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Nata

LumCAT: 1-0809-S	
Luminaire: 92.70.208.00	
Report No: NATA0100	Voltage(V): 24.9000
Test No: GC2019092706	Current(A): 0.1980
LampCAT: LUMILEDS LUXEON5050	Power (W): 4.9300
Lamp flux(lm): 446.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 424.98
Efficiency(%): 95.29%
Lumens(lm)/Power(W): 86.20
Central intensity(cd): 1705.078
Maximum intensity(cd): 1705.078
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=21.4
[C90/270]Total=21.4
Field angle(10%Imax): [C0/180]Total=46.2
[C90/270]Total=46.2
Maximum s/h(1/2): C0_180=0.36 C90_270=0.36
Maximum s/h(1/4): C0_180=0.37 C90_270=0.37
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 95.29%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.684%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1705.078	0.000	0	.000%	.000%
1.0	1692.070	1.625	1.625	.364%	.382%
2.0	1653.609	4.802	6.428	1.077%	1.512%
3.0	1592.648	7.764	14.191	1.741%	3.339%
4.0	1521.563	10.424	24.616	2.337%	5.792%
5.0	1442.391	12.751	37.367	2.859%	8.792%
6.0	1349.156	14.670	52.037	3.289%	12.244%
7.0	1220.639	15.951	67.988	3.576%	15.998%
8.0	1137.516	16.877	84.864	3.784%	19.969%
9.0	1032.434	17.586	102.451	3.943%	24.107%
10.0	921.495	17.682	120.133	3.965%	28.268%
11.0	823.655	17.438	137.571	3.910%	32.371%
12.0	720.795	16.883	154.454	3.785%	36.344%
13.0	621.443	15.929	170.383	3.572%	40.092%
14.0	536.091	14.816	185.199	3.322%	43.578%
15.0	457.017	13.634	198.833	3.057%	46.786%
16.0	386.494	12.360	211.193	2.771%	49.694%
17.0	330.701	11.169	222.361	2.504%	52.323%
18.0	284.745	10.147	232.509	2.275%	54.710%
19.0	253.884	9.371	241.88	2.101%	56.915%
20.0	216.352	8.607	250.486	1.930%	58.940%
21.0	195.947	7.917	258.403	1.775%	60.803%
22.0	181.877	7.593	265.996	1.702%	62.590%
23.0	171.246	7.409	273.405	1.661%	64.333%
24.0	162.780	7.303	280.708	1.637%	66.052%
25.0	156.094	7.251	287.959	1.626%	67.758%
26.0	150.982	7.249	295.207	1.625%	69.464%
27.0	146.665	7.282	302.489	1.633%	71.177%
28.0	143.156	7.338	309.827	1.645%	72.904%
29.0	140.196	7.413	317.24	1.662%	74.648%
30.0	137.672	7.502	324.743	1.682%	76.413%
31.0	135.141	7.592	332.335	1.702%	78.200%
32.0	132.982	7.681	340.016	1.722%	80.007%
33.0	130.999	7.777	347.793	1.744%	81.837%
34.0	129.023	7.869	355.662	1.764%	83.689%
35.0	126.998	7.951	363.613	1.783%	85.560%
36.0	124.643	8.012	371.625	1.796%	87.445%
37.0	119.531	7.964	379.589	1.786%	89.319%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	109.927	7.659	387.248	1.717%	91.121%
39.0	96.638	7.051	394.299	1.581%	92.780%
40.0	82.005	6.230	400.529	1.397%	94.246%
41.0	66.790	5.299	405.828	1.188%	95.493%
42.0	50.337	4.255	410.083	.954%	96.494%
43.0	34.207	3.132	413.215	.702%	97.231%
44.0	20.693	2.072	415.287	.465%	97.719%
45.0	9.478	1.160	416.446	.260%	97.992%
46.0	3.628	0.513	416.959	.115%	98.112%
47.0	2.187	0.231	417.19	.052%	98.167%
48.0	2.109	0.174	417.364	.039%	98.207%
49.0	2.060	0.171	417.535	.038%	98.248%
50.0	1.990	0.169	417.704	.038%	98.287%
51.0	1.969	0.167	417.871	.038%	98.327%
52.0	1.941	0.168	418.039	.038%	98.366%
53.0	1.920	0.168	418.207	.038%	98.406%
54.0	1.891	0.168	418.375	.038%	98.445%
55.0	1.863	0.168	418.543	.038%	98.485%
56.0	1.842	0.167	418.71	.038%	98.524%
57.0	1.849	0.169	418.879	.038%	98.564%
58.0	1.828	0.170	419.049	.038%	98.604%
59.0	1.814	0.170	419.219	.038%	98.644%
60.0	1.800	0.171	419.39	.038%	98.684%
61.0	1.800	0.172	419.562	.039%	98.725%
62.0	1.786	0.173	419.735	.039%	98.765%
63.0	1.793	0.174	419.909	.039%	98.806%
64.0	1.786	0.176	420.084	.039%	98.848%
65.0	1.800	0.177	420.262	.040%	98.889%
66.0	1.793	0.179	420.441	.040%	98.932%
67.0	1.779	0.180	420.621	.040%	98.974%
68.0	1.793	0.181	420.801	.041%	99.016%
69.0	1.765	0.182	420.983	.041%	99.059%
70.0	1.786	0.182	421.165	.041%	99.102%
71.0	1.786	0.185	421.35	.041%	99.145%
72.0	1.786	0.186	421.536	.042%	99.189%
73.0	1.793	0.187	421.723	.042%	99.233%
74.0	1.786	0.188	421.911	.042%	99.277%
75.0	1.786	0.189	422.1	.042%	99.322%

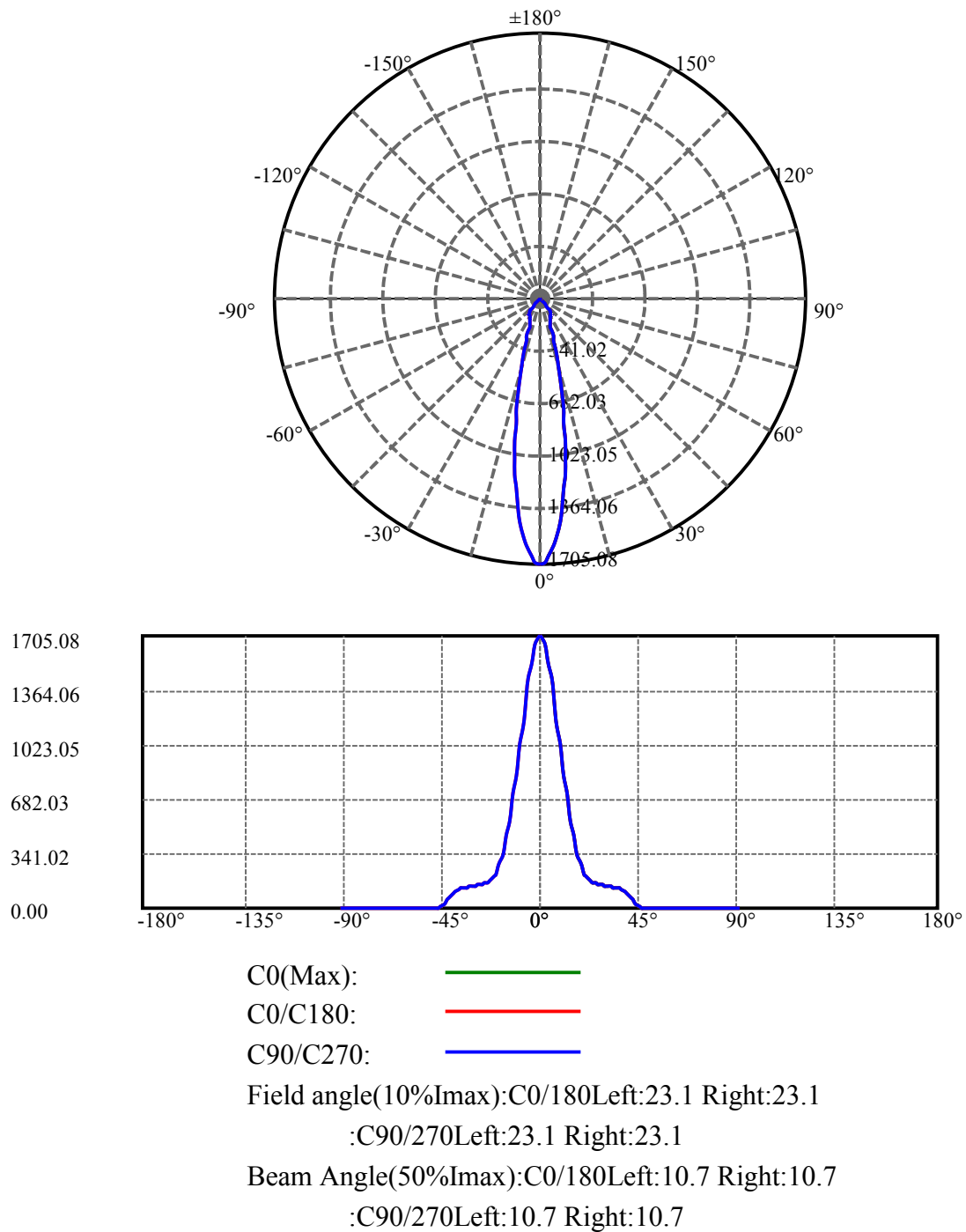
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.779	0.189	422.289	.042%	99.366%
77.0	1.772	0.189	422.478	.042%	99.411%
78.0	1.772	0.190	422.668	.043%	99.456%
79.0	1.779	0.191	422.859	.043%	99.500%
80.0	1.772	0.191	423.05	.043%	99.545%
81.0	1.772	0.192	423.242	.043%	99.591%
82.0	1.772	0.192	423.434	.043%	99.636%
83.0	1.772	0.193	423.627	.043%	99.681%
84.0	1.779	0.193	423.82	.043%	99.727%
85.0	1.758	0.193	424.013	.043%	99.772%
86.0	1.772	0.193	424.206	.043%	99.817%
87.0	1.779	0.194	424.4	.044%	99.863%
88.0	1.765	0.194	424.594	.044%	99.909%
89.0	1.765	0.193	424.788	.043%	99.954%
90.0	1.772	0.194	424.982	.043%	100.000%

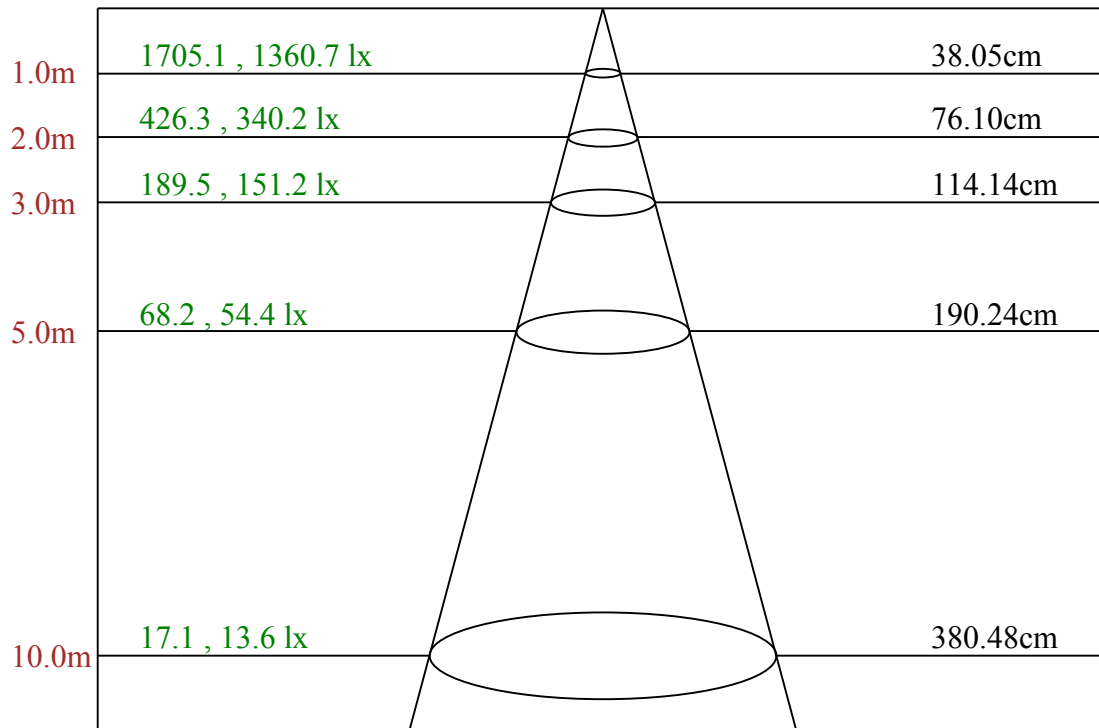
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	324.74	72.81%	76.41%
0-40	400.53	89.80%	94.25%
0-60	419.39	94.03%	98.68%
0-90	424.79	95.24%	99.95%
0-120	424.79	95.24%	99.95%
0-180	424.98	95.29%	100.00%
60-90	5.57	1.25%	1.31%
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%
0-32.00	339.99	76.23%	80.00%

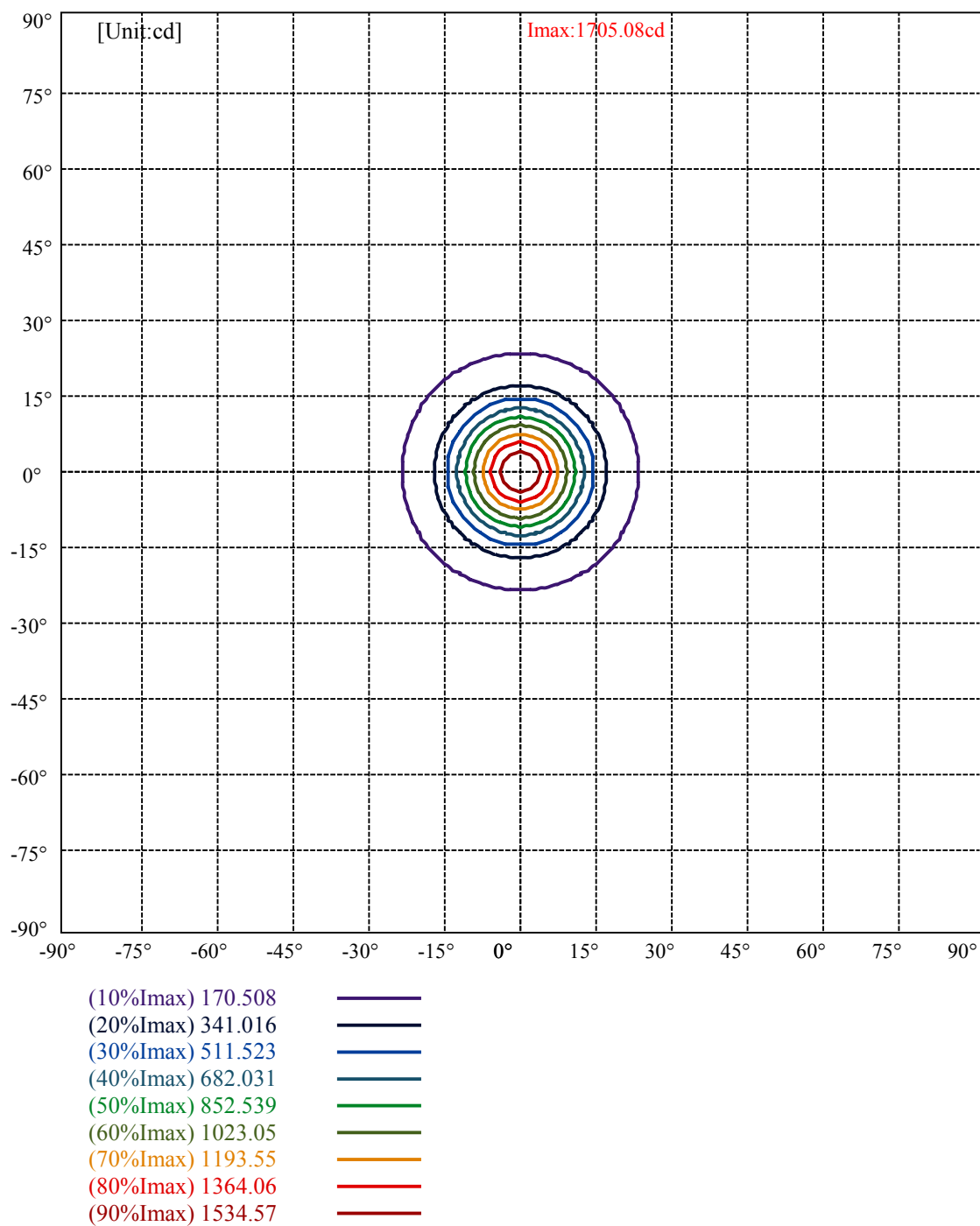
ZONAL LUMEN SUMMARY

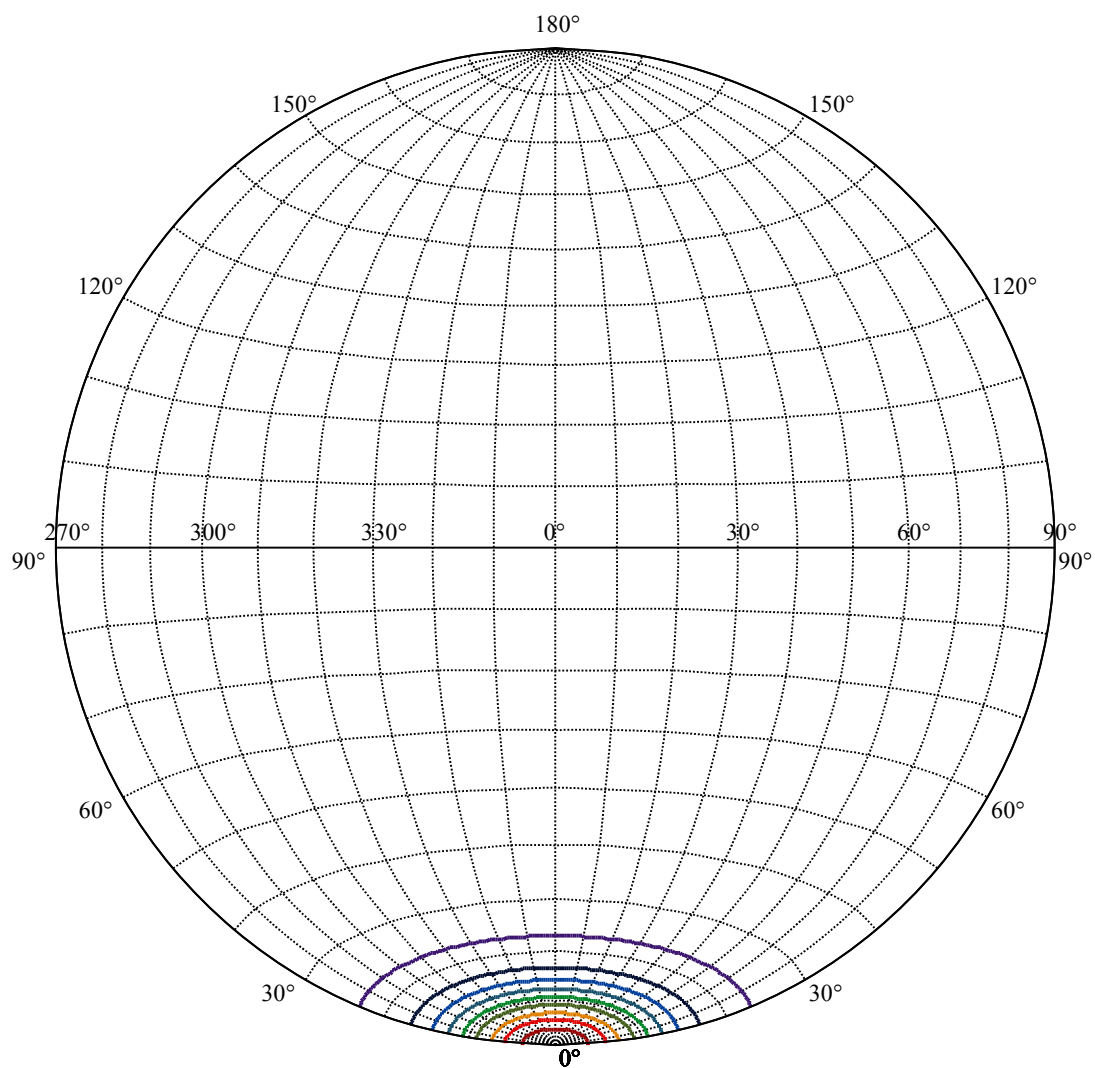
0-10	120.13
10-20	130.35
20-30	74.26
30-40	75.79
40-50	17.17
50-60	1.69
60-70	1.78
70-80	1.88
80-90	1.74
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00





Max , Ave Beam angle of C0 plane 21.54





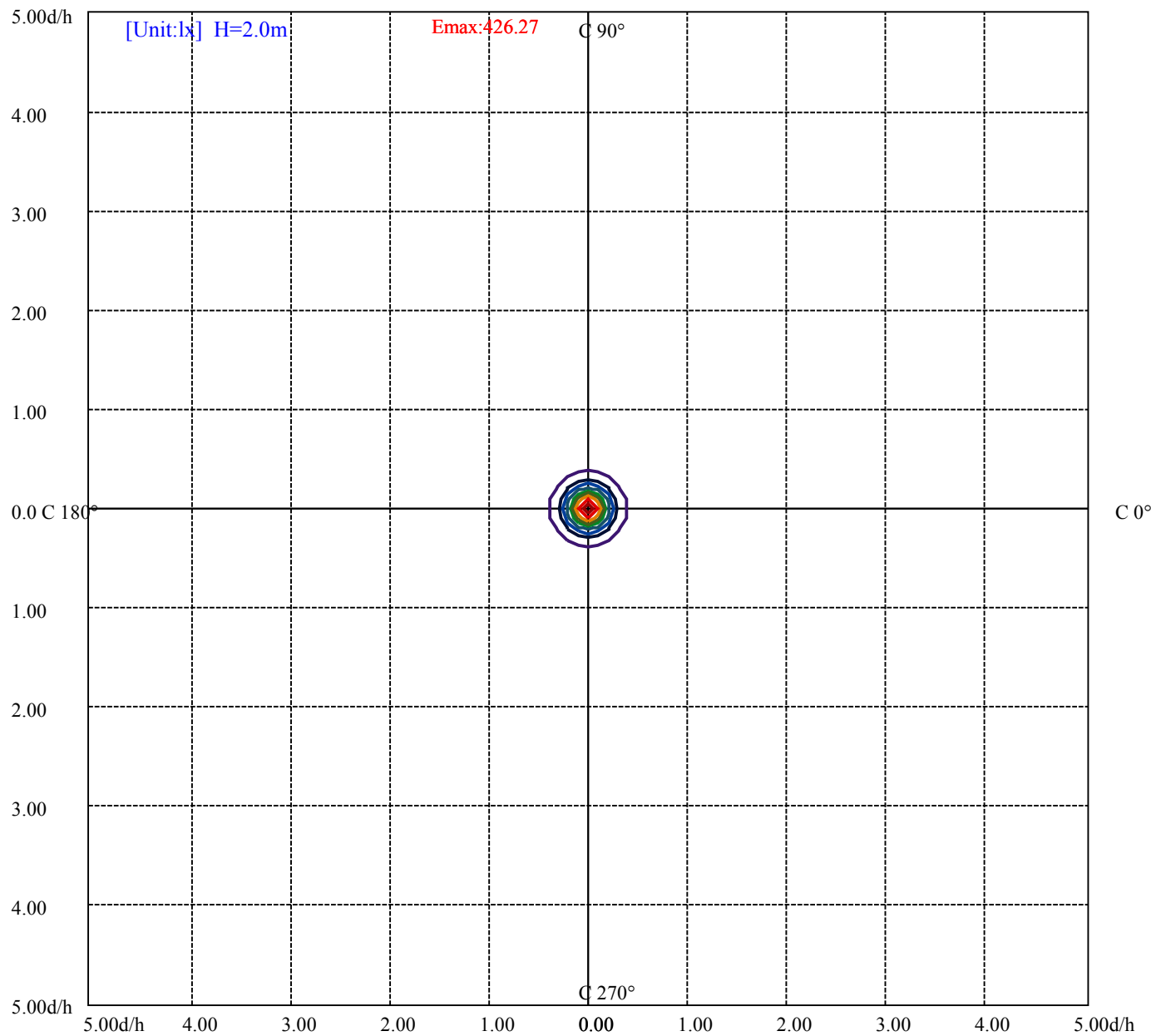
House

[Unit:cd]

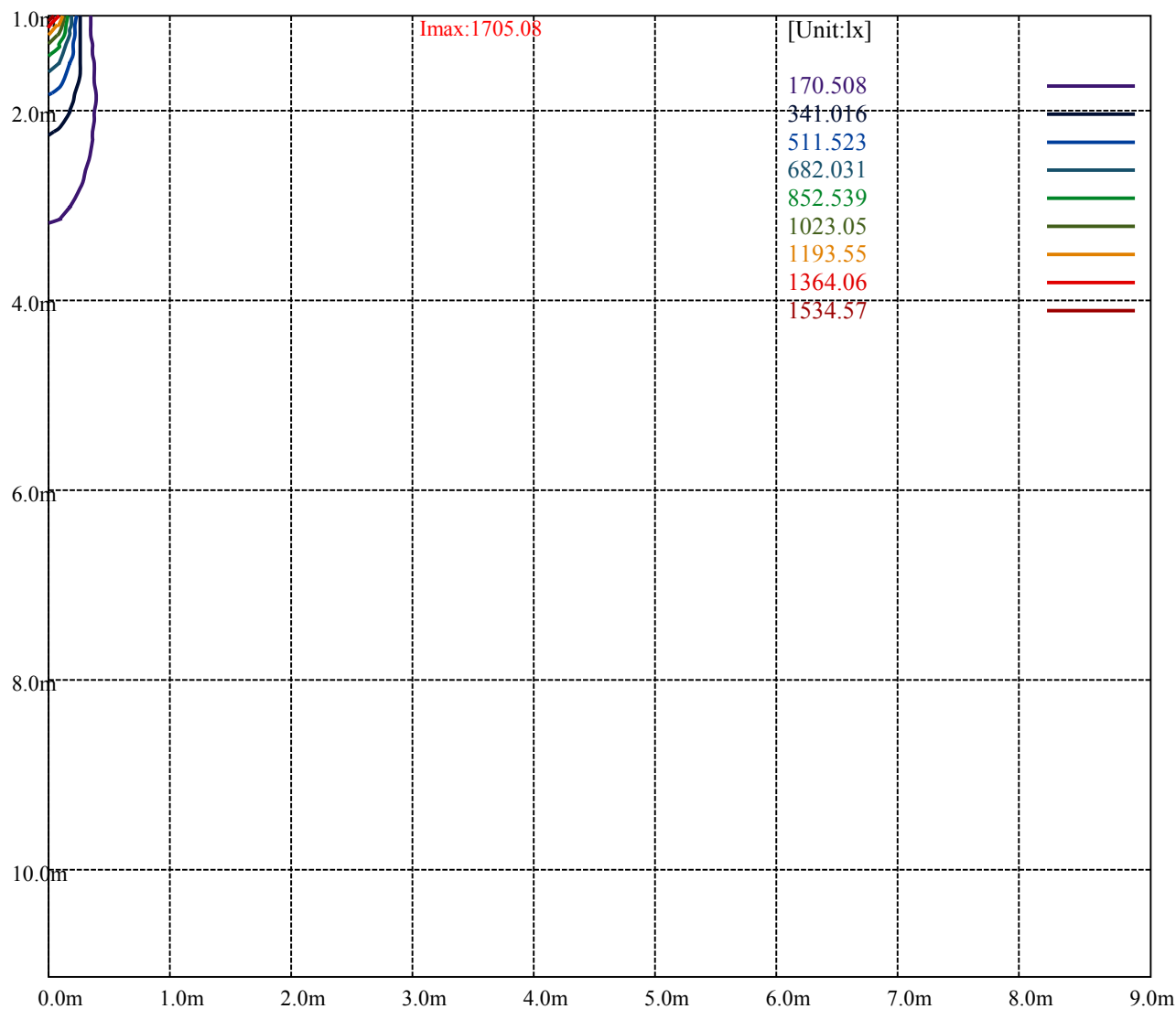
Road

Imax:1705.08

(10%Imax)	170.508	—
(20%Imax)	341.016	—
(30%Imax)	511.523	—
(40%Imax)	682.031	—
(50%Imax)	852.539	—
(60%Imax)	1023.05	—
(70%Imax)	1193.55	—
(80%Imax)	1364.06	—
(90%Imax)	1534.57	—



(10%Emax)	42.627	
(20%Emax)	85.25375	
(30%Emax)	127.8808	
(40%Emax)	170.5075	
(50%Emax)	213.1345	
(60%Emax)	255.7625	
(70%Emax)	298.3875	
(80%Emax)	341.015	
(90%Emax)	383.6425	



Luminance Table

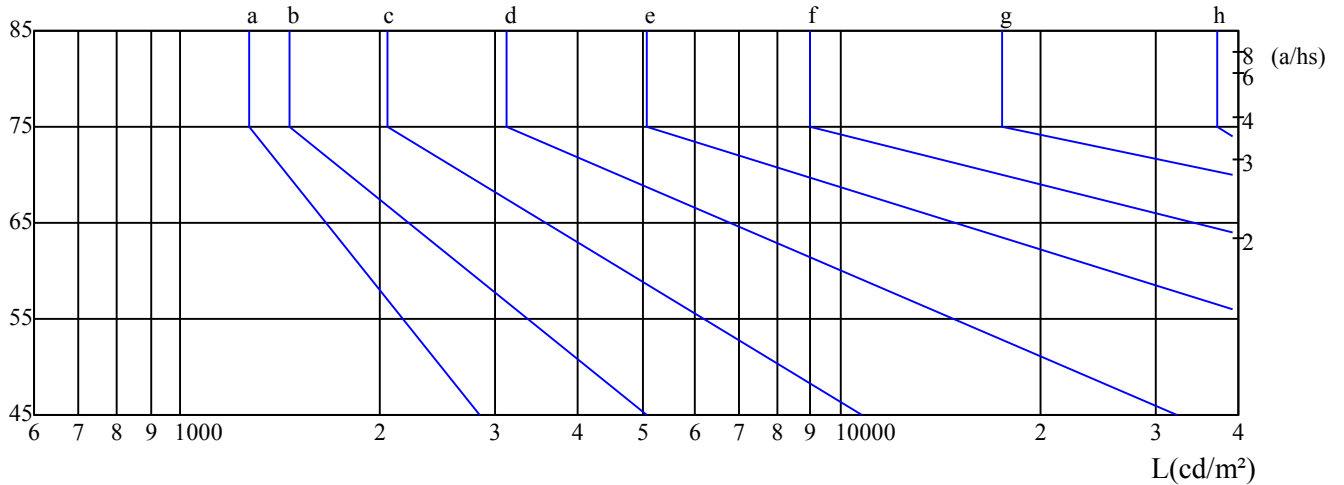
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

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

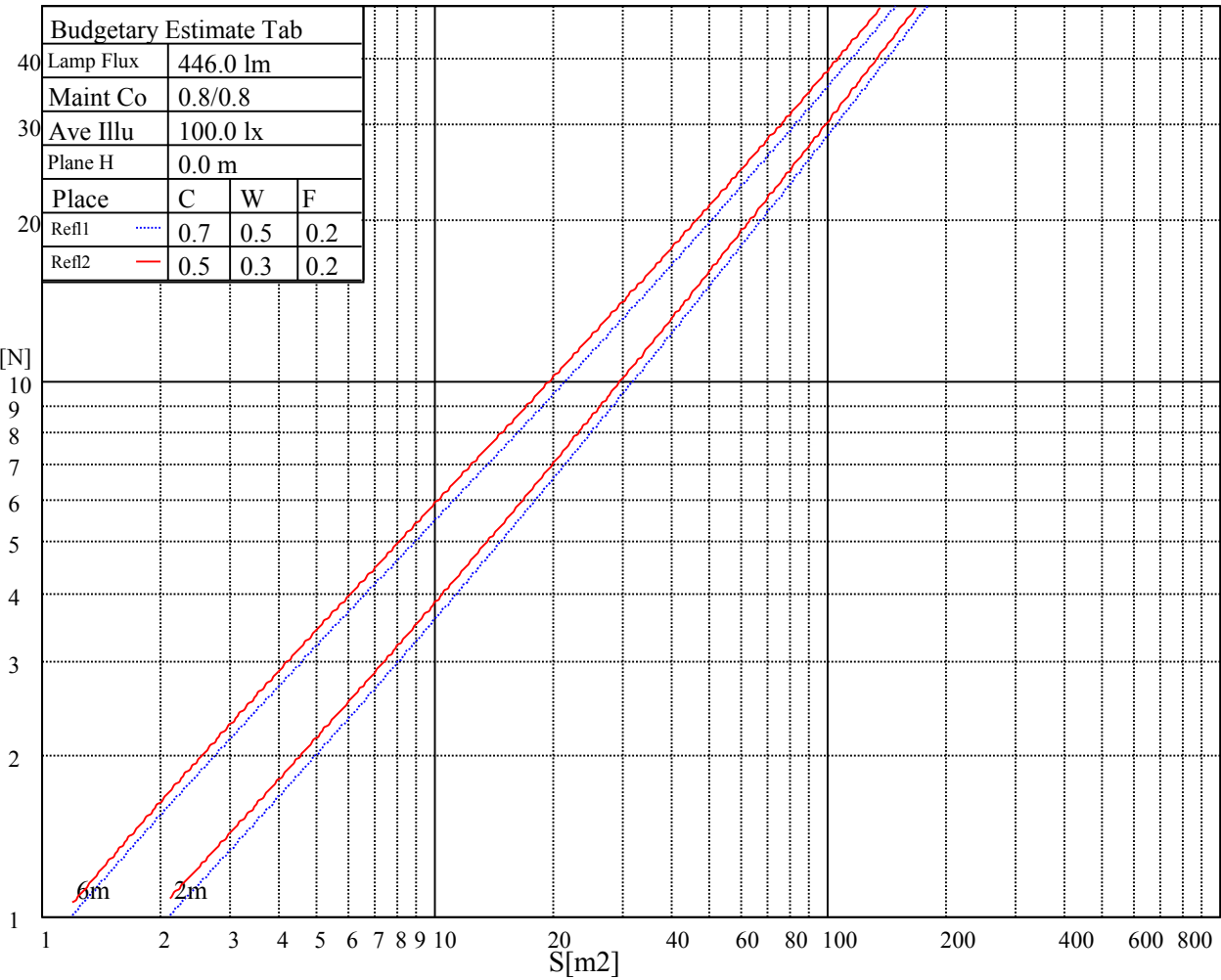
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

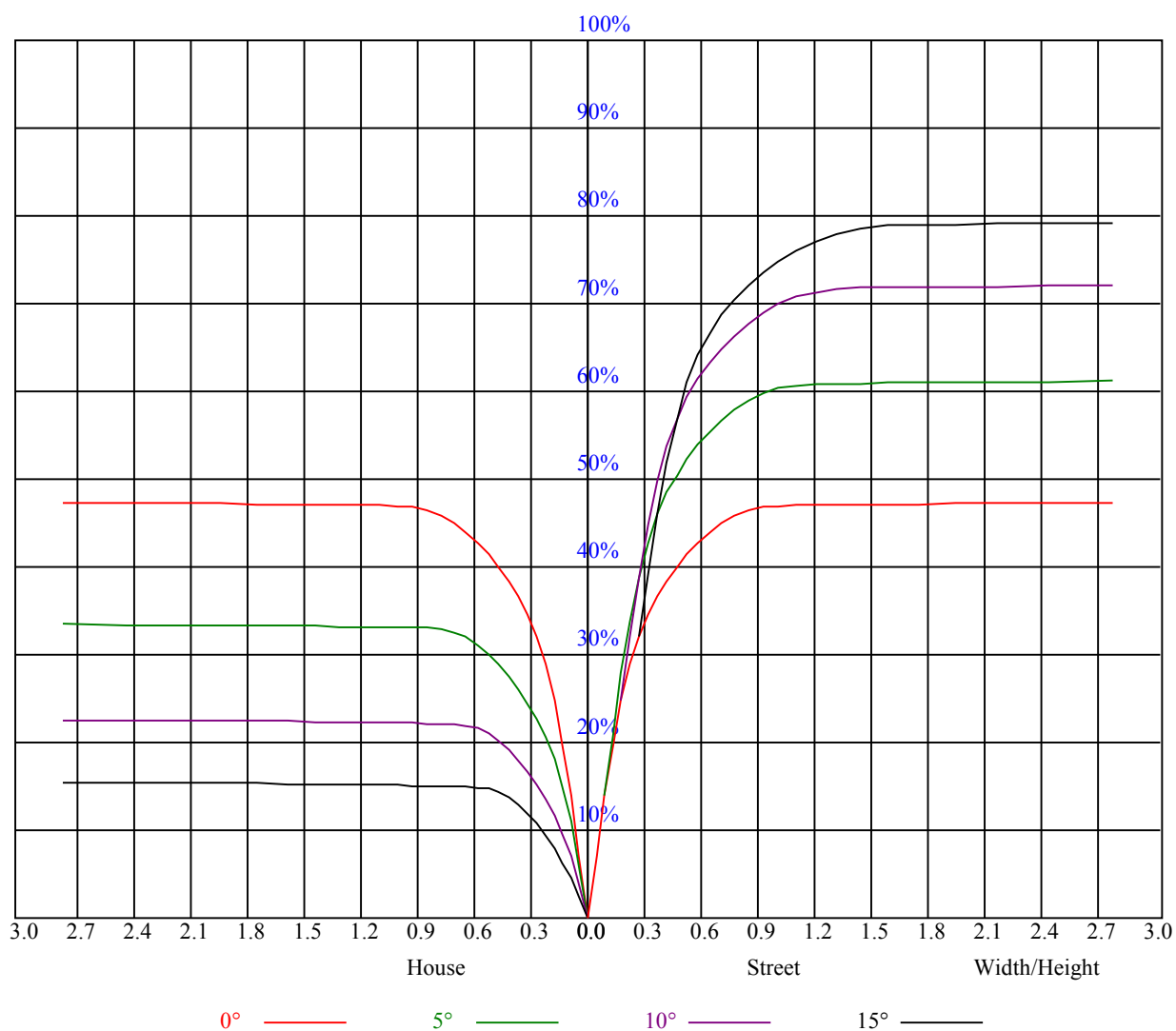
C0 ———

C45 ———

C90 ———



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	1.13	1.13	1.13	1.11	1.11	1.11	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.95
1	1.06	1.04	1.02	1.04	1.02	1.00	1.00	0.99	0.97	0.97	0.96	0.95	0.94	0.93	0.92	0.90
2	1.00	0.97	0.94	0.98	0.95	0.93	0.95	0.93	0.91	0.93	0.90	0.89	0.90	0.88	0.87	0.85
3	0.94	0.90	0.87	0.93	0.89	0.86	0.91	0.88	0.85	0.88	0.86	0.84	0.86	0.84	0.82	0.81
4	0.90	0.85	0.81	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.77
5	0.85	0.80	0.77	0.84	0.80	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.73
6	0.81	0.76	0.73	0.80	0.76	0.73	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.70
7	0.78	0.73	0.69	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.67
8	0.74	0.70	0.66	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.64
9	0.71	0.67	0.63	0.71	0.66	0.63	0.70	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.62
10	0.69	0.64	0.61	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.59



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	1701.00	1701.00	1666.69	1617.19	1556.44	1479.94	1391.06	1301.06	1216.13
45.0	1700.44	1706.63	1680.75	1632.94	1563.19	1481.63	1401.75	1299.94	1199.81
90.0	1706.06	1681.88	1636.88	1558.13	1485.00	1402.31	1297.69	1114.09	1073.42
135.0	1712.81	1694.25	1644.75	1579.50	1508.63	1430.44	1316.25	1215.56	1109.25
180.0	1701.00	1672.31	1625.63	1555.88	1477.69	1397.25	1305.56	1117.41	1079.49
225.0	1700.44	1670.63	1621.13	1541.81	1466.44	1382.63	1284.19	1118.31	1083.26
270.0	1706.06	1707.75	1680.75	1635.75	1565.44	1483.88	1404.56	1307.25	1217.81
315.0	1712.81	1702.13	1672.31	1620.00	1549.69	1481.06	1392.19	1291.50	1120.95
360.0	1701.00	1701.00	1666.69	1617.19	1556.44	1479.94	1391.06	1301.06	1216.13

C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1077.19	973.69	885.38	764.44	661.50	586.13	487.13	407.81	354.38
45.0	1083.38	968.63	868.50	772.31	656.44	570.94	493.31	408.94	350.44
90.0	954.68	838.91	742.61	640.80	557.10	471.66	397.41	341.61	295.99
135.0	977.63	876.94	774.00	666.00	567.56	488.81	414.00	356.63	302.63
180.0	978.47	864.84	756.84	666.06	581.46	484.59	415.74	355.84	298.69
225.0	977.51	871.09	777.94	676.01	591.13	505.63	430.31	371.64	321.41
270.0	1115.44	1009.69	914.63	808.31	702.00	612.56	531.56	440.44	378.56
315.0	1095.19	968.18	869.34	772.43	654.36	568.41	486.68	409.05	343.52
360.0	1077.19	973.69	885.38	764.44	661.50	586.13	487.13	407.81	354.38

C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	292.50	287.44	221.57	200.31	186.24	175.11	164.36	157.67	151.93
45.0	302.63	286.31	225.79	205.48	190.18	176.68	167.85	160.88	154.29
90.0	252.00	225.56	205.48	186.98	176.23	167.91	161.38	154.69	150.19
135.0	288.00	229.44	207.90	188.27	176.68	168.08	161.33	154.91	150.58
180.0	253.46	223.26	199.18	182.76	172.41	163.97	158.01	152.38	147.66
225.0	269.16	236.53	211.95	189.68	176.63	167.01	158.74	152.49	148.22
270.0	325.69	287.44	239.23	214.99	194.63	180.90	169.43	160.71	154.63
315.0	294.53	255.09	219.71	199.13	182.03	170.33	161.16	155.03	150.36
360.0	292.50	287.44	221.57	200.31	186.24	175.11	164.36	157.67	151.93

C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	146.53	143.38	140.68	138.21	135.84	133.88	131.96	130.22	128.31
45.0	149.06	145.97	141.75	139.11	136.41	133.99	132.02	129.66	127.69
90.0	146.48	142.54	139.67	137.03	134.44	132.02	129.94	127.69	125.94
135.0	146.59	142.93	140.18	137.53	134.83	132.92	130.78	128.70	126.51
180.0	144.45	141.53	138.83	136.86	134.78	132.47	130.84	129.04	127.07
225.0	144.23	141.36	138.54	136.13	134.04	131.91	129.60	127.63	125.72
270.0	149.18	145.07	142.03	139.33	136.29	134.21	132.24	130.22	128.08
315.0	146.81	142.48	139.89	137.19	134.49	132.47	130.61	129.04	126.68
360.0	146.53	143.38	140.68	138.21	135.84	133.88	131.96	130.22	128.31

C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	126.34	122.85	114.08	102.32	89.38	74.42	57.21	42.41	27.17
45.0	125.78	122.51	113.06	101.19	87.53	71.21	54.84	40.33	24.92
90.0	122.23	113.79	101.87	87.58	70.43	52.48	37.13	22.67	10.52
135.0	124.03	117.11	106.26	91.52	75.49	60.47	45.62	27.84	15.41
180.0	124.37	117.56	106.82	92.76	77.46	60.98	46.52	28.63	15.36
225.0	122.63	116.27	105.86	89.61	75.77	61.48	43.59	29.76	16.93
270.0	126.28	124.26	116.83	106.14	92.87	80.44	61.54	42.02	28.91
315.0	125.49	121.89	114.64	101.98	87.13	72.84	56.25	39.99	26.33
360.0	126.34	122.85	114.08	102.32	89.38	74.42	57.21	42.41	27.17

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	12.99	5.01	2.25	2.14	2.14	2.03	1.97	1.97	1.91
45.0	12.04	4.84	2.19	2.08	2.03	1.97	1.97	1.91	1.91
90.0	3.66	2.14	2.03	2.03	1.97	1.91	1.91	1.86	1.86
135.0	6.69	2.31	2.14	2.08	2.03	1.97	1.97	1.91	1.91
180.0	6.53	2.31	2.14	2.08	2.03	1.97	1.97	1.97	1.91
225.0	5.79	2.64	2.19	2.14	2.08	2.03	1.97	1.97	1.97
270.0	14.06	5.23	2.31	2.19	2.14	2.08	2.03	1.97	1.97
315.0	14.06	4.56	2.25	2.14	2.08	1.97	1.97	1.97	1.91
360.0	12.99	5.01	2.25	2.14	2.14	2.03	1.97	1.97	1.91
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	1.91	1.86	1.86	1.86	1.86	1.80	1.80	1.80	1.80
45.0	1.86	1.86	1.80	1.80	1.80	1.80	1.80	1.80	1.80
90.0	1.86	1.86	1.80	1.80	1.80	1.80	1.80	1.80	1.74
135.0	1.86	1.86	1.86	1.86	1.80	1.86	1.80	1.80	1.80
180.0	1.91	1.86	1.86	1.86	1.86	1.80	1.80	1.80	1.74
225.0	1.91	1.86	1.86	1.86	1.86	1.80	1.80	1.80	1.80
270.0	1.91	1.91	1.86	1.91	1.86	1.86	1.80	1.80	1.80
315.0	1.91	1.86	1.86	1.86	1.80	1.80	1.80	1.80	1.80
360.0	1.91	1.86	1.86	1.86	1.86	1.80	1.80	1.80	1.80
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.80	1.80	1.80	1.74	1.80	1.80	1.74	1.80	1.80
45.0	1.80	1.80	1.80	1.80	1.80	1.80	1.74	1.80	1.80
90.0	1.80	1.74	1.80	1.80	1.80	1.80	1.80	1.74	1.80
135.0	1.80	1.80	1.80	1.80	1.80	1.74	1.74	1.80	1.80
180.0	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
225.0	1.74	1.80	1.80	1.80	1.74	1.80	1.74	1.74	1.74
270.0	1.80	1.80	1.80	1.80	1.74	1.80	1.74	1.80	1.80
315.0	1.80	1.74	1.80	1.80	1.74	1.80	1.80	1.80	1.74
360.0	1.80	1.80	1.80	1.74	1.80	1.80	1.74	1.80	1.80
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.74
45.0	1.74	1.80	1.80	1.74	1.80	1.74	1.80	1.74	1.74
90.0	1.80	1.80	1.80	1.80	1.80	1.74	1.74	1.80	1.74
135.0	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
180.0	1.80	1.80	1.80	1.80	1.80	1.74	1.74	1.74	1.80
225.0	1.74	1.74	1.80	1.80	1.74	1.74	1.74	1.74	1.74
270.0	1.80	1.80	1.74	1.74	1.74	1.80	1.80	1.80	1.80
315.0	1.80	1.80	1.74	1.80	1.74	1.80	1.74	1.80	1.80
360.0	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.74
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
45.0	1.74	1.80	1.74	1.80	1.80	1.74	1.80	1.74	1.74
90.0	1.74	1.80	1.74	1.80	1.74	1.80	1.74	1.74	1.74
135.0	1.80	1.74	1.80	1.80	1.74	1.80	1.80	1.74	1.80
180.0	1.74	1.74	1.74	1.80	1.74	1.74	1.74	1.74	1.80
225.0	1.74	1.80	1.74	1.74	1.74	1.74	1.74	1.80	1.74
270.0	1.80	1.74	1.80	1.74	1.74	1.74	1.80	1.80	1.74
315.0	1.80	1.74	1.80	1.74	1.74	1.80	1.80	1.74	1.74
360.0	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80

Intensity data(cd)

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C/γ(°)	90.0
0.0	1.80
45.0	1.80
90.0	1.74
135.0	1.80
180.0	1.74
225.0	1.74
270.0	1.80
315.0	1.74
360.0	1.80