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NATA

LumCAT: 3-1915-E
Luminaire: 92.76.323.00
Report No: NATA0100
Test No: GC2018111206
LampCAT: Philips SLM 1208 G7
Lamp flux(lm): 3443.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 35.3000
Current(A): 0.7000
Power (W): 24.7100
PF: 0.0000
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 3082.19
Efficiency(%): 89.52%
Lumens(lm)/Power(W): 124.93
Central intensity(cd): 20981.250
Maximum intensity(cd): 20981.250
Angle of maximum intensity: $C=0.0$ $\gamma=0.0$
Beam Angle(50%Imax): [C0/180]Total=15.5
[C90/270]Total=15.5
Field angle(10%Imax): [C0/180]Total=33.6
[C90/270]Total=33.6
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
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(%): 89.66%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.494%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	20981.250	5.020	5.02	.146%	.163%
1.0	20756.953	39.726	44.745	1.154%	1.452%
2.0	20100.234	76.926	121.671	2.234%	3.948%
3.0	18940.078	108.701	230.372	3.157%	7.474%
4.0	17490.234	133.793	364.165	3.886%	11.815%
5.0	15704.297	150.095	514.26	4.359%	16.685%
6.0	13852.195	158.783	673.043	4.612%	21.837%
7.0	11766.305	157.248	830.291	4.567%	26.938%
8.0	10101.867	154.173	984.464	4.478%	31.940%
9.0	8401.359	144.123	1128.588	4.186%	36.616%
10.0	6801.117	129.510	1258.097	3.762%	40.818%
11.0	5564.180	116.426	1374.524	3.382%	44.596%
12.0	4530.586	103.296	1477.82	3.000%	47.947%
13.0	3656.320	90.195	1568.015	2.620%	50.873%
14.0	3095.227	82.114	1650.13	2.385%	53.538%
15.0	2664.984	75.638	1725.768	2.197%	55.992%
16.0	2344.641	70.871	1796.639	2.058%	58.291%
17.0	2031.258	65.126	1861.765	1.892%	60.404%
18.0	1825.172	61.850	1923.614	1.796%	62.411%
19.0	1671.398	59.672	1983.287	1.733%	64.347%
20.0	1557.281	58.408	2041.694	1.696%	66.242%
21.0	1472.203	57.856	2099.55	1.680%	68.119%
22.0	1406.039	57.760	2157.31	1.678%	69.993%
23.0	1357.805	58.179	2215.489	1.690%	71.880%
24.0	1319.484	58.853	2274.342	1.709%	73.790%
25.0	1284.891	59.548	2333.89	1.730%	75.722%
26.0	1258.031	60.476	2394.366	1.756%	77.684%
27.0	1230.047	61.238	2455.604	1.779%	79.671%
28.0	1202.344	61.900	2517.504	1.798%	81.679%
29.0	1170.584	62.234	2579.738	1.808%	83.698%
30.0	1141.966	62.615	2642.352	1.819%	85.730%
31.0	1081.027	61.056	2703.408	1.773%	87.711%
32.0	1008.141	58.584	2761.993	1.702%	89.611%
33.0	913.641	54.568	2816.56	1.585%	91.382%
34.0	783.605	48.052	2864.612	1.396%	92.941%
35.0	661.542	41.610	2906.223	1.209%	94.291%
36.0	527.618	34.009	2940.231	.988%	95.394%
37.0	401.414	26.492	2966.723	.769%	96.254%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	295.446	19.947	2986.67	.579%	96.901%
39.0	183.319	12.651	2999.321	.367%	97.311%
40.0	119.988	8.458	3007.779	.246%	97.586%
41.0	61.151	4.399	3012.178	.128%	97.729%
42.0	39.101	2.869	3015.047	.083%	97.822%
43.0	31.268	2.338	3017.386	.068%	97.898%
44.0	26.895	2.049	3019.434	.060%	97.964%
45.0	23.344	1.810	3021.244	.053%	98.023%
46.0	20.229	1.596	3022.84	.046%	98.075%
47.0	16.706	1.340	3024.18	.039%	98.118%
48.0	15.539	1.266	3025.446	.037%	98.159%
49.0	15.089	1.249	3026.695	.036%	98.200%
50.0	14.829	1.246	3027.941	.036%	98.240%
51.0	14.618	1.246	3029.187	.036%	98.280%
52.0	14.421	1.246	3030.433	.036%	98.321%
53.0	14.266	1.249	3031.682	.036%	98.361%
54.0	14.119	1.253	3032.935	.036%	98.402%
55.0	13.999	1.258	3034.192	.037%	98.443%
56.0	13.873	1.261	3035.454	.037%	98.484%
57.0	13.809	1.270	3036.724	.037%	98.525%
58.0	13.753	1.279	3038.003	.037%	98.567%
59.0	13.711	1.289	3039.291	.037%	98.608%
60.0	13.704	1.301	3040.593	.038%	98.651%
61.0	13.676	1.312	3041.905	.038%	98.693%
62.0	13.767	1.333	3043.238	.039%	98.736%
63.0	13.957	1.364	3044.601	.040%	98.781%
64.0	14.210	1.401	3046.002	.041%	98.826%
65.0	14.449	1.436	3047.438	.042%	98.873%
66.0	14.428	1.445	3048.883	.042%	98.920%
67.0	14.252	1.439	3050.322	.042%	98.966%
68.0	13.936	1.417	3051.739	.041%	99.012%
69.0	13.598	1.392	3053.131	.040%	99.057%
70.0	13.507	1.392	3054.523	.040%	99.102%
71.0	13.493	1.399	3055.922	.041%	99.148%
72.0	13.430	1.401	3057.323	.041%	99.193%
73.0	13.395	1.405	3058.727	.041%	99.239%
74.0	13.352	1.408	3060.135	.041%	99.285%
75.0	13.352	1.414	3061.549	.041%	99.330%

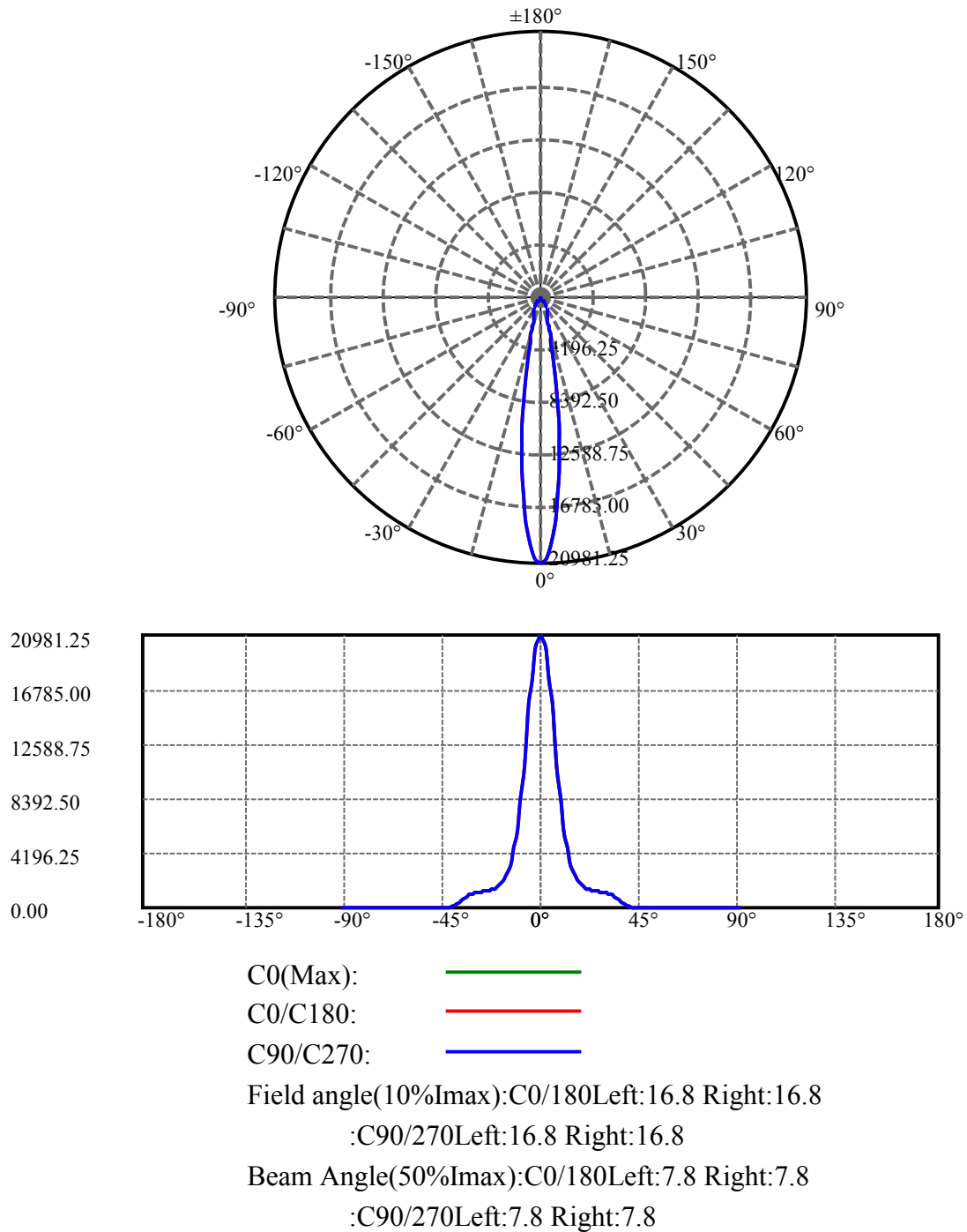
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.395	1.425	3062.974	.041%	99.377%
77.0	13.430	1.435	3064.409	.042%	99.423%
78.0	13.486	1.447	3065.856	.042%	99.470%
79.0	13.549	1.459	3067.315	.042%	99.518%
80.0	13.542	1.462	3068.777	.042%	99.565%
81.0	13.388	1.450	3070.227	.042%	99.612%
82.0	13.212	1.435	3071.662	.042%	99.659%
83.0	13.170	1.433	3073.095	.042%	99.705%
84.0	13.099	1.429	3074.524	.041%	99.751%
85.0	13.008	1.421	3075.945	.041%	99.798%
86.0	12.980	1.420	3077.365	.041%	99.844%
87.0	12.684	1.389	3078.754	.040%	99.889%
88.0	12.558	1.376	3080.13	.040%	99.933%
89.0	12.502	1.371	3081.501	.040%	99.978%
90.0	12.495	0.685	3082.186	.020%	100.000%

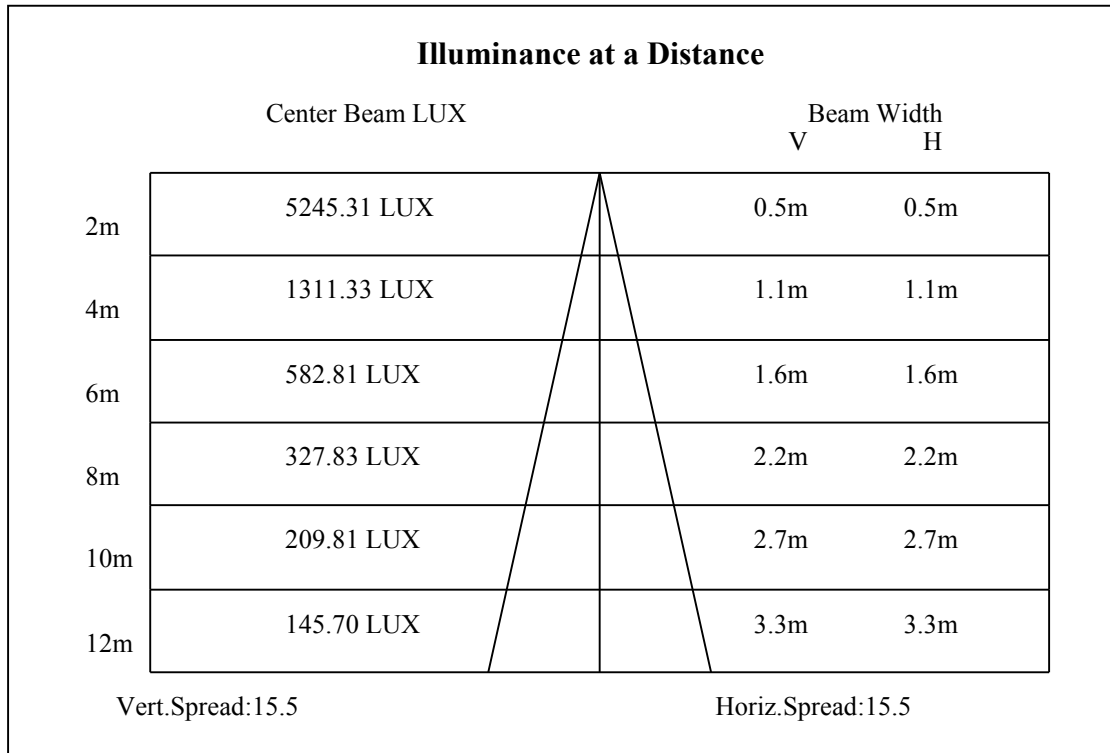
ZONAL LUMEN SUMMARY

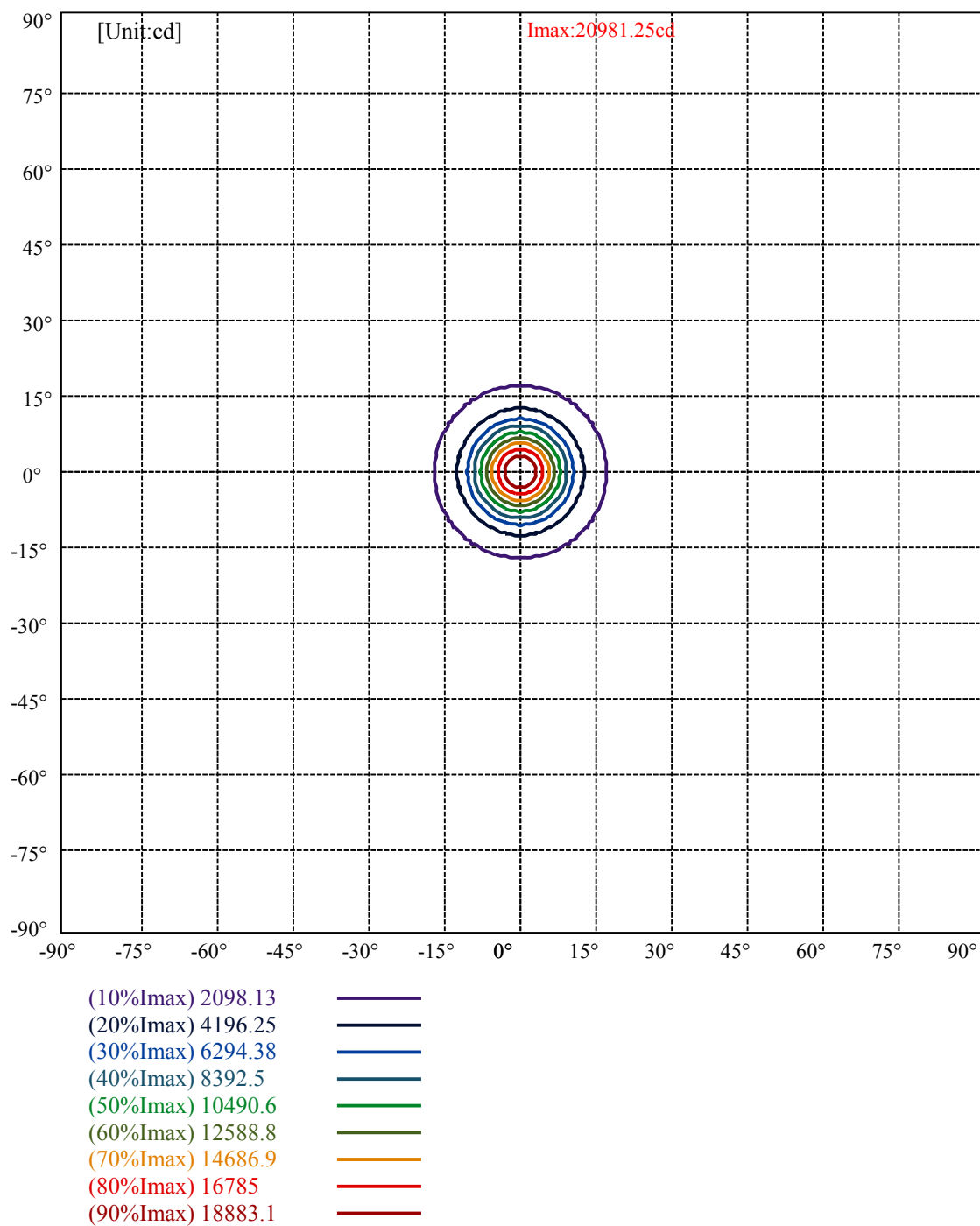
Zone	Lumens	%Lamp	%Fixt
0-30	2642.35	76.75%	85.73%
0-40	3007.78	87.36%	97.59%
0-60	3040.59	88.31%	98.65%
0-90	3081.50	89.50%	99.98%
0-120	3081.50	89.50%	99.98%
0-180	3082.19	89.52%	100.00%
60-90	42.21	1.23%	1.37%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.16	2465.75	71.62%	80.00%

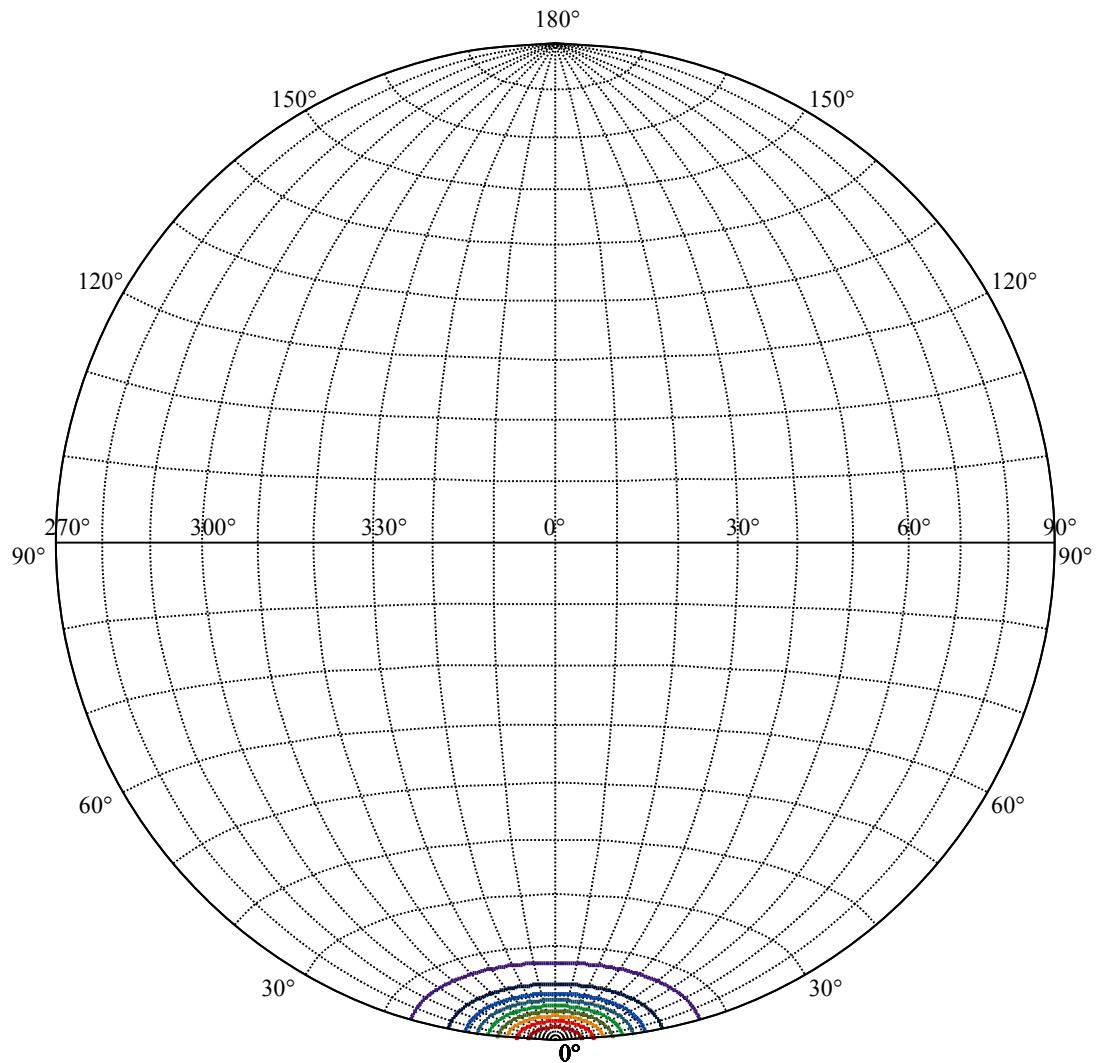
ZONAL LUMEN SUMMARY

0-10	1258.10
10-20	783.60
20-30	600.66
30-40	365.43
40-50	20.16
50-60	12.65
60-70	13.93
70-80	14.25
80-90	12.72
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









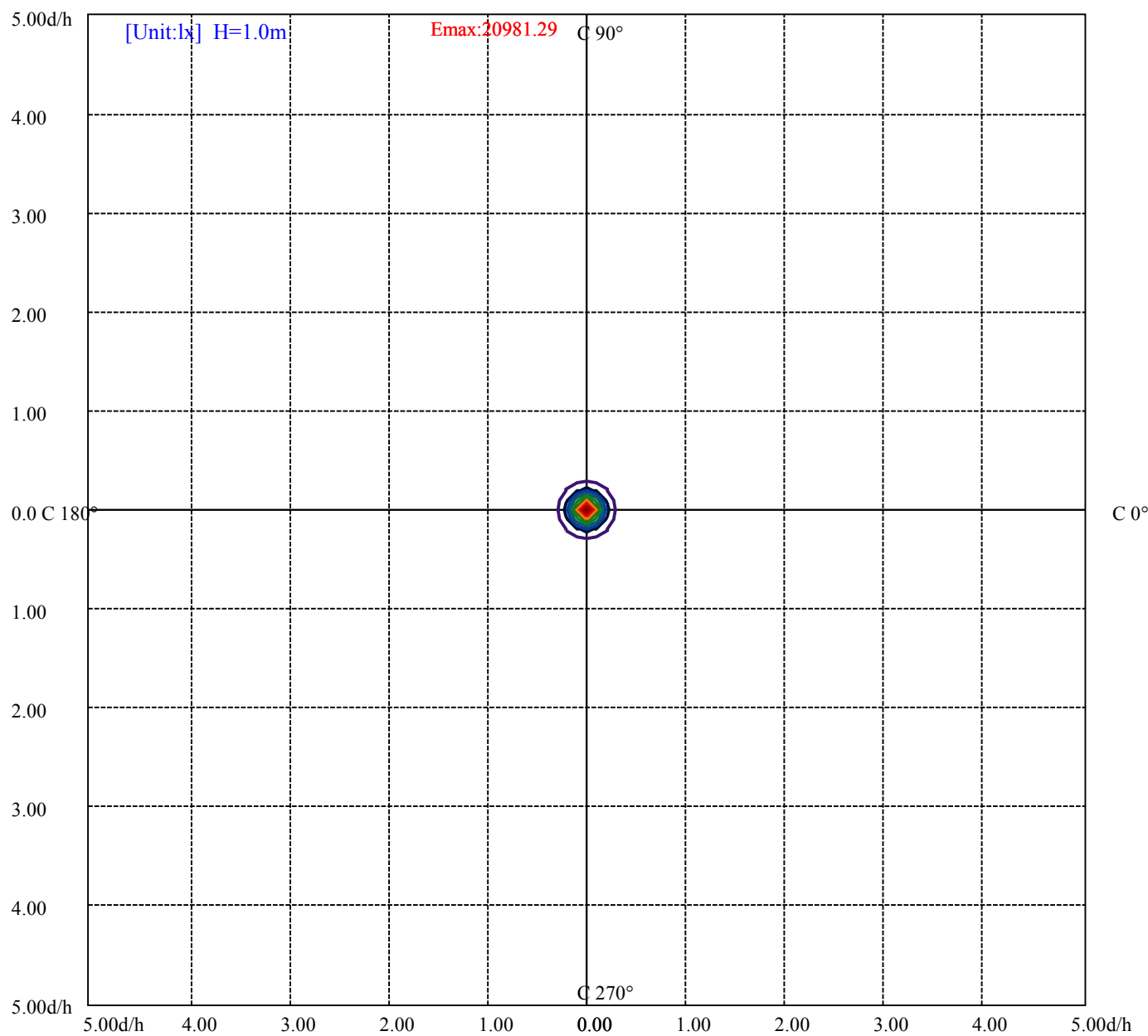
House

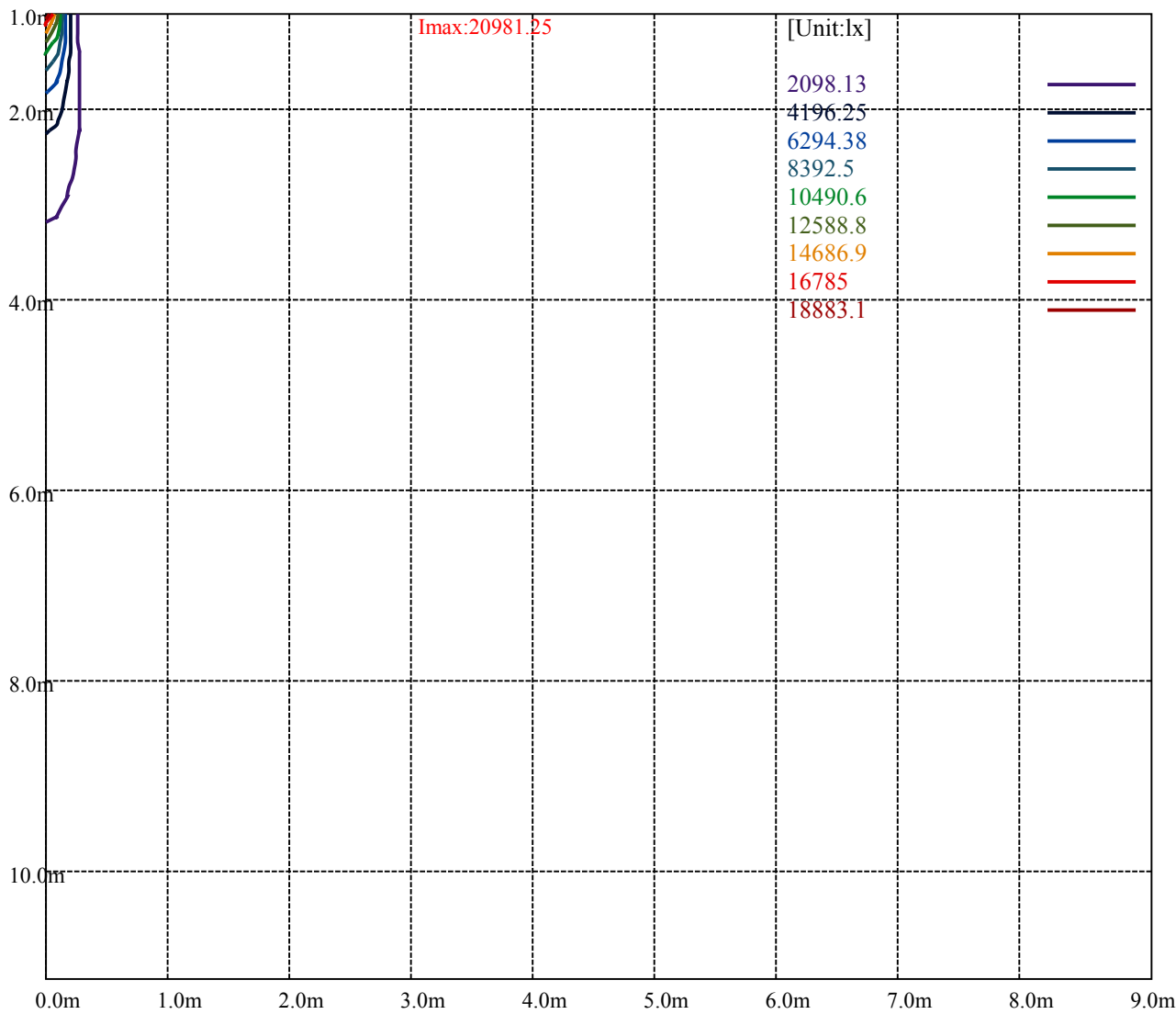
[Unit:cd]

Road

Imax:20981.25

(10%Imax)	2098.13	—
(20%Imax)	4196.25	—
(30%Imax)	6294.38	—
(40%Imax)	8392.5	—
(50%Imax)	10490.6	—
(60%Imax)	12588.8	—
(70%Imax)	14686.9	—
(80%Imax)	16785	—
(90%Imax)	18883.1	—





Luminance Table

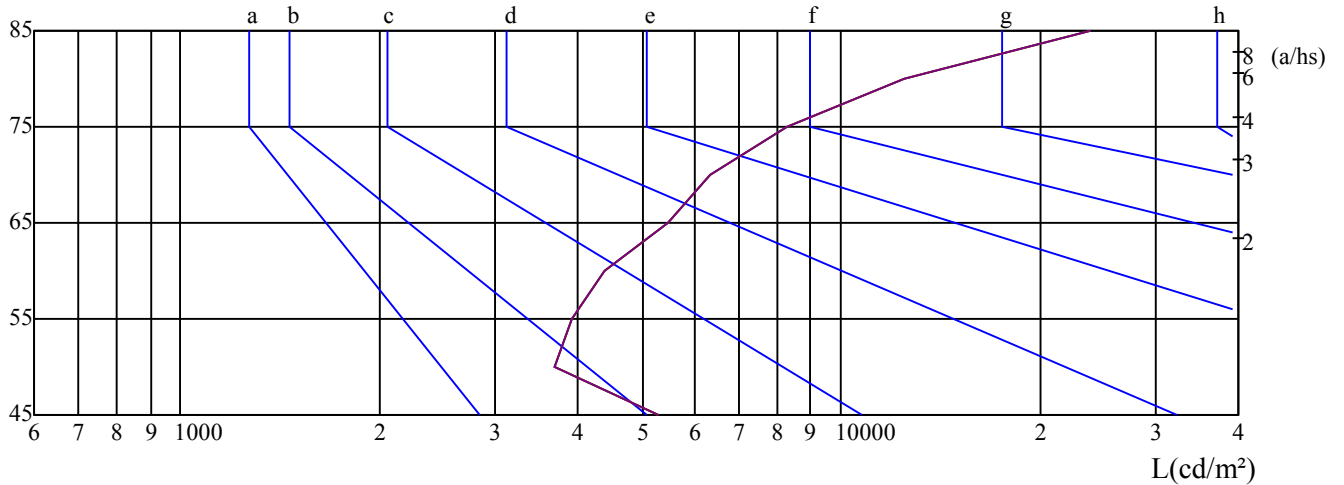
γ	45	50	55	60	65	70	75	80	85
C0	5290	3696	3911	4392	5478	6328	8266	12496	23914
C45	5290	3696	3911	4392	5478	6328	8266	12496	23914
C90	5290	3696	3911	4392	5478	6328	8266	12496	23914

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5478	5478	5478	8266	8266	8266	23914	23914	23914

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

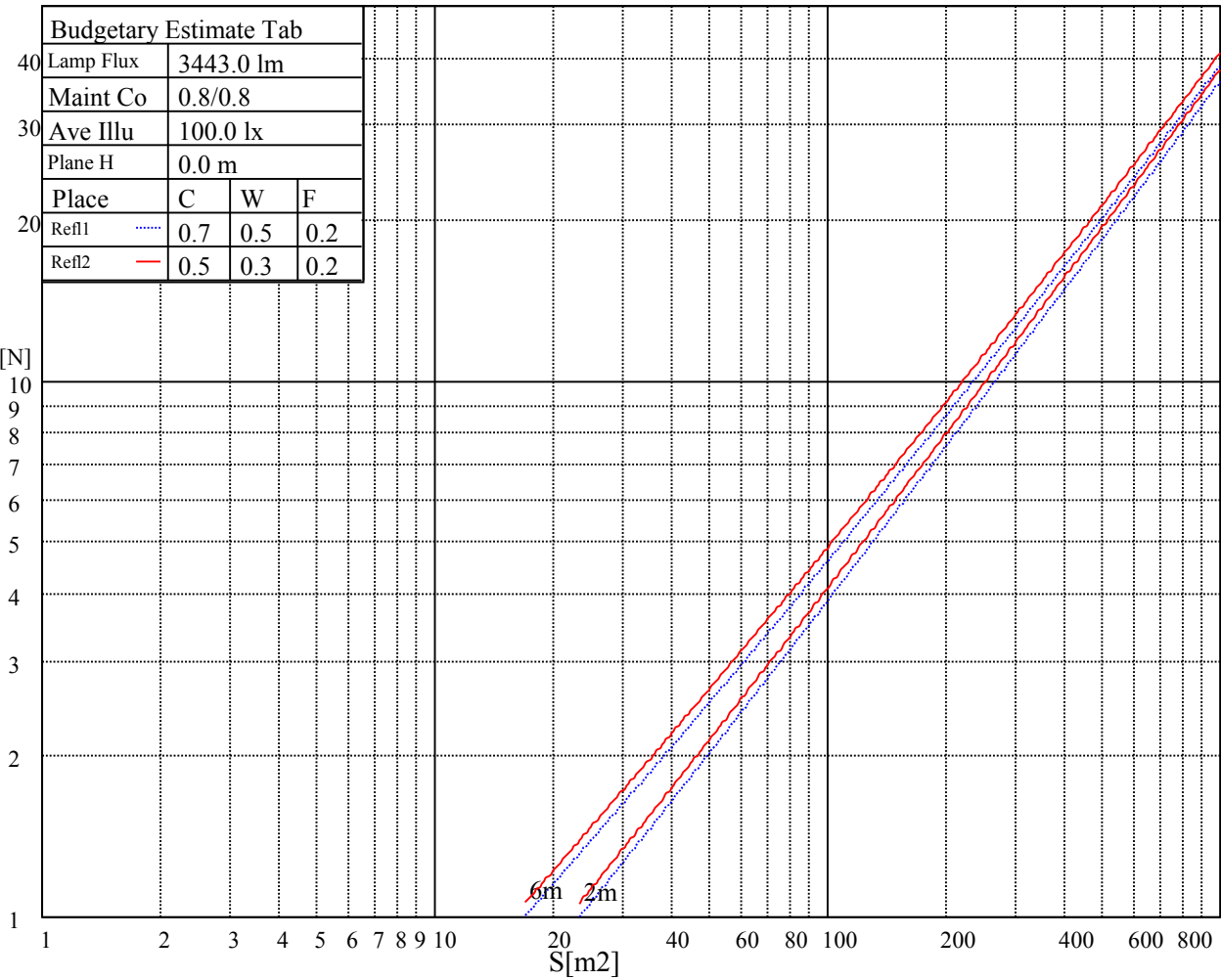
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

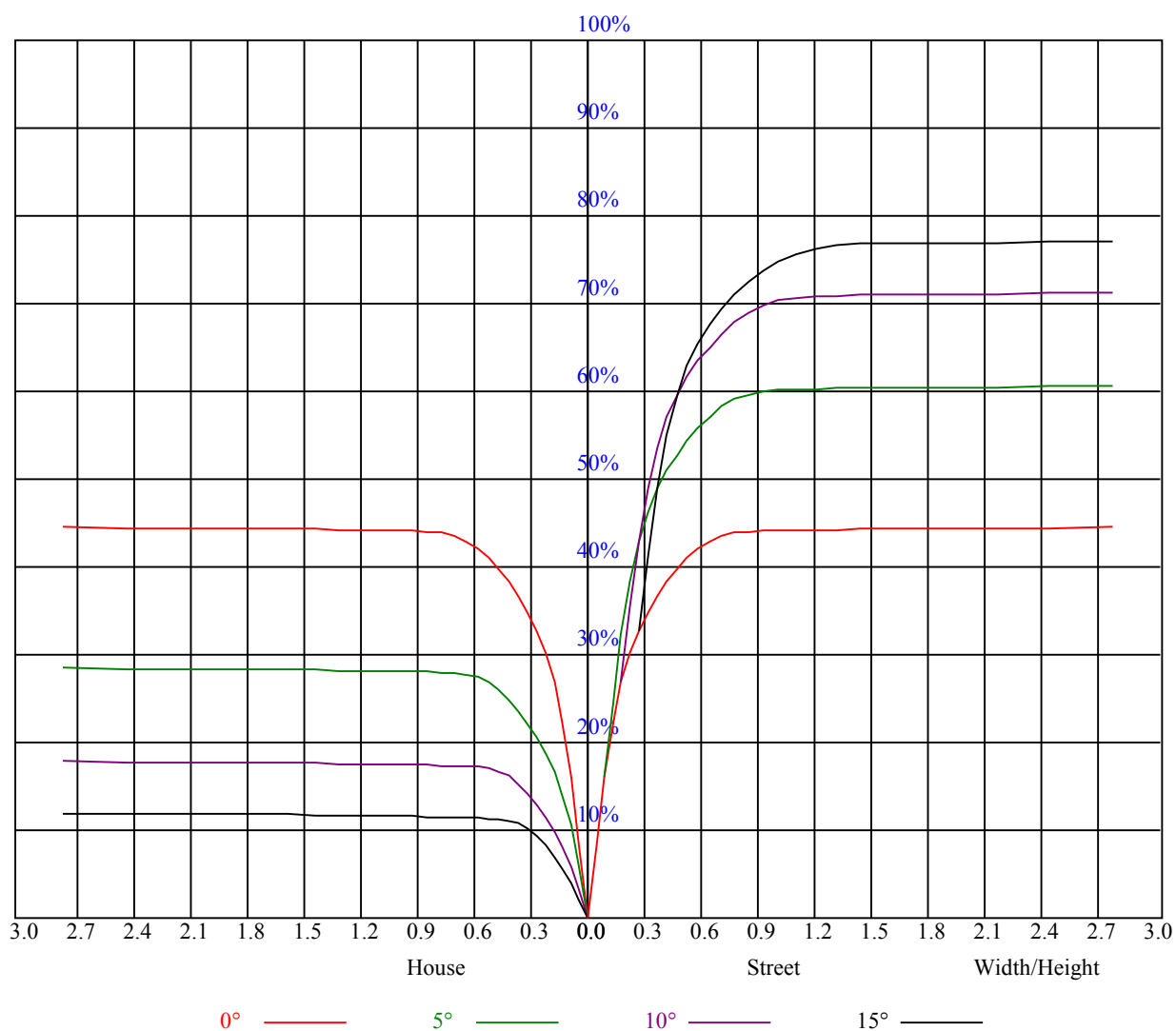
C0 ———

C45 ———

C90 ———



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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.90
1	1.00	0.99	0.97	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.85
2	0.95	0.92	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.88	0.87	0.85	0.86	0.85	0.83	0.82
3	0.91	0.87	0.84	0.90	0.86	0.84	0.87	0.85	0.82	0.85	0.83	0.81	0.83	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.82	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.81	0.79	0.77	0.76
5	0.83	0.79	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.71
7	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.74	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
9	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.64
10	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.63



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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	20711.25	21200.63	21285.00	20868.75	20008.13	18579.38	16796.25	14996.25	13145.63		
45.0	21268.13	20930.63	20058.75	18888.75	17229.38	15271.88	13398.75	11340.00	9596.25		
90.0	20913.75	20210.63	19119.38	17330.63	15665.63	13860.00	11117.81	9812.81	8177.06		
135.0	21026.25	20373.75	19170.00	17578.13	15958.13	13966.88	11947.50	10243.13	8640.00		
180.0	20711.25	19670.63	18365.63	16599.38	14636.25	12228.75	11021.63	8926.31	7418.25		
225.0	21279.38	21155.63	20643.75	19406.25	18022.50	16402.50	14613.75	11221.31	10572.75		
270.0	20913.75	21240.00	21071.25	20486.25	19299.38	17668.13	15969.38	13927.50	12121.88		
315.0	21026.25	21273.75	21088.13	20362.50	19102.50	17656.88	15952.50	13663.13	11143.13		
360.0	20711.25	21200.63	21285.00	20868.75	20008.13	18579.38	16796.25	14996.25	13145.63		
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0		
0.0	10873.13	9135.00	7526.25	5940.00	4663.13	3819.38	3133.13	2840.63	2318.63		
45.0	7751.25	6136.88	4978.13	4185.00	3301.88	2840.63	2639.25	2152.13	1926.56		
90.0	6556.50	5221.13	4309.31	3543.75	3031.88	2589.75	2254.50	2011.50	1819.69		
135.0	6828.75	5602.50	4612.50	3690.00	3144.38	2863.13	2390.63	2057.63	1841.63		
180.0	6105.38	4795.31	4018.50	3422.25	2854.69	2503.69	2221.31	1927.69	1765.69		
225.0	8909.44	7035.75	5746.50	4692.38	3818.81	3180.94	2752.88	2383.88	2126.25		
270.0	10147.50	8308.13	6823.13	5546.25	4303.13	3600.00	3060.00	2891.25	2274.19		
315.0	10038.94	8174.25	6499.13	5225.06	4132.69	3364.31	2868.19	2492.44	2177.44		
360.0	10873.13	9135.00	7526.25	5940.00	4663.13	3819.38	3133.13	2840.63	2318.63		
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0		
0.0	2044.69	1857.94	1695.94	1586.81	1492.88	1422.56	1368.56	1330.31	1298.25		
45.0	1747.69	1596.38	1488.94	1418.63	1360.69	1320.75	1282.50	1250.44	1225.13		
90.0	1644.75	1541.81	1460.81	1384.31	1338.19	1301.63	1267.88	1239.75	1216.13		
135.0	1677.94	1549.13	1457.44	1397.25	1347.19	1308.94	1281.38	1254.94	1232.44		
180.0	1614.94	1499.63	1438.88	1379.25	1327.50	1298.25	1269.56	1235.81	1212.19		
225.0	1892.25	1721.81	1609.31	1511.44	1437.19	1387.13	1346.63	1306.69	1280.25		
270.0	2039.06	1825.88	1666.13	1560.38	1474.31	1413.56	1373.06	1335.94	1308.94		
315.0	1940.06	1778.63	1640.81	1539.56	1470.38	1409.63	1366.31	1325.25	1290.94		
360.0	2044.69	1857.94	1695.94	1586.81	1492.88	1422.56	1368.56	1330.31	1298.25		
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0		
0.0	1263.94	1238.63	1211.63	1181.81	1148.63	1122.75	1065.38	949.50	837.56		
45.0	1197.56	1164.94	1139.63	1114.31	1049.63	959.63	853.31	703.69	579.94		
90.0	1189.13	1162.13	1120.73	1095.69	1012.67	898.59	784.91	648.28	528.58		
135.0	1203.19	1176.75	1154.25	1126.13	1039.50	942.75	830.81	676.69	552.94		
180.0	1186.88	1160.44	1119.32	1074.60	990.17	860.85	745.71	625.78	485.44		
225.0	1256.06	1224.56	1197.00	1173.94	1122.02	1068.36	977.57	843.64	737.21		
270.0	1280.25	1253.25	1222.31	1197.00	1166.06	1128.38	1054.13	929.25	811.69		
315.0	1263.38	1238.06	1199.81	1172.25	1119.54	1083.83	997.31	892.01	758.98		
360.0	1263.94	1238.63	1211.63	1181.81	1148.63	1122.75	1065.38	949.50	837.56		
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0		
0.0	701.44	576.56	437.06	318.94	290.25	116.94	58.11	41.12	34.48		
45.0	458.44	330.75	290.81	128.59	62.33	42.13	33.47	26.04	23.06		
90.0	394.31	268.93	174.43	98.83	48.94	39.71	29.31	24.30	21.32		
135.0	416.25	300.94	224.10	110.87	50.91	40.22	32.01	26.33	23.12		
180.0	351.90	242.78	137.64	64.46	41.51	33.41	26.89	23.51	18.90		
225.0	595.07	436.11	333.28	222.98	104.29	60.30	44.16	30.38	26.21		
270.0	685.13	559.13	404.44	284.63	218.87	88.54	46.24	39.88	35.10		
315.0	618.41	496.13	361.80	237.26	142.82	67.95	42.64	38.59	32.96		
360.0	701.44	576.56	437.06	318.94	290.25	116.94	58.11	41.12	34.48		

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	28.18	25.48	20.48	16.71	15.36	15.08	14.79	14.51	14.34
45.0	18.00	16.88	15.64	15.24	15.02	14.79	14.63	14.40	14.23
90.0	20.14	16.43	15.53	15.30	15.08	14.85	14.68	14.57	14.40
135.0	17.21	15.75	15.36	15.08	14.85	14.68	14.51	14.34	14.29
180.0	16.82	15.47	15.02	14.79	14.63	14.46	14.29	14.12	14.01
225.0	23.68	19.58	16.65	15.41	15.13	14.79	14.57	14.34	14.18
270.0	32.23	27.28	17.10	16.14	15.47	15.13	14.85	14.63	14.40
315.0	30.49	24.98	17.89	15.64	15.19	14.85	14.63	14.46	14.29
360.0	28.18	25.48	20.48	16.71	15.36	15.08	14.79	14.51	14.34
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	14.18	14.01	13.84	13.73	13.67	13.56	13.50	13.44	13.39
45.0	14.12	14.01	13.89	13.84	13.78	13.67	13.61	13.56	13.50
90.0	14.29	14.18	14.06	14.01	14.01	14.06	14.12	14.23	15.08
135.0	14.18	14.18	14.12	14.18	14.23	14.34	14.51	14.68	14.85
180.0	13.89	13.78	13.67	13.61	13.56	13.50	13.50	13.44	13.39
225.0	14.01	13.84	13.73	13.61	13.50	13.44	13.39	13.28	13.22
270.0	14.23	14.06	13.89	13.78	13.67	13.56	13.50	13.39	13.33
315.0	14.06	13.95	13.78	13.73	13.61	13.56	13.50	13.39	13.39
360.0	14.18	14.01	13.84	13.73	13.67	13.56	13.50	13.44	13.39
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	13.33	13.28	13.22	13.16	13.11	13.05	13.05	12.99	12.99
45.0	13.44	13.33	13.33	13.28	13.28	13.33	13.33	13.28	13.22
90.0	16.54	18.51	19.91	19.13	17.33	15.69	13.84	13.39	13.22
135.0	15.13	15.53	15.92	16.14	16.31	16.26	16.14	16.03	16.20
180.0	13.39	13.33	13.33	13.28	13.28	13.28	13.28	13.28	13.28
225.0	13.22	13.16	13.11	13.11	13.05	13.05	12.99	12.94	12.94
270.0	13.28	13.22	13.22	13.22	13.22	13.22	13.22	13.22	13.22
315.0	13.33	13.33	13.56	14.12	14.46	13.61	12.94	12.94	12.88
360.0	13.33	13.28	13.22	13.16	13.11	13.05	13.05	12.99	12.99
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	12.99	12.94	12.94	12.88	12.88	12.88	12.83	12.83	12.77
45.0	13.11	13.05	12.94	12.94	12.88	12.83	12.83	12.77	12.77
90.0	13.11	12.99	12.94	12.88	12.88	12.88	12.88	12.88	12.83
135.0	16.14	16.20	16.26	16.48	16.93	17.38	17.89	18.34	18.39
180.0	13.22	13.16	13.16	13.11	13.11	13.05	13.05	12.99	12.99
225.0	12.88	12.88	12.83	12.83	12.83	12.77	12.77	12.83	12.77
270.0	13.16	13.11	12.99	12.94	12.88	12.94	12.99	13.05	13.11
315.0	12.83	12.83	12.77	12.77	12.77	12.71	12.66	12.71	12.71
360.0	12.99	12.94	12.94	12.88	12.88	12.88	12.83	12.83	12.77
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	12.77	12.71	12.71	12.71	12.71	12.71	12.66	12.66	12.54
45.0	12.77	12.71	12.71	12.71	12.66	12.71	12.66	12.49	12.54
90.0	12.83	12.83	12.83	12.83	12.83	12.83	12.66	12.49	12.49
135.0	17.04	15.75	15.53	15.08	14.68	14.46	12.77	12.49	12.49
180.0	12.99	12.94	12.88	12.94	12.88	12.88	12.60	12.49	12.49
225.0	12.77	12.77	12.77	12.71	12.71	12.71	12.71	12.66	12.49
270.0	13.22	13.28	13.22	13.16	12.94	12.88	12.83	12.60	12.49
315.0	12.71	12.71	12.71	12.66	12.66	12.66	12.60	12.60	12.49
360.0	12.77	12.71	12.71	12.71	12.71	12.71	12.66	12.66	12.54

Intensity data(cd)

Appendix Page: 18 Total:18

C/ γ (°)	90.0
0.0	12.54
45.0	12.49
90.0	12.49
135.0	12.49
180.0	12.49
225.0	12.49
270.0	12.49
315.0	12.49
360.0	12.54