HAVIT COMMERCIAL
http://www.havitcommercial.com.au
Tel: 02 9381 8383
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Report No.: 21

Test Time: 2019/6/25 18:05

Luminaire Property

Luminaire Manufacturer: Havit Commercial
Luminaire Description: HCP-89X3004-4K
Current: 0.127 A
Power Factor: 0.986

Voltage: 220.5 V
Power: 27.54 W

Photometric Results

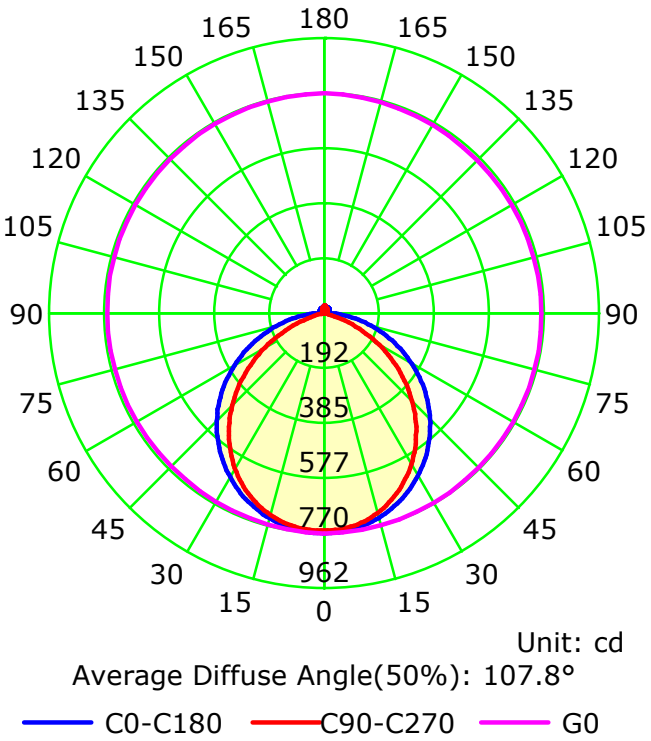
CIE Class: Direct
Measurement Flux: 2131.4 lm
Downward Ratio: 96%
Horizontal Diffuse Angle(50%): H115.8
Vertical Diffuse Angle(50%): V99.8
Luminaire Efficacy Rating (LER): 77.44
Max. Intensity: 770.22 cd
S/MH(C0/C180): 1.27

Total Rated Lamp Lumens: 2131.4 lm
Efficiency: 100%
Upward Ratio: 4%

Central Intensity: 770.21 cd
Pos of Max. Intensity: H0 V0
S/MH(C90/C270): 1.21

Picture Of Luminaire

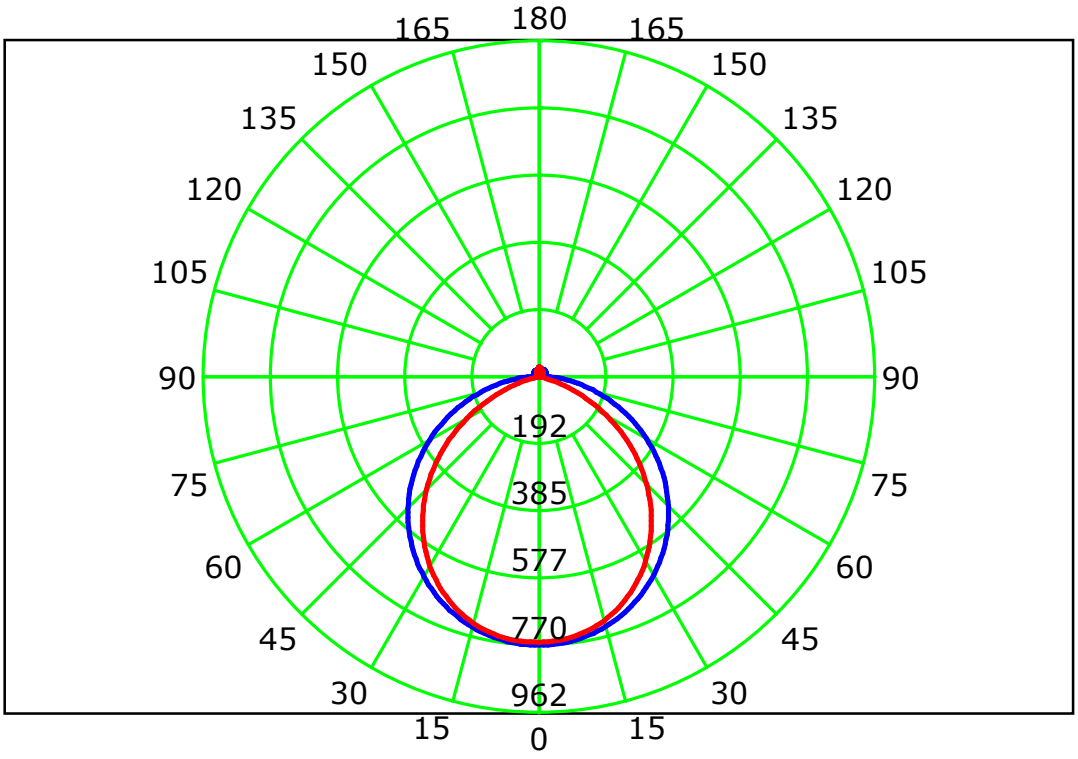
Luminous Intensity Distribution Curve

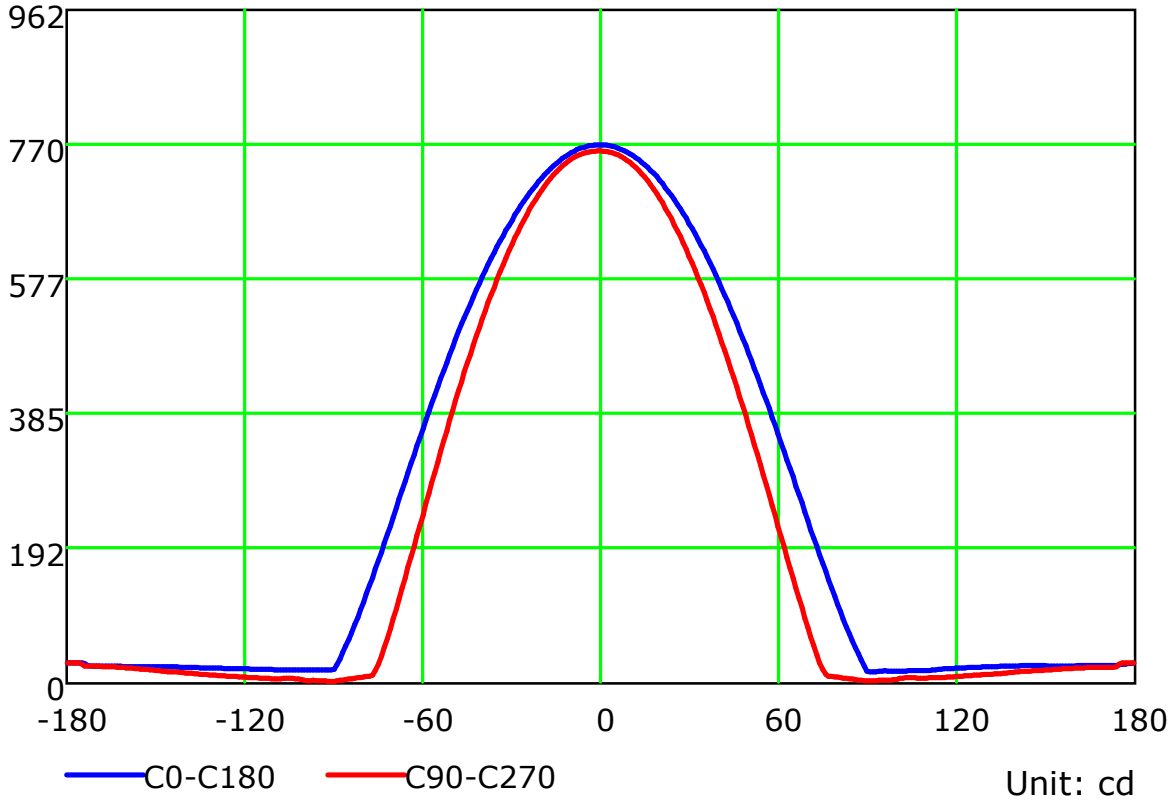


C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Luminous Intensity Distribution Curve





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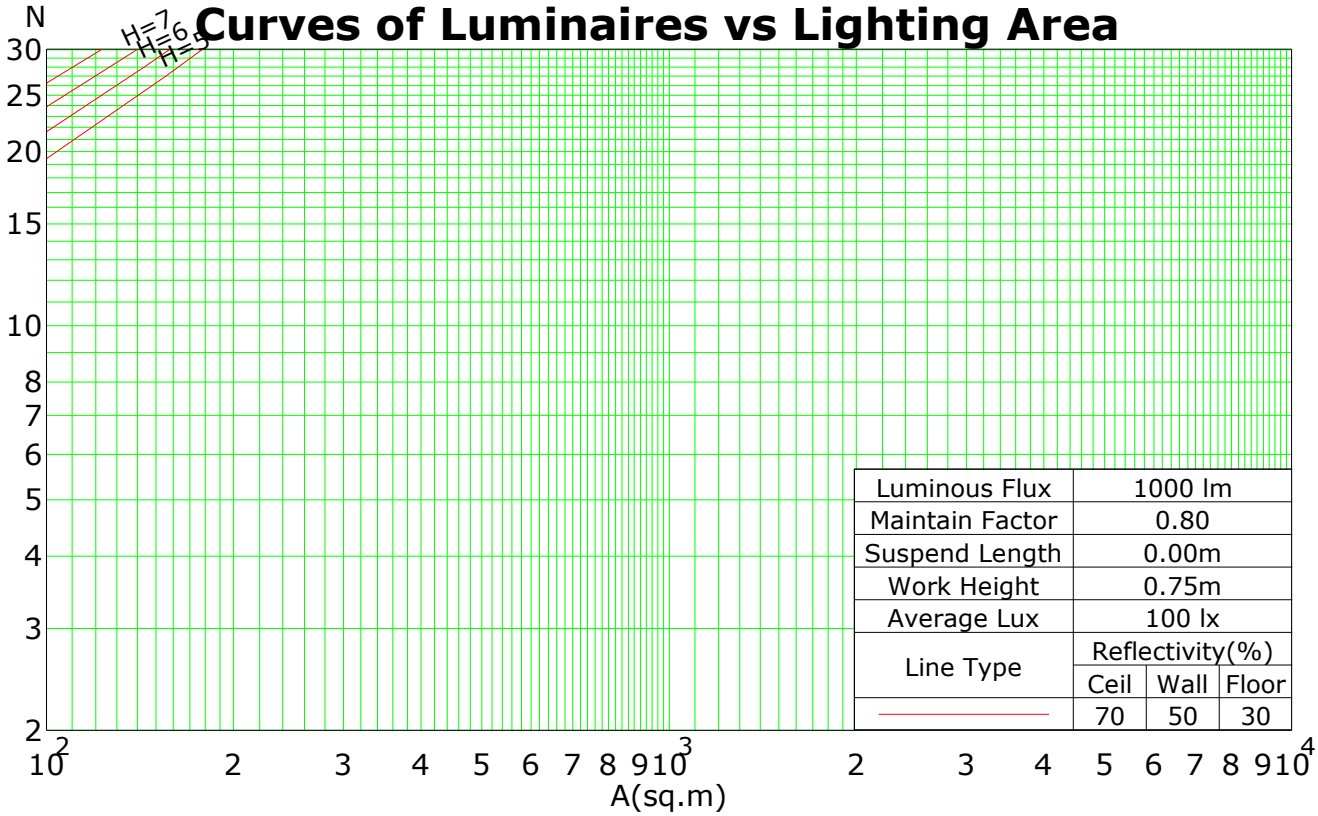
Coefficients Of Utilization - Zonal Cavity Method

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	118	118	118	118	115	115	115	115	109	109	109	103	103	103	98	98	98	96
1	108	104	99	96	105	101	97	94	96	93	90	91	89	86	87	85	83	81
2	99	91	84	79	96	88	82	77	84	79	75	80	76	72	77	73	70	68
3	90	80	72	66	87	78	71	65	74	68	63	71	66	61	68	64	60	58
4	83	71	62	56	80	69	61	55	66	59	54	63	58	53	61	56	52	49
5	76	63	55	48	74	62	54	48	60	52	47	57	51	46	55	49	45	43
6	70	57	48	42	68	56	48	42	54	47	41	52	45	40	50	44	40	38
7	65	52	43	37	63	51	43	37	49	42	36	47	41	36	45	40	35	33
8	61	47	39	33	59	47	39	33	45	38	33	43	37	32	42	36	32	30
9	57	43	35	30	55	43	35	30	41	34	29	40	34	29	39	33	29	27
10	53	40	32	27	52	39	32	27	38	31	27	37	31	26	36	30	26	24

Spacing Criteria (0-180): 1.27
Spacing Criteria (90-270): 1.21
Spacing Criteria (Diagonal): 1.34

Curves of Luminaires vs Lighting Area



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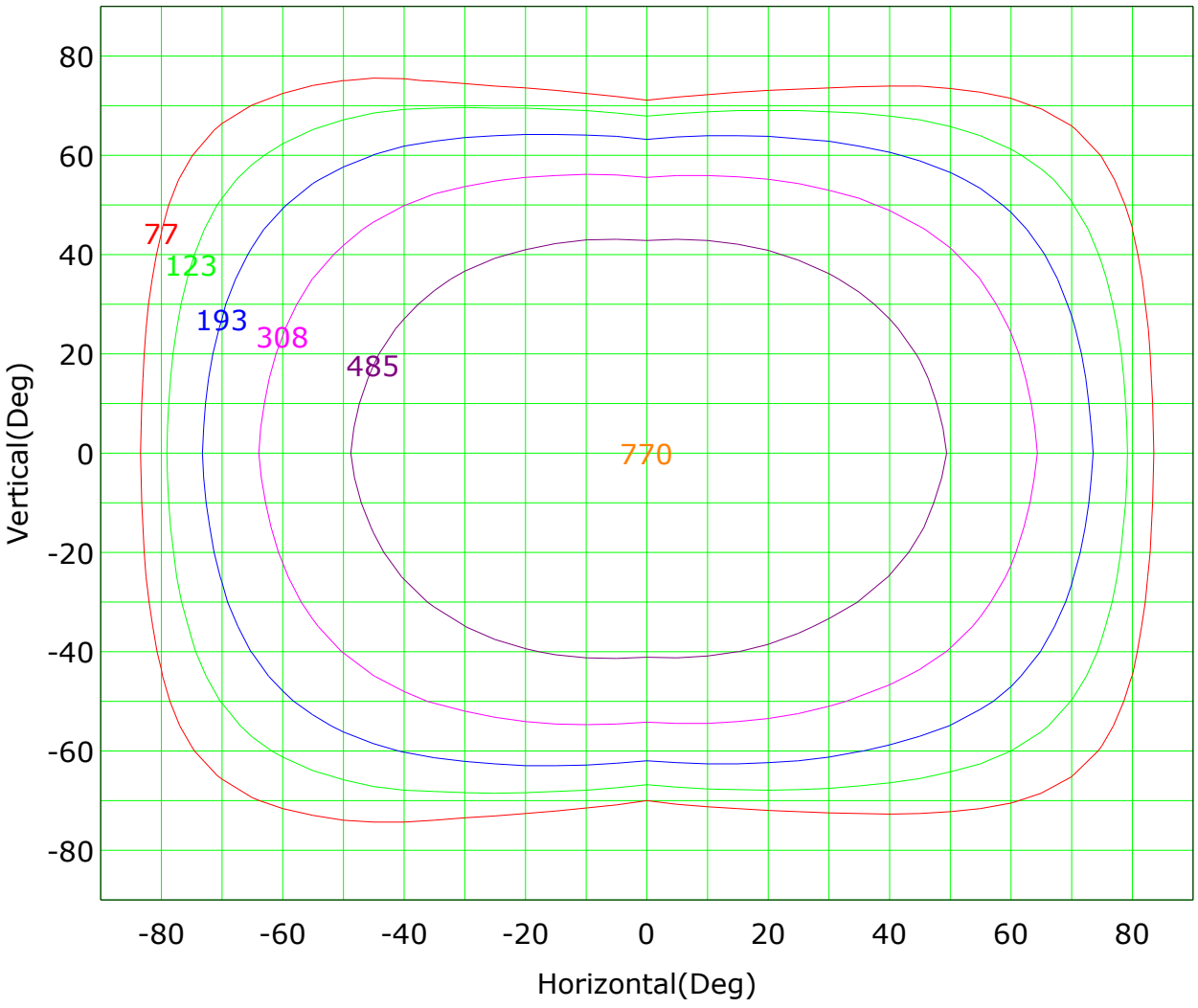
Isocandela (rectangle)



Imax (100%): 770 cd

(10%): 77 cd
(16%): 123 cd
(25%): 193 cd
(40%): 308 cd
(63%): 485 cd
(100%): 770 cd

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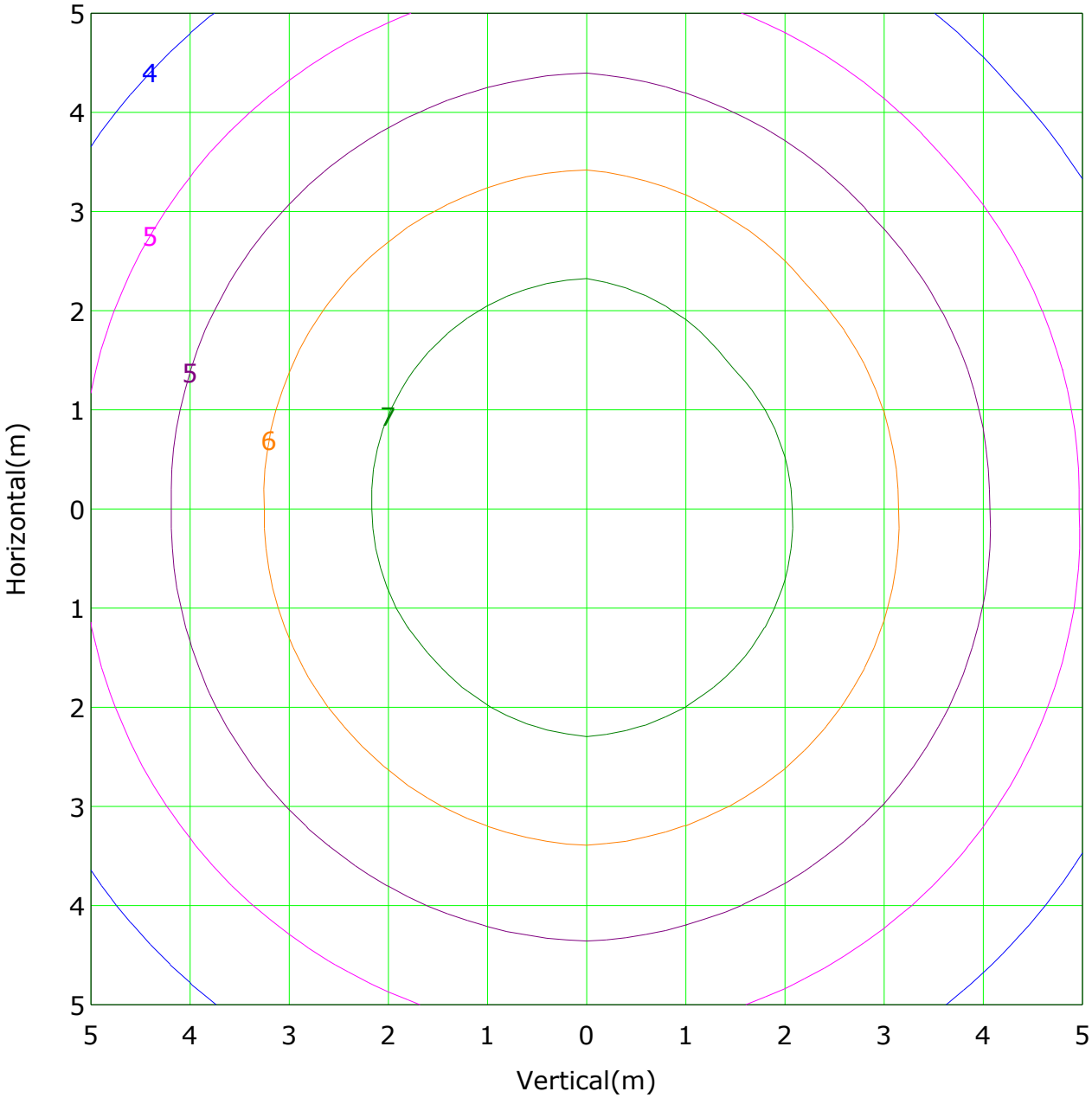
IsoLux Plot



Mounting Height: 10.0m Max Lux(100%): 7.7 lx

(30%): 2.3 lx	(40%): 3.1 lx
(50%): 3.9 lx	(60%): 4.6 lx
(70%): 5.4 lx	(80%): 6.2 lx
(90%): 6.9 lx	(100%): 7.7 lx
(120%): 9.2 lx	(150%): 11.6 lx

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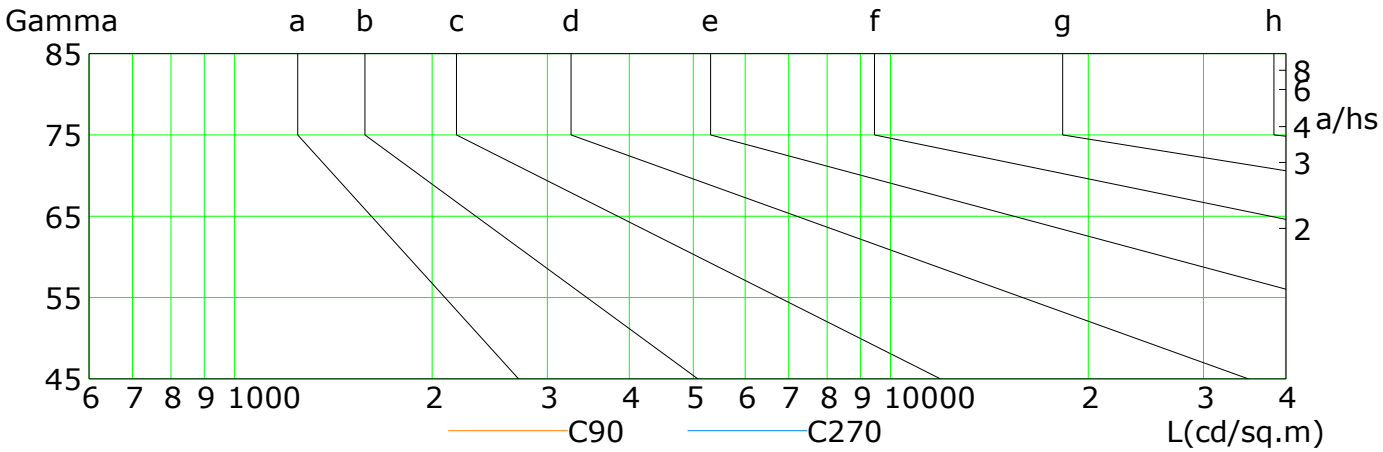
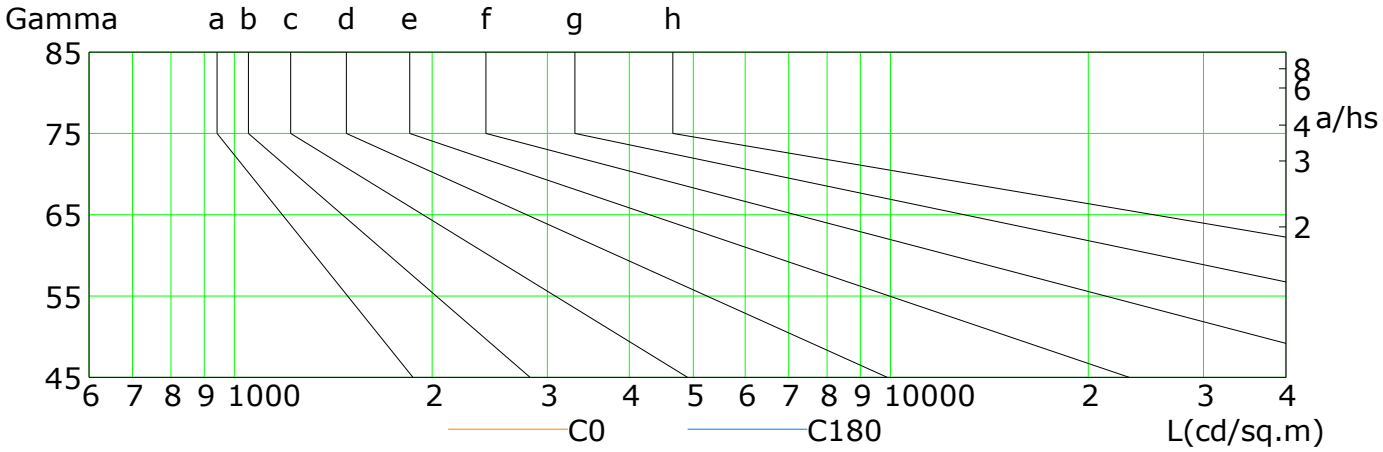
Lum Limit Curve

Dazzle	Quality	Illuminance (lx)							
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	525	472	415	356	294	231	171	112	60
C90	437	368	297	223	149	78	18	8	5
C180	533	480	424	363	300	237	175	115	62
C270	458	389	316	240	165	91	26	8	5

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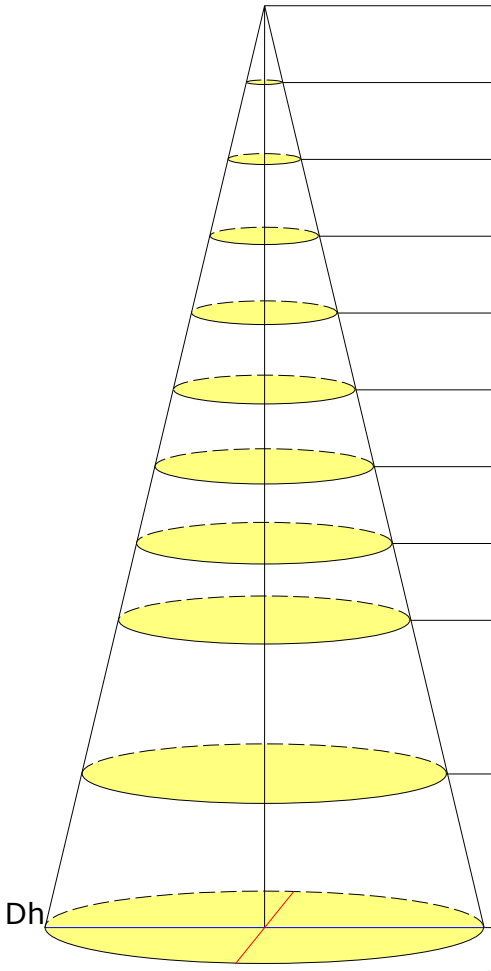
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Illuminance at a Distance



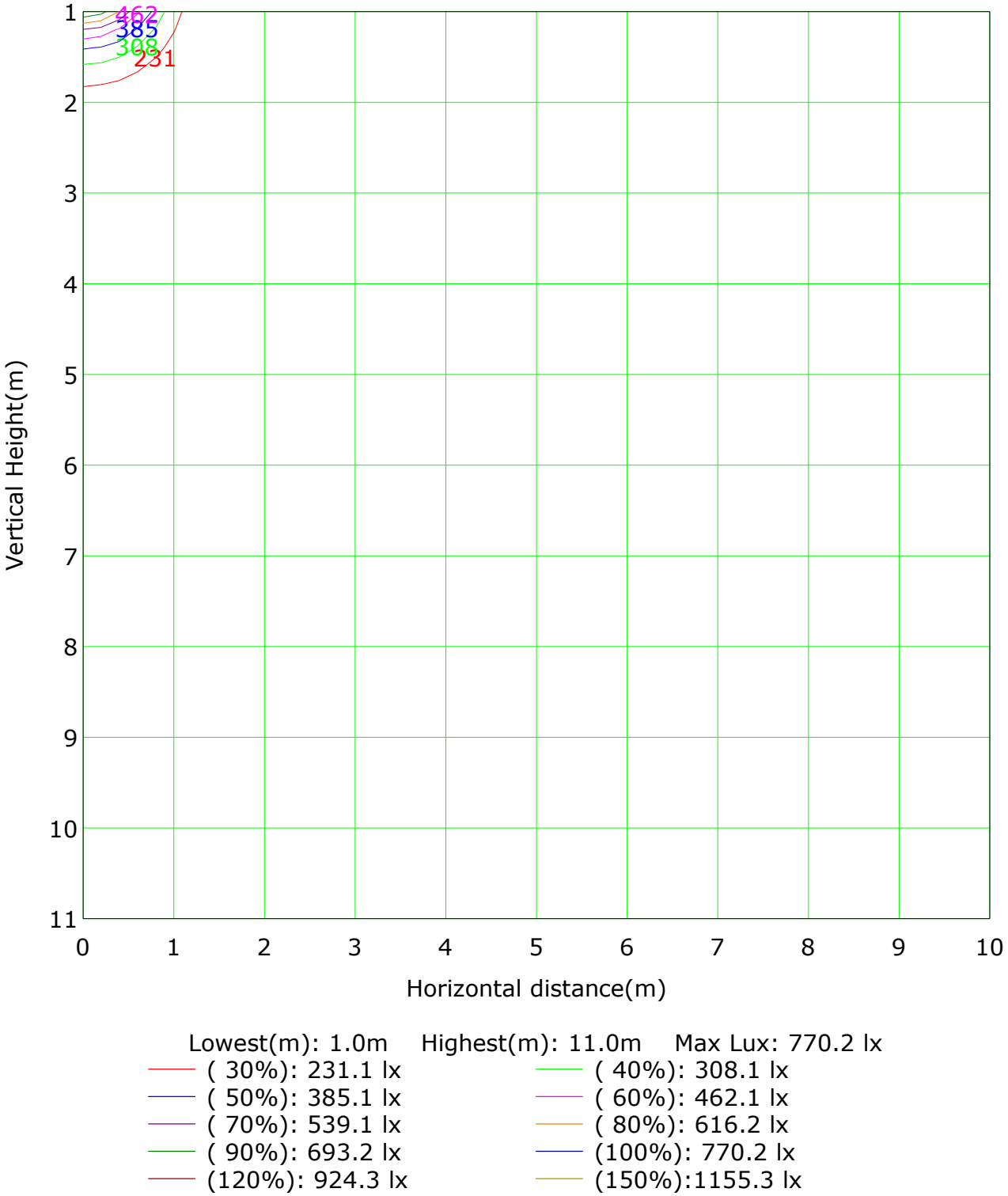
Dist(m)	Enadir(lx)	Dh/Dv_B(m)	S_B(sq.m)	Eav_B(lx)
1.0	770.21	3.19/2.37	5.9	139.50
2.0	192.55	6.37/4.75	23.8	34.87
3.0	85.58	9.56/7.12	53.5	15.50
4.0	48.14	12.75/9.50	95.2	8.72
5.0	30.81	15.93/11.87	148.7	5.58
6.0	21.39	19.12/14.24	214.1	3.87
7.0	15.72	22.31/16.62	291.5	2.85
8.0	12.03	25.50/18.99	380.7	2.18
10.0	7.70	31.87/23.74	594.8	1.39
12.0	5.35	38.24/28.49	856.5	0.97

Beam Angle(B): H115.8 V99.8 Field Angle(F): H166.8 V141.2

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Vertical IsoLux Plot



Lowest(m): 1.0m Highest(m): 11.0m Max Lux: 770.2 lx

(30%): 231.1 lx	(40%): 308.1 lx
(50%): 385.1 lx	(60%): 462.1 lx
(70%): 539.1 lx	(80%): 616.2 lx
(90%): 693.2 lx	(100%): 770.2 lx
(120%): 924.3 lx	(150%):1155.3 lx

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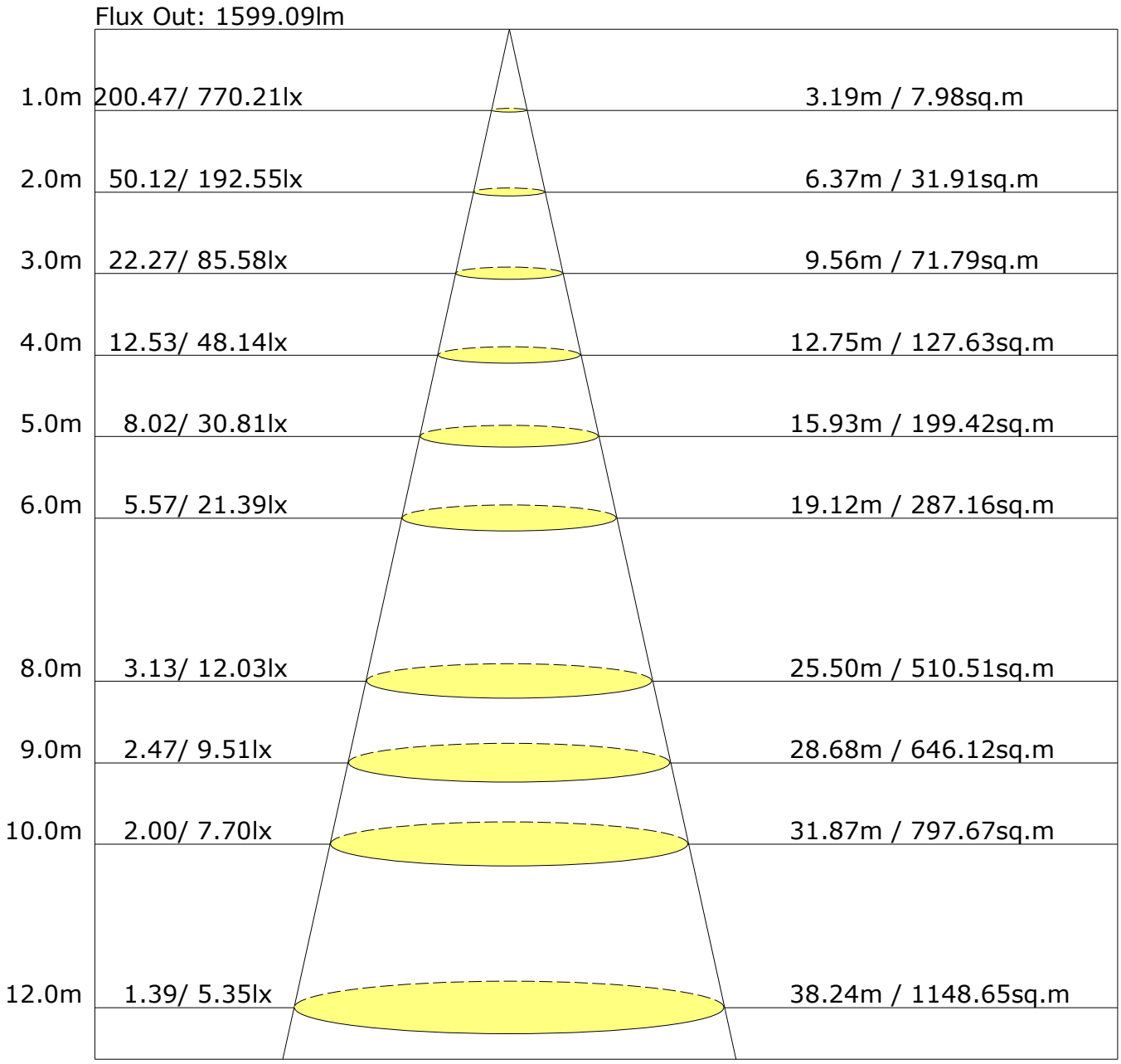
Inspector:

The Average Illuminance Effective Figure



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Test Lab: Inventfine instruments
Test Type: TYPE C
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Test Device: GPM-1800B
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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.$
Variations with the observer position at spacings:										
S=1.0H	-1.$/-1.$					-1.$/-1.$				
S=1.5H	-1.$/-1.$					-1.$/-1.$				
S=2.0H	-1.$/-1.$					-1.$/-1.$				

Calculate in accordance with CIE Pub.117. The table is revised with 2131lm (8log(F/F0) = 2.6).

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Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Zonal Lumen

Gamma [°]	Imean [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
0.0-1.0	763.5	0.7	0.7	0.03	0.03
1.0-2.0	763.2	2.2	2.9	0.10	0.14
2.0-3.0	762.8	3.6	6.6	0.17	0.31
3.0-4.0	762.1	5.1	11.7	0.24	0.55
4.0-5.0	761.1	6.5	18.2	0.31	0.85
5.0-6.0	759.9	8.0	26.2	0.37	1.23
6.0-7.0	758.5	9.4	35.6	0.44	1.67
7.0-8.0	756.6	10.8	46.5	0.51	2.18
8.0-9.0	754.5	12.2	58.7	0.57	2.75
9.0-10.0	752.1	13.6	72.3	0.64	3.39
10.0-11.0	749.4	15.0	87.3	0.70	4.09
11.0-12.0	746.4	16.3	103.6	0.77	4.86
12.0-13.0	743.0	17.6	121.2	0.83	5.69
13.0-14.0	739.4	18.9	140.2	0.89	6.58
14.0-15.0	735.5	20.2	160.4	0.95	7.52
15.0-16.0	731.2	21.4	181.8	1.01	8.53
16.0-17.0	726.7	22.6	204.4	1.06	9.59
17.0-18.0	722.0	23.8	228.2	1.12	10.71
18.0-19.0	716.8	24.9	253.2	1.17	11.88
19.0-20.0	711.4	26.0	279.2	1.22	13.10
20.0-21.0	705.8	27.1	306.3	1.27	14.37
21.0-22.0	699.8	28.1	334.4	1.32	15.69
22.0-23.0	693.6	29.1	363.5	1.37	17.06
23.0-24.0	687.1	30.0	393.6	1.41	18.47
24.0-25.0	680.3	30.9	424.5	1.45	19.92
25.0-26.0	673.2	31.8	456.3	1.49	21.41
26.0-27.0	665.8	32.6	488.9	1.53	22.94
27.0-28.0	658.3	33.3	522.2	1.56	24.50
28.0-29.0	650.5	34.0	556.3	1.60	26.10
29.0-30.0	642.3	34.7	590.9	1.63	27.73
30.0-31.0	634.0	35.3	626.2	1.66	29.38
31.0-32.0	625.4	35.8	662.1	1.68	31.06
32.0-33.0	616.5	36.3	698.4	1.70	32.77
33.0-34.0	607.4	36.8	735.2	1.72	34.49
34.0-35.0	598.0	37.1	772.3	1.74	36.23
35.0-36.0	588.4	37.5	809.8	1.76	37.99

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Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Zonal Lumen (Continue 1)

Gamma [°]	Imean [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
36.0-37.0	578.5	37.7	847.5	1.77	39.76
37.0-38.0	568.6	38.0	885.5	1.78	41.54
38.0-39.0	558.5	38.1	923.6	1.79	43.33
39.0-40.0	548.0	38.2	961.8	1.79	45.13
40.0-41.0	537.2	38.3	1000.1	1.80	46.92
41.0-42.0	526.4	38.3	1038.3	1.79	48.72
42.0-43.0	515.2	38.2	1076.5	1.79	50.51
43.0-44.0	503.9	38.0	1114.5	1.78	52.29
44.0-45.0	492.5	37.9	1152.4	1.78	54.07
45.0-46.0	480.9	37.6	1190.0	1.76	55.83
46.0-47.0	469.1	37.3	1227.3	1.75	57.58
47.0-48.0	457.1	37.0	1264.3	1.73	59.32
48.0-49.0	444.9	36.5	1300.8	1.71	61.03
49.0-50.0	432.6	36.1	1336.9	1.69	62.72
50.0-51.0	419.9	35.5	1372.4	1.67	64.39
51.0-52.0	407.3	35.0	1407.4	1.64	66.03
52.0-53.0	394.8	34.3	1441.7	1.61	67.64
53.0-54.0	381.8	33.7	1475.4	1.58	69.22
54.0-55.0	368.7	32.9	1508.3	1.54	70.77
55.0-56.0	355.8	32.2	1540.4	1.51	72.27
56.0-57.0	342.4	31.3	1571.7	1.47	73.74
57.0-58.0	329.1	30.4	1602.2	1.43	75.17
58.0-59.0	316.0	29.5	1631.7	1.39	76.56
59.0-60.0	302.5	28.6	1660.3	1.34	77.90
60.0-61.0	288.9	27.6	1687.9	1.29	79.19
61.0-62.0	275.7	26.6	1714.5	1.25	80.44
62.0-63.0	262.3	25.5	1740.0	1.20	81.64
63.0-64.0	248.7	24.4	1764.4	1.15	82.78
64.0-65.0	235.4	23.3	1787.7	1.09	83.87
65.0-66.0	221.9	22.1	1809.8	1.04	84.91
66.0-67.0	208.6	21.0	1830.8	0.98	85.90
67.0-68.0	195.4	19.8	1850.6	0.93	86.83
68.0-69.0	182.2	18.6	1869.2	0.87	87.70
69.0-70.0	169.2	17.4	1886.6	0.82	88.51
70.0-71.0	156.6	16.2	1902.8	0.76	89.27
71.0-72.0	144.1	15.0	1917.7	0.70	89.98

C Plane (°):0.0-360.0: 45.0
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Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Zonal Lumen (Continue 2)

Gamma [°]	Imean [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
72.0-73.0	131.7	13.8	1931.5	0.65	90.62
73.0-74.0	119.9	12.6	1944.1	0.59	91.21
74.0-75.0	108.6	11.5	1955.6	0.54	91.75
75.0-76.0	98.1	10.4	1966.0	0.49	92.24
76.0-77.0	88.9	9.5	1975.5	0.44	92.69
77.0-78.0	80.8	8.6	1984.1	0.41	93.09
78.0-79.0	73.7	7.9	1992.0	0.37	93.46
79.0-80.0	67.2	7.2	1999.3	0.34	93.80
80.0-81.0	60.9	6.6	2005.9	0.31	94.11
81.0-82.0	54.8	5.9	2011.8	0.28	94.39
82.0-83.0	48.8	5.3	2017.1	0.25	94.64
83.0-84.0	43.0	4.7	2021.8	0.22	94.86
84.0-85.0	37.2	4.1	2025.9	0.19	95.05
85.0-86.0	31.8	3.5	2029.3	0.16	95.21
86.0-87.0	26.5	2.9	2032.3	0.14	95.35
87.0-88.0	21.5	2.4	2034.6	0.11	95.46
88.0-89.0	16.8	1.8	2036.5	0.09	95.55
89.0-90.0	12.8	1.4	2037.9	0.07	95.61
90.0-91.0	10.7	1.2	2039.0	0.05	95.67
91.0-92.0	10.3	1.1	2040.2	0.05	95.72
92.0-93.0	10.3	1.1	2041.3	0.05	95.77
93.0-94.0	10.4	1.1	2042.4	0.05	95.83
94.0-95.0	10.5	1.1	2043.6	0.05	95.88
95.0-96.0	10.6	1.2	2044.7	0.05	95.94
96.0-97.0	10.7	1.2	2045.9	0.05	95.99
97.0-98.0	10.7	1.2	2047.1	0.05	96.05
98.0-99.0	10.7	1.2	2048.2	0.05	96.10
99.0-100.0	10.8	1.2	2049.4	0.05	96.15
100.0-101.0	11.0	1.2	2050.6	0.06	96.21
101.0-102.0	11.2	1.2	2051.8	0.06	96.27
102.0-103.0	11.5	1.2	2053.0	0.06	96.32
103.0-104.0	11.6	1.2	2054.3	0.06	96.38
104.0-105.0	11.8	1.3	2055.5	0.06	96.44
105.0-106.0	12.0	1.3	2056.8	0.06	96.50
106.0-107.0	12.2	1.3	2058.1	0.06	96.56
107.0-108.0	12.3	1.3	2059.4	0.06	96.62

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Zonal Lumen (Continue 3)

Gamma [°]	Imean [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
108.0-109.0	12.3	1.3	2060.6	0.06	96.68
109.0-110.0	12.5	1.3	2061.9	0.06	96.74
110.0-111.0	12.6	1.3	2063.2	0.06	96.80
111.0-112.0	12.7	1.3	2064.5	0.06	96.86
112.0-113.0	12.9	1.3	2065.8	0.06	96.92
113.0-114.0	13.0	1.3	2067.1	0.06	96.99
114.0-115.0	13.2	1.3	2068.5	0.06	97.05
115.0-116.0	13.3	1.3	2069.8	0.06	97.11
116.0-117.0	13.4	1.3	2071.1	0.06	97.17
117.0-118.0	13.5	1.3	2072.4	0.06	97.23
118.0-119.0	13.6	1.3	2073.7	0.06	97.29
119.0-120.0	13.8	1.3	2075.0	0.06	97.36
120.0-121.0	13.9	1.3	2076.3	0.06	97.42
121.0-122.0	14.0	1.3	2077.6	0.06	97.48
122.0-123.0	14.2	1.3	2079.0	0.06	97.54
123.0-124.0	14.4	1.3	2080.3	0.06	97.60
124.0-125.0	14.6	1.3	2081.6	0.06	97.66
125.0-126.0	14.8	1.3	2082.9	0.06	97.73
126.0-127.0	15.0	1.3	2084.2	0.06	97.79
127.0-128.0	15.2	1.3	2085.6	0.06	97.85
128.0-129.0	15.5	1.3	2086.9	0.06	97.91
129.0-130.0	15.7	1.3	2088.2	0.06	97.98
130.0-131.0	16.0	1.3	2089.6	0.06	98.04
131.0-132.0	16.2	1.3	2090.9	0.06	98.10
132.0-133.0	16.5	1.3	2092.2	0.06	98.16
133.0-134.0	16.7	1.3	2093.5	0.06	98.23
134.0-135.0	16.9	1.3	2094.9	0.06	98.29
135.0-136.0	17.1	1.3	2096.2	0.06	98.35
136.0-137.0	17.4	1.3	2097.5	0.06	98.41
137.0-138.0	17.6	1.3	2098.8	0.06	98.47
138.0-139.0	17.9	1.3	2100.1	0.06	98.53
139.0-140.0	18.1	1.3	2101.4	0.06	98.59
140.0-141.0	18.4	1.3	2102.7	0.06	98.65
141.0-142.0	18.6	1.3	2103.9	0.06	98.71
142.0-143.0	18.7	1.3	2105.2	0.06	98.77
143.0-144.0	18.9	1.2	2106.4	0.06	98.83

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Zonal Lumen (Continue 4)

Gamma [°]	Imean [cd]	Zonal Flux [lm]	Sum Zonal Flux [lm]	Rel Zonal Flux [%]	Sum Rel Zonal Flux [%]
144.0-145.0	19.0	1.2	2107.6	0.06	98.89
145.0-146.0	19.1	1.2	2108.8	0.06	98.94
146.0-147.0	19.2	1.2	2110.0	0.05	99.00
147.0-148.0	19.3	1.1	2111.1	0.05	99.05
148.0-149.0	19.4	1.1	2112.2	0.05	99.10
149.0-150.0	19.5	1.1	2113.3	0.05	99.15
150.0-151.0	19.6	1.1	2114.4	0.05	99.20
151.0-152.0	19.8	1.0	2115.4	0.05	99.25
152.0-153.0	19.9	1.0	2116.4	0.05	99.30
153.0-154.0	20.1	1.0	2117.4	0.05	99.34
154.0-155.0	20.2	1.0	2118.4	0.04	99.39
155.0-156.0	20.4	0.9	2119.3	0.04	99.43
156.0-157.0	20.6	0.9	2120.2	0.04	99.48
157.0-158.0	20.8	0.9	2121.1	0.04	99.52
158.0-159.0	21.1	0.8	2121.9	0.04	99.56
159.0-160.0	21.3	0.8	2122.7	0.04	99.59
160.0-161.0	21.6	0.8	2123.5	0.04	99.63
161.0-162.0	21.8	0.8	2124.3	0.04	99.67
162.0-163.0	22.0	0.7	2125.0	0.03	99.70
163.0-164.0	22.3	0.7	2125.7	0.03	99.73
164.0-165.0	22.4	0.7	2126.4	0.03	99.76
165.0-166.0	22.6	0.6	2127.0	0.03	99.79
166.0-167.0	22.7	0.6	2127.6	0.03	99.82
167.0-168.0	22.8	0.5	2128.1	0.03	99.85
168.0-169.0	22.9	0.5	2128.6	0.02	99.87
169.0-170.0	22.9	0.5	2129.1	0.02	99.89
170.0-171.0	22.9	0.4	2129.5	0.02	99.91
171.0-172.0	22.9	0.4	2129.8	0.02	99.93
172.0-173.0	23.0	0.3	2130.2	0.02	99.94
173.0-174.0	23.5	0.3	2130.5	0.01	99.96
174.0-175.0	25.0	0.3	2130.7	0.01	99.97
175.0-176.0	26.4	0.2	2131.0	0.01	99.98
176.0-177.0	27.2	0.2	2131.1	0.01	99.99
177.0-178.0	27.5	0.1	2131.3	0.01	100.00
178.0-179.0	27.6	0.1	2131.3	0.00	100.00
179.0-180.0	27.6	0.0	2131.4	0.00	100.00

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Candlepower Table

Unit: cd

G\C	C0.0	C45.0	C90.0	C135.0	C180.0	C225.0	C270.0	C315.0	C360.0	
G0.0	770.2	765.1	761.1	757.7	770.2	765.1	761.1	757.7	770.2	
G1.0	769.9	764.9	760.9	757.5	769.9	765.0	761.1	758.0	769.9	
G2.0	769.5	764.5	760.6	756.9	769.7	764.8	760.8	757.7	769.5	
G3.0	768.9	764.1	759.9	756.3	769.1	764.1	760.3	757.3	768.9	
G4.0	767.9	763.2	758.6	755.2	768.5	763.4	759.7	756.7	767.9	
G5.0	766.8	762.1	757.3	753.7	767.4	762.6	759.0	755.9	766.8	
G6.0	765.5	760.5	755.6	752.0	766.3	761.5	758.0	754.9	765.5	
G7.0	763.7	758.9	753.3	750.1	764.9	760.0	756.3	753.7	763.7	
G8.0	761.9	756.6	750.9	747.9	763.0	758.3	754.4	752.2	761.9	
G9.0	759.9	754.1	748.2	745.2	761.0	756.3	752.1	750.4	759.9	
G10.0	757.2	751.4	744.8	742.5	759.0	754.1	749.5	748.1	757.2	
G11.0	754.7	748.5	741.3	739.3	756.2	751.5	746.8	745.7	754.7	
G12.0	751.8	745.0	737.7	735.7	753.5	748.6	743.3	743.0	751.8	
G13.0	748.6	741.4	733.0	732.0	750.5	745.0	739.7	740.0	748.6	
G14.0	745.2	737.6	728.5	728.0	747.1	741.7	735.8	736.4	745.2	
G15.0	741.8	733.5	723.8	723.8	743.5	737.8	731.2	732.8	741.8	
G16.0	737.5	728.5	718.2	718.8	739.6	733.4	726.7	728.9	737.5	
G17.0	733.4	724.0	712.7	713.9	735.7	729.2	721.8	724.7	733.4	
G18.0	729.0	718.9	706.9	708.9	731.4	724.6	716.6	720.0	729.0	
G19.0	724.6	713.7	700.2	703.1	726.6	719.2	710.5	715.3	724.6	
G20.0	719.3	707.7	693.7	697.5	721.9	714.1	704.7	710.3	719.3	
G21.0	714.3	701.9	687.0	691.1	717.1	708.5	698.4	704.9	714.3	
G22.0	708.6	695.9	679.4	684.9	712.0	702.3	691.8	699.4	708.6	
G23.0	703.1	689.0	672.0	677.7	706.5	696.2	685.0	693.6	703.1	
G24.0	697.4	682.3	664.3	671.0	701.0	689.9	677.7	686.8	697.4	
G25.0	691.5	675.5	655.5	663.3	695.3	683.3	670.2	680.6	691.5	
G26.0	684.7	667.6	647.3	656.0	688.6	675.8	661.5	673.9	684.7	
G27.0	678.3	660.0	638.8	648.4	682.5	668.7	653.4	667.2	678.3	
G28.0	671.6	652.3	629.7	640.5	676.1	661.4	645.2	659.3	671.6	
G29.0	664.8	644.1	620.7	631.5	669.4	653.7	636.5	651.9	664.8	
G30.0	657.1	635.3	610.5	623.4	661.8	645.1	627.5	644.2	657.1	
G31.0	650.1	627.2	601.1	614.3	654.6	636.8	618.2	636.2	650.1	
G32.0	642.1	617.7	590.4	605.7	647.4	628.4	607.6	628.0	642.1	
G33.0	634.7	608.9	580.3	595.9	639.8	619.7	597.9	618.8	634.7	
G34.0	626.1	599.0	570.1	586.8	632.2	609.8	587.9	610.1	626.1	
G35.0	618.1	589.8	558.5	576.5	624.3	600.7	577.5	601.0	618.1	
G36.0	609.9	580.3	547.6	566.9	615.3	591.0	565.7	591.8	609.9	

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Candlepower Table (Continue 1)

Unit: cd

G\C	C0.0	C45.0	C90.0	C135.0	C180.0	C225.0	C270.0	C315.0	C360.0	
G37.0	600.7	569.3	535.4	556.9	607.1	581.5	554.8	582.3	600.7	
G38.0	592.1	559.3	523.9	546.9	598.6	571.6	543.8	572.7	592.1	
G39.0	583.4	549.3	512.5	535.8	590.1	560.4	532.6	562.9	583.4	
G40.0	573.7	539.0	499.7	525.5	580.5	550.2	520.0	551.9	573.7	
G41.0	564.5	527.3	487.6	514.7	571.5	539.7	508.2	541.6	564.5	
G42.0	554.4	516.6	475.5	502.9	562.3	528.0	496.4	531.3	554.4	
G43.0	544.8	505.8	462.0	491.9	551.9	517.0	482.9	519.6	544.8	
G44.0	535.3	493.5	449.5	480.7	542.4	505.9	470.3	508.6	535.3	
G45.0	524.5	482.2	436.8	468.3	532.7	493.4	457.8	497.5	524.5	
G46.0	514.5	471.0	422.8	456.8	522.3	481.9	444.9	486.4	514.5	
G47.0	503.5	458.2	409.6	445.2	513.6	470.3	430.6	473.9	503.5	
G48.0	493.3	446.5	396.3	432.1	503.4	457.0	417.4	462.4	493.3	
G49.0	482.9	434.6	382.9	420.1	491.4	445.0	402.6	450.7	482.9	
G50.0	472.1	422.6	367.9	408.0	479.7	432.9	389.1	439.0	472.1	
G51.0	460.3	409.3	354.3	394.6	468.8	419.4	375.2	425.8	460.3	
G52.0	449.4	397.1	340.5	382.4	458.1	407.0	360.1	413.8	449.4	
G53.0	438.4	384.9	326.7	370.0	446.0	394.4	346.1	401.7	438.4	
G54.0	426.3	371.4	311.4	356.4	435.0	380.6	330.5	388.3	426.3	
G55.0	415.1	359.0	297.3	344.0	423.7	367.8	316.2	376.0	415.1	
G56.0	403.6	345.1	283.2	331.3	411.2	354.9	300.4	363.6	403.6	
G57.0	392.2	332.5	267.4	317.5	399.6	340.7	285.8	349.7	392.2	
G58.0	379.5	320.0	253.2	304.9	387.9	327.5	271.0	337.0	379.5	
G59.0	367.8	306.1	238.9	292.3	375.1	314.5	256.4	324.3	367.8	
G60.0	356.0	293.4	223.0	278.3	363.1	300.1	240.2	310.3	356.0	
G61.0	342.9	280.5	208.4	265.6	351.1	286.8	225.4	297.3	342.9	
G62.0	330.9	267.9	194.0	252.8	339.1	273.8	210.8	284.5	330.9	
G63.0	318.7	253.8	179.4	240.0	326.0	259.5	194.8	270.6	318.7	
G64.0	306.6	241.1	163.5	227.4	313.9	246.5	180.1	257.8	306.6	
G65.0	294.5	228.5	149.0	213.5	300.5	233.4	165.5	245.0	294.5	
G66.0	281.1	216.1	134.9	201.1	288.3	219.4	149.6	231.0	281.1	
G67.0	269.0	202.5	120.8	188.8	276.0	206.4	134.9	218.3	269.0	
G68.0	256.8	190.2	106.8	176.6	262.4	192.4	119.1	205.7	256.8	
G69.0	244.6	178.2	91.8	163.5	250.1	179.8	104.9	192.0	244.6	
G70.0	231.2	166.3	78.3	151.7	236.5	167.4	90.8	179.6	231.2	
G71.0	219.1	154.6	65.3	140.2	224.1	155.1	77.2	167.4	219.1	
G72.0	206.9	143.1	52.3	129.0	211.9	141.9	62.5	154.3	206.9	
G73.0	194.7	130.9	39.0	118.2	199.8	130.4	49.9	142.8	194.7	

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

HAVIT COMMERCIAL
http://www.havitcommercial.com.au
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Candlepower Table (Continue 2)

Unit: cd

G\C	C0.0	C45.0	C90.0	C135.0	C180.0	C225.0	C270.0	C315.0	C360.0	
G74.0	182.7	120.2	27.9	106.8	186.5	119.3	37.9	131.6	182.7	
G75.0	170.8	110.0	18.4	97.1	174.6	107.6	25.7	119.8	170.8	
G76.0	159.0	100.4	11.5	88.0	162.8	97.6	16.6	109.6	159.0	
G77.0	147.3	91.4	9.1	79.8	149.9	88.3	10.7	99.8	147.3	
G78.0	134.8	83.5	8.6	72.7	138.5	79.2	8.9	90.1	134.8	
G79.0	123.5	75.7	8.1	65.9	127.0	71.9	8.4	82.0	123.5	
G80.0	112.4	69.0	7.5	59.9	114.8	65.6	7.8	74.8	112.4	
G81.0	101.7	62.5	7.0	54.2	103.8	58.8	7.2	67.9	101.7	
G82.0	90.0	56.0	6.4	48.5	93.0	52.7	6.6	60.5	90.0	
G83.0	79.6	49.7	5.8	43.0	82.7	46.9	5.9	53.8	79.6	
G84.0	69.5	42.9	5.2	37.1	71.5	41.2	5.3	47.4	69.5	
G85.0	59.7	36.9	4.6	31.8	61.8	35.2	4.7	41.2	59.7	
G86.0	50.2	31.1	4.1	26.8	52.4	29.9	4.0	34.5	50.2	
G87.0	41.1	25.5	3.5	22.1	42.4	24.8	3.4	28.7	41.1	
G88.0	32.4	20.3	3.0	17.7	33.7	19.5	2.9	23.1	32.4	
G89.0	23.4	15.4	2.6	14.1	25.7	15.2	2.4	17.9	23.4	
G90.0	16.5	11.5	2.3	12.6	18.4	12.5	1.8	12.9	16.5	
G91.0	15.2	10.9	2.3	12.4	17.6	11.7	1.6	10.4	15.2	
G92.0	15.3	10.9	2.5	12.4	17.7	11.6	1.7	10.2	15.3	
G93.0	15.5	10.9	2.7	12.4	17.7	11.5	2.0	10.2	15.5	
G94.0	15.7	10.9	3.0	12.4	17.8	11.5	2.2	10.2	15.7	
G95.0	16.0	11.0	3.2	12.3	17.9	11.4	2.4	10.2	16.0	
G96.0	16.6	11.2	3.4	12.4	18.1	11.4	2.5	10.2	16.6	
G97.0	16.5	11.4	3.3	12.5	18.1	11.3	2.9	10.2	16.5	
G98.0	16.2	11.4	3.4	12.4	18.0	11.4	2.5	10.2	16.2	
G99.0	16.2	11.4	3.7	12.4	17.9	11.5	2.7	10.2	16.2	
G100.0	16.2	11.5	4.3	12.4	17.9	11.4	3.1	10.3	16.2	
G101.0	16.3	11.5	5.6	12.3	17.9	11.3	3.7	10.4	16.3	
G102.0	16.4	11.5	6.3	12.4	18.0	11.3	4.7	10.4	16.4	
G103.0	16.5	11.6	6.7	12.5	17.9	11.4	5.3	10.5	16.5	
G104.0	16.6	11.8	6.8	12.8	17.9	11.6	5.6	10.6	16.6	
G105.0	16.6	12.1	6.7	13.3	17.9	12.2	5.8	10.9	16.6	
G106.0	16.7	12.6	6.5	13.5	18.0	12.5	5.8	11.4	16.7	
G107.0	16.8	12.9	6.2	13.7	18.0	12.7	5.7	11.9	16.8	
G108.0	16.9	13.1	6.1	13.9	18.0	12.9	5.5	12.0	16.9	
G109.0	17.0	13.4	6.2	14.0	18.0	13.0	5.3	12.2	17.0	
G110.0	17.2	13.6	6.3	14.0	18.2	13.1	5.3	12.4	17.2	

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Candlepower Table (Continue 3)

Unit: cd

G\C	C0.0	C45.0	C90.0	C135.0	C180.0	C225.0	C270.0	C315.0	C360.0	
G111.0	17.4	13.8	6.4	14.1	18.4	13.2	5.5	12.5	17.4	
G112.0	17.7	13.9	6.6	14.0	18.7	13.2	5.7	12.6	17.7	
G113.0	18.2	14.0	6.8	14.0	19.0	13.2	5.9	12.7	18.2	
G114.0	18.7	14.1	6.9	14.0	19.1	13.2	6.1	12.8	18.7	
G115.0	19.0	14.2	7.1	14.0	19.2	13.1	6.3	12.9	19.0	
G116.0	19.4	14.3	7.2	14.0	19.2	13.1	6.5	12.9	19.4	
G117.0	19.6	14.4	7.4	14.0	19.2	13.1	6.8	13.1	19.6	
G118.0	19.8	14.4	7.7	14.0	19.2	13.1	7.1	13.1	19.8	
G119.0	20.1	14.6	8.0	14.1	19.3	13.1	7.2	13.2	20.1	
G120.0	20.3	14.7	8.3	14.1	19.3	13.1	7.5	13.3	20.3	
G121.0	20.4	14.7	8.7	14.2	19.4	13.2	7.8	13.4	20.4	
G122.0	20.7	14.9	9.1	14.3	19.5	13.1	7.9	13.5	20.7	
G123.0	20.9	15.1	9.4	14.3	19.6	13.3	8.3	13.6	20.9	
G124.0	21.1	15.2	9.6	14.6	19.7	13.3	8.6	13.7	21.1	
G125.0	21.4	15.4	9.9	14.7	19.8	13.4	8.9	13.9	21.4	
G126.0	21.6	15.7	10.2	15.0	20.0	13.5	9.1	14.0	21.6	
G127.0	21.8	16.0	10.5	15.3	20.2	13.7	9.3	14.1	21.8	
G128.0	22.0	16.4	10.8	15.7	20.3	13.8	9.6	14.3	22.0	
G129.0	22.1	16.8	11.1	16.0	20.4	14.1	9.9	14.5	22.1	
G130.0	22.3	17.2	11.3	16.4	20.6	14.3	10.2	14.7	22.3	
G131.0	22.4	17.6	11.6	16.6	20.7	14.5	10.5	14.9	22.4	
G132.0	22.6	18.0	11.8	16.9	20.8	14.7	10.8	15.2	22.6	
G133.0	22.7	18.3	12.1	17.1	20.9	14.9	11.1	15.5	22.7	
G134.0	22.8	18.7	12.4	17.1	21.0	15.1	11.4	15.7	22.8	
G135.0	22.9	19.0	12.8	17.3	21.0	15.3	11.8	16.0	22.9	
G136.0	23.1	19.4	13.1	17.4	21.2	15.5	12.1	16.3	23.1	
G137.0	23.2	19.7	13.5	17.7	21.4	15.6	12.5	16.6	23.2	
G138.0	23.4	19.9	13.9	18.0	21.5	15.7	12.9	16.9	23.4	
G139.0	23.5	20.0	14.3	18.3	21.6	15.9	13.3	17.1	23.5	
G140.0	23.7	20.2	14.8	18.5	21.8	16.1	13.7	17.3	23.7	
G141.0	23.8	20.4	15.2	18.6	21.9	16.3	14.1	17.5	23.8	
G142.0	23.9	20.5	15.7	18.6	22.0	16.4	14.5	17.7	23.9	
G143.0	24.1	20.6	16.1	18.4	22.1	16.5	14.9	17.9	24.1	
G144.0	24.2	20.8	16.3	18.2	22.2	16.7	15.1	18.1	24.2	
G145.0	24.4	20.8	16.4	18.0	22.2	16.9	15.3	18.3	24.4	
G146.0	24.4	20.9	16.6	17.9	22.1	17.1	15.6	18.4	24.4	
G147.0	24.3	20.9	16.8	18.0	22.1	17.4	15.8	18.5	24.3	

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector:

Candlepower Table (Continue 4)

Unit: cd

G\C	C0.0	C45.0	C90.0	C135.0	C180.0	C225.0	C270.0	C315.0	C360.0	
G148.0	24.3	20.9	17.0	18.0	22.1	17.6	16.2	18.6	24.3	
G149.0	24.1	21.0	17.3	18.0	22.1	17.8	16.6	18.8	24.1	
G150.0	24.0	21.1	17.6	17.9	22.1	18.0	17.0	19.0	24.0	
G151.0	23.8	21.2	17.9	17.8	22.0	18.2	17.5	19.2	23.8	
G152.0	23.7	21.4	18.2	17.8	22.1	18.3	18.0	19.5	23.7	
G153.0	23.5	21.6	18.4	17.7	22.0	18.4	18.4	19.8	23.5	
G154.0	23.5	21.8	18.8	17.7	22.1	18.5	18.8	20.1	23.5	
G155.0	23.5	22.0	19.0	17.7	22.1	18.7	19.2	20.4	23.5	
G156.0	23.4	22.1	19.4	17.8	22.3	18.9	19.6	20.8	23.4	
G157.0	23.3	22.3	19.5	18.0	22.4	19.3	20.0	21.1	23.3	
G158.0	23.3	22.5	19.8	18.2	22.5	19.5	20.4	21.3	23.3	
G159.0	23.4	22.6	20.1	18.4	22.6	20.0	20.8	21.6	23.4	
G160.0	23.7	22.8	20.4	18.6	22.7	20.4	21.1	21.9	23.7	
G161.0	23.9	23.1	20.6	18.9	22.9	20.7	21.4	22.1	23.9	
G162.0	24.0	23.3	20.8	19.2	23.0	21.1	21.7	22.4	24.0	
G163.0	24.2	23.4	21.0	19.6	23.1	21.4	21.9	22.6	24.2	
G164.0	24.3	23.6	21.2	19.8	23.2	21.8	22.2	22.8	24.3	
G165.0	24.4	23.7	21.3	20.0	23.2	22.1	22.4	23.0	24.4	
G166.0	24.5	23.7	21.5	20.1	23.2	22.4	22.5	23.1	24.5	
G167.0	24.5	23.8	21.6	20.2	23.2	22.7	22.7	23.3	24.5	
G168.0	24.5	23.9	21.7	20.2	23.2	22.9	22.9	23.5	24.5	
G169.0	24.5	24.0	21.8	20.2	23.2	23.0	23.0	23.6	24.5	
G170.0	24.5	24.0	21.8	20.1	23.3	23.1	23.0	23.8	24.5	
G171.0	24.4	24.0	21.8	20.0	23.2	23.1	23.0	23.9	24.4	
G172.0	24.4	24.0	21.7	20.0	23.2	23.3	23.0	23.9	24.4	
G173.0	24.4	23.9	21.6	20.2	23.9	23.5	22.9	23.8	24.4	
G174.0	24.3	23.8	22.3	22.2	27.0	25.3	23.8	23.8	24.3	
G175.0	24.9	25.1	25.7	24.6	27.7	27.1	26.4	25.4	24.9	
G176.0	25.7	27.3	27.7	25.3	27.8	27.5	27.7	27.1	25.7	
G177.0	26.5	27.8	28.0	25.8	27.9	27.6	28.1	27.4	26.5	
G178.0	27.0	27.9	28.0	26.3	27.9	27.7	28.1	27.5	27.0	
G179.0	27.3	27.9	27.8	26.8	27.9	27.8	27.8	27.4	27.3	
G180.0	27.5	27.8	27.7	27.1	27.7	27.9	27.8	27.2	27.5	

C Plane (°):0.0-360.0: 45.0
Test Lab: Inventfine instruments
Test Type: TYPE C
Temperature: 26
Operator: Jacky tang

Gamma Plane (°):0.0-180.0:1.0
Test Device: GPM-1800B
Distance: 8.509 m
Humidity: 55
Inspector: