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Nata

LumCAT: LN01D04515DA-N

Luminaire: 97.70.234.00

Report No: 210709-B016

Test No: 210709-C016

LampCAT: Fortimo LED SLM 1204 G7N

Lamp flux(lm): 2429.4

Number of Lamps: 1

Length(mm): 570

Phm Type: C

Voltage(V): 35.9800

Current(A): 0.5100

Power (W): 18.3490

PF: 0.0000

Ballast type: DC

Width(mm): 45

Height(mm): 20

Photometric Results

Lumens(lm): 2157.54

Efficiency(%): 88.81%

Lumens(lm)/Power(W): 117.58

Central intensity(cd): 11274.830

Maximum intensity(cd): 11274.830

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=20.7

[C90/270]Total=20.7

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(%): 88.81%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.043%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11274.834	0.000	0	.000%	.000%
1.0	11226.656	10.767	10.767	.443%	.499%
2.0	10981.955	31.876	42.642	1.312%	1.976%
3.0	10608.806	51.638	94.28	2.126%	4.370%
4.0	10118.377	69.381	163.661	2.856%	7.586%
5.0	9576.197	84.725	248.386	3.487%	11.512%
6.0	8873.494	96.958	345.344	3.991%	16.006%
7.0	8131.205	105.548	450.892	4.345%	20.898%
8.0	7440.666	111.445	562.337	4.587%	26.064%
9.0	6670.884	114.366	676.703	4.708%	31.365%
10.0	5873.611	113.523	790.226	4.673%	36.626%
11.0	5182.931	110.478	900.704	4.547%	41.747%
12.0	4521.713	106.086	1006.79	4.367%	46.664%
13.0	3818.377	98.976	1105.765	4.074%	51.251%
14.0	3271.556	90.751	1196.516	3.735%	55.458%
15.0	2831.386	83.784	1280.3	3.449%	59.341%
16.0	2409.834	76.799	1357.098	3.161%	62.900%
17.0	1991.461	68.540	1425.638	2.821%	66.077%
18.0	1697.766	60.827	1486.466	2.504%	68.896%
19.0	1415.953	54.172	1540.638	2.230%	71.407%
20.0	1213.495	48.126	1588.764	1.981%	73.638%
21.0	1027.990	43.041	1631.805	1.772%	75.633%
22.0	886.795	38.478	1670.284	1.584%	77.416%
23.0	768.059	34.723	1705.007	1.429%	79.026%
24.0	656.648	31.149	1736.156	1.282%	80.469%
25.0	562.845	27.729	1763.885	1.141%	81.755%
26.0	490.627	24.867	1788.752	1.024%	82.907%
27.0	430.179	22.528	1811.28	.927%	83.951%
28.0	368.782	20.228	1831.508	.833%	84.889%
29.0	326.180	18.182	1849.69	.748%	85.732%
30.0	288.654	16.600	1866.29	.683%	86.501%
31.0	256.732	15.177	1881.468	.625%	87.204%
32.0	227.665	13.877	1895.345	.571%	87.848%
33.0	204.307	12.726	1908.071	.524%	88.438%
34.0	184.331	11.761	1919.833	.484%	88.983%
35.0	166.669	10.901	1930.733	.449%	89.488%
36.0	152.888	10.175	1940.908	.419%	89.959%
37.0	139.845	9.547	1950.455	.393%	90.402%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	128.862	8.969	1959.424	.369%	90.818%
39.0	118.399	8.440	1967.864	.347%	91.209%
40.0	109.146	7.936	1975.8	.327%	91.577%
41.0	101.440	7.499	1983.299	.309%	91.924%
42.0	94.050	7.102	1990.401	.292%	92.253%
43.0	86.484	6.688	1997.089	.275%	92.563%
44.0	80.501	6.302	2003.391	.259%	92.856%
45.0	75.002	5.976	2009.368	.246%	93.133%
46.0	69.166	5.638	2015.006	.232%	93.394%
47.0	64.378	5.311	2020.317	.219%	93.640%
48.0	60.384	5.044	2025.361	.208%	93.874%
49.0	56.503	4.800	2030.161	.198%	94.096%
50.0	52.826	4.558	2034.719	.188%	94.308%
51.0	50.203	4.359	2039.078	.179%	94.510%
52.0	47.665	4.200	2043.278	.173%	94.704%
53.0	45.218	4.040	2047.318	.166%	94.891%
54.0	43.179	3.896	2051.214	.160%	95.072%
55.0	41.189	3.766	2054.98	.155%	95.247%
56.0	39.438	3.643	2058.623	.150%	95.415%
57.0	37.800	3.532	2062.155	.145%	95.579%
58.0	36.253	3.424	2065.579	.141%	95.738%
59.0	34.945	3.329	2068.908	.137%	95.892%
60.0	33.687	3.242	2072.15	.133%	96.042%
61.0	32.421	3.155	2075.305	.130%	96.189%
62.0	31.500	3.080	2078.385	.127%	96.331%
63.0	30.938	3.037	2081.422	.125%	96.472%
64.0	30.720	3.025	2084.448	.125%	96.612%
65.0	30.938	3.051	2087.499	.126%	96.754%
66.0	31.289	3.105	2090.604	.128%	96.898%
67.0	31.859	3.175	2093.779	.131%	97.045%
68.0	32.576	3.264	2097.043	.134%	97.196%
69.0	33.202	3.356	2100.398	.138%	97.352%
70.0	33.919	3.447	2103.846	.142%	97.511%
71.0	34.608	3.542	2107.387	.146%	97.676%
72.0	35.318	3.636	2111.023	.150%	97.844%
73.0	35.923	3.725	2114.749	.153%	98.017%
74.0	36.323	3.798	2118.547	.156%	98.193%
75.0	36.654	3.856	2122.403	.159%	98.372%

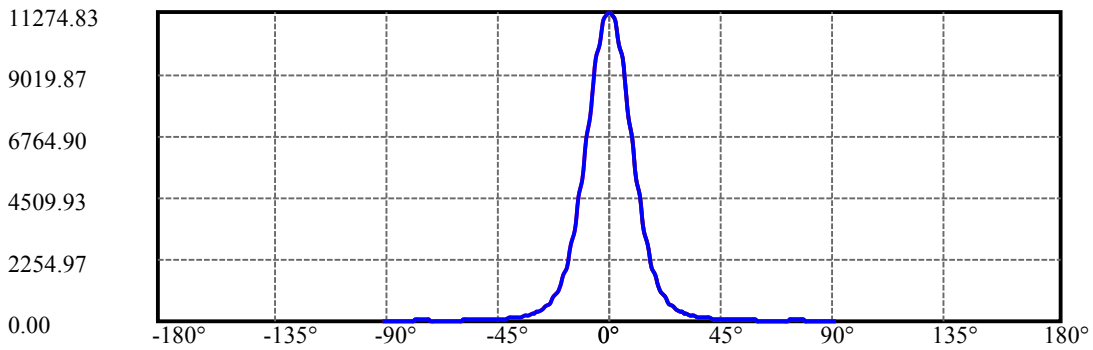
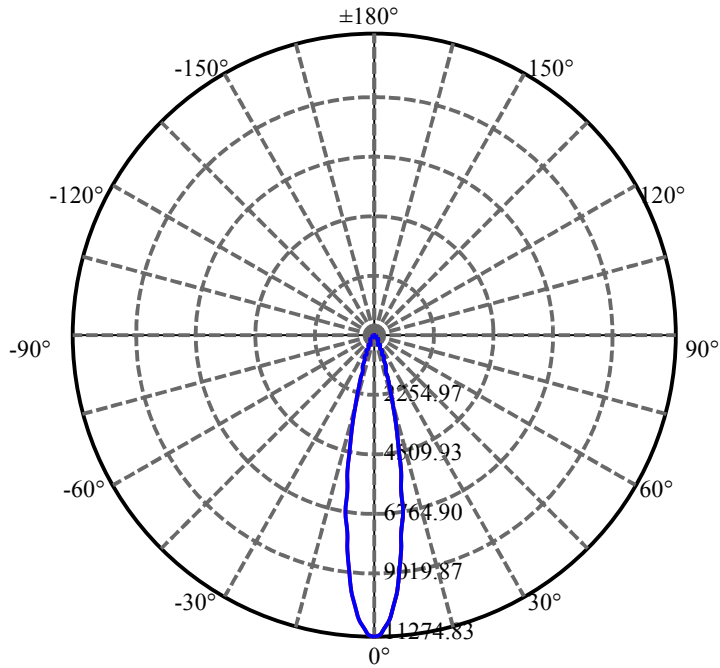
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	36.239	3.869	2126.272	.159%	98.551%
77.0	35.220	3.810	2130.082	.157%	98.728%
78.0	33.750	3.692	2133.774	.152%	98.899%
79.0	31.247	3.492	2137.266	.144%	99.061%
80.0	28.343	3.213	2140.479	.132%	99.209%
81.0	25.425	2.908	2143.387	.120%	99.344%
82.0	21.804	2.561	2145.948	.105%	99.463%
83.0	18.035	2.166	2148.113	.089%	99.563%
84.0	15.342	1.818	2149.932	.075%	99.648%
85.0	13.134	1.554	2151.486	.064%	99.720%
86.0	12.030	1.376	2152.862	.057%	99.783%
87.0	11.102	1.266	2154.128	.052%	99.842%
88.0	10.477	1.182	2155.31	.049%	99.897%
89.0	10.090	1.127	2156.437	.046%	99.949%
90.0	9.956	1.099	2157.536	.045%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1866.29	76.82%	86.50%
0-40	1975.80	81.33%	91.58%
0-60	2072.15	85.29%	96.04%
0-90	2156.44	88.76%	99.95%
0-120	2156.44	88.76%	99.95%
0-180	2157.54	88.81%	100.00%
60-90	87.53	3.60%	4.06%
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%
0-23.67	1726.03	71.05%	80.00%

ZONAL LUMEN SUMMARY

0-10	790.23
10-20	798.54
20-30	277.53
30-40	109.51
40-50	58.92
50-60	37.43
60-70	31.70
70-80	36.63
80-90	15.96
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: —————

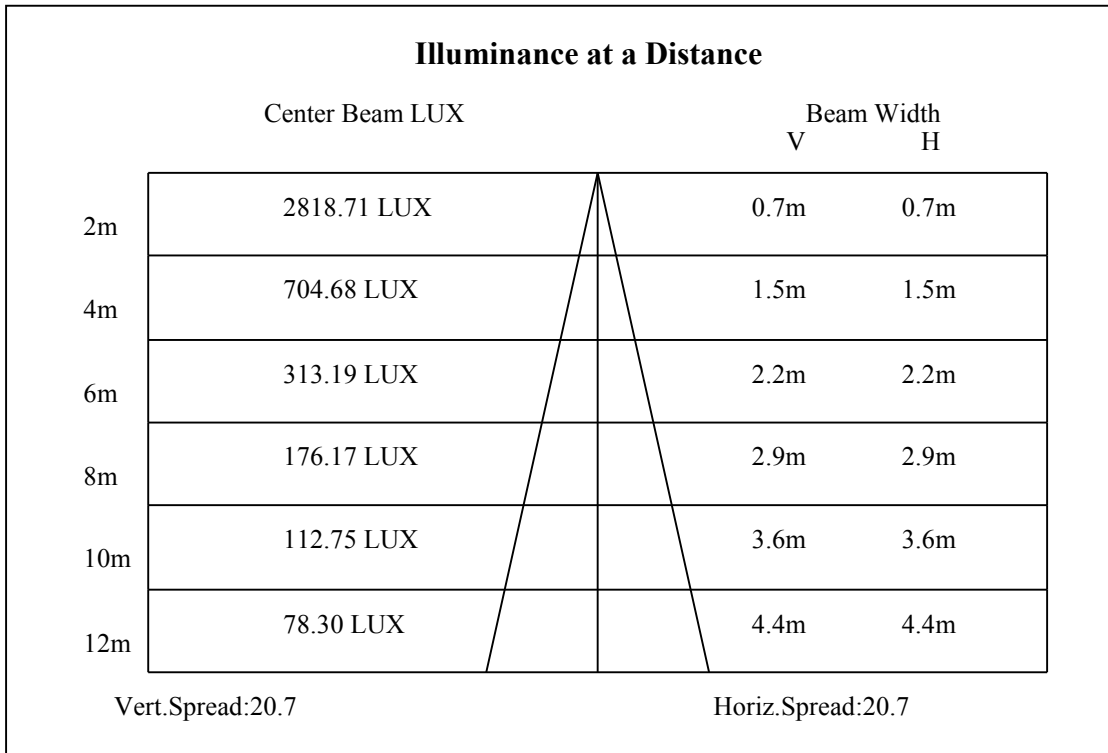
C90/C270: —————

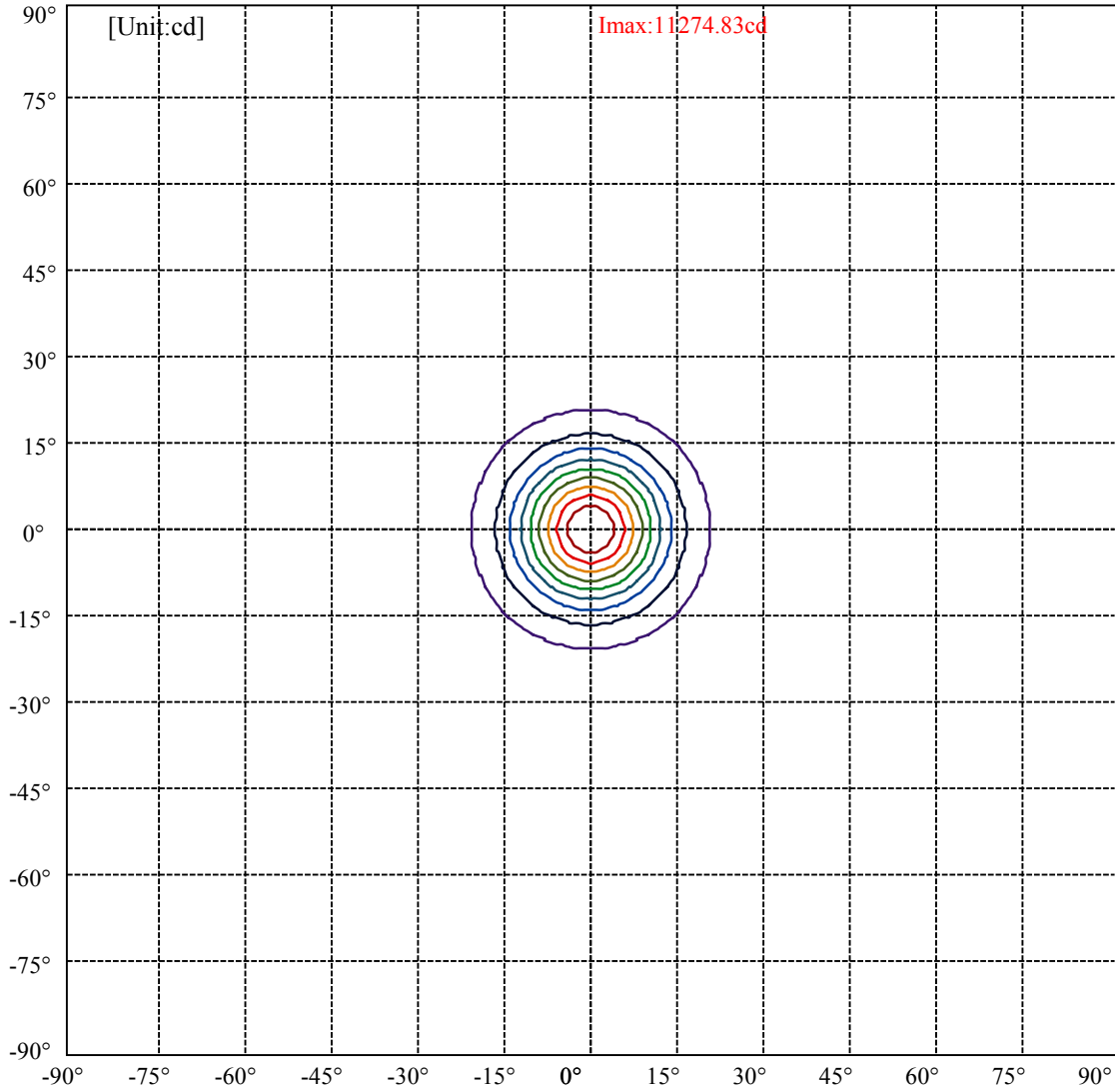
Field angle(10%Imax):C0/180Left:20.5 Right:20.5

:C90/270Left:20.5 Right:20.5

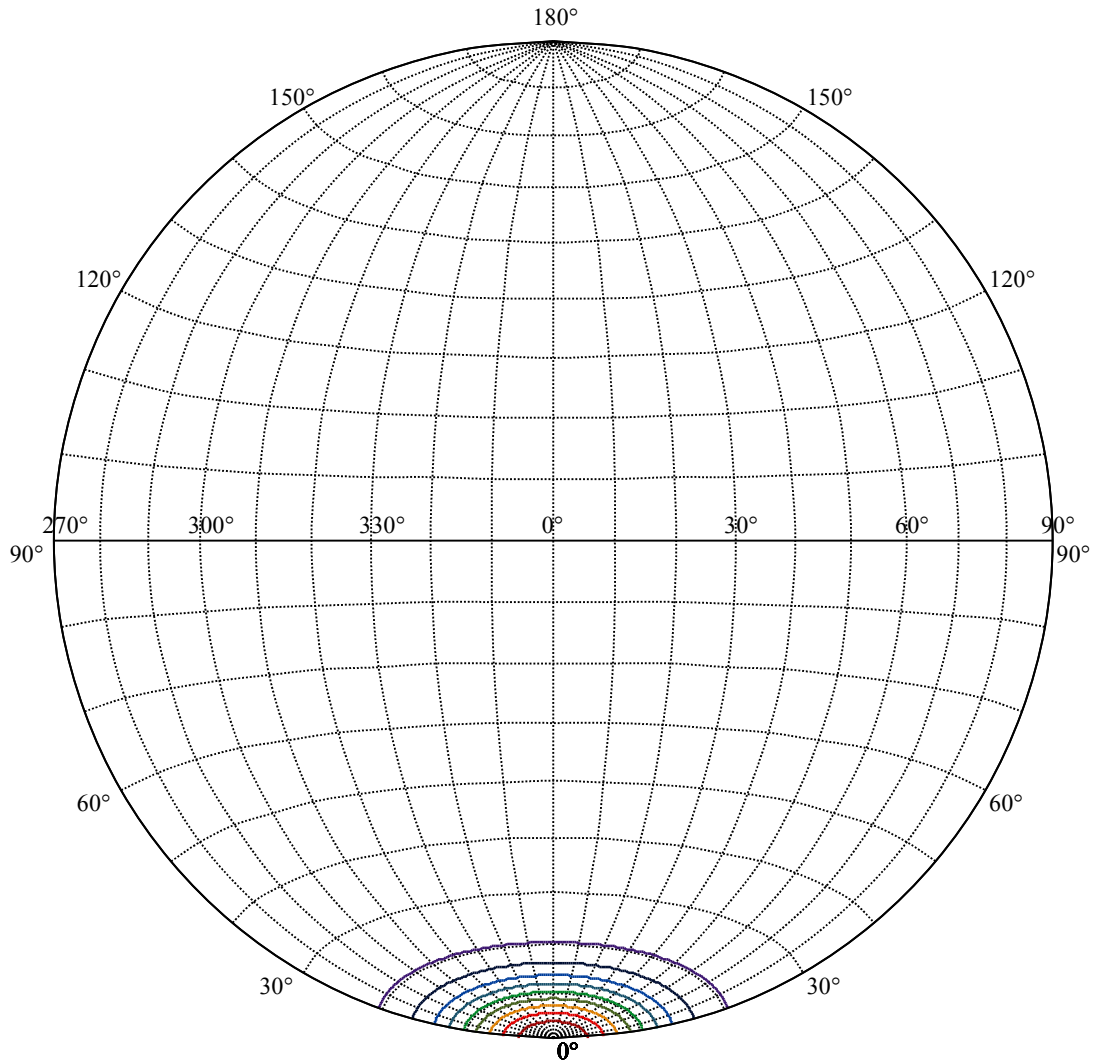
Beam Angle(50%Imax):C0/180Left:10.3 Right:10.3

:C90/270Left:10.3 Right:10.3





(10%Imax) 1127.48	—
(20%Imax) 2254.97	—
(30%Imax) 3382.45	—
(40%Imax) 4509.93	—
(50%Imax) 5637.42	—
(60%Imax) 6764.9	—
(70%Imax) 7892.38	—
(80%Imax) 9019.87	—
(90%Imax) 10147.4	—



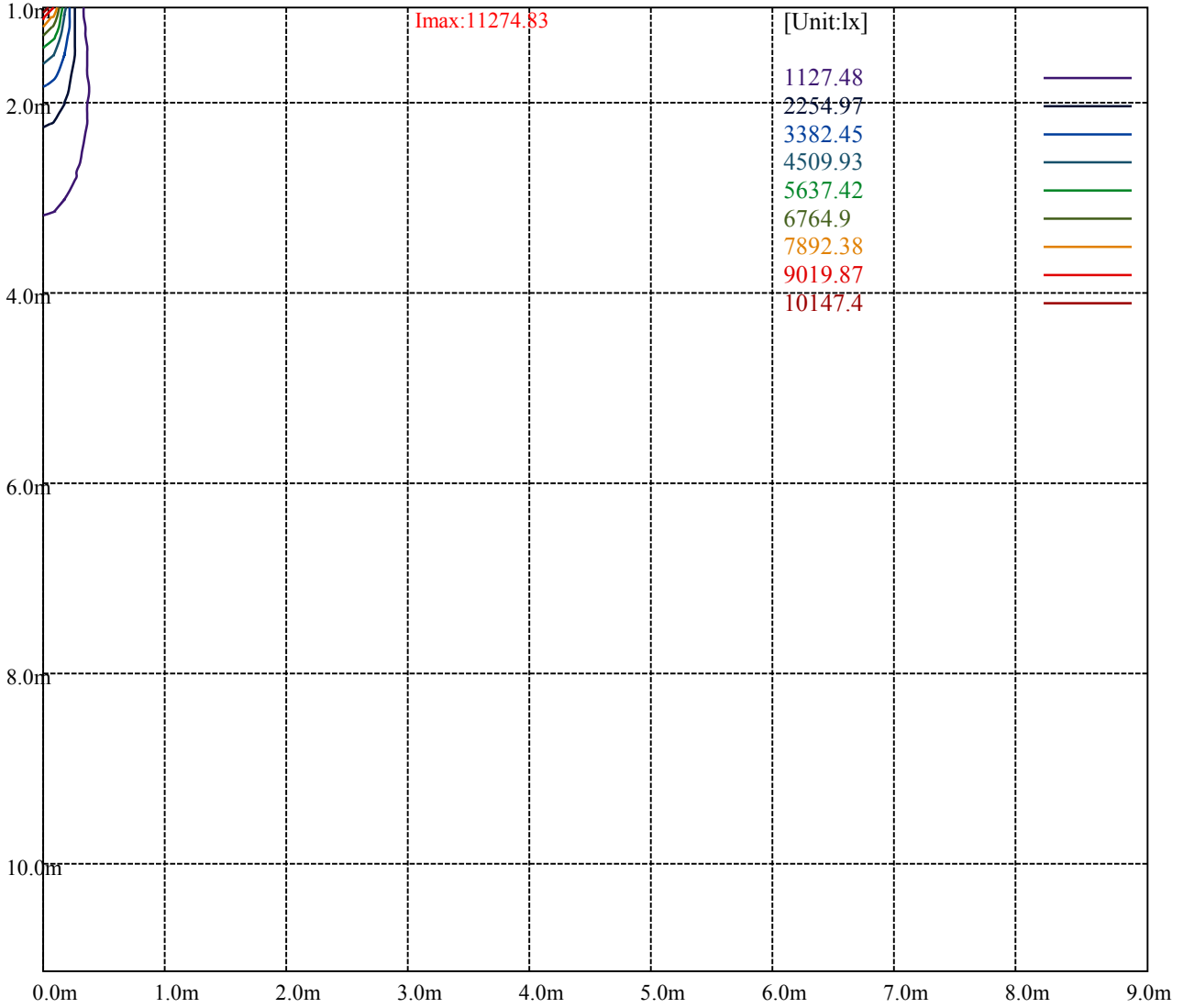
House

[Unit:cd]

Road

Imax:11274.83

(10%Imax)	1127.48	—
(20%Imax)	2254.97	—
(30%Imax)	3382.45	—
(40%Imax)	4509.93	—
(50%Imax)	5637.42	—
(60%Imax)	6764.9	—
(70%Imax)	7892.38	—
(80%Imax)	9019.87	—
(90%Imax)	10147.4	—



Luminance Table

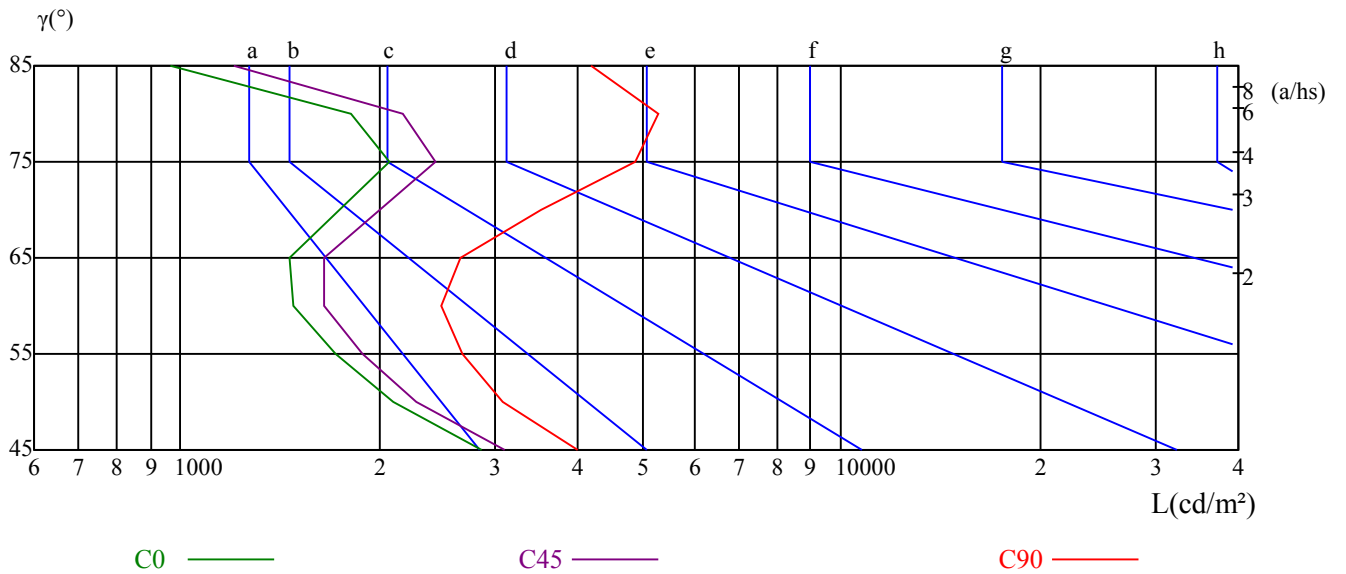
γ	45	50	55	60	65	70	75	80	85
C0	2863	2095	1713	1484	1461	1741	2077	1807	966
C45	3088	2282	1886	1655	1652	2002	2437	2177	1205
C90	3995	3075	2666	2476	2654	3526	4882	5307	4193

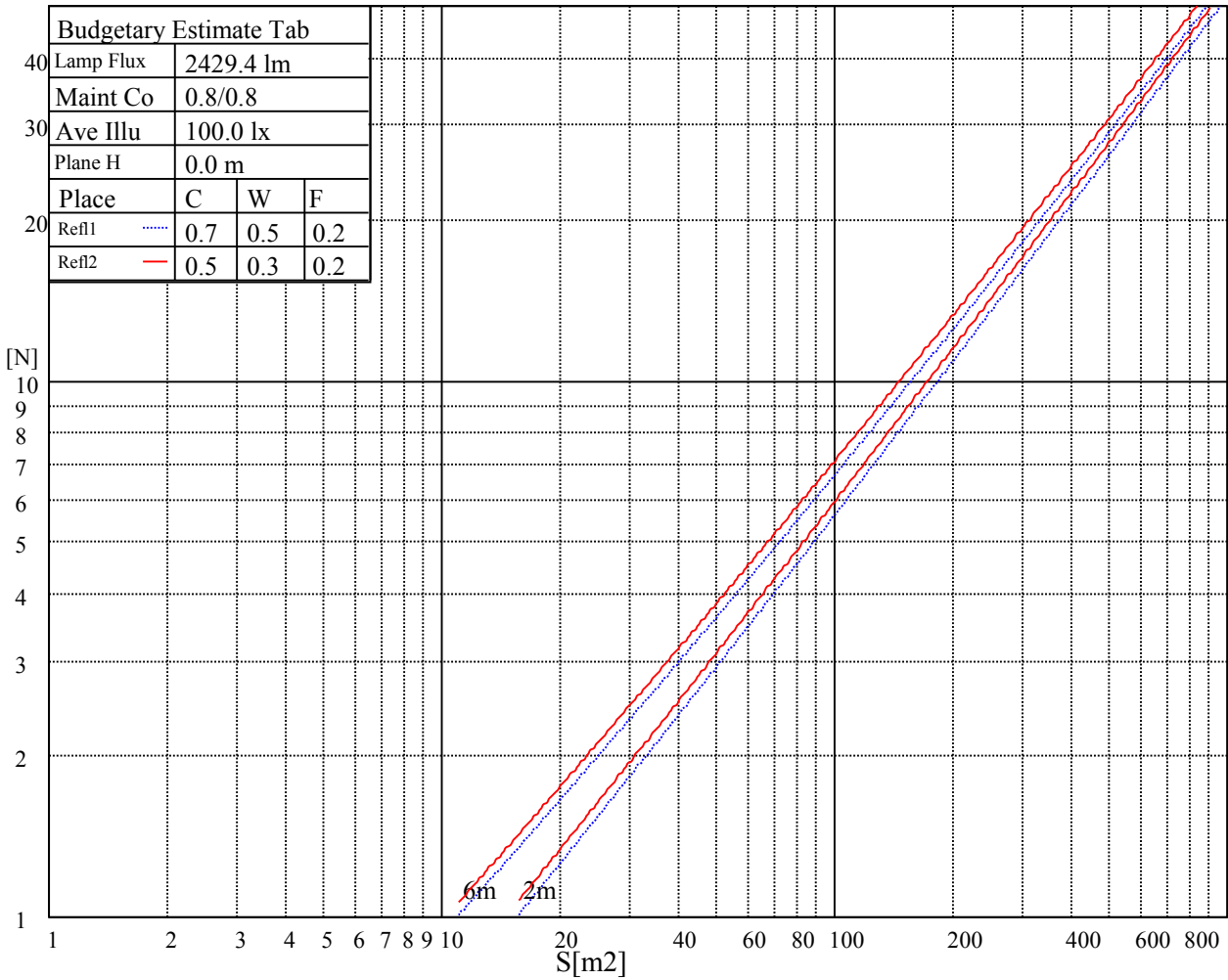
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2854	2854	2854	5521	5521	5521	5875	5875	5875

Glare Table

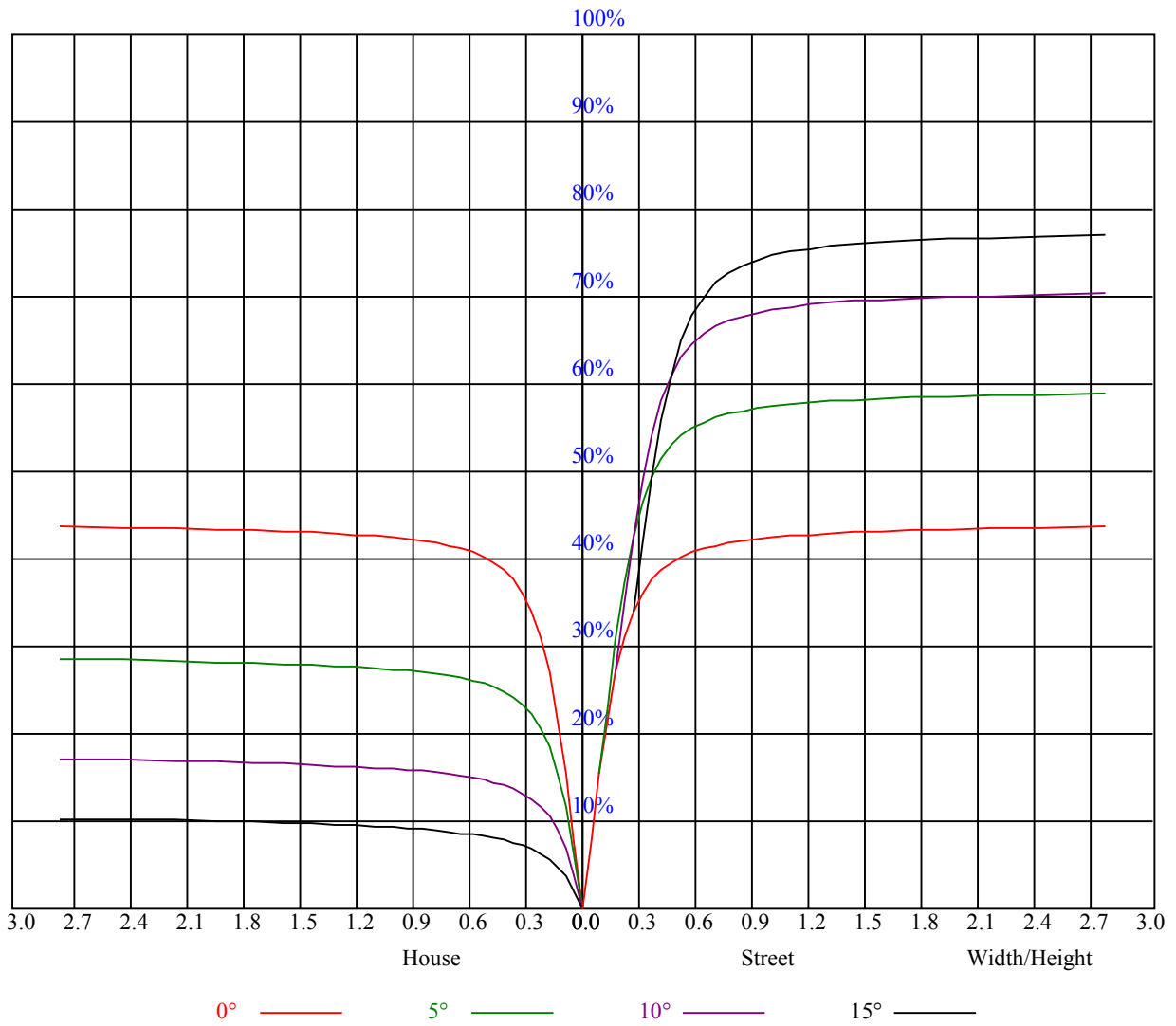
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.94	0.94	0.94	0.91	0.91	0.91	0.89
1	0.99	0.97	0.95	0.97	0.95	0.94	0.94	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.84
2	0.94	0.90	0.88	0.92	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.81	0.80
3	0.89	0.85	0.82	0.88	0.84	0.82	0.86	0.83	0.80	0.83	0.81	0.79	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.74
5	0.82	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.77	0.74	0.72	0.71
6	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
7	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.73	0.70	0.68	0.67
8	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
9	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.62	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	11328.86	11289.49	11030.74	10726.99	10164.49	9624.49	8977.61	8139.49	7447.61
45.0	11250.11	11036.36	10676.36	10192.61	9686.36	9090.11	8251.99	7548.86	6856.99
90.0	11208.38	11064.94	10765.13	10316.81	9743.06	9169.31	8436.94	7660.13	6958.13
135.0	11311.99	11266.99	11075.74	10738.24	10327.61	9765.11	9095.74	8448.86	7762.61
180.0	11328.86	11223.56	11042.44	10657.69	10154.81	9620.44	8915.63	8145.00	7426.13
225.0	11250.11	11441.36	11193.19	10930.50	10512.00	10041.19	9412.88	8714.81	8048.25
270.0	11208.38	11278.24	11143.24	10833.86	10434.49	9945.11	9213.86	8555.74	7891.99
315.0	11311.99	11212.31	10928.81	10473.75	9924.19	9353.81	8683.31	7836.75	7133.63
360.0	11328.86	11289.49	11030.74	10726.99	10164.49	9624.49	8977.61	8139.49	7447.61
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6733.24	5866.99	5180.74	4539.49	3785.74	3240.11	2880.11	2317.50	1929.38
45.0	5996.36	5315.74	4651.99	3976.99	3380.74	2913.86	2629.69	2133.56	1807.31
90.0	6252.19	5392.69	4745.25	4142.81	3461.06	2982.38	2563.88	2122.88	1821.38
135.0	6896.36	6181.99	5490.11	4815.11	4044.49	3487.61	2998.24	2655.56	2125.69
180.0	6696.00	5799.94	5110.31	4455.00	3707.44	3178.69	2710.13	2255.63	1869.19
225.0	7335.56	6541.88	5746.50	5077.69	4348.13	3696.19	3190.50	2745.56	2264.63
270.0	7031.36	6339.49	5658.86	4921.99	4224.49	3650.74	3076.99	2857.61	2237.06
315.0	6426.00	5550.19	4879.69	4244.63	3594.94	3022.88	2601.56	2190.38	1877.06
360.0	6733.24	5866.99	5180.74	4539.49	3785.74	3240.11	2880.11	2317.50	1929.38
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1639.13	1367.44	1143.56	973.13	813.94	694.13	584.44	494.44	427.50
45.0	1533.94	1322.44	1128.38	961.31	842.06	731.25	623.25	544.50	481.50
90.0	1562.06	1234.69	1120.67	972.56	832.11	727.26	625.50	539.55	472.33
135.0	1815.75	1513.69	1276.88	1094.63	924.75	803.81	687.38	583.88	507.38
180.0	1576.13	1231.31	1102.05	919.52	767.98	656.21	553.33	468.34	405.17
225.0	1950.75	1686.38	1433.81	1115.66	1059.53	905.68	776.03	676.18	583.20
270.0	1920.38	1626.75	1382.06	1196.44	1022.06	887.63	759.38	649.69	567.00
315.0	1584.00	1344.94	1120.56	990.68	831.94	738.51	643.89	546.19	480.94
360.0	1639.13	1367.44	1143.56	973.13	813.94	694.13	584.44	494.44	427.50
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	371.81	313.88	286.31	246.09	216.34	196.99	180.39	166.56	151.59
45.0	419.63	364.50	325.13	284.63	249.53	226.63	204.47	182.48	164.81
90.0	415.41	354.60	313.99	277.48	247.33	216.90	196.88	179.44	160.65
135.0	438.75	382.50	336.38	297.56	284.63	230.51	204.86	181.52	166.16
180.0	354.04	300.32	265.67	237.04	207.90	189.00	172.97	156.94	145.74
225.0	512.44	443.25	385.71	342.06	305.55	265.73	238.61	215.38	190.63
270.0	504.00	420.19	370.69	333.56	284.63	265.33	227.98	203.06	182.76
315.0	425.36	371.03	325.58	290.81	257.96	230.23	208.29	189.28	171.00
360.0	371.81	313.88	286.31	246.09	216.34	196.99	180.39	166.56	151.59
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	141.02	130.33	121.56	112.84	104.96	98.38	91.46	85.16	79.82
45.0	150.98	137.42	127.13	116.04	106.43	98.83	90.79	83.42	77.51
90.0	147.71	136.52	125.10	115.03	106.93	98.33	91.01	83.14	75.83
135.0	152.78	138.94	126.39	116.94	107.44	100.01	92.76	85.28	80.16
180.0	135.84	124.76	117.73	109.52	101.14	95.68	89.89	82.35	77.85
225.0	173.19	158.51	143.89	131.01	120.71	110.59	102.43	94.11	86.51
270.0	167.01	151.65	139.39	127.07	116.55	108.39	99.90	92.25	86.01
315.0	154.58	140.63	129.71	118.74	109.01	101.31	94.16	86.18	80.33
360.0	141.02	130.33	121.56	112.84	104.96	98.38	91.46	85.16	79.82

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	74.81	69.58	64.63	60.69	57.15	53.27	50.63	48.21	45.56
45.0	72.56	65.98	61.48	58.16	54.06	50.79	48.49	45.62	43.20
90.0	70.14	64.46	59.40	55.52	52.03	48.26	45.68	43.48	41.18
135.0	74.36	68.96	64.69	60.58	56.31	53.16	50.34	47.64	45.11
180.0	73.18	67.11	63.68	60.08	56.36	53.04	50.57	48.04	45.96
225.0	79.93	73.58	67.78	63.06	59.12	54.73	51.69	49.16	46.58
270.0	80.21	73.86	69.24	64.80	60.19	56.31	53.61	50.68	48.04
315.0	74.81	69.81	64.13	60.19	56.81	53.04	50.63	48.49	46.13
360.0	74.81	69.58	64.63	60.69	57.15	53.27	50.63	48.21	45.56
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	43.59	41.79	39.99	38.25	36.73	35.21	33.69	32.40	31.11
45.0	41.63	39.43	37.91	36.39	34.65	33.41	32.12	30.77	29.59
90.0	39.15	37.52	35.78	34.37	33.30	32.29	31.56	31.16	32.57
135.0	43.31	41.29	39.32	37.80	36.06	34.76	33.24	31.84	30.60
180.0	43.82	41.79	40.16	38.36	36.84	35.49	34.20	32.57	31.33
225.0	44.16	42.30	40.39	38.59	37.07	35.44	34.14	32.68	31.33
270.0	45.73	43.43	41.63	40.05	38.76	37.80	36.79	35.61	34.59
315.0	44.04	41.96	40.33	38.59	36.62	35.16	33.75	32.34	30.88
360.0	43.59	41.79	39.99	38.25	36.73	35.21	33.69	32.40	31.11
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	29.98	28.80	27.79	26.83	26.10	24.81	23.96	23.29	22.28
45.0	28.52	27.28	26.38	25.48	24.58	23.91	23.29	22.78	22.50
90.0	35.49	40.33	45.84	50.51	55.69	62.44	67.44	72.23	77.34
135.0	29.48	28.18	27.17	26.21	25.09	24.36	23.63	22.84	21.94
180.0	30.21	28.86	27.90	26.89	26.04	25.09	24.24	23.40	22.67
225.0	30.26	29.14	28.01	27.11	26.21	25.26	24.64	23.96	23.29
270.0	33.81	34.65	37.01	40.89	45.62	50.12	54.79	60.13	64.91
315.0	29.76	28.52	27.39	26.38	25.54	24.64	23.63	22.73	21.94
360.0	29.98	28.80	27.79	26.83	26.10	24.81	23.96	23.29	22.28
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	21.54	20.98	20.19	19.52	19.01	18.23	17.49	16.76	16.09
45.0	22.33	22.22	22.11	21.83	21.07	16.76	16.14	15.64	15.41
90.0	82.01	85.33	88.59	91.01	91.46	87.69	81.17	72.39	60.69
135.0	21.26	20.59	19.74	18.96	18.23	17.55	16.82	16.20	15.58
180.0	21.94	21.21	20.59	19.69	18.79	17.94	17.33	16.59	16.09
225.0	22.95	22.73	22.33	22.11	21.77	21.43	20.93	20.14	18.84
270.0	69.41	73.97	77.51	81.23	83.36	84.66	83.19	75.94	68.46
315.0	21.09	20.36	19.52	18.90	18.23	17.49	16.93	16.31	15.58
360.0	21.54	20.98	20.19	19.52	19.01	18.23	17.49	16.76	16.09
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	15.53	15.02	14.34	13.78	13.11	12.66	11.98	10.97	10.46
45.0	15.13	14.51	13.78	12.94	12.26	11.31	10.52	9.96	9.73
90.0	48.83	36.39	23.40	15.58	12.71	11.19	10.58	10.13	9.90
135.0	14.96	14.46	13.78	13.28	12.21	11.25	10.58	10.07	9.68
180.0	15.53	14.91	14.34	13.89	12.99	12.26	11.14	10.69	10.35
225.0	17.49	16.26	15.19	14.51	13.78	12.66	11.81	10.86	10.29
270.0	60.92	48.49	35.78	25.76	15.86	13.50	11.81	11.14	10.63
315.0	15.02	14.40	13.67	12.99	12.15	11.42	10.41	10.01	9.68
360.0	15.53	15.02	14.34	13.78	13.11	12.66	11.98	10.97	10.46

Intensity data(cd)

C/ γ (°)	90.0
0.0	10.41
45.0	9.73
90.0	9.73
135.0	9.45
180.0	10.52
225.0	10.13
270.0	10.24
315.0	9.45
360.0	10.41