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Nata

Client:

LumCAT: 4-2412-L

Luminaire: 92.70.135.00

Report No: NT2018010906

Test No: GC2018010906

LampCAT: LUMILEDS 1208

Lamp flux(lm): 2981.0

Number of Lamps: 1

Length(mm): 102

Phm Type: C

Voltage(V): 35.0000

Current(A): 0.6400

Power (W): 22.4000

PF: 0.0000

Ballast type: DC

Width(mm): 102

Height(mm): 0

Photometric Results

Lumens(lm): 2877.66, Efficiency(%): 96.53% , Luminous Efficacy(lm/W): 128.47

Central intensity(cd): 19483.080, Maximum intensity(cd): 19483.080

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=35.2

[C90/270]Total=35.2

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

Maximum s/h(1/4): C0_180=0.29 C90_270=0.29

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 96.69%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.342%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	19483.084	4.661	4.661	.156%	.162%
1.0	19258.041	36.857	41.518	1.236%	1.443%
2.0	18595.986	71.169	112.687	2.387%	3.916%
3.0	17535.463	100.640	213.327	3.376%	7.413%
4.0	16054.928	122.813	336.14	4.120%	11.681%
5.0	14722.563	140.712	476.852	4.720%	16.571%
6.0	12786.987	146.573	623.425	4.917%	21.664%
7.0	11217.742	149.917	773.342	5.029%	26.874%
8.0	9414.369	143.681	917.023	4.820%	31.867%
9.0	8081.935	138.644	1055.666	4.651%	36.685%
10.0	6713.440	127.840	1183.506	4.288%	41.127%
11.0	5647.686	118.174	1301.68	3.964%	45.234%
12.0	4677.661	106.650	1408.33	3.578%	48.940%
13.0	3857.733	95.164	1503.494	3.192%	52.247%
14.0	3293.680	87.379	1590.873	2.931%	55.284%
15.0	2754.747	78.186	1669.059	2.623%	58.001%
16.0	2419.453	73.132	1742.191	2.453%	60.542%
17.0	2100.815	67.356	1809.547	2.260%	62.883%
18.0	1838.884	62.314	1871.861	2.090%	65.048%
19.0	1680.321	59.991	1931.852	2.012%	67.133%
20.0	1532.357	57.473	1989.325	1.928%	69.130%
21.0	1416.051	55.649	2044.974	1.867%	71.064%
22.0	1334.313	54.813	2099.787	1.839%	72.969%
23.0	1264.301	54.173	2153.96	1.817%	74.851%
24.0	1198.433	53.454	2207.414	1.793%	76.709%
25.0	1155.180	53.536	2260.95	1.796%	78.569%
26.0	1105.711	53.154	2314.104	1.783%	80.416%
27.0	1067.661	53.153	2367.258	1.783%	82.263%
28.0	1035.453	53.308	2420.566	1.788%	84.116%
29.0	1003.740	53.363	2473.929	1.790%	85.970%
30.0	969.055	53.134	2527.063	1.782%	87.817%
31.0	911.631	51.488	2578.551	1.727%	89.606%
32.0	835.233	48.537	2627.088	1.628%	91.292%
33.0	742.422	44.342	2671.43	1.487%	92.833%
34.0	636.658	39.041	2710.47	1.310%	94.190%
35.0	494.234	31.087	2741.557	1.043%	95.270%
36.0	382.821	24.676	2766.233	.828%	96.128%
37.0	251.202	16.578	2782.811	.556%	96.704%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	177.509	11.984	2794.795	.402%	97.120%
39.0	98.159	6.774	2801.569	.227%	97.356%
40.0	49.062	3.458	2805.028	.116%	97.476%
41.0	30.219	2.174	2807.202	.073%	97.551%
42.0	24.369	1.788	2808.99	.060%	97.614%
43.0	21.266	1.590	2810.58	.053%	97.669%
44.0	19.641	1.496	2812.077	.050%	97.721%
45.0	18.506	1.435	2813.512	.048%	97.771%
46.0	17.494	1.380	2814.892	.046%	97.819%
47.0	16.978	1.362	2816.253	.046%	97.866%
48.0	16.655	1.357	2817.61	.046%	97.913%
49.0	16.379	1.356	2818.966	.045%	97.960%
50.0	16.145	1.356	2820.322	.045%	98.007%
51.0	15.966	1.361	2821.683	.046%	98.055%
52.0	15.822	1.367	2823.05	.046%	98.102%
53.0	15.732	1.378	2824.428	.046%	98.150%
54.0	15.657	1.389	2825.817	.047%	98.198%
55.0	15.615	1.403	2827.22	.047%	98.247%
56.0	15.560	1.415	2828.634	.047%	98.296%
57.0	15.526	1.428	2830.062	.048%	98.346%
58.0	15.526	1.444	2831.506	.048%	98.396%
59.0	15.519	1.459	2832.965	.049%	98.447%
60.0	15.505	1.473	2834.438	.049%	98.498%
61.0	15.471	1.484	2835.921	.050%	98.550%
62.0	15.430	1.494	2837.415	.050%	98.601%
63.0	15.388	1.504	2838.919	.050%	98.654%
64.0	15.299	1.508	2840.427	.051%	98.706%
65.0	15.147	1.505	2841.932	.051%	98.758%
66.0	15.017	1.504	2843.437	.050%	98.811%
67.0	14.831	1.497	2844.934	.050%	98.863%
68.0	14.686	1.493	2846.427	.050%	98.915%
69.0	14.549	1.489	2847.916	.050%	98.966%
70.0	14.349	1.479	2849.395	.050%	99.018%
71.0	14.108	1.463	2850.858	.049%	99.069%
72.0	13.936	1.453	2852.311	.049%	99.119%
73.0	13.805	1.448	2853.759	.049%	99.169%
74.0	13.688	1.443	2855.202	.048%	99.220%
75.0	13.592	1.440	2856.642	.048%	99.270%

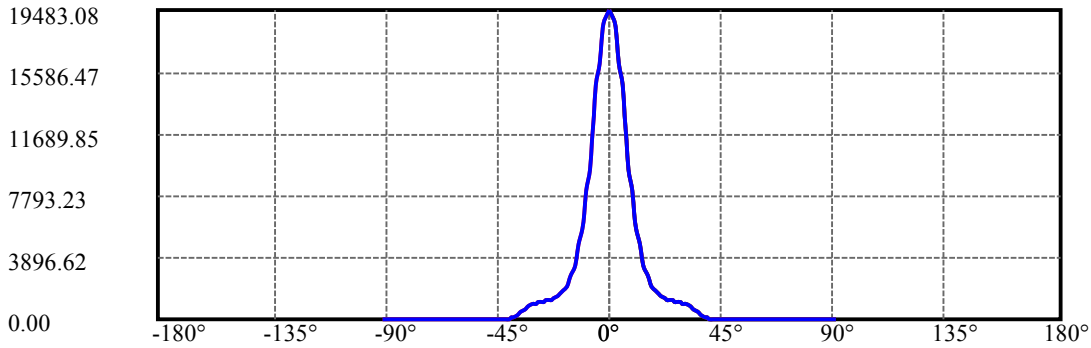
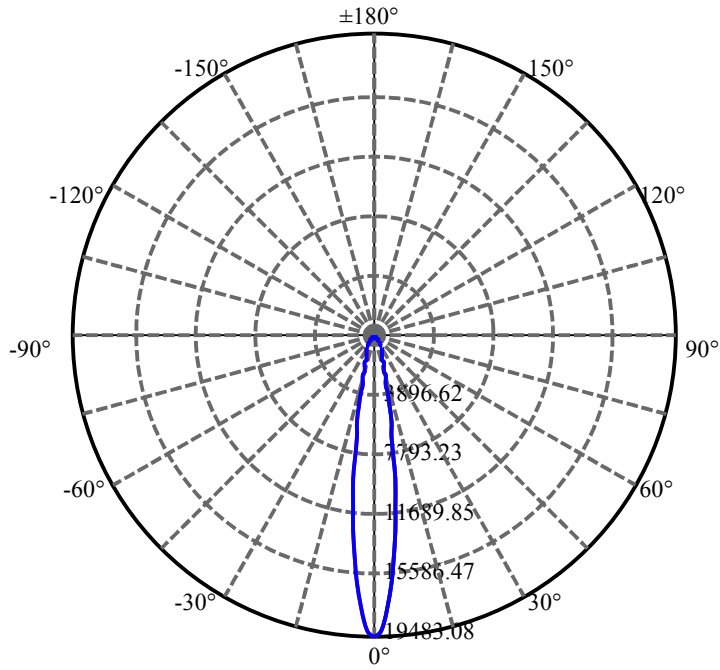
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.558	1.443	2858.084	.048%	99.320%
77.0	13.475	1.440	2859.524	.048%	99.370%
78.0	13.448	1.442	2860.967	.048%	99.420%
79.0	13.413	1.444	2862.41	.048%	99.470%
80.0	13.386	1.446	2863.856	.048%	99.520%
81.0	13.379	1.449	2865.305	.049%	99.571%
82.0	13.358	1.451	2866.756	.049%	99.621%
83.0	13.344	1.452	2868.208	.049%	99.671%
84.0	13.379	1.459	2869.667	.049%	99.722%
85.0	13.399	1.464	2871.131	.049%	99.773%
86.0	13.351	1.461	2872.591	.049%	99.824%
87.0	13.269	1.453	2874.045	.049%	99.874%
88.0	13.234	1.450	2875.495	.049%	99.925%
89.0	13.186	1.446	2876.941	.048%	99.975%
90.0	13.152	0.721	2877.662	.024%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2527.06	84.77%	87.82%
0-40	2805.03	94.10%	97.48%
0-60	2834.44	95.08%	98.50%
0-90	2876.94	96.51%	99.97%
0-120	2876.94	96.51%	99.97%
0-180	2877.66	96.53%	100.00%
60-90	43.98	1.48%	1.53%
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%
0-25.77	2302.13	77.23%	80.00%

ZONAL LUMEN SUMMARY

0-10	1183.51
10-20	805.82
20-30	537.74
30-40	277.96
40-50	15.29
50-60	14.12
60-70	14.96
70-80	14.46
80-90	13.08
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



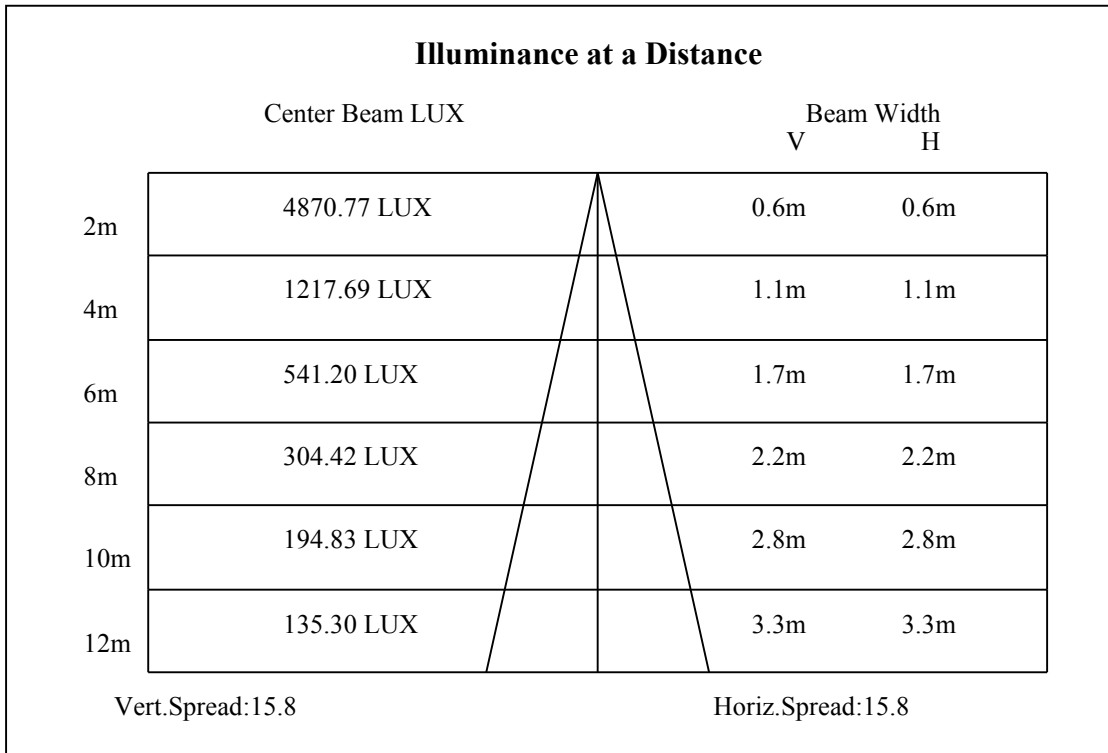
C0(Max): —————

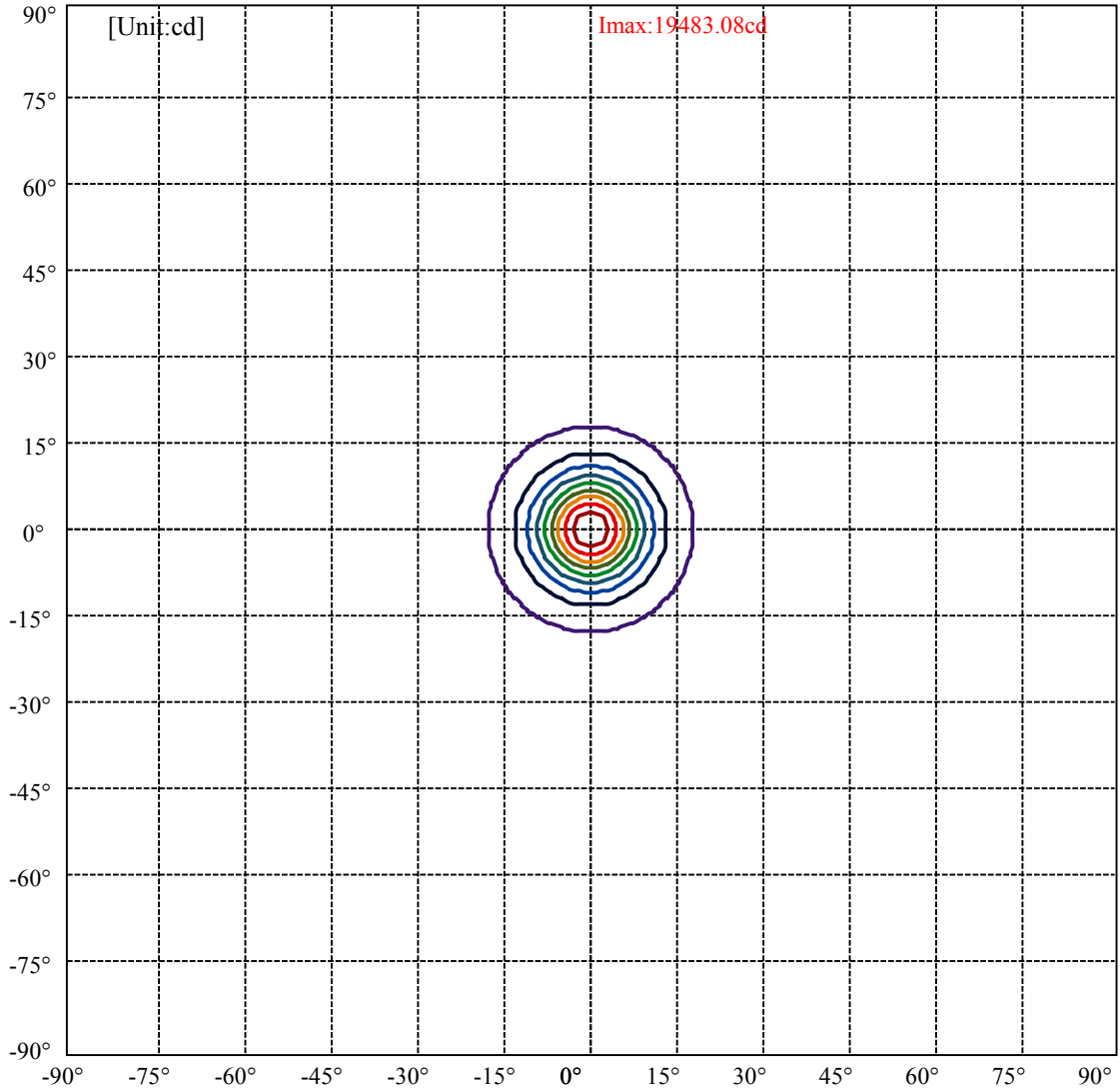
C0/C180: —————

C90/C270: —————

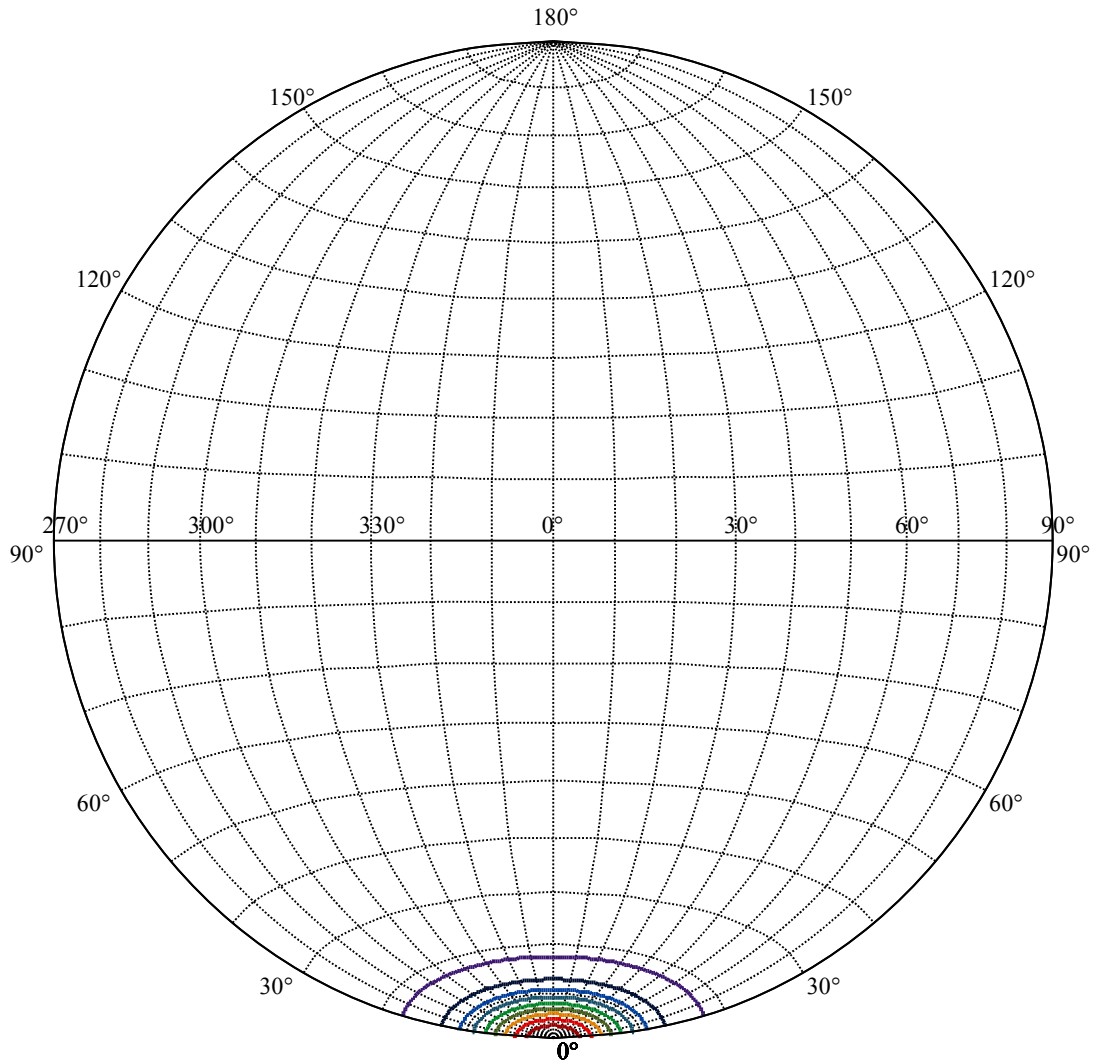
Field angle(10%Imax):C0/180Left:17.6 Right:17.6
:C90/270Left:17.6 Right:17.6

Beam Angle(50%Imax):C0/180Left:7.8 Right:7.8
:C90/270Left:7.8 Right:7.8





(10%Imax) 1948.31	—
(20%Imax) 3896.62	—
(30%Imax) 5844.93	—
(40%Imax) 7793.23	—
(50%Imax) 9741.54	—
(60%Imax) 11689.9	—
(70%Imax) 13638.2	—
(80%Imax) 15586.5	—
(90%Imax) 17534.8	—



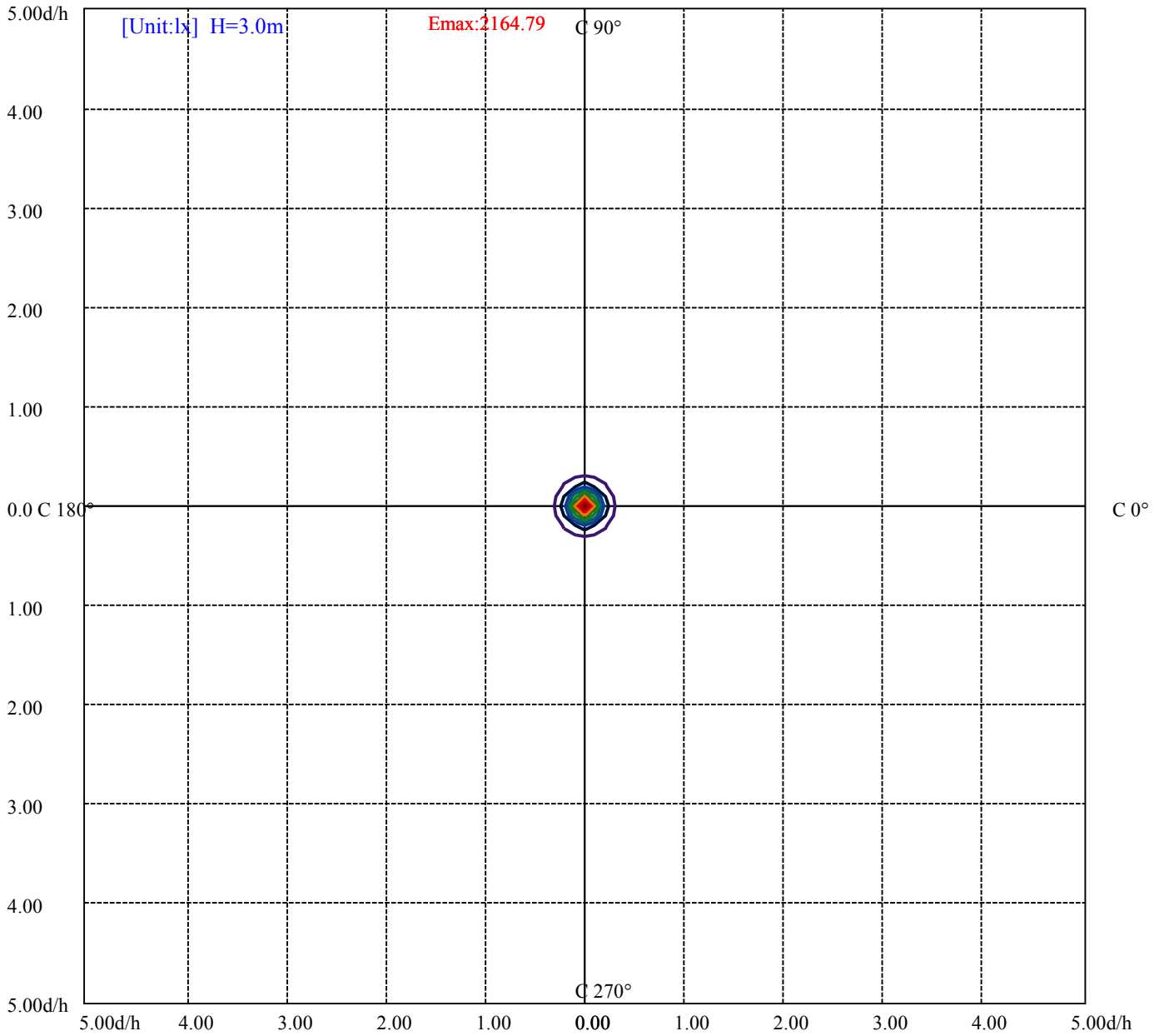
House

[Unit:cd]

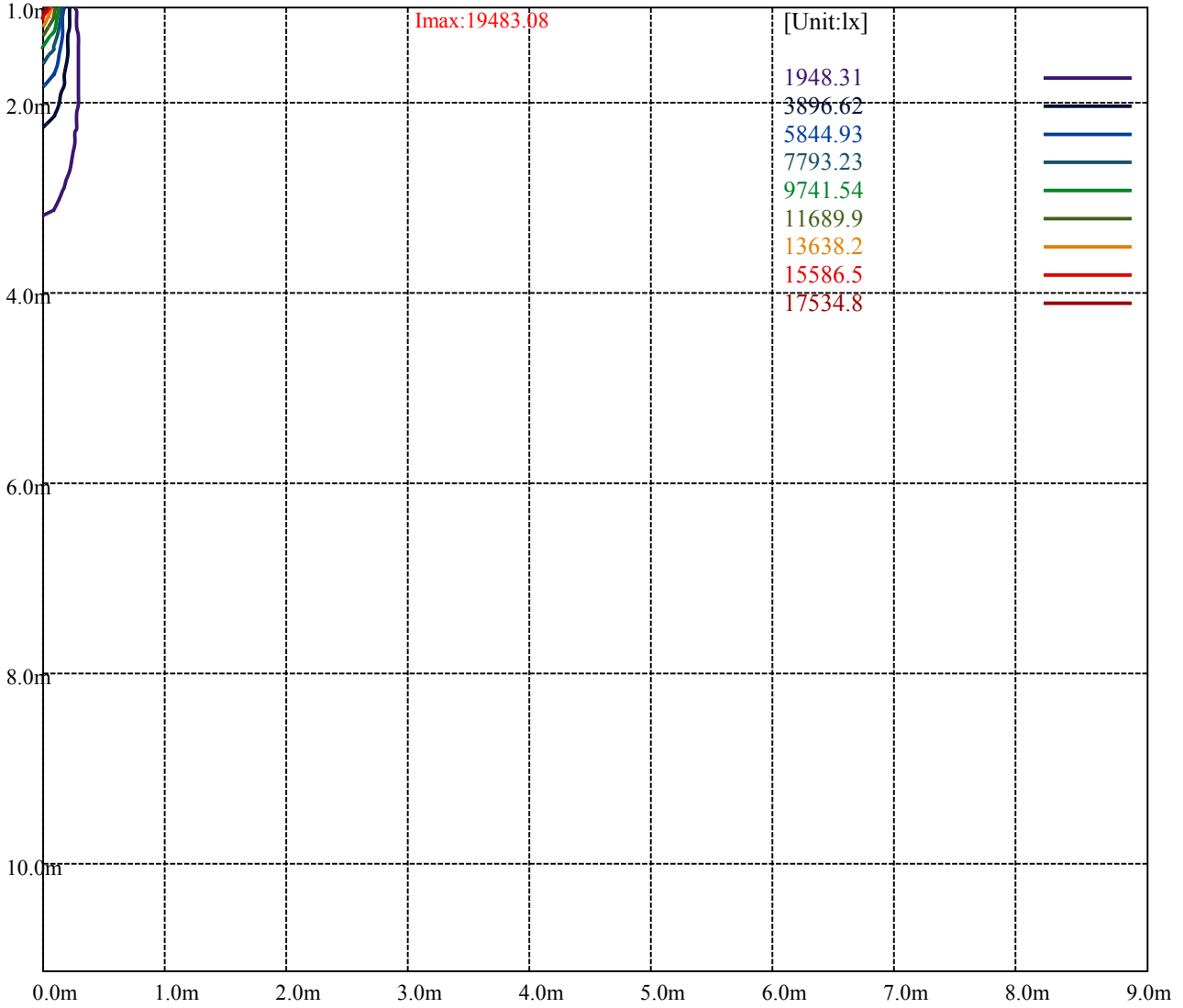
Road

Imax:19483.08

(10%Imax) 1948.31	—
(20%Imax) 3896.62	—
(30%Imax) 5844.93	—
(40%Imax) 7793.23	—
(50%Imax) 9741.54	—
(60%Imax) 11689.9	—
(70%Imax) 13638.2	—
(80%Imax) 15586.5	—
(90%Imax) 17534.8	—



(10%Emax) 216.4789	—
(20%Emax) 432.9567	—
(30%Emax) 649.4355	—
(40%Emax) 865.9133	—
(50%Emax) 1082.392	—
(60%Emax) 1298.867	—
(70%Emax) 1515.344	—
(80%Emax) 1731.822	—
(90%Emax) 1948.3	—



Luminance Table

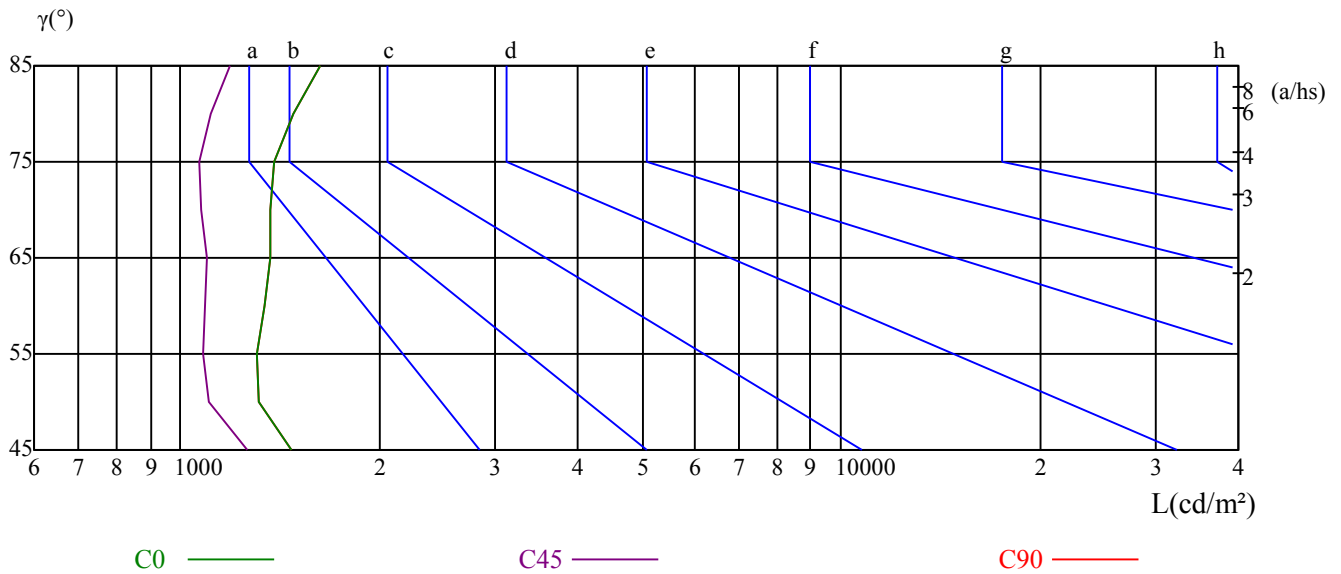
γ	45	50	55	60	65	70	75	80	85
C0	1475	1311	1303	1341	1370	1372	1389	1481	1630
C45	1259	1103	1079	1092	1097	1077	1068	1112	1191
C90	1475	1311	1303	1341	1370	1372	1389	1481	1630

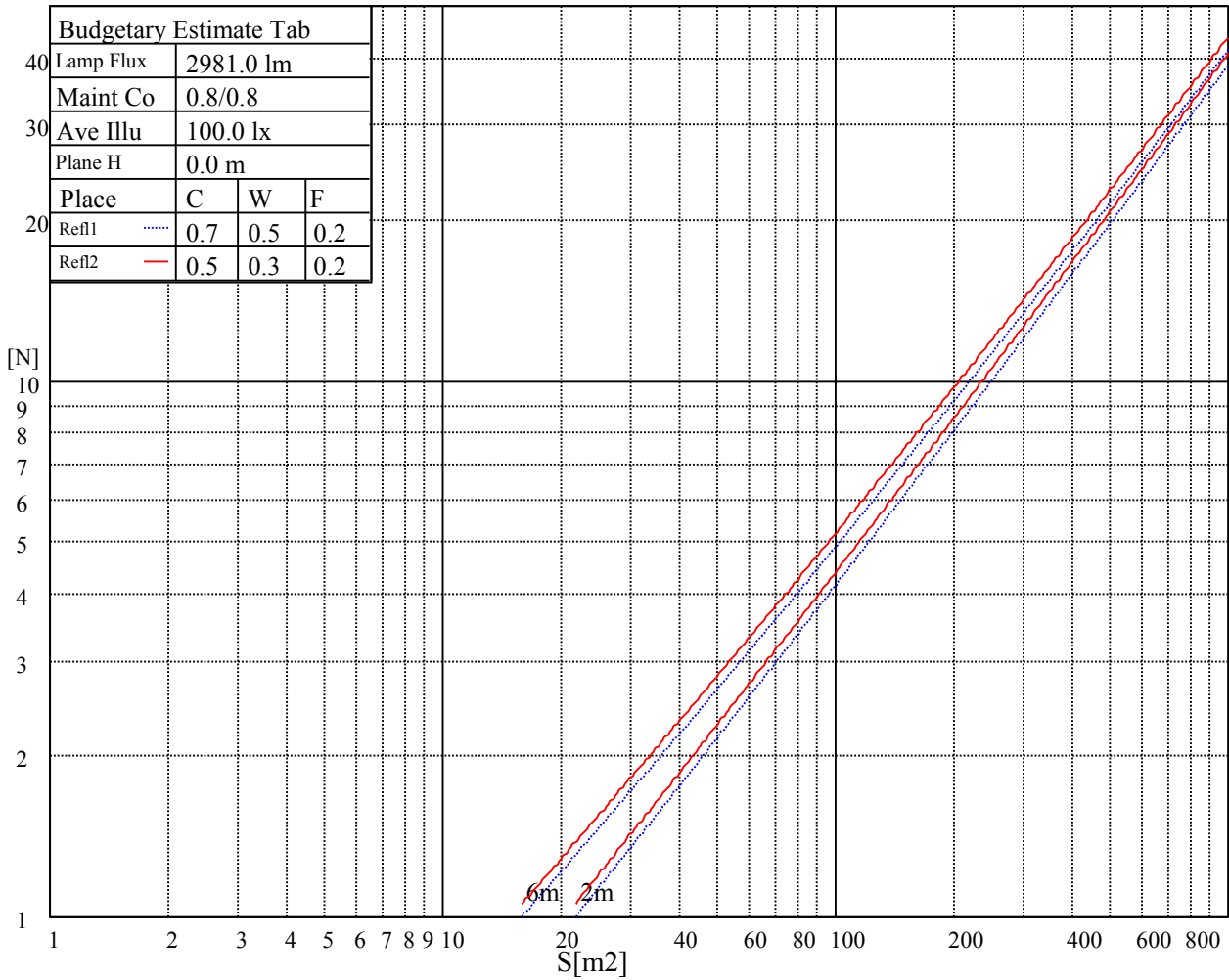
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3445	3445	3445	5048	5048	5048	14777	14777	14777

Glare Table

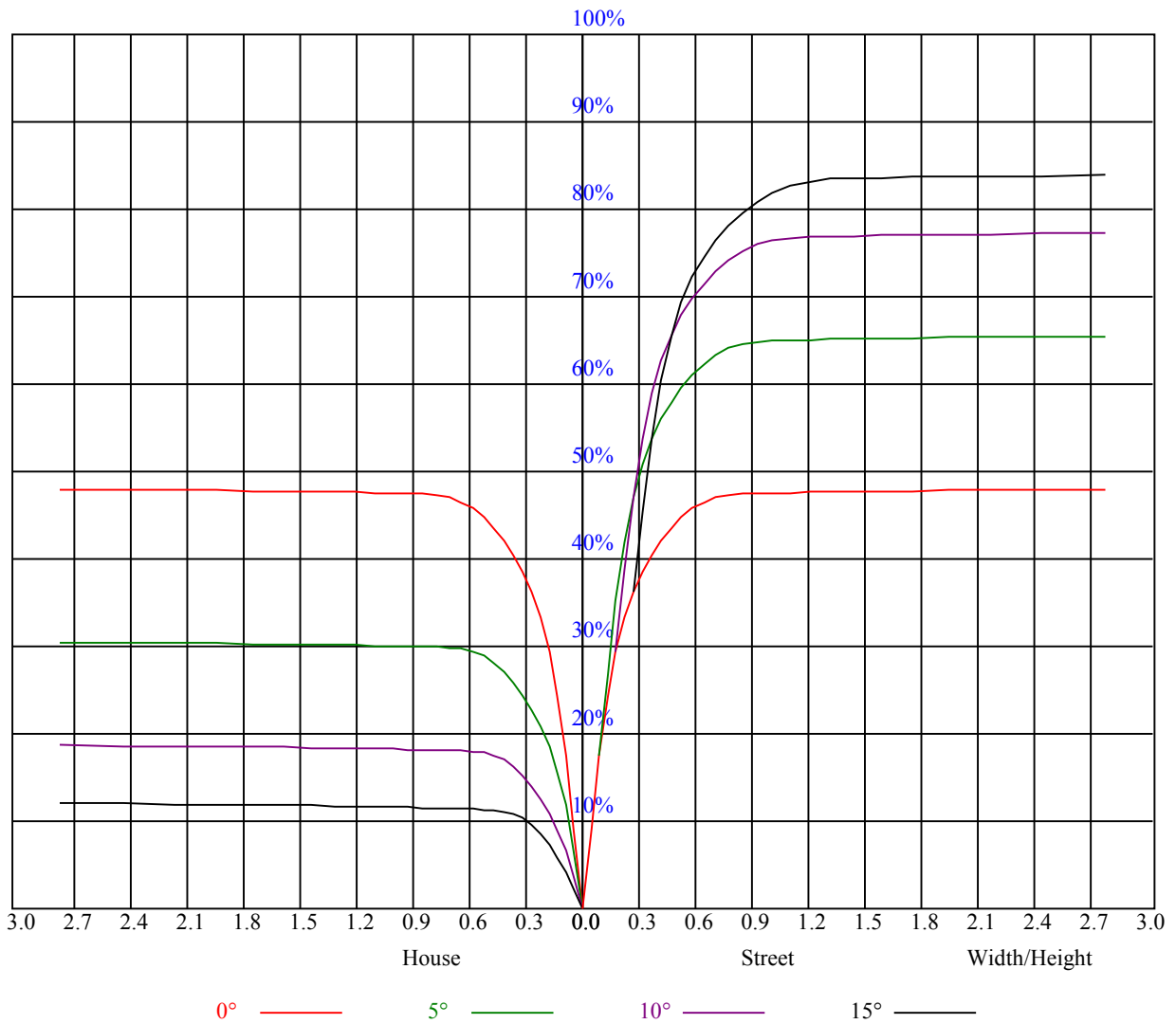
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

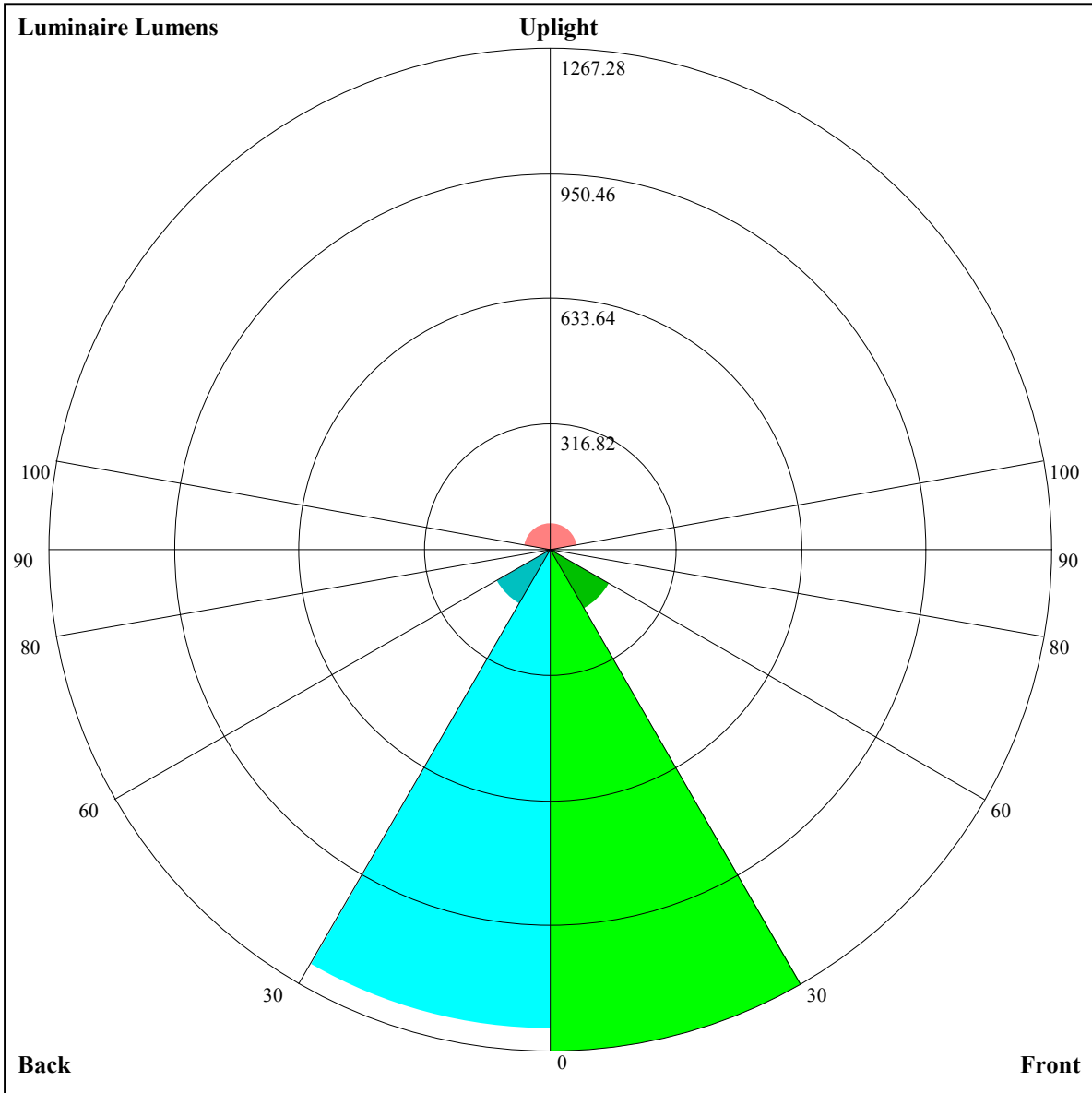
Luminance Limiting Curve





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	1.03	1.03	1.03	0.99	0.99	0.99	0.97
1	1.08	1.06	1.04	1.06	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.95	0.94	0.92
2	1.03	1.00	0.97	1.01	0.98	0.96	0.98	0.96	0.94	0.95	0.94	0.92	0.93	0.91	0.90	0.89
3	0.98	0.94	0.91	0.97	0.93	0.91	0.94	0.92	0.89	0.92	0.90	0.88	0.90	0.88	0.87	0.85
4	0.94	0.90	0.87	0.93	0.89	0.86	0.91	0.88	0.85	0.89	0.87	0.84	0.88	0.85	0.83	0.82
5	0.90	0.86	0.83	0.90	0.86	0.83	0.88	0.85	0.82	0.87	0.84	0.81	0.85	0.83	0.81	0.80
6	0.87	0.83	0.80	0.86	0.82	0.80	0.85	0.82	0.79	0.84	0.81	0.79	0.83	0.80	0.78	0.77
7	0.84	0.80	0.77	0.84	0.80	0.77	0.83	0.79	0.76	0.82	0.78	0.76	0.81	0.78	0.76	0.75
8	0.82	0.77	0.74	0.81	0.77	0.74	0.80	0.77	0.74	0.79	0.76	0.74	0.78	0.76	0.73	0.72
9	0.79	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.72	0.76	0.74	0.71	0.70
10	0.77	0.73	0.70	0.76	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.75	0.72	0.70	0.69





Luminaire Lumens:

FL=1267.28,FM=172.7,FH=14.73,FVH=7.27

BL=1211.07,BM=160.82,BH=14.68,BVH=7.25

UL=14.35,UH=68.28

BUG Rating:B3-U2-G0

Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	19616.60	19792.78	19495.47	18834.79	17849.28	16401.30	14733.09	12993.31	11473.75
45.0	19605.58	18752.21	17408.83	15944.33	14105.45	12183.98	10515.77	8731.95	7339.02
90.0	19033.00	17777.71	15993.88	13978.82	10767.38	10326.93	8249.10	6792.86	5562.35
135.0	19677.16	18691.65	17254.68	15735.12	13868.71	12172.97	10328.58	8610.82	7283.96
180.0	19616.60	19077.04	18207.15	16748.16	15355.23	13835.67	10922.64	10368.22	8984.10
225.0	19605.58	19930.42	19842.33	19154.12	18185.13	16880.29	15140.51	13263.09	10956.22
270.0	19033.00	19897.38	20365.36	20205.70	19484.46	18372.32	16698.61	14947.81	12861.18
315.0	19677.16	20145.14	20200.19	19682.66	18823.78	17607.04	15707.59	14033.88	10854.37
360.0	19616.60	19792.78	19495.47	18834.79	17849.28	16401.30	14733.09	12993.31	11473.75
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	9844.08	8330.03	7124.30	6061.71	4944.06	4195.30	3578.67	3072.15	2813.38
45.0	5973.62	4828.45	4002.60	3336.42	2824.39	2343.75	2060.21	1819.61	1634.62
90.0	4423.78	3544.53	2950.47	2453.86	2087.19	1848.24	1651.14	1521.76	1409.44
135.0	6001.15	4911.03	4118.22	3468.55	2840.91	2791.36	2162.62	1929.18	1700.14
180.0	7569.70	6348.55	5427.46	4562.52	3848.44	3331.46	2859.08	2522.13	2212.17
225.0	9775.81	8132.38	6839.66	5600.34	4684.75	3850.09	3196.02	2736.30	2371.83
270.0	10818.58	8897.11	7383.06	6067.22	4729.34	3881.48	3204.28	2862.93	2216.02
315.0	10248.75	8715.43	7335.71	5870.66	4902.77	4107.76	3325.96	2891.56	2448.91
360.0	9844.08	8330.03	7124.30	6061.71	4944.06	4195.30	3578.67	3072.15	2813.38
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2283.19	2042.04	1805.30	1656.10	1531.67	1419.35	1329.06	1263.54	1201.33
45.0	1517.35	1415.50	1318.05	1258.59	1209.59	1152.88	1116.54	1087.36	1048.27
90.0	1322.45	1261.89	1211.79	1160.04	1097.44	1090.12	1052.07	1029.77	1005.66
135.0	1563.60	1456.79	1345.58	1274.01	1218.40	1164.99	1120.40	1085.71	1048.82
180.0	1963.86	1787.13	1643.43	1496.98	1403.39	1326.31	1245.38	1190.32	1097.27
225.0	2032.13	1826.77	1664.91	1509.10	1409.44	1329.06	1249.23	1197.48	1152.88
270.0	1941.84	1760.70	1555.89	1445.78	1370.35	1285.02	1223.90	1184.26	1135.26
315.0	2086.64	1891.74	1713.91	1527.82	1434.22	1346.68	1250.88	1202.98	1156.18
360.0	2283.19	2042.04	1805.30	1656.10	1531.67	1419.35	1329.06	1263.54	1201.33
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1152.88	1107.73	1066.44	1032.31	999.27	961.28	874.85	758.13	591.86
45.0	1016.89	984.96	958.53	934.86	844.57	728.95	588.55	461.92	305.01
90.0	977.03	952.86	930.67	855.85	750.47	609.91	457.02	323.90	187.96
135.0	1018.54	987.16	959.63	932.10	841.26	717.94	579.74	461.92	287.39
180.0	1086.76	1044.47	1010.95	976.65	921.81	808.56	665.14	529.81	377.58
225.0	1090.50	1068.70	1032.69	1002.85	972.52	946.47	914.21	816.32	698.50
270.0	1100.58	1069.75	1033.41	1008.63	984.96	956.33	935.96	910.63	806.58
315.0	1098.10	1067.98	1037.59	1009.18	978.19	952.42	923.90	830.64	699.00
360.0	1152.88	1107.73	1066.44	1032.31	999.27	961.28	874.85	758.13	591.86
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	455.87	322.08	306.66	76.09	42.12	34.52	28.68	26.81	24.39
45.0	287.94	83.47	37.44	31.11	25.38	22.41	19.60	17.67	16.74
90.0	81.26	35.40	28.90	21.86	20.26	18.88	17.78	16.85	16.46
135.0	210.48	70.31	34.19	26.76	21.86	20.21	18.88	17.95	17.07
180.0	235.75	127.24	57.64	38.26	30.17	26.32	24.11	21.86	20.32
225.0	532.89	396.52	265.04	147.44	49.28	31.22	25.11	21.09	19.93
270.0	690.96	559.92	405.77	289.05	140.01	51.26	30.72	24.22	20.65
315.0	567.41	414.68	284.42	154.71	63.42	36.94	30.06	23.67	21.58
360.0	455.87	322.08	306.66	76.09	42.12	34.52	28.68	26.81	24.39

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	21.03	18.11	17.51	17.12	16.79	16.57	16.35	16.19	16.13
45.0	16.41	16.30	16.13	16.08	16.02	15.97	15.91	15.91	15.86
90.0	16.24	15.97	15.75	15.58	15.31	15.14	15.03	14.87	14.87
135.0	16.74	16.41	16.19	15.97	15.86	15.75	15.64	15.75	15.75
180.0	19.32	18.55	18.00	17.56	17.18	16.85	16.57	16.30	16.19
225.0	18.94	17.95	17.18	16.85	16.52	16.19	16.02	15.80	15.64
270.0	19.66	18.72	17.95	17.29	16.90	16.57	16.35	16.19	16.02
315.0	19.71	17.95	17.12	16.79	16.46	16.13	15.86	15.58	15.42
360.0	21.03	18.11	17.51	17.12	16.79	16.57	16.35	16.19	16.13
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	16.08	16.02	16.02	15.97	16.02	16.02	16.08	16.08	16.08
45.0	15.86	15.86	15.80	15.80	15.80	15.80	15.86	15.86	15.80
90.0	14.76	14.81	14.70	14.70	14.76	14.81	14.87	14.81	14.81
135.0	15.86	15.91	15.97	16.02	16.02	16.08	15.97	15.91	15.86
180.0	16.08	15.97	15.91	15.86	15.80	15.80	15.75	15.69	15.58
225.0	15.47	15.36	15.31	15.20	15.14	15.09	15.09	14.98	14.92
270.0	15.91	15.86	15.80	15.86	15.86	15.86	15.80	15.80	15.75
315.0	15.25	15.14	14.98	14.81	14.81	14.70	14.65	14.65	14.65
360.0	16.08	16.02	16.02	15.97	16.02	16.02	16.08	16.08	16.08
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	16.13	15.91	15.75	15.64	15.36	15.31	15.14	14.98	14.59
45.0	15.64	15.42	15.14	14.92	14.70	14.48	14.26	14.09	13.71
90.0	14.87	14.81	14.70	14.53	14.42	14.26	14.15	13.82	13.60
135.0	15.75	15.75	15.53	15.25	15.03	14.76	14.59	14.26	13.93
180.0	15.47	15.36	15.20	15.03	14.76	14.59	14.48	14.26	14.09
225.0	14.87	14.81	14.65	14.65	14.48	14.42	14.31	14.26	14.09
270.0	15.80	15.75	15.64	15.53	15.36	15.20	14.98	14.76	14.53
315.0	14.59	14.59	14.59	14.59	14.53	14.48	14.48	14.37	14.31
360.0	16.13	15.91	15.75	15.64	15.36	15.31	15.14	14.98	14.59
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	14.42	14.20	13.98	13.87	13.82	13.76	13.71	13.65	13.65
45.0	13.49	13.43	13.43	13.32	13.32	13.27	13.27	13.21	13.21
90.0	13.54	13.43	13.43	13.38	13.43	13.32	13.32	13.27	13.27
135.0	13.76	13.71	13.65	13.60	13.49	13.49	13.43	13.43	13.38
180.0	13.87	13.71	13.65	13.60	13.60	13.49	13.43	13.43	13.38
225.0	13.93	13.82	13.65	13.54	13.54	13.43	13.43	13.38	13.32
270.0	14.31	14.15	13.93	13.76	13.65	13.49	13.49	13.43	13.43
315.0	14.15	13.98	13.76	13.65	13.60	13.54	13.49	13.49	13.43
360.0	14.42	14.20	13.98	13.87	13.82	13.76	13.71	13.65	13.65
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	13.65	13.65	13.65	13.65	13.60	13.60	13.65	13.54	13.32
45.0	13.21	13.16	13.16	13.27	13.38	13.43	13.10	12.99	12.99
90.0	13.27	13.27	13.27	13.49	13.71	13.16	13.16	13.16	13.16
135.0	13.38	13.38	13.38	13.38	13.38	13.49	13.21	13.27	13.21
180.0	13.38	13.38	13.32	13.32	13.32	13.32	13.32	13.21	13.21
225.0	13.38	13.32	13.27	13.21	13.27	13.21	13.21	13.21	13.16
270.0	13.38	13.32	13.32	13.32	13.21	13.27	13.21	13.21	13.21
315.0	13.38	13.38	13.38	13.38	13.32	13.32	13.27	13.27	13.21
360.0	13.65	13.65	13.65	13.65	13.60	13.60	13.65	13.54	13.32

Intensity data(cd)

C/γ(°)	90.0
0.0	13.21
45.0	13.05
90.0	13.10
135.0	13.21
180.0	13.21
225.0	13.10
270.0	13.16
315.0	13.16
360.0	13.21