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Nata

LumCAT: 2-1674-M	
Luminaire: 92.70.135.00	
Report No: NT2017103101	Voltage(V): 34.3000
Test No: GC2017103101	Current(A): 0.5000
LampCAT: NICHIA NFCWD084B-V2	Power (W): 17.1500
Lamp flux(lm): 2537.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2253.72
Efficiency(%): 88.83%
Lumens(lm)/Power(W): 131.41
Central intensity(cd): 15567.200
Maximum intensity(cd): 15567.200
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=15.2
 [C90/270]Total=15.2
Field angle(10%Imax): [C0/180]Total=31.9
 [C90/270]Total=31.9
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.26 C90_270=0.26
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.83%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.548%

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/10/31
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	15567.197	0.000	0	.000%	.000%
1.0	15454.331	14.843	14.843	.585%	.659%
2.0	15009.063	43.724	58.567	1.723%	2.599%
3.0	14267.178	70.019	128.586	2.760%	5.706%
4.0	13002.945	91.282	219.868	3.598%	9.756%
5.0	11745.664	106.467	326.335	4.197%	14.480%
6.0	10166.784	115.156	441.491	4.539%	19.589%
7.0	8730.637	117.296	558.787	4.623%	24.794%
8.0	7113.218	113.391	672.179	4.470%	29.825%
9.0	5594.350	102.988	775.166	4.059%	34.395%
10.0	4417.863	90.607	865.773	3.571%	38.415%
11.0	3519.136	79.307	945.08	3.126%	41.934%
12.0	2911.314	70.294	1015.374	2.771%	45.053%
13.0	2333.910	62.248	1077.622	2.454%	47.815%
14.0	2018.436	55.710	1133.332	2.196%	50.287%
15.0	1738.819	51.581	1184.913	2.033%	52.576%
16.0	1550.870	48.203	1233.116	1.900%	54.715%
17.0	1371.799	45.514	1278.63	1.794%	56.734%
18.0	1240.964	43.079	1321.709	1.698%	58.646%
19.0	1161.188	41.793	1363.501	1.647%	60.500%
20.0	1078.121	40.986	1404.487	1.616%	62.319%
21.0	1023.905	40.363	1444.85	1.591%	64.110%
22.0	979.543	40.260	1485.11	1.587%	65.896%
23.0	942.483	40.329	1525.439	1.590%	67.685%
24.0	908.926	40.478	1565.918	1.596%	69.481%
25.0	885.940	40.811	1606.729	1.609%	71.292%
26.0	865.012	41.331	1648.06	1.629%	73.126%
27.0	847.407	41.895	1689.955	1.651%	74.985%
28.0	830.808	42.489	1732.444	1.675%	76.870%
29.0	816.452	43.097	1775.541	1.699%	78.783%
30.0	803.149	43.729	1819.27	1.724%	80.723%
31.0	789.791	44.329	1863.599	1.747%	82.690%
32.0	769.558	44.674	1908.273	1.761%	84.672%
33.0	737.790	44.407	1952.68	1.750%	86.642%
34.0	692.176	43.275	1995.955	1.706%	88.563%
35.0	618.180	40.695	2036.649	1.604%	90.368%
36.0	537.543	36.798	2073.448	1.450%	92.001%
37.0	455.495	32.387	2105.835	1.277%	93.438%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	367.873	27.483	2133.318	1.083%	94.658%
39.0	268.889	21.734	2155.053	.857%	95.622%
40.0	189.077	15.972	2171.025	.630%	96.331%
41.0	124.331	11.160	2182.185	.440%	96.826%
42.0	68.944	7.022	2189.207	.277%	97.137%
43.0	42.923	4.144	2193.351	.163%	97.321%
44.0	32.187	2.835	2196.186	.112%	97.447%
45.0	28.161	2.319	2198.505	.091%	97.550%
46.0	24.892	2.075	2200.58	.082%	97.642%
47.0	22.305	1.877	2202.457	.074%	97.725%
48.0	20.570	1.733	2204.19	.068%	97.802%
49.0	19.228	1.634	2205.825	.064%	97.875%
50.0	18.258	1.563	2207.388	.062%	97.944%
51.0	17.508	1.513	2208.901	.060%	98.011%
52.0	16.854	1.475	2210.375	.058%	98.077%
53.0	16.200	1.438	2211.813	.057%	98.140%
54.0	15.595	1.401	2213.215	.055%	98.203%
55.0	15.099	1.370	2214.585	.054%	98.263%
56.0	14.597	1.342	2215.927	.053%	98.323%
57.0	14.088	1.312	2217.238	.052%	98.381%
58.0	13.654	1.283	2218.521	.051%	98.438%
59.0	13.227	1.257	2219.778	.050%	98.494%
60.0	12.794	1.229	2221.007	.048%	98.548%
61.0	12.401	1.202	2222.21	.047%	98.602%
62.0	12.099	1.181	2223.39	.047%	98.654%
63.0	11.816	1.163	2224.553	.046%	98.706%
64.0	11.569	1.148	2225.701	.045%	98.757%
65.0	11.369	1.135	2226.836	.045%	98.807%
66.0	11.197	1.126	2227.962	.044%	98.857%
67.0	11.039	1.118	2229.08	.044%	98.907%
68.0	10.874	1.110	2230.19	.044%	98.956%
69.0	10.743	1.103	2231.293	.043%	99.005%
70.0	10.633	1.098	2232.39	.043%	99.054%
71.0	10.516	1.093	2233.484	.043%	99.102%
72.0	10.406	1.088	2234.571	.043%	99.150%
73.0	10.316	1.084	2235.655	.043%	99.198%
74.0	10.254	1.081	2236.736	.043%	99.246%
75.0	10.151	1.078	2237.815	.042%	99.294%

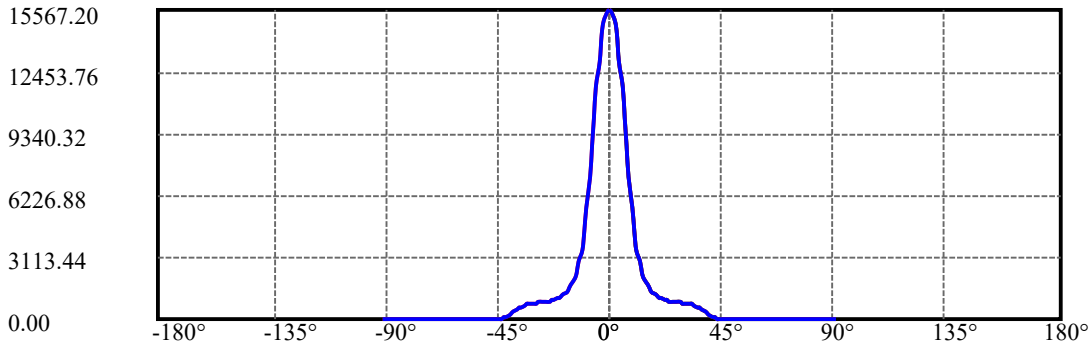
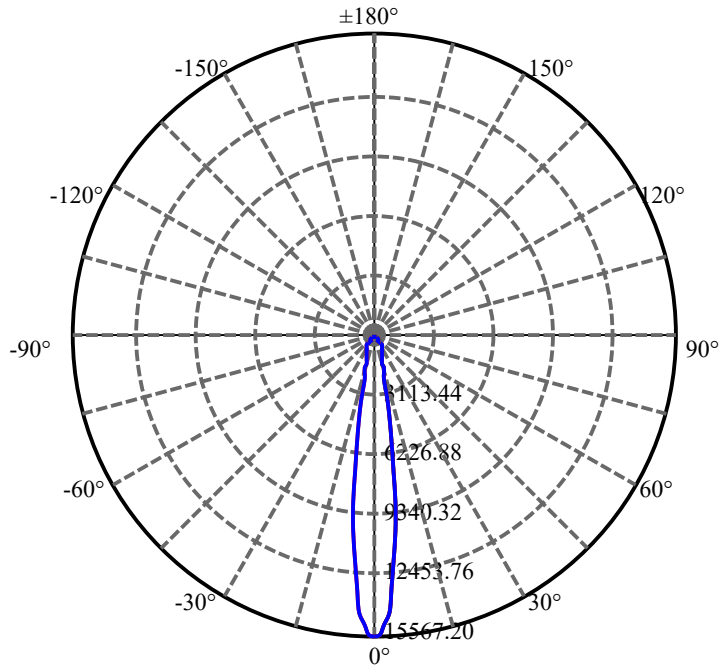
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.089	1.074	2238.889	.042%	99.342%
77.0	10.020	1.072	2239.961	.042%	99.389%
78.0	9.958	1.069	2241.031	.042%	99.437%
79.0	9.910	1.068	2242.098	.042%	99.484%
80.0	9.862	1.066	2243.164	.042%	99.532%
81.0	9.814	1.064	2244.228	.042%	99.579%
82.0	9.786	1.063	2245.291	.042%	99.626%
83.0	9.738	1.061	2246.352	.042%	99.673%
84.0	9.717	1.060	2247.412	.042%	99.720%
85.0	9.690	1.059	2248.471	.042%	99.767%
86.0	9.642	1.057	2249.528	.042%	99.814%
87.0	9.600	1.053	2250.581	.042%	99.861%
88.0	9.552	1.049	2251.63	.041%	99.907%
89.0	9.539	1.046	2252.677	.041%	99.954%
90.0	9.518	1.045	2253.722	.041%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1819.27	71.71%	80.72%
0-40	2171.02	85.57%	96.33%
0-60	2221.01	87.54%	98.55%
0-90	2252.68	88.79%	99.95%
0-120	2252.68	88.79%	99.95%
0-180	2253.72	88.83%	100.00%
60-90	32.90	1.30%	1.46%
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%
0-29.63	1802.98	71.07%	80.00%

ZONAL LUMEN SUMMARY

0-10	865.77
10-20	538.71
20-30	414.78
30-40	351.75
40-50	36.36
50-60	13.62
60-70	11.38
70-80	10.77
80-90	9.51
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



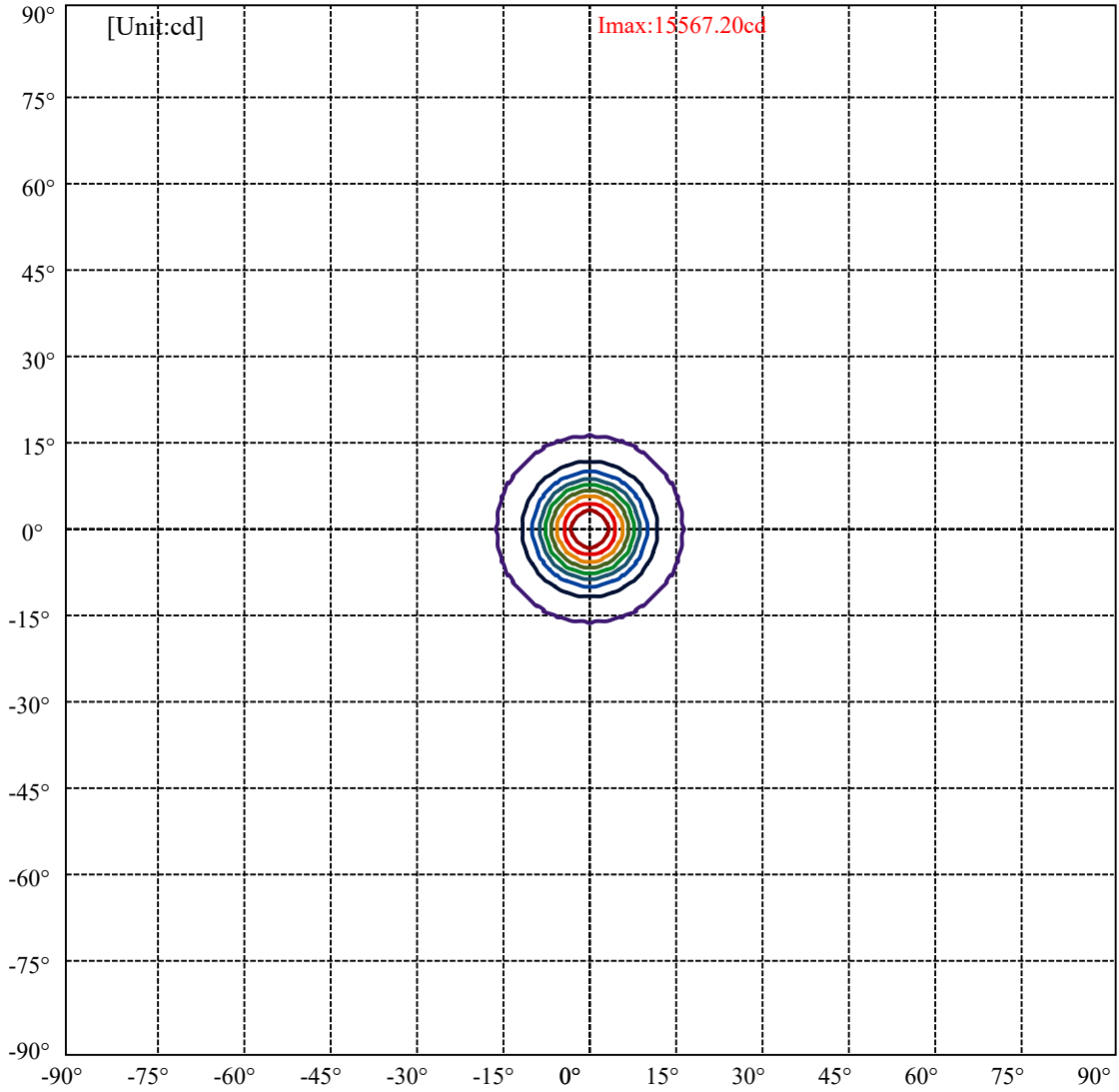
C0(Max): —————

C0/C180: —————

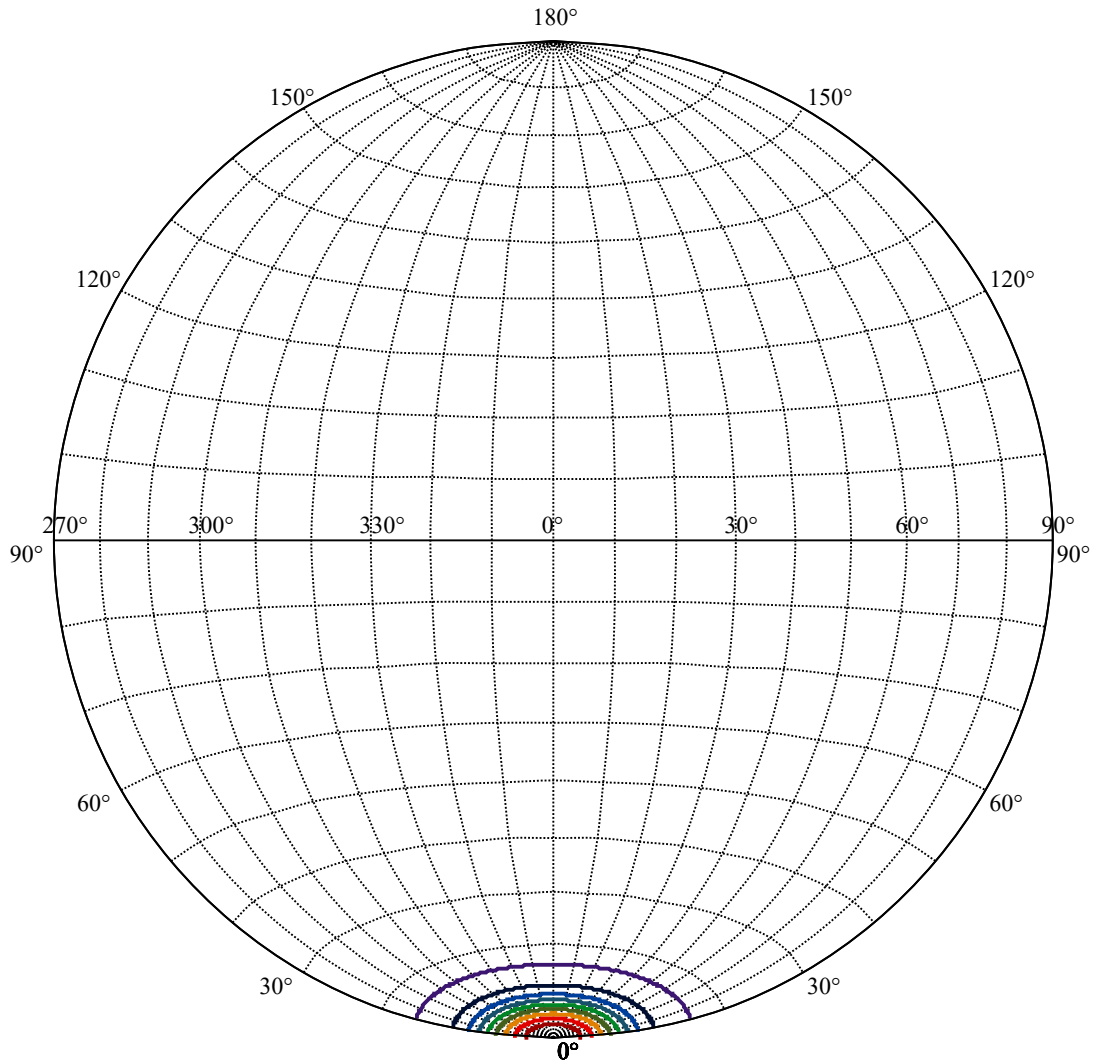
C90/C270: —————

Field angle(10%Imax):C0/180Left:16.0 Right:16.0
:C90/270Left:16.0 Right:16.0

Beam Angle(50%Imax):C0/180Left:7.6 Right:7.6
:C90/270Left:7.6 Right:7.6



(10%Imax) 1556.72	—
(20%Imax) 3113.44	—
(30%Imax) 4670.16	—
(40%Imax) 6226.88	—
(50%Imax) 7783.6	—
(60%Imax) 9340.32	—
(70%Imax) 10897	—
(80%Imax) 12453.8	—
(90%Imax) 14010.5	—



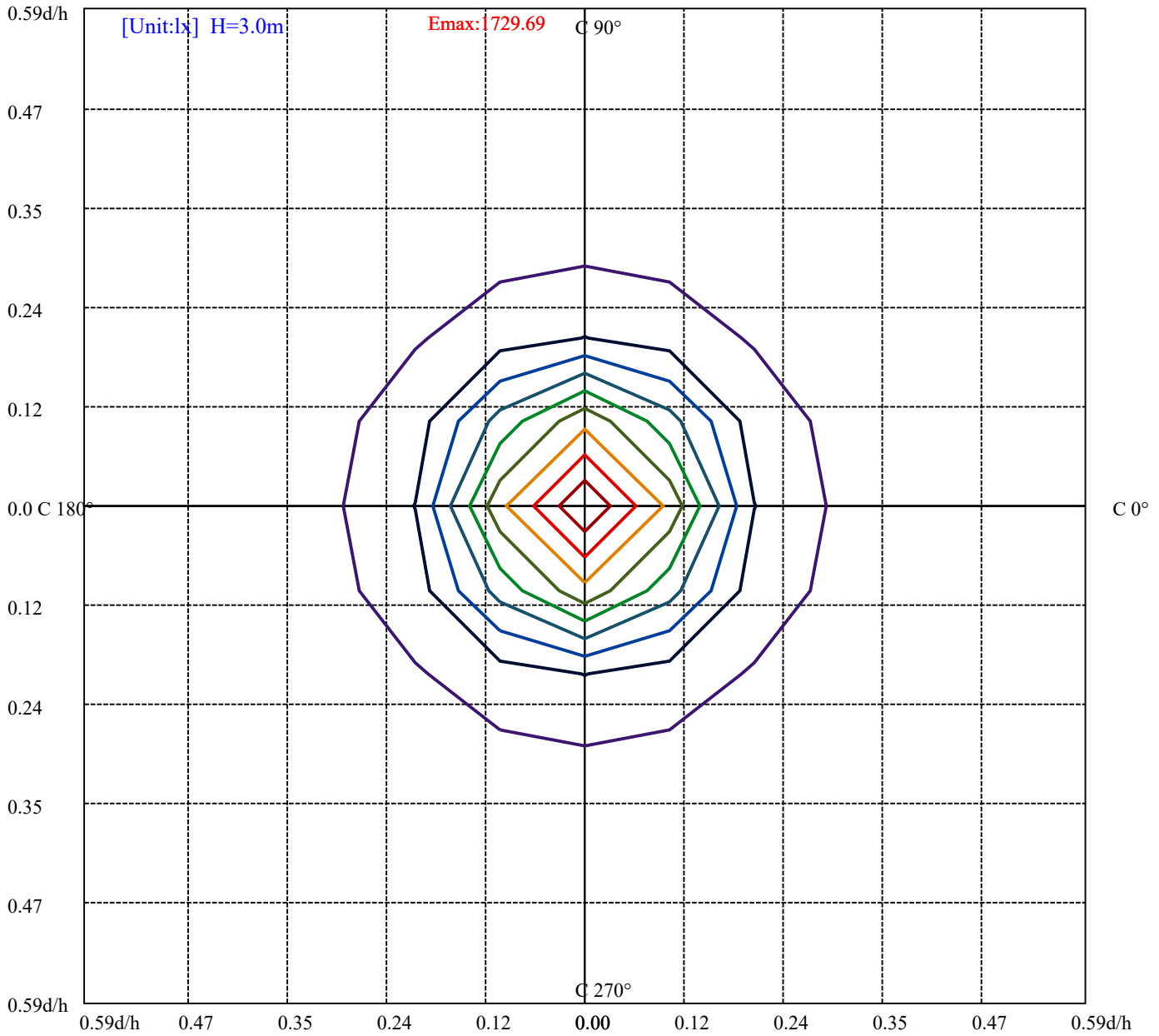
House

[Unit:cd]

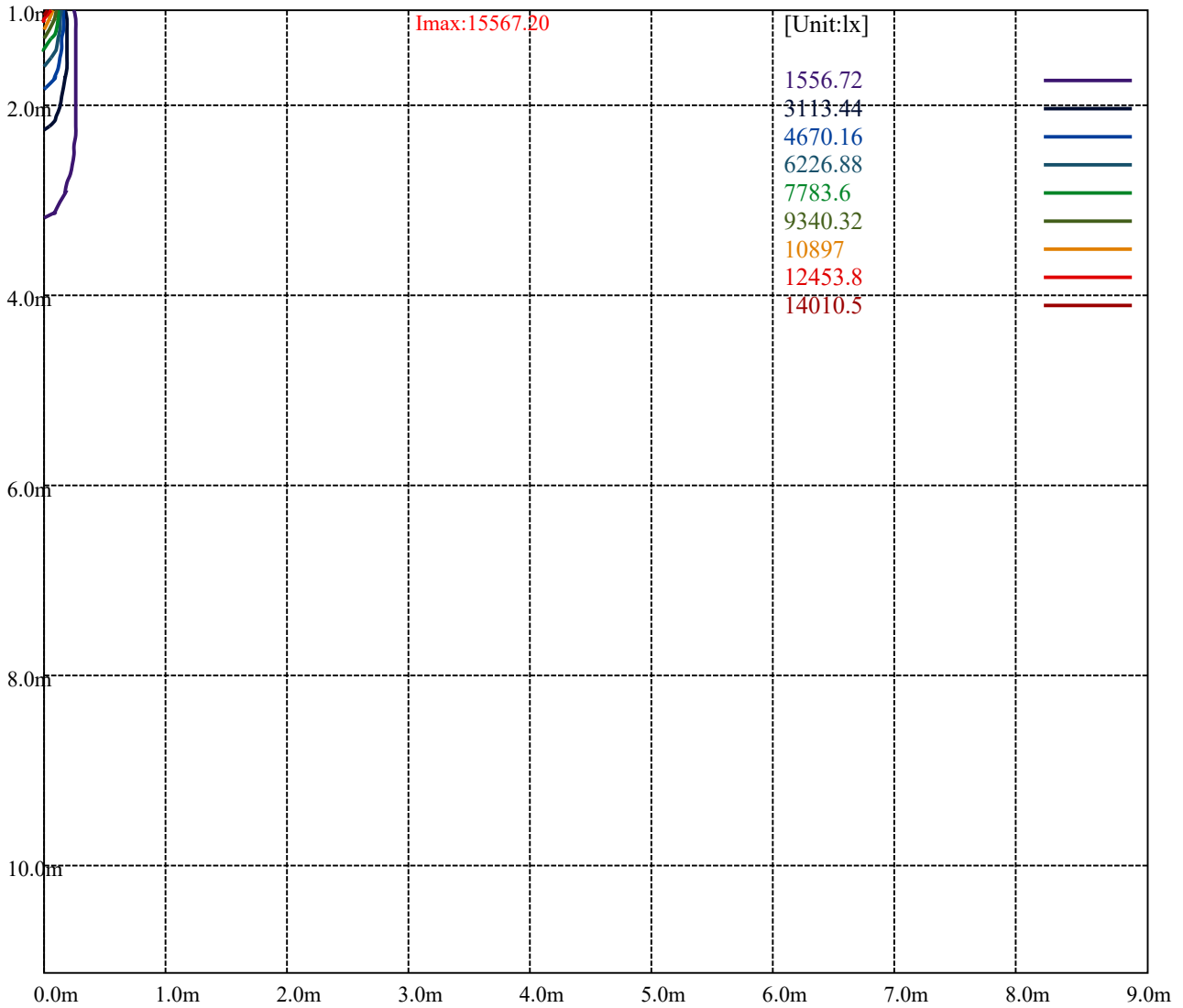
Road

Imax:15567.20

(10%Imax)	1556.72	—
(20%Imax)	3113.44	—
(30%Imax)	4670.16	—
(40%Imax)	6226.88	—
(50%Imax)	7783.6	—
(60%Imax)	9340.32	—
(70%Imax)	10897	—
(80%Imax)	12453.8	—
(90%Imax)	14010.5	—



(10%Emax) 172.9689	—
(20%Emax) 345.9378	—
(30%Emax) 518.9055	—
(40%Emax) 691.8745	—
(50%Emax) 864.8433	—
(60%Emax) 1037.812	—
(70%Emax) 1210.778	—
(80%Emax) 1383.745	—
(90%Emax) 1556.722	—



Luminance Table

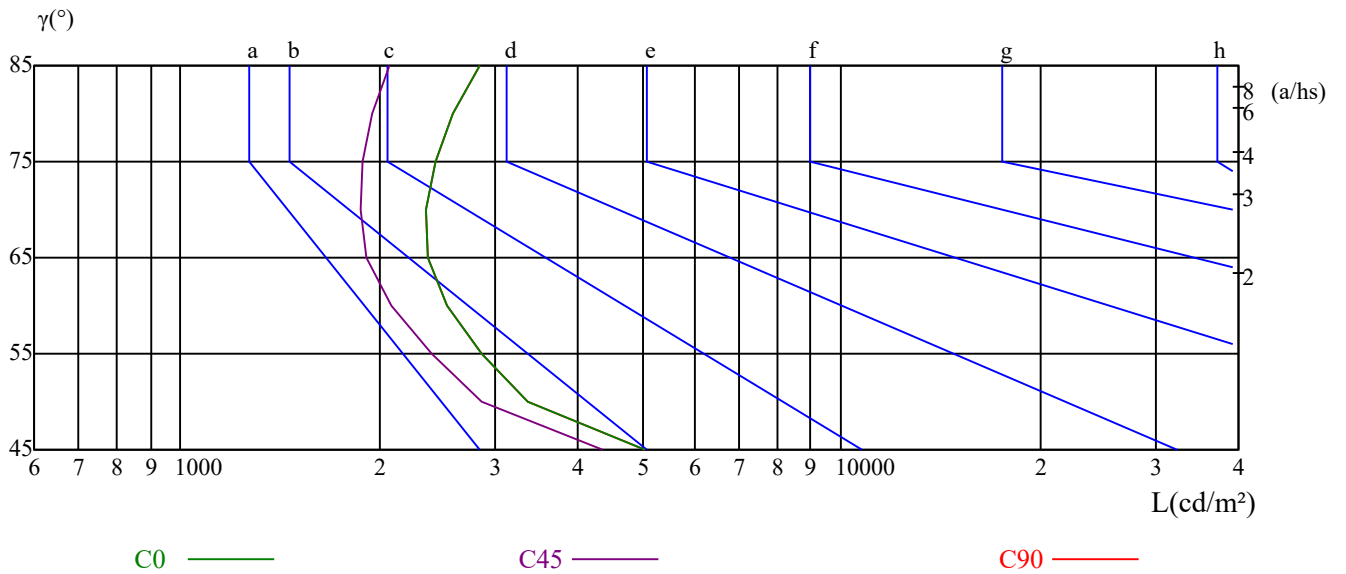
γ	45	50	55	60	65	70	75	80	85
C0	5035	3347	2862	2530	2369	2361	2431	2585	2829
C45	4349	2848	2398	2085	1918	1873	1887	1956	2076
C90	5035	3347	2862	2530	2369	2361	2431	2585	2829

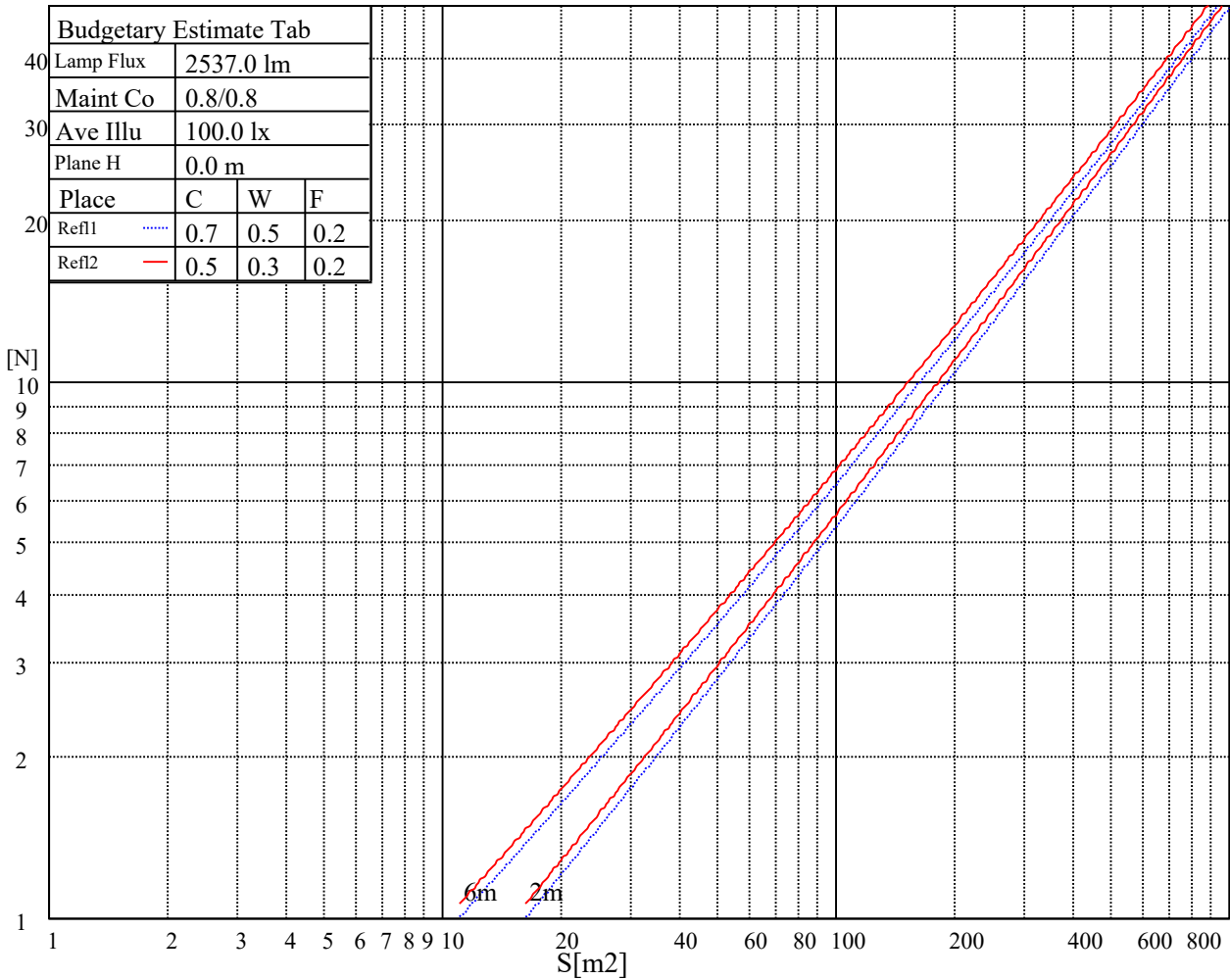
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5490	5490	5490	8004	8004	8004	22690	22690	22690

Glare Table

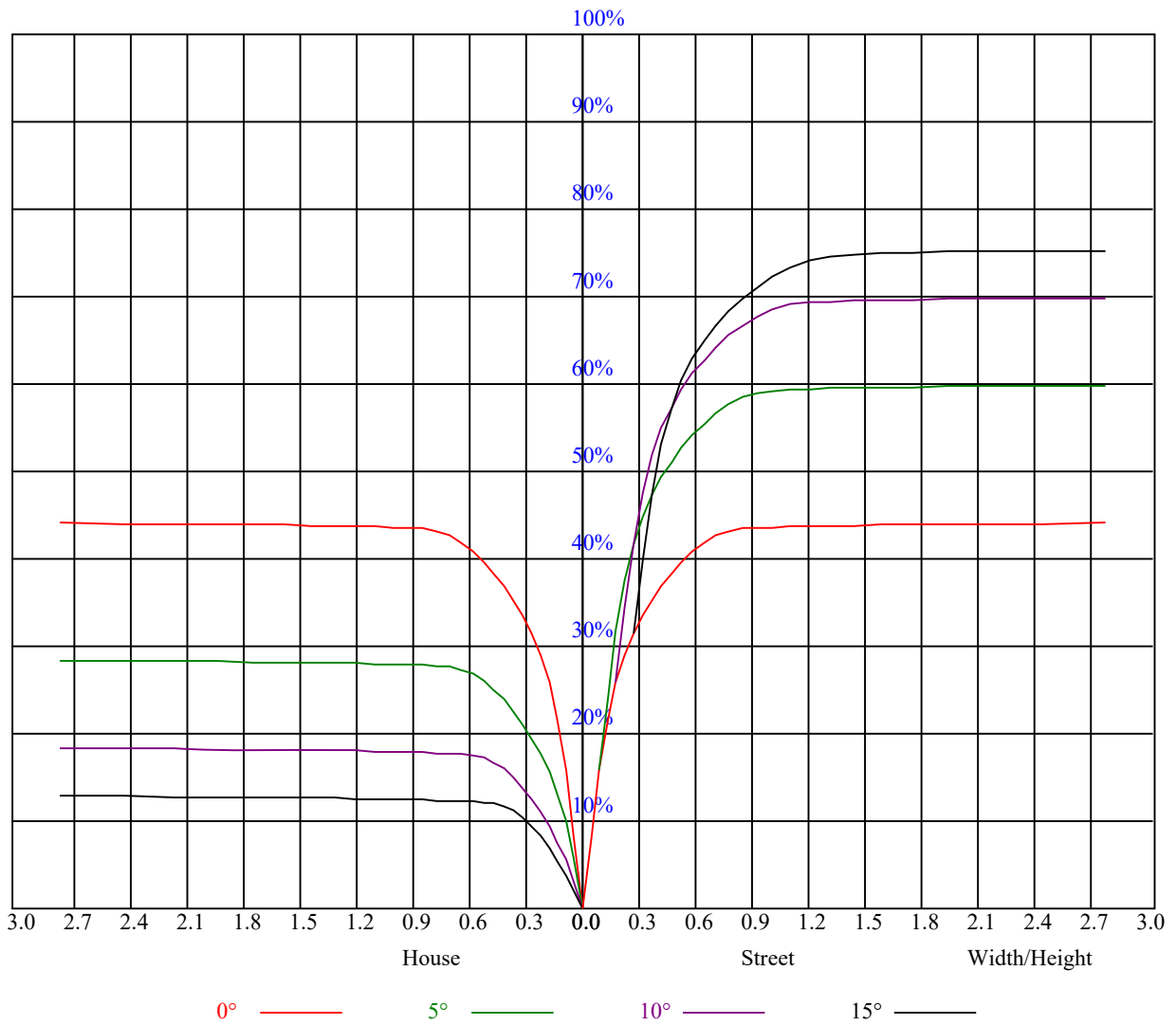
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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 RHOF=20 CU															
0	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.99	0.98	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.88	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.85	0.84	0.85	0.83	0.82	0.81
3	0.89	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.81	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	0.77	0.74	0.81	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
6	0.78	0.74	0.71	0.78	0.74	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	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
8	0.73	0.68	0.66	0.72	0.68	0.65	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	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.66	0.63	0.61	0.60



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	15536.92	15658.04	15503.88	15107.48	14413.77	13257.58	11798.59	10339.59	8594.30
45.0	15614.00	15454.33	14980.85	14254.10	13097.92	11820.61	10163.41	8390.60	6876.54
90.0	15503.88	15118.49	14342.19	13197.02	10988.16	10416.67	8442.90	6882.05	5479.21
135.0	15614.00	15382.76	14595.45	13670.50	12618.93	10868.13	9106.33	7713.40	5880.02
180.0	15536.92	15190.06	14463.32	13351.18	10808.67	10231.13	8645.51	7068.14	5468.75
225.0	15614.00	15514.89	15184.56	14391.74	13411.74	10878.04	10319.77	8789.20	7253.68
270.0	15503.88	15647.03	15520.40	15168.04	14430.28	13439.27	12024.32	10587.35	8853.07
315.0	15614.00	15669.05	15481.86	14997.36	14254.10	13053.87	10833.45	10074.77	8500.16
360.0	15536.92	15658.04	15503.88	15107.48	14413.77	13257.58	11798.59	10339.59	8594.30
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6882.05	5522.16	4283.39	3463.05	2785.85	2316.22	2001.85	1756.85	1523.41
45.0	5373.50	4162.26	3358.44	2824.39	2229.78	1922.57	1692.98	1511.30	1334.57
90.0	4206.31	3289.62	2702.17	2223.73	1881.28	1660.50	1472.76	1340.62	1220.05
135.0	4536.65	3727.32	2884.96	2813.38	2015.06	1729.32	1537.17	1379.16	1229.41
180.0	4325.78	3387.62	2724.19	2295.85	1944.04	1687.48	1505.79	1360.99	1221.15
225.0	5510.04	4385.24	3524.71	2759.98	2325.58	2004.60	1712.25	1550.94	1383.57
270.0	7146.32	5610.25	4492.60	3617.21	2824.39	2561.22	2050.30	1795.94	1550.39
315.0	6774.14	5258.44	4182.63	3292.92	2665.28	2265.57	1937.43	1711.15	1511.85
360.0	6882.05	5522.16	4283.39	3463.05	2785.85	2316.22	2001.85	1756.85	1523.41
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1376.41	1260.79	1151.23	1082.96	1028.45	978.35	938.71	910.63	885.31
45.0	1226.66	1149.58	1075.25	1023.50	978.35	945.87	915.59	893.01	869.89
90.0	1094.19	1065.01	1015.74	964.20	937.45	911.13	882.61	865.98	850.13
135.0	1140.77	1080.21	1018.54	977.25	943.67	913.94	890.81	873.19	853.92
180.0	1097.55	1066.06	1013.48	961.67	929.52	902.54	875.62	857.06	841.59
225.0	1243.72	1149.03	1091.66	1027.35	975.76	938.93	902.26	879.20	859.71
270.0	1396.23	1277.86	1163.34	1090.12	1032.31	981.66	942.02	912.84	885.86
315.0	1352.19	1240.97	1095.73	1064.19	1010.84	967.45	923.79	895.60	873.69
360.0	1376.41	1260.79	1151.23	1082.96	1028.45	978.35	938.71	910.63	885.31
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	864.39	845.67	829.70	816.49	802.72	788.41	776.30	758.13	708.03
45.0	853.37	838.51	823.09	811.53	797.77	782.35	753.72	702.52	617.18
90.0	834.93	820.23	807.79	793.36	780.86	751.35	694.37	625.11	536.30
135.0	840.16	825.85	810.98	798.87	784.55	753.17	700.32	634.25	537.35
180.0	826.67	813.02	800.91	786.54	774.48	745.85	685.73	619.11	532.12
225.0	842.69	824.19	811.20	798.15	783.84	770.07	752.29	704.83	633.15
270.0	864.94	844.57	826.95	813.18	799.42	784.55	772.99	755.37	703.62
315.0	852.11	834.43	821.00	807.07	794.68	780.70	766.61	738.09	677.69
360.0	864.39	845.67	829.70	816.49	802.72	788.41	776.30	758.13	708.03
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	634.80	558.27	475.14	364.47	278.59	229.59	113.91	61.99	37.44
45.0	540.65	459.72	361.72	284.64	185.21	106.20	53.68	34.25	30.61
90.0	442.60	358.69	275.45	176.18	106.92	58.47	35.95	30.78	27.58
135.0	453.11	373.28	285.19	179.70	116.83	61.61	34.58	31.27	27.69
180.0	437.92	353.35	270.66	174.69	108.08	57.53	35.95	32.10	28.63
225.0	556.29	463.19	376.92	280.35	193.25	125.47	73.78	38.43	32.98
270.0	636.45	558.82	464.13	366.68	282.44	189.45	112.98	64.14	37.88
315.0	598.52	518.63	433.79	324.39	241.31	166.33	90.73	50.43	34.69
360.0	634.80	558.27	475.14	364.47	278.59	229.59	113.91	61.99	37.44

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	31.60	28.08	24.72	21.97	19.66	18.77	17.95	17.23	16.52
45.0	27.53	24.06	21.91	20.48	18.88	18.00	17.34	16.74	16.02
90.0	24.39	22.02	20.43	19.60	18.77	18.00	17.34	16.68	16.19
135.0	24.45	22.35	20.87	19.49	18.77	17.95	17.18	16.63	15.91
180.0	24.72	22.68	20.76	19.77	18.94	18.06	17.29	16.63	16.08
225.0	29.29	24.39	21.86	20.04	18.83	17.95	17.29	16.57	15.97
270.0	32.76	28.68	24.39	22.02	20.21	18.44	17.73	17.01	16.24
315.0	30.56	26.87	23.51	21.20	19.77	18.88	17.95	17.34	16.68
360.0	31.60	28.08	24.72	21.97	19.66	18.77	17.95	17.23	16.52
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	15.86	15.36	14.81	14.26	13.82	13.43	12.94	12.55	12.22
45.0	15.53	15.03	14.53	14.15	13.71	13.27	12.83	12.50	12.17
90.0	15.58	15.03	14.59	14.15	13.65	13.21	12.83	12.44	12.17
135.0	15.47	15.03	14.53	14.04	13.60	13.21	12.83	12.50	12.22
180.0	15.42	14.92	14.48	13.93	13.43	12.99	12.55	12.17	11.95
225.0	15.36	14.81	14.31	13.82	13.43	12.99	12.61	12.22	11.89
270.0	15.64	15.14	14.59	14.04	13.65	13.21	12.83	12.39	12.06
315.0	15.91	15.47	14.92	14.31	13.93	13.49	12.94	12.44	12.11
360.0	15.86	15.36	14.81	14.26	13.82	13.43	12.94	12.55	12.22
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.95	11.67	11.45	11.29	11.12	10.90	10.79	10.68	10.57
45.0	11.95	11.73	11.51	11.34	11.18	10.96	10.85	10.74	10.57
90.0	11.89	11.62	11.45	11.29	11.12	10.96	10.79	10.68	10.57
135.0	11.95	11.67	11.51	11.29	11.12	10.96	10.85	10.74	10.57
180.0	11.62	11.45	11.23	11.07	10.96	10.85	10.68	10.57	10.46
225.0	11.67	11.40	11.23	11.07	10.90	10.79	10.68	10.57	10.46
270.0	11.78	11.56	11.29	11.12	10.96	10.79	10.68	10.57	10.46
315.0	11.73	11.45	11.29	11.12	10.96	10.79	10.63	10.52	10.46
360.0	11.95	11.67	11.45	11.29	11.12	10.90	10.79	10.68	10.57
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.41	10.35	10.30	10.19	10.13	10.08	9.97	9.97	9.91
45.0	10.46	10.35	10.30	10.19	10.13	10.02	9.97	9.91	9.86
90.0	10.52	10.41	10.30	10.19	10.13	10.02	9.97	9.91	9.86
135.0	10.46	10.41	10.35	10.24	10.13	10.08	9.97	9.91	9.91
180.0	10.35	10.30	10.24	10.13	10.08	10.02	9.97	9.91	9.86
225.0	10.35	10.24	10.19	10.08	10.02	9.97	9.91	9.86	9.80
270.0	10.35	10.24	10.19	10.13	10.08	10.02	9.97	9.91	9.86
315.0	10.35	10.24	10.19	10.08	10.02	9.97	9.97	9.91	9.86
360.0	10.41	10.35	10.30	10.19	10.13	10.08	9.97	9.97	9.91
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.86	9.86	9.80	9.74	9.74	9.69	9.63	9.63	9.58
45.0	9.80	9.74	9.69	9.69	9.63	9.58	9.58	9.47	9.47
90.0	9.80	9.80	9.69	9.69	9.63	9.63	9.52	9.52	9.52
135.0	9.86	9.80	9.74	9.74	9.69	9.63	9.58	9.52	9.52
180.0	9.80	9.80	9.74	9.69	9.69	9.58	9.58	9.58	9.58
225.0	9.80	9.74	9.74	9.74	9.69	9.63	9.58	9.52	9.52
270.0	9.80	9.74	9.74	9.69	9.69	9.69	9.63	9.58	9.58
315.0	9.80	9.80	9.74	9.74	9.74	9.69	9.69	9.58	9.52
360.0	9.86	9.86	9.80	9.74	9.74	9.69	9.63	9.63	9.58

Intensity data(cd)

<i>C/γ</i> (°)	90.0
0.0	9.58
45.0	9.47
90.0	9.52
135.0	9.52
180.0	9.52
225.0	9.47
270.0	9.52
315.0	9.52
360.0	9.58