
Nata

LumCAT: 4-2275-M	
Luminaire: 92.70.135.00	
Report No: GC2017103112	Voltage(V): 34.3000
Test No: NT-0010	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): 100	Width(mm): 100
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2258.27
Efficiency(%): 89.01%
Lumens(lm)/Power(W): 131.68
Central intensity(cd): 12795.110
Maximum intensity(cd): 12795.110
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=17.9
[C90/270]Total=17.9
Field angle(10%Imax): [C0/180]Total=37.8
[C90/270]Total=37.8
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.32 C90_270=0.32
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.01%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.570%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12795.107	0.000	0	.000%	.000%
1.0	12700.135	12.199	12.199	.481%	.540%
2.0	12342.268	35.943	48.142	1.417%	2.132%
3.0	11776.289	57.684	105.826	2.274%	4.686%
4.0	11158.349	76.770	182.595	3.026%	8.086%
5.0	10306.696	92.342	274.937	3.640%	12.175%
6.0	9398.540	103.556	378.493	4.082%	16.760%
7.0	8437.462	110.708	489.201	4.364%	21.663%
8.0	7381.274	113.212	602.413	4.462%	26.676%
9.0	6334.376	111.158	713.571	4.381%	31.598%
10.0	5384.722	106.054	819.624	4.180%	36.294%
11.0	4507.536	98.844	918.468	3.896%	40.671%
12.0	3785.816	90.658	1009.126	3.573%	44.686%
13.0	3163.197	82.467	1091.594	3.251%	48.338%
14.0	2670.442	74.670	1166.264	2.943%	51.644%
15.0	2290.002	68.099	1234.363	2.684%	54.660%
16.0	1935.439	61.915	1296.277	2.440%	57.401%
17.0	1646.806	55.785	1352.063	2.199%	59.872%
18.0	1411.681	50.428	1402.49	1.988%	62.105%
19.0	1262.677	46.528	1449.019	1.834%	64.165%
20.0	1104.975	43.335	1492.353	1.708%	66.084%
21.0	1007.766	40.569	1532.922	1.599%	67.881%
22.0	945.511	39.252	1572.174	1.547%	69.619%
23.0	902.065	38.767	1610.941	1.528%	71.335%
24.0	872.933	38.808	1649.749	1.530%	73.054%
25.0	853.890	39.264	1689.013	1.548%	74.792%
26.0	838.172	39.941	1728.955	1.574%	76.561%
27.0	824.181	40.670	1769.624	1.603%	78.362%
28.0	811.043	41.400	1811.025	1.632%	80.195%
29.0	798.242	42.103	1853.128	1.660%	82.060%
30.0	785.249	42.754	1895.882	1.685%	83.953%
31.0	772.730	43.356	1939.238	1.709%	85.873%
32.0	756.798	43.819	1983.058	1.727%	87.813%
33.0	722.842	43.591	2026.648	1.718%	89.744%
34.0	662.762	41.932	2068.581	1.653%	91.600%
35.0	564.101	38.102	2106.683	1.502%	93.288%
36.0	442.991	32.066	2138.749	1.264%	94.708%
37.0	332.802	25.302	2164.051	.997%	95.828%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	211.733	18.176	2182.227	.716%	96.633%
39.0	129.527	11.648	2193.875	.459%	97.149%
40.0	55.070	6.438	2200.313	.254%	97.434%
41.0	31.031	3.066	2203.379	.121%	97.570%
42.0	23.454	1.980	2205.358	.078%	97.657%
43.0	19.077	1.575	2206.934	.062%	97.727%
44.0	16.586	1.346	2208.28	.053%	97.787%
45.0	15.106	1.218	2209.498	.048%	97.840%
46.0	14.494	1.158	2210.655	.046%	97.892%
47.0	14.108	1.138	2211.793	.045%	97.942%
48.0	13.730	1.125	2212.918	.044%	97.992%
49.0	13.427	1.115	2214.034	.044%	98.041%
50.0	13.131	1.107	2215.141	.044%	98.090%
51.0	12.869	1.100	2216.241	.043%	98.139%
52.0	12.635	1.094	2217.335	.043%	98.188%
53.0	12.415	1.090	2218.425	.043%	98.236%
54.0	12.188	1.084	2219.509	.043%	98.284%
55.0	12.030	1.081	2220.591	.043%	98.332%
56.0	11.844	1.079	2221.669	.043%	98.379%
57.0	11.693	1.076	2222.745	.042%	98.427%
58.0	11.555	1.075	2223.821	.042%	98.475%
59.0	11.445	1.075	2224.896	.042%	98.522%
60.0	11.300	1.075	2225.97	.042%	98.570%
61.0	11.183	1.073	2227.043	.042%	98.617%
62.0	11.115	1.074	2228.118	.042%	98.665%
63.0	10.998	1.075	2229.193	.042%	98.713%
64.0	10.894	1.074	2230.267	.042%	98.760%
65.0	10.825	1.075	2231.342	.042%	98.808%
66.0	10.743	1.076	2232.418	.042%	98.855%
67.0	10.667	1.077	2233.495	.042%	98.903%
68.0	10.605	1.078	2234.573	.042%	98.951%
69.0	10.536	1.079	2235.651	.043%	98.999%
70.0	10.481	1.079	2236.731	.043%	99.046%
71.0	10.413	1.080	2237.81	.043%	99.094%
72.0	10.337	1.079	2238.889	.043%	99.142%
73.0	10.282	1.078	2239.968	.042%	99.190%
74.0	10.227	1.078	2241.046	.042%	99.237%
75.0	10.172	1.078	2242.123	.042%	99.285%

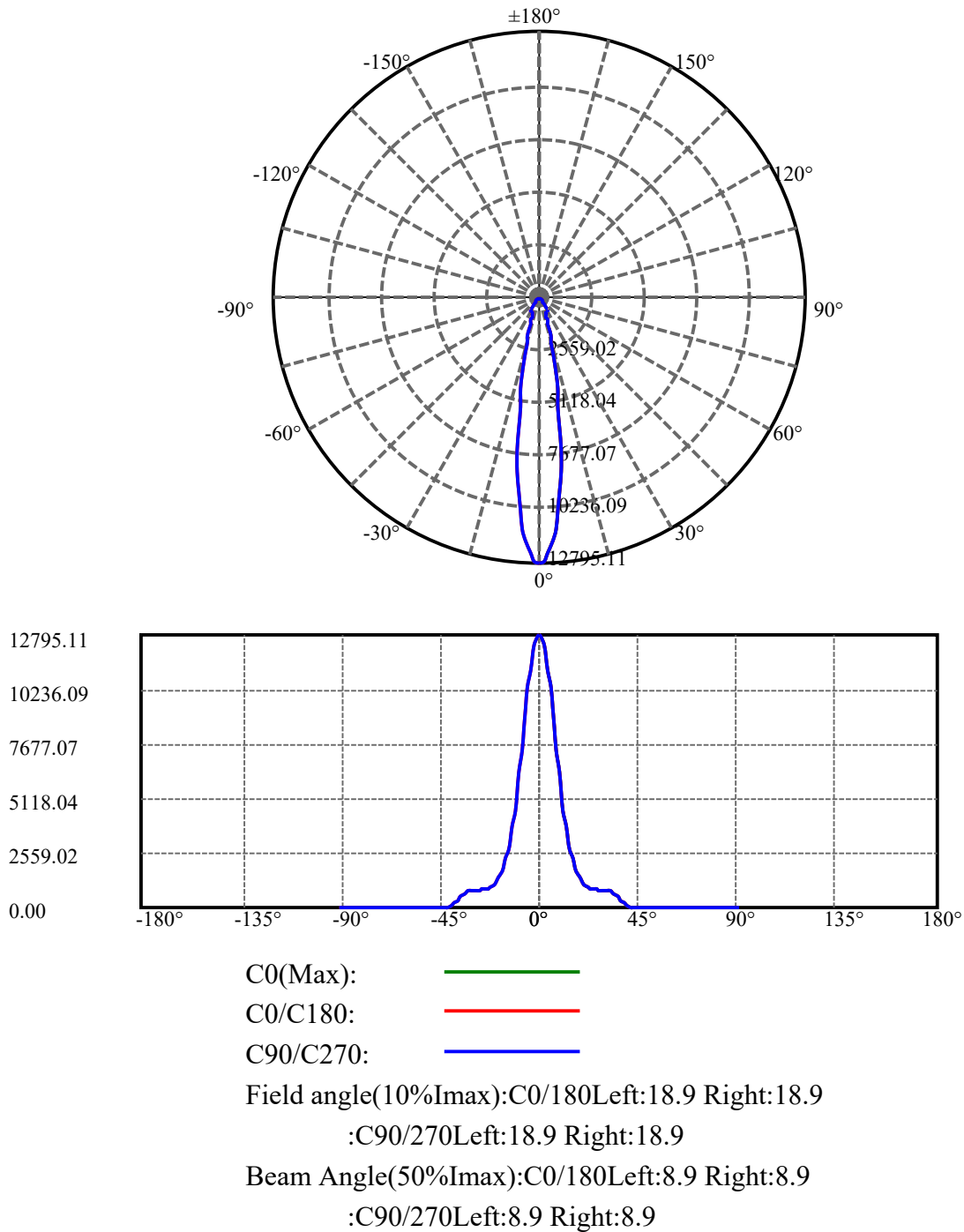
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.123	1.077	2243.201	.042%	99.333%
77.0	10.103	1.078	2244.279	.043%	99.381%
78.0	10.048	1.079	2245.358	.043%	99.428%
79.0	10.020	1.078	2246.436	.043%	99.476%
80.0	9.979	1.078	2247.514	.042%	99.524%
81.0	9.958	1.078	2248.593	.042%	99.572%
82.0	9.924	1.078	2249.671	.042%	99.619%
83.0	9.903	1.078	2250.749	.042%	99.667%
84.0	9.876	1.078	2251.826	.042%	99.715%
85.0	9.855	1.077	2252.903	.042%	99.763%
86.0	9.841	1.077	2253.98	.042%	99.810%
87.0	9.800	1.075	2255.055	.042%	99.858%
88.0	9.779	1.073	2256.127	.042%	99.905%
89.0	9.745	1.070	2257.197	.042%	99.953%
90.0	9.745	1.069	2258.266	.042%	100.000%

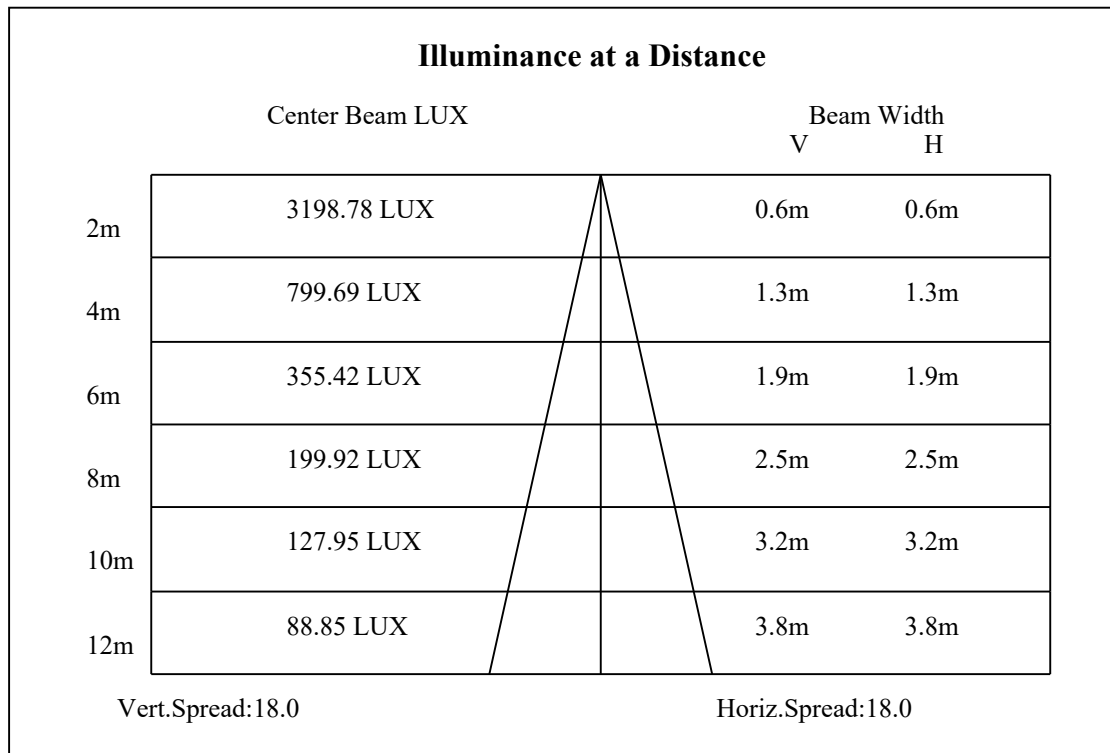
ZONAL LUMEN SUMMARY

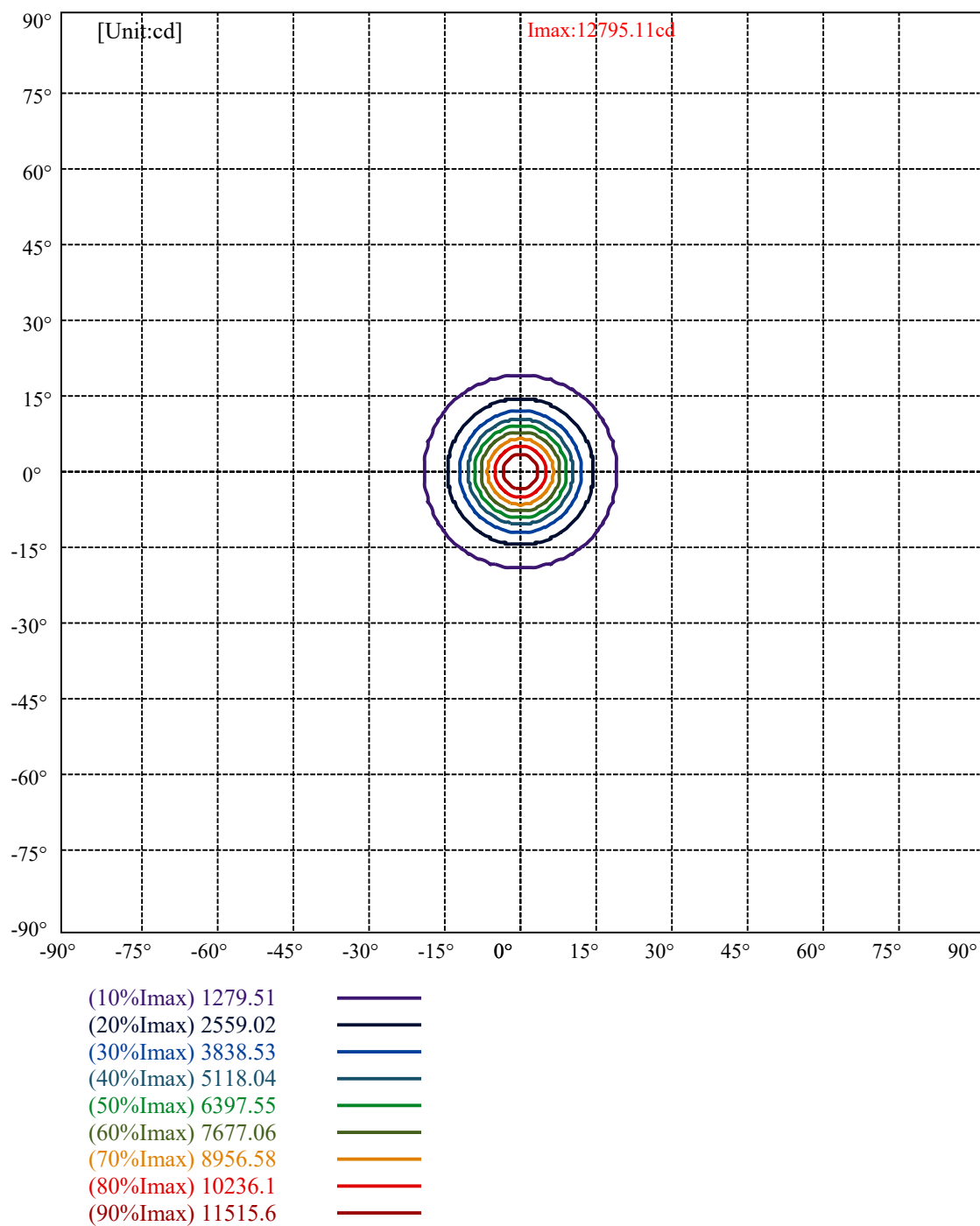
Zone	Lumens	%Lamp	%Fixt
0-30	1895.88	74.73%	83.95%
0-40	2200.31	86.73%	97.43%
0-60	2225.97	87.74%	98.57%
0-90	2257.20	88.97%	99.95%
0-120	2257.20	88.97%	99.95%
0-180	2258.27	89.01%	100.00%
60-90	32.30	1.27%	1.43%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.89	1806.61	71.21%	80.00%

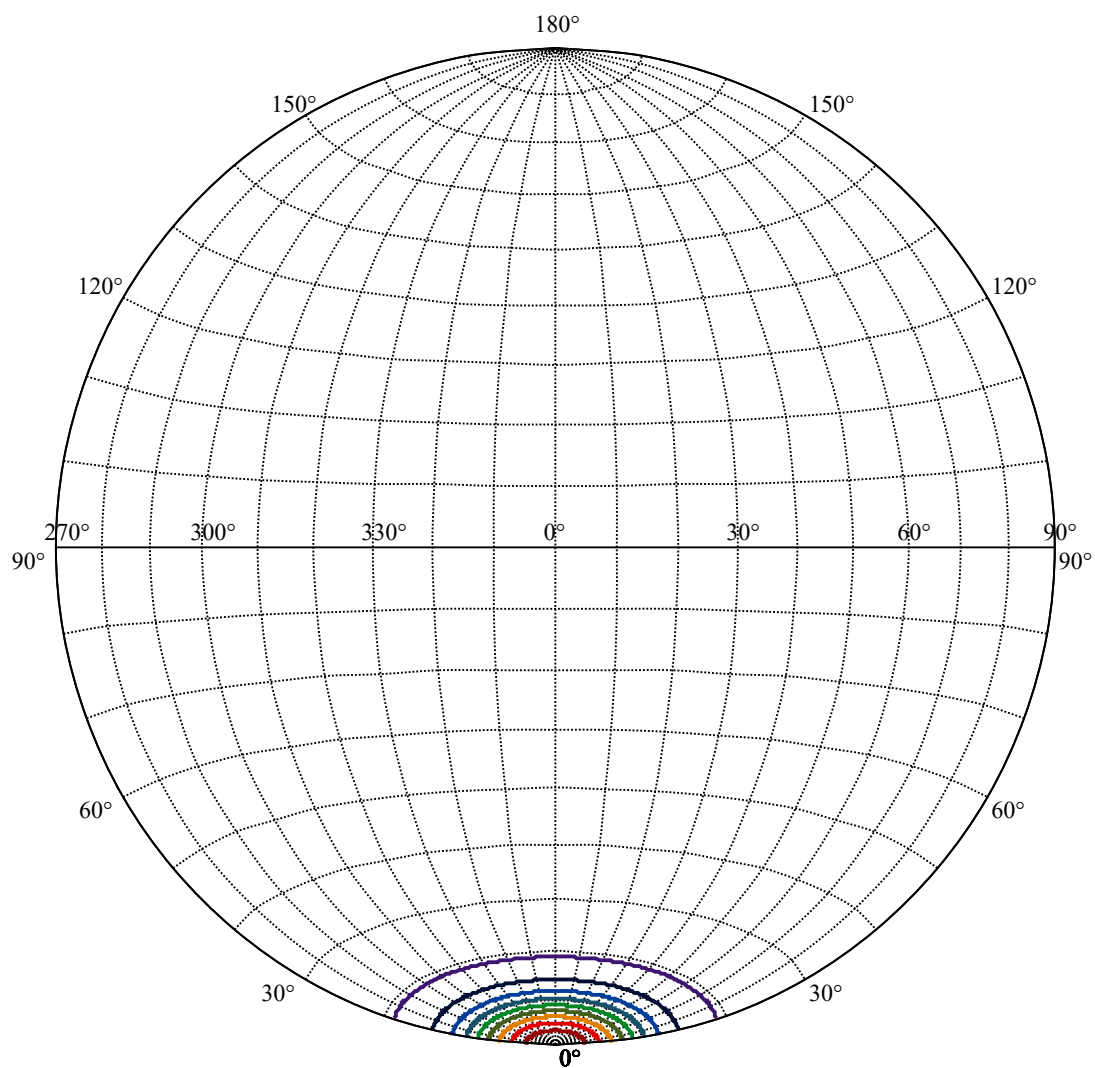
ZONAL LUMEN SUMMARY

0-10	819.62
10-20	672.73
20-30	403.53
30-40	304.43
40-50	14.83
50-60	10.83
60-70	10.76
70-80	10.78
80-90	9.68
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









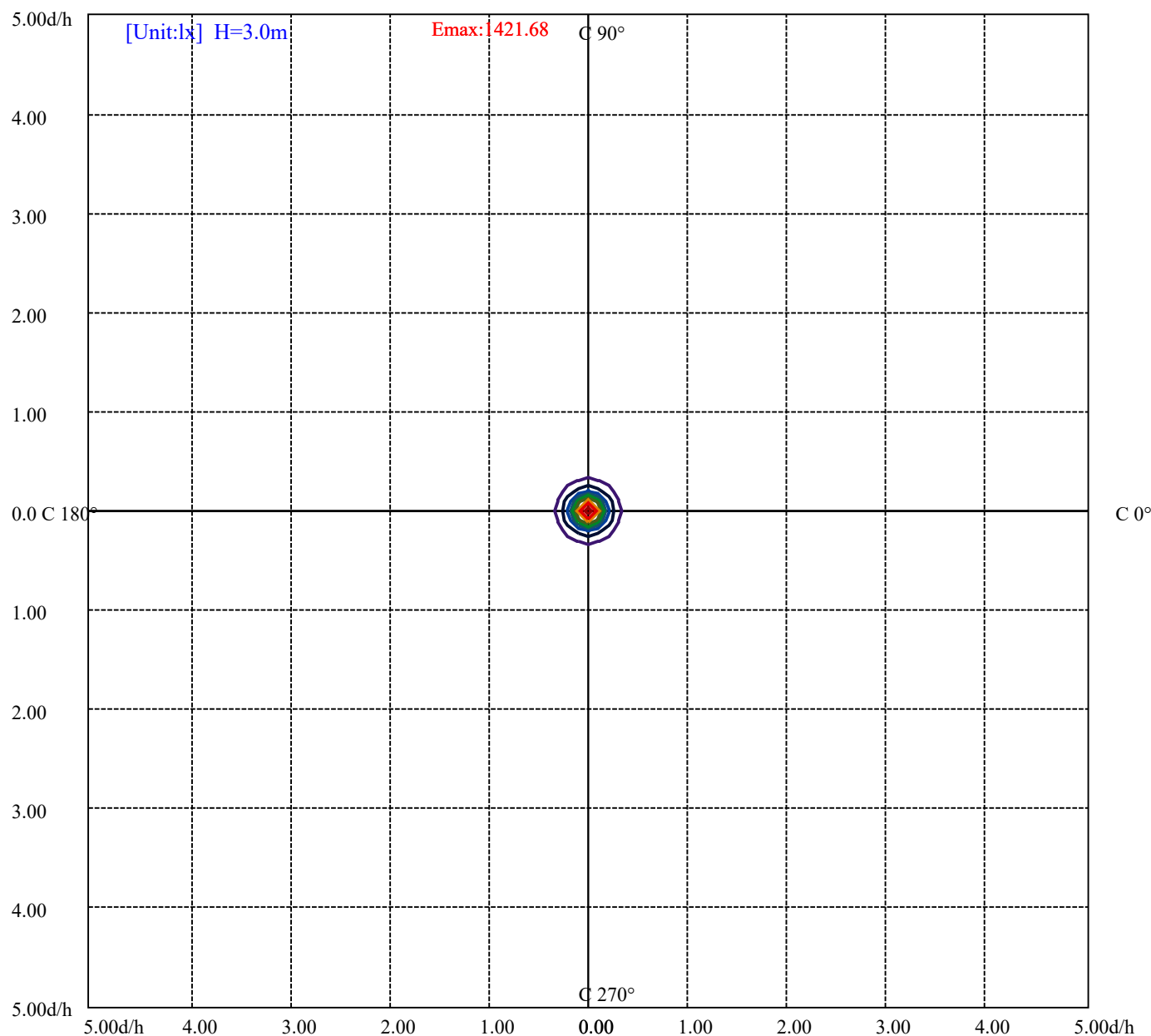
House

[Unit:cd]

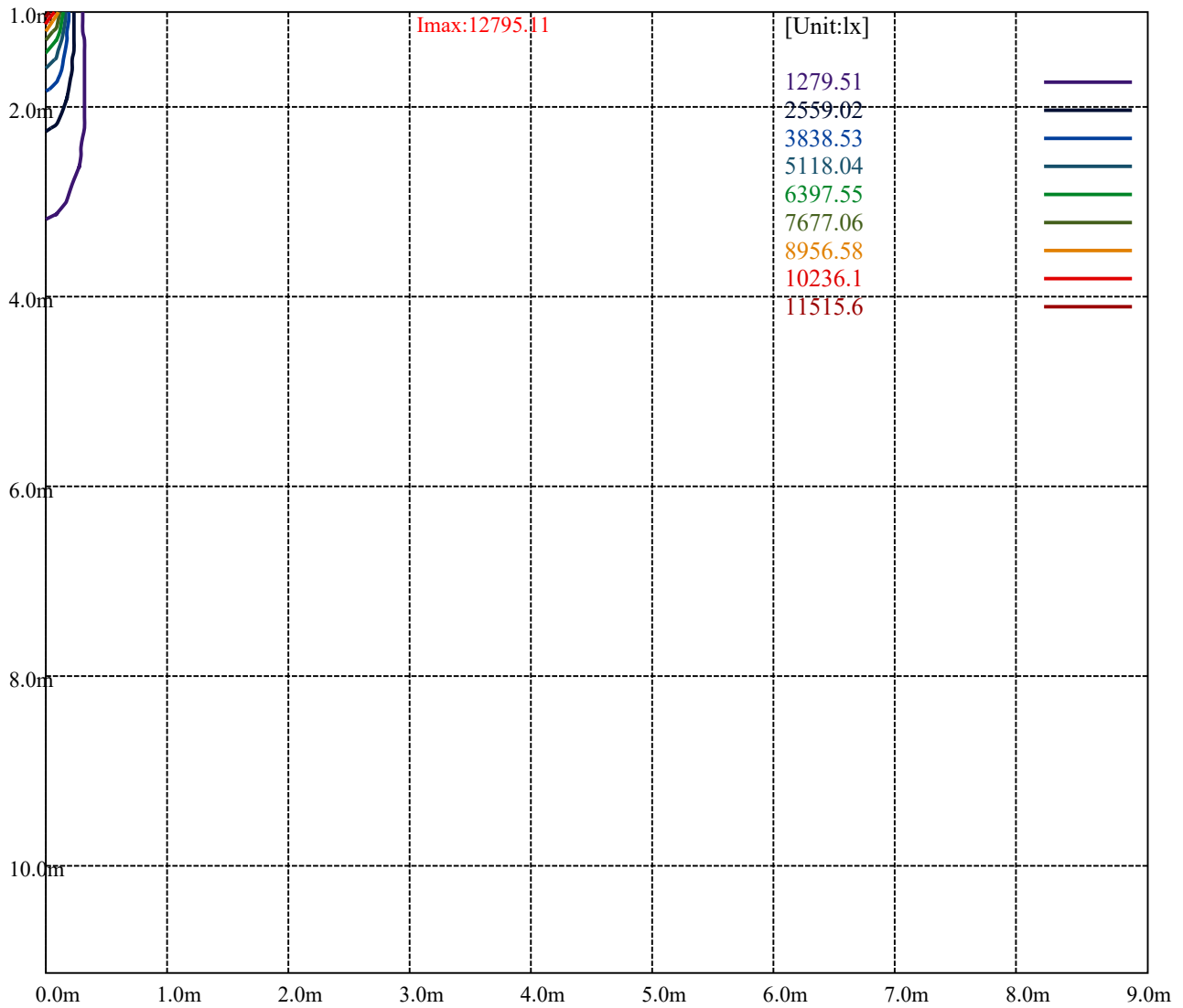
Road

Imax:12795.11

(10%Imax)	1279.51	—
(20%Imax)	2559.02	—
(30%Imax)	3838.53	—
(40%Imax)	5118.04	—
(50%Imax)	6397.55	—
(60%Imax)	7677.06	—
(70%Imax)	8956.58	—
(80%Imax)	10236.1	—
(90%Imax)	11515.6	—



(10%Emax)	142.1678	
(20%Emax)	284.3356	
(30%Emax)	426.5033	
(40%Emax)	568.6711	
(50%Emax)	710.8389	
(60%Emax)	853.0067	
(70%Emax)	995.1745	
(80%Emax)	1137.344	
(90%Emax)	1279.511	



Luminance Table

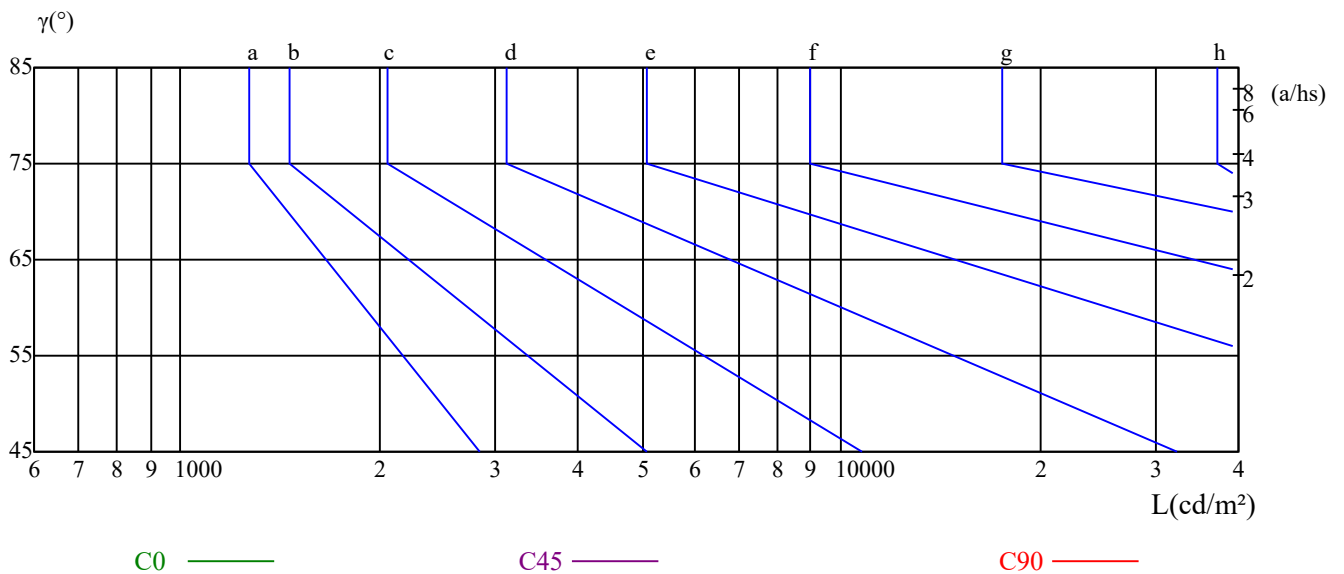
γ	45	50	55	60	65	70	75	80	85
C0	274	224	196	177	164	156	149	145	144
C45	201	164	142	128	118	112	107	103	102
C90	274	224	196	177	164	156	149	145	144

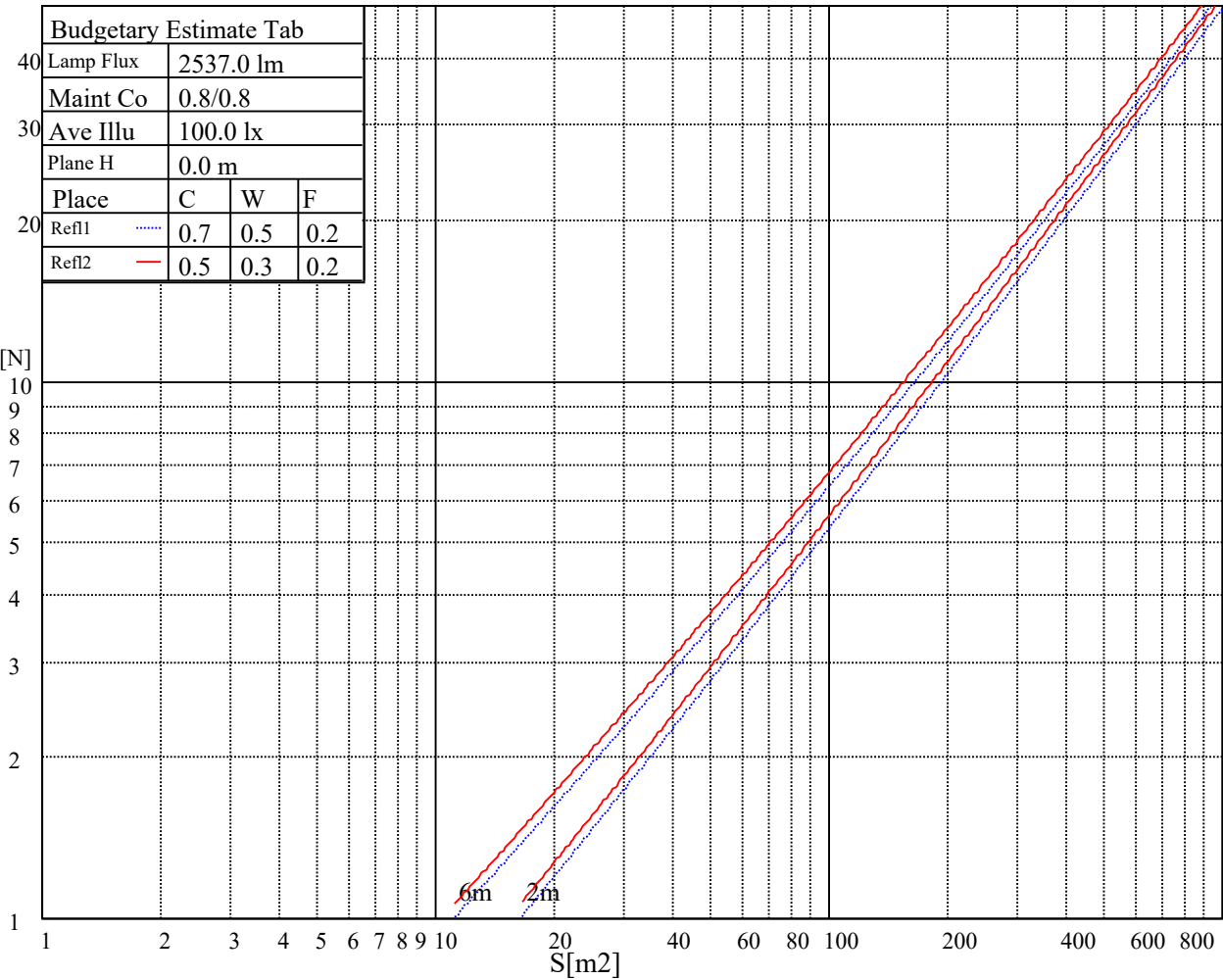
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2562	2562	2562	3930	3930	3930	11307	11307	11307

Glare Table

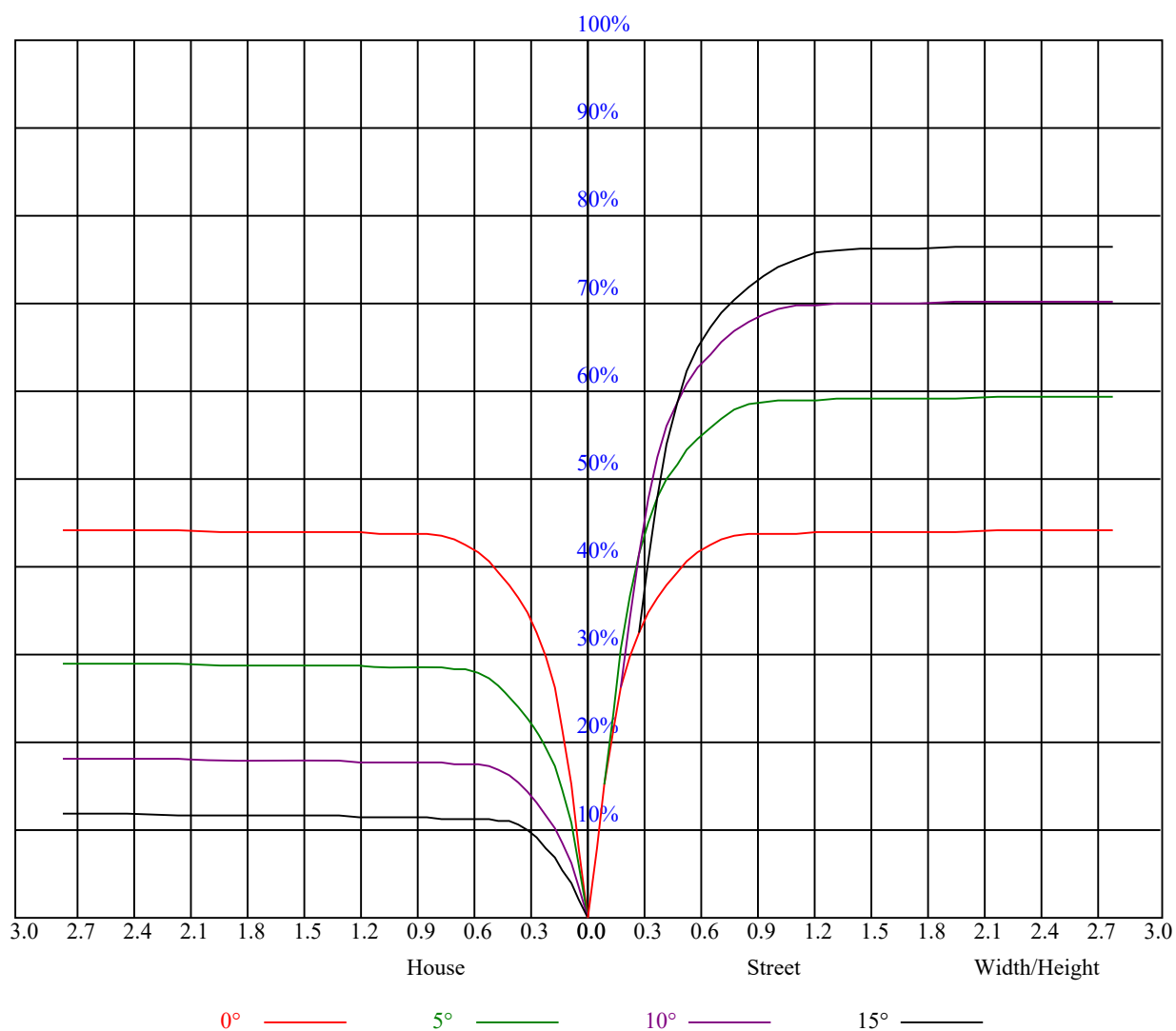
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





RHOC	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	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	1.00	0.98	0.96	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.83	0.81
3	0.90	0.86	0.83	0.89	0.85	0.83	0.86	0.84	0.81	0.84	0.82	0.80	0.82	0.81	0.79	0.78
4	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.78	0.81	0.79	0.77	0.80	0.78	0.76	0.75
5	0.82	0.78	0.75	0.81	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.77	0.75	0.73	0.72
6	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	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	0.74	0.70	0.68	0.73	0.70	0.68	0.67
8	0.73	0.69	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
9	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.63
10	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61



Nata 4-2275-M

Intensity data(cd)									
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C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	12767.58	12877.69	12734.55	12393.20	11881.17	11231.51	10279.03	9420.15	8489.70
45.0	12833.65	12718.03	12305.11	11793.08	11159.93	10212.96	9332.06	8374.08	7278.46
90.0	12734.55	12404.21	11848.14	10963.38	10377.58	9267.09	8427.48	7309.29	6197.15
135.0	12844.66	12574.88	11991.28	11363.64	10620.38	9651.39	8583.29	7597.78	6496.66
180.0	12767.58	12464.77	11919.71	10924.84	10422.73	9419.60	8338.29	7335.71	6221.92
225.0	12833.65	12756.57	12387.69	11897.69	10916.03	10519.63	9536.32	8490.25	7524.56
270.0	12734.55	12877.69	12789.60	12503.31	12035.33	11242.52	10493.75	9640.38	8583.29
315.0	12844.66	12927.24	12762.07	12371.17	11853.64	10908.88	10198.10	9332.06	8258.46
360.0	12767.58	12877.69	12734.55	12393.20	11881.17	11231.51	10279.03	9420.15	8489.70
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7272.95	6314.97	5406.54	4470.58	3683.27	3110.69	2807.88	2241.90	1909.91
45.0	6182.83	5274.40	4354.96	3672.26	3039.11	2802.37	2212.72	1894.49	1621.96
90.0	5269.45	4364.32	3622.16	3076.55	2630.04	2196.75	1912.66	1669.86	1432.02
135.0	5461.59	4619.23	3815.41	3220.80	2791.36	2302.46	1951.20	1684.18	1411.65
180.0	5293.12	4383.59	3625.46	3057.28	2540.85	2140.04	1844.94	1597.19	1349.43
225.0	6433.89	5403.24	4576.29	3780.72	3189.42	2649.31	2225.93	1920.37	1668.21
270.0	7487.67	6529.69	5500.13	4663.28	3848.44	3187.77	2818.89	2278.78	1935.78
315.0	7273.50	6188.34	5159.34	4345.05	3583.07	2974.15	2545.81	2196.75	1845.49
360.0	7272.95	6314.97	5406.54	4470.58	3683.27	3110.69	2807.88	2241.90	1909.91
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1643.43	1441.93	1251.98	1099.48	1002.58	939.81	895.77	872.64	853.92
45.0	1417.15	1248.13	1078.55	987.16	934.86	899.62	875.40	857.23	841.81
90.0	1187.57	1097.82	1000.65	926.43	895.00	874.02	855.41	840.55	829.48
135.0	1232.71	1099.48	997.07	932.66	900.17	878.15	856.68	842.91	831.35
180.0	1091.49	1065.01	964.09	914.32	885.91	862.07	845.89	832.51	818.30
225.0	1412.75	1245.38	1094.69	992.56	931.88	895.16	869.01	848.36	833.61
270.0	1689.13	1481.57	1268.50	1131.41	1027.90	940.91	900.17	874.30	852.27
315.0	1619.21	1422.11	1184.26	1078.11	985.78	926.76	885.14	862.62	844.62
360.0	1643.43	1441.93	1251.98	1099.48	1002.58	939.81	895.77	872.64	853.92
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	836.31	821.99	811.53	797.22	783.45	772.99	759.78	747.12	688.76
45.0	828.60	818.14	803.82	791.71	779.60	766.39	746.56	662.88	551.11
90.0	818.03	804.70	790.89	778.17	766.27	740.45	659.74	555.85	439.79
135.0	819.79	806.03	794.46	782.35	768.59	754.27	695.36	596.81	479.54
180.0	809.38	794.79	779.98	770.95	759.28	733.96	675.21	580.29	422.01
225.0	819.46	808.39	794.02	779.49	768.09	755.04	739.63	685.67	593.01
270.0	834.10	820.34	807.68	793.91	780.15	767.49	755.92	739.96	676.64
315.0	827.77	813.95	803.55	788.19	776.41	763.80	750.53	733.52	661.94
360.0	836.31	821.99	811.53	797.22	783.45	772.99	759.78	747.12	688.76
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	581.95	467.98	345.20	284.09	99.76	40.63	27.14	22.74	18.72
45.0	438.80	313.27	211.20	85.28	34.96	26.43	20.98	17.62	15.58
90.0	292.24	179.76	87.54	34.69	27.31	22.68	18.39	15.20	14.76
135.0	341.35	279.69	117.38	40.41	29.51	24.83	19.38	16.02	14.98
180.0	317.68	205.36	99.60	37.99	29.40	23.84	19.93	15.47	14.87
225.0	448.32	327.09	214.11	105.16	42.45	30.89	25.11	19.55	15.91
270.0	575.89	459.72	309.97	280.79	94.42	42.17	29.12	23.84	19.43
315.0	547.70	429.55	308.87	167.81	82.75	36.78	27.58	22.19	18.44
360.0	581.95	467.98	345.20	284.09	99.76	40.63	27.14	22.74	18.72

Intensity data(cd)

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C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	15.75	14.92	14.48	14.04	13.71	13.38	13.10	12.83	12.55
45.0	14.53	14.15	13.82	13.43	13.16	12.88	12.66	12.44	12.22
90.0	14.31	13.93	13.60	13.32	13.05	12.83	12.61	12.39	12.17
135.0	14.59	14.20	13.87	13.54	13.27	12.99	12.77	12.55	12.33
180.0	14.42	14.04	13.71	13.38	13.16	12.83	12.66	12.39	12.22
225.0	15.14	14.70	14.20	13.82	13.49	13.16	12.88	12.66	12.44
270.0	16.63	15.09	14.70	14.20	13.82	13.54	13.16	12.94	12.72
315.0	15.47	14.92	14.48	14.09	13.76	13.43	13.10	12.88	12.66
360.0	15.75	14.92	14.48	14.04	13.71	13.38	13.10	12.83	12.55
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.39	12.22	12.00	11.84	11.67	11.56	11.40	11.29	11.23
45.0	12.06	11.89	11.73	11.62	11.45	11.40	11.23	11.12	11.07
90.0	11.95	11.84	11.67	11.56	11.40	11.29	11.18	11.07	11.01
135.0	12.11	11.95	11.84	11.67	11.56	11.45	11.29	11.18	11.12
180.0	12.00	11.84	11.67	11.56	11.45	11.34	11.23	11.12	11.07
225.0	12.17	12.00	11.78	11.62	11.51	11.40	11.23	11.12	11.01
270.0	12.44	12.28	12.06	11.84	11.73	11.56	11.40	11.29	11.18
315.0	12.39	12.22	12.00	11.84	11.67	11.56	11.45	11.29	11.23
360.0	12.39	12.22	12.00	11.84	11.67	11.56	11.40	11.29	11.23
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.07	11.01	10.90	10.85	10.74	10.68	10.63	10.57	10.52
45.0	10.96	10.85	10.79	10.68	10.57	10.52	10.46	10.41	10.35
90.0	10.90	10.79	10.74	10.68	10.57	10.52	10.46	10.41	10.30
135.0	11.01	10.85	10.79	10.74	10.68	10.63	10.52	10.46	10.41
180.0	10.90	10.85	10.79	10.68	10.63	10.57	10.52	10.46	10.41
225.0	10.96	10.85	10.79	10.68	10.63	10.57	10.46	10.41	10.35
270.0	11.07	10.96	10.90	10.79	10.74	10.68	10.63	10.57	10.46
315.0	11.12	11.01	10.90	10.85	10.79	10.68	10.63	10.57	10.52
360.0	11.07	11.01	10.90	10.85	10.74	10.68	10.63	10.57	10.52
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	10.24	10.19	10.19	10.13	10.08	10.02
45.0	10.24	10.19	10.19	10.13	10.02	10.02	9.97	9.97	9.91
90.0	10.24	10.19	10.13	10.08	10.02	10.02	9.97	9.97	9.91
135.0	10.35	10.30	10.24	10.13	10.13	10.08	10.02	10.02	9.97
180.0	10.35	10.30	10.19	10.19	10.13	10.13	10.08	10.02	10.02
225.0	10.30	10.24	10.19	10.13	10.13	10.08	10.02	10.02	9.97
270.0	10.41	10.35	10.30	10.24	10.19	10.13	10.13	10.02	10.02
315.0	10.41	10.35	10.30	10.24	10.19	10.19	10.08	10.08	10.02
360.0	10.41	10.35	10.30	10.24	10.19	10.19	10.13	10.08	10.02
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.02	10.02	9.97	9.97	9.91	9.91	9.91	9.86	9.80
45.0	9.91	9.86	9.86	9.80	9.80	9.80	9.74	9.74	9.69
90.0	9.91	9.86	9.86	9.80	9.80	9.80	9.74	9.69	9.74
135.0	9.97	9.91	9.91	9.86	9.86	9.80	9.80	9.80	9.74
180.0	9.97	9.97	9.91	9.86	9.86	9.86	9.80	9.80	9.74
225.0	9.91	9.91	9.86	9.86	9.86	9.80	9.74	9.74	9.69
270.0	9.97	9.91	9.91	9.91	9.86	9.86	9.80	9.80	9.74
315.0	10.02	9.97	9.97	9.97	9.91	9.91	9.86	9.80	9.80
360.0	10.02	10.02	9.97	9.97	9.91	9.91	9.91	9.86	9.80

Intensity data(cd)

Appendix Page: 18 Total:18

C/ γ (°)	90.0
0.0	9.80
45.0	9.69
90.0	9.74
135.0	9.74
180.0	9.80
225.0	9.69
270.0	9.74
315.0	9.74
360.0	9.80