

# IES Indoor Report

Photometric Filename:20881B-WW.IES

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## Description Information(From Photometric File)

Photometric File: 20881B-WW.IES

IES Format: IESNA:LM-63-1995

[TEST]

[DATE] 2016/03/10

[MANUFAC]

[LUMCAT]

[LUMINAIRE]

[LAMPCAT] 5630

[LAMP] 2700

[BALLASTCAT]

[BALLAST]

[OTHER]

[More] Temperature:25 Humidity:45

[More] Frequency:DC Voltage:11.9 Current:0.201 Power:2.4 PF:1.000

## Character

|                                  |                          |
|----------------------------------|--------------------------|
| Lamp Power (w) :                 | 2.4                      |
| Total Rated Lamp Lumens(lm) :    | 300.00                   |
| Luminair Lumens(lm) :            | 221.38                   |
| Total Luminair Efficiency:       | 73.79%                   |
| Luminaire Efficacy Rating(LER) : | 92.20                    |
| Maximum Intencity(cd) :          | 82.58                    |
| Max Cd Angle(deg) :              | C=0.0 $\gamma$ =5.0      |
| Downward Lumens(lm) :            | 219.98                   |
| Downward Total Efficiency:       | 99.37%                   |
| Spacing Criteria:                | C0_180=0.63 C90_270=0.64 |
| CIE Type:                        | Semi-Direct              |
| Beam Angle(50%Imax) :            | Left=-51.8 Right=54.5    |
| Field Angle(10%Imax) :           | 152.3                    |

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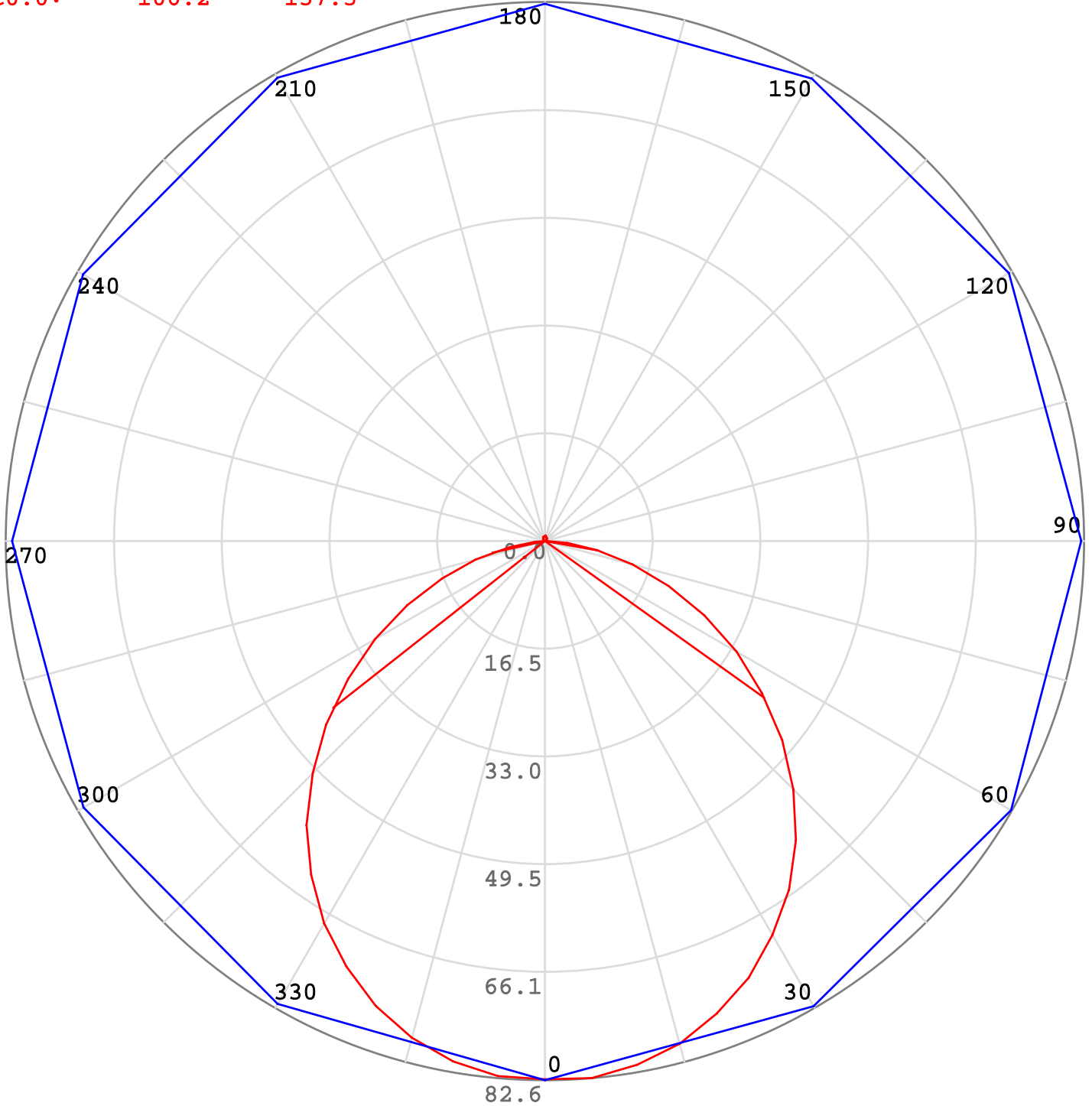
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## Candela Tabulation

|                | <u>C0.0</u> | <u>C30.0</u> | <u>C60.0</u> | <u>C90.0</u> | <u>C120.0</u> | <u>C150.0</u> | <u>C180.0</u> | <u>C210.0</u> | <u>C240.0</u> | <u>C270.0</u> | <u>C300.0</u> | <u>C330.0</u> | <u>C360.0</u> |
|----------------|-------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <u>Y 0.0</u>   | 82.44       | 82.44        | 82.44        | 82.44        | 82.44         | 82.44         | 82.44         | 82.44         | 82.44         | 82.44         | 82.44         | 82.44         | 82.44         |
| <u>Y 5.0</u>   | 82.58       | 82.29        | 82.45        | 82.15        | 82.06         | 81.78         | 82.27         | 81.93         | 81.68         | 81.61         | 81.61         | 81.88         | 82.58         |
| <u>Y 10.0</u>  | 81.46       | 81.52        | 81.54        | 81.43        | 81.26         | 80.73         | 80.94         | 80.65         | 79.97         | 80.31         | 80.01         | 80.59         | 81.46         |
| <u>Y 15.0</u>  | 79.73       | 79.62        | 80.24        | 79.71        | 79.41         | 78.54         | 78.76         | 78.43         | 77.78         | 77.88         | 77.93         | 78.70         | 79.73         |
| <u>Y 20.0</u>  | 77.01       | 77.34        | 77.80        | 77.35        | 77.04         | 75.82         | 75.77         | 75.31         | 74.59         | 75.04         | 74.74         | 75.70         | 77.01         |
| <u>Y 25.0</u>  | 73.83       | 74.01        | 74.91        | 74.16        | 73.70         | 72.12         | 71.92         | 71.77         | 70.88         | 71.06         | 71.05         | 72.44         | 73.83         |
| <u>Y 30.0</u>  | 69.69       | 70.36        | 71.19        | 70.45        | 69.89         | 67.97         | 67.63         | 67.20         | 66.34         | 66.94         | 66.64         | 68.13         | 69.69         |
| <u>Y 35.0</u>  | 65.20       | 65.74        | 66.99        | 66.01        | 65.25         | 63.00         | 62.43         | 62.33         | 61.29         | 61.72         | 61.51         | 63.35         | 65.20         |
| <u>Y 40.0</u>  | 59.82       | 60.78        | 62.06        | 60.90        | 59.92         | 57.45         | 56.79         | 56.39         | 55.45         | 56.19         | 55.90         | 57.90         | 59.82         |
| <u>Y 45.0</u>  | 53.82       | 54.73        | 56.47        | 55.30        | 54.17         | 51.26         | 50.28         | 50.14         | 49.20         | 49.74         | 49.38         | 51.66         | 53.82         |
| <u>Y 50.0</u>  | 47.44       | 48.48        | 50.32        | 48.90        | 47.66         | 44.65         | 43.76         | 43.35         | 42.29         | 43.22         | 42.83         | 45.24         | 47.44         |
| <u>Y 55.0</u>  | 40.54       | 41.70        | 43.65        | 42.44        | 41.25         | 38.12         | 36.78         | 36.42         | 35.50         | 36.08         | 36.03         | 38.41         | 40.54         |
| <u>Y 60.0</u>  | 33.90       | 35.03        | 36.99        | 35.44        | 34.37         | 31.27         | 30.04         | 29.59         | 28.26         | 29.26         | 29.11         | 31.87         | 33.90         |
| <u>Y 65.0</u>  | 26.94       | 28.04        | 29.91        | 28.65        | 27.55         | 24.63         | 23.26         | 22.62         | 21.45         | 22.18         | 22.42         | 24.98         | 26.94         |
| <u>Y 70.0</u>  | 20.18       | 21.04        | 23.07        | 21.57        | 20.87         | 18.11         | 16.72         | 16.28         | 14.83         | 15.79         | 15.75         | 18.33         | 20.18         |
| <u>Y 75.0</u>  | 13.90       | 14.83        | 16.30        | 15.31        | 14.57         | 12.12         | 10.93         | 10.16         | 8.99          | 9.66          | 9.97          | 12.23         | 13.90         |
| <u>Y 80.0</u>  | 8.09        | 8.81         | 10.40        | 9.35         | 9.01          | 6.89          | 5.47          | 5.10          | 3.90          | 4.66          | 4.70          | 6.70          | 8.09          |
| <u>Y 85.0</u>  | 3.49        | 3.99         | 5.07         | 4.39         | 3.95          | 2.30          | 1.54          | 1.02          | 0.33          | 0.74          | 0.88          | 2.36          | 3.49          |
| <u>Y 90.0</u>  | 0.07        | 0.25         | 1.08         | 0.58         | 0.53          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.07          |
| <u>Y 95.0</u>  | 0.00        | 0.00         | 0.00         | 0.00         | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |
| <u>Y 100.0</u> | 0.00        | 0.00         | 0.00         | 0.00         | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |
| <u>Y 105.0</u> | 0.00        | 0.00         | 0.00         | 0.00         | 0.00          | 0.00          | 0.00          | 0.04          | 0.00          | 0.00          | 0.00          | 0.00          | 0.00          |
| <u>Y 110.0</u> | 0.08        | 0.07         | 0.00         | 0.00         | 0.00          | 0.01          | 0.04          | 0.00          | 0.11          | 0.04          | 0.08          | 0.01          | 0.08          |
| <u>Y 115.0</u> | 0.01        | 0.03         | 0.11         | 0.13         | 0.15          | 0.16          | 0.02          | 0.10          | 0.08          | 0.07          | 0.03          | 0.00          | 0.01          |
| <u>Y 120.0</u> | 0.25        | 0.18         | 0.05         | 0.03         | 0.04          | 0.02          | 0.23          | 0.10          | 0.13          | 0.16          | 0.10          | 0.19          | 0.25          |
| <u>Y 125.0</u> | 0.14        | 0.16         | 0.29         | 0.27         | 0.30          | 0.32          | 0.10          | 0.15          | 0.27          | 0.25          | 0.27          | 0.12          | 0.14          |
| <u>Y 130.0</u> | 0.39        | 0.29         | 0.26         | 0.19         | 0.22          | 0.23          | 0.36          | 0.38          | 0.24          | 0.26          | 0.17          | 0.26          | 0.39          |
| <u>Y 135.0</u> | 0.29        | 0.37         | 0.28         | 0.39         | 0.39          | 0.42          | 0.28          | 0.28          | 0.44          | 0.39          | 0.42          | 0.32          | 0.29          |
| <u>Y 140.0</u> | 0.48        | 0.40         | 0.40         | 0.36         | 0.42          | 0.42          | 0.44          | 0.47          | 0.31          | 0.41          | 0.38          | 0.32          | 0.48          |
| <u>Y 145.0</u> | 0.41        | 0.53         | 0.40         | 0.43         | 0.46          | 0.47          | 0.43          | 0.39          | 0.55          | 0.50          | 0.49          | 0.51          | 0.41          |
| <u>Y 150.0</u> | 0.58        | 0.46         | 0.56         | 0.56         | 0.54          | 0.58          | 0.54          | 0.59          | 0.52          | 0.46          | 0.55          | 0.44          | 0.58          |
| <u>Y 155.0</u> | 0.55        | 0.70         | 0.44         | 0.49         | 0.50          | 0.49          | 0.62          | 0.57          | 0.56          | 0.64          | 0.47          | 0.65          | 0.55          |
| <u>Y 160.0</u> | 0.67        | 0.50         | 0.70         | 0.68         | 0.69          | 0.63          | 0.56          | 0.57          | 0.67          | 0.56          | 0.70          | 0.53          | 0.67          |
| <u>Y 165.0</u> | 0.61        | 0.75         | 0.60         | 0.60         | 0.57          | 0.61          | 0.72          | 0.75          | 0.60          | 0.77          | 0.58          | 0.66          | 0.61          |
| <u>Y 170.0</u> | 0.79        | 0.65         | 0.67         | 0.78         | 0.76          | 0.76          | 0.60          | 0.62          | 0.78          | 0.68          | 0.69          | 0.73          | 0.79          |
| <u>Y 175.0</u> | 0.85        | 0.63         | 0.67         | 0.74         | 0.75          | 0.75          | 0.71          | 0.64          | 0.75          | 0.76          | 0.65          | 0.77          | 0.85          |
| <u>Y 180.0</u> | 0.73        | 0.73         | 0.73         | 0.73         | 0.73          | 0.73          | 0.73          | 0.73          | 0.73          | 0.73          | 0.73          | 0.73          | 0.73          |

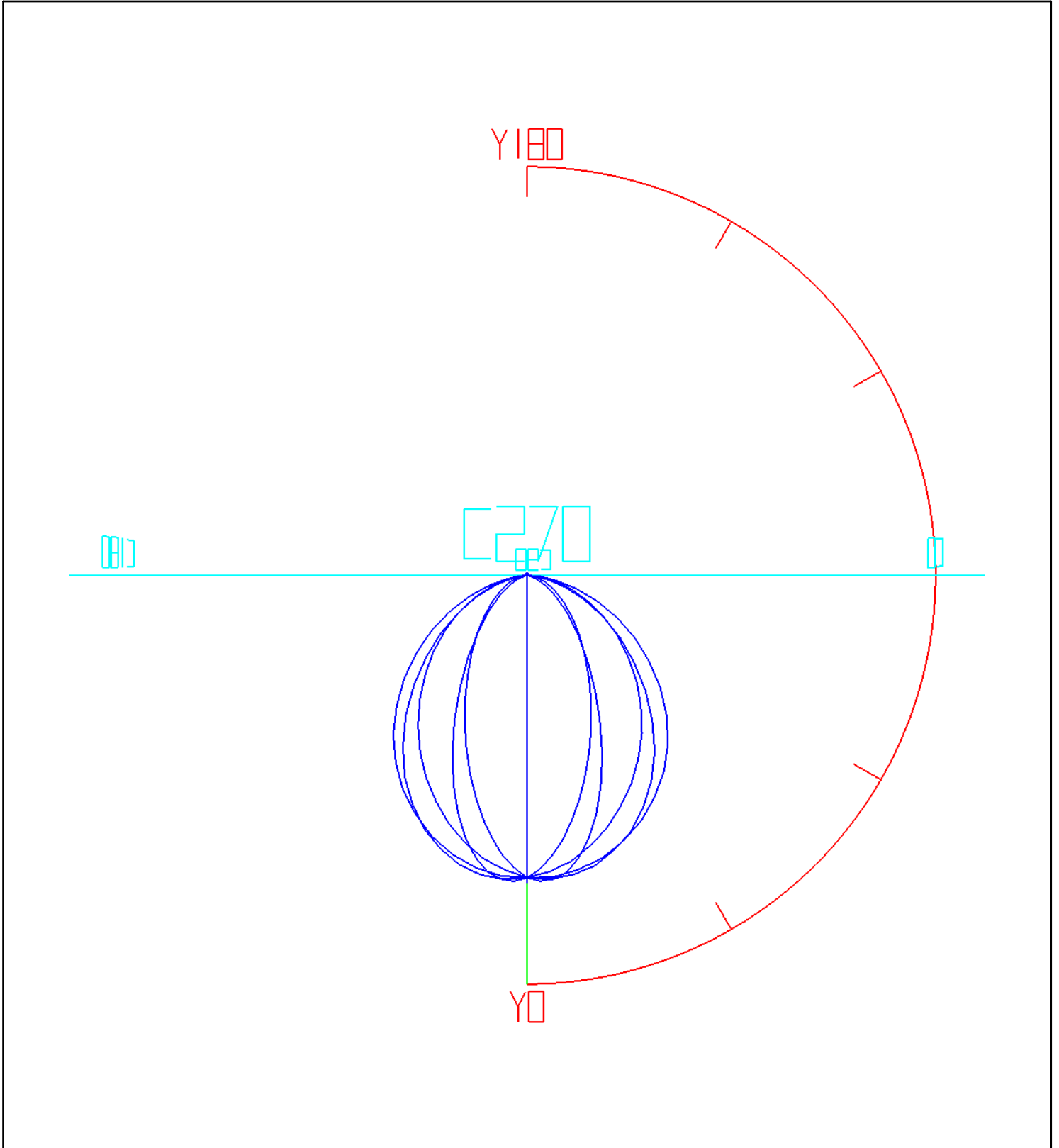
**2D Light Intensity Distribution Curve**

Plane [50%Ang.] [10%Ang.] Polar Graph  
C0.0: 106.2 157.3



C Plane: C0.0 ————  
γ Cone: γ5.0 ————

**3D Light Intensity Distribution Curve**



Curves:                      3D Model ———— Fixture ———— Vert. HUD ———— Hori. HUD ————  
View Angles:                Orient:0            Tilt:0            Roll:0            Spin:0

# IES Indoor Report

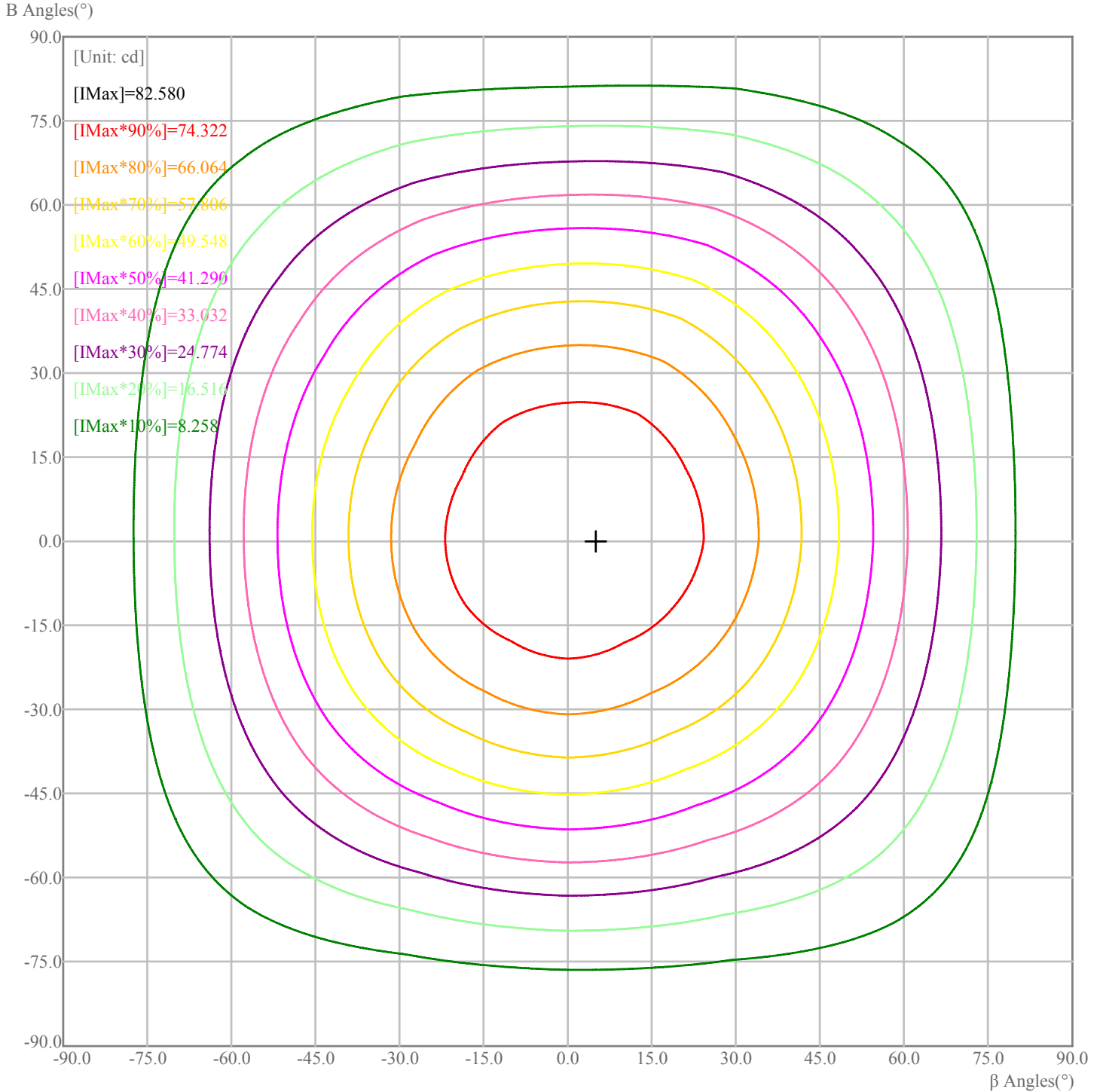
Photometric Filename:20881B-WW.IES

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## Zonal Liumens Tabulation

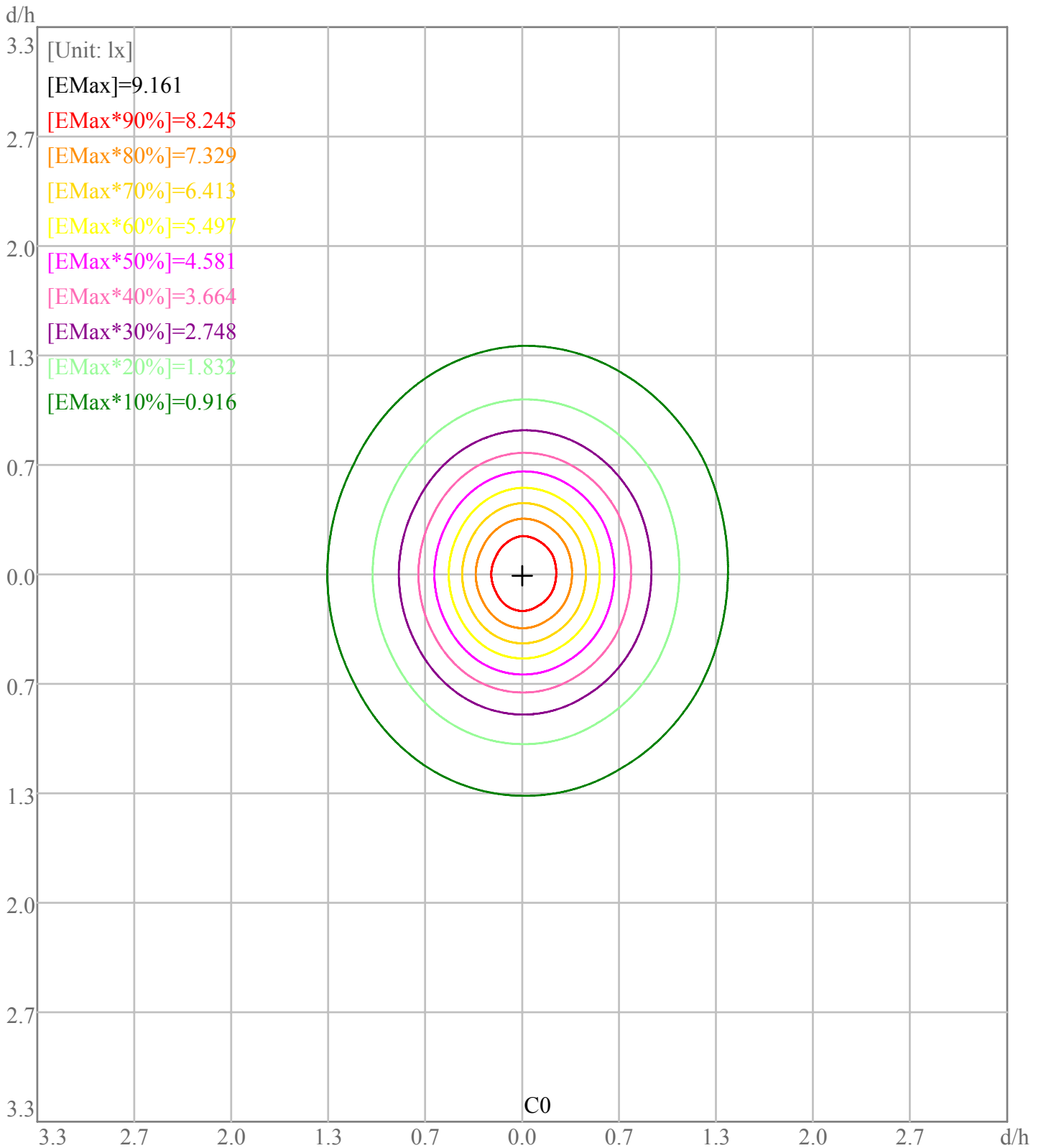
| Zone(γ)     | Zone Flux<br>(lm) | Sums Flux<br>(lm) | Zone%Lamp | Sums%Lamp |
|-------------|-------------------|-------------------|-----------|-----------|
| 0.0-5.0     | 1.97              | 1.97              | 0.89      | 0.89      |
| 5.0-10.0    | 5.83              | 7.79              | 2.63      | 3.52      |
| 10.0-15.0   | 9.48              | 17.27             | 4.28      | 7.80      |
| 15.0-20.0   | 12.78             | 30.05             | 5.77      | 13.57     |
| 20.0-25.0   | 15.60             | 45.65             | 7.05      | 20.62     |
| 25.0-30.0   | 17.87             | 63.52             | 8.07      | 28.69     |
| 30.0-35.0   | 19.48             | 83.00             | 8.80      | 37.49     |
| 35.0-40.0   | 20.36             | 103.36            | 9.20      | 46.69     |
| 40.0-45.0   | 20.46             | 123.81            | 9.24      | 55.93     |
| 45.0-50.0   | 19.77             | 143.59            | 8.93      | 64.86     |
| 50.0-55.0   | 18.39             | 161.98            | 8.31      | 73.17     |
| 55.0-60.0   | 16.41             | 178.39            | 7.41      | 80.58     |
| 60.0-65.0   | 13.93             | 192.32            | 6.29      | 86.87     |
| 65.0-70.0   | 11.08             | 203.41            | 5.01      | 91.88     |
| 70.0-75.0   | 8.09              | 211.50            | 3.66      | 95.54     |
| 75.0-80.0   | 5.17              | 216.67            | 2.34      | 97.87     |
| 80.0-85.0   | 2.56              | 219.23            | 1.16      | 99.03     |
| 85.0-90.0   | 0.74              | 219.98            | 0.34      | 99.37     |
| 90.0-95.0   | 0.06              | 220.03            | 0.03      | 99.39     |
| 95.0-100.0  | 0.00              | 220.03            | 0.00      | 99.39     |
| 100.0-105.0 | 0.00              | 220.04            | 0.00      | 99.39     |
| 105.0-110.0 | 0.01              | 220.05            | 0.00      | 99.40     |
| 110.0-115.0 | 0.03              | 220.07            | 0.01      | 99.41     |
| 115.0-120.0 | 0.05              | 220.12            | 0.02      | 99.43     |
| 120.0-125.0 | 0.08              | 220.20            | 0.04      | 99.47     |
| 125.0-130.0 | 0.11              | 220.31            | 0.05      | 99.52     |
| 130.0-135.0 | 0.13              | 220.44            | 0.06      | 99.57     |
| 135.0-140.0 | 0.14              | 220.58            | 0.06      | 99.64     |
| 140.0-145.0 | 0.14              | 220.72            | 0.07      | 99.70     |
| 145.0-150.0 | 0.15              | 220.87            | 0.07      | 99.77     |
| 150.0-155.0 | 0.14              | 221.00            | 0.06      | 99.83     |
| 155.0-160.0 | 0.12              | 221.13            | 0.06      | 99.89     |
| 160.0-165.0 | 0.11              | 221.23            | 0.05      | 99.93     |
| 165.0-170.0 | 0.08              | 221.31            | 0.04      | 99.97     |
| 170.0-175.0 | 0.05              | 221.36            | 0.02      | 99.99     |
| 175.0-180.0 | 0.02              | 221.38            | 0.01      | 100.00    |

**Rectangle ISO Light Intensity Curve**



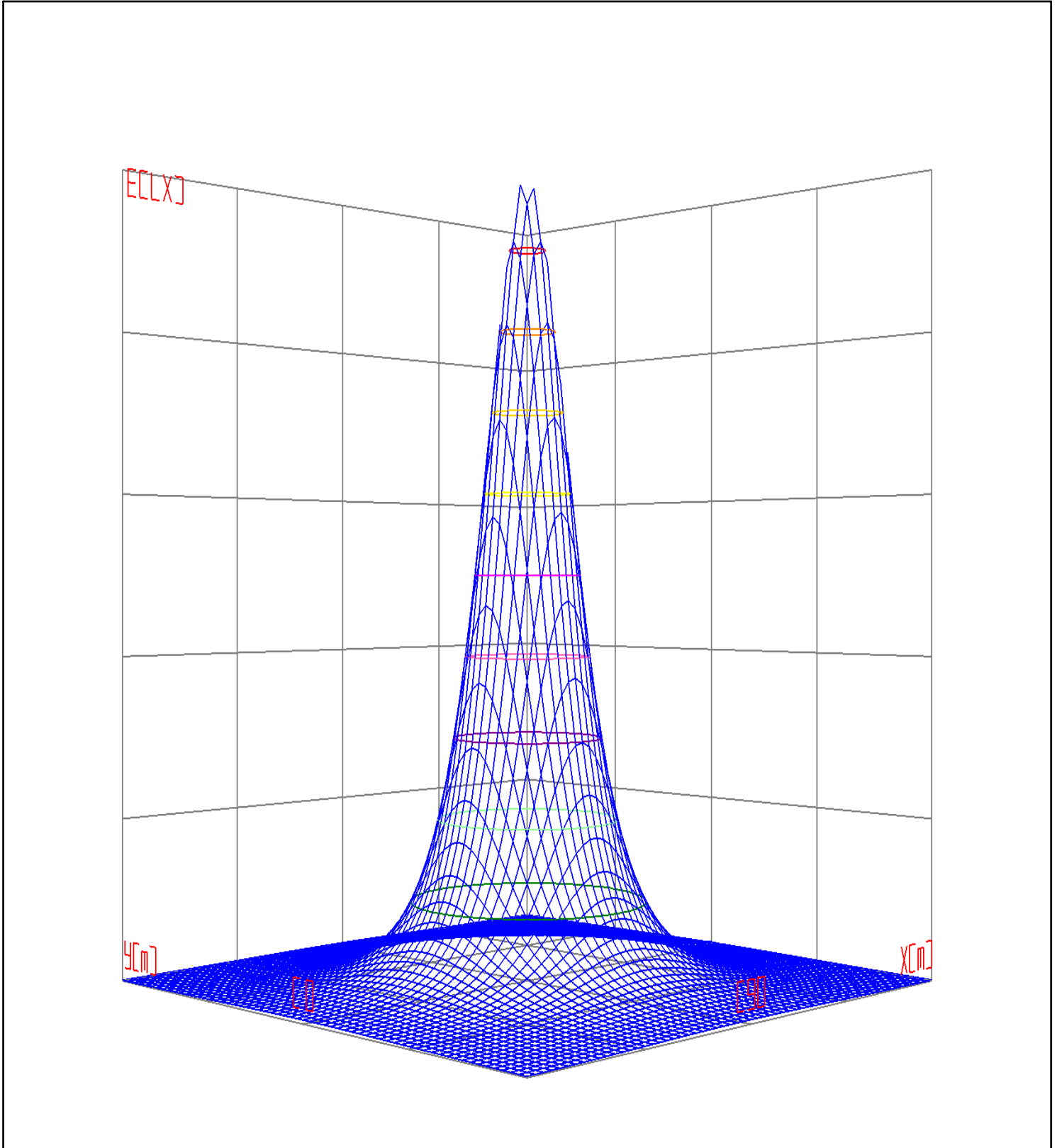
Curves: 90% — 80% — 70% — 60% — 50% — 40% — 30% — 20% — 10% —  
Maximum Light Intensity(cd): 82.58      Maximum Cd. Angles: H5.0 V0.0

**Plane ISO-Illuminance Curve**



Curves: 90% — 80% — 70% — 60% — 50% — 40% — 30% — 20% — 10% —  
 Maximum Illuminance(lx): 82.45 Max. E Postion(d/H)0.0 V0.0  
 Mount Height(m): 3.0

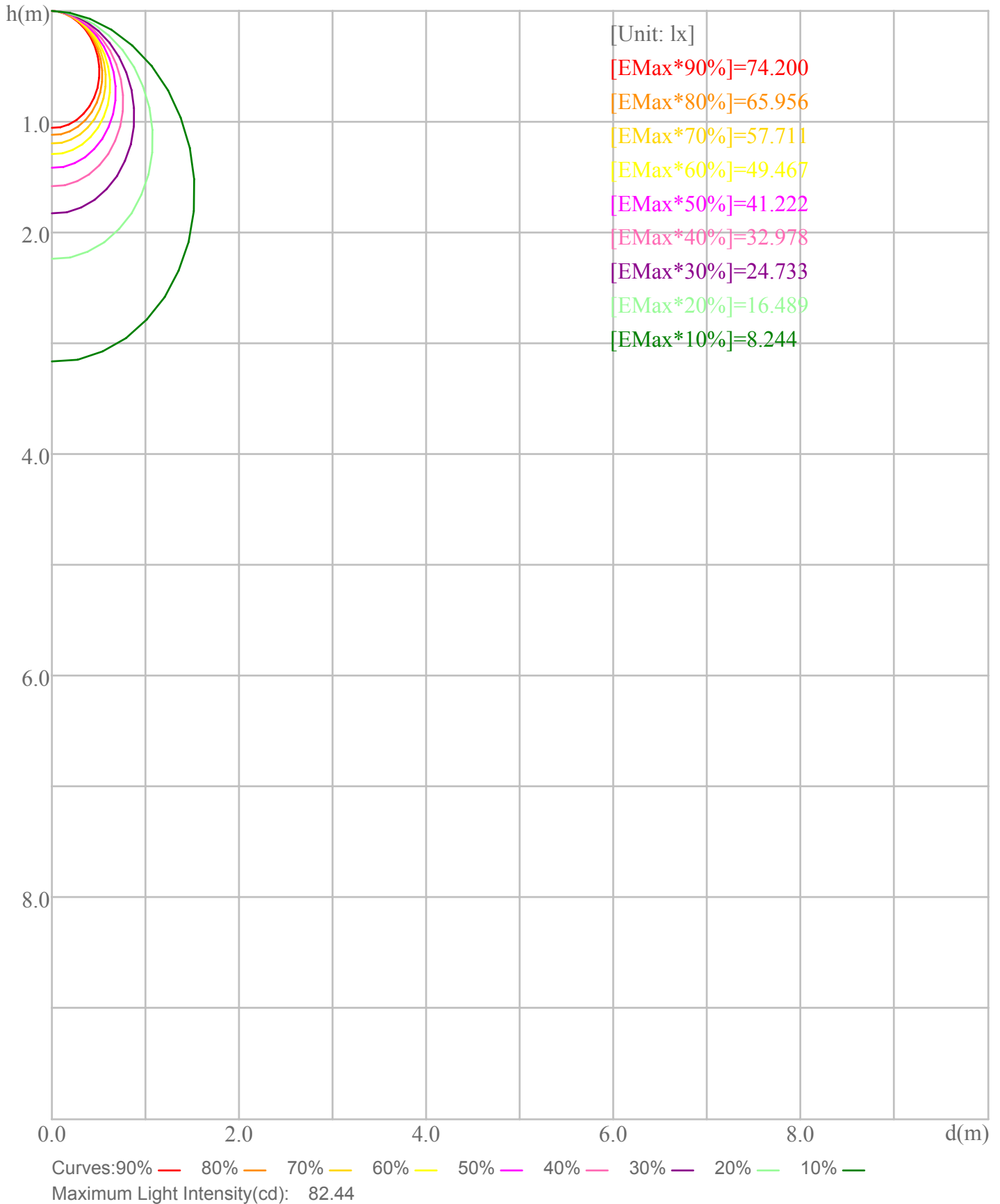
3D Plane ISO Illuminance Curve



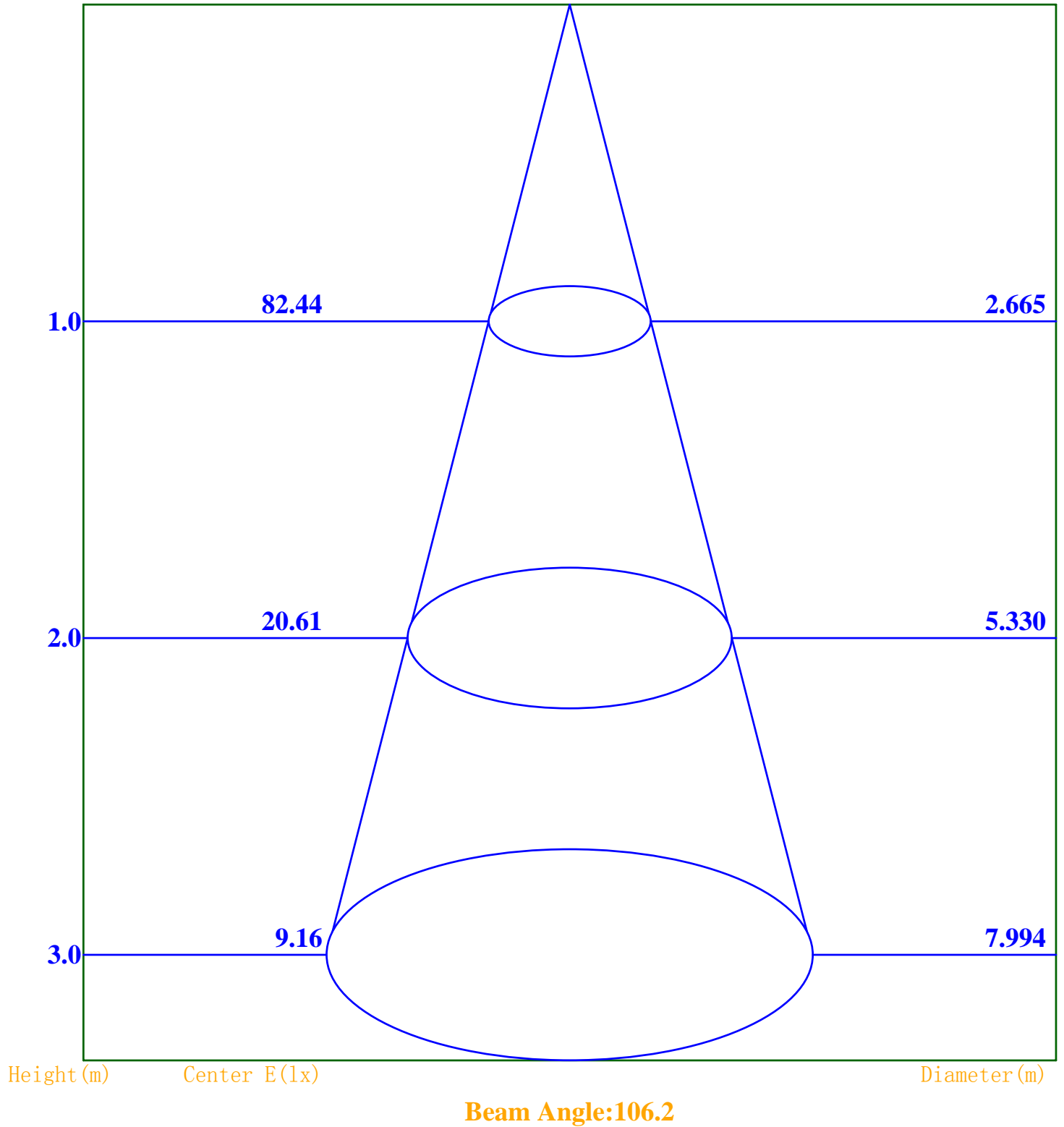
Curves: 3D Model — 90% — 80% — 70% — 60% — 50% — 40% — 30% — 20% — 10%  
View Angles(deg): 0      Height(m): 3.0      Distance(m): 10.0



Space ISO Illuminance Curve



Illuminance-Distance Curve



**Indoor Luminance Limiting Curve**

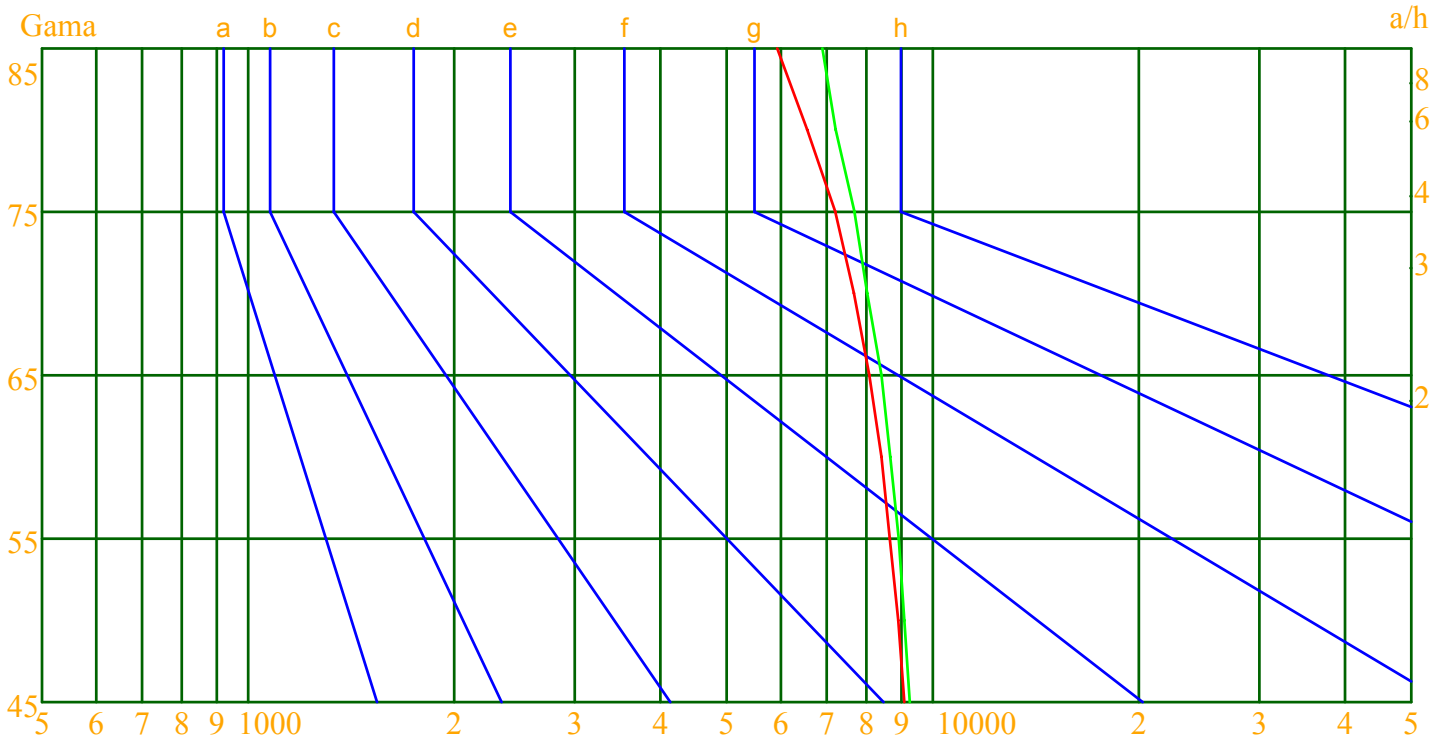
Glare Grade Table

| GI   | Quality | Using Illuminance |      |      |       |       |       |       |       |
|------|---------|-------------------|------|------|-------|-------|-------|-------|-------|
|      |         | a                 | b    | c    | d     | e     | f     | g     | h     |
| 1.15 | A       | 2000              | 1000 | 500  | <=300 |       |       |       |       |
| 1.5  | B       |                   | 2000 | 1000 | 500   | <=300 |       |       |       |
| 1.85 | C       |                   |      | 2000 | 1000  | 500   | <=300 |       |       |
| 2.2  | D       |                   |      |      | 2000  | 1000  | 500   | <=300 |       |
| 2.55 | E       |                   |      |      |       | 2000  | 1000  | 500   | <=300 |
|      |         | a                 | b    | c    | d     | e     | f     | g     | h     |

Luminance Table

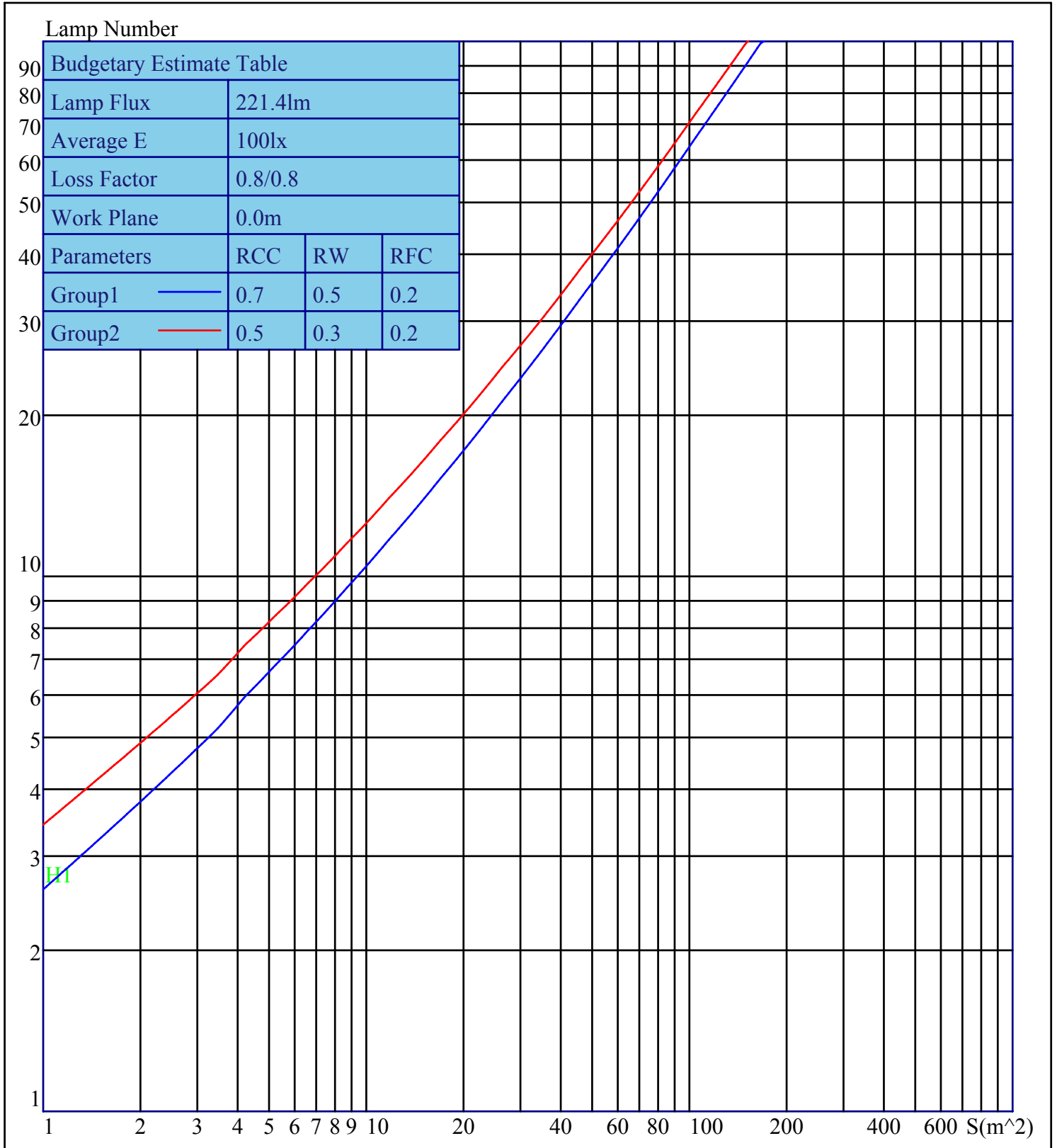
| Gama(deg) | 45    | 50    | 55    | 60    | 65    | 70    | 75    | 80    | 85    |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C0        | 38761 | 37585 | 35994 | 34526 | 32467 | 30048 | 27344 | 23727 | 20411 |
| C90       | 39829 | 38749 | 37682 | 36096 | 34531 | 32124 | 30117 | 27408 | 25630 |

Luminance Limiting Curve



Luminous Size: Length(m)=0.000 Width(m)=-0.050 Height(m)=0.000 Area(m<sup>2</sup>)=0.001963  
 Luminous Type: Without Luminous Side  
 Luminous Curves: C0-C180 Color: — C90-C270 Color: —

**Indoor Budgetary Estimate Table**



Parameters1: Rhocc = 0.7 Rhow = 0.5 Rhofc = 0.2 LLF = 0.8  
 Parameters2: Rhocc = 0.5 Rhow = 0.3 Rhofc = 0.2 LLF = 0.8  
 Average Illuminance(lx): 100 Cavity Height: H1(m) = 2

**Indoor Coefficient of Utilization Table**

| Coefficients of Utilization - Zonal Cavity Method       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Coefficient Effective Floor Cavity Reflectance RFC=0.20 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| RhoCC (%)   | 80                            |    |    |    | 70 |    |    |    | 50 |    |    | 30 |    |    | 10 |    |    | 0  |
| RhoW (%)  | 70                            | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0  |
| RCR   | Coefficient of Utilization(%) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 88                            | 88 | 88 | 88 | 86 | 86 | 86 | 86 | 82 | 82 | 82 | 78 | 78 | 78 | 75 | 75 | 75 | 73 |
| 1   | 80                            | 77 | 74 | 71 | 78 | 75 | 73 | 70 | 72 | 70 | 68 | 69 | 67 | 66 | 66 | 65 | 64 | 62 |
| 2   | 73                            | 67 | 62 | 58 | 71 | 66 | 61 | 58 | 63 | 59 | 56 | 61 | 58 | 55 | 59 | 56 | 54 | 52 |
| 3   | 67                            | 59 | 53 | 49 | 65 | 58 | 53 | 48 | 56 | 51 | 47 | 54 | 50 | 46 | 52 | 49 | 46 | 44 |
| 4   | 61                            | 53 | 46 | 41 | 60 | 52 | 46 | 41 | 50 | 45 | 41 | 48 | 44 | 40 | 46 | 43 | 39 | 38 |
| 5   | 57                            | 47 | 41 | 36 | 55 | 46 | 40 | 36 | 45 | 39 | 35 | 43 | 38 | 35 | 42 | 38 | 34 | 33 |
| 6   | 52                            | 43 | 36 | 31 | 51 | 42 | 36 | 31 | 40 | 35 | 31 | 39 | 34 | 31 | 38 | 34 | 30 | 29 |
| 7   | 48                            | 39 | 32 | 28 | 47 | 38 | 32 | 28 | 37 | 31 | 27 | 36 | 31 | 27 | 35 | 30 | 27 | 25 |
| 8   | 45                            | 35 | 29 | 25 | 44 | 35 | 29 | 25 | 34 | 28 | 24 | 33 | 28 | 24 | 32 | 27 | 24 | 23 |
| 9   | 42                            | 32 | 26 | 22 | 41 | 32 | 26 | 22 | 31 | 26 | 22 | 30 | 25 | 22 | 29 | 25 | 22 | 20 |
| 10  | 40                            | 30 | 24 | 20 | 39 | 29 | 24 | 20 | 29 | 24 | 20 | 28 | 23 | 20 | 27 | 23 | 20 | 19 |