
Nata

LumCAT: 3-1698-N
Luminaire: 92.70.045.00+92.70.089.00
Report No: NT2017122905
Test No: nata-0100
LampCAT: NICHIA NVEWJ048Z-V1
Lamp flux(lm): 3051.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 43.4000
Current(A): 0.5000
Power (W): 21.7000
PF: 0.0000
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 2463.94
Efficiency(%): 80.76%
Lumens(lm)/Power(W): 113.55
Central intensity(cd): 15443.320
Maximum intensity(cd): 15443.320
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=17.8
 [C90/270]Total=17.8
Field angle(10%Imax): [C0/180]Total=34.4
 [C90/270]Total=34.4
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(%): 80.88%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.765%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15443.320	3.695	3.695	.121%	.150%
1.0	15350.413	29.378	33.073	.963%	1.342%
2.0	15068.248	57.668	90.741	1.890%	3.683%
3.0	14536.266	83.427	174.168	2.734%	7.069%
4.0	13808.833	105.631	279.799	3.462%	11.356%
5.0	12793.043	122.270	402.069	4.008%	16.318%
6.0	11628.944	133.299	535.368	4.369%	21.728%
7.0	10359.963	138.454	673.822	4.538%	27.347%
8.0	9056.296	138.216	812.038	4.530%	32.957%
9.0	7574.522	129.939	941.977	4.259%	38.231%
10.0	6167.693	117.448	1059.424	3.849%	42.997%
11.0	5047.364	105.612	1165.037	3.462%	47.284%
12.0	4029.096	91.863	1256.899	3.011%	51.012%
13.0	3149.914	77.703	1334.603	2.547%	54.165%
14.0	2632.797	69.846	1404.449	2.289%	57.000%
15.0	2179.270	61.853	1466.302	2.027%	59.511%
16.0	1769.582	53.488	1519.79	1.753%	61.681%
17.0	1576.884	50.558	1570.348	1.657%	63.733%
18.0	1421.763	48.179	1618.527	1.579%	65.689%
19.0	1266.896	45.231	1663.758	1.482%	67.524%
20.0	1166.693	43.758	1707.516	1.434%	69.300%
21.0	1081.576	42.505	1750.021	1.393%	71.025%
22.0	995.268	40.885	1790.907	1.340%	72.685%
23.0	915.650	39.234	1830.14	1.286%	74.277%
24.0	845.756	37.723	1867.864	1.236%	75.808%
25.0	771.251	35.743	1903.607	1.172%	77.259%
26.0	710.723	34.166	1937.773	1.120%	78.645%
27.0	654.283	32.573	1970.346	1.068%	79.967%
28.0	601.464	30.965	2001.311	1.015%	81.224%
29.0	552.670	29.383	2030.694	.963%	82.417%
30.0	510.001	27.964	2058.657	.917%	83.552%
31.0	463.774	26.194	2084.851	.859%	84.615%
32.0	423.088	24.586	2109.437	.806%	85.612%
33.0	391.038	23.355	2132.792	.765%	86.560%
34.0	357.295	21.910	2154.702	.718%	87.450%
35.0	329.072	20.698	2175.401	.678%	88.290%
36.0	303.932	19.591	2194.991	.642%	89.085%
37.0	281.545	18.581	2213.572	.609%	89.839%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	257.630	17.394	2230.965	.570%	90.545%
39.0	242.991	16.769	2247.735	.550%	91.225%
40.0	222.903	15.712	2263.447	.515%	91.863%
41.0	207.287	14.913	2278.36	.489%	92.468%
42.0	191.755	14.070	2292.43	.461%	93.039%
43.0	174.632	13.060	2305.491	.428%	93.569%
44.0	160.249	12.207	2317.698	.400%	94.065%
45.0	146.429	11.354	2329.053	.372%	94.526%
46.0	132.053	10.417	2339.469	.341%	94.948%
47.0	117.917	9.457	2348.926	.310%	95.332%
48.0	106.279	8.661	2357.587	.284%	95.684%
49.0	93.727	7.757	2365.344	.254%	95.999%
50.0	82.853	6.960	2372.305	.228%	96.281%
51.0	74.361	6.337	2378.642	.208%	96.538%
52.0	65.992	5.703	2384.344	.187%	96.770%
53.0	58.057	5.085	2389.429	.167%	96.976%
54.0	51.202	4.543	2393.972	.149%	97.160%
55.0	44.781	4.023	2397.994	.132%	97.324%
56.0	38.973	3.543	2401.537	.116%	97.467%
57.0	34.452	3.168	2404.706	.104%	97.596%
58.0	30.281	2.816	2407.522	.092%	97.710%
59.0	27.081	2.546	2410.067	.083%	97.814%
60.0	24.562	2.333	2412.4	.076%	97.908%
61.0	22.731	2.180	2414.58	.071%	97.997%
62.0	21.747	2.106	2416.686	.069%	98.082%
63.0	21.169	2.068	2418.754	.068%	98.166%
64.0	20.577	2.028	2420.783	.066%	98.249%
65.0	20.047	1.992	2422.775	.065%	98.329%
66.0	19.628	1.966	2424.741	.064%	98.409%
67.0	19.167	1.935	2426.676	.063%	98.488%
68.0	18.760	1.907	2428.583	.063%	98.565%
69.0	18.403	1.884	2430.467	.062%	98.642%
70.0	18.038	1.859	2432.326	.061%	98.717%
71.0	17.673	1.832	2434.159	.060%	98.791%
72.0	17.357	1.810	2435.969	.059%	98.865%
73.0	17.095	1.793	2437.762	.059%	98.938%
74.0	16.833	1.774	2439.536	.058%	99.010%
75.0	16.648	1.763	2441.299	.058%	99.081%

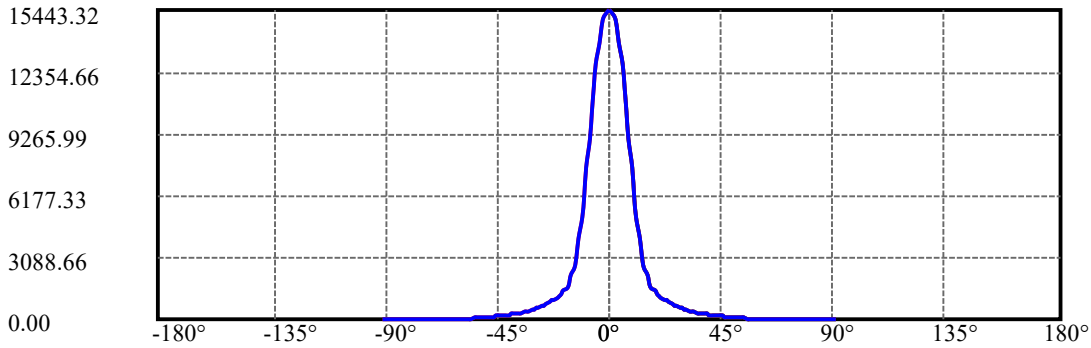
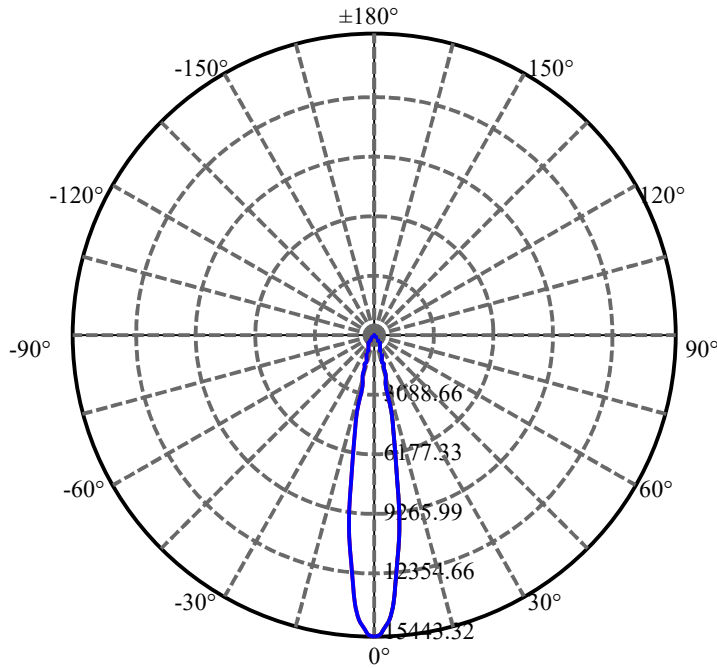
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	16.441	1.749	2443.049	.057%	99.152%
77.0	16.283	1.740	2444.789	.057%	99.223%
78.0	16.138	1.731	2446.52	.057%	99.293%
79.0	15.925	1.714	2448.234	.056%	99.363%
80.0	15.684	1.694	2449.928	.056%	99.431%
81.0	15.381	1.666	2451.594	.055%	99.499%
82.0	14.989	1.628	2453.222	.053%	99.565%
83.0	14.528	1.581	2454.803	.052%	99.629%
84.0	14.101	1.538	2456.341	.050%	99.692%
85.0	13.585	1.484	2457.825	.049%	99.752%
86.0	13.131	1.436	2459.261	.047%	99.810%
87.0	12.608	1.381	2460.642	.045%	99.866%
88.0	12.298	1.348	2461.99	.044%	99.921%
89.0	11.906	1.305	2463.295	.043%	99.974%
90.0	11.713	0.642	2463.937	.021%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2058.66	67.47%	83.55%
0-40	2263.45	74.19%	91.86%
0-60	2412.40	79.07%	97.91%
0-90	2463.30	80.74%	99.97%
0-120	2463.30	80.74%	99.97%
0-180	2463.94	80.76%	100.00%
60-90	53.23	1.74%	2.16%
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%
0-27.03	1971.15	64.61%	80.00%

ZONAL LUMEN SUMMARY

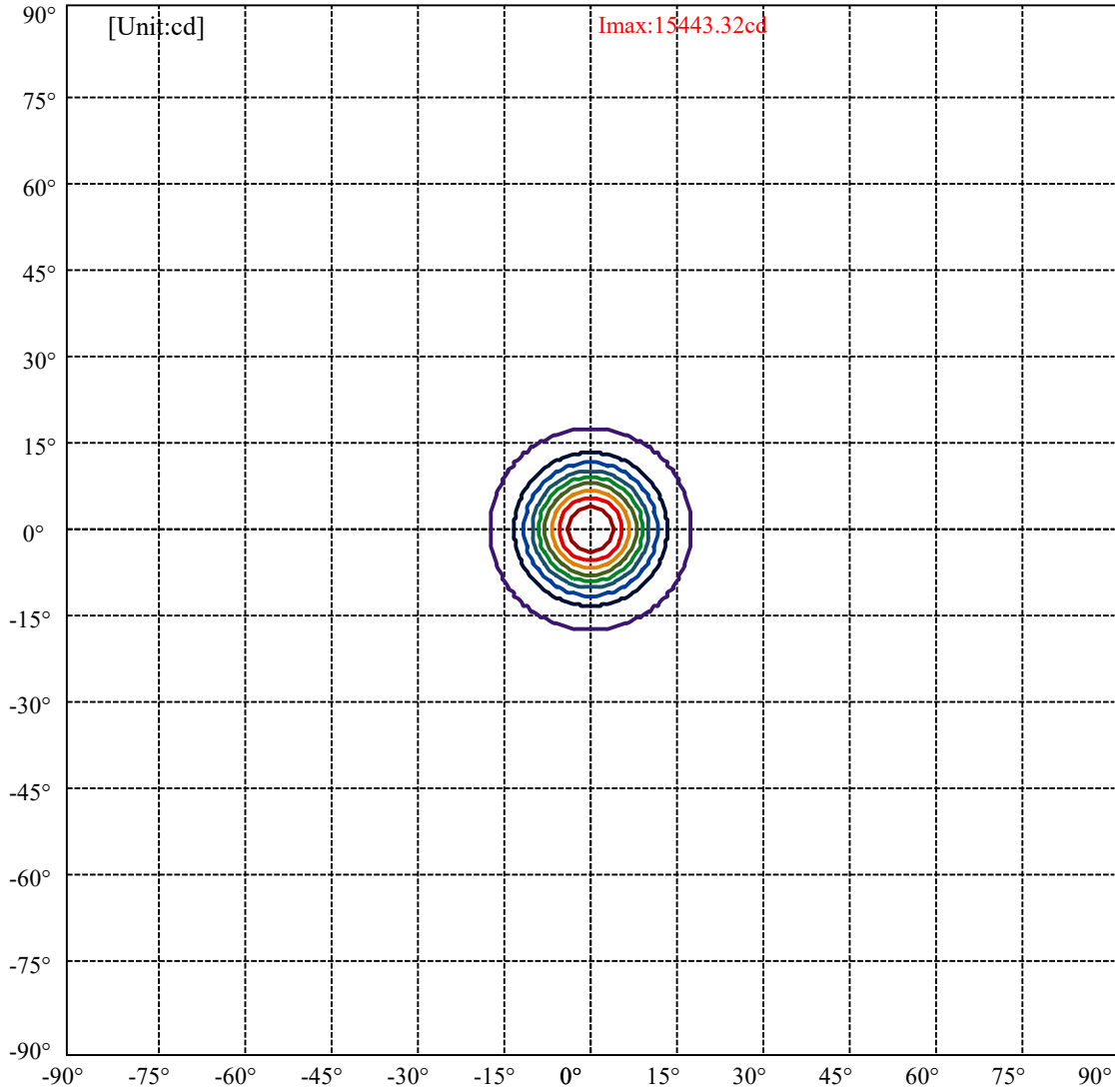
0-10	1059.42
10-20	648.09
20-30	351.14
30-40	204.79
40-50	108.86
50-60	40.10
60-70	19.93
70-80	17.60
80-90	13.37
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



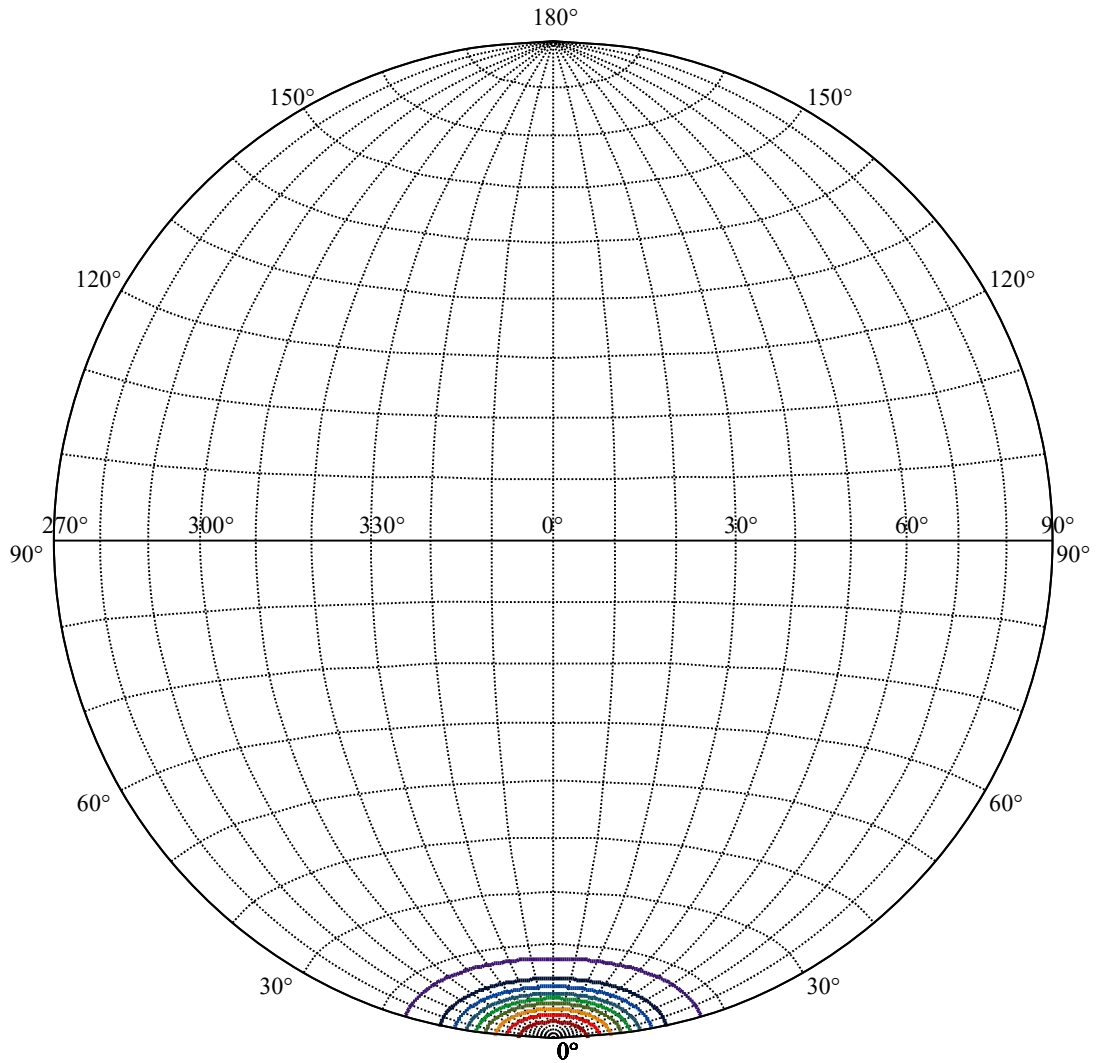
C0(Max): —————
C0/C180: —————
C90/C270: —————

Field angle(10%Imax):C0/180Left:17.2 Right:17.2
:C90/270Left:17.2 Right:17.2

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



(10%Imax) 1544.33	—
(20%Imax) 3088.66	—
(30%Imax) 4633	—
(40%Imax) 6177.33	—
(50%Imax) 7721.66	—
(60%Imax) 9265.99	—
(70%Imax) 10810.3	—
(80%Imax) 12354.7	—
(90%Imax) 13899	—



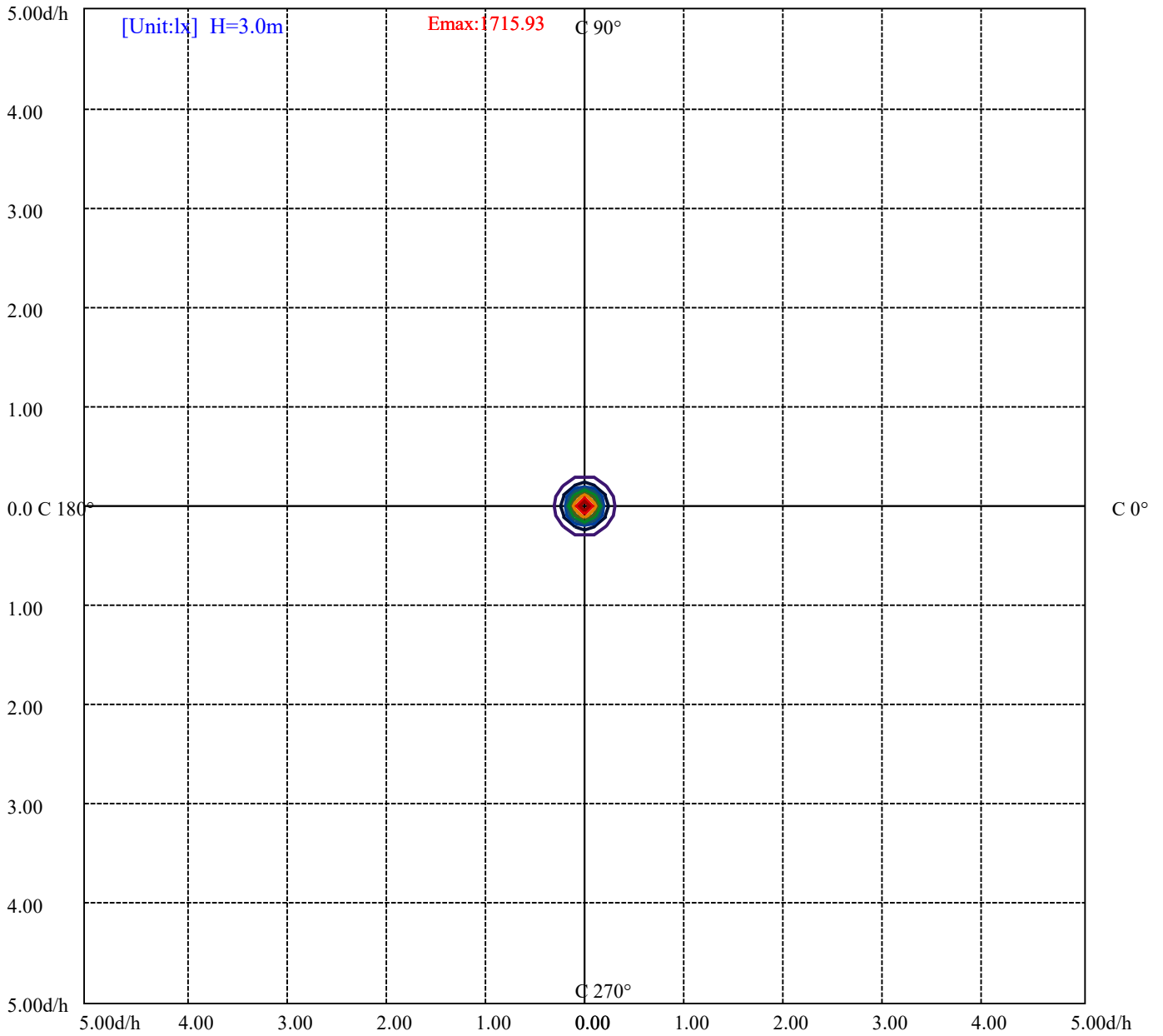
House

[Unit:cd]

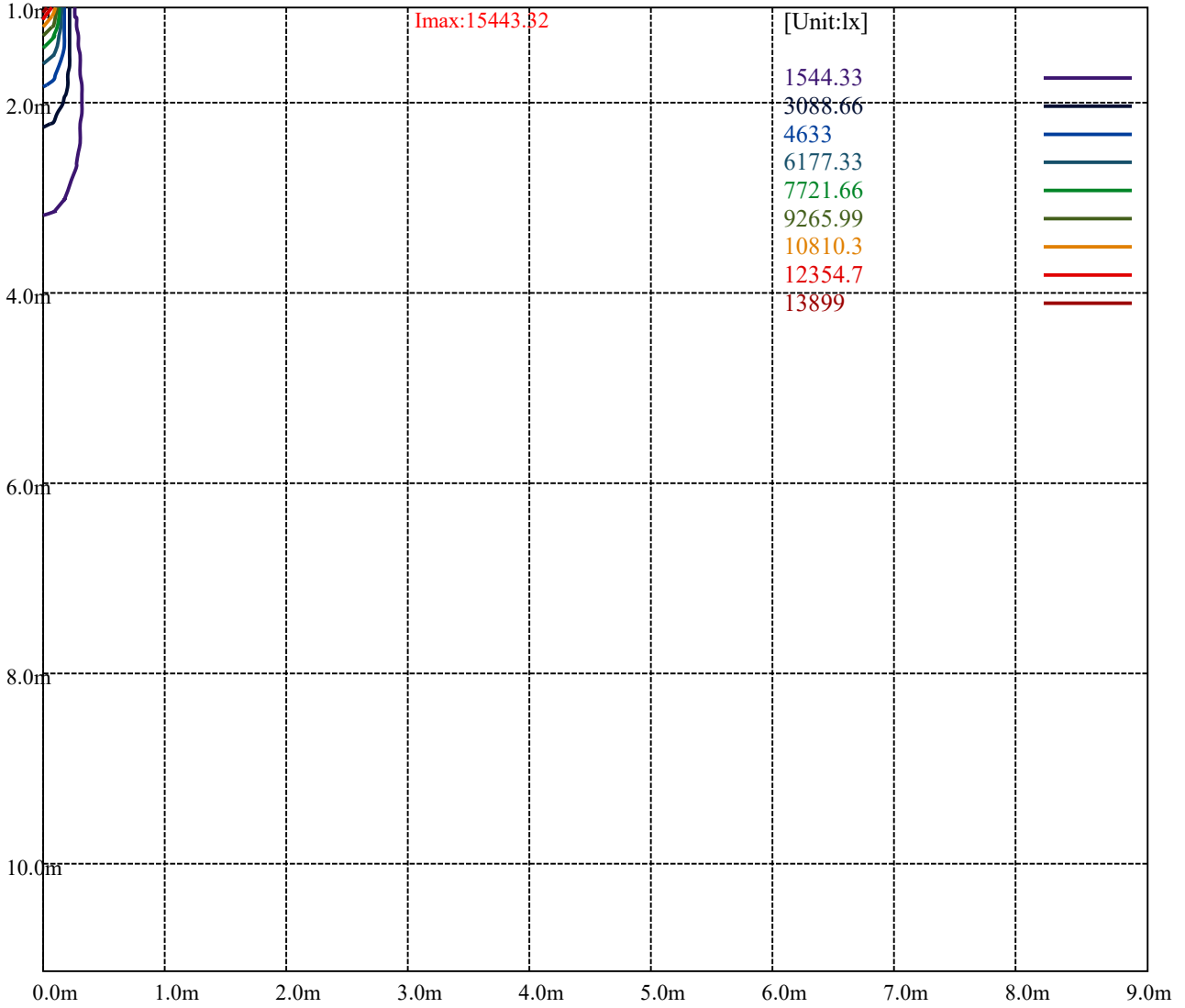
Road

Imax:15443.32

(10%Imax) 1544.33	—
(20%Imax) 3088.66	—
(30%Imax) 4633	—
(40%Imax) 6177.33	—
(50%Imax) 7721.66	—
(60%Imax) 9265.99	—
(70%Imax) 10810.3	—
(80%Imax) 12354.7	—
(90%Imax) 13899	—



- (10%Emax) 171.5922
- (20%Emax) 343.1844
- (30%Emax) 514.7767
- (40%Emax) 686.3689
- (50%Emax) 857.9611
- (60%Emax) 1029.553
- (70%Emax) 1201.144
- (80%Emax) 1372.733
- (90%Emax) 1544.333



Luminance Table

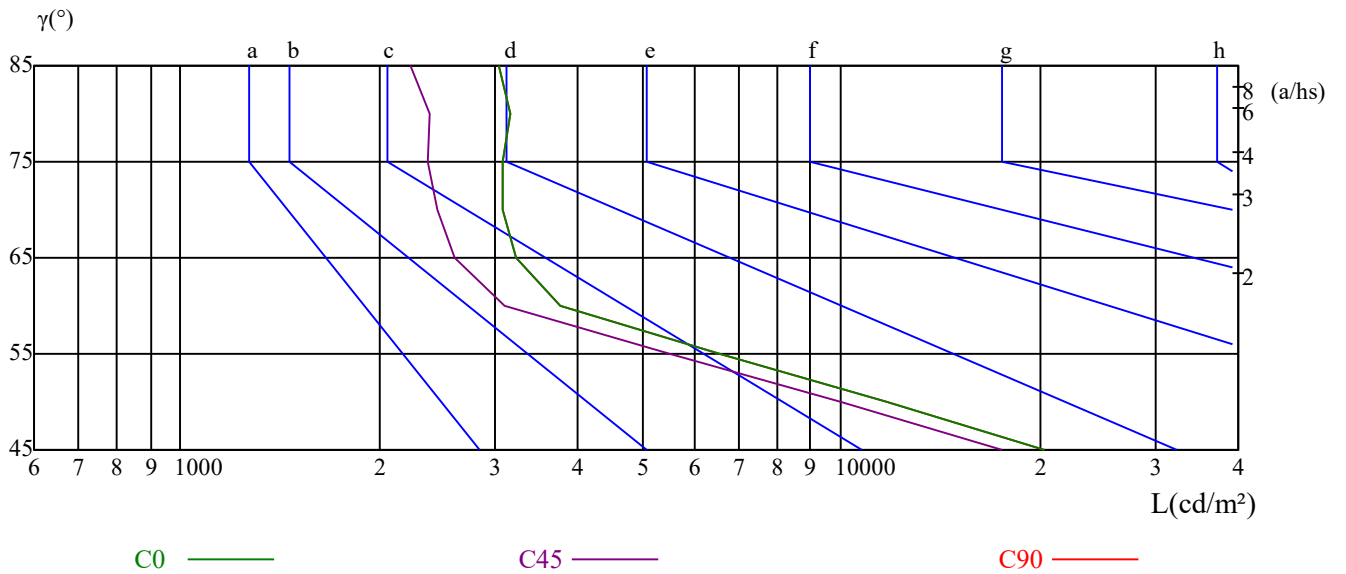
γ	45	50	55	60	65	70	75	80	85
C0	20320	11773	6571	3755	3224	3085	3065	3153	3033
C45	17509	9993	5491	3086	2603	2443	2374	2382	2224
C90	20320	11773	6571	3755	3224	3085	3065	3153	3033

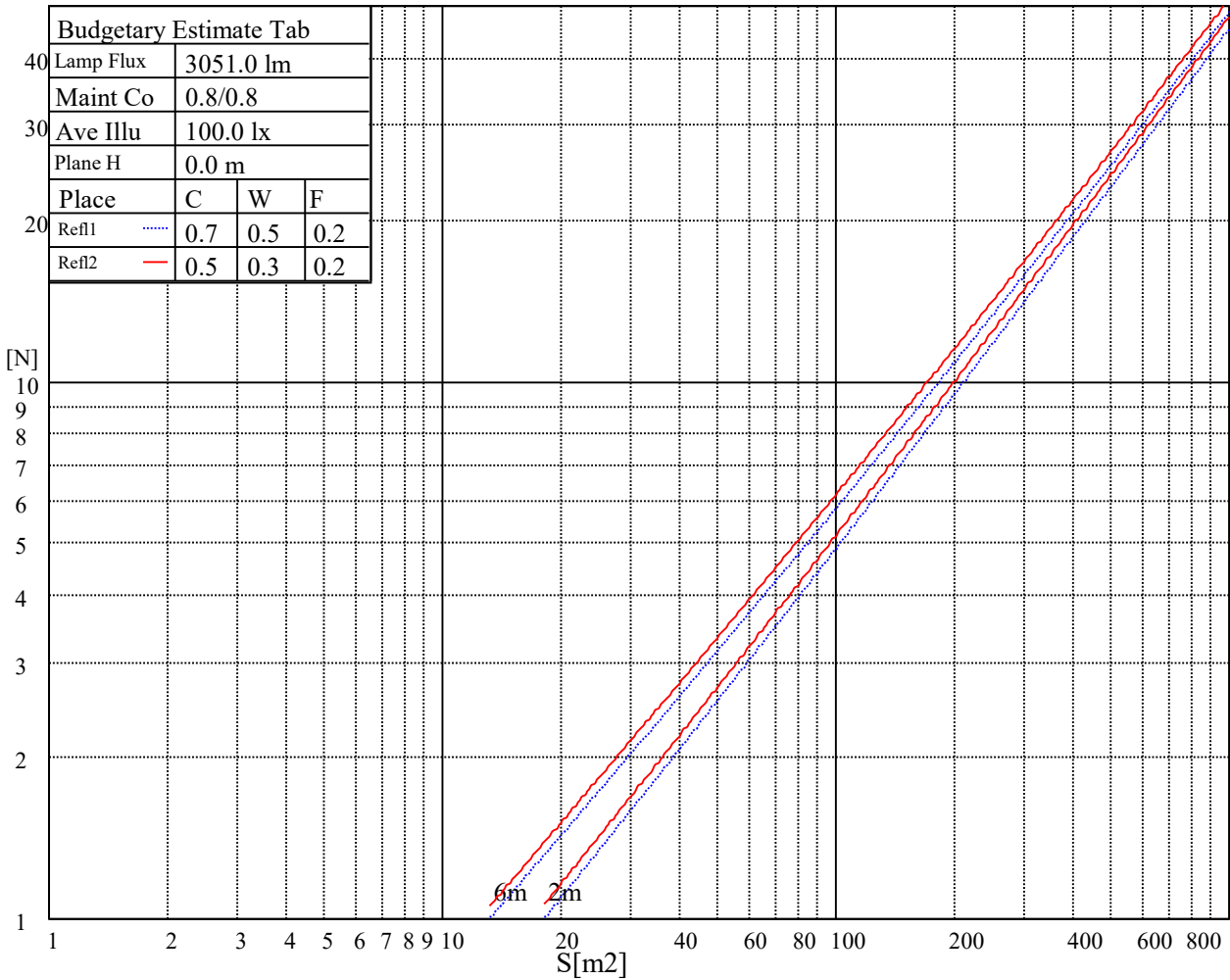
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7601	7601	7601	10306	10306	10306	24976	24976	24976

Glare Table

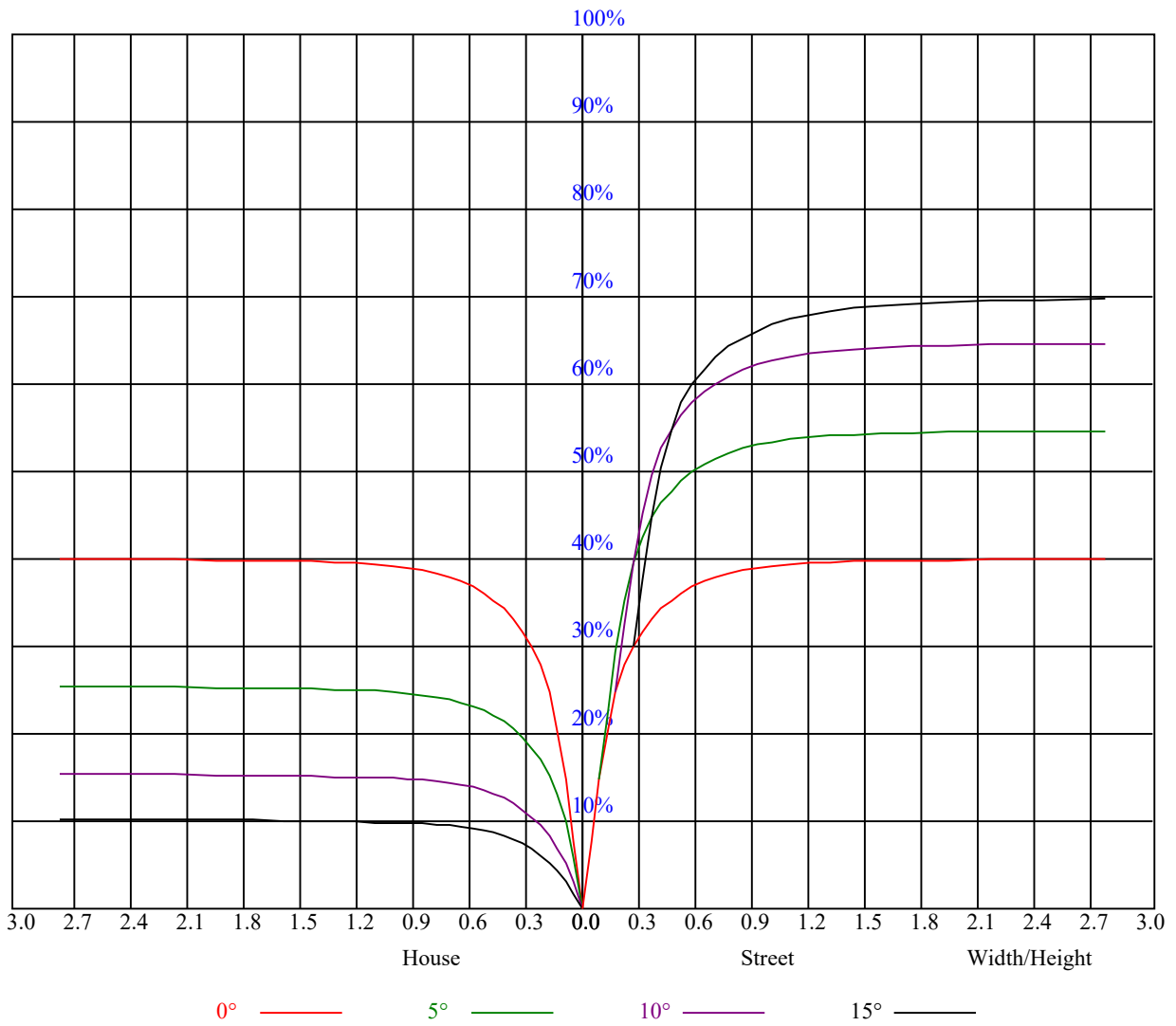
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.86	0.86	0.86	0.83	0.83	0.83	0.81
1	0.90	0.89	0.87	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.79	0.78	0.77
2	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.78	0.79	0.78	0.76	0.77	0.76	0.75	0.73
3	0.81	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.76	0.74	0.73	0.75	0.73	0.72	0.70
4	0.78	0.74	0.72	0.77	0.74	0.71	0.75	0.73	0.70	0.74	0.72	0.70	0.72	0.70	0.69	0.68
5	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.71	0.69	0.67	0.70	0.68	0.66	0.65
6	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.68	0.66	0.64	0.63
7	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.66	0.64	0.62	0.61
8	0.67	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.65	0.62	0.60	0.60
9	0.65	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.58
10	0.64	0.60	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.59	0.57	0.62	0.59	0.57	0.57



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	15399.28	15448.83	15333.21	15002.87	14501.86	13698.03	12662.97	11572.86	10367.12
45.0	15443.32	15492.87	15382.76	15057.93	14556.91	13764.10	12734.55	11622.41	10400.15
90.0	15476.35	15421.30	15195.57	14700.06	13962.30	13108.93	11738.02	10506.96	9159.18
135.0	15454.33	15410.29	15184.56	14628.49	13967.81	13130.95	11831.62	10609.37	9293.52
180.0	15399.28	15162.53	14744.10	14044.89	13125.45	11798.59	10939.71	9281.41	7933.08
225.0	15443.32	15195.57	14766.13	14061.40	13130.95	11765.55	10907.77	9279.76	7945.19
270.0	15476.35	15360.74	14997.36	14380.73	13626.46	12547.35	11253.53	9998.24	8671.38
315.0	15454.33	15311.18	14942.31	14413.77	13598.93	12530.84	10963.38	10008.70	8680.74
360.0	15399.28	15448.83	15333.21	15002.87	14501.86	13698.03	12662.97	11572.86	10367.12
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	8742.96	7432.61	6182.83	4938.56	3881.48	3116.19	2791.36	2012.31	1751.89
45.0	8759.47	7438.12	6171.82	4933.05	3881.48	3127.20	2818.89	2049.75	1788.23
90.0	7799.84	6195.50	5070.14	4109.96	3144.82	2561.22	2135.64	1782.73	1610.95
135.0	7795.99	6342.50	5180.81	4068.67	3264.84	2846.42	2093.79	1809.70	1586.73
180.0	6608.42	5121.35	4114.36	3292.92	2569.48	2062.96	1765.11	1529.47	1405.59
225.0	6648.06	5167.04	4161.71	3333.11	2607.47	2099.85	1799.24	1571.86	1422.11
270.0	7041.71	5824.97	4756.87	3727.32	2917.99	2840.91	1998.55	1685.83	1511.85
315.0	7199.73	5819.46	4740.36	3829.17	2931.75	2407.62	2031.58	1715.01	1537.73
360.0	8742.96	7432.61	6182.83	4938.56	3881.48	3116.19	2791.36	2012.31	1751.89
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1573.51	1417.15	1288.87	1187.57	1091.22	1003.68	932.10	852.82	786.21
45.0	1616.46	1427.61	1292.72	1200.78	1084.61	988.81	926.60	836.31	770.79
90.0	1435.32	1280.61	1161.69	1083.18	1003.02	920.16	851.34	778.77	712.59
135.0	1419.35	1297.68	1195.83	1087.91	1008.63	931.00	856.68	781.80	721.24
180.0	1272.90	1093.92	1074.10	988.65	909.48	841.37	776.46	702.52	648.67
225.0	1287.22	1093.31	1083.01	994.26	909.64	838.84	773.65	700.92	649.56
270.0	1374.76	1248.13	1140.77	1043.87	965.69	892.46	816.49	745.46	688.21
315.0	1394.58	1276.76	1096.56	1066.39	989.86	908.87	832.73	771.40	708.52
360.0	1573.51	1417.15	1288.87	1187.57	1091.22	1003.68	932.10	852.82	786.21
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	717.94	656.27	607.82	567.08	507.07	466.88	436.05	390.35	361.72
45.0	713.53	650.22	603.97	559.92	508.17	467.98	432.19	393.65	365.57
90.0	659.85	606.01	556.12	513.18	471.50	424.43	392.06	362.99	333.92
135.0	659.58	605.62	559.92	511.47	469.08	426.14	387.60	356.77	329.24
180.0	600.06	553.70	498.48	454.38	416.01	374.60	344.76	317.29	290.26
225.0	602.92	559.54	507.12	465.72	428.45	388.04	358.47	327.75	302.09
270.0	629.29	576.44	533.50	495.51	441.55	407.97	381.54	344.10	319.33
315.0	651.10	603.91	554.42	512.74	468.36	428.67	395.64	365.46	330.45
360.0	717.94	656.27	607.82	567.08	507.07	466.88	436.05	390.35	361.72
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	338.05	307.77	282.99	278.03	243.24	229.14	212.52	194.68	180.09
45.0	339.70	312.72	287.39	279.14	242.63	227.99	212.24	193.30	178.38
90.0	307.32	285.96	264.11	245.33	230.41	215.22	200.85	180.47	164.23
135.0	298.96	279.69	256.29	236.19	219.34	205.80	191.87	170.07	157.08
180.0	267.02	248.74	230.08	215.82	201.78	184.22	169.57	155.92	142.65
225.0	275.94	254.20	232.83	215.60	202.39	185.32	171.89	157.85	143.92
270.0	298.96	280.24	249.08	232.89	216.92	201.67	184.16	168.58	155.20
315.0	305.51	283.04	258.27	240.93	226.50	208.94	190.94	176.18	160.43
360.0	338.05	307.77	282.99	278.03	243.24	229.14	212.52	194.68	180.09

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	164.73	149.70	136.48	123.33	107.47	95.69	85.12	74.88	66.01
45.0	162.36	146.95	133.29	120.13	104.66	93.65	84.07	74.38	65.74
90.0	150.74	137.31	121.51	109.45	98.28	86.05	77.35	69.43	61.11
135.0	145.90	130.54	117.05	107.25	93.65	82.80	75.21	65.52	58.52
180.0	130.98	119.58	105.82	95.58	86.05	75.37	67.55	60.45	53.13
225.0	131.09	118.48	103.67	93.16	83.74	73.23	65.90	59.13	51.92
270.0	139.57	124.15	111.16	99.32	86.49	77.52	69.59	61.50	53.90
315.0	146.06	129.71	114.35	102.02	89.47	78.51	70.09	62.65	54.12
360.0	164.73	149.70	136.48	123.33	107.47	95.69	85.12	74.88	66.01
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	59.02	51.64	44.87	39.53	34.36	30.45	26.65	23.51	22.19
45.0	58.58	51.20	44.27	38.92	33.91	30.39	26.98	23.95	22.52
90.0	53.51	47.18	40.91	36.17	31.88	28.35	25.71	23.34	22.02
135.0	52.08	44.65	39.42	34.91	30.39	27.53	25.22	22.79	21.80
180.0	46.19	40.91	35.73	31.88	28.30	25.22	23.29	22.41	21.69
225.0	44.93	39.42	34.30	30.50	26.87	24.06	22.57	21.75	21.09
270.0	47.51	41.18	35.84	31.88	28.24	25.55	23.18	22.08	21.42
315.0	47.79	42.06	36.45	31.82	28.30	25.11	22.90	22.02	21.25
360.0	59.02	51.64	44.87	39.53	34.36	30.45	26.65	23.51	22.19
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	21.53	20.81	20.32	19.88	19.32	18.94	18.61	18.17	17.78
45.0	21.86	21.14	20.70	20.26	19.71	19.32	18.94	18.55	18.11
90.0	21.47	20.92	20.32	19.93	19.49	19.05	18.66	18.28	17.89
135.0	21.25	20.65	20.15	19.71	19.21	18.77	18.44	18.06	17.73
180.0	21.14	20.59	19.99	19.55	19.16	18.72	18.33	18.00	17.62
225.0	20.54	20.10	19.49	19.10	18.72	18.33	17.95	17.62	17.29
270.0	20.87	20.26	19.77	19.38	18.94	18.55	18.22	17.89	17.56
315.0	20.70	20.15	19.66	19.21	18.77	18.39	18.06	17.73	17.40
360.0	21.53	20.81	20.32	19.88	19.32	18.94	18.61	18.17	17.78
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	17.45	17.18	16.85	16.63	16.35	16.24	16.08	15.91	15.86
45.0	17.78	17.40	17.07	16.85	16.52	16.35	16.08	15.91	15.69
90.0	17.51	17.23	16.90	16.63	16.35	16.08	15.86	15.64	15.25
135.0	17.40	17.01	16.74	16.52	16.24	16.08	15.86	15.58	15.36
180.0	17.23	17.01	16.63	16.46	16.24	16.02	15.91	15.75	15.36
225.0	17.01	16.85	16.68	16.57	16.46	16.35	16.30	16.08	15.80
270.0	17.34	17.18	17.01	16.90	16.85	16.74	16.63	16.41	16.19
315.0	17.12	16.90	16.79	16.63	16.52	16.41	16.41	16.13	15.97
360.0	17.45	17.18	16.85	16.63	16.35	16.24	16.08	15.91	15.86
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	15.58	15.31	14.87	14.48	13.98	13.43	12.94	12.50	12.17
45.0	15.42	14.98	14.70	14.31	13.87	13.43	12.83	12.50	12.22
90.0	14.98	14.65	14.20	13.82	13.43	13.05	12.50	12.22	11.95
135.0	15.03	14.59	14.20	13.76	13.32	12.99	12.55	12.28	11.89
180.0	15.09	14.65	14.09	13.71	13.16	12.66	12.33	12.06	11.67
225.0	15.42	15.09	14.48	13.98	13.43	12.99	12.50	12.22	11.78
270.0	15.86	15.36	14.92	14.42	13.76	13.27	12.66	12.33	11.78
315.0	15.69	15.31	14.76	14.31	13.71	13.21	12.55	12.28	11.78
360.0	15.58	15.31	14.87	14.48	13.98	13.43	12.94	12.50	12.17

Intensity data(cd)

C/γ(°)	90.0
0.0	11.73
45.0	11.73
90.0	11.67
135.0	11.67
180.0	11.67
225.0	11.78
270.0	11.78
315.0	11.67
360.0	11.73