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NATA

LumCAT: CR12L05050145AY

Luminaire:

Report No: NATA0100

Voltage(V): 17.7000

Test No: GC2018113006

Current(A): 0.3000

LampCAT: CREE XPE2

Power (W): 5.3100

Lamp flux(lm): 679.7

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 50

Width(mm): 50

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 654.01

Efficiency(%): 96.21%

Lumens(lm)/Power(W): 123.17

Central intensity(cd): 224.269

Maximum intensity(cd): 273.769

Angle of maximum intensity: C=0.0 γ =60.0

Beam Angle(50%Imax): [C0/180]Total=146.2

[C90/270]Total=54.5

Field angle(10%Imax): [C0/180]Total=161.6

[C90/270]Total=145.2

Maximum s/h(1/2): C0_180=1.66 C90_270=1.01

Maximum s/h(1/4): C0_180=1.88 C90_270=1.05

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 96.32%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 77.837%

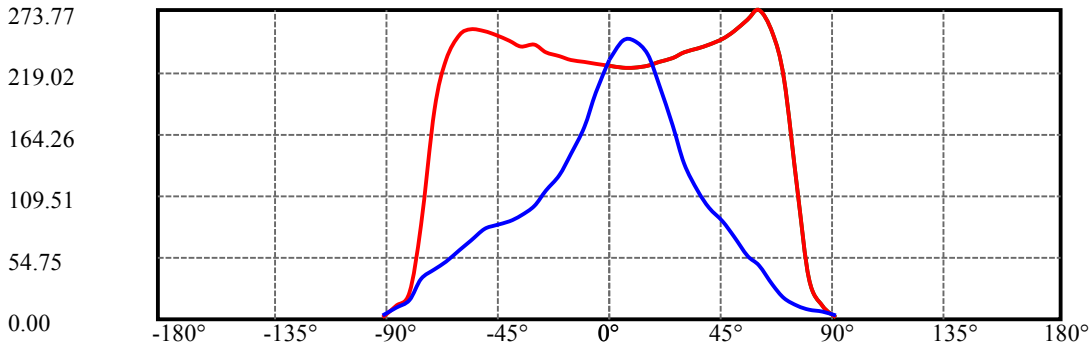
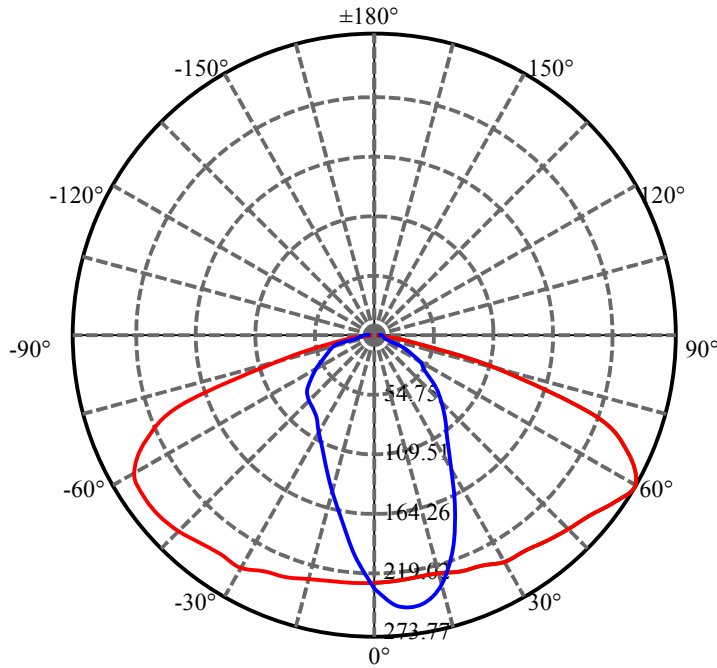
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	227.095	1.358	1.358	.200%	.208%
5.0	224.163	10.709	12.067	1.575%	1.845%
10.0	217.188	20.673	32.74	3.041%	5.006%
15.0	208.481	29.577	62.317	4.351%	9.528%
20.0	198.398	37.195	99.511	5.472%	15.216%
25.0	185.855	43.054	142.565	6.334%	21.799%
30.0	173.909	47.663	190.228	7.012%	29.086%
35.0	160.254	50.384	240.611	7.412%	36.790%
40.0	149.977	52.842	293.454	7.774%	44.870%
45.0	140.011	54.267	347.721	7.984%	53.167%
50.0	130.840	54.939	402.66	8.082%	61.568%
55.0	120.708	54.199	456.859	7.973%	69.855%
60.0	111.173	52.774	509.633	7.764%	77.924%
65.0	97.399	48.386	558.019	7.118%	85.323%
70.0	79.430	40.913	598.932	6.019%	91.578%
75.0	53.320	28.231	627.163	4.153%	95.895%
80.0	33.120	17.878	645.041	2.630%	98.629%
85.0	14.906	8.140	653.181	1.197%	99.873%
90.0	3.028	0.830	654.01	.122%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	190.23	27.99%	29.09%
0-40	293.45	43.17%	44.87%
0-60	509.63	74.97%	77.92%
0-90	653.18	96.09%	99.87%
0-120	653.18	96.09%	99.87%
0-180	654.01	96.21%	100.00%
60-90	196.32	28.88%	30.02%
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%
0-61.40	523.21	76.97%	80.00%

ZONAL LUMEN SUMMARY

0-10	32.74
10-20	66.77
20-30	90.72
30-40	103.23
40-50	109.21
50-60	106.97
60-70	89.30
70-80	46.11
80-90	8.14
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: —————

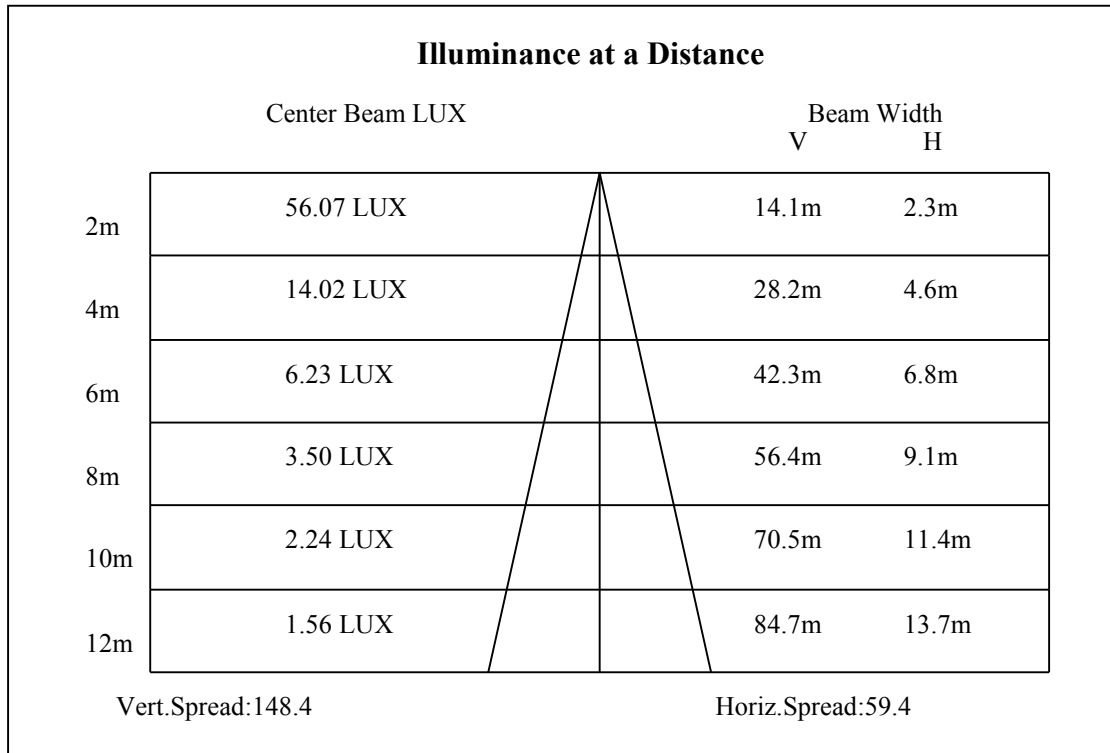
C90/C270: —————

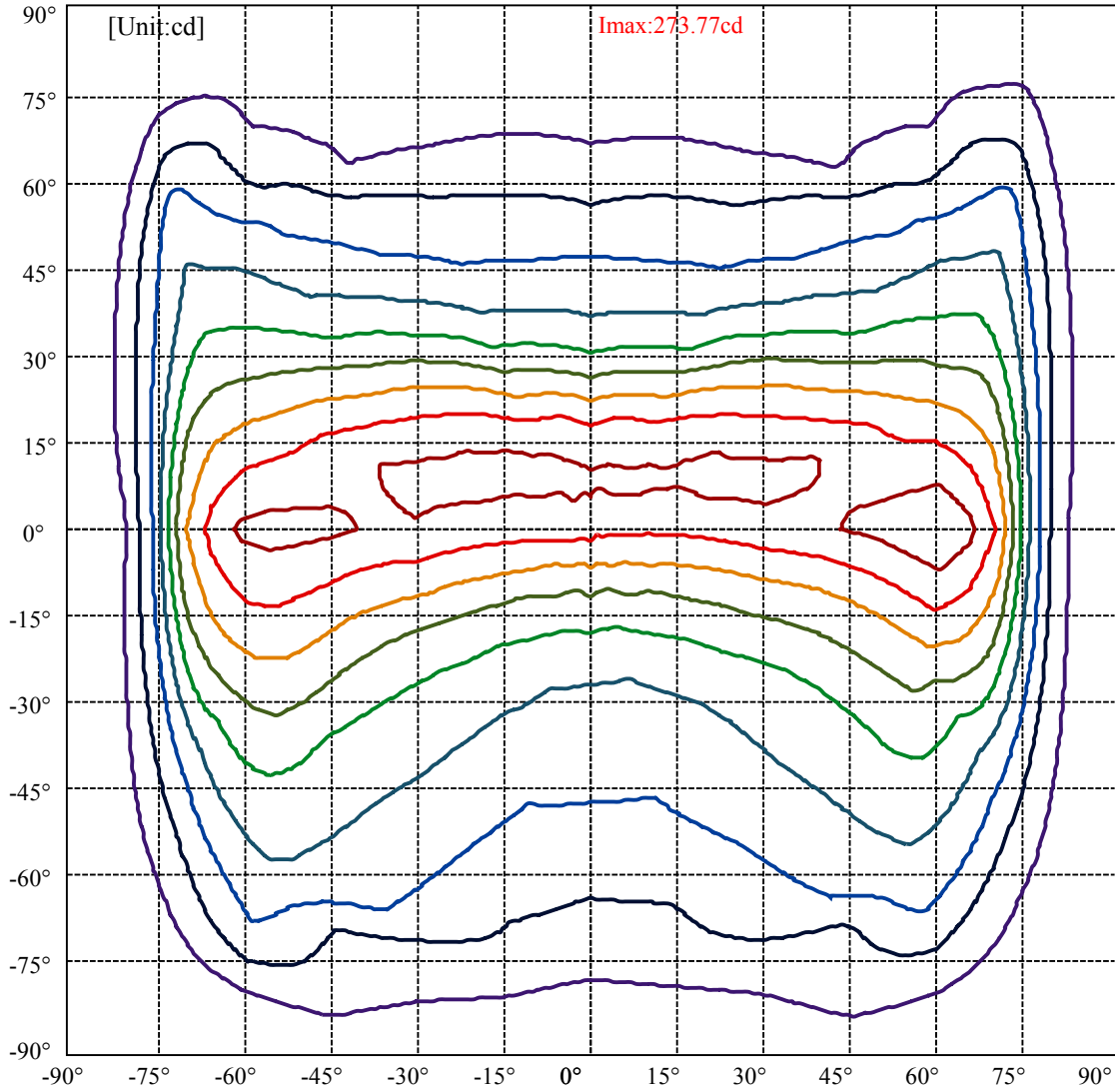
Field angle(10%Imax):C0/180Left:139.7 Right:21.9










:C90/270Left:87.9 Right:57.3

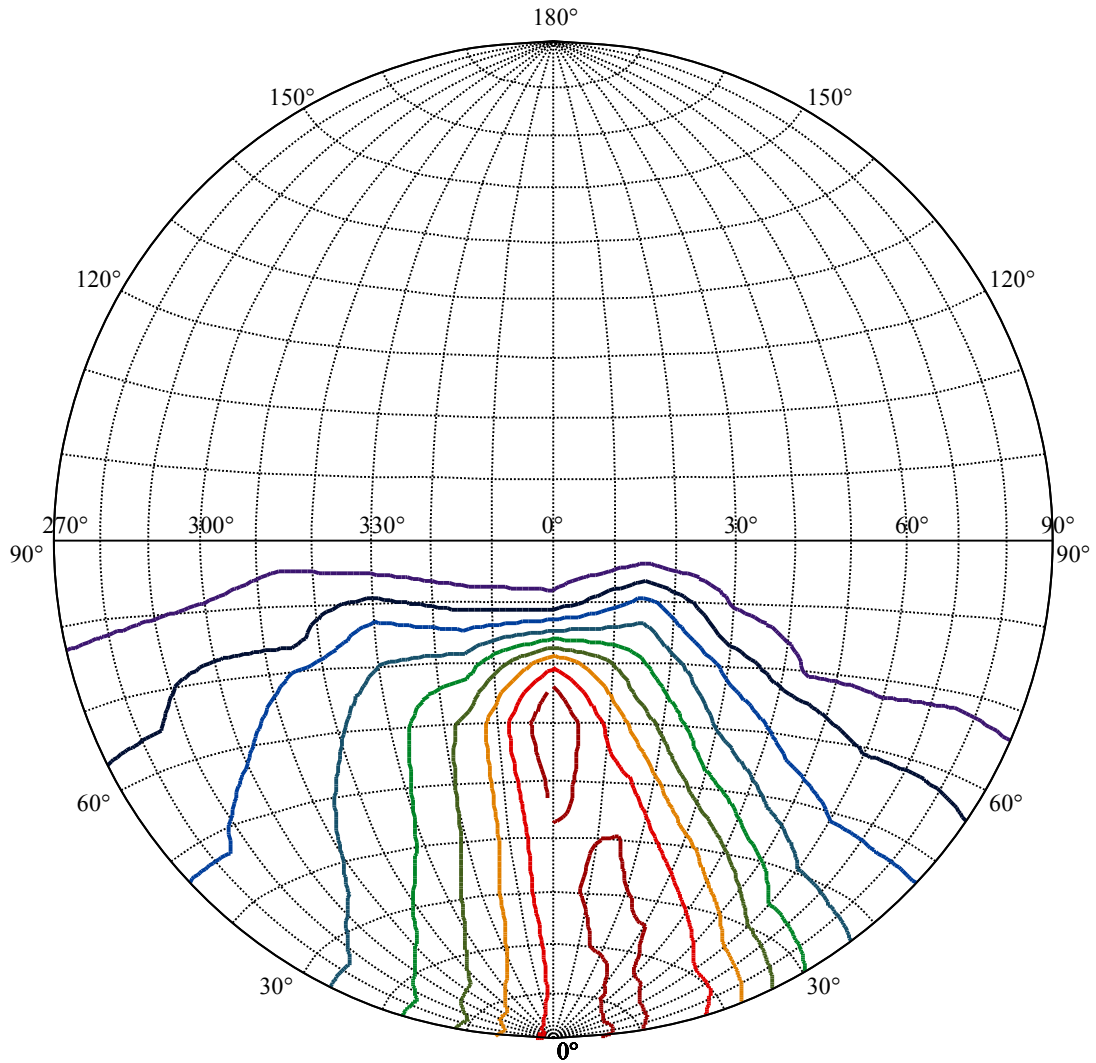
Beam Angle(50%Imax):C0/180Left:132.4 Right:13.8

:C90/270Left:31.4 Right:23.0





(10%Imax) 27.3769	
(20%Imax) 54.7538	
(30%Imax) 82.1306	
(40%Imax) 109.508	
(50%Imax) 136.884	
(60%Imax) 164.261	
(70%Imax) 191.638	
(80%Imax) 219.015	
(90%Imax) 246.392	



House

[Unit:cd]

Road

I_{max}:273.77

(10%I_{max}) 27.3769

(20%I_{max}) 54.7538

(30%I_{max}) 82.1306

(40%I_{max}) 109.508

(50%I_{max}) 136.884

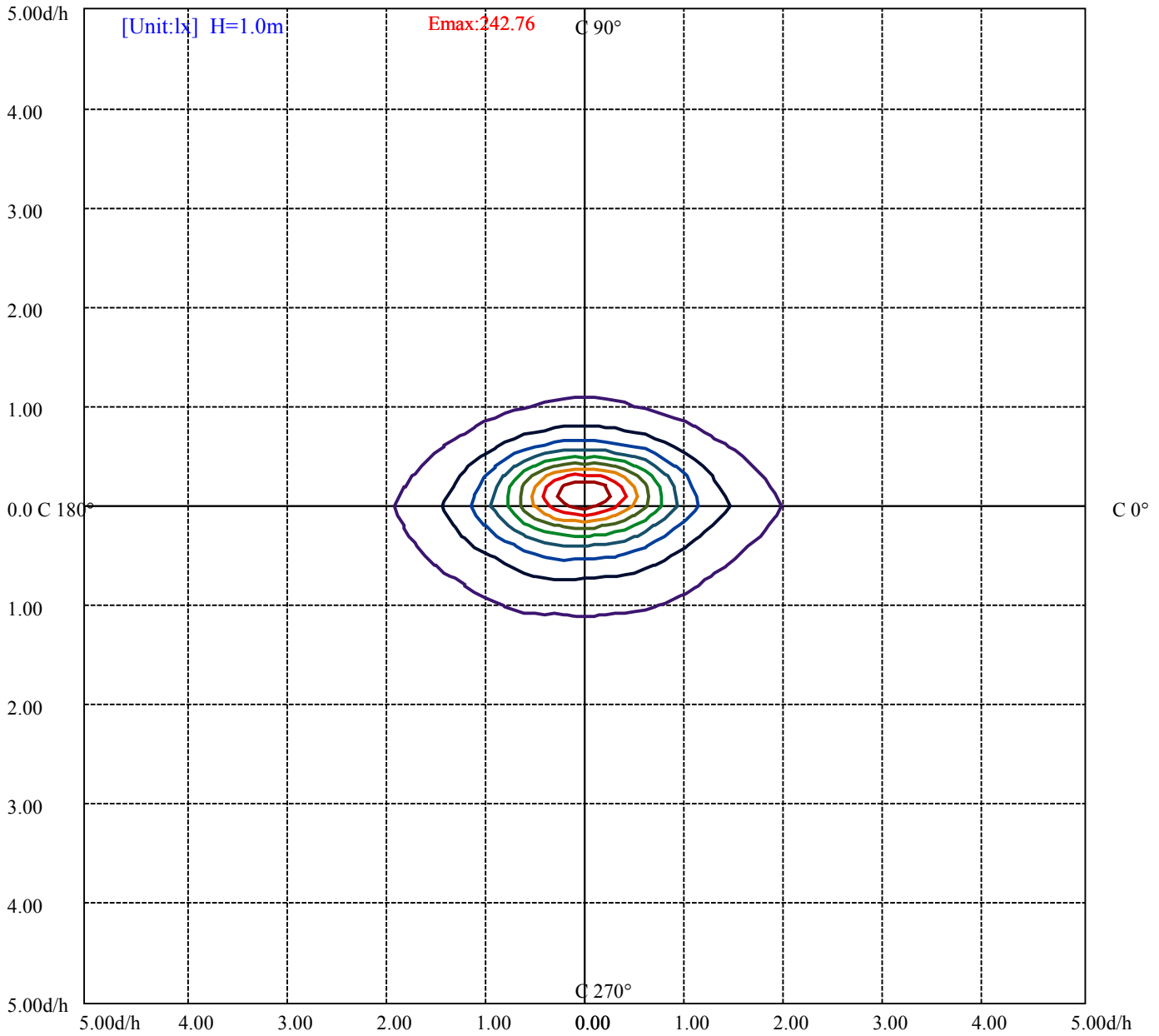
(60%I_{max}) 164.261

(70%I_{max}) 191.638

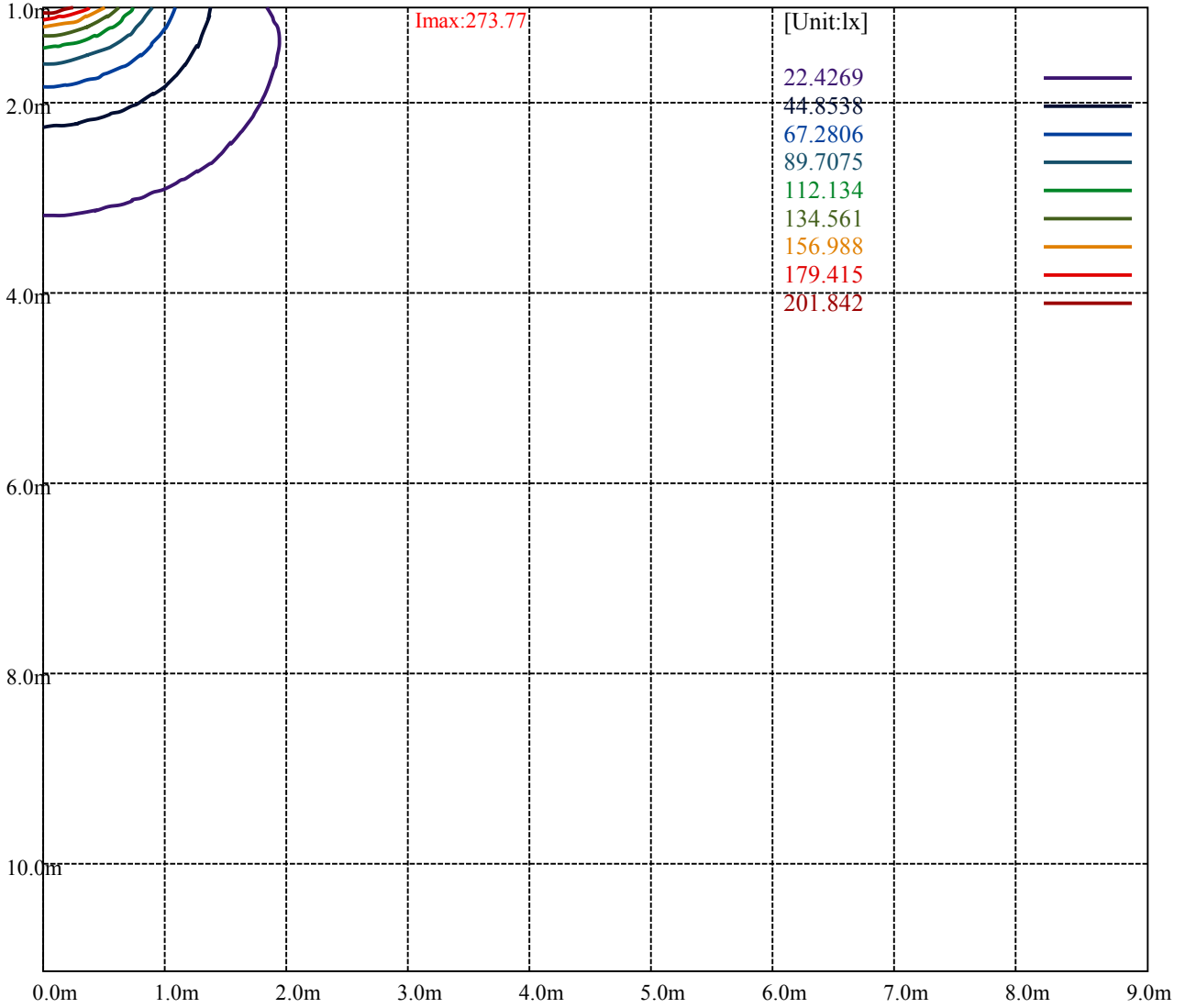
(80%I_{max}) 219.015

(90%I_{max}) 246.392





(10%Emax) 24.2763	—
(20%Emax) 48.5526	—
(30%Emax) 72.8289	—
(40%Emax) 97.1052	—
(50%Emax) 121.381	—
(60%Emax) 145.658	—
(70%Emax) 169.934	—
(80%Emax) 194.21	—
(90%Emax) 218.487	—



Luminance Table

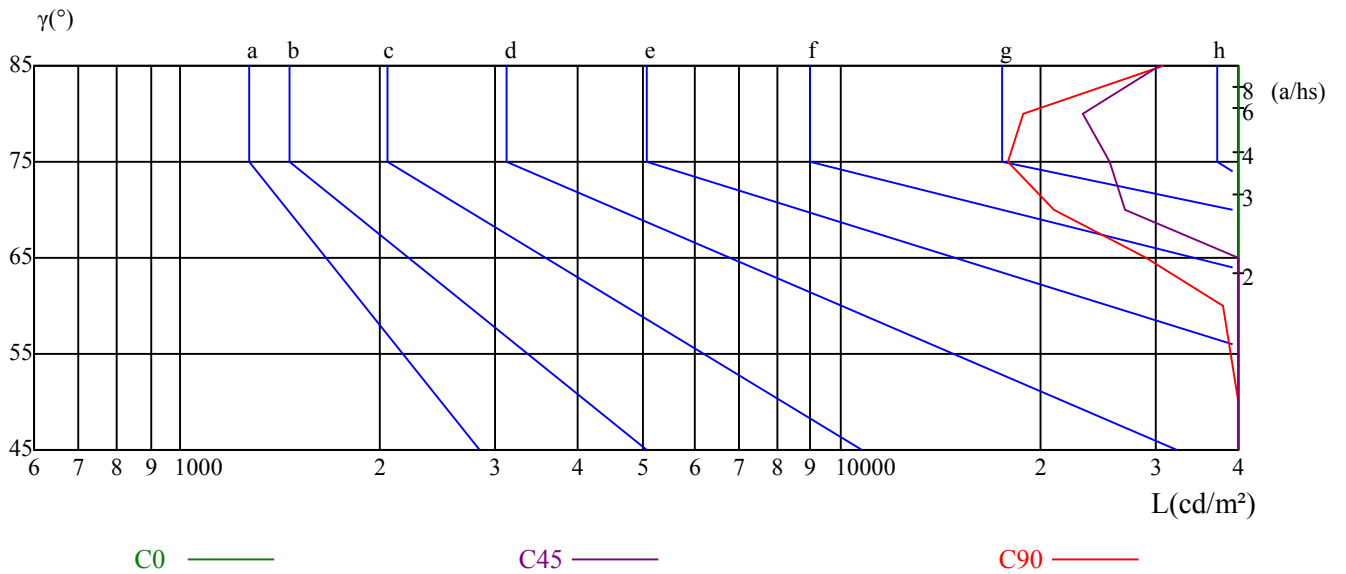
γ	45	50	55	60	65	70	75	80	85
C0	140771	158637	184958	219015	240164	249262	176301	83833	55246
C45	70322	64442	59665	57105	53665	26972	25471	23193	30463
C90	48907	45260	39071	37890	28962	20986	17908	18918	30721

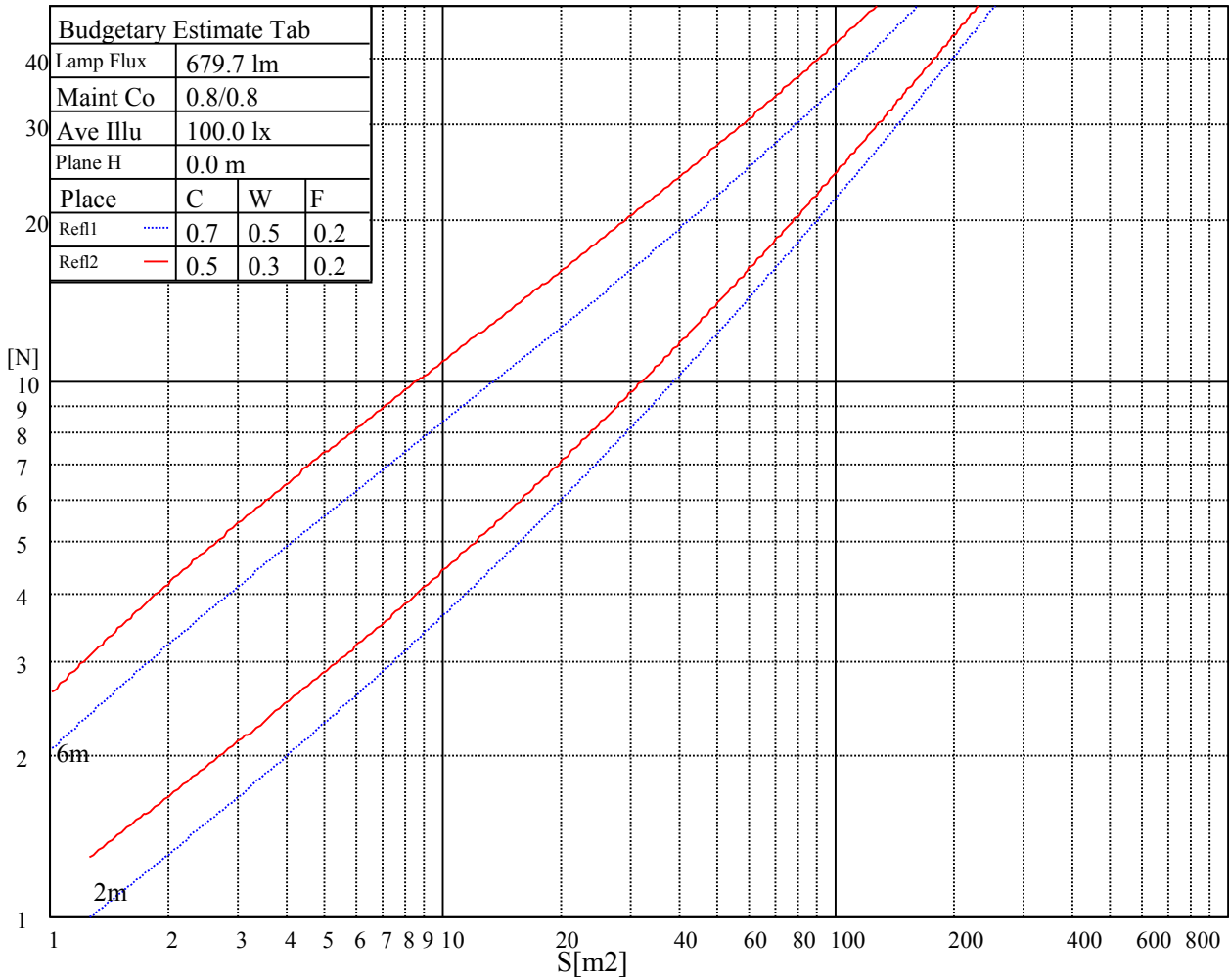
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
228318	38918	71647	152568	36382	51052	54601	37433	84547

Glare Table

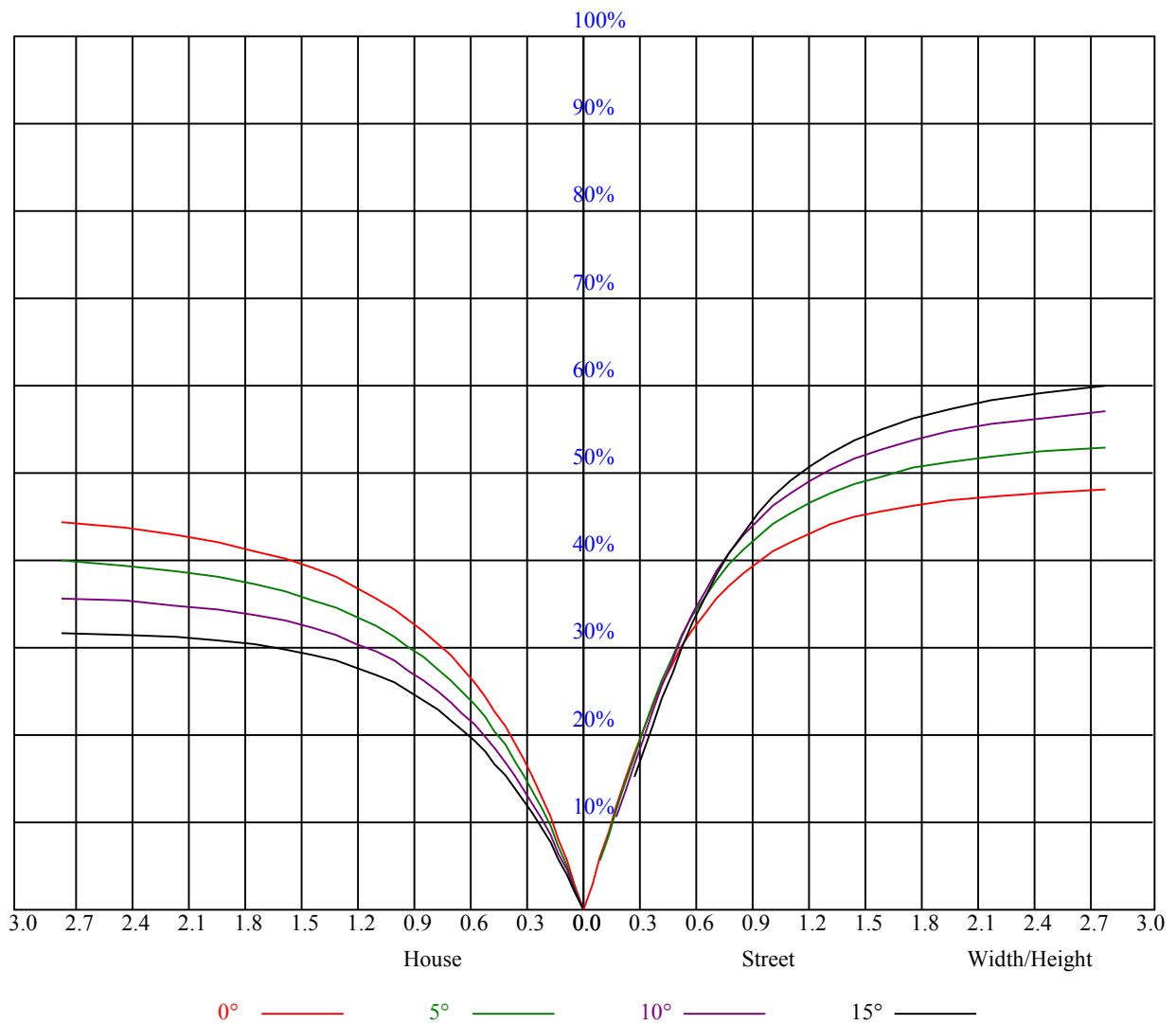
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.15	1.15	1.15	1.12	1.12	1.12	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.96
1	1.00	0.96	0.92	0.98	0.94	0.91	0.94	0.91	0.88	0.90	0.87	0.85	0.87	0.85	0.83	0.81
2	0.87	0.81	0.75	0.85	0.79	0.74	0.82	0.77	0.72	0.79	0.74	0.71	0.76	0.72	0.69	0.67
3	0.77	0.69	0.62	0.75	0.68	0.62	0.72	0.66	0.61	0.69	0.64	0.60	0.67	0.62	0.59	0.56
4	0.68	0.59	0.53	0.67	0.59	0.53	0.64	0.57	0.52	0.62	0.56	0.51	0.60	0.55	0.50	0.48
5	0.61	0.52	0.46	0.60	0.51	0.45	0.58	0.50	0.45	0.56	0.49	0.44	0.54	0.48	0.44	0.42
6	0.55	0.46	0.40	0.54	0.46	0.40	0.52	0.45	0.39	0.51	0.44	0.39	0.49	0.43	0.39	0.37
7	0.50	0.41	0.36	0.49	0.41	0.35	0.48	0.40	0.35	0.46	0.40	0.35	0.45	0.39	0.35	0.33
8	0.46	0.37	0.32	0.45	0.37	0.32	0.44	0.37	0.32	0.42	0.36	0.31	0.41	0.36	0.31	0.29
9	0.42	0.34	0.29	0.41	0.34	0.29	0.40	0.33	0.29	0.39	0.33	0.28	0.38	0.33	0.28	0.27
10	0.39	0.31	0.26	0.38	0.31	0.26	0.37	0.31	0.26	0.37	0.30	0.26	0.36	0.30	0.26	0.24



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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	224.27	223.59	223.31	224.27	227.59	231.41	236.87	239.18	243.11
15.0	227.14	232.26	236.31	240.53	246.94	251.33	255.88	252.06	247.50
30.0	228.83	238.33	244.74	247.67	249.69	247.05	236.59	220.44	202.28
45.0	227.19	241.71	249.30	247.05	240.47	225.73	205.03	177.86	152.89
60.0	229.89	244.86	249.19	243.06	223.99	196.88	165.77	133.48	111.94
75.0	224.94	244.29	248.85	240.58	218.59	183.43	149.40	120.15	102.60
90.0	229.67	246.26	247.33	234.28	206.83	171.62	138.04	114.36	99.34
105.0	226.41	244.91	249.92	241.26	219.09	184.73	150.19	124.03	103.22
120.0	230.51	246.43	251.16	246.09	226.46	195.86	167.46	136.80	113.85
135.0	224.04	239.79	248.40	251.04	244.69	227.25	205.65	179.27	151.65
150.0	227.36	238.56	245.70	249.81	252.62	247.78	236.42	219.15	198.84
165.0	224.89	232.65	238.22	243.34	248.40	252.56	255.49	249.69	243.39
180.0	224.27	225.79	227.03	230.01	232.99	237.15	243.84	241.99	246.21
195.0	227.14	222.41	215.78	211.05	207.56	205.20	205.48	200.31	197.61
210.0	228.83	216.51	202.11	190.24	179.78	169.65	163.07	155.53	149.57
225.0	227.19	206.61	184.33	167.46	153.06	142.37	137.53	128.53	123.69
240.0	229.89	204.58	178.26	156.94	140.51	128.14	121.28	112.11	107.16
255.0	224.94	196.88	166.95	145.86	129.49	116.49	105.81	97.99	92.19
270.0	229.67	201.32	170.83	146.70	127.91	113.23	101.03	92.42	87.24
285.0	226.41	195.75	166.11	143.16	127.69	113.01	100.63	92.53	88.09
300.0	230.51	203.40	178.31	154.86	137.64	124.31	114.41	104.57	100.13
315.0	224.04	203.29	183.09	163.24	150.19	139.16	131.12	120.71	115.48
330.0	227.36	211.89	197.94	182.93	171.73	162.68	155.14	146.93	140.01
345.0	224.89	217.86	209.36	202.16	197.66	193.50	191.70	186.02	181.46
360.0	224.27	223.59	223.31	224.27	227.59	231.41	236.87	239.18	243.11
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	248.85	254.93	265.22	273.77	253.74	213.13	114.08	36.39	12.04
15.0	237.94	223.20	202.78	182.70	159.41	140.63	119.31	90.73	36.17
30.0	176.79	150.86	126.62	108.73	91.63	76.44	44.16	24.41	11.36
45.0	124.31	103.56	85.56	71.38	56.70	23.06	16.48	10.07	6.64
60.0	93.38	78.53	64.18	52.76	37.74	17.61	10.35	7.82	6.13
75.0	87.02	74.14	61.65	50.34	35.38	21.99	12.99	9.23	6.41
90.0	86.46	72.73	56.03	47.36	30.60	17.94	11.59	8.21	6.69
105.0	87.47	74.53	63.06	49.95	39.54	22.67	12.66	9.51	7.65
120.0	95.12	80.61	67.05	56.36	40.95	22.50	12.26	9.73	8.78
135.0	125.04	105.08	86.57	72.28	56.59	27.00	18.11	10.80	8.49
150.0	172.13	147.88	124.03	106.43	90.56	75.77	41.74	24.30	10.63
165.0	229.61	213.36	191.81	171.17	151.76	133.76	113.12	90.11	25.59
180.0	252.17	254.76	256.33	251.49	228.71	185.40	83.36	24.02	11.76
195.0	198.23	199.24	197.61	185.68	161.04	124.88	84.09	42.69	11.76
210.0	144.90	141.69	137.14	132.53	124.54	115.88	98.04	72.90	22.73
225.0	119.53	115.43	110.42	104.51	98.49	90.39	51.36	43.31	29.31
240.0	102.21	97.82	91.18	85.16	79.20	72.79	42.75	34.31	18.23
255.0	85.67	79.99	72.79	65.93	59.23	52.20	43.26	29.25	11.31
270.0	83.70	79.26	70.09	60.64	51.64	44.27	35.49	16.99	9.62
285.0	84.21	78.64	70.71	63.11	54.45	47.59	38.81	23.68	10.63
300.0	96.58	92.81	85.95	78.64	72.28	65.87	46.41	29.98	18.06
315.0	112.95	109.74	104.57	98.61	91.01	83.08	46.18	41.12	29.25
330.0	136.74	133.37	128.76	125.55	120.04	109.91	96.86	61.88	25.03
345.0	179.27	178.03	176.91	173.08	152.33	121.56	86.23	43.43	13.50
360.0	248.85	254.93	265.22	273.77	253.74	213.13	114.08	36.39	12.04

Intensity data(cd)

C/ γ ($^{\circ}$)	90.0
0.0	1.97
15.0	2.59
30.0	2.42
45.0	2.53
60.0	2.64
75.0	2.98
90.0	3.26
105.0	3.94
120.0	4.67
135.0	3.83
150.0	3.09
165.0	2.14
180.0	1.97
195.0	2.59
210.0	2.48
225.0	2.53
240.0	2.81
255.0	2.93
270.0	3.43
285.0	3.60
300.0	4.84
315.0	4.39
330.0	2.76
345.0	2.31
360.0	1.97