
Nata

Client:

LumCAT: 2-1283-N

Luminaire: 92.70.125.00

Report No: nata-0100

Test No: GC2018060414

LampCAT: NICHIA NTCWS024B-V3

Lamp flux(lm): 1044.0

Number of Lamps: 1

Length(mm): 57

Phm Type: C

Voltage(V): 36.4000

Current(A): 0.2900

Power (W): 10.5560

PF: 0.0000

Ballast type: DC

Width(mm): 57

Height(mm): 0

Photometric Results

Lumens(lm): 855.35, Efficiency(%): 81.93% , Luminous Efficacy(lm/W): 81.03

Central intensity(cd): 6438.846, Maximum intensity(cd): 6438.846

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=11.6

[C90/270]Total=11.6

Field angle(10%Imax): [C0/180]Total=38.0

[C90/270]Total=38.0

Maximum s/h(1/2): C0_180=0.20 C90_270=0.20

Maximum s/h(1/4): C0_180=0.25 C90_270=0.25

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 82.07%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.652%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6438.846	1.540	1.54	.148%	.180%
1.0	6300.861	12.059	13.599	1.155%	1.590%
2.0	5899.569	22.578	36.178	2.163%	4.230%
3.0	5224.027	29.982	66.159	2.872%	7.735%
4.0	4488.886	34.338	100.497	3.289%	11.749%
5.0	3733.650	35.685	136.182	3.418%	15.921%
6.0	3071.184	35.204	171.386	3.372%	20.037%
7.0	2511.742	33.568	204.954	3.215%	23.961%
8.0	2182.023	33.302	238.255	3.190%	27.855%
9.0	1909.838	32.763	271.018	3.138%	31.685%
10.0	1689.750	32.177	303.195	3.082%	35.447%
11.0	1522.860	31.865	335.06	3.052%	39.172%
12.0	1356.452	30.927	365.987	2.962%	42.788%
13.0	1186.032	29.257	395.244	2.802%	46.208%
14.0	1069.464	28.372	423.616	2.718%	49.525%
15.0	963.370	27.343	450.959	2.619%	52.722%
16.0	858.983	25.964	476.923	2.487%	55.757%
17.0	780.067	25.010	501.933	2.396%	58.681%
18.0	705.376	23.903	525.837	2.290%	61.476%
19.0	641.737	22.911	548.748	2.195%	64.154%
20.0	588.140	22.059	570.807	2.113%	66.733%
21.0	541.039	21.262	592.069	2.037%	69.219%
22.0	501.240	20.591	612.66	1.972%	71.626%
23.0	467.959	20.051	632.711	1.921%	73.971%
24.0	439.212	19.590	652.301	1.876%	76.261%
25.0	412.145	19.101	671.402	1.830%	78.494%
26.0	391.926	18.841	690.243	1.805%	80.697%
27.0	372.209	18.530	708.773	1.775%	82.863%
28.0	354.481	18.250	727.023	1.748%	84.997%
29.0	333.600	17.736	744.758	1.699%	87.070%
30.0	308.233	16.901	761.659	1.619%	89.046%
31.0	275.585	15.565	777.224	1.491%	90.866%
32.0	219.097	12.732	789.956	1.220%	92.354%
33.0	165.279	9.871	799.827	.946%	93.508%
34.0	109.273	6.701	806.528	.642%	94.292%
35.0	69.488	4.371	810.899	.419%	94.803%
36.0	41.774	2.693	813.591	.258%	95.117%
37.0	27.308	1.802	815.394	.173%	95.328%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	20.584	1.390	816.783	.133%	95.491%
39.0	17.157	1.184	817.967	.113%	95.629%
40.0	14.893	1.050	819.017	.101%	95.752%
41.0	13.668	0.983	820.001	.094%	95.867%
42.0	12.904	0.947	820.947	.091%	95.977%
43.0	12.209	0.913	821.86	.087%	96.084%
44.0	11.617	0.885	822.745	.085%	96.188%
45.0	11.101	0.861	823.606	.082%	96.288%
46.0	10.667	0.841	824.448	.081%	96.387%
47.0	10.357	0.831	825.278	.080%	96.484%
48.0	10.117	0.824	826.103	.079%	96.580%
49.0	9.896	0.819	826.922	.078%	96.676%
50.0	9.676	0.813	827.735	.078%	96.771%
51.0	9.511	0.811	828.545	.078%	96.866%
52.0	9.442	0.816	829.361	.078%	96.961%
53.0	9.539	0.835	830.196	.080%	97.059%
54.0	9.738	0.864	831.06	.083%	97.160%
55.0	9.903	0.890	831.95	.085%	97.264%
56.0	10.062	0.915	832.865	.088%	97.371%
57.0	10.123	0.931	833.796	.089%	97.480%
58.0	10.296	0.957	834.753	.092%	97.591%
59.0	10.488	0.986	835.739	.094%	97.707%
60.0	10.612	1.008	836.747	.097%	97.825%
61.0	10.392	0.997	837.744	.095%	97.941%
62.0	9.855	0.954	838.698	.091%	98.053%
63.0	9.222	0.901	839.599	.086%	98.158%
64.0	8.665	0.854	840.453	.082%	98.258%
65.0	8.210	0.816	841.269	.078%	98.353%
66.0	7.839	0.785	842.054	.075%	98.445%
67.0	7.529	0.760	842.814	.073%	98.534%
68.0	7.364	0.749	843.563	.072%	98.621%
69.0	7.102	0.727	844.29	.070%	98.706%
70.0	6.504	0.670	844.96	.064%	98.785%
71.0	6.049	0.627	845.587	.060%	98.858%
72.0	5.857	0.611	846.198	.059%	98.930%
73.0	5.760	0.604	846.802	.058%	99.000%
74.0	5.650	0.596	847.398	.057%	99.070%
75.0	5.519	0.585	847.983	.056%	99.138%

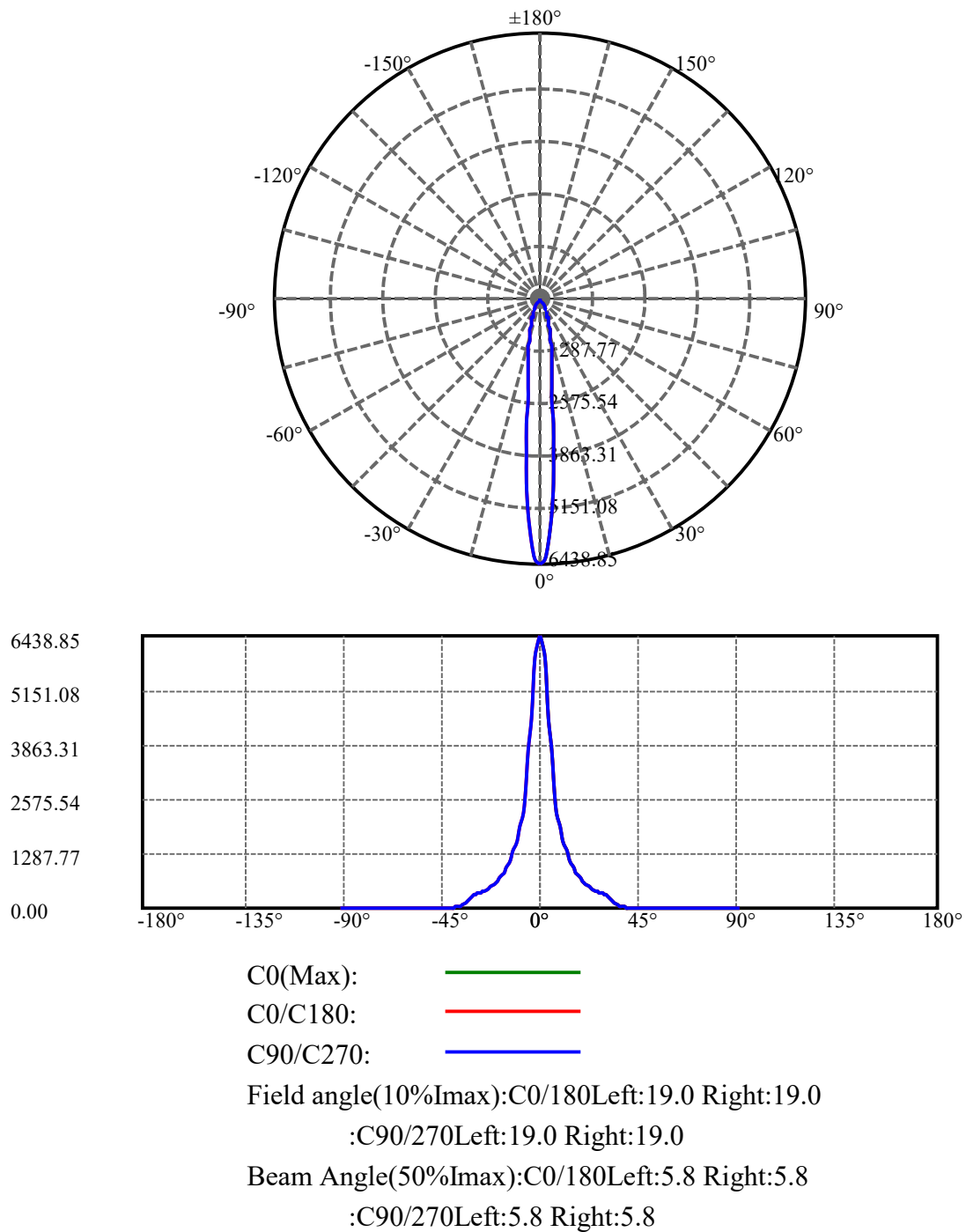
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.437	0.578	848.561	.055%	99.206%
77.0	5.340	0.571	849.132	.055%	99.272%
78.0	5.272	0.565	849.697	.054%	99.339%
79.0	5.162	0.556	850.253	.053%	99.404%
80.0	5.051	0.546	850.798	.052%	99.467%
81.0	4.955	0.537	851.335	.051%	99.530%
82.0	4.838	0.525	851.86	.050%	99.592%
83.0	4.749	0.517	852.377	.050%	99.652%
84.0	4.645	0.507	852.884	.049%	99.711%
85.0	4.535	0.495	853.379	.047%	99.769%
86.0	4.418	0.483	853.863	.046%	99.826%
87.0	4.102	0.449	854.312	.043%	99.878%
88.0	3.881	0.425	854.737	.041%	99.928%
89.0	3.764	0.413	855.15	.040%	99.976%
90.0	3.730	0.205	855.354	.020%	100.000%

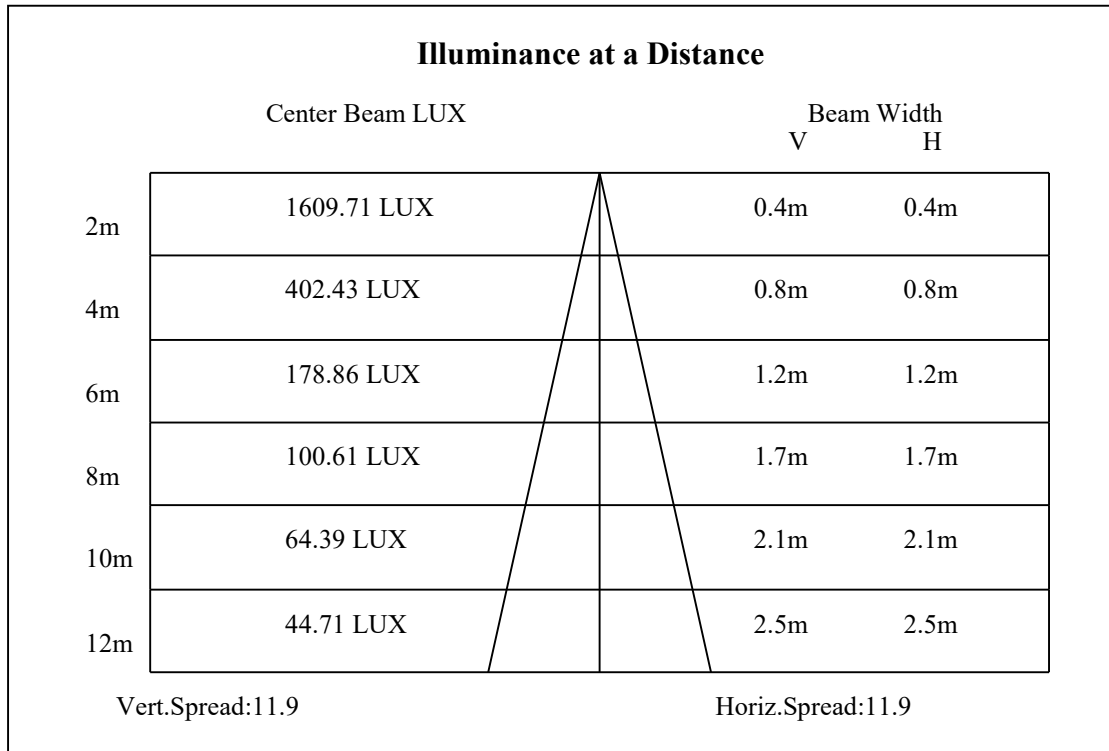
ZONAL LUMEN SUMMARY

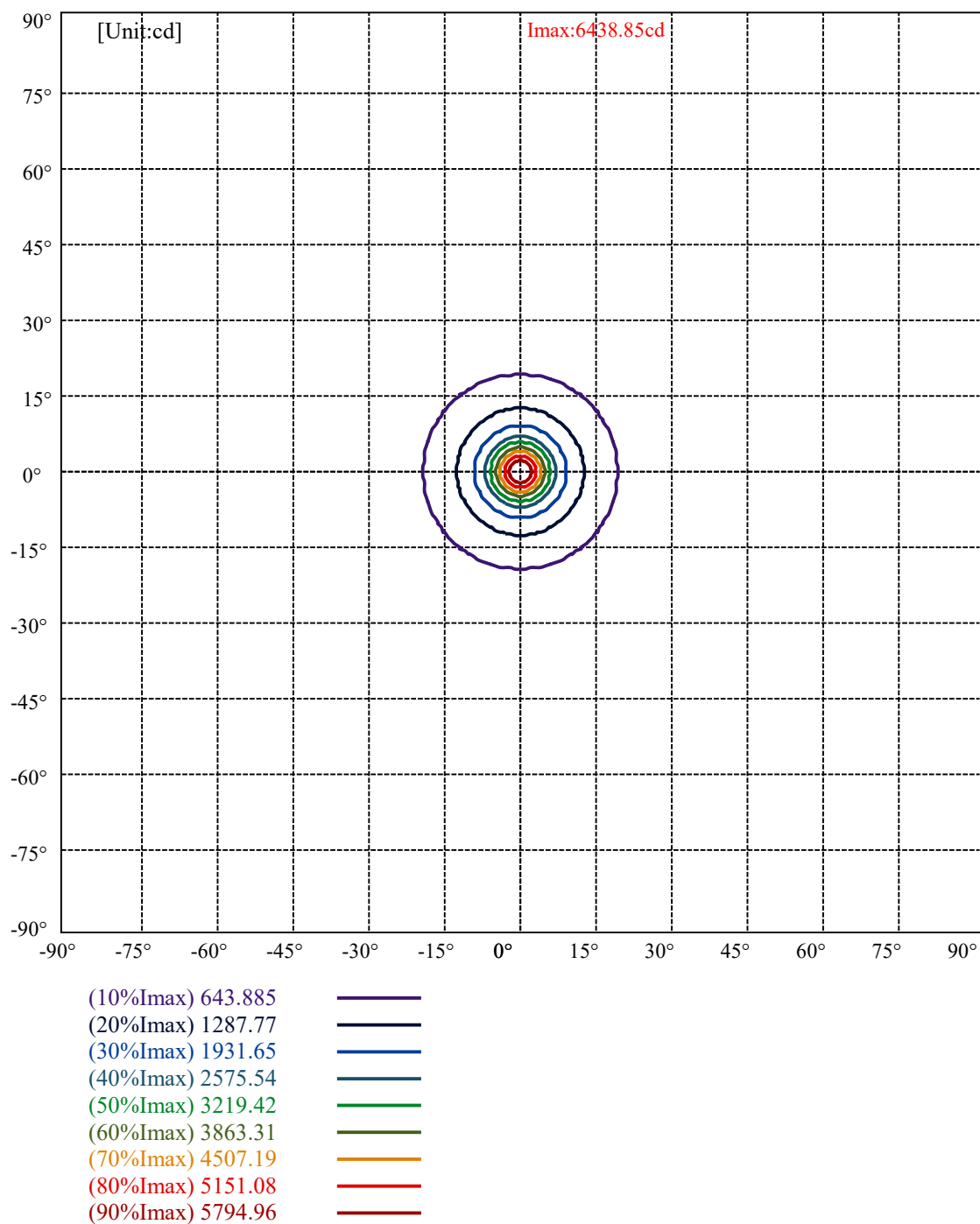
Zone	Lumens	%Lamp	%Fixt
0-30	761.66	72.96%	89.05%
0-40	819.02	78.45%	95.75%
0-60	836.75	80.15%	97.82%
0-90	855.15	81.91%	99.98%
0-120	855.15	81.91%	99.98%
0-180	855.35	81.93%	100.00%
60-90	19.41	1.86%	2.27%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-25.68	684.28	65.54%	80.00%

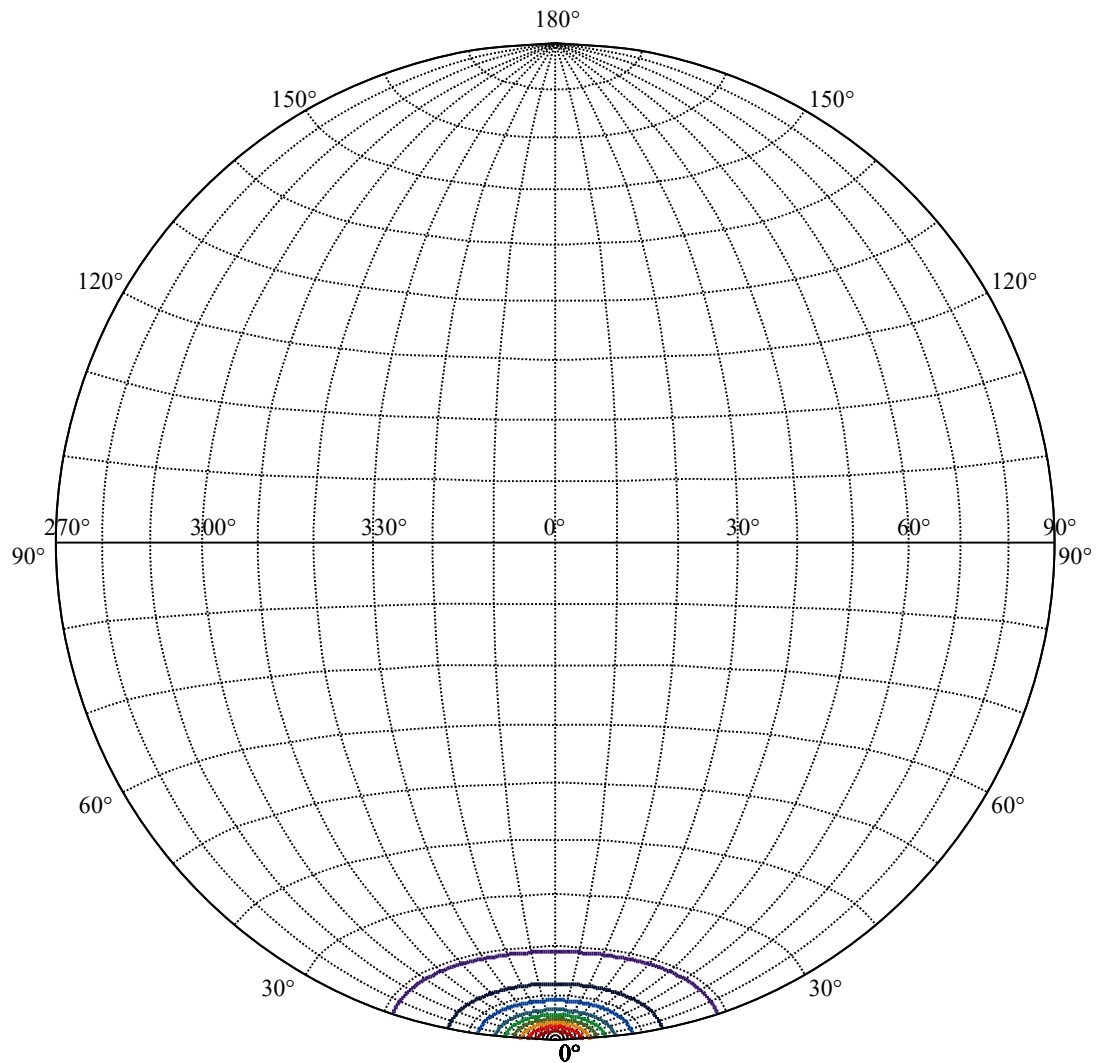
ZONAL LUMEN SUMMARY

0-10	303.20
10-20	267.61
20-30	190.85
30-40	57.36
40-50	8.72
50-60	9.01
60-70	8.21
70-80	5.84
80-90	4.35
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









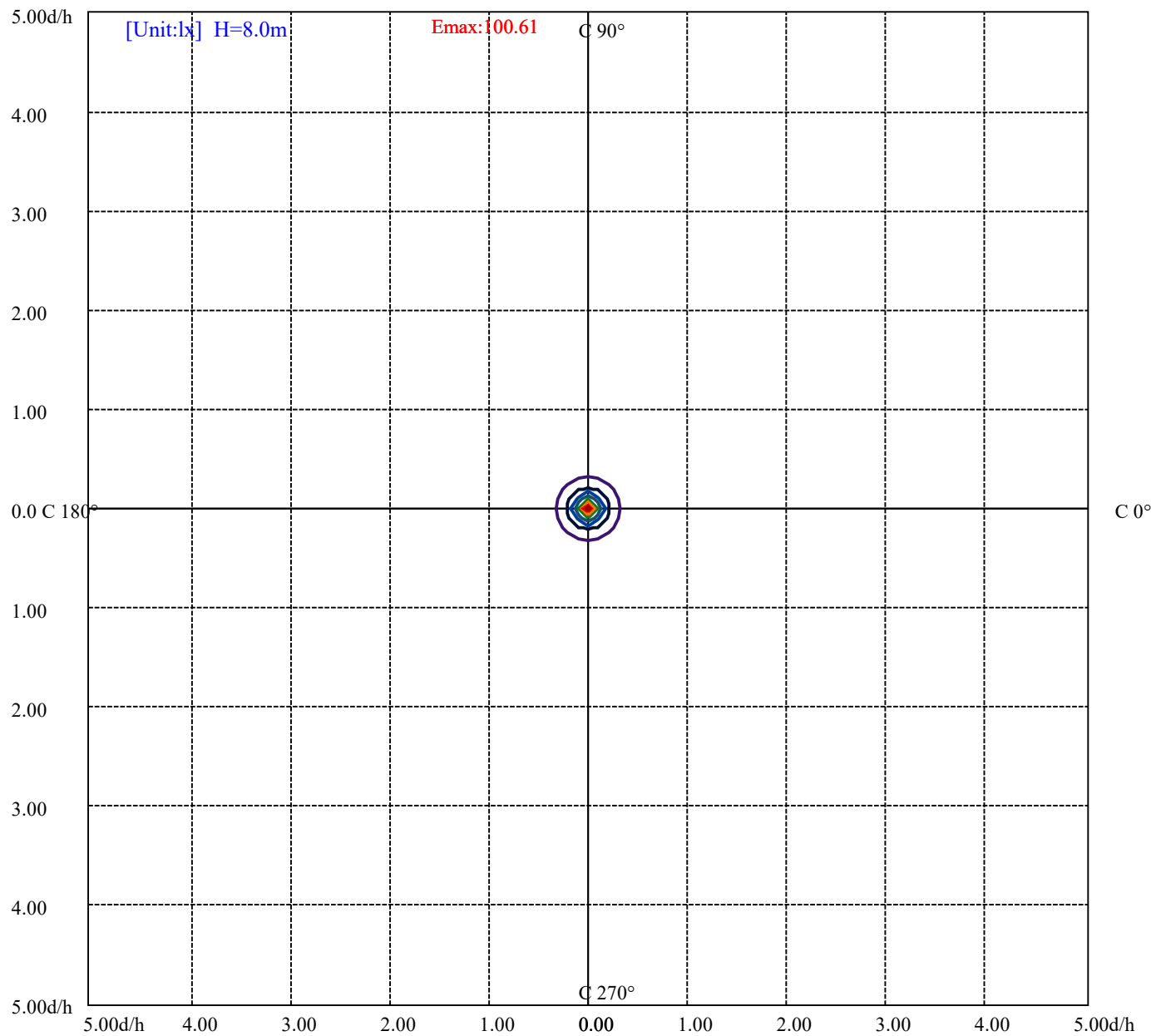
House

[Unit:cd]

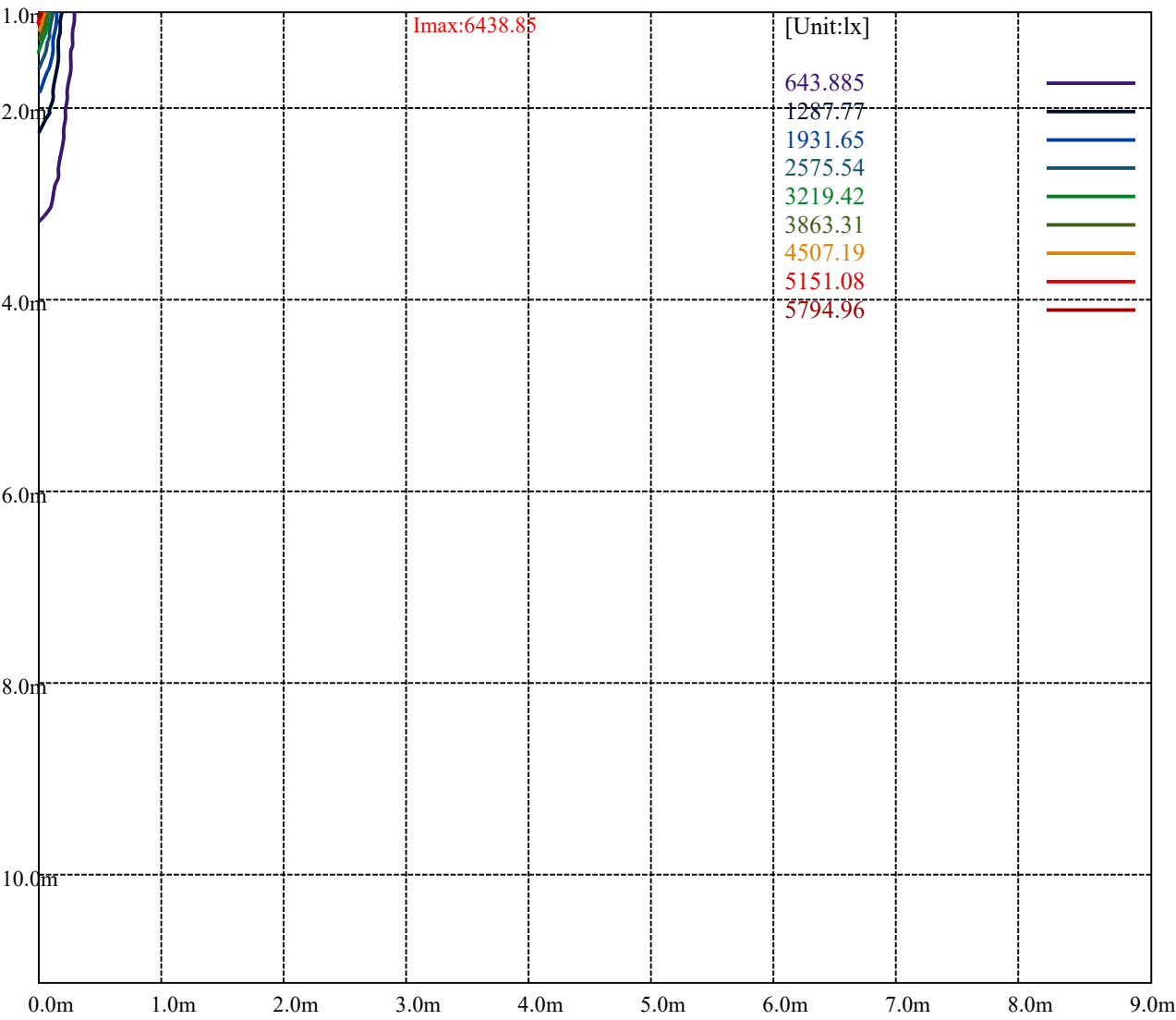
Road

Imax:6438.85

(10%Imax)	643.885	—
(20%Imax)	1287.77	—
(30%Imax)	1931.65	—
(40%Imax)	2575.54	—
(50%Imax)	3219.42	—
(60%Imax)	3863.31	—
(70%Imax)	4507.19	—
(80%Imax)	5151.08	—
(90%Imax)	5794.96	—



(10%Emax)	10.06066	—
(20%Emax)	20.12125	—
(30%Emax)	30.18203	—
(40%Emax)	40.24266	—
(50%Emax)	50.30328	—
(60%Emax)	60.36391	—
(70%Emax)	70.42469	—
(80%Emax)	80.48531	—
(90%Emax)	90.54594	—



Luminance Table

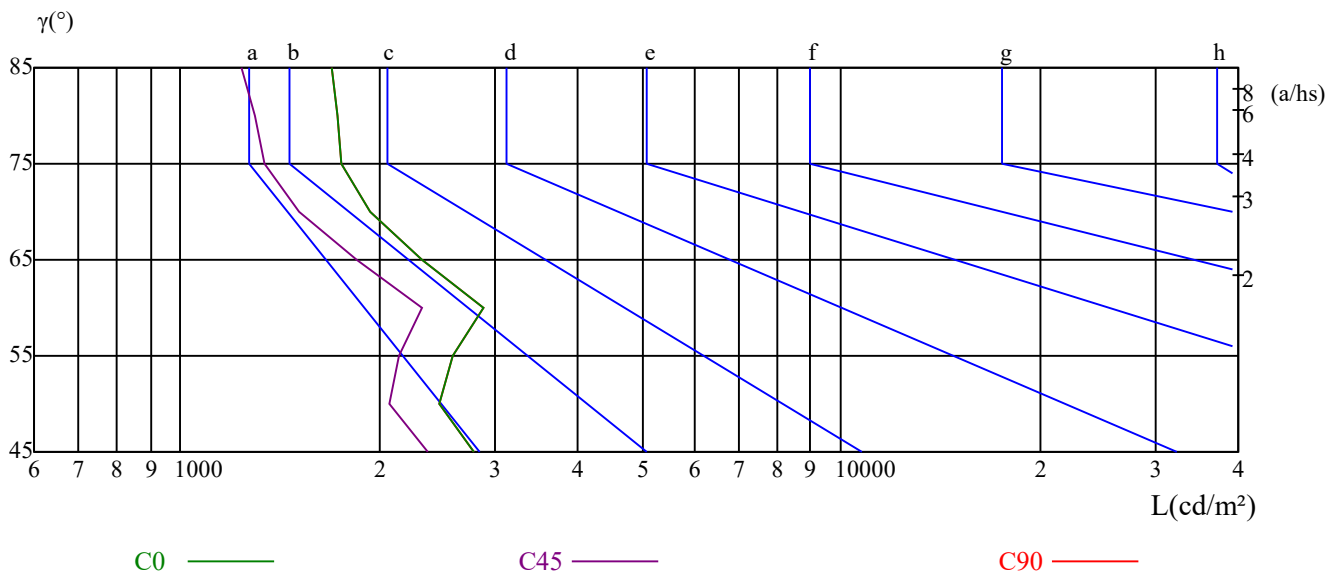
γ	45	50	55	60	65	70	75	80	85
C0	2782	2467	2589	2870	2317	1935	1750	1729	1700
C45	2366	2067	2136	2329	1849	1515	1343	1296	1241
C90	2782	2467	2589	2870	2317	1935	1750	1729	1700

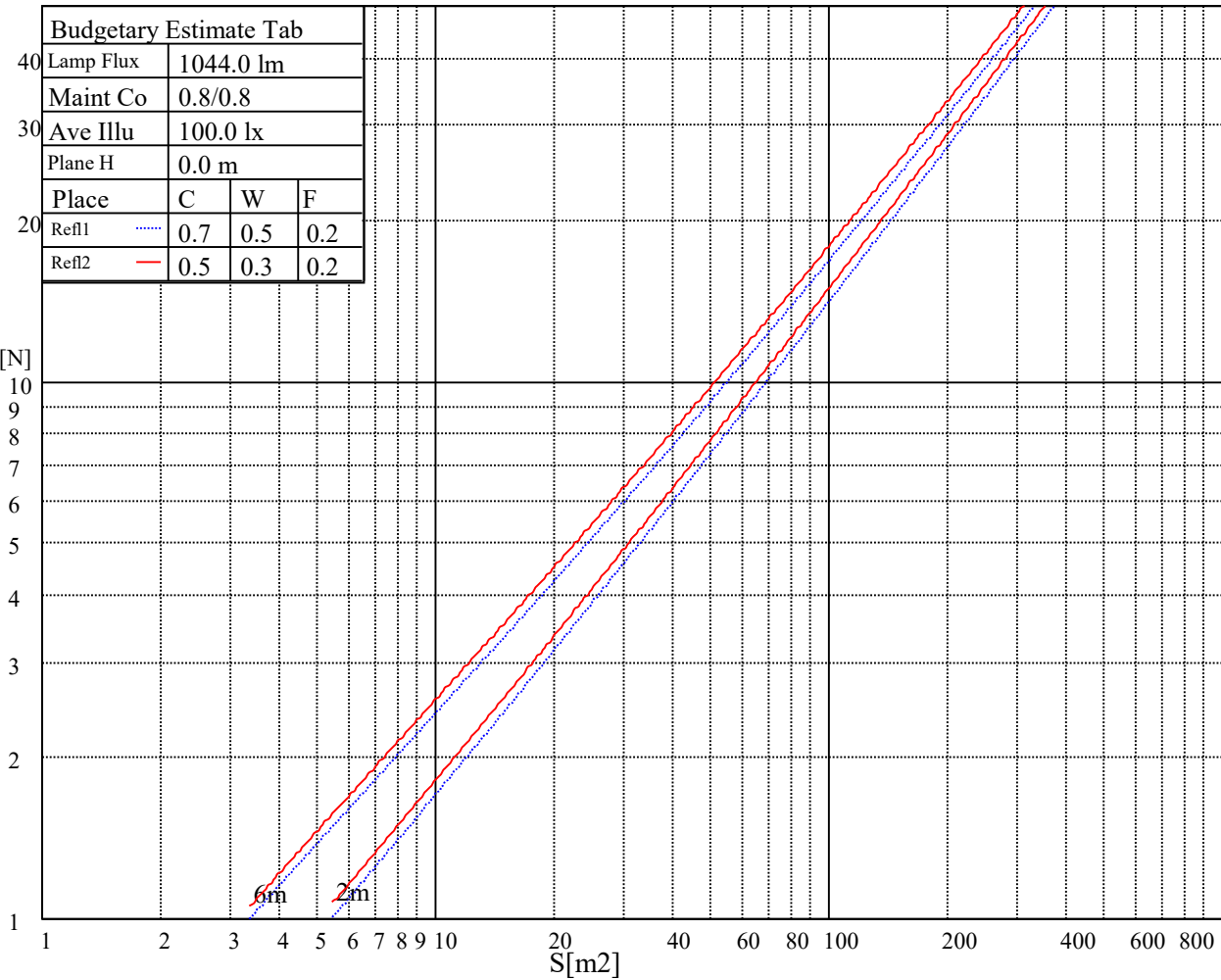
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5979	5979	5979	6564	6564	6564	16016	16016	16016

Glare Table

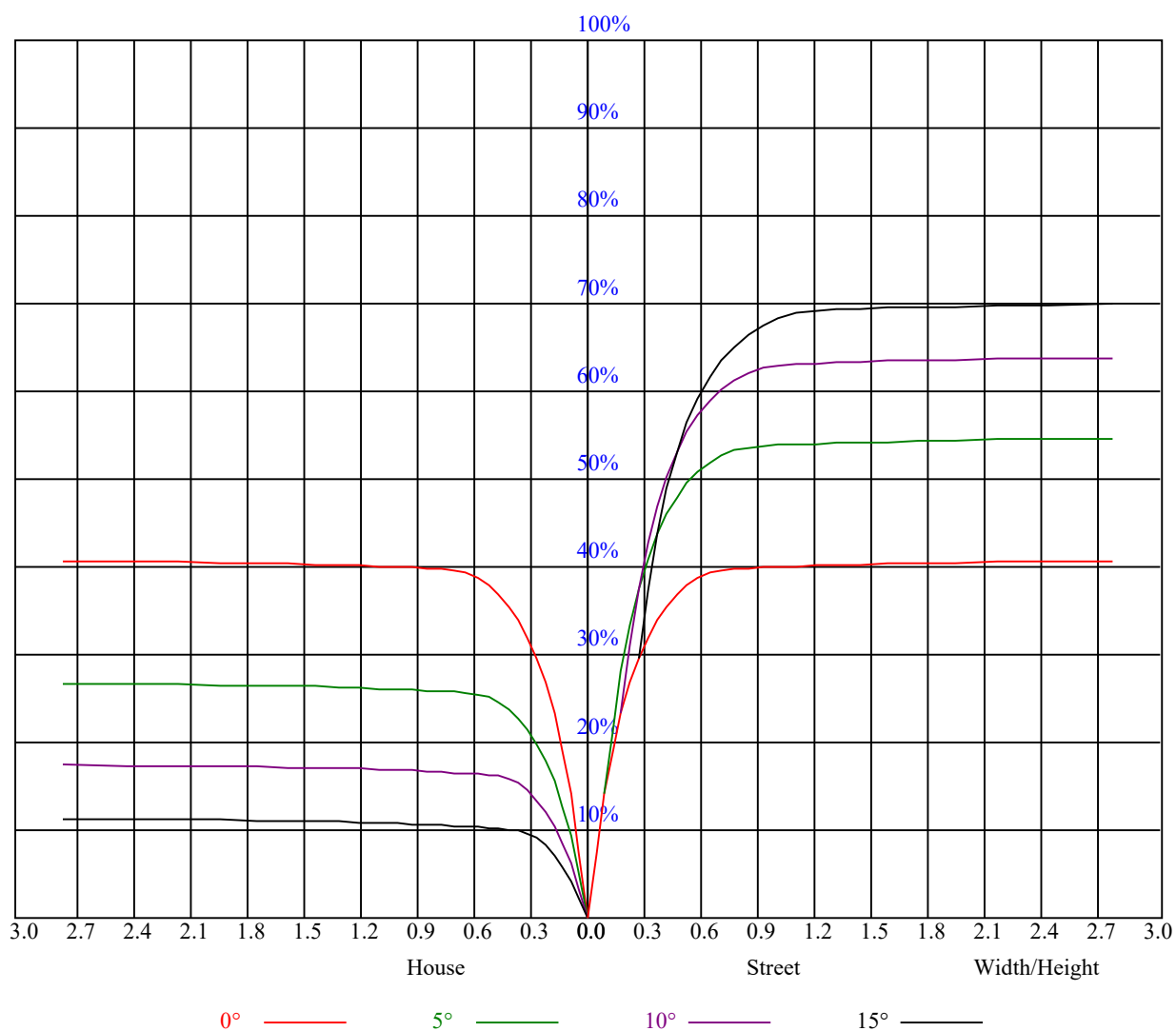
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

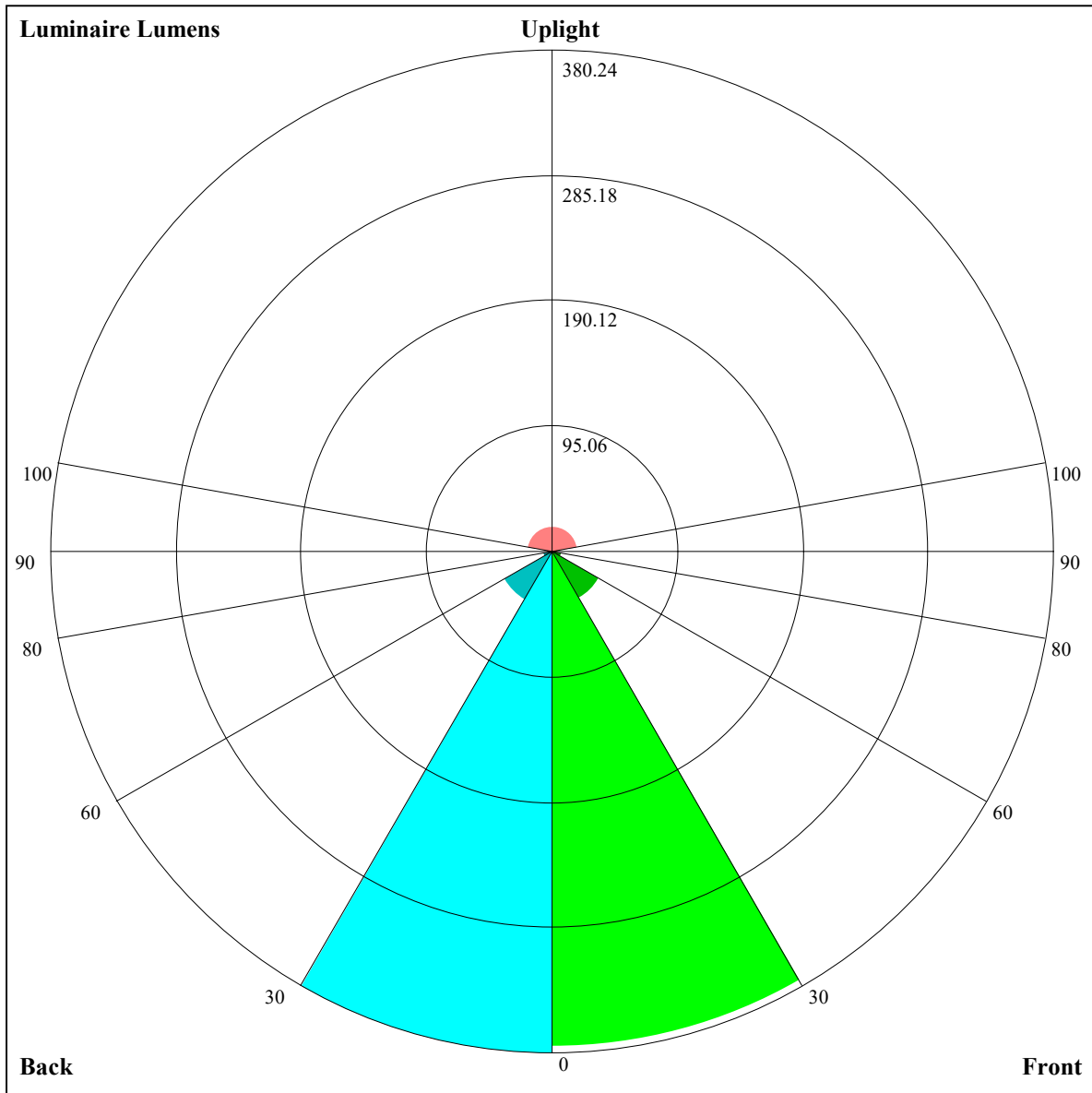
Luminance Limiting Curve





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	0.98	0.98	0.98	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.82
1	0.92	0.90	0.88	0.90	0.88	0.87	0.87	0.85	0.84	0.84	0.83	0.82	0.81	0.80	0.79	0.78
2	0.87	0.84	0.82	0.85	0.83	0.81	0.83	0.81	0.79	0.80	0.79	0.77	0.78	0.77	0.76	0.74
3	0.83	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.77	0.75	0.74	0.76	0.74	0.73	0.71
4	0.79	0.75	0.72	0.78	0.75	0.72	0.76	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.70	0.69
5	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.72	0.70	0.68	0.71	0.69	0.67	0.66
6	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.69	0.67	0.65	0.64
7	0.70	0.66	0.64	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.63	0.62
8	0.68	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.66	0.63	0.61	0.65	0.62	0.61	0.60
9	0.65	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.58
10	0.63	0.60	0.57	0.63	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.62	0.59	0.57	0.56





Luminaire Lumens:

FL=374.92,FM=41.53,FH=7.07,FVH=2.4

BL=380.24,BM=42.63,BH=7.18,BVH=2.44

UL=4.07,UH=19.37

BUG Rating:B1-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	6458.67	6337.54	5910.30	5218.80	4492.05	3686.58	2987.36	2513.32	2225.38
45.0	6460.87	6227.98	5666.40	4891.76	4187.59	3438.27	2855.22	2358.62	2064.62
90.0	6394.25	6003.35	5425.81	4629.14	3834.68	3184.46	2635.55	2163.17	1926.97
135.0	6441.60	6344.70	5919.66	5228.16	4523.43	3738.33	3019.29	2513.88	2172.53
180.0	6458.67	6321.58	5931.23	5249.08	4543.80	3733.93	3079.86	2456.07	2137.29
225.0	6460.87	6431.14	6170.17	5588.22	4785.50	4071.42	3394.78	2701.07	2311.27
270.0	6394.25	6464.17	6279.73	5792.48	5137.31	4310.37	3514.25	2906.98	2453.86
315.0	6441.60	6276.43	5893.24	5194.57	4406.71	3705.85	3083.16	2480.84	2164.27
360.0	6458.67	6337.54	5910.30	5218.80	4492.05	3686.58	2987.36	2513.32	2225.38
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1911.56	1718.31	1569.11	1373.11	1217.30	1107.18	968.99	864.39	794.46
45.0	1817.96	1612.05	1447.43	1318.05	1140.77	1026.25	925.50	820.34	748.77
90.0	1729.87	1510.75	1358.24	1175.45	1075.97	956.77	865.93	771.45	715.79
135.0	1870.82	1677.57	1504.69	1333.47	1181.51	1060.39	942.57	845.67	769.14
180.0	1908.81	1669.31	1499.74	1351.08	1095.84	1049.10	944.93	855.41	771.01
225.0	2031.58	1770.61	1596.64	1430.92	1274.56	1085.44	1016.23	901.77	805.09
270.0	2077.83	1867.51	1685.28	1499.19	1324.66	1196.38	1078.00	943.67	853.92
315.0	1930.28	1691.88	1521.76	1370.35	1177.66	1074.21	964.81	869.18	782.35
360.0	1911.56	1718.31	1569.11	1373.11	1217.30	1107.18	968.99	864.39	794.46
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	709.13	651.87	601.22	545.61	507.62	475.14	439.90	416.78	394.20
45.0	689.86	618.83	567.08	528.54	488.35	454.22	427.24	399.71	380.99
90.0	645.15	580.24	540.71	498.59	458.62	435.94	412.48	383.41	369.32
135.0	693.16	634.80	578.64	532.95	498.26	469.63	437.70	414.57	395.86
180.0	694.92	636.56	582.83	535.86	500.90	466.49	442.38	416.89	395.14
225.0	730.54	662.82	609.20	558.66	513.73	479.76	449.81	418.59	396.79
270.0	774.64	700.32	633.70	585.80	537.35	495.51	464.13	434.39	411.82
315.0	705.60	648.45	591.75	542.31	505.09	466.99	440.07	412.81	391.29
360.0	709.13	651.87	601.22	545.61	507.62	475.14	439.90	416.78	394.20
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	372.18	357.32	340.25	312.17	279.14	229.20	171.01	115.01	75.87
45.0	363.92	343.00	320.98	295.10	281.89	193.74	148.38	86.16	54.67
90.0	352.91	334.41	308.98	277.43	225.90	166.38	115.89	69.92	41.29
135.0	373.83	357.87	336.39	309.97	282.44	214.83	154.27	92.49	55.44
180.0	377.52	360.29	336.45	309.75	273.63	211.75	157.41	107.53	64.42
225.0	377.08	357.43	338.76	318.89	287.06	242.25	192.48	134.23	88.48
270.0	384.84	366.13	349.61	330.89	297.86	278.03	218.52	155.48	107.64
315.0	375.37	359.41	337.39	311.67	276.77	216.59	164.29	113.36	68.10
360.0	372.18	357.32	340.25	312.17	279.14	229.20	171.01	115.01	75.87
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	44.21	27.58	19.99	16.41	14.48	13.05	12.28	11.51	11.01
45.0	33.91	22.63	18.61	16.24	13.93	12.88	12.28	11.56	10.90
90.0	26.04	20.37	17.18	15.09	13.76	13.10	12.44	11.67	11.07
135.0	30.61	22.13	18.39	15.53	13.54	12.77	12.11	11.67	11.01
180.0	36.67	25.66	20.59	16.90	14.98	13.60	13.10	12.33	11.73
225.0	52.58	33.20	24.11	19.60	16.19	14.70	13.76	13.05	12.55
270.0	69.04	39.26	24.89	20.54	17.34	15.64	14.37	13.76	13.10
315.0	41.13	27.64	20.92	16.96	14.92	13.60	12.88	12.11	11.56
360.0	44.21	27.58	19.99	16.41	14.48	13.05	12.28	11.51	11.01

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	10.30	9.86	9.58	9.25	9.03	8.75	8.64	8.59	8.81
45.0	10.46	10.08	9.86	9.63	9.36	9.14	9.08	9.14	9.30
90.0	10.68	10.41	10.13	9.91	9.58	9.36	9.30	9.41	9.58
135.0	10.41	10.08	9.86	9.63	9.41	9.25	9.08	9.08	9.30
180.0	11.23	10.79	10.46	10.30	10.19	10.08	10.02	10.08	10.35
225.0	12.11	11.67	11.45	11.29	11.29	11.23	10.96	10.68	10.46
270.0	12.72	12.17	11.67	11.34	10.96	10.63	10.24	9.86	9.63
315.0	10.90	10.30	9.86	9.58	9.36	8.97	8.75	8.70	8.86
360.0	10.30	9.86	9.58	9.25	9.03	8.75	8.64	8.59	8.81
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.14	9.52	9.74	9.91	10.02	10.30	10.41	10.30	9.74
45.0	9.69	9.91	10.02	10.02	10.52	10.68	10.68	9.97	9.36
90.0	9.74	9.69	9.80	9.97	10.19	10.41	10.19	9.69	8.92
135.0	9.63	9.74	10.13	10.13	10.46	10.41	10.96	10.52	9.91
180.0	10.63	10.85	10.96	10.85	10.90	10.96	11.12	10.85	10.08
225.0	10.41	10.41	10.41	10.41	10.30	10.57	10.57	10.74	10.35
270.0	9.58	9.63	9.74	9.80	9.97	10.08	10.41	10.57	10.52
315.0	9.08	9.47	9.69	9.91	10.02	10.52	10.57	10.52	9.97
360.0	9.14	9.52	9.74	9.91	10.02	10.30	10.41	10.30	9.74
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	9.14	8.64	8.20	7.76	7.38	7.16	6.99	6.55	5.89
45.0	8.75	8.20	7.87	7.54	7.38	7.27	6.94	6.22	6.00
90.0	8.48	7.98	7.49	7.27	7.21	7.16	6.39	5.95	5.78
135.0	9.19	8.59	8.37	8.04	7.76	7.60	7.43	6.28	6.06
180.0	9.36	8.86	8.37	7.98	7.65	7.54	7.27	6.22	5.95
225.0	9.74	9.03	8.48	8.04	7.60	7.38	7.21	6.99	6.17
270.0	9.91	9.19	8.64	8.20	7.82	7.54	7.38	7.10	6.55
315.0	9.19	8.81	8.26	7.87	7.43	7.27	7.21	6.72	6.00
360.0	9.14	8.64	8.20	7.76	7.38	7.16	6.99	6.55	5.89
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.73	5.62	5.51	5.34	5.29	5.18	5.12	4.96	4.84
45.0	5.89	5.78	5.67	5.56	5.51	5.40	5.29	5.23	5.12
90.0	5.62	5.51	5.40	5.29	5.18	5.07	5.01	4.90	4.79
135.0	5.89	5.84	5.73	5.67	5.56	5.51	5.40	5.29	5.18
180.0	5.84	5.73	5.67	5.56	5.51	5.45	5.34	5.29	5.18
225.0	5.95	5.84	5.67	5.51	5.40	5.29	5.29	5.12	5.01
270.0	6.11	6.00	5.89	5.73	5.67	5.56	5.51	5.40	5.29
315.0	5.84	5.78	5.67	5.51	5.40	5.29	5.23	5.12	5.01
360.0	5.73	5.62	5.51	5.34	5.29	5.18	5.12	4.96	4.84
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.79	4.68	4.57	4.46	4.35	4.29	3.96	3.85	3.74
45.0	5.01	4.84	4.79	4.68	4.46	4.24	3.91	3.85	3.74
90.0	4.68	4.57	4.46	4.40	4.29	4.18	3.91	3.80	3.74
135.0	5.07	4.96	4.84	4.73	4.68	4.57	4.13	3.91	3.74
180.0	5.07	4.96	4.90	4.79	4.68	4.57	4.02	3.85	3.74
225.0	4.96	4.84	4.73	4.62	4.51	4.40	4.24	3.91	3.80
270.0	5.18	5.07	5.01	4.90	4.79	4.68	4.57	4.02	3.85
315.0	4.90	4.79	4.68	4.57	4.51	4.40	4.07	3.85	3.74
360.0	4.79	4.68	4.57	4.46	4.35	4.29	3.96	3.85	3.74

Intensity data(cd)

Appendix Page: 19 Total:19

C/ γ (°)	90.0
0.0	3.74
45.0	3.69
90.0	3.74
135.0	3.74
180.0	3.69
225.0	3.74
270.0	3.74
315.0	3.74
360.0	3.74