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Nata

LumCAT: 3-1701-N
Luminaire: 92.70.045.00+92.70.061.00
Report No: NT2017082202
Test No: nata-0100
LampCAT: CREE CXA2520
Lamp flux(lm): 2662.0
Number of Lamps: 1
Length(mm): 86
Phm Type: C

Voltage(V): 39.0000
Current(A): 0.8000
Power (W): 31.2000
PF: 0.0000
Ballast type: DC
Width(mm): 86
Height(mm): 0

Photometric Results

Lumens(lm): 2191.87
Efficiency(%): 82.34%
Lumens(lm)/Power(W): 70.25
Central intensity(cd): 11256.280
Maximum intensity(cd): 11256.280
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=20.0
 [C90/270]Total=20.0
Field angle(10%Imax): [C0/180]Total=38.9
 [C90/270]Total=38.9
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.44%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.208%

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/8/22
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11256.281	2.693	2.693	.101%	.123%
1.0	11207.143	21.449	24.142	.806%	1.101%
2.0	11018.369	42.169	66.31	1.584%	3.025%
3.0	10729.391	61.578	127.888	2.313%	5.835%
4.0	10283.778	78.666	206.555	2.955%	9.424%
5.0	9608.099	91.830	298.385	3.450%	13.613%
6.0	8785.143	100.701	399.086	3.783%	18.208%
7.0	8036.583	107.403	506.49	4.035%	23.108%
8.0	7202.478	109.923	616.413	4.129%	28.123%
9.0	6423.499	110.193	726.606	4.139%	33.150%
10.0	5636.881	107.340	833.946	4.032%	38.047%
11.0	4834.365	101.156	935.102	3.800%	42.662%
12.0	4099.362	93.465	1028.566	3.511%	46.926%
13.0	3310.060	81.654	1110.22	3.067%	50.652%
14.0	2683.105	71.181	1181.401	2.674%	53.899%
15.0	2203.564	62.542	1243.943	2.349%	56.752%
16.0	1738.406	52.546	1296.489	1.974%	59.150%
17.0	1461.747	46.866	1343.355	1.761%	61.288%
18.0	1297.542	43.970	1387.325	1.652%	63.294%
19.0	1165.881	41.624	1428.95	1.564%	65.193%
20.0	1074.632	40.305	1469.255	1.514%	67.032%
21.0	988.992	38.866	1508.121	1.460%	68.805%
22.0	918.609	37.736	1545.858	1.418%	70.527%
23.0	847.641	36.320	1582.177	1.364%	72.184%
24.0	770.769	34.379	1616.556	1.291%	73.752%
25.0	712.857	33.037	1649.593	1.241%	75.259%
26.0	658.764	31.668	1681.261	1.190%	76.704%
27.0	608.442	30.291	1711.553	1.138%	78.086%
28.0	562.174	28.942	1740.495	1.087%	79.407%
29.0	522.430	27.775	1768.27	1.043%	80.674%
30.0	484.668	26.575	1794.844	.998%	81.886%
31.0	448.971	25.358	1820.202	.953%	83.043%
32.0	415.710	24.158	1844.359	.907%	84.145%
33.0	385.601	23.030	1867.39	.865%	85.196%
34.0	359.780	22.062	1889.452	.829%	86.203%
35.0	332.265	20.899	1910.351	.785%	87.156%
36.0	309.190	19.929	1930.28	.749%	88.065%
37.0	289.452	19.103	1949.383	.718%	88.937%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	272.605	18.405	1967.788	.691%	89.776%
39.0	251.601	17.363	1985.151	.652%	90.569%
40.0	233.288	16.444	2001.595	.618%	91.319%
41.0	217.177	15.625	2017.22	.587%	92.032%
42.0	199.414	14.633	2031.852	.550%	92.699%
43.0	182.326	13.636	2045.488	.512%	93.321%
44.0	165.823	12.632	2058.12	.475%	93.898%
45.0	148.783	11.537	2069.657	.433%	94.424%
46.0	133.925	10.564	2080.221	.397%	94.906%
47.0	119.844	9.612	2089.833	.361%	95.345%
48.0	108.172	8.815	2098.648	.331%	95.747%
49.0	98.682	8.167	2106.816	.307%	96.119%
50.0	88.744	7.455	2114.27	.280%	96.459%
51.0	79.453	6.771	2121.042	.254%	96.768%
52.0	70.940	6.130	2127.172	.230%	97.048%
53.0	61.821	5.414	2132.586	.203%	97.295%
54.0	52.372	4.646	2137.233	.175%	97.507%
55.0	45.373	4.076	2141.308	.153%	97.693%
56.0	39.565	3.597	2144.905	.135%	97.857%
57.0	33.385	3.070	2147.976	.115%	97.997%
58.0	29.159	2.712	2150.687	.102%	98.121%
59.0	25.498	2.397	2153.084	.090%	98.230%
60.0	21.919	2.082	2155.166	.078%	98.325%
61.0	19.160	1.838	2157.003	.069%	98.409%
62.0	17.102	1.656	2158.659	.062%	98.485%
63.0	15.443	1.509	2160.168	.057%	98.553%
64.0	14.129	1.393	2161.561	.052%	98.617%
65.0	13.379	1.330	2162.891	.050%	98.678%
66.0	12.973	1.300	2164.19	.049%	98.737%
67.0	12.684	1.280	2165.47	.048%	98.795%
68.0	12.381	1.259	2166.729	.047%	98.853%
69.0	12.147	1.244	2167.973	.047%	98.910%
70.0	11.954	1.232	2169.205	.046%	98.966%
71.0	11.816	1.225	2170.43	.046%	99.022%
72.0	11.686	1.219	2171.649	.046%	99.077%
73.0	11.638	1.220	2172.869	.046%	99.133%
74.0	11.624	1.225	2174.094	.046%	99.189%
75.0	11.713	1.241	2175.335	.047%	99.245%

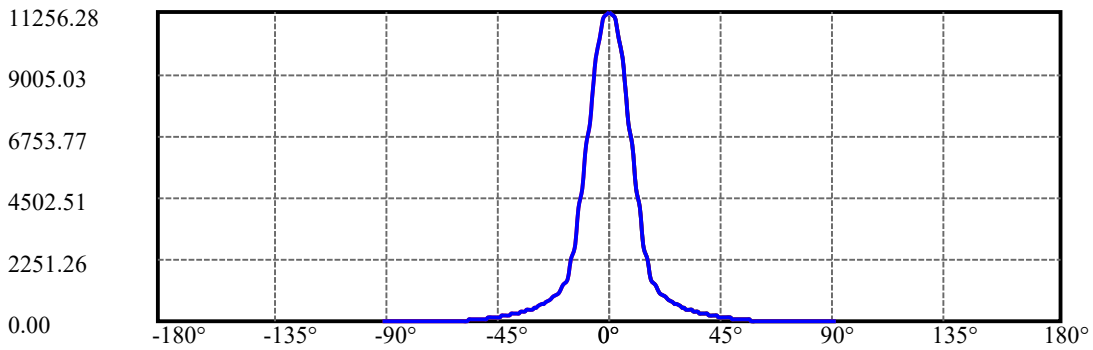
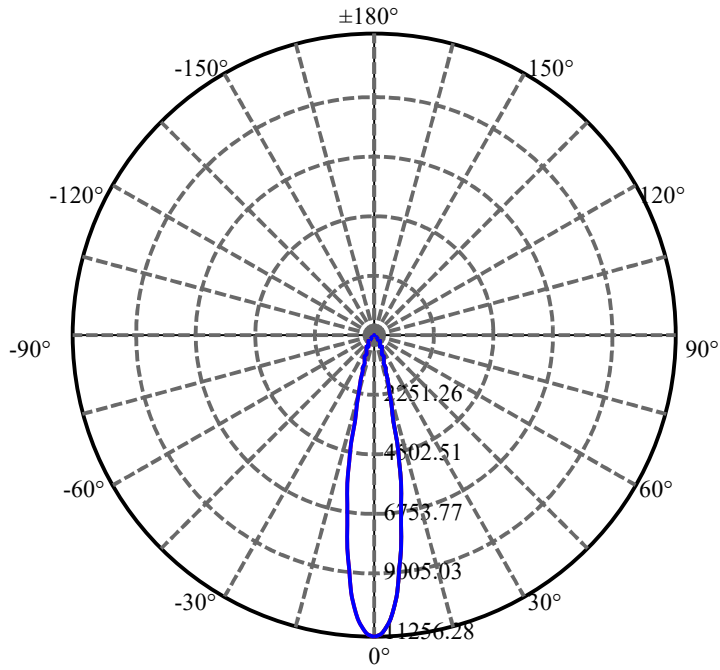
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.816	1.257	2176.592	.047%	99.303%
77.0	11.906	1.272	2177.865	.048%	99.361%
78.0	11.933	1.280	2179.145	.048%	99.419%
79.0	11.851	1.276	2180.42	.048%	99.477%
80.0	11.617	1.255	2181.675	.047%	99.535%
81.0	11.300	1.224	2182.899	.046%	99.590%
82.0	10.970	1.191	2184.09	.045%	99.645%
83.0	10.571	1.151	2185.241	.043%	99.697%
84.0	10.192	1.112	2186.352	.042%	99.748%
85.0	9.821	1.073	2187.425	.040%	99.797%
86.0	9.463	1.035	2188.46	.039%	99.844%
87.0	9.174	1.005	2189.465	.038%	99.890%
88.0	8.912	0.977	2190.442	.037%	99.935%
89.0	8.754	0.960	2191.401	.036%	99.978%
90.0	8.630	0.473	2191.875	.018%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1794.84	67.42%	81.89%
0-40	2001.60	75.19%	91.32%
0-60	2155.17	80.96%	98.33%
0-90	2191.40	82.32%	99.98%
0-120	2191.40	82.32%	99.98%
0-180	2191.87	82.34%	100.00%
60-90	38.32	1.44%	1.75%
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%
0-28.47	1753.50	65.87%	80.00%

ZONAL LUMEN SUMMARY

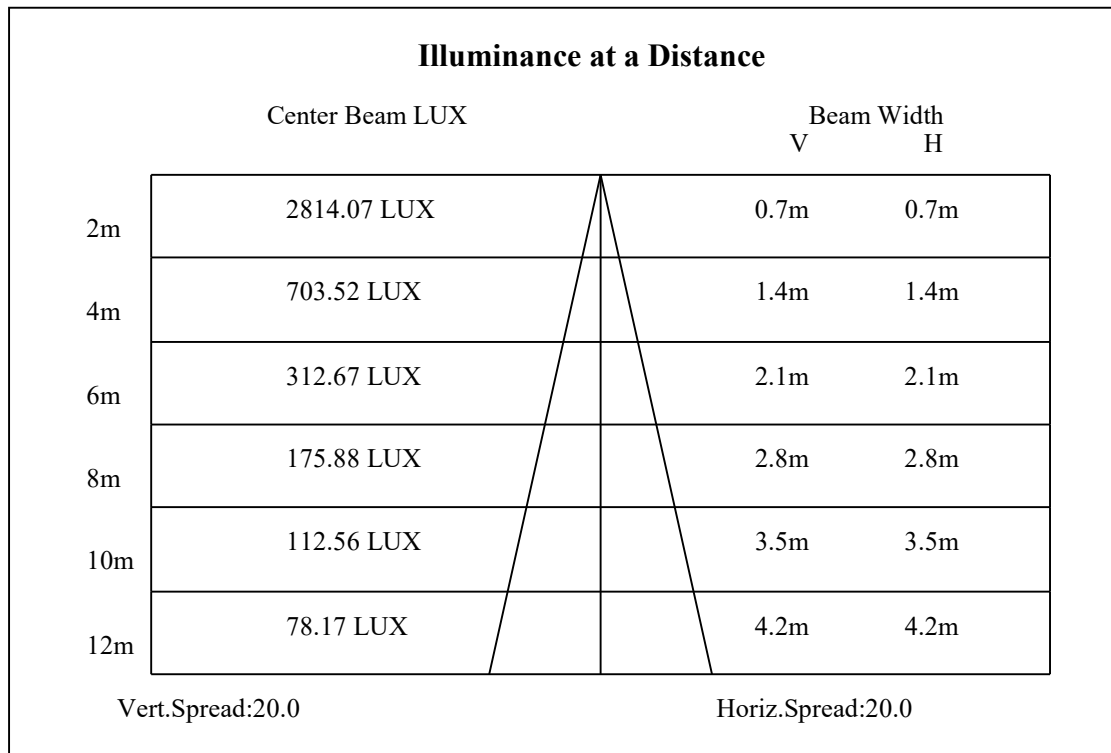
0-10	833.95
10-20	635.31
20-30	325.59
30-40	206.75
40-50	112.68
50-60	40.90
60-70	14.04
70-80	12.47
80-90	9.73
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

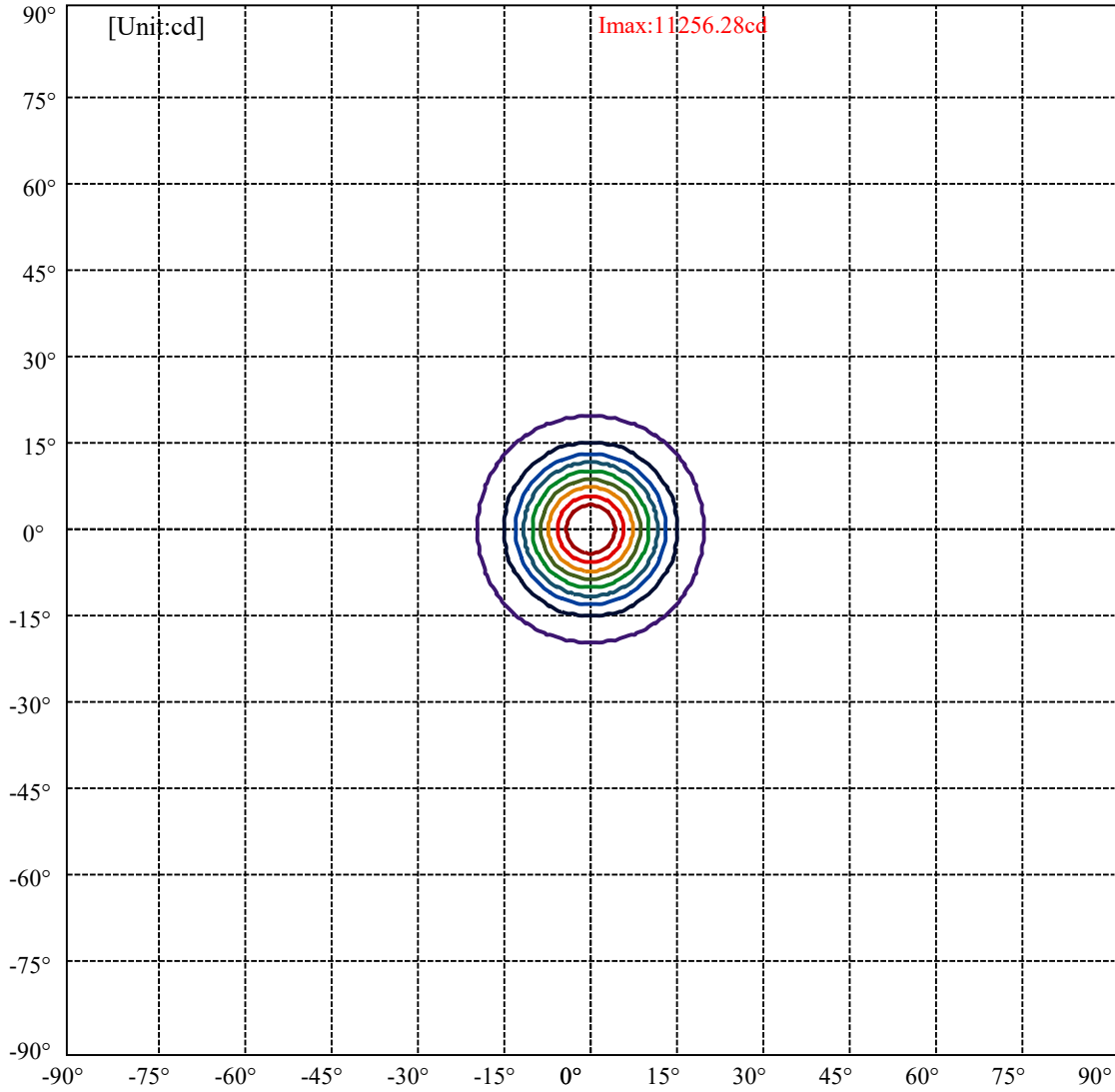


C0(Max): —————
C0/C180: —————
C90/C270: —————

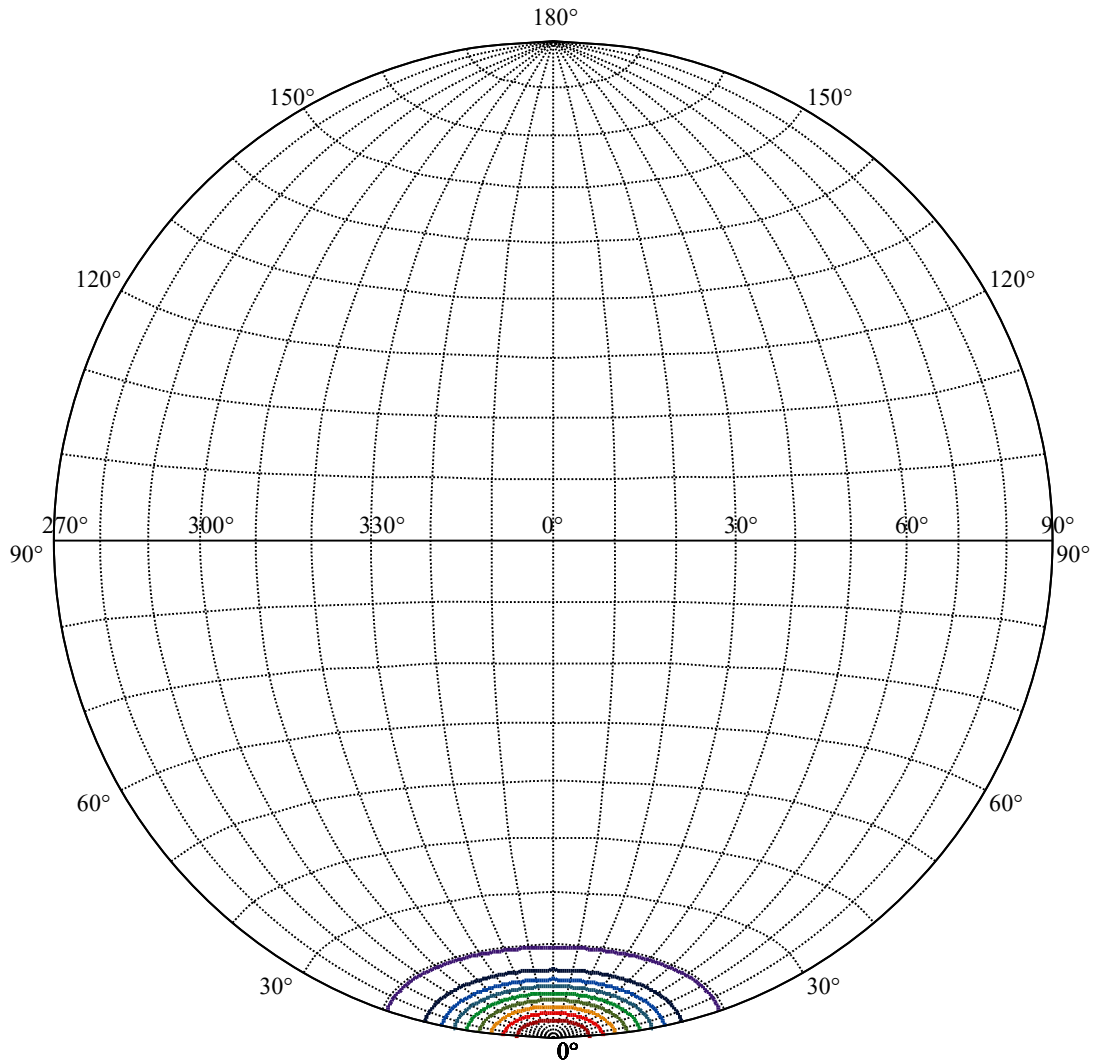
Field angle(10%Imax):C0/180Left:19.4 Right:19.4
:C90/270Left:19.4 Right:19.4

Beam Angle(50%Imax):C0/180Left:10.0 Right:10.0
:C90/270Left:10.0 Right:10.0





(10%Imax) 1125.63	—
(20%Imax) 2251.26	—
(30%Imax) 3376.88	—
(40%Imax) 4502.51	—
(50%Imax) 5628.14	—
(60%Imax) 6753.77	—
(70%Imax) 7879.4	—
(80%Imax) 9005.03	—
(90%Imax) 10130.7	—



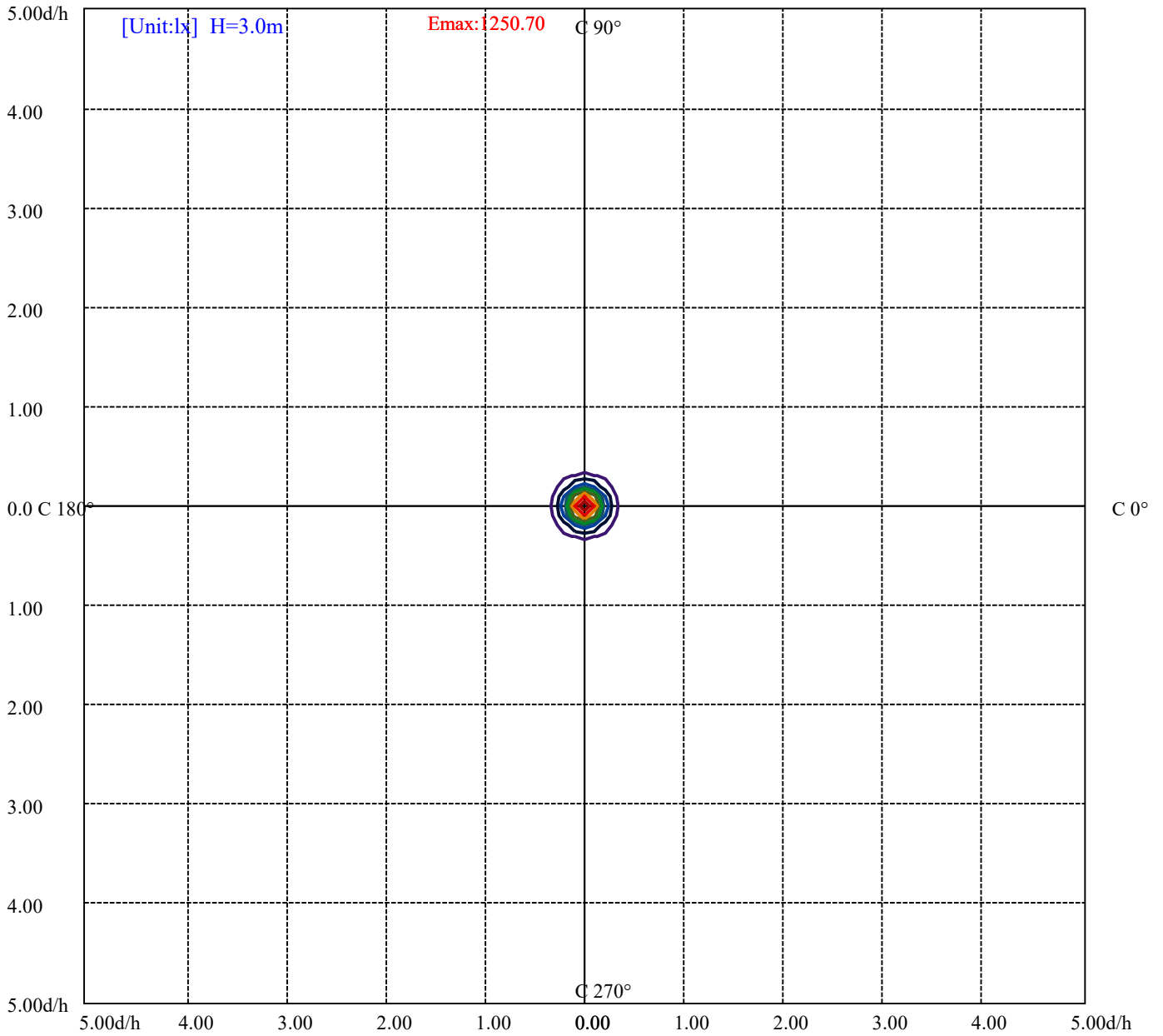
House

[Unit:cd]

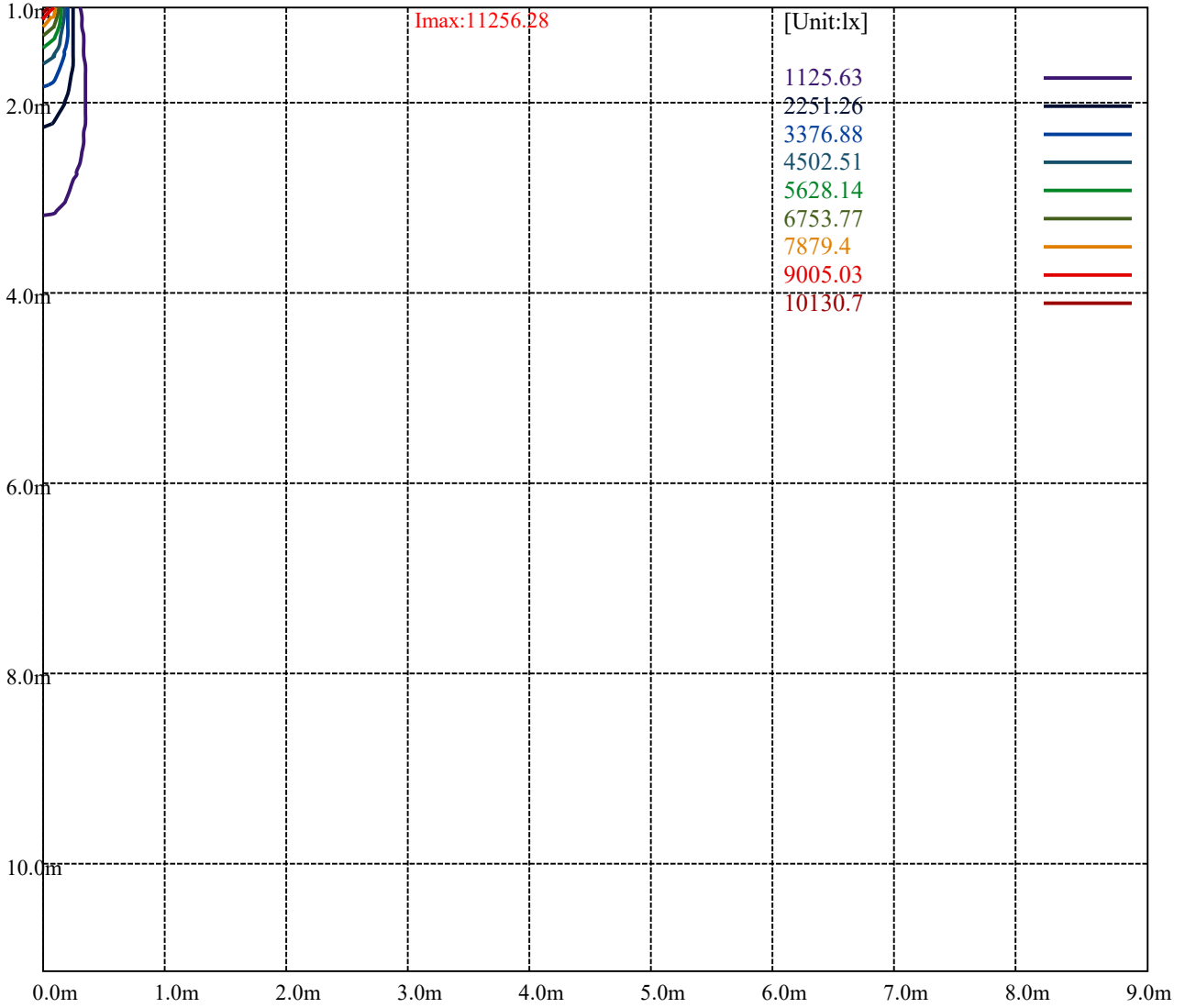
Road

Imax:11256.28

(10%Imax)	1125.63	—
(20%Imax)	2251.26	—
(30%Imax)	3376.88	—
(40%Imax)	4502.51	—
(50%Imax)	5628.14	—
(60%Imax)	6753.77	—
(70%Imax)	7879.4	—
(80%Imax)	9005.03	—
(90%Imax)	10130.7	—



(10%Emax) 125.07	—
(20%Emax) 250.1389	—
(30%Emax) 375.2089	—
(40%Emax) 500.2789	—
(50%Emax) 625.3489	—
(60%Emax) 750.4177	—
(70%Emax) 875.4878	—
(80%Emax) 1000.558	—
(90%Emax) 1125.622	—



Luminance Table

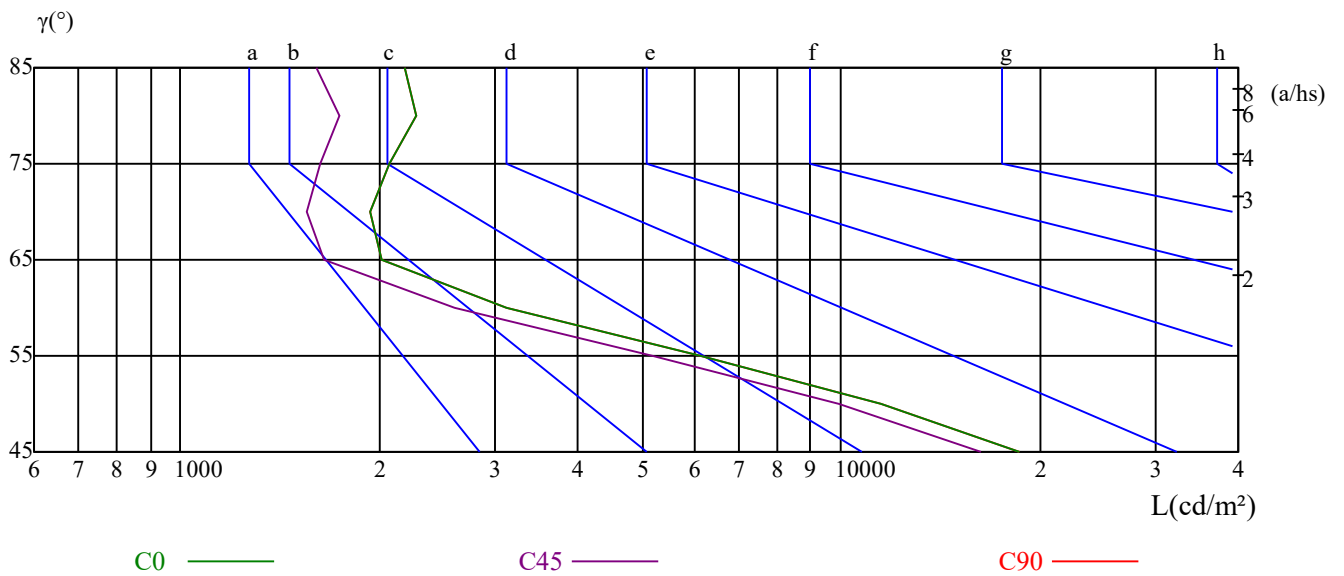
γ	45	50	55	60	65	70	75	80	85
C0	18677	11497	6121	3109	2017	1939	2072	2280	2182
C45	16350	9919	5200	2598	1655	1558	1627	1741	1611
C90	18677	11497	6121	3109	2017	1939	2072	2280	2182

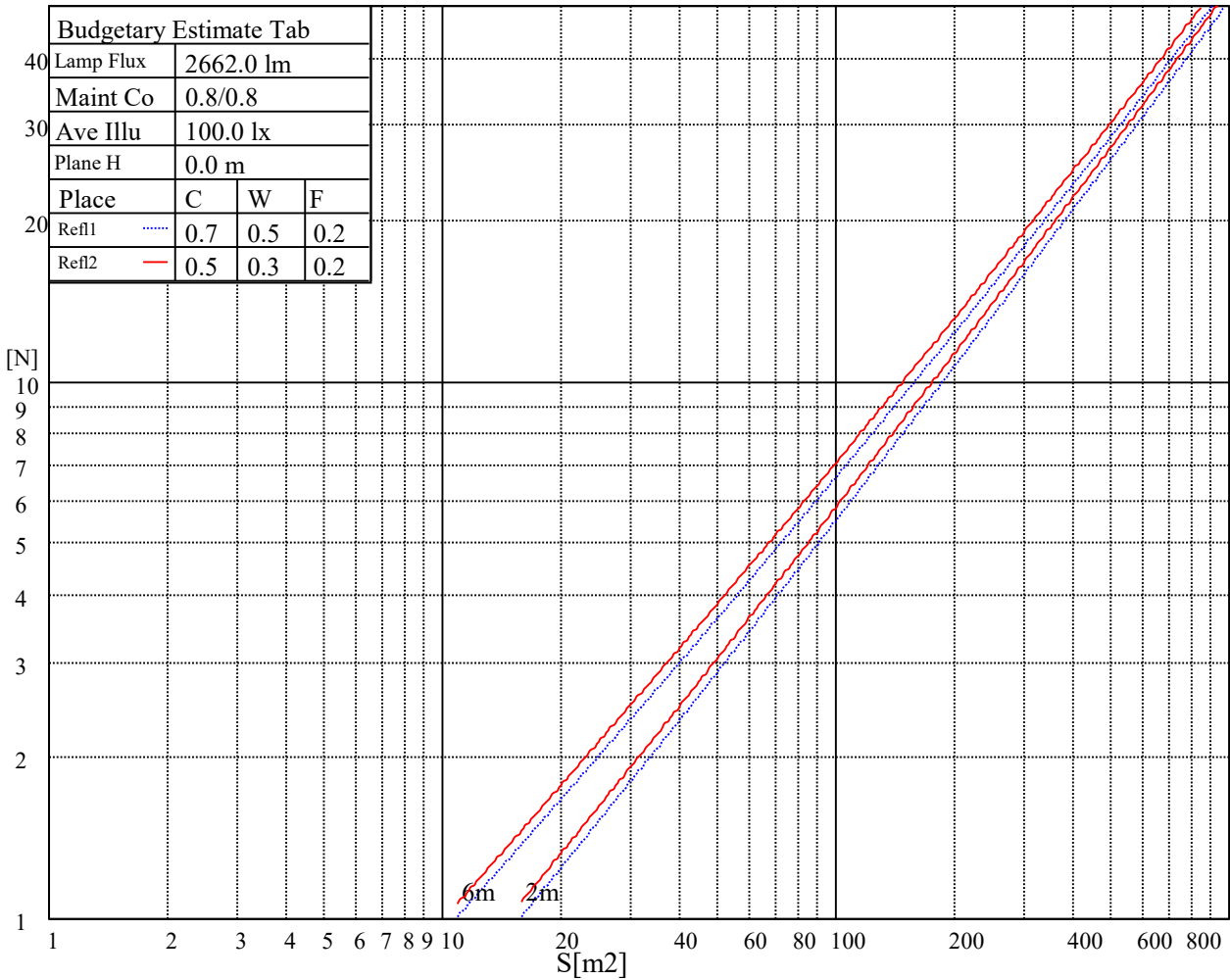
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4280	4280	4280	6119	6119	6119	15235	15235	15235

Glare Table

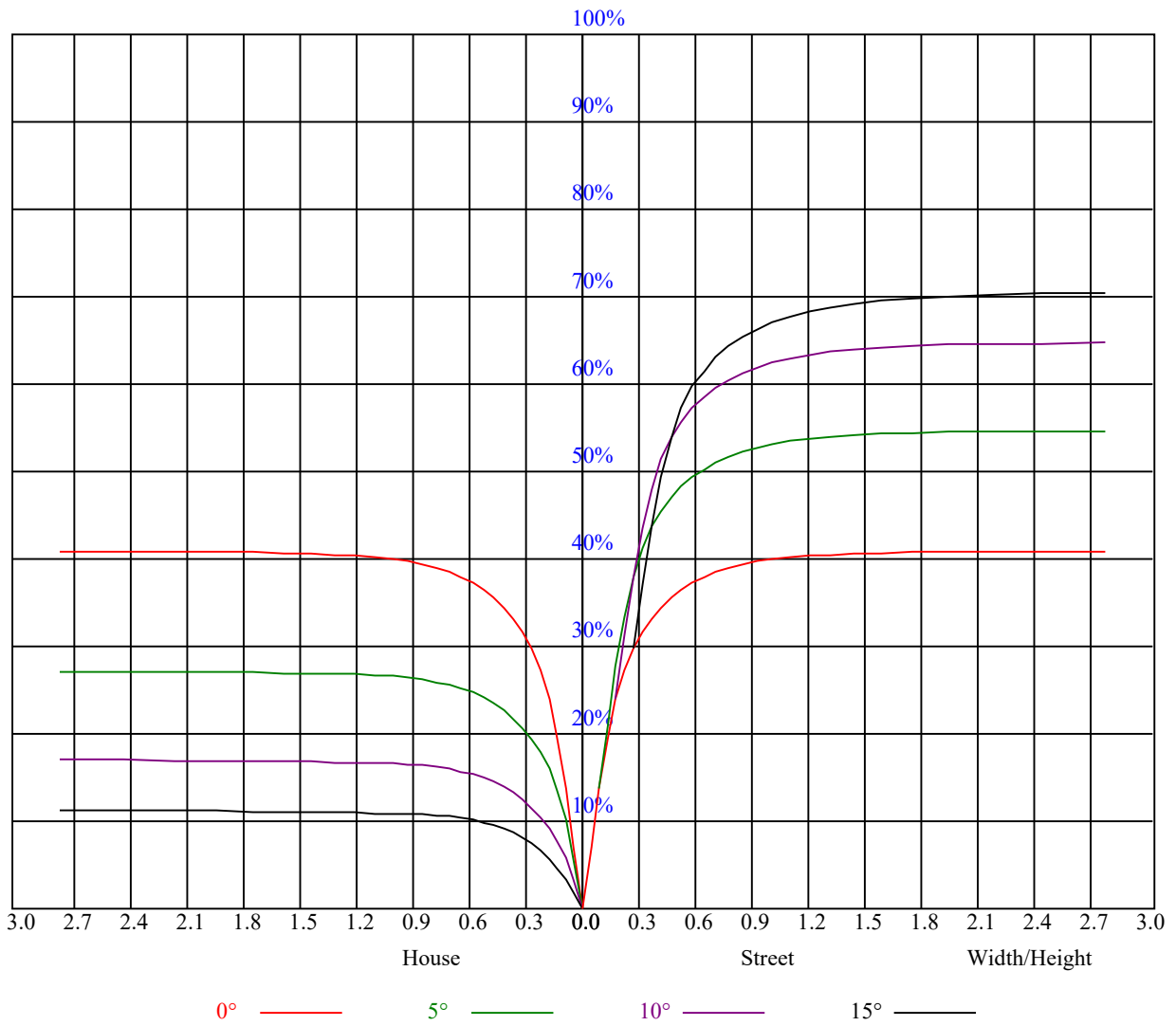
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.98	0.98	0.98	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.82
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	0.82	0.86	0.83	0.81	0.83	0.81	0.79	0.81	0.79	0.77	0.78	0.77	0.76	0.75
3	0.83	0.79	0.76	0.81	0.78	0.76	0.79	0.77	0.75	0.77	0.75	0.73	0.76	0.74	0.72	0.71
4	0.79	0.75	0.72	0.78	0.74	0.72	0.76	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.69	0.68
5	0.75	0.71	0.69	0.75	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.68	0.67	0.66
6	0.72	0.68	0.66	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.63
7	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.61
8	0.67	0.63	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.59
9	0.65	0.61	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.57
10	0.63	0.59	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.62	0.59	0.57	0.61	0.58	0.56	0.56



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	11237.01	11264.54	11226.00	11016.79	10675.44	10168.92	9348.58	8616.33	7873.07
45.0	11259.03	11253.53	11126.90	10901.17	10515.77	9899.14	9106.33	8346.55	7460.14
90.0	11259.03	11253.53	10921.54	10477.78	10002.10	9152.58	8349.85	7563.65	6614.48
135.0	11270.05	11198.47	10961.73	10587.35	10097.34	9359.59	8528.24	7790.48	6953.62
180.0	11237.01	10981.55	10821.89	10412.27	9814.90	9024.29	8158.81	7392.42	6577.59
225.0	11259.03	11187.46	10980.45	10594.50	10043.39	9355.18	8408.76	7658.90	6877.65
270.0	11259.03	11270.05	11159.93	10934.20	10592.85	9987.23	9221.95	8478.69	7630.82
315.0	11270.05	11248.02	10948.52	10911.08	10528.44	9917.86	9158.63	8445.65	7632.47
360.0	11237.01	11264.54	11226.00	11016.79	10675.44	10168.92	9348.58	8616.33	7873.07
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6959.13	6232.38	5516.65	4690.81	3848.44	3127.20	2796.87	1923.12	1566.91
45.0	6711.38	5869.01	5026.65	4277.88	3452.04	2835.40	2114.17	1713.91	1409.44
90.0	5984.08	5170.90	4264.12	3642.53	2900.37	2221.53	1868.61	1595.53	1372.56
135.0	6166.32	5445.08	4635.75	3903.50	3138.21	2835.40	2026.63	1716.11	1508.55
180.0	5864.61	5066.84	4272.38	3580.87	2856.88	2261.72	1865.31	1594.43	1373.11
225.0	6033.63	5223.20	4505.27	3706.95	2940.01	2368.53	1880.18	1595.53	1382.47
270.0	6793.96	6061.71	5246.87	4520.13	3710.80	2945.52	2785.85	1915.96	1565.25
315.0	6874.89	6025.92	5207.23	4472.23	3633.72	2869.54	2290.90	1852.65	1515.70
360.0	6959.13	6232.38	5516.65	4690.81	3848.44	3127.20	2796.87	1923.12	1566.91
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1346.68	1217.85	1103.88	1011.39	943.67	878.70	796.67	737.76	681.05
45.0	1251.98	1134.71	1030.11	961.84	896.32	824.19	755.37	694.81	635.90
90.0	1240.97	1094.80	1042.05	945.65	876.22	807.35	733.96	679.07	631.66
135.0	1317.50	1200.23	1111.59	1011.94	934.86	861.08	775.19	717.38	663.98
180.0	1242.62	1089.18	1038.75	954.46	884.43	811.64	746.67	695.86	644.27
225.0	1236.02	1095.68	1043.59	953.36	888.39	822.82	746.23	691.12	643.11
270.0	1391.28	1264.09	1135.81	1053.23	978.35	907.33	823.09	760.33	705.27
315.0	1353.29	1230.51	1091.27	1020.08	946.64	868.02	788.96	726.52	664.86
360.0	1346.68	1217.85	1103.88	1011.39	943.67	878.70	796.67	737.76	681.05
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	624.89	578.09	539.00	501.01	464.13	434.95	403.01	376.59	350.16
45.0	588.55	544.51	501.01	464.68	425.04	392.55	365.57	340.80	314.37
90.0	583.87	539.55	503.38	463.80	431.53	398.22	368.38	343.28	316.41
135.0	609.47	562.68	524.14	483.95	444.31	410.72	377.14	350.71	324.83
180.0	602.48	560.42	520.83	488.74	454.11	422.56	395.58	370.64	341.02
225.0	593.29	548.47	511.47	473.37	442.49	408.13	378.57	354.67	330.06
270.0	649.11	598.46	558.82	517.53	478.44	444.86	411.82	384.29	356.77
315.0	615.86	565.21	520.78	484.28	451.74	413.69	384.73	357.26	324.50
360.0	624.89	578.09	539.00	501.01	464.13	434.95	403.01	376.59	350.16
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	323.18	300.06	280.24	256.34	240.98	225.40	206.90	188.46	172.88
45.0	295.10	278.03	259.26	241.26	226.45	212.68	194.51	179.43	163.02
90.0	293.67	275.12	258.27	235.86	218.13	201.78	185.37	166.82	151.35
135.0	302.26	283.54	278.59	243.95	228.26	213.18	194.68	178.05	161.48
180.0	319.49	299.23	278.70	258.27	239.72	216.65	200.19	178.93	159.22
225.0	307.71	289.65	272.47	253.04	237.57	222.26	203.27	187.63	168.25
270.0	330.89	308.87	290.15	280.24	245.39	229.14	209.43	193.96	179.65
315.0	301.21	281.12	263.17	243.84	229.81	216.32	200.96	185.32	170.73
360.0	323.18	300.06	280.24	256.34	240.98	225.40	206.90	188.46	172.88

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	156.97	138.85	126.30	114.41	103.07	93.27	84.68	74.77	64.86
45.0	143.92	129.00	116.99	105.82	96.57	87.54	78.40	70.42	61.22
90.0	136.93	126.02	107.53	96.24	88.15	79.89	72.18	64.97	57.09
135.0	145.29	134.39	117.55	105.10	94.53	86.33	77.74	70.31	61.61
180.0	144.14	129.44	114.19	105.60	96.46	83.96	76.09	67.17	57.42
225.0	147.39	132.25	119.58	106.92	99.21	88.92	77.35	69.37	60.34
270.0	161.43	143.04	129.77	116.22	105.98	95.36	85.12	75.70	65.68
315.0	154.21	138.41	126.85	115.07	105.49	94.70	84.07	74.82	66.34
360.0	156.97	138.85	126.30	114.41	103.07	93.27	84.68	74.77	64.86
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	56.10	47.40	41.24	35.51	30.78	27.09	23.51	20.43	18.06
45.0	52.03	45.09	40.08	32.87	28.68	25.44	21.31	18.83	17.07
90.0	47.95	41.62	36.23	30.50	26.48	23.12	19.93	17.51	16.02
135.0	52.58	45.53	39.81	33.31	28.68	24.72	20.87	18.28	16.46
180.0	48.56	41.84	35.62	30.39	26.43	22.63	19.82	17.18	15.09
225.0	49.55	43.60	37.93	31.49	28.08	24.67	21.42	18.61	16.57
270.0	56.16	48.72	42.72	36.50	32.04	28.19	24.06	21.36	18.94
315.0	56.05	49.17	42.89	36.50	32.10	28.13	24.45	21.09	18.61
360.0	56.10	47.40	41.24	35.51	30.78	27.09	23.51	20.43	18.06
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	16.30	14.37	13.65	13.32	12.88	12.55	12.33	12.11	11.95
45.0	15.09	14.15	13.71	13.10	12.83	12.55	12.28	12.06	11.89
90.0	15.03	13.76	12.94	12.61	12.39	12.11	11.89	11.62	11.45
135.0	15.42	14.15	12.88	12.55	12.33	12.06	11.84	11.62	11.45
180.0	14.15	13.49	12.94	12.72	12.44	12.17	11.95	11.78	11.62
225.0	14.81	13.98	13.49	12.99	12.77	12.44	12.22	12.06	11.89
270.0	16.52	14.76	13.87	13.38	13.05	12.72	12.44	12.33	12.22
315.0	16.24	14.37	13.54	13.10	12.77	12.44	12.22	12.06	12.06
360.0	16.30	14.37	13.65	13.32	12.88	12.55	12.33	12.11	11.95
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	11.89	11.84	11.89	12.00	12.17	12.33	12.39	12.33	12.11
45.0	11.73	11.62	11.62	11.62	11.67	11.78	11.89	11.73	11.51
90.0	11.23	11.18	11.12	11.12	11.12	11.18	11.18	11.23	11.01
135.0	11.23	11.12	11.07	11.07	11.07	11.07	11.07	11.01	10.90
180.0	11.45	11.40	11.29	11.23	11.18	11.12	11.07	10.96	10.68
225.0	11.73	11.67	11.67	11.73	11.89	12.00	12.00	11.84	11.56
270.0	12.22	12.22	12.22	12.50	12.77	12.94	12.99	12.94	12.72
315.0	12.00	12.06	12.11	12.44	12.66	12.83	12.88	12.77	12.44
360.0	11.89	11.84	11.89	12.00	12.17	12.33	12.39	12.33	12.11
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.78	11.40	10.96	10.52	10.13	9.80	9.41	9.19	8.92
45.0	11.23	10.90	10.52	10.13	9.80	9.47	9.19	8.97	8.70
90.0	10.74	10.52	10.24	9.97	9.58	9.25	8.97	8.75	8.81
135.0	10.63	10.35	10.08	9.80	9.58	9.36	9.14	8.81	8.81
180.0	10.41	10.13	9.74	9.58	9.36	9.14	8.92	8.64	8.59
225.0	11.23	10.85	10.46	10.02	9.69	9.30	9.03	8.81	8.59
270.0	12.33	11.95	11.40	10.90	10.24	9.63	9.30	9.03	8.75
315.0	12.06	11.67	11.18	10.63	10.19	9.74	9.41	9.08	8.86
360.0	11.78	11.40	10.96	10.52	10.13	9.80	9.41	9.19	8.92

Intensity data(cd)

C/γ(°)	90.0
0.0	8.70
45.0	8.59
90.0	8.70
135.0	8.81
180.0	8.59
225.0	8.42
270.0	8.59
315.0	8.64
360.0	8.70