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Nata

LumCAT: 2-2528-L
Luminaire: 92.70.135.00
Report No: 220914-B012
Test No: 220914-C012
LampCAT: LUMILEDS LUXEON1205
Lamp flux(lm): 2455.9
Number of Lamps: 1
Length(mm): 43
Phm Type: C
Voltage(V): 34.8700
Current(A): 0.4850
Power (W): 16.9110
PF: 0.0000
Ballast type: DC
Width(mm): 43
Height(mm): 0

Photometric Results

Lumens(lm): 2130.91
Efficiency(%): 86.77%
Lumens(lm)/Power(W): 126.01
Central intensity(cd): 9781.102
Maximum intensity(cd): 9781.102
Angle of maximum intensity: $C=0.0$ $\gamma=0.0$
Beam Angle(50%Imax): [C0/180]Total=19.6
[C90/270]Total=19.6
Field angle(10%Imax): [C0/180]Total=51.6
[C90/270]Total=51.6
Maximum s/h(1/2): C0_180=0.33 C90_270=0.33
Maximum s/h(1/4): C0_180=0.36 C90_270=0.36
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 86.77%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.949%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9781.102	0.000	0	.000%	.000%
1.0	9713.954	9.328	9.328	.380%	.438%
2.0	9549.933	27.649	36.977	1.126%	1.735%
3.0	9228.985	44.913	81.89	1.829%	3.843%
4.0	8799.063	60.346	142.236	2.457%	6.675%
5.0	8262.706	73.399	215.635	2.989%	10.119%
6.0	7604.976	83.389	299.024	3.396%	14.033%
7.0	6863.143	89.803	388.827	3.657%	18.247%
8.0	6194.583	93.452	482.279	3.805%	22.632%
9.0	5443.116	94.317	576.596	3.841%	27.059%
10.0	4743.857	92.188	668.784	3.754%	31.385%
11.0	4178.147	89.149	757.934	3.630%	35.568%
12.0	3650.454	85.578	843.511	3.485%	39.585%
13.0	3180.722	81.069	924.58	3.301%	43.389%
14.0	2797.556	76.521	1001.102	3.116%	46.980%
15.0	2485.571	72.529	1073.631	2.953%	50.384%
16.0	2210.633	68.813	1142.443	2.802%	53.613%
17.0	1994.253	65.481	1207.925	2.666%	56.686%
18.0	1794.529	62.469	1270.393	2.544%	59.617%
19.0	1641.636	59.782	1330.176	2.434%	62.423%
20.0	1494.719	57.404	1387.58	2.337%	65.117%
21.0	1360.551	54.827	1442.407	2.233%	67.690%
22.0	1268.435	52.831	1495.237	2.151%	70.169%
23.0	1166.675	51.095	1546.332	2.081%	72.567%
24.0	1100.170	49.561	1595.894	2.018%	74.893%
25.0	1032.806	48.499	1644.393	1.975%	77.168%
26.0	966.197	47.187	1691.58	1.921%	79.383%
27.0	893.455	45.497	1737.077	1.853%	81.518%
28.0	824.978	43.507	1780.584	1.772%	83.560%
29.0	737.291	40.873	1821.457	1.664%	85.478%
30.0	651.904	37.508	1858.965	1.527%	87.238%
31.0	567.324	33.929	1892.894	1.382%	88.830%
32.0	478.703	29.967	1922.862	1.220%	90.237%
33.0	399.202	25.863	1948.725	1.053%	91.450%
34.0	330.082	22.070	1970.796	.899%	92.486%
35.0	252.299	18.087	1988.882	.736%	93.335%
36.0	193.629	14.198	2003.081	.578%	94.001%
37.0	140.001	10.881	2013.962	.443%	94.512%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	102.050	8.079	2022.041	.329%	94.891%
39.0	76.581	6.097	2028.138	.248%	95.177%
40.0	61.478	4.815	2032.953	.196%	95.403%
41.0	54.091	4.115	2037.069	.168%	95.596%
42.0	49.087	3.749	2040.817	.153%	95.772%
43.0	44.710	3.475	2044.292	.141%	95.935%
44.0	40.990	3.235	2047.526	.132%	96.087%
45.0	37.921	3.033	2050.559	.123%	96.229%
46.0	35.575	2.874	2053.433	.117%	96.364%
47.0	33.260	2.738	2056.171	.111%	96.493%
48.0	31.430	2.615	2058.786	.106%	96.615%
49.0	29.794	2.514	2061.3	.102%	96.733%
50.0	28.487	2.430	2063.73	.099%	96.847%
51.0	27.509	2.369	2066.099	.096%	96.958%
52.0	26.822	2.331	2068.431	.095%	97.068%
53.0	26.344	2.313	2070.743	.094%	97.176%
54.0	26.007	2.307	2073.051	.094%	97.285%
55.0	25.851	2.315	2075.366	.094%	97.393%
56.0	25.791	2.334	2077.699	.095%	97.503%
57.0	25.716	2.355	2080.054	.096%	97.613%
58.0	25.656	2.376	2082.43	.097%	97.725%
59.0	25.425	2.388	2084.818	.097%	97.837%
60.0	25.029	2.384	2087.202	.097%	97.949%
61.0	24.417	2.360	2089.561	.096%	98.059%
62.0	23.460	2.307	2091.868	.094%	98.168%
63.0	22.407	2.231	2094.099	.091%	98.272%
64.0	20.891	2.125	2096.224	.087%	98.372%
65.0	19.270	1.988	2098.211	.081%	98.465%
66.0	17.963	1.858	2100.069	.076%	98.553%
67.0	16.484	1.732	2101.801	.071%	98.634%
68.0	15.416	1.616	2103.417	.066%	98.710%
69.0	14.639	1.533	2104.95	.062%	98.782%
70.0	14.079	1.475	2106.425	.060%	98.851%
71.0	13.639	1.433	2107.858	.058%	98.918%
72.0	13.302	1.401	2109.259	.057%	98.984%
73.0	13.004	1.376	2110.634	.056%	99.048%
74.0	12.742	1.354	2111.988	.055%	99.112%
75.0	12.488	1.333	2113.321	.054%	99.174%

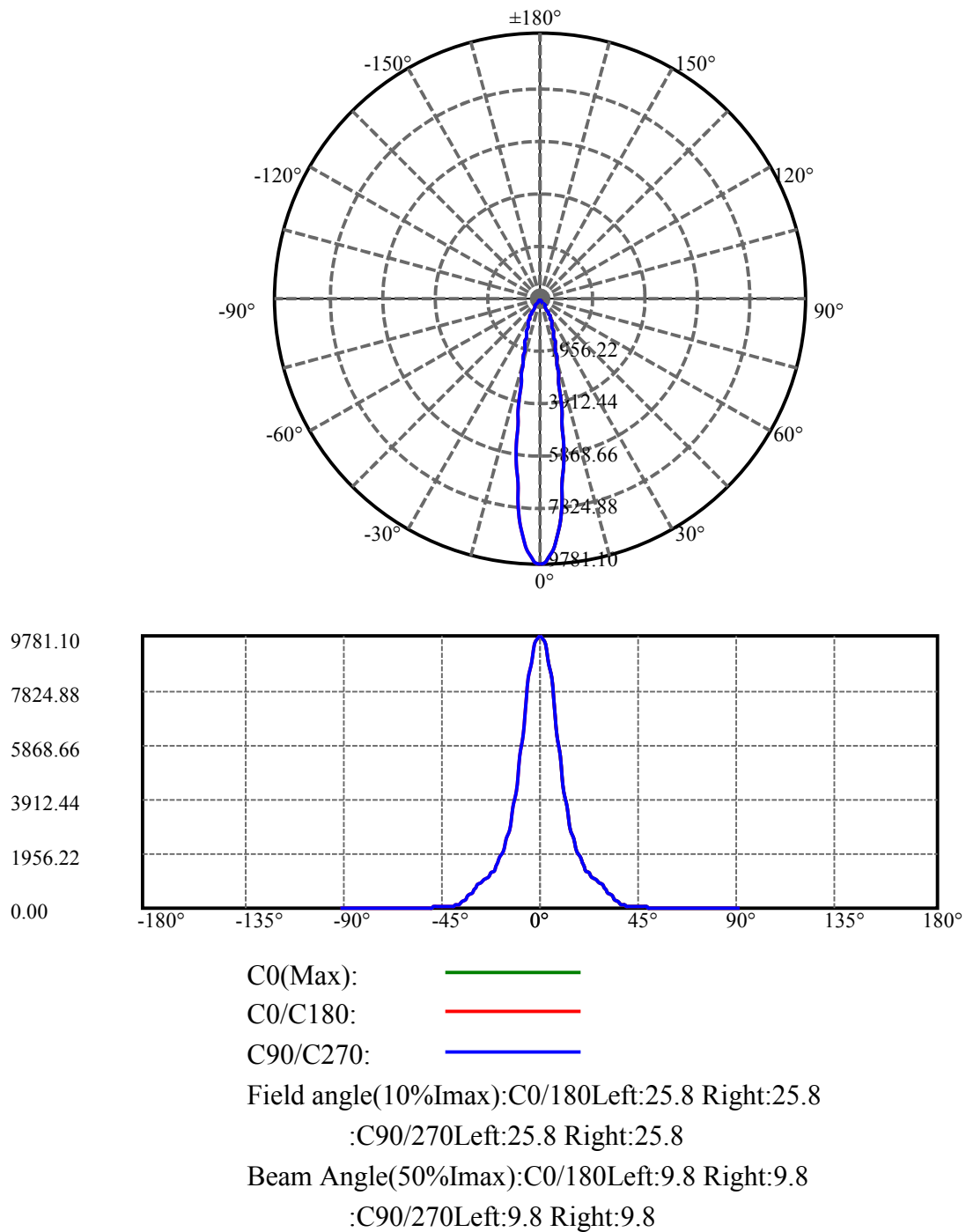
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	12.234	1.312	2114.633	.053%	99.236%
77.0	12.003	1.292	2115.926	.053%	99.297%
78.0	11.816	1.275	2117.201	.052%	99.357%
79.0	11.562	1.256	2118.457	.051%	99.415%
80.0	11.278	1.231	2119.688	.050%	99.473%
81.0	11.024	1.206	2120.894	.049%	99.530%
82.0	10.793	1.183	2122.077	.048%	99.585%
83.0	10.569	1.161	2123.239	.047%	99.640%
84.0	10.337	1.139	2124.378	.046%	99.693%
85.0	10.180	1.120	2125.497	.046%	99.746%
86.0	10.009	1.104	2126.601	.045%	99.798%
87.0	9.971	1.093	2127.694	.045%	99.849%
88.0	9.822	1.084	2128.779	.044%	99.900%
89.0	9.717	1.071	2129.85	.044%	99.950%
90.0	9.673	1.063	2130.913	.043%	100.000%

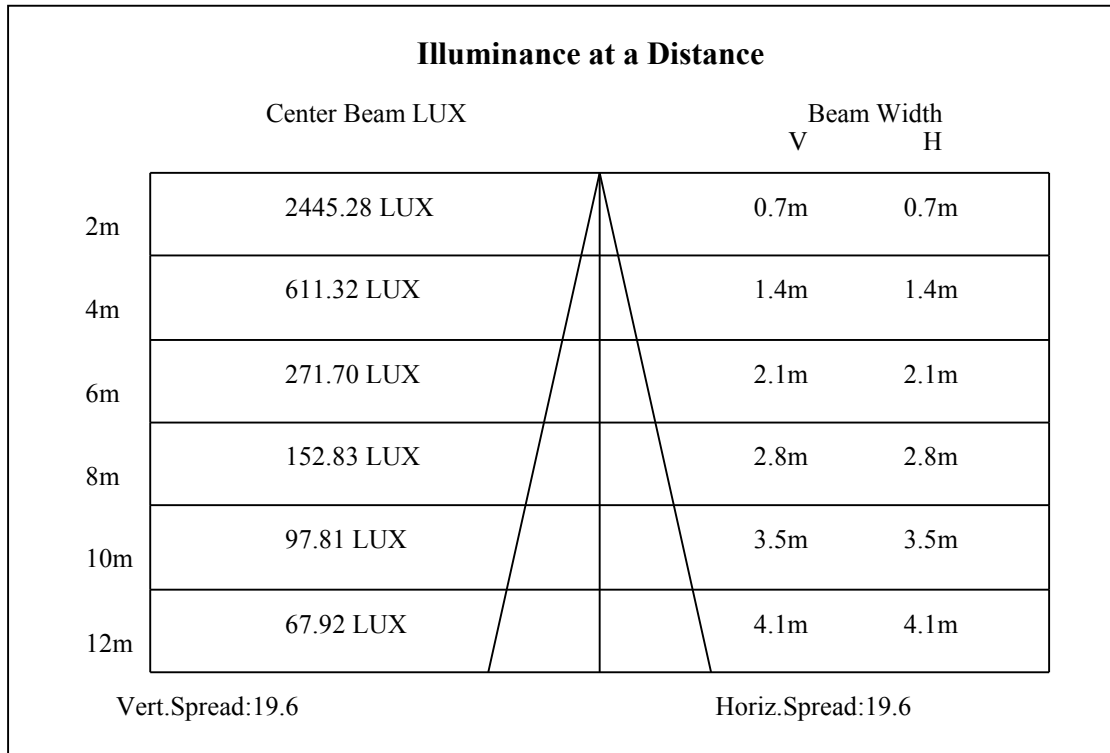
ZONAL LUMEN SUMMARY

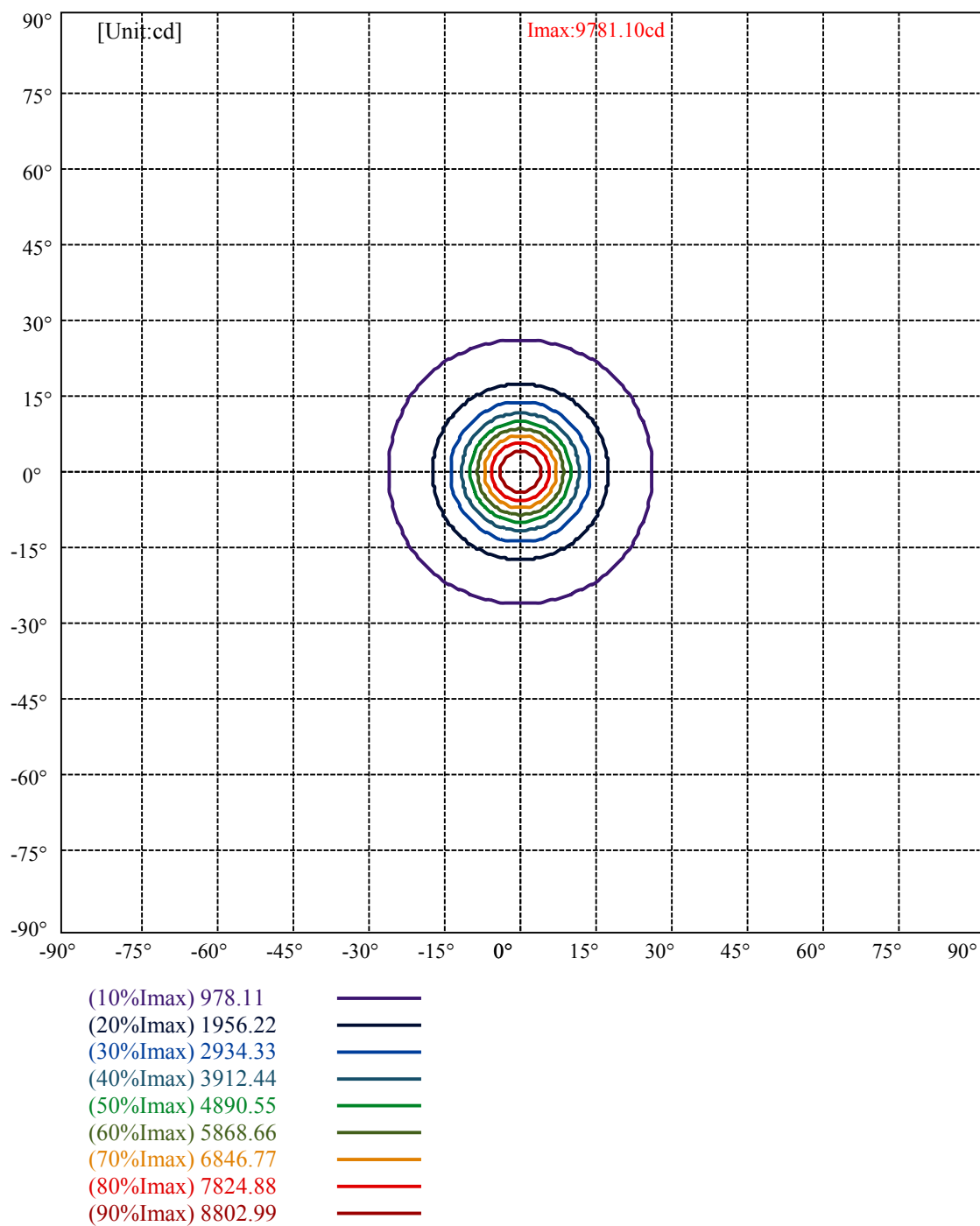
Zone	Lumens	%Lamp	%Fixt
0-30	1858.97	75.70%	87.24%
0-40	2032.95	82.78%	95.40%
0-60	2087.20	84.99%	97.95%
0-90	2129.85	86.73%	99.95%
0-120	2129.85	86.73%	99.95%
0-180	2130.91	86.77%	100.00%
60-90	45.03	1.83%	2.11%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.29	1704.73	69.42%	80.00%

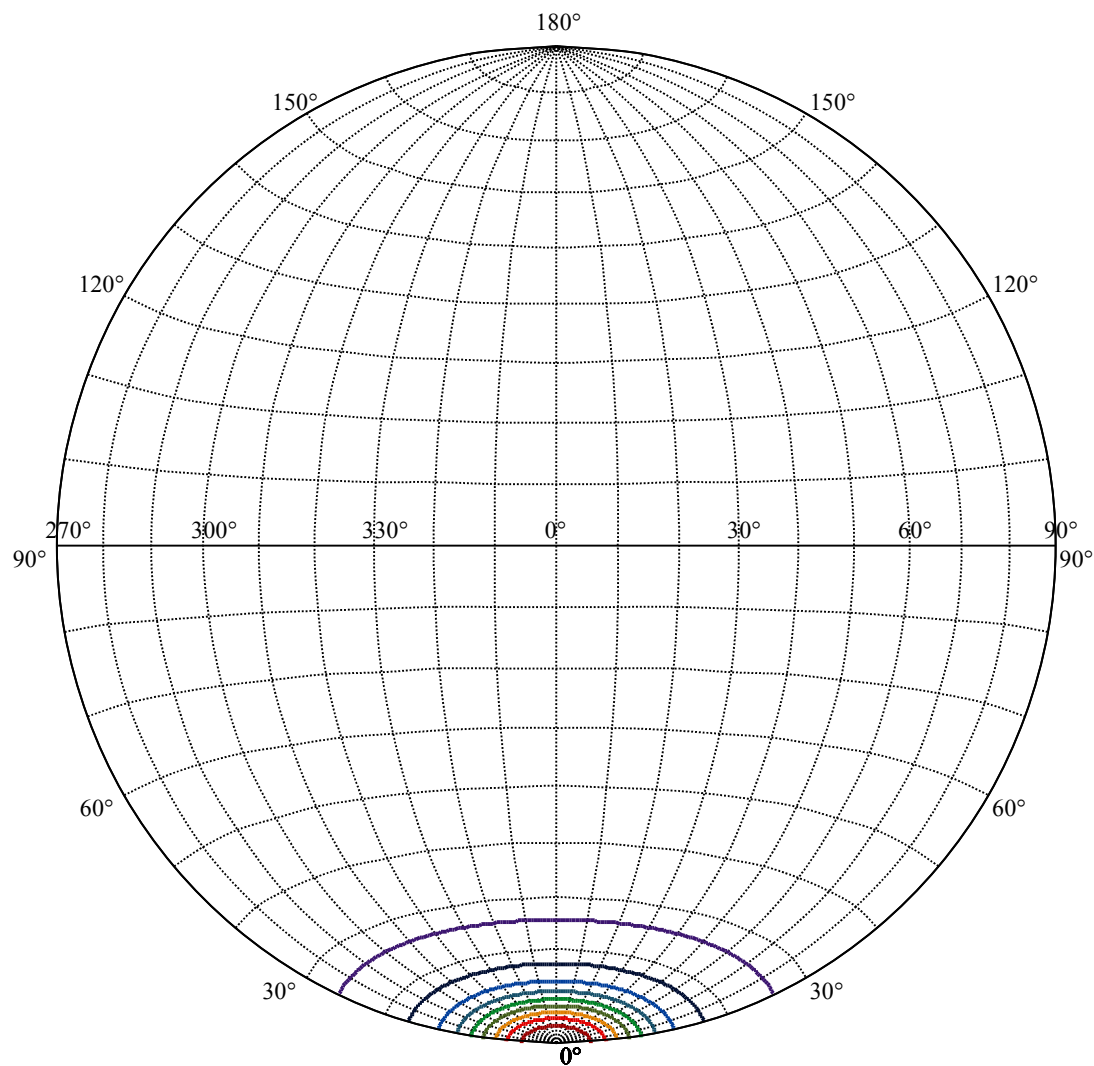
ZONAL LUMEN SUMMARY

0-10	668.78
10-20	718.80
20-30	471.39
30-40	173.99
40-50	30.78
50-60	23.47
60-70	19.22
70-80	13.26
80-90	10.16
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









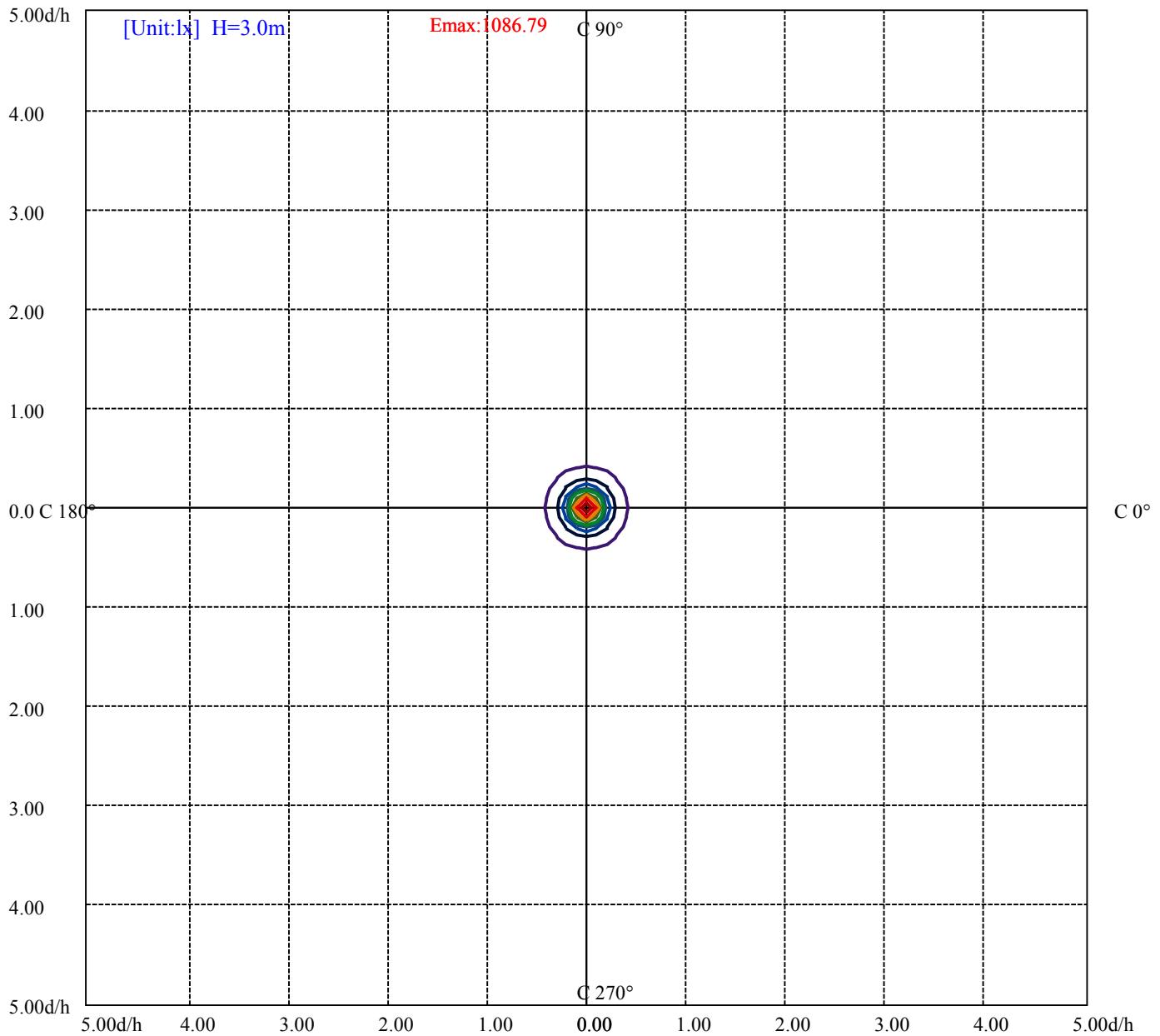
House

[Unit:cd]

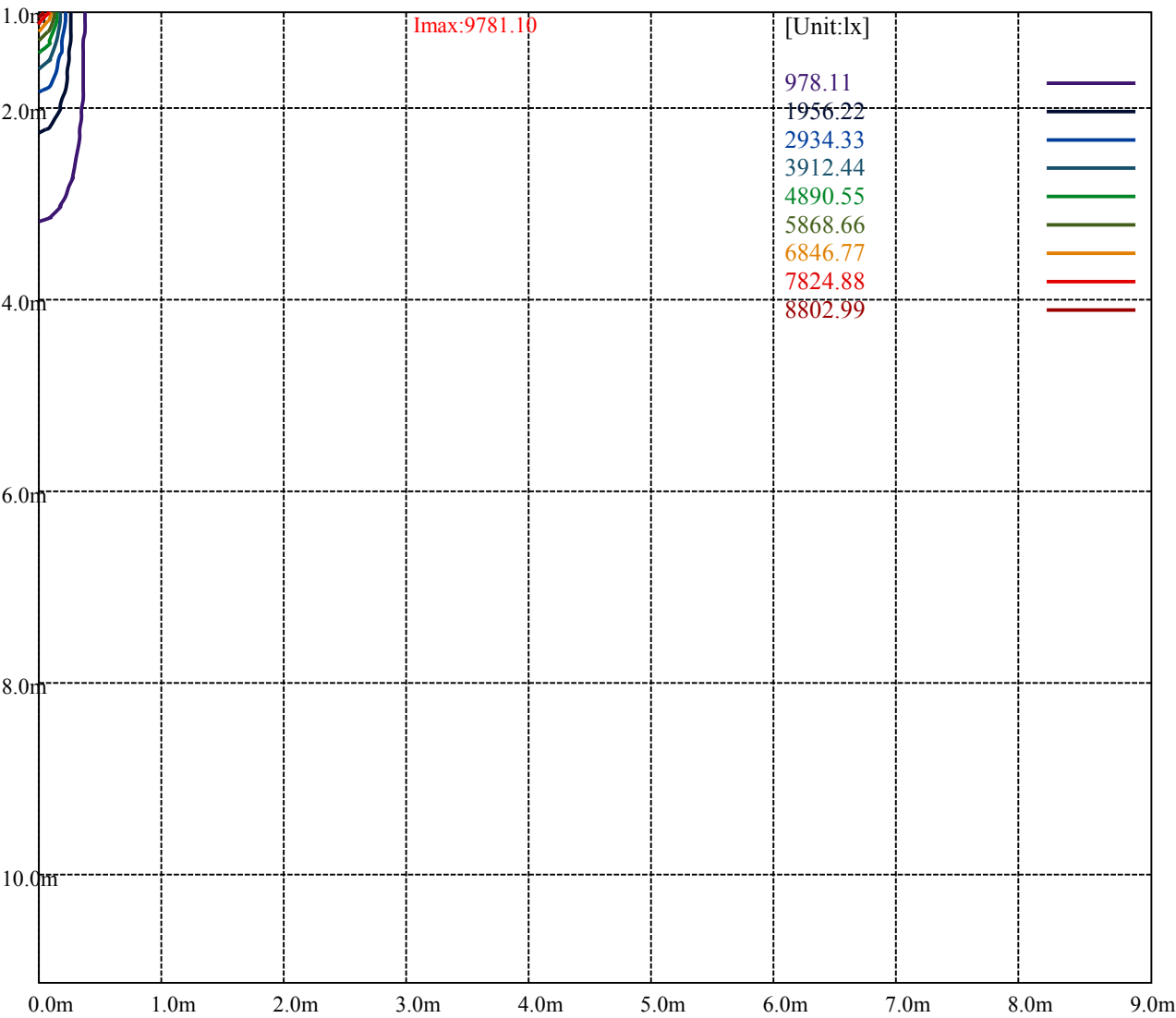
Road

Imax:9781.10

(10%Imax)	978.11	—
(20%Imax)	1956.22	—
(30%Imax)	2934.33	—
(40%Imax)	3912.44	—
(50%Imax)	4890.55	—
(60%Imax)	5868.66	—
(70%Imax)	6846.77	—
(80%Imax)	7824.88	—
(90%Imax)	8802.99	—



(10%Emax)	108.6788	—
(20%Emax)	217.3578	—
(30%Emax)	326.0367	—
(40%Emax)	434.7155	—
(50%Emax)	543.3944	—
(60%Emax)	652.0734	—
(70%Emax)	760.7511	—
(80%Emax)	869.43	—
(90%Emax)	978.1089	—



Luminance Table

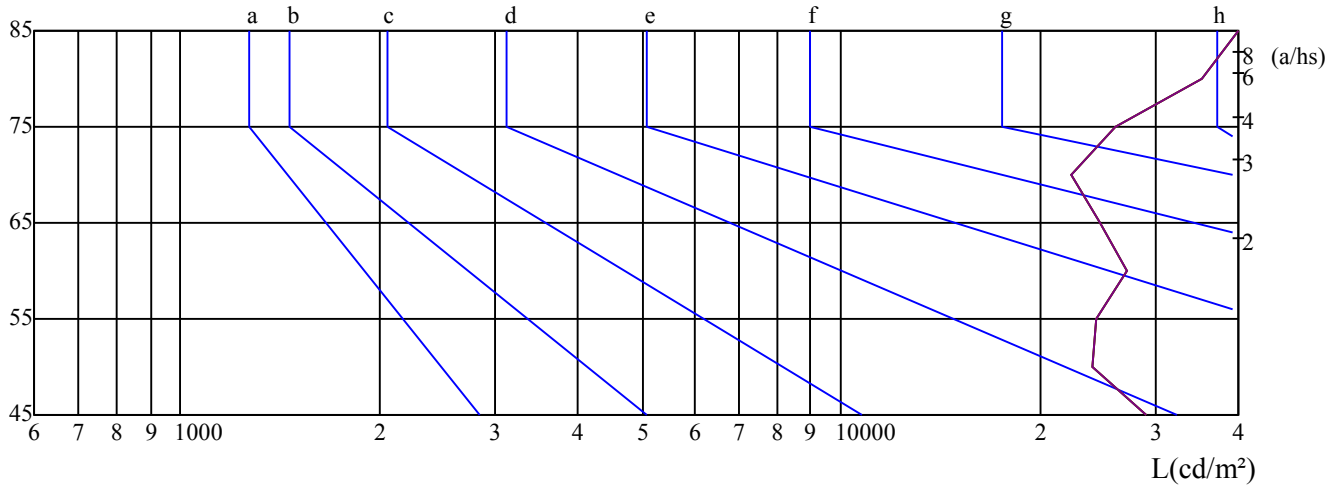
γ	45	50	55	60	65	70	75	80	85
C0	29004	23969	24375	27073	24661	22263	26096	35127	63173
C45	29004	23969	24375	27073	24661	22263	26096	35127	63173
C90	29004	23969	24375	27073	24661	22263	26096	35127	63173

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
24661	24661	24661	26096	26096	26096	63173	63173	63173

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

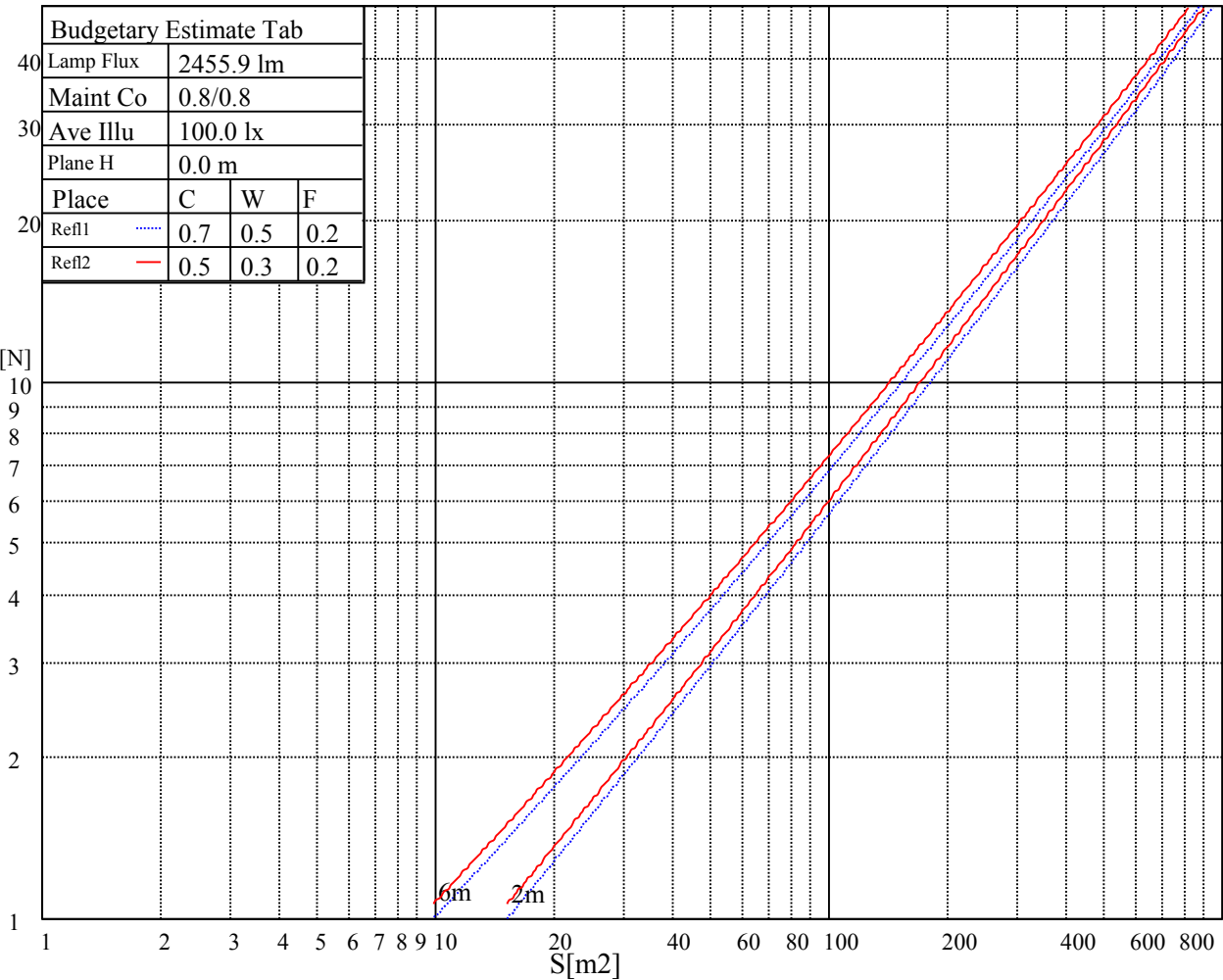
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

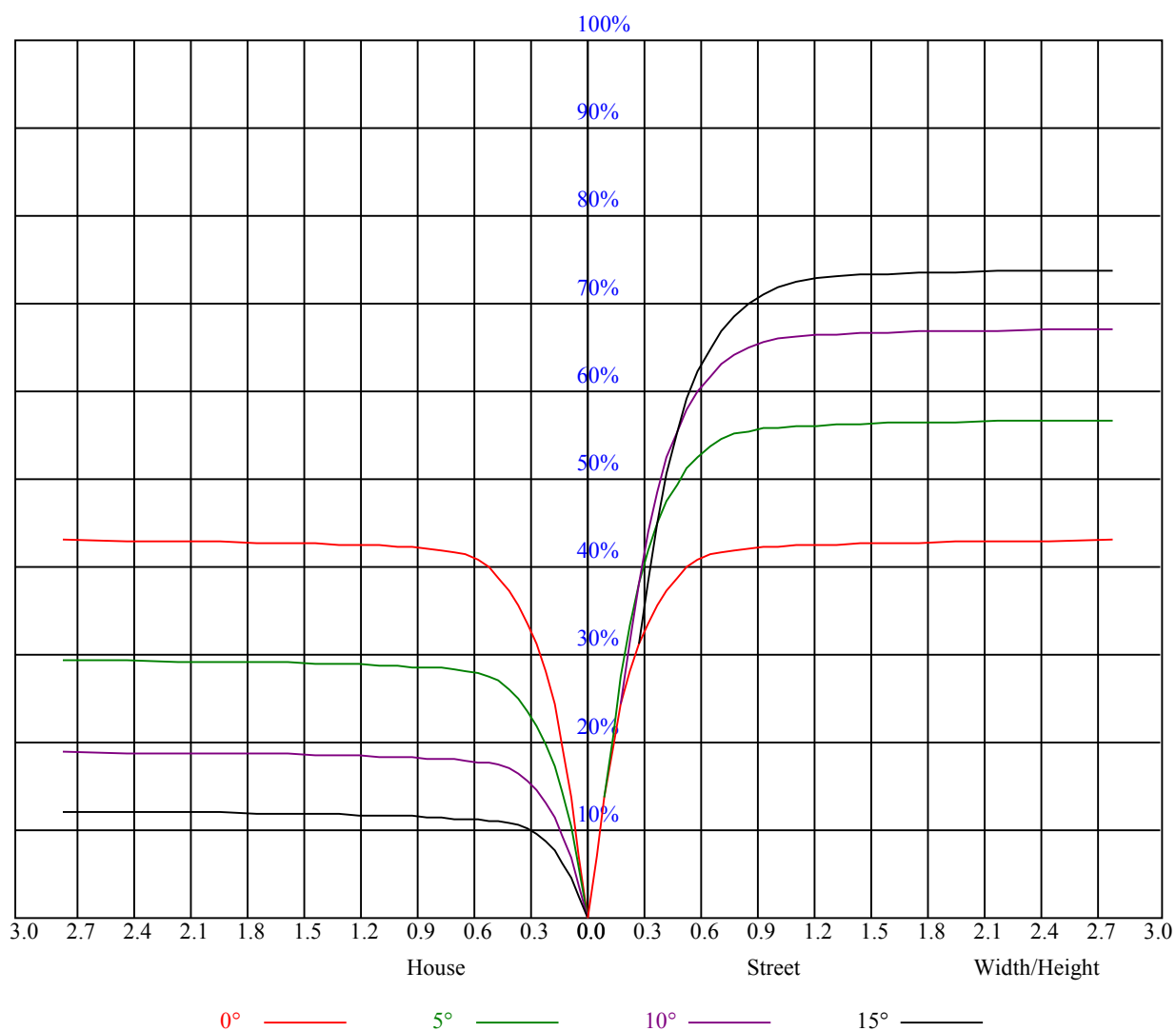
C0 ———

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	1.03	1.03	1.03	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.89	0.89	0.89	0.87
1	0.97	0.95	0.93	0.95	0.93	0.92	0.92	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.82
2	0.92	0.89	0.86	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.83	0.81	0.80	0.79
3	0.87	0.83	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.79	0.77	0.80	0.78	0.76	0.75
4	0.83	0.79	0.76	0.82	0.78	0.76	0.80	0.77	0.75	0.79	0.76	0.74	0.77	0.75	0.73	0.72
5	0.79	0.75	0.72	0.79	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
6	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
7	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
8	0.70	0.66	0.64	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62
9	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.58



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	9767.81	9831.74	9828.16	9701.48	9417.65	8973.69	8470.57	7792.97	7129.72
45.0	9813.82	9676.98	9368.06	9017.91	8461.01	7791.18	7123.14	6379.82	5718.95
90.0	9734.94	9479.80	9152.95	8658.79	8037.36	7381.28	6712.04	5783.48	5178.78
135.0	9807.84	9671.60	9400.92	8936.64	8426.95	7810.90	6961.81	6290.19	5611.99
180.0	9767.81	9554.49	9230.03	8692.85	8112.05	7454.77	6668.42	5893.43	5212.84
225.0	9813.82	9835.33	9773.18	9519.23	9215.69	8769.34	8120.42	7368.13	6671.41
270.0	9734.94	9819.19	9846.68	9711.64	9478.00	9078.86	8497.46	7893.36	7216.96
315.0	9807.84	9842.50	9799.48	9593.33	9243.77	8841.64	8285.93	7503.77	6816.01
360.0	9767.81	9831.74	9828.16	9701.48	9417.65	8973.69	8470.57	7792.97	7129.72
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6385.19	5637.09	4989.96	4389.45	3744.71	3313.30	2928.49	2538.30	2277.78
45.0	4960.69	4277.11	3765.03	3321.66	2847.23	2526.35	2286.15	2029.81	1845.77
90.0	4546.60	3811.04	3418.46	3020.51	2646.46	2339.33	2115.85	1900.74	1737.61
135.0	4795.77	4195.25	3689.74	3205.15	2793.45	2480.34	2218.63	1990.37	1808.72
180.0	4494.02	3880.95	3430.41	2990.04	2658.41	2353.67	2097.92	1904.92	1734.03
225.0	5885.66	5127.99	4495.81	3885.73	3427.43	2982.27	2620.16	2344.11	2112.27
270.0	6350.54	5658.60	4994.15	4314.76	3740.53	3307.92	2877.10	2525.76	2262.84
315.0	6126.46	5362.82	4641.61	4076.34	3587.56	3077.27	2740.27	2451.06	2175.01
360.0	6385.19	5637.09	4989.96	4389.45	3744.71	3313.30	2928.49	2538.30	2277.78
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2060.88	1881.62	1688.62	1551.78	1432.28	1303.21	1214.18	1140.68	1068.38
45.0	1691.01	1555.97	1405.99	1302.02	1217.17	1127.54	1068.98	1015.20	948.28
90.0	1576.28	1437.65	1333.09	1190.82	1144.99	1081.35	1026.32	951.68	879.08
135.0	1634.84	1506.97	1374.91	1260.19	1179.52	1114.99	1042.09	985.92	915.41
180.0	1552.98	1423.91	1315.76	1187.77	1122.88	1060.73	991.60	937.28	865.10
225.0	1869.67	1709.53	1564.33	1411.36	1302.61	1181.91	1117.92	1046.33	992.79
270.0	2019.05	1838.00	1661.73	1509.96	1391.05	1273.33	1178.92	1103.64	1042.09
315.0	1951.53	1779.44	1613.33	1470.52	1356.99	1190.34	1161.36	1081.71	1018.43
360.0	2060.88	1881.62	1688.62	1551.78	1432.28	1303.21	1214.18	1140.68	1068.38
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1004.45	948.88	867.01	790.53	701.50	608.28	530.01	440.38	354.33
45.0	865.82	788.14	697.32	613.06	518.66	427.83	354.33	302.35	199.51
90.0	801.53	718.05	611.99	530.37	447.79	350.51	281.20	217.14	155.66
135.0	828.18	746.31	661.46	563.47	470.26	393.17	312.51	263.81	175.97
180.0	771.65	703.83	613.24	514.89	441.99	357.02	273.43	217.50	163.07
225.0	933.94	867.67	783.84	697.38	620.29	531.74	444.26	369.21	296.08
270.0	974.57	917.80	847.30	766.03	677.00	598.72	513.28	424.84	350.75
315.0	967.52	909.14	816.16	739.50	661.11	562.33	484.60	405.42	323.02
360.0	1004.45	948.88	867.01	790.53	701.50	608.28	530.01	440.38	354.33
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	301.75	217.92	150.28	104.99	74.33	60.89	55.09	49.95	44.81
45.0	147.59	105.11	74.09	66.33	60.59	54.14	48.58	45.17	41.83
90.0	106.42	79.95	69.37	62.62	56.88	51.27	47.62	44.04	40.87
135.0	123.33	87.84	71.64	64.53	58.38	52.88	47.62	44.34	41.35
180.0	100.27	76.18	64.06	57.66	51.45	46.55	42.19	39.02	36.45
225.0	214.45	158.76	113.29	73.44	60.05	54.61	49.59	43.74	39.97
270.0	307.73	206.98	144.90	100.09	67.88	57.66	52.04	46.67	42.31
315.0	247.50	187.27	128.77	83.00	62.26	54.73	49.95	44.75	40.33
360.0	301.75	217.92	150.28	104.99	74.33	60.89	55.09	49.95	44.81

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	41.11	38.54	35.91	33.64	31.49	29.70	28.32	27.31	26.41
45.0	38.72	36.27	33.94	32.27	30.65	29.34	28.44	27.90	27.43
90.0	38.42	36.21	33.88	32.33	31.01	29.82	29.16	28.62	28.26
135.0	38.12	35.91	34.00	32.21	30.71	29.82	28.86	28.32	28.02
180.0	33.94	32.03	30.18	28.68	27.67	26.77	26.05	25.75	25.63
225.0	37.11	34.36	31.79	29.88	28.20	26.77	25.81	24.98	24.50
270.0	38.24	35.79	33.52	31.55	29.34	27.96	26.77	25.81	25.16
315.0	37.70	35.49	32.86	30.89	29.28	27.73	26.65	25.87	25.34
360.0	41.11	38.54	35.91	33.64	31.49	29.70	28.32	27.31	26.41
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	25.75	25.39	25.28	24.98	25.10	24.92	24.92	24.50	24.14
45.0	27.19	27.01	26.95	27.01	26.77	26.47	25.81	25.28	23.84
90.0	28.20	27.96	28.02	27.73	27.55	26.83	26.29	25.10	23.72
135.0	27.73	27.73	27.55	27.43	27.13	26.77	25.99	25.16	23.96
180.0	25.51	25.57	25.45	25.63	25.34	25.10	24.26	23.42	22.17
225.0	24.08	23.96	23.90	23.90	24.02	24.08	23.90	23.48	22.77
270.0	24.68	24.56	24.50	24.50	24.68	24.62	24.68	24.38	23.96
315.0	24.92	24.62	24.68	24.56	24.68	24.62	24.38	24.02	23.12
360.0	25.75	25.39	25.28	24.98	25.10	24.92	24.92	24.50	24.14
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	23.24	22.47	20.97	20.08	17.99	16.49	15.24	14.52	13.86
45.0	22.77	20.50	18.82	16.91	15.83	14.88	14.40	13.98	13.56
90.0	21.81	20.20	17.69	16.79	15.48	15.00	14.28	13.86	13.38
135.0	22.59	20.26	18.46	16.91	15.66	15.00	14.52	13.98	13.62
180.0	21.09	19.18	17.51	16.01	15.06	14.40	13.92	13.56	13.27
225.0	22.17	20.97	19.90	18.34	16.91	15.48	14.58	13.92	13.56
270.0	23.12	22.11	20.73	20.08	17.75	16.49	15.36	14.64	14.10
315.0	22.47	21.45	20.08	18.58	17.21	15.60	14.82	14.16	13.74
360.0	23.24	22.47	20.97	20.08	17.99	16.49	15.24	14.52	13.86
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	13.50	13.21	12.91	12.67	12.43	12.19	12.01	11.83	11.59
45.0	13.27	12.97	12.67	12.31	12.07	11.77	11.59	11.35	11.05
90.0	12.97	12.73	12.37	12.07	11.77	11.59	11.41	11.11	10.82
135.0	13.21	12.85	12.61	12.25	11.95	11.71	11.53	11.23	10.93
180.0	12.97	12.67	12.43	12.19	11.95	11.71	11.47	11.23	10.93
225.0	13.27	12.97	12.79	12.61	12.37	12.19	12.01	11.77	11.47
270.0	13.80	13.44	13.21	13.03	12.79	12.55	12.37	12.07	11.83
315.0	13.44	13.21	12.97	12.79	12.55	12.31	12.13	11.89	11.59
360.0	13.50	13.21	12.91	12.67	12.43	12.19	12.01	11.83	11.59
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.35	11.17	10.88	10.64	10.46	10.28	10.10	9.92	9.68
45.0	10.76	10.58	10.40	10.16	9.98	9.80	9.62	9.80	9.80
90.0	10.58	10.40	10.16	9.98	9.80	9.74	10.16	9.86	9.80
135.0	10.64	10.46	10.28	10.04	9.92	9.80	9.98	9.86	9.86
180.0	10.64	10.40	10.22	9.98	9.92	9.74	9.74	9.44	9.50
225.0	11.29	10.99	10.76	10.46	10.34	10.10	9.98	9.80	9.62
270.0	11.59	11.23	10.99	10.76	10.52	10.34	10.16	9.98	9.86
315.0	11.35	11.11	10.88	10.70	10.52	10.28	10.04	9.92	9.62
360.0	11.35	11.17	10.88	10.64	10.46	10.28	10.10	9.92	9.68

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	9.80
45.0	9.68
90.0	9.86
135.0	9.80
180.0	9.62
225.0	9.50
270.0	9.56
315.0	9.56
360.0	9.80