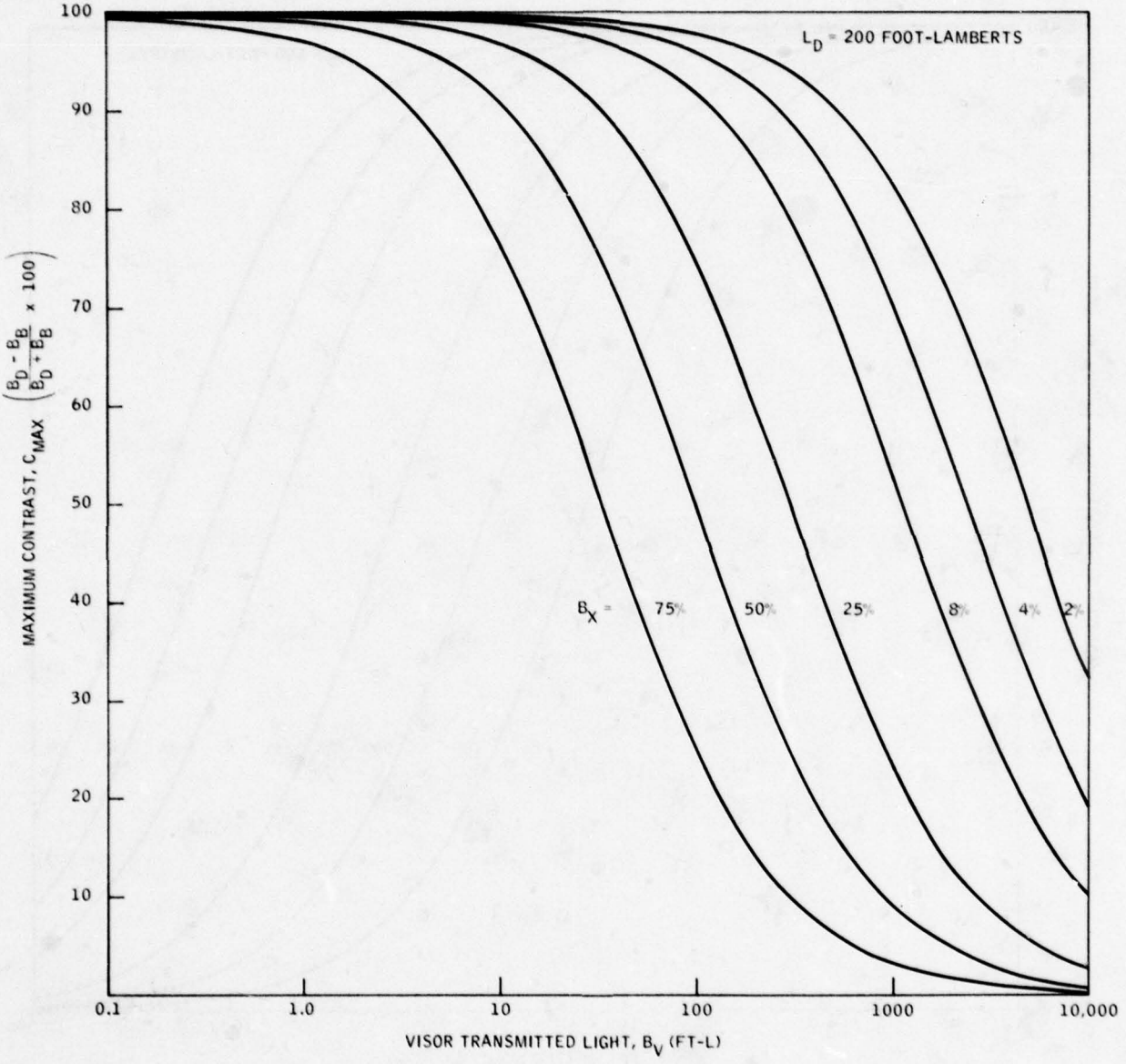


Figure 9. C_{max} , When L_D = 200 Foot-Lamberts

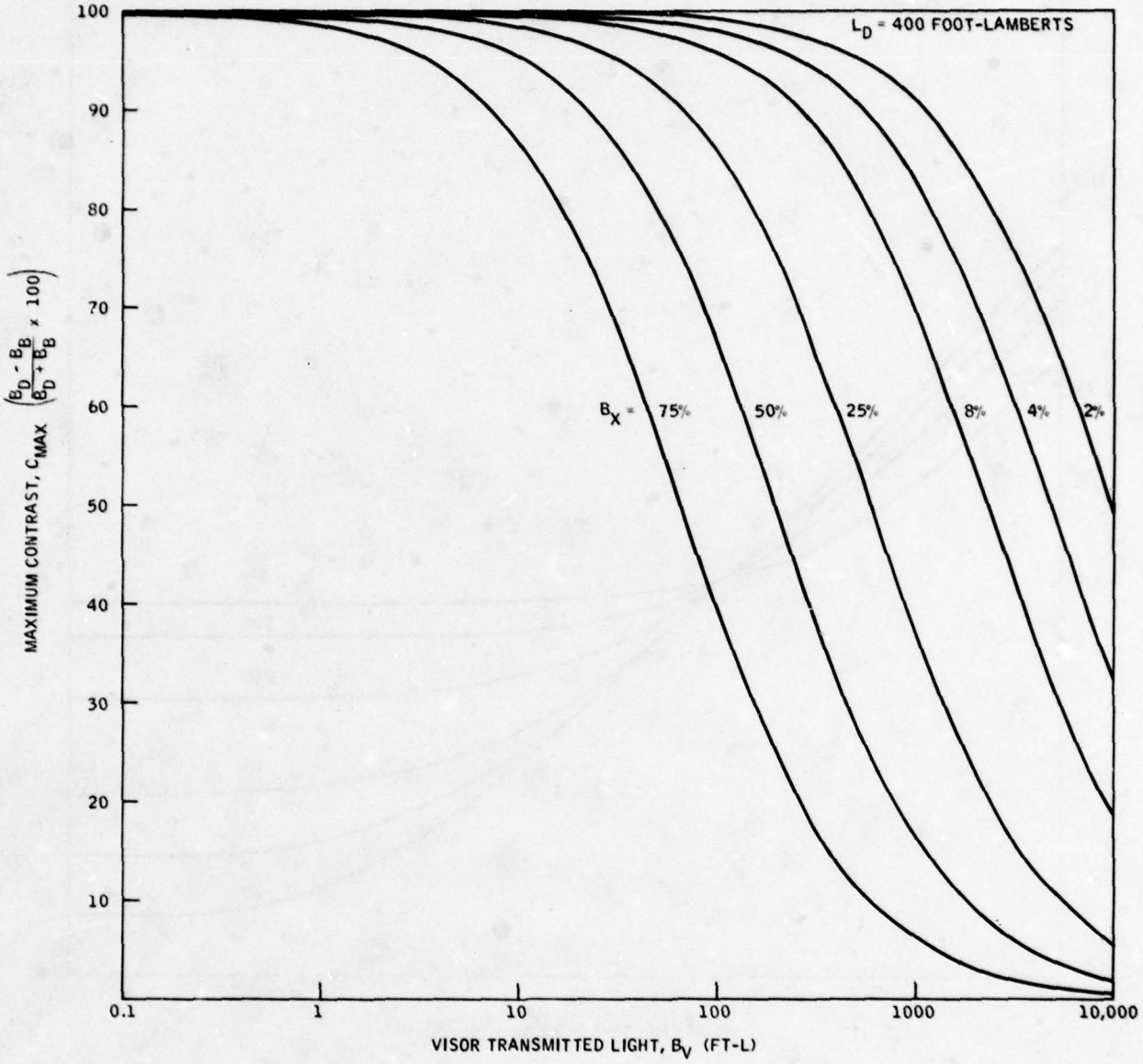


Figure 10. C_{max}, When L_D = 400 Foot-Lamberts

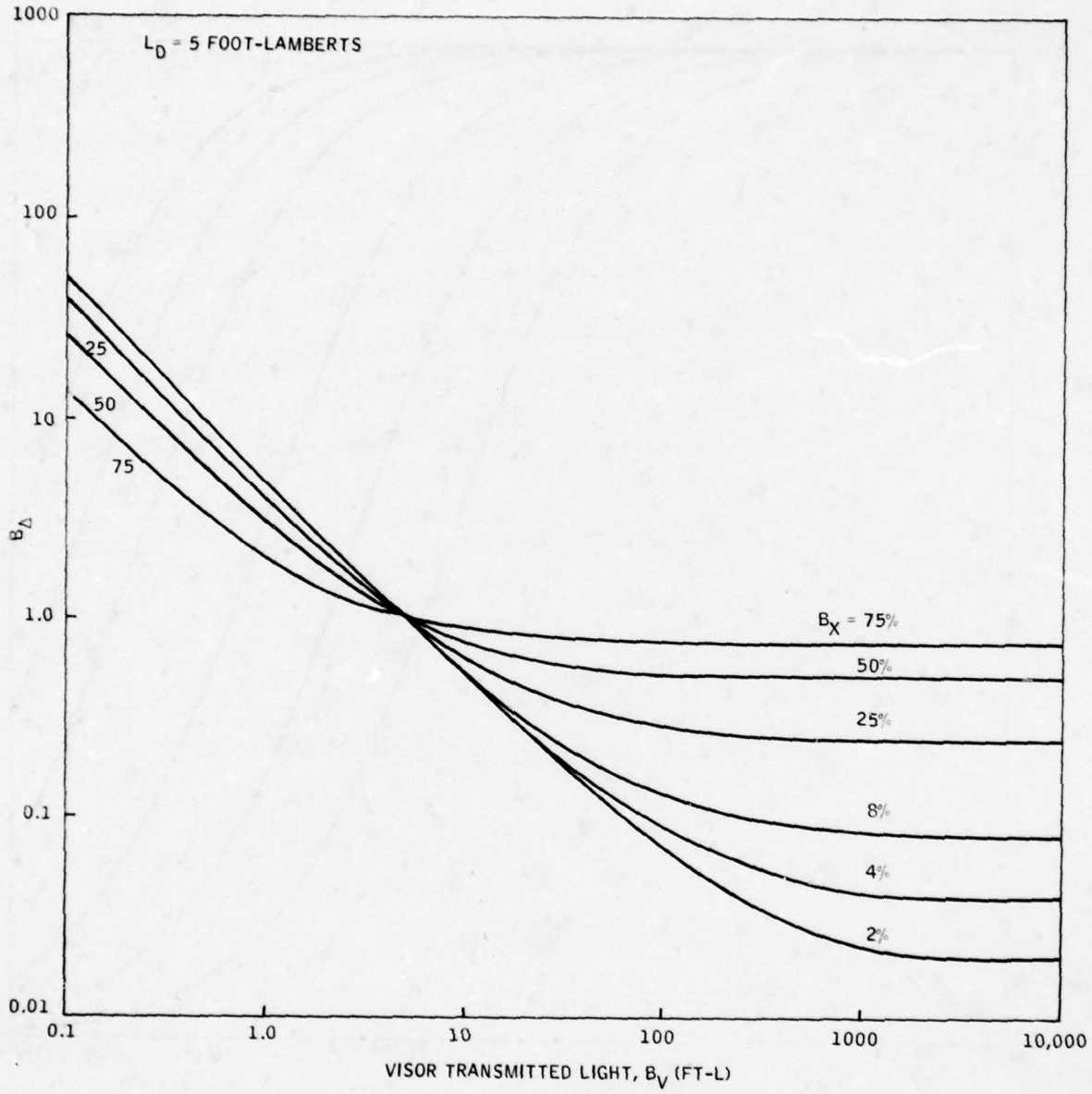


Figure 11. B_Δ, When L_D = 5 Foot-Lamberts

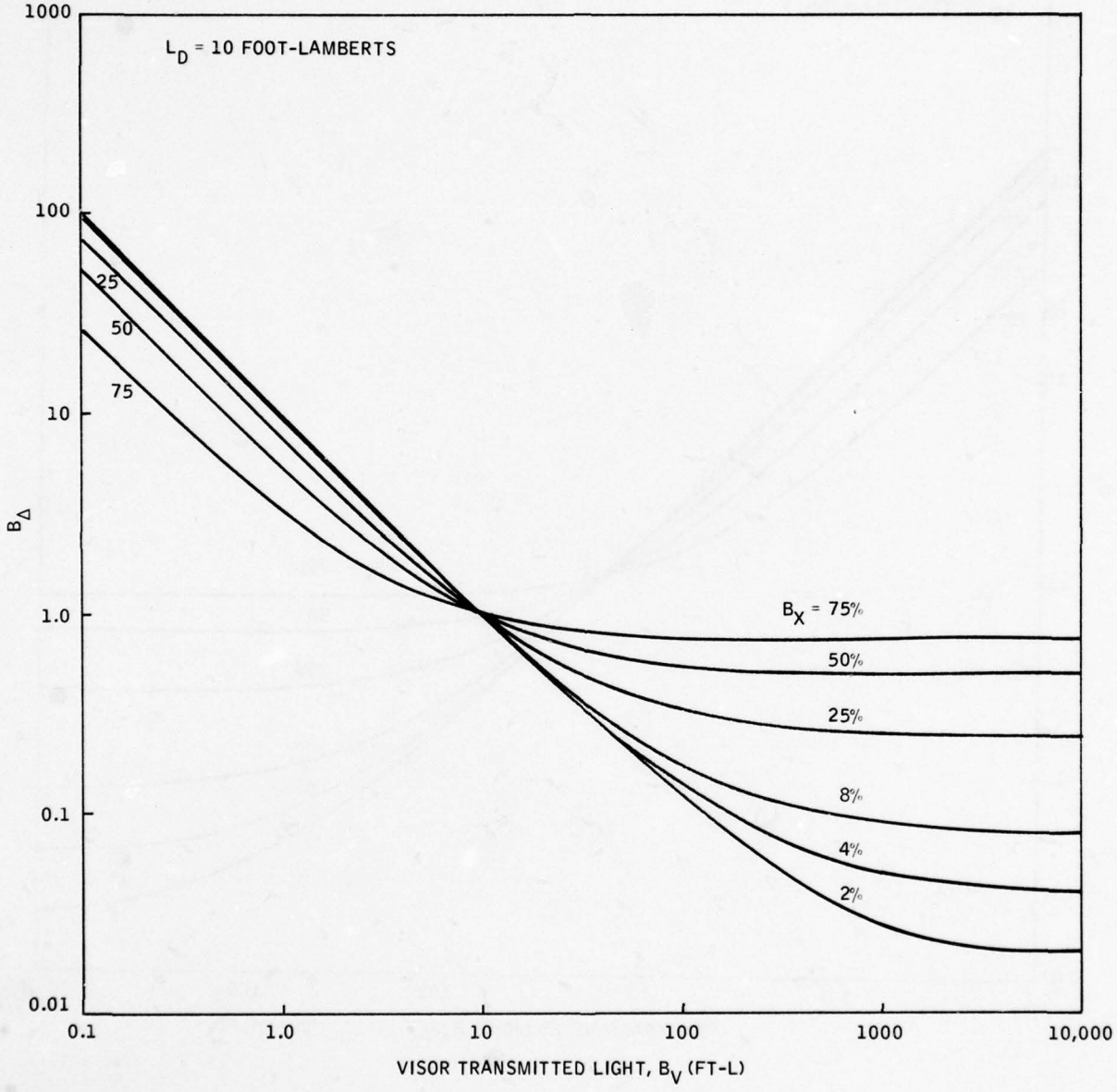


Figure 12. B_Δ, When L_D = 10 Foot-Lamberts

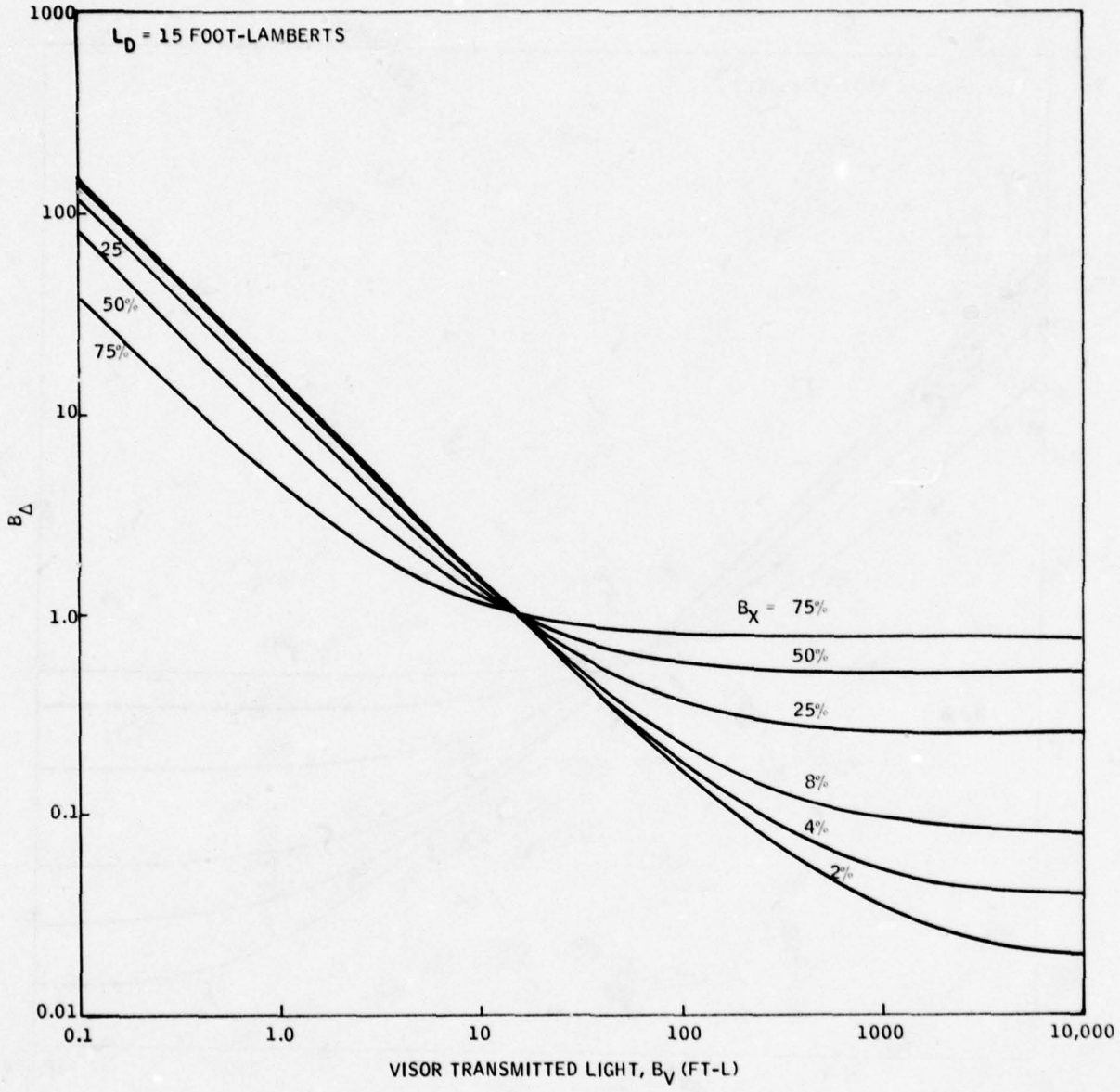


Figure 13. B_Δ , When L_D = 15 Foot-Lamberts

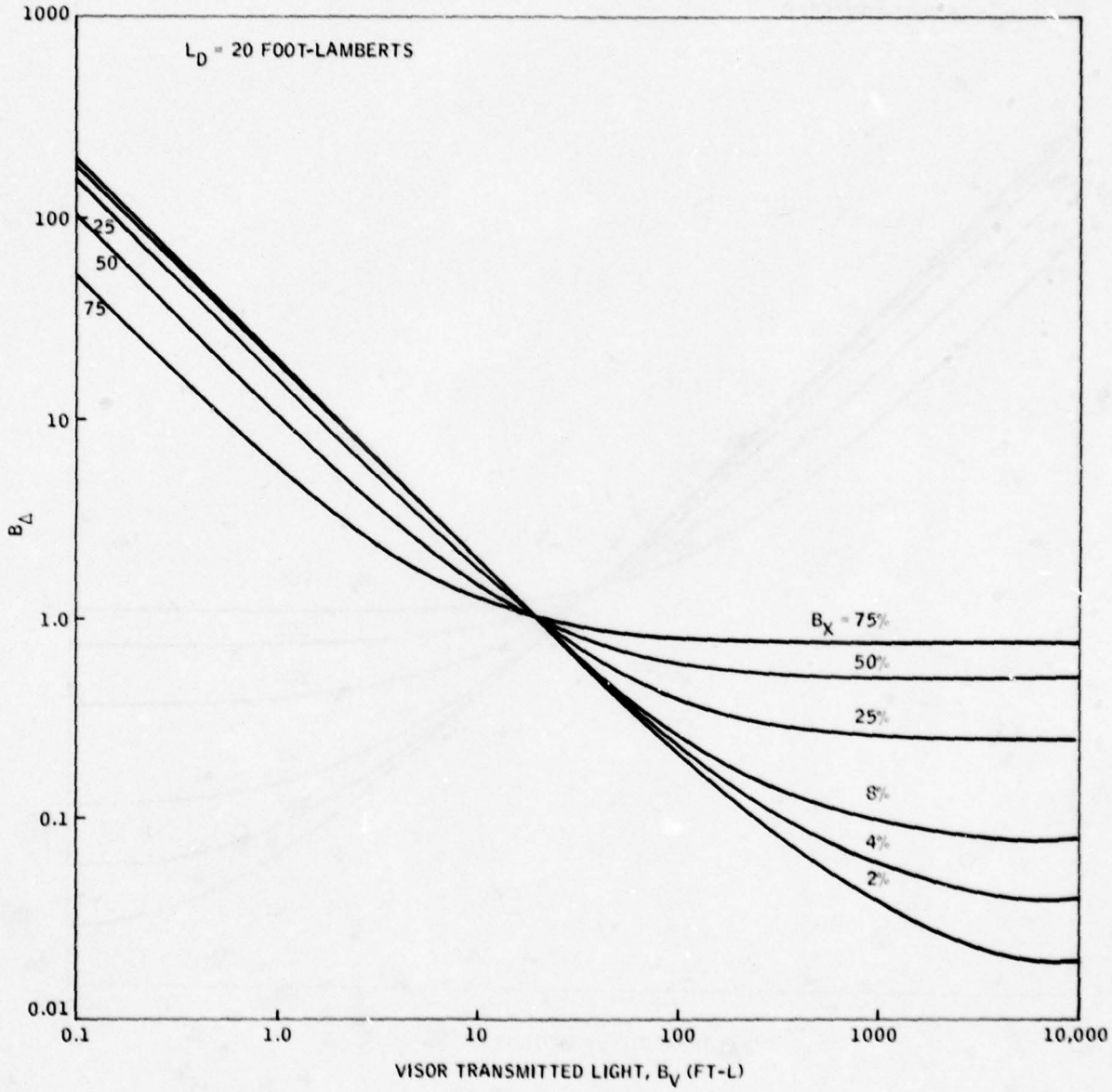


Figure 14. B_Δ, When L_D = 20 Foot-Lamberts

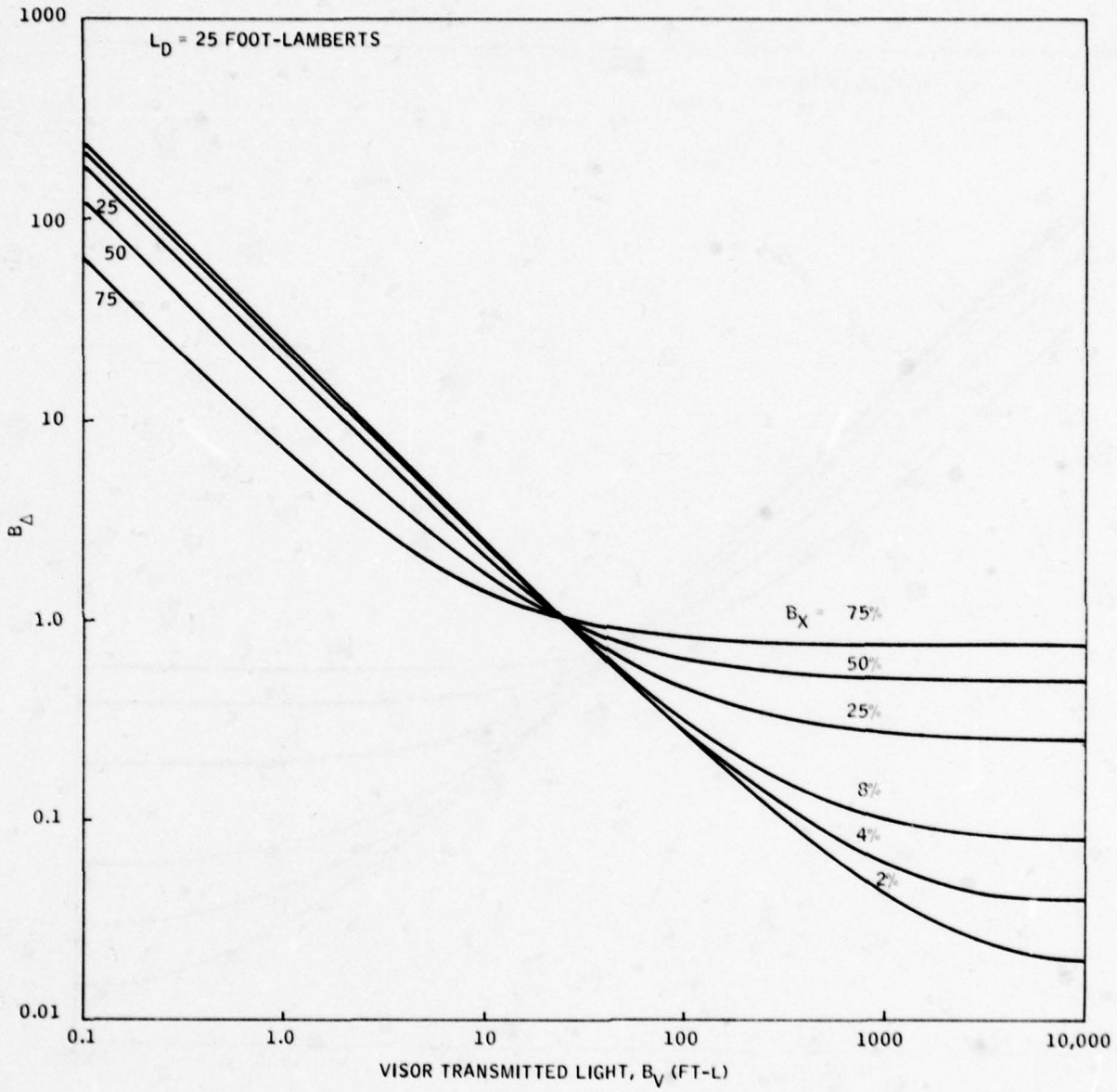


Figure 15. B_Δ , When L_D = 25 Foot-Lamberts

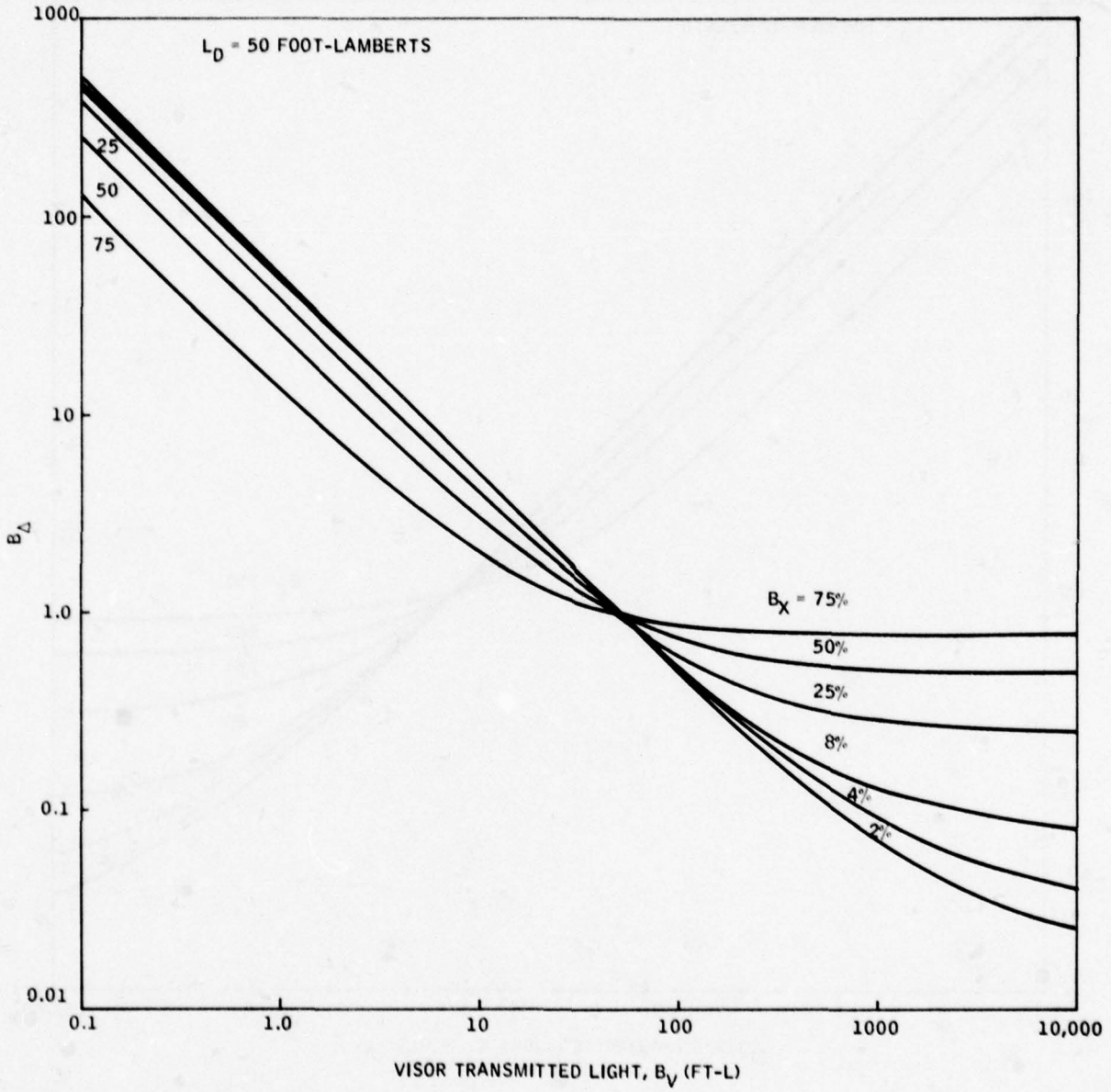


Figure 16. B_Δ, When L_D = 50 Foot-Lamberts

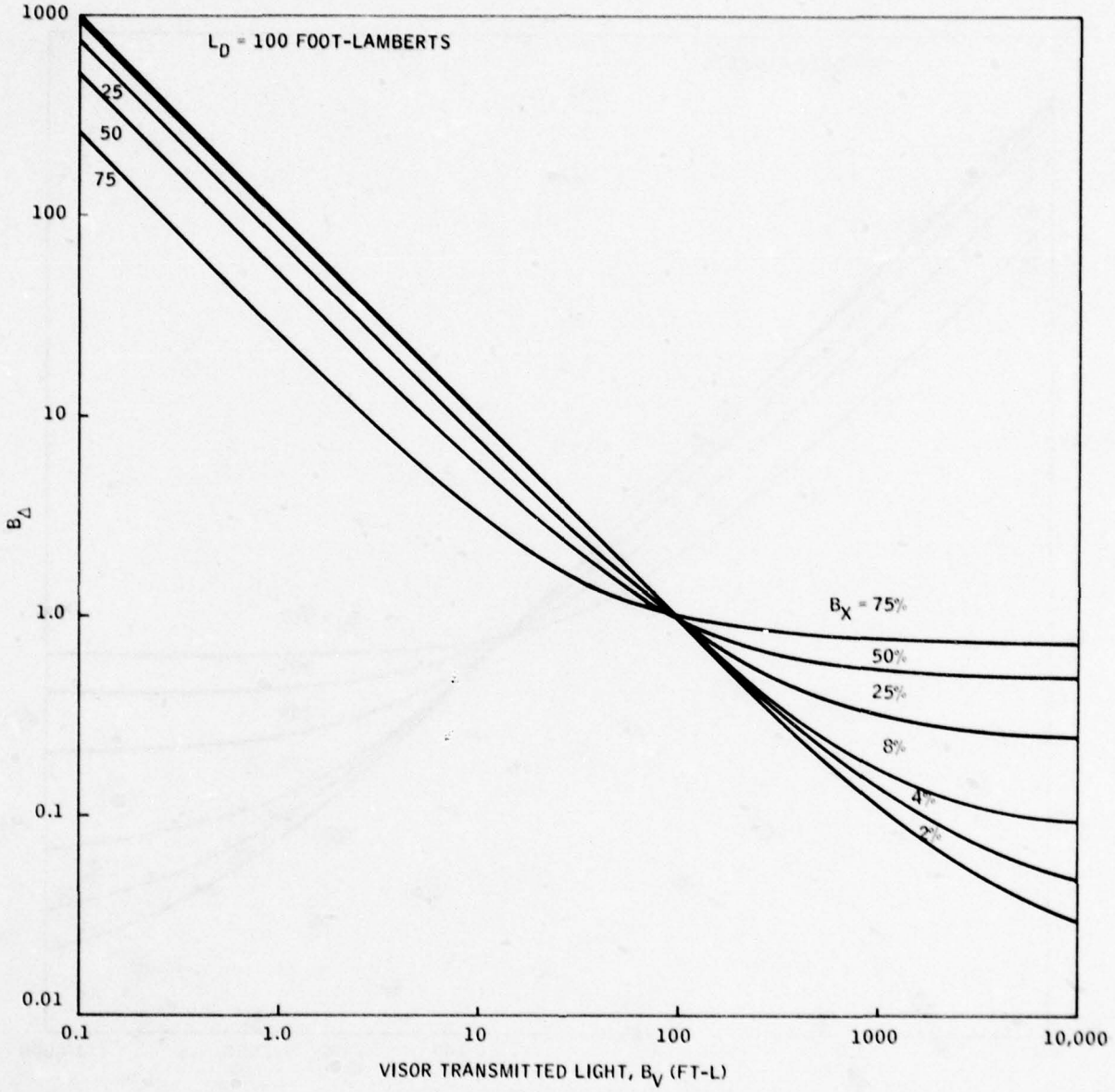


Figure 17. B_Δ, When L_D = 100 Foot-Lamberts

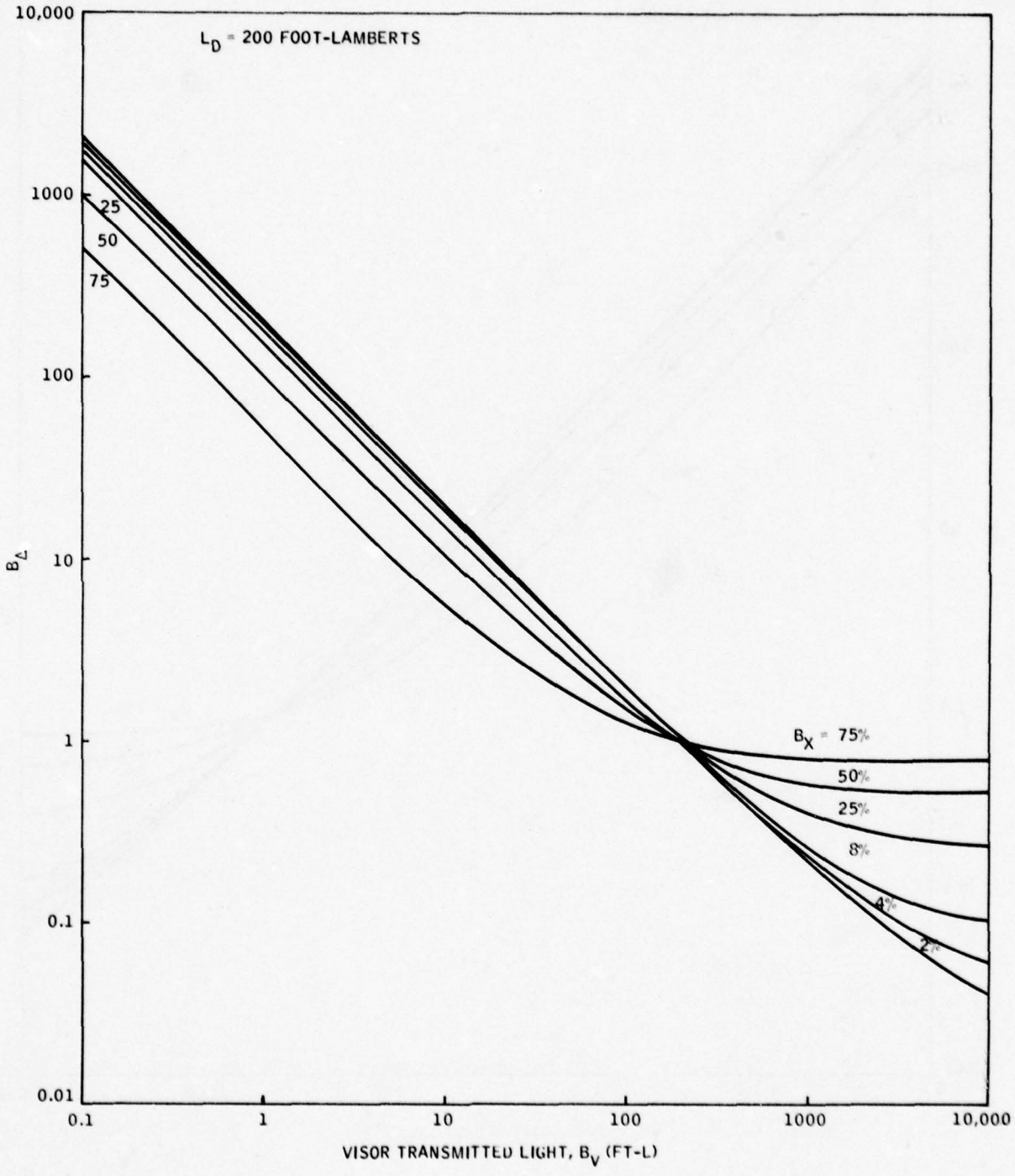


Figure 18. B_Δ , When L_D = 200 Foot-Lamberts

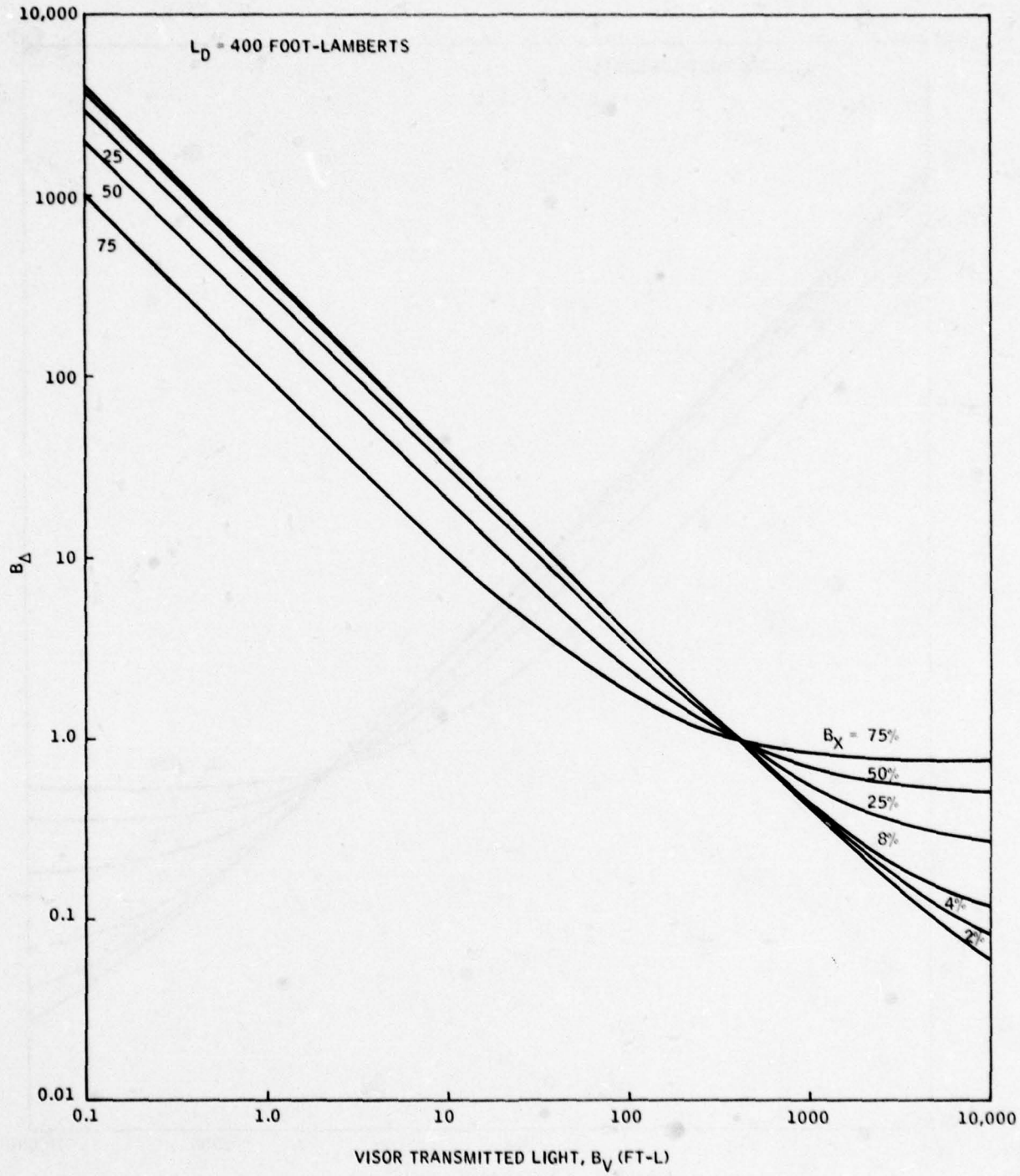


Figure 19. B_Δ, When L_D = 400 Foot-Lamberts

To use the B_{Δ} curves, select the B_{Δ} template with the desired V_x printed on it and lay it over the desired set of B_{Δ} curves. Those B_x curves that stay completely between the upper and lower limits while traversing between the left and right sides of the rectangle define a combination of V_x, B_x, and L_D that will be acceptable from the standpoint of B_{Δ}.

ACCEPTABLE COMBINATIONS OF VARIABLES

Using the template overlay technique described in the previous paragraphs, those combinations of V_x, B_x, and L_D that will produce acceptable visual performance against various levels of background luminance were tabulated. These data are summarized in Tables 3 through 6. An examination shows that some combinations may produce acceptable performance for all L_B conditions in terms of either C_{max} or B_{Δ}. Similarly, other combinations produce acceptable values of C_{max} and B_{Δ}, but not for all background luminance conditions. A further consolidation of these findings is presented in Table 7. This table essentially "boils down" the results to a single group of data. It is in terms of the data presented in Table 7 that all conclusions contained in Section V have been drawn. Appendixes B and C contain an additional set of curves. These curves differ from Figures 2 through 19 in that all values of L_D are presented on a single page. The templates can be used with these curves in the same way as Figures 2 through 19.

Table 3. Acceptable Performance Levels for a 13-Percent Transmittance Visor[1]

Beamsplitter Transmittance (B_x)	Display Luminance (L_D)	Background Luminance (L_B)							
		10^1 ft-L		10^2 ft-L		10^3 ft-L		10^4 ft-L	
		B_Δ	C_{max}	B_Δ	C_{max}	B_Δ	C_{max}	B_Δ	C_{max}
2%	25 ft-L		•	•	•	/	•		•
	50 ft-L		•	•	•	•	•		•
	100 ft-L		•		•	•	•		•
	200 ft-L		•		•	•	•		•
	400 ft-L		•		•	•	•	•	•
4%	25 ft-L		•	•	•	/	•		
	50 ft-L		•	•	•	•	•		•
	100 ft-L		•		•	•	•		•
	200 ft-L		•		•	•	•		•
	400 ft-L		•		•	•	•	•	•
8%	25 ft-L		•	•	•	•	•		
	50 ft-L		•	•	•	•	•		
	100 ft-L		•		•	•	•		•
	200 ft-L		•		•	•	•	/	•
	400 ft-L		•		•	•	•		•
25%	25 ft-L		•	•	•	•	/	•	
	50 ft-L		•	•	•	•	•	•	
	100 ft-L		•		•	•	•	•	
	200 ft-L		•		•	•	•	•	
	400 ft-L		•		•	•	•	•	•
50%	25 ft-L		•	•	•	•		•	
	50 ft-L		•	•	•	•		•	
	100 ft-L		•	/	•	•	•	•	
	200 ft-L		•		•	•	•	•	
	400 ft-L		•		•	•	•	•	
75%	25 ft-L		•	•	•	•		•	
	50 ft-L		•	•	•	•		•	
	100 ft-L		•	•	•	•		•	
	200 ft-L		•	/	•	•	/	•	
	400 ft-L		•		•	•	•	•	

[1]Criteria Limits: $C_{max} \geq 23$ and $0.25 < B_\Delta < 4$; within limits indicated by • outside by ±15% indicated by /.

Table 4. Acceptable Performance Levels for a 25-Percent Transmittance Visor[1]

Beamsplitter Transmittance (B_x)	Display Luminance (L_D)	Background Luminance (L_B)							
		10^1 ft-L		10^2 ft-L		10^3 ft-L		10^4 ft-L	
		B_Δ	C_{max}	B_Δ	C_{max}	B_Δ	C_{max}	B_Δ	C_{max}
2%	25 ft-L		●	●	●		●		
	50 ft-L		●	●	●	/	●		●
	100 ft-L		●	●	●	●	●		●
	200 ft-L		●		●	●	●		●
	400 ft-L		●		●	●	●		●
4%	25 ft-L		●	●	●		●		
	50 ft-L		●	●	●	●	●		
	100 ft-L		●	●	●	●	●		●
	200 ft-L		●		●	●	●		●
	400 ft-L		●		●	●	●		●
8%	25 ft-L		●	●	●		●		
	50 ft-L		●	●	●	●	●		
	100 ft-L		●	●	●	●	●		
	200 ft-L		●		●	●	●		●
	400 ft-L		●		●	●	●	/	●
25%	25 ft-L		●	●	●	●		●	
	50 ft-L		●	●	●	●	●	●	
	100 ft-L		●	●	●	●	●	●	
	200 ft-L		●		●	●	●	●	
	400 ft-L		●		●	●	●	●	
50%	25 ft-L		●	●	●	●		●	
	50 ft-L		●	●	●	●		●	
	100 ft-L		●	●	●	●		●	
	200 ft-L		●	/	●	●	●	●	
	400 ft-L		●		●	●	●	●	
75%	25 ft-L	●	●	●		●		●	
	50 ft-L		●	●	●	●		●	
	100 ft-L		●	●	●	●		●	
	200 ft-L		●	●	●	●		●	
	400 ft-L		●		●	●	/	●	

[1] Criteria Limits: $C_{max} \geq 23$ and $0.25 < B_\Delta < 4$; within limits indicated by ● outside by ±15 % indicated by / .

Table 5. Acceptable Performance Levels for a 50-Percent Transmittance Visor[1]

Beamsplitter Transmittance (B_x)	Display Luminance (L_D)	Background Luminance (L_B)							
		10^1 ft-L		10^2 ft-L		10^3 ft-L		10^4 ft-L	
		B_Δ	C_{max}	B_Δ	C_{max}	B_Δ	C_{max}	B_Δ	C_{max}
2%	25 ft-L		•	•	•		•		
	50 ft-L		•	•	•		•		/
	100 ft-L		•	•	•	/	•		•
	200 ft-L		•	•	•	•	•		•
	400 ft-L		•		•	•	•		•
4%	25 ft-L		•	•	•		•		
	50 ft-L		•	•	•		•		
	100 ft-L		•	•	•	/	•		
	200 ft-L		•	•	•	•	•		•
	400 ft-L		•	•	•	•	•		•
8%	25 ft-L	/	•	•	•		/		
	50 ft-L		•	•	•		•		
	100 ft-L		•	•	•	•	•		
	200 ft-L		•	•	•	•	•		
	400 ft-L		•		•	•	•		•
25%	25 ft-L	•	•	•	•	•		•	
	50 ft-L		•	•	•	•		•	
	100 ft-L		•	•	•	•	•	•	
	200 ft-L		•	•	•	•	•	•	
	400 ft-L		•		•	•	•	•	
50%	25 ft-L	•	•	•	/	•		•	
	50 ft-L		•	•	•	•		•	
	100 ft-L		•	•	•	•		•	
	200 ft-L		•	•	•	•		•	
	400 ft-L		•	/	•	•	•	•	
75%	25 ft-L	•	•	•		•		•	
	50 ft-L	•	•	•		•		•	
	100 ft-L		•	•	•	•		•	
	200 ft-L		•	•	•	•		•	
	400 ft-L		•	•	•	•		•	

[1]Criteria Limits: $C_{max} \geq 23$ and $0.25 < B_\Delta < 4$; within limits indicated by • outside by ±15% indicated by /.

Table 6. Acceptable Performance Levels for a 100-Percent Transmittance Visor[1]

Beamsplitter Transmittance (B_x)	Display Luminance (L_D)	Background Luminance (L_B)							
		10^1 ft-L		10^2 ft-L		10^3 ft-L		10^4 ft-L	
		B_Δ	C_{max}	B_Δ	C_{max}	B_Δ	C_{max}	B_Δ	C_{max}
2%	25 ft-L	•	•	•	•		•		
	50 ft-L		•	•	•		•		
	100 ft-L		•	•	•		•		/
	200 ft-L		•	•	•	/	•		•
	400 ft-L		•	•	•	•	•		•
4%	25 ft-L	•	•	•	•		•		
	50 ft-L		•	•	•		•		
	100 ft-L		•	•	•		•		
	200 ft-L		•	•	•	/	•		
	400 ft-L		•		•	•	•	•	•
8%	25 ft-L	•	•	•	•				
	50 ft-L	/	•	•	•		/		
	100 ft-L		•	•	•		•		
	200 ft-L		•	•	•	•	•		
	400 ft-L		•	•	•	•	•		
25%	25 ft-L	•	•	•	•	•		•	
	50 ft-L	•	•	•	•	•		•	
	100 ft-L		•	•	•	•		•	
	200 ft-L		•	•	•	•	•	•	
	400 ft-L		•	•	•	•	•	•	
50%	25 ft-L	•	•	•		•		•	
	50 ft-L	•	•	•	/	•		•	
	100 ft-L		•	•	•	•		•	
	200 ft-L		•	•	•	•		•	
	400 ft-L		•	•	•	•		•	
75%	25 ft-L	•	•	•		•		•	
	50 ft-L	•	•	•		•		•	
	100 ft-L	•	•	•		•		•	
	200 ft-L		•	•	•	•		•	
	400 ft-L		•	•	•	•		•	

[1]Criteria Limits: $C_{max} \geq 23$ and $0.25 < B_\Delta < 4$; within limits indicated by • outside by ±15% indicated by /.

Table 7. Combinations of B_x, L_D, and V_x that Fulfill Criteria for Both C_{max} and B (indicated by "•")

V_x	B_x	L_D	L_B 10^1	10^2	10^3	10^4
13%	2%	25		•	•	
		50		•	•	
		100			•	
		200			•	
		400			•	•
	4%	25		•	•	
		50		•	•	
		100			•	
		200			•	
		400			•	•
	8%	25		•	•	
		50		•	•	
		100			•	
		200			•	
		400			•	•
	25%	25		•	•	
		50		•	•	
		100			•	
		200			•	
		400			•	•
	50%	25		•		
		50		•		
		100		•	•	
		200			•	
		400			•	
	75%	25		•		
		50		•		
		100		•		
		200		•	•	
		400			•	

V_x	B_x	L_D	L_B 10^1	10^2	10^3	10^4
25%	2%	25		•	•	
		50		•	•	
		100		•	•	
		200			•	
		400			•	
	4%	25		•	•	
		50		•	•	
		100		•	•	
		200			•	
		400			•	
	8%	25		•	•	
		50		•	•	
		100		•	•	
		200			•	
		400			•	•
	25%	25		•	•	
		50		•	•	
		100		•	•	
		200			•	
		400			•	
	50%	25		•		
		50		•		
		100		•		
		200		•	•	
		400			•	
	75%	25	•			
		50		•		
		100		•		
		200		•		
		400			•	

V_x	B_x	L_D	L_B 10^1	10^2	10^3	10^4
50%	2%	25		•		
		50		•		
		100		•	•	
		200		•	•	
		400		•	•	
	4%	25		•		
		50		•		
		100		•	•	
		200		•	•	
		400		•	•	
	8%	25	•	•		
		50		•		
		100		•	•	
		200		•	•	
		400		•	•	
	25%	25	•	•		
		50		•		
		100		•	•	
		200		•	•	
		400		•	•	
	50%	25	•	•		
		50		•		
		100		•		
		200		•		
		400		•	•	
	75%	25	•			
		50	•			
		100		•		
		200		•		
		400		•		

V_x	B_x	L_D	L_B 10^1	10^2	10^3	10^4
100%	2%	25	•	•		
		50		•		
		100		•		
		200		•	•	
		400		•	•	
	4%	25	•	•		
		50		•		
		100		•		
		200		•	•	
		400		•	•	•
	8%	25	•	•		
		50	•	•		
		100		•		
		200		•	•	
		400		•	•	
	25%	25	•	•		
		50	•	•		
		100		•		
		200		•	•	
		400		•	•	
	50%	25	•			
		50	•	•		
		100		•		
		200		•		
		400		•		
	75%	25	•			
		50	•			
		100	•			
		200		•		
		400		•		

SECTION V
CONCLUSIONS AND RECOMMENDATIONS

Table 7 summarizes the results of the analysis and from it, one can draw a single outstanding conclusion:

> No single combination of visor transmittance (V_x), beamsplitter transmittance (B_x) and display luminance (L_D) will allow acceptable visual performance, from the standpoing of both display contrast (C_{max}) and interocular luminance differences (B_Δ), across the anticipated operational range of background luminance conditions (i.e., L_B ranging from 10 to 10,000 foot-Lamberts)!

Further examination of Table 7 reveals some possible solutions, however:

1) Although the present design of HMDs does not allow any control of B_x or V_x during flight, the operator can vary his display luminance ("brightness" control). If a "clear" visor (V_x = 100), is used in conjunction with the 4 percent beamsplitter transmittance, adjustment of display luminance from 25 foot-Lamberts when L_B is in the 10 to 100 foot-Lambert range, to L_D = 400 foot-Lamberts when L_B is in the 1000 to 10,000 foot-Lambert range would provide acceptable visual performance. This is still in the realm of a design goal rather than an operational reality, however. V_x = 100 percent and B_x = 4 percent can easily be obtained, but L_D = 400 foot-Lamberts at the observer's eye is not yet realistic. Although we have obtained high L_D values in the laboratory for short periods of time, it was done so at the expense of tube life. Present CRTs are not capable of sustaining such a high output for extended periods of time. Therefore, it is recommended that consideration be given to developing a long-life CRT capable of developing 400-foot-Lamberts at the operator's eye (400-600 foot-Lamberts at the tube face).

2) If pilots object to the clear visor, another possible solution would be to use a variable transmission visor. For example, if B_x = 8 percent, then a 50 percent visor transmittance would allow operation at the lower L_B values (10 to 100 foot-Lamberts) and a 13 percent or 25 percent visor could be used for higher L_B values (1000 to 10,000 foot-Lamberts).

3) A fixed-visor transmittance of 25 percent could also be used if a variable-transmittance beamsplitter were feasible. Thus, at low L_B values, a 75 percent B_x would permit acceptable visual performance, whereas at higher L_B values, B_x could be reduced to 8 percent.

All of the above three recommended solutions will still require a display luminance range of 25 foot-Lamberts to 400 foot-Lamberts at the operator's eye.

In summary, this study recommends that design efforts be directed toward developing three distinct technological improvements to the present HMD design concept. These are:

1) A one-inch, high-resolution CRT capable of producing up to 600 foot-Lamberts at the tube face for extended periods of time without adversely affecting present tube life concepts.

2) A variable transmission visor, controlled either by the operator or by a servo mechanism sensitive to rapid changes in ambient luminance. This visor should have a range of transmittance from 13 percent to 100 percent.

3) A variable transmission beamsplitter having a B_x range from 2 percent to 75 percent. Again, control could be either by the operator or by a servo-mechanism.

It is important to remember that the predictions of visual performance contained in this report were based upon assumed C_{max} and B_{Δ} limits. These limits were derived from research studies not wholly applicable to the see-through, monocular HMD. For this reason, the reader is cautioned to use the data presented herein for guidance only! Firm design decisions should be based upon an empirical study now being conducted at the Honeywell Vision Research Laboratory.

SECTION VI
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APPENDIX A

COMPUTERIZED PREDICTIONS OF CONTRASTS AND INTEROCULAR LUMINANCE DIFFERENCE RATIOS

The following tables solve for contrast (CABS and CMAX), Shades of gray (SOG) and interocular luminance difference ratio (B_Δ) as a function of the following:

- Display Luminance (L_D) =
- Beamsplitter Transmittance (B_X) =
- Visor Transmittance (V_X) =
- Background Luminance (L_B) =

```
*JOB VISION,COHEN                                   A=00
 * NO DATE *
*DATE 12 APR, 1973                                  A=00
*TITLE        DISPLAY LUMINANCE AND CONTRAST        A=00
*ASSIGN X1,N0,5=CR1A,8=TY1A,9=LP1B.                 A=00
```

Ai

B. I. COHEN

APR 12 1973

RESEARCH

```
HFORTRAN IS 69+                                                    A+00
     1:       COMMON LD(10), BX(10), LB(10), VX(10), BV(10), BB(10), BD(10),
     2:      +     BDEL(10), CABS(10), CPC(10), CMAX(10), CR(10), SOG(10)
     3:       REAL LD, LB
     4:       NAMELIST
     5:       READ(5,1000) N,(LD(I),I=1,N)
     6:       WRITE(9,1000) N,(LD(I),I=1,N)
     7:       READ(5,1000) M,(BX(I),I=1,M)
     8:       WRITE(9,1000) M,(BX(I),I=1,M)
     9:       READ(5,1000) K,(VX(I),I=1,K)
    10:       WRITE(9,1000) K,(VX(I),I=1,K)
    11:       READ(5,1000) L,(LB(I),I=1,L)
    12:       WRITE(9,1000) L,(LB(I),I=1,L)
    13:       DO 10 II=1,10
    14:       BX(II)=BX(II)/100
    15:    10 VX(II)=VX(II)/100
    16:       A=ALOG10(SQRT(2))
    17:       DO 130 NN=1,N
    18:       DO 120 MM=1,M
    19:       DO 110 KK=1,K
    20:       DO 100 LL=1,L
    21:       IF(LB(LL).EQ.0) LB(LL)=1.0E-6
    22:       BV(LL)=LB(LL)*VX(KK)
    23:       BB(LL)=BV(LL)*BX(MM)
    24:       BD(LL)=(LD(NN)*(1-BX(MM)))+BB(LL)
    25:       BDEL(LL)=BD(LL)/BV(LL)
    26:       CABS(LL)=(BD(LL)-BB(LL))/BB(LL)
    27:       CPC(LL)=(BD(LL)-BB(LL))/BD(LL)
    28:       CMAX(LL)=(BD(LL)-BB(LL))/(BD(LL)+BB(LL))
    29:       CR(LL)=(BD(LL)+BB(LL))/BD(LL)
    30:       SOG(LL)=ALOG10((1+CMAX(LL))/(1-CMAX(LL)))/A+1
    31:       CPC(LL)=CPC(LL)*100
    32:       CMAX(LL)=CMAX(LL)*100
    33:   100 CONTINUE
    34:       IF(SENSE SWITCH 1) 105, 110
    35:   105 INPUT(8)
    36:   110 WRITE(9,2000) LD(NN), BX(MM)*100+0.5, VX(KK)*100+0.5,
    37:      +(LB(I),I=1,L), (BV(I),I=1,L), (BB(I),I=1,L), (BD(I),I=1,L),
    38:      +(BDEL(I),I=1,L), (CABS(I),I=1,L), (CPC(I),I=1,L),
    39:      +(CMAX(I),I=1,L), (CR(I),I=1,L), (SOG(I),I=1,L)
    40:   120 CONTINUE
    41:   130 CONTINUE
    42:  1000 FORMAT(10F8.0)
    43:  2000 FORMAT(1H1,4/36X,'IHMS/D  DISPLAY LUMINANCE AND CONTRAST RESEARCH'
    44:      +4/28X,'DISPLAY LUMINANCE (LD)',2X,I6,X,'FOOT-LAMBERTS',2/
    45:      +17X,'BEAM SPLITTER TRANSMISSIVITY (BX)',2X,I6,X,'PER CENT',2/
    46:      +25X,'VISOR TRANSMISSIVITY (VX)',2X,I6,X,'PER CENT',2/X30('H----')/
    47:      +25X,'BACKGROUND LUMINANCE (LB)  I9,7(I5,'HFT-L)/X30('H----')/
    48:      +X,'NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV)  I7F9.2/
    49:      +30X,'(FOOT-LAMBERTS)',7X,'I'/
    50:      +       X,'NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB)  I'
    51:      +7F9.2/30X,'(FOOT-LAMBERTS)',7X,'I'/
    52:      +              24X,'NET DISPLAY LUMINANCE (BD)  I7F9.2/
    53:      +30X,'(FOOT-LAMBERTS)',7X,'I'/
    54:      +6X,'INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)  I7F9.2/
    55:      +X30('H----')/3+X,'CONTRAST RATIOS',/X30('H----')/
    56:      +46X,'CABS  I7F9.2/52X,'I'/47X,'CPC  I7F9.2/52X,'I'/46X,'CMAX  I'
    57:      +7F9.2/52X,'I'/48X,'CR  I7F9.2/X30('H----')/
    58:      +30X,'SHADES OF GRAY (SOG)  I7F9.2/)
    59:       END
```

NAME	TYPE	CLASS	OCTAL LOC	DEC WORDS
A	R	SCALAR	01552P	2
BD	R	ARRAY	00170C	20
BX	R	ARRAY	00024C	20
CPC	R	ARRAY	00264C	20
II	I	SCALAR	01551P	1
L	I	SCALAR	01550P	1
LL	I	SCALAR	01557P	1
N	I	SCALAR	01544P	1
SQRT	R	SPROG	INTRIN	
ALOG10	R	SPROG	INTRIN	
BDEL	R	ARRAY	00214C	20
CABS	R	ARRAY	00240C	20
CR	R	ARRAY	00334C	20
K	I	SCALAR	01547P	1
LB	R	ARRAY	00050C	20
M	I	SCALAR	01546P	1
NN	I	SCALAR	01554P	1
VX	R	ARRAY	00074C	20
BB	R	ARRAY	00144C	20
BV	R	ARRAY	00120C	20
CMAX	R	ARRAY	00310C	20
I	I	SCALAR	01545P	1
KK	I	SCALAR	01556P	1
LD	R	ARRAY	00000C	20
MM	I	SCALAR	01555P	1
SOG	R	ARRAY	00360C	20

LABEL	OCTAL LOC	LABEL	OCTAL LOC	LABEL	OCTAL LOC	LABEL	OCTAL LOC	LABEL	OCTAL LOC	LABEL	OCTAL LOC
10	00244	100	00514	105	00523	110	00525	120	00770	130	00773
1000	00776	2000	01001								

LOCAL VARIABLES (12 WORDS):

01544 N	01545 I	01546 M	01547 K	01550 L	01551 II
01552 A	01554 NN	01555 MM	01556 KK	01557 LL	

BLANK COMMON (260 WORDS):

00000 LD	00024 BX	00050 LB	00074 VX	00120 BV	00144 BB
00170 BD	00214 BDEL	00240 CABS	00264 CPC	00310 CMAX	00334 CR
00360 SOG					

INTRINSIC SUBPROGRAMS USED:

ALOG10 SQRT

HIGHEST ERROR SEVERITY: 0 (NO ERRORS)

	DEC WORDS	OCTAL WORDS	
GENERATED CODE:	846	01516	
CONSTANTS:	14	00016	
TEMPS:	8	00010	
LOCAL VARIABLES:	12	00014	
TOTAL PROGRAM:	880	01560	(PLUS BLANK COMMON)

```
END OF COMPILATION
.LOAD XMSFLIB,MAP,XCOM.                                    A.00
                ****    MAJOR ERRORS    ****

    NONE


                ****    MINOR ERRORS    ****

    NONE


                ****    MEMORY  MAP     ****

  LABEL         ENTRY       ORIGIN      SIZE        ERRORS
 M\SWAPS        00407         00000
 M\OVFLFL       00406         00000
 M\NAME         00401         00000
 M\PRINT        00275         00000
 M\EXIT         00264         00000
 M\ERR          00257         00000
 M\LOCK         00246         00000
 M\FREE         00243         00000
 M\DOIO         00227         00000
 M\OPEN         00220         00000
 M\DTEST        00215         00000
 8EOFEXIT       46103         46036
 8IOTRIG        46102         46036
 8EOFFLAG       46101         46036
 8IOFLAG        46077         46036
 8BUFFLAG       46076         46036
 9INITIAL       46036         46036
 7SERROR        46110         46110
 7OCTBCD        46271         46230
 9ERROR         46230         46230
 7UNITADR       46334         46334
 9STOP          46361         46361
 7SNSERR        46373         46373
 9IFSWICH       46422         46422
 8CPXI          46455         46453
 8CPXM          46453         46453
 9STCPX         46457         46457
 9IOSET         46471         46471
 9ALOG          46524         46524
 9ALOG10        46644         46644
 9SQRT          46652         46652
 8ADRRLOU       47533         47016
 8RLOUELE       47532         47016
 7RLINIT        47403         47016
 9RDDATA        47114         47016
 9WRDATA        47016         47016
 8TX3           47705         47601
 8TX2           47704         47601
```

**** MEMORY MAP ****

LABEL	ENTRY	ORIGIN	SIZE	ERRORS
8TX1	47703	47601		
8MDWRD	47702	47601		
8ENDISL	47701	47601		
8ARGADR	47700	47601		
9ENDISL	47642	47601		
9I9DATUM	47610	47601		
9DATA	47601	47601		
9GETBUFF	47712	47712		
8EDITFLG	54500	50716		
7EDITRB	53737	50716		
7EDITIB	53515	50716		
9BEDIT	50725	50716		
9IEDIT	50716	50716		
9DECODE	54570	54564		
9INPUT	54750	54750		
9BCDWRIT	56042	56042		
9BCDREAD	56122	56122		

**** PROGRAM LIMITS ****

PROGRAM LOWER BOUND = 46036
PROGRAM UPPER BOUND = 57777

COMMON LOWER BOUND = 11705
COMMON UPPER BOUND = 12310

STARTING LOC 56220

DISPLAY LUMINANCE AND CONTRAST

DATE 12 APR 1973 PAGE

L_D	9.	5.	10.	15.	20.	25.	50.	100.	200.	400.
B_S	6.	2.	4.	8.	25.	50.	75.			
V_R	4.	13.	25.	50.	100.					
L_B	7.	0.	0.	1.	10.	100.	1000.	10000.		

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.90	4.90	4.90	4.93	5.16	7.50	30.90
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3769.25	376.94	37.71	3.79	.40	.06	.02
CONTRAST RATIOS							
CABS	18846.54	18846.15	1884.62	188.46	18.85	1.88	.19
CMAX	100.00	99.99	99.89	98.95	90.41	48.51	8.61
SHADES OF GRAY (SOG)	36.05	29.40	22.76	16.13	9.62	4.06	1.50

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.90	4.90	4.90	4.95	5.40	9.90	54.90
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1960.02	196.02	19.62	1.98	.22	.04	.02
CONTRAST RATIOS							
CABS	98000.00	9800.00	980.00	98.00	9.80	.98	.10
CMAX	100.00	99.98	99.80	98.00	83.05	32.89	4.67
SHADES OF GRAY (SOG)	34.16	27.52	20.88	14.26	7.87	2.97	1.27

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.90	4.90	4.91	5.00	5.90	14.90	104.90
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	980.02	98.02	9.82	1.00	.12	.03	.02
CONTRAST RATIOS							
CABS	49000.00	4900.00	490.00	49.00	4.90	.49	.05
CMAX	100.00	99.96	99.59	96.08	71.01	19.68	2.39
SHADES OF GRAY (SOG)	32.16	25.52	18.88	12.29	6.12	2.15	1.14

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.90	4.90	4.92	5.10	6.90	24.90	204.90
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	490.02	49.02	4.92	.51	.07	.02	.02
CONTRAST RATIOS							
CABS	24500.00	2450.00	245.00	24.50	2.45	.24	.02
CMAX	99.99	99.92	99.19	92.45	55.06	10.91	1.21
SHADES OF GRAY (SOG)	30.16	23.52	16.89	10.34	4.57	1.63	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.80	4.80	4.81	4.85	5.32	10.00	56.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	3692.35	369.27	36.96	3.73	.41	.08	.04
CONTRAST RATIOS							
CABS	92307.69	9230.77	923.08	92.31	9.23	.92	.09
CMAX	100.00	99.98	99.78	97.88	82.19	31.58	4.41
SHADES OF GRAY (SOG)	33.99	27.34	20.70	14.09	7.71	2.89	1.25

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.80	4.80	4.81	4.90	5.80	14.80	104.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1920.04	192.04	19.24	1.96	.23	.06	.04
CONTRAST RATIOS							
CABS	48000.00	4800.00	480.00	48.00	4.80	.48	.05
CMAX	100.00	99.96	99.59	96.00	70.59	19.35	2.34
SHADES OF GRAY (SOG)	32.10	25.46	18.82	12.23	6.07	2.13	1.14

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.80	4.80	4.82	5.00	6.80	24.80	204.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	960.04	96.04	9.64	1.00	.14	.05	.04
CONTRAST RATIOS							
CABS	24000.00	2400.00	240.00	24.00	2.40	.24	.02
CMAX	99.99	99.92	99.17	92.31	54.55	10.71	1.19
SHADES OF GRAY (SOG)	30.10	23.46	16.83	10.29	4.53	1.62	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.80	4.80	4.84	5.20	8.80	44.80	404.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (RA)	480.04	48.04	4.84	.52	.09	.04	.04
CONTRAST RATIOS							
CABS	12000.00	1200.00	120.00	12.00	1.20	.12	.01
CMAX	99.98	99.83	98.36	85.71	37.50	5.66	.60
SHADES OF GRAY (SOG)	28.10	21.46	14.84	8.40	3.28	1.33	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.60	4.60	4.61	4.70	5.64	15.00	108.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3538.54	353.93	35.46	3.62	.43	.12	.08
CONTRAST RATIOS							
CABS	44230.77	4423.08	442.31	44.23	4.42	.44	.04
CMAX	100.00	99.95	99.55	95.67	68.86	18.11	2.16
SHADES OF GRAY (SOG)	31.87	25.22	18.58	12.00	5.88	2.06	1.12

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.60	4.60	4.62	4.80	6.60	24.60	204.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1840.08	184.08	18.48	1.92	.26	.10	.08
CONTRAST RATIOS							
CABS	23000.00	2300.00	230.00	23.00	2.30	.23	.02
CMAX	99.99	99.91	99.14	92.00	53.49	10.31	1.14
SHADES OF GRAY (SOG)	29.98	23.34	16.70	10.17	4.44	1.60	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.60	4.60	4.64	5.00	8.60	44.60	404.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	920.08	92.08	9.28	1.00	.17	.09	.08
CONTRAST RATIOS							
CABS	11500.00	1150.00	115.00	11.50	1.15	.11	.01
CMAX	99.98	99.83	98.29	85.19	36.51	5.44	.57
SHADES OF GRAY (SOG)	27.98	21.34	14.72	8.29	3.21	1.31	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	4.60	4.61	4.68	5.40	12.60	84.60	804.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	460.08	46.08	4.68	.54	.13	.08	.08
CONTRAST RATIOS							
CABS	5750.00	575.00	57.50	5.75	.57	.06	.01
CMAX	99.97	99.65	96.64	74.19	22.33	2.79	.29
SHADES OF GRAY (SOG)	25.98	19.34	12.78	6.51	2.31	1.16	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	3.75	3.75	3.78	4.07	7.00	36.25	328.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bd)	2884.87	288.71	29.10	3.13	.54	.28	.25
CONTRAST RATIOS							
CABS	11538.46	1153.85	115.38	11.54	1.15	.12	.01
CMAX	99.98	99.83	98.30	85.23	36.59	5.45	.57
SHADES OF GRAY (SOG)	27.99	21.35	14.73	8.30	3.21	1.32	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	3.75	3.76	3.81	4.37	10.00	66.25	628.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1500.25	150.25	15.25	1.75	.40	.26	.25
CONTRAST RATIOS							
CABS	6000.00	600.00	60.00	6.00	.60	.06	.01
CMAX	99.97	99.67	96.77	75.00	23.08	2.91	.30
SHADES OF GRAY (SOG)	26.10	19.46	12.86	6.61	2.36	1.17	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	3.75	3.76	3.87	5.00	16.25	128.75	1253.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	750.25	75.25	7.75	1.00	.32	.26	.25
CONTRAST RATIOS							
CABS	3000.00	300.00	30.00	3.00	.30	.03	.00
CMAX	99.93	99.34	93.75	60.00	13.04	1.48	.15
SHADES OF GRAY (SOG)	24.10	17.47	10.91	5.00	1.76	1.09	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	3.75	3.77	4.00	6.25	28.75	253.75	2503.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	375.25	37.75	4.00	.62	.29	.25	.25
CONTRAST RATIOS							
CABS	1500.00	150.00	15.00	1.50	.15	.01	.00
CMAX	99.87	98.68	88.24	42.86	6.98	.74	.07
SHADES OF GRAY (SDG)	22.10	15.48	9.00	3.64	1.40	1.04	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.65	6.50	65.00	650.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	2.50	2.51	2.56	3.15	9.00	67.50	652.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bα)	1923.58	192.81	19.73	2.42	.69	.52	.50
CONTRAST RATIOS							
CABS	3846.15	384.62	38.46	3.85	.38	.04	.00
CMAX	99.95	99.48	95.06	65.79	16.13	1.89	.19
SHADES OF GRAY (SBG)	24.82	18.18	11.60	5.55	1.94	1.11	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	2.50	2.51	2.62	3.75	15.00	127.50	1252.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1000.50	100.50	10.50	1.50	.60	.51	.50
CONTRAST RATIOS							
CABS	2000.00	200.00	20.00	2.00	.20	.02	.00
CMAX	99.90	99.01	90.91	50.00	9.09	.99	.10
SHADES OF GRAY (SOG)	22.93	16.30	9.78	4.17	1.53	1.06	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	2.50	2.52	2.75	5.00	27.50	252.50	2502.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	500.50	50.50	5.50	1.00	.55	.50	.50
CONTRAST RATIOS							
CABS	1000.00	100.00	10.00	1.00	.10	.01	.00
CMAX	99.80	98.04	83.33	33.33	4.76	.50	.05
SHADES OF GRAY (SOG)	20.93	14.32	7.92	3.00	1.28	1.03	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	2.50	2.55	3.00	7.50	52.50	502.50	5002.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	250.50	25.50	3.00	.75	.52	.50	.50
CONTRAST RATIOS							
CABS	500.00	50.00	5.00	.50	.05	.00	.00
CMAX	99.60	96.15	71.43	20.00	2.44	.25	.02
SHADES OF GRAY (SOG)	18.94	12.34	6.17	2.17	1.14	1.01	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	1.25	1.26	1.35	2.22	11.00	98.75	976.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	962.29	96.90	10.37	1.71	.85	.76	.75
CONTRAST RATIOS							
CABS	1282.05	128.21	12.82	1.28	.13	.01	.00
CMAX	99.84	98.46	86.51	39.06	6.02	.64	.06
SHADES OF GRAY (SOG)	21.65	15.03	8.58	3.38	1.35	1.04	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	1.25	1.27	1.44	3.12	20.00	188.75	1876.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	500.75	50.75	5.75	1.25	.80	.75	.75
CONTRAST RATIOS							
CABS	666.67	66.67	6.67	.67	.07	.01	.00
CMAX	99.70	97.09	76.92	25.00	3.23	.33	.03
SHADES OF GRAY (SOG)	19.77	13.16	6.88	2.47	1.19	1.02	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	1.25	1.29	1.62	5.00	38.75	376.25	3751.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	250.75	25.75	3.25	1.00	.77	.75	.75
CONTRAST RATIOS							
CABS	333.33	33.33	3.03	.33	.03	.00	.00
CMAX	99.40	94.34	62.50	14.29	1.64	.17	.02
SHADES OF GRAY (SOG)	17.77	11.20	5.23	1.83	1.09	1.01	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 5 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	1.26	1.32	2.00	8.75	76.25	751.25	7501.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	125.75	13.25	2.00	.87	.76	.75	.75
CONTRAST RATIOS							
CABS	166.67	16.67	1.67	.17	.02	.00	.00
CMAX	98.81	89.29	45.45	7.69	.83	.08	.01
SHADES OF GRAY (SOG)	15.78	9.29	3.83	1.44	1.05	1.00	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.80	9.80	9.80	9.83	10.06	12.40	35.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	7538.48	753.87	75.40	7.56	.77	.10	.03
CONTRAST RATIOS							
CABS	376923.08	37692.31	3769.23	376.92	37.69	3.77	.38
CMAX	100.00	99.99	99.95	99.47	94.96	65.33	15.86
SHADES OF GRAY (SOG)	38.05	31.40	24.76	18.12	11.55	5.51	1.92

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.80	9.80	9.80	9.85	10.30	14.80	59.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3920.02	392.02	39.22	3.94	.41	.06	.02
CONTRAST RATIOS							
CABS	196000.00	19600.00	1960.00	196.00	19.60	1.96	.20
CMAX	100.00	99.99	99.90	98.99	90.74	49.49	8.93
SHADES OF GRAY (SOG)	36.16	29.52	22.87	16.24	9.73	4.13	1.52

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.80	9.80	9.81	9.90	10.80	19.80	109.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (B4)	1960.02	196.02	19.62	1.98	.22	.04	.02
CONTRAST RATIOS							
CABS	98000.00	9800.00	980.00	98.00	9.80	.98	.10
CMAX	100.00	99.98	99.80	98.00	83.05	32.89	4.67
SHADES OF GRAY (SOG)	34.16	27.52	20.88	14.26	7.87	2.97	1.27

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.80	9.80	9.82	10.00	11.80	29.80	209.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	980.02	98.02	9.82	1.00	.12	.03	.02
CONTRAST RATIOS							
CABS	49000.00	4900.00	490.00	49.00	4.90	.49	.05
CMAX	100.00	99.96	99.59	96.08	71.01	19.68	2.39
SHADES OF GRAY (SOG)	32.16	25.52	18.88	12.29	6.12	2.15	1.14

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.60	9.60	9.61	9.65	10.12	14.80	61.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	7384.66	738.50	73.89	7.42	.78	.11	.05
CONTRAST RATIOS							
CABS	184615.38	18461.54	1846.15	184.62	18.46	1.85	.18
CMAX	100.00	99.99	99.89	98.93	90.23	48.00	8.45
SHADES OF GRAY (SOG)	35.99	29.34	22.70	16.07	9.57	4.02	1.49

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.60	9.60	9.61	9.70	10.60	19.60	109.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	3840.04	384.04	38.44	3.88	.42	.08	.04
CONTRAST RATIOS							
CABS	96000.00	9600.00	960.00	96.00	9.60	.96	.10
CMAX	100.00	99.98	99.79	97.96	82.76	32.43	4.58
SHADES OF GRAY (SOG)	34.10	27.46	20.82	14.20	7.81	2.94	1.26

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.60	9.60	9.62	9.80	11.60	29.60	209.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1920.04	192.04	19.24	1.96	.23	.06	.04
CONTRAST RATIOS							
CABS	48000.00	4800.00	480.00	48.00	4.80	.48	.05
CMAX	100.00	99.96	99.59	96.00	70.59	19.35	2.34
SHADES OF GRAY (SOG)	32.10	25.46	18.82	12.23	6.07	2.13	1.14

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.60	9.60	9.64	10.00	13.60	49.60	409.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	960.04	96.04	9.64	1.00	.14	.05	.04
CONTRAST RATIOS							
CABS	24000.00	2400.00	240.00	24.00	2.40	.24	.02
CMAX	99.99	99.92	99.17	92.31	54.55	10.71	1.19
SHADES OF GRAY (SOG)	30.10	23.46	16.83	10.29	4.53	1.62	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.20	9.20	9.21	9.30	10.24	19.60	113.20
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	7077.00	707.77	70.85	7.16	.79	.15	.09
CONTRAST RATIOS							
CABS	8846.54	8846.15	884.62	88.46	8.85	.88	.09
CMAX	100.00	99.98	99.77	97.79	81.56	30.67	4.24
SHADES OF GRAY (SOG)	33.87	27.22	20.58	13.97	7.60	2.83	1.24

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.20	9.20	9.22	9.40	11.20	29.20	209.20
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	3680.08	368.08	36.88	3.76	.45	.12	.08
CONTRAST RATIOS							
CABS	46000.00	4600.00	460.00	46.00	4.60	.46	.05
CMAX	100.00	99.96	99.57	95.83	69.70	18.70	2.25
SHADES OF GRAY (SOG)	31.98	25.34	18.70	12.11	5.97	2.09	1.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.20	9.20	9.24	9.60	13.20	49.20	409.20
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1840.08	184.08	18.48	1.92	.26	.10	.08
CONTRAST RATIOS							
CABS	23000.00	2300.00	230.00	23.00	2.30	.23	.02
CMAX	99.99	99.91	99.14	92.00	53.49	10.31	1.14
SHADES OF GRAY (SOG)	29.98	23.34	16.70	10.17	4.44	1.60	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 9 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	9.20	9.21	9.28	10.00	17.20	89.20	809.20
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	920.08	92.08	9.28	1.00	.17	.09	.08
CONTRAST RATIOS							
CABS	11500.00	1150.00	115.00	11.50	1.15	.11	.01
CMAX	99.98	99.83	98.29	85.19	36.51	5.44	.57
SHADES OF GRAY (SOG)	27.98	21.34	14.72	8.29	3.21	1.31	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	7.50	7.50	7.53	7.82	10.75	40.00	332.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	5769.48	577.17	57.94	6.02	.83	.31	.26
CONTRAST RATIOS							
CABS	23076.92	2307.69	230.77	23.08	2.31	.23	.02
CMAX	99.99	99.91	99.14	92.02	53.57	10.34	1.14
SHADES OF GRAY (SOG)	29.99	23.35	16.71	10.18	4.45	1.60	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	7.50	7.51	7.56	8.12	13.75	70.00	632.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3000.25	300.25	30.25	3.25	.55	.28	.25
CONTRAST RATIOS							
CABS	12000.00	1200.00	120.00	12.00	1.20	.12	.01
CMAX	99.98	99.83	98.36	85.71	37.50	5.66	.60
SHADES OF GRAY (SOG)	28.10	21.46	14.84	8.40	3.28	1.33	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	7.50	7.51	7.62	8.75	20.00	132.50	1257.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1500.25	150.25	15.25	1.75	.40	.26	.25
CONTRAST RATIOS							
CABS	6000.00	600.00	60.00	6.00	.60	.06	.01
CMAX	99.97	99.67	96.77	75.00	23.08	2.91	.30
SHADES OF GRAY (SOG)	26.10	19.46	12.86	6.61	2.36	1.17	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	7.50	7.52	7.75	10.00	32.50	257.50	2507.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	750.25	75.25	7.75	1.00	.32	.26	.25
CONTRAST RATIOS							
CABS	3000.00	300.00	30.00	3.00	.30	.03	.00
CMAX	99.93	99.34	93.75	60.00	13.04	1.48	.15
SHADES OF GRAY (SOG)	24.10	17.47	10.91	5.00	1.76	1.09	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.01	.06	.65	6.50	65.00	650.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	5.00	5.01	5.06	5.65	11.50	70.00	655.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3846.65	385.12	38.96	4.35	.88	.54	.50
CONTRAST RATIOS							
CABS	7692.31	769.23	76.92	7.69	.77	.08	.01
CMAX	99.97	99.74	97.47	79.37	27.78	3.70	.38
SHADES OF GRAY (SOG)	26.82	20.18	13.57	7.24	2.65	1.21	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	5.00	5.01	5.12	6.25	17.50	130.00	1255.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	2000.50	200.50	20.50	2.50	.70	.52	.50
CONTRAST RATIOS							
CABS	4000.00	400.00	40.00	4.00	.40	.04	.00
CMAX	99.95	99.50	95.24	66.67	16.67	1.96	.20
SHADES OF GRAY (SOG)	24.93	18.29	11.72	5.64	1.97	1.11	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	5.00	5.02	5.25	7.50	30.00	255.00	2505.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	1000.50	100.50	10.50	1.50	.60	.51	.50
CONTRAST RATIOS							
CABS	2000.00	200.00	20.00	2.00	.20	.02	.00
CMAX	99.90	99.01	90.91	50.00	9.09	.99	.10
SHADES OF GRAY (SOG)	22.93	16.30	9.78	4.17	1.53	1.06	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	5.00	5.05	5.50	10.00	55.00	505.00	5005.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	500.50	50.50	5.50	1.00	.55	.50	.50
CONTRAST RATIOS							
CABS	1000.00	100.00	10.00	1.00	.10	.01	.00
CMAX	99.80	98.04	83.33	33.33	4.76	.50	.05
SHADES OF GRAY (SOG)	20.93	14.32	7.92	3.00	1.28	1.03	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BW) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	2.50	2.51	2.60	3.47	12.25	100.00	977.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1923.83	193.06	19.98	2.67	.94	.77	.75
CONTRAST RATIOS							
CABS	2564.10	256.41	25.64	2.56	.26	.03	.00
CMAX	99.92	99.23	92.76	56.18	11.36	1.27	.13
SHADES OF GRAY (SOG)	23.65	17.02	10.47	4.67	1.66	1.07	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	2.50	2.52	2.69	4.37	21.25	190.00	1877.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1000.75	100.75	10.75	1.75	.85	.76	.75
CONTRAST RATIOS							
CABS	1333.33	133.33	13.33	1.33	.13	.01	.00
CMAX	99.85	98.52	86.96	40.00	6.25	.66	.07
SHADES OF GRAY (SOG)	21.76	15.14	8.68	3.44	1.36	1.04	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	2.50	2.54	2.87	6.25	40.00	377.50	3752.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	500.75	50.75	5.75	1.25	.80	.75	.75
CONTRAST RATIOS							
CABS	666.67	66.67	6.67	.67	.07	.01	.00
CMAX	99.70	97.09	76.92	25.00	3.23	.33	.03
SHADES OF GRAY (SOG)	19.77	13.16	6.88	2.47	1.19	1.02	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 10 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	2.51	2.57	3.25	10.00	77.50	752.50	7502.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	250.75	25.75	3.25	1.00	.77	.75	.75
CONTRAST RATIOS							
CABS	333.33	33.33	3.33	.33	.03	.00	.00
CMAX	99.40	94.34	62.50	14.29	1.64	.17	.02
SHADES OF GRAY (SOG)	17.77	11.20	5.23	1.83	1.09	1.01	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	14.70	14.70	14.70	14.73	14.96	17.30	40.70
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1130.71	1130.79	113.10	11.33	1.15	.13	.03
CONTRAST RATIOS							
CABS	565384.62	56538.46	5653.85	565.38	56.54	5.65	.57
CMAX	100.00	100.00	99.96	99.65	96.58	73.87	22.04
SHADES OF GRAY (SOG)	39.22	32.57	25.93	19.29	12.69	6.47	2.29

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	14.70	14.70	14.70	14.75	15.20	19.70	64.70
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	5880.02	588.02	58.82	5.90	.61	.08	.03
CONTRAST RATIOS							
CABS	294000.00	2940.00	2940.00	294.00	29.40	2.94	.29
CMAX	100.00	99.99	99.93	99.32	93.63	59.51	12.82
SHADES OF GRAY (SOG)	37.33	30.69	24.04	17.41	10.85	4.96	1.74

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	14.70	14.70	14.71	14.80	15.70	24.70	114.70
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	2940.02	294.02	29.42	2.96	.31	.05	.02
CONTRAST RATIOS							
CABS	147000.00	14700.00	1470.00	147.00	14.70	1.47	.15
CMAX	100.00	99.99	99.86	98.66	88.02	42.36	6.85
SHADES OF GRAY (SOG)	35.33	28.69	22.05	15.42	8.95	3.61	1.40

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

.ISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	14.70	14.70	14.72	14.90	16.70	34.70	214.70
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1470.02	147.02	14.72	1.49	.17	.03	.02
CONTRAST RATIOS							
CABS	73500.00	7350.00	735.00	73.50	7.35	.73	.07
CMAX	100.00	99.97	99.73	97.35	78.61	26.87	3.54
SHADES OF GRAY (SOG)	33.33	26.69	20.05	13.44	7.12	2.59	1.20

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	14.40	14.40	14.41	14.45	14.92	19.60	66.40
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1107696	110773	11081	1112	115	15	05
CONTRAST RATIOS							
CABS	276923.08	27692.31	2769.23	276.92	27.69	2.77	.28
CMAX	100.00	99.99	99.93	99.28	93.26	58.06	12.16
SHADES OF GRAY (SOG)	37.16	30.51	23.87	17.24	10.69	4.83	1.71

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	14.40	14.40	14.41	14.50	15.40	24.40	114.40
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	5760.04	576.04	57.64	5.80	.62	.10	.05
CONTRAST RATIOS							
CABS	144000.00	14400.00	1440.00	144.00	14.40	1.44	.14
CMAX	100.00	99.99	99.86	98.63	87.80	41.86	6.72
SHADES OF GRAY (SOG)	35.27	28.63	21.99	15.36	8.89	3.57	1.39

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	14.40	14.40	14.42	14.60	16.40	34.40	214.40
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	2880.04	288.04	28.84	2.92	.33	.07	.04
CONTRAST RATIOS							
CABS	72000.00	7200.00	720.00	72.00	7.20	.72	.07
CMAX	100.00	99.97	99.72	97.30	78.26	26.47	3.47
SHADES OF GRAY (SOG)	33.27	26.63	19.99	13.38	7.07	2.56	1.20

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	14.40	14.40	14.44	14.80	18.40	54.40	414.40
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (ga)	1440.04	144.04	14.44	1.48	.18	.05	.04
CONTRAST RATIOS							
CABS	36000.00	3600.00	360.00	36.00	3.60	.36	.04
CMAX	99.99	99.94	99.45	94.74	64.29	15.25	1.77
SHADES OF GRAY (SOG)	31.27	24.63	17.99	11.42	5.40	1.89	1.10

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	13.80	13.80	13.81	13.90	14.84	24.20	117.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	10615.46	1061.62	106.23	10.70	1.14	.19	.09
CONTRAST RATIOS							
CABS	132692.31	13269.23	1326.92	132.69	13.27	1.33	.13
CMAX	100.00	99.98	99.85	98.52	86.90	39.88	6.22
SHADES OF GRAY (SOG)	35.04	28.39	21.75	15.13	8.67	3.44	1.36

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	13.80	13.80	13.82	14.00	15.80	33.80	213.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bδ)	5520.08	552.08	55.28	5.60	.63	.14	.09
CONTRAST RATIOS							
CABS	69000.00	6900.00	690.00	69.00	6.90	.69	.07
CMAX	100.00	99.97	99.71	97.18	77.53	25.65	3.33
SHADES OF GRAY (SOG)	33.15	26.51	19.87	13.26	6.96	2.51	1.19

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	13.80	13.80	13.84	14.20	17.80	53.80	413.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	2760.08	276.08	27.68	2.84	.36	.11	.08
CONTRAST RATIOS							
CABS	34500.00	3450.00	345.00	34.50	3.45	.34	.03
CMAX	99.99	99.94	99.42	94.52	63.30	14.71	1.70
SHADES OF GRAY (SOG)	31.15	24.51	17.87	11.30	5.31	1.86	1.10

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	13.80	13.81	13.88	14.60	21.80	93.80	813.80
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1380.08	138.08	13.88	1.46	.22	.09	.08
CONTRAST RATIOS							
CABS	17250.00	1725.00	172.50	17.25	1.72	.17	.02
CMAX	99.99	99.88	98.85	89.61	46.31	7.94	.86
SHADES OF GRAY (SOG)	29.15	22.51	15.88	9.38	3.89	1.46	1.05

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	11.25	11.25	11.28	11.57	14.50	43.75	336.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bd)	8654.10	865.63	86.79	8.90	1.12	.34	.26
CONTRAST RATIOS							
CABS	34615.38	3461.54	346.15	34.62	3.46	.35	.03
CMAX	99.99	99.94	99.43	94.54	63.38	14.75	1.70
SHADES OF GRAY (SOG)	31.16	24.52	17.88	11.31	5.32	1.86	1.10

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	11.25	11.26	11.31	11.87	17.50	73.75	636.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	4500.25	450.25	45.25	4.75	.70	.29	.25
CONTRAST RATIOS							
CABS	18000.00	1800.00	180.00	18.00	1.80	.18	.02
CMAX	99.99	99.89	98.90	90.00	47.37	8.26	.89
SHADES OF GRAY (SOG)	29.27	22.63	16.00	9.50	3.97	1.48	1.05

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	11.25	11.26	11.37	12.50	23.75	136.25	1261.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	2250.25	225.25	22.75	2.50	.47	.27	.25
CONTRAST RATIOS							
CABS	9000.00	900.00	90.00	9.00	.90	.09	.01
CMAX	99.98	99.78	97.83	81.82	31.03	4.31	.45
SHADES OF GRAY (SOG)	27.27	20.63	14.02	7.64	2.85	1.25	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	11.25	11.27	11.50	13.75	36.25	261.25	2511.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1125.25	112.75	11.50	1.37	.36	.26	.25
CONTRAST RATIOS							
CABS	4500.00	450.00	45.00	4.50	.45	.04	.00
CMAX	99.96	99.56	95.74	69.23	18.37	2.20	.22
SHADES OF GRAY (SOG)	25.27	18.63	12.05	5.92	2.07	1.13	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BW) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.65	6.50	65.00	650.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	7.50	7.51	7.56	8.15	14.00	72.50	657.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	5769.73	577.42	58.19	6.27	1.08	.56	.51
CONTRAST RATIOS							
CABS	11538.46	1153.85	115.38	11.54	1.15	.12	.01
CMAX	99.98	99.83	98.30	85.23	36.59	5.45	.57
SHADES OF GRAY (SOG)	27.99	21.35	14.73	8.30	3.21	1.32	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	7.50	7.51	7.62	8.75	20.00	132.50	1257.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	3000.50	300.50	30.50	3.50	.80	.53	.50
CONTRAST RATIOS							
CABS	6000.00	600.00	60.00	6.00	.60	.06	.01
CMAX	99.97	99.67	96.77	75.00	23.08	2.91	.30
SHADES OF GRAY (SOG)	26.10	19.46	12.86	6.61	2.36	1.17	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	7.50	7.52	7.75	10.00	32.50	257.50	2507.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1500.50	150.50	15.50	2.00	.65	.51	.50
CONTRAST RATIOS							
CABS	3000.00	300.00	30.00	3.00	.30	.03	.00
CMAX	99.93	99.34	93.75	60.00	13.04	1.48	.15
SHADES OF GRAY (SOG)	24.10	17.47	10.91	5.00	1.76	1.09	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	7.50	7.55	8.00	12.50	57.50	507.50	5007.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	750.50	75.50	8.00	1.25	.57	.51	.50
CONTRAST RATIOS							
CABS	1500.00	150.00	15.00	1.50	.15	.01	.00
CMAX	99.87	98.68	88.24	42.86	6.98	.74	.07
SHADES OF GRAY (SOG)	22.10	15.48	9.00	3.64	1.40	1.04	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	3.75	3.76	3.85	4.72	13.50	101.25	978.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	2885.37	289.21	29.60	3.63	1.04	.78	.75
CONTRAST RATIOS							
CABS	3846.15	384.62	38.46	3.85	.38	.04	.00
CMAX	99.95	99.48	95.06	65.79	16.13	1.89	.19
SHADES OF GRAY (SOG)	24.82	18.18	11.60	5.55	1.94	1.11	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	3.75	3.77	3.94	5.62	22.50	191.25	1878.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1500.75	150.75	15.75	2.25	.90	.76	.75
CONTRAST RATIOS							
CABS	2000.00	200.00	20.00	2.00	.20	.02	.00
CMAX	99.90	99.01	90.91	50.00	9.09	.99	.10
SHADES OF GRAY (SOG)	22.93	16.30	9.78	4.17	1.53	1.06	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	3.75	3.79	4.12	7.50	41.25	378.75	3753.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (B▲)	750.75	75.75	8.25	1.50	.82	.76	.75
CONTRAST RATIOS							
CABS	1000.00	100.00	10.00	1.00	.10	.01	.00
CMAX	99.80	98.04	83.33	33.33	4.76	.50	.05
SHADES OF GRAY (SOG)	20.93	14.32	7.92	3.00	1.28	1.03	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 15 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	3.76	3.82	4.50	11.25	78.75	753.75	7503.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	375.75	38.25	4.50	1.12	.79	.75	.75
CONTRAST RATIOS							
CABS	500.00	50.00	5.00	.50	.05	.00	.00
CMAX	99.60	96.15	71.43	20.00	2.44	.25	.02
SHADES OF GRAY (SOG)	18.94	12.34	6.17	2.17	1.14	1.01	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	19.60	19.60	19.60	19.63	19.86	22.20	45.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1507696	1507.71	150.79	15.10	1.53	.17	.04
CONTRAST RATIOS							
CABS	753846.15	75384.62	7538.46	753.85	75.38	7.54	.75
CMAX	100.00	100.00	99.97	99.74	97.42	79.03	27.37
SHADES OF GRAY (SOG)	40.05	33.40	26.76	20.12	13.51	7.19	2.62

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	19.60	19.60	19.60	19.65	20.10	24.60	69.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	7840.02	784.02	78.42	7.86	.80	.10	.03
CONTRAST RATIOS							
CABS	392000.00	39200.00	3920.00	392.00	39.20	3.92	.39
CMAX	100.00	99.99	99.95	99.49	95.15	66.22	16.39
SHADES OF GRAY (SOG)	38.16	31.52	24.87	18.24	11.66	5.60	1.95

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	19.60	19.60	19.61	19.70	20.60	29.60	119.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3920.02	392.02	39.22	3.94	.41	.06	.02
CONTRAST RATIOS							
CABS	196000.00	19600.00	1960.00	196.00	19.60	1.96	.20
CMAX	100.00	99.99	99.90	98.99	90.74	49.49	8.93
SHADES OF GRAY (SOG)	36.16	29.52	22.87	16.24	9.73	4.13	1.52

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	19.60	19.60	19.62	19.80	21.60	39.60	219.60
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bø)	1960.02	196.02	19.62	1.98	.22	.04	.02
CONTRAST RATIOS							
CABS	98000.00	9800.00	980.00	98.00	9.80	.98	.10
CMAX	100.00	99.98	99.80	98.00	83.05	32.89	4.67
SHADES OF GRAY (SOG)	34.16	27.52	20.88	14.26	7.87	2.97	1.27

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	19.20	19.20	19.21	19.25	19.72	24.40	71.20
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1.0769.27	1476.96	147.73	14.81	1.52	.19	.05
CONTRAST RATIOS							
CABS	369230.77	36923.08	3692.31	369.23	36.92	3.69	.37
CMAX	100.00	99.99	99.95	99.46	94.86	64.86	15.58
SHADES OF GRAY (SOG)	37.99	31.34	24.70	18.06	11.49	5.46	1.91

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	19.20	19.20	19.21	19.30	20.20	29.20	119.20
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	7680.04	768.04	76.84	7.72	.81	.12	.05
CONTRAST RATIOS							
CABS	192000.00	19200.00	1920.00	192.00	19.20	1.92	.19
CMAX	100.00	99.99	99.90	98.97	90.57	48.98	8.76
SHADES OF GRAY (SOG)	36.1[illegible]	29.46	22.82	16.18	9.67	4.09	1.51

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (FOOT-LAMBERTS) (BV)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (FOOT-LAMBERTS) (BB)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (FOOT-LAMBERTS) (BD)	19.20	19.20	19.22	19.40	21.20	39.20	219.20
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3840.04	384.04	38.46	3.88	.42	.08	.04
CONTRAST RATIOS							
CABS	96000.00	9600.00	960.00	96.00	9.60	.96	.10
CMAX	100.00	99.98	99.79	97.96	82.76	32.43	4.58
SHADES OF GRAY (SBG)	34.10	27.46	20.82	14.20	7.81	2.94	1.26

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	19.20	19.20	19.24	19.60	23.20	59.20	419.20
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1920.04	192.04	19.24	1.96	.23	.06	.04
CONTRAST RATIOS							
CABS	48000.00	4800.00	480.00	48.00	4.80	.48	.05
CMAX	100.00	99.96	99.59	96.00	70.59	19.35	2.34
SHADES OF GRAY (SOG)	32.10	25.46	18.82	12.23	6.07	2.13	1.14

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	18.40	18.40	18.41	18.50	19.44	28.80	122.40
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	14153.93	1415.46	141.62	14.23	1.50	.22	.09
CONTRAST RATIOS							
CABS	176923.08	17692.31	1769.23	176.92	17.69	1.77	.18
CMAX	100.00	99.99	99.89	98.88	89.84	46.94	8.13
SHADES OF GRAY (SOG)	35.87	29.22	22.58	15.95	9.45	3.94	1.47

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	18.40	18.40	18.42	18.60	20.40	38.40	218.40
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	7360.08	736.08	73.68	7.44	.82	.15	.09
CONTRAST RATIOS							
CABS	92000.00	9200.00	920.00	92.00	9.20	.92	.09
CMAX	100.00	99.98	99.78	97.87	82.14	31.51	4.40
SHADES OF GRAY (SOG)	33.98	27.34	20.69	14.08	7.70	2.88	1.25

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	18.40	18.40	18.44	18.80	22.40	58.40	418.40
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bd)	3680.08	368.08	36.88	3.76	.45	.12	.08
CONTRAST RATIOS							
CABS	46000.00	4600.00	460.00	46.00	4.60	.46	.05
CMAX	100.00	99.96	99.57	95.83	69.70	18.70	2.25
SHADES OF GRAY (SOG)	31.98	25.34	18.70	12.11	5.97	2.09	1.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	18.40	18.41	18.48	19.20	26.40	98.40	818.40
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1840.08	184.08	18.48	1.92	.26	.10	.08
CONTRAST RATIOS							
CABS	23000.00	2300.00	230.00	23.00	2.30	.23	.02
CMAX	99.99	99.91	99.14	92.00	53.49	10.31	1.14
SHADES OF GRAY (SOG)	29.98	23.34	16.70	10.17	4.44	1.60	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	15.00	15.00	15.03	15.32	18.25	47.50	340.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	11538.71	1154.10	115.63	11.79	1.40	.37	.26
CONTRAST RATIOS							
CABS	46153.85	4615.38	461.54	46.15	4.62	.46	.05
CMAX	100.00	99.96	99.57	95.85	69.77	18.75	2.26
SHADES OF GRAY (SOG)	31.99	25.35	18.71	12.12	5.98	2.09	1.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	15.00	15.01	15.06	15.62	21.25	77.50	640.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	6000.25	600.25	60.25	6.25	.85	.31	.26
CONTRAST RATIOS							
CABS	24000.00	2400.00	240.00	24.00	2.40	.24	.02
CMAX	99.99	99.92	99.17	92.31	54.55	10.71	1.19
SHADES OF GRAY (SOG)	30.10	23.46	16.83	10.29	4.53	1.62	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	15.00	15.01	15.12	16.25	27.50	140.00	1265.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3000.25	300.25	30.25	3.25	.55	.28	.25
CONTRAST RATIOS							
CABS	12000.00	1200.00	120.00	12.00	1.20	.12	.01
CMAX	99.98	99.83	98.36	85.71	37.50	5.66	.60
SHADES OF GRAY (SOG)	28.10	21.46	14.84	8.40	3.28	1.33	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	15.00	15.02	15.25	17.50	40.00	265.00	2515.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1500.25	150.25	15.25	1.75	.40	.26	.25
CONTRAST RATIOS							
CABS	6000.00	600.00	60.00	6.00	.60	.06	.01
CMAX	99.97	99.67	96.77	75.00	23.08	2.91	.30
SHADES OF GRAY (SOG)	26.10	19.46	12.86	6.61	2.36	1.17	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.65	6.50	65.00	650.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	10.00	10.01	10.06	10.65	16.50	75.00	660.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	7692.81	769.73	77.42	8.19	1.27	.58	.51
CONTRAST RATIOS							
CABS	15384.62	1538.46	153.85	15.38	1.54	.15	.02
CMAX	99.99	99.87	98.72	88.50	43.48	7.14	.76
SHADES OF GRAY (SOG)	28.82	22.18	15.55	9.07	3.69	1.41	1.04

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	10.00	10.01	10.12	11.25	22.50	135.00	1260.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	4000.50	400.50	40.50	4.50	.90	.54	.50
CONTRAST RATIOS							
CABS	8000.00	800.00	80.00	8.00	.80	.08	.01
CMAX	99.98	99.75	97.56	80.00	28.57	3.85	.40
SHADES OF GRAY (SOG)	26.93	20.29	13.68	7.34	2.70	1.22	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	10.00	10.02	10.25	12.50	35.00	260.00	2510.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	2000.50	200.50	20.50	2.50	.70	.52	.50
CONTRAST RATIOS							
CABS	4000.00	400.00	40.00	4.00	.40	.04	.00
CMAX	99.95	99.50	95.24	66.67	16.67	1.96	.20
SHADES OF GRAY (SOG)	24.93	18.29	11.72	5.64	1.97	1.11	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	10.00	10.05	10.50	15.00	60.00	510.00	5010.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bo)	1000.50	100.50	10.50	1.50	.60	.51	.50
CONTRAST RATIOS							
CABS	2000.00	200.00	20.00	2.00	.20	.02	.00
CMAX	99.90	99.01	90.91	50.00	9.09	.99	.10
SHADES OF GRAY (SOG)	22.93	16.30	9.78	4.17	1.53	1.06	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	5.00	5.01	5.10	5.97	14.75	102.50	980.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	3846.90	385.37	39.21	4.60	1.13	.79	.75
CONTRAST RATIOS							
CABS	5128.21	512.82	51.28	5.13	.51	.05	.01
CMAX	99.96	99.61	96.25	71.94	20.41	2.50	.26
SHADES OF GRAY (SOG)	25.65	19.01	12.42	6.23	2.19	1.14	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	5.00	5.02	5.19	6.87	23.75	192.50	1880.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	2000.75	200.75	20.75	2.75	.95	.77	.75
CONTRAST RATIOS							
CABS	2666.67	266.67	26.67	2.67	.27	.03	.00
CMAX	99.93	99.26	93.02	57.14	11.76	1.32	.13
SHADES OF GRAY (SOG)	23.76	17.13	10.58	4.75	1.68	1.08	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	5.00	5.04	5.37	8.75	42.50	380.00	3755.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1000.75	100.75	10.75	1.75	.85	.76	.75
CONTRAST RATIOS							
CABS	1333.33	133.33	13.33	1.33	.13	.01	.00
CMAX	99.85	98.52	86.96	40.00	6.25	.66	.07
SHADES OF GRAY (SOG)	21.76	15.14	8.68	3.44	1.36	1.04	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 20 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	5.01	5.07	5.75	12.50	80.00	755.00	7505.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	500.75	50.75	5.75	1.25	.80	.75	.75
CONTRAST RATIOS							
CABS	666.67	66.67	6.67	.67	.07	.01	.00
CMAX	99.70	97.09	76.92	25.00	3.23	.33	.03
SHADES OF GRAY (SOG)	19.77	13.16	6.88	2.47	1.19	1.02	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	24.50	24.50	24.50	24.53	24.76	27.10	50.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	18846.17	1884.64	188.48	18.87	1.90	.21	.04
CONTRAST RATIOS							
CABS	1942307.69	94230.77	9423.08	942.31	94.23	9.42	.94
CMAX	100.00	100.00	99.98	99.79	97.92	82.49	32.03
SHADES OF GRAY (SOG)	40.69	34.05	27.40	20.76	14.15	7.76	2.92

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	24.50	24.50	24.50	24.55	25.00	29.50	74.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	9800.02	980.02	98.02	9.82	1.00	.12	.03
CONTRAST RATIOS							
CABS	490000.00	49000.00	4900.00	490.00	49.00	4.90	.49
CMAX	100.00	100.00	99.96	99.59	96.08	71.01	19.68
SHADES OF GRAY (SOG)	38.80	32.16	25.52	18.88	12.29	6.12	2.15

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	24.50	24.50	24.51	24.60	25.50	34.50	124.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	.900+02	.90+02	.9+02	4.92	.51	.07	.02
CONTRAST RATIOS							
CABS	245000.00	24500.00	2450.00	245.00	24.50	2.45	.24
CMAX	100.00	99.99	99.92	99.19	92.45	55.06	10.91
SHADES OF GRAY (SOG)	36.80	30.16	23.52	16.89	10.34	4.57	1.83

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	24.50	24.50	24.52	24.70	26.50	44.50	224.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	2450.02	245.02	24.52	2.47	.26	.04	.02
CONTRAST RATIOS							
CABS	122500.00	12250.00	1225.00	122.50	12.25	1.22	.12
CMAX	100.00	99.98	99.84	98.39	85.96	37.98	5.77
SHADES OF GRAY (SBG)	34.80	28.16	21.52	14.90	8.46	3.31	1.33

IHMS/D DISplay LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	24.00	24.00	24.01	24.05	24.52	29.20	76.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1846158	184619	18466	1850	189	22	6
CONTRAST RATIOS							
CABS	46153846	4615385	461538	46154	4615	462	46
CMAX	100.00	100.00	99.96	99.57	95.85	69.77	18.75
SHADES OF GRAY (SOG)	38.63	31.99	25.35	18.71	12.12	5.98	2.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	24.00	24.00	24.01	24.10	25.00	34.00	124.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	9600.04	960.04	96.04	9.64	1.00	.14	.05
CONTRAST RATIOS							
CABS	240000.00	24000.00	2400.00	240.00	24.00	2.40	.24
CMAX	100.00	99.99	99.92	99.17	92.31	54.55	10.71
SHADES OF GRAY (SOG)	36.75	30.10	23.46	16.83	10.29	4.53	1.62

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	24.00	24.00	24.02	24.20	26.00	44.00	224.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	4800.04	480.04	48.04	4.84	.52	.09	.04
CONTRAST RATIOS							
CABS	120000.00	12000.00	1200.00	120.00	12.00	1.20	.12
CMAX	100.00	99.98	99.83	98.36	85.71	37.50	5.66
SHADES OF GRAY (SOG)	34.75	28.10	21.46	14.84	8.40	3.28	1.33

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	24.00	24.00	24.04	24.40	28.00	64.00	424.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	2400.04	240.04	24.04	2.44	.28	.06	.04
CONTRAST RATIOS							
CABS	60000.00	6000.00	600.00	60.00	6.00	.60	.06
CMAX	100.00	99.97	99.67	96.77	75.00	23.08	2.91
SHADES OF GRAY (SOG)	32.75	26.10	19.46	12.86	6.61	2.36	1.17

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	23.00	23.00	23.01	23.10	24.04	33.40	127.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bα)	17692.39	1769.31	177.00	17.77	1.85	.26	.10
CONTRAST RATIOS							
CABS	221153.85	22115.38	2211.54	221.15	22.12	2.21	.22
CMAX	100.00	99.99	99.91	99.10	91.71	52.51	9.96
SHADES OF GRAY (SOG)	36.51	29.87	23.22	16.59	10.06	4.37	1.58

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	23.00	23.00	23.02	23.20	25.00	43.00	223.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bo)	9200.08	920.08	92.08	9.28	1.00	.17	.09
CONTRAST RATIOS							
CABS	115000.00	11500.00	1150.00	115.00	11.50	1.15	.11
CMAX	100.00	99.98	99.83	98.29	85.19	36.51	5.44
SHADES OF GRAY (SOG)	34.62	27.98	21.36	14.72	8.29	3.21	1.31

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	23.00	23.00	23.04	23.40	27.00	63.00	423.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	4600.08	460.08	46.08	4.68	.54	.13	.08
CONTRAST RATIOS							
CABS	57500.00	5750.00	575.00	57.50	5.75	.57	.06
CMAX	100.00	99.97	99.65	96.64	74.19	22.33	2.79
SHADES OF GRAY (SOG)	32.62	25.98	19.34	12.74	6.51	2.31	1.16

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	23.00	23.01	23.08	23.80	31.00	103.00	823.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	2300.08	230.08	23.08	2.38	.31	.10	.08
CONTRAST RATIOS							
CABS	28750.00	2875.00	287.50	28.75	2.87	.29	.03
CMAX	99.99	99.93	99.31	93.50	58.97	12.57	1.42
SHADES OF GRAY (SOG)	30.62	23.98	17.34	10.79	4.91	1.73	1.08

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01-FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	18.75	18.75	18.78	19.07	22.00	51.25	343.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1442.33	1442.56	144.48	14.67	1.69	.39	.26
CONTRAST RATIOS							
CABS	5769.31	5769.23	576.92	57.69	5.77	.58	.06
CMAX	100.00	99.97	99.65	96.65	74.26	22.39	2.80
SHADES OF GRAY (SOG)	32.63	25.99	19.35	12.75	6.52	2.31	1.16

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	18.75	18.76	18.81	19.37	25.00	81.25	643.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	7500.25	750.25	75.25	7.75	1.00	.32	.26
CONTRAST RATIOS							
CABS	30000.00	3000.00	300.00	30.00	3.00	.30	.03
CMAx	99.99	99.93	99.34	93.75	60.00	13.04	1.48
SHADES OF GRAY (SOG)	30.75	24.10	17.47	10.91	5.00	1.76	1.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	18.75	18.76	18.87	20.00	31.25	143.75	1268.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	3750.25	375.25	37.75	4.00	.62	.29	.25
CONTRAST RATIOS							
CABS	15000.00	1500.00	150.00	15.00	1.50	.15	.01
CMAX	99.99	99.87	98.68	88.24	42.86	6.98	.74
SHADES OF GRAY (SOG)	28.75	22.10	15.48	9.00	3.64	1.40	1.04

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	18.75	18.77	19.00	21.25	43.75	268.75	2518.75
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1875.25	187.75	19.00	2.12	.44	.27	.25
CONTRAST RATIOS							
CABS	7500.00	750.00	75.00	7.50	.75	.07	.01
CMAX	99.97	99.73	97.40	78.95	27.27	3.61	.37
SHADES OF GRAY (SOG)	26.75	20.11	13.50	7.17	2.61	1.21	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (FOOT-LAMBERTS) (BV)	.00	.01	.13	1.30	13.00	130.00	1300.0
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (FOOT-LAMBERTS) (BB)	.00	.01	.06	.65	6.50	65.00	650.0
NET DISPLAY LUMINANCE (FOOT-LAMBERTS) (BD)	12.50	12.51	12.56	13.15	19.00	77.50	662.5
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	9615.86	962.04	96.65	10.12	1.46	.60	.51
CONTRAST RATIOS							
CABS	19230.77	1923.08	192.31	19.23	1.92	.19	.02
CMAX	99.99	99.90	98.97	90.58	49.02	8.77	.96
SHADES OF GRAY (SOG)	29.46	22.82	16.19	9.68	4.03	1.51	1.05

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	12.50	12.51	12.62	13.75	25.00	137.50	1262.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	5000.50	500.50	50.50	5.50	1.00	.55	.50
CONTRAST RATIOS							
CABS	10000.00	1000.00	100.00	10.00	1.00	.10	.01
CMAX	99.98	99.80	98.04	83.33	33.33	4.76	.50
SHADES OF GRAY (SOG)	27.58	20.93	14.32	7.92	3.00	1.28	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	12.50	12.52	12.75	15.00	37.50	262.50	2512.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	2500.50	250.50	25.50	3.00	.75	.52	.50
CONTRAST RATIOS							
CABS	5000.00	500.00	50.00	5.00	.50	.05	.00
CMAX	99.96	99.60	96.15	71.43	20.00	2.44	.25
SHADES OF GRAY (SOG)	25.58	18.94	12.34	6.17	2.17	1.14	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	12.50	12.55	13.00	17.50	62.50	512.50	5012.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (R_A)	1250.50	125.50	13.00	1.75	.62	.51	.50
CONTRAST RATIOS							
CABS	2500.00	250.00	25.00	2.50	.25	.02	.00
CMAX	99.92	99.21	92.59	55.56	11.11	1.23	.12
SHADES OF GRAY (SOG)	23.58	16.94	10.40	4.61	1.64	1.07	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	6.25	6.26	6.35	7.22	16.00	103.75	981.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	4808.44	481.52	48.83	5.56	1.23	.80	.75
CONTRAST RATIOS							
CABS	6410.26	641.03	64.10	6.41	.64	.06	.01
CMAX	99.97	99.69	96.97	76.22	24.27	3.11	.32
SHADES OF GRAY (SOG)	26.29	19.65	13.05	6.78	2.43	1.18	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	6.25	6.27	6.44	8.12	25.00	193.75	1881.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	2500.75	250.75	25.75	3.25	1.00	.77	.75
CONTRAST RATIOS							
CABS	3333.33	333.33	33.33	3.33	.33	.03	.00
CMAX	99.94	99.40	94.34	62.50	14.29	1.64	.17
SHADES OF GRAY (SOG)	24.41	17.77	11.20	5.23	1.83	1.09	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	6.25	6.29	6.62	10.00	43.75	381.25	3756.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1250.75	125.75	13.25	2.00	.87	.76	.75
CONTRAST RATIOS							
CABS	1666.67	166.67	16.67	1.67	.17	.02	.00
CMAX	99.88	98.81	89.29	45.45	7.69	.83	.08
SHADES OF GRAY (SOG)	22.41	15.78	9.29	3.83	1.44	1.05	1.00

INMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 25 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	6.26	6.32	7.00	13.75	81.25	756.25	7506.25
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (B_Δ)	625.75	63.25	7.00	1.37	.81	.76	.75
CONTRAST RATIOS							
CABS	833.33	83.33	8.33	.83	.08	.01	.00
CMAX	99.76	97.66	80.65	29.41	4.00	.41	.04
SHADES OF GRAY (SOG)	20.41	13.80	7.46	2.75	1.23	1.02	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	49.00	49.00	49.00	49.03	49.26	51.60	75.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	37692.33	3769.25	376.94	37.71	3.79	.40	.06
CONTRAST RATIOS							
CABS	1884615.38	188461.54	18846.15	1884.62	188.46	18.85	1.88
CMAX	100.00	100.00	99.99	99.89	98.95	90.41	48.51
SHADES OF GRAY (SOG)	42.69	36.05	29.40	22.76	16.13	9.62	4.06

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (FOOT-LAMBERTS) (BV)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (FOOT-LAMBERTS) (BB)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (FOOT-LAMBERTS) (BD)	49.00	49.00	49.00	49.05	49.50	54.00	99.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	19600.02	1960.02	196.02	19.62	1.98	.22	.04
CONTRAST RATIOS							
CABS	980000.00	98000.00	9800.00	980.00	98.00	9.80	.98
CMAX	100.00	100.00	99.98	99.80	98.00	83.05	32.89
SHADES OF GRAY (SOG)	40.80	34.16	27.52	20.88	14.26	7.87	2.97

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	49.00	49.00	49.01	49.10	50.00	59.00	149.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	9800.02	980.02	98.02	9.82	1.00	.12	.03
CONTRAST RATIOS							
CABS	4900000.00	49000.00	4900.00	490.00	49.00	4.90	.49
CMAX	100.00	100.00	99.96	99.59	96.08	71.01	19.68
SHADES OF GRAY (SOG)	38.80	32.16	25.52	18.88	12.29	6.12	2.15

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	49.00	49.00	49.02	49.20	51.00	69.00	249.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bδ)	4900.02	490.02	49.02	4.92	.51	.07	.02
CONTRAST RATIOS							
CABS	245000.00	24500.00	2450.00	245.00	24.50	2.45	.24
CMAX	100.00	99.99	99.92	99.19	92.45	55.06	10.91
SHADES OF GRAY (SOG)	36.80	30.16	23.52	16.89	10.34	4.57	1.63

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	48.00	48.00	48.01	48.05	48.52	53.20	100.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	36923.12	3692.35	369.27	36.96	3.73	.41	.08
CONTRAST RATIOS							
CABS	923076.92	92307.69	9230.77	923.08	92.31	9.23	.92
CMAX	100.00	100.00	99.98	99.78	97.88	82.19	31.58
SHADES OF GRAY (SOG)	40.63	33.99	27.34	20.70	14.09	7.71	2.89

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	48.00	48.00	48.01	48.10	49.00	58.00	148.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	19200.04	1920.04	192.04	19.24	1.96	.23	.06
CONTRAST RATIOS							
CABS	480000.00	48000.00	4800.00	480.00	48.00	4.80	.48
CMAX	100.00	100.00	99.96	99.59	96.00	70.59	19.35
SHADES OF GRAY (SOG)	38.75	32.10	25.46	18.82	12.23	6.07	2.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	48.00	48.00	48.02	48.20	50.00	68.00	248.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	9600.04	960.04	96.04	9.64	1.00	.14	.05
CONTRAST RATIOS							
CABS	240000.00	24000.00	2400.00	240.00	24.00	2.40	.24
CMAX	100.00	99.99	99.92	99.17	92.31	54.55	10.71
SHADES OF GRAY (SOG)	36.75	30.10	23.46	16.83	10.29	4.53	1.62

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	48.00	48.00	48.04	48.40	52.00	88.00	448.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	4800.04	480.04	48.04	4.84	.52	.09	.04
CONTRAST RATIOS							
CABS	120000.00	12000.00	1200.00	120.00	12.00	1.20	.12
CMAX	100.00	99.98	99.83	98.36	85.71	37.50	5.66
SHADES OF GRAY (SOG)	34.75	28.10	21.46	14.84	8.40	3.28	1.33

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	46.00	46.00	46.01	46.10	47.04	56.40	150.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	35384.70	3538.54	353.93	35.46	3.62	.43	.12
CONTRAST RATIOS							
CABS	4423 07.69	4423 0.77	4423.08	442.31	44.23	4.42	.44
CMAX	100.00	100.00	99.95	99.55	95.67	68.86	18.11
SHADES OF GRAY (SOG)	38.51	31.87	25.22	18.58	12.00	5.88	2.06

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	46.00	46.00	46.02	46.20	48.00	66.00	246.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	18400.08	1840.08	184.08	18.48	1.92	.26	.10
CONTRAST RATIOS							
CABS	230000.00	23000.00	2300.00	230.00	23.00	2.30	.23
CMAX	100.00	99.99	99.91	99.14	92.00	53.49	10.31
SHADES OF GRAY (SOG)	36.62	29.98	23.34	16.70	10.17	4.44	1.60

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	46.00	46.00	46.04	46.40	50.00	86.00	446.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	9200.08	920.08	92.08	9.28	1.00	.17	.09
CONTRAST RATIOS							
CABS	115000.00	11500.00	1150.00	115.00	11.50	1.15	.11
CMAX	100.00	99.98	99.83	98.29	85.19	36.51	5.44
SHADES OF GRAY (SOG)	34.62	27.98	21.34	14.72	8.29	3.21	1.31

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	46.00	46.01	46.08	46.80	54.00	126.00	846.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	4600.08	460.08	46.08	4.68	.54	.13	.08
CONTRAST RATIOS							
CABS	57500.00	5750.00	575.00	57.50	5.75	.57	.06
CMAX	100.00	99.97	99.65	96.64	74.19	22.33	2.79
SHADES OF GRAY (SOG)	32.62	25.98	19.34	12.74	6.51	2.31	1.16

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	37.50	37.50	37.53	37.82	40.75	70.00	362.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bd)	28846.40	2884.87	288.71	29.10	3.13	.54	.28
CONTRAST RATIOS							
CABS	115384.62	11538.46	1153.85	115.38	11.54	1.15	.12
CMAX	100.00	99.98	99.83	98.30	85.23	36.59	5.45
SHADES OF GRAY (SOG)	34.63	27.99	21.35	14.73	8.30	3.21	1.32

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	37.50	37.51	37.56	38.12	43.75	100.00	662.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	15000.25	1500.25	150.25	15.25	1.75	.40	.26
CONTRAST RATIOS							
CABS	60000.00	6000.00	600.00	60.00	6.00	.60	.06
CMAX	100.00	99.97	99.67	96.77	75.00	23.08	2.91
SHADES OF GRAY (SOG)	32.75	26.10	19.46	12.86	6.61	2.36	1.17

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	37.50	37.51	37.62	38.75	50.00	162.50	1287.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bo)	7500.25	750.25	75.25	7.75	1.00	.32	.26
CONTRAST RATIOS							
CABS	30000.00	3000.00	300.00	30.00	3.00	.30	.03
CMAX	99.99	99.93	99.34	93.75	60.00	13.04	1.48
SHADES OF GRAY (SOG)	30.75	24.10	17.47	10.91	5.00	1.76	1.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (FOOT-LAMBERTS) (BV)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (FOOT-LAMBERTS) (BB)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (FOOT-LAMBERTS) (BD)	37.50	37.52	37.75	40.00	62.50	287.50	2537.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	3750.25	375.25	37.75	4.00	.62	.29	.25
CONTRAST RATIOS							
CABS	15000.00	1500.00	150.00	15.00	1.50	.15	.01
CMAX	99.99	99.87	98.68	88.24	42.86	6.98	.74
SHADES OF GRAY (SOG)	28.75	22.10	15.48	9.00	3.64	1.40	1.04

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.65	6.50	65.00	650.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	25.00	25.01	25.06	25.65	31.50	90.00	675.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	19231.27	1923.58	192.81	19.73	2.42	.69	.52
CONTRAST RATIOS							
CABS	38461.54	3846.15	384.62	38.46	3.85	.38	.04
CMAX	99.99	99.95	99.48	95.06	65.79	16.13	1.89
SHADES OF GRAY (SOG)	31.46	24.82	18.18	11.60	5.55	1.94	1.11

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	25.00	25.01	25.12	26.25	37.50	150.00	1275.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	10000.50	1000.50	100.50	10.50	1.50	.60	.51
CONTRAST RATIOS							
CABS	20000.00	2000.00	200.00	20.00	2.00	.20	.02
CMAX	99.99	99.90	99.01	90.91	50.00	9.09	.99
SHADES OF GRAY (SOG)	29.58	22.93	16.30	9.78	4.17	1.53	.06

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	25.00	25.02	25.25	27.50	50.00	275.00	2525.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	5000.50	500.50	50.50	5.50	1.00	.55	.50
CONTRAST RATIOS							
CABS	10000.00	1000.00	100.00	10.00	1.00	.10	.01
CMAX	99.98	99.80	98.04	83.33	33.33	4.76	.50
SHADES OF GRAY (SOG)	27.58	20.93	14.32	7.92	3.00	1.28	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	25.00	25.05	25.50	30.00	75.00	525.00	5025.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	2500.50	250.50	25.50	3.00	.75	.52	.50
CONTRAST RATIOS							
CABS	5000.00	500.00	50.00	5.00	.50	.05	.00
CMAX	99.96	99.60	96.15	71.43	20.00	2.44	.25
SHADES OF GRAY (SOG)	25.58	18.94	12.34	6.17	2.17	1.14	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	12.50	12.51	12.60	13.47	22.25	110.00	987.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	9616.13	962.29	96.90	10.37	1.71	.85	.76
CONTRAST RATIOS							
CABS	12820.51	1282.05	128.21	12.82	1.28	.13	.01
CMAX	99.98	99.84	98.46	86.51	39.06	6.02	.64
SHADES OF GRAY (SOG)	28.29	21.65	15.03	8.58	3.38	1.35	1.04

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	12.50	12.52	12.69	14.37	31.25	200.00	1887.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	5000.75	500.75	50.75	5.75	1.25	.80	.75
CONTRAST RATIOS							
CABS	6666.67	666.67	66.67	6.67	.67	.07	.01
CMAX	99.97	99.70	97.09	76.92	25.00	3.23	.33
SHADES OF GRAY (SOG)	26.41	19.77	13.16	6.88	2.47	1.19	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	12.50	12.54	12.87	16.25	50.00	387.50	3762.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	2500.75	250.75	25.75	3.25	1.00	.77	.75
CONTRAST RATIOS							
CABS	3333.33	333.33	33.33	3.33	.33	.03	.00
CMAX	99.94	99.40	94.34	62.50	14.29	1.64	.17
SHADES OF GRAY (SOG)	24.41	17.77	11.20	5.23	1.83	1.09	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 50 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	12.51	12.57	13.25	20.00	87.50	762.50	7512.50
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (RA)	1250.75	125.75	13.25	2.00	.87	.76	.75
CONTRAST RATIOS							
CABS	1666.67	166.67	16.67	1.67	.17	.02	.00
CMAX	99.88	98.81	89.29	45.45	7.69	.83	.08
SHADES OF GRAY (SOG)	22.41	15.78	9.29	3.83	1.44	1.05	1.00

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	98.00	98.00	98.00	98.03	98.26	100.60	124.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	7538 4.64	7538.48	753.87	75.40	7.56	.77	.10
CONTRAST RATIOS							
CABS	769230.77	76923.08	7692.31	769.23	76.92	7.69	0.77
CMAX	100.00	100.00	99.99	99.95	99.47	94.96	65.33
SHADES OF GRAY (SOG)	44.69	38.05	31.40	24.76	18.12	11.55	5.51

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	98.00	98.00	98.00	98.05	98.50	103.00	148.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	39200.02	3920.02	392.02	39.22	3.94	.41	.06
CONTRAST RATIOS							
CABS	1960000.00	196000.00	19600.00	1960.00	196.00	19.60	1.96
CMAX	100.00	100.00	99.99	99.90	98.99	90.74	49.49
SHADES OF GRAY (SBG)	42.80	36.16	29.52	22.87	16.24	9.73	4.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	98.00	98.00	98.01	98.10	99.00	108.00	198.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bd)	19600.02	1960.02	196.02	19.62	1.98	.22	.04
CONTRAST RATIOS							
CABS	1980000.00	98000.00	9800.00	980.00	98.00	9.80	.98
CMAX	100.00	100.00	99.98	99.80	98.00	83.05	32.89
SHADES OF GRAY (SOG)	40.80	34.16	27.52	20.88	14.26	7.87	2.97

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	98.00	98.00	98.02	98.20	100.00	118.00	298.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	9800.02	980.02	98.02	9.82	1.00	.12	.03
CONTRAST RATIOS							
CABS	49000.00	49000.00	4900.00	490.00	49.00	4.90	.49
CMAX	100.00	100.00	99.96	99.59	96.08	71.01	19.68
SHADES OF GRAY (SOG)	38.80	32.16	25.52	18.88	12.29	6.12	2.15

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	96.00	96.00	96.01	96.05	96.52	101.20	148.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	73846.19	7384.66	738.50	73.89	7.42	.78	.11
CONTRAST RATIOS							
CABS	1846153.85	184615.38	18461.54	1846.15	184.62	18.46	1.85
CMAX	100.00	100.00	99.99	99.89	98.93	90.23	48.00
SHADES OF GRAY (SOG)	42.63	35.99	29.34	22.70	16.07	9.57	4.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	96.00	96.00	96.01	96.10	97.00	106.00	196.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	38400.04	3840.04	384.04	38.44	3.88	.42	.08
CONTRAST RATIOS							
CABS	960000.00	96000.00	9600.00	960.00	96.00	9.60	.96
CMAX	100.00	100.00	99.98	99.79	97.96	82.76	32.43
SHADES OF GRAY (SOG)	40.75	34.10	27.46	20.82	14.20	7.81	2.94

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	96.00	96.00	96.02	96.20	98.00	116.00	296.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bd)	19200.04	1920.04	192.04	19.24	1.96	.23	.06
CONTRAST RATIOS							
CABS	480000.00	48000.00	4800.00	480.00	48.00	4.80	.48
CMAX	100.00	100.00	99.96	99.59	96.00	70.59	19.35
SHADES OF GRAY (SOG)	38.75	32.10	25.46	18.82	12.23	6.07	2.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	96.00	96.00	96.04	96.40	100.00	136.00	496.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bd)	9600.04	960.04	96.04	9.64	1.00	.14	.05
CONTRAST RATIOS							
CABS	240000.00	24000.00	2400.00	240.00	24.00	2.40	.24
CMAX	100.00	99.99	99.92	99.17	92.31	54.55	10.71
SHADES OF GRAY (SOG)	36.75	30.10	23.46	16.83	10.29	4.53	1.62

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	92.00	92.00	92.01	92.10	93.04	102.40	196.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	7.769.31	7.77.00	7.7.77	7.0.85	7.16	.79	.15
CONTRAST RATIOS							
CABS	884615.38	88461.54	8846.15	884.62	88.46	8.85	.88
CMAX	100.00	100.00	99.98	99.77	97.79	81.56	30.67
SHADES OF GRAY (SOG)	40.51	33.87	27.22	20.58	13.97	7.60	2.83

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	92.00	92.00	92.02	92.20	94.00	112.00	292.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	36800.08	3680.08	368.08	36.88	3.76	.45	.12
CONTRAST RATIOS							
CABS	460000.00	46000.00	4600.00	460.00	46.00	4.60	.46
CMAX	100.00	100.00	99.96	99.57	95.83	69.70	18.70
SHADES OF GRAY (SOG)	38.62	31.98	25.34	18.70	12.11	5.97	2.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	92.00	92.00	92.04	92.40	96.00	132.00	492.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	1840.08	184.08	18.48	1.92	.26	.10	
CONTRAST RATIOS							
CABS	230000.00	23000.00	2300.00	230.00	23.00	2.30	.23
CMAX	100.00	99.99	99.91	99.14	92.00	53.49	10.31
SHADES OF GRAY (SOG)	36.62	29.98	23.34	16.70	10.17	4.44	1.60

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	92.00	92.01	92.08	92.80	100.00	172.00	892.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (RA)	9200.08	920.08	92.08	9.28	1.00	.17	.09
CONTRAST RATIOS							
CABS	115000.00	11500.00	1150.00	115.00	11.50	1.15	.11
CMAX	100.00	99.98	99.83	98.29	85.19	36.51	5.44
SHADES OF GRAY (SOG)	34.62	27.98	21.34	14.72	8.29	3.21	1.31

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	75.00	75.00	75.03	75.32	78.25	107.50	400.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	57692.56	5769.48	577.17	57.94	6.02	.83	.31
CONTRAST RATIOS							
CABS	230769.23	23076.92	2307.69	230.77	23.08	2.31	.23
CMAX	100.00	99.99	99.91	99.14	92.02	53.57	10.34
SHADES OF GRAY (SOG)	36.63	29.99	23.35	16.71	10.18	4.45	1.60

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	75.00	75.01	75.06	75.62	81.25	137.50	700.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	30000.25	3000.25	300.25	30.25	3.25	.55	.28
CONTRAST RATIOS							
CABS	120000.00	12000.00	1200.00	120.00	12.00	1.20	.12
CMAX	100.00	99.98	99.83	98.36	85.71	37.50	5.66
SHADES OF GRAY (SOG)	34.75	28.10	21.46	14.84	8.40	3.28	1.33

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	75.00	75.01	75.12	76.25	87.50	200.00	1325.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	15000.25	1500.25	150.25	15.25	1.75	.40	.26
CONTRAST RATIOS							
CABS	60000.00	6000.00	600.00	60.00	6.00	.60	.06
CMAX	100.00	99.97	99.67	96.77	75.00	23.08	2.91
SHADES OF GRAY (SOG)	32.75	26.10	19.46	12.86	6.61	2.36	1.17

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	75.00	75.02	75.25	77.50	100.00	325.00	2575.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	7500.25	750.25	75.25	7.75	1.00	.32	.26
CONTRAST RATIOS							
CABS	30000.00	3000.00	300.00	30.00	3.00	.30	.03
CMAX	99.99	99.93	99.34	93.75	60.00	13.04	1.48
SHADES OF GRAY (SOG)	30.75	24.10	17.47	10.91	5.00	1.76	1.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.65	6.50	65.00	650.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	50.00	50.01	50.06	50.65	56.50	115.00	700.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	38462.04	3846.65	385.12	38.96	4.35	.88	.54
CONTRAST RATIOS							
CABS	76923.08	7692.31	769.23	76.92	7.69	.77	.08
CMAX	100.00	99.97	99.74	97.47	79.37	27.78	3.70
SHADES OF GRAY (SOG)	33.46	26.82	20.18	13.57	7.24	2.65	1.21

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	50.00	50.01	50.12	51.25	62.50	175.00	1300.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	20000.50	2000.50	200.50	20.50	2.50	.70	.52
CONTRAST RATIOS							
CABS	40000.00	4000.00	400.00	40.00	4.00	.40	.04
CMAX	100.00	99.95	99.50	95.24	66.67	16.67	1.96
SHADES OF GRAY (SOG)	31.58	24.93	18.29	11.72	5.64	1.97	1.11

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	50.00	50.02	50.25	52.50	75.00	300.00	2550.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	10000.50	1000.50	100.50	10.50	1.50	.60	.51
CONTRAST RATIOS							
CABS	20000.00	2000.00	200.00	20.00	2.00	.20	.02
CMAX	99.99	99.90	99.01	90.91	50.00	9.09	.99
SHADES OF GRAY (SOG)	29.58	22.93	16.30	9.78	4.17	1.53	1.06

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	50.00	50.05	50.50	55.00	100.00	550.00	5050.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	5000.50	500.50	50.50	5.50	1.00	.55	.50
CONTRAST RATIOS							
CABS	10000.00	1000.00	100.00	10.00	1.00	.10	.01
CMAX	99.98	99.80	98.04	83.33	33.33	4.76	.50
SHADES OF GRAY (SBG)	27.58	20.93	14.32	7.92	3.00	1.28	1.03

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	25.00	25.01	25.10	25.97	34.75	122.50	1000.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	19231.52	1923.83	193.06	19.98	2.67	.94	.77
CONTRAST RATIOS							
CABS	25641.03	2564.10	256.41	25.64	2.56	.26	.03
CMAX	99.99	99.92	99.23	92.76	56.18	11.36	1.27
SHADES OF GRAY (SOG)	30.29	23.65	17.02	10.47	4.67	1.66	1.07

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	25.00	25.02	25.19	26.87	43.75	212.50	1900.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	10000.75	1000.75	100.75	10.75	1.75	.85	.76
CONTRAST RATIOS							
CABS	13333.33	1333.33	133.33	13.33	1.33	.13	.01
CMAX	99.99	99.85	98.52	86.96	40.00	6.25	.66
SHADES OF GRAY (SOG)	28.41	21.76	15.14	8.68	3.44	1.36	1.04

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	25.00	25.04	25.37	28.75	62.50	400.00	3775.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	5000.75	500.75	50.75	5.75	1.25	.80	.75
CONTRAST RATIOS							
CABS	6666.67	666.67	66.67	6.67	.67	.07	.01
CMAX	99.97	99.70	97.09	76.92	25.00	3.23	.33
SHADES OF GRAY (SOG)	26.41	19.77	13.16	6.88	2.47	1.19	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 100 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	25.01	25.07	25.75	32.50	100.00	775.00	7525.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	2500.75	250.75	25.75	3.25	1.00	.77	.75
CONTRAST RATIOS							
CAYS	3333.33	333.33	33.33	3.33	.33	.03	.00
CMAX	99.94	99.40	94.34	62.50	14.29	1.64	.17
SHADES OF GRAY (SOG)	24.41	17.77	11.20	5.23	1.83	1.09	1.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	196.00	196.00	196.00	196.03	196.26	198.60	222.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bo)	150769.25	15076.94	1507.71	150.79	15.10	1.53	.17
CONTRAST RATIOS							
CABS	538461.54	53846.15	5384.62	538.46	53.85	5.38	.54
CMAX	100.00	100.00	100.00	99.97	99.74	97.42	79.03
SHADES OF GRAY (SOG)	46.69	40.05	33.40	26.76	20.12	13.51	7.19

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	196.00	196.00	196.00	196.05	196.50	201.00	246.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	78400.02	7840.02	784.02	78.42	7.86	.80	.10
CONTRAST RATIOS							
CABS	1920000.00	392000.00	39200.00	3920.00	392.00	39.20	3.92
CMAX	100.00	100.00	99.99	99.95	99.49	95.15	66.22
SHADES OF GRAY (SOG)	44.80	38.16	31.52	24.87	18.24	11.66	5.60

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	196.00	196.00	196.01	196.10	197.00	206.00	296.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	39200.02	3920.02	392.02	39.22	3.94	.41	.06
CONTRAST RATIOS							
CABS	1960000.00	196000.00	19600.00	1960.00	196.00	19.60	1.96
CMAX	100.00	100.00	99.99	99.90	98.99	90.74	49.49
SHADES OF GRAY (SOG)	42.80	36.16	29.52	22.87	16.24	9.73	4.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	196.00	196.00	196.02	196.20	198.00	216.00	396.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	19600.02	1960.02	196.02	19.62	1.98	.22	.04
CONTRAST RATIOS							
CABS	1980000.00	98000.00	9800.00	980.00	98.00	9.80	.98
CMAX	100.00	100.00	99.98	99.80	98.00	83.05	32.89
SHADES OF GRAY (SOG)	40.80	34.16	27.52	20.88	14.26	7.87	2.97

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	192.00	192.00	192.01	192.05	192.52	197.20	244.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	147692.35	14769.27	1476.96	147.73	14.81	1.52	.19
CONTRAST RATIOS							
CABS	692307.69	36923.08	3692.31	369.23	36.92	3.69	
CMAX	100.00	100.00	99.99	99.95	99.46	94.86	64.86
SHADES OF GRAY (SOG)	44.63	37.99	31.34	24.70	18.06	11.49	5.46

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	192.00	192.00	192.01	192.10	193.00	202.00	292.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	76800.04	7680.04	768.04	76.84	7.72	.81	.12
CONTRAST RATIOS							
CABS	1920000.00	192000.00	19200.00	1920.00	192.00	19.20	1.92
CMAX	100.00	100.00	99.99	99.90	98.97	90.57	48.98
SHADES OF GRAY (SOG)	42.75	36.10	29.46	22.82	16.18	9.67	4.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	192.00	192.00	192.02	192.20	194.00	212.00	392.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	38400.04	3840.04	384.06	38.44	3.88	.42	.08
CONTRAST RATIOS							
CABS	1960000.00	96000.00	9600.00	960.00	96.00	9.60	.96
CMAX	100.00	100.00	99.98	99.79	97.96	82.76	32.43
SHADES OF GRAY (SOG)	40.75	34.10	27.46	20.82	14.20	7.81	2.94

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	192.00	192.00	192.04	192.40	196.00	232.00	592.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	19200.04	1920.04	192.04	19.24	1.96	.23	.06
CONTRAST RATIOS							
CABS	480000.00	48000.00	4800.00	480.00	48.00	4.80	.48
CMAX	100.00	100.00	99.96	99.59	96.00	70.59	19.35
SHADES OF GRAY (SOG)	38.75	32.10	25.46	18.82	12.23	6.07	2.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	184.00	184.00	184.01	184.10	185.04	194.40	288.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	141538.54	14153.93	1415.46	141.62	14.23	1.50	.22
CONTRAST RATIOS							
CABS	1769230.77	176923.08	17692.31	1769.23	176.92	17.69	1.77
CMAX	100.00	100.00	99.99	99.89	98.88	89.84	46.94
SHADES OF GRAY (SOG)	42.51	35.87	29.22	22.58	15.95	9.45	3.94

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 3 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	184.00	184.00	184.02	184.20	186.00	204.00	384.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	73600.08	7360.08	736.08	73.68	7.44	.82	.15
CONTRAST RATIOS							
CABS	920000.00	92000.00	9200.00	920.00	92.00	9.20	.92
CMAX	100.00	100.00	99.98	99.78	97.87	82.14	31.51
SHADES OF GRAY (SOG)	40.62	33.98	27.34	20.69	14.08	7.70	2.88

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	184.00	184.00	184.04	184.40	188.00	224.00	584.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	36800.08	3680.08	368.08	36.88	3.76	.45	.12
CONTRAST RATIOS							
CABS	460000.00	46000.00	4600.00	460.00	46.00	4.60	.46
CMAX	100.00	100.00	99.96	99.57	95.83	69.70	18.70
SHADES OF GRAY (SOG)	38.62	31.98	25.34	18.70	12.11	5.97	2.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	184.00	184.01	184.08	184.80	192.00	264.00	984.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	18400.08	1840.08	184.08	18.48	1.92	.26	.10
CONTRAST RATIOS							
CABS	230000.00	23000.00	2300.00	230.00	23.00	2.30	.23
CMAX	100.00	99.99	99.91	99.14	92.00	53.49	10.31
SHADES OF GRAY (SOG)	36.62	29.98	23.34	16.70	10.17	4.44	1.60

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	150.00	150.00	150.03	150.32	153.25	182.50	475.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	115384.87	11538.71	1154.10	115.63	11.79	1.40	.37
CONTRAST RATIOS							
CABS	461538.46	46153.85	4615.38	461.54	46.15	4.62	.46
CMAX	100.00	100.00	99.96	99.57	95.85	69.77	18.75
SHADES OF GRAY (SBG)	38.63	31.99	25.35	18.71	12.12	5.98	2.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	150.00	150.01	150.06	150.62	156.25	212.50	775.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	60000.25	6000.25	600.25	60.25	6.25	.85	.31
CONTRAST RATIOS							
CABS	240000.00	24000.00	2400.00	240.00	24.00	2.40	.24
CMAX	100.00	99.99	99.92	99.17	92.31	54.55	10.71
SHADES OF GRAY (SOG)	36.75	30.10	23.46	16.83	10.29	4.53	1.62

IHMSD DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	150.00	150.01	150.12	151.25	162.50	275.00	1400.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	30000.25	3000.25	300.25	30.25	3.25	.65	.28
CONTRAST RATIOS							
CABS	120000.00	12000.00	1200.00	120.00	12.00	1.20	.12
CMAX	100.00	93.98	99.83	98.36	85.71	37.50	5.66
SHADES OF GRAY (SOG)	34.75	28.10	21.46	14.84	8.40	3.28	1.33

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	150.00	150.02	150.25	152.50	175.00	400.00	2650.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	15000.25	1500.25	150.25	15.25	1.75	.40	.26
CONTRAST RATIOS							
CABS	60000.00	6000.00	600.00	60.00	6.00	.60	.06
CMAX	100.00	99.97	99.67	96.77	75.00	23.08	2.91
SHADES OF GRAY (SOG)	32.75	26.10	19.46	12.86	6.61	2.36	1.17

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.65	6.50	65.00	650.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	100.00	100.01	100.06	100.65	106.50	165.00	750.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	76923.58	7692.81	769.73	77.42	8.19	1.27	.58
CONTRAST RATIOS							
CABS	153846.15	15384.62	1538.46	153.85	15.38	1.54	.15
CMAX	100.00	99.99	99.87	98.72	88.50	43.48	7.14
SHADES OF GRAY (SOG)	35.46	28.82	22.18	15.55	9.07	3.69	1.41

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	100.00	100.01	100.12	101.25	112.50	225.00	1350.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	40000.50	4000.50	400.50	40.50	4.50	.90	.54
CONTRAST RATIOS							
CABS	80000.00	8000.00	800.00	80.00	8.00	.80	.08
CMAX	100.00	99.98	99.75	97.56	80.00	28.57	3.85
SHADES OF GRAY (SBG)	33.58	26.93	20.29	13.68	7.34	2.70	1.22

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (Bx) 50 PER CENT

VISOR TRANSMISSIVITY (Vx) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	100.00	100.02	100.25	102.50	125.00	350.00	2600.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	20000.50	2000.50	200.50	20.50	2.50	.70	.52
CONTRAST RATIOS							
CABS	40000.00	4000.00	400.00	40.00	4.00	.40	.04
CMAx	100.00	99.95	99.50	95.24	66.67	16.67	1.96
SHADES OF GRAY (SOG)	31.58	24.93	18.29	11.72	5.64	1.97	1.11

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	100.00	100.05	100.50	105.00	150.00	600.00	5100.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	10000.50	1000.50	100.50	10.50	1.50	.60	.51
CONTRAST RATIOS							
CABS	20000.00	2000.00	200.00	20.00	2.00	.20	.02
CMAX	99.99	99.90	99.01	90.91	50.00	9.09	.99
SHADES OF GRAY (SOG)	29.58	22.93	16.30	9.78	4.17	1.53	1.06

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	50.00	50.01	50.10	50.97	59.75	147.50	1025.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	38462.29	3846.90	385.37	39.21	4.60	1.13	.79
CONTRAST RATIOS							
CABS	51282.05	5128.21	512.82	51.28	5.13	.51	.05
CMAX	100.00	99.96	99.61	96.25	71.94	20.41	2.50
SHADES OF GRAY (SOG)	32.29	25.65	19.01	12.42	6.23	2.19	1.14

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	50.00	50.02	50.19	51.87	68.75	237.50	1925.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	20000.75	2000.75	200.75	20.75	2.75	.95	.77
CONTRAST RATIOS							
CABS	26666.67	2666.67	266.67	26.67	2.67	.27	.03
CMAX	99.99	99.93	99.26	93.02	57.14	11.76	1.32
SHADES OF GRAY (SBG)	30.41	23.76	17.13	10.58	4.75	1.68	1.08

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	50.00	50.04	50.37	53.75	87.50	425.00	3800.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	10000.75	1000.75	100.75	10.75	1.75	.85	.76
CONTRAST RATIOS							
CABS	13333.33	1333.33	133.33	13.33	1.33	.13	.01
CMAX	99.99	99.85	98.52	86.96	40.00	6.25	.66
SHADES OF GRAY (SOG)	28.41	21.76	15.14	8.68	3.44	1.36	1.04

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 200 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	50.01	50.07	50.75	57.50	125.00	800.00	7550.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (B+)	5000.75	500.75	50.75	5.75	1.25	.80	.75
CONTRAST RATIOS							
CABS	6666.67	666.67	66.67	6.67	.67	.07	.01
CMAX	99.97	99.70	97.09	76.92	25.00	3.23	.33
SHADES OF GRAY (SOG)	26.41	19.77	13.16	6.88	2.47	1.19	1.02

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (FOOT-LAMBERTS) (BV)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (FOOT-LAMBERTS) (BB)	.00	.00	.00	.03	.26	2.60	26.00
NET DISPLAY LUMINANCE (FOOT-LAMBERTS) (BD)	392.00	392.00	392.00	392.03	392.26	394.60	418.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	30153848	3015387	301540	30156	3017	304	32
CONTRAST RATIOS							
CABS	76923.08	7692.31	769.23	76.92	7.69	0.77	0.08
CMAX	100.00	100.00	100.00	99.99	99.87	98.69	88.29
SHADES OF GRAY (SOG)	48.63	42.05	35.40	28.76	22.12	15.49	9.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.00	.05	.50	5.00	50.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	392.00	392.00	392.00	392.05	392.50	397.00	442.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	156800.02	15680.02	1568.02	156.82	15.70	1.59	.18
CONTRAST RATIOS							
CABS	1840000.00	784000.00	78400.00	7840.00	784.00	78.40	7.84
CMAX	100.00	100.00	100.00	99.97	99.75	97.51	79.67
SHADES OF GRAY (SOG)	46.80	40.16	33.52	26.87	20.23	13.62	7.29

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	392.00	392.00	392.01	392.10	393.00	402.00	492.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	78400.02	7840.02	784.02	78.42	7.86	.80	.10
CONTRAST RATIOS							
CABS	1920000.00	392000.00	39200.00	3920.00	392.00	39.20	3.92
CMAX	100.00	100.00	99.99	99.95	99.49	95.15	66.22
SHADES OF GRAY (SOG)	44.80	38.16	31.52	24.87	18.24	11.66	5.60

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 2 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	392.00	392.00	392.02	392.20	394.00	412.00	592.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (g_Δ)	39200.02	3920.02	392.02	39.22	3.94	.41	.06
CONTRAST RATIOS							
CABS	1960000.00	196000.00	19600.00	1960.00	196.00	19.60	1.96
CMAX	100.00	100.00	99.99	99.90	98.99	90.74	49.49
SHADES OF GRAY (SOG)	42.80	36.16	29.52	22.87	16.24	9.73	4.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER (BY) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER (BB) (FOOT-LAMBERTS)	.00	.00	.01	.05	.52	5.20	52.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	384.00	384.00	384.01	384.05	384.52	389.20	436.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	29538.66	29538.50	2953.89	295.42	29.58	2.99	.34
CONTRAST RATIOS							
CABS	384615.38	73846.54	73846.15	7384.62	738.46	73.85	7.38
CMAX	100.00	100.00	100.00	99.97	99.73	97.36	78.69
SHADES OF GRAY (SOG)	46.63	39.99	33.34	26.70	20.06	13.45	7.14

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.00	10.00	100.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	384.00	384.00	384.01	384.10	385.00	394.00	484.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	153600.04	15360.04	1536.04	153.64	15.40	1.58	.19
CONTRAST RATIOS							
CABS	840000.00	384000.00	38400.00	3840.00	384.00	38.40	3.84
CMAX	100.00	100.00	99.99	99.95	99.48	95.05	65.75
SHADES OF GRAY (SOG)	44.75	38.10	31.46	24.81	18.18	11.60	5.55

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	384.00	384.00	384.02	384.20	386.00	404.00	584.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	76800.04	7680.04	768.04	76.84	7.72	.81	.12
CONTRAST RATIOS							
CABS	1920000.00	192000.00	19200.00	1920.00	192.00	19.20	1.92
CMAX	100.00	100.00	99.99	99.90	98.97	90.57	48.98
SHADES OF GRAY (SOG)	42.75	36.10	29.46	22.82	16.18	9.67	4.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 4 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	384.00	384.00	384.04	384.40	388.00	424.00	784.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	38400.04	3840.04	384.04	38.44	3.88	.42	.08
CONTRAST RATIOS							
CABS	960000.00	96000.00	9600.00	960.00	96.00	9.60	.96
CMAX	100.00	100.00	99.98	99.79	97.96	82.76	32.43
SHADES OF GRAY (SOG)	40.75	34.10	27.46	20.82	14.20	7.81	2.94

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.01	.10	1.04	10.40	104.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	368.00	368.00	368.01	368.10	369.04	378.40	472.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	283077.00	28307.77	2830.85	283.16	28.39	2.91	.36
CONTRAST RATIOS							
CABS	538461.54	53846.15	5384.62	538.46	53.85	5.38	3.54
CMAX	100.00	100.00	99.99	99.94	99.44	94.65	63.89
SHADES OF GRAY (SOG)	44.51	37.87	31.22	24.58	17.94	11.37	5.36

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.02	.20	2.00	20.00	200.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	368.00	368.00	368.02	368.20	370.00	388.00	568.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	1472000.08	147200.08	1472.08	147.28	14.80	1.55	.23
CONTRAST RATIOS							
CABS	1840000.00	184000.00	18400.00	1840.00	184.00	18.40	1.84
CMAX	100.00	100.00	99.99	99.89	98.92	90.20	47.92
SHADES OF GRAY (SOG)	42.62	35.38	29.33	22.69	16.06	9.56	4.01

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(HV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.04	.40	4.00	40.00	400.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	368.00	368.00	368.04	368.40	372.00	408.00	768.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	736000.08	7360.08	736.08	73.68	7.44	.82	.15
CONTRAST RATIOS							
CABS	920000.00	92000.00	9200.00	920.00	92.00	9.20	.92
CMAX	100.00	100.00	99.98	99.78	97.87	82.14	31.51
SHADES OF GRAY (SOG)	40.62	33.93	27.34	20.69	14.08	7.70	2.88

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 8 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.08	.80	8.00	80.00	800.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	368.00	368.01	368.08	368.80	376.00	448.00	1168.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Bα)	36800.04	3680.08	368.08	36.88	3.76	.45	.12
CONTRAST RATIOS							
CABS	460000.00	46000.00	4600.00	460.00	46.00	4.60	.46
CMAX	100.00	100.00	99.96	99.57	95.83	69.70	18.70
SHADES OF GRAY (SOG)	38.62	31.98	25.34	18.70	12.11	5.97	2.09

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.00	.03	.32	3.25	32.50	325.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	300.00	300.00	300.03	300.32	303.25	332.50	625.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	230769.48	23077.17	2307.94	231.02	23.33	2.56	.48
CONTRAST RATIOS							
CABS	1923076.92	92307.69	9230.77	923.08	92.31	9.23	.92
CMAX	100.00	100.00	99.98	99.78	97.88	82.19	31.58
SHADES OF GRAY (SOG)	40.63	33.99	27.34	20.70	14.09	7.71	2.89

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.62	6.25	62.50	625.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	300.00	300.01	300.06	300.62	306.25	362.50	925.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	12000.25	12000.25	1200.25	120.25	12.25	1.45	.37
CONTRAST RATIOS							
CABS	480000.00	48000.00	4800.00	480.00	48.00	4.80	.48
CMAX	100.00	100.00	99.96	99.59	96.00	70.59	19.35
SHADES OF GRAY (SOG)	38.75	32.10	25.46	18.82	12.23	6.07	2.13

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	300.00	300.01	300.12	301.25	312.50	425.00	1550.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	60000.25	6000.25	600.25	60.25	6.25	.85	.31
CONTRAST RATIOS							
CABS	240000.00	24000.00	2400.00	240.00	24.00	2.40	.24
CMAX	100.00	99.99	99.92	99.17	92.31	54.55	10.71
SHADES OF GRAY (SOG)	36.75	30.10	23.46	16.83	10.29	4.53	1.62

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 25 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	300.00	300.02	300.25	302.50	325.00	550.00	2800.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (β_4)	30000.25	3000.25	300.25	30.25	3.25	.55	.28
CONTRAST RATIOS							
CABS	120000.00	12000.00	1200.00	120.00	12.00	1.20	.12
CMAX	100.00	99.98	99.83	98.36	85.71	37.50	5.66
SHADES OF GRAY (SOG)	34.75	28.10	21.46	14.84	8.40	3.28	1.33

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.06	.65	6.50	65.00	650.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	200.00	200.01	200.06	200.65	206.50	265.00	850.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	153846.65	15385.12	1538.96	154.35	15.88	2.04	.65
CONTRAST RATIOS							
CABS	307692.31	30769.23	3076.92	307.69	30.77	3.08	.31
CMAX	100.00	99.99	99.94	99.35	93.90	60.61	13.33
SHADES OF GRAY (SOG)	37.46	30.82	24.18	17.54	10.98	5.05	1.77

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.12	1.25	12.50	125.00	1250.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	200.00	200.01	200.12	201.25	212.50	325.00	1450.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BA)	80000.50	8000.50	800.50	80.50	8.50	1.30	.58
CONTRAST RATIOS							
CABS	160000.00	16000.00	1600.00	160.00	16.00	1.60	.16
CMAX	100.00	99.99	99.88	98.77	88.89	44.44	7.41
SHADES OF GRAY (SOG)	35.58	28.93	22.29	15.66	9.17	3.76	1.43

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) +00 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	200.00	200.02	200.25	202.50	225.00	450.00	2700.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	40000.50	4000.50	400.50	40.50	4.50	.90	.54
CONTRAST RATIOS							
CABS	80000.00	8000.00	800.00	80.00	8.00	.80	.08
CMAX	100.00	99.98	99.75	97.56	80.00	28.57	3.85
SHADES OF GRAY (SOG)	33.58	26.93	20.29	13.68	7.34	2.70	1.22

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 50 PER CENT

VISOR TRANSMISSIVITY (VX) 100 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	200.00	200.05	200.50	205.00	250.00	700.00	5200.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (B_A)	20000.50	2000.50	200.50	20.50	2.50	.70	.52
CONTRAST RATIOS							
CABS	40000.00	4000.00	400.00	40.00	4.00	.40	.04
CMAX	100.00	99.95	99.50	95.24	66.67	16.67	1.96
SHADES OF GRAY (SOG)	31.58	24.93	18.29	11.72	5.64	1.97	1.11

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 13 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.01	.13	1.30	13.00	130.00	1300.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.01	.10	.97	9.75	97.50	975.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	100.00	100.01	100.10	100.97	109.75	197.50	1075.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	76923.83	7693.06	769.98	77.67	8.44	1.52	.83
CONTRAST RATIOS							
CABS	102564.10	10256.41	1025.64	102.56	10.26	1.03	.10
CMAX	100.00	99.98	99.81	98.09	83.68	33.90	4.83
SHADES OF GRAY (SOG)	34.29	27.65	21.01	14.39	7.99	3.04	1.28

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 25 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.02	.25	2.50	25.00	250.00	2500.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.02	.19	1.87	18.75	187.50	1875.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	100.00	100.02	100.19	101.87	118.75	287.50	1975.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (BΔ)	40000.75	4000.75	400.75	40.75	4.75	1.15	.79
CONTRAST RATIOS							
CABS	53333.33	5333.33	533.33	53.33	5.33	.53	.05
CMAX	100.00	99.96	99.63	96.39	72.73	21.05	2.60
SHADES OF GRAY (SOG)	32.41	25.76	19.42	12.53	6.33	2.23	1.15

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

VISOR TRANSMISSIVITY (VX) 50 PER CENT

BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1000FT-L	10000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.00	.05	.50	5.00	50.00	500.00	5000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.00	.04	.37	3.75	37.50	375.00	3750.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	100.00	100.04	100.37	103.75	137.50	475.00	3850.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (Ba)	20000.75	2000.75	200.75	20.75	2.75	.95	.77
CONTRAST RATIOS							
CABS	26666.67	2666.67	266.67	26.67	2.67	.27	.03
CMAX	99.99	99.93	99.26	93.02	57.14	11.76	1.32
SHADES OF GRAY (SOG)	30.41	23.76	17.13	10.58	4.75	1.68	1.05

IHMS/D DISPLAY LUMINANCE AND CONTRAST RESEARCH

DISPLAY LUMINANCE (LD) 400 FOOT-LAMBERTS

BEAM SPLITTER TRANSMISSIVITY (BX) 75 PER CENT

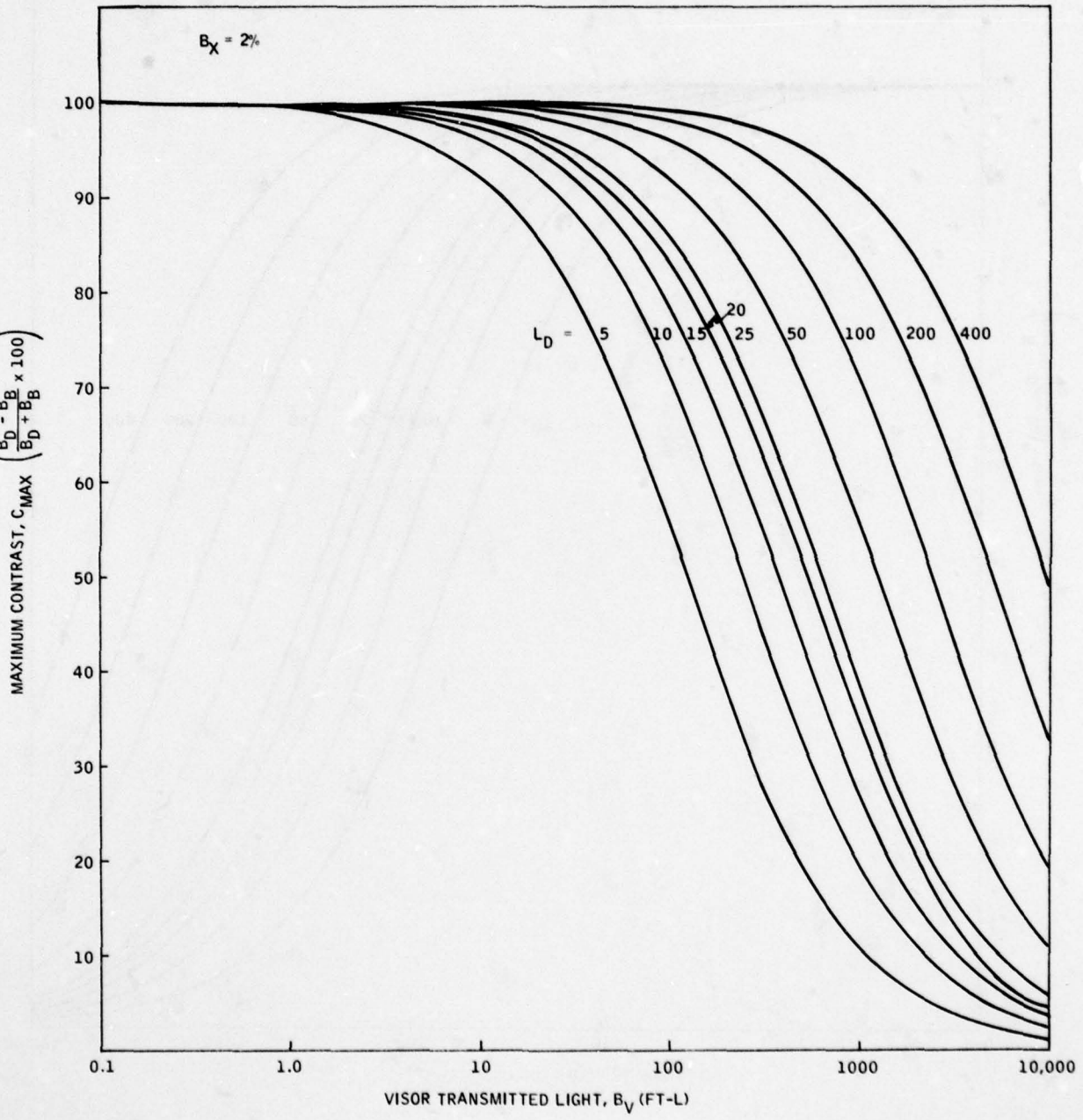
VISOR TRANSMISSIVITY (VX) 100 PER CENT

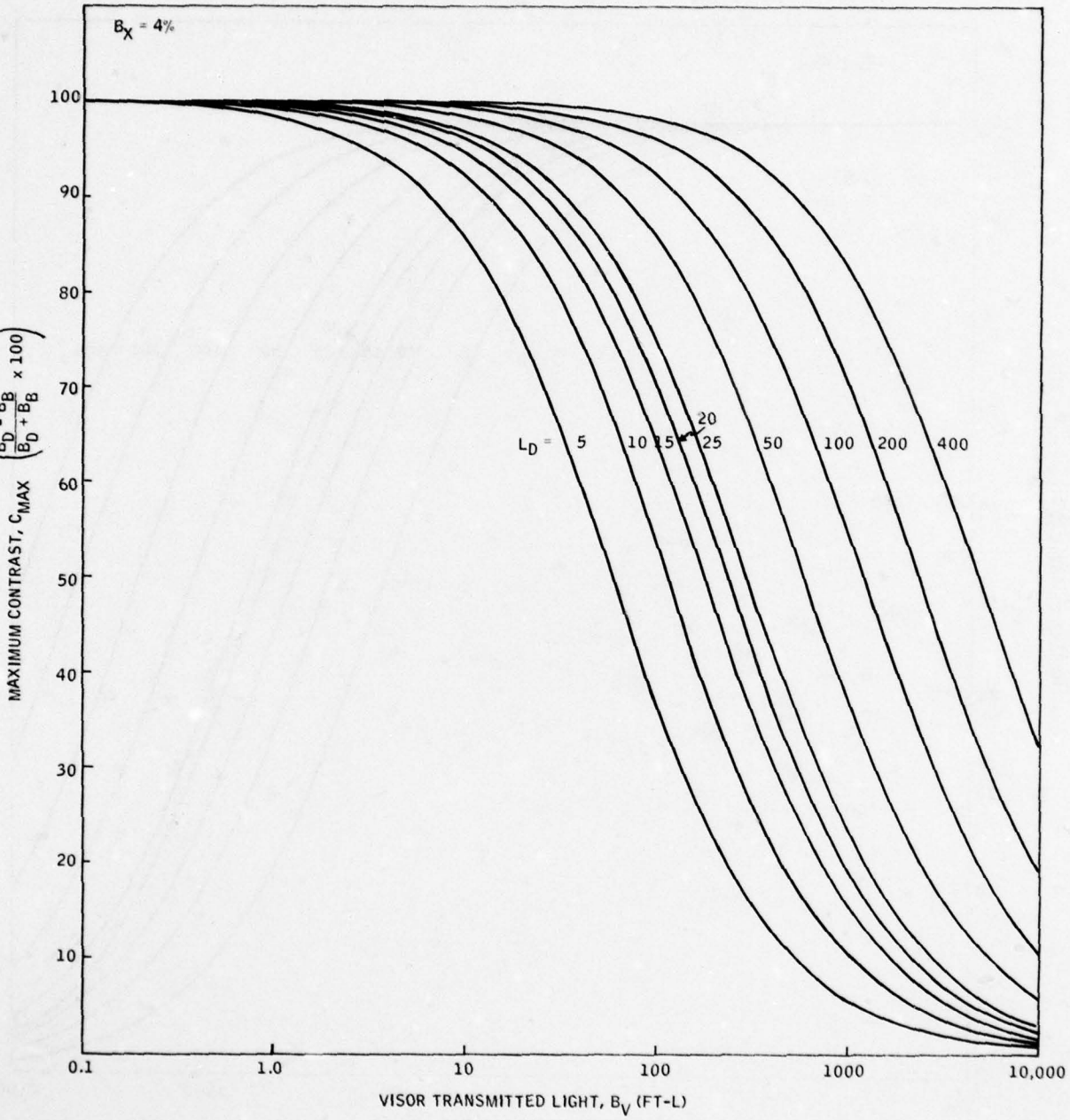
BACKGROUND LUMINANCE (LB)	0.01FT-L	0.1FT-L	1FT-L	10FT-L	100FT-L	1,000FT-L	10,000FT-L
NET BACKGROUND LUMINANCE OUTSIDE BEAMSPLITTER(BV) (FOOT-LAMBERTS)	.01	.10	1.00	10.00	100.00	1000.00	10000.00
NET BACKGROUND LUMINANCE WITHIN BEAM SPLITTER(BB) (FOOT-LAMBERTS)	.01	.07	.75	7.50	75.00	750.00	7500.00
NET DISPLAY LUMINANCE (BD) (FOOT-LAMBERTS)	100.01	100.07	100.75	107.50	175.00	850.00	7600.00
INTER-OCULAR LUMINANCE DIFFERENCE RATIO (RA)	10000.75	1000.75	100.75	10.75	1.75	.88	.75
CONTRAST RATIOS							
CABS	13333.33	1333.33	133.33	13.33	1.33	.13	.01
CMAX	99.99	99.35	98.52	86.96	40.00	6.25	.66
SHADES OF GRAY (SOG)	28.41	21.76	15.14	8.68	3.44	1.36	1.04

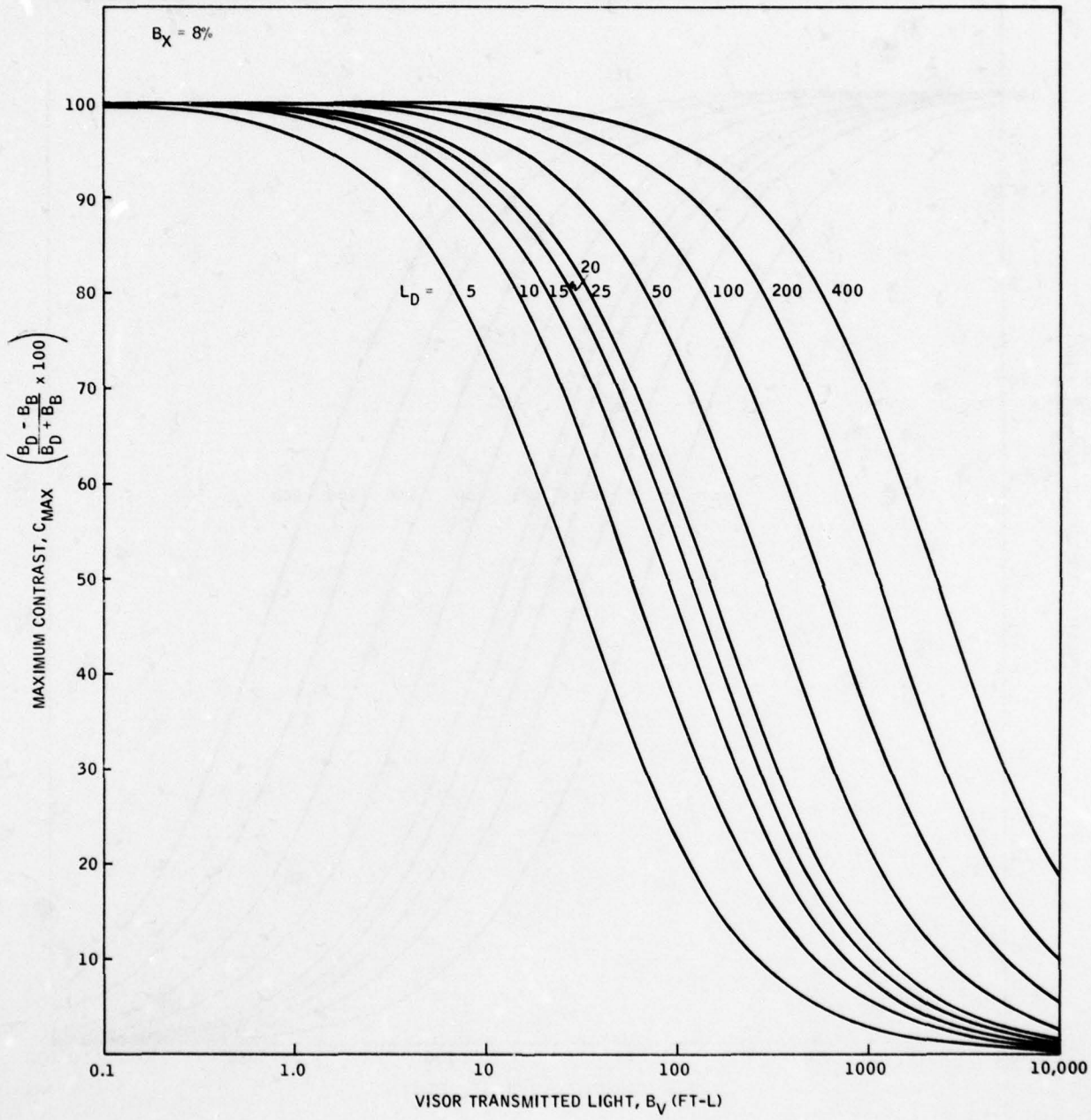
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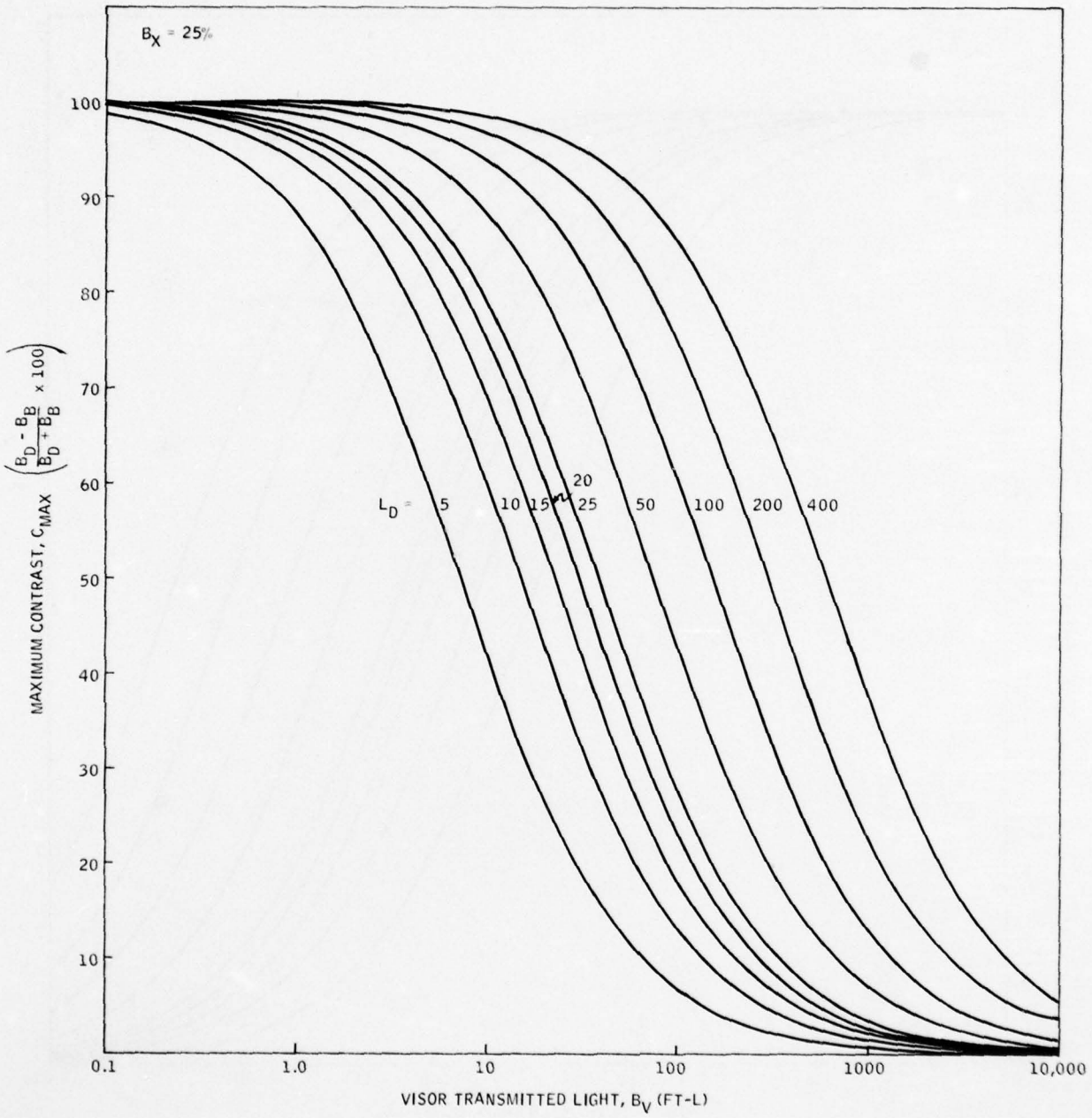
APPENDIX B

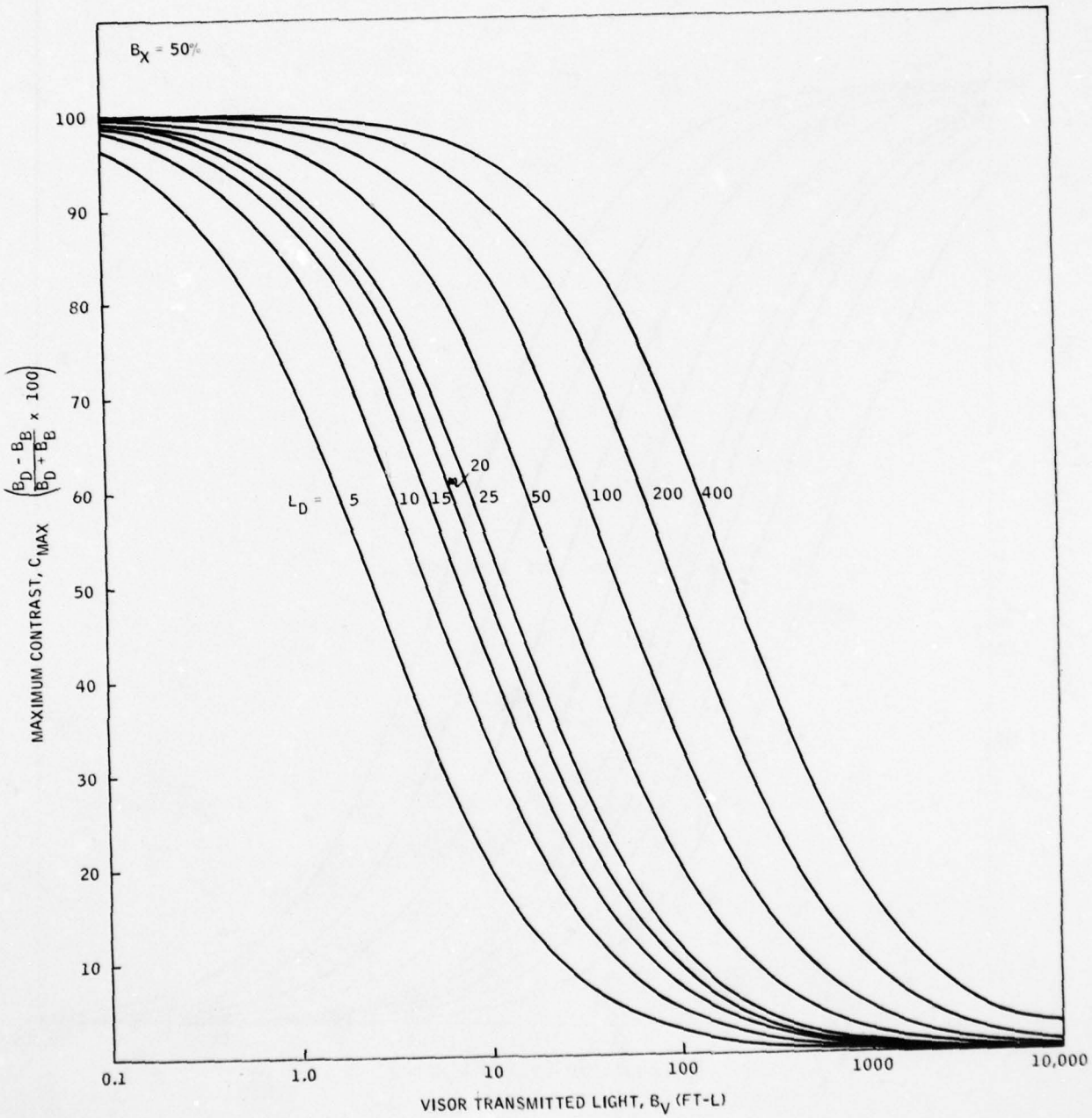
MAXIMUM POSSIBLE CONTRAST (C_{MAX}) AS A FUNCTION OF VISOR TRANSMITTED LIGHT (B_V) FOR VARIOUS VALUES OF DISPLAY LUMINANCE (L_D). BEAMSPLITTER TRANSMITTANCE (B_X) = CONSTANT FOR EACH PAGE.

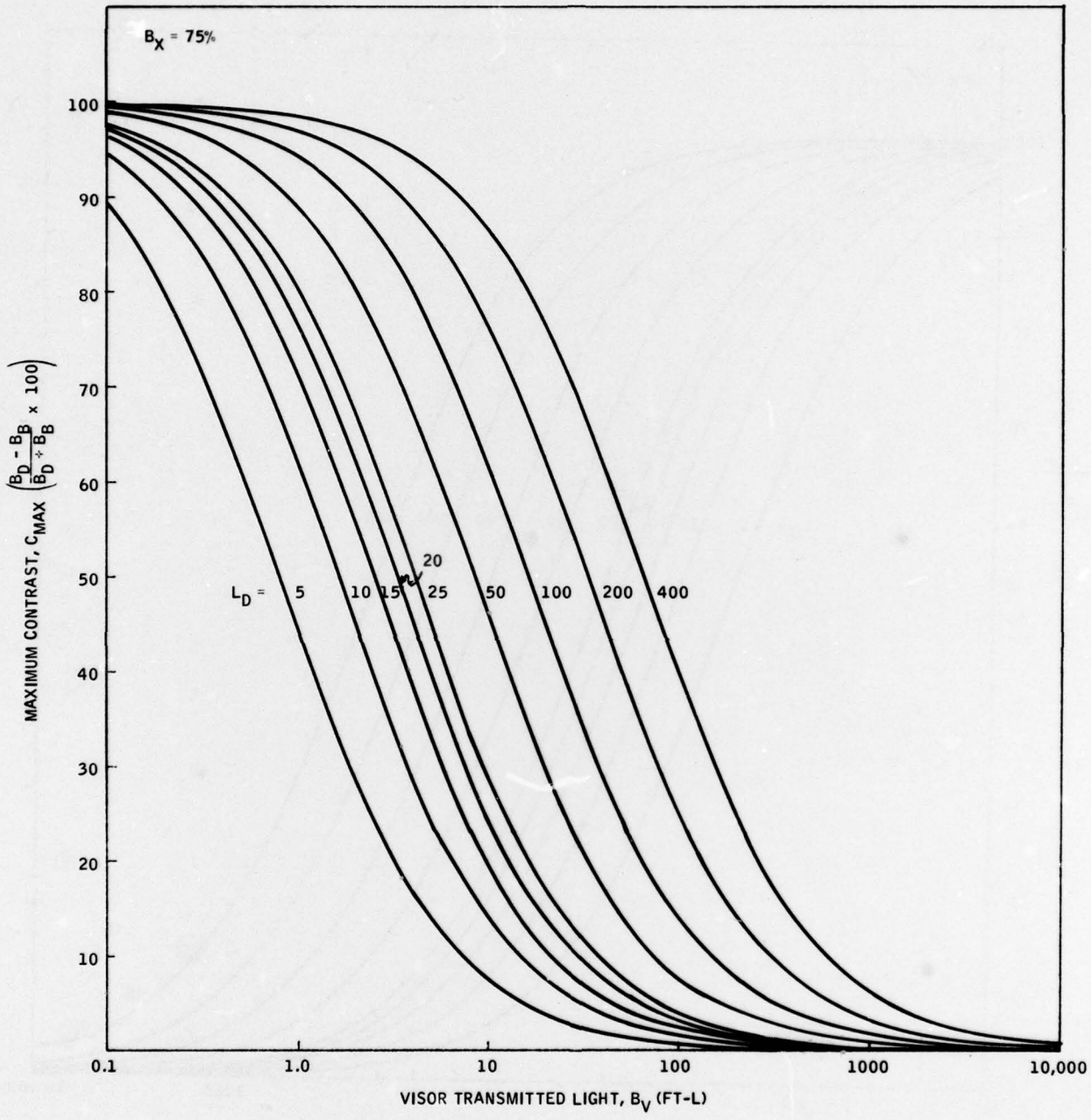

B_X = 2%
L_D = 5 10 15 20 25 50 100 200 400
MAXIMUM CONTRAST, C_{MAX} $\left(\frac{B_D - B_B}{B_D + B_B} \times 100\right)$
100
90
80
70
60
50
40
30
20
10
0.1
1.0
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)


B_X = 4%
100
90
80
70
60
50
40
30
20
10
MAXIMUM CONTRAST, C_{MAX} $\left(\frac{B_D - B_B}{B_D + B_B} \times 100\right)$
L_D = 5
10
15
20
25
50
100
200
400
0.1
1.0
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)


B_X = 8%
L_D = 5 10 15 20 25 50 100 200 400
MAXIMUM CONTRAST, C_{MAX} $\left(\frac{B_D - B_B}{B_D + B_B} \times 100\right)$
100
90
80
70
60
50
40
30
20
10
0.1
1.0
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)

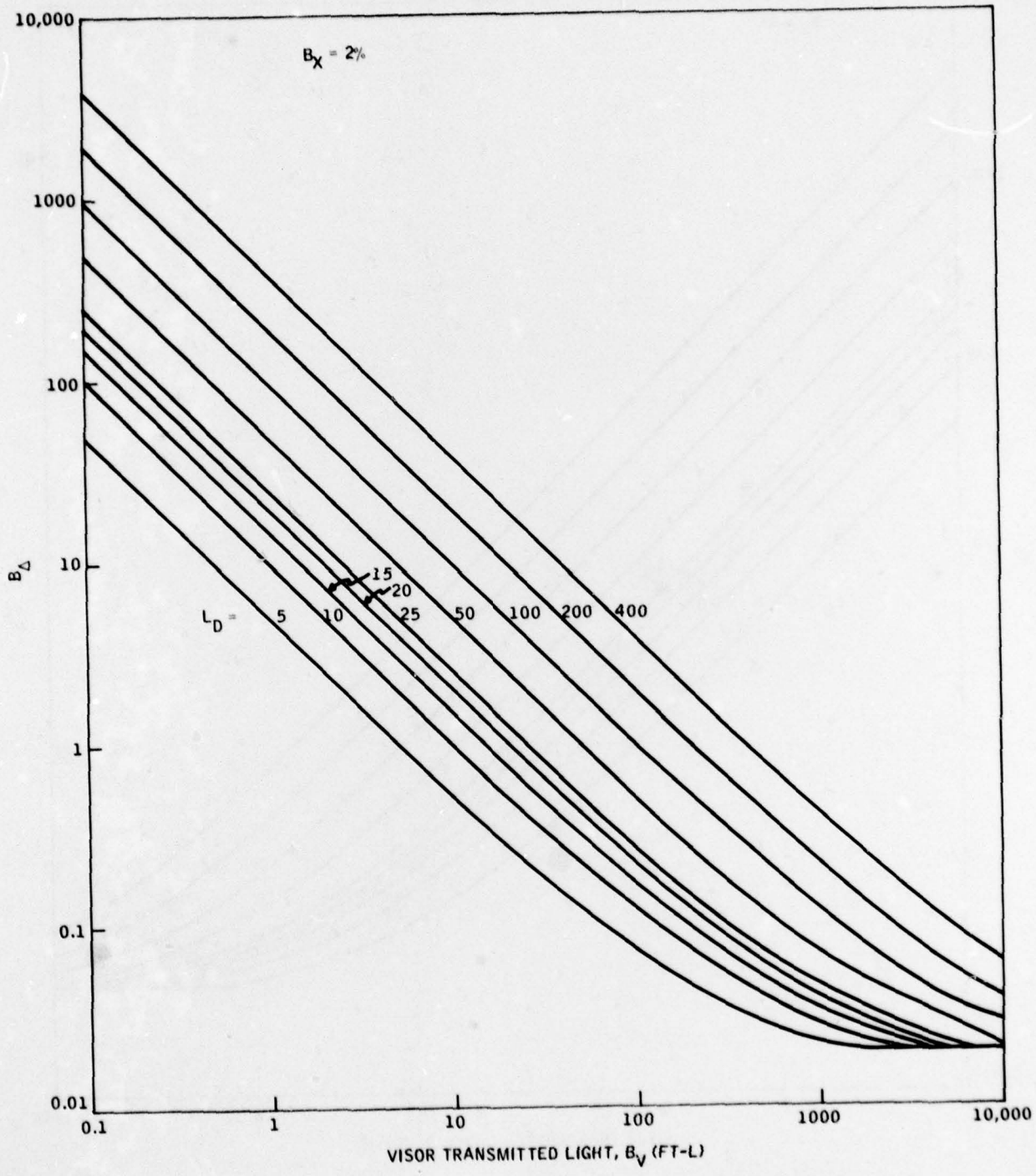

B_X = 25%
100
90
80
70
60
50
40
30
20
10
MAXIMUM CONTRAST, C_{MAX} $\left(\frac{B_D - B_B}{B_D + B_B} \times 100\right)$
L_D = 5 10 15 20 25 50 100 200 400
0.1
1.0
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)

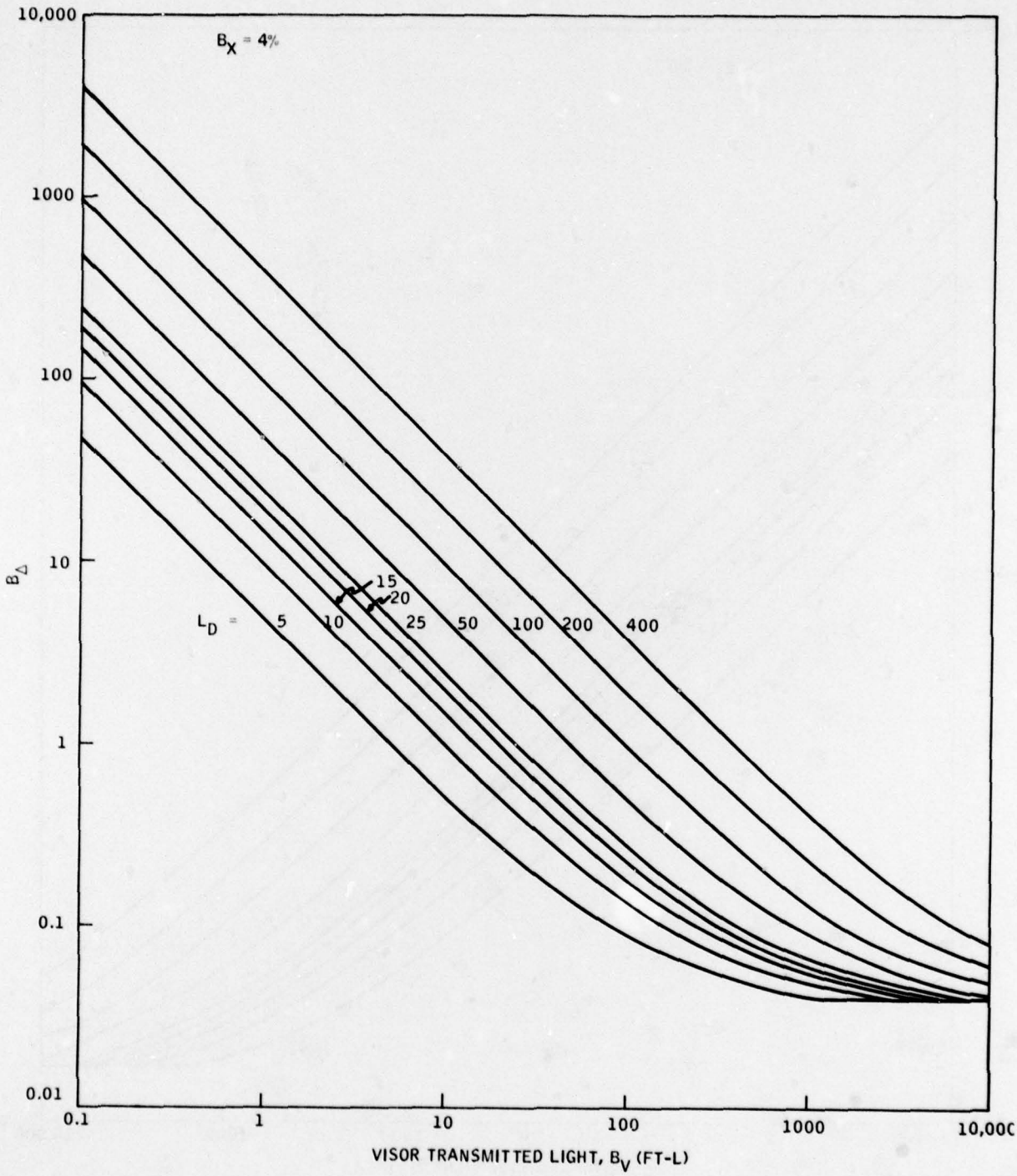

B_X = 50%
100
90
80
70
60
50
40
30
20
10
MAXIMUM CONTRAST, C_{MAX} $\left(\frac{B_D - B_B}{B_D + B_B} \times 100\right)$
L_D = 5
10
15
20
25
50
100
200
400
0.1
1.0
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)

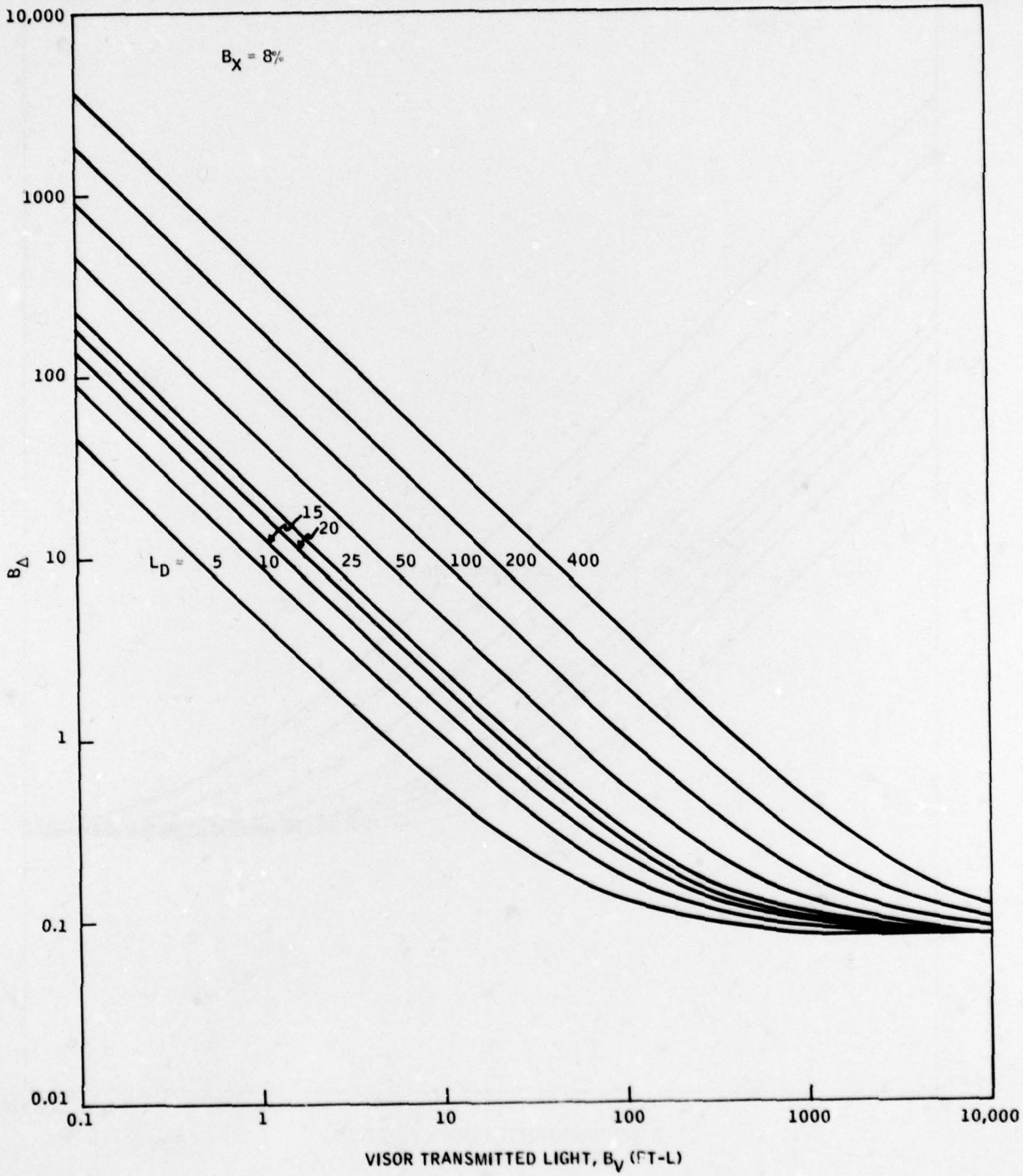

B_X = 75%
100
90
80
70
60
50
40
30
20
10
MAXIMUM CONTRAST, C_{MAX} $\left(\frac{B_D - B_B}{B_D + B_B} \times 100\right)$
L_D = 5 10 15 20 25 50 100 200 400
0.1
1.0
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)

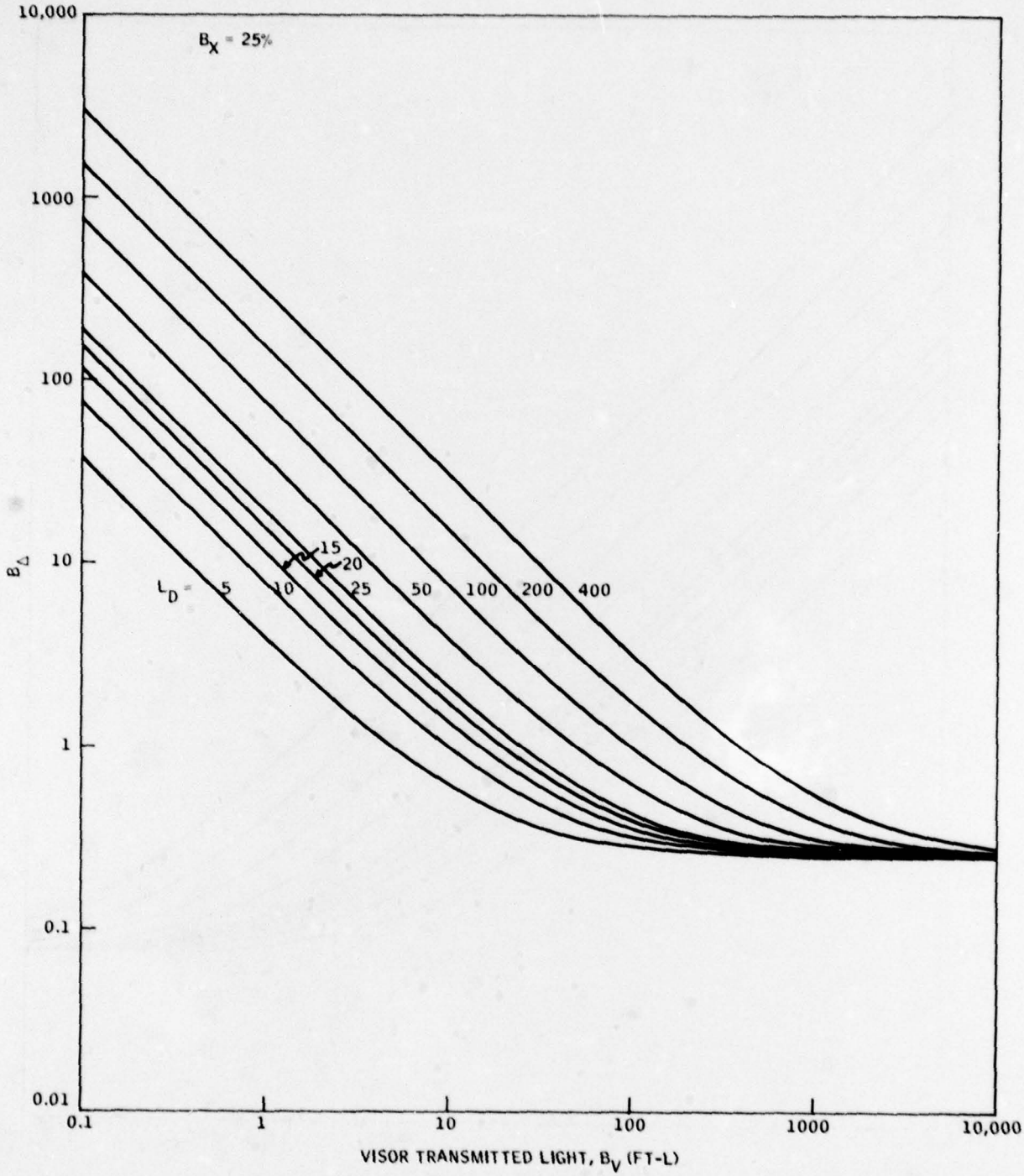
APPENDIX C

INTER-OCULAR LUMINANCE DIFFERENCE RATIO (B_Δ) AS A FUNCTION OF VISOR TRANSMITTED LIGHT (B_V) FOR VARIOUS VALUES OF DISPLAY LUMINANCE (L_D). BEAMSPLITTER TRANSMITTANCE (B_X) = CONSTANT FOR EACH PAGE.

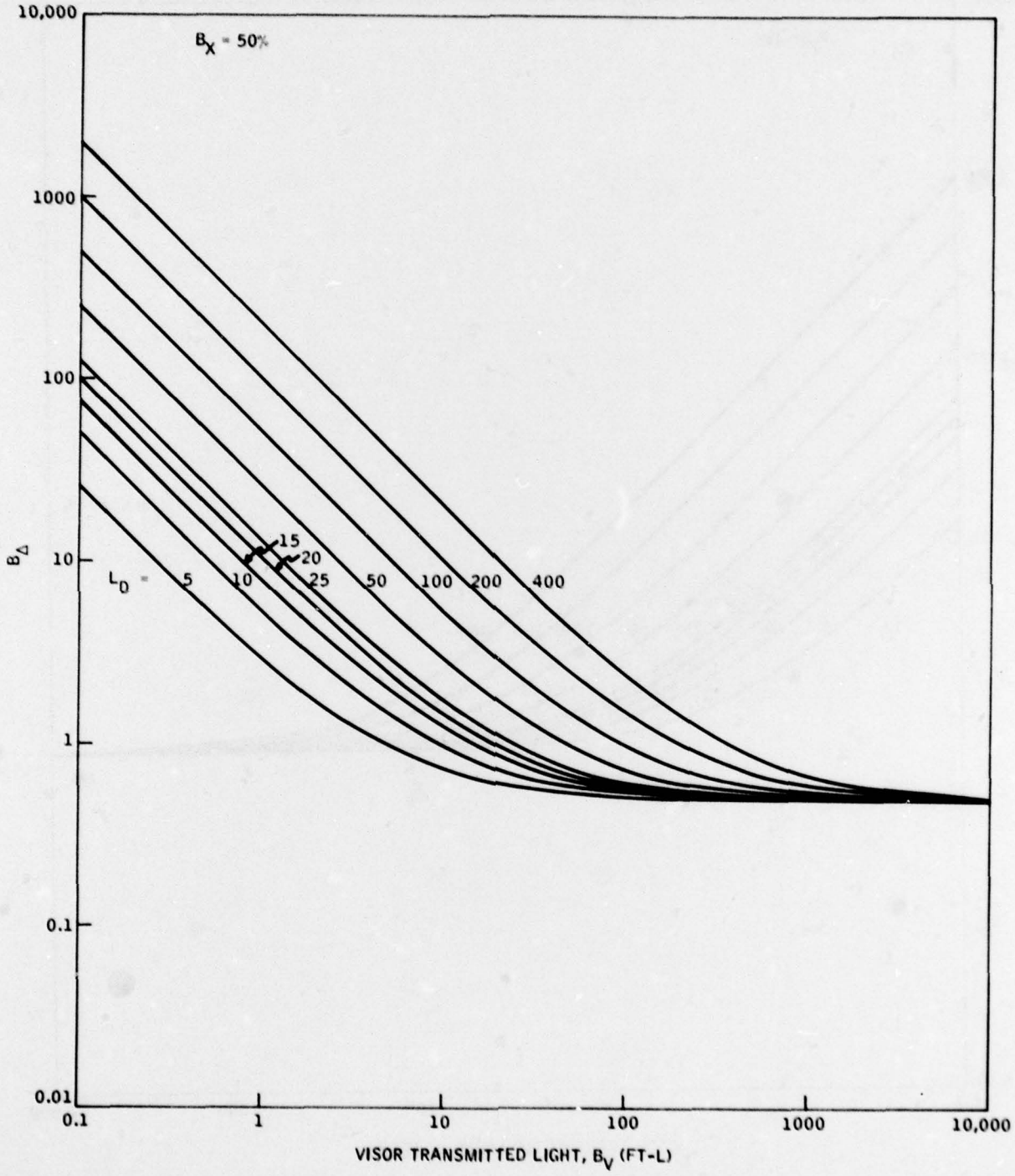

10,000
1000
100
10
1
0.1
0.01
B_Δ
B_X = 2%
L_D = 5 10 15 20 25 50 100 200 400
0.1
1
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)

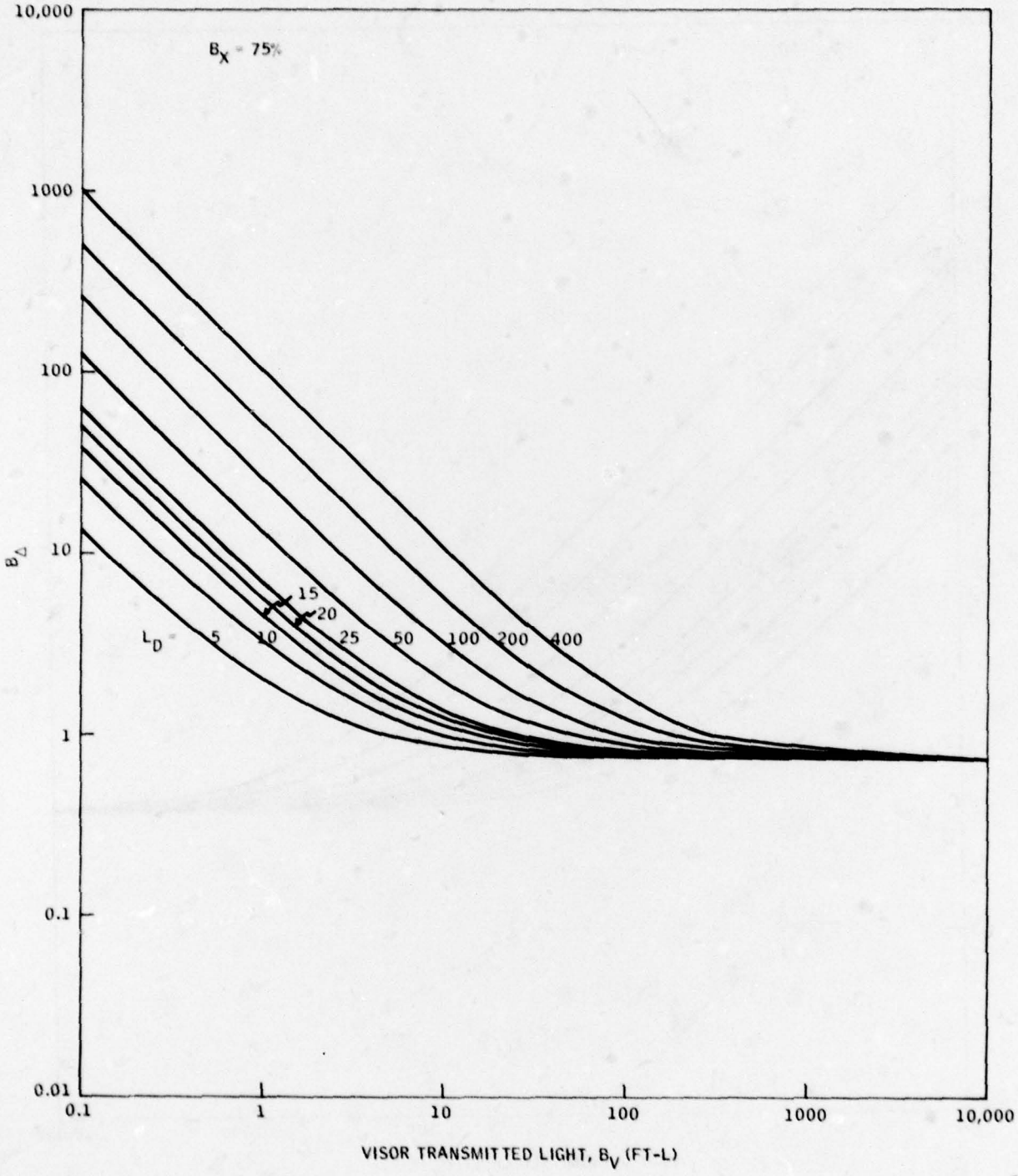

10,000
1000
100
10
1
0.1
0.01
B_X = 4%
B_Δ
L_D = 5
10
15
20
25
50
100
200
400
0.1
1
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)


10,000
1000
100
10
1
0.1
0.01
B_Δ
B_X = 8%
L_D = 5
10
15
20
25
50
100
200
400
0.1
1
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)


10,000
1000
100
10
1
0.1
0.01
B_X = 25%
B_Δ
L_D = 5
10
15
20
25
50
100
200
400
0.1
1
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)

2079-SR5


10,000
1000
100
10
1
0.1
0.01
B_X = 50%
B_Δ
L_D = 5 10 15 20 25 50 100 200 400
0.1
1
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)


10,000
B_X = 75%
1000
100
10
1
0.1
0.01
B_Δ
L_D
5
10
15
20
25
50
100
200
400
0.1
1
10
100
1000
10,000
VISOR TRANSMITTED LIGHT, B_V (FT-L)

2079-SR5