
NATA

LumCAT: 3-1922-E
Luminaire: LMOP009-3225DH + 92.76.340.00
Report No: 201610020 Voltage(V): 217.9000
Test No: 201600020 Current(A): 0.0730
LampCAT: CITIZEN CLC251 Power (W): 15.9000
Lamp flux(lm): 1738.0 PF: 0.9980
Number of Lamps: 1 Ballast type: AC
Length(mm): 0 Width(mm): 0
Phm Type: C Height(mm): 0

Photometric Results

Lumens(lm): 1467.78
Efficiency(%): 84.45%
Lumens(lm)/Power(W): 92.31
Central intensity(cd): 1886.783
Maximum intensity(cd): 1888.985
Angle of maximum intensity: C=45.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=57.4
[C90/270]Total=57.1
Field angle(10%Imax): [C0/180]Total=76.0
[C90/270]Total=75.9
Maximum s/h(1/2): C0_180=0.89 C90_270=0.89
Maximum s/h(1/4): C0_180=0.86 C90_270=0.85
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 84.45%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.112%

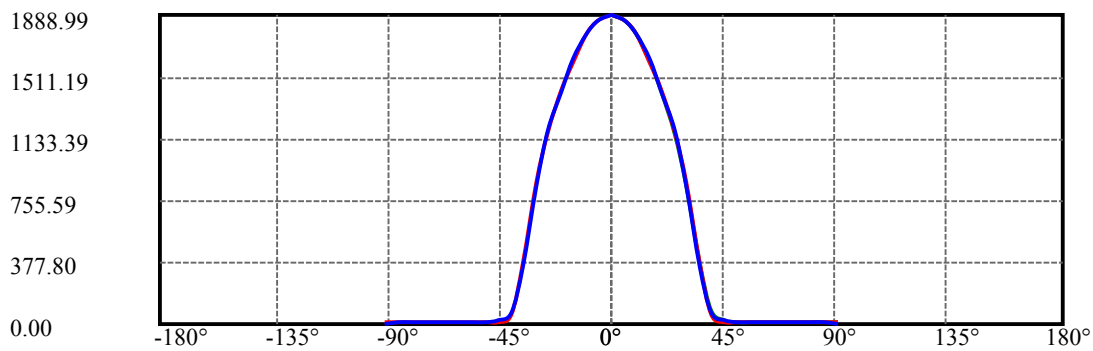
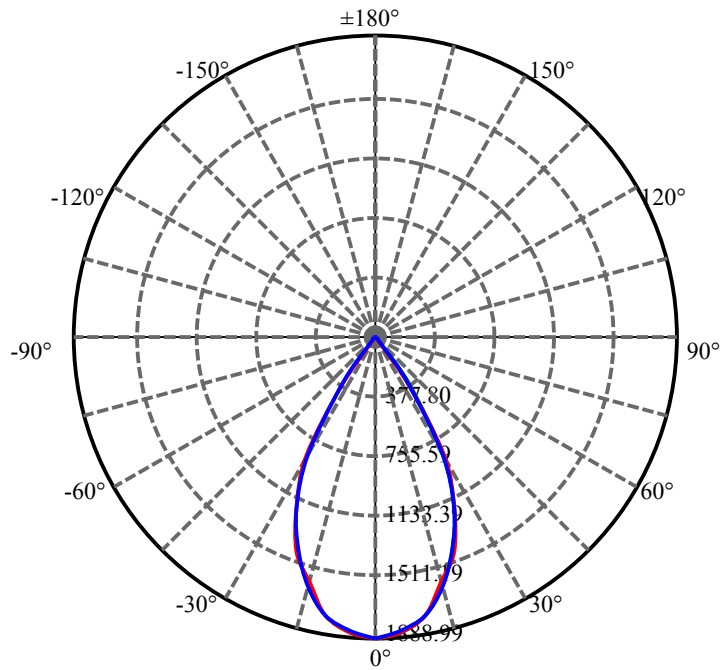
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1886.645	0.000	0	.000%	.000%
5.0	1854.506	44.724	44.724	2.573%	3.047%
10.0	1770.063	129.662	174.387	7.460%	11.881%
15.0	1609.505	200.474	374.86	11.535%	25.539%
20.0	1426.236	250.188	625.048	14.395%	42.585%
25.0	1169.893	272.286	897.334	15.667%	61.135%
30.0	852.844	255.979	1153.313	14.728%	78.575%
35.0	370.165	180.097	1333.41	10.362%	90.845%
40.0	72.523	73.859	1407.269	4.250%	95.877%
45.0	19.820	17.098	1424.367	.984%	97.042%
50.0	11.693	6.368	1430.735	.366%	97.476%
55.0	10.185	4.757	1435.492	.274%	97.800%
60.0	9.628	4.580	1440.072	.264%	98.112%
65.0	10.130	4.803	1444.875	.276%	98.439%
70.0	10.564	5.240	1450.115	.301%	98.796%
75.0	9.119	5.145	1455.26	.296%	99.147%
80.0	8.190	4.631	1459.891	.266%	99.462%
85.0	7.378	4.230	1464.121	.243%	99.751%
90.0	5.994	3.661	1467.782	.211%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1153.31	66.36%	78.58%
0-40	1407.27	80.97%	95.88%
0-60	1440.07	82.86%	98.11%
0-90	1464.12	84.24%	99.75%
0-120	1464.12	84.24%	99.75%
0-180	1467.78	84.45%	100.00%
60-90	28.63	1.65%	1.95%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-30.58	1174.23	67.56%	80.00%

ZONAL LUMEN SUMMARY

0-10	174.39
10-20	450.66
20-30	528.27
30-40	253.96
40-50	23.47
50-60	9.34
60-70	10.04
70-80	9.78
80-90	4.23
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

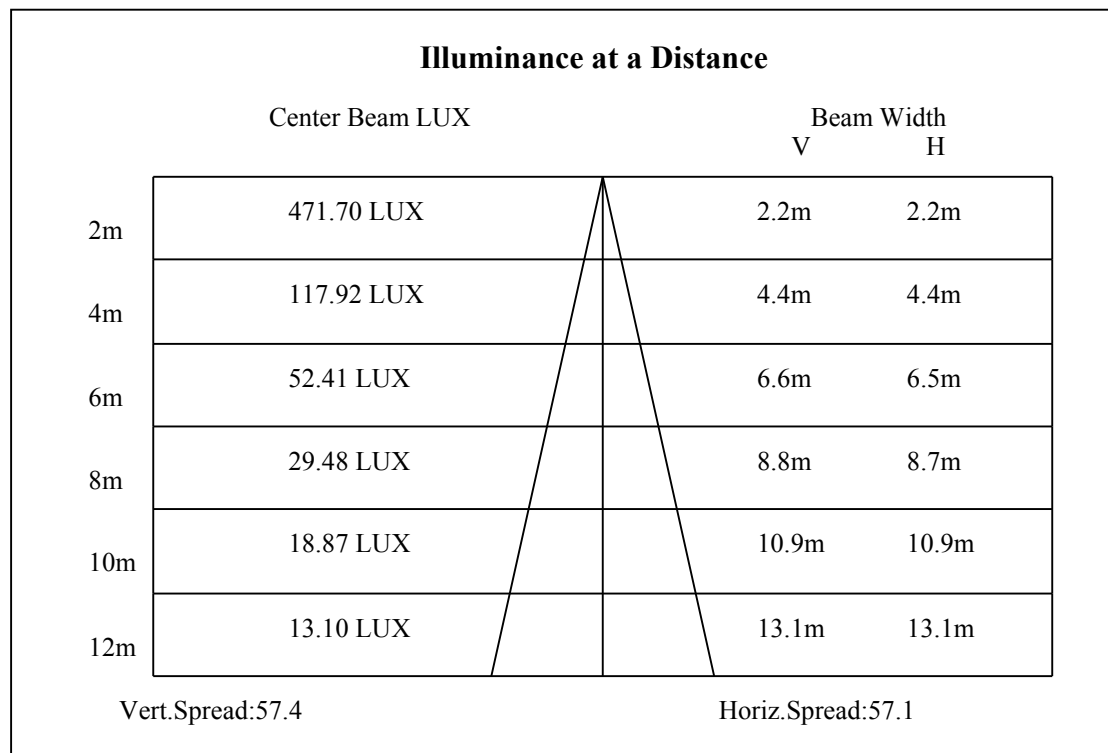
C45(Max): ———C0/C180: ———C90/C270: ———

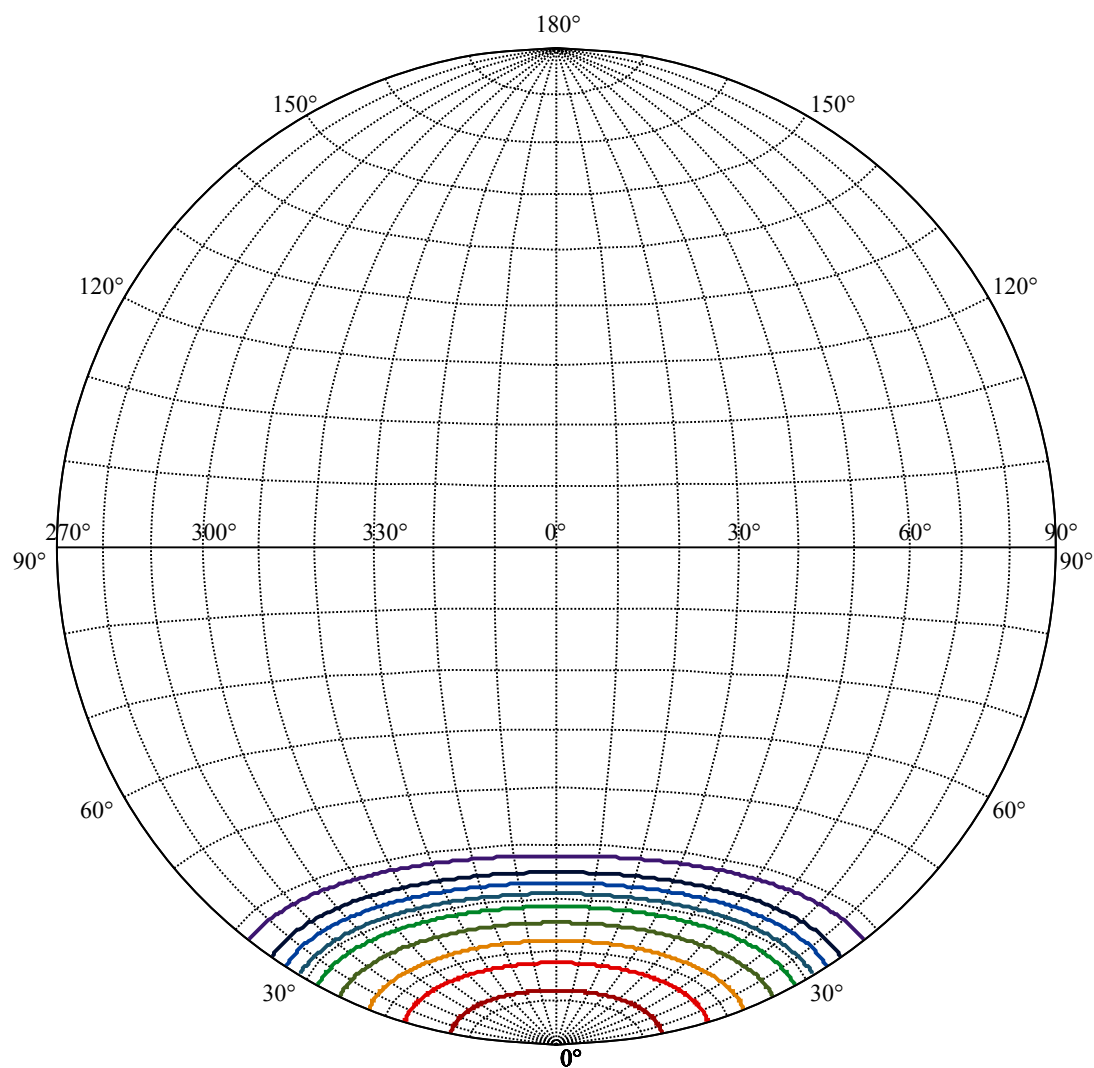
Field angle(10%Imax):C0/180Left:38.0 Right:38.0

:C90/270Left:37.9 Right:37.9

Beam Angle(50%Imax):C0/180Left:28.7 Right:28.7

:C90/270Left:28.6 Right:28.6





House

[Unit:cd]

Road

Imax:1888.99

(10%Imax) 188.899

(20%Imax) 377.797

(30%Imax) 566.696

(40%Imax) 755.594

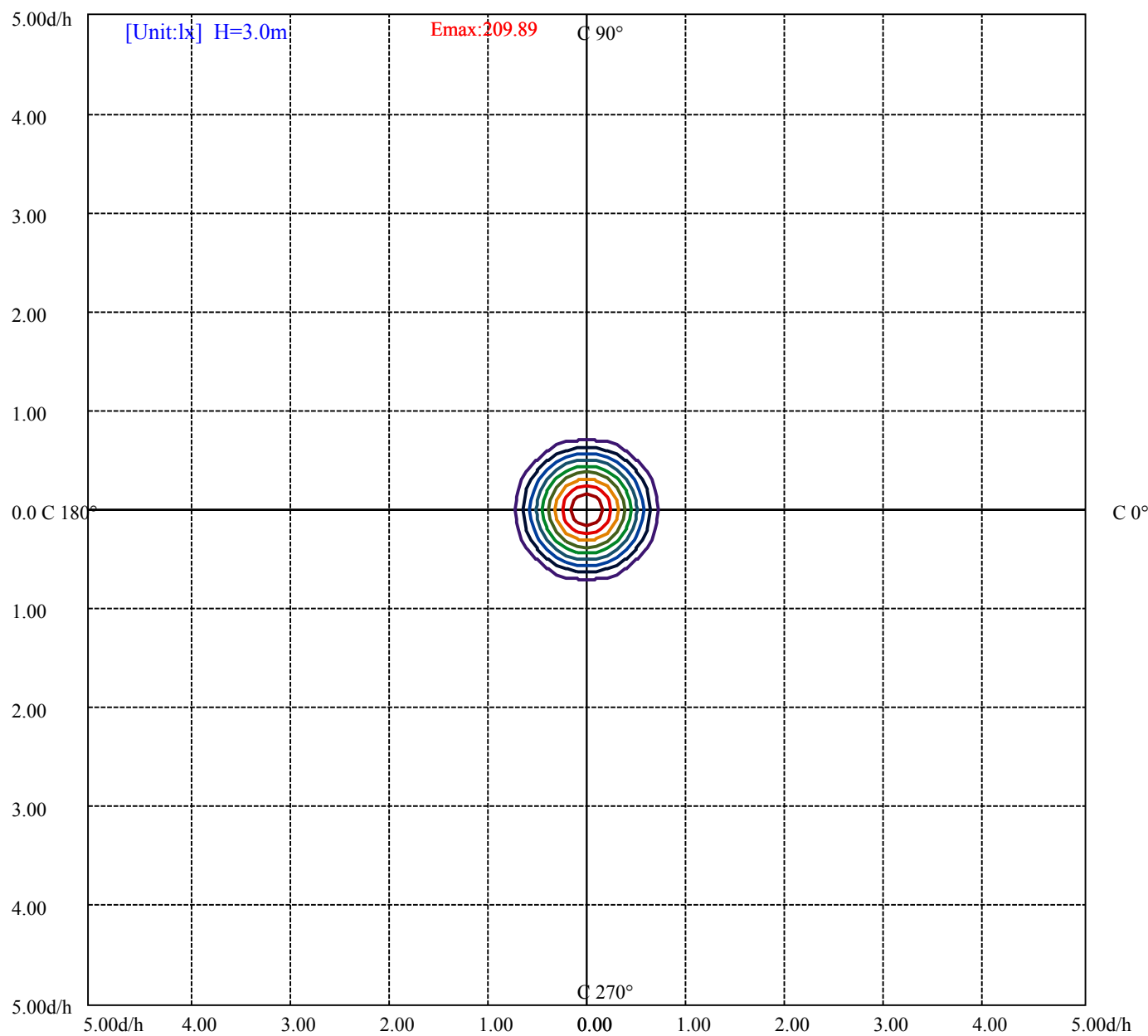
(50%Imax) 944.493

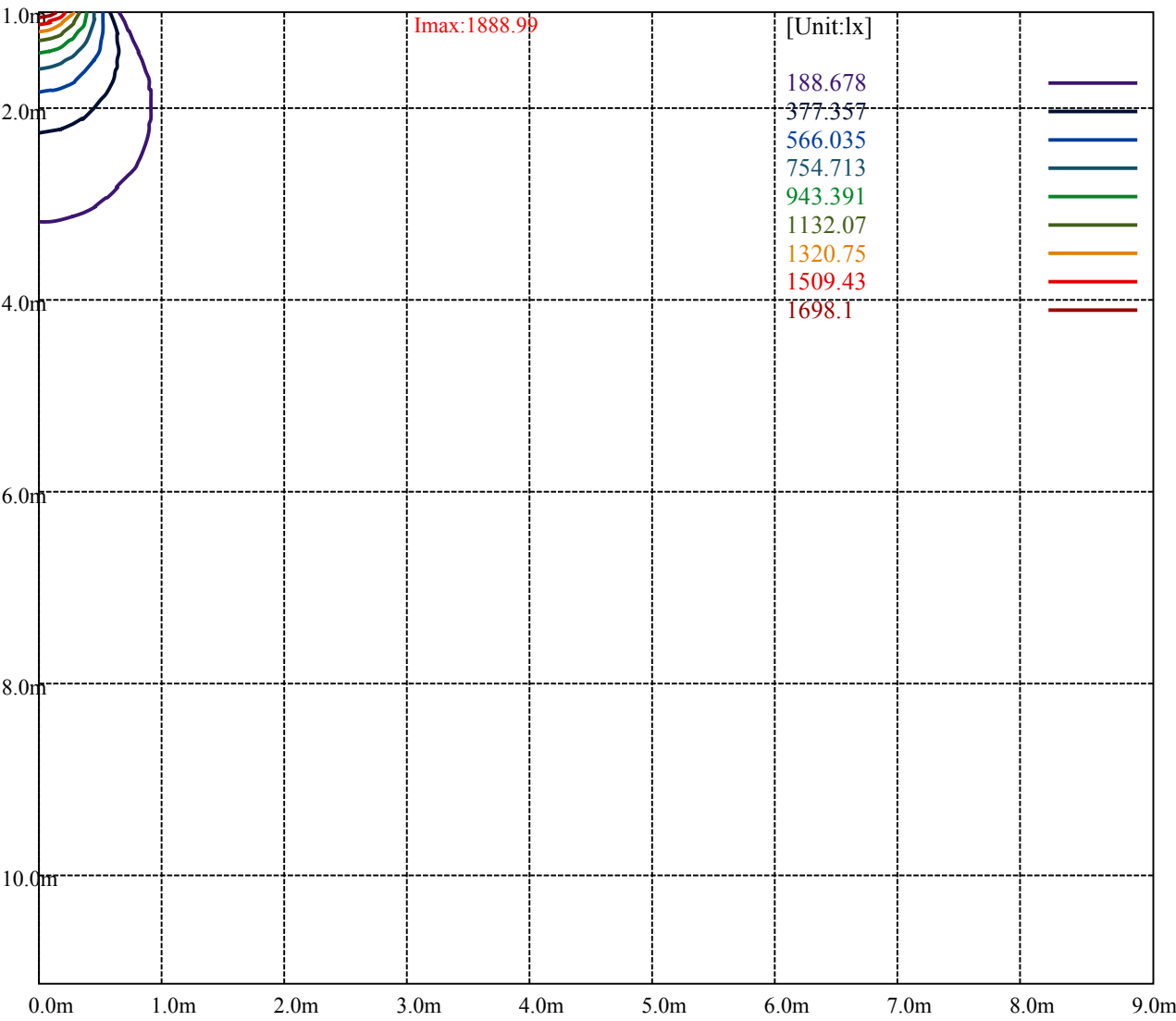
(60%Imax) 1133.39

(70%Imax) 1322.29

(80%Imax) 1511.19

(90%Imax) 1700.09

(10%E_{max}) 20.98867(20%E_{max}) 41.97744(30%E_{max}) 62.96611(40%E_{max}) 83.95489(50%E_{max}) 104.9436(60%E_{max}) 125.9322(70%E_{max}) 146.9211(80%E_{max}) 167.91(90%E_{max}) 188.8989



Luminance Table

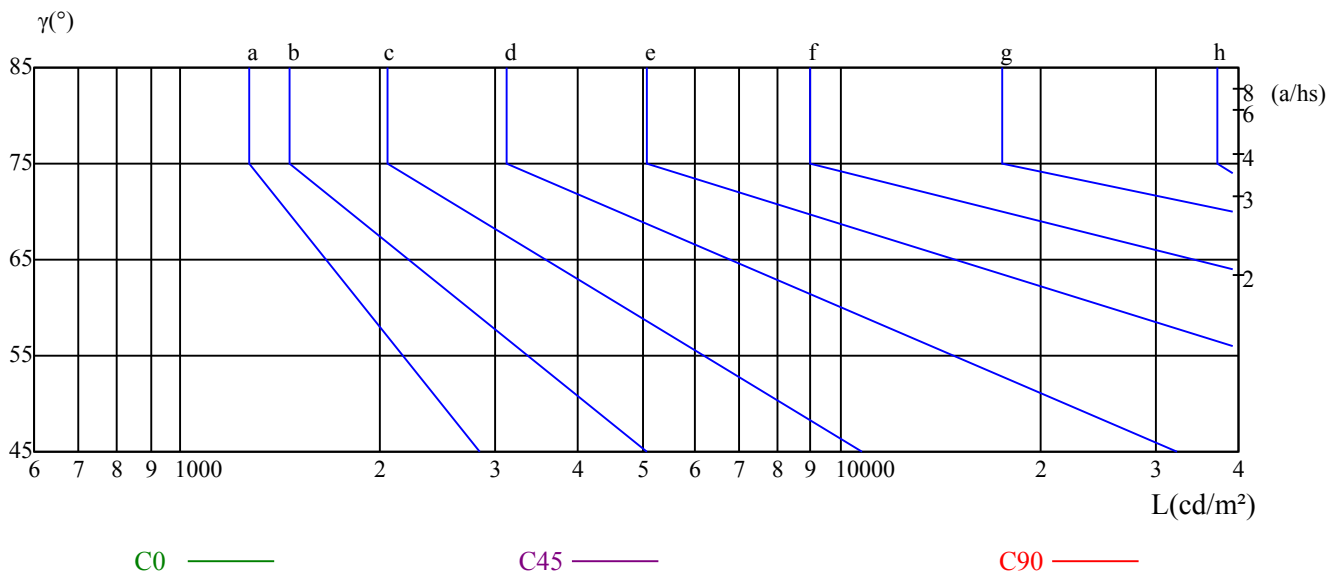
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

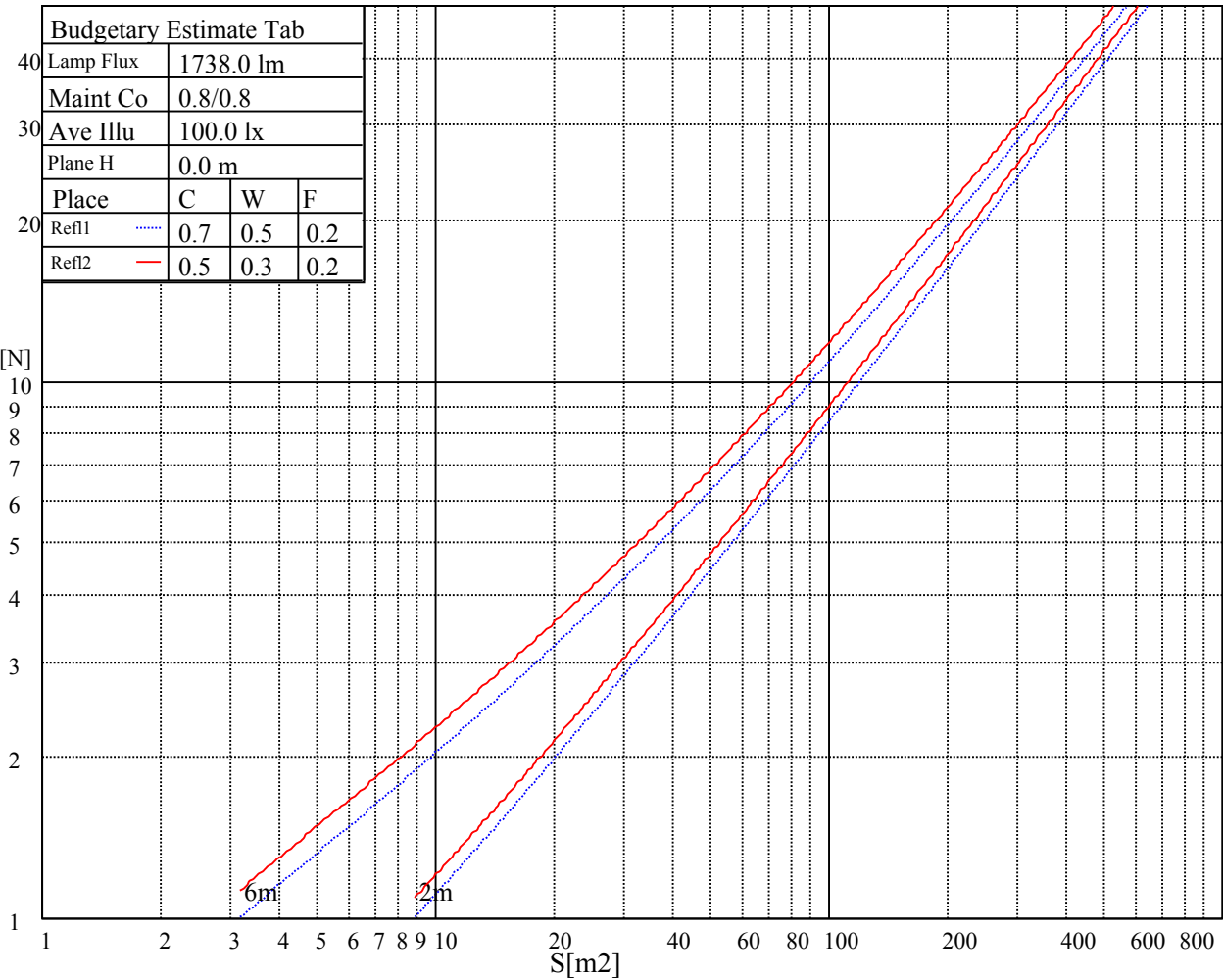
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

Glare	Quality	Service Values Illuminance(lx)							
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 Limiting Curve





RHOC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFICIENTS OF UTILIZATION RHOF=20 CU															
0	1.01	1.01	1.01	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.86	0.86	0.86	0.84
1	0.93	0.91	0.89	0.92	0.90	0.88	0.88	0.87	0.85	0.85	0.84	0.83	0.82	0.81	0.80	0.79
2	0.87	0.84	0.81	0.86	0.83	0.80	0.83	0.81	0.78	0.81	0.79	0.77	0.78	0.77	0.75	0.74
3	0.82	0.78	0.74	0.81	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.71	0.74	0.72	0.70	0.69
4	0.77	0.72	0.69	0.76	0.72	0.68	0.74	0.70	0.68	0.72	0.69	0.67	0.71	0.68	0.66	0.65
5	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.63	0.69	0.65	0.63	0.67	0.64	0.62	0.61
6	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.57
7	0.64	0.59	0.56	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.55	0.61	0.58	0.55	0.54
8	0.61	0.56	0.53	0.60	0.56	0.53	0.60	0.55	0.52	0.59	0.55	0.52	0.58	0.54	0.52	0.51
9	0.58	0.53	0.50	0.57	0.53	0.50	0.57	0.52	0.50	0.56	0.52	0.49	0.55	0.52	0.49	0.48
10	0.55	0.50	0.47	0.54	0.50	0.47	0.54	0.50	0.47	0.53	0.49	0.47	0.53	0.49	0.47	0.46

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Intensity data(cd)										Appendix Page: 12 Total:12	
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	1886.78	1846.04	1755.20	1598.29	1459.55	1247.03	915.04	421.73	67.83		
45.0	1888.99	1851.00	1770.06	1632.42	1443.58	1255.29	1001.48	521.38	107.97		
90.0	1887.33	1842.74	1757.95	1597.74	1413.85	1217.85	939.04	420.25	101.19		
135.0	1883.48	1871.92	1794.84	1630.77	1443.58	1228.86	957.43	485.05	116.55		
180.0	1886.78	1862.56	1781.07	1601.59	1414.95	1093.81	811.70	337.99	57.75		
225.0	1888.99	1866.41	1784.38	1603.79	1403.39	1090.45	722.12	230.58	44.49		
270.0	1887.33	1860.36	1787.68	1629.12	1434.22	1143.52	758.68	291.25	43.77		
315.0	1883.48	1835.03	1729.32	1582.32	1396.78	1082.35	717.27	253.09	40.63		
360.0	1886.78	1846.04	1755.20	1598.29	1459.55	1247.03	915.04	421.73	67.83		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	16.79	10.85	10.13	9.91	9.97	10.85	9.58	9.03	8.48		
45.0	25.16	11.73	9.69	9.08	8.70	8.48	8.15	7.87	7.27		
90.0	29.84	14.20	11.01	9.69	8.64	7.98	7.54	7.10	6.55		
135.0	28.96	12.44	10.13	9.03	8.31	8.04	7.71	7.05	6.39		
180.0	15.75	10.57	8.81	8.15	7.71	7.54	7.38	6.94	6.39		
225.0	13.38	10.35	9.63	9.25	9.08	9.03	8.64	8.15	7.54		
270.0	14.59	11.29	10.19	9.69	9.58	10.13	8.75	8.37	7.43		
315.0	14.09	12.11	11.89	12.22	19.05	22.46	15.20	11.01	8.97		
360.0	16.79	10.85	10.13	9.91	9.97	10.85	9.58	9.03	8.48		
C/ γ (°)	90.0										
0.0	6.83										
45.0	5.95										
90.0	5.78										
135.0	5.73										
180.0	5.73										
225.0	5.89										
270.0	5.84										
315.0	6.22										
360.0	6.83										