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Nata

LumCAT: 2-2182-M	
Luminaire: BJB 47.360.1040	
Report No: NATA0100	Voltage(V): 35.6700
Test No: GC2020021314	Current(A): 0.5970
LampCAT: CREE CXA1830	Power (W): 21.3000
Lamp flux(lm): 3088.0	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): 2463.01
Efficiency(%): 79.76%
Lumens(lm)/Power(W): 115.63
Central intensity(cd): 6963.328
Maximum intensity(cd): 6963.328
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=36.0
 [C90/270]Total=36.0
Field angle(10%Imax): [C0/180]Total=54.4
 [C90/270]Total=54.4
Maximum s/h(1/2): C0_180=0.59 C90_270=0.59
Maximum s/h(1/4): C0_180=0.57 C90_270=0.57
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 79.76%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.536%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6963.328	0.000	0	.000%	.000%
1.0	6951.375	6.658	6.658	.216%	.270%
2.0	6907.359	19.891	26.549	.644%	1.078%
3.0	6834.867	32.867	59.416	1.064%	2.412%
4.0	6750.070	45.473	104.889	1.473%	4.259%
5.0	6624.000	57.535	162.424	1.863%	6.595%
6.0	6465.234	68.787	231.211	2.228%	9.387%
7.0	6311.391	79.304	310.516	2.568%	12.607%
8.0	6112.688	88.917	399.432	2.879%	16.217%
9.0	5901.328	97.367	496.799	3.153%	20.170%
10.0	5682.305	104.828	601.627	3.395%	24.426%
11.0	5438.531	111.120	712.747	3.598%	28.938%
12.0	5204.250	116.341	829.088	3.768%	33.662%
13.0	4947.891	120.480	949.568	3.902%	38.553%
14.0	4678.242	123.214	1072.782	3.990%	43.556%
15.0	4411.688	124.791	1197.572	4.041%	48.622%
16.0	4144.922	125.378	1322.951	4.060%	53.713%
17.0	3793.711	123.626	1446.577	4.003%	58.732%
18.0	3474.281	119.833	1566.41	3.881%	63.597%
19.0	3165.258	115.514	1681.924	3.741%	68.287%
20.0	2821.781	109.579	1791.504	3.549%	72.736%
21.0	2475.000	101.709	1893.213	3.294%	76.866%
22.0	2177.156	93.487	1986.7	3.027%	80.661%
23.0	1834.327	84.172	2070.872	2.726%	84.079%
24.0	1528.826	73.531	2144.402	2.381%	87.064%
25.0	1242.935	63.024	2207.426	2.041%	89.623%
26.0	982.554	52.533	2259.959	1.701%	91.756%
27.0	742.057	42.193	2302.152	1.366%	93.469%
28.0	514.512	31.814	2333.966	1.030%	94.761%
29.0	348.623	22.582	2356.548	.731%	95.678%
30.0	219.565	15.341	2371.889	.497%	96.300%
31.0	143.599	10.106	2381.995	.327%	96.711%
32.0	81.823	6.458	2388.453	.209%	96.973%
33.0	56.496	4.075	2392.528	.132%	97.138%
34.0	41.126	2.954	2395.482	.096%	97.258%
35.0	29.433	2.191	2397.673	.071%	97.347%
36.0	23.379	1.682	2399.355	.054%	97.416%
37.0	19.828	1.409	2400.764	.046%	97.473%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	17.536	1.247	2402.011	.040%	97.523%
39.0	16.130	1.149	2403.16	.037%	97.570%
40.0	15.377	1.099	2404.259	.036%	97.615%
41.0	14.829	1.076	2405.335	.035%	97.658%
42.0	14.421	1.063	2406.398	.034%	97.701%
43.0	14.147	1.058	2407.456	.034%	97.744%
44.0	13.908	1.059	2408.515	.034%	97.787%
45.0	13.732	1.062	2409.577	.034%	97.831%
46.0	13.570	1.068	2410.645	.035%	97.874%
47.0	13.479	1.076	2411.721	.035%	97.918%
48.0	13.402	1.087	2412.807	.035%	97.962%
49.0	13.345	1.098	2413.906	.036%	98.006%
50.0	13.282	1.110	2415.016	.036%	98.051%
51.0	13.268	1.123	2416.139	.036%	98.097%
52.0	13.233	1.137	2417.276	.037%	98.143%
53.0	13.240	1.152	2418.428	.037%	98.190%
54.0	13.261	1.168	2419.596	.038%	98.237%
55.0	13.296	1.185	2420.781	.038%	98.285%
56.0	13.303	1.202	2421.983	.039%	98.334%
57.0	13.324	1.217	2423.201	.039%	98.384%
58.0	13.352	1.234	2424.434	.040%	98.434%
59.0	13.388	1.250	2425.684	.040%	98.485%
60.0	13.437	1.267	2426.952	.041%	98.536%
61.0	13.479	1.284	2428.236	.042%	98.588%
62.0	13.493	1.300	2429.536	.042%	98.641%
63.0	13.465	1.311	2430.847	.042%	98.694%
64.0	13.416	1.319	2432.166	.043%	98.748%
65.0	13.289	1.322	2433.487	.043%	98.801%
66.0	13.099	1.317	2434.804	.043%	98.855%
67.0	12.867	1.306	2436.11	.042%	98.908%
68.0	12.565	1.288	2437.398	.042%	98.960%
69.0	12.305	1.269	2438.667	.041%	99.012%
70.0	12.129	1.255	2439.922	.041%	99.063%
71.0	12.016	1.248	2441.17	.040%	99.113%
72.0	11.981	1.248	2442.417	.040%	99.164%
73.0	11.946	1.251	2443.669	.041%	99.215%
74.0	11.855	1.251	2444.92	.041%	99.266%
75.0	11.616	1.240	2446.16	.040%	99.316%

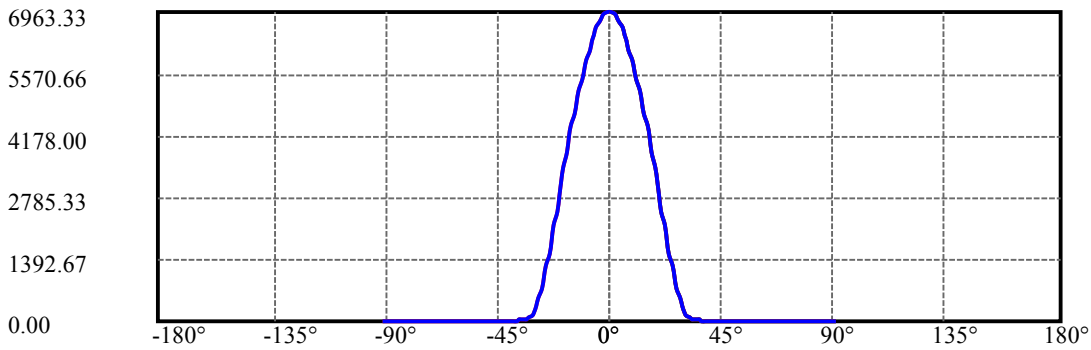
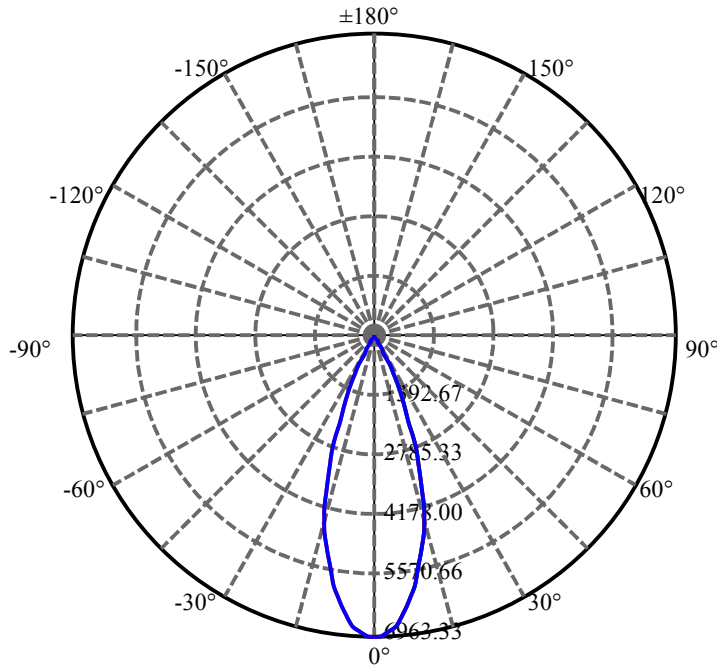
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.348	1.219	2447.379	.039%	99.365%
77.0	11.060	1.195	2448.574	.039%	99.414%
78.0	10.891	1.175	2449.749	.038%	99.462%
79.0	10.702	1.160	2450.909	.038%	99.509%
80.0	10.561	1.146	2452.055	.037%	99.555%
81.0	10.413	1.134	2453.19	.037%	99.601%
82.0	10.301	1.123	2454.313	.036%	99.647%
83.0	10.167	1.113	2455.426	.036%	99.692%
84.0	10.083	1.103	2456.529	.036%	99.737%
85.0	10.034	1.098	2457.627	.036%	99.781%
86.0	9.963	1.093	2458.72	.035%	99.826%
87.0	9.851	1.084	2459.804	.035%	99.870%
88.0	9.773	1.075	2460.879	.035%	99.913%
89.0	9.710	1.068	2461.947	.035%	99.957%
90.0	9.689	1.064	2463.011	.034%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2371.89	76.81%	96.30%
0-40	2404.26	77.86%	97.61%
0-60	2426.95	78.59%	98.54%
0-90	2461.95	79.73%	99.96%
0-120	2461.95	79.73%	99.96%
0-180	2463.01	79.76%	100.00%
60-90	36.26	1.17%	1.47%
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%
0-21.83	1970.41	63.81%	80.00%

ZONAL LUMEN SUMMARY

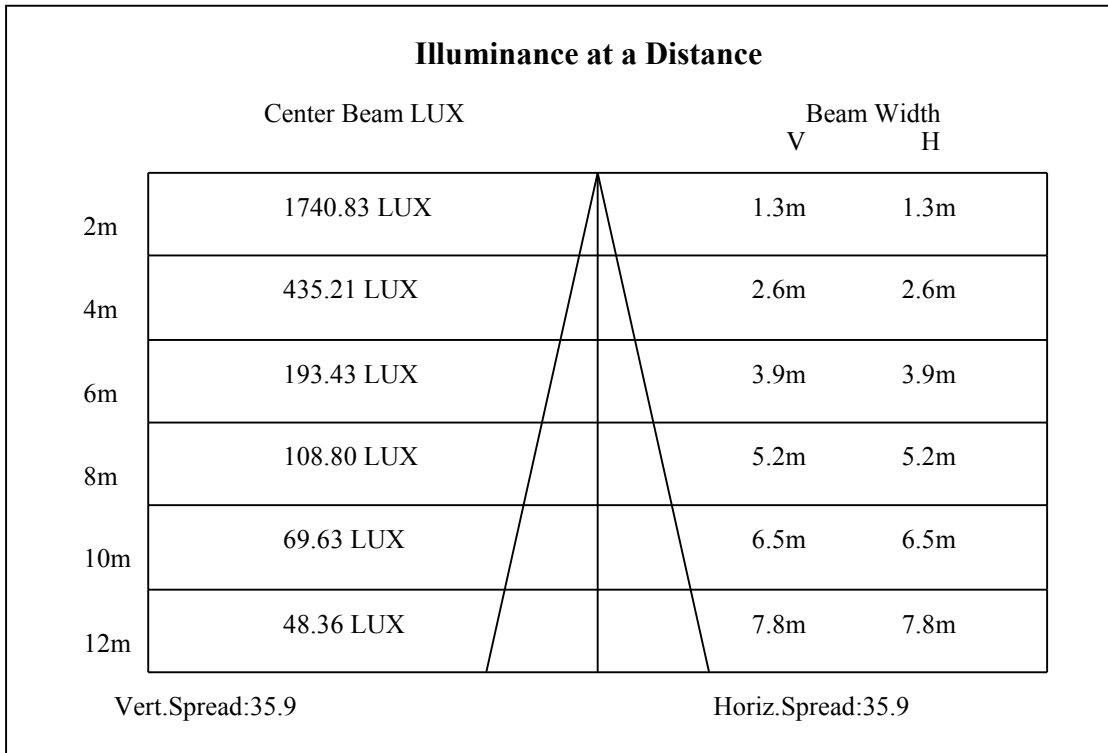
0-10	601.63
10-20	1189.88
20-30	580.38
30-40	32.37
40-50	10.76
50-60	11.94
60-70	12.97
70-80	12.13
80-90	9.89
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

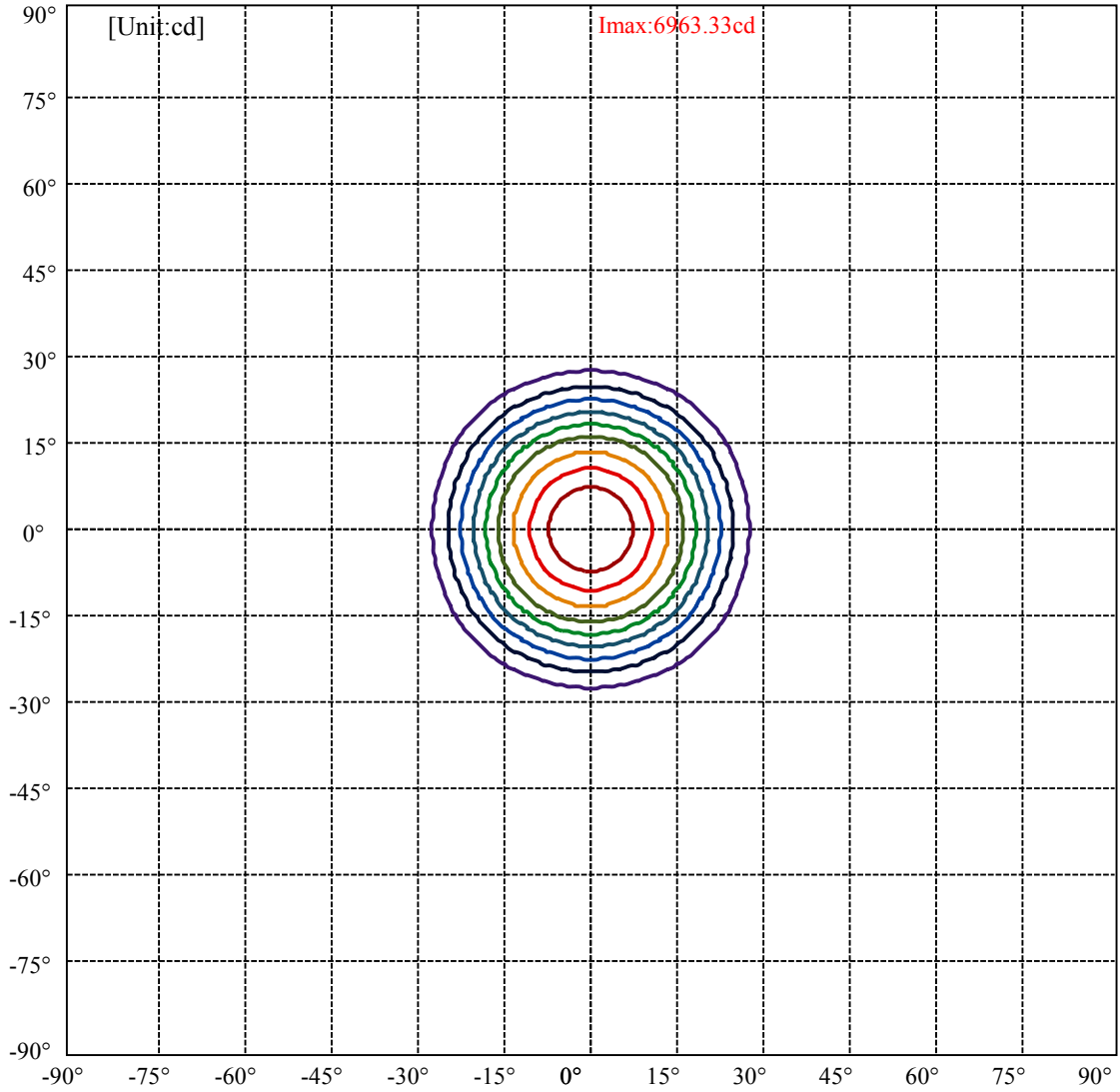


C0(Max): —————
C0/C180: —————
C90/C270: —————

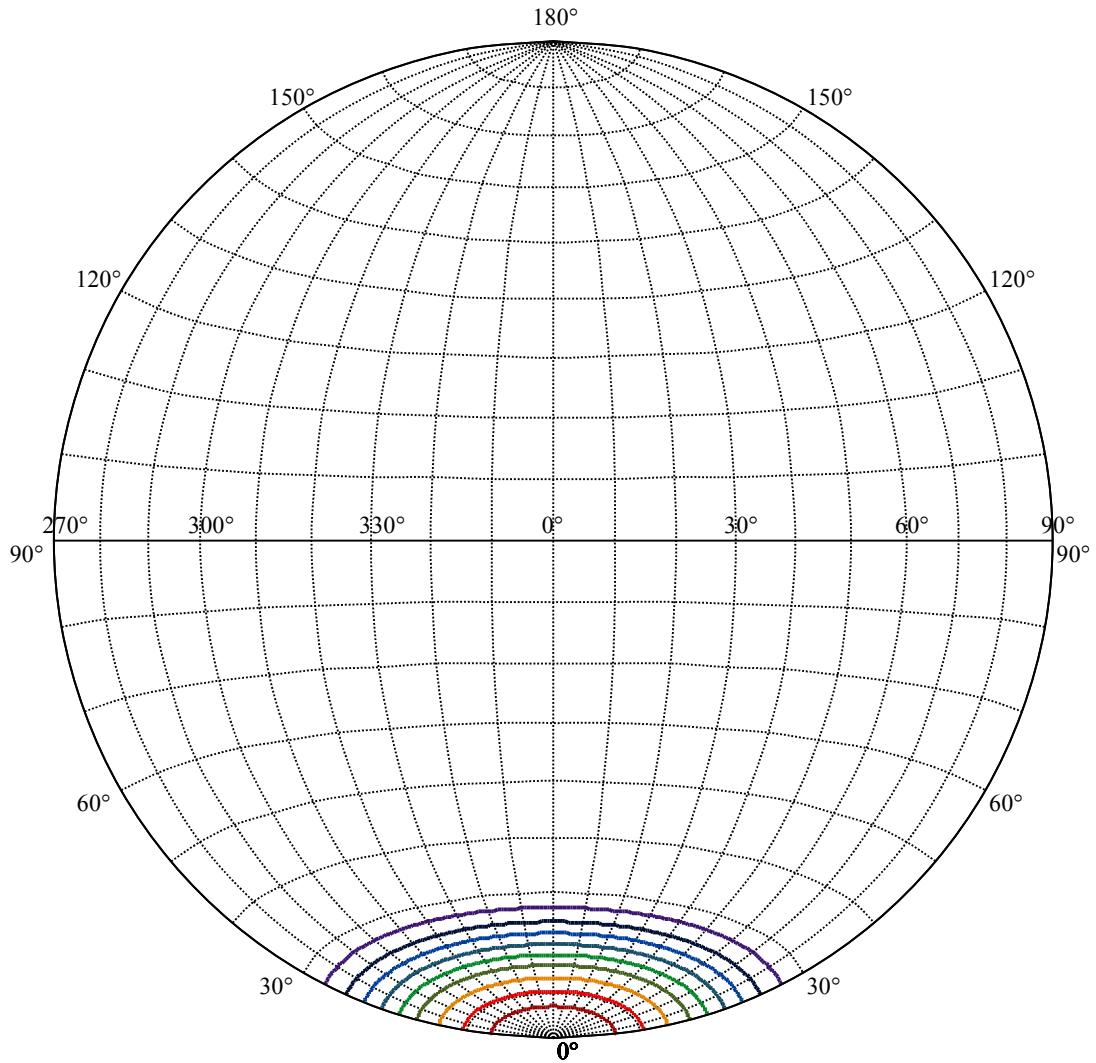
Field angle(10%Imax):C0/180Left:27.2 Right:27.2
:C90/270Left:27.2 Right:27.2

Beam Angle(50%Imax):C0/180Left:18.0 Right:18.0
:C90/270Left:18.0 Right:18.0





(10%Imax) 696.333	—
(20%Imax) 1392.67	—
(30%Imax) 2089	—
(40%Imax) 2785.33	—
(50%Imax) 3481.66	—
(60%Imax) 4178	—
(70%Imax) 4874.33	—
(80%Imax) 5570.66	—
(90%Imax) 6267	—



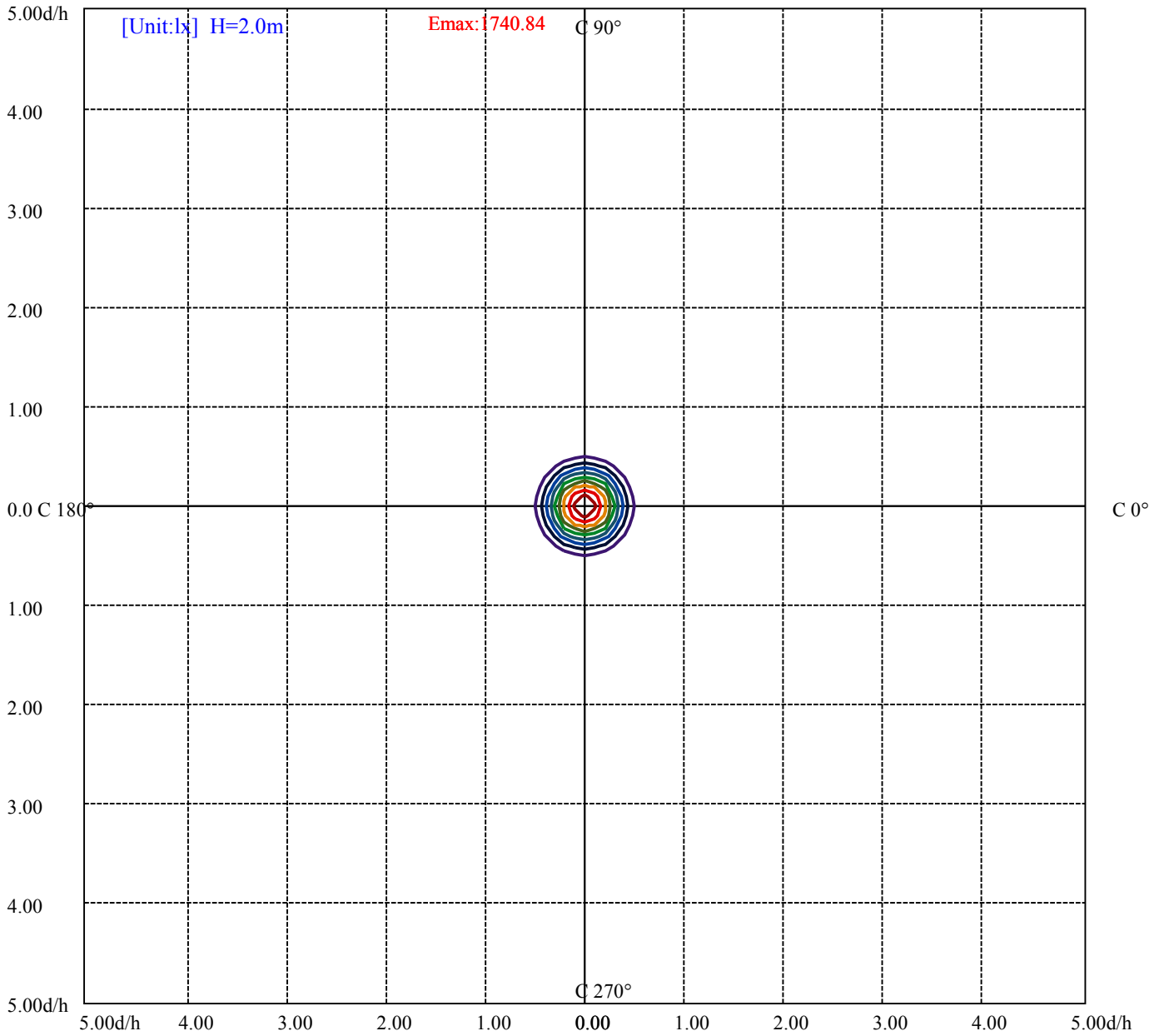
House

[Unit:cd]

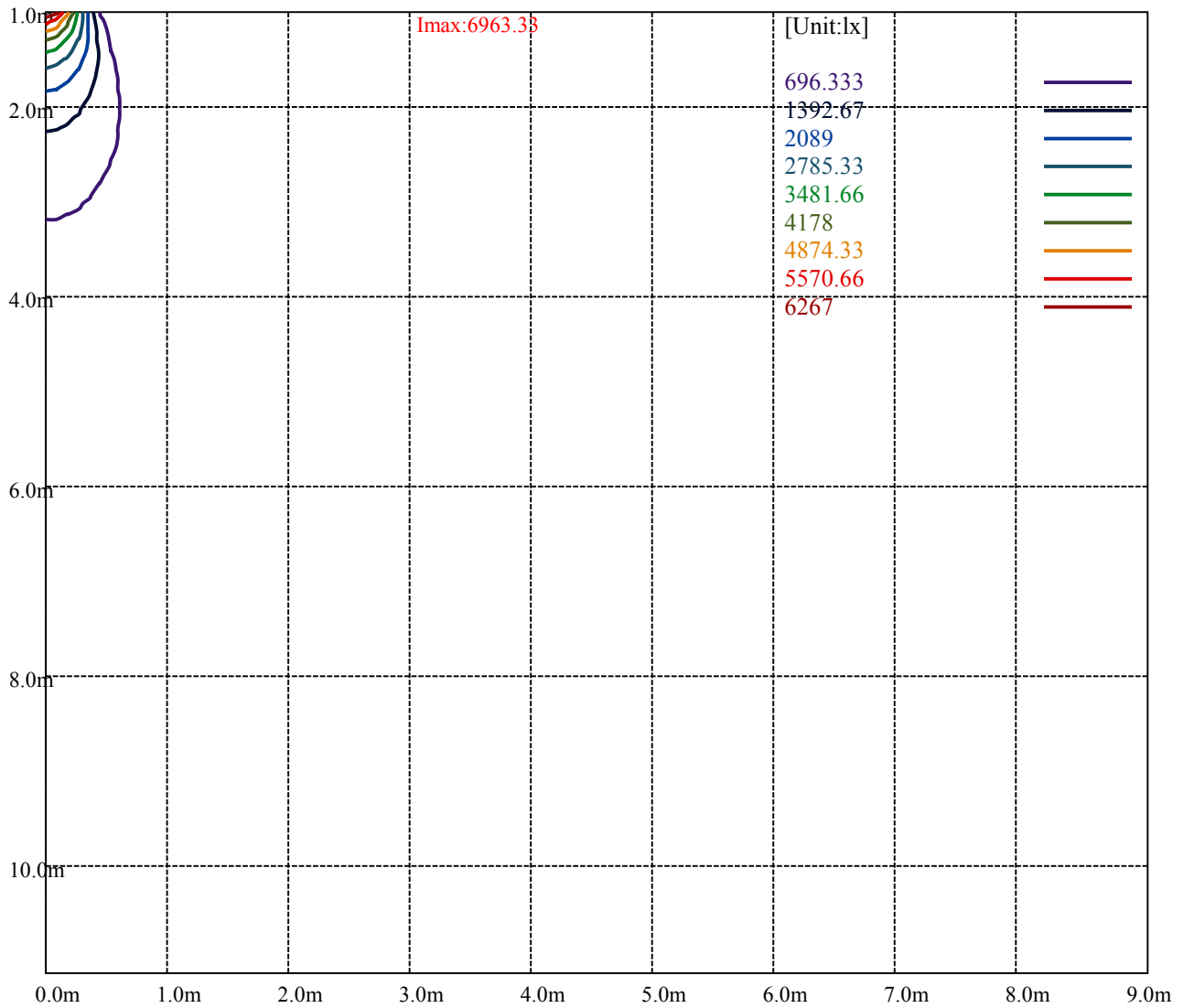
Road

Imax:6963.33

(10%Imax) 696.333	—
(20%Imax) 1392.67	—
(30%Imax) 2089	—
(40%Imax) 2785.33	—
(50%Imax) 3481.66	—
(60%Imax) 4178	—
(70%Imax) 4874.33	—
(80%Imax) 5570.66	—
(90%Imax) 6267	—



- (10%Emax) 174.0833
- (20%Emax) 348.1675
- (30%Emax) 522.25
- (40%Emax) 696.3325
- (50%Emax) 870.415
- (60%Emax) 1044.5
- (70%Emax) 1218.583
- (80%Emax) 1392.665
- (90%Emax) 1566.748



Luminance Table

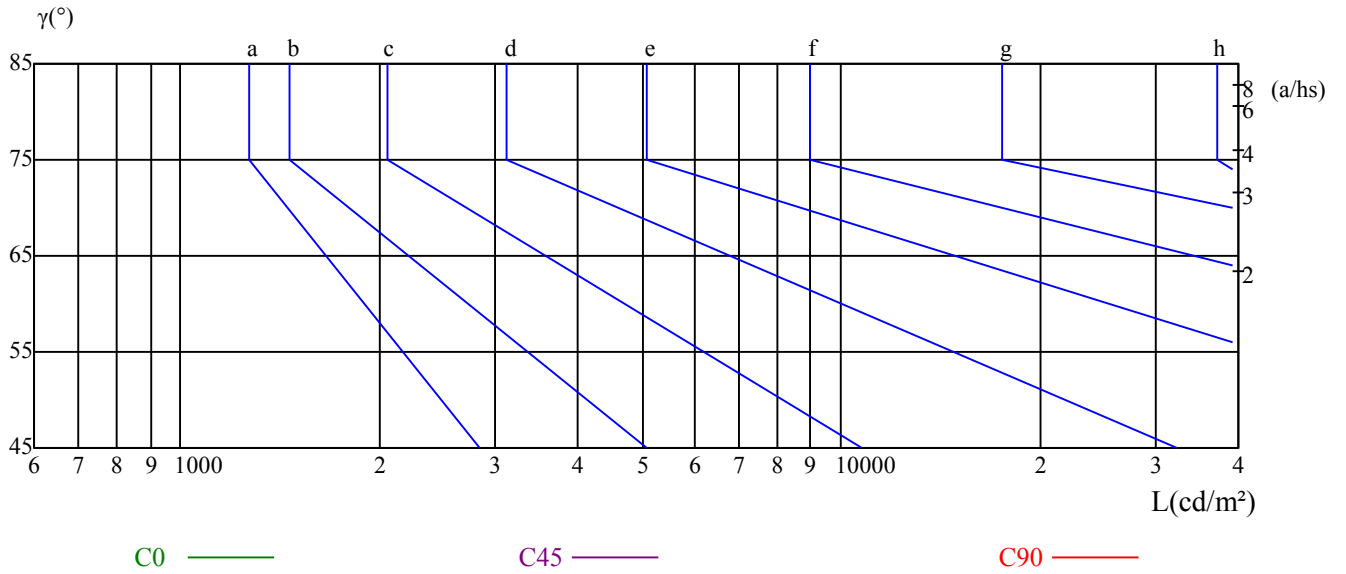
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

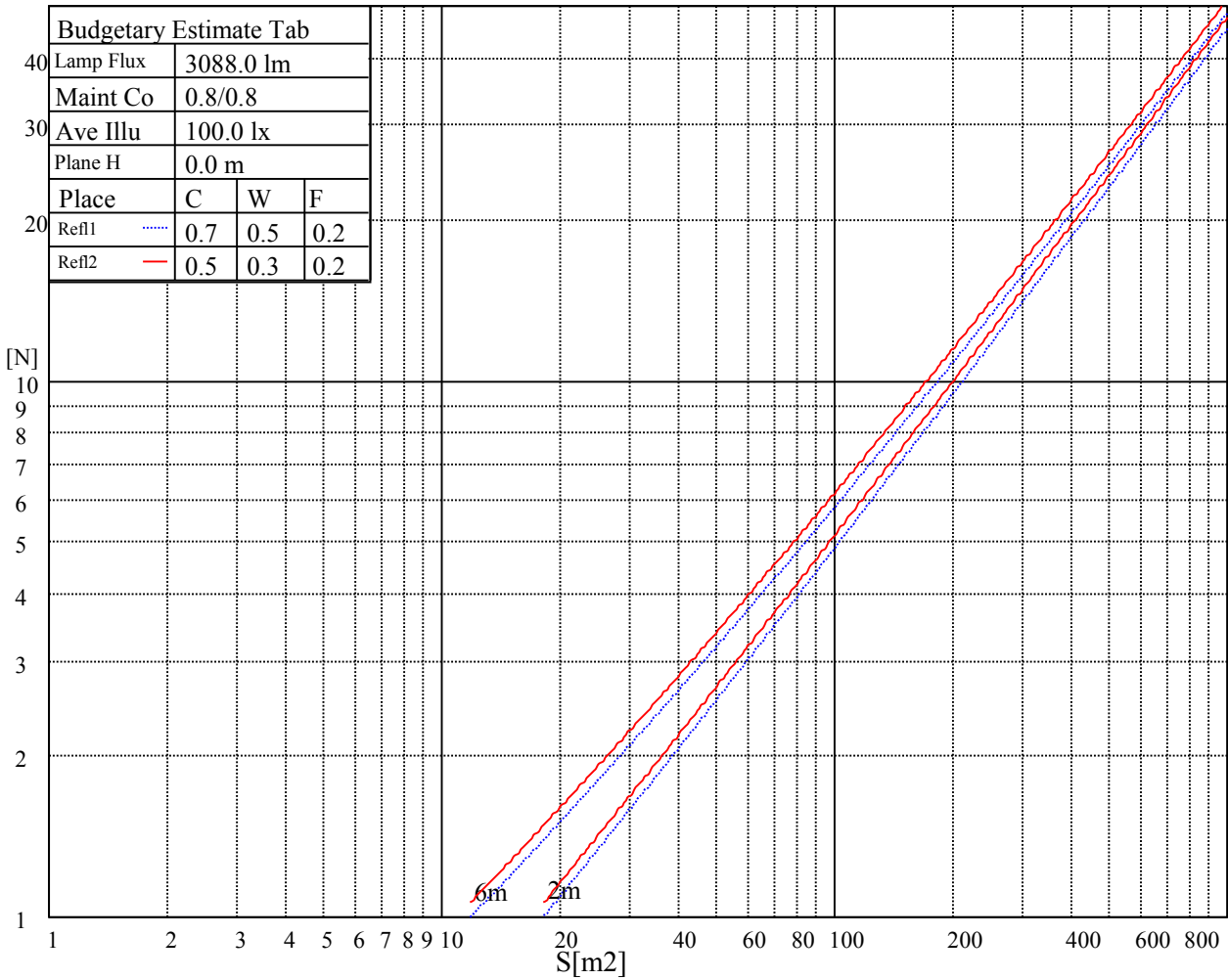
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

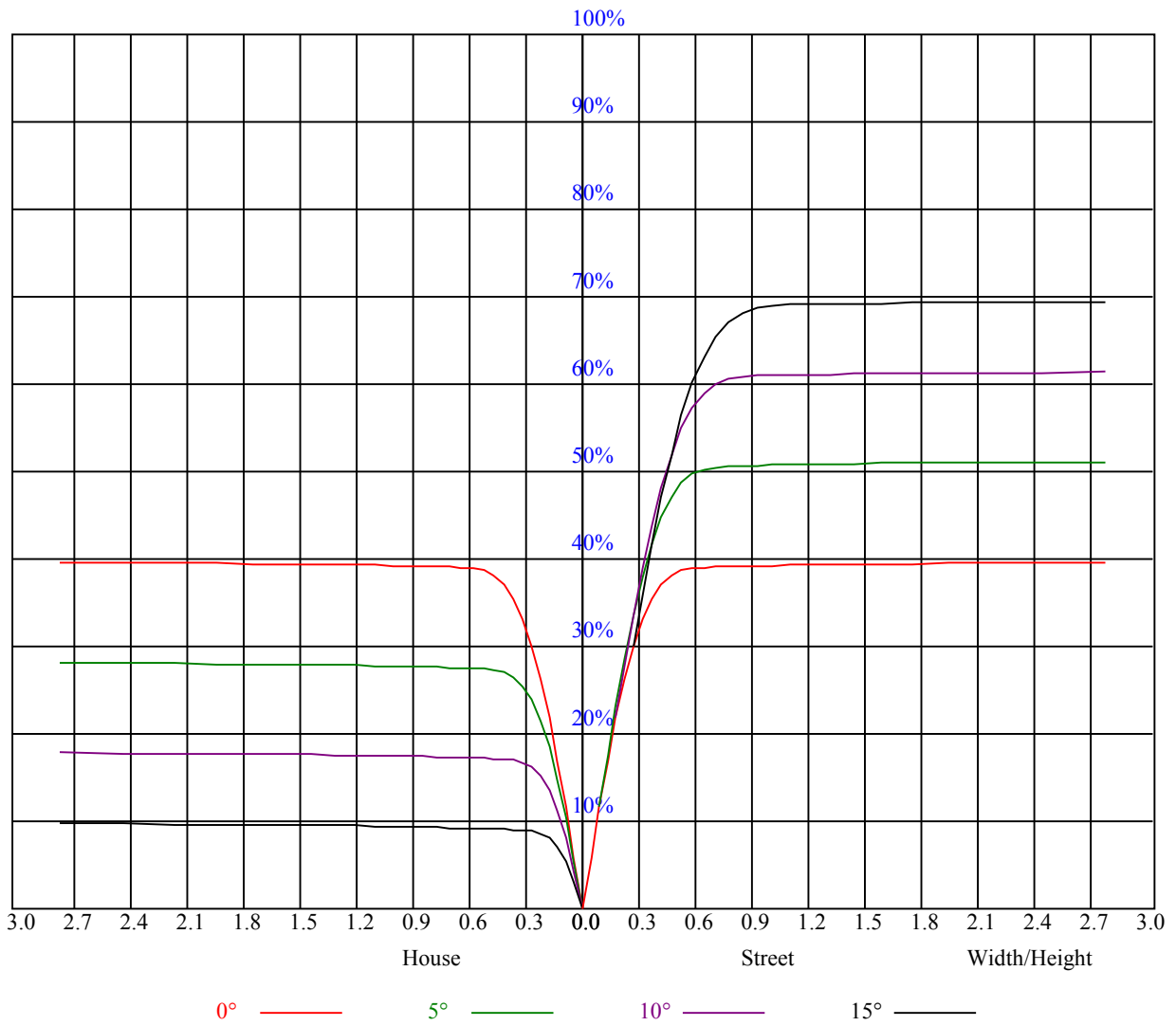
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	0.95	0.95	0.95	0.93	0.93	0.93	0.89	0.89	0.89	0.85	0.85	0.85	0.81	0.81	0.81	0.80
1	0.89	0.88	0.86	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.79	0.78	0.77	0.76
2	0.85	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.77	0.79	0.77	0.76	0.76	0.75	0.74	0.73
3	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.74	0.72	0.71	0.70
4	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.68	0.67
5	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.70	0.67	0.66	0.65
6	0.71	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.68	0.66	0.64	0.67	0.65	0.63	0.62
7	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.65	0.63	0.61	0.60
8	0.66	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.58
9	0.64	0.60	0.58	0.63	0.60	0.58	0.63	0.60	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.56
10	0.62	0.58	0.56	0.61	0.58	0.56	0.61	0.58	0.55	0.60	0.57	0.55	0.60	0.57	0.55	0.54



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	6946.88	6988.50	7002.56	6980.63	6933.38	6852.38	6743.81	6626.25	6465.94
45.0	6957.00	6984.56	6986.25	6951.94	6905.25	6809.63	6695.44	6565.50	6393.94
90.0	6973.88	6960.38	6913.69	6838.88	6749.44	6624.56	6468.75	6304.50	6097.50
135.0	6975.56	6945.75	6876.00	6793.31	6704.44	6550.31	6381.56	6231.38	5996.81
180.0	6946.88	6885.00	6800.63	6667.31	6534.56	6382.69	6162.19	5964.19	5754.38
225.0	6957.00	6904.13	6818.63	6708.94	6587.44	6423.19	6233.63	6048.56	5823.56
270.0	6973.88	6964.31	6909.75	6843.94	6766.88	6628.50	6472.13	6333.75	6117.19
315.0	6975.56	6978.38	6951.38	6894.00	6819.19	6720.75	6564.38	6417.00	6252.19
360.0	6946.88	6988.50	7002.56	6980.63	6933.38	6852.38	6743.81	6626.25	6465.94
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6280.88	6096.38	5871.94	5659.88	5408.44	5146.88	4907.25	4695.19	4340.81
45.0	6200.44	6006.38	5768.44	5547.94	5292.00	5028.75	4787.44	4546.69	4223.25
90.0	5899.50	5661.00	5411.81	5181.75	4917.38	4675.50	4394.81	4125.94	3798.00
135.0	5770.13	5581.13	5293.13	5058.56	4818.38	4511.81	4251.38	3972.38	3598.88
180.0	5505.19	5247.00	5012.44	4744.13	4470.75	4208.06	3888.00	3587.06	3240.00
225.0	5611.50	5359.50	5098.50	4863.38	4590.00	4304.81	4029.19	3730.50	3340.69
270.0	5900.63	5693.63	5451.75	5227.88	4995.00	4694.63	4448.25	4174.88	3806.44
315.0	6042.38	5813.44	5600.25	5350.50	5091.19	4855.50	4587.19	4326.75	4001.63
360.0	6280.88	6096.38	5871.94	5659.88	5408.44	5146.88	4907.25	4695.19	4340.81
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	4057.31	3762.00	3378.38	3064.50	2755.69	2415.38	2089.69	1794.94	1465.31
45.0	3929.63	3616.31	3234.94	2910.38	2598.75	2267.44	1946.81	1644.75	1332.56
90.0	3447.00	3133.13	2823.75	2441.81	2148.75	1859.06	1504.13	1101.60	975.21
135.0	3282.19	2960.44	2585.81	2264.06	1977.75	1640.81	1337.63	1078.31	801.56
180.0	2885.06	2573.44	2271.94	1904.63	1614.94	1073.36	1012.39	777.94	568.35
225.0	3032.44	2729.25	2426.06	2059.88	1761.75	1471.50	1094.34	878.01	653.96
270.0	3498.19	3191.63	2808.56	2499.19	2206.69	1880.44	1550.81	1265.63	966.94
315.0	3662.44	3355.88	3044.81	2655.56	2352.94	2066.63	1694.81	1402.31	1096.54
360.0	4057.31	3762.00	3378.38	3064.50	2755.69	2415.38	2089.69	1794.94	1465.31
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1183.50	895.50	638.44	444.38	285.19	150.30	101.25	72.68	47.70
45.0	1076.06	807.75	557.44	368.44	290.25	126.11	90.84	66.21	45.06
90.0	714.32	481.44	309.77	176.96	117.96	80.89	55.80	40.95	30.26
135.0	592.88	379.69	298.13	134.83	90.56	61.03	43.14	31.39	22.67
180.0	369.17	216.73	135.00	90.45	63.28	42.19	29.14	22.44	18.28
225.0	431.66	254.87	153.23	94.73	66.60	44.78	31.11	24.30	20.42
270.0	723.94	487.69	294.19	214.20	97.20	64.24	44.66	32.29	23.96
315.0	844.93	592.43	402.81	232.54	137.76	85.05	56.03	38.76	27.11
360.0	1183.50	895.50	638.44	444.38	285.19	150.30	101.25	72.68	47.70
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	34.37	25.82	20.14	17.16	15.64	14.63	14.01	13.61	13.28
45.0	34.14	27.00	22.11	19.41	18.00	17.04	16.43	16.09	15.81
90.0	23.85	20.42	18.45	16.99	16.31	15.81	15.47	15.19	14.96
135.0	18.73	16.43	14.85	13.89	13.39	12.94	12.60	12.38	12.09
180.0	16.14	15.08	14.40	13.89	13.56	13.33	13.05	12.88	12.71
225.0	18.51	17.49	16.82	16.20	15.81	15.47	15.19	14.96	14.79
270.0	20.64	18.84	17.72	16.93	16.43	15.98	15.64	15.41	15.19
315.0	20.64	17.55	15.81	14.57	13.89	13.44	12.99	12.66	12.43
360.0	34.37	25.82	20.14	17.16	15.64	14.63	14.01	13.61	13.28

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	13.05	12.83	12.66	12.54	12.38	12.26	12.15	12.09	11.98
45.0	15.64	15.53	15.47	15.47	15.53	15.53	15.64	15.69	15.92
90.0	14.85	14.68	14.63	14.68	14.68	14.63	14.68	14.74	14.79
135.0	11.98	11.81	11.76	11.64	11.59	11.48	11.48	11.42	11.36
180.0	12.54	12.43	12.32	12.21	12.15	12.09	12.04	11.93	11.93
225.0	14.63	14.46	14.40	14.40	14.29	14.23	14.18	14.18	14.18
270.0	14.96	14.79	14.68	14.57	14.51	14.40	14.34	14.29	14.29
315.0	12.21	12.04	11.93	11.81	11.70	11.70	11.64	11.59	11.48
360.0	13.05	12.83	12.66	12.54	12.38	12.26	12.15	12.09	11.98
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.93	11.93	11.87	11.81	11.76	11.76	11.70	11.64	11.64
45.0	16.14	16.31	16.48	16.65	16.82	16.99	17.21	17.33	17.44
90.0	14.96	15.02	15.13	15.19	15.24	15.30	15.36	15.36	15.30
135.0	11.31	11.31	11.19	11.14	11.14	11.08	11.03	11.03	10.97
180.0	11.87	11.81	11.76	11.70	11.64	11.59	11.53	11.53	11.48
225.0	14.18	14.23	14.29	14.40	14.51	14.68	14.91	15.08	15.19
270.0	14.29	14.34	14.34	14.40	14.46	14.51	14.63	14.74	14.85
315.0	11.42	11.42	11.36	11.31	11.25	11.19	11.14	11.14	11.08
360.0	11.93	11.93	11.87	11.81	11.76	11.76	11.70	11.64	11.64
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.64	11.59	11.53	11.53	11.48	11.42	11.42	11.36	11.31
45.0	17.38	17.16	16.82	16.26	15.53	14.68	14.06	13.56	13.05
90.0	15.24	15.13	14.91	14.63	14.29	13.73	12.99	12.66	12.38
135.0	10.91	10.91	10.86	10.86	10.86	10.86	10.97	11.19	11.53
180.0	11.42	11.36	11.31	11.25	11.25	11.19	11.14	11.03	10.97
225.0	15.19	15.19	14.85	14.34	13.78	13.16	12.71	12.38	12.15
270.0	14.91	14.96	15.08	14.96	14.85	14.57	14.12	13.61	13.05
315.0	11.03	11.03	10.97	10.97	10.91	10.91	11.03	11.25	11.70
360.0	11.64	11.59	11.53	11.53	11.48	11.42	11.42	11.36	11.31
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	11.19	11.14	11.14	11.08	10.97	10.91	10.86	10.74	10.69
45.0	12.66	12.43	12.21	12.09	11.98	11.81	11.64	11.36	11.14
90.0	12.04	11.93	11.76	11.59	11.48	11.36	11.14	10.91	10.74
135.0	11.93	12.09	11.98	11.42	10.91	10.46	10.35	10.18	10.13
180.0	10.91	10.86	10.80	10.74	10.69	10.63	10.63	10.52	10.46
225.0	11.93	11.81	11.70	11.42	11.14	10.91	10.69	10.46	10.29
270.0	12.66	12.38	12.21	11.93	11.76	11.53	11.31	11.03	10.74
315.0	12.54	12.94	13.05	12.66	11.87	10.86	10.52	10.41	10.29
360.0	11.19	11.14	11.14	11.08	10.97	10.91	10.86	10.74	10.69
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.63	10.58	10.46	10.35	10.29	10.18	10.07	10.01	9.90
45.0	10.86	10.63	10.35	10.18	10.13	10.01	9.96	9.90	9.73
90.0	10.46	10.24	10.07	9.96	9.90	9.90	9.79	9.62	9.56
135.0	10.07	10.07	10.01	9.96	9.90	9.84	9.73	9.73	9.68
180.0	10.41	10.29	10.18	10.07	10.01	9.96	9.90	9.84	9.84
225.0	10.18	10.13	10.07	10.01	9.90	9.90	9.73	9.68	9.68
270.0	10.46	10.35	10.13	10.07	10.07	9.84	9.79	9.68	9.56
315.0	10.24	10.13	10.07	10.07	10.07	10.07	9.84	9.73	9.73
360.0	10.63	10.58	10.46	10.35	10.29	10.18	10.07	10.01	9.90

Intensity data(cd)

C/γ(°)	90.0
0.0	9.90
45.0	9.68
90.0	9.56
135.0	9.68
180.0	9.84
225.0	9.68
270.0	9.56
315.0	9.62
360.0	9.90