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NATA

LumCAT: LM01D06915BJ
Luminaire: 92.70.045.00
Report No: NATA0100
Test No: GC2018122008
LampCAT: LUMILEDS LUXEON 1205
Lamp flux(lm): 2255.0
Number of Lamps: 1
Length(mm): 69
Phm Type: C

Voltage(V): 35.4000
Current(A): 0.5000
Power (W): 17.7000
PF: 0.0000
Ballast type: DC
Width(mm): 69
Height(mm): 0

Photometric Results

Lumens(lm): 1982.36
Efficiency(%): 87.91%
Lumens(lm)/Power(W): 112.17
Central intensity(cd): 13291.870
Maximum intensity(cd): 13291.870
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=17.9
 [C90/270]Total=17.9
Field angle(10%Imax): [C0/180]Total=32.6
 [C90/270]Total=32.6
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.30 C90_270=0.30
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.05%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 94.163%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13291.875	3.180	3.18	.141%	.160%
1.0	13230.000	25.320	28.5	1.123%	1.438%
2.0	13019.766	49.828	78.328	2.210%	3.951%
3.0	12643.594	72.564	150.892	3.218%	7.612%
4.0	12037.641	92.083	242.975	4.083%	12.257%
5.0	11286.141	107.868	350.843	4.784%	17.698%
6.0	10380.797	118.992	469.835	5.277%	23.701%
7.0	9165.305	122.488	592.323	5.432%	29.880%
8.0	7955.086	121.409	713.732	5.384%	36.004%
9.0	6557.344	112.490	826.222	4.988%	41.679%
10.0	5274.844	100.446	926.667	4.454%	46.746%
11.0	4254.047	89.013	1015.68	3.947%	51.236%
12.0	3346.805	76.306	1091.987	3.384%	55.085%
13.0	2686.219	66.265	1158.251	2.939%	58.428%
14.0	2184.117	57.943	1216.195	2.570%	61.351%
15.0	1705.289	48.400	1264.595	2.146%	63.792%
16.0	1401.863	42.374	1306.968	1.879%	65.930%
17.0	1177.425	37.750	1344.718	1.674%	67.834%
18.0	1040.027	35.243	1379.962	1.563%	69.612%
19.0	907.052	32.384	1412.346	1.436%	71.246%
20.0	785.918	29.477	1441.822	1.307%	72.733%
21.0	688.134	27.043	1468.865	1.199%	74.097%
22.0	604.448	24.831	1493.696	1.101%	75.349%
23.0	533.876	22.875	1516.571	1.014%	76.503%
24.0	471.319	21.022	1537.594	.932%	77.564%
25.0	415.519	19.257	1556.851	.854%	78.535%
26.0	371.813	17.874	1574.725	.793%	79.437%
27.0	334.090	16.633	1591.357	.738%	80.276%
28.0	300.530	15.472	1606.829	.686%	81.056%
29.0	275.864	14.666	1621.496	.650%	81.796%
30.0	255.431	14.005	1635.501	.621%	82.503%
31.0	229.774	12.978	1648.478	.576%	83.157%
32.0	211.753	12.305	1660.784	.546%	83.778%
33.0	197.311	11.785	1672.568	.523%	84.373%
34.0	183.038	11.224	1683.792	.498%	84.939%
35.0	170.768	10.741	1694.534	.476%	85.481%
36.0	160.003	10.313	1704.847	.457%	86.001%
37.0	150.272	9.917	1714.764	.440%	86.501%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	140.695	9.499	1724.263	.421%	86.980%
39.0	132.722	9.159	1733.422	.406%	87.442%
40.0	125.072	8.816	1742.239	.391%	87.887%
41.0	118.097	8.496	1750.735	.377%	88.316%
42.0	111.853	8.207	1758.942	.364%	88.730%
43.0	106.045	7.931	1766.873	.352%	89.130%
44.0	100.955	7.690	1774.564	.341%	89.518%
45.0	96.258	7.464	1782.028	.331%	89.894%
46.0	91.898	7.249	1789.277	.321%	90.260%
47.0	87.377	7.008	1796.285	.311%	90.614%
48.0	83.566	6.810	1803.095	.302%	90.957%
49.0	79.460	6.576	1809.671	.292%	91.289%
50.0	75.551	6.347	1816.018	.281%	91.609%
51.0	72.098	6.144	1822.162	.272%	91.919%
52.0	68.759	5.942	1828.104	.263%	92.219%
53.0	65.348	5.723	1833.827	.254%	92.507%
54.0	62.452	5.541	1839.368	.246%	92.787%
55.0	59.934	5.384	1844.752	.239%	93.058%
56.0	57.551	5.232	1849.984	.232%	93.322%
57.0	55.484	5.103	1855.086	.226%	93.580%
58.0	53.297	4.956	1860.043	.220%	93.830%
59.0	51.349	4.827	1864.87	.214%	94.073%
60.0	49.570	4.708	1869.577	.209%	94.311%
61.0	47.770	4.582	1874.159	.203%	94.542%
62.0	46.195	4.473	1878.632	.198%	94.768%
63.0	44.754	4.373	1883.005	.194%	94.988%
64.0	43.235	4.261	1887.266	.189%	95.203%
65.0	41.730	4.147	1891.414	.184%	95.412%
66.0	40.465	4.054	1895.467	.180%	95.617%
67.0	39.199	3.957	1899.424	.175%	95.816%
68.0	38.081	3.872	1903.296	.172%	96.012%
69.0	36.949	3.783	1907.079	.168%	96.203%
70.0	35.803	3.689	1910.768	.164%	96.389%
71.0	34.601	3.588	1914.356	.159%	96.570%
72.0	33.799	3.525	1917.881	.156%	96.747%
73.0	33.567	3.520	1921.401	.156%	96.925%
74.0	34.102	3.595	1924.996	.159%	97.106%
75.0	35.705	3.782	1928.778	.168%	97.297%

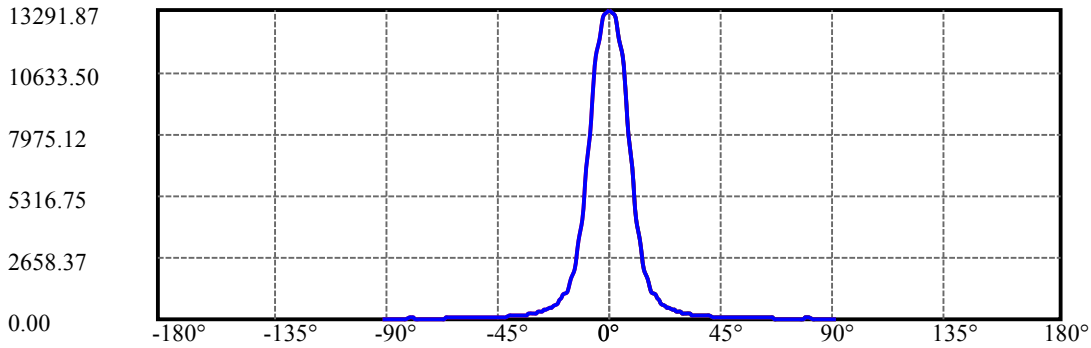
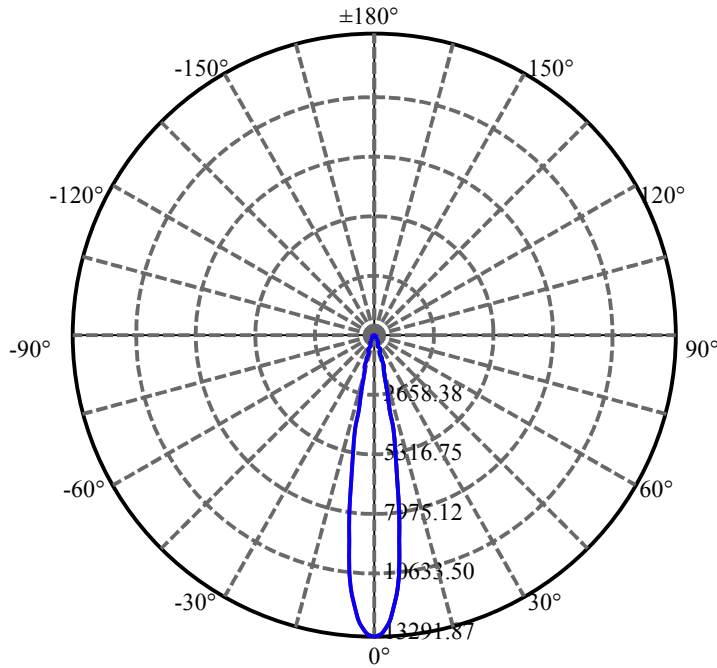
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	37.652	4.006	1932.784	.178%	97.499%
77.0	39.881	4.261	1937.046	.189%	97.714%
78.0	41.484	4.450	1941.495	.197%	97.939%
79.0	42.841	4.612	1946.107	.205%	98.171%
80.0	42.813	4.624	1950.731	.205%	98.405%
81.0	41.189	4.461	1955.192	.198%	98.630%
82.0	35.740	3.881	1959.073	.172%	98.825%
83.0	30.804	3.353	1962.426	.149%	98.995%
84.0	28.315	3.088	1965.514	.137%	99.150%
85.0	28.385	3.101	1968.615	.138%	99.307%
86.0	28.505	3.118	1971.733	.138%	99.464%
87.0	28.385	3.108	1974.842	.138%	99.621%
88.0	27.900	3.058	1977.899	.136%	99.775%
89.0	27.274	2.990	1980.89	.133%	99.926%
90.0	26.782	1.468	1982.358	.065%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1635.50	72.53%	82.50%
0-40	1742.24	77.26%	87.89%
0-60	1869.58	82.91%	94.31%
0-90	1980.89	87.84%	99.93%
0-120	1980.89	87.84%	99.93%
0-180	1982.36	87.91%	100.00%
60-90	116.02	5.15%	5.85%
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%
0-26.67	1585.89	70.33%	80.00%

ZONAL LUMEN SUMMARY

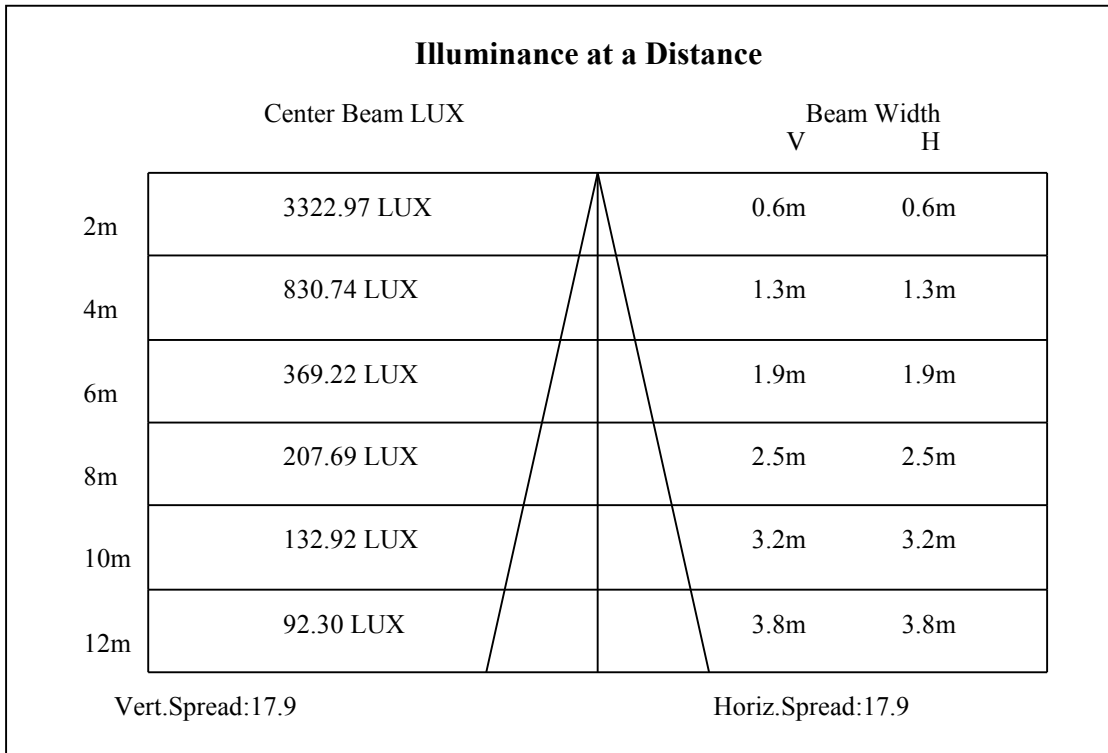
0-10	926.67
10-20	515.15
20-30	193.68
30-40	106.74
40-50	73.78
50-60	53.56
60-70	41.19
70-80	39.96
80-90	30.16
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

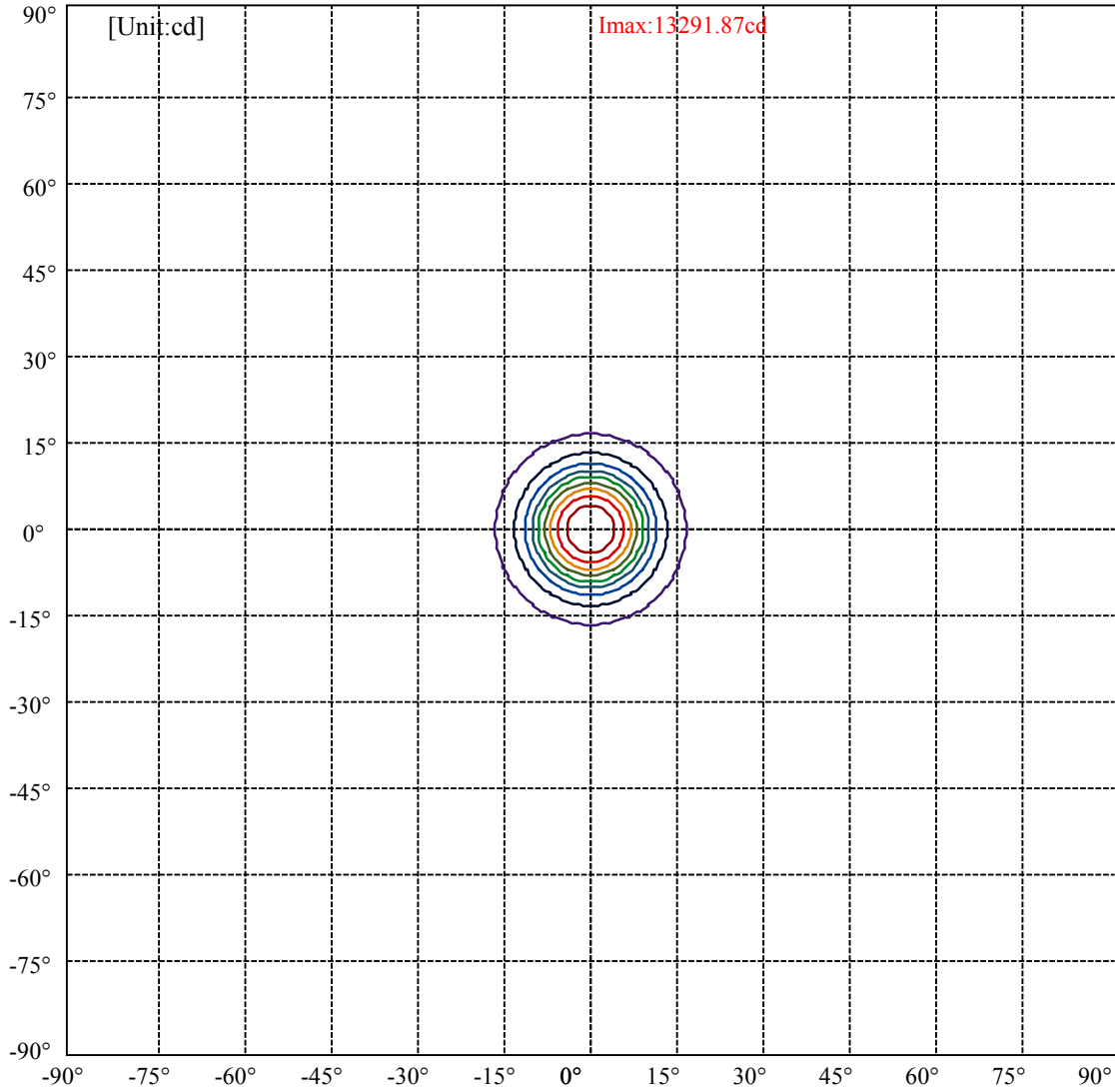


C0(Max): —————
 C0/C180: —————
 C90/C270: —————

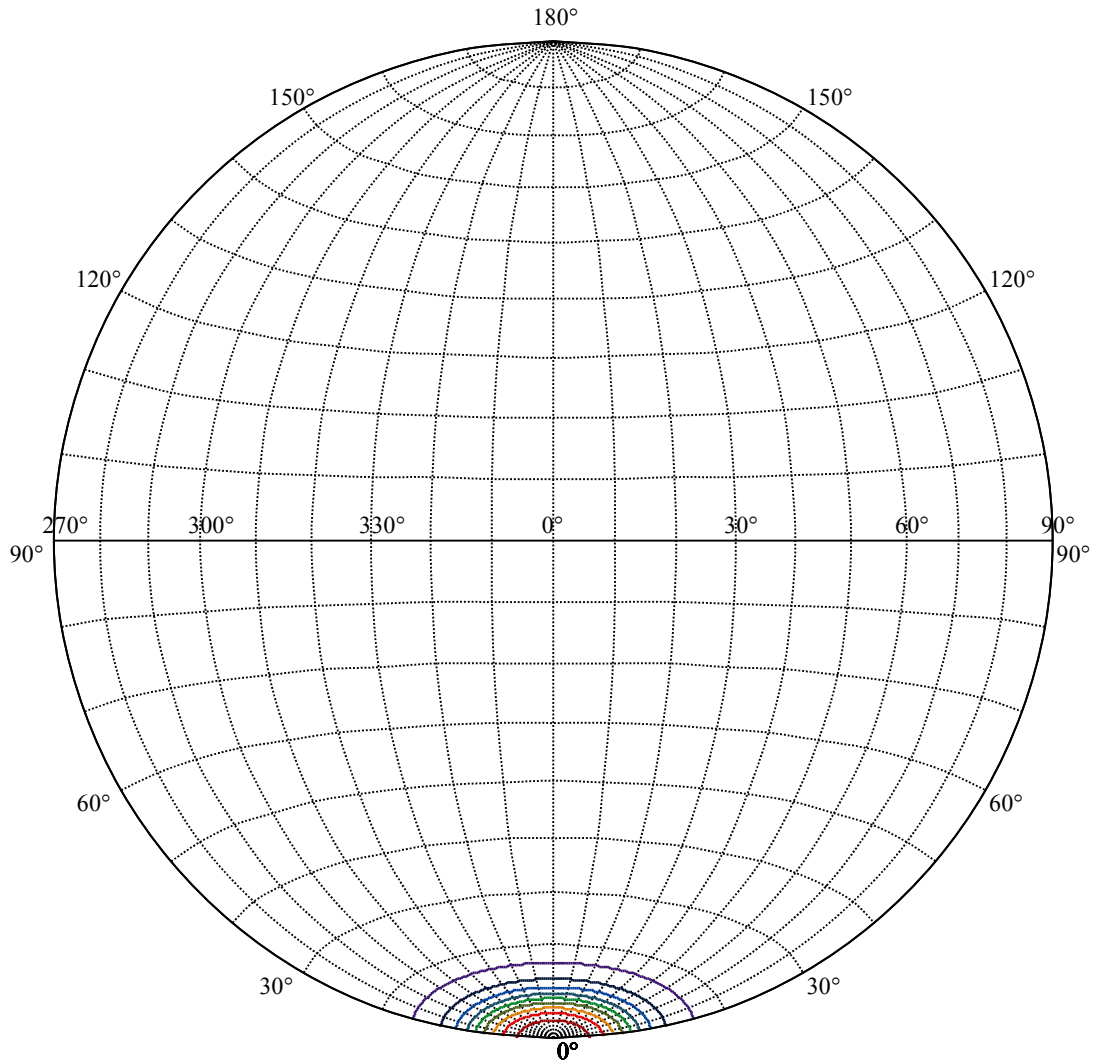
Field angle(10%Imax):C0/180Left:16.3 Right:16.3
 :C90/270Left:16.3 Right:16.3

Beam Angle(50%Imax):C0/180Left:8.9 Right:8.9
 :C90/270Left:8.9 Right:8.9





(10%Imax) 1329.19	—
(20%Imax) 2658.37	—
(30%Imax) 3987.56	—
(40%Imax) 5316.75	—
(50%Imax) 6645.94	—
(60%Imax) 7975.12	—
(70%Imax) 9304.31	—
(80%Imax) 10633.5	—
(90%Imax) 11962.7	—



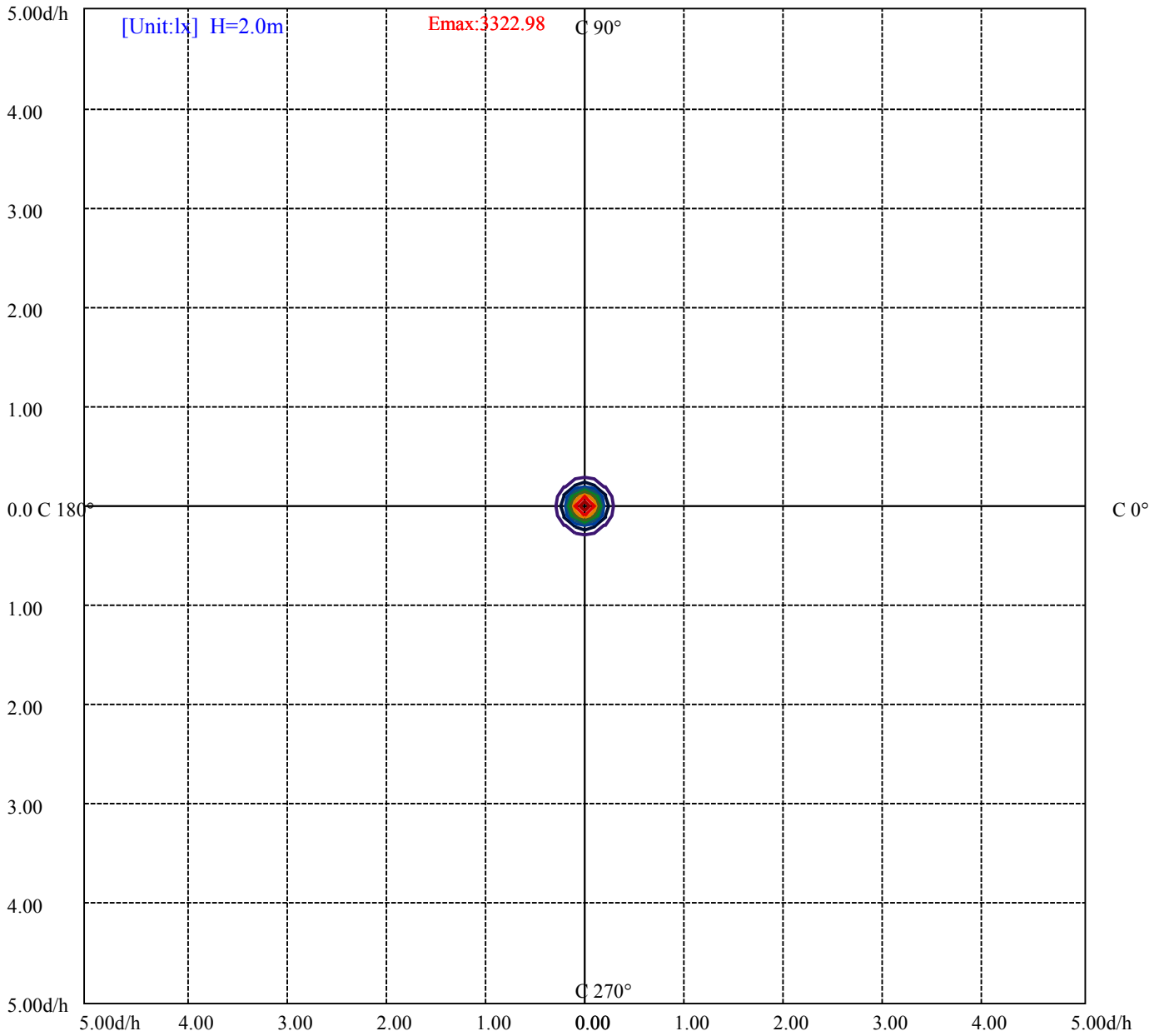
House

[Unit:cd]

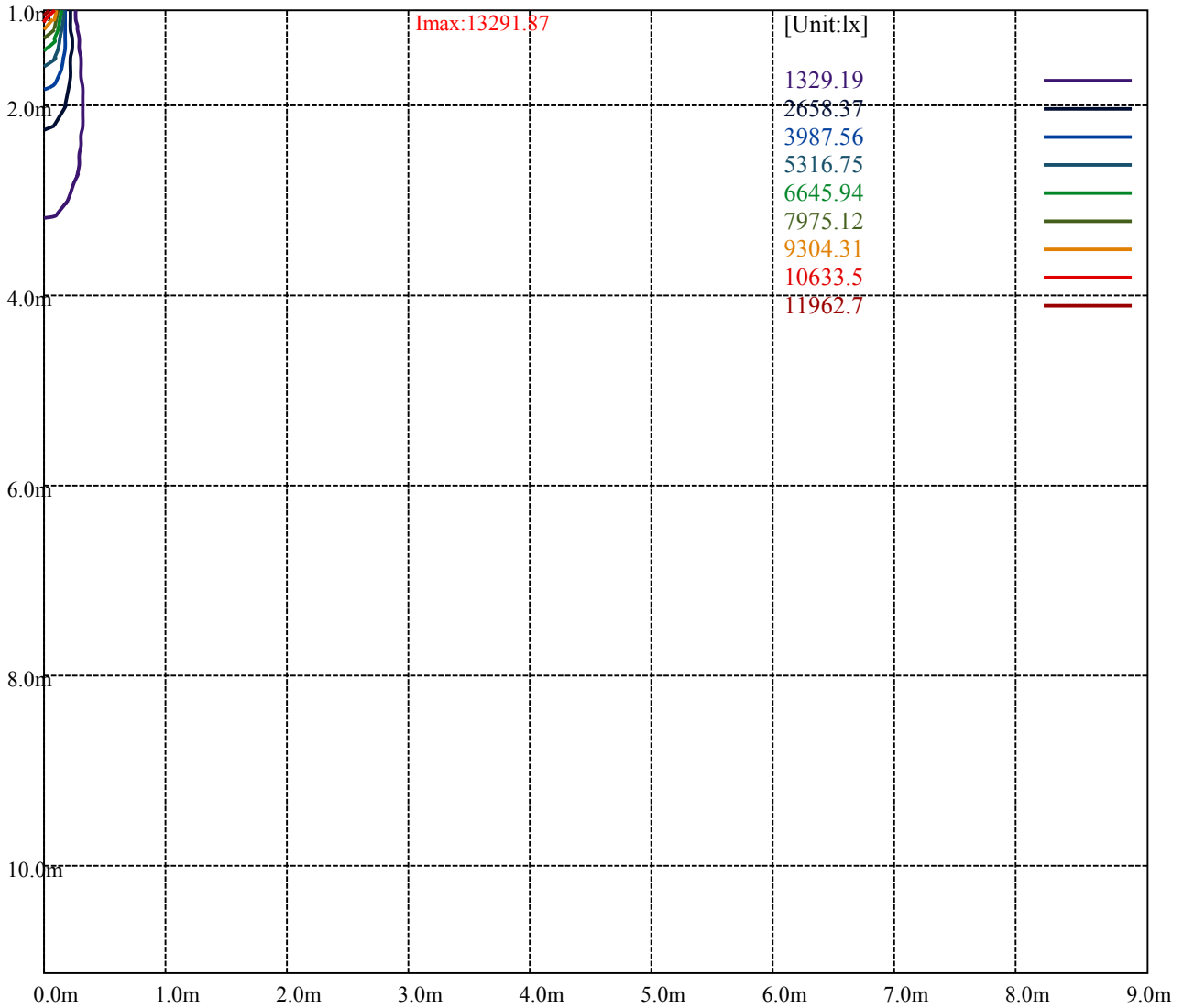
Road

Imax:13291.87

(10%Imax) 1329.19	—
(20%Imax) 2658.37	—
(30%Imax) 3987.56	—
(40%Imax) 5316.75	—
(50%Imax) 6645.94	—
(60%Imax) 7975.12	—
(70%Imax) 9304.31	—
(80%Imax) 10633.5	—
(90%Imax) 11962.7	—



(10%Emax) 332.2975	—
(20%Emax) 664.5925	—
(30%Emax) 996.89	—
(40%Emax) 1329.188	—
(50%Emax) 1661.483	—
(60%Emax) 1993.78	—
(70%Emax) 2326.075	—
(80%Emax) 2658.375	—
(90%Emax) 2990.675	—



Luminance Table

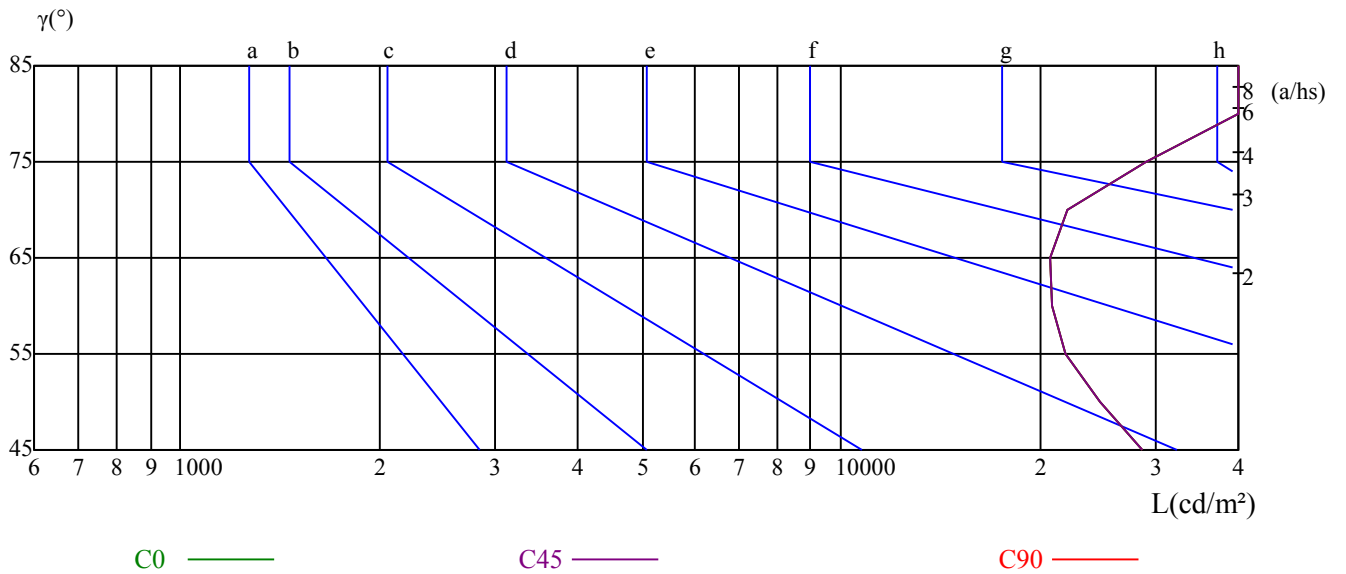
γ	45	50	55	60	65	70	75	80	85
C0	28593	24687	21948	20823	20740	21987	28975	51786	68406
C45	28593	24687	21948	20823	20740	21987	28975	51786	68406
C90	28593	24687	21948	20823	20740	21987	28975	51786	68406

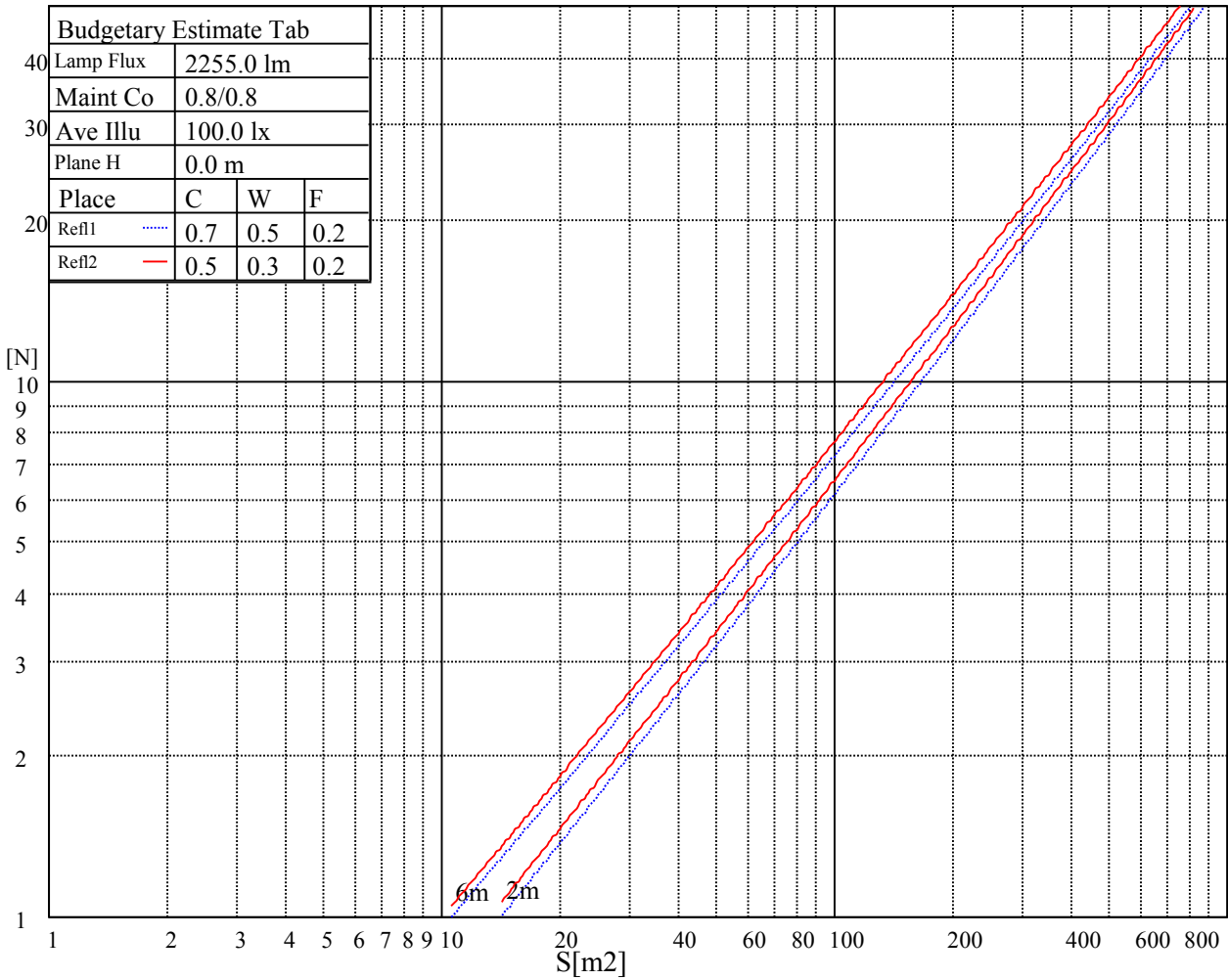
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
20740	20740	20740	28975	28975	28975	68406	68406	68406

Glare Table

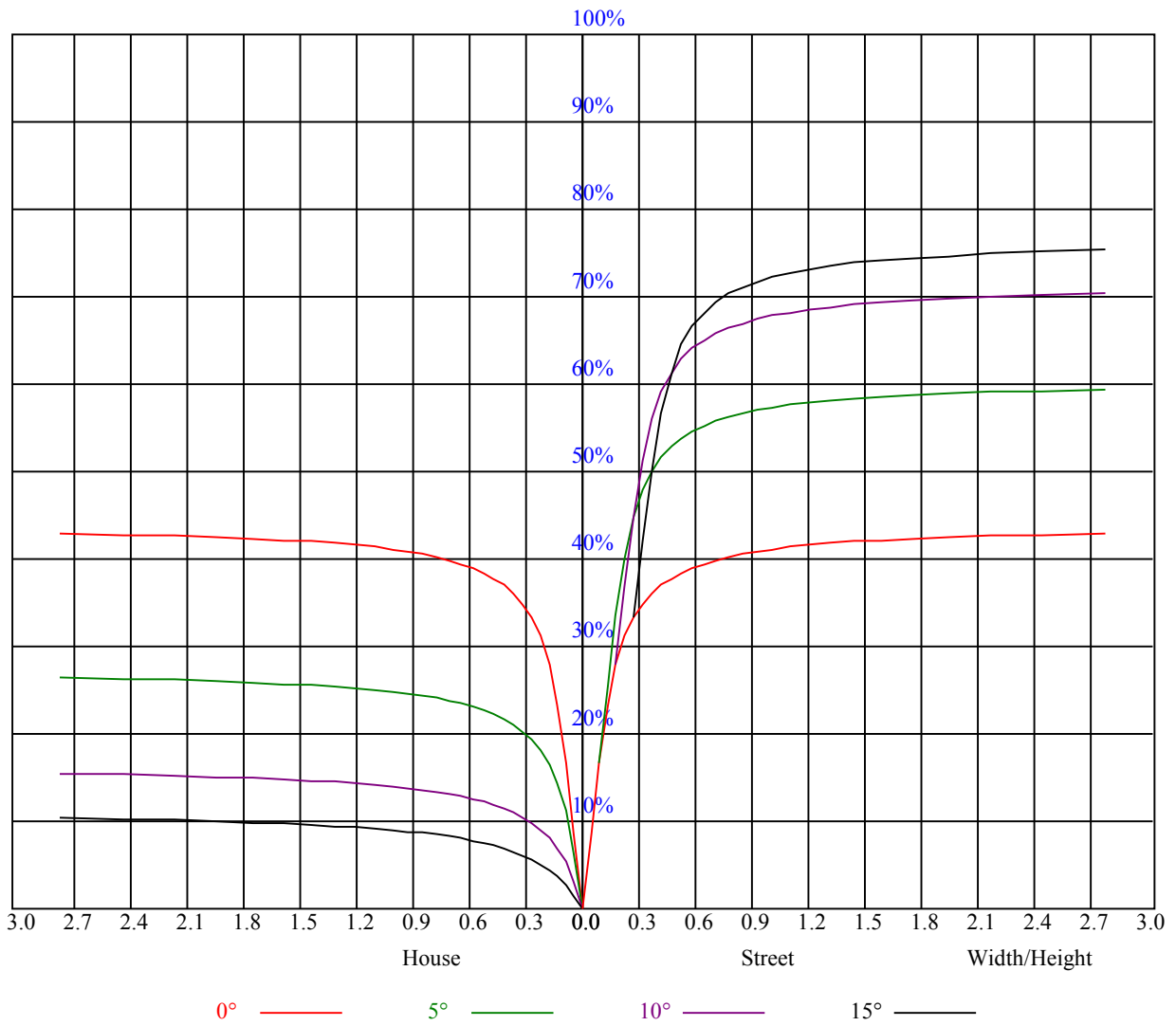
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.05	1.05	1.05	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.98	0.95	0.93	0.96	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.86	0.86	0.85	0.84	0.82
2	0.92	0.89	0.86	0.91	0.88	0.85	0.88	0.85	0.83	0.85	0.83	0.82	0.83	0.81	0.80	0.78
3	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.75
4	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.78	0.76	0.74	0.73
5	0.81	0.77	0.73	0.80	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.73	0.71	0.70
6	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
7	0.75	0.71	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
8	0.73	0.69	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
9	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
10	0.70	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62



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	13331.25	13398.75	13207.50	12982.50	12566.25	11986.88	11131.88	10164.38	9039.38
45.0	13185.00	13303.13	13235.63	13033.13	12712.50	12178.13	11514.38	10513.13	9421.88
90.0	13286.25	13201.88	13005.00	12566.25	12060.00	11116.69	10128.94	8955.56	7694.44
135.0	13365.00	13246.88	12971.25	12645.00	12048.75	11176.88	10220.63	8893.13	7638.75
180.0	13331.25	13151.25	12864.38	12363.75	11160.00	10816.88	9754.31	8196.19	6913.13
225.0	13185.00	12982.50	12628.13	12009.38	11172.38	10325.81	9071.44	7676.44	6417.00
270.0	13286.25	13241.25	13083.75	12751.88	12223.13	11469.38	10569.38	9343.13	8150.63
315.0	13365.00	13314.38	13162.50	12796.88	12358.13	11218.50	10655.44	9580.50	8365.50
360.0	13331.25	13398.75	13207.50	12982.50	12566.25	11986.88	11131.88	10164.38	9039.38
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7509.38	6277.50	5124.38	3982.50	3065.63	2896.88	1955.81	1588.50	1348.88
45.0	8066.25	6654.38	5450.63	4381.88	3285.00	2846.25	2131.31	1683.00	1426.50
90.0	6154.31	5020.31	4046.06	3083.06	2566.69	2060.44	1653.19	1440.56	1119.71
135.0	6249.38	4983.75	3993.75	3200.63	2868.75	2012.06	1679.06	1368.00	1182.94
180.0	5666.06	4288.50	3403.69	2716.31	2085.75	1720.13	1449.00	1107.39	1050.08
225.0	5088.94	3930.19	3101.06	2400.19	1944.56	1572.19	1224.56	1110.88	966.83
270.0	6761.25	5439.38	4387.50	3498.75	2868.75	2151.00	1769.63	1423.13	1219.50
315.0	6963.19	5604.75	4525.31	3511.13	2804.63	2214.00	1779.75	1493.44	1104.98
360.0	7509.38	6277.50	5124.38	3982.50	3065.63	2896.88	1955.81	1588.50	1348.88
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1139.63	991.13	855.00	754.31	656.44	581.63	504.00	447.75	399.94
45.0	1220.06	1040.63	896.06	790.31	686.25	606.38	531.00	465.75	415.69
90.0	1064.53	918.23	810.00	703.80	614.93	546.75	488.08	424.97	383.29
135.0	1031.06	920.81	775.69	687.38	617.63	532.69	468.00	424.13	372.94
180.0	898.37	788.85	684.23	596.48	529.65	465.53	416.87	370.29	330.36
225.0	836.10	726.41	642.99	563.29	495.51	441.62	394.43	345.21	312.58
270.0	1062.00	932.06	795.38	701.44	609.75	542.25	477.00	420.75	377.44
315.0	1068.47	938.31	828.00	708.08	625.44	554.18	491.18	425.31	382.28
360.0	1139.63	991.13	855.00	754.31	656.44	581.63	504.00	447.75	399.94
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	354.94	318.38	290.25	284.06	239.12	221.51	205.26	187.37	174.88
45.0	368.44	329.06	298.69	284.63	244.86	222.13	204.92	188.78	175.16
90.0	347.85	309.94	284.06	261.34	239.46	221.18	206.33	191.53	179.49
135.0	333.56	309.38	284.63	255.99	234.06	217.35	203.74	191.93	177.08
180.0	300.77	273.21	248.74	230.34	214.03	196.20	183.54	172.07	160.99
225.0	285.08	254.81	233.83	215.44	197.16	181.41	168.86	156.77	147.43
270.0	336.38	302.06	285.19	252.28	231.58	214.37	200.70	186.30	173.42
315.0	345.71	307.41	281.53	259.37	237.94	219.88	205.14	189.56	177.69
360.0	354.94	318.38	290.25	284.06	239.12	221.51	205.26	187.37	174.88
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	163.24	152.16	142.14	134.72	126.79	120.32	113.46	107.27	102.49
45.0	163.58	152.89	142.43	135.56	127.97	120.15	113.06	107.94	101.59
90.0	167.68	157.05	148.11	138.54	129.15	121.89	115.43	108.51	103.44
135.0	167.34	158.91	147.26	138.88	131.34	123.41	116.33	110.87	105.24
180.0	151.71	143.89	135.28	127.46	121.28	114.47	109.24	103.73	99.00
225.0	138.83	130.67	123.64	117.28	110.36	105.19	100.46	95.18	91.18
270.0	162.56	152.44	141.24	132.64	125.38	117.79	111.60	106.37	101.14
315.0	165.09	154.18	145.46	136.69	128.31	121.56	115.26	108.51	103.56
360.0	163.24	152.16	142.14	134.72	126.79	120.32	113.46	107.27	102.49

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	97.59	92.87	89.16	85.61	81.45	78.30	74.93	71.49	68.18
45.0	96.41	92.25	88.03	84.54	80.61	76.73	73.41	70.31	66.09
90.0	98.72	93.66	88.71	84.54	80.04	75.60	72.11	68.23	65.08
135.0	100.13	95.63	90.06	85.67	81.06	76.61	73.07	69.75	65.87
180.0	94.89	91.29	86.68	83.03	79.43	75.21	71.94	68.96	65.81
225.0	87.41	83.53	79.71	76.39	72.62	68.96	65.87	62.78	60.19
270.0	95.85	91.58	86.96	82.91	78.98	74.93	71.38	68.23	64.41
315.0	99.06	94.39	89.72	85.84	81.51	78.08	74.08	70.31	67.16
360.0	97.59	92.87	89.16	85.61	81.45	78.30	74.93	71.49	68.18
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	65.48	62.83	60.53	58.67	56.76	55.29	53.38	51.64	50.34
45.0	63.28	60.69	57.83	55.86	54.11	51.98	50.23	48.66	46.97
90.0	61.82	59.06	56.81	54.56	51.69	49.67	47.76	45.56	43.93
135.0	62.83	60.36	57.66	55.01	52.93	50.51	48.54	46.91	45.06
180.0	63.11	61.03	58.78	57.04	55.29	53.44	51.98	50.29	48.71
225.0	57.60	55.35	53.49	51.69	49.67	48.32	46.97	45.45	44.21
270.0	61.65	59.23	56.64	54.45	52.03	49.78	47.70	45.84	44.10
315.0	63.84	60.92	58.67	56.59	53.89	51.81	50.01	47.81	46.24
360.0	65.48	62.83	60.53	58.67	56.76	55.29	53.38	51.64	50.34
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	49.16	47.98	46.86	45.73	44.72	44.04	43.14	41.51	39.49
45.0	45.51	44.04	42.53	41.34	40.22	39.38	38.81	38.25	37.63
90.0	42.30	40.44	38.70	37.24	35.72	34.37	32.96	31.73	30.71
135.0	43.48	41.68	39.94	38.42	36.90	35.38	34.14	32.96	31.61
180.0	47.19	45.84	44.21	42.92	41.74	40.44	38.81	37.29	35.78
225.0	43.14	42.08	41.18	40.61	39.94	39.43	38.70	38.19	37.29
270.0	42.53	40.89	39.32	37.91	36.45	35.10	33.98	32.85	31.67
315.0	44.72	42.92	41.12	39.54	37.91	36.51	35.04	33.64	32.63
360.0	49.16	47.98	46.86	45.73	44.72	44.04	43.14	41.51	39.49
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	38.08	36.68	35.38	34.20	33.53	34.03	34.31	34.43	34.54
45.0	37.18	36.45	35.78	34.82	33.75	32.74	31.61	30.71	29.70
90.0	29.70	30.60	34.37	38.19	43.93	48.15	50.68	54.17	55.29
135.0	32.57	35.94	39.88	45.56	50.57	56.14	60.64	63.34	63.00
180.0	34.37	33.36	33.36	33.92	34.20	34.09	33.98	33.36	31.33
225.0	36.39	35.21	34.37	33.47	32.01	31.11	29.93	28.63	27.68
270.0	30.71	29.93	29.87	33.19	35.66	39.83	43.37	46.35	47.76
315.0	31.39	30.38	29.81	32.29	37.58	42.98	47.36	51.75	53.21
360.0	38.08	36.68	35.38	34.20	33.53	34.03	34.31	34.43	34.54
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	33.53	30.88	28.91	28.24	28.41	28.52	28.29	28.01	27.51
45.0	29.03	28.69	28.41	28.35	28.52	28.52	28.18	28.24	27.90
90.0	53.61	43.71	34.20	28.46	28.35	28.74	28.74	28.24	27.11
135.0	56.70	44.38	35.33	29.25	28.69	28.91	28.46	27.73	26.94
180.0	29.25	27.62	27.06	27.45	27.84	27.84	27.73	27.34	26.61
225.0	27.45	27.56	27.96	28.13	28.01	28.13	28.69	27.84	27.17
270.0	48.04	40.50	32.06	28.41	28.97	29.14	29.14	28.24	27.68
315.0	51.92	42.58	32.51	28.24	28.29	28.24	27.84	27.56	27.28
360.0	33.53	30.88	28.91	28.24	28.41	28.52	28.29	28.01	27.51

Intensity data(cd)

C/γ(°)	90.0
0.0	27.06
45.0	27.45
90.0	26.16
135.0	25.93
180.0	25.76
225.0	26.04
270.0	28.07
315.0	27.79
360.0	27.06