
Nata

LumCAT: 2-1566-M	
Luminaire: BJB47.319.2030	
Report No: NT2017042801	Voltage(V): 49.1000
Test No: GC2017042801	Current(A): 0.5000
LampCAT: V22B	Power (W): 24.5500
Lamp flux(lm): 3852.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 41

Photometric Results

Lumens(lm): 3360.49
Efficiency(%): 87.24%
Lumens(lm)/Power(W): 136.88
Central intensity(cd): 7150.312
Maximum intensity(cd): 7150.312
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=30.1
[C90/270]Total=30.1
Field angle(10%Imax): [C0/180]Total=74.3
[C90/270]Total=74.3
Maximum s/h(1/2): C0_180=0.49 C90_270=0.49
Maximum s/h(1/4): C0_180=0.61 C90_270=0.61
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 87.28%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.625%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7150.312	1.711	1.711	.044%	.051%
1.0	7143.568	13.672	15.382	.355%	.458%
2.0	7120.100	27.249	42.632	.707%	1.269%
3.0	7078.601	40.626	83.257	1.055%	2.478%
4.0	7014.117	53.655	136.912	1.393%	4.074%
5.0	6906.412	66.009	202.921	1.714%	6.038%
6.0	6740.555	77.265	280.186	2.006%	8.338%
7.0	6534.094	87.324	367.509	2.267%	10.936%
8.0	6234.862	95.155	462.665	2.470%	13.768%
9.0	5875.619	100.795	563.459	2.617%	16.767%
10.0	5446.317	103.711	667.17	2.692%	19.853%
11.0	4983.430	104.275	771.445	2.707%	22.956%
12.0	4561.285	103.996	875.441	2.700%	26.051%
13.0	4165.223	102.749	978.191	2.667%	29.109%
14.0	3825.663	101.492	1079.683	2.635%	32.129%
15.0	3588.094	101.838	1181.521	2.644%	35.159%
16.0	3398.012	102.710	1284.232	2.666%	38.216%
17.0	3209.444	102.900	1387.132	2.671%	41.278%
18.0	3065.127	103.868	1491	2.696%	44.369%
19.0	2926.867	104.495	1595.496	2.713%	47.478%
20.0	2772.365	103.981	1699.477	2.699%	50.572%
21.0	2635.343	103.566	1803.043	2.689%	53.654%
22.0	2507.062	102.989	1906.032	2.674%	56.719%
23.0	2374.238	101.731	2007.763	2.641%	59.746%
24.0	2242.998	100.045	2107.808	2.597%	62.723%
25.0	2126.278	98.542	2206.35	2.558%	65.656%
26.0	2011.004	96.673	2303.023	2.510%	68.532%
27.0	1906.603	94.920	2397.943	2.464%	71.357%
28.0	1798.211	92.577	2490.52	2.403%	74.112%
29.0	1686.790	89.678	2580.198	2.328%	76.781%
30.0	1574.407	86.325	2666.523	2.241%	79.349%
31.0	1449.773	81.882	2748.405	2.126%	81.786%
32.0	1304.162	75.787	2824.192	1.967%	84.041%
33.0	1185.646	70.813	2895.006	1.838%	86.148%
34.0	1082.512	66.381	2961.387	1.723%	88.124%
35.0	960.142	60.392	3021.779	1.568%	89.921%
36.0	843.946	54.398	3076.177	1.412%	91.540%
37.0	732.938	48.371	3124.548	1.256%	92.979%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	613.858	41.444	3165.992	1.076%	94.212%
39.0	498.625	34.411	3200.403	.893%	95.236%
40.0	396.750	27.966	3228.369	.726%	96.069%
41.0	306.065	22.020	3250.389	.572%	96.724%
42.0	228.821	16.790	3267.179	.436%	97.223%
43.0	145.184	10.858	3278.037	.282%	97.547%
44.0	88.304	6.727	3284.764	.175%	97.747%
45.0	53.838	4.175	3288.939	.108%	97.871%
46.0	39.606	3.124	3292.063	.081%	97.964%
47.0	35.332	2.834	3294.897	.074%	98.048%
48.0	31.630	2.578	3297.474	.067%	98.125%
49.0	27.755	2.297	3299.771	.060%	98.193%
50.0	23.998	2.016	3301.787	.052%	98.253%
51.0	20.378	1.737	3303.524	.045%	98.305%
52.0	17.577	1.519	3305.043	.039%	98.350%
53.0	15.877	1.390	3306.433	.036%	98.392%
54.0	15.134	1.343	3307.776	.035%	98.431%
55.0	14.900	1.338	3309.114	.035%	98.471%
56.0	14.748	1.341	3310.455	.035%	98.511%
57.0	14.549	1.338	3311.793	.035%	98.551%
58.0	14.425	1.341	3313.135	.035%	98.591%
59.0	14.349	1.349	3314.483	.035%	98.631%
60.0	14.232	1.352	3315.835	.035%	98.671%
61.0	14.143	1.356	3317.191	.035%	98.712%
62.0	14.067	1.362	3318.553	.035%	98.752%
63.0	14.019	1.370	3319.923	.036%	98.793%
64.0	13.991	1.379	3321.302	.036%	98.834%
65.0	13.971	1.388	3322.691	.036%	98.875%
66.0	13.936	1.396	3324.087	.036%	98.917%
67.0	14.026	1.416	3325.503	.037%	98.959%
68.0	14.156	1.439	3326.942	.037%	99.002%
69.0	14.266	1.461	3328.403	.038%	99.045%
70.0	14.473	1.491	3329.894	.039%	99.090%
71.0	14.707	1.525	3331.419	.040%	99.135%
72.0	14.968	1.561	3332.98	.041%	99.182%
73.0	15.223	1.596	3334.576	.041%	99.229%
74.0	15.423	1.626	3336.202	.042%	99.277%
75.0	15.602	1.653	3337.855	.043%	99.327%

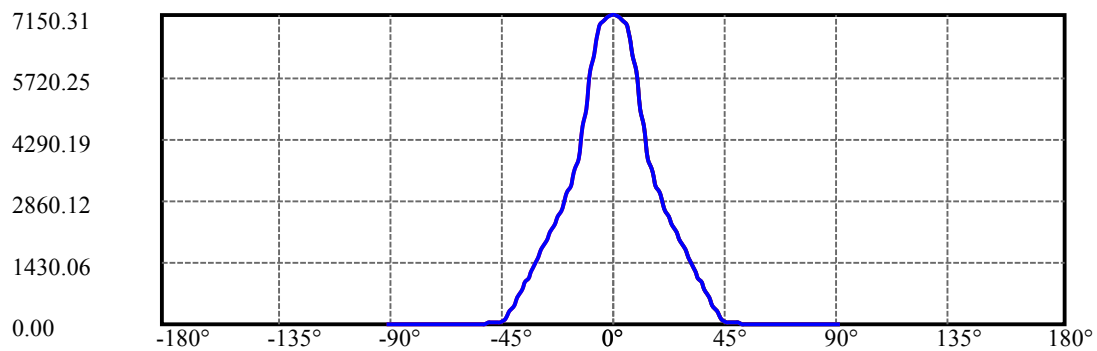
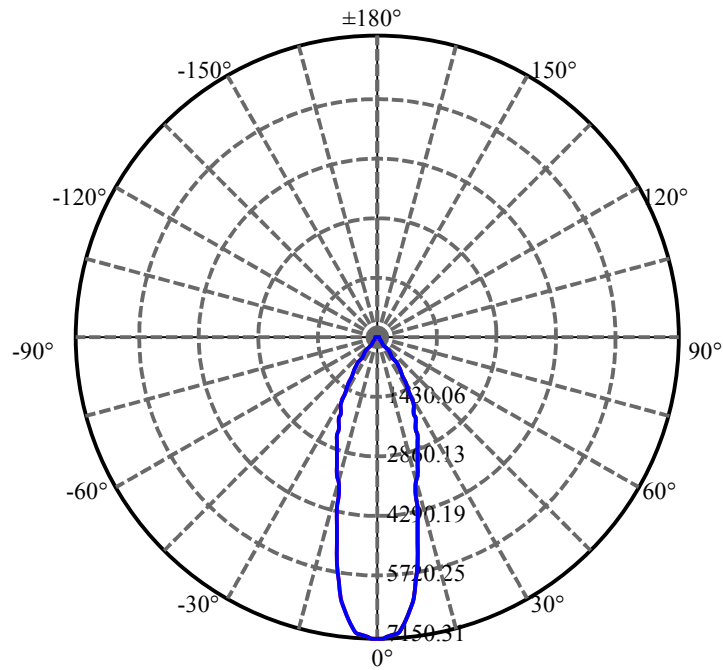
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	15.739	1.675	3339.529	.043%	99.376%
77.0	15.822	1.691	3341.22	.044%	99.427%
78.0	15.953	1.711	3342.931	.044%	99.478%
79.0	15.980	1.720	3344.651	.045%	99.529%
80.0	15.567	1.681	3346.332	.044%	99.579%
81.0	15.017	1.626	3347.959	.042%	99.627%
82.0	13.984	1.519	3349.478	.039%	99.672%
83.0	13.826	1.505	3350.982	.039%	99.717%
84.0	13.847	1.510	3352.493	.039%	99.762%
85.0	13.799	1.507	3354	.039%	99.807%
86.0	13.812	1.511	3355.511	.039%	99.852%
87.0	13.620	1.491	3357.002	.039%	99.896%
88.0	12.718	1.394	3358.396	.036%	99.938%
89.0	12.697	1.392	3359.788	.036%	99.979%
90.0	12.711	0.697	3360.485	.018%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2666.52	69.22%	79.35%
0-40	3228.37	83.81%	96.07%
0-60	3315.83	86.08%	98.67%
0-90	3359.79	87.22%	99.98%
0-120	3359.79	87.22%	99.98%
0-180	3360.49	87.24%	100.00%
60-90	45.31	1.18%	1.35%
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%
0-30.27	2688.39	69.79%	80.00%

ZONAL LUMEN SUMMARY

0-10	667.17
10-20	1032.31
20-30	967.05
30-40	561.85
40-50	73.42
50-60	14.05
60-70	14.06
70-80	16.44
80-90	13.46
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

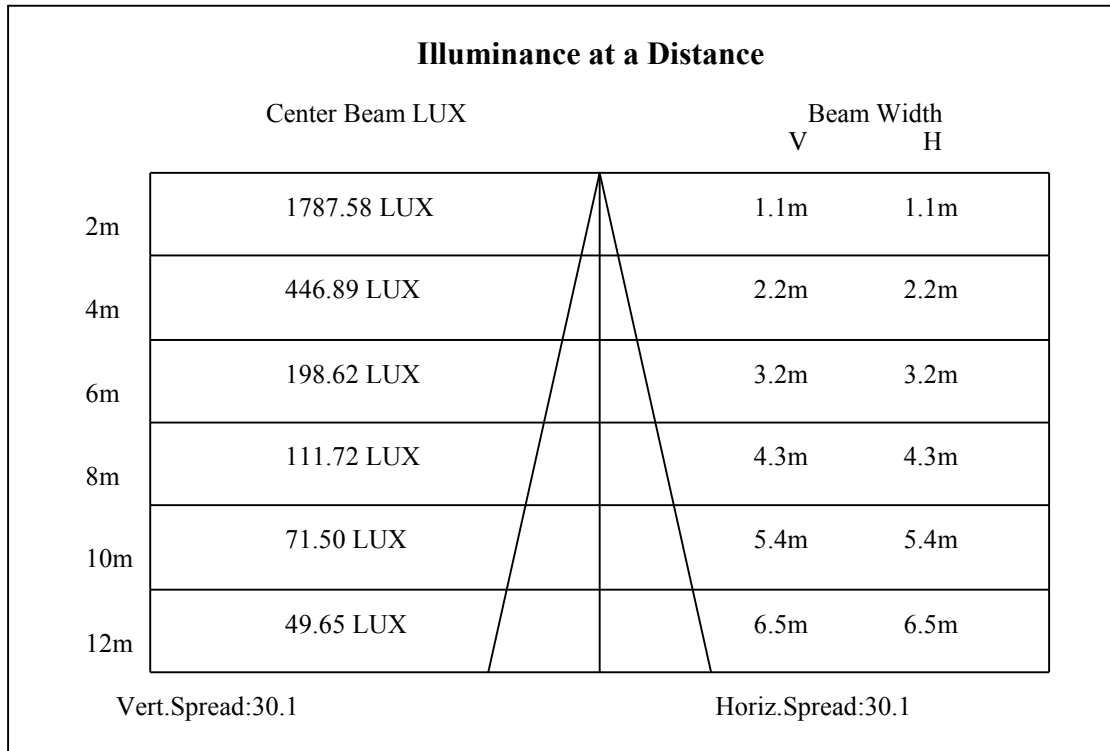
C0(Max): —————C0/C180: —————C90/C270: —————

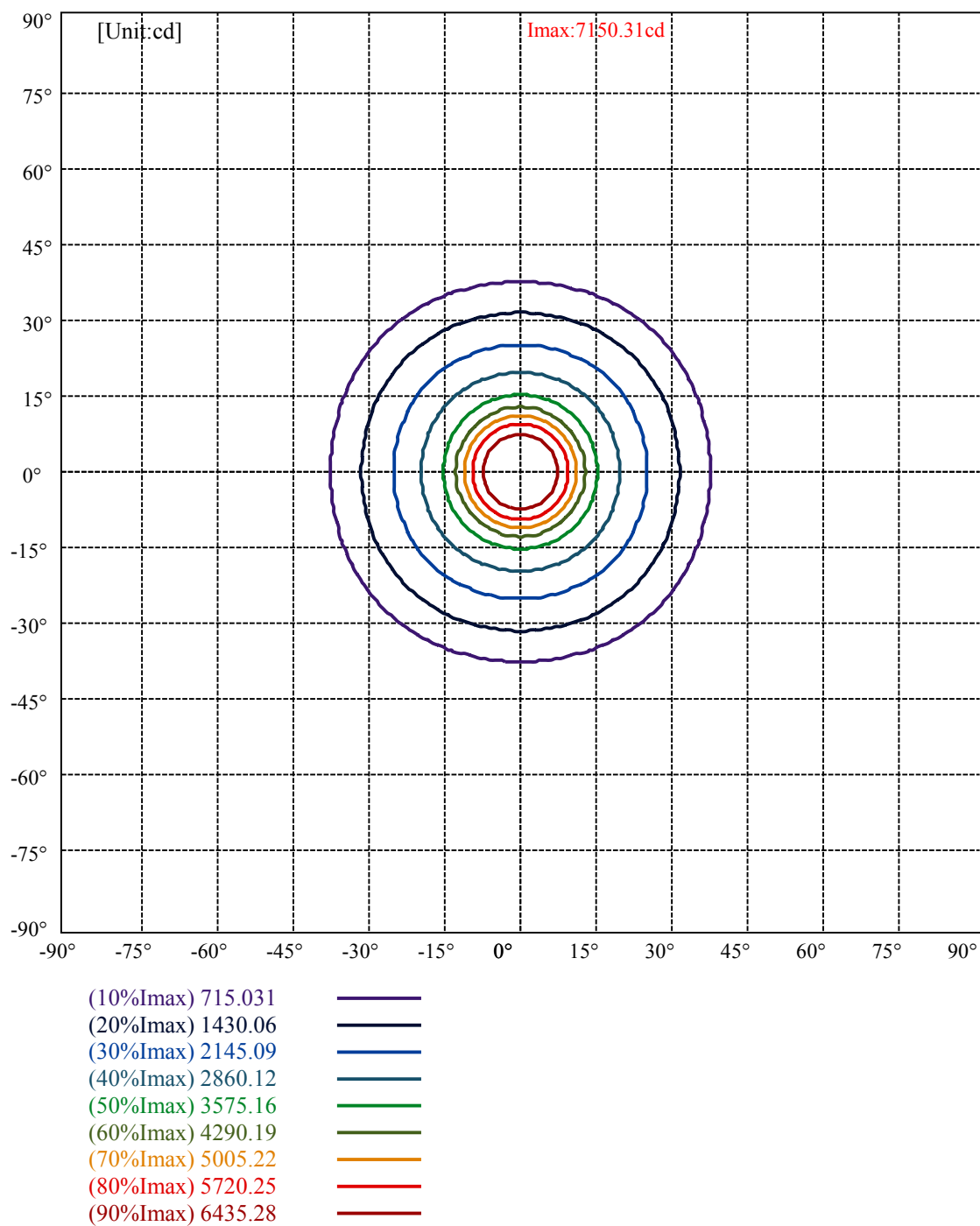
Field angle(10%Imax):C0/180Left:37.2 Right:37.2

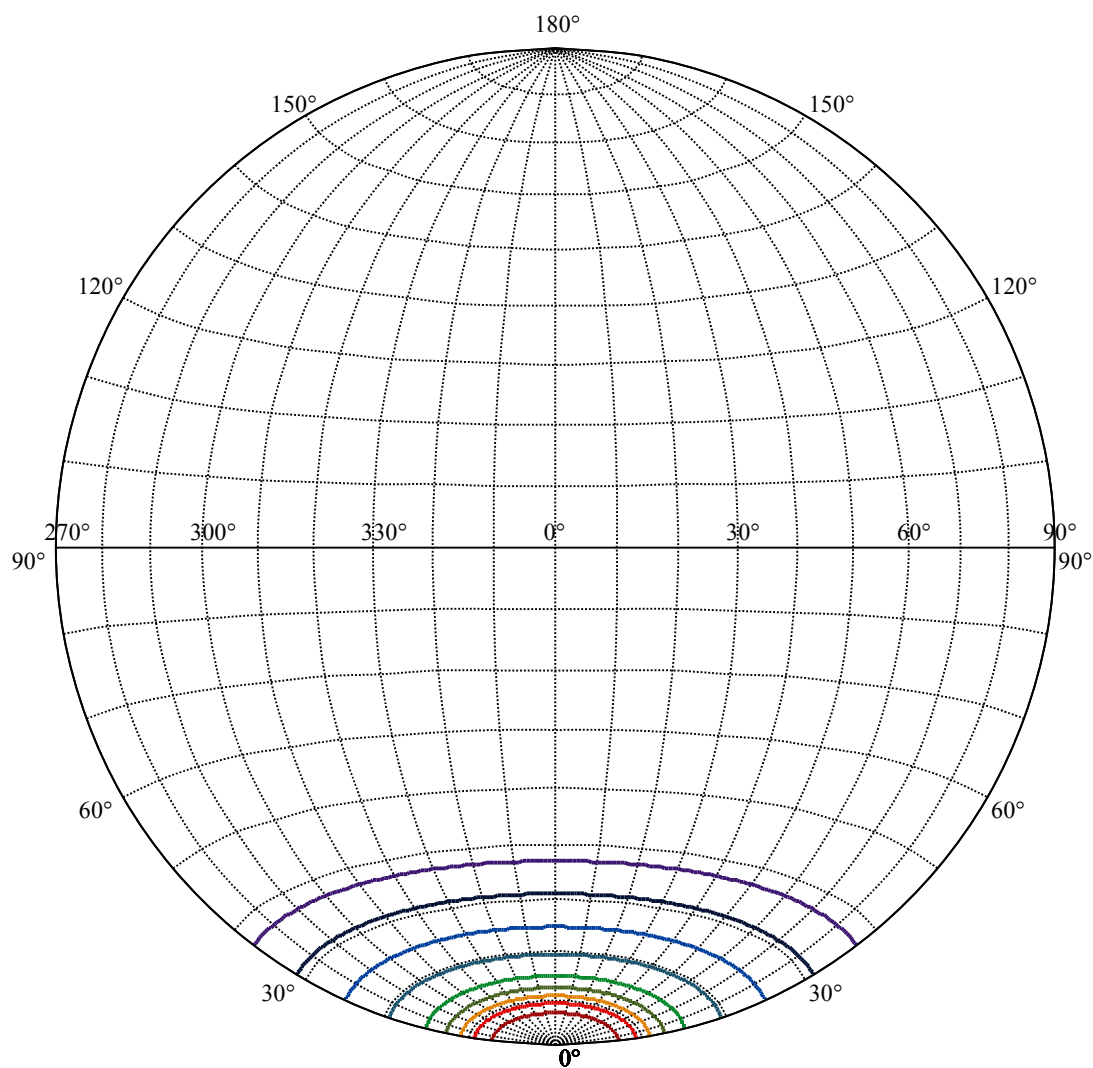
:C90/270Left:37.2 Right:37.2

Beam Angle(50%Imax):C0/180Left:15.1 Right:15.1

:C90/270Left:15.1 Right:15.1







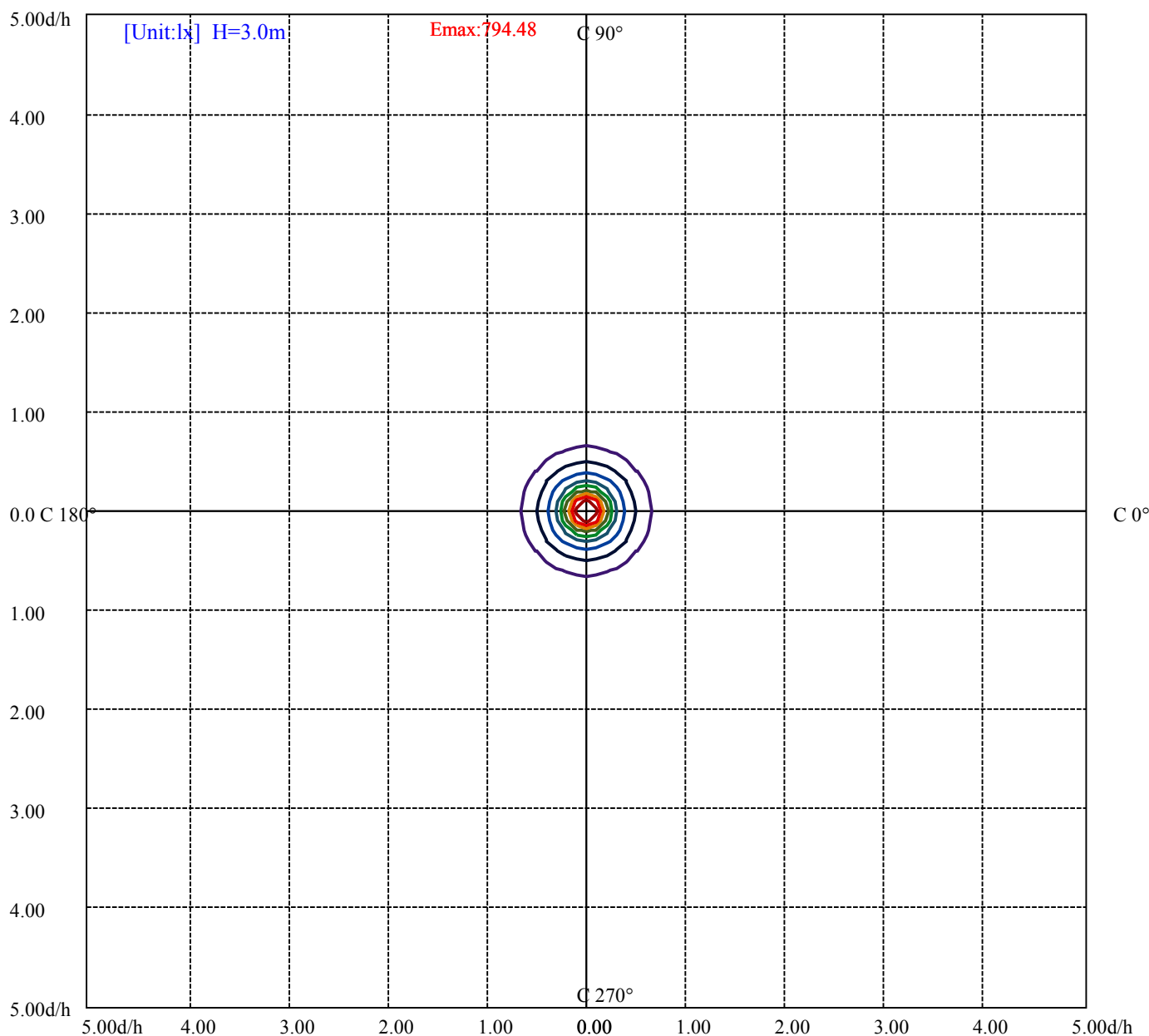
House

[Unit:cd]

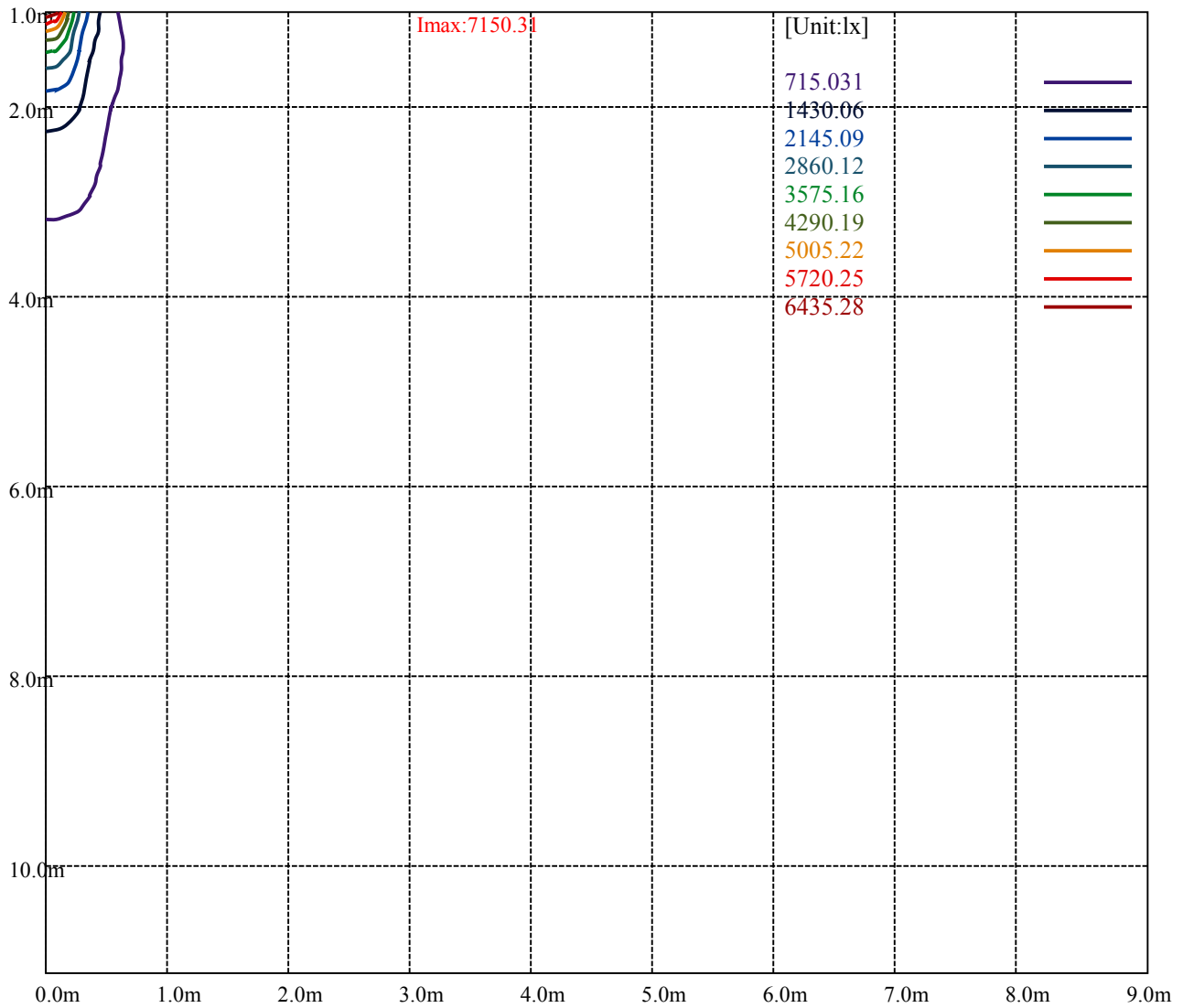
Road

Imax:7150.31

(10%Imax)	715.031	
(20%Imax)	1430.06	
(30%Imax)	2145.09	
(40%Imax)	2860.12	
(50%Imax)	3575.16	
(60%Imax)	4290.19	
(70%Imax)	5005.22	
(80%Imax)	5720.25	
(90%Imax)	6435.28	



(10%Emax)	79.44789	—
(20%Emax)	158.8956	—
(30%Emax)	238.3433	—
(40%Emax)	317.7911	—
(50%Emax)	397.24	—
(60%Emax)	476.6878	—
(70%Emax)	556.1356	—
(80%Emax)	635.5833	—
(90%Emax)	715.0311	—



Luminance Table

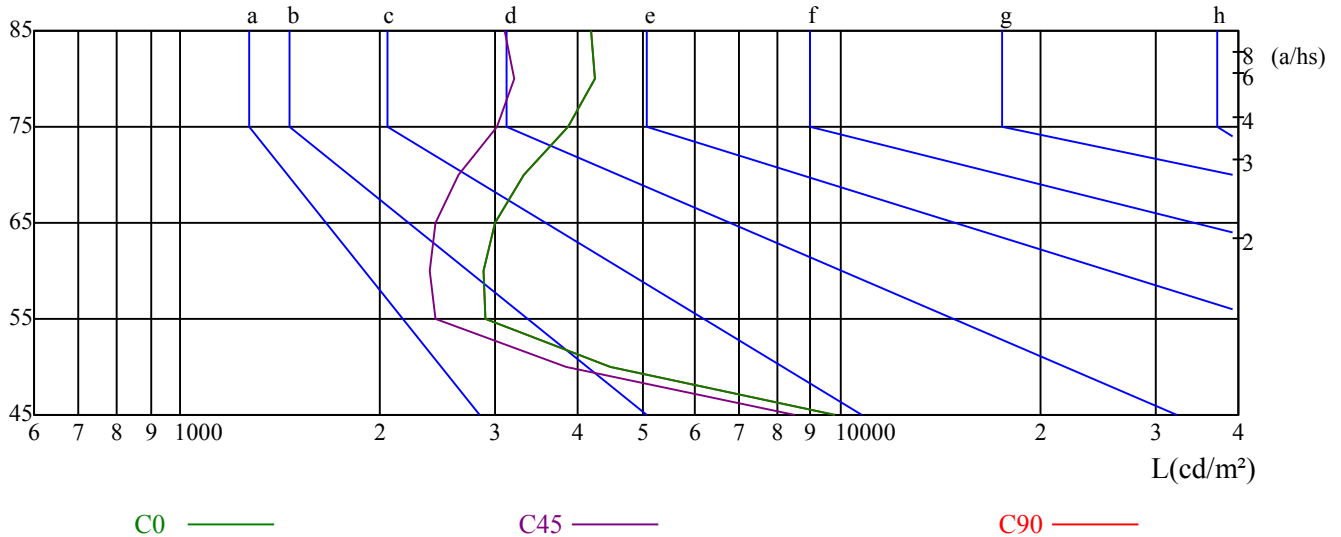
γ	45	50	55	60	65	70	75	80	85
C0	9799	4487	2887	2884	2990	3310	3861	4233	4199
C45	8499	3834	2429	2386	2430	2636	3007	3211	3087
C90	9799	4487	2887	2884	2990	3310	3861	4233	4199

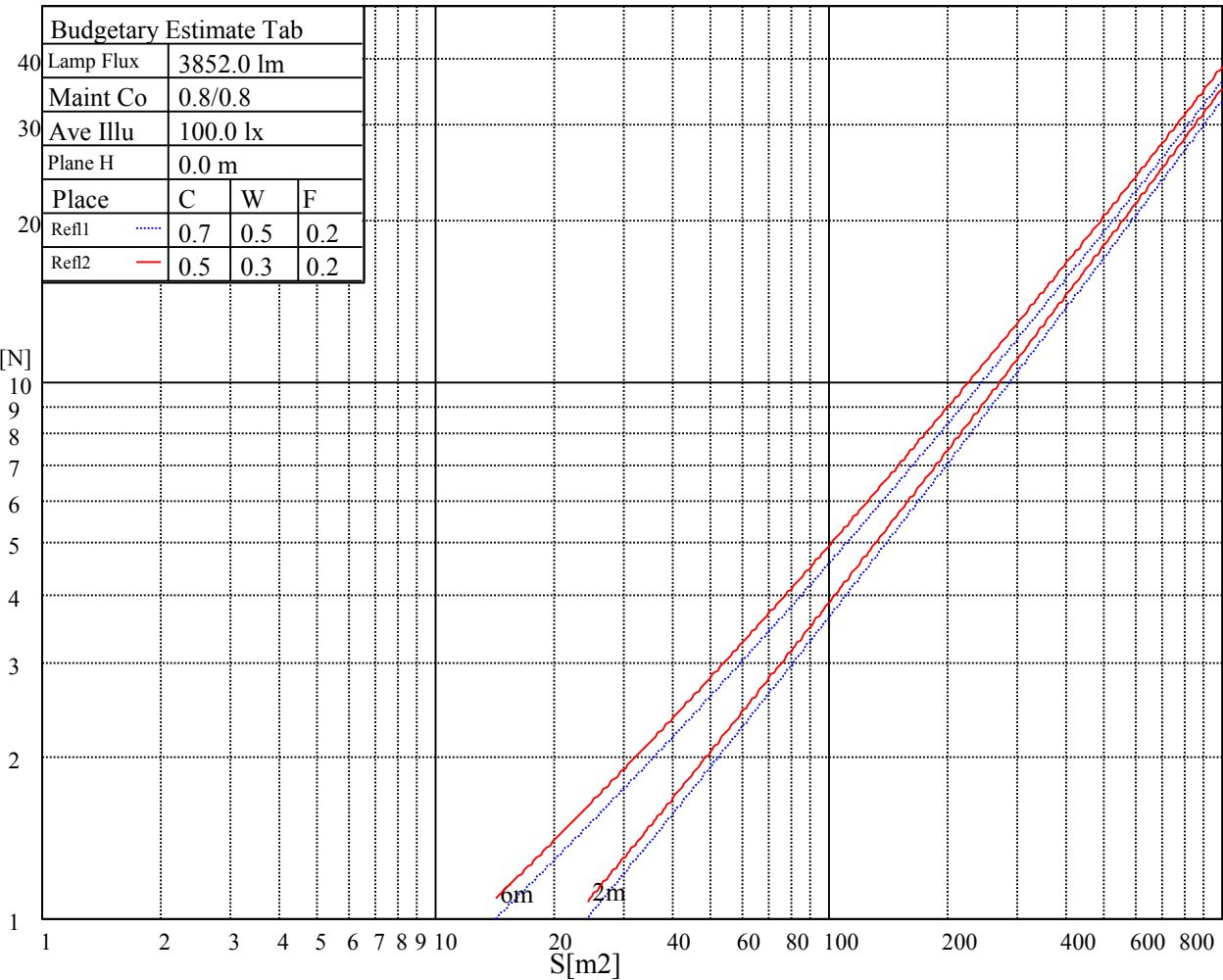
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6746	6746	6746	12302	12302	12302	32310	32310	32310

Glare Table

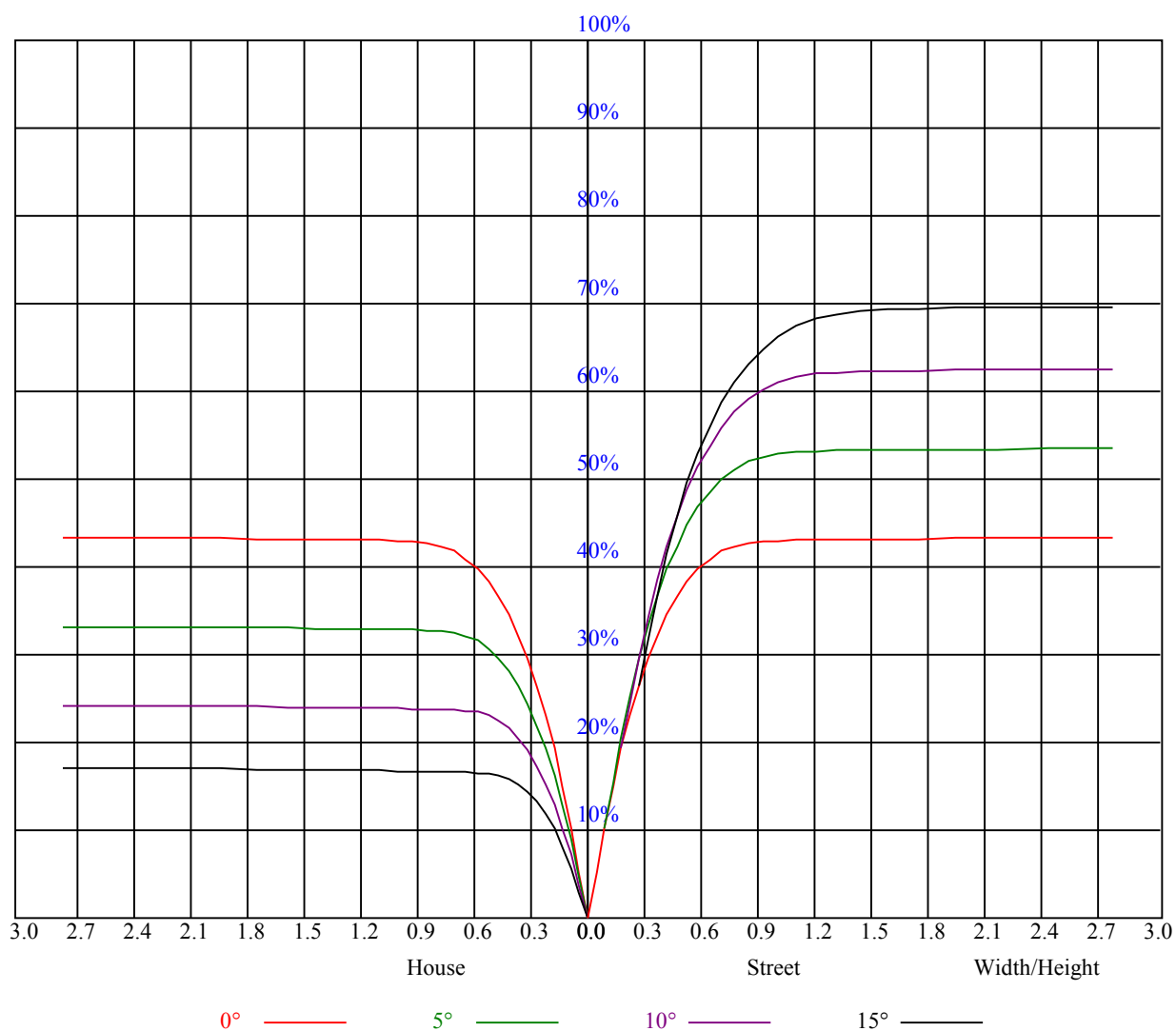
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

 $\gamma(^{\circ})$ 



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	1.04	1.04	1.04	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	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	0.84	0.84	0.82
2	0.91	0.88	0.85	0.89	0.87	0.84	0.87	0.84	0.82	0.84	0.82	0.80	0.82	0.80	0.79	0.77
3	0.86	0.82	0.78	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.75	0.78	0.76	0.74	0.73
4	0.81	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.76	0.73	0.71	0.75	0.72	0.70	0.69
5	0.77	0.72	0.69	0.76	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.66	0.65
6	0.73	0.68	0.65	0.72	0.68	0.64	0.71	0.67	0.64	0.70	0.66	0.63	0.68	0.65	0.63	0.62
7	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.59
8	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.64	0.60	0.57	0.63	0.60	0.57	0.56
9	0.63	0.58	0.55	0.62	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.54	0.53
10	0.60	0.56	0.53	0.60	0.55	0.52	0.59	0.55	0.52	0.58	0.55	0.52	0.58	0.54	0.52	0.51



Nata 2-1566-M

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	7136.96	7129.25	7106.13	7074.20	7004.28	6908.48	6767.53	6520.88	6247.80		
45.0	7156.78	7147.42	7116.04	7075.30	7013.08	6906.27	6746.06	6541.80	6237.34		
90.0	7149.07	7124.30	7079.15	7009.78	6917.84	6761.48	6545.10	6285.79	5907.00		
135.0	7158.43	7145.77	7116.04	7074.20	7004.83	6888.11	6716.33	6496.10	6170.72		
180.0	7136.96	7133.66	7120.44	7068.14	7009.23	6913.98	6708.62	6520.33	6236.24		
225.0	7156.78	7154.58	7134.21	7091.81	7026.30	6909.58	6744.41	6541.80	6235.69		
270.0	7149.07	7162.29	7154.58	7132.56	7088.51	7014.19	6896.36	6748.26	6514.82		
315.0	7158.43	7151.28	7134.21	7102.83	7048.87	6949.22	6800.02	6617.78	6329.28		
360.0	7136.96	7129.25	7106.13	7074.20	7004.28	6908.48	6767.53	6520.88	6247.80		
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0		
0.0	5913.06	5418.10	4992.51	4567.48	4103.35	3805.50	3566.00	3352.93	3180.06		
45.0	5846.44	5453.89	4984.26	4574.09	4163.36	3832.48	3598.49	3414.05	3235.11		
90.0	5515.55	5041.51	4579.04	4213.47	3906.80	3607.85	3423.41	3265.95	3086.46		
135.0	5768.26	5363.04	4869.74	4447.46	4042.24	3732.82	3516.45	3344.13	3158.04		
180.0	5838.73	5375.16	4935.26	4457.92	4091.24	3764.76	3514.25	3340.82	3174.55		
225.0	5901.50	5463.80	4974.90	4552.61	4184.84	3817.06	3581.42	3392.58	3200.43		
270.0	6214.22	5881.12	5439.02	5011.23	4549.86	4153.45	3860.55	3625.46	3394.23		
315.0	6007.20	5573.91	5092.72	4666.03	4280.08	3891.39	3644.18	3448.18	3246.68		
360.0	5913.06	5418.10	4992.51	4567.48	4103.35	3805.50	3566.00	3352.93	3180.06		
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0		
0.0	3042.97	2894.87	2747.31	2621.24	2482.49	2360.27	2232.54	2108.11	2000.75		
45.0	3076.55	2937.26	2771.54	2641.61	2511.67	2383.94	2236.94	2123.53	2017.27		
90.0	2952.67	2818.34	2672.99	2527.64	2403.76	2271.63	2160.96	2038.74	1926.42		
135.0	3022.05	2889.36	2729.70	2604.72	2480.29	2344.30	2214.92	2104.26	1984.78		
180.0	3021.50	2889.36	2761.63	2607.47	2487.45	2370.18	2229.23	2118.57	2012.31		
225.0	3064.99	2933.96	2788.61	2643.81	2517.73	2378.44	2245.20	2133.99	2011.76		
270.0	3238.42	3090.87	2915.79	2779.25	2646.01	2516.08	2359.17	2242.45	2127.38		
315.0	3101.88	2960.93	2791.36	2657.02	2527.09	2369.08	2265.02	2140.59	2007.36		
360.0	3042.97	2894.87	2747.31	2621.24	2482.49	2360.27	2232.54	2108.11	2000.75		
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0		
0.0	1902.20	1784.93	1687.48	1583.42	1449.08	1338.42	1230.51	1107.18	981.66		
45.0	1910.46	1804.75	1698.49	1570.21	1443.03	1321.35	1199.13	1089.02	963.49		
90.0	1831.18	1712.25	1579.57	1457.34	1336.77	1085.82	1071.62	962.77	831.02		
135.0	1877.42	1782.73	1662.70	1547.64	1414.95	1274.56	1160.04	1050.48	927.70		
180.0	1913.21	1795.39	1691.33	1581.77	1450.74	1318.05	1096.01	1067.27	940.14		
225.0	1909.36	1802.00	1685.83	1574.61	1459.55	1316.40	1168.85	1087.03	961.39		
270.0	1990.84	1891.19	1799.24	1684.18	1558.10	1444.13	1320.80	1211.24	1088.47		
315.0	1918.16	1812.46	1689.68	1596.09	1485.97	1334.57	1238.22	1085.11	987.27		
360.0	1902.20	1784.93	1687.48	1583.42	1449.08	1338.42	1230.51	1107.18	981.66		
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0		
0.0	870.99	750.42	627.64	522.49	410.17	318.78	286.29	148.98	89.47		
45.0	847.32	741.06	625.44	512.58	415.68	335.84	282.99	148.16	91.89		
90.0	725.15	621.92	509.71	403.67	315.03	224.85	156.64	94.97	51.86		
135.0	799.97	692.06	558.27	455.32	357.87	278.59	175.08	116.66	72.12		
180.0	830.53	709.62	603.53	486.75	373.01	278.48	199.63	123.99	79.89		
225.0	836.31	726.69	602.59	483.62	384.95	286.84	210.65	138.58	83.14		
270.0	962.94	852.82	726.19	602.87	497.16	398.06	286.84	236.63	140.23		
315.0	878.37	768.92	657.48	521.71	420.14	327.09	232.45	153.50	97.84		
360.0	870.99	750.42	627.64	522.49	410.17	318.78	286.29	148.98	89.47		

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Intensity data(cd)										Appendix Page: 17 Total:18	
C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	54.95	40.91	36.83	33.53	29.62	26.10	21.86	18.99	16.85		
45.0	51.86	39.03	35.46	31.60	27.86	24.83	21.42	18.94	16.63		
90.0	38.04	34.13	30.39	27.20	24.33	21.25	19.10	16.13	15.14		
135.0	44.82	36.94	34.13	30.23	25.88	22.52	18.44	16.30	15.20		
180.0	51.20	38.54	35.40	32.04	27.86	23.01	19.05	16.57	15.58		
225.0	51.31	39.75	35.73	31.82	27.75	23.29	20.10	16.96	15.31		
270.0	83.03	47.35	37.88	33.58	29.29	25.60	21.69	18.77	16.35		
315.0	55.50	40.19	36.83	33.03	29.46	25.38	21.36	17.95	15.97		
360.0	54.95	40.91	36.83	33.53	29.62	26.10	21.86	18.99	16.85		
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	15.80	15.58	15.36	15.20	15.09	15.03	14.98	14.92	14.81		
45.0	15.47	15.20	14.98	14.76	14.65	14.59	14.42	14.37	14.31		
90.0	14.76	14.48	14.37	14.15	14.04	13.98	13.82	13.71	13.65		
135.0	14.87	14.70	14.53	14.31	14.20	14.09	13.98	13.87	13.82		
180.0	15.20	15.03	14.92	14.81	14.70	14.65	14.59	14.53	14.48		
225.0	14.87	14.70	14.59	14.37	14.31	14.20	14.04	14.04	13.87		
270.0	15.09	14.76	14.53	14.31	14.15	14.04	13.93	13.76	13.71		
315.0	15.03	14.76	14.70	14.48	14.26	14.20	14.09	13.93	13.87		
360.0	15.80	15.58	15.36	15.20	15.09	15.03	14.98	14.92	14.81		
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	14.81	14.81	14.81	14.92	15.86	17.07	18.00	19.05	20.10		
45.0	14.26	14.20	14.20	14.15	14.15	14.15	14.15	14.20	14.26		
90.0	13.60	13.60	13.54	13.49	13.43	13.38	13.43	13.38	13.38		
135.0	13.76	13.71	13.65	13.65	13.60	13.54	13.54	13.54	13.54		
180.0	14.48	14.48	14.42	14.42	14.37	14.31	14.37	14.81	15.69		
225.0	13.82	13.76	13.82	13.71	13.76	13.76	13.65	13.82	13.71		
270.0	13.60	13.54	13.49	13.43	13.38	13.32	13.27	13.21	13.21		
315.0	13.82	13.82	13.82	13.71	13.65	13.71	13.71	13.76	13.76		
360.0	14.81	14.81	14.81	14.92	15.86	17.07	18.00	19.05	20.10		
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	20.98	21.91	22.63	23.29	23.51	23.78	24.50	24.45	23.18		
45.0	14.42	14.65	14.92	15.14	15.31	15.31	15.20	15.03	14.20		
90.0	13.38	13.38	13.38	13.32	13.43	13.43	13.43	13.49	13.54		
135.0	13.54	13.49	13.49	13.49	13.43	13.43	13.43	13.43	13.43		
180.0	16.68	17.67	18.28	18.88	19.55	19.88	20.21	20.59	19.32		
225.0	13.71	13.71	13.76	13.76	13.82	13.76	13.76	13.71	13.60		
270.0	13.27	13.21	13.16	13.16	13.16	13.21	13.27	13.27	13.27		
315.0	13.76	13.76	13.76	13.76	13.71	13.76	13.82	13.87	13.98		
360.0	20.98	21.91	22.63	23.29	23.51	23.78	24.50	24.45	23.18		
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	20.87	15.75	14.92	14.81	14.59	14.37	14.26	12.77	12.72		
45.0	13.87	13.82	13.65	13.71	13.76	13.93	14.09	12.66	12.66		
90.0	13.65	13.87	13.87	13.87	13.87	13.93	12.88	12.72	12.66		
135.0	13.43	13.43	13.43	13.49	13.49	13.54	13.71	12.72	12.72		
180.0	17.56	14.20	14.04	14.09	13.82	13.65	13.54	12.72	12.66		
225.0	13.43	13.38	13.32	13.32	13.27	13.27	12.99	12.66	12.66		
270.0	13.32	13.43	13.43	13.49	13.60	13.76	13.76	12.77	12.72		
315.0	13.98	13.98	13.93	13.98	13.98	14.04	13.71	12.72	12.77		
360.0	20.87	15.75	14.92	14.81	14.59	14.37	14.26	12.77	12.72		

Intensity data(cd)

Appendix Page: 18 Total:18

C/γ(°)	90.0
0.0	12.72
45.0	12.66
90.0	12.77
135.0	12.72
180.0	12.66
225.0	12.66
270.0	12.72
315.0	12.77
360.0	12.72