
Nata

Client:

LumCAT: 2-1793-N

Luminaire: 92.70.135.00

Report No: nata-0100

Test No: GC2018053002

LampCAT: NICHIA NFCWD084B-V3

Lamp flux(lm): 2155.2

Number of Lamps: 1

Length(mm): 69

Phm Type: C

Voltage(V): 34.1000

Current(A): 0.5000

Power (W): 17.0500

PF: 0.0000

Ballast type: DC

Width(mm): 69

Height(mm): 0

Photometric Results

Lumens(lm): 1844.39, Efficiency(%): 85.58% , Luminous Efficacy(lm/W): 108.18

Central intensity(cd): 11227.650, Maximum intensity(cd): 11227.650

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=17.2

[C90/270]Total=17.2

Field angle(10%Imax): [C0/180]Total=41.4

[C90/270]Total=41.4

Maximum s/h(1/2): C0_180=0.29 C90_270=0.29

Maximum s/h(1/4): C0_180=0.32 C90_270=0.32

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 86.07%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.657%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11227.652	10.744	10.744	.499%	.583%
2.0	10794.908	82.623	93.368	3.834%	5.062%
4.0	9598.326	146.840	240.208	6.813%	13.024%
6.0	7843.472	179.808	420.016	8.343%	22.773%
8.0	6102.451	186.262	606.278	8.643%	32.872%
10.0	4500.241	171.384	777.662	7.952%	42.164%
12.0	3254.453	148.396	926.058	6.886%	50.210%
14.0	2443.954	129.668	1055.726	6.017%	57.240%
16.0	1863.384	112.643	1168.37	5.227%	63.347%
18.0	1470.625	99.667	1268.036	4.625%	68.751%
20.0	1187.264	89.056	1357.093	4.132%	73.580%
22.0	995.867	81.817	1438.909	3.796%	78.016%
24.0	849.740	75.799	1514.709	3.517%	82.125%
26.0	754.520	72.540	1587.249	3.366%	86.058%
28.0	636.824	65.568	1652.817	3.042%	89.613%
30.0	476.699	52.273	1705.09	2.425%	92.448%
32.0	309.011	35.913	1741.003	1.666%	94.395%
34.0	164.729	20.202	1761.205	.937%	95.490%
36.0	67.389	8.687	1769.892	.403%	95.961%
38.0	45.635	6.162	1776.054	.286%	96.295%
40.0	35.608	5.020	1781.073	.233%	96.567%
42.0	29.194	4.284	1785.358	.199%	96.800%
44.0	24.335	3.707	1789.065	.172%	97.001%
46.0	20.570	3.245	1792.31	.151%	97.177%
48.0	18.279	2.979	1795.289	.138%	97.338%
50.0	16.641	2.796	1798.085	.130%	97.490%
52.0	15.636	2.702	1800.787	.125%	97.636%
54.0	14.968	2.656	1803.443	.123%	97.780%
56.0	14.576	2.650	1806.093	.123%	97.924%
58.0	14.232	2.647	1808.74	.123%	98.067%
60.0	13.971	2.653	1811.394	.123%	98.211%
62.0	13.805	2.673	1814.067	.124%	98.356%
64.0	13.606	2.682	1816.749	.124%	98.502%
66.0	13.000	2.605	1819.354	.121%	98.643%
68.0	12.353	2.512	1821.866	.117%	98.779%
70.0	11.810	2.434	1824.299	.113%	98.911%
72.0	11.266	2.350	1826.649	.109%	99.038%
74.0	10.839	2.285	1828.934	.106%	99.162%

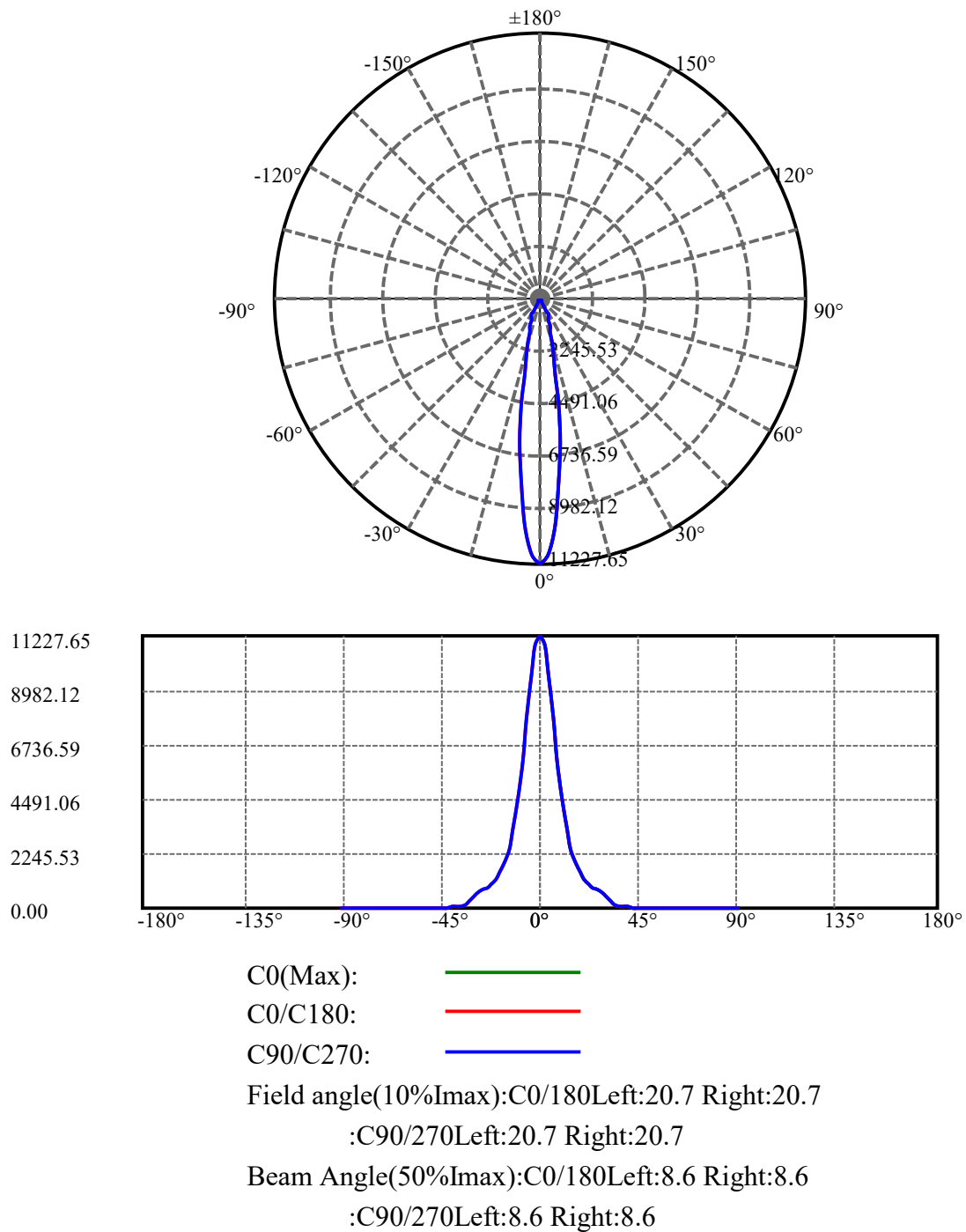
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.406	2.214	1831.149	.103%	99.282%
78.0	10.123	2.172	1833.32	.101%	99.400%
80.0	9.876	2.133	1835.453	.099%	99.516%
82.0	9.669	2.100	1837.553	.097%	99.630%
84.0	9.463	2.064	1839.617	.096%	99.741%
86.0	9.270	2.028	1841.645	.094%	99.851%
88.0	8.444	1.851	1843.496	.086%	99.952%
90.0	8.114	0.890	1844.386	.041%	100.000%

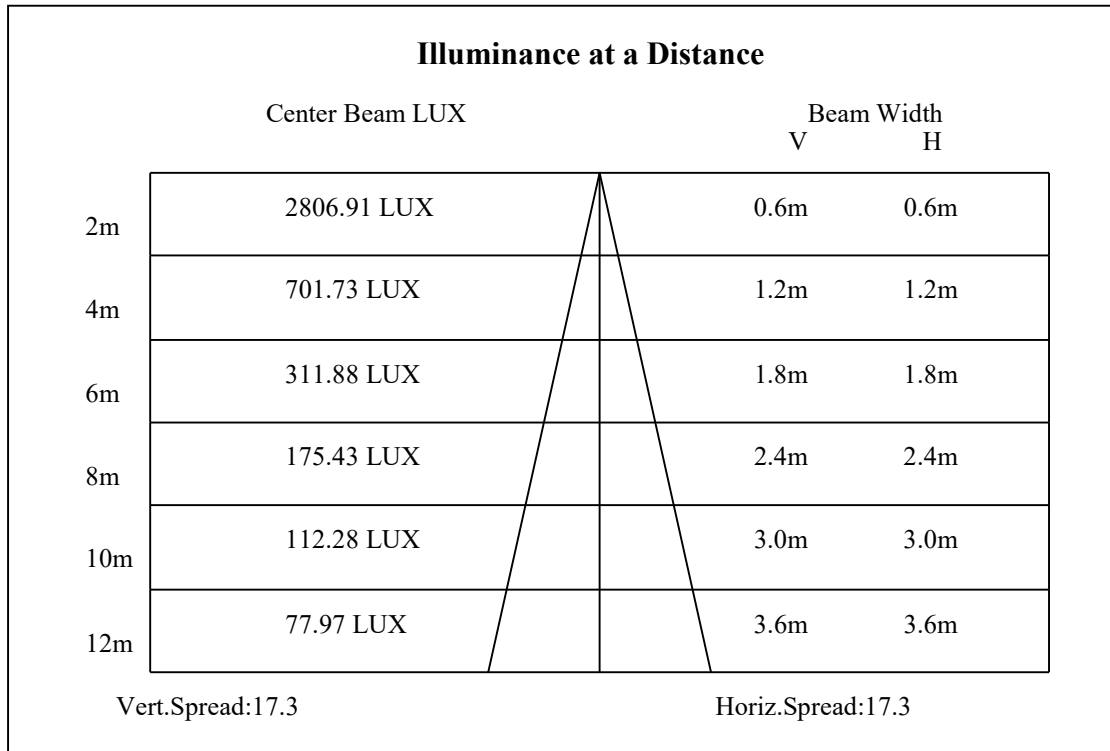
ZONAL LUMEN SUMMARY

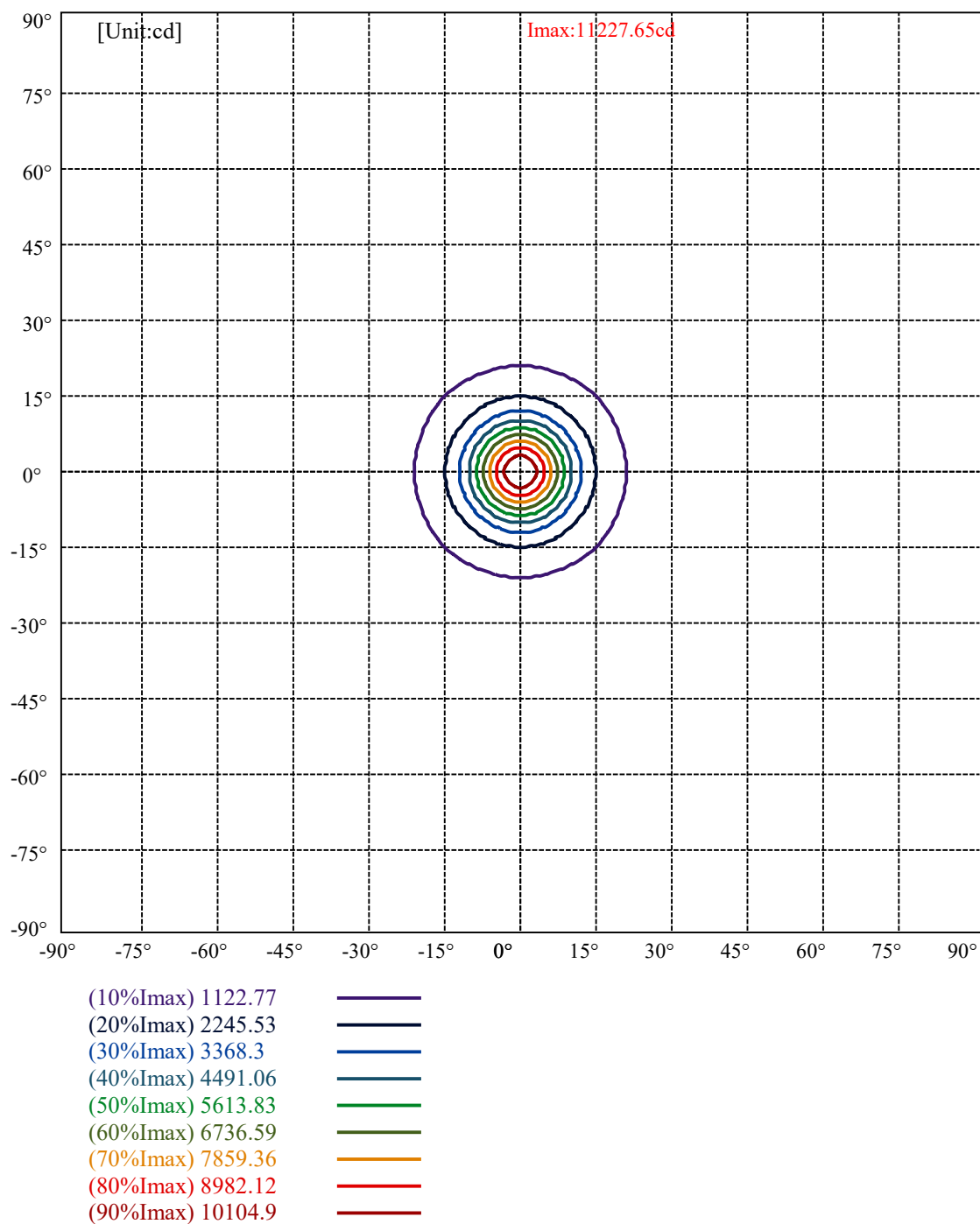
Zone	Lumens	%Lamp	%Fixt
0-30	1705.09	79.12%	92.45%
0-40	1781.07	82.64%	96.57%
0-60	1811.39	84.05%	98.21%
0-90	1843.50	85.54%	99.95%
0-120	1843.50	85.54%	99.95%
0-180	1844.39	85.58%	100.00%
60-90	34.76	1.61%	1.88%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-22.97	1475.51	68.46%	80.00%

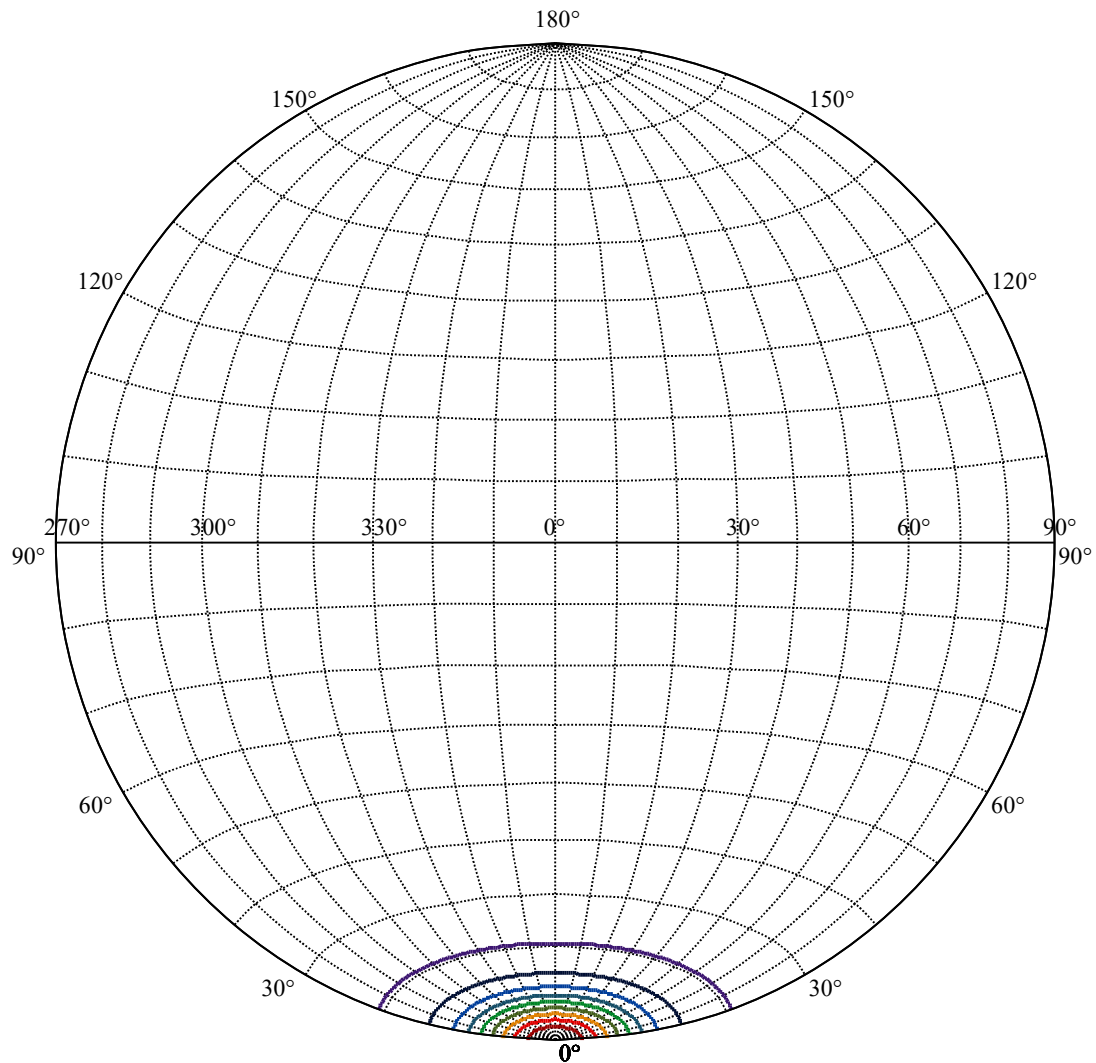
ZONAL LUMEN SUMMARY

0-10	777.66
10-20	579.43
20-30	348.00
30-40	75.98
40-50	17.01
50-60	13.31
60-70	12.91
70-80	11.15
80-90	8.04
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









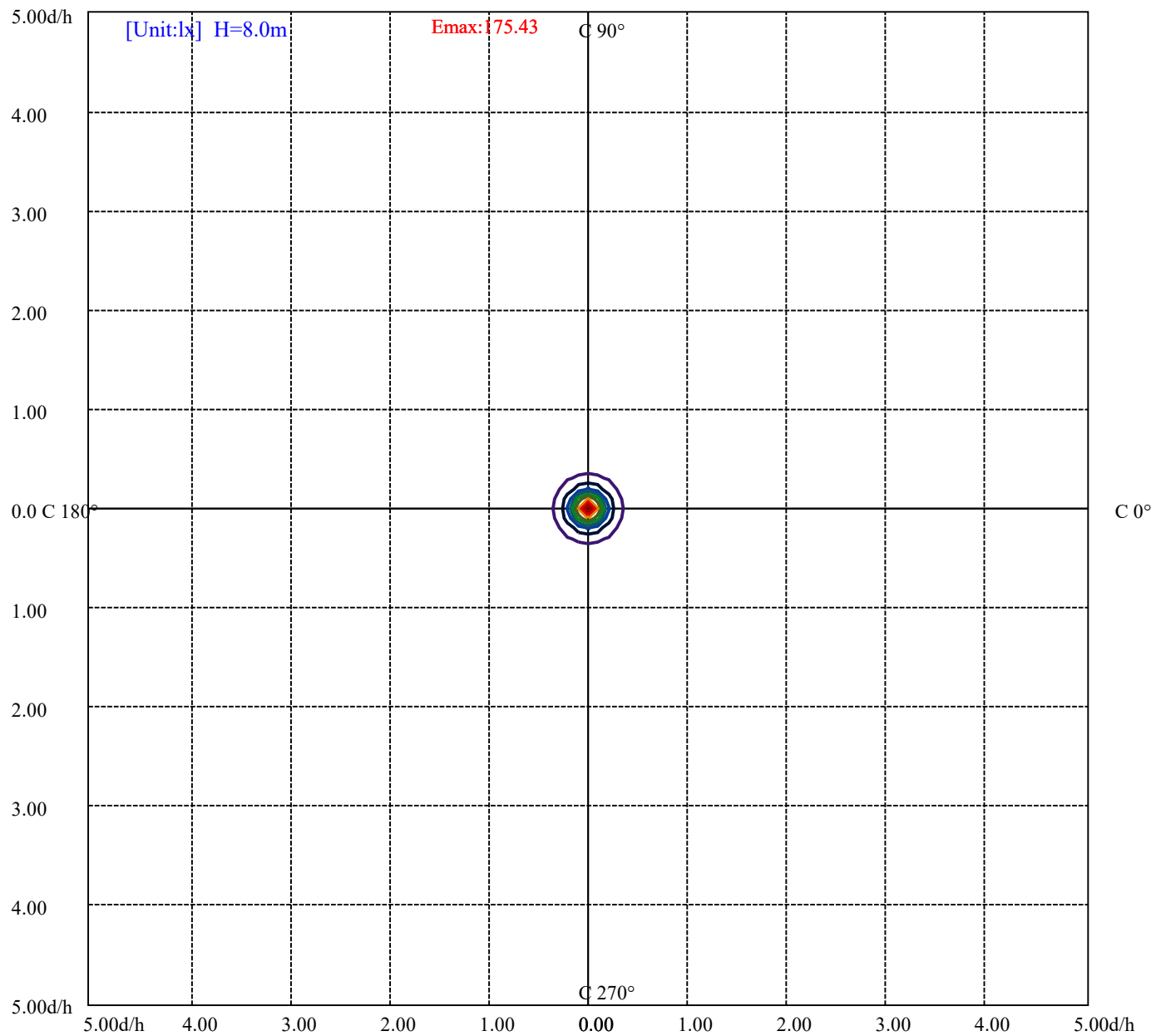
House

[Unit:cd]

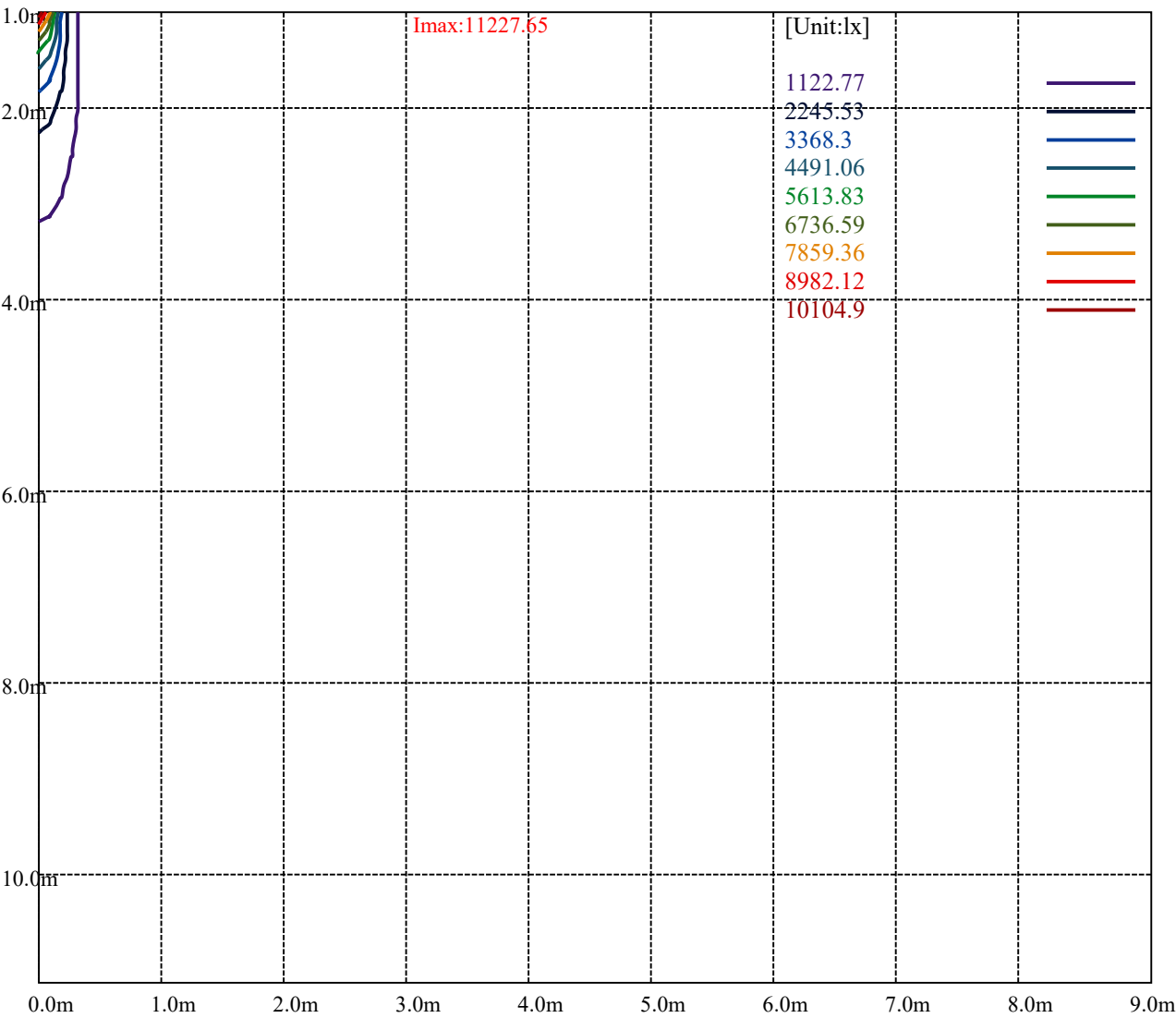
Road

Imax:11227.65

(10%Imax)	1122.77	—
(20%Imax)	2245.53	—
(30%Imax)	3368.3	—
(40%Imax)	4491.06	—
(50%Imax)	5613.83	—
(60%Imax)	6736.59	—
(70%Imax)	7859.36	—
(80%Imax)	8982.12	—
(90%Imax)	10104.9	—



(10%Emax)	17.54313	—
(20%Emax)	35.08625	—
(30%Emax)	52.62953	—
(40%Emax)	70.17265	—
(50%Emax)	87.71578	—
(60%Emax)	105.2589	—
(70%Emax)	122.802	—
(80%Emax)	140.3453	—
(90%Emax)	157.8891	—



Luminance Table

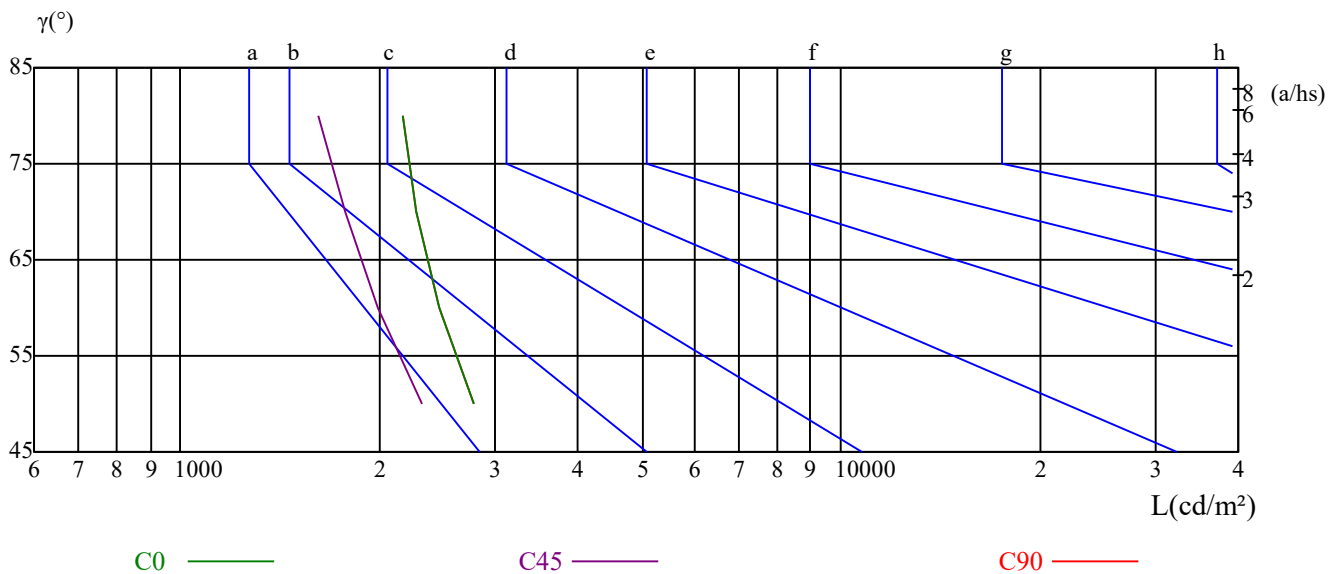
γ	45	50	55	60	65	70	75	80	85
C0	0	2789	0	2465	0	2273	0	2164	0
C45	0	2320	0	1988	0	1770	0	1616	0
C90	0	2789	0	2465	0	2273	0	2164	0

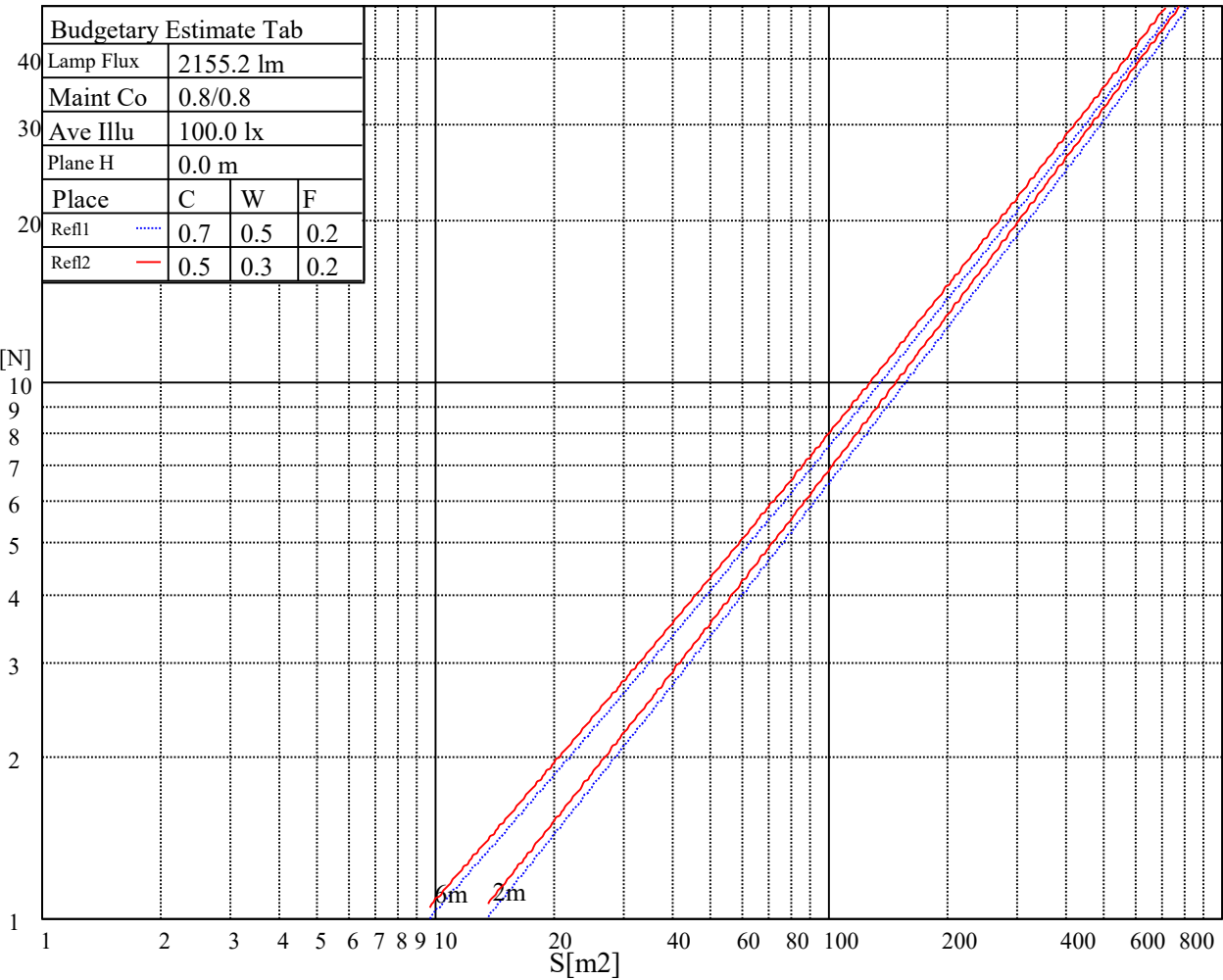
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8674	8770	8907	11058	11237	11483	23485	23817	23783

Glare Table

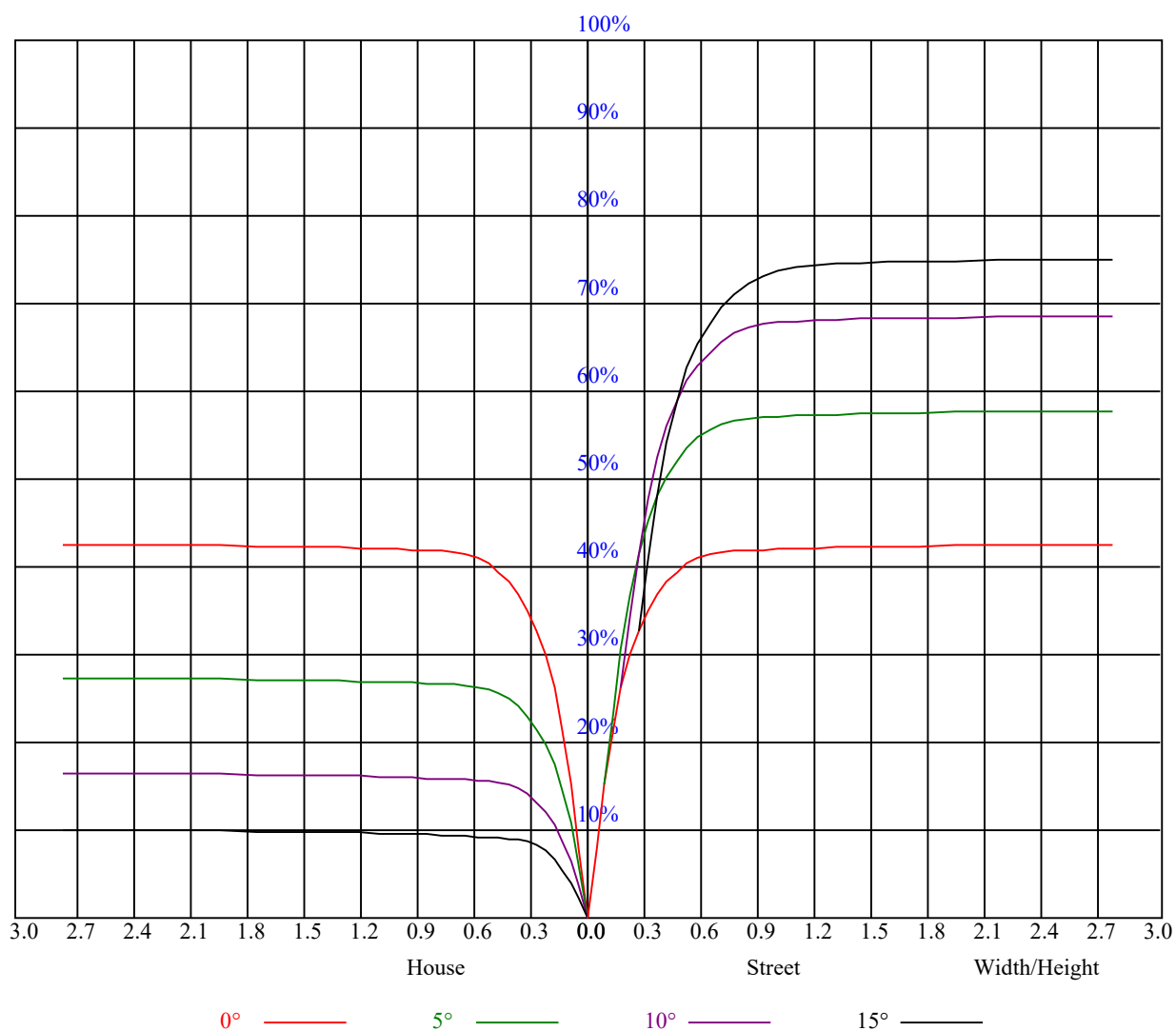
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

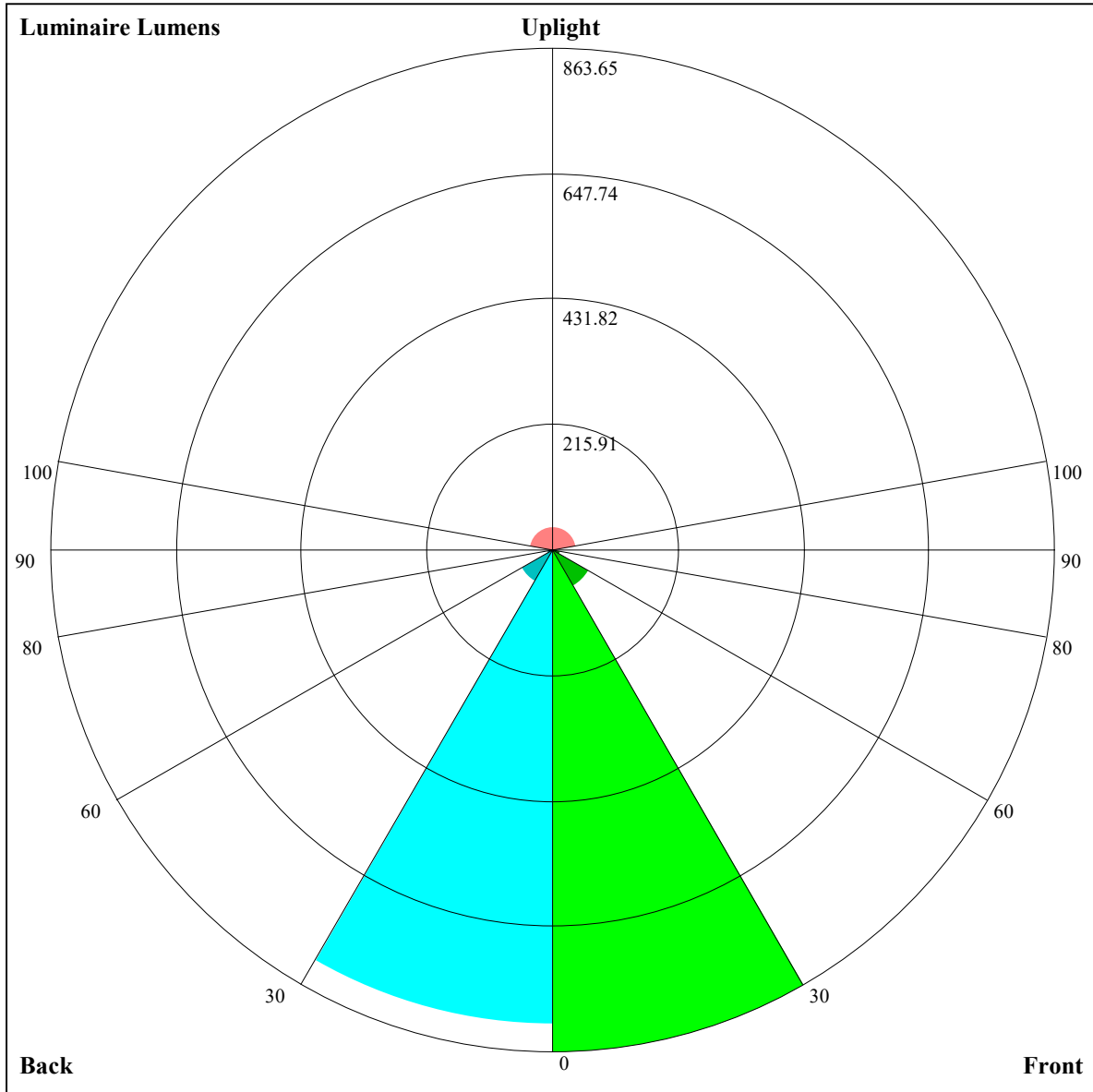
Luminance Limiting Curve





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 RHOFC=20 CU															
0	1.02	1.02	1.02	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.86
1	0.96	0.94	0.92	0.94	0.93	0.91	0.91	0.89	0.88	0.88	0.87	0.86	0.85	0.84	0.83	0.82
2	0.91	0.89	0.86	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.82	0.81	0.80	0.79
3	0.87	0.84	0.81	0.86	0.83	0.81	0.84	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.76
4	0.84	0.80	0.77	0.83	0.80	0.77	0.81	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.81	0.77	0.74	0.80	0.77	0.74	0.79	0.76	0.73	0.77	0.75	0.73	0.76	0.74	0.72	0.71
6	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.73	0.70	0.74	0.72	0.70	0.69
7	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.72	0.70	0.68	0.67
8	0.73	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.71	0.69	0.66	0.71	0.68	0.66	0.65
9	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.65	0.64
10	0.69	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.62





Luminaire Lumens:

FL=863.65,FM=72.01,FH=12.21,FVH=5.03

BL=817.25,BM=63,BH=12.08,BVH=4.95

UL=8.85,UH=42.13

BUG Rating:B2-U2-G0

Intensity data(cd)

C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	11314.09	11082.85	10009.25	8258.46	6606.77	4839.46	3501.59	2802.37	1990.84
45.0	10973.84	11231.51	10416.67	8869.59	7118.79	5434.07	3947.54	2818.89	2171.97
90.0	11314.09	10925.94	9932.73	8243.04	6463.62	4763.48	3419.00	2456.07	1905.50
135.0	11308.58	10961.73	9888.13	8203.40	6425.08	4806.42	3457.54	2807.88	1931.38
180.0	11314.09	10543.85	9207.08	7407.84	5664.20	4128.13	2997.27	2215.47	1764.56
225.0	10973.84	10317.57	8692.30	6826.99	5230.36	3718.51	2709.88	2070.12	1645.64
270.0	11314.09	10642.40	9299.03	7443.63	5692.83	4156.76	3011.59	2223.73	1770.61
315.0	11308.58	10653.41	9341.42	7494.83	5617.96	4155.11	2991.21	2157.11	1726.57
360.0	11314.09	11082.85	10009.25	8258.46	6606.77	4839.46	3501.59	2802.37	1990.84
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1581.22	1294.93	1077.45	913.94	797.22	684.35	519.73	345.20	192.64
45.0	1682.52	1335.67	1110.49	934.86	825.85	742.71	606.17	414.57	284.64
90.0	1485.97	1218.40	1003.90	863.39	774.53	679.01	521.27	357.26	201.51
135.0	1510.20	1215.09	1029.00	880.35	789.51	692.06	540.65	362.27	195.06
180.0	1404.49	1097.60	956.88	822.60	736.71	607.93	437.81	261.74	125.42
225.0	1324.11	1092.10	910.03	786.65	688.59	524.80	341.24	189.61	75.87
270.0	1414.95	1156.18	973.95	830.25	740.51	603.97	433.84	285.74	116.94
315.0	1361.54	1088.13	905.24	765.89	683.25	559.76	412.87	255.68	125.75
360.0	1581.22	1294.93	1077.45	913.94	797.22	684.35	519.73	345.20	192.64
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	74.05	52.30	40.19	33.09	27.47	22.85	20.04	18.17	16.85
45.0	111.21	58.19	44.49	35.84	29.23	24.39	21.20	18.77	17.18
90.0	79.56	51.70	39.37	32.59	27.14	22.96	20.21	18.22	17.18
135.0	77.85	48.01	36.23	29.57	24.50	20.54	18.06	16.57	15.75
180.0	51.26	39.48	31.66	26.15	21.80	18.88	17.01	15.53	14.70
225.0	42.45	34.19	28.24	22.90	19.21	16.57	15.20	14.20	13.49
270.0	47.46	37.99	29.90	24.83	21.31	18.00	16.13	14.81	14.09
315.0	55.28	43.22	34.80	28.57	24.00	20.37	18.39	16.85	15.86
360.0	74.05	52.30	40.19	33.09	27.47	22.85	20.04	18.17	16.85
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	15.91	15.42	14.98	14.42	14.04	13.93	13.32	12.66	12.17
45.0	15.86	15.20	14.59	14.15	13.93	13.87	13.38	12.72	12.28
90.0	16.30	15.58	14.98	14.48	14.15	13.82	13.05	12.39	11.84
135.0	15.20	15.09	14.98	14.76	14.48	14.09	13.32	12.50	11.84
180.0	14.26	14.04	13.76	13.76	13.82	13.76	13.21	12.55	11.95
225.0	13.32	13.05	12.83	12.83	12.94	12.77	12.39	11.95	11.51
270.0	13.71	13.60	13.60	13.60	13.60	13.43	12.77	12.11	11.51
315.0	15.20	14.65	14.15	13.76	13.49	13.16	12.55	11.95	11.40
360.0	15.91	15.42	14.98	14.42	14.04	13.93	13.32	12.66	12.17
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	11.67	11.23	10.79	10.52	10.24	9.97	9.74	9.58	8.64
45.0	11.67	11.23	10.74	10.46	10.24	10.08	9.91	9.74	8.86
90.0	11.34	10.90	10.52	10.19	9.97	9.80	9.74	9.69	8.48
135.0	11.23	10.79	10.35	10.08	9.86	9.74	9.47	9.30	8.31
180.0	11.34	10.85	10.35	10.02	9.74	9.58	9.36	9.19	8.42
225.0	10.96	10.52	10.13	9.91	9.69	9.52	9.36	8.81	8.31
270.0	10.96	10.57	10.13	9.86	9.58	9.30	9.03	8.86	8.26
315.0	10.96	10.63	10.24	9.97	9.69	9.36	9.08	8.97	8.26
360.0	11.67	11.23	10.79	10.52	10.24	9.97	9.74	9.58	8.64

Intensity data(cd)

Appendix Page: 17 Total:17

C/ $\gamma(^{\circ})$	90.0
0.0	8.26
45.0	8.42
90.0	8.15
135.0	7.98
180.0	8.04
225.0	8.04
270.0	7.98
315.0	8.04
360.0	8.26