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NATA

LumCAT: 2-2160-A
Luminaire: 92.70.151.00+92.70.153.00
Report No: NATA0100
Test No: GC2020011302
LampCAT: CITIZEN LCN-C03A
Lamp flux(lm): 2216.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 33.8800
Current(A): 0.4970
Power (W): 16.8400
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1854.96
Efficiency(%): 83.71%
Lumens(lm)/Power(W): 110.15
Central intensity(cd): 2834.437
Maximum intensity(cd): 2834.437
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=44.2
 [C90/270]Total=44.2
Field angle(10%Imax): [C0/180]Total=80.5
 [C90/270]Total=80.5
Maximum s/h(1/2): C0_180=0.70 C90_270=0.70
Maximum s/h(1/4): C0_180=0.73 C90_270=0.73
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 83.71%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.570%

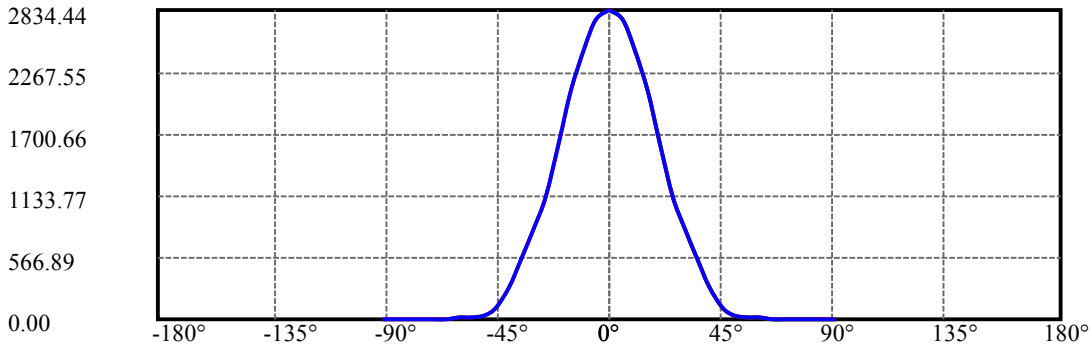
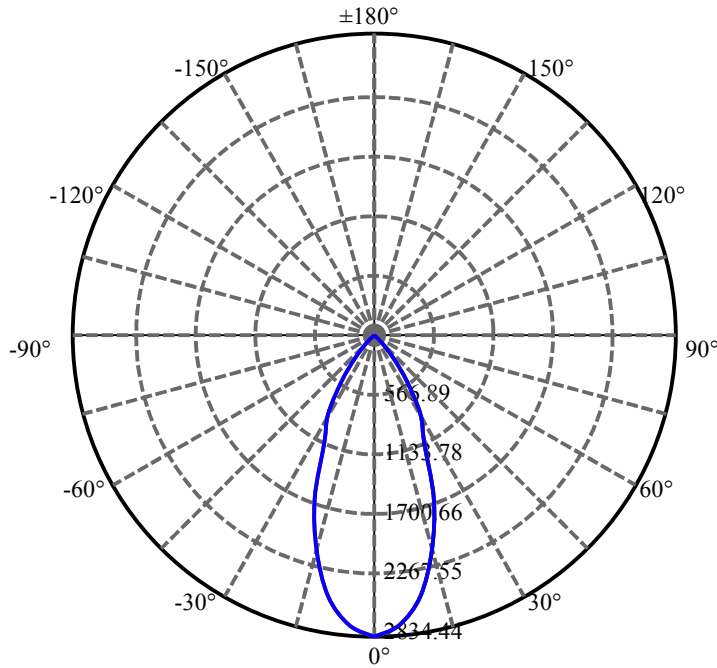
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2834.438	0.000	0	.000%	.000%
5.0	2739.375	66.633	66.633	3.007%	3.592%
10.0	2488.219	187.007	253.641	8.439%	13.674%
15.0	2098.828	272.101	525.741	12.279%	28.343%
20.0	1628.789	307.208	832.949	13.863%	44.904%
25.0	1124.445	288.763	1121.713	13.031%	60.471%
30.0	850.191	249.892	1371.605	11.277%	73.943%
35.0	538.601	204.509	1576.114	9.229%	84.968%
40.0	292.704	138.697	1714.811	6.259%	92.445%
45.0	103.507	73.362	1788.172	3.311%	96.400%
50.0	29.735	26.924	1815.096	1.215%	97.851%
55.0	10.786	8.811	1823.907	.398%	98.326%
60.0	8.803	4.528	1828.434	.204%	98.570%
65.0	8.529	4.213	1832.648	.190%	98.797%
70.0	8.430	4.294	1836.942	.194%	99.029%
75.0	8.381	4.394	1841.336	.198%	99.266%
80.0	8.466	4.508	1845.844	.203%	99.509%
85.0	8.585	4.633	1850.477	.209%	99.758%
90.0	7.777	4.480	1854.957	.202%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1371.60	61.90%	73.94%
0-40	1714.81	77.38%	92.44%
0-60	1828.43	82.51%	98.57%
0-90	1850.48	83.51%	99.76%
0-120	1850.48	83.51%	99.76%
0-180	1854.96	83.71%	100.00%
60-90	26.57	1.20%	1.43%
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%
0-32.75	1483.97	66.97%	80.00%

ZONAL LUMEN SUMMARY

0-10	253.64
10-20	579.31
20-30	538.66
30-40	343.21
40-50	100.29
50-60	13.34
60-70	8.51
70-80	8.90
80-90	4.63
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



C0(Max): —————

C0/C180: —————

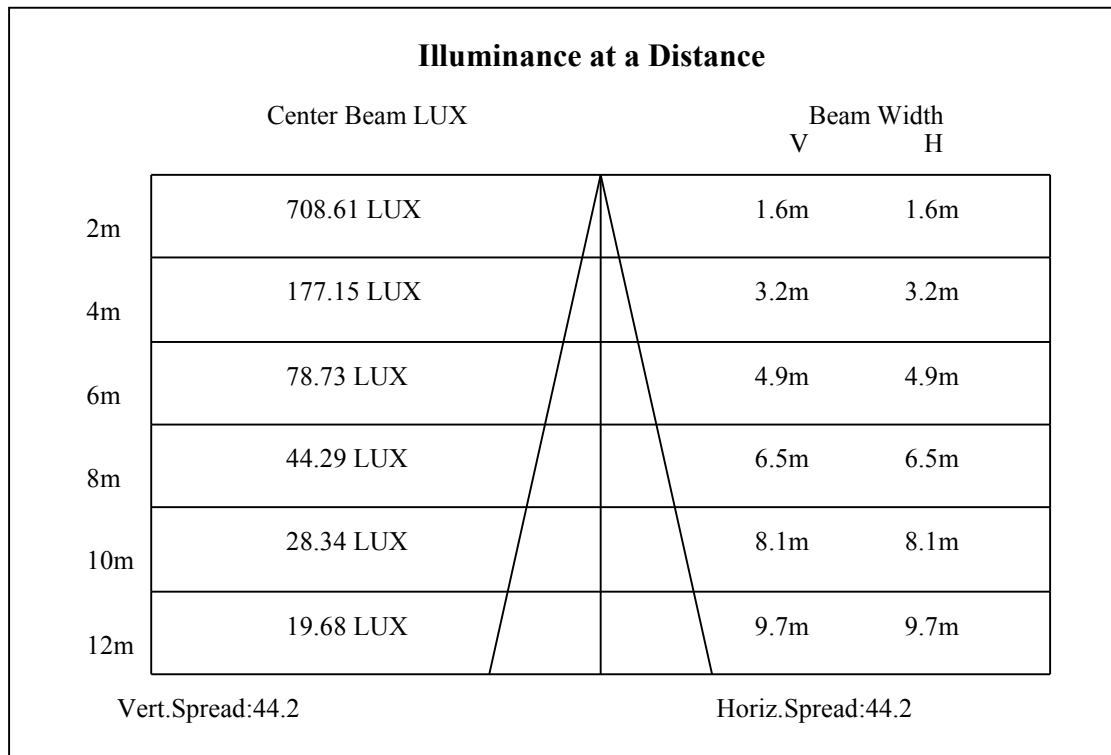
C90/C270: —————

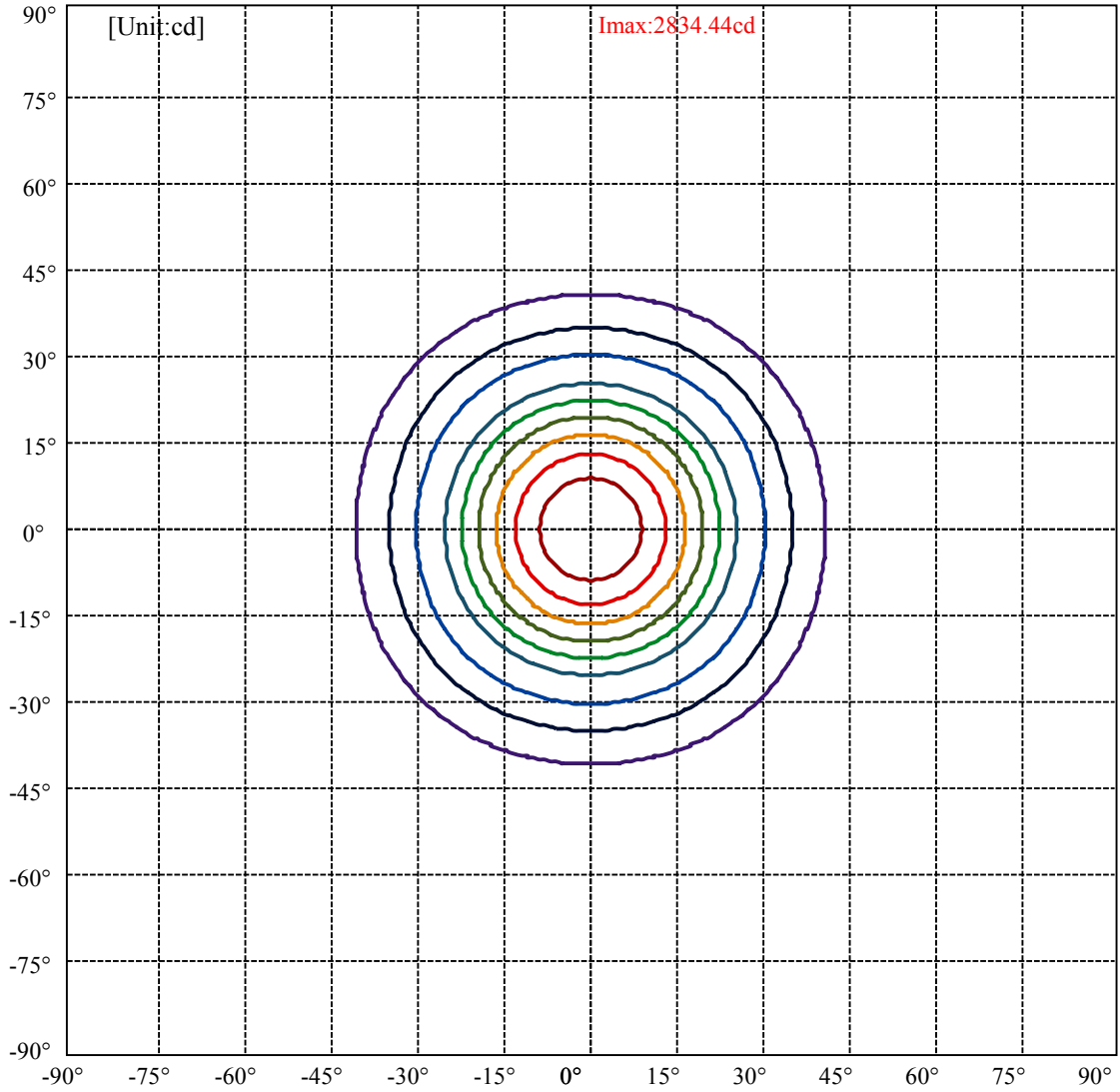
Field angle(10%Imax):C0/180Left:40.2 Right:40.2

:C90/270Left:40.2 Right:40.2

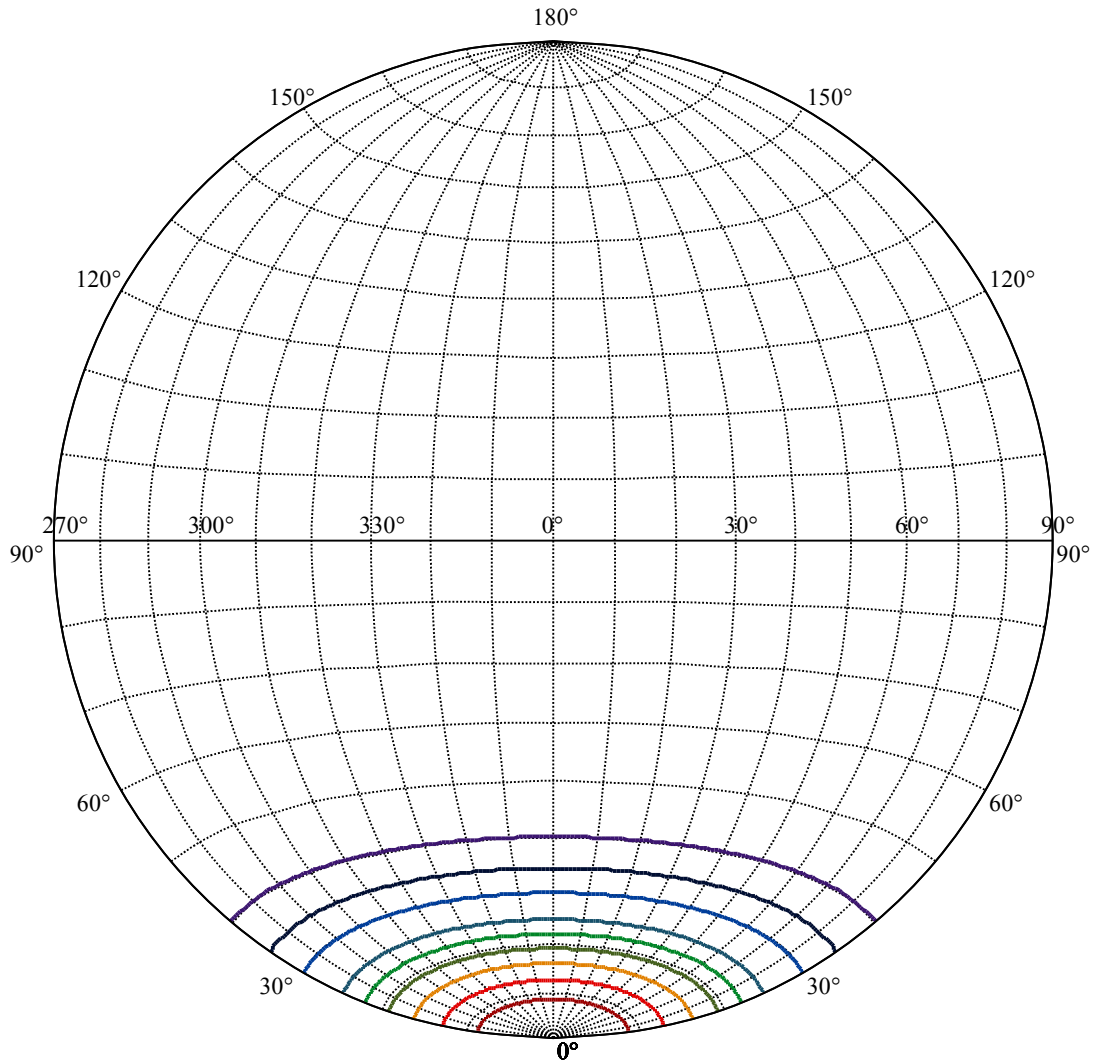
Beam Angle(50%Imax):C0/180Left:22.1 Right:22.1

:C90/270Left:22.1 Right:22.1





(10%Imax) 283.444	—
(20%Imax) 566.887	—
(30%Imax) 850.331	—
(40%Imax) 1133.77	—
(50%Imax) 1417.22	—
(60%Imax) 1700.66	—
(70%Imax) 1984.11	—
(80%Imax) 2267.55	—
(90%Imax) 2550.99	—



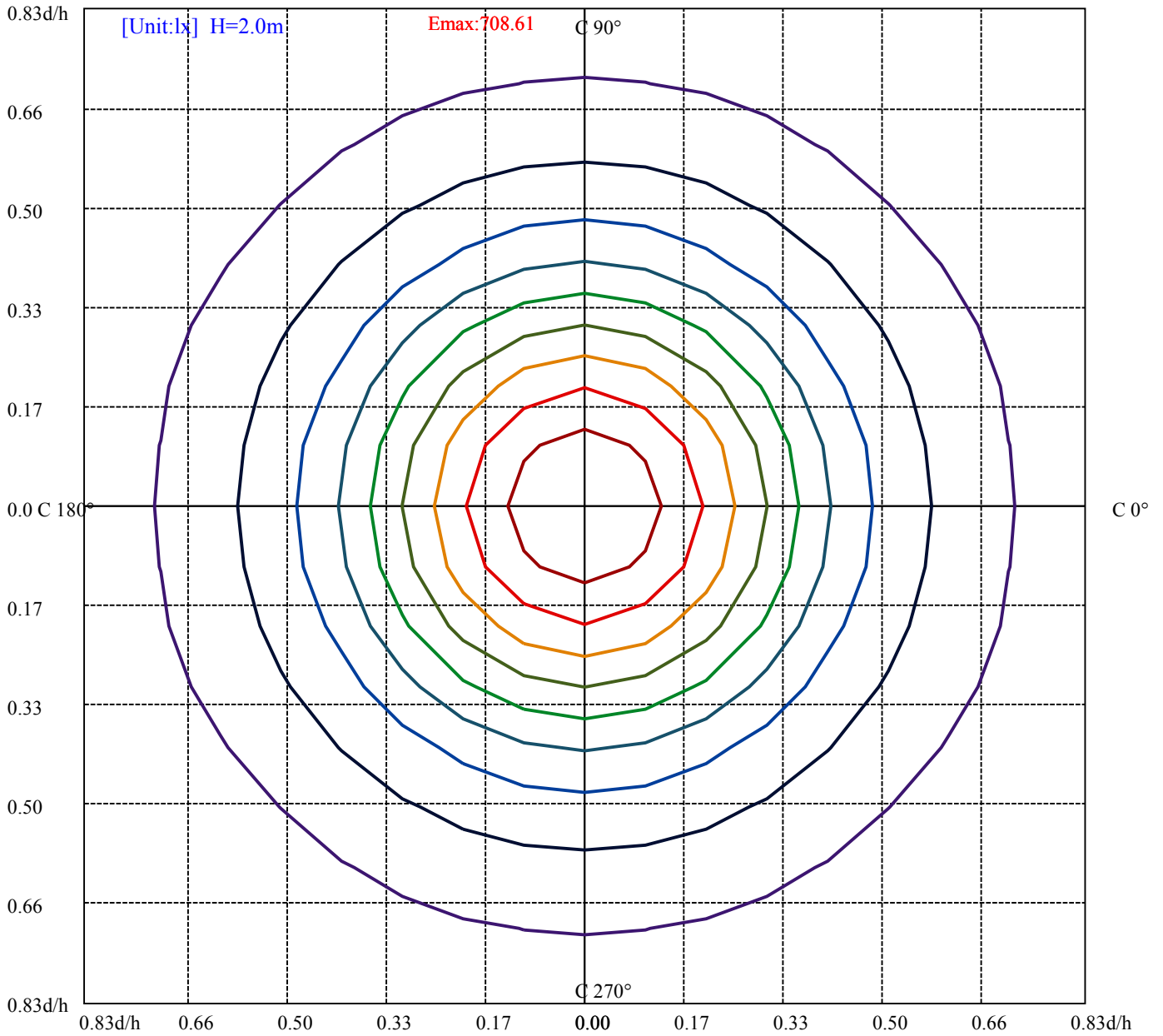
House

[Unit:cd]

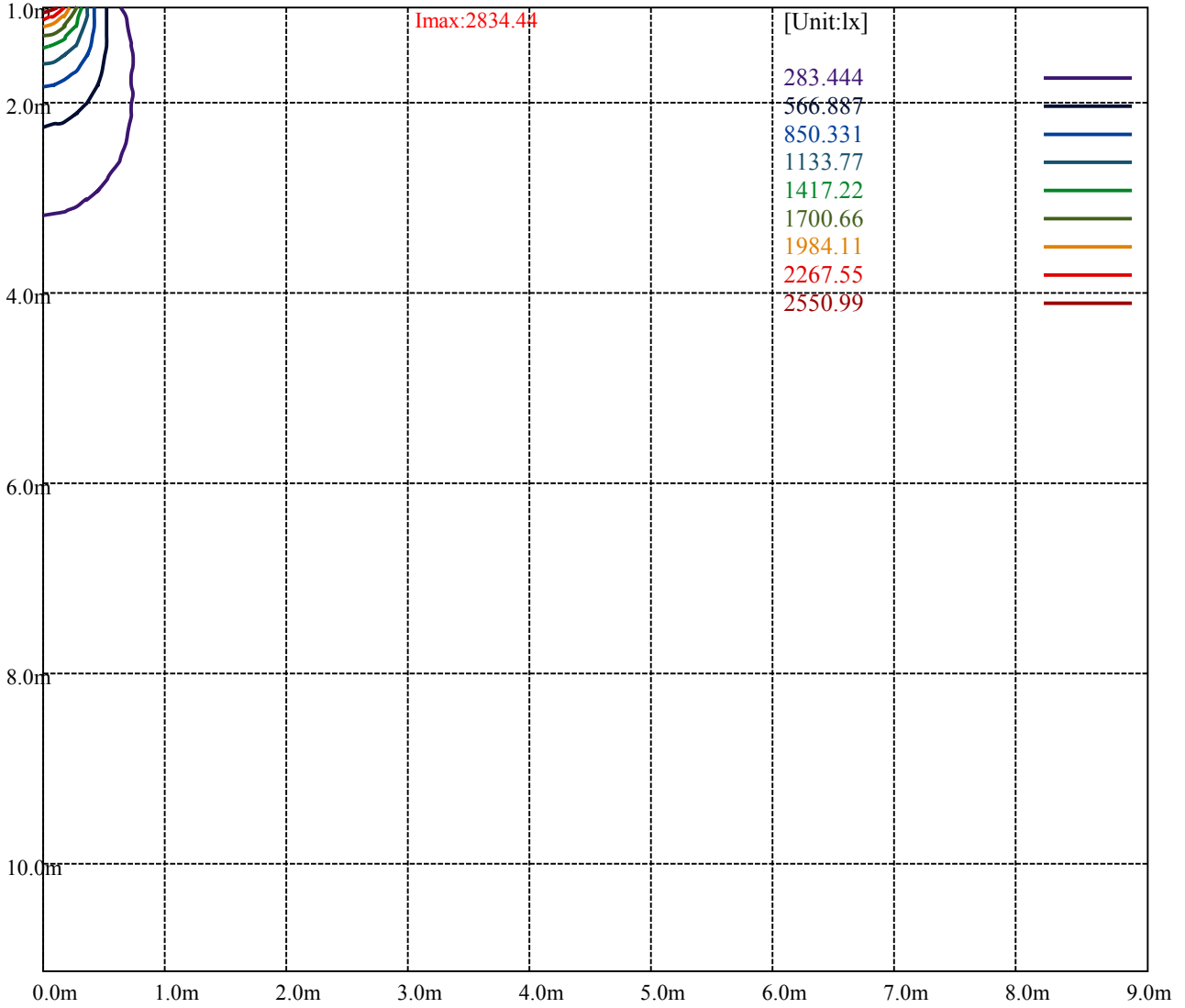
Road

Imax:2834.44

(10%Imax) 283.444	—
(20%Imax) 566.887	—
(30%Imax) 850.331	—
(40%Imax) 1133.77	—
(50%Imax) 1417.22	—
(60%Imax) 1700.66	—
(70%Imax) 1984.11	—
(80%Imax) 2267.55	—
(90%Imax) 2550.99	—



- (10%Emax) 70.86075
- (20%Emax) 141.7218
- (30%Emax) 212.5825
- (40%Emax) 283.4425
- (50%Emax) 354.305
- (60%Emax) 425.165
- (70%Emax) 496.025
- (80%Emax) 566.8875
- (90%Emax) 637.7475



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

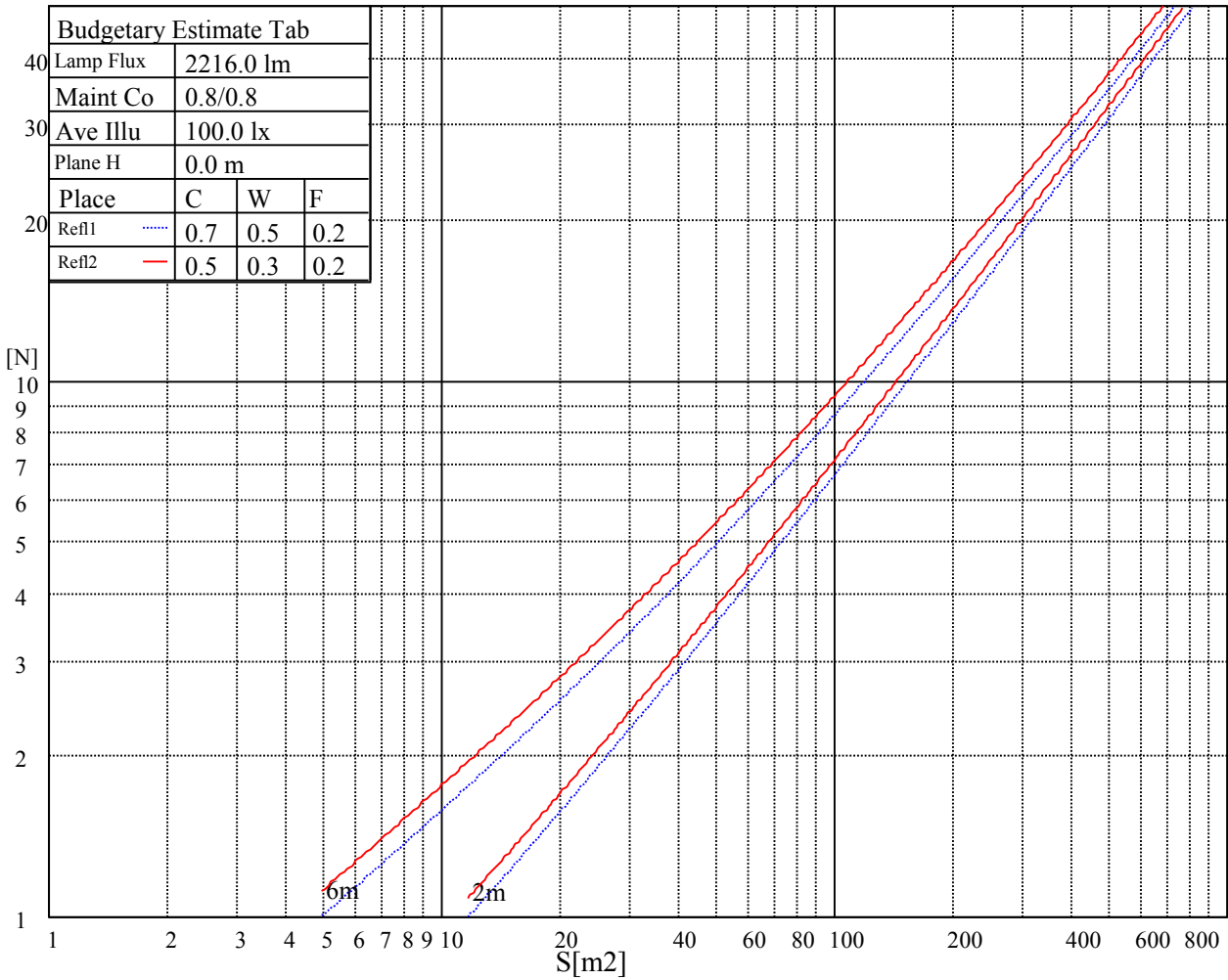
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

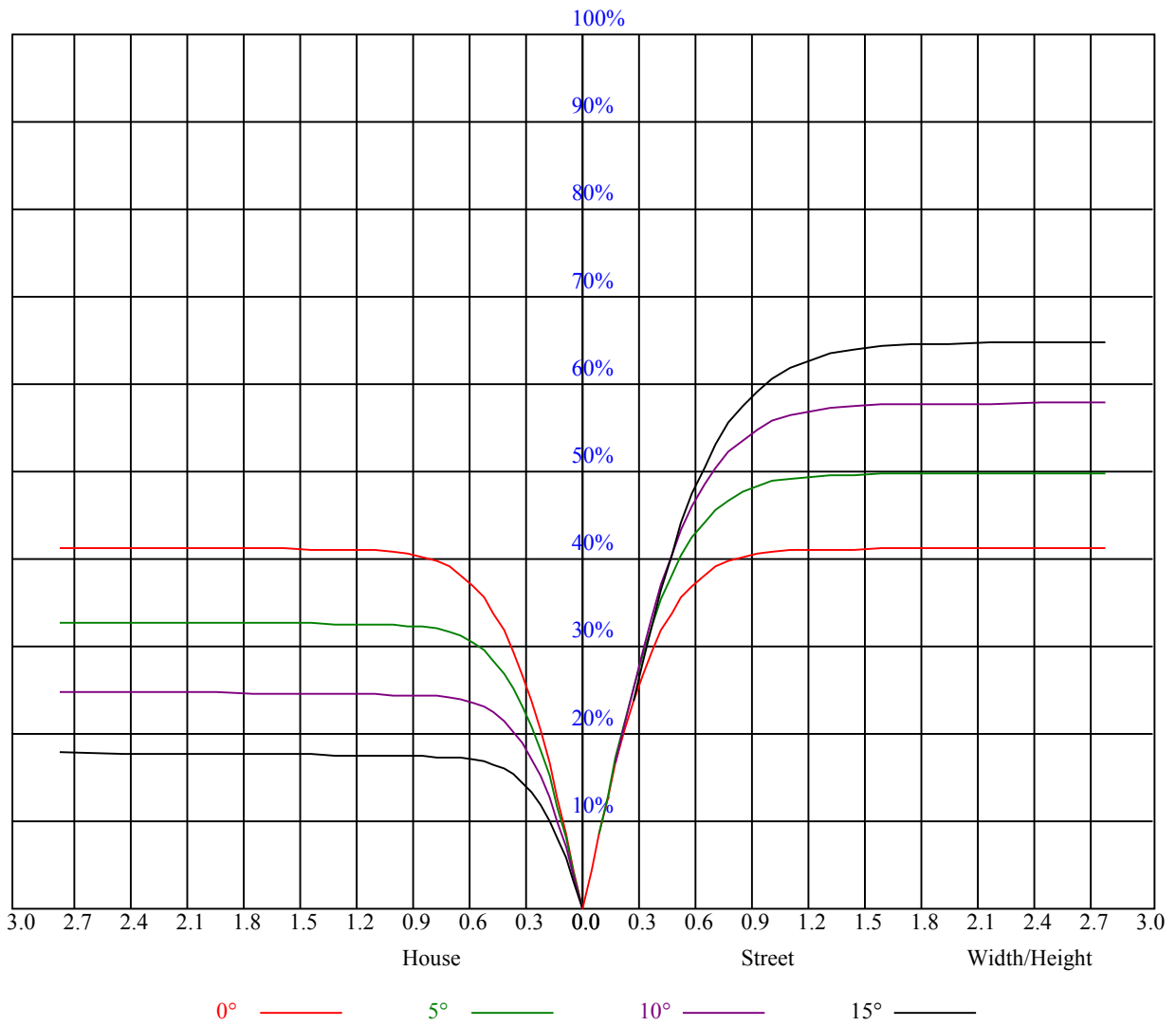
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





RHOCC	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 RHOFC=20 CU															
0	1.00	1.00	1.00	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.85	0.85	0.85	0.84
1	0.93	0.91	0.89	0.91	0.89	0.87	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.78
2	0.86	0.83	0.80	0.85	0.82	0.79	0.82	0.80	0.78	0.80	0.78	0.76	0.78	0.76	0.74	0.73
3	0.81	0.77	0.74	0.80	0.76	0.73	0.78	0.74	0.72	0.76	0.73	0.71	0.74	0.71	0.70	0.68
4	0.76	0.71	0.68	0.75	0.71	0.68	0.73	0.70	0.67	0.71	0.68	0.66	0.70	0.67	0.65	0.64
5	0.71	0.67	0.63	0.71	0.66	0.63	0.69	0.65	0.62	0.68	0.64	0.62	0.66	0.64	0.61	0.60
6	0.67	0.62	0.59	0.67	0.62	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.63	0.60	0.58	0.56
7	0.64	0.59	0.55	0.63	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.54	0.53
8	0.60	0.55	0.52	0.60	0.55	0.52	0.59	0.55	0.52	0.58	0.54	0.51	0.57	0.54	0.51	0.50
9	0.57	0.52	0.49	0.57	0.52	0.49	0.56	0.52	0.49	0.55	0.51	0.49	0.54	0.51	0.49	0.47
10	0.54	0.50	0.46	0.54	0.49	0.46	0.53	0.49	0.46	0.53	0.49	0.46	0.52	0.49	0.46	0.45



Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	2841.19	2653.88	2368.13	1967.63	1519.31	1091.25	797.63	464.06	288.00
45.0	2844.56	2682.00	2361.94	1999.69	1528.88	1082.25	792.00	466.88	288.56
90.0	2827.69	2681.44	2384.44	1962.00	1518.19	1075.56	786.38	483.02	224.44
135.0	2824.31	2786.63	2575.13	2205.56	1732.50	1229.63	919.69	617.06	330.75
180.0	2841.19	2822.06	2637.00	2250.56	1737.00	1108.86	909.17	605.25	325.29
225.0	2844.56	2823.19	2641.50	2252.81	1774.69	1115.10	914.18	603.28	346.73
270.0	2827.69	2786.63	2565.56	2206.13	1737.00	1234.13	901.69	613.69	321.19
315.0	2824.31	2679.19	2372.06	1946.25	1482.75	1058.79	780.81	455.57	216.68
360.0	2841.19	2653.88	2368.13	1967.63	1519.31	1091.25	797.63	464.06	288.00
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	87.75	24.02	9.68	8.55	8.27	8.10	7.93	7.93	7.82
45.0	81.84	24.47	9.73	8.72	8.49	8.38	8.33	8.33	8.44
90.0	76.33	24.02	9.96	8.89	8.72	8.66	8.66	8.83	9.06
135.0	136.18	39.09	12.15	9.17	8.89	8.89	8.94	9.17	9.62
180.0	126.68	36.00	11.59	8.94	8.61	8.49	8.49	8.72	8.94
225.0	125.44	31.78	11.76	8.78	8.44	8.33	8.27	8.33	8.44
270.0	118.01	36.79	11.76	8.72	8.38	8.27	8.16	8.10	8.16
315.0	75.83	21.71	9.68	8.66	8.44	8.33	8.27	8.33	8.21
360.0	87.75	24.02	9.68	8.55	8.27	8.10	7.93	7.93	7.82
C/γ(°)	90.0								
0.0	7.76								
45.0	7.82								
90.0	7.82								
135.0	7.71								
180.0	7.76								
225.0	7.82								
270.0	7.76								
315.0	7.76								
360.0	7.76								