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Nata

LumCAT: 1-0919-M

Luminaire: 99.02.73.179+92.76.853.00

Report No: 220609-B006

Voltage(V): 35.4300

Test No: 220609-C006

Current(A): 0.3610

LampCAT: CREE CXA1516

Power (W): 12.7900

Lamp flux(lm): 1492.4

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 43

Width(mm): 43

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1059.02

Efficiency(%): 70.96%

Lumens(lm)/Power(W): 82.80

Central intensity(cd): 6421.494

Maximum intensity(cd): 6421.494

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=21.4

[C90/270]Total=21.4

Field angle(10%Imax): [C0/180]Total=40.4

[C90/270]Total=40.4

Maximum s/h(1/2): C0_180=0.36 C90_270=0.36

Maximum s/h(1/4): C0_180=0.37 C90_270=0.37

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 70.96%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.509%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6421.495	0.000	0	.000%	.000%
1.0	6391.021	6.131	6.131	.411%	.579%
2.0	6287.125	18.197	24.327	1.219%	2.297%
3.0	6117.353	29.667	53.995	1.988%	5.099%
4.0	5895.968	40.212	94.207	2.694%	8.896%
5.0	5600.938	49.459	143.666	3.314%	13.566%
6.0	5263.708	57.097	200.763	3.826%	18.957%
7.0	4856.118	62.814	263.577	4.209%	24.889%
8.0	4449.201	66.596	330.173	4.462%	31.177%
9.0	3978.871	68.305	398.478	4.577%	37.627%
10.0	3507.943	67.753	466.231	4.540%	44.025%
11.0	3089.822	65.925	532.156	4.417%	50.250%
12.0	2671.552	62.980	595.136	4.220%	56.197%
13.0	2286.968	58.845	653.981	3.943%	61.753%
14.0	1954.891	54.295	708.277	3.638%	66.880%
15.0	1661.071	49.642	757.918	3.326%	71.568%
16.0	1415.240	45.077	802.995	3.020%	75.824%
17.0	1203.647	40.783	843.778	2.733%	79.675%
18.0	990.165	36.171	879.949	2.424%	83.091%
19.0	840.186	31.844	911.793	2.134%	86.098%
20.0	670.203	27.644	939.438	1.852%	88.708%
21.0	517.923	22.814	962.252	1.529%	90.862%
22.0	393.286	18.311	980.563	1.227%	92.592%
23.0	289.398	14.325	994.888	.960%	93.944%
24.0	187.557	10.428	1005.316	.699%	94.929%
25.0	126.049	7.131	1012.447	.478%	95.602%
26.0	72.660	4.691	1017.137	.314%	96.045%
27.0	44.284	2.861	1019.998	.192%	96.315%
28.0	30.354	1.890	1021.888	.127%	96.494%
29.0	23.841	1.418	1023.306	.095%	96.628%
30.0	19.898	1.181	1024.487	.079%	96.739%
31.0	17.552	1.042	1025.529	.070%	96.838%
32.0	15.902	0.958	1026.487	.064%	96.928%
33.0	14.580	0.898	1027.385	.060%	97.013%
34.0	13.355	0.845	1028.231	.057%	97.093%
35.0	12.384	0.799	1029.03	.054%	97.168%
36.0	11.465	0.759	1029.789	.051%	97.240%
37.0	10.748	0.724	1030.514	.049%	97.308%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	10.061	0.695	1031.208	.047%	97.374%
39.0	9.471	0.667	1031.875	.045%	97.437%
40.0	8.948	0.642	1032.518	.043%	97.497%
41.0	8.522	0.622	1033.14	.042%	97.556%
42.0	8.134	0.605	1033.745	.041%	97.613%
43.0	7.760	0.589	1034.334	.039%	97.669%
44.0	7.477	0.575	1034.909	.039%	97.723%
45.0	7.193	0.564	1035.472	.038%	97.776%
46.0	6.969	0.554	1036.026	.037%	97.829%
47.0	6.722	0.545	1036.571	.036%	97.880%
48.0	6.558	0.537	1037.108	.036%	97.931%
49.0	6.371	0.531	1037.639	.036%	97.981%
50.0	6.192	0.524	1038.162	.035%	98.030%
51.0	6.057	0.518	1038.681	.035%	98.079%
52.0	5.938	0.515	1039.195	.034%	98.128%
53.0	5.818	0.511	1039.707	.034%	98.176%
54.0	5.691	0.507	1040.214	.034%	98.224%
55.0	5.609	0.504	1040.718	.034%	98.272%
56.0	5.527	0.503	1041.222	.034%	98.319%
57.0	5.460	0.502	1041.724	.034%	98.367%
58.0	5.393	0.502	1042.226	.034%	98.414%
59.0	5.340	0.502	1042.728	.034%	98.462%
60.0	5.273	0.501	1043.229	.034%	98.509%
61.0	5.221	0.501	1043.73	.034%	98.556%
62.0	5.176	0.501	1044.231	.034%	98.603%
63.0	5.146	0.502	1044.733	.034%	98.651%
64.0	5.124	0.504	1045.237	.034%	98.698%
65.0	5.079	0.505	1045.742	.034%	98.746%
66.0	5.064	0.506	1046.248	.034%	98.794%
67.0	5.034	0.508	1046.756	.034%	98.842%
68.0	5.012	0.509	1047.265	.034%	98.890%
69.0	4.989	0.510	1047.775	.034%	98.938%
70.0	4.989	0.512	1048.287	.034%	98.987%
71.0	4.959	0.514	1048.801	.034%	99.035%
72.0	4.959	0.516	1049.317	.035%	99.084%
73.0	4.967	0.519	1049.836	.035%	99.133%
74.0	4.974	0.523	1050.359	.035%	99.182%
75.0	5.012	0.528	1050.887	.035%	99.232%

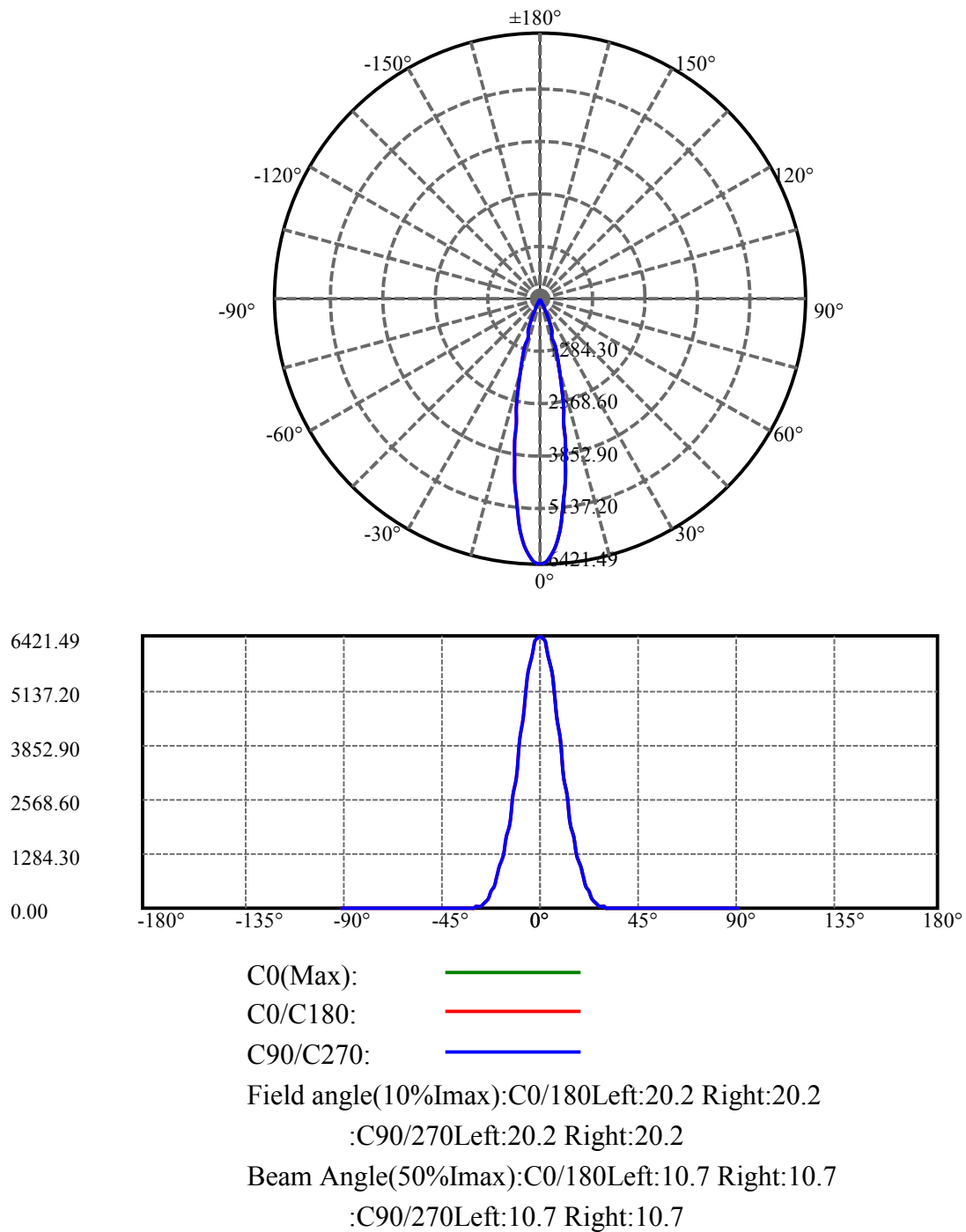
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.086	0.536	1051.423	.036%	99.283%
77.0	5.161	0.546	1051.969	.037%	99.334%
78.0	5.213	0.555	1052.524	.037%	99.387%
79.0	5.236	0.561	1053.086	.038%	99.440%
80.0	5.199	0.563	1053.648	.038%	99.493%
81.0	5.027	0.553	1054.201	.037%	99.545%
82.0	5.057	0.547	1054.748	.037%	99.597%
83.0	5.131	0.554	1055.302	.037%	99.649%
84.0	5.221	0.564	1055.866	.038%	99.702%
85.0	5.146	0.566	1056.432	.038%	99.756%
86.0	4.945	0.552	1056.983	.037%	99.808%
87.0	4.803	0.533	1057.517	.036%	99.858%
88.0	4.526	0.511	1058.028	.034%	99.906%
89.0	4.526	0.496	1058.524	.033%	99.953%
90.0	4.526	0.496	1059.02	.033%	100.000%

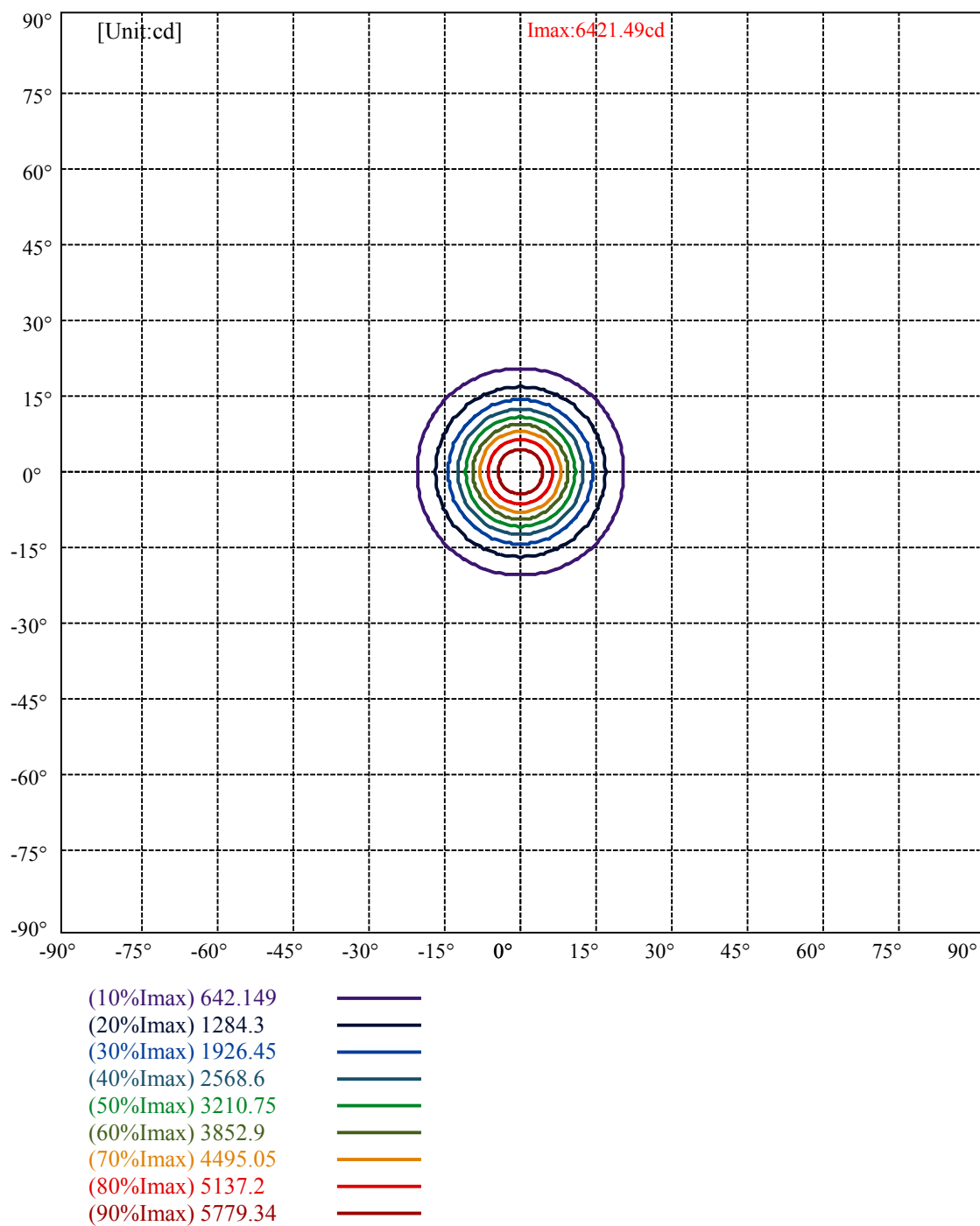
ZONAL LUMEN SUMMARY

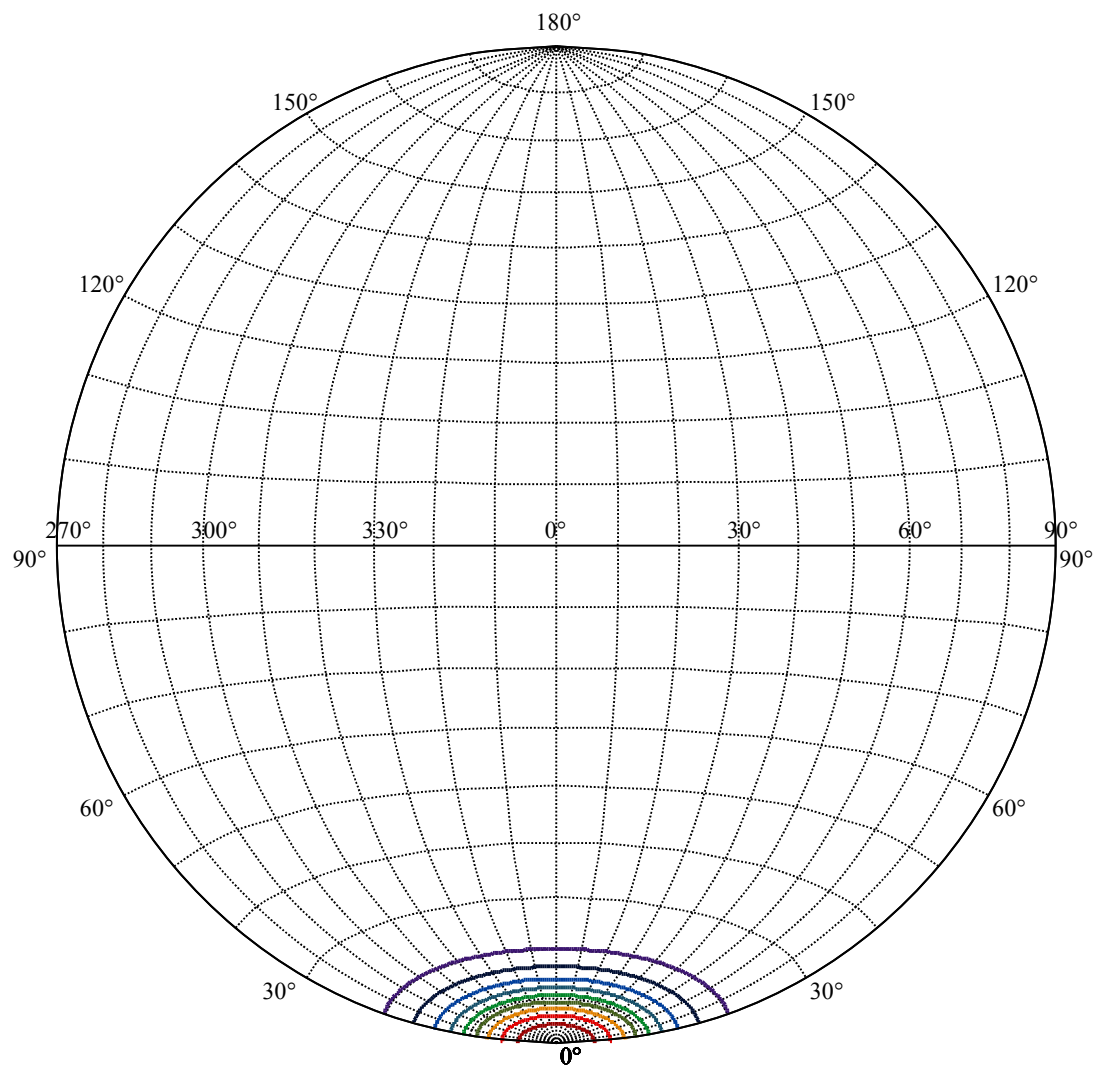
Zone	Lumens	%Lamp	%Fixt
0-30	1024.49	68.65%	96.74%
0-40	1032.52	69.19%	97.50%
0-60	1043.23	69.90%	98.51%
0-90	1058.52	70.93%	99.95%
0-120	1058.52	70.93%	99.95%
0-180	1059.02	70.96%	100.00%
60-90	15.80	1.06%	1.49%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-17.10	847.22	56.77%	80.00%

ZONAL LUMEN SUMMARY

0-10	466.23
10-20	473.21
20-30	85.05
30-40	8.03
40-50	5.64
50-60	5.07
60-70	5.06
70-80	5.36
80-90	4.88
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





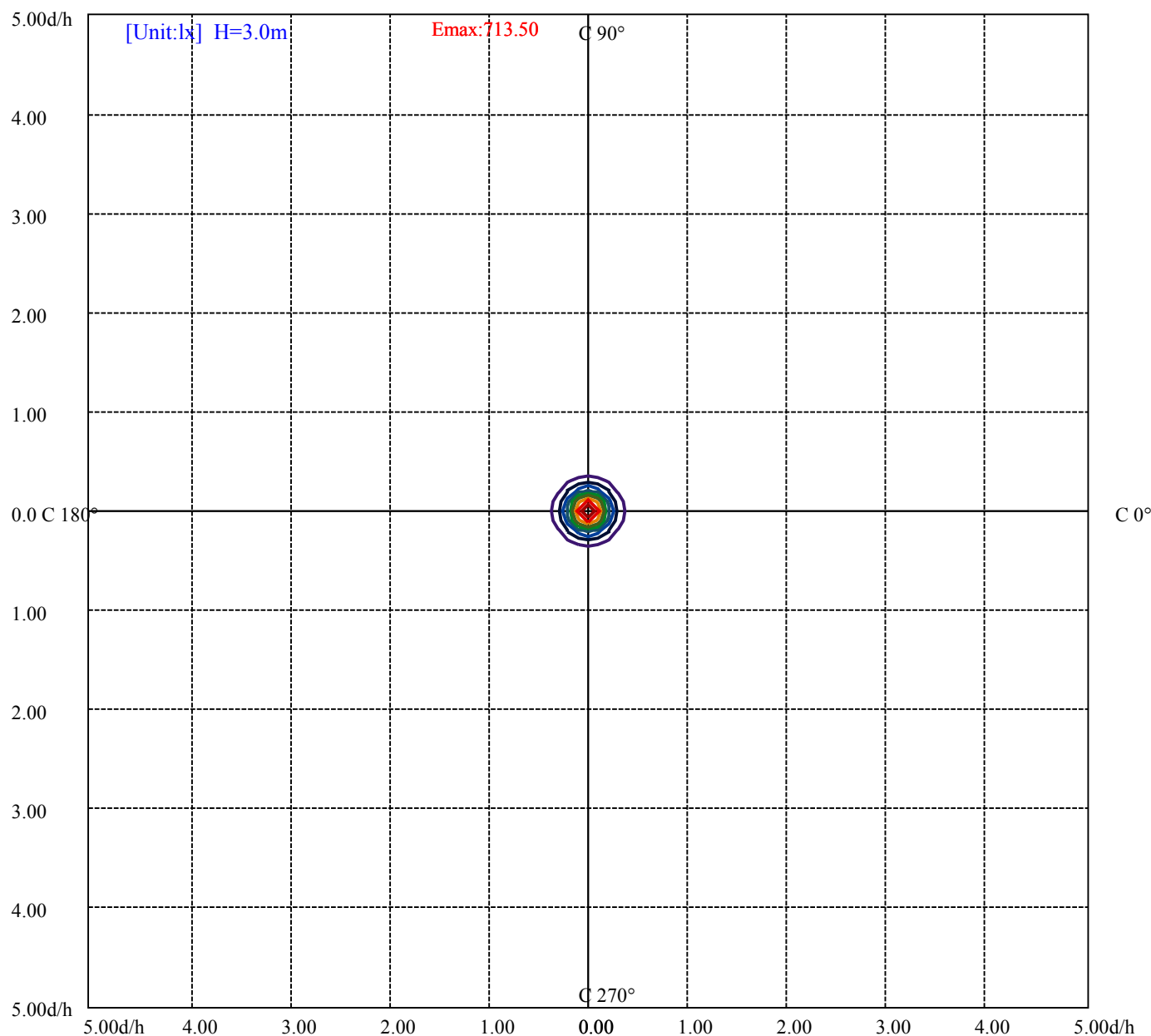


House

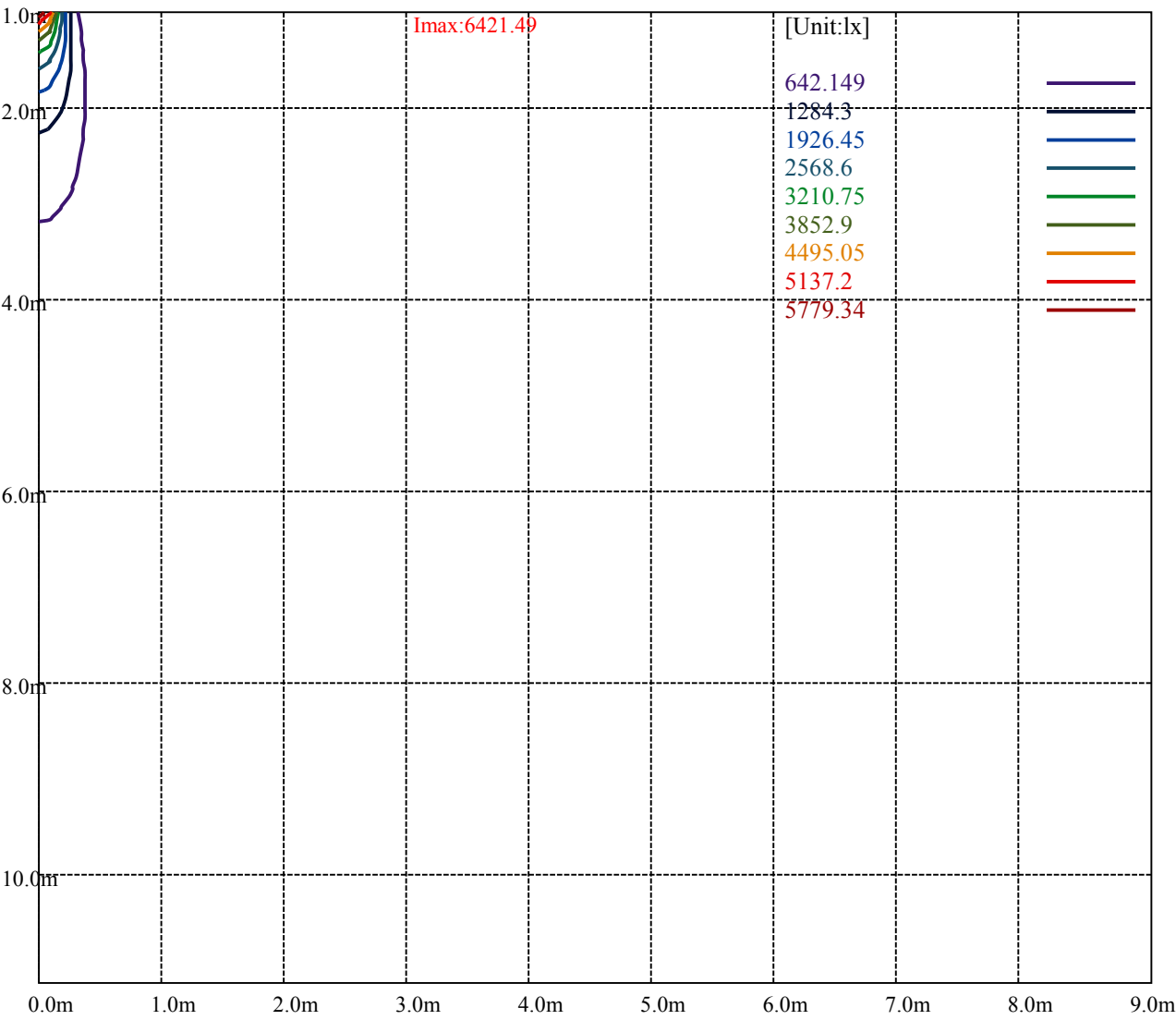
[Unit:cd]

Road

Imax:6421.49	
(10%Imax) 642.149	
(20%Imax) 1284.3	
(30%Imax) 1926.45	
(40%Imax) 2568.6	
(50%Imax) 3210.75	
(60%Imax) 3852.9	
(70%Imax) 4495.05	
(80%Imax) 5137.2	
(90%Imax) 5779.34	



(10%Emax)	71.34988	—
(20%Emax)	142.7	—
(30%Emax)	214.05	—
(40%Emax)	285.4	—
(50%Emax)	356.7489	—
(60%Emax)	428.0989	—
(70%Emax)	499.4489	—
(80%Emax)	570.7989	—
(90%Emax)	642.1489	—



Luminance Table

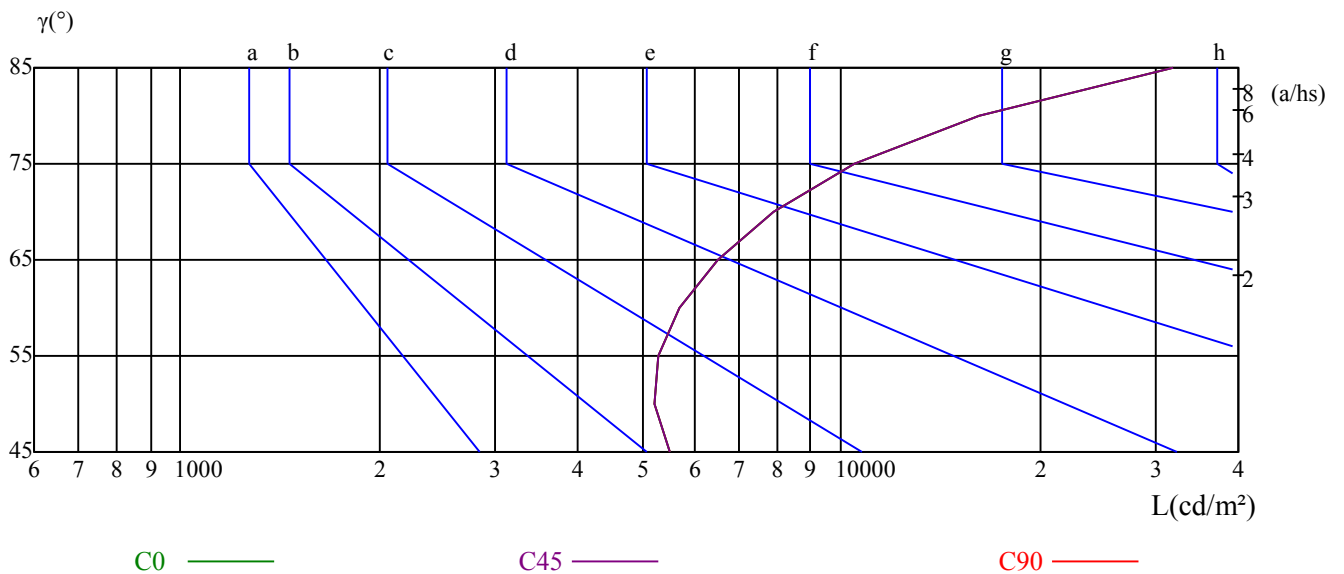
γ	45	50	55	60	65	70	75	80	85
C0	5501	5210	5289	5704	6500	7890	10473	16191	31934
C45	5501	5210	5289	5704	6500	7890	10473	16191	31934
C90	5501	5210	5289	5704	6500	7890	10473	16191	31934

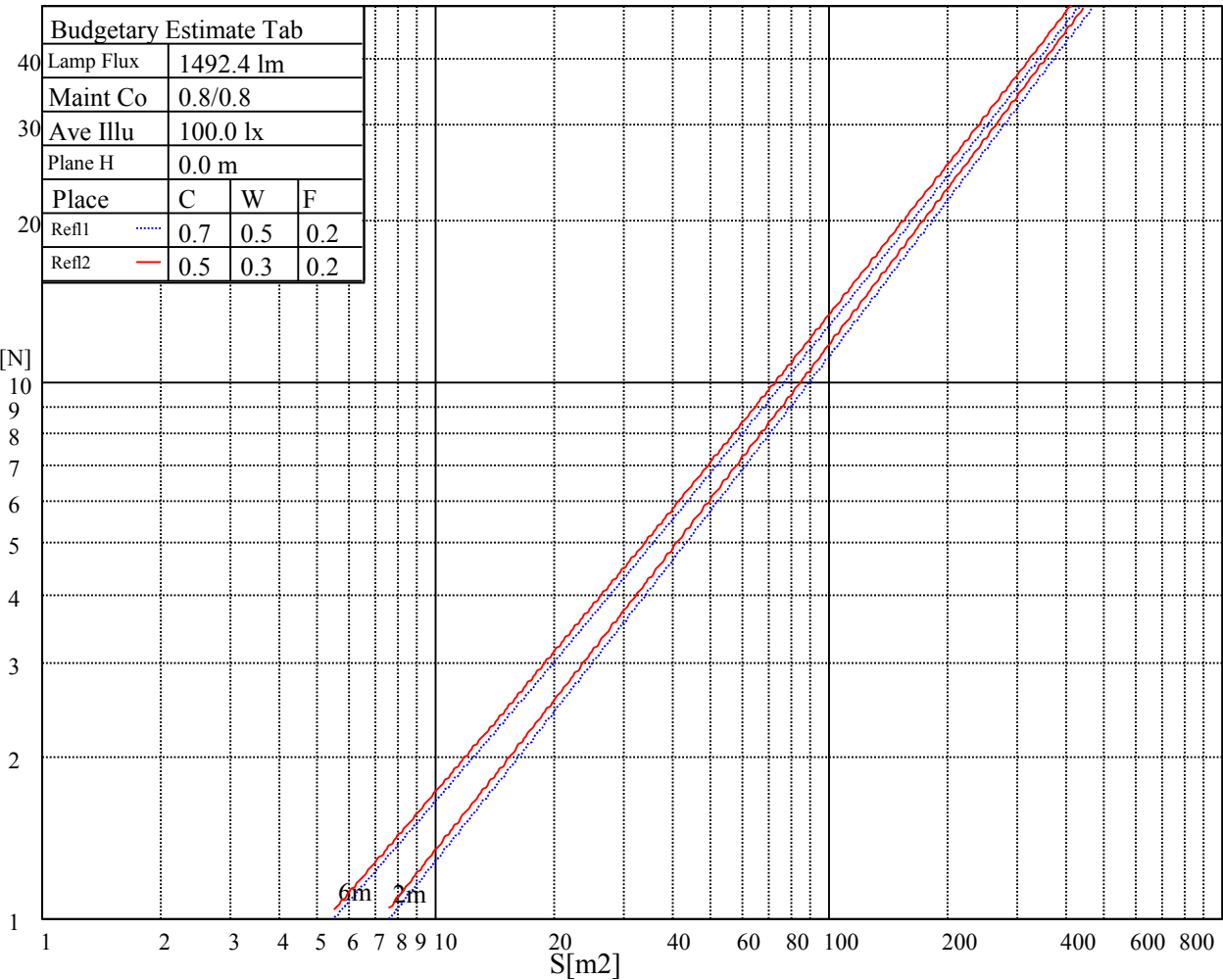
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6500	6500	6500	10473	10473	10473	31934	31934	31934

Glare Table

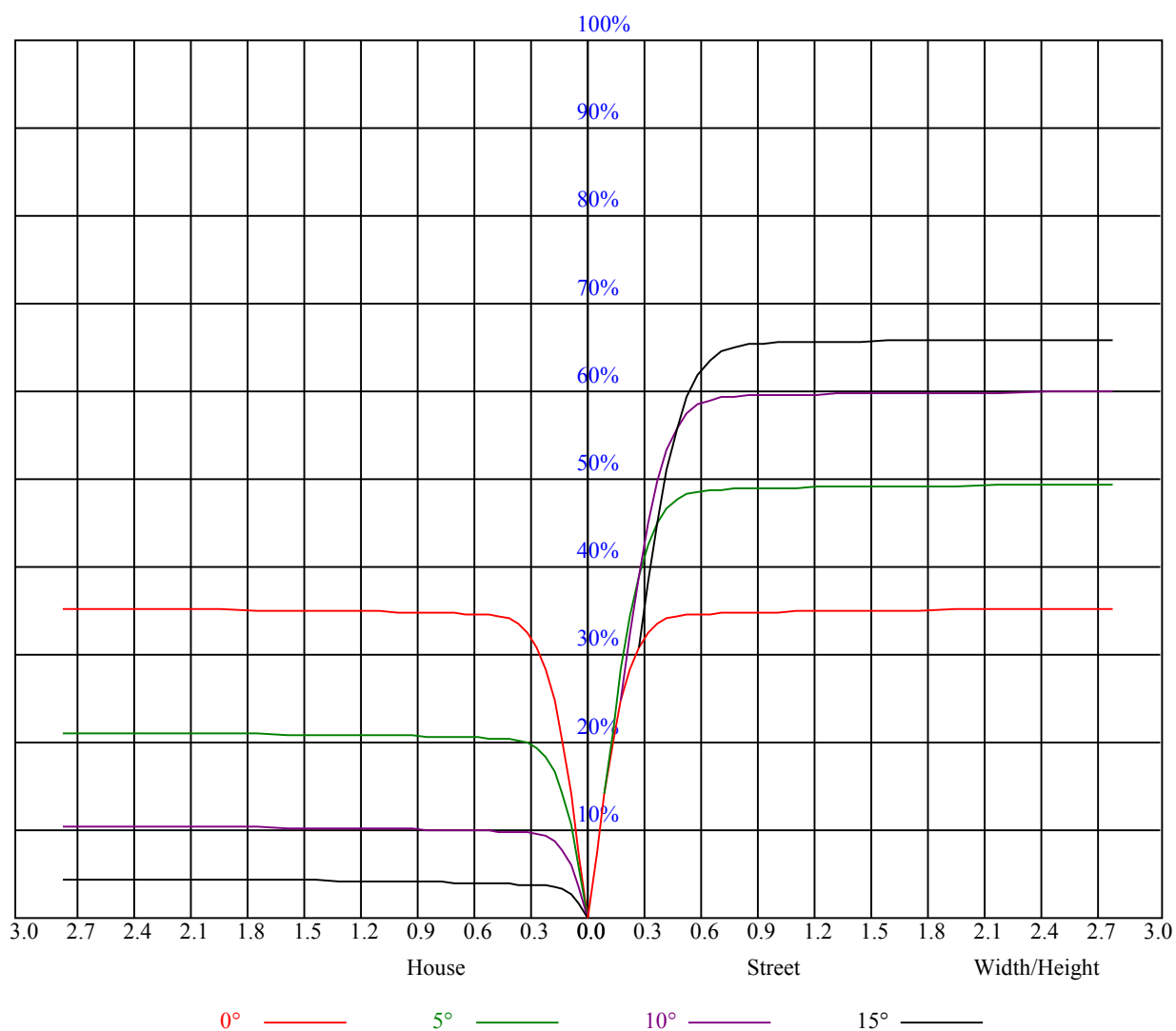
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	0.84	0.84	0.84	0.83	0.83	0.83	0.79	0.79	0.79	0.75	0.75	0.75	0.72	0.72	0.72	0.71
1	0.80	0.79	0.78	0.79	0.77	0.76	0.76	0.75	0.74	0.73	0.72	0.72	0.71	0.70	0.70	0.69
2	0.77	0.75	0.73	0.75	0.74	0.72	0.73	0.72	0.70	0.71	0.70	0.69	0.69	0.68	0.68	0.67
3	0.74	0.71	0.69	0.73	0.71	0.69	0.71	0.69	0.68	0.69	0.68	0.67	0.68	0.67	0.66	0.65
4	0.71	0.69	0.67	0.70	0.68	0.66	0.69	0.67	0.65	0.68	0.66	0.65	0.67	0.65	0.64	0.63
5	0.69	0.66	0.64	0.68	0.66	0.64	0.67	0.65	0.63	0.66	0.64	0.63	0.65	0.64	0.62	0.62
6	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.62	0.65	0.63	0.61	0.64	0.62	0.61	0.60
7	0.65	0.63	0.61	0.65	0.62	0.61	0.64	0.62	0.60	0.63	0.61	0.60	0.63	0.61	0.60	0.59
8	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.60	0.59	0.62	0.60	0.59	0.62	0.60	0.58	0.58
9	0.62	0.60	0.58	0.62	0.59	0.58	0.61	0.59	0.58	0.61	0.59	0.57	0.60	0.59	0.57	0.57
10	0.61	0.58	0.57	0.61	0.58	0.56	0.60	0.58	0.56	0.60	0.58	0.56	0.59	0.57	0.56	0.55



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	6466.46	6469.45	6383.40	6256.13	6065.52	5745.24	5442.89	5087.36	4647.58
45.0	6407.30	6275.85	6066.71	5798.42	5510.41	5129.79	4687.02	4270.54	3836.14
90.0	6363.68	6212.51	6014.13	5739.86	5404.05	5050.32	4653.56	4118.77	3682.57
135.0	6448.53	6377.43	6234.02	6027.28	5793.04	5469.78	5080.79	4689.41	4326.71
180.0	6466.46	6403.12	6261.51	6057.75	5820.53	5492.49	5139.35	4694.79	4212.58
225.0	6407.30	6486.18	6481.99	6406.11	6256.13	6063.13	5825.91	5450.66	5088.56
270.0	6363.68	6450.33	6466.46	6411.49	6288.99	6077.47	5802.01	5504.44	5159.07
315.0	6448.53	6453.31	6388.78	6241.79	6029.07	5779.30	5478.15	5032.99	4640.41
360.0	6466.46	6469.45	6383.40	6256.13	6065.52	5745.24	5442.89	5087.36	4647.58
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4185.69	3752.48	3268.48	2854.40	2415.21	2027.42	1732.83	1453.79	1215.37
45.0	3292.98	2872.92	2479.75	2045.34	1749.56	1504.58	1260.79	1061.21	889.72
90.0	3253.55	2743.26	2376.97	2048.93	1707.14	1478.29	1177.85	1067.13	896.47
135.0	3728.58	3297.76	2937.45	2460.62	2087.77	1845.17	1550.59	1321.73	1158.01
180.0	3776.98	3294.18	2846.03	2479.75	2154.09	1814.10	1581.66	1302.02	1153.23
225.0	4698.97	4174.34	3736.35	3303.74	2845.43	2433.74	2113.46	1806.33	1567.32
270.0	4676.26	4258.59	3827.17	3347.95	2890.25	2511.41	2131.39	1811.11	1564.93
315.0	4217.96	3670.02	3246.38	2831.69	2446.28	2024.43	1740.00	1498.60	1184.12
360.0	4185.69	3752.48	3268.48	2854.40	2415.21	2027.42	1732.83	1453.79	1215.37
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1033.73	865.82	674.01	535.39	412.89	304.74	189.66	121.06	77.86
45.0	710.46	568.25	424.84	307.73	202.74	127.03	77.02	44.16	34.84
90.0	714.70	569.80	424.19	298.82	204.65	121.48	71.64	39.62	30.89
135.0	942.30	782.17	633.38	453.52	339.40	310.12	129.90	74.45	41.65
180.0	958.91	794.71	604.40	468.04	347.58	222.52	151.65	83.24	40.81
225.0	1184.54	1120.79	950.07	769.50	601.23	464.34	341.61	216.31	139.34
270.0	1324.12	1137.70	944.10	760.65	612.47	464.28	331.63	304.74	146.45
315.0	1052.55	882.25	706.64	549.73	425.32	300.68	207.34	124.82	69.43
360.0	1033.73	865.82	674.01	535.39	412.89	304.74	189.66	121.06	77.86
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	44.28	34.60	26.11	21.03	18.64	17.21	15.42	14.04	13.15
45.0	26.23	20.97	18.76	17.09	15.36	14.16	13.15	12.07	11.29
90.0	24.14	20.73	18.28	16.73	15.36	13.92	12.97	12.07	11.17
135.0	29.22	23.24	20.20	17.99	16.31	15.00	13.74	12.67	11.77
180.0	31.25	24.08	19.66	17.99	16.43	14.64	13.68	12.67	11.71
225.0	80.73	40.93	31.07	24.14	20.02	18.11	16.55	14.88	13.80
270.0	73.68	43.74	33.04	24.02	20.14	18.05	16.31	14.82	13.68
315.0	44.75	34.54	23.60	20.20	18.16	16.13	14.82	13.62	12.49
360.0	44.28	34.60	26.11	21.03	18.64	17.21	15.42	14.04	13.15
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	12.01	11.23	10.52	9.80	9.26	8.84	8.43	8.07	7.77
45.0	10.64	9.98	9.38	8.96	8.48	8.13	7.77	7.53	7.29
90.0	10.46	9.86	9.32	8.84	8.37	7.95	7.71	7.35	7.11
135.0	10.93	10.34	9.74	9.20	8.78	8.37	7.95	7.59	7.35
180.0	10.93	10.28	9.68	9.08	8.66	8.25	7.89	7.53	7.23
225.0	12.67	11.83	10.93	10.28	9.50	9.08	8.60	8.13	7.83
270.0	12.55	11.71	10.82	10.16	9.56	9.08	8.60	8.13	7.83
315.0	11.53	10.76	10.10	9.44	8.96	8.48	8.13	7.77	7.41
360.0	12.01	11.23	10.52	9.80	9.26	8.84	8.43	8.07	7.77

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	7.47	7.23	7.05	6.87	6.69	6.51	6.39	6.27	6.15
45.0	6.99	6.75	6.57	6.45	6.27	6.15	6.04	5.92	5.80
90.0	6.87	6.69	6.45	6.33	6.15	5.98	5.86	5.74	5.62
135.0	7.05	6.87	6.63	6.45	6.27	6.09	5.98	5.86	5.74
180.0	6.99	6.81	6.51	6.33	6.21	5.98	5.86	5.74	5.68
225.0	7.53	7.23	6.93	6.75	6.51	6.33	6.15	6.04	5.92
270.0	7.47	7.23	6.93	6.75	6.51	6.33	6.21	6.04	5.92
315.0	7.17	6.93	6.69	6.51	6.33	6.15	5.98	5.92	5.74
360.0	7.47	7.23	7.05	6.87	6.69	6.51	6.39	6.27	6.15
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	6.04	5.98	5.92	5.86	5.80	5.80	5.74	5.74	5.68
45.0	5.68	5.62	5.56	5.50	5.44	5.44	5.32	5.26	5.26
90.0	5.56	5.50	5.38	5.32	5.26	5.20	5.14	5.08	5.08
135.0	5.62	5.50	5.44	5.38	5.32	5.26	5.20	5.14	5.08
180.0	5.50	5.44	5.32	5.26	5.20	5.14	5.08	5.02	4.96
225.0	5.74	5.62	5.56	5.44	5.38	5.32	5.26	5.20	5.08
270.0	5.74	5.68	5.56	5.50	5.44	5.32	5.26	5.20	5.14
315.0	5.68	5.56	5.50	5.44	5.32	5.26	5.20	5.14	5.14
360.0	6.04	5.98	5.92	5.86	5.80	5.80	5.74	5.74	5.68
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.68	5.68	5.68	5.68	5.68	5.62	5.68	5.68	5.62
45.0	5.26	5.26	5.20	5.20	5.14	5.14	5.14	5.14	5.14
90.0	5.02	4.96	4.90	4.90	4.90	4.84	4.84	4.84	4.84
135.0	5.02	5.02	4.96	4.96	4.96	4.90	4.90	4.90	4.84
180.0	4.96	4.90	4.90	4.84	4.78	4.78	4.72	4.72	4.72
225.0	5.08	5.02	4.96	4.96	4.90	4.90	4.84	4.84	4.84
270.0	5.08	5.08	5.02	5.02	4.96	4.96	4.90	4.90	4.84
315.0	5.08	5.08	5.02	4.96	4.96	4.96	4.90	4.90	4.84
360.0	5.68	5.68	5.68	5.68	5.68	5.62	5.68	5.68	5.62
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.68	5.74	5.92	6.33	6.87	7.47	7.89	8.13	7.65
45.0	5.14	5.20	5.14	5.14	5.20	5.26	5.20	5.20	5.26
90.0	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.78
135.0	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.78	4.84
180.0	4.72	4.72	4.66	4.66	4.66	4.66	4.66	4.66	4.66
225.0	4.84	4.78	4.78	4.78	4.78	4.72	4.78	4.84	4.90
270.0	4.84	4.84	4.84	4.78	4.78	4.78	4.78	4.72	4.72
315.0	4.84	4.84	4.84	4.78	4.78	4.78	4.78	4.78	4.78
360.0	5.68	5.74	5.92	6.33	6.87	7.47	7.89	8.13	7.65
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.33	6.39	6.63	6.93	6.99	6.93	6.63	4.48	4.48
45.0	5.32	5.38	5.62	5.80	5.86	4.54	4.54	4.54	4.54
90.0	4.84	4.84	4.90	5.08	4.54	4.48	4.54	4.54	4.54
135.0	4.84	4.90	4.90	4.96	4.84	4.54	4.54	4.54	4.54
180.0	4.66	4.72	4.72	4.72	4.48	4.48	4.48	4.48	4.48
225.0	4.72	4.72	4.78	4.78	4.84	4.96	4.48	4.54	4.54
270.0	4.72	4.72	4.72	4.72	4.78	4.78	4.66	4.54	4.54
315.0	4.78	4.78	4.78	4.78	4.84	4.84	4.54	4.54	4.54
360.0	6.33	6.39	6.63	6.93	6.99	6.93	6.63	4.48	4.48

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	4.48
45.0	4.54
90.0	4.54
135.0	4.54
180.0	4.48
225.0	4.54
270.0	4.54
315.0	4.54
360.0	4.48