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Nata

LumCAT: 1534-E	
Luminaire: 92.70.064.00	
Report No: NT2017090504	Voltage(V): 35.6000
Test No: GC2017090504	Current(A): 0.3000
LampCAT: CITIZEN CLU028	Power (W): 10.6800
Lamp flux(lm): 1463.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 26	Width(mm):26
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1261.13
Efficiency(%): 86.20%
Lumens(lm)/Power(W): 118.08
Central intensity(cd): 2653.443
Maximum intensity(cd): 2653.443
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=31.9
[C90/270]Total=31.9
Field angle(10%Imax): [C0/180]Total=76.5
[C90/270]Total=76.5
Maximum s/h(1/2): C0_180=0.52 C90_270=0.52
Maximum s/h(1/4): C0_180=0.56 C90_270=0.56
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 86.20%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.731%

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/9/5
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	2653.443	0.000	0	.000%	.000%
1.0	2645.804	2.536	2.536	.173%	.201%
2.0	2623.231	7.563	10.098	.517%	.801%
3.0	2587.376	12.462	22.56	.852%	1.789%
4.0	2541.816	17.169	39.729	1.174%	3.150%
5.0	2472.996	21.573	61.303	1.475%	4.861%
6.0	2400.666	25.612	86.915	1.751%	6.892%
7.0	2320.214	29.302	116.218	2.003%	9.215%
8.0	2221.526	32.504	148.722	2.222%	11.793%
9.0	2113.890	35.136	183.858	2.402%	14.579%
10.0	2003.709	37.263	221.121	2.547%	17.534%
11.0	1887.953	38.886	260.007	2.658%	20.617%
12.0	1775.913	40.051	300.058	2.738%	23.793%
13.0	1661.533	40.794	340.852	2.788%	27.028%
14.0	1540.272	40.983	381.835	2.801%	30.277%
15.0	1431.879	40.803	422.638	2.789%	33.513%
16.0	1323.693	40.377	463.014	2.760%	36.714%
17.0	1192.948	39.191	502.205	2.679%	39.822%
18.0	1096.235	37.744	539.949	2.580%	42.815%
19.0	1018.364	36.790	576.739	2.515%	45.732%
20.0	928.230	35.628	612.367	2.435%	48.557%
21.0	850.016	34.146	646.513	2.334%	51.265%
22.0	787.953	32.916	679.428	2.250%	53.875%
23.0	728.761	31.825	711.253	2.175%	56.398%
24.0	677.985	30.757	742.01	2.102%	58.837%
25.0	636.679	29.893	771.902	2.043%	61.207%
26.0	599.468	29.179	801.082	1.994%	63.521%
27.0	568.320	28.570	829.652	1.953%	65.786%
28.0	542.361	28.120	857.772	1.922%	68.016%
29.0	515.638	27.680	885.452	1.892%	70.211%
30.0	491.537	27.194	912.646	1.859%	72.367%
31.0	464.435	26.603	939.249	1.818%	74.477%
32.0	434.505	25.754	965.002	1.760%	76.519%
33.0	407.596	24.809	989.811	1.696%	78.486%
34.0	380.701	23.856	1013.667	1.631%	80.378%
35.0	350.950	22.722	1036.39	1.553%	82.180%
36.0	323.009	21.459	1057.849	1.467%	83.881%
37.0	297.876	20.250	1078.098	1.384%	85.487%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	272.405	19.035	1097.134	1.301%	86.996%
39.0	242.234	17.566	1114.7	1.201%	88.389%
40.0	215.766	15.973	1130.673	1.092%	89.656%
41.0	192.305	14.531	1145.204	.993%	90.808%
42.0	166.642	13.041	1158.246	.891%	91.842%
43.0	143.835	11.501	1169.747	.786%	92.754%
44.0	122.232	10.042	1179.789	.686%	93.550%
45.0	101.194	8.587	1188.375	.587%	94.231%
46.0	83.321	7.216	1195.591	.493%	94.803%
47.0	66.666	5.965	1201.557	.408%	95.276%
48.0	54.760	4.909	1206.465	.336%	95.666%
49.0	46.103	4.142	1210.607	.283%	95.994%
50.0	38.959	3.547	1214.154	.242%	96.275%
51.0	34.630	3.113	1217.267	.213%	96.522%
52.0	29.827	2.766	1220.033	.189%	96.741%
53.0	23.950	2.339	1222.372	.160%	96.927%
54.0	19.160	1.900	1224.272	.130%	97.078%
55.0	16.345	1.585	1225.857	.108%	97.203%
56.0	15.498	1.439	1227.296	.098%	97.317%
57.0	14.645	1.378	1228.674	.094%	97.427%
58.0	13.964	1.323	1229.997	.090%	97.531%
59.0	13.392	1.279	1231.276	.087%	97.633%
60.0	12.807	1.238	1232.514	.085%	97.731%
61.0	12.381	1.202	1233.716	.082%	97.826%
62.0	11.975	1.174	1234.89	.080%	97.919%
63.0	11.603	1.147	1236.036	.078%	98.010%
64.0	11.252	1.122	1237.158	.077%	98.099%
65.0	10.949	1.099	1238.257	.075%	98.186%
66.0	10.695	1.080	1239.337	.074%	98.272%
67.0	10.516	1.067	1240.403	.073%	98.357%
68.0	10.433	1.061	1241.464	.073%	98.441%
69.0	10.309	1.058	1242.523	.072%	98.525%
70.0	10.165	1.052	1243.574	.072%	98.608%
71.0	9.938	1.039	1244.613	.071%	98.690%
72.0	9.724	1.022	1245.635	.070%	98.771%
73.0	9.573	1.009	1246.645	.069%	98.851%
74.0	9.435	0.999	1247.644	.068%	98.931%
75.0	9.353	0.993	1248.637	.068%	99.009%

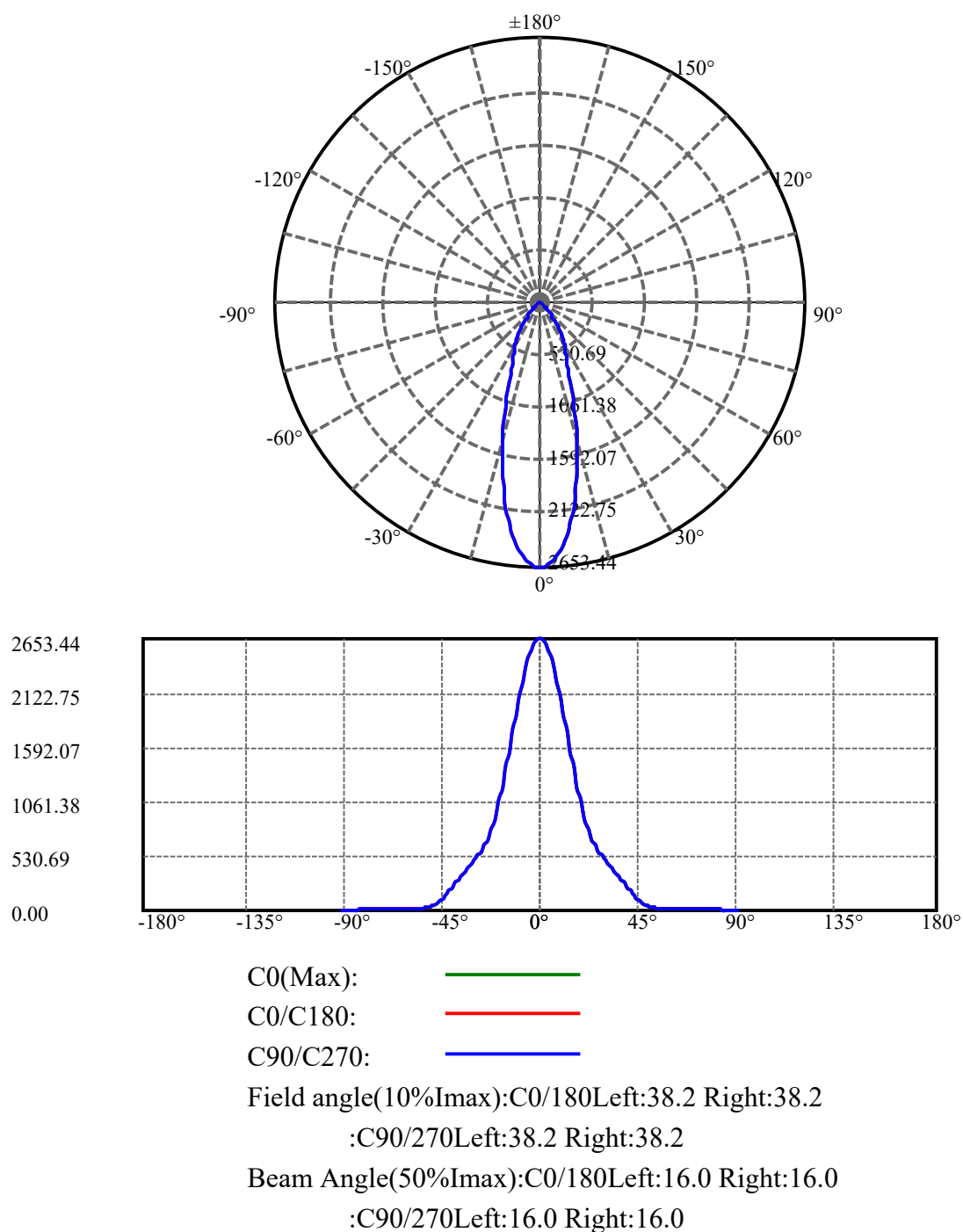
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.291	0.990	1249.626	.068%	99.088%
77.0	9.132	0.982	1250.608	.067%	99.166%
78.0	8.988	0.970	1251.578	.066%	99.243%
79.0	8.802	0.956	1252.534	.065%	99.319%
80.0	8.603	0.938	1253.473	.064%	99.393%
81.0	8.499	0.925	1254.397	.063%	99.466%
82.0	8.348	0.914	1255.311	.062%	99.539%
83.0	8.135	0.896	1256.207	.061%	99.610%
84.0	7.921	0.875	1257.082	.060%	99.679%
85.0	7.687	0.852	1257.934	.058%	99.747%
86.0	6.607	0.781	1258.715	.053%	99.809%
87.0	5.987	0.689	1259.404	.047%	99.863%
88.0	5.210	0.613	1260.018	.042%	99.912%
89.0	5.045	0.562	1260.58	.038%	99.956%
90.0	4.969	0.549	1261.129	.038%	100.000%

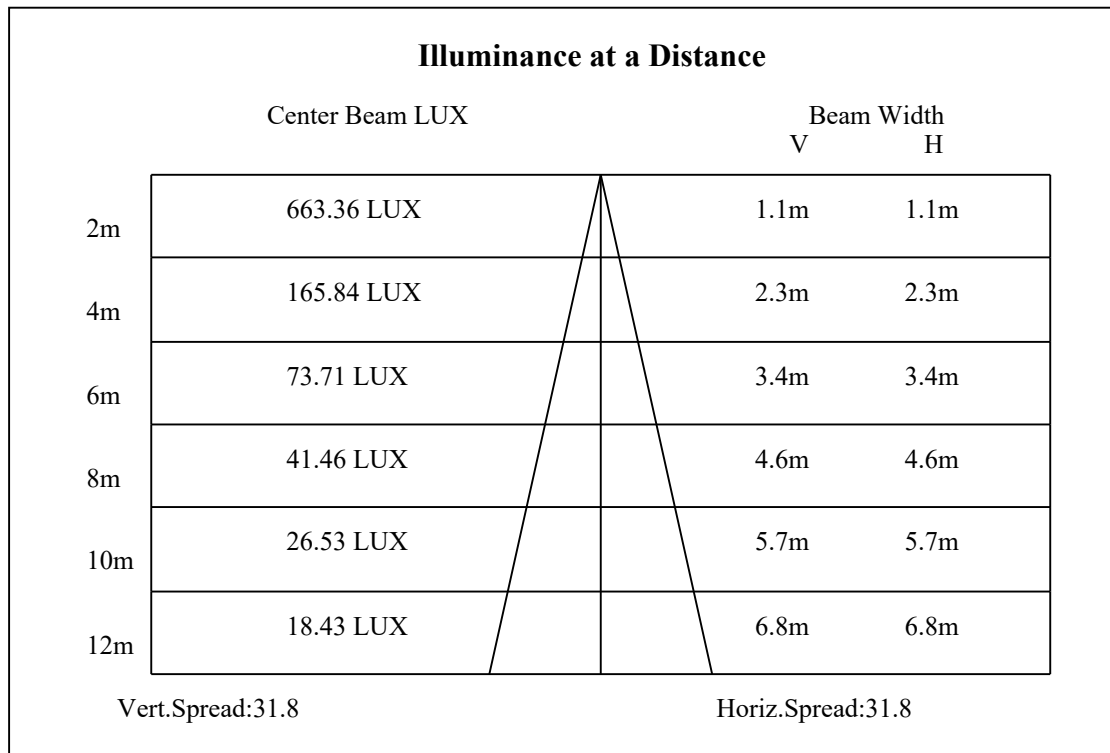
ZONAL LUMEN SUMMARY

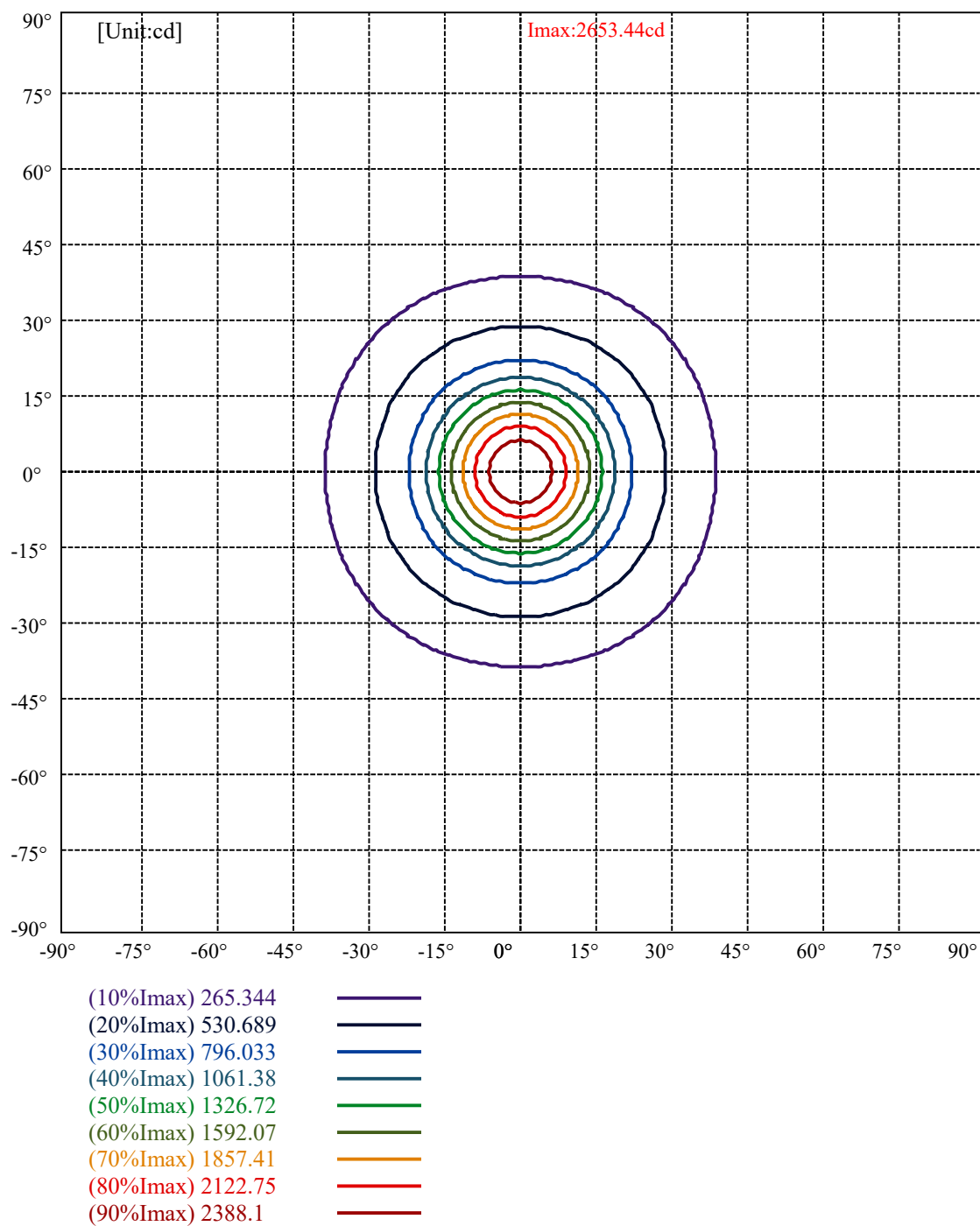
Zone	Lumens	%Lamp	%Fixt
0-30	912.65	62.38%	72.37%
0-40	1130.67	77.28%	89.66%
0-60	1232.51	84.25%	97.73%
0-90	1260.58	86.16%	99.96%
0-120	1260.58	86.16%	99.96%
0-180	1261.13	86.20%	100.00%
60-90	29.30	2.00%	2.32%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-33.80	1008.90	68.96%	80.00%

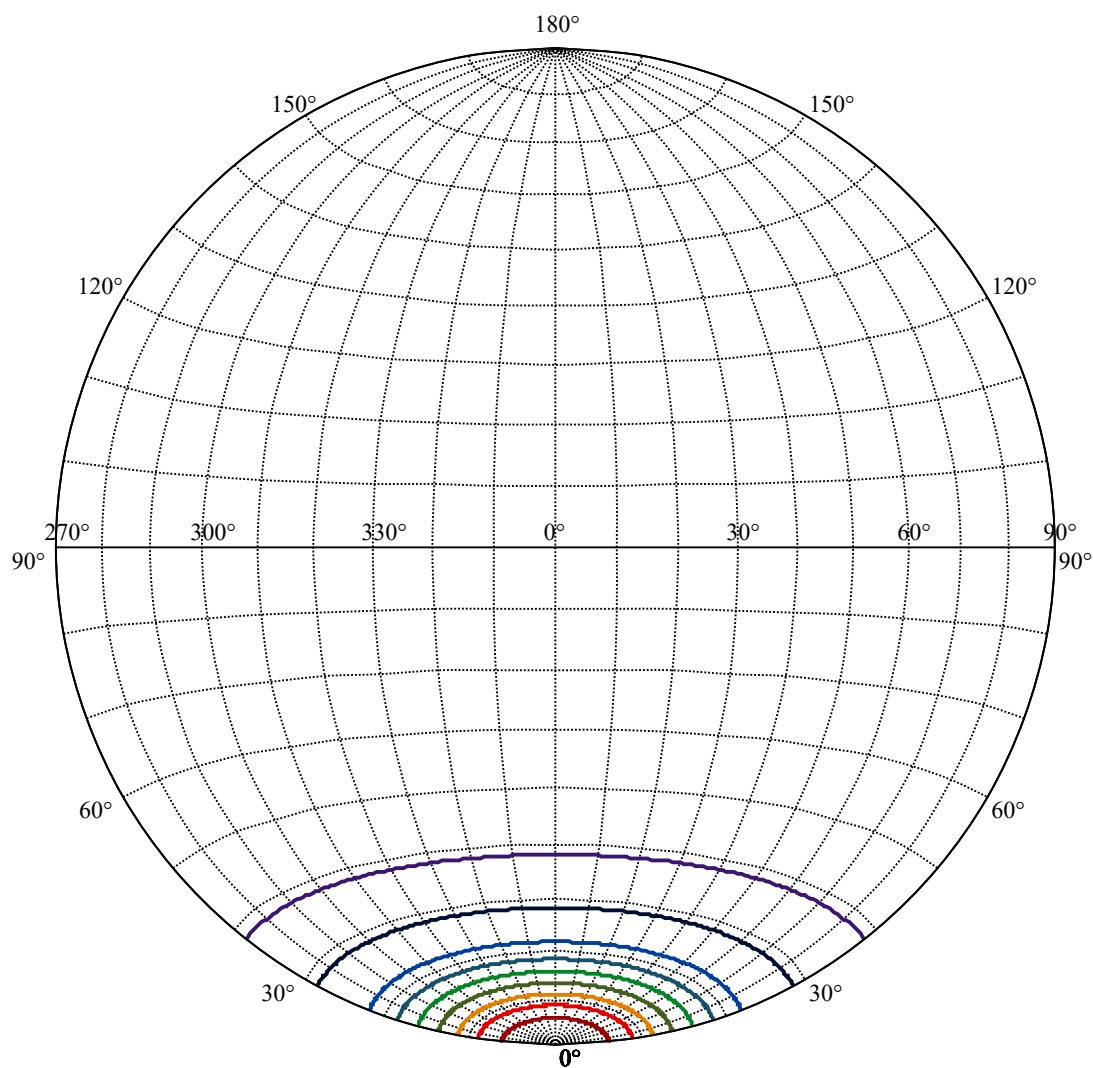
ZONAL LUMEN SUMMARY

0-10	221.12
10-20	391.25
20-30	300.28
30-40	218.03
40-50	83.48
50-60	18.36
60-70	11.06
70-80	9.90
80-90	7.11
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:2653.44

(10%Imax) 265.344

(20%Imax) 530.689

(30%Imax) 796.033

(40%Imax) 1061.38

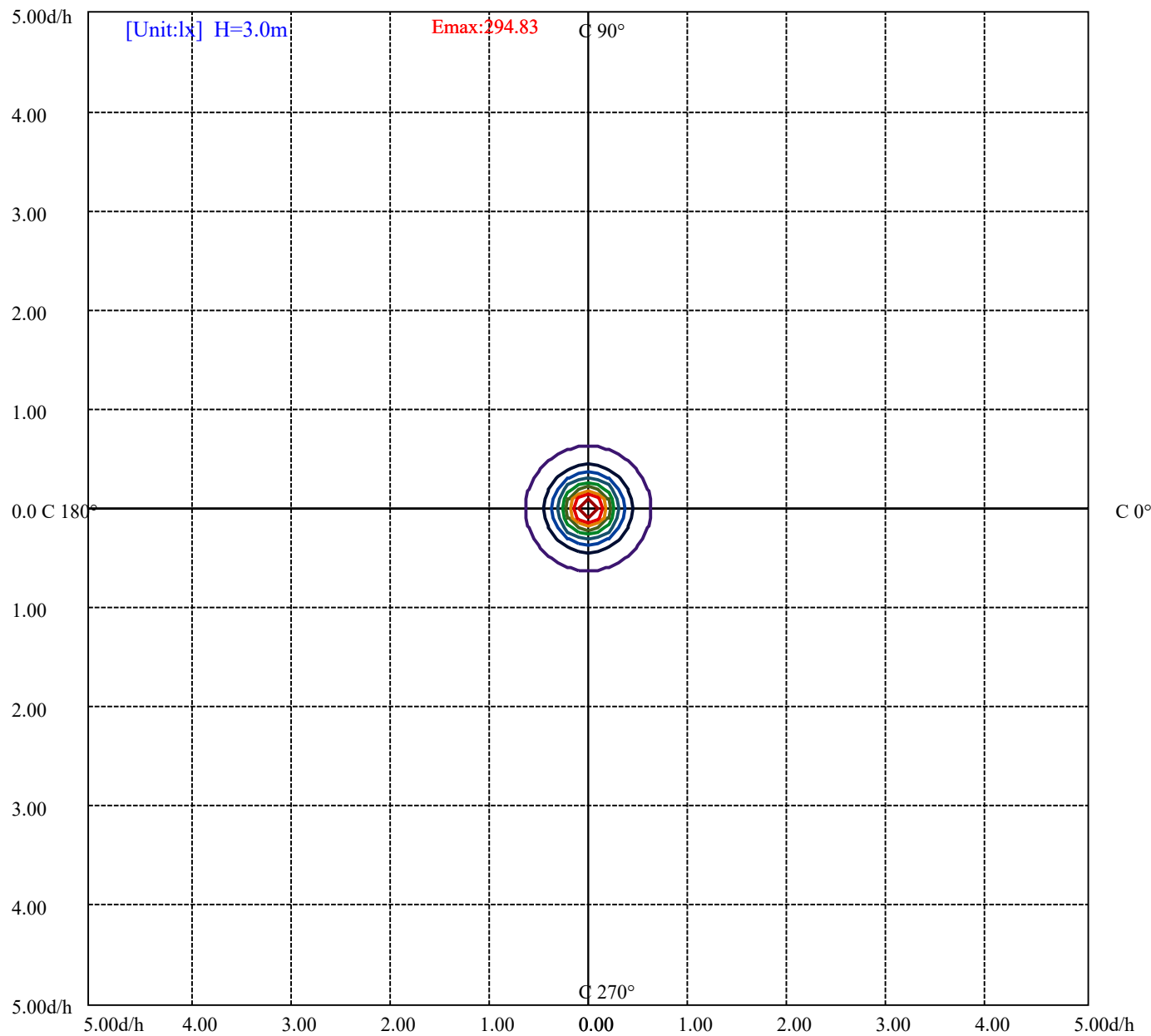
(50%Imax) 1326.72

(60%Imax) 1592.07

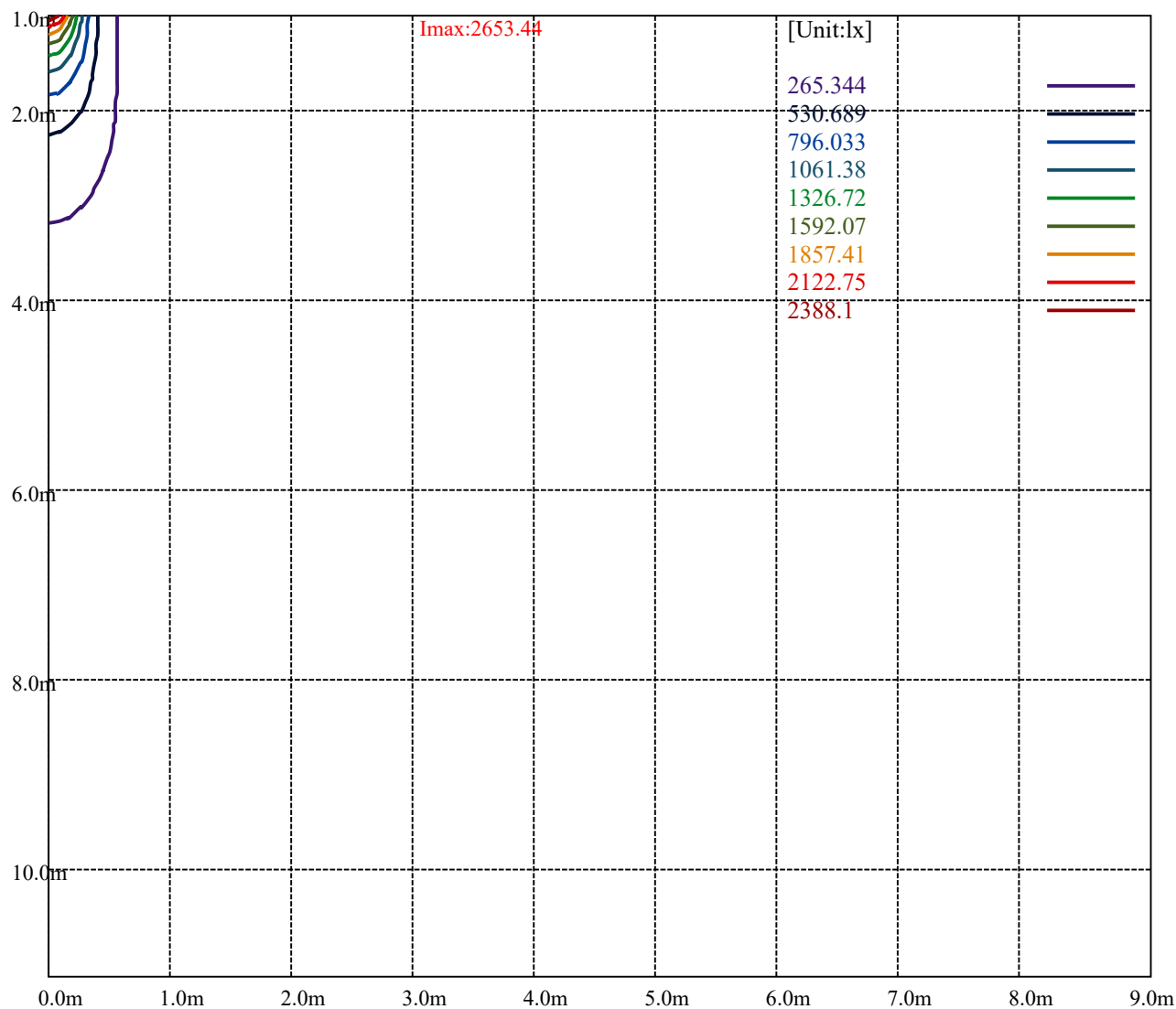
(70%Imax) 1857.41

(80%Imax) 2122.75

(90%Imax) 2388.1



(10%Emax) 29.48267	—
(20%Emax) 58.96533	—
(30%Emax) 88.44811	—
(40%Emax) 117.9311	—
(50%Emax) 147.4133	—
(60%Emax) 176.8967	—
(70%Emax) 206.3789	—
(80%Emax) 235.8611	—
(90%Emax) 265.3445	—



Luminance Table

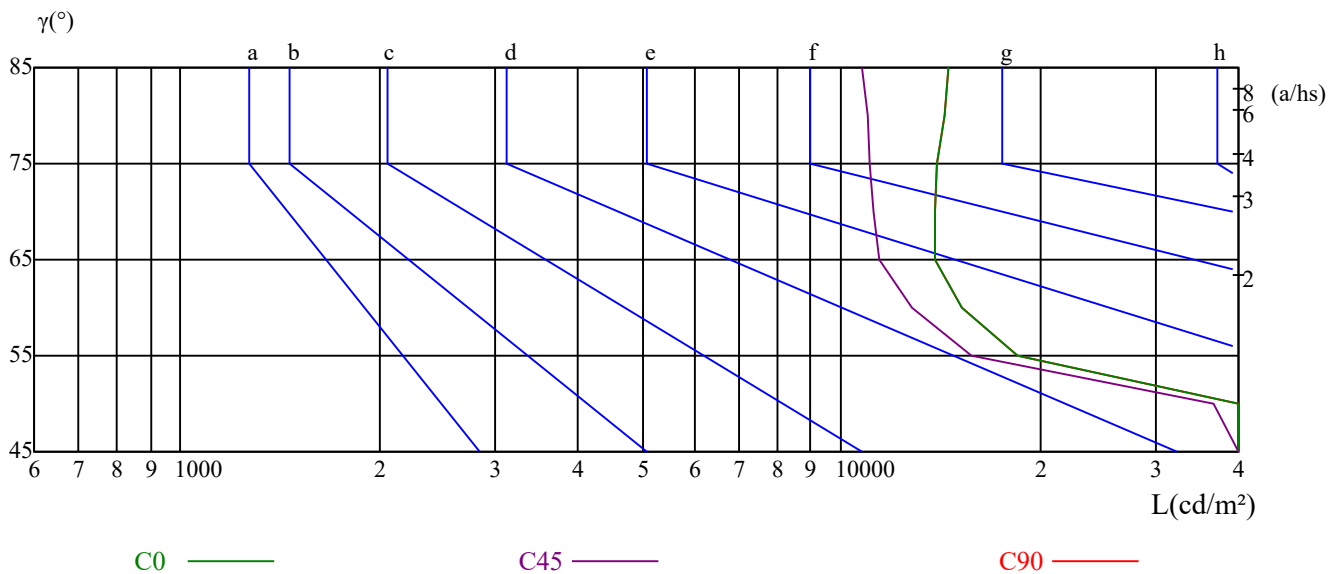
γ	45	50	55	60	65	70	75	80	85
C0	106007	42199	18472	15252	13892	13911	14009	14351	14594
C45	93146	36547	15754	12793	11440	11221	11034	10987	10790
C90	106007	42199	18472	15252	13892	13911	14009	14351	14594

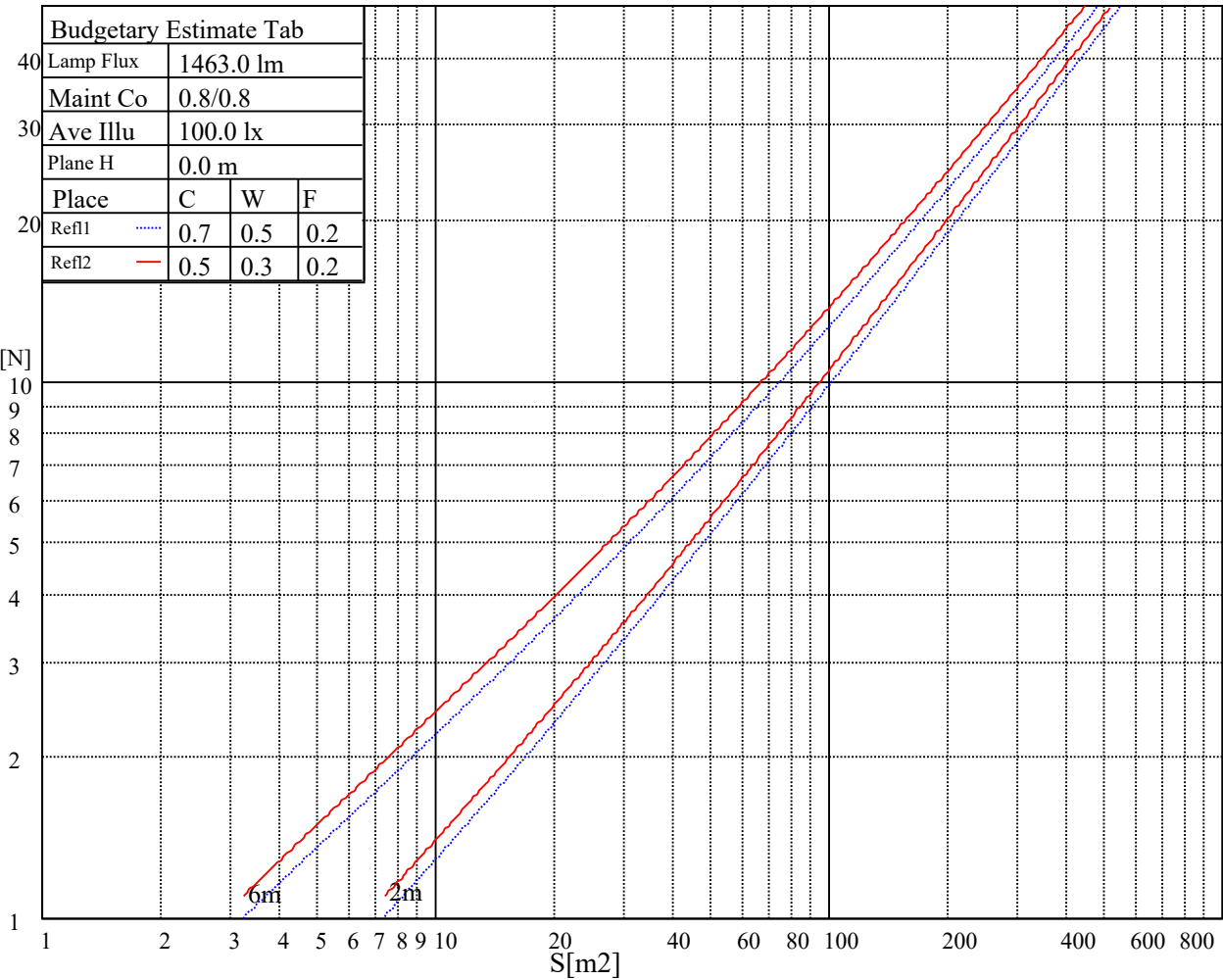
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
28787	28787	28787	40151	40151	40151	98001	98001	98001

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	1.03	1.03	1.03	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.86
1	0.95	0.93	0.91	0.93	0.92	0.90	0.90	0.88	0.87	0.87	0.86	0.84	0.84	0.83	0.82	0.80
2	0.89	0.85	0.83	0.87	0.84	0.82	0.85	0.82	0.80	0.82	0.80	0.78	0.80	0.78	0.76	0.75
3	0.83	0.79	0.76	0.82	0.78	0.75	0.80	0.76	0.74	0.78	0.75	0.73	0.76	0.73	0.72	0.70
4	0.78	0.74	0.70	0.77	0.73	0.70	0.75	0.72	0.69	0.74	0.70	0.68	0.72	0.69	0.67	0.66
5	0.74	0.69	0.65	0.73	0.68	0.65	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.62
6	0.70	0.65	0.61	0.69	0.64	0.61	0.68	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.58
7	0.66	0.61	0.57	0.65	0.61	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.55
8	0.63	0.58	0.54	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.53	0.52
9	0.59	0.55	0.51	0.59	0.54	0.51	0.58	0.54	0.51	0.58	0.54	0.51	0.57	0.53	0.51	0.50
10	0.57	0.52	0.49	0.56	0.52	0.49	0.56	0.52	0.49	0.55	0.51	0.49	0.54	0.51	0.48	0.47

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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	2643.26	2649.86	2637.20	2601.97	2569.48	2499.01	2428.54	2367.43	2257.31
45.0	2656.47	2661.43	2649.86	2630.04	2599.76	2550.76	2490.20	2422.48	2342.10
90.0	2660.33	2670.79	2679.59	2664.18	2635.55	2578.84	2526.54	2450.01	2354.21
135.0	2653.72	2659.22	2653.72	2646.56	2621.24	2573.89	2516.63	2458.27	2373.48
180.0	2643.26	2632.80	2603.62	2561.77	2513.88	2446.16	2361.92	2278.23	2167.02
225.0	2656.47	2623.44	2581.59	2529.29	2452.21	2380.64	2302.46	2188.49	2093.24
270.0	2660.33	2639.40	2594.81	2537.55	2479.74	2376.78	2293.10	2201.71	2095.45
315.0	2653.72	2629.49	2585.45	2527.64	2462.67	2377.89	2285.94	2195.10	2089.39
360.0	2643.26	2649.86	2637.20	2601.97	2569.48	2499.01	2428.54	2367.43	2257.31
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2148.85	2056.36	1922.02	1817.41	1713.91	1580.67	1479.92	1373.11	1240.42
45.0	2218.22	2114.17	2015.06	1865.86	1741.43	1645.09	1507.99	1386.32	1300.98
90.0	2254.01	2136.19	2011.21	1895.04	1779.97	1630.77	1519.01	1412.20	1292.72
135.0	2273.83	2167.02	2044.79	1930.28	1798.69	1668.21	1554.24	1445.78	1307.59
180.0	2066.82	1942.39	1813.01	1708.95	1594.98	1481.57	1375.86	1275.11	1091.49
225.0	1985.88	1860.91	1762.91	1664.35	1566.35	1438.07	1337.32	1231.61	1096.28
270.0	1973.77	1873.57	1768.96	1665.46	1550.39	1443.58	1346.13	1232.71	1128.66
315.0	1989.74	1879.07	1765.66	1659.95	1546.53	1434.22	1334.57	1232.71	1085.44
360.0	2148.85	2056.36	1922.02	1817.41	1713.91	1580.67	1479.92	1373.11	1240.42
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1141.87	1047.17	945.32	869.34	804.92	738.31	684.90	639.76	600.11
45.0	1177.11	1084.06	998.17	899.07	831.90	773.54	711.88	667.28	630.95
90.0	1094.91	1073.76	962.11	888.00	821.00	746.90	704.61	655.39	606.67
135.0	1202.43	1106.63	1000.37	920.54	844.01	770.24	709.13	662.88	614.98
180.0	1054.55	967.29	889.66	807.90	751.91	703.29	651.04	614.43	581.45
225.0	1029.39	956.00	877.71	810.43	757.58	705.38	665.30	627.64	597.03
270.0	1047.17	967.89	881.45	817.04	760.88	708.03	664.53	629.85	598.46
315.0	1022.45	944.11	871.05	787.80	731.42	684.41	632.49	596.21	566.09
360.0	1141.87	1047.17	945.32	869.34	804.92	738.31	684.90	639.76	600.11
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	569.28	538.45	513.68	493.31	464.68	434.95	411.27	386.50	355.11
45.0	590.20	564.33	542.31	518.08	490.00	464.13	435.50	407.97	380.99
90.0	580.68	554.97	521.60	504.04	480.64	444.64	421.40	397.23	367.01
135.0	577.54	543.96	514.23	491.65	463.02	433.29	407.42	380.99	351.26
180.0	552.33	528.87	507.40	479.82	453.11	423.49	395.97	369.76	339.26
225.0	572.20	550.34	523.20	496.99	472.00	441.06	412.54	385.89	351.92
270.0	565.98	547.26	519.18	494.96	464.68	436.60	408.52	377.14	350.16
315.0	538.34	510.70	483.51	453.44	427.35	397.89	368.16	340.14	311.89
360.0	569.28	538.45	513.68	493.31	464.68	434.95	411.27	386.50	355.11
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	331.44	306.11	279.14	249.30	223.58	200.19	175.19	154.32	130.87
45.0	352.36	326.48	296.20	279.14	237.57	215.49	184.55	162.03	139.29
90.0	338.05	312.94	286.95	261.46	233.82	208.22	184.60	159.55	136.04
135.0	325.38	300.06	280.24	244.29	221.16	202.22	175.57	153.17	132.91
180.0	310.30	287.28	259.87	226.39	204.70	181.14	155.92	133.07	114.02
225.0	321.36	294.88	260.86	235.04	210.04	179.65	156.53	132.41	107.58
270.0	320.43	296.20	279.69	232.78	208.61	184.77	155.97	135.05	115.12
315.0	284.75	259.04	236.30	209.49	186.64	166.77	144.80	121.07	102.02
360.0	331.44	306.11	279.14	249.30	223.58	200.19	175.19	154.32	130.87

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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	111.71	90.79	72.23	60.56	51.86	42.06	38.43	34.08	27.31
45.0	112.04	94.26	78.07	61.77	51.81	44.60	40.69	36.89	31.77
90.0	115.29	96.90	76.47	63.54	55.33	46.30	42.67	38.37	32.81
135.0	113.36	95.41	78.62	65.24	55.83	45.86	41.40	37.44	30.94
180.0	94.04	77.08	62.16	52.80	44.21	39.20	34.52	30.28	22.02
225.0	88.04	71.02	52.52	42.94	34.85	29.40	25.05	19.60	14.20
270.0	91.01	73.17	58.14	46.58	36.72	31.77	27.03	20.98	15.47
315.0	84.07	67.94	55.11	44.65	38.21	32.48	27.25	20.98	17.07
360.0	111.71	90.79	72.23	60.56	51.86	42.06	38.43	34.08	27.31
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	18.94	17.23	15.97	14.87	14.15	13.43	12.72	12.33	12.00
45.0	23.07	17.51	17.12	16.52	16.02	15.47	14.65	14.15	13.65
90.0	25.71	18.72	17.95	17.29	16.46	15.80	15.14	14.37	13.82
135.0	24.94	19.93	18.22	16.79	15.75	14.98	14.20	13.87	13.16
180.0	17.07	16.02	15.20	14.15	13.43	12.83	12.33	11.95	11.67
225.0	13.87	13.43	12.94	12.50	12.00	11.62	11.12	10.74	10.30
270.0	14.59	13.98	13.32	12.55	11.95	11.45	11.01	10.63	10.35
315.0	15.09	13.93	13.27	12.50	11.95	11.56	11.29	11.01	10.85
360.0	18.94	17.23	15.97	14.87	14.15	13.43	12.72	12.33	12.00
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.78	11.62	11.40	11.29	11.18	10.96	10.85	10.74	10.63
45.0	13.10	12.61	12.28	11.95	11.73	11.51	11.29	11.12	10.85
90.0	13.32	12.99	12.61	12.39	12.11	11.89	11.67	11.45	11.18
135.0	12.28	11.34	10.57	9.91	9.58	9.74	9.80	9.52	8.92
180.0	11.45	11.18	11.07	10.85	10.68	10.52	10.35	10.19	10.02
225.0	10.02	9.74	9.47	9.25	9.08	9.03	8.81	8.70	8.53
270.0	10.19	9.91	9.74	9.63	9.52	9.41	9.41	9.30	9.25
315.0	10.68	10.63	10.46	10.30	10.24	10.41	10.30	10.30	10.13
360.0	11.78	11.62	11.40	11.29	11.18	10.96	10.85	10.74	10.63
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.46	10.35	10.24	10.02	9.91	9.74	9.52	9.47	9.30
45.0	10.68	10.52	10.41	10.24	10.13	9.97	9.63	9.47	9.30
90.0	10.79	10.24	9.74	9.30	9.08	8.81	8.75	8.75	8.59
135.0	8.86	8.97	9.03	9.14	9.14	9.08	9.08	9.08	9.19
180.0	9.69	9.47	9.30	9.08	8.92	8.70	8.48	7.76	7.27
225.0	8.37	8.31	8.20	8.09	8.04	7.93	7.82	7.60	7.32
270.0	9.14	9.03	9.03	8.97	8.81	8.64	8.53	8.37	8.04
315.0	9.80	9.69	9.52	9.97	10.30	10.19	10.08	9.91	9.80
360.0	10.46	10.35	10.24	10.02	9.91	9.74	9.52	9.47	9.30
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.19	9.03	8.75	8.59	8.37	7.98	7.76	5.34	5.18
45.0	9.08	8.86	8.53	8.31	7.93	7.10	5.45	5.29	5.18
90.0	8.42	8.26	8.09	7.98	7.71	5.51	5.40	5.29	5.12
135.0	9.25	9.14	9.03	8.86	8.53	5.73	5.40	5.18	5.07
180.0	7.54	7.65	7.71	7.38	7.21	5.40	5.29	5.18	4.96
225.0	7.27	7.16	7.05	6.83	6.77	6.50	5.45	5.23	4.96
270.0	7.71	7.49	7.27	7.05	6.77	6.55	6.33	5.12	4.96
315.0	9.52	9.19	8.64	8.37	8.20	8.09	6.83	5.07	4.96
360.0	9.19	9.03	8.75	8.59	8.37	7.98	7.76	5.34	5.18

Intensity data(cd)

Appendix Page: 17 Total:17

C/γ(°)	90.0
0.0	5.01
45.0	5.12
90.0	5.01
135.0	4.96
180.0	4.96
225.0	4.84
270.0	4.90
315.0	4.96
360.0	5.01