

Report No.:

Test Time: 2021/9/15 20:58

Luminaire Property

Luminaire Manufacturer:

Luminaire Category:

Luminaire Description: MLS054W12V30KD(100°,黑胶)

Lamp Catalog: L150-3080500600000 (K3A2流明)

Lamp Description: MSPI-DDC1T2S-500 (3.51W)

Number of Lamps:

Lumens per Lamp:

Luminous Length (mm):

Luminous Width (mm):

Luminous Height (mm):

Voltage: 12.4 V

Current: 0.361 A

Power: 3.49 W

Power Factor: 0.778

Volt Amps: 4.49 VA

Photometric Results

CIE Class: Direct

Total Rated Lamp Lumens: 296.4 lm

Measurement Flux: 296.4 lm

Efficiency: 100%

Downward Ratio: 99%

Upward Ratio: 1%

Horizontal Diffuse Angle(25%,50%,75%,100%): H123.5,H104.1,H85.3,H8

Vertical Diffuse Angle(25%,50%,75%,100%): V123.9,V103,V84.1,V5

Luminaire Efficacy Rating (LER): 84.98

C0r0 Intensity: 116.26 cd

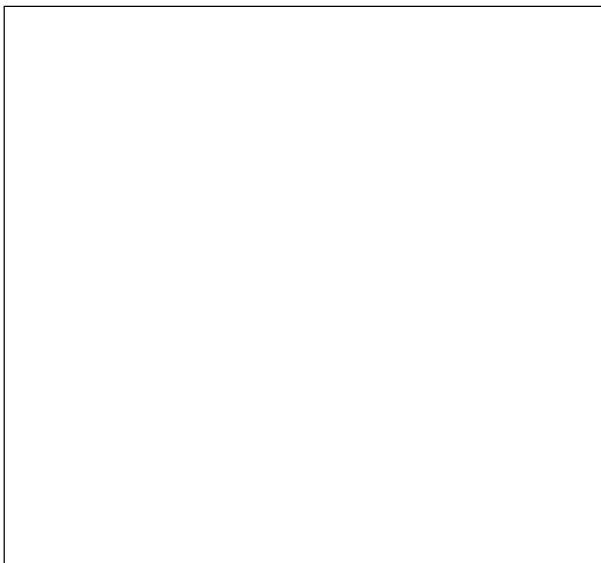
Max. Intensity: 117.14 cd

Pos of Max. Intensity: H330 V8

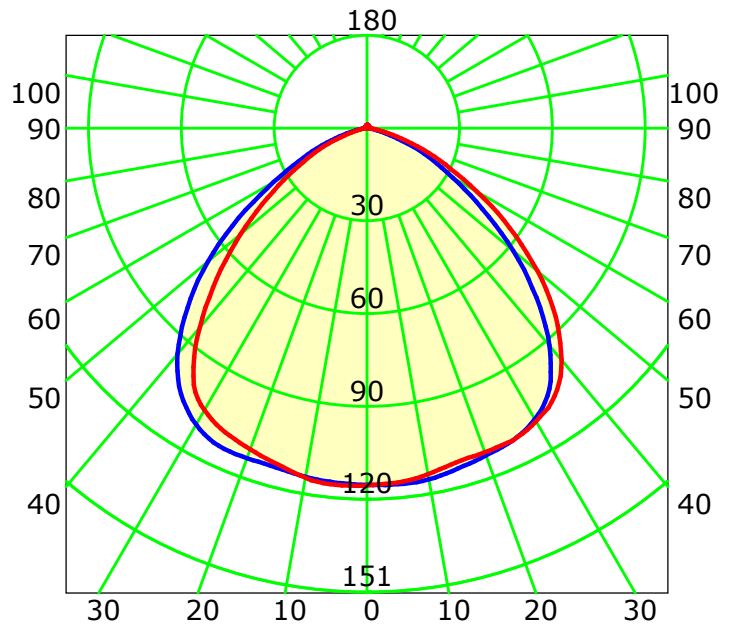
S/MH(C0/C180): 1.39

S/MH(C90/C270): 1.37

Picture Of Luminaire



Luminous Intensity Distribution Curve



Average Diffuse Angle(50%): 103.5°

C Plane (°):0.0-360.0: 30.0

Gamma Plane (°):0.0-180.0:1.0 C270

Test Lab:

Test Device: GPM-1800B

Test Type: TYPE C

Distance: 11.573 m [K=1.0000]

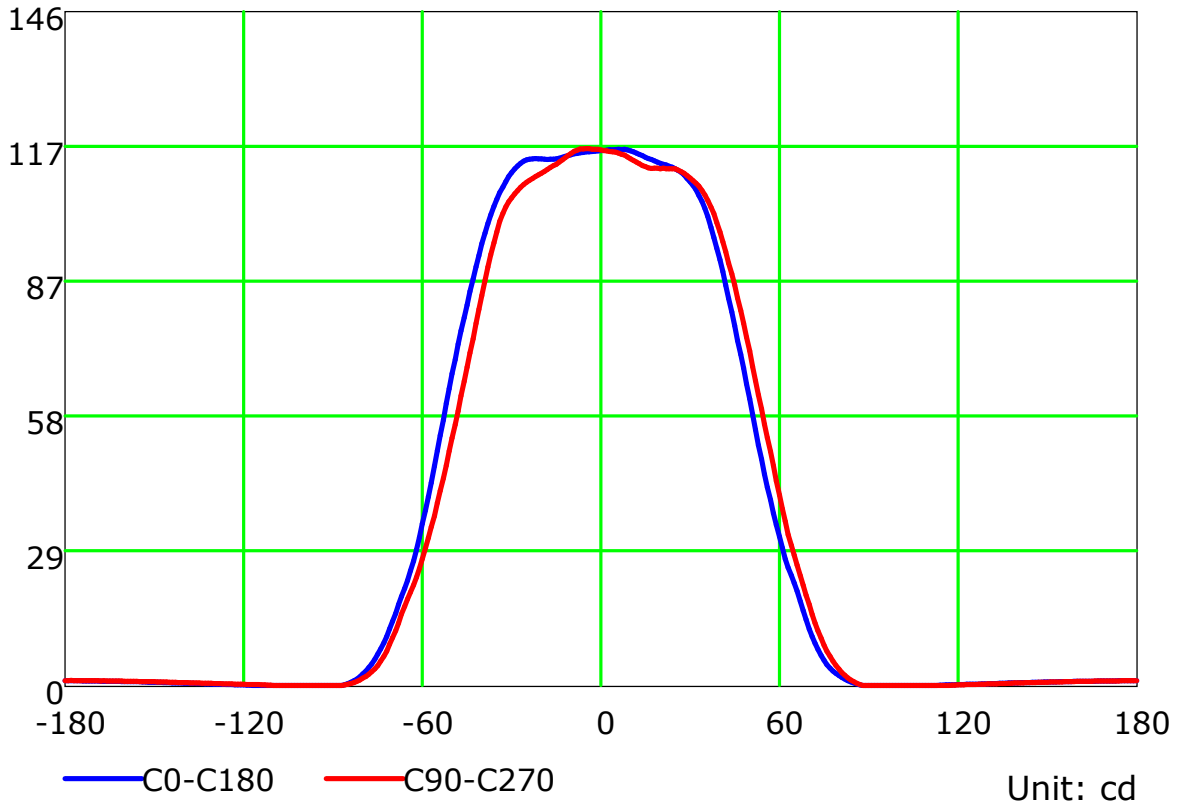
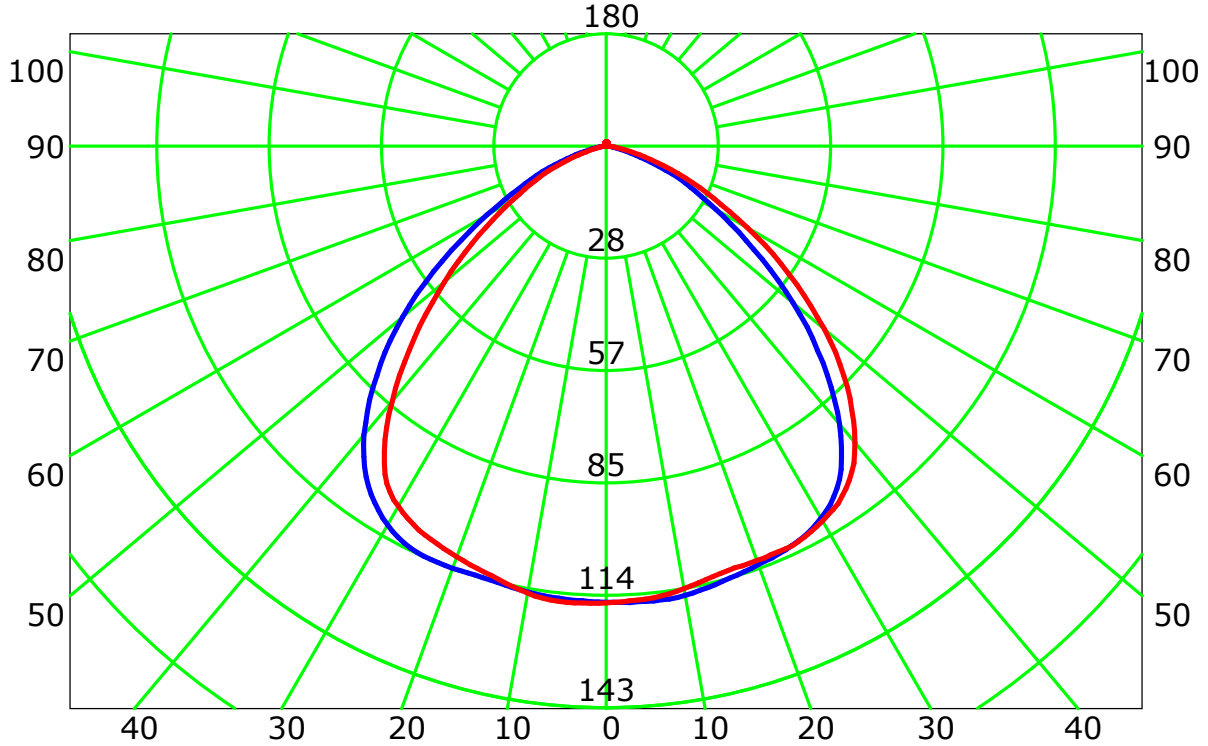
Temperature:

Humidity:

Operator:

Inspector:

Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

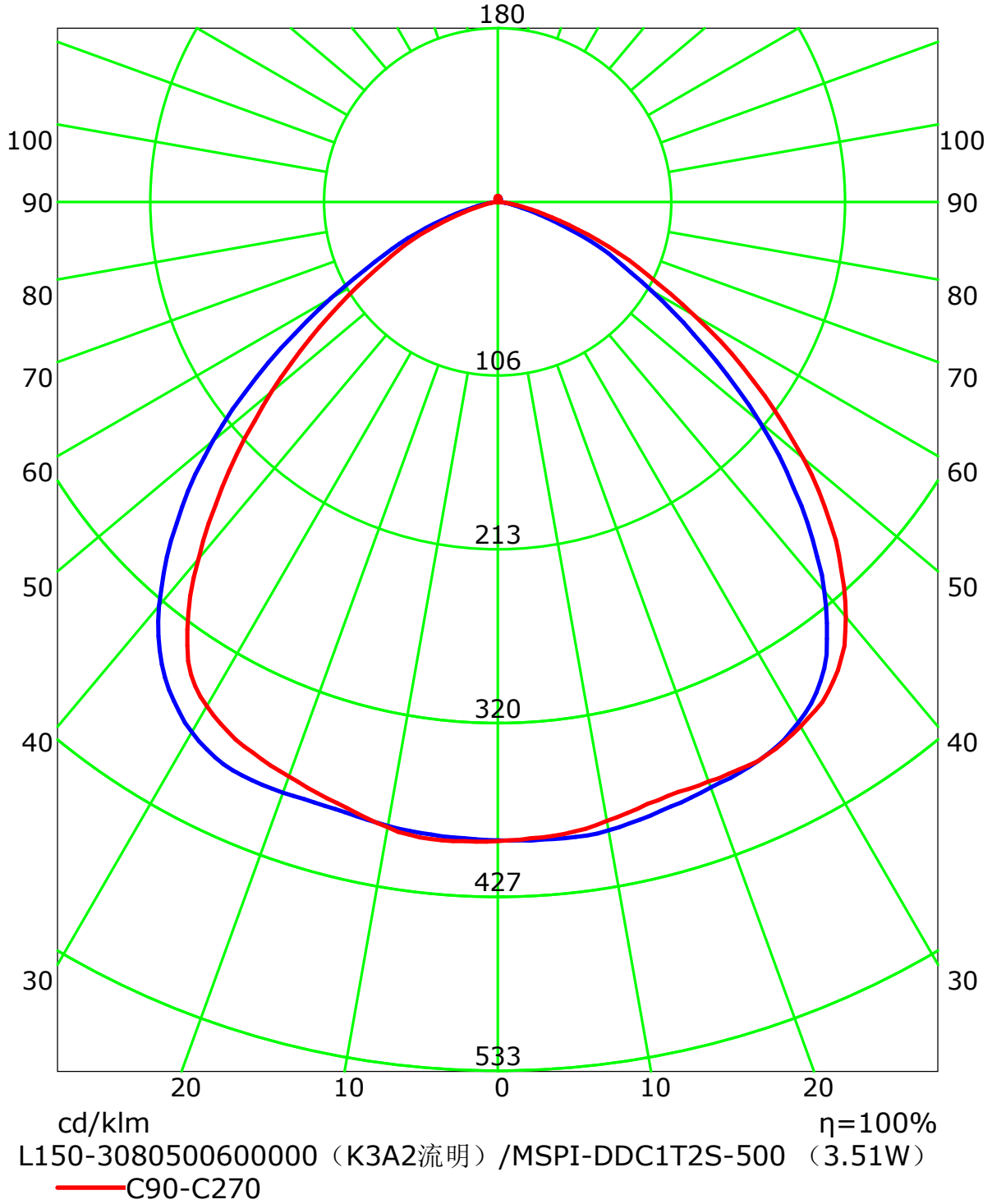
Test Device: GPM-1800B

Distance: 11.573 m [K=1.0000]

Humidity:

Inspector:

Luminous Intensity Distribution Curve(cd/klm)



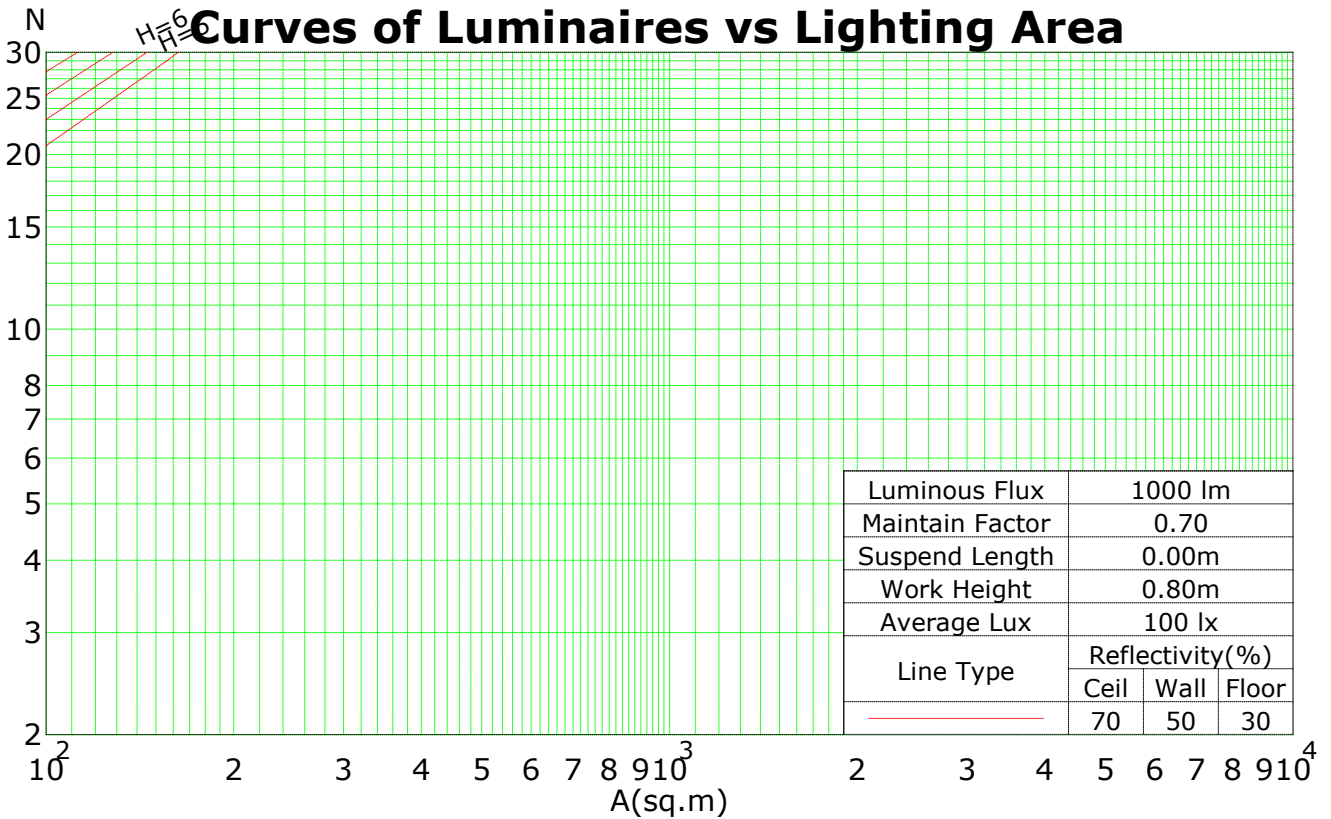
C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Coefficients Of Utilization - Zonal Cavity Method

RC	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.3	0.3	0.3	0.1	0.1	0.1	0
RW	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0
RCR	RF = 0.2																	
0	1.19	1.19	1.19	1.19	1.16	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.01	1.01	1.01	0.99
1	1.10	1.07	1.03	1.00	1.08	1.04	1.01	0.98	1.00	0.97	0.95	0.96	0.94	0.92	0.92	0.91	0.89	0.87
2	1.02	0.95	0.89	0.84	0.99	0.93	0.87	0.83	0.89	0.85	0.81	0.86	0.82	0.79	0.83	0.80	0.77	0.75
3	0.94	0.84	0.77	0.71	0.91	0.83	0.76	0.71	0.80	0.74	0.69	0.77	0.72	0.68	0.74	0.70	0.67	0.65
4	0.86	0.75	0.67	0.61	0.84	0.74	0.67	0.61	0.72	0.65	0.60	0.69	0.64	0.59	0.67	0.62	0.58	0.56
5	0.80	0.68	0.59	0.53	0.78	0.67	0.59	0.53	0.65	0.58	0.52	0.63	0.57	0.52	0.61	0.55	0.51	0.49
6	0.74	0.61	0.53	0.47	0.72	0.60	0.52	0.47	0.59	0.52	0.46	0.57	0.51	0.46	0.55	0.50	0.45	0.43
7	0.68	0.56	0.47	0.42	0.67	0.55	0.47	0.42	0.53	0.46	0.41	0.52	0.46	0.41	0.51	0.45	0.41	0.39
8	0.64	0.51	0.43	0.37	0.62	0.50	0.43	0.37	0.49	0.42	0.37	0.48	0.41	0.37	0.46	0.41	0.36	0.35
9	0.60	0.47	0.39	0.34	0.58	0.46	0.39	0.34	0.45	0.38	0.33	0.44	0.38	0.33	0.43	0.37	0.33	0.31
10	0.56	0.43	0.36	0.31	0.55	0.43	0.35	0.30	0.42	0.35	0.30	0.41	0.34	0.30	0.40	0.34	0.30	0.28

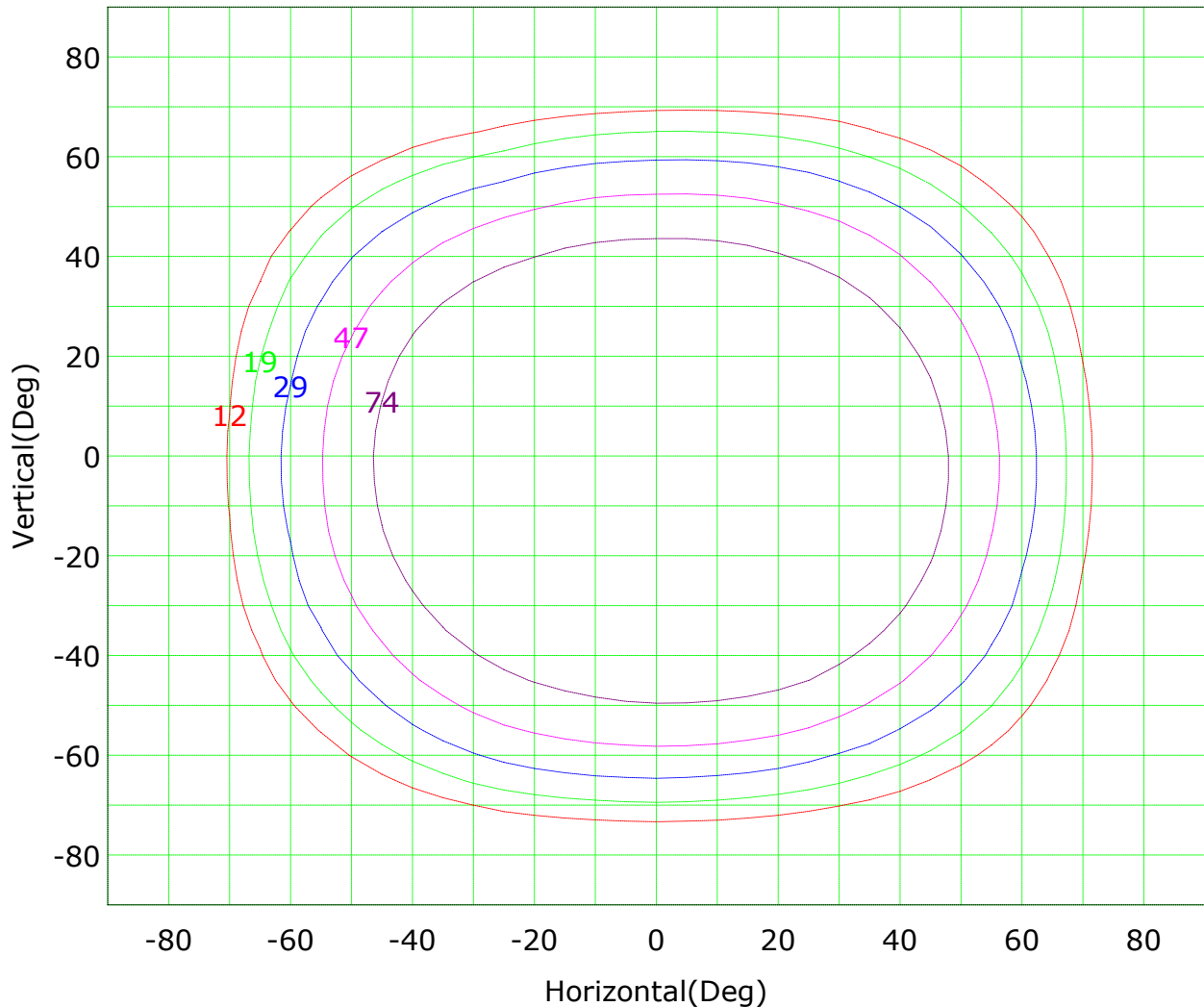
Spacing Criteria (0-180): 1.39
 Spacing Criteria (90-270): 1.37
 Spacing Criteria (Diagonal): 1.39



C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Isocandela (rectangle)



Imax (100%): 117 cd

— (10%):	12 cd	— (16%):	19 cd
— (25%):	29 cd	— (40%):	47 cd
— (63%):	74 cd	— (100%):	117 cd

C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

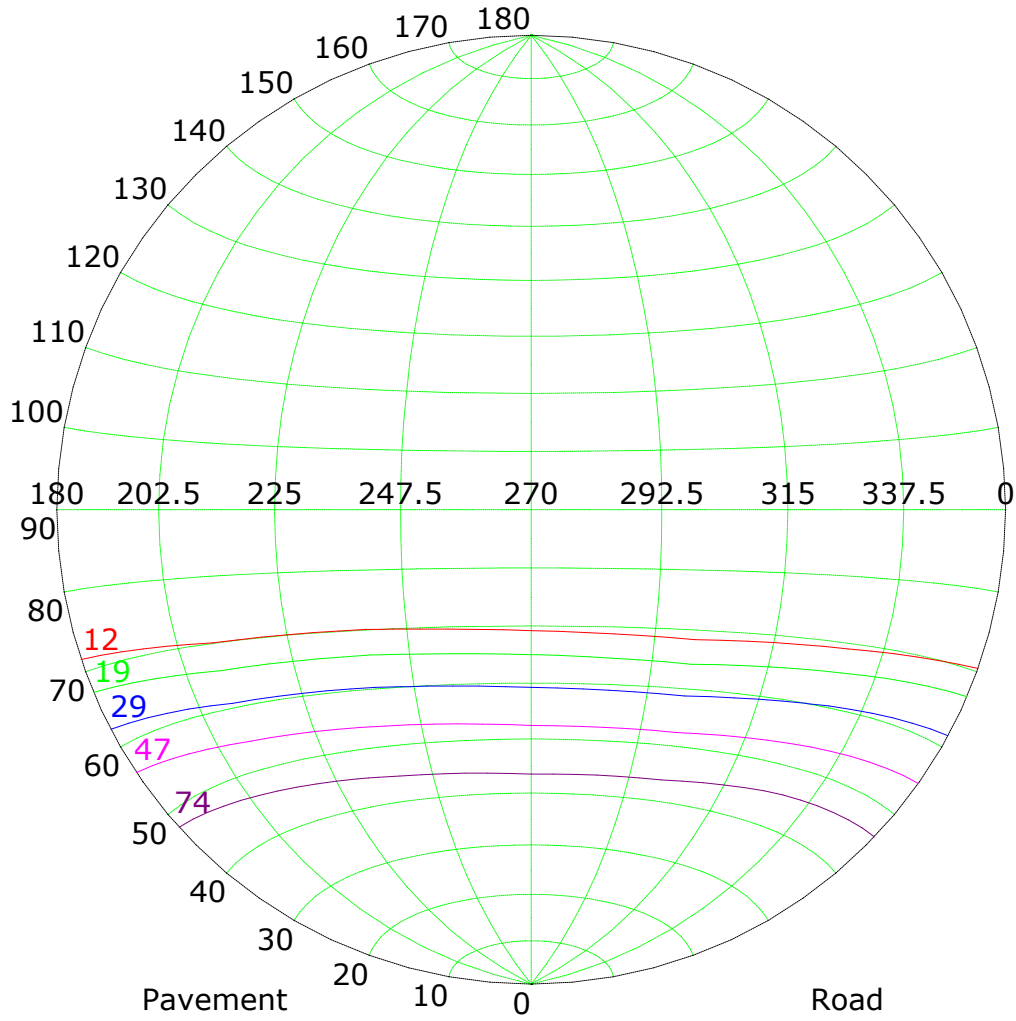
Test Device: GPM-1800B

Distance: 11.573 m [K=1.0000]

Humidity:

Inspector:

Isocandela (sphere)



Imax (100%): 117 cd

— (10%):	12 cd	— (16%):	19 cd
— (25%):	29 cd	— (40%):	47 cd
— (63%):	74 cd	— (100%):	117 cd

C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

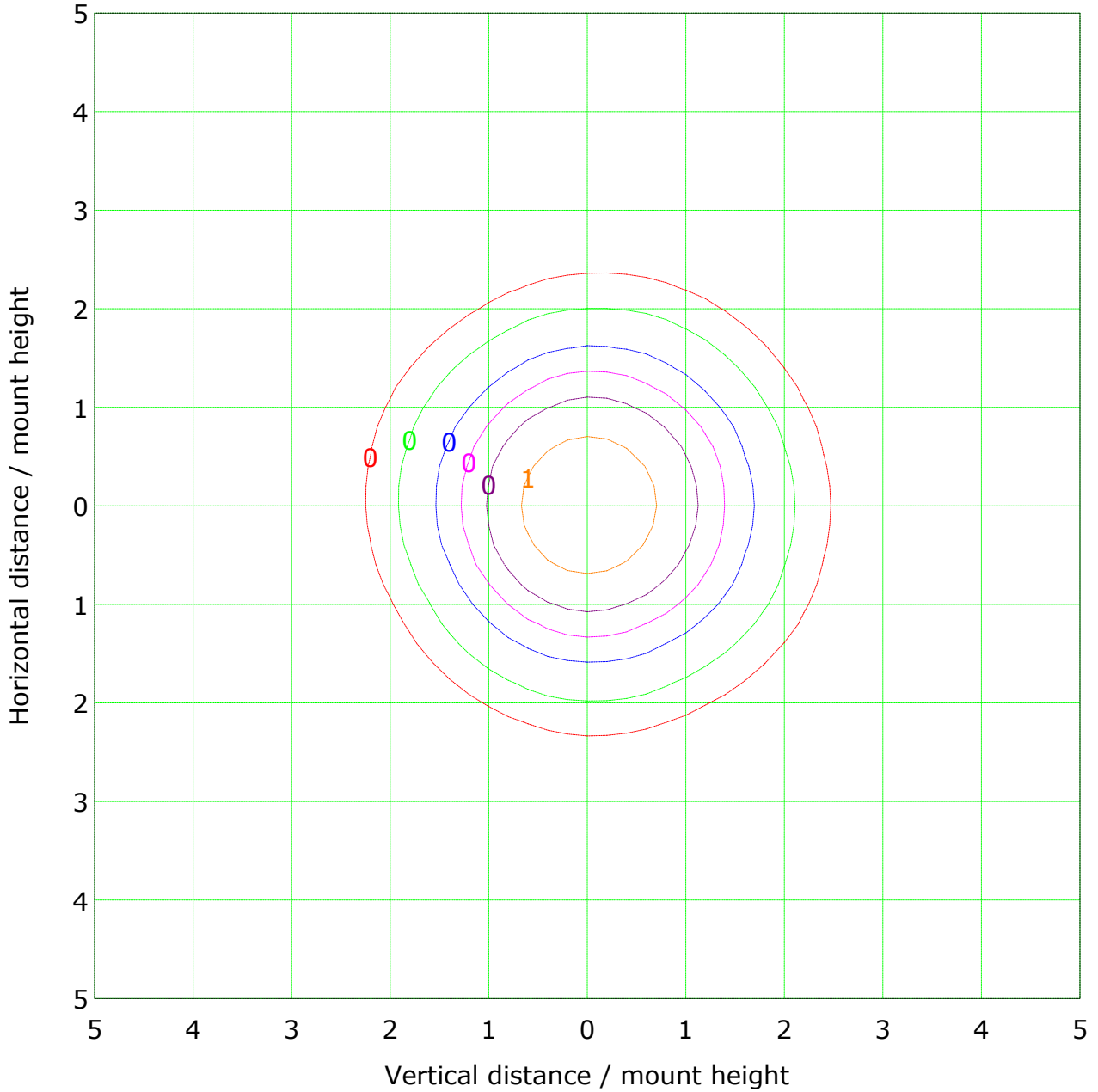
Test Device: GPM-1800B

Distance: 11.573 m [K=1.0000]

Humidity:

Inspector:

IsoLux Plot



Mounting Height: 10.0m		Max Lux(100%): 1.2 lx	
<ul style="list-style-type: none"> — (1%): 0.0 lx — (5%): 0.1 lx — (20%): 0.2 lx — (100%): 1.2 lx 	<ul style="list-style-type: none"> — (2%): 0.0 lx — (10%): 0.1 lx — (50%): 0.6 lx 		

C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

Test Device: GPM-1800B

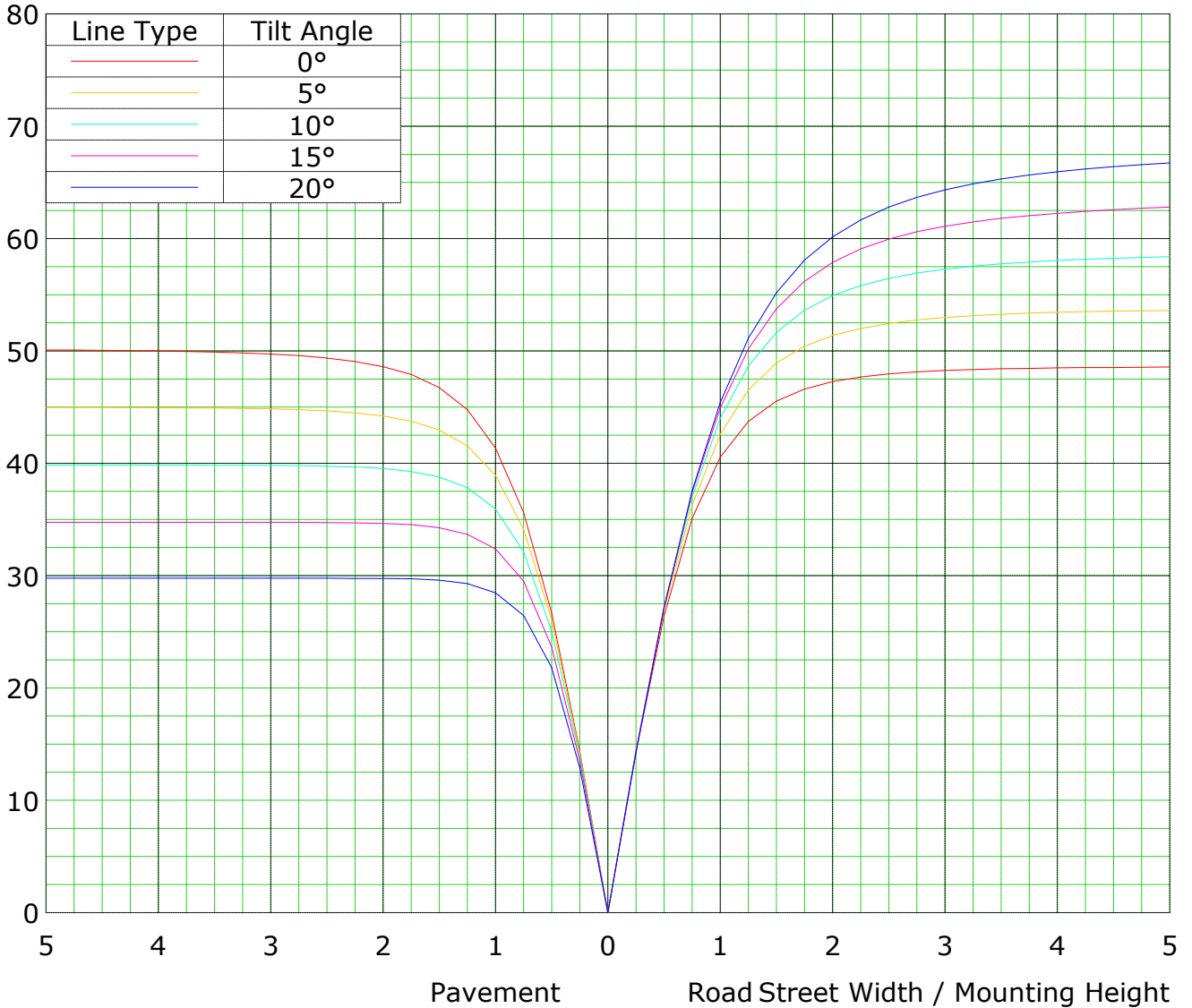
Distance: 11.573 m [K=1.0000]

Humidity:

Inspector:

Roadway CU Curve

Efficiency(%)



C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

Test Device: GPM-1800B

Distance: 11.573 m [K=1.0000]

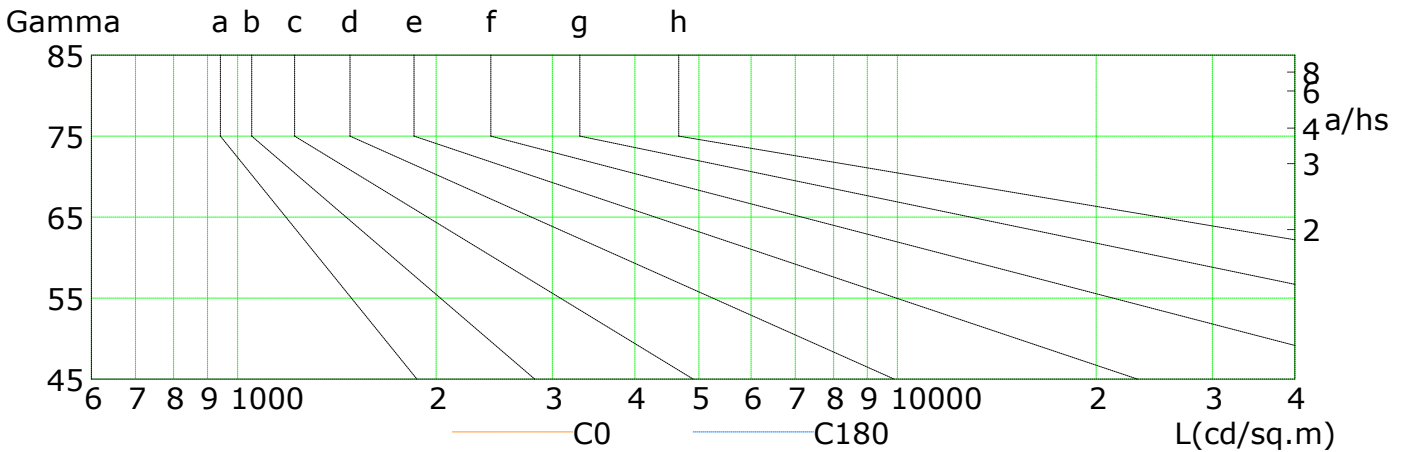
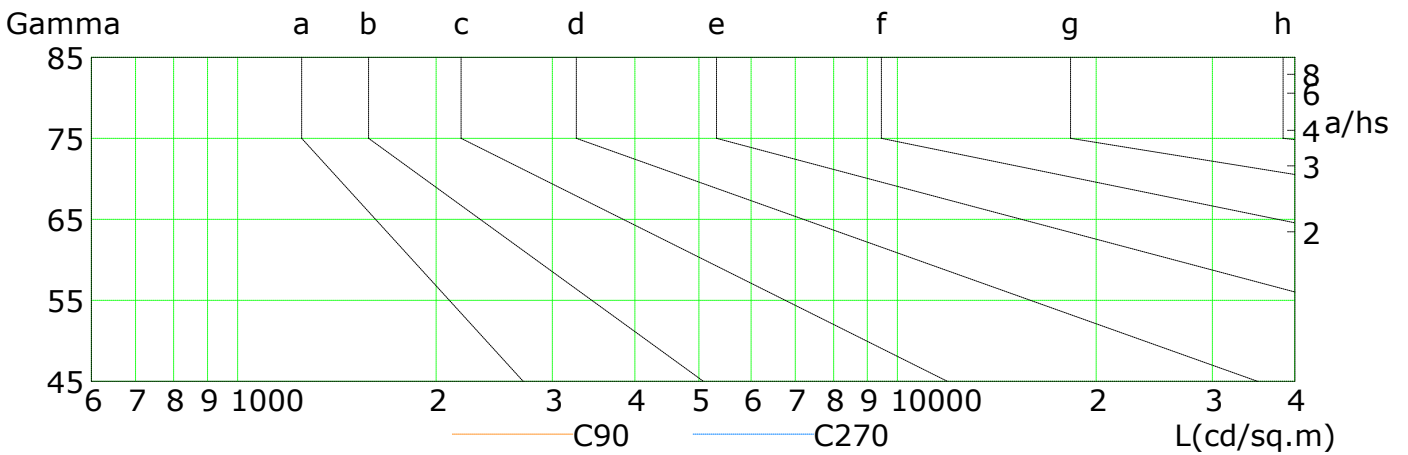
Humidity:

Inspector:

Lum Limit Curve

Dazzle	Quality	Illuminance (lx)							
		2000	1000	500	<=300				
1.15	A	2000	1000	500	<=300				
1.50	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.20	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300

a b c d e f g h



L(cd/sq.m)	G45	G50	G55	G60	G65	G70	G75	G80	G85
C0	78	62	46	32	22	12	6	2	1
C90	87	73	57	41	28	18	9	4	1
C180	83	68	51	35	23	14	7	3	0
C270	69	54	40	28	19	10	4	2	0

C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

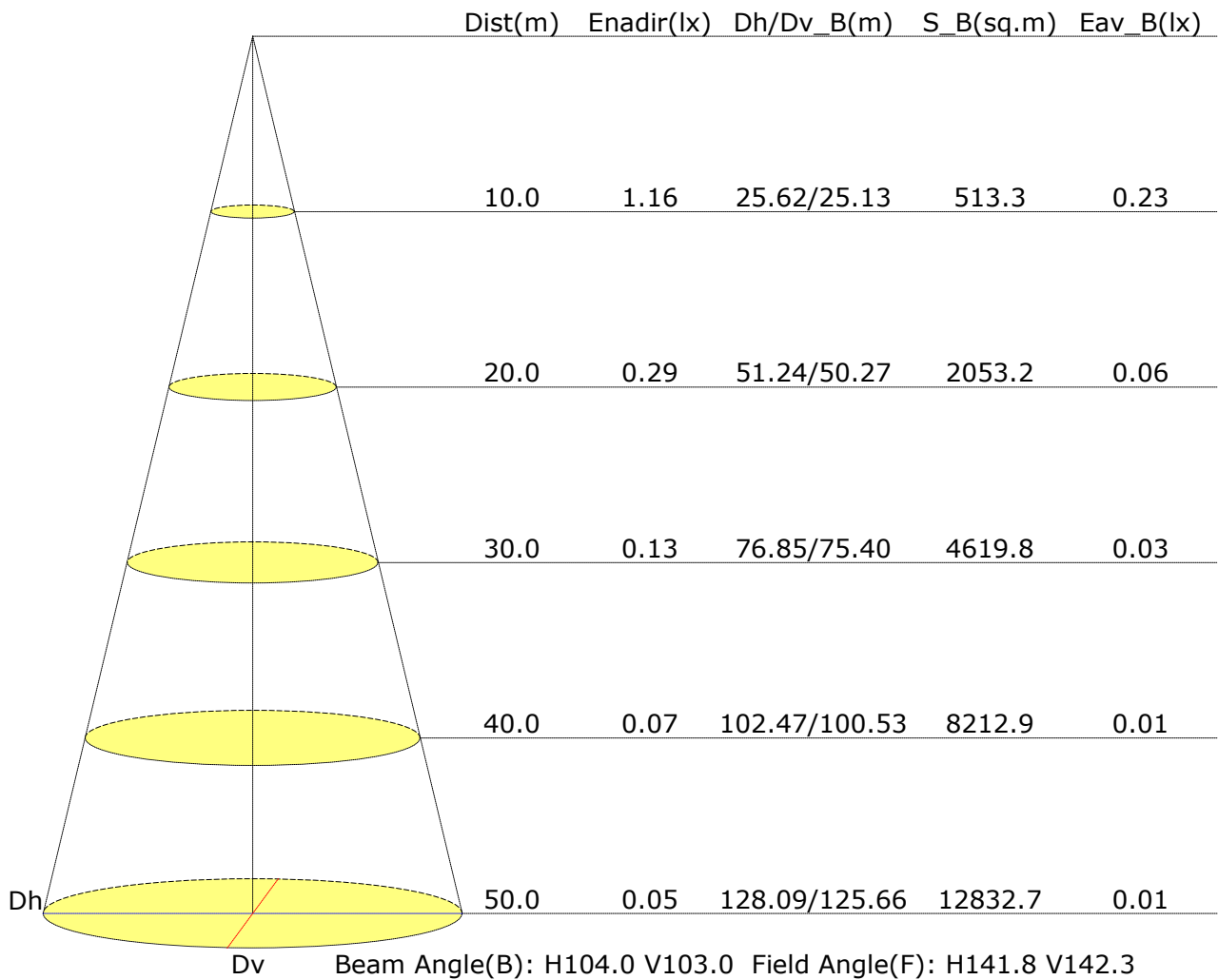
Test Device: GPM-1800B

Distance: 11.573 m [K=1.0000]

Humidity:

Inspector:

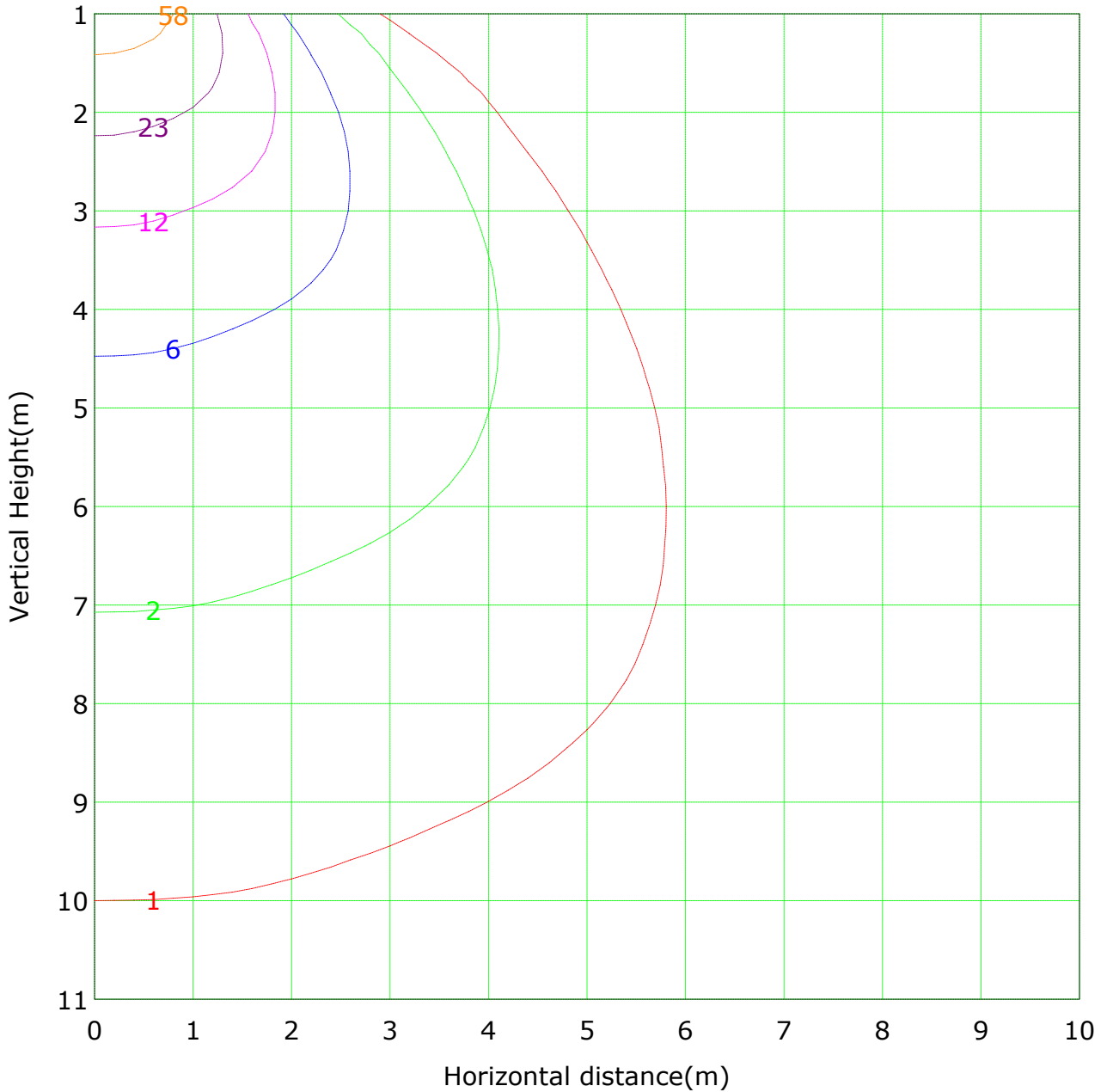
Illuminance at a Distance



C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Vertical IsoLux Plot



Lowest(m): 1.0m	Highest(m): 11.0m	Max Lux: 116.3 lx
— (1%): 1.2 lx	— (2%): 2.3 lx	
— (5%): 5.8 lx	— (10%): 11.6 lx	
— (20%): 23.3 lx	— (50%): 58.1 lx	
— (100%): 116.3 lx		

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Area Flux Table

Unit: lm

		Vertical plane																				
		-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90	Flux(T)	Flux(E)
Horizontal plane	-90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	-80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
	-70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.1
	-60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	6.9
	-50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.9	14.5
	-40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3	23.0
	-30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.2	29.8
	-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.3	34.0
	-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3	35.9
	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.1	35.8
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.8	33.4
	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.3	28.9
	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4	22.0
	40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.9	13.5
	50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	6.2
	60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	1.8
	70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
	80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
																					294	288

C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

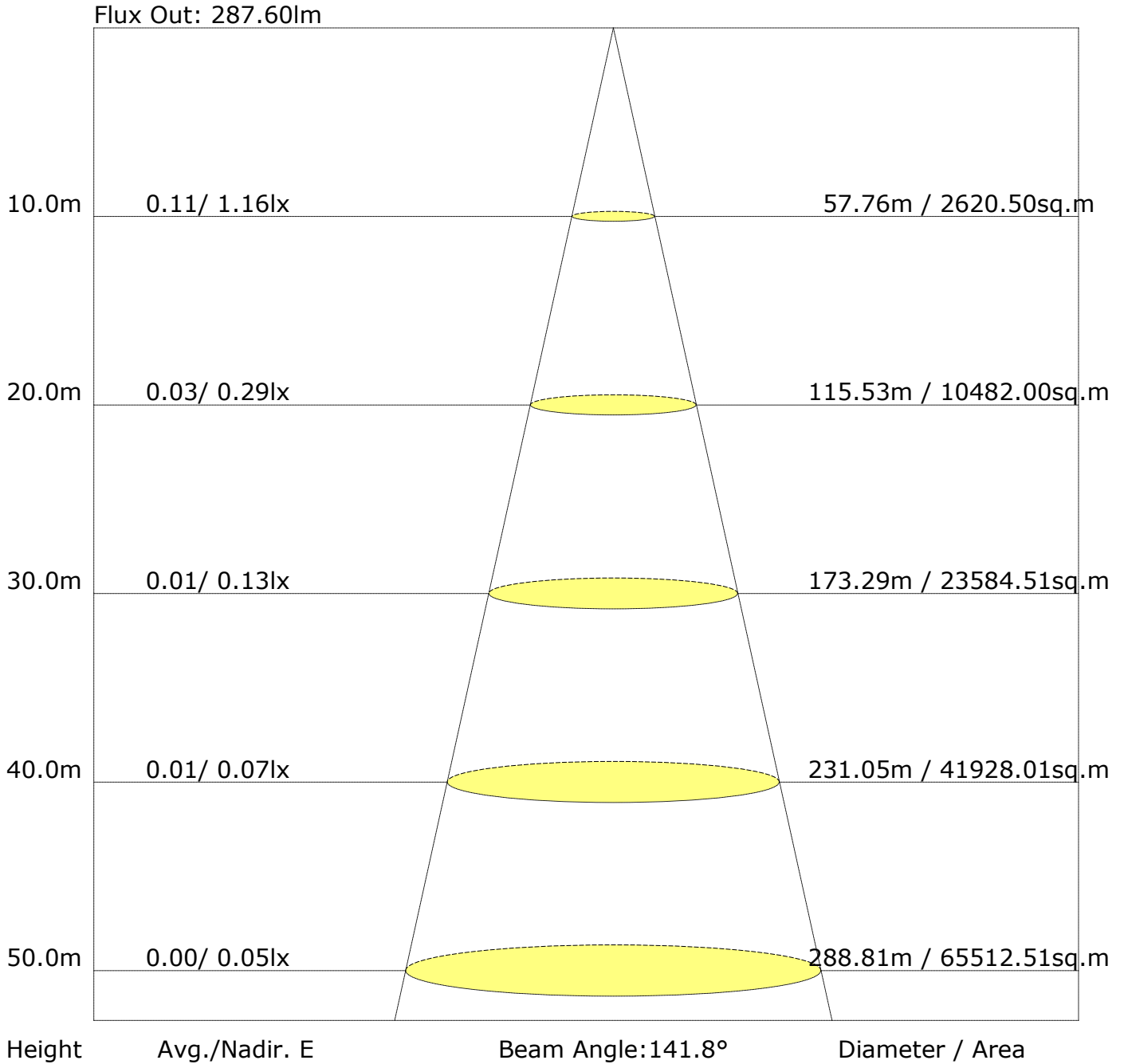
Test Device: GPM-1800B

Distance: 11.573 m [K=1.0000]

Humidity:

Inspector:

The Average Illuminance Effective Figure



C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

Test Device: GPM-1800B

Distance: 11.573 m [K=1.0000]

Humidity:

Inspector:

UGR Table

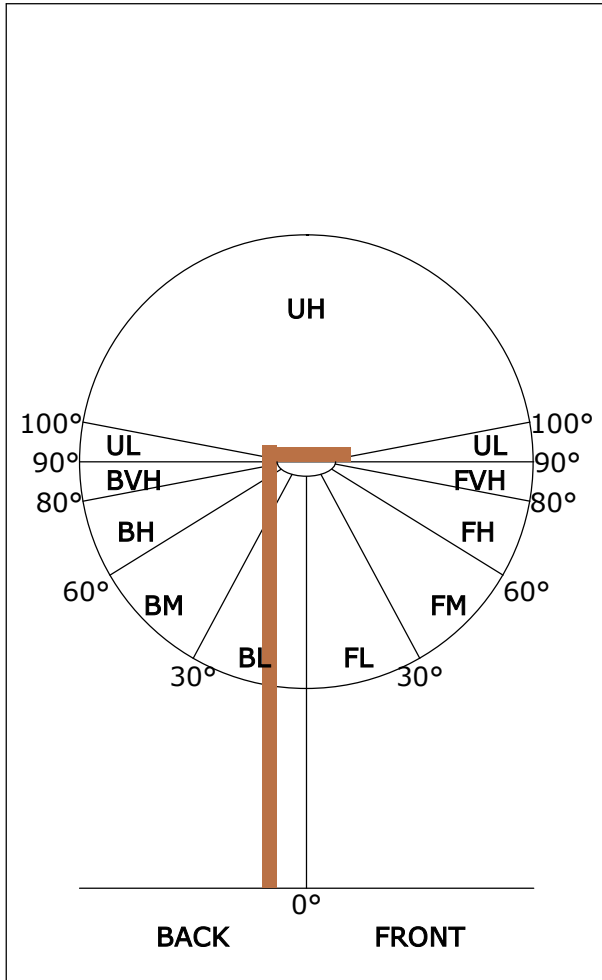
Reflectance:										
Ceiling (cavity)	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
X=2H Y=2H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
3H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
4H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
6H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
8H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
12H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
X=4H Y=2H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
3H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
4H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
6H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
8H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
12H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
X=8H Y=4H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
6H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
8H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
12H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
X=12H Y=4H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
6H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$
8H	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$	1.\$

Calculate in accordance with CIE 190:2010 The table is revised with 296lm ($8\log(F/F_0) = -4.2$).

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

FLUX DISTRIBUTION TABLE BASED ON THE IESNA LUMINAIRE CLASSIFICATION SYSTEM



ZONE	LUMENS	% LAMP LUMENS
FORWARD LIGHT	145	48.9
FL (0°-30°)	47	16.0
FM (30°-60°)	83	27.9
FH (60°-80°)	14	4.9
FVH (80°-90°)	0	0.1
BACK LIGHT	149	50.4
BL (0°-30°)	48	16.1
BM (30°-60°)	86	29.0
BH (60°-80°)	16	5.2
BVH (80°-90°)	0	0.1
UP LIGHT	2	0.7
UL (90°-100°)	0	0.0
UH (100°-180°)	2	0.7
TRAPPED LIGHT	NA	NA

BUG(Backlight,Uplight,Glare) Rating Base On TM-15-07	
Asymmetrical Luminaire Types (Type I,II,III,IV)	B0 U1 G0
Quadrilateral Symmetrical Luminaire Types (Type V,Area Light)	B0 U1 G0

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Utilisation Factor Table(Floor cavity)

Utilisation Factors UF(F)			SHR NOM = 1.25								
Room Reflectance			Room Index(RI)								
Ceiling	Wall	Floor	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
0.70	0.50	0.20	0.63	0.73	0.81	0.86	0.92	0.97	1.00	1.04	1.06
	0.30		0.56	0.67	0.74	0.80	0.87	0.92	0.96	1.00	1.03
	0.20		0.50	0.62	0.69	0.75	0.83	0.88	0.92	0.97	1.01
0.50	0.50	0.20	0.61	0.71	0.78	0.83	0.89	0.93	0.96	1.00	1.02
	0.30		0.55	0.65	0.73	0.78	0.85	0.89	0.93	0.97	0.99
	0.20		0.50	0.61	0.68	0.74	0.81	0.86	0.90	0.94	0.97
0.30	0.50	0.20	0.60	0.70	0.76	0.80	0.86	0.90	0.93	0.96	0.98
	0.30		0.54	0.64	0.71	0.76	0.83	0.87	0.90	0.94	0.96
	0.20		0.50	0.60	0.67	0.73	0.80	0.84	0.87	0.92	0.94
0.00	0.00	0.00	0.48	0.58	0.65	0.70	0.76	0.80	0.83	0.87	0.89
<p>Rating:3W Photometrically tested without ceiling board. Multiply UF values by service correction factors Calculate in accordance with CIBSE Technical Memorandum NO.5 1980</p>											

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Utilisation Factor Table(Wall)

Utilisation Factors UF(W)			SHR NOM = 1.25									
Room Reflectance			Room Index(RI)									
Ceiling	Wall	Floor	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	
0.70	0.50	0.20	0.90	0.72	0.60	0.52	0.41	0.33	0.28	0.22	0.18	
	0.30		0.75	0.62	0.53	0.46	0.37	0.31	0.26	0.20	0.17	
	0.20		0.65	0.54	0.47	0.41	0.34	0.28	0.24	0.19	0.16	
0.50	0.50	0.20	0.87	0.69	0.58	0.49	0.39	0.35	0.27	0.20	0.16	
	0.30		0.74	0.60	0.51	0.44	0.35	0.29	0.25	0.19	0.16	
	0.20		0.64	0.53	0.46	0.40	0.32	0.27	0.23	0.18	0.15	
0.30	0.50	0.20	0.84	0.66	0.55	0.47	0.37	0.30	0.25	0.19	0.16	
	0.30		0.72	0.58	0.49	0.43	0.34	0.28	0.24	0.18	0.15	
	0.20		0.63	0.52	0.45	0.39	0.31	0.26	0.22	0.17	0.14	
0.00	0.00	0.00	0.52	0.42	0.35	0.30	0.23	0.19	0.16	0.12	0.10	
<p>Rating:3W Photometrically tested without ceiling board. Multiply UF values by service correction factors Calculate in accordance with CIBSE Technical Memorandum NO.5 1980</p>												

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Utilisation Factor Table(Ceiling cavity)

Utilisation Factors UF(C)			SHR NOM = 1.25								
Room Reflectance			Room Index(RI)								
Ceiling	Wall	Floor	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
0.70	0.50	0.20	0.16	0.17	0.18	0.19	0.20	0.20	0.21	0.22	0.22
	0.30		0.10	0.12	0.13	0.14	0.16	0.17	0.18	0.19	0.20
	0.20		0.06	0.07	0.09	0.10	0.12	0.14	0.15	0.17	0.18
0.50	0.50	0.20	0.16	0.17	0.18	0.18	0.19	0.20	0.20	0.21	0.21
	0.30		0.10	0.11	0.13	0.14	0.15	0.16	0.17	0.18	0.19
	0.20		0.05	0.07	0.09	0.10	0.12	0.14	0.15	0.16	0.17
0.30	0.50	0.20	0.15	0.16	0.17	0.17	0.18	0.19	0.19	0.20	0.20
	0.30		0.10	0.11	0.12	0.13	0.15	0.16	0.17	0.18	0.18
	0.20		0.05	0.07	0.09	0.10	0.12	0.13	0.14	0.16	0.17
0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Rating:3W Photometrically tested without ceiling board.
 Multiply UF values by service correction factors
 Calculate in accordance with CIBSE Technical Memorandum NO.5 1980

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Zonal Lumen

Gamma [°]	I _{mean} [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
0.0-1.0	116.4	0.1	0.1	0.04	0.04
1.0-2.0	116.4	0.3	0.4	0.11	0.15
2.0-3.0	116.4	0.6	1.0	0.19	0.34
3.0-4.0	116.4	0.8	1.8	0.26	0.60
4.0-5.0	116.3	1.0	2.8	0.34	0.94
5.0-6.0	116.3	1.2	4.0	0.41	1.35
6.0-7.0	116.2	1.4	5.4	0.49	1.84
7.0-8.0	116.1	1.7	7.1	0.56	2.40
8.0-9.0	115.9	1.9	9.0	0.63	3.03
9.0-10.0	115.7	2.1	11.1	0.71	3.74
10.0-11.0	115.4	2.3	13.4	0.78	4.52
11.0-12.0	115.1	2.5	15.9	0.85	5.37
12.0-13.0	114.8	2.7	18.6	0.92	6.28
13.0-14.0	114.5	2.9	21.6	0.99	7.27
14.0-15.0	114.1	3.1	24.7	1.06	8.33
15.0-16.0	113.9	3.3	28.0	1.13	9.46
16.0-17.0	113.6	3.5	31.6	1.19	10.65
17.0-18.0	113.4	3.7	35.3	1.26	11.91
18.0-19.0	113.3	3.9	39.3	1.33	13.24
19.0-20.0	113.1	4.1	43.4	1.40	14.64
20.0-21.0	113.0	4.3	47.7	1.46	16.10
21.0-22.0	112.9	4.5	52.3	1.53	17.63
22.0-23.0	112.7	4.7	57.0	1.60	19.23
23.0-24.0	112.6	4.9	61.9	1.66	20.89
24.0-25.0	112.4	5.1	67.0	1.72	22.62
25.0-26.0	112.1	5.3	72.3	1.79	24.40
26.0-27.0	111.7	5.5	77.8	1.84	26.24
27.0-28.0	111.2	5.6	83.4	1.90	28.14
28.0-29.0	110.6	5.8	89.2	1.95	30.10
29.0-30.0	109.9	5.9	95.1	2.00	32.10
30.0-31.0	109.1	6.1	101.2	2.05	34.15
31.0-32.0	108.3	6.2	107.4	2.09	36.24
32.0-33.0	107.2	6.3	113.7	2.13	38.37
33.0-34.0	106.0	6.4	120.2	2.16	40.54
34.0-35.0	104.6	6.5	126.6	2.19	42.73
35.0-36.0	102.9	6.6	133.2	2.21	44.94

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Zonal Lumen (Continue 1)

Gamma [°]	I _{mean} [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
36.0-37.0	101.0	6.6	139.8	2.22	47.16
37.0-38.0	99.0	6.6	146.4	2.23	49.39
38.0-39.0	96.8	6.6	153.0	2.23	51.62
39.0-40.0	94.3	6.6	159.6	2.22	53.84
40.0-41.0	91.8	6.5	166.1	2.21	56.05
41.0-42.0	89.1	6.5	172.6	2.19	58.23
42.0-43.0	86.4	6.4	179.0	2.16	60.39
43.0-44.0	83.6	6.3	185.3	2.13	62.52
44.0-45.0	80.7	6.2	191.5	2.09	64.61
45.0-46.0	77.8	6.1	197.6	2.05	66.66
46.0-47.0	74.8	6.0	203.6	2.01	68.67
47.0-48.0	71.9	5.8	209.4	1.96	70.63
48.0-49.0	68.8	5.6	215.0	1.91	72.54
49.0-50.0	65.7	5.5	220.5	1.85	74.39
50.0-51.0	62.5	5.3	225.8	1.78	76.17
51.0-52.0	59.3	5.1	230.9	1.72	77.89
52.0-53.0	56.1	4.9	235.7	1.65	79.53
53.0-54.0	52.9	4.7	240.4	1.57	81.11
54.0-55.0	49.8	4.4	244.9	1.50	82.61
55.0-56.0	46.8	4.2	249.1	1.43	84.03
56.0-57.0	43.8	4.0	253.1	1.35	85.38
57.0-58.0	40.9	3.8	256.9	1.28	86.66
58.0-59.0	38.0	3.6	260.4	1.20	87.86
59.0-60.0	35.3	3.3	263.8	1.12	88.98
60.0-61.0	32.6	3.1	266.9	1.05	90.03
61.0-62.0	30.1	2.9	269.8	0.98	91.01
62.0-63.0	27.7	2.7	272.5	0.91	91.92
63.0-64.0	25.6	2.5	275.0	0.85	92.77
64.0-65.0	23.7	2.3	277.3	0.79	93.56
65.0-66.0	21.8	2.2	279.5	0.73	94.29
66.0-67.0	19.9	2.0	281.5	0.68	94.97
67.0-68.0	18.0	1.8	283.3	0.62	95.59
68.0-69.0	16.1	1.6	285.0	0.55	96.14
69.0-70.0	14.3	1.5	286.4	0.49	96.63
70.0-71.0	12.5	1.3	287.7	0.44	97.07
71.0-72.0	10.9	1.1	288.9	0.38	97.45

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Zonal Lumen (Continue 2)

Gamma [°]	I _{mean} [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
72.0-73.0	9.4	1.0	289.8	0.33	97.79
73.0-74.0	8.1	0.8	290.7	0.29	98.07
74.0-75.0	6.9	0.7	291.4	0.25	98.32
75.0-76.0	5.8	0.6	292.0	0.21	98.53
76.0-77.0	4.9	0.5	292.6	0.18	98.70
77.0-78.0	4.1	0.4	293.0	0.15	98.85
78.0-79.0	3.4	0.4	293.4	0.12	98.97
79.0-80.0	2.7	0.3	293.7	0.10	99.07
80.0-81.0	2.2	0.2	293.9	0.08	99.15
81.0-82.0	1.7	0.2	294.1	0.06	99.21
82.0-83.0	1.3	0.1	294.2	0.05	99.26
83.0-84.0	1.0	0.1	294.3	0.04	99.30
84.0-85.0	0.7	0.1	294.4	0.03	99.32
85.0-86.0	0.4	0.0	294.4	0.02	99.34
86.0-87.0	0.2	0.0	294.5	0.01	99.35
87.0-88.0	0.1	0.0	294.5	0.00	99.35
88.0-89.0	0.0	0.0	294.5	0.00	99.35
89.0-90.0	0.0	0.0	294.5	0.00	99.35
90.0-91.0	0.0	0.0	294.5	0.00	99.35
91.0-92.0	0.0	0.0	294.5	0.00	99.35
92.0-93.0	0.0	0.0	294.5	0.00	99.35
93.0-94.0	0.0	0.0	294.5	0.00	99.35
94.0-95.0	0.0	0.0	294.5	0.00	99.35
95.0-96.0	0.0	0.0	294.5	0.00	99.35
96.0-97.0	0.0	0.0	294.5	0.00	99.35
97.0-98.0	0.0	0.0	294.5	0.00	99.35
98.0-99.0	0.0	0.0	294.5	0.00	99.35
99.0-100.0	0.0	0.0	294.5	0.00	99.35
100.0-101.0	0.0	0.0	294.5	0.00	99.35
101.0-102.0	0.0	0.0	294.5	0.00	99.35
102.0-103.0	0.0	0.0	294.5	0.00	99.35
103.0-104.0	0.0	0.0	294.5	0.00	99.35
104.0-105.0	0.0	0.0	294.5	0.00	99.35
105.0-106.0	0.0	0.0	294.5	0.00	99.35
106.0-107.0	0.0	0.0	294.5	0.00	99.35
107.0-108.0	0.0	0.0	294.5	0.00	99.35

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Zonal Lumen (Continue 3)

Gamma [°]	I _{mean} [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
108.0-109.0	0.0	0.0	294.5	0.00	99.35
109.0-110.0	0.0	0.0	294.5	0.00	99.35
110.0-111.0	0.0	0.0	294.5	0.00	99.35
111.0-112.0	0.0	0.0	294.5	0.00	99.35
112.0-113.0	0.0	0.0	294.5	0.00	99.35
113.0-114.0	0.0	0.0	294.5	0.00	99.35
114.0-115.0	0.1	0.0	294.5	0.00	99.35
115.0-116.0	0.1	0.0	294.5	0.00	99.36
116.0-117.0	0.1	0.0	294.5	0.00	99.36
117.0-118.0	0.1	0.0	294.5	0.00	99.37
118.0-119.0	0.2	0.0	294.5	0.01	99.37
119.0-120.0	0.2	0.0	294.6	0.01	99.38
120.0-121.0	0.2	0.0	294.6	0.01	99.38
121.0-122.0	0.2	0.0	294.6	0.01	99.39
122.0-123.0	0.2	0.0	294.6	0.01	99.40
123.0-124.0	0.3	0.0	294.7	0.01	99.41
124.0-125.0	0.3	0.0	294.7	0.01	99.42
125.0-126.0	0.3	0.0	294.7	0.01	99.43
126.0-127.0	0.3	0.0	294.7	0.01	99.44
127.0-128.0	0.3	0.0	294.8	0.01	99.45
128.0-129.0	0.4	0.0	294.8	0.01	99.46
129.0-130.0	0.4	0.0	294.8	0.01	99.47
130.0-131.0	0.4	0.0	294.9	0.01	99.48
131.0-132.0	0.4	0.0	294.9	0.01	99.49
132.0-133.0	0.4	0.0	294.9	0.01	99.50
133.0-134.0	0.5	0.0	295.0	0.01	99.52
134.0-135.0	0.5	0.0	295.0	0.01	99.53
135.0-136.0	0.5	0.0	295.1	0.01	99.54
136.0-137.0	0.5	0.0	295.1	0.01	99.55
137.0-138.0	0.5	0.0	295.1	0.01	99.57
138.0-139.0	0.6	0.0	295.2	0.01	99.58
139.0-140.0	0.6	0.0	295.2	0.01	99.60
140.0-141.0	0.6	0.0	295.3	0.01	99.61
141.0-142.0	0.6	0.0	295.3	0.01	99.63
142.0-143.0	0.6	0.0	295.3	0.01	99.64
143.0-144.0	0.7	0.0	295.4	0.01	99.65

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Zonal Lumen (Continue 4)

Gamma [°]	I _{mean} [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
144.0-145.0	0.7	0.0	295.4	0.01	99.67
145.0-146.0	0.7	0.0	295.5	0.01	99.68
146.0-147.0	0.7	0.0	295.5	0.01	99.70
147.0-148.0	0.7	0.0	295.6	0.01	99.71
148.0-149.0	0.7	0.0	295.6	0.01	99.73
149.0-150.0	0.8	0.0	295.6	0.01	99.74
150.0-151.0	0.8	0.0	295.7	0.01	99.76
151.0-152.0	0.8	0.0	295.7	0.01	99.77
152.0-153.0	0.8	0.0	295.8	0.01	99.78
153.0-154.0	0.8	0.0	295.8	0.01	99.80
154.0-155.0	0.8	0.0	295.8	0.01	99.81
155.0-156.0	0.9	0.0	295.9	0.01	99.82
156.0-157.0	0.9	0.0	295.9	0.01	99.84
157.0-158.0	0.9	0.0	296.0	0.01	99.85
158.0-159.0	0.9	0.0	296.0	0.01	99.86
159.0-160.0	0.9	0.0	296.0	0.01	99.87
160.0-161.0	0.9	0.0	296.1	0.01	99.88
161.0-162.0	0.9	0.0	296.1	0.01	99.90
162.0-163.0	1.0	0.0	296.1	0.01	99.91
163.0-164.0	1.0	0.0	296.2	0.01	99.92
164.0-165.0	1.0	0.0	296.2	0.01	99.93
165.0-166.0	1.0	0.0	296.2	0.01	99.94
166.0-167.0	1.0	0.0	296.2	0.01	99.94
167.0-168.0	1.0	0.0	296.3	0.01	99.95
168.0-169.0	1.0	0.0	296.3	0.01	99.96
169.0-170.0	1.0	0.0	296.3	0.01	99.97
170.0-171.0	1.0	0.0	296.3	0.01	99.97
171.0-172.0	1.0	0.0	296.3	0.01	99.98
172.0-173.0	1.0	0.0	296.4	0.01	99.98
173.0-174.0	1.1	0.0	296.4	0.00	99.99
174.0-175.0	1.1	0.0	296.4	0.00	99.99
175.0-176.0	1.1	0.0	296.4	0.00	99.99
176.0-177.0	1.1	0.0	296.4	0.00	100.00
177.0-178.0	1.1	0.0	296.4	0.00	100.00
178.0-179.0	1.1	0.0	296.4	0.00	100.00
179.0-180.0	1.1	0.0	296.4	0.00	100.00

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Zonal Lumen (Continue 5)

cone flux(90°): 191.52 lm

%lum = 64.6%

%lamp = 64.6%

cone flux(120°): 263.75 lm

%lum = 89.0%

%lamp = 89.0%

C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

Test Device: GPM-1800B

Distance: 11.573 m [K=1.0000]

Humidity:

Inspector:

Candlepower Table

Unit: cd

G\C	C0.0	C30.0	C60.0	C90.0	C120.0	C150.0	C180.0	C210.0	C240.0	C270.0
G0.0	116.3	116.3	116.3	116.4	116.5	116.6	116.3	116.3	116.3	116.4
G5.0	116.5	116.3	116.0	115.9	115.9	116.1	116.0	116.3	116.5	116.7
G10.0	116.2	115.7	114.9	114.5	114.7	115.3	115.4	115.4	115.4	115.6
G15.0	114.8	114.1	112.9	112.8	113.3	114.1	114.4	114.1	113.3	113.3
G20.0	113.5	112.6	111.7	112.3	113.6	114.5	114.5	113.4	111.7	111.4
G25.0	112.3	111.8	111.2	112.3	114.1	114.9	114.2	112.5	110.1	109.4
G30.0	109.5	109.4	109.1	110.3	112.6	112.7	111.5	109.6	107.0	106.0
G35.0	103.7	104.6	104.8	106.6	107.9	107.4	105.7	103.8	100.3	98.6
G40.0	92.6	93.5	96.4	98.6	99.7	98.2	96.1	92.2	87.6	84.8
G45.0	78.2	79.7	83.8	87.1	88.3	86.4	82.7	77.6	72.6	69.2
G50.0	62.3	64.8	70.1	72.7	74.8	71.1	67.8	61.5	57.4	53.8
G55.0	46.0	49.0	55.3	56.8	58.3	53.9	51.0	45.3	42.5	39.7
G60.0	32.4	34.5	40.5	41.4	40.8	38.4	35.2	30.8	29.8	27.5
G65.0	22.3	22.9	27.5	28.3	27.3	25.8	22.9	20.1	20.0	18.8
G70.0	12.3	13.4	17.2	17.6	17.0	15.6	14.0	11.8	11.8	10.4
G75.0	5.5	6.2	8.5	8.8	8.8	7.8	6.8	5.6	5.3	4.3
G80.0	2.2	2.4	3.5	3.6	3.5	3.0	2.5	2.0	1.9	1.6
G85.0	0.6	0.6	0.9	0.9	0.8	0.6	0.4	0.3	0.3	0.3
G90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G95.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G105.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G110.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G115.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2
G120.0	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3
G125.0	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4
G130.0	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.5
G135.0	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.6
G140.0	0.6	0.6	0.5	0.6	0.5	0.6	0.5	0.6	0.6	0.7
G145.0	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8
G150.0	0.8	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.8	0.8
G155.0	0.9	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9
G160.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0
G165.0	1.0	1.0	1.0	1.0	0.9	1.0	0.9	1.0	1.0	1.0
G170.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0
G175.0	1.1	1.1	1.0	1.1	1.0	1.0	1.1	1.0	1.1	1.1
G180.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

Candlepower Table (Continue 1)

Unit: cd

G\C	C0.0	C30.0	C60.0	C90.0	C120.0	C150.0	C180.0	C210.0	C240.0	C270.0
G37.0	99.6	100.3	102.1	104.0	105.2	104.2	102.3	99.8	96.1	93.7
G42.0	87.0	88.2	91.7	94.3	95.5	93.6	91.0	86.4	81.5	78.7
G47.0	72.0	74.0	78.4	81.5	83.3	80.9	77.1	71.2	66.6	63.0
G52.0	55.6	58.4	64.2	66.2	68.2	64.2	61.3	55.0	51.3	47.8
G57.0	40.4	43.2	49.3	50.9	51.0	47.4	44.1	39.4	37.1	34.5
G62.0	27.5	29.2	34.7	35.7	34.8	32.5	29.5	25.8	25.2	23.6
G67.0	18.4	19.2	23.3	23.9	23.1	21.8	19.4	16.7	17.0	15.5
G72.0	9.2	10.1	13.3	13.6	13.2	12.1	10.6	9.1	8.9	7.5
G77.0	3.8	4.4	6.2	6.4	6.3	5.6	4.7	3.8	3.7	3.0
G82.0	1.4	1.5	2.2	2.2	2.1	1.7	1.5	1.1	1.1	1.0
G87.0	0.2	0.2	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0
G92.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G97.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G102.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G107.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G112.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
G117.0	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.2	0.2
G122.0	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
G127.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
G132.0	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
G137.0	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
G142.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7
G147.0	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8
G152.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
G157.0	0.9	0.9	0.9	0.9	0.8	0.8	0.9	0.9	0.9	0.9
G162.0	0.9	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.9	1.0
G167.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1
G172.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1
G177.0	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.1
G0.0	116.3	116.2	116.3	116.4	116.5	116.2	116.3	116.4	116.5	116.6
G116.3	116.2	115.9	115.7	115.7	116.0	115.8	116.3	116.4	116.6	116.8
G116.5	115.5	114.6	114.1	114.4	115.0	115.2	115.2	115.0	115.2	116.2
G116.0	113.6	112.6	112.5	113.3	114.1	114.4	113.9	112.8	113.0	114.5
G114.5	112.4	111.8	112.4	113.8	114.6	114.5	113.2	111.4	111.0	112.9
G113.3	111.6	110.9	112.0	113.9	114.7	113.9	112.2	109.6	108.9	110.6
G111.9	108.8	108.5	109.7	112.0	111.9	110.6	108.8	106.1	105.2	105.9
G108.7	102.4	103.5	105.4	106.7	105.9	104.1	101.9	98.3	96.3	96.8

C Plane (°):0.0-360.0: 30.0
 Test Lab:
 Test Type: TYPE C
 Temperature:
 Operator:

Gamma Plane (°):0.0-180.0:1.0
 Test Device: GPM-1800B
 Distance: 11.573 m [K=1.0000]
 Humidity:
 Inspector:

LED Average Luminance Report

Avg.L	cd/m ²
L 0-180(65) av	1.#J
L 0-180(75) av	1.#J
L 0-180(85) av	1.#J
L 90-270(65) av	1.#J
L 90-270(75) av	1.#J
L 90-270(85) av	1.#J
L 45(65) av	1.#J
L 45(75) av	1.#J
L 45(85) av	1.#J

Standard: GB/T 29293-2012

C Plane (°):0.0-360.0: 30.0
Test Lab:
Test Type: TYPE C
Temperature:
Operator:

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 11.573 m [K=1.0000]
Humidity:
Inspector: