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Nata

LumCAT: LN01D04515DA-N

Luminaire: 97.70.234.00

Report No: 201228-B001

Test No: 201228-C001

LampCAT: CXM-9-TC40 LES9.8

Lamp flux(lm): 2078.7

Number of Lamps: 1

Length(mm): 92

Phm Type: C

Voltage(V): 35.0700

Current(A): 0.5000

Power (W): 17.5350

PF: 0.0000

Ballast type: DC

Width(mm): 92

Height(mm): 50

Photometric Results

Lumens(lm): 1808.11

Efficiency(%): 86.98%

Lumens(lm)/Power(W): 103.11

Central intensity(cd): 9484.312

Maximum intensity(cd): 9484.312

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=20.8

[C90/270]Total=20.8

Field angle(10%Imax): [C0/180]Total=40.9

[C90/270]Total=40.9

Maximum s/h(1/2): C0_180=0.35 C90_270=0.35

Maximum s/h(1/4): C0_180=0.36 C90_270=0.36

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 86.98%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.304%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9484.313	0.000	0	.000%	.000%
1.0	9418.922	9.045	9.045	.435%	.500%
2.0	9229.008	26.765	35.81	1.288%	1.981%
3.0	8913.656	43.391	79.201	2.087%	4.380%
4.0	8513.297	58.334	137.535	2.806%	7.607%
5.0	8046.563	71.240	208.775	3.427%	11.547%
6.0	7471.336	81.551	290.325	3.923%	16.057%
7.0	6866.578	88.995	379.321	4.281%	20.979%
8.0	6288.188	94.146	473.467	4.529%	26.186%
9.0	5636.320	96.642	570.108	4.649%	31.531%
10.0	4972.500	96.006	666.114	4.619%	36.840%
11.0	4408.172	93.732	759.846	4.509%	42.024%
12.0	3828.234	90.036	849.882	4.331%	47.004%
13.0	3263.203	84.157	934.04	4.049%	51.658%
14.0	2805.680	77.681	1011.721	3.737%	55.955%
15.0	2390.273	71.332	1083.053	3.432%	59.900%
16.0	2019.023	64.609	1147.662	3.108%	63.473%
17.0	1701.141	57.933	1205.595	2.787%	66.677%
18.0	1442.559	51.833	1257.427	2.494%	69.544%
19.0	1208.770	46.128	1303.555	2.219%	72.095%
20.0	1016.740	40.733	1344.288	1.960%	74.348%
21.0	872.149	36.270	1380.559	1.745%	76.354%
22.0	742.676	32.451	1413.009	1.561%	78.148%
23.0	637.882	28.968	1441.977	1.394%	79.750%
24.0	543.185	25.822	1467.799	1.242%	81.179%
25.0	463.268	22.885	1490.684	1.101%	82.444%
26.0	403.713	20.465	1511.149	.985%	83.576%
27.0	351.148	18.468	1529.617	.888%	84.598%
28.0	298.835	16.456	1546.073	.792%	85.508%
29.0	267.940	14.828	1560.902	.713%	86.328%
30.0	235.216	13.585	1574.487	.654%	87.079%
31.0	204.159	12.227	1586.714	.588%	87.755%
32.0	181.540	11.050	1597.764	.532%	88.366%
33.0	164.067	10.182	1607.946	.490%	88.930%
34.0	148.282	9.453	1617.398	.455%	89.452%
35.0	134.381	8.778	1626.177	.422%	89.938%
36.0	122.970	8.194	1634.371	.394%	90.391%
37.0	113.140	7.701	1642.071	.370%	90.817%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	103.964	7.247	1649.318	.349%	91.218%
39.0	95.611	6.812	1656.13	.328%	91.595%
40.0	88.622	6.425	1662.555	.309%	91.950%
41.0	82.111	6.080	1668.635	.292%	92.286%
42.0	76.254	5.754	1674.389	.277%	92.604%
43.0	70.538	5.438	1679.826	.262%	92.905%
44.0	65.531	5.136	1684.962	.247%	93.189%
45.0	60.947	4.861	1689.823	.234%	93.458%
46.0	56.588	4.597	1694.419	.221%	93.712%
47.0	52.643	4.344	1698.764	.209%	93.952%
48.0	49.388	4.125	1702.888	.198%	94.181%
49.0	46.308	3.930	1706.818	.189%	94.398%
50.0	43.390	3.740	1710.558	.180%	94.605%
51.0	41.196	3.579	1714.136	.172%	94.803%
52.0	39.115	3.446	1717.583	.166%	94.993%
53.0	37.188	3.319	1720.902	.160%	95.177%
54.0	35.501	3.204	1724.106	.154%	95.354%
55.0	33.919	3.099	1727.204	.149%	95.525%
56.0	32.428	2.998	1730.202	.144%	95.691%
57.0	31.064	2.903	1733.105	.140%	95.852%
58.0	29.735	2.812	1735.917	.135%	96.007%
59.0	28.554	2.725	1738.642	.131%	96.158%
60.0	27.422	2.644	1741.287	.127%	96.304%
61.0	26.283	2.563	1743.849	.123%	96.446%
62.0	25.291	2.485	1746.335	.120%	96.583%
63.0	24.434	2.418	1748.753	.116%	96.717%
64.0	23.639	2.359	1751.112	.113%	96.848%
65.0	23.203	2.318	1753.43	.112%	96.976%
66.0	23.210	2.316	1755.746	.111%	97.104%
67.0	23.569	2.352	1758.098	.113%	97.234%
68.0	24.237	2.422	1760.52	.117%	97.368%
69.0	25.031	2.513	1763.033	.121%	97.507%
70.0	25.896	2.616	1765.649	.126%	97.652%
71.0	26.789	2.723	1768.372	.131%	97.802%
72.0	27.619	2.829	1771.201	.136%	97.959%
73.0	28.385	2.929	1774.129	.141%	98.121%
74.0	28.835	3.008	1777.138	.145%	98.287%
75.0	29.081	3.060	1780.198	.147%	98.456%

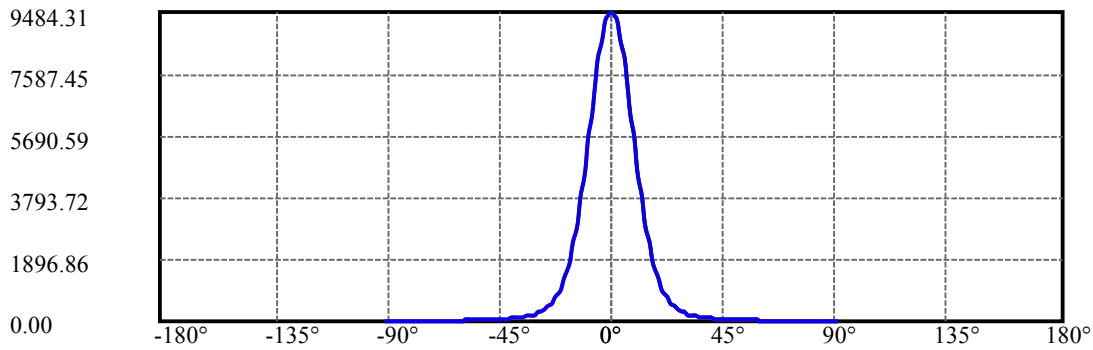
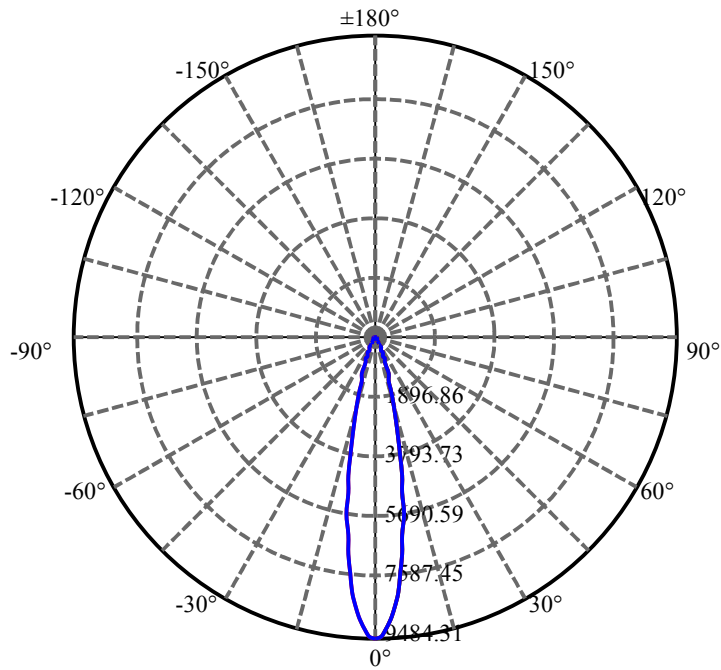
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	28.870	3.076	1783.274	.148%	98.626%
77.0	27.977	3.031	1786.305	.146%	98.794%
78.0	26.480	2.915	1789.22	.140%	98.955%
79.0	24.391	2.733	1791.953	.131%	99.106%
80.0	22.015	2.502	1794.455	.120%	99.245%
81.0	19.631	2.252	1796.707	.108%	99.369%
82.0	16.910	1.982	1798.689	.095%	99.479%
83.0	14.231	1.693	1800.382	.081%	99.573%
84.0	12.284	1.444	1801.826	.069%	99.652%
85.0	11.130	1.278	1803.104	.061%	99.723%
86.0	9.816	1.145	1804.249	.055%	99.786%
87.0	9.127	1.037	1805.286	.050%	99.844%
88.0	8.684	0.976	1806.261	.047%	99.898%
89.0	8.388	0.936	1807.197	.045%	99.949%
90.0	8.276	0.914	1808.111	.044%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1574.49	75.74%	87.08%
0-40	1662.56	79.98%	91.95%
0-60	1741.29	83.77%	96.30%
0-90	1807.20	86.94%	99.95%
0-120	1807.20	86.94%	99.95%
0-180	1808.11	86.98%	100.00%
60-90	68.55	3.30%	3.79%
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%
0-23.17	1446.49	69.59%	80.00%

ZONAL LUMEN SUMMARY

0-10	666.11
10-20	678.17
20-30	230.20
30-40	88.07
40-50	48.00
50-60	30.73
60-70	24.36
70-80	28.81
80-90	12.74
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: ———

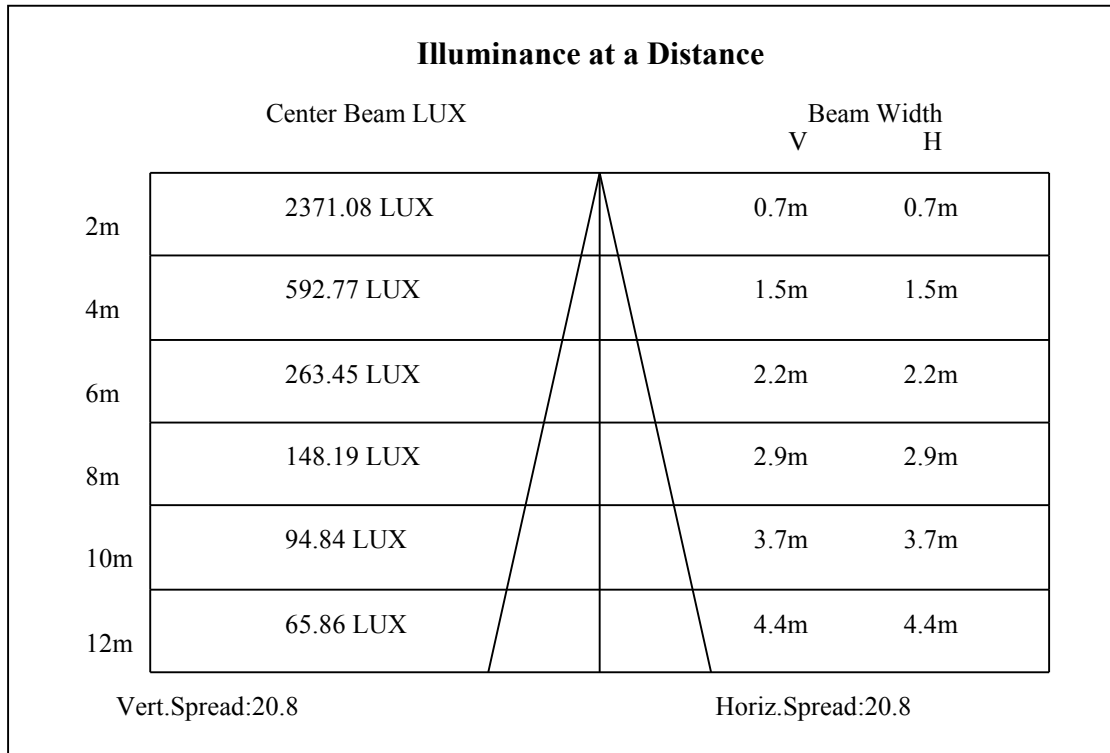
C90/C270: ———

Field angle(10%Imax):C0/180Left:20.5 Right:20.5

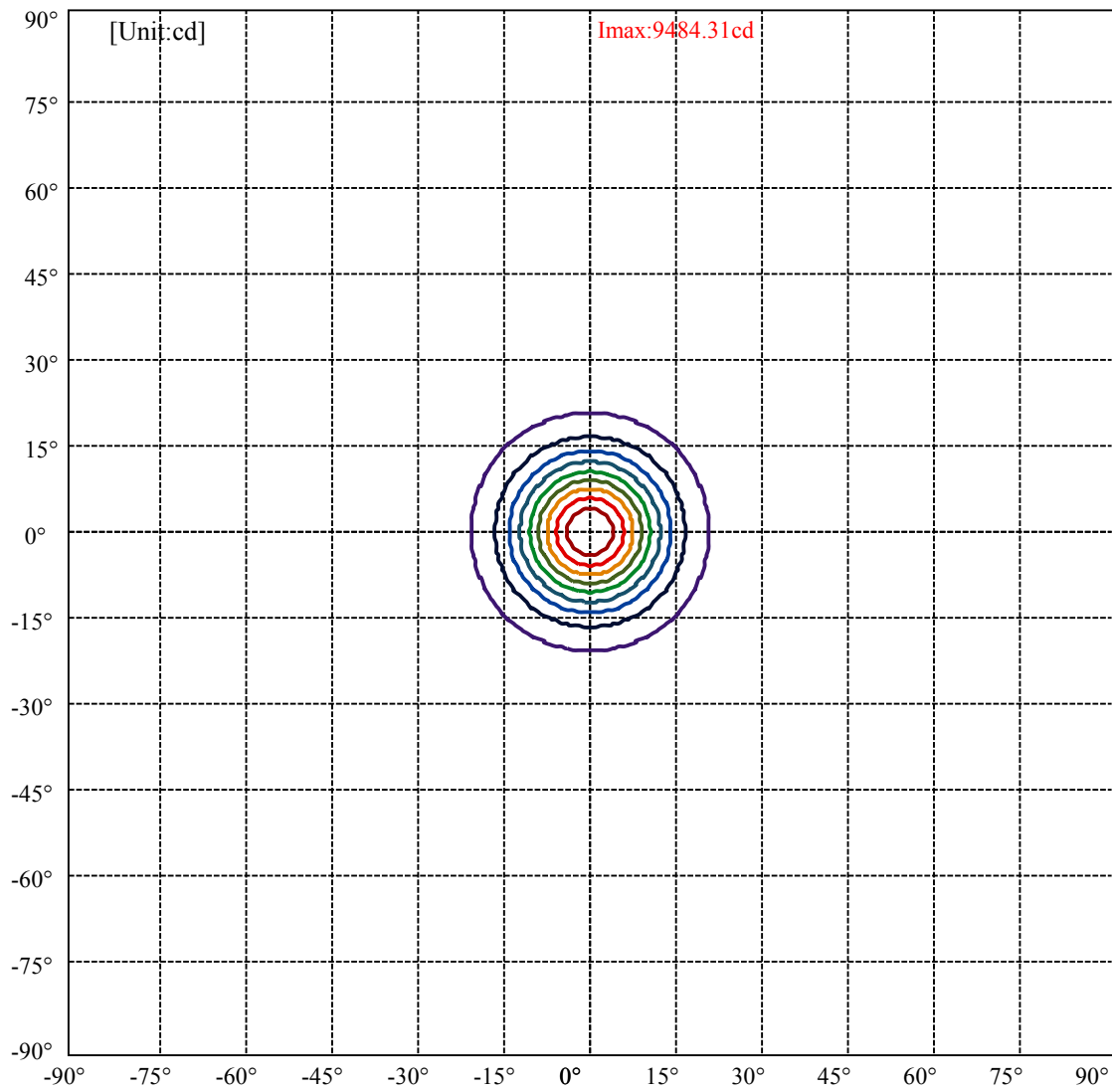
:C90/270Left:20.5 Right:20.5

Beam Angle(50%Imax):C0/180Left:10.4 Right:10.4

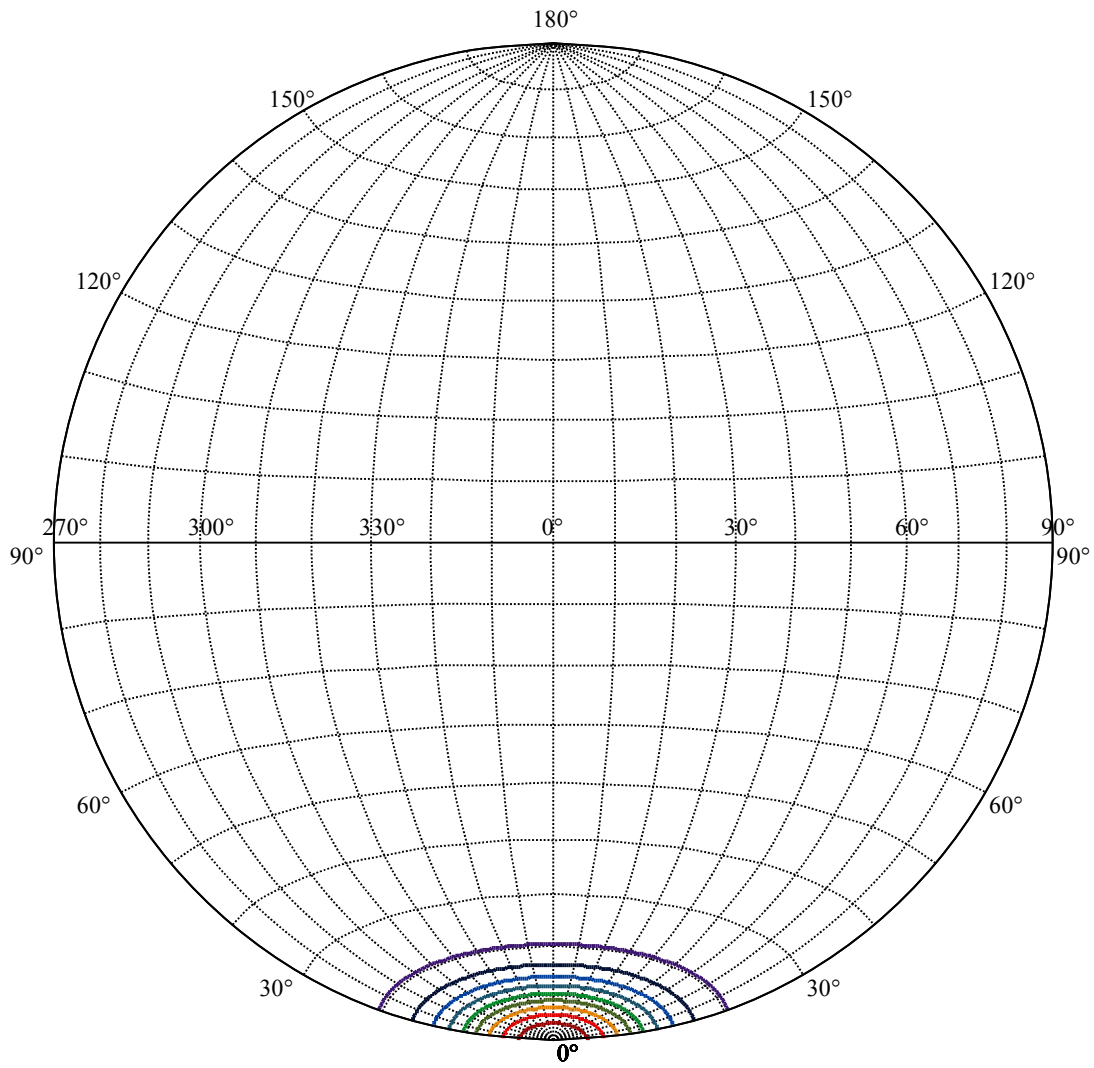
:C90/270Left:10.4 Right:10.4



ISO-Intensity(V-H)



(10%Imax) 948.431	—
(20%Imax) 1896.86	—
(30%Imax) 2845.29	—
(40%Imax) 3793.72	—
(50%Imax) 4742.16	—
(60%Imax) 5690.59	—
(70%Imax) 6639.02	—
(80%Imax) 7587.45	—
(90%Imax) 8535.88	—



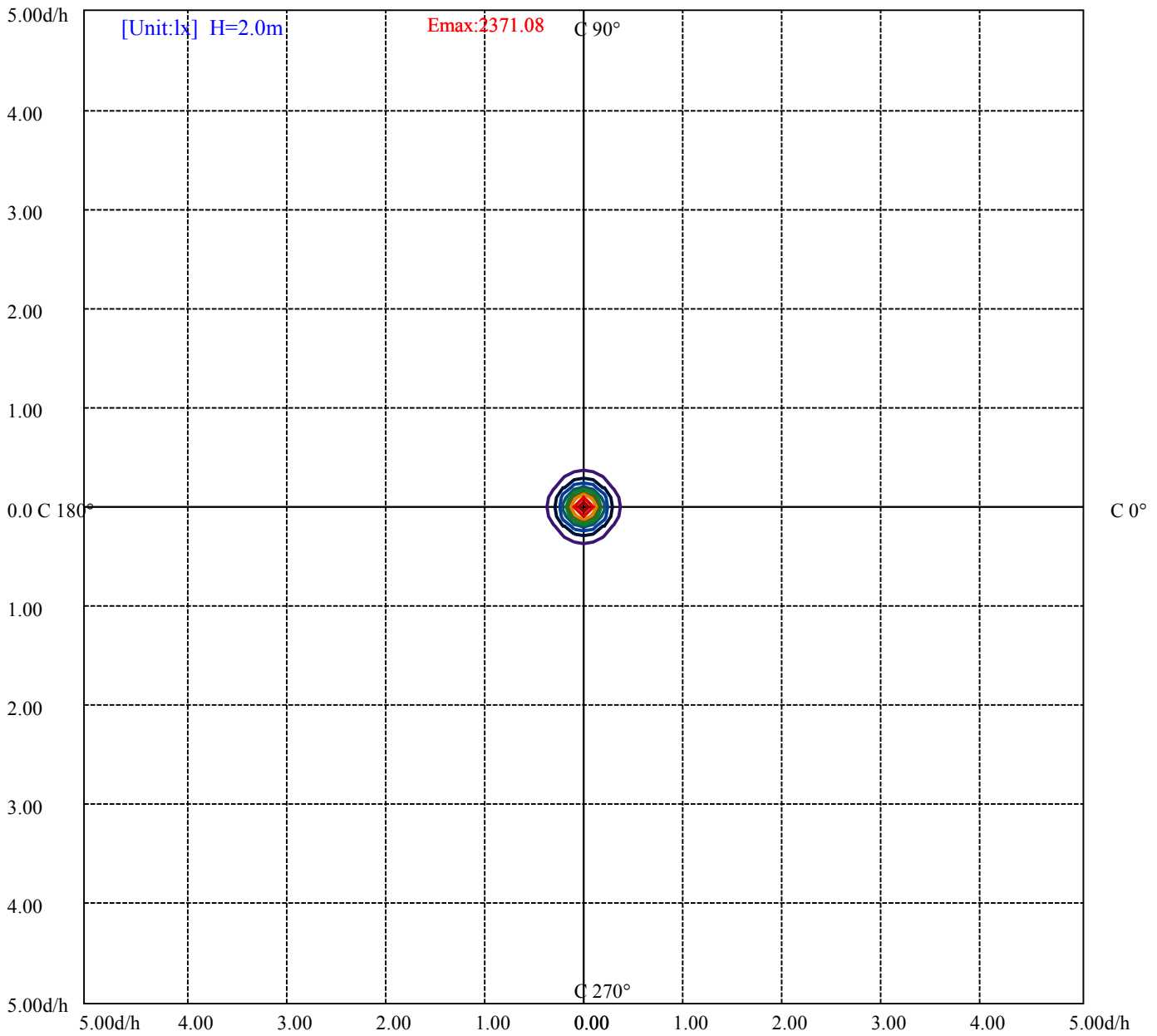
House

[Unit:cd]

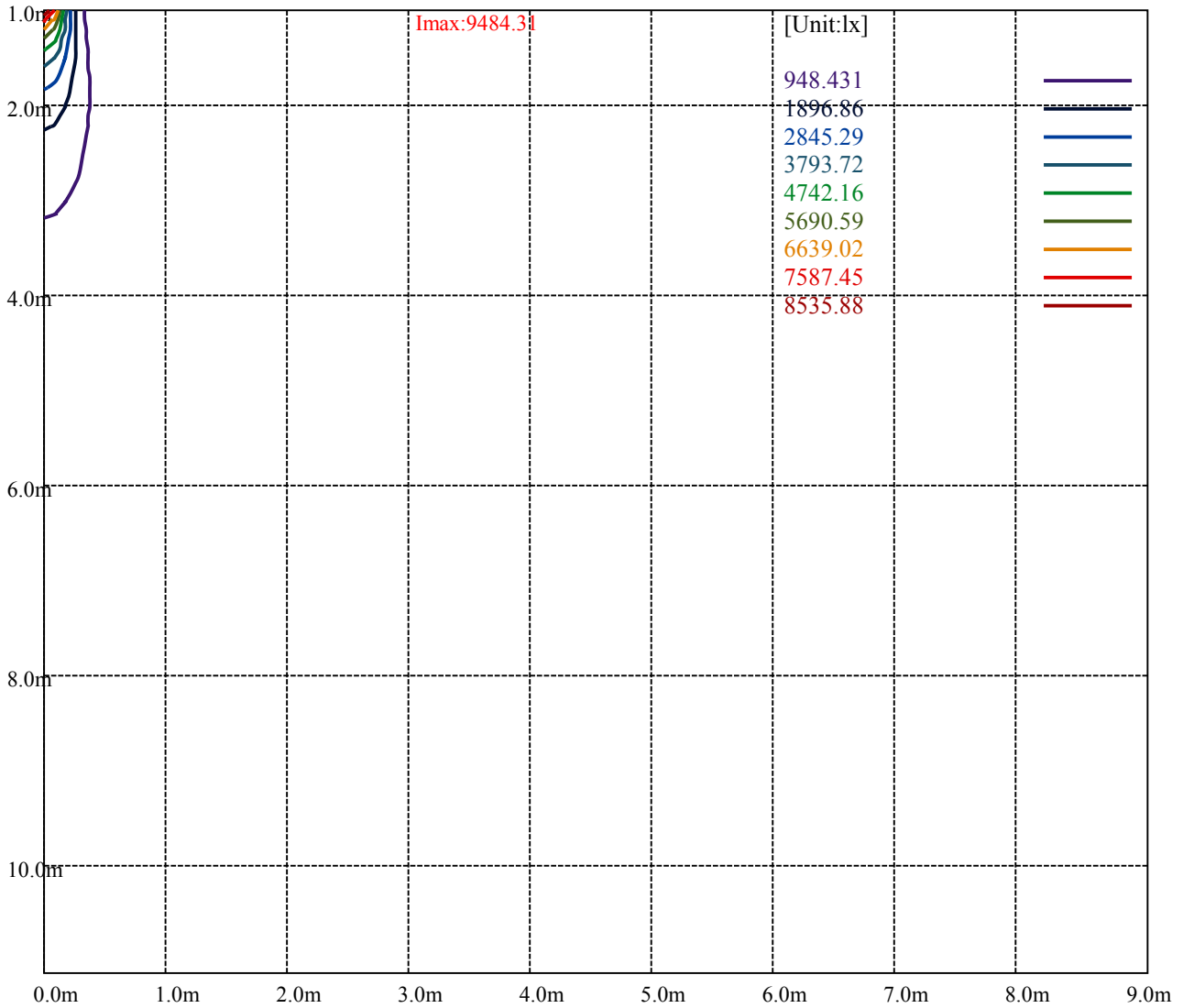
Road

Imax:9484.31

(10%Imax) 948.431	—
(20%Imax) 1896.86	—
(30%Imax) 2845.29	—
(40%Imax) 3793.72	—
(50%Imax) 4742.16	—
(60%Imax) 5690.59	—
(70%Imax) 6639.02	—
(80%Imax) 7587.45	—
(90%Imax) 8535.88	—



- (10%Emax) 237.1075
- (20%Emax) 474.215
- (30%Emax) 711.3225
- (40%Emax) 948.43
- (50%Emax) 1185.537
- (60%Emax) 1422.645
- (70%Emax) 1659.752
- (80%Emax) 1896.86
- (90%Emax) 2133.968



Luminance Table

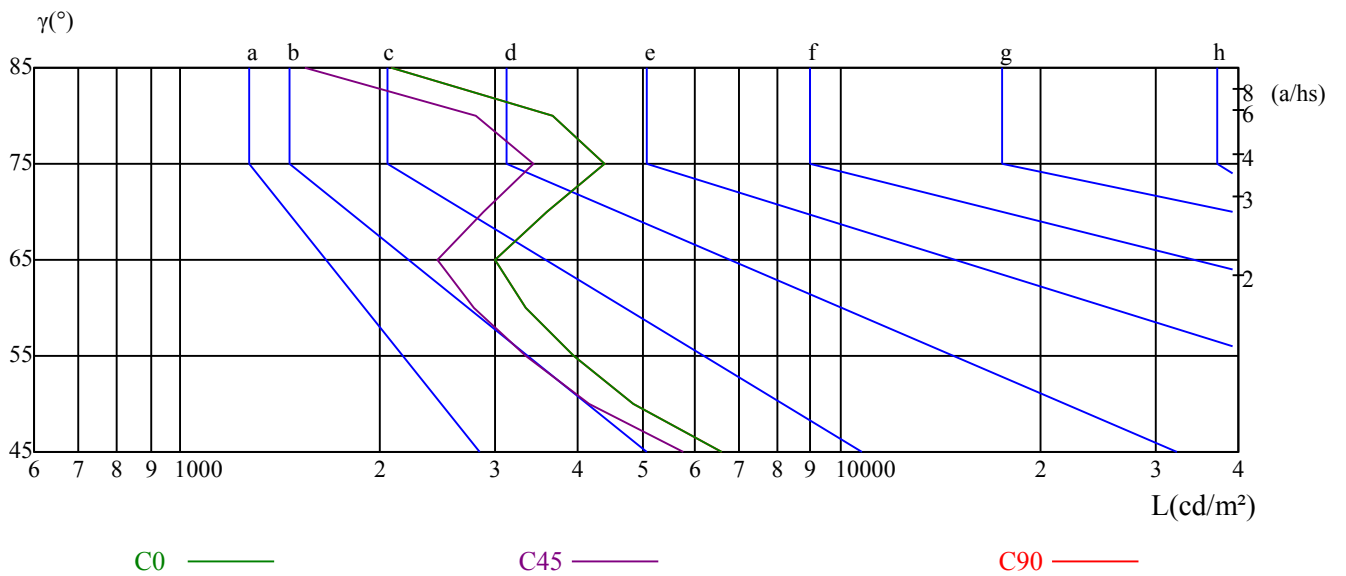
γ	45	50	55	60	65	70	75	80	85
C0	6598	4840	3934	3338	2995	3588	4384	3669	2092
C45	5758	4163	3331	2779	2449	2875	3432	2795	1542
C90	6598	4840	3934	3338	2995	3588	4384	3669	2092

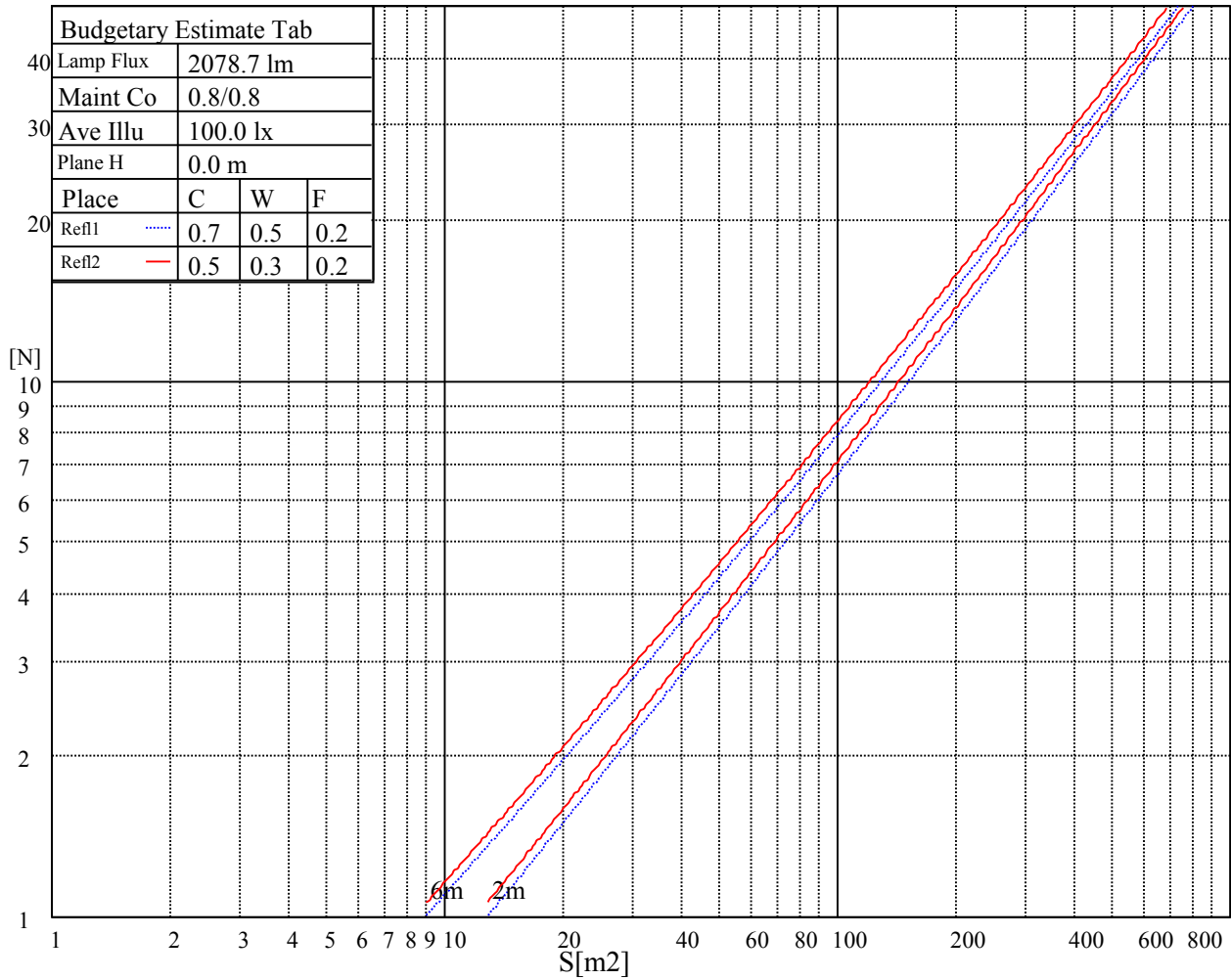
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6487	6487	6487	13275	13275	13275	15088	15088	15088

Glare Table

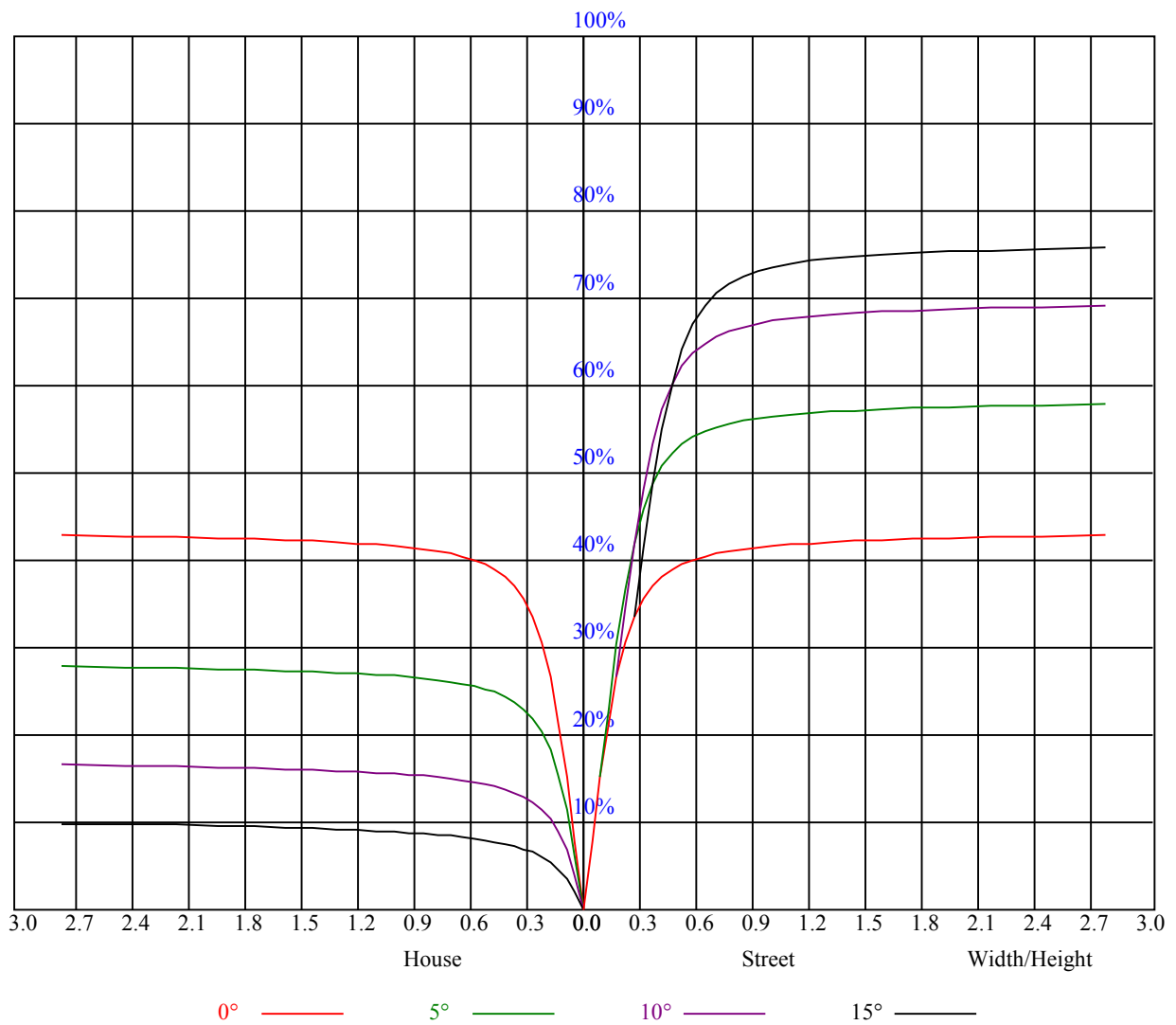
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.04	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	0.89	0.87	0.86	0.86	0.85	0.84	0.82
2	0.92	0.89	0.86	0.90	0.88	0.85	0.88	0.85	0.83	0.85	0.83	0.82	0.83	0.81	0.80	0.79
3	0.87	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	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.75	0.73	0.71	0.70
6	0.77	0.73	0.70	0.77	0.73	0.70	0.75	0.72	0.70	0.74	0.72	0.69	0.73	0.71	0.69	0.68
7	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.69	0.67	0.66
8	0.72	0.68	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64
9	0.70	0.66	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.61



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	9542.81	9360.00	9042.19	8658.56	8132.63	7533.56	6969.38	6310.69	5722.31
45.0	9488.25	9312.19	9008.44	8649.00	8160.75	7659.00	7042.50	6389.44	5803.88
90.0	9460.13	9362.25	9162.00	8779.50	8386.31	7927.31	7340.06	6708.38	6123.38
135.0	9446.06	9538.88	9484.88	9322.88	9025.31	8668.13	8179.31	7611.75	7059.94
180.0	9542.81	9583.31	9517.50	9282.94	8981.44	8595.56	8071.31	7478.44	6905.81
225.0	9488.25	9519.75	9423.00	9186.75	8875.69	8481.94	7891.88	7369.31	6805.13
270.0	9460.13	9434.25	9263.25	8999.44	8592.19	8089.31	7578.56	6958.69	6375.94
315.0	9446.06	9240.75	8930.81	8430.19	7952.06	7417.69	6697.69	6105.94	5509.13
360.0	9542.81	9360.00	9042.19	8658.56	8132.63	7533.56	6969.38	6310.69	5722.31
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5067.56	4429.69	3890.81	3381.19	2811.94	2411.44	2061.56	1687.50	1435.50
45.0	5221.13	4506.19	3965.63	3458.81	2891.81	2496.38	2154.38	1824.19	1544.06
90.0	5457.94	4806.56	4255.31	3668.06	3187.69	2709.56	2295.00	1974.94	1695.94
135.0	6481.13	5734.69	5138.44	4552.88	3857.63	3347.44	2886.19	2427.19	2032.88
180.0	6225.19	5547.94	4957.88	4311.56	3768.19	3208.50	2706.19	2312.44	1969.31
225.0	6146.44	5482.13	4894.31	4254.75	3659.06	3175.31	2692.69	2313.00	1948.50
270.0	5715.00	5062.50	4493.25	3950.44	3320.44	2867.63	2463.19	2029.50	1741.50
315.0	4776.19	4210.31	3669.75	3048.19	2608.88	2229.19	1863.00	1583.44	1241.44
360.0	5067.56	4429.69	3890.81	3381.19	2811.94	2411.44	2061.56	1687.50	1435.50
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1221.75	1019.81	852.75	729.56	613.13	516.94	444.38	375.75	324.56
45.0	1329.75	1127.25	957.38	822.38	700.88	606.94	519.75	447.19	393.19
90.0	1400.06	1115.16	1035.00	861.30	746.83	648.45	563.96	476.10	417.60
135.0	1722.38	1425.38	1194.75	1001.25	834.19	711.56	595.13	500.63	431.44
180.0	1604.25	1360.13	1103.12	957.83	802.86	689.18	592.48	492.30	425.87
225.0	1647.00	1420.31	1115.38	1000.58	883.18	764.78	627.81	555.92	486.00
270.0	1498.50	1270.13	1080.00	935.44	797.06	681.19	592.31	508.50	444.94
315.0	1116.79	932.01	795.54	668.87	563.29	484.03	409.67	349.76	306.11
360.0	1221.75	1019.81	852.75	729.56	613.13	516.94	444.38	375.75	324.56
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	287.44	236.76	209.64	187.48	165.26	150.30	137.87	124.82	115.54
45.0	344.25	293.06	284.06	227.48	199.74	176.91	160.09	147.26	130.11
90.0	366.98	317.98	276.47	245.03	215.78	190.63	172.35	154.80	141.47
135.0	370.69	309.94	284.06	234.28	201.04	179.44	161.94	145.74	132.47
180.0	369.73	311.40	272.53	240.19	211.05	186.75	169.31	152.66	139.89
225.0	418.33	360.56	317.76	277.09	246.71	217.29	192.43	173.36	154.86
270.0	383.06	330.75	293.06	284.63	227.64	201.32	181.41	162.56	146.14
315.0	268.71	230.23	205.93	185.57	166.05	149.68	137.14	125.04	114.58
360.0	287.44	236.76	209.64	187.48	165.26	150.30	137.87	124.82	115.54
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	107.55	99.28	91.86	85.73	79.65	74.70	69.64	64.74	60.81
45.0	119.31	110.93	100.41	92.08	86.12	78.30	72.00	67.56	61.54
90.0	128.31	116.66	107.55	98.21	89.78	82.97	76.73	69.64	64.52
135.0	122.12	112.28	104.63	96.75	89.55	83.70	77.85	72.73	68.40
180.0	127.63	117.06	108.90	100.52	93.04	86.85	81.39	75.04	70.31
225.0	139.22	127.24	116.78	105.36	97.43	90.23	83.64	76.05	70.37
270.0	133.26	123.53	109.97	101.42	94.67	86.40	79.59	74.70	68.29
315.0	106.37	98.16	91.63	84.83	78.75	73.74	69.19	63.84	60.02
360.0	107.55	99.28	91.86	85.73	79.65	74.70	69.64	64.74	60.81

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	56.70	53.04	50.12	47.36	44.33	42.19	40.16	38.42	36.45
45.0	57.04	53.21	48.60	45.56	42.81	40.05	38.03	36.17	34.20
90.0	59.79	54.96	50.51	47.08	43.71	40.78	38.64	36.39	34.65
135.0	64.01	59.18	55.80	52.43	49.50	46.18	43.76	41.63	39.21
180.0	65.98	61.48	57.43	54.11	50.85	47.87	45.51	43.03	41.06
225.0	64.52	59.18	55.01	51.13	47.48	44.21	41.63	39.32	37.52
270.0	63.11	59.46	54.56	51.02	47.98	44.44	42.36	40.39	38.42
315.0	56.42	52.20	49.11	46.41	43.82	41.40	39.49	37.58	36.00
360.0	56.70	53.04	50.12	47.36	44.33	42.19	40.16	38.42	36.45
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	34.93	33.30	31.84	30.60	29.31	28.13	26.89	25.71	24.69
45.0	32.74	31.39	29.98	28.74	27.73	26.61	25.54	24.69	23.85
90.0	32.91	31.33	30.04	28.80	27.51	26.49	25.59	24.47	23.74
135.0	37.52	35.89	34.14	32.57	31.33	29.93	28.63	27.56	26.44
180.0	39.09	37.24	35.66	34.26	32.57	31.39	30.15	28.74	27.68
225.0	35.66	33.92	32.57	31.16	29.76	28.63	27.56	26.38	25.37
270.0	36.84	35.55	33.86	32.40	30.94	29.70	28.46	27.45	26.33
315.0	34.31	32.74	31.33	29.98	28.74	27.56	26.55	25.26	24.24
360.0	34.93	33.30	31.84	30.60	29.31	28.13	26.89	25.71	24.69
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	23.85	22.89	21.94	21.15	20.36	19.63	19.01	18.45	17.61
45.0	23.23	23.46	24.41	25.99	27.79	30.38	32.34	34.65	37.35
90.0	23.06	22.67	23.51	24.92	27.06	29.25	31.78	34.37	36.68
135.0	25.43	24.36	23.34	22.56	21.88	20.81	20.14	19.58	18.73
180.0	26.61	25.48	24.41	23.63	22.61	21.77	20.98	20.25	19.58
225.0	24.53	23.57	22.84	22.73	23.57	25.43	27.56	29.76	31.84
270.0	25.43	24.41	23.63	23.91	25.26	27.34	29.76	32.18	35.27
315.0	23.34	22.28	21.54	20.81	20.03	19.29	18.68	17.94	17.27
360.0	23.85	22.89	21.94	21.15	20.36	19.63	19.01	18.45	17.61
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	16.93	16.37	15.64	15.02	14.51	13.84	13.39	12.99	12.49
45.0	39.43	41.46	42.41	42.75	42.13	39.54	36.17	31.95	27.00
90.0	39.09	41.29	42.92	43.71	43.20	41.85	39.04	35.27	30.60
135.0	18.17	17.61	16.76	16.09	15.53	14.85	14.29	13.84	13.28
180.0	18.79	18.00	17.33	16.71	15.86	15.30	14.74	14.18	13.78
225.0	34.20	36.56	38.42	40.28	41.68	41.91	40.61	37.13	33.86
270.0	37.74	39.94	41.96	43.43	43.88	42.81	40.33	37.07	32.91
315.0	16.59	15.86	15.24	14.68	14.18	13.73	13.28	12.71	12.21
360.0	16.93	16.37	15.64	15.02	14.51	13.84	13.39	12.99	12.49
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.98	11.53	10.91	10.46	10.01	9.51	8.94	8.55	8.38
45.0	22.22	17.10	13.16	12.09	10.52	9.23	8.61	8.27	8.10
90.0	26.38	20.76	15.92	12.66	11.14	9.56	8.89	8.49	8.21
135.0	12.88	12.43	11.81	11.36	10.80	10.01	9.45	8.94	8.49
180.0	13.28	12.77	12.21	11.70	11.08	10.46	9.73	9.23	8.89
225.0	30.32	25.82	21.15	15.64	13.44	10.86	9.73	9.06	8.61
270.0	28.18	23.63	18.00	14.18	12.38	9.90	9.17	8.66	8.38
315.0	11.81	11.25	10.69	10.18	9.68	9.00	8.49	8.27	8.04
360.0	11.98	11.53	10.91	10.46	10.01	9.51	8.94	8.55	8.38

Intensity data(cd)

C/γ(°)	90.0
0.0	8.38
45.0	8.10
90.0	8.16
135.0	8.27
180.0	8.83
225.0	8.44
270.0	8.04
315.0	7.99
360.0	8.38