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NATA

Client:

LumCAT: 2-1283-N

Luminaire: 92.70.046.00

Report No: nt0100

Voltage(V): 34.1800

Test No: GC2020010820

Current(A): 0.3070

LampCAT: LUMINUS CLM-9-AA40

Power (W): 10.4900

Lamp flux(lm): 1288.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1007.61, Efficiency(%): 78.23% , Luminous Efficacy(lm/W): 96.05

Central intensity(cd): 4718.742, Maximum intensity(cd): 4718.742

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=15.6

[C90/270]Total=15.6

Field angle(10%Imax): [C0/180]Total=56.8

[C90/270]Total=56.8

Maximum s/h(1/2): C0_180=0.27 C90_270=0.27

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(%): 78.23%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 94.953%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4718.742	0.000	0	.000%	.000%
1.0	4671.773	4.493	4.493	.349%	.446%
2.0	4511.672	13.181	17.674	1.023%	1.754%
3.0	4234.359	20.918	38.592	1.624%	3.830%
4.0	3886.805	27.184	65.776	2.111%	6.528%
5.0	3502.617	31.789	97.565	2.468%	9.683%
6.0	3053.672	34.455	132.02	2.675%	13.102%
7.0	2649.938	35.402	167.422	2.749%	16.616%
8.0	2298.727	35.417	202.839	2.750%	20.131%
9.0	1973.391	34.623	237.462	2.688%	23.567%
10.0	1707.820	33.314	270.775	2.586%	26.873%
11.0	1510.734	32.160	302.935	2.497%	30.065%
12.0	1351.238	31.285	334.221	2.429%	33.170%
13.0	1208.475	30.377	364.598	2.358%	36.184%
14.0	1102.563	29.581	394.179	2.297%	39.120%
15.0	1029.129	29.265	423.444	2.272%	42.025%
16.0	952.727	29.040	452.484	2.255%	44.907%
17.0	885.727	28.630	481.114	2.223%	47.748%
18.0	836.452	28.395	509.509	2.205%	50.566%
19.0	788.513	28.271	537.78	2.195%	53.372%
20.0	748.870	28.138	565.918	2.185%	56.164%
21.0	714.488	28.099	594.017	2.182%	58.953%
22.0	680.295	28.029	622.046	2.176%	61.735%
23.0	650.995	27.934	649.98	2.169%	64.507%
24.0	621.387	27.819	677.799	2.160%	67.268%
25.0	590.955	27.566	705.365	2.140%	70.004%
26.0	562.324	27.223	732.588	2.114%	72.706%
27.0	531.773	26.767	759.356	2.078%	75.362%
28.0	488.637	25.835	785.19	2.006%	77.926%
29.0	442.695	24.366	809.557	1.892%	80.344%
30.0	394.080	22.593	832.149	1.754%	82.586%
31.0	333.654	20.252	852.401	1.572%	84.596%
32.0	273.980	17.408	869.809	1.352%	86.324%
33.0	219.909	14.550	884.359	1.130%	87.768%
34.0	164.081	11.621	895.98	.902%	88.921%
35.0	118.139	8.765	904.745	.680%	89.791%
36.0	84.143	6.441	911.185	.500%	90.430%
37.0	58.388	4.649	915.834	.361%	90.892%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	43.411	3.398	919.232	.264%	91.229%
39.0	32.604	2.595	921.826	.201%	91.486%
40.0	27.049	2.080	923.907	.162%	91.693%
41.0	24.659	1.841	925.748	.143%	91.876%
42.0	23.027	1.733	927.481	.135%	92.048%
43.0	21.945	1.666	929.147	.129%	92.213%
44.0	21.227	1.629	930.776	.127%	92.375%
45.0	20.602	1.608	932.384	.125%	92.534%
46.0	19.920	1.585	933.968	.123%	92.691%
47.0	19.427	1.565	935.533	.122%	92.847%
48.0	19.027	1.555	937.088	.121%	93.001%
49.0	18.654	1.547	938.635	.120%	93.155%
50.0	18.359	1.543	940.178	.120%	93.308%
51.0	18.176	1.546	941.724	.120%	93.461%
52.0	18.098	1.557	943.28	.121%	93.616%
53.0	18.113	1.575	944.856	.122%	93.772%
54.0	18.211	1.601	946.457	.124%	93.931%
55.0	18.401	1.634	948.091	.127%	94.093%
56.0	18.534	1.669	949.76	.130%	94.259%
57.0	18.682	1.702	951.462	.132%	94.428%
58.0	18.802	1.733	953.195	.135%	94.600%
59.0	18.998	1.767	954.962	.137%	94.775%
60.0	19.005	1.795	956.758	.139%	94.953%
61.0	18.893	1.809	958.566	.140%	95.133%
62.0	18.661	1.810	960.376	.140%	95.312%
63.0	18.408	1.803	962.179	.140%	95.491%
64.0	18.260	1.799	963.978	.140%	95.670%
65.0	18.098	1.799	965.777	.140%	95.848%
66.0	18.176	1.810	967.587	.141%	96.028%
67.0	18.457	1.842	969.429	.143%	96.211%
68.0	18.956	1.895	971.324	.147%	96.399%
69.0	19.434	1.959	973.283	.152%	96.593%
70.0	19.983	2.024	975.307	.157%	96.794%
71.0	20.454	2.090	977.397	.162%	97.002%
72.0	20.848	2.148	979.545	.167%	97.215%
73.0	21.305	2.204	981.749	.171%	97.433%
74.0	21.776	2.265	984.014	.176%	97.658%
75.0	22.085	2.317	986.331	.180%	97.888%

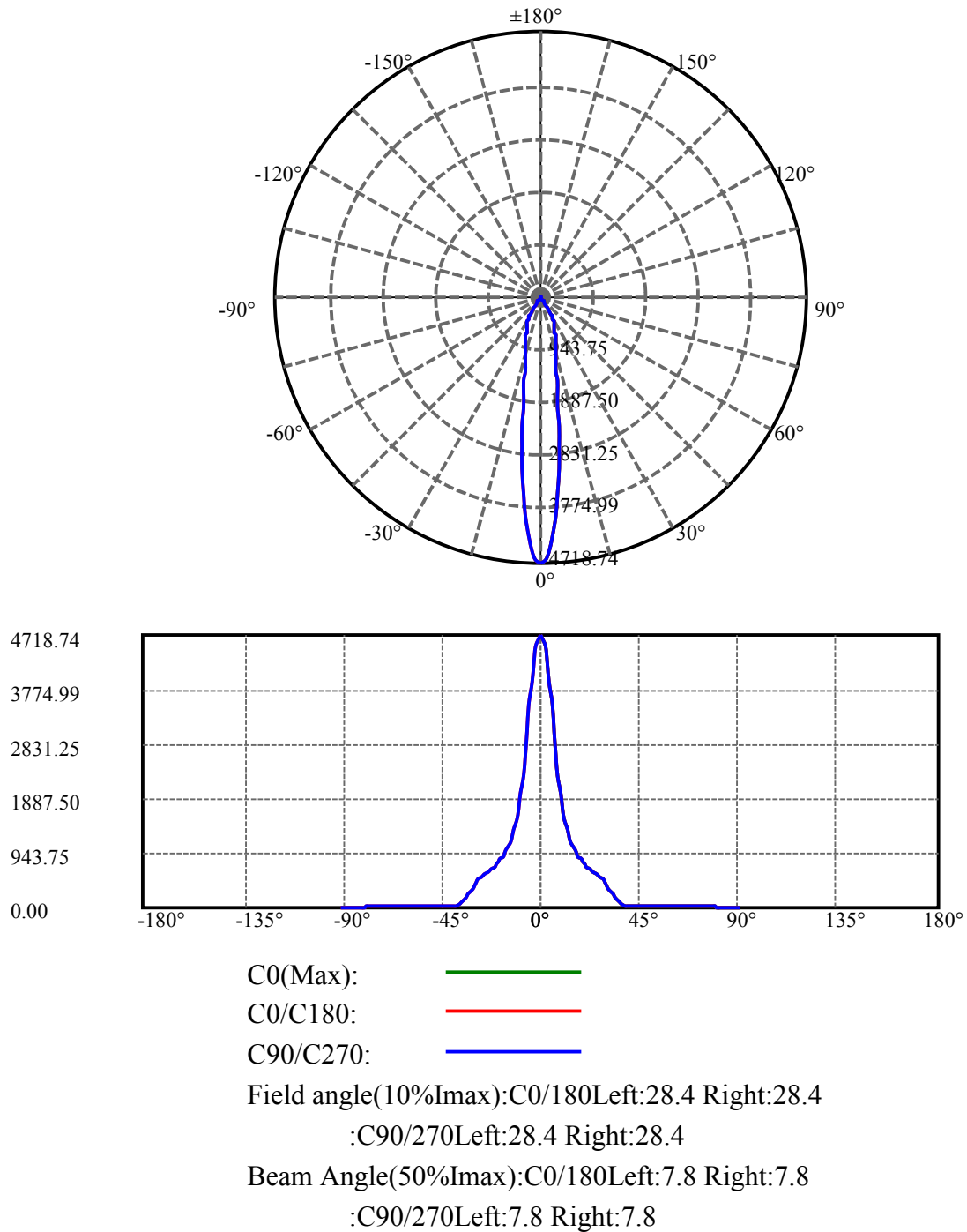
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	21.748	2.327	988.658	.181%	98.119%
77.0	20.883	2.273	990.931	.176%	98.345%
78.0	19.266	2.149	993.08	.167%	98.558%
79.0	16.741	1.935	995.015	.150%	98.750%
80.0	14.611	1.690	996.705	.131%	98.918%
81.0	13.064	1.497	998.202	.116%	99.066%
82.0	12.649	1.394	999.596	.108%	99.205%
83.0	12.727	1.379	1000.976	.107%	99.342%
84.0	12.663	1.383	1002.359	.107%	99.479%
85.0	11.777	1.334	1003.693	.104%	99.611%
86.0	9.633	1.170	1004.863	.091%	99.727%
87.0	7.242	0.924	1005.786	.072%	99.819%
88.0	5.794	0.714	1006.501	.055%	99.890%
89.0	4.852	0.583	1007.084	.045%	99.948%
90.0	4.739	0.526	1007.61	.041%	100.000%

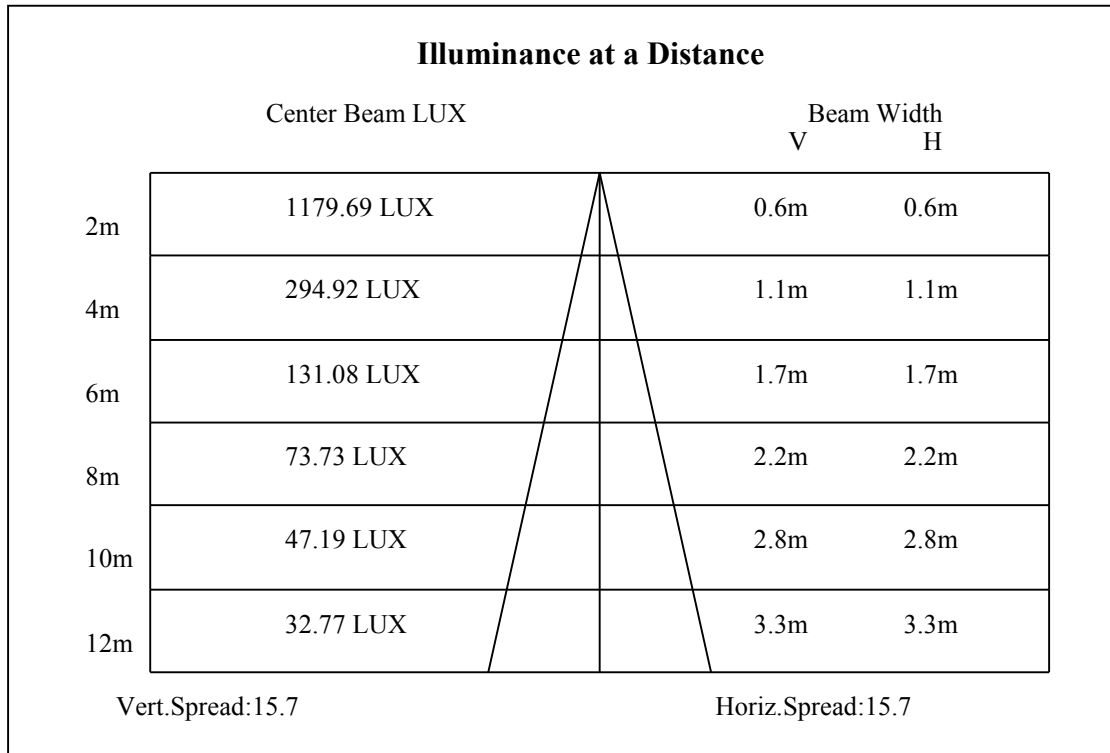
ZONAL LUMEN SUMMARY

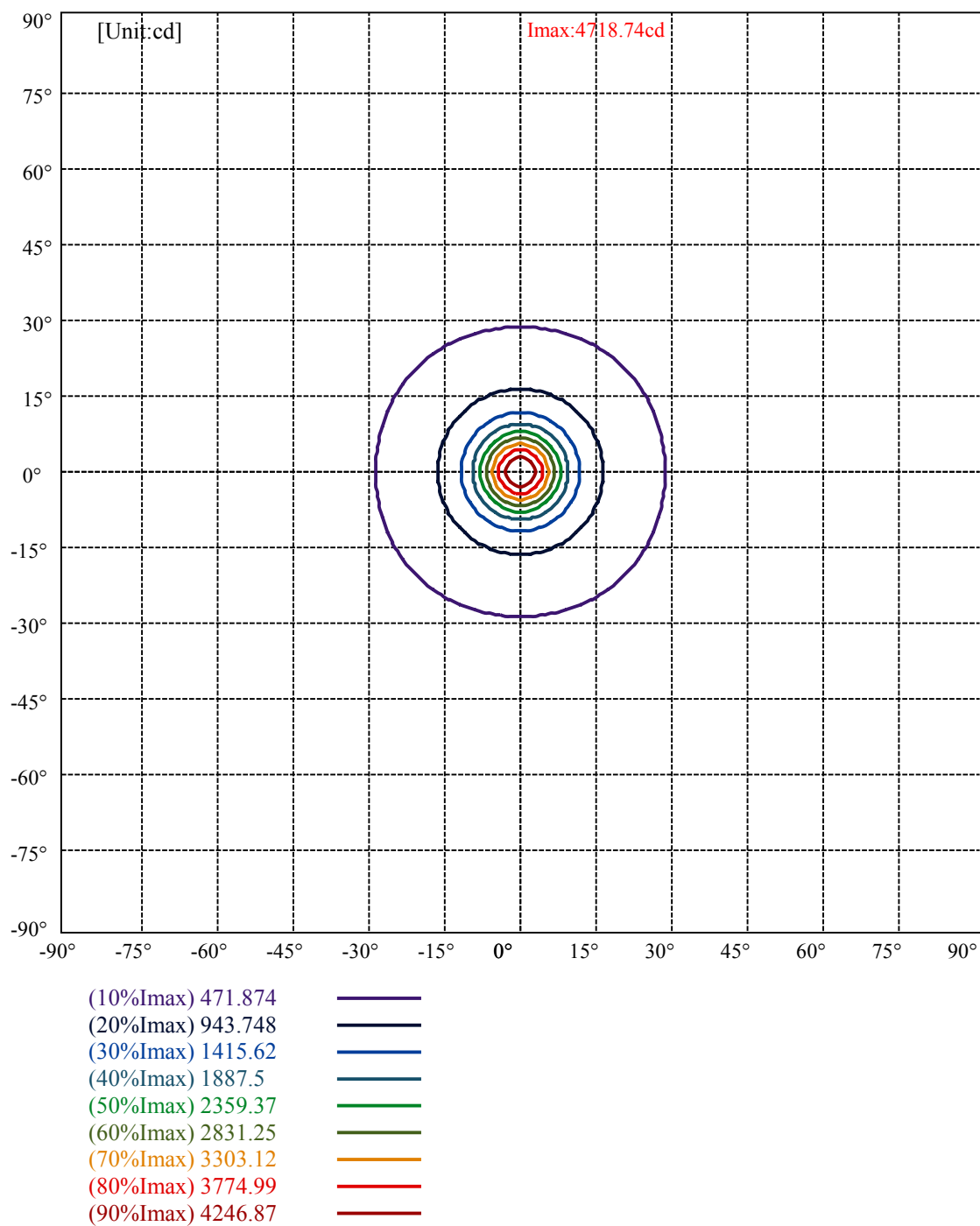
Zone	Lumens	%Lamp	%Fixt
0-30	832.15	64.61%	82.59%
0-40	923.91	71.73%	91.69%
0-60	956.76	74.28%	94.95%
0-90	1007.08	78.19%	99.95%
0-120	1007.08	78.19%	99.95%
0-180	1007.61	78.23%	100.00%
60-90	52.12	4.05%	5.17%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.86	806.09	62.58%	80.00%

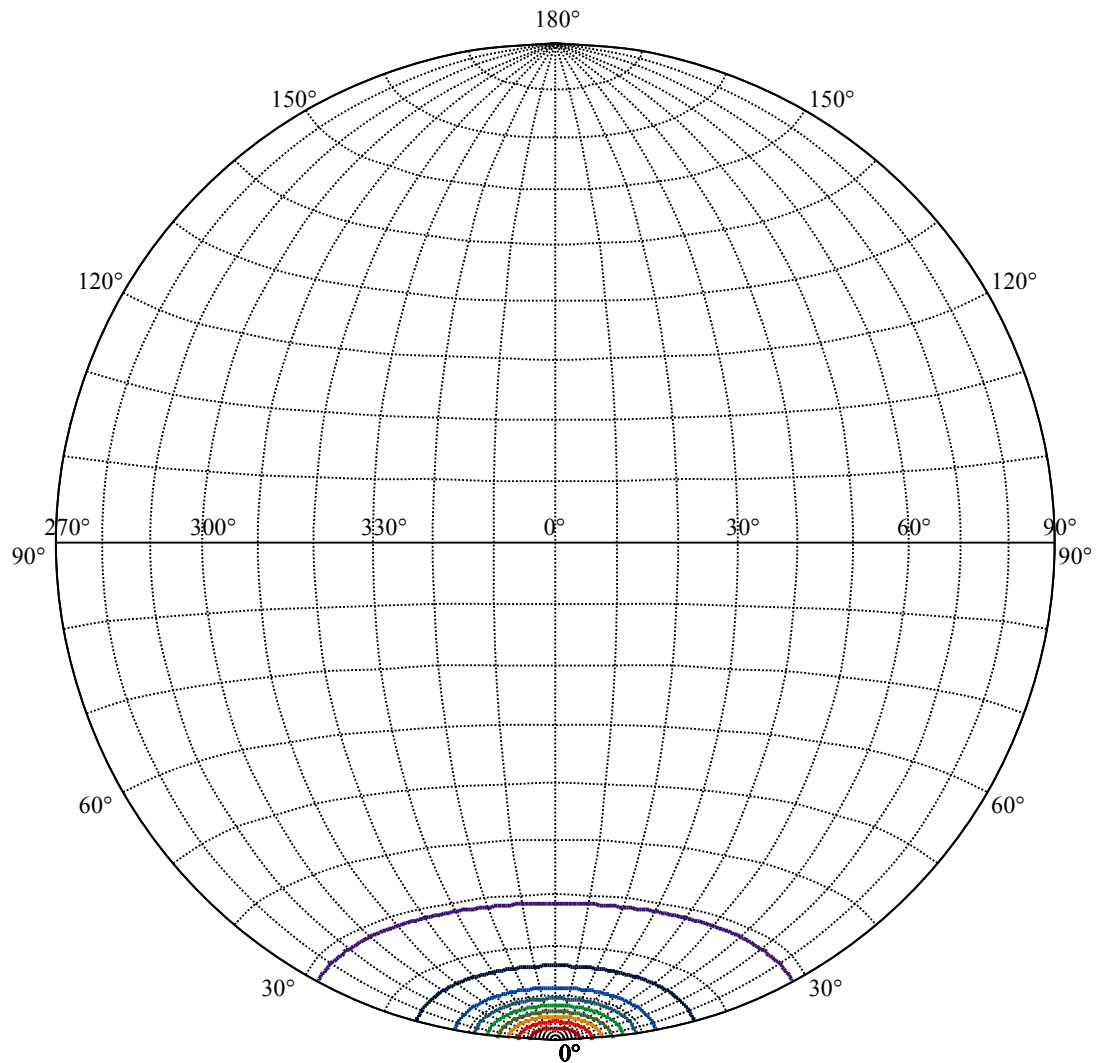
ZONAL LUMEN SUMMARY

0-10	270.78
10-20	295.14
20-30	266.23
30-40	91.76
40-50	16.27
50-60	16.58
60-70	18.55
70-80	21.40
80-90	10.38
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:4718.74

(10%Imax) 471.874

(20%Imax) 943.748

(30%Imax) 1415.62

(40%Imax) 1887.5

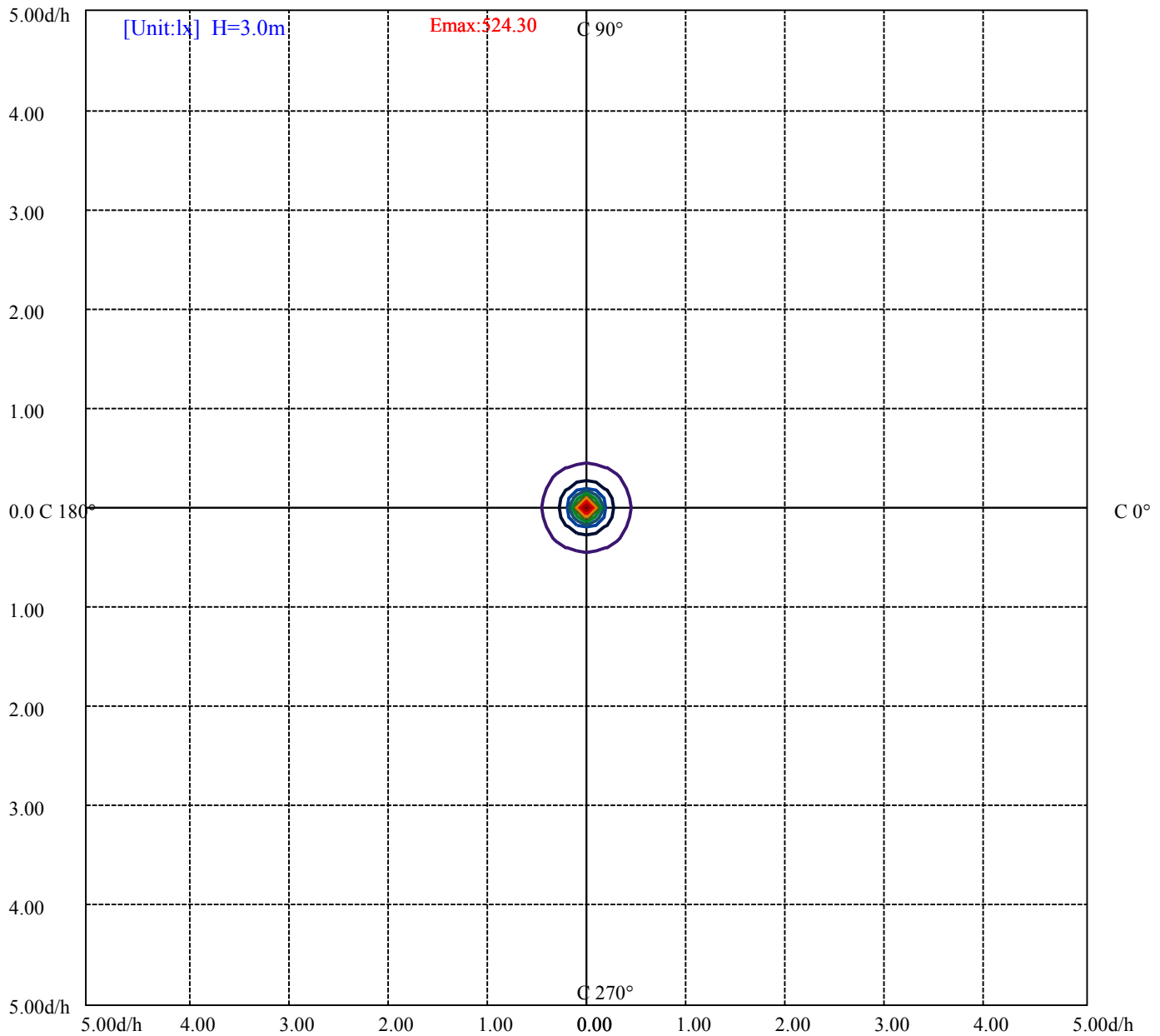
(50%Imax) 2359.37

(60%Imax) 2831.25

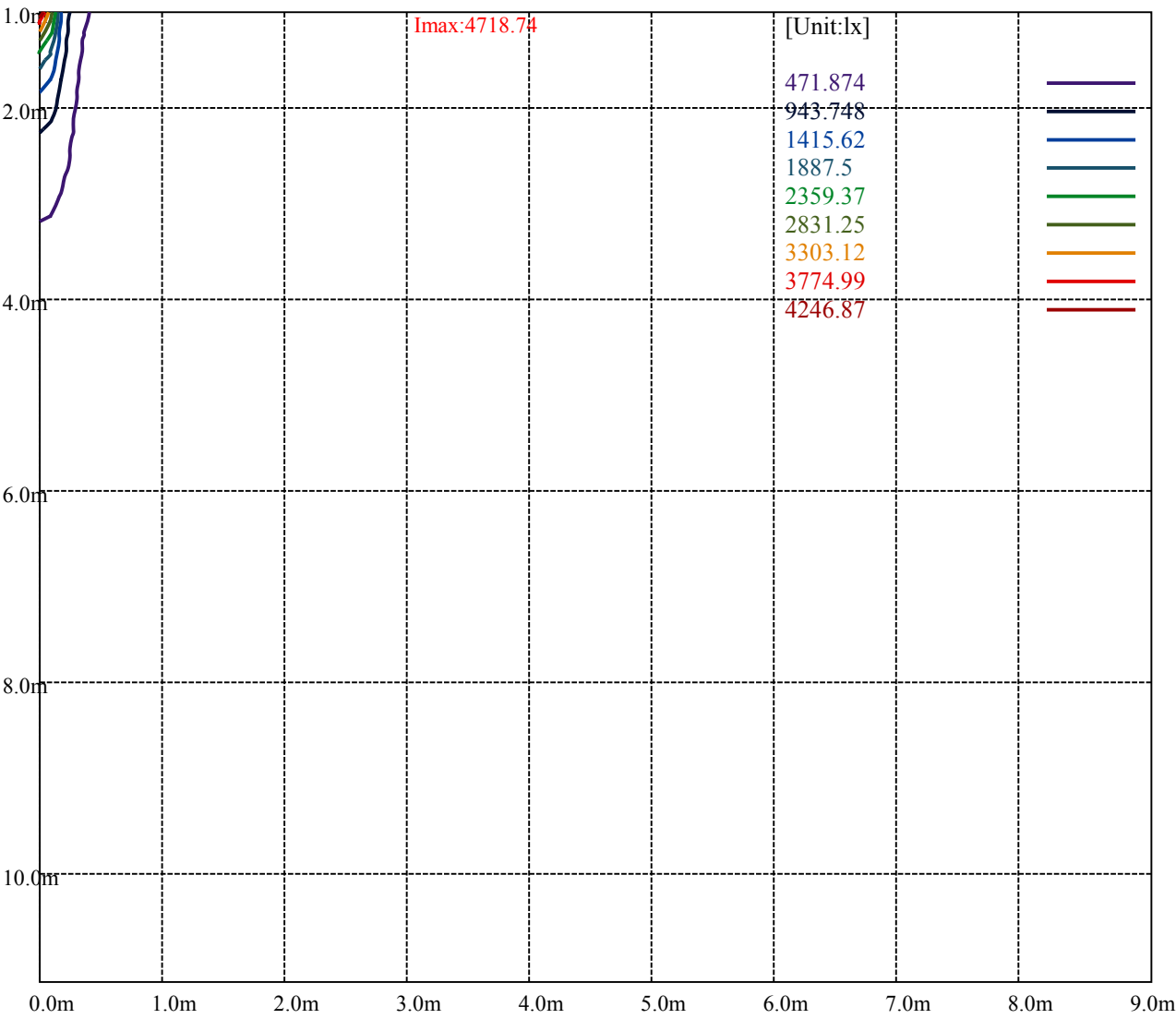
(70%Imax) 3303.12

(80%Imax) 3774.99

(90%Imax) 4246.87



(10%Emax)	52.43033	—
(20%Emax)	104.8608	—
(30%Emax)	157.2911	—
(40%Emax)	209.7211	—
(50%Emax)	262.1522	—
(60%Emax)	314.5822	—
(70%Emax)	367.0122	—
(80%Emax)	419.4433	—
(90%Emax)	471.8733	—



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

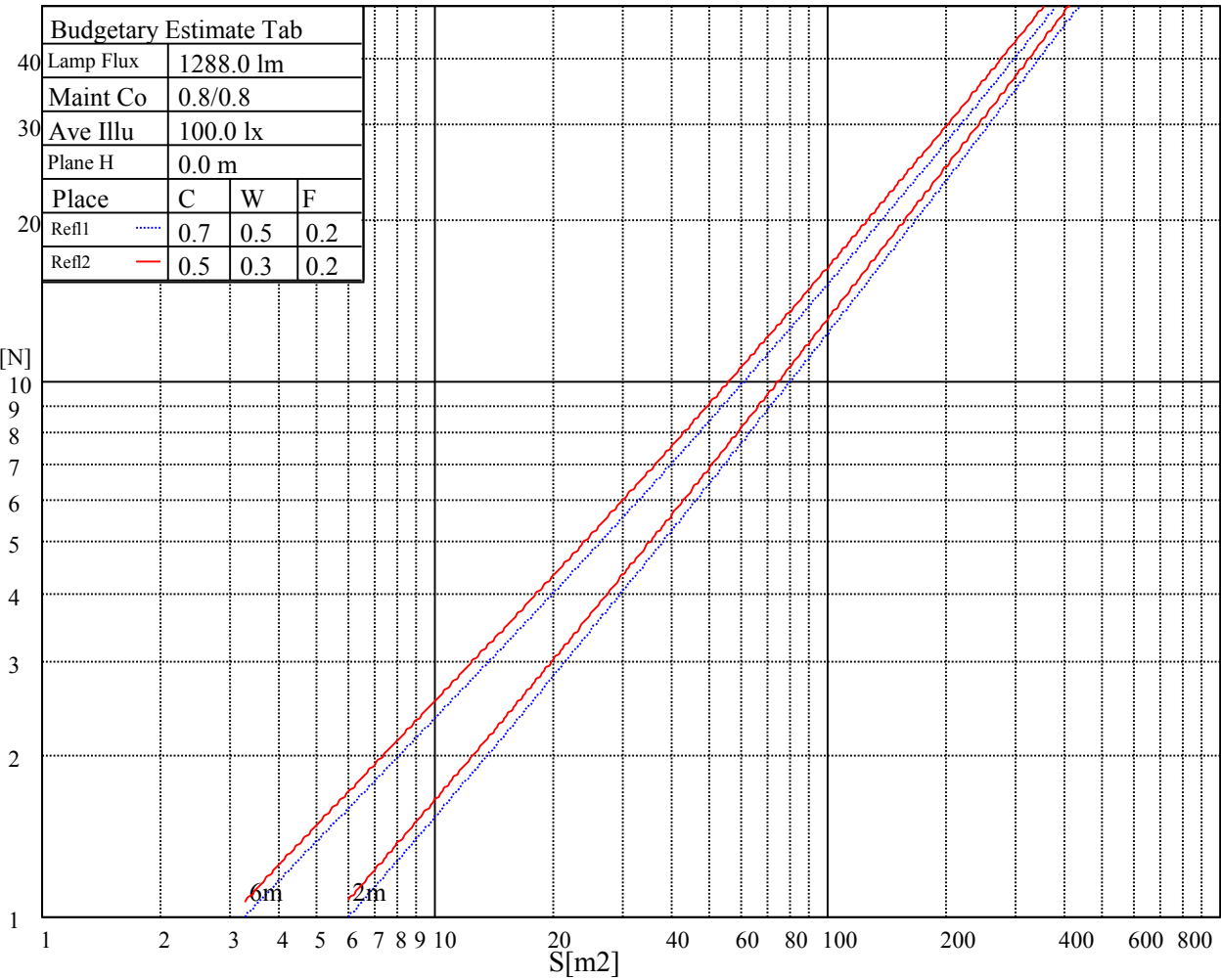
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

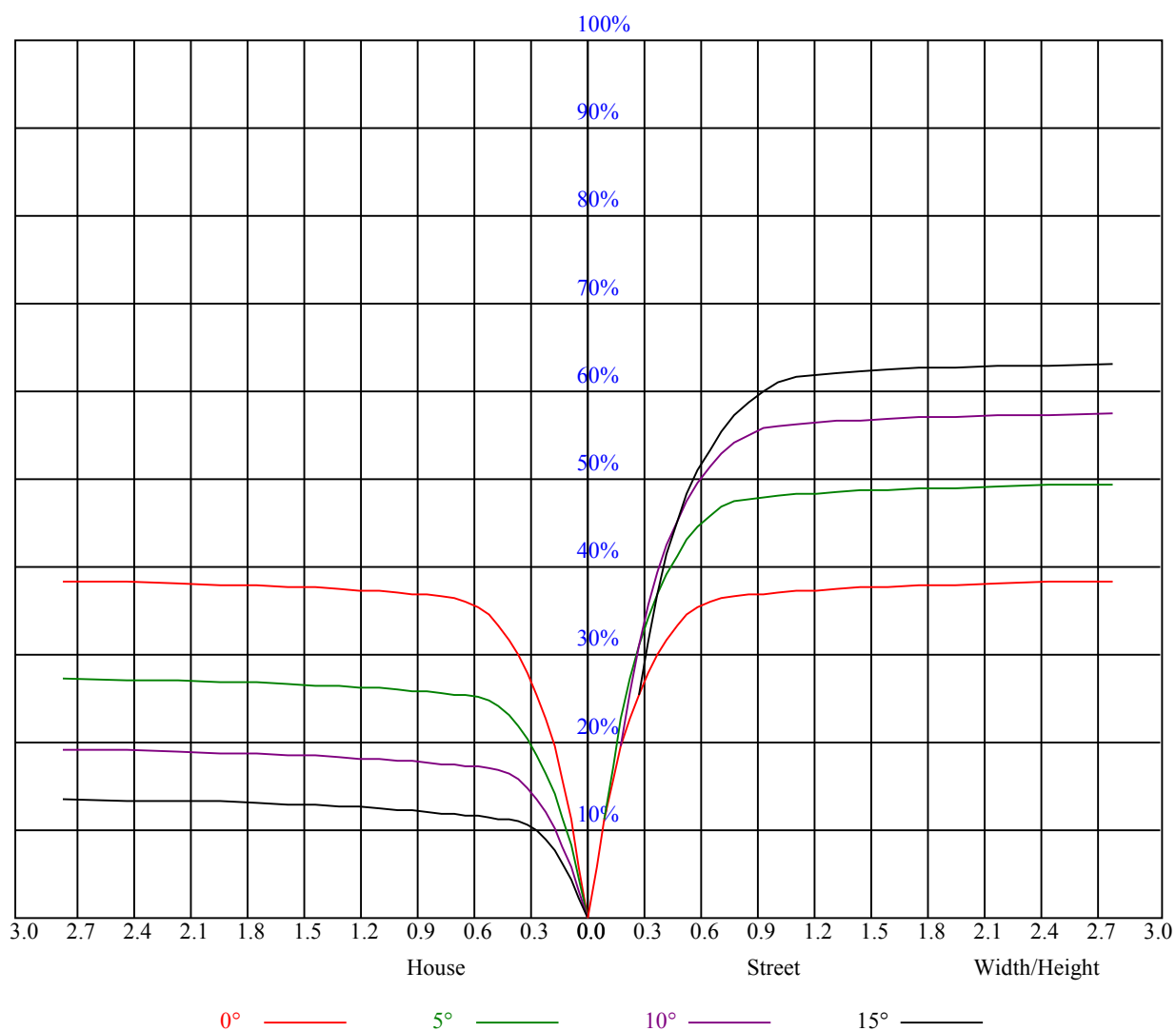
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

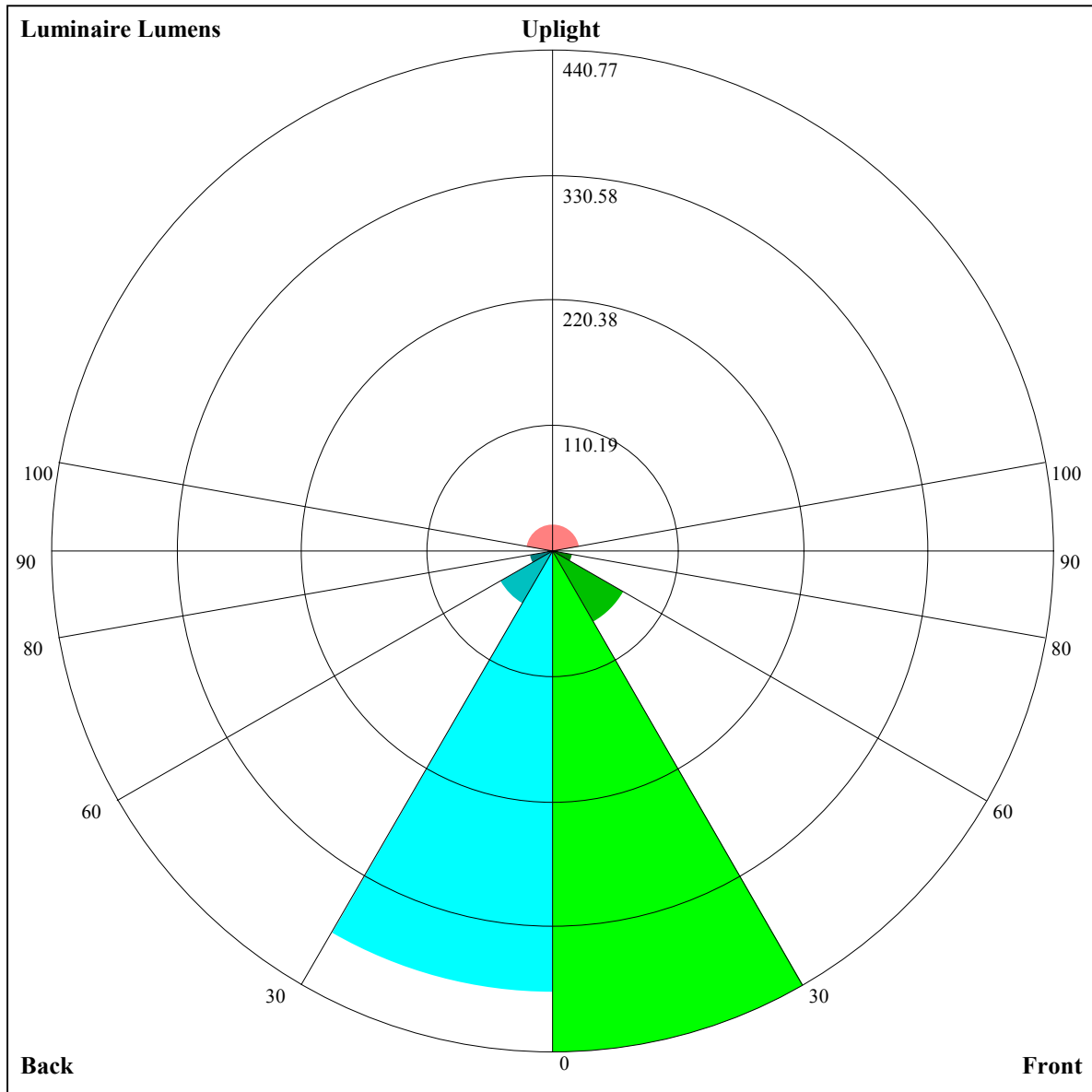
Luminance Limiting Curve





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 RHOFC=20 CU															
0	0.93	0.93	0.93	0.91	0.91	0.91	0.87	0.87	0.87	0.83	0.83	0.83	0.80	0.80	0.80	0.78
1	0.86	0.85	0.83	0.85	0.83	0.81	0.82	0.80	0.79	0.79	0.78	0.77	0.76	0.75	0.74	0.73
2	0.81	0.78	0.75	0.80	0.77	0.75	0.77	0.75	0.73	0.75	0.73	0.71	0.73	0.71	0.70	0.69
3	0.76	0.73	0.70	0.75	0.72	0.69	0.73	0.70	0.68	0.71	0.69	0.67	0.70	0.68	0.66	0.65
4	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.64	0.68	0.66	0.64	0.67	0.65	0.63	0.62
5	0.69	0.65	0.62	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.64	0.62	0.60	0.59
6	0.66	0.62	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.63	0.60	0.58	0.62	0.59	0.57	0.56
7	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.55	0.54
8	0.60	0.56	0.53	0.60	0.56	0.53	0.59	0.56	0.53	0.58	0.55	0.53	0.58	0.55	0.53	0.52
9	0.58	0.54	0.51	0.58	0.54	0.51	0.57	0.53	0.51	0.56	0.53	0.51	0.56	0.53	0.51	0.50
10	0.56	0.52	0.49	0.56	0.52	0.49	0.55	0.52	0.49	0.54	0.51	0.49	0.54	0.51	0.49	0.48





Luminaire Lumens:

FL=440.77,FM=71.9,FH=18.52,FVH=5.67

BL=389.02,BM=53.63,BH=21.31,BVH=5.31

UL=5.17,UH=24.61

BUG Rating:B1-U2-G0

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Intensity data(cd)									Appendix Page: 17 Total:19
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	4651.31	4857.75	4960.69	4848.19	4602.94	4282.31	3879.56	3472.88	3002.06
45.0	4700.25	4873.50	4884.19	4739.63	4470.19	4112.44	3712.50	3234.94	2823.19
90.0	4754.25	4674.38	4470.19	4149.56	3792.38	3414.38	2964.94	2507.06	2140.88
135.0	4762.13	4604.06	4345.88	4025.81	3584.81	3188.81	2677.50	2300.06	1997.44
180.0	4651.31	4388.63	4037.63	3598.88	3187.13	2726.44	2301.75	2001.38	1731.38
225.0	4700.25	4473.56	4203.56	3759.75	3359.25	2943.56	2458.13	2144.25	1888.88
270.0	4754.25	4698.56	4521.94	4284.56	3930.19	3536.44	3082.50	2642.06	2299.50
315.0	4776.19	4803.75	4669.31	4468.50	4167.56	3816.56	3352.50	2896.88	2506.50
360.0	4651.31	4857.75	4960.69	4848.19	4602.94	4282.31	3879.56	3472.88	3002.06
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2543.06	2184.19	1863.56	1642.50	1447.31	1296.00	1188.56	1098.00	1000.69
45.0	2372.63	1992.94	1725.75	1515.94	1315.13	1193.06	1090.13	988.31	916.88
90.0	1850.06	1581.19	1413.00	1281.38	1114.65	1063.80	988.82	917.55	857.03
135.0	1701.56	1512.56	1359.00	1236.94	1116.00	1032.19	960.75	894.94	839.25
180.0	1546.31	1383.75	1250.44	1116.34	1056.09	966.88	914.06	862.59	801.90
225.0	1634.06	1469.81	1337.06	1189.69	1117.74	1032.08	959.01	905.12	857.93
270.0	1973.25	1710.00	1525.50	1386.56	1222.88	1123.31	1049.63	961.88	893.25
315.0	2166.19	1828.13	1611.56	1440.56	1278.00	1113.19	1082.08	993.43	918.90
360.0	2543.06	2184.19	1863.56	1642.50	1447.31	1296.00	1188.56	1098.00	1000.69
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	933.75	880.31	824.06	786.94	752.06	719.44	685.69	659.25	629.44
45.0	855.56	793.13	748.13	711.56	673.88	638.44	609.19	578.25	553.50
90.0	810.17	765.45	730.58	695.87	663.47	637.14	608.46	578.76	553.16
135.0	798.75	759.94	722.81	695.25	662.06	634.50	606.94	575.44	549.00
180.0	767.25	732.60	695.59	663.30	635.74	605.98	575.16	547.14	506.81
225.0	812.64	771.64	739.80	705.83	673.71	645.98	617.40	580.67	548.72
270.0	849.38	793.13	755.44	721.13	677.81	649.13	617.63	584.44	556.88
315.0	864.11	811.91	774.56	736.03	703.63	677.36	650.64	623.70	601.09
360.0	933.75	880.31	824.06	786.94	752.06	719.44	685.69	659.25	629.44
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	601.31	572.63	538.88	504.56	459.00	401.06	343.69	286.31	218.98
45.0	524.25	493.31	460.13	425.81	377.44	328.50	285.19	211.22	165.38
90.0	523.91	486.73	442.01	385.71	317.87	252.34	197.94	142.93	96.92
135.0	521.44	466.31	412.88	360.00	286.31	209.76	161.16	105.86	66.43
180.0	465.64	405.79	340.31	280.52	223.43	165.21	114.64	78.86	49.16
225.0	510.58	458.33	397.35	338.91	272.81	209.64	158.91	108.79	74.70
270.0	528.19	483.75	443.81	394.88	328.50	288.00	220.67	167.51	120.99
315.0	578.87	542.25	506.19	462.26	403.88	337.33	277.09	211.16	152.55
360.0	601.31	572.63	538.88	504.56	459.00	401.06	343.69	286.31	218.98
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	161.21	115.59	83.59	50.12	35.21	28.63	24.02	22.56	21.77
45.0	124.09	86.79	59.29	43.76	31.61	27.39	24.47	23.01	22.16
90.0	64.80	41.96	33.47	27.90	24.75	23.57	22.89	21.83	20.98
135.0	44.55	31.78	26.83	23.34	22.28	21.60	20.98	20.25	19.69
180.0	35.66	28.91	25.03	23.34	22.44	21.77	21.04	20.36	19.91
225.0	50.18	34.14	28.24	24.64	23.23	22.50	21.83	21.26	20.81
270.0	85.11	57.26	41.68	32.68	28.29	26.27	24.86	23.46	22.56
315.0	107.55	70.65	49.16	35.04	28.58	25.54	24.13	22.84	21.94
360.0	161.21	115.59	83.59	50.12	35.21	28.63	24.02	22.56	21.77

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Intensity data(cd)										Appendix Page: 18 Total:19	
C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	20.87	20.14	19.41	18.73	18.28	18.06	17.78	17.55	17.21		
45.0	21.49	20.48	19.74	19.24	18.90	18.62	18.39	18.17	18.11		
90.0	20.36	19.69	19.35	19.01	18.56	18.17	17.94	17.89	17.94		
135.0	19.24	18.84	18.68	18.45	18.23	18.06	18.00	18.17	18.34		
180.0	19.63	19.41	19.24	19.07	18.84	18.73	18.73	18.73	18.84		
225.0	20.42	20.08	19.69	19.35	18.90	18.51	18.23	18.17	18.17		
270.0	21.60	20.64	19.97	19.46	18.96	18.51	18.23	18.28	18.39		
315.0	21.21	20.08	19.35	18.90	18.56	18.23	18.11	17.83	17.89		
360.0	20.87	20.14	19.41	18.73	18.28	18.06	17.78	17.55	17.21		
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	17.10	17.21	17.27	17.44	17.55	17.72	17.83	18.00	18.23		
45.0	18.11	18.34	18.56	18.68	18.56	18.56	18.56	18.56	18.39		
90.0	18.17	18.34	18.51	18.73	19.18	19.35	19.63	19.24	18.96		
135.0	18.51	18.79	18.90	19.29	19.41	19.97	19.97	19.97	19.58		
180.0	18.84	18.96	19.01	19.18	19.35	19.63	19.63	19.58	19.86		
225.0	18.34	18.62	18.79	18.79	19.07	19.35	19.29	18.68	18.28		
270.0	18.62	18.84	19.07	19.13	19.13	19.07	18.73	18.51	17.72		
315.0	18.00	18.11	18.17	18.23	18.17	18.34	18.39	18.62	18.28		
360.0	17.10	17.21	17.27	17.44	17.55	17.72	17.83	18.00	18.23		
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	17.94	17.33	16.43	15.92	15.30	15.02	15.19	15.64	16.48		
45.0	17.78	16.93	16.20	15.81	15.53	15.41	15.64	15.98	16.43		
90.0	18.68	18.90	19.18	19.58	20.31	20.98	22.11	21.71	22.05		
135.0	20.03	21.04	21.71	22.61	23.40	25.03	25.26	26.44	26.89		
180.0	20.42	21.21	21.99	22.73	23.68	24.13	25.37	26.27	26.61		
225.0	17.94	17.89	17.72	17.72	18.17	18.96	18.73	18.90	19.13		
270.0	16.88	16.03	15.53	15.47	15.92	16.54	17.21	17.72	18.34		
315.0	17.61	16.76	16.03	15.58	15.36	15.58	15.98	17.21	17.72		
360.0	17.94	17.33	16.43	15.92	15.30	15.02	15.19	15.64	16.48		
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	17.04	17.21	17.72	18.73	19.35	19.41	19.41	18.96	17.38		
45.0	16.26	16.31	16.76	17.10	16.99	16.82	15.81	14.79	12.60		
90.0	22.89	23.46	23.85	24.13	23.46	22.56	20.42	15.58	12.88		
135.0	27.28	27.96	28.18	27.96	26.66	25.03	22.67	18.11	15.41		
180.0	27.23	27.73	28.07	27.56	26.27	23.85	19.18	15.19	13.67		
225.0	19.46	19.80	19.91	20.08	19.46	18.28	16.20	13.73	12.38		
270.0	18.45	19.41	20.25	20.48	21.21	20.81	20.42	18.68	15.64		
315.0	18.17	18.56	19.46	20.64	20.59	20.31	20.03	18.90	16.93		
360.0	17.04	17.21	17.72	18.73	19.35	19.41	19.41	18.96	17.38		
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	14.40	11.70	11.59	11.93	11.93	11.76	11.25	10.13	5.34		
45.0	11.08	11.03	11.25	11.31	11.14	10.80	10.18	6.92	5.18		
90.0	11.70	12.32	12.60	12.54	12.21	11.59	5.46	4.89	4.73		
135.0	14.12	14.63	14.74	14.63	14.12	9.56	5.01	4.84	4.73		
180.0	13.89	13.89	13.73	13.39	9.00	5.01	4.78	4.73	4.61		
225.0	12.43	12.66	12.32	11.87	11.14	5.06	4.78	4.73	4.61		
270.0	12.83	12.09	12.38	12.38	11.76	10.97	5.40	4.84	4.73		
315.0	14.06	12.88	13.22	13.28	12.94	12.32	11.08	5.29	4.89		
360.0	14.40	11.70	11.59	11.93	11.93	11.76	11.25	10.13	5.34		

Intensity data(cd)

Appendix Page: 19 Total:19

C/ γ (°)	90.0
0.0	4.95
45.0	5.01
90.0	4.61
135.0	4.61
180.0	4.61
225.0	4.61
270.0	4.61
315.0	4.89
360.0	4.95