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Nata

LumCAT: 2-1794-N	
Luminaire: 92.70.131.00	
Report No: NATA0100	Voltage(V): 34.3800
Test No: GC2020010623	Current(A): 0.6000
LampCAT: LUMINUS CXM-14-AC40	Power (W): 20.6280
Lamp flux(lm): 2579.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2134.07
Efficiency(%): 82.75%
Lumens(lm)/Power(W): 103.45
Central intensity(cd): 6542.227
Maximum intensity(cd): 6542.227
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=28.5
[C90/270]Total=28.5
Field angle(10%Imax): [C0/180]Total=59.1
[C90/270]Total=59.1
Maximum s/h(1/2): C0_180=0.47 C90_270=0.47
Maximum s/h(1/4): C0_180=0.50 C90_270=0.50
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.75%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.617%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6542.227	0.000	0	.000%	.000%
1.0	6523.453	6.252	6.252	.242%	.293%
2.0	6447.375	18.617	24.869	.722%	1.165%
3.0	6320.813	30.537	55.406	1.184%	2.596%
4.0	6168.375	41.805	97.211	1.621%	4.555%
5.0	5995.195	52.327	149.538	2.029%	7.007%
6.0	5766.609	61.811	211.35	2.397%	9.904%
7.0	5520.797	70.061	281.41	2.717%	13.187%
8.0	5273.930	77.256	358.666	2.996%	16.807%
9.0	4977.914	83.086	441.752	3.222%	20.700%
10.0	4637.461	87.016	528.767	3.374%	24.777%
11.0	4329.492	89.598	618.366	3.474%	28.976%
12.0	4017.234	91.242	709.607	3.538%	33.251%
13.0	3645.422	90.936	800.544	3.526%	37.513%
14.0	3345.539	89.484	890.028	3.470%	41.706%
15.0	3056.133	87.885	977.913	3.408%	45.824%
16.0	2762.227	85.255	1063.168	3.306%	49.819%
17.0	2492.086	81.824	1144.992	3.173%	53.653%
18.0	2246.133	78.123	1223.115	3.029%	57.314%
19.0	2011.922	74.081	1297.196	2.872%	60.785%
20.0	1810.828	69.967	1367.163	2.713%	64.064%
21.0	1620.211	65.883	1433.046	2.555%	67.151%
22.0	1443.551	61.568	1494.613	2.387%	70.036%
23.0	1316.067	57.904	1552.518	2.245%	72.749%
24.0	1190.869	54.811	1607.328	2.125%	75.318%
25.0	1093.366	51.939	1659.267	2.014%	77.751%
26.0	1007.733	49.597	1708.863	1.923%	80.075%
27.0	917.374	47.098	1755.962	1.826%	82.282%
28.0	803.426	43.567	1799.529	1.689%	84.324%
29.0	707.330	39.526	1839.054	1.533%	86.176%
30.0	609.033	35.542	1874.596	1.378%	87.841%
31.0	503.592	30.963	1905.559	1.201%	89.292%
32.0	410.182	26.179	1931.737	1.015%	90.519%
33.0	327.509	21.733	1953.47	.843%	91.537%
34.0	250.313	17.487	1970.956	.678%	92.357%
35.0	183.572	13.475	1984.431	.522%	92.988%
36.0	141.933	10.364	1994.795	.402%	93.474%
37.0	102.326	7.966	2002.762	.309%	93.847%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	85.141	6.257	2009.019	.243%	94.140%
39.0	75.213	5.473	2014.492	.212%	94.397%
40.0	68.006	4.995	2019.487	.194%	94.631%
41.0	62.747	4.656	2024.143	.181%	94.849%
42.0	58.177	4.393	2028.537	.170%	95.055%
43.0	53.733	4.145	2032.682	.161%	95.249%
44.0	50.372	3.929	2036.611	.152%	95.433%
45.0	47.454	3.760	2040.371	.146%	95.609%
46.0	44.184	3.584	2043.955	.139%	95.777%
47.0	41.794	3.420	2047.374	.133%	95.938%
48.0	39.748	3.296	2050.671	.128%	96.092%
49.0	37.582	3.176	2053.846	.123%	96.241%
50.0	35.670	3.054	2056.9	.118%	96.384%
51.0	34.207	2.956	2059.857	.115%	96.523%
52.0	32.667	2.870	2062.726	.111%	96.657%
53.0	31.366	2.785	2065.512	.108%	96.788%
54.0	30.234	2.715	2068.227	.105%	96.915%
55.0	29.081	2.648	2070.875	.103%	97.039%
56.0	28.153	2.586	2073.461	.100%	97.160%
57.0	27.134	2.528	2075.989	.098%	97.279%
58.0	26.135	2.463	2078.452	.096%	97.394%
59.0	25.284	2.404	2080.856	.093%	97.507%
60.0	24.455	2.350	2083.206	.091%	97.617%
61.0	23.541	2.290	2085.496	.089%	97.724%
62.0	22.838	2.235	2087.731	.087%	97.829%
63.0	22.141	2.188	2089.919	.085%	97.931%
64.0	21.368	2.135	2092.054	.083%	98.031%
65.0	20.784	2.086	2094.14	.081%	98.129%
66.0	20.215	2.046	2096.185	.079%	98.225%
67.0	19.652	2.005	2098.19	.078%	98.319%
68.0	19.111	1.964	2100.154	.076%	98.411%
69.0	18.633	1.926	2102.079	.075%	98.501%
70.0	18.127	1.888	2103.967	.073%	98.590%
71.0	17.677	1.851	2105.817	.072%	98.676%
72.0	17.220	1.814	2107.632	.070%	98.761%
73.0	16.784	1.778	2109.41	.069%	98.845%
74.0	16.369	1.743	2111.153	.068%	98.926%
75.0	15.926	1.706	2112.859	.066%	99.006%

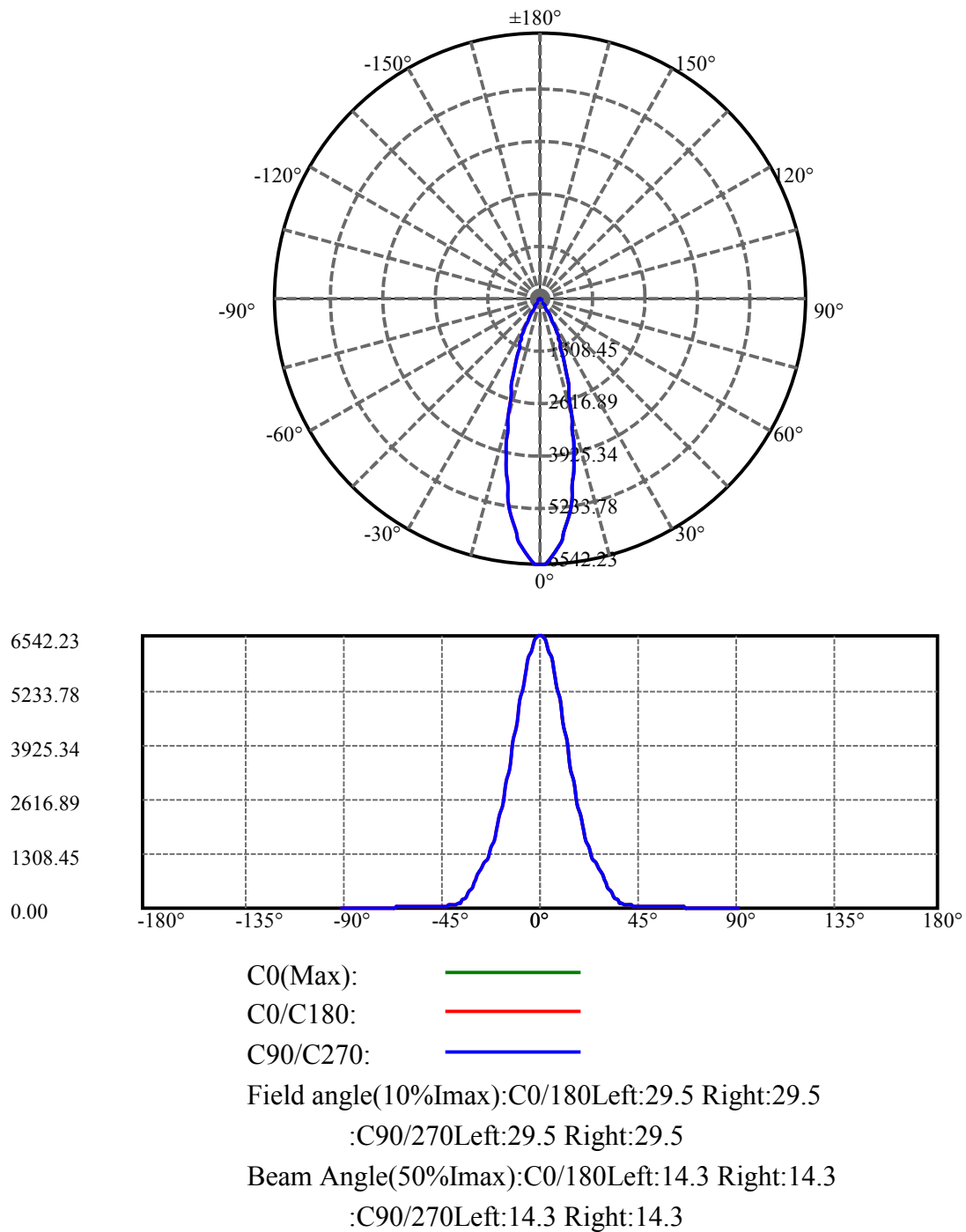
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	15.497	1.668	2114.527	.065%	99.084%
77.0	15.096	1.631	2116.158	.063%	99.161%
78.0	14.730	1.597	2117.755	.062%	99.236%
79.0	14.280	1.559	2119.314	.060%	99.309%
80.0	13.901	1.519	2120.833	.059%	99.380%
81.0	13.584	1.486	2122.319	.058%	99.450%
82.0	13.198	1.452	2123.772	.056%	99.518%
83.0	12.867	1.417	2125.189	.055%	99.584%
84.0	12.509	1.382	2126.571	.054%	99.649%
85.0	12.178	1.347	2127.918	.052%	99.712%
86.0	11.742	1.308	2129.226	.051%	99.773%
87.0	11.363	1.264	2130.49	.049%	99.832%
88.0	11.039	1.227	2131.718	.048%	99.890%
89.0	10.680	1.190	2132.908	.046%	99.946%
90.0	10.463	1.159	2134.067	.045%	100.000%

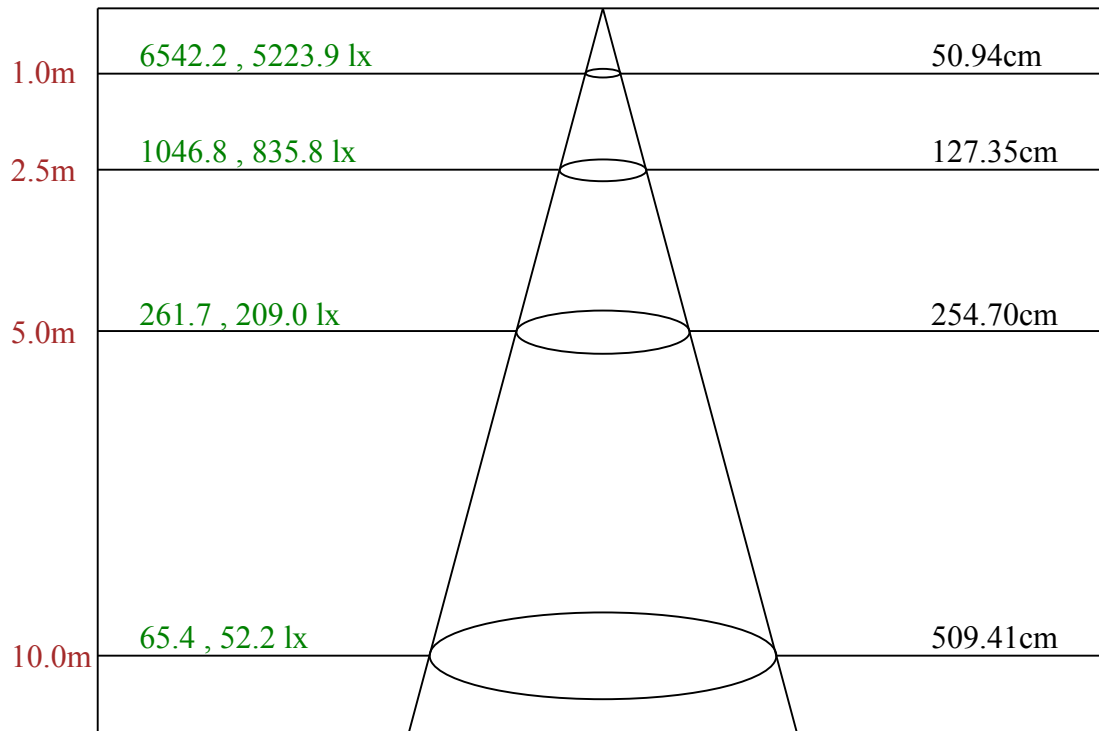
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1874.60	72.69%	87.84%
0-40	2019.49	78.31%	94.63%
0-60	2083.21	80.78%	97.62%
0-90	2132.91	82.70%	99.95%
0-120	2132.91	82.70%	99.95%
0-180	2134.07	82.75%	100.00%
60-90	52.05	2.02%	2.44%
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%
0-25.97	1707.25	66.20%	80.00%

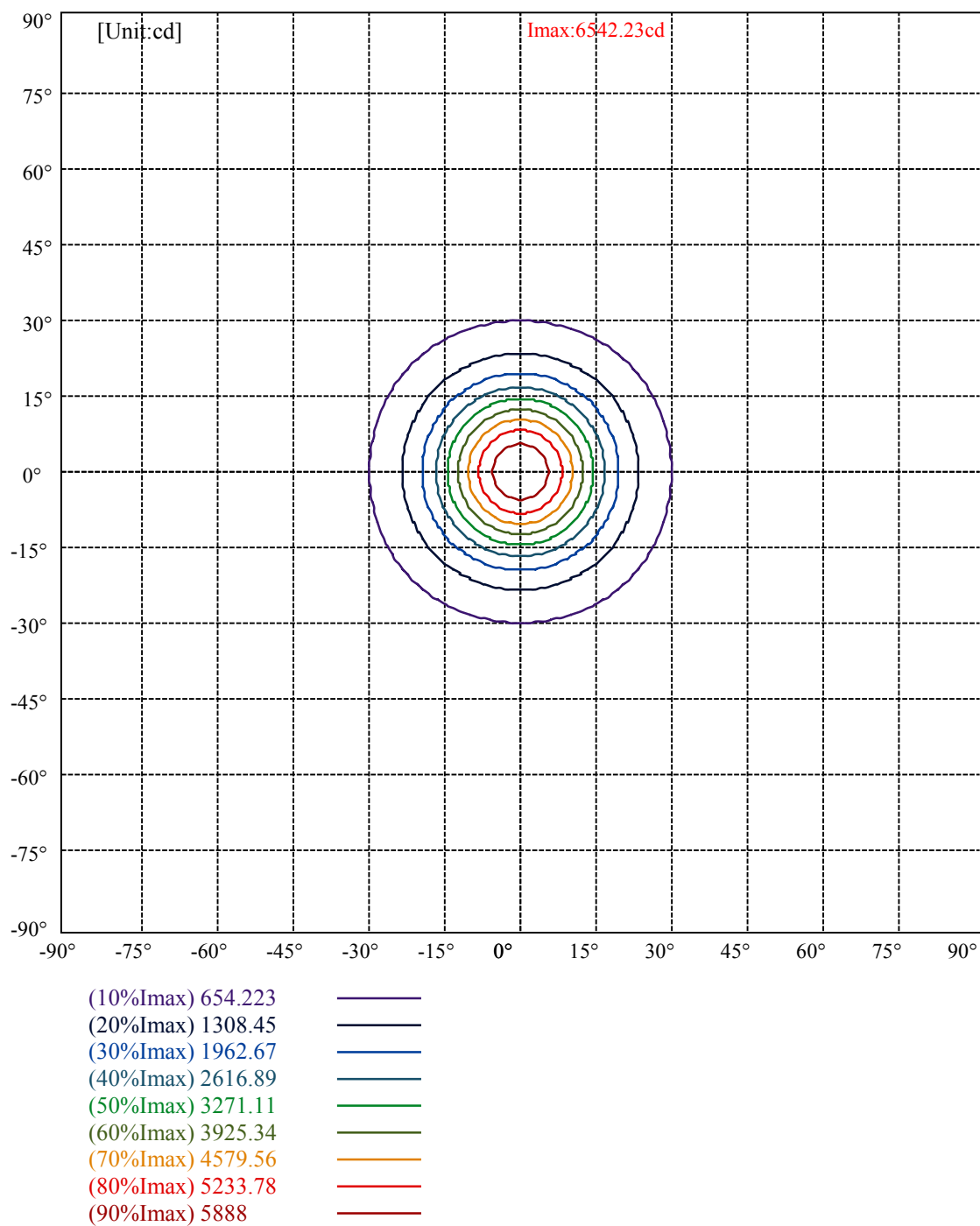
ZONAL LUMEN SUMMARY

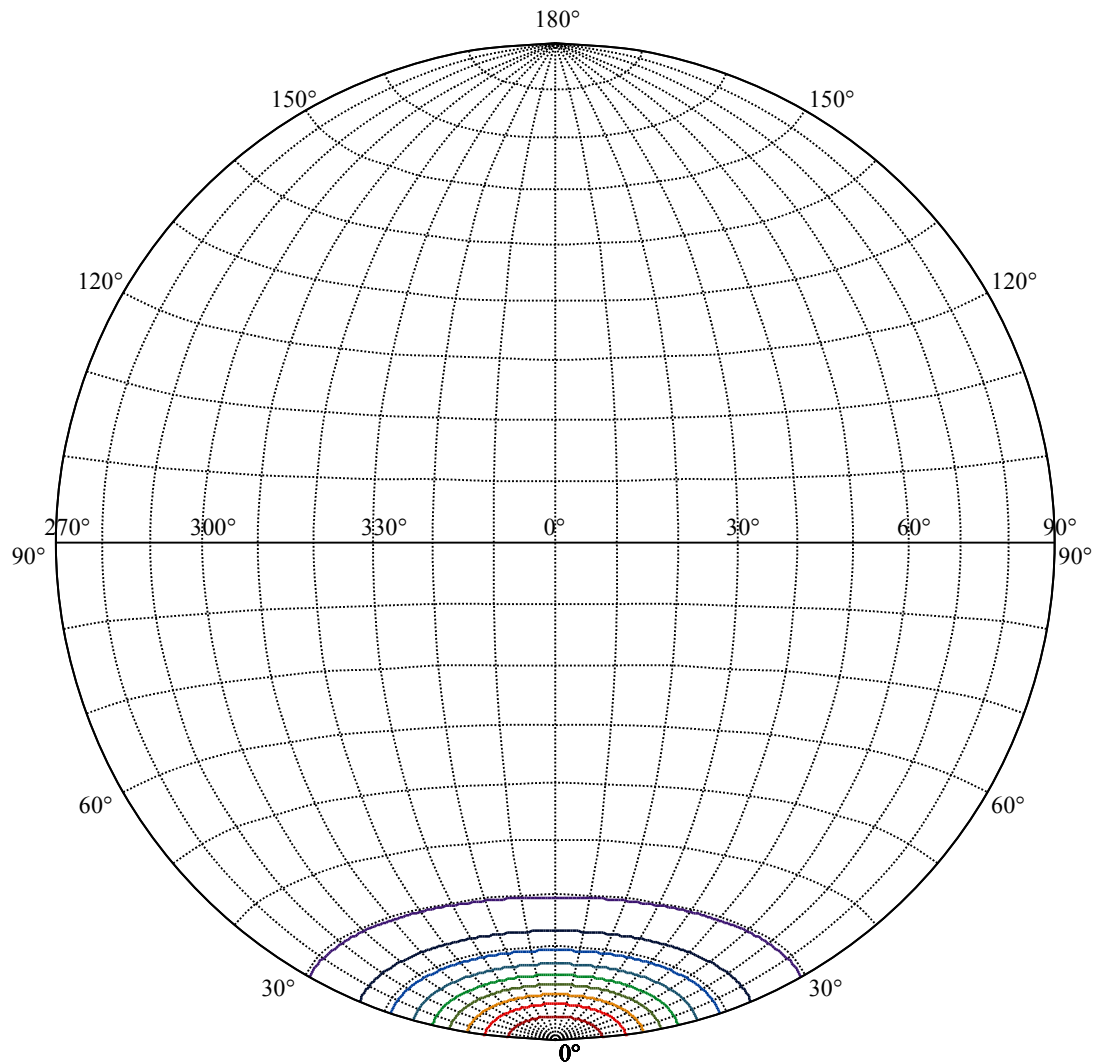
0-10	528.77
10-20	838.40
20-30	507.43
30-40	144.89
40-50	37.41
50-60	26.31
60-70	20.76
70-80	16.87
80-90	12.07
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00





Max , Ave Beam angle of C0 plane 28.58





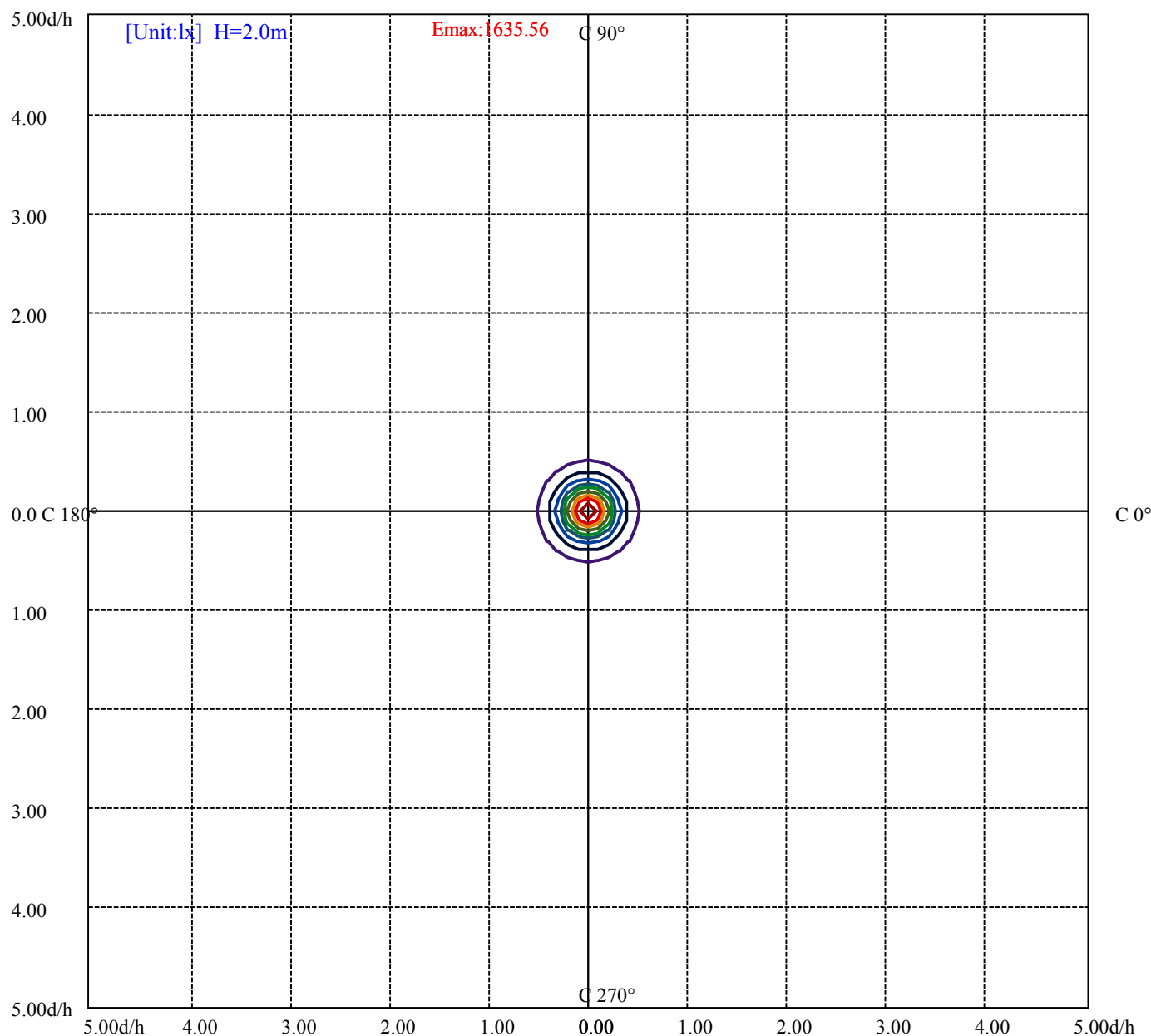
House

[Unit:cd]

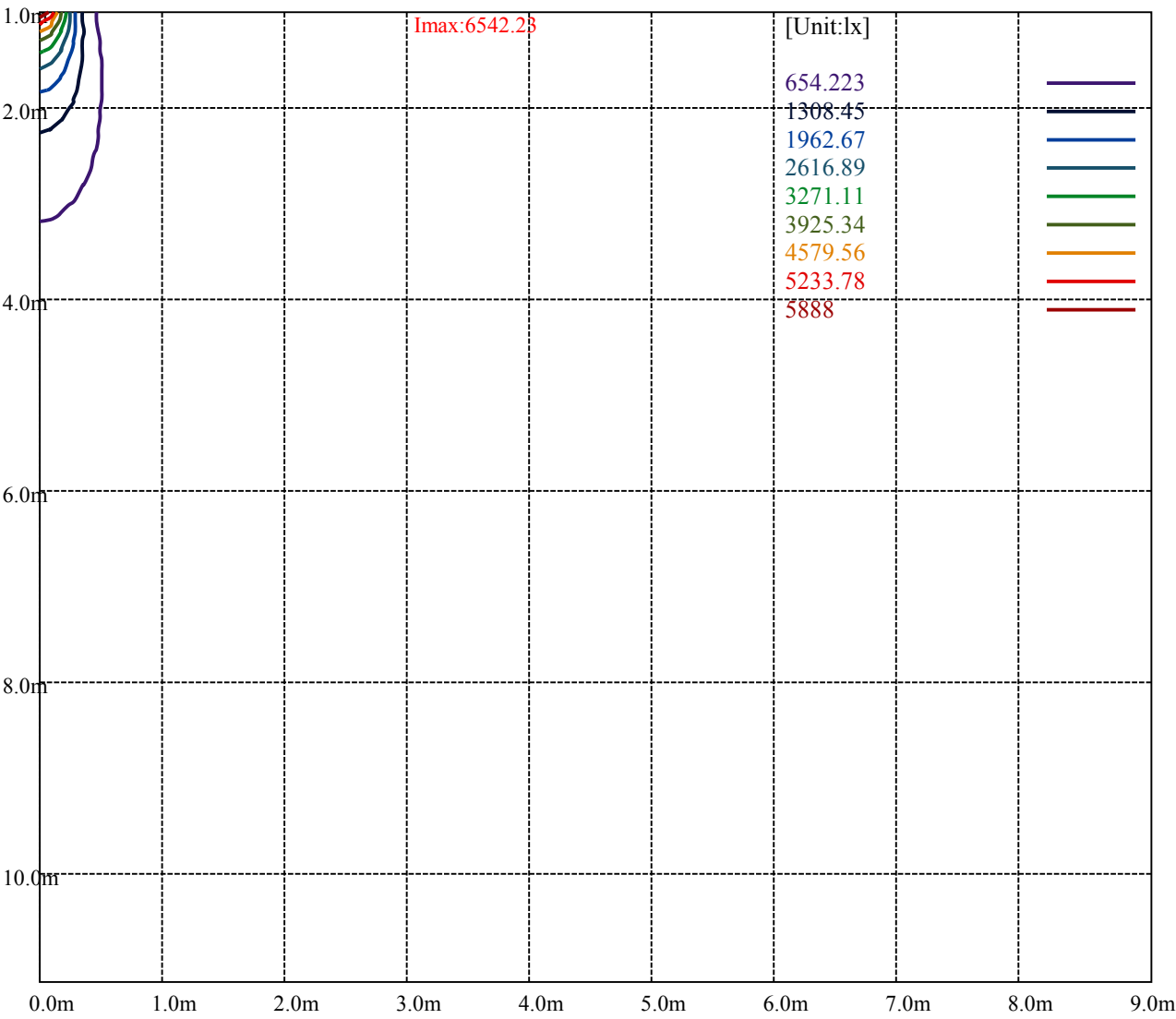
Road

I_{max}:6542.23

(10%I _{max})	654.223	—
(20%I _{max})	1308.45	—
(30%I _{max})	1962.67	—
(40%I _{max})	2616.89	—
(50%I _{max})	3271.11	—
(60%I _{max})	3925.34	—
(70%I _{max})	4579.56	—
(80%I _{max})	5233.78	—
(90%I _{max})	5888	—



(10%Emax)	163.5555	—
(20%Emax)	327.11	—
(30%Emax)	490.6675	—
(40%Emax)	654.2225	—
(50%Emax)	817.7775	—
(60%Emax)	981.3325	—
(70%Emax)	1144.89	—
(80%Emax)	1308.445	—
(90%Emax)	1472	—



Luminance Table

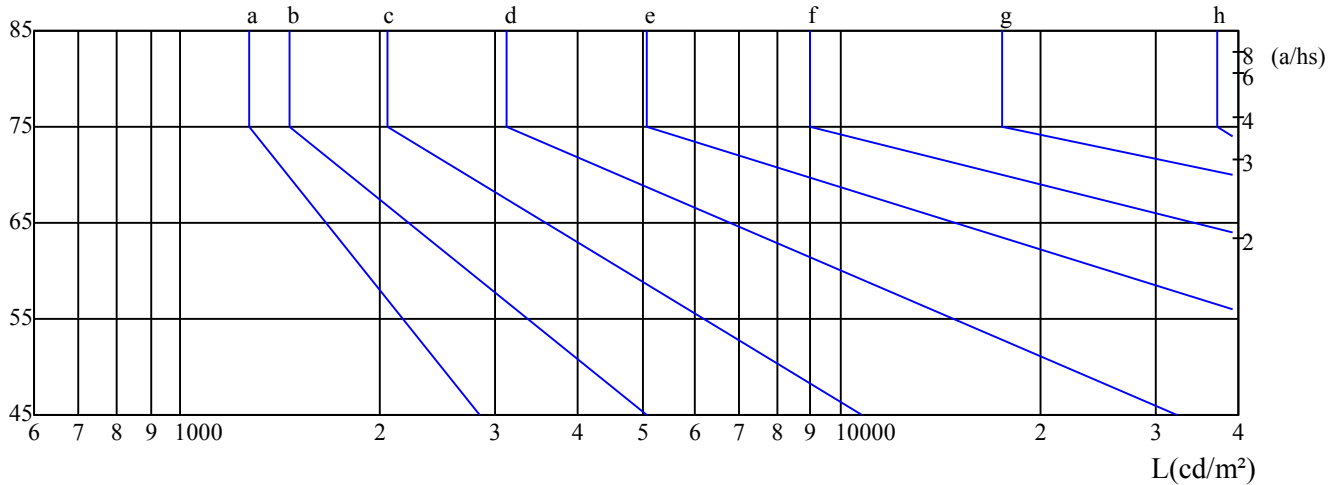
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

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

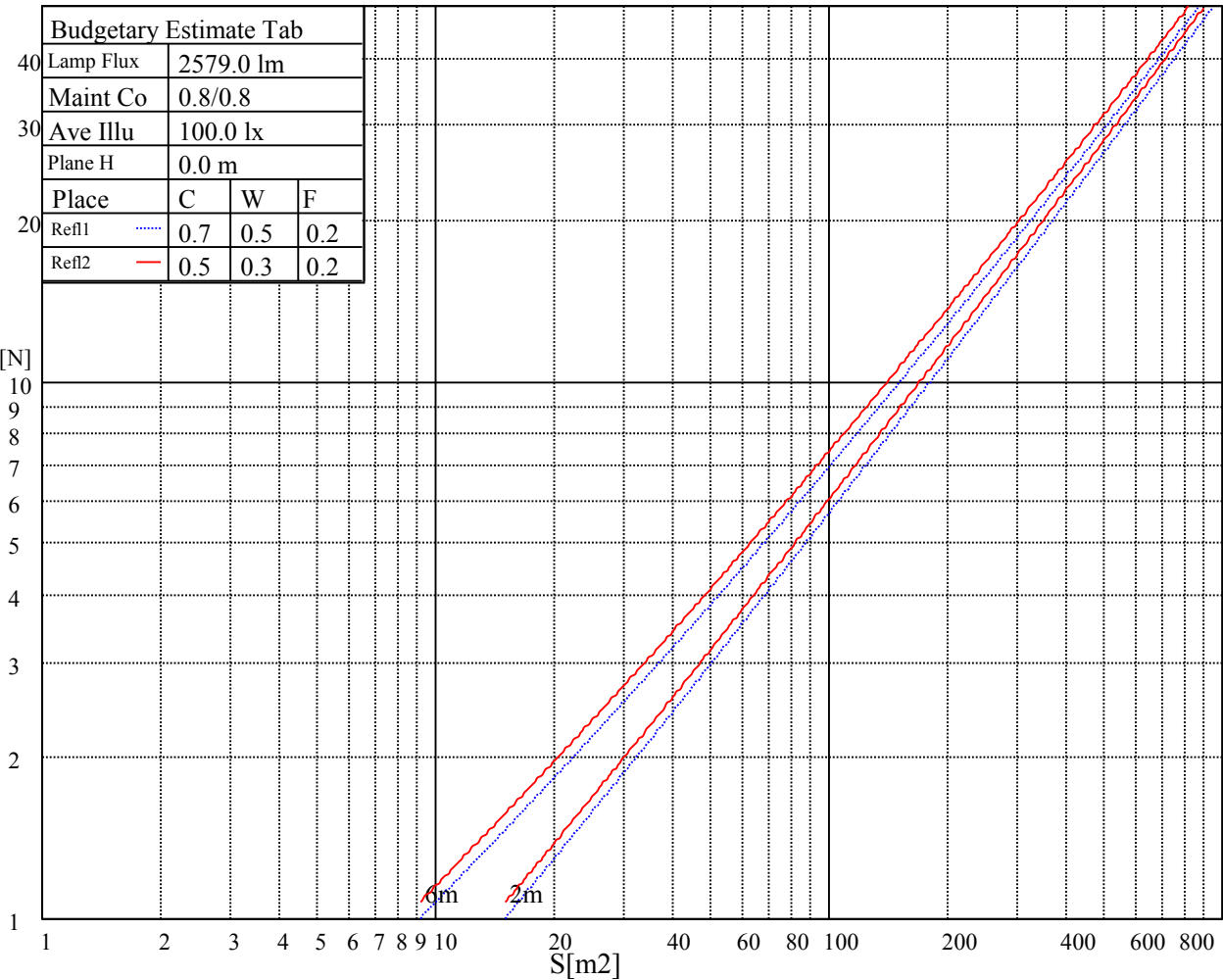
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

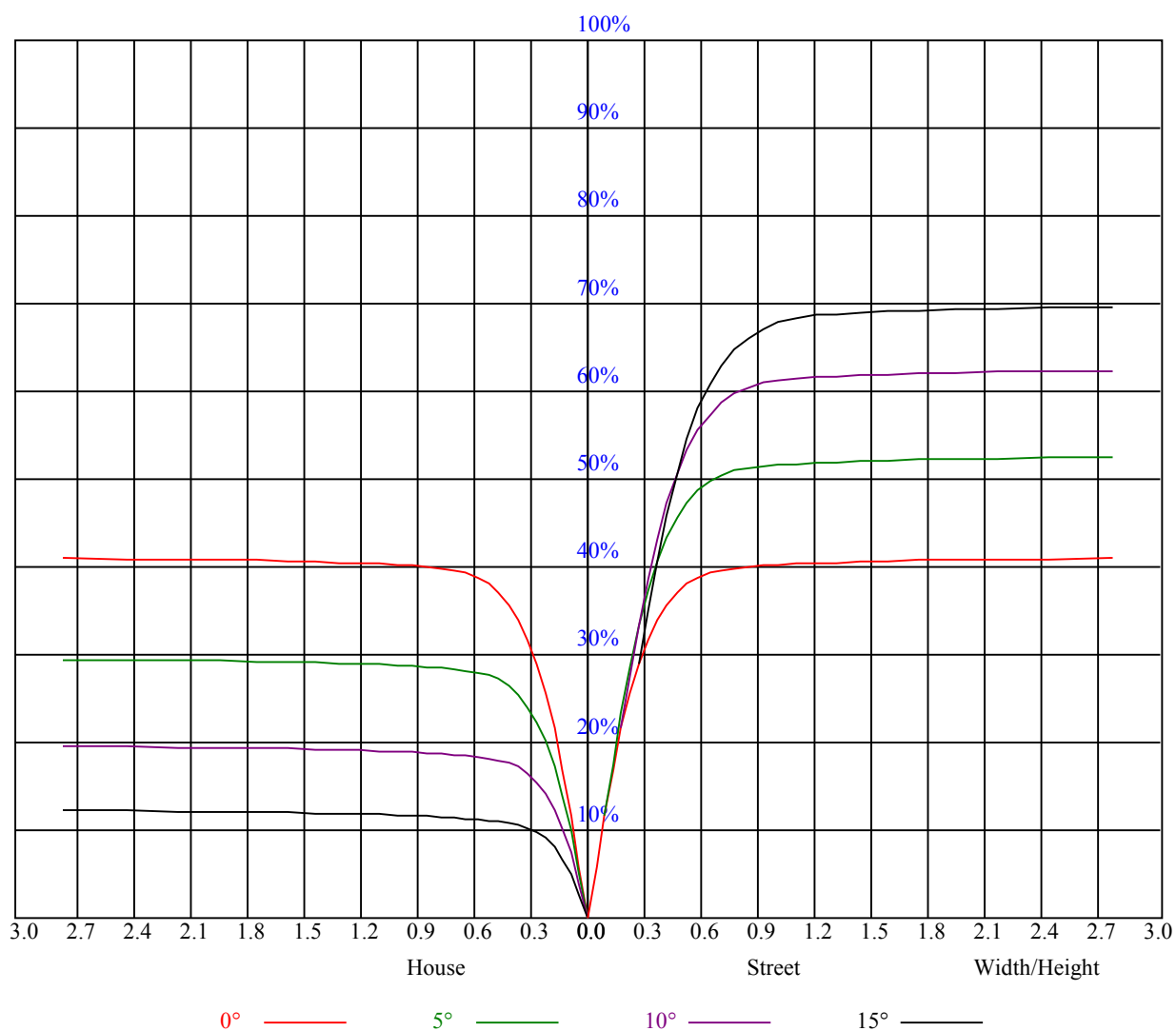
C0 ———

C45 ———

C90 ———



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	0.99	0.99	0.99	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.83
1	0.92	0.90	0.89	0.90	0.89	0.87	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.80	0.78
2	0.87	0.84	0.81	0.86	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	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.76	0.74	0.77	0.75	0.73	0.75	0.74	0.72	0.71
4	0.78	0.74	0.71	0.77	0.74	0.71	0.76	0.73	0.70	0.74	0.72	0.69	0.73	0.70	0.69	0.68
5	0.75	0.71	0.68	0.74	0.70	0.67	0.73	0.69	0.67	0.71	0.68	0.66	0.70	0.68	0.66	0.65
6	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.62
7	0.68	0.64	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.65	0.63	0.60	0.59
8	0.66	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.57
9	0.63	0.59	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.55
10	0.61	0.57	0.55	0.61	0.57	0.54	0.60	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.53



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	6529.50	6586.31	6591.38	6531.19	6445.69	6330.38	6152.63	5983.88	5800.50
45.0	6518.81	6586.88	6575.63	6531.75	6406.88	6283.69	6126.75	5882.06	5674.50
90.0	6563.25	6546.94	6481.13	6352.88	6203.81	6037.31	5833.13	5544.56	5281.31
135.0	6555.94	6521.63	6415.88	6276.94	6123.94	5933.81	5676.19	5441.06	5176.69
180.0	6529.50	6418.13	6274.69	6093.56	5864.06	5654.81	5382.00	5079.38	4786.88
225.0	6518.81	6441.75	6310.69	6090.75	5934.38	5713.88	5382.56	5147.44	4868.44
270.0	6566.06	6525.56	6427.69	6318.56	6141.38	5940.56	5721.75	5456.25	5196.94
315.0	6555.94	6560.44	6501.94	6370.88	6226.88	6067.13	5857.88	5631.75	5406.19
360.0	6529.50	6586.31	6591.38	6531.19	6445.69	6330.38	6152.63	5983.88	5800.50
C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5526.56	5281.88	5010.19	4683.38	4336.31	4019.06	3668.63	3366.56	3043.13
45.0	5447.25	5103.56	4813.88	4497.75	4106.81	3793.50	3497.63	3180.38	2877.75
90.0	5001.19	4619.25	4310.44	3998.25	3647.25	3313.13	3026.25	2730.38	2481.75
135.0	4816.69	4510.69	4186.69	3864.94	3484.13	3183.19	2877.19	2621.81	2361.94
180.0	4478.63	4078.69	3749.06	3447.00	3081.38	2811.38	2554.31	2288.25	2044.13
225.0	4533.19	4183.88	3874.50	3533.63	3210.75	2936.81	2649.94	2409.19	2156.06
270.0	4883.06	4547.25	4224.38	3956.06	3532.50	3243.94	2993.63	2628.56	2382.19
315.0	5136.75	4774.60	4466.81	4156.88	3764.25	3463.31	3181.50	2872.69	2589.75
360.0	5526.56	5281.88	5010.19	4683.38	4336.31	4019.06	3668.63	3366.56	3043.13
C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2737.13	2486.81	2225.25	1990.69	1797.75	1621.69	1432.13	1301.63	1198.13
45.0	2604.94	2328.75	2095.88	1890.00	1681.88	1523.81	1377.00	1259.44	1163.81
90.0	2216.25	1976.63	1781.44	1593.56	1421.44	1298.81	1104.53	1086.58	1010.36
135.0	2101.50	1891.69	1697.63	1500.75	1351.69	1234.13	1120.50	1024.31	954.56
180.0	1846.69	1640.81	1481.63	1323.56	1115.72	1104.98	1017.00	929.59	837.68
225.0	1926.00	1745.44	1581.75	1399.50	1287.00	1119.94	1089.68	992.14	894.99
270.0	2180.25	1917.00	1708.88	1559.25	1369.13	1243.13	1139.06	1031.63	953.44
315.0	2356.31	2108.25	1914.19	1704.38	1523.81	1382.06	1247.06	1121.63	1048.89
360.0	2737.13	2486.81	2225.25	1990.69	1797.75	1621.69	1432.13	1301.63	1198.13
C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1099.69	1010.81	918.00	807.19	696.94	599.06	493.88	406.13	311.63
45.0	1079.44	967.50	873.56	763.88	639.56	541.13	447.19	349.88	287.44
90.0	924.92	815.63	705.94	607.73	502.65	401.63	320.06	237.43	172.58
135.0	874.69	752.63	664.31	565.88	458.44	381.94	299.81	245.36	151.20
180.0	740.25	622.41	528.24	438.81	356.68	263.03	195.53	139.44	100.80
225.0	790.59	662.06	564.75	471.83	373.16	280.13	206.66	141.81	98.89
270.0	861.75	744.75	653.06	566.44	459.00	376.88	300.38	214.20	156.26
315.0	967.67	851.63	750.77	650.53	542.31	437.68	356.57	268.26	189.79
360.0	1099.69	1010.81	918.00	807.19	696.94	599.06	493.88	406.13	311.63
C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	291.94	158.85	110.70	87.98	78.02	70.54	64.18	59.23	55.35
45.0	188.72	129.26	98.72	86.68	76.39	69.53	63.96	59.01	55.24
90.0	117.28	92.19	82.80	75.49	68.06	63.34	59.12	54.73	51.36
135.0	113.57	93.15	83.64	74.76	67.78	62.72	58.33	53.33	50.01
180.0	90.23	81.45	73.52	67.56	62.89	58.28	54.62	50.96	47.93
225.0	86.68	76.44	69.13	63.56	58.44	54.56	51.13	47.25	44.49
270.0	112.61	90.68	79.09	71.21	65.03	60.30	55.69	51.69	48.49
315.0	134.44	96.58	83.53	74.48	67.44	62.72	58.39	53.66	50.12
360.0	291.94	158.85	110.70	87.98	78.02	70.54	64.18	59.23	55.35

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	52.20	47.81	45.11	42.86	39.99	37.86	36.28	34.37	32.85
45.0	51.86	47.98	45.34	42.98	40.39	38.25	36.45	34.71	33.08
90.0	48.49	45.51	42.86	40.78	38.64	36.62	35.10	33.36	32.06
135.0	46.91	43.59	41.23	39.21	37.01	35.21	33.69	32.18	30.94
180.0	45.45	42.86	40.78	38.93	37.41	35.55	34.26	33.08	31.78
225.0	42.19	39.38	37.46	35.78	34.09	32.46	31.28	30.04	29.08
270.0	45.39	42.69	40.39	38.42	36.17	34.48	33.08	31.61	30.38
315.0	47.14	43.65	41.18	39.04	36.96	34.93	33.53	32.01	30.77
360.0	52.20	47.81	45.11	42.86	39.99	37.86	36.28	34.37	32.85
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	31.67	30.49	29.59	28.63	27.68	26.83	26.10	25.09	24.47
45.0	31.78	30.43	29.53	28.35	27.34	26.44	25.43	24.47	23.68
90.0	30.83	29.59	28.52	27.56	26.38	25.37	24.58	23.51	22.73
135.0	29.76	28.58	27.56	26.55	25.48	24.64	23.74	22.84	22.16
180.0	30.66	29.64	28.63	27.62	26.83	25.99	25.20	24.53	23.85
225.0	28.13	27.06	26.27	25.31	24.30	23.63	22.84	21.94	21.32
270.0	29.31	28.29	27.39	26.38	25.43	24.58	23.74	22.84	22.11
315.0	29.76	28.58	27.73	26.66	25.65	24.81	24.02	23.12	22.39
360.0	31.67	30.49	29.59	28.63	27.68	26.83	26.10	25.09	24.47
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	23.74	22.89	22.39	21.77	21.15	20.59	20.08	19.52	19.01
45.0	22.84	21.99	21.32	20.64	20.14	19.41	18.90	18.45	17.89
90.0	22.05	21.15	20.53	19.97	19.24	18.79	18.28	17.61	17.21
135.0	21.43	20.64	20.08	19.52	18.96	18.39	17.94	17.44	16.99
180.0	23.23	22.61	21.99	21.49	21.04	20.48	20.08	19.69	19.24
225.0	20.64	19.97	19.46	18.90	18.39	17.94	17.44	16.99	16.59
270.0	21.49	20.70	20.14	19.58	18.96	18.51	18.00	17.49	17.04
315.0	21.71	20.98	20.36	19.86	19.35	18.79	18.34	17.83	17.44
360.0	23.74	22.89	22.39	21.77	21.15	20.59	20.08	19.52	19.01
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	18.56	18.11	17.72	17.33	16.88	16.48	16.14	15.75	15.41
45.0	17.44	17.04	16.59	16.09	15.69	15.24	14.85	14.34	13.95
90.0	16.76	16.20	15.81	15.41	14.79	14.40	14.06	13.56	13.11
135.0	16.54	16.09	15.69	15.19	14.74	14.34	13.95	13.44	13.11
180.0	18.79	18.39	18.00	17.61	17.33	16.99	16.71	16.37	16.03
225.0	16.09	15.69	15.30	14.85	14.46	14.06	13.67	13.22	12.88
270.0	16.59	16.14	15.69	15.24	14.79	14.40	13.95	13.50	13.11
315.0	16.99	16.59	16.14	15.69	15.30	14.85	14.51	14.06	13.61
360.0	18.56	18.11	17.72	17.33	16.88	16.48	16.14	15.75	15.41
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	15.13	14.68	14.40	14.06	13.84	13.56	13.11	12.66	12.21
45.0	13.61	13.22	12.88	12.54	12.21	11.87	11.48	11.08	10.74
90.0	12.77	12.32	11.93	11.59	11.25	10.91	10.52	10.29	10.13
135.0	12.77	12.38	12.04	11.64	11.36	11.08	10.80	10.63	10.29
180.0	15.81	15.58	15.36	14.96	14.63	13.28	12.71	12.04	11.19
225.0	12.60	12.21	11.93	11.59	11.14	10.86	10.58	10.29	10.13
270.0	12.71	12.26	11.93	11.53	11.19	10.86	10.52	10.35	10.07
315.0	13.28	12.94	12.49	12.15	11.81	11.53	11.19	10.97	10.69
360.0	15.13	14.68	14.40	14.06	13.84	13.56	13.11	12.66	12.21

Intensity data(cd)

Appendix Page: 18 Total:18

C/ γ (°)	90.0
0.0	11.81
45.0	10.58
90.0	10.07
135.0	10.18
180.0	10.69
225.0	10.07
270.0	9.96
315.0	10.35
360.0	11.81