
Nata

LumCAT: 2-1674-M	
Luminaire: 92.70.135.00	
Report No: NT2017122802	Voltage(V): 43.4000
Test No: GC2017122802	Current(A): 0.5000
LampCAT: NICHIA NVEWJ048Z-V3	Power (W): 21.7000
Lamp flux(lm): 3051.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2713.55
Efficiency(%): 88.94%
Lumens(lm)/Power(W): 125.05
Central intensity(cd): 15835.600
Maximum intensity(cd): 15835.600
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=16.5
[C90/270]Total=16.5
Field angle(10%Imax): [C0/180]Total=36.6
[C90/270]Total=36.6
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.28 C90_270=0.28
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.94%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.417%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15835.597	0.000	0	.000%	.000%
1.0	15734.431	15.106	15.106	.495%	.557%
2.0	15401.340	44.689	59.795	1.465%	2.204%
3.0	14781.955	72.189	131.983	2.366%	4.864%
4.0	13837.050	95.797	227.78	3.140%	8.394%
5.0	12740.395	114.335	342.115	3.747%	12.608%
6.0	11077.072	125.167	467.282	4.102%	17.220%
7.0	9737.894	129.198	596.48	4.235%	21.982%
8.0	8322.807	129.257	725.737	4.237%	26.745%
9.0	6827.957	122.789	848.526	4.025%	31.270%
10.0	5452.786	111.136	959.662	3.643%	35.366%
11.0	4500.930	99.458	1059.12	3.260%	39.031%
12.0	3722.019	89.889	1149.009	2.946%	42.343%
13.0	3040.765	80.257	1229.266	2.631%	45.301%
14.0	2637.890	72.686	1301.952	2.382%	47.980%
15.0	2332.051	68.230	1370.182	2.236%	50.494%
16.0	2008.733	63.605	1433.787	2.085%	52.838%
17.0	1785.066	59.080	1492.866	1.936%	55.015%
18.0	1623.131	56.194	1549.06	1.842%	57.086%
19.0	1489.344	54.151	1603.211	1.775%	59.082%
20.0	1387.628	52.657	1655.867	1.726%	61.022%
21.0	1305.043	51.705	1707.572	1.695%	62.928%
22.0	1236.636	51.076	1758.648	1.674%	64.810%
23.0	1184.917	50.811	1809.459	1.665%	66.682%
24.0	1134.974	50.721	1860.18	1.662%	68.552%
25.0	1100.901	50.839	1911.019	1.666%	70.425%
26.0	1074.887	51.360	1962.379	1.683%	72.318%
27.0	1051.095	52.013	2014.391	1.705%	74.235%
28.0	1026.086	52.590	2066.981	1.724%	76.173%
29.0	1007.656	53.208	2120.189	1.744%	78.133%
30.0	990.189	53.941	2174.131	1.768%	80.121%
31.0	966.309	54.447	2228.577	1.785%	82.128%
32.0	933.488	54.427	2283.004	1.784%	84.134%
33.0	889.539	53.707	2336.711	1.760%	86.113%
34.0	820.561	51.753	2388.464	1.696%	88.020%
35.0	731.775	48.210	2436.674	1.580%	89.797%
36.0	645.034	43.838	2480.512	1.437%	91.412%
37.0	543.985	38.779	2519.291	1.271%	92.841%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	445.358	33.023	2552.314	1.082%	94.058%
39.0	342.437	26.890	2579.203	.881%	95.049%
40.0	248.380	20.606	2599.809	.675%	95.808%
41.0	172.368	14.983	2614.792	.491%	96.361%
42.0	114.889	10.437	2625.228	.342%	96.745%
43.0	64.361	6.640	2631.868	.218%	96.990%
44.0	47.211	4.211	2636.079	.138%	97.145%
45.0	39.338	3.326	2639.405	.109%	97.268%
46.0	34.211	2.876	2642.282	.094%	97.374%
47.0	30.921	2.590	2644.872	.085%	97.469%
48.0	28.678	2.409	2647.281	.079%	97.558%
49.0	26.916	2.283	2649.564	.075%	97.642%
50.0	25.484	2.185	2651.749	.072%	97.723%
51.0	24.466	2.113	2653.862	.069%	97.800%
52.0	23.488	2.058	2655.92	.067%	97.876%
53.0	22.525	2.002	2657.922	.066%	97.950%
54.0	21.672	1.948	2659.87	.064%	98.022%
55.0	20.887	1.900	2661.769	.062%	98.092%
56.0	20.144	1.854	2663.624	.061%	98.160%
57.0	19.414	1.809	2665.432	.059%	98.227%
58.0	18.719	1.763	2667.196	.058%	98.292%
59.0	18.065	1.720	2668.915	.056%	98.355%
60.0	17.453	1.678	2670.593	.055%	98.417%
61.0	16.854	1.637	2672.231	.054%	98.477%
62.0	16.359	1.600	2673.831	.052%	98.536%
63.0	15.980	1.573	2675.404	.052%	98.594%
64.0	15.560	1.548	2676.951	.051%	98.651%
65.0	15.237	1.524	2678.476	.050%	98.707%
66.0	14.948	1.506	2679.982	.049%	98.763%
67.0	14.693	1.490	2681.472	.049%	98.818%
68.0	14.425	1.475	2682.947	.048%	98.872%
69.0	14.205	1.461	2684.408	.048%	98.926%
70.0	14.005	1.449	2685.856	.047%	98.979%
71.0	13.826	1.438	2687.295	.047%	99.033%
72.0	13.647	1.429	2688.723	.047%	99.085%
73.0	13.503	1.420	2690.143	.047%	99.137%
74.0	13.365	1.412	2691.556	.046%	99.190%
75.0	13.255	1.406	2692.962	.046%	99.241%

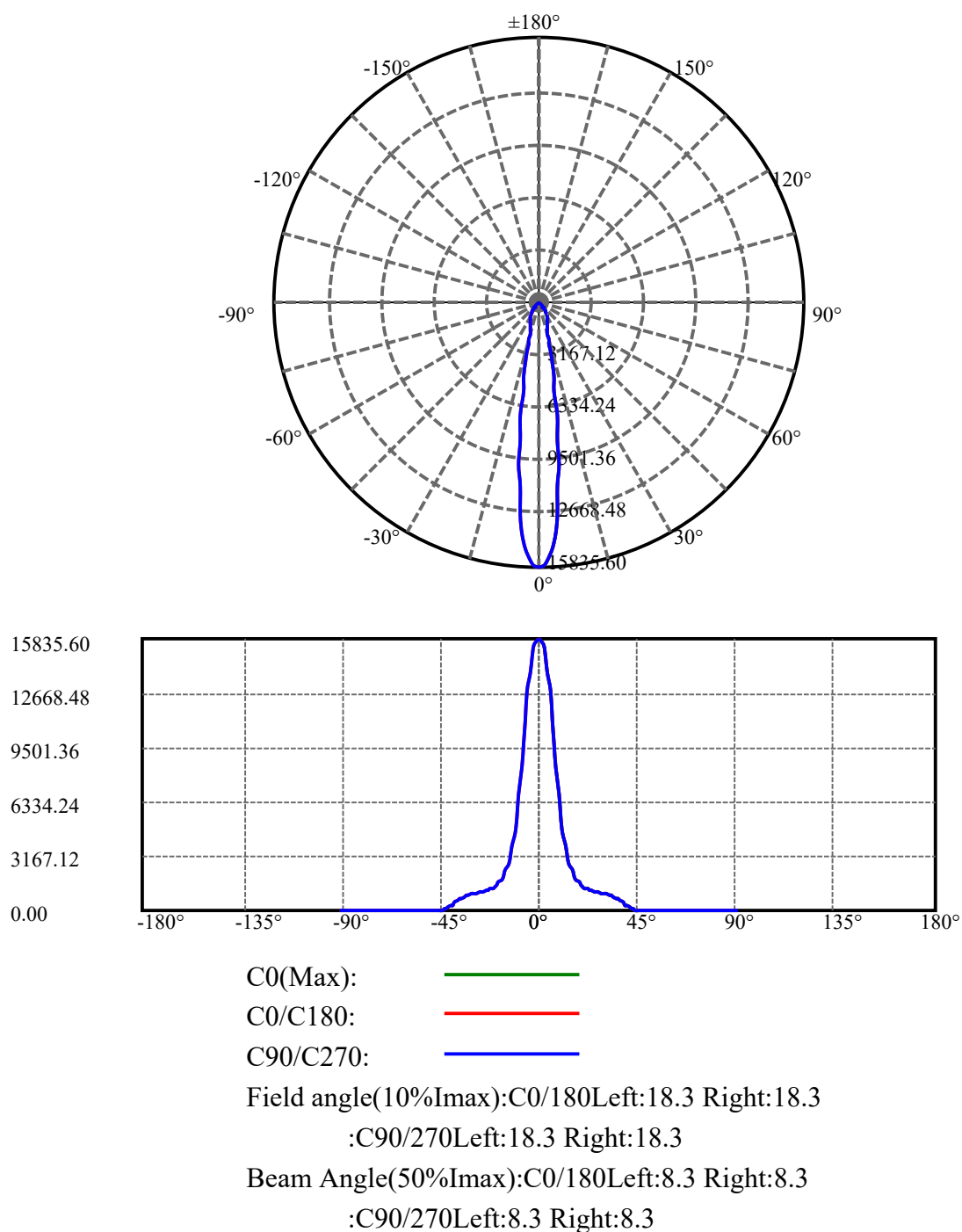
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.165	1.402	2694.365	.046%	99.293%
77.0	13.069	1.399	2695.763	.046%	99.345%
78.0	13.048	1.398	2697.161	.046%	99.396%
79.0	12.980	1.398	2698.56	.046%	99.448%
80.0	12.904	1.395	2699.955	.046%	99.499%
81.0	12.814	1.391	2701.346	.046%	99.550%
82.0	12.704	1.384	2702.73	.045%	99.601%
83.0	12.587	1.375	2704.105	.045%	99.652%
84.0	12.518	1.368	2705.472	.045%	99.702%
85.0	12.443	1.362	2706.835	.045%	99.753%
86.0	12.374	1.357	2708.191	.044%	99.803%
87.0	12.257	1.348	2709.539	.044%	99.852%
88.0	12.209	1.340	2710.879	.044%	99.902%
89.0	12.161	1.336	2712.215	.044%	99.951%
90.0	12.154	1.333	2713.548	.044%	100.000%

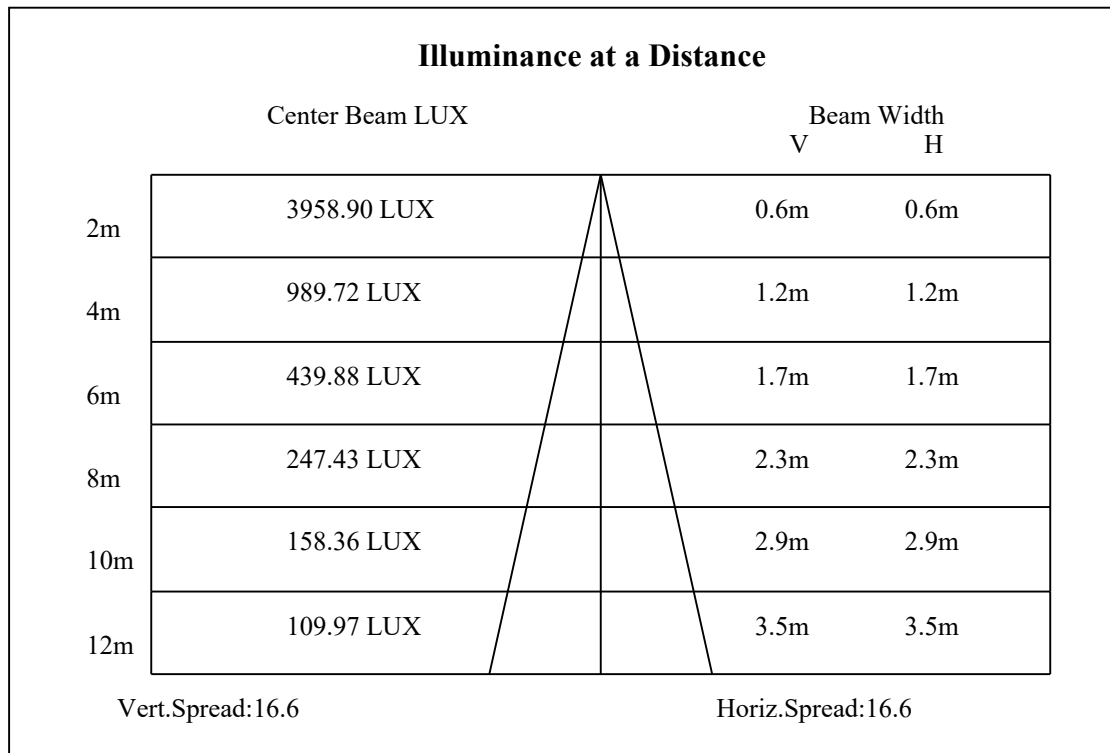
ZONAL LUMEN SUMMARY

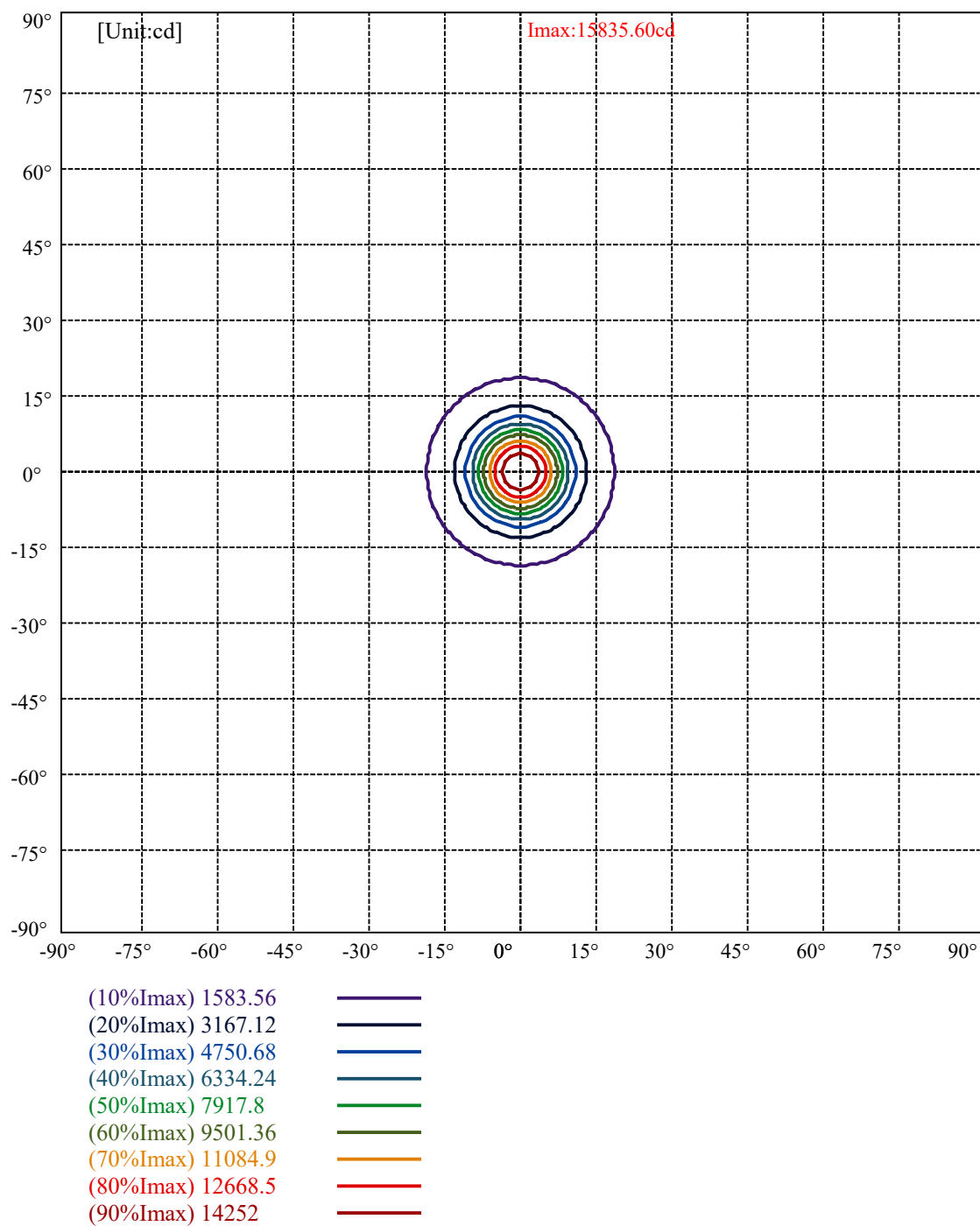
Zone	Lumens	%Lamp	%Fixt
0-30	2174.13	71.26%	80.12%
0-40	2599.81	85.21%	95.81%
0-60	2670.59	87.53%	98.42%
0-90	2712.22	88.90%	99.95%
0-120	2712.22	88.90%	99.95%
0-180	2713.55	88.94%	100.00%
60-90	43.30	1.42%	1.60%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-29.94	2170.84	71.15%	80.00%

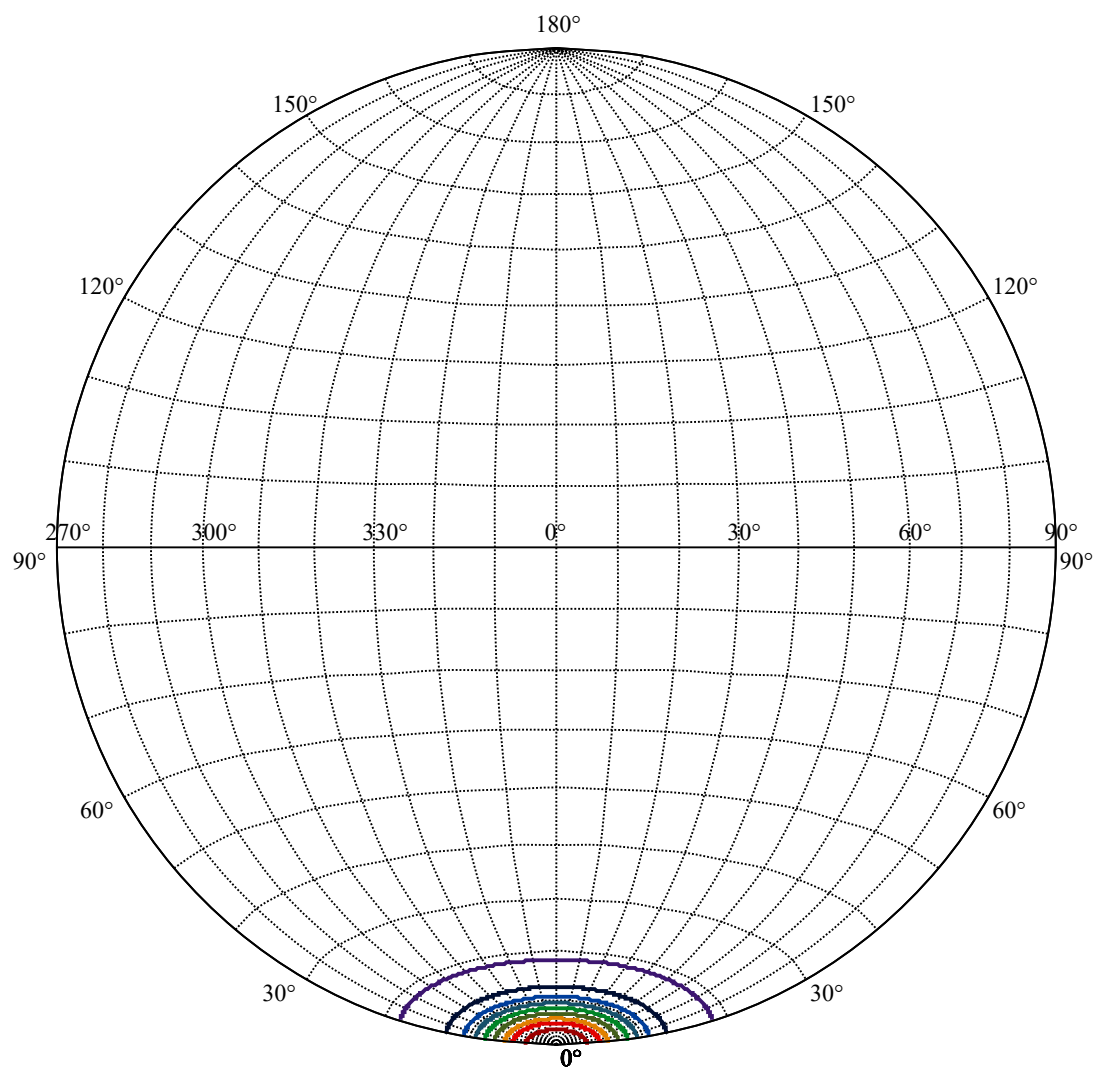
ZONAL LUMEN SUMMARY

0-10	959.66
10-20	696.21
20-30	518.26
30-40	425.68
40-50	51.94
50-60	18.84
60-70	15.26
70-80	14.10
80-90	12.26
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









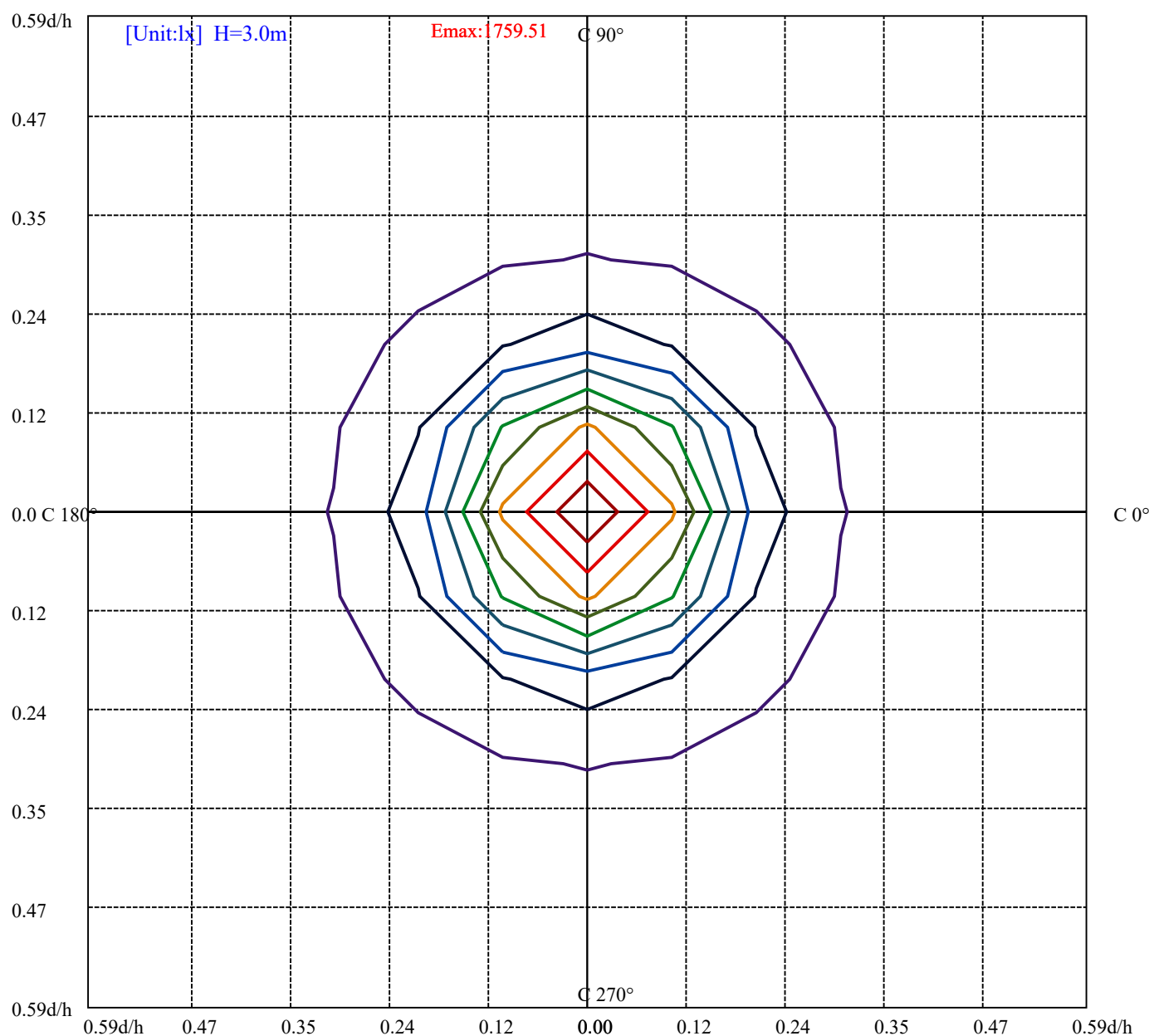
House

[Unit:cd]

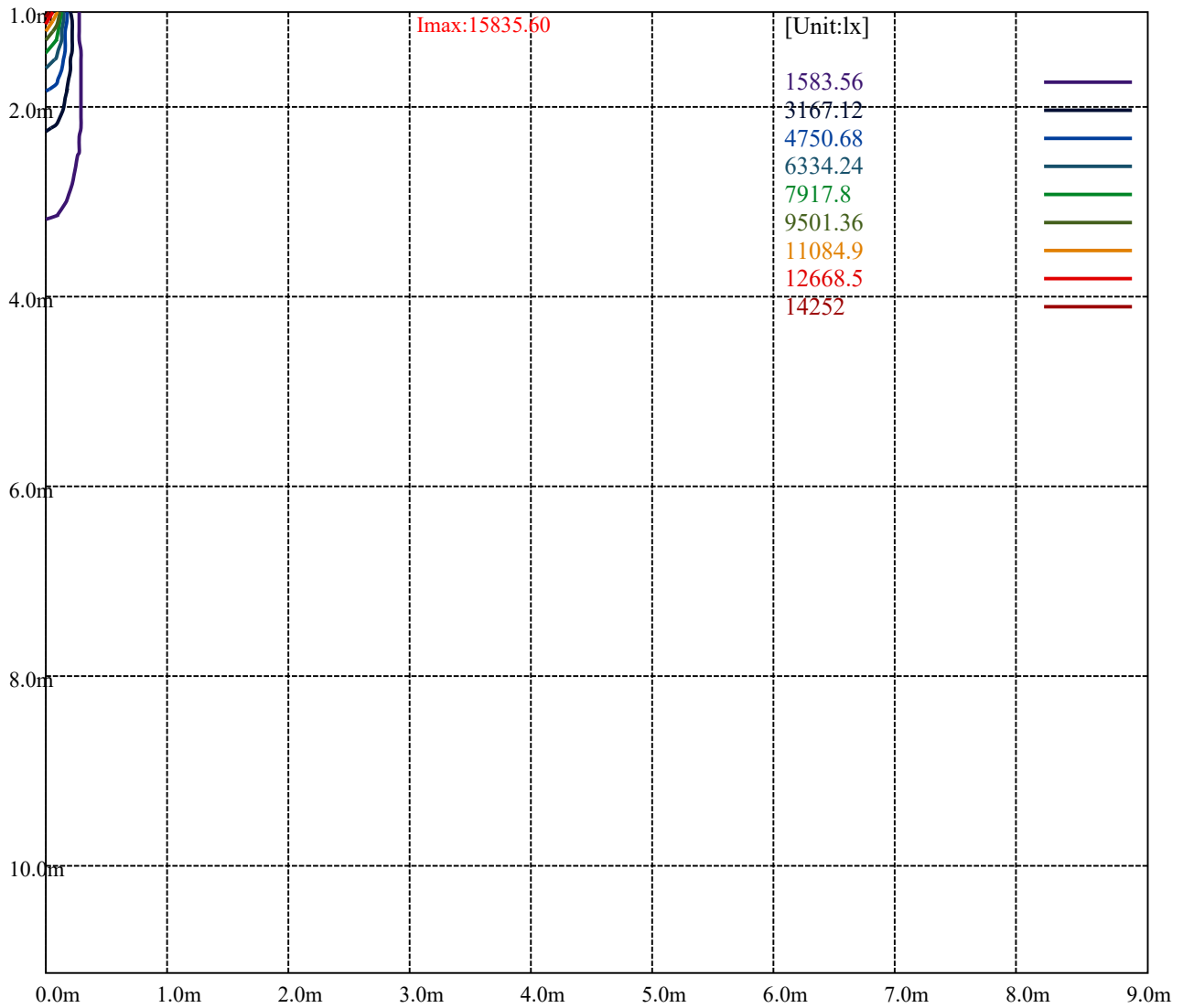
Road

Imax:15835.60

(10%Imax)	1583.56	—
(20%Imax)	3167.12	—
(30%Imax)	4750.68	—
(40%Imax)	6334.24	—
(50%Imax)	7917.8	—
(60%Imax)	9501.36	—
(70%Imax)	11084.9	—
(80%Imax)	12668.5	—
(90%Imax)	14252	—



(10%Emax)	175.9511	—
(20%Emax)	351.9022	—
(30%Emax)	527.8522	—
(40%Emax)	703.8033	—
(50%Emax)	879.7545	—
(60%Emax)	1055.706	—
(70%Emax)	1231.656	—
(80%Emax)	1407.611	—
(90%Emax)	1583.556	—



Luminance Table

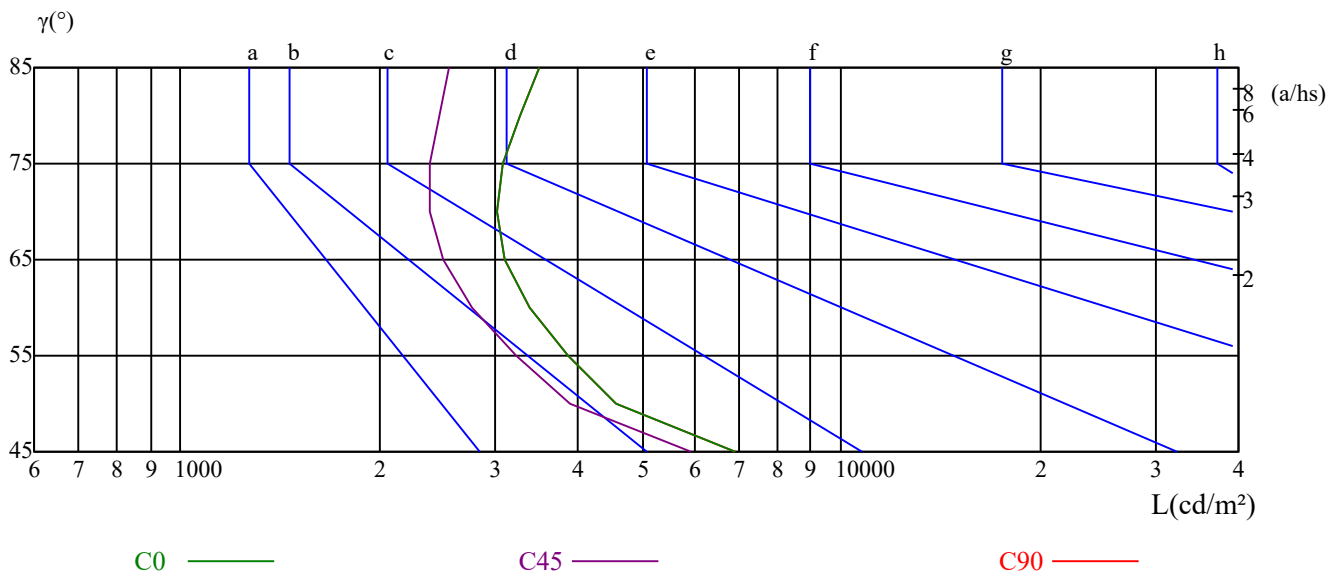
γ	45	50	55	60	65	70	75	80	85
C0	6911	4581	3875	3371	3093	3021	3075	3264	3490
C45	5947	3883	3233	2767	2494	2389	2379	2464	2558
C90	6911	4581	3875	3371	3093	3021	3075	3264	3490

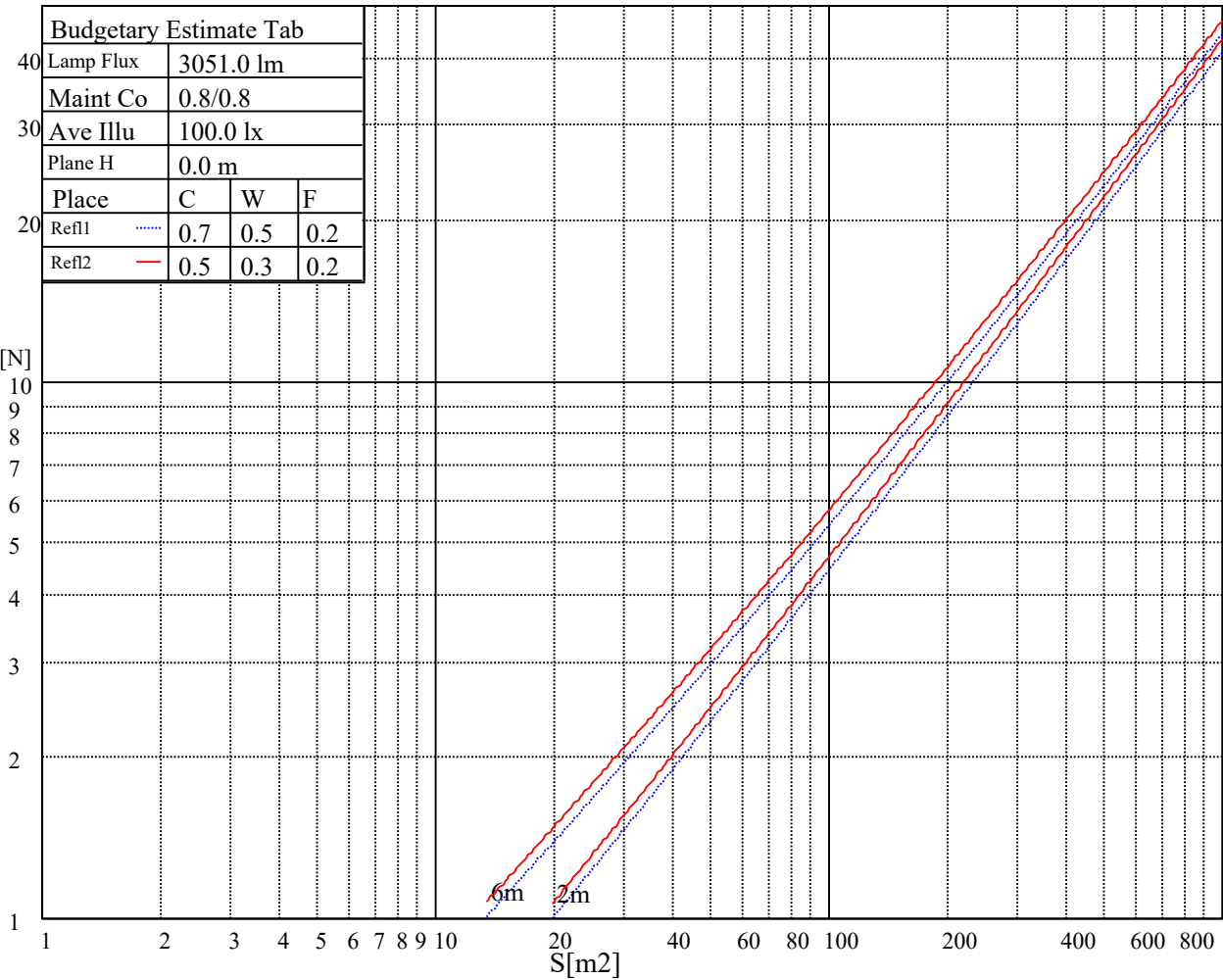
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7358	7358	7358	10452	10452	10452	29136	29136	29136

Glare Table

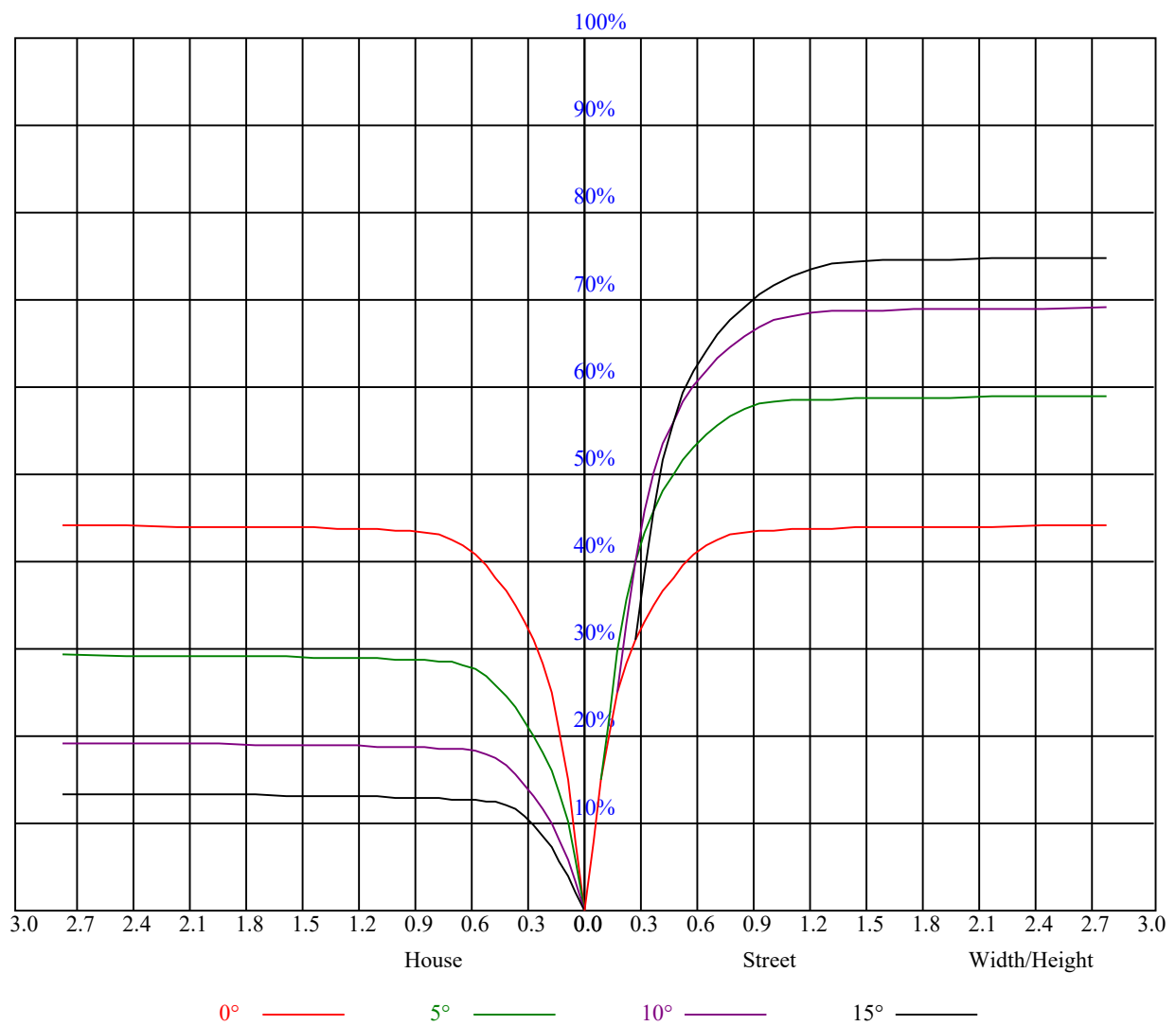
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.99	0.97	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.84
2	0.94	0.91	0.88	0.92	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.84	0.85	0.83	0.82	0.80
3	0.89	0.85	0.82	0.88	0.84	0.82	0.86	0.83	0.80	0.83	0.81	0.79	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.76	0.80	0.78	0.75	0.79	0.76	0.75	0.73
5	0.81	0.77	0.74	0.80	0.76	0.73	0.79	0.75	0.73	0.77	0.74	0.72	0.76	0.73	0.71	0.70
6	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.68
7	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
8	0.72	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.63
9	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61
10	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.59



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Intensity data(cd)										Appendix Page: 16 Total:18	
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0		
0.0	15751.64	15949.84	15933.32	15735.12	15250.62	14534.89	13417.24	12029.82	10647.91		
45.0	15850.74	15944.33	15856.24	15520.40	14986.35	14171.52	12800.61	11451.73	9998.24		
90.0	15878.27	15768.15	15415.79	14843.21	13868.71	12740.05	10841.16	9510.99	7993.09		
135.0	15861.75	15691.07	15245.12	14567.92	13494.32	12299.60	10565.32	9051.27	7575.76		
180.0	15751.64	15355.23	14700.06	13488.82	11837.13	10863.18	8980.25	7471.70	6112.36		
225.0	15850.74	15520.40	14969.84	14050.39	12806.12	10919.89	9823.71	7984.83	6781.30		
270.0	15878.27	15801.19	15481.86	14876.24	14066.91	12998.82	11374.65	9948.69	8495.20		
315.0	15861.75	15845.23	15608.49	15173.54	14386.24	13395.22	10813.63	10454.11	8978.60		
360.0	15751.64	15949.84	15933.32	15735.12	15250.62	14534.89	13417.24	12029.82	10647.91		
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0		
0.0	8996.22	7361.04	6045.19	4960.58	3914.51	3292.37	2818.89	2410.92	2100.40		
45.0	8131.83	6711.38	5467.10	4354.96	3534.62	2978.55	2868.44	2218.22	1954.50		
90.0	6562.17	5061.33	4154.56	3470.76	2835.40	2453.86	2160.41	1905.50	1699.04		
135.0	6078.23	4844.96	3991.59	3336.42	2791.36	2394.40	2112.51	1862.01	1664.91		
180.0	4984.81	3924.42	3298.43	2821.64	2378.44	2109.21	1887.33	1686.38	1531.12		
225.0	5576.11	4276.23	3647.49	3088.11	2528.19	2262.27	2016.17	1788.23	1612.05		
270.0	6771.94	5577.21	4602.72	3754.85	3116.19	2829.90	2355.86	2061.86	1826.77		
315.0	7522.36	5865.71	4800.37	3988.84	3227.41	2782.55	2436.80	2136.74	1891.74		
360.0	8996.22	7361.04	6045.19	4960.58	3914.51	3292.37	2818.89	2410.92	2100.40		
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0		
0.0	1880.73	1690.23	1545.98	1440.83	1344.48	1277.31	1214.54	1161.69	1124.80		
45.0	1735.93	1598.29	1468.90	1365.40	1293.83	1233.26	1168.30	1127.56	1096.72		
90.0	1555.89	1430.37	1346.13	1270.15	1207.94	1163.89	1095.73	1088.41	1058.57		
135.0	1523.96	1410.54	1319.15	1252.53	1194.72	1154.53	1115.99	1084.61	1062.04		
180.0	1423.21	1325.76	1258.04	1196.93	1148.48	1095.90	1078.72	1051.96	1032.31		
225.0	1491.48	1385.22	1309.24	1240.42	1185.91	1147.38	1097.44	1080.54	1054.88		
270.0	1663.25	1520.11	1408.34	1328.51	1253.08	1200.23	1152.88	1115.44	1086.81		
315.0	1710.60	1554.24	1445.23	1345.58	1264.65	1206.84	1156.18	1097.00	1082.96		
360.0	1880.73	1690.23	1545.98	1440.83	1344.48	1277.31	1214.54	1161.69	1124.80		
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0		
0.0	1093.97	1060.39	1038.36	1019.09	998.17	981.66	964.59	935.41	875.95		
45.0	1063.69	1037.26	1017.44	999.82	977.25	959.63	935.41	890.26	817.04		
90.0	1037.15	1013.20	995.69	977.75	959.30	928.58	878.70	808.23	707.47		
135.0	1041.12	1018.54	1001.48	983.31	957.98	917.24	855.03	768.04	668.94		
180.0	1014.96	994.59	977.75	960.24	923.68	858.44	784.22	688.15	583.71		
225.0	1035.72	1016.07	997.73	980.50	957.98	903.48	839.33	760.93	646.75		
270.0	1064.79	1037.81	1019.64	1005.33	981.66	961.28	928.80	851.72	765.83		
315.0	1057.36	1030.82	1013.15	995.47	974.44	957.60	930.23	861.74	788.52		
360.0	1093.97	1060.39	1038.36	1019.09	998.17	981.66	964.59	935.41	875.95		
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0		
0.0	803.82	705.82	610.02	501.56	395.30	300.61	278.03	120.41	71.30		
45.0	727.85	640.86	550.56	433.29	338.05	288.50	162.86	88.59	56.60		
90.0	617.90	525.51	419.58	315.64	229.25	141.94	84.13	51.48	43.66		
135.0	576.44	469.63	371.63	285.19	174.36	108.19	59.08	45.31	40.63		
180.0	492.59	386.55	291.74	196.06	115.67	66.51	47.07	40.69	35.51		
225.0	550.07	454.05	344.10	239.72	163.24	93.05	55.39	43.44	37.66		
270.0	689.31	570.38	471.83	373.83	279.69	174.42	99.82	56.38	44.93		
315.0	702.30	599.07	503.38	394.20	291.47	205.75	132.74	68.60	47.40		
360.0	803.82	705.82	610.02	501.56	395.30	300.61	278.03	120.41	71.30		

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	49.17	42.50	36.78	32.87	30.28	27.31	25.99	25.00	23.73
45.0	45.97	39.37	34.80	31.60	28.68	27.36	26.32	25.22	24.17
90.0	38.37	33.25	30.39	28.24	27.14	25.88	24.89	23.95	23.01
135.0	35.24	31.27	29.57	27.64	26.32	25.16	24.17	23.18	22.24
180.0	31.49	28.96	27.36	26.32	25.00	24.00	23.12	22.19	21.36
225.0	32.70	29.62	26.59	25.38	24.39	23.18	22.30	21.53	20.65
270.0	39.86	33.53	30.67	28.24	26.43	25.16	24.17	23.12	22.24
315.0	41.90	35.18	31.22	29.12	27.09	25.82	24.78	23.73	22.79
360.0	49.17	42.50	36.78	32.87	30.28	27.31	25.99	25.00	23.73
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	22.79	22.08	21.14	20.32	19.71	18.94	18.22	17.73	17.12
45.0	23.34	22.35	21.58	20.81	20.10	19.43	18.77	18.06	17.40
90.0	22.02	21.31	20.43	19.71	19.10	18.39	17.78	17.18	16.63
135.0	21.42	20.65	19.93	19.27	18.50	17.84	17.23	16.68	16.24
180.0	20.59	19.82	19.21	18.50	17.67	17.18	16.63	16.08	15.69
225.0	19.93	19.27	18.61	17.89	17.34	16.74	16.35	15.86	15.47
270.0	21.42	20.59	19.93	19.21	18.50	17.84	17.12	16.52	16.02
315.0	21.86	21.03	20.32	19.60	18.83	18.17	17.51	16.74	16.30
360.0	22.79	22.08	21.14	20.32	19.71	18.94	18.22	17.73	17.12
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	16.68	16.24	15.80	15.47	15.20	14.87	14.65	14.37	14.15
45.0	16.90	16.30	15.97	15.58	15.31	14.98	14.70	14.42	14.20
90.0	16.24	15.86	15.47	15.14	14.87	14.59	14.31	14.15	13.93
135.0	15.86	15.42	15.14	14.87	14.59	14.37	14.15	13.98	13.76
180.0	15.42	15.03	14.76	14.53	14.26	14.09	13.87	13.71	13.60
225.0	15.20	14.92	14.65	14.42	14.26	13.98	13.82	13.65	13.54
270.0	15.69	15.25	14.98	14.70	14.48	14.20	14.04	13.82	13.65
315.0	15.86	15.47	15.14	14.87	14.59	14.31	14.09	13.93	13.76
360.0	16.68	16.24	15.80	15.47	15.20	14.87	14.65	14.37	14.15
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	13.93	13.82	13.60	13.49	13.32	13.21	13.10	12.99	12.88
45.0	14.04	13.87	13.65	13.49	13.38	13.21	13.10	12.94	12.88
90.0	13.71	13.54	13.43	13.27	13.16	12.99	12.94	12.83	12.72
135.0	13.65	13.49	13.32	13.27	13.16	13.10	13.16	13.21	13.27
180.0	13.49	13.32	13.27	13.27	13.32	13.38	13.65	13.65	13.49
225.0	13.32	13.21	13.16	12.99	12.94	12.83	12.77	12.72	12.66
270.0	13.49	13.32	13.21	13.10	12.99	12.88	12.83	12.72	12.66
315.0	13.54	13.43	13.27	13.16	13.05	12.94	12.83	12.77	12.66
360.0	13.93	13.82	13.60	13.49	13.32	13.21	13.10	12.99	12.88
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	12.77	12.72	12.66	12.55	12.50	12.44	12.39	12.33	12.28
45.0	12.77	12.66	12.61	12.50	12.44	12.39	12.28	12.28	12.17
90.0	12.66	12.61	12.50	12.44	12.39	12.33	12.22	12.17	12.11
135.0	13.16	12.94	12.72	12.61	12.50	12.44	12.22	12.17	12.17
180.0	13.27	12.99	12.83	12.66	12.55	12.39	12.22	12.17	12.17
225.0	12.66	12.61	12.50	12.50	12.44	12.39	12.22	12.11	12.11
270.0	12.61	12.55	12.44	12.44	12.33	12.28	12.22	12.22	12.11
315.0	12.61	12.55	12.44	12.44	12.39	12.33	12.28	12.22	12.17
360.0	12.77	12.72	12.66	12.55	12.50	12.44	12.39	12.33	12.28

Intensity data(cd)

Appendix Page: 18 Total:18

C/γ(°)	90.0
0.0	12.22
45.0	12.11
90.0	12.11
135.0	12.17
180.0	12.17
225.0	12.17
270.0	12.11
315.0	12.17
360.0	12.22