
Nata

LumCAT: 3-2040-M	
Luminaire: 92.70.131.00	
Report No: GC2017051904	Voltage(V): 220.4000
Test No: NT-0010	Current(A): 0.1210
LampCAT: BMTC MA-1919 30W	Power (W): 24.7000
Lamp flux(lm): 2655.0	PF: 0.9280
Number of Lamps: 1	Ballast type: DC
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2403.98
Efficiency(%): 90.55%
Lumens(lm)/Power(W): 97.33
Central intensity(cd): 10806.200
Maximum intensity(cd): 10806.200
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=21.2
[C90/270]Total=21.2
Field angle(10%Imax): [C0/180]Total=46.9
[C90/270]Total=46.9
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(%): 90.55%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.775%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10806.195	0.000	0	.000%	.000%
1.0	10746.596	10.313	10.313	.388%	.429%
2.0	10507.376	30.506	40.818	1.149%	1.698%
3.0	10126.386	49.349	90.168	1.859%	3.751%
4.0	9665.702	66.250	156.418	2.495%	6.507%
5.0	9063.797	80.573	236.991	3.035%	9.858%
6.0	8474.832	92.170	329.161	3.472%	13.692%
7.0	7814.568	101.108	430.269	3.808%	17.898%
8.0	7146.045	107.070	537.34	4.033%	22.352%
9.0	6457.565	110.250	647.59	4.153%	26.938%
10.0	5793.723	110.870	758.459	4.176%	31.550%
11.0	5116.391	109.014	867.474	4.106%	36.085%
12.0	4507.055	105.198	972.672	3.962%	40.461%
13.0	3919.052	99.997	1072.668	3.766%	44.621%
14.0	3339.997	92.915	1165.584	3.500%	48.486%
15.0	2896.380	85.616	1251.199	3.225%	52.047%
16.0	2503.827	79.128	1330.328	2.980%	55.339%
17.0	2166.882	72.735	1403.063	2.740%	58.364%
18.0	1895.867	66.986	1470.049	2.523%	61.151%
19.0	1696.288	62.496	1532.545	2.354%	63.750%
20.0	1495.057	58.410	1590.956	2.200%	66.180%
21.0	1348.194	54.596	1645.552	2.056%	68.451%
22.0	1235.837	51.927	1697.479	1.956%	70.611%
23.0	1107.570	49.171	1746.65	1.852%	72.657%
24.0	1048.508	47.140	1793.789	1.776%	74.617%
25.0	984.216	46.220	1840.009	1.741%	76.540%
26.0	931.348	45.217	1885.226	1.703%	78.421%
27.0	893.937	44.656	1929.882	1.682%	80.279%
28.0	866.505	44.571	1974.453	1.679%	82.133%
29.0	842.225	44.705	2019.158	1.684%	83.992%
30.0	819.157	44.857	2064.015	1.690%	85.858%
31.0	785.903	44.666	2108.682	1.682%	87.716%
32.0	732.814	43.509	2152.191	1.639%	89.526%
33.0	663.691	41.142	2193.333	1.550%	91.238%
34.0	583.323	37.738	2231.071	1.421%	92.807%
35.0	489.080	33.305	2264.376	1.254%	94.193%
36.0	385.078	27.833	2292.209	1.048%	95.351%
37.0	309.871	22.665	2314.875	.854%	96.293%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	203.557	17.138	2332.012	.645%	97.006%
39.0	142.775	11.821	2343.833	.445%	97.498%
40.0	74.422	7.575	2351.408	.285%	97.813%
41.0	39.131	4.044	2355.452	.152%	97.981%
42.0	20.619	2.171	2357.623	.082%	98.072%
43.0	16.434	1.373	2358.995	.052%	98.129%
44.0	14.136	1.154	2360.149	.043%	98.177%
45.0	12.388	1.019	2361.169	.038%	98.219%
46.0	11.878	0.949	2362.118	.036%	98.259%
47.0	10.805	0.902	2363.02	.034%	98.296%
48.0	10.612	0.866	2363.885	.033%	98.332%
49.0	10.488	0.866	2364.752	.033%	98.368%
50.0	10.378	0.870	2365.622	.033%	98.404%
51.0	10.268	0.874	2366.495	.033%	98.441%
52.0	10.199	0.878	2367.374	.033%	98.477%
53.0	10.075	0.882	2368.256	.033%	98.514%
54.0	9.979	0.884	2369.14	.033%	98.551%
55.0	9.910	0.888	2370.027	.033%	98.588%
56.0	9.855	0.893	2370.921	.034%	98.625%
57.0	9.800	0.899	2371.819	.034%	98.662%
58.0	9.731	0.903	2372.722	.034%	98.700%
59.0	9.690	0.908	2373.63	.034%	98.737%
60.0	9.635	0.913	2374.543	.034%	98.775%
61.0	9.621	0.919	2375.462	.035%	98.814%
62.0	9.580	0.925	2376.387	.035%	98.852%
63.0	9.552	0.930	2377.318	.035%	98.891%
64.0	9.525	0.936	2378.254	.035%	98.930%
65.0	9.483	0.941	2379.195	.035%	98.969%
66.0	9.483	0.946	2380.141	.036%	99.008%
67.0	9.442	0.952	2381.093	.036%	99.048%
68.0	9.415	0.955	2382.048	.036%	99.088%
69.0	9.415	0.961	2383.009	.036%	99.128%
70.0	9.387	0.966	2383.974	.036%	99.168%
71.0	9.401	0.971	2384.945	.037%	99.208%
72.0	9.360	0.975	2385.921	.037%	99.249%
73.0	9.360	0.979	2386.9	.037%	99.289%
74.0	9.346	0.983	2387.883	.037%	99.330%
75.0	9.346	0.988	2388.871	.037%	99.371%

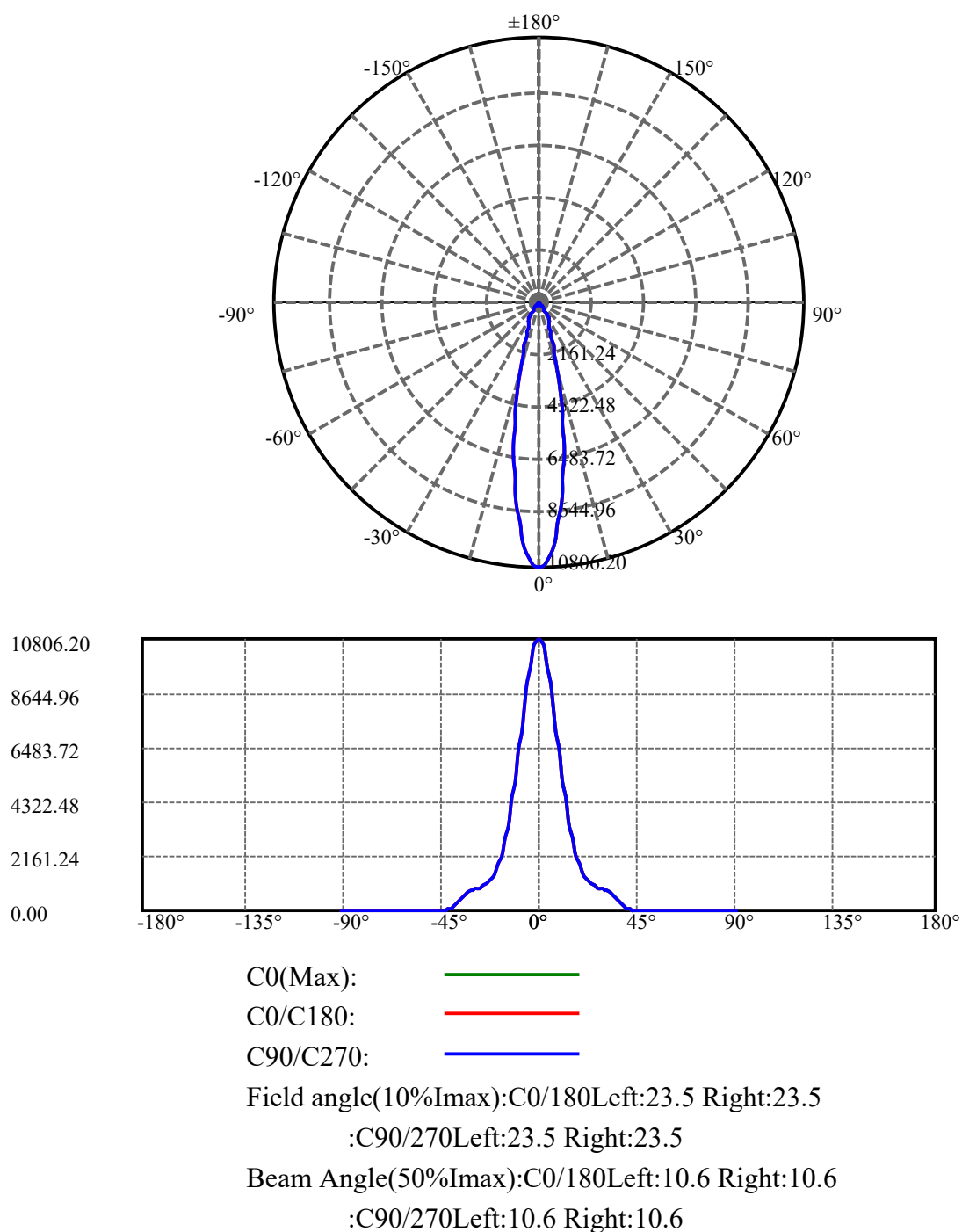
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.318	0.991	2389.861	.037%	99.413%
77.0	9.318	0.994	2390.855	.037%	99.454%
78.0	9.318	0.998	2391.853	.038%	99.495%
79.0	9.318	1.001	2392.854	.038%	99.537%
80.0	9.318	1.005	2393.859	.038%	99.579%
81.0	9.305	1.007	2394.866	.038%	99.621%
82.0	9.291	1.008	2395.874	.038%	99.663%
83.0	9.291	1.010	2396.884	.038%	99.705%
84.0	9.291	1.012	2397.897	.038%	99.747%
85.0	9.277	1.013	2398.91	.038%	99.789%
86.0	9.277	1.014	2399.924	.038%	99.831%
87.0	9.249	1.014	2400.938	.038%	99.873%
88.0	9.263	1.014	2401.952	.038%	99.916%
89.0	9.249	1.015	2402.967	.038%	99.958%
90.0	9.249	1.014	2403.981	.038%	100.000%

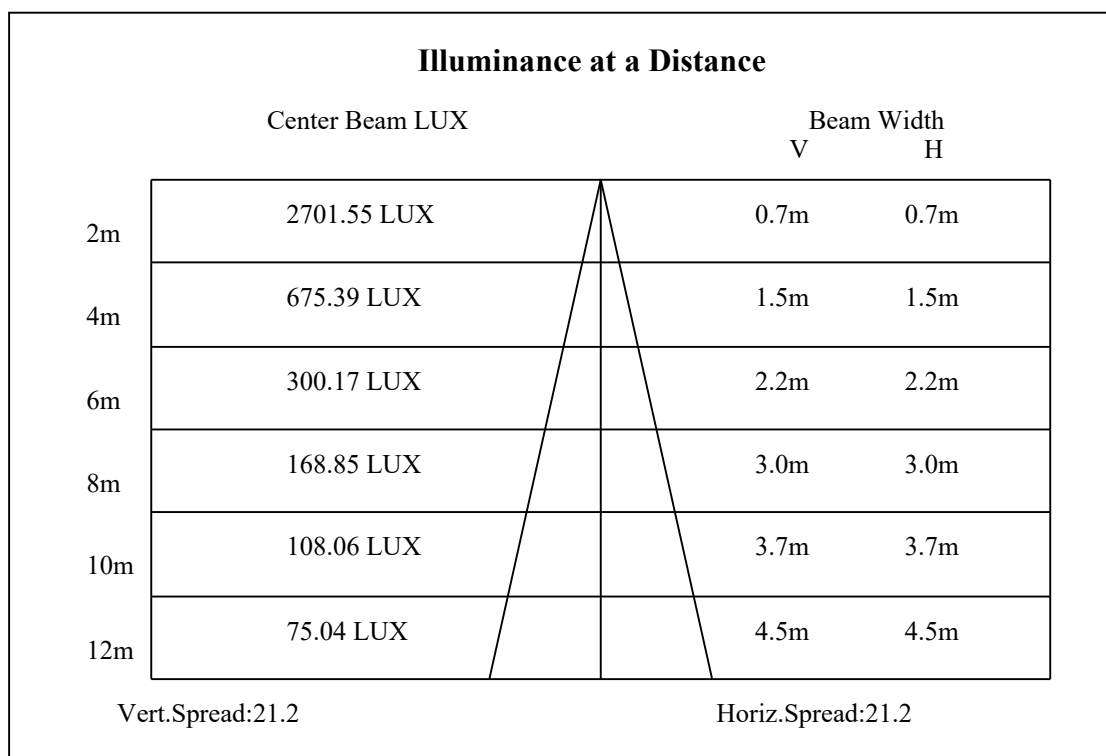
ZONAL LUMEN SUMMARY

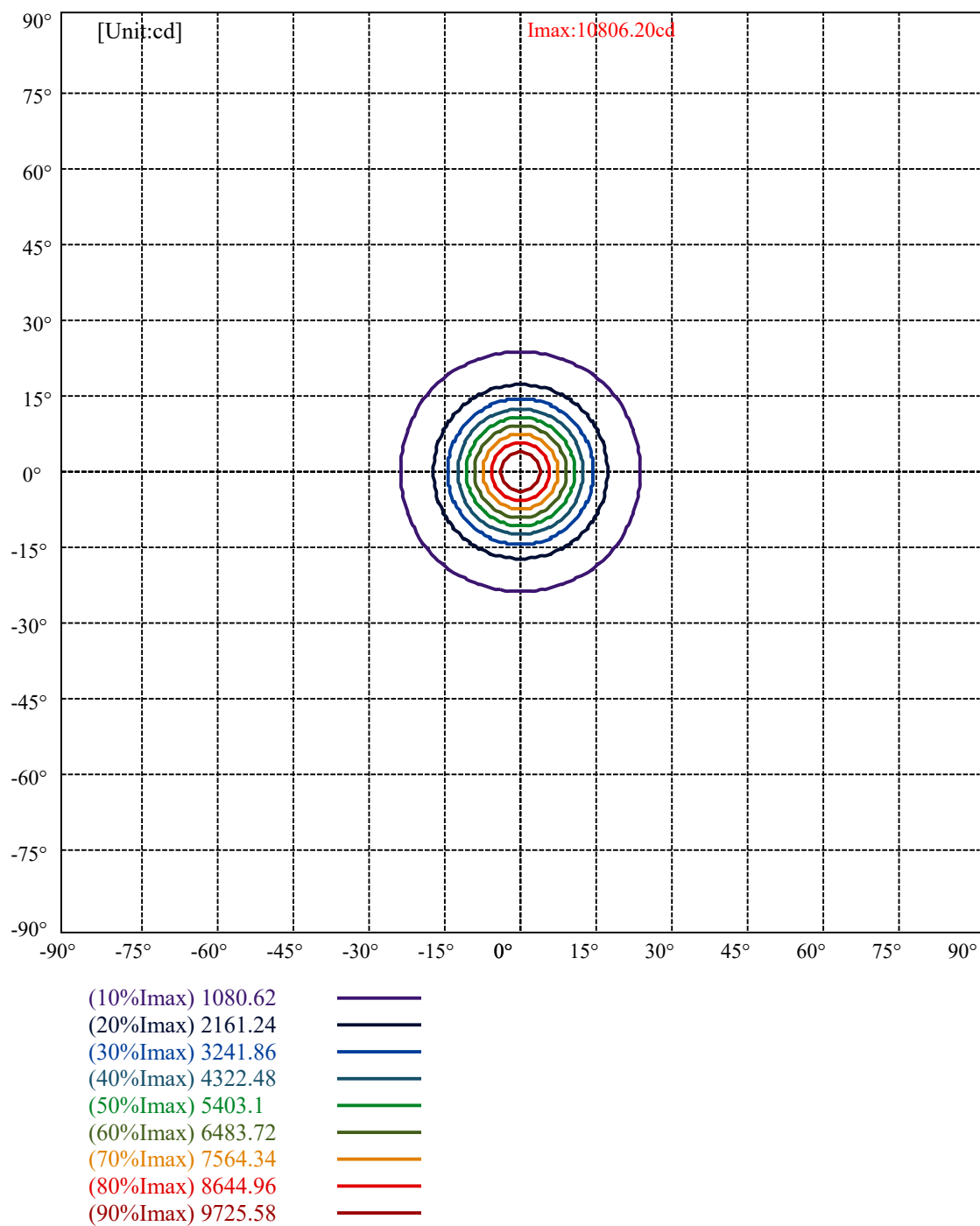
Zone	Lumens	%Lamp	%Fixt
0-30	2064.02	77.74%	85.86%
0-40	2351.41	88.57%	97.81%
0-60	2374.54	89.44%	98.78%
0-90	2402.97	90.51%	99.96%
0-120	2402.97	90.51%	99.96%
0-180	2403.98	90.55%	100.00%
60-90	29.34	1.10%	1.22%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.85	1923.19	72.44%	80.00%

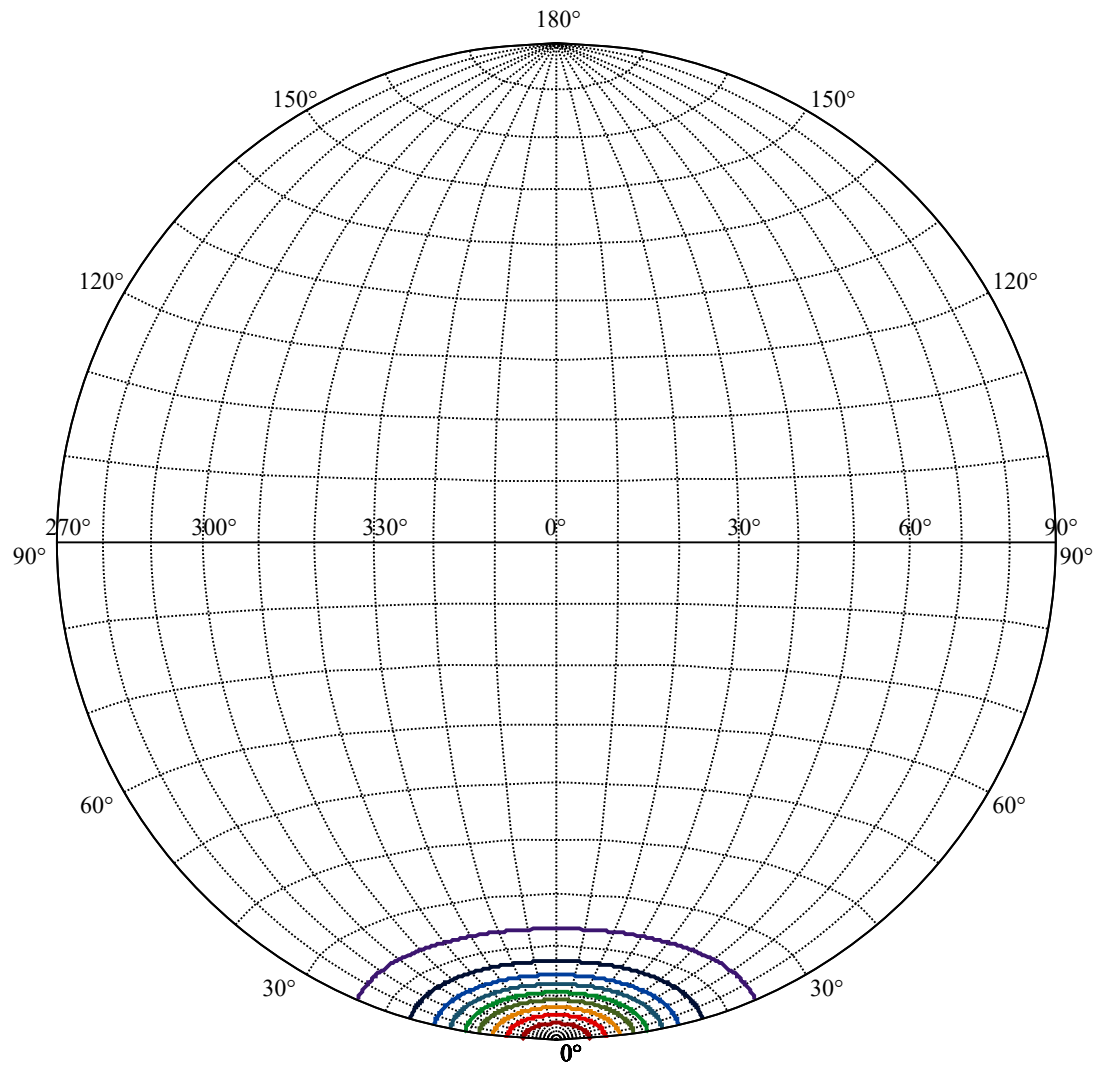
ZONAL LUMEN SUMMARY

0-10	758.46
10-20	832.50
20-30	473.06
30-40	287.39
40-50	14.21
50-60	8.92
60-70	9.43
70-80	9.88
80-90	9.11
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







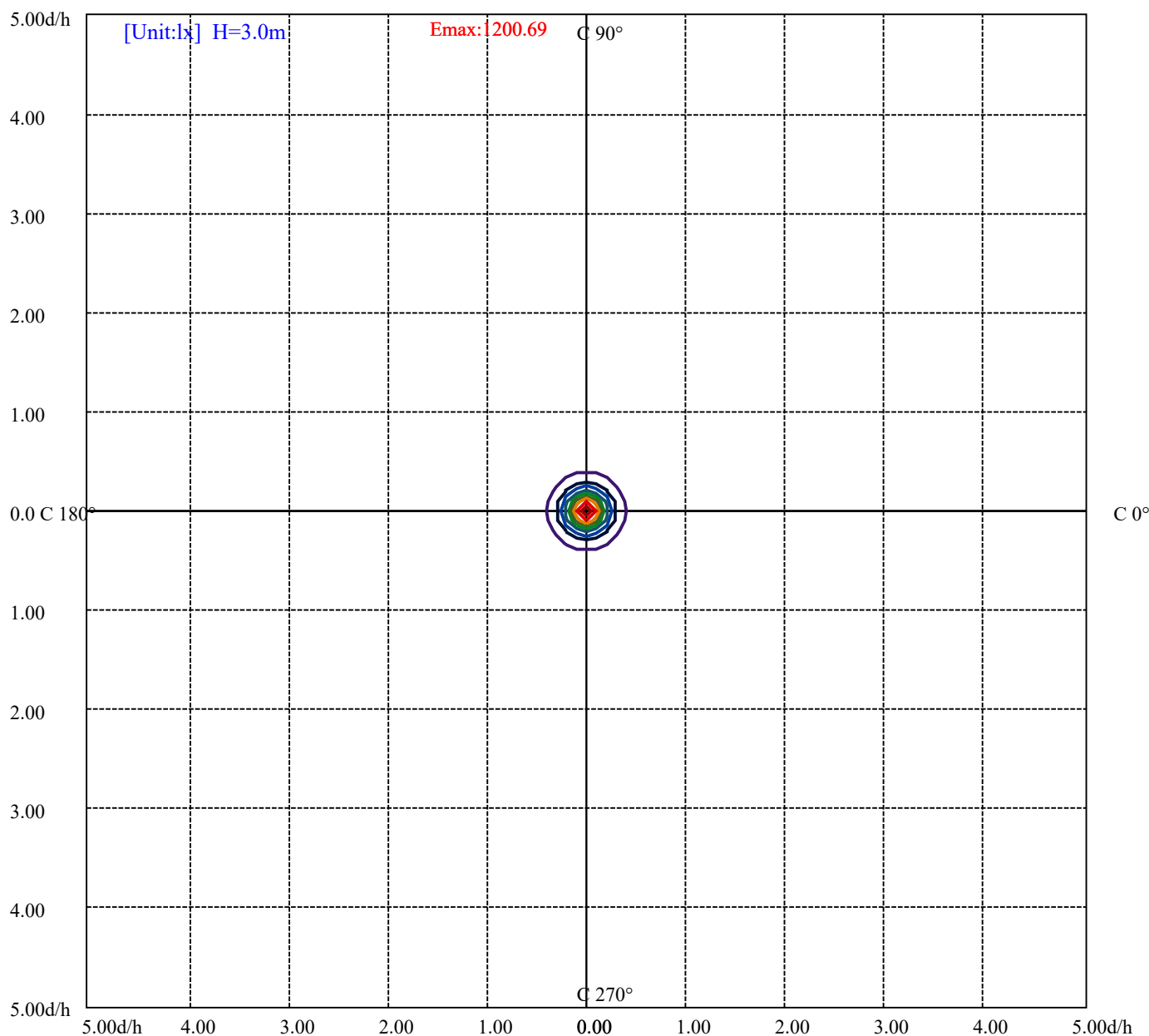


House

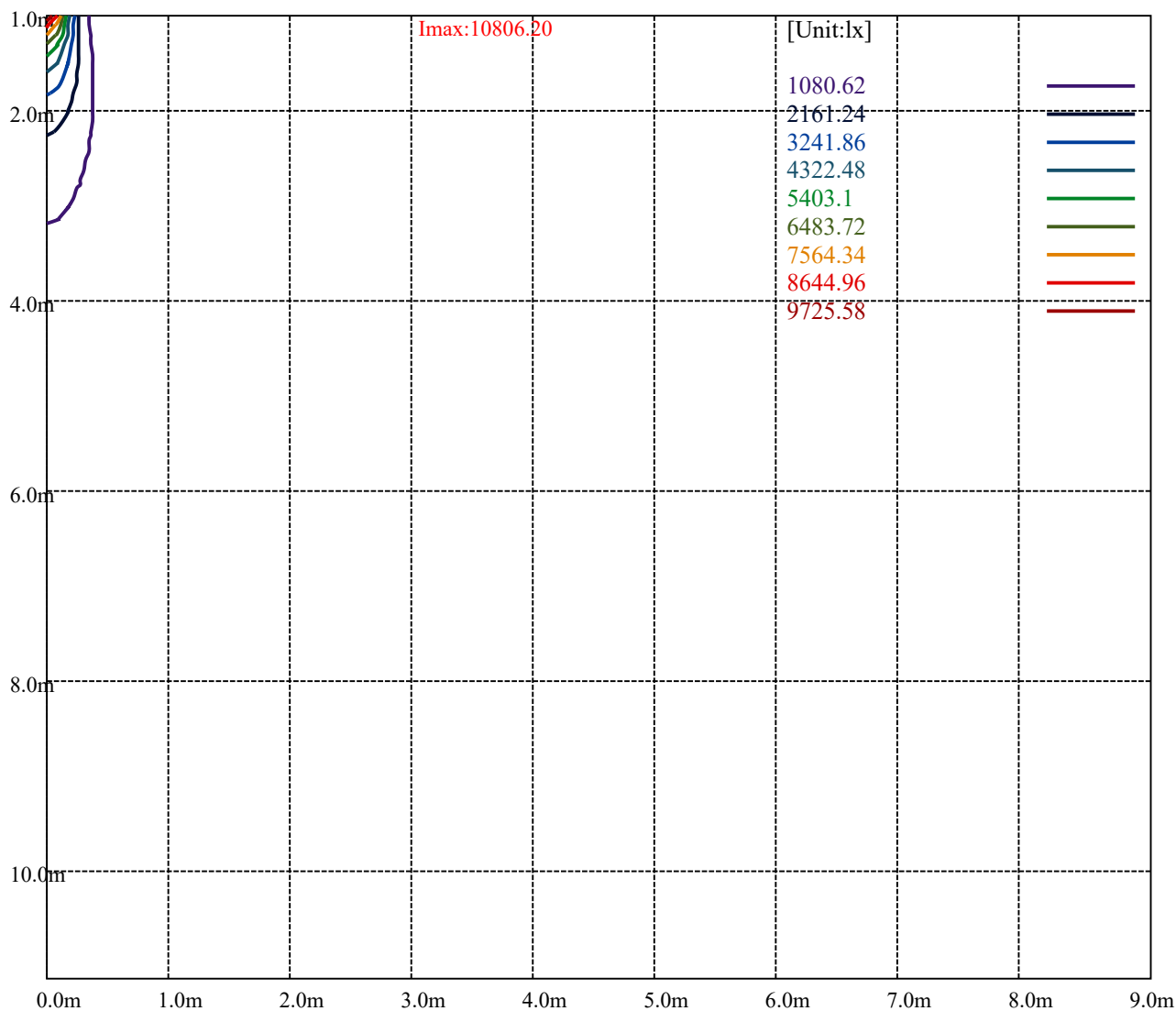
[Unit:cd]

Road

Imax:10806.20	
(10%Imax)	1080.62
(20%Imax)	2161.24
(30%Imax)	3241.86
(40%Imax)	4322.48
(50%Imax)	5403.1
(60%Imax)	6483.72
(70%Imax)	7564.34
(80%Imax)	8644.96
(90%Imax)	9725.58



(10%Emax)	120.0689	
(20%Emax)	240.1378	
(30%Emax)	360.2067	
(40%Emax)	480.2745	
(50%Emax)	600.3433	
(60%Emax)	720.4122	
(70%Emax)	840.4811	
(80%Emax)	960.55	
(90%Emax)	1080.619	



Luminance Table

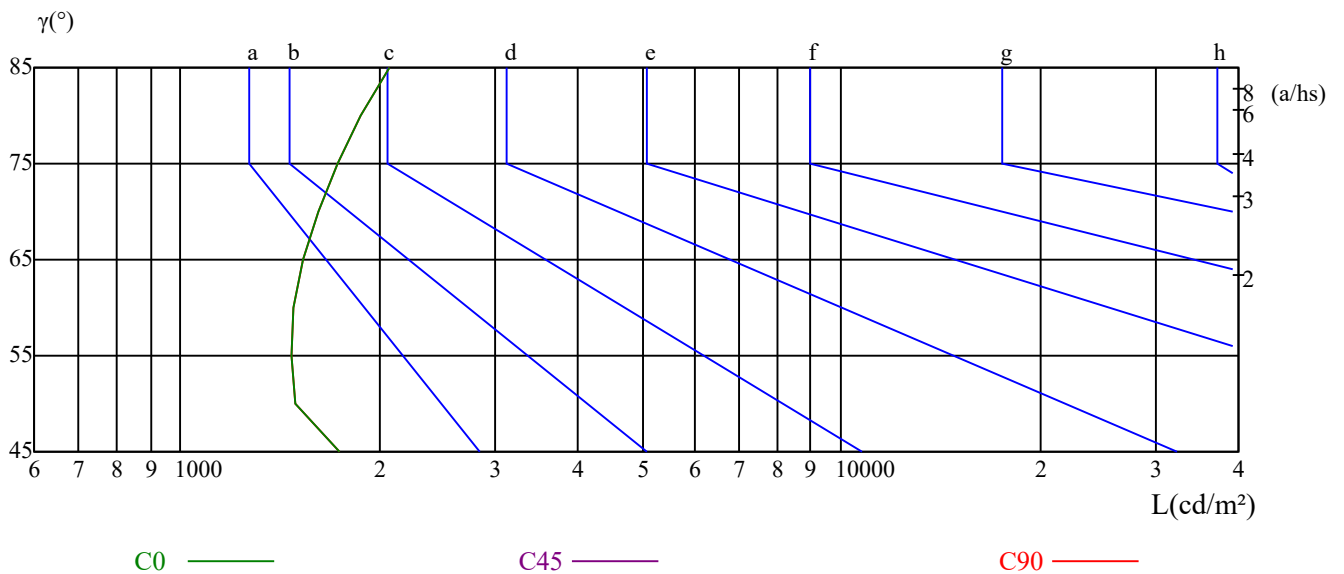
γ	45	50	55	60	65	70	75	80	85
C0	1741	1492	1469	1485	1535	1613	1725	1873	2065
C45	0	0	0	0	0	0	0	0	0
C90	1741	1492	1469	1485	1535	1613	1725	1873	2065

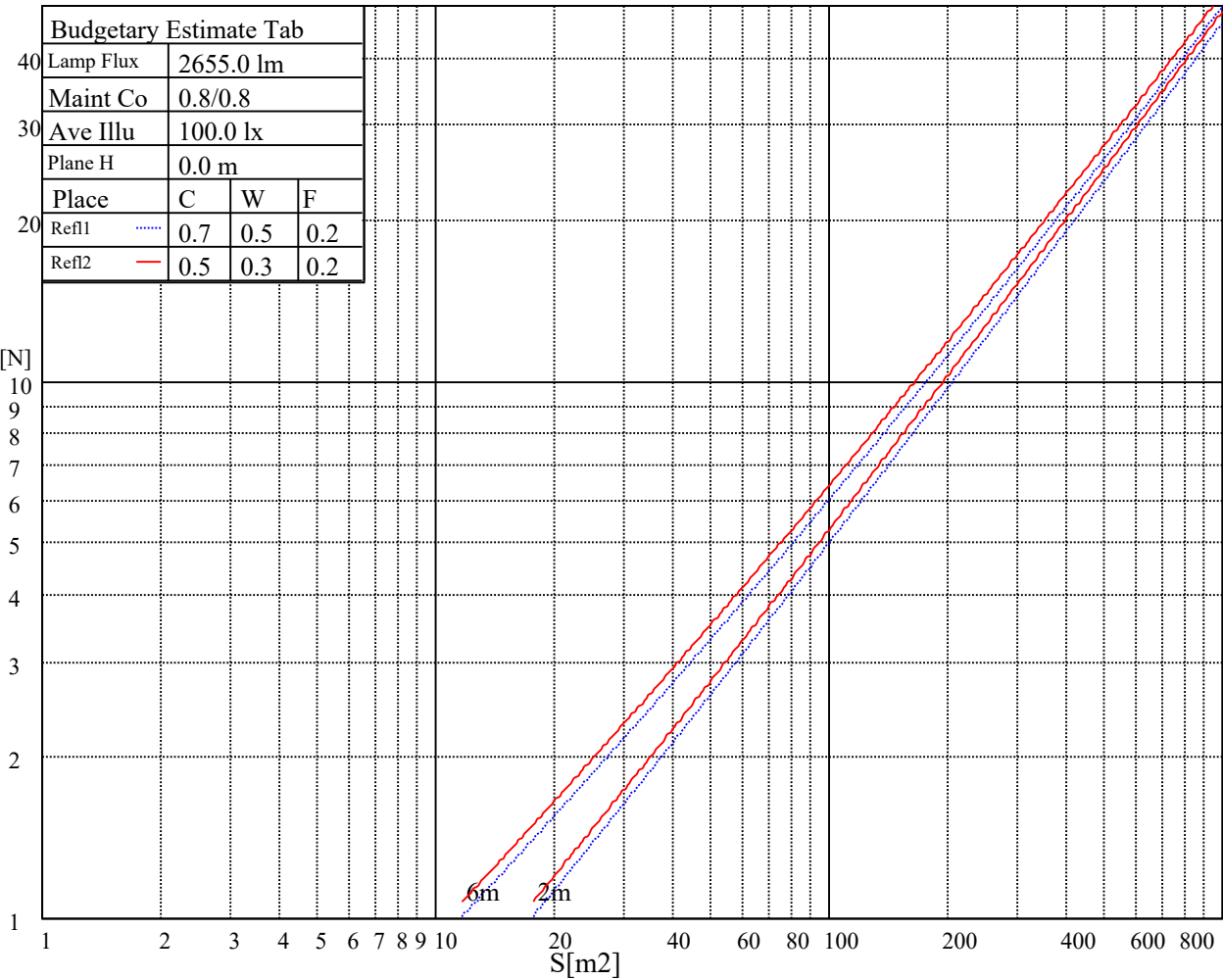
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3688	3688	0	5935	5935	0	17495	17495	0

Glare Table

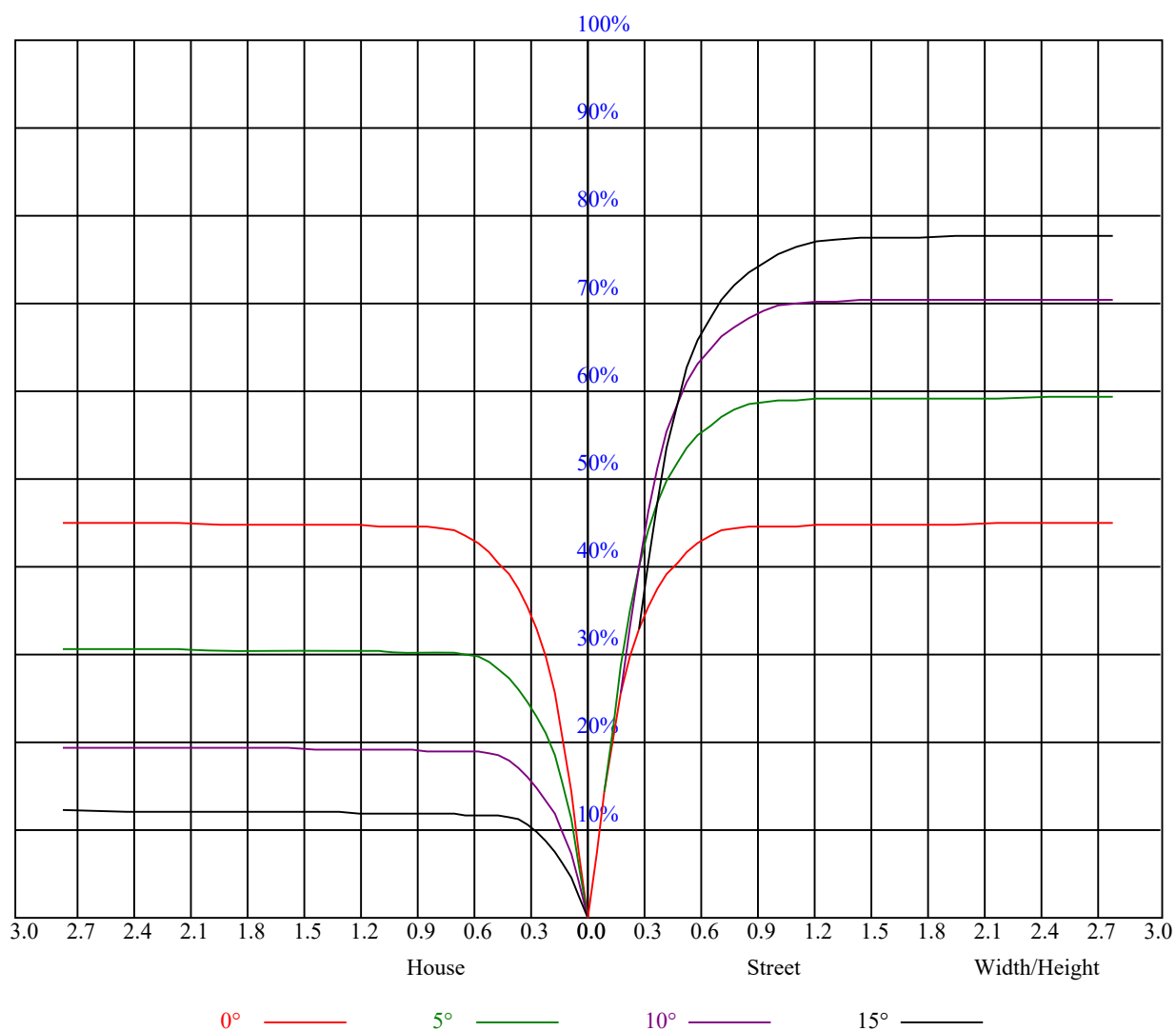
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.91
1	1.01	0.99	0.98	0.99	0.98	0.96	0.96	0.94	0.93	0.93	0.91	0.90	0.89	0.89	0.88	0.86
2	0.96	0.93	0.90	0.94	0.92	0.89	0.92	0.89	0.87	0.89	0.87	0.86	0.87	0.85	0.84	0.82
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.83	0.81	0.84	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.82	0.80	0.84	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.83	0.79	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.70
7	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.68	0.67
8	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
9	0.71	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61



Intensity data(cd)									
Appendix Page: 16 Total:17									
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	10865.38	10652.86	10201.95	9737.27	9190.01	8436.84	7833.42	7221.75	6524.73
90.0	10747.01	10945.76	10948.52	10793.26	10456.86	9955.30	9442.72	8778.19	8153.85
180.0	10865.38	10960.63	10863.73	10576.33	10193.69	9651.94	9105.78	8426.93	7699.64
270.0	10747.01	10427.13	10015.31	9398.68	8822.24	8211.11	7517.40	6831.40	6205.96
360.0	10865.38	10652.86	10201.95	9737.27	9190.01	8436.84	7833.42	7221.75	6524.73
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5822.76	5201.73	4523.98	3966.26	3388.17	2887.16	2515.53	2166.47	1894.49
90.0	7437.02	6814.33	6088.14	5439.02	4741.46	4078.03	3542.88	3026.45	2583.80
180.0	7075.30	6355.16	5628.97	5006.83	4401.21	3697.04	3211.44	2779.25	2363.57
270.0	5495.18	4803.67	4224.48	3616.10	3145.37	2697.76	2315.67	2043.14	1825.67
360.0	5822.76	5201.73	4523.98	3966.26	3388.17	2887.16	2515.53	2166.47	1894.49
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1697.39	1528.37	1360.44	1248.13	1151.23	1062.04	995.42	942.57	901.82
90.0	2257.31	2011.21	1710.60	1537.73	1411.10	1243.72	1146.82	1071.40	992.12
180.0	2029.38	1795.39	1585.07	1410.54	1289.42	1096.61	1085.82	1003.62	947.74
270.0	1599.39	1450.19	1324.11	1196.38	1091.60	1027.90	965.96	919.28	883.71
360.0	1697.39	1528.37	1360.44	1248.13	1151.23	1062.04	995.42	942.57	901.82
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	873.75	852.82	834.10	818.14	777.40	704.72	626.54	528.54	422.83
90.0	937.06	901.27	866.04	841.81	825.85	802.17	765.83	695.36	602.32
180.0	904.69	873.25	845.06	827.11	808.23	776.74	722.17	650.88	570.16
270.0	860.26	838.67	823.70	789.56	732.14	647.63	540.21	458.51	361.00
360.0	873.75	852.82	834.10	818.14	777.40	704.72	626.54	528.54	422.83
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	328.14	280.79	140.94	67.77	30.28	20.54	16.90	14.31	13.10
90.0	515.88	425.04	308.87	284.64	139.79	67.17	29.07	20.04	16.57
180.0	461.15	369.70	271.98	180.86	107.03	51.04	22.30	18.28	15.20
270.0	235.15	163.96	92.44	37.82	20.59	17.78	14.20	13.10	11.67
360.0	328.14	280.79	140.94	67.77	30.28	20.54	16.90	14.31	13.10
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	11.01	10.85	10.68	10.46	10.35	10.24	10.13	10.08	9.91
90.0	14.26	13.32	11.18	10.96	10.79	10.68	10.57	10.46	10.35
180.0	13.27	12.50	10.68	10.52	10.41	10.30	10.19	10.13	10.02
270.0	11.01	10.85	10.68	10.52	10.41	10.30	10.19	10.13	10.02
360.0	11.01	10.85	10.68	10.46	10.35	10.24	10.13	10.08	9.91
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.86	9.80	9.74	9.69	9.63	9.58	9.58	9.58	9.47
90.0	10.24	10.13	10.08	10.02	9.91	9.86	9.80	9.80	9.74
180.0	9.91	9.86	9.80	9.74	9.69	9.69	9.58	9.52	9.52
270.0	9.91	9.86	9.80	9.74	9.69	9.63	9.58	9.58	9.58
360.0	9.86	9.80	9.74	9.69	9.63	9.58	9.58	9.58	9.47
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	9.47	9.41	9.41	9.41	9.41	9.36	9.36	9.30	9.30
90.0	9.69	9.69	9.63	9.63	9.58	9.52	9.52	9.47	9.52
180.0	9.52	9.47	9.41	9.41	9.36	9.36	9.36	9.36	9.36
270.0	9.52	9.52	9.47	9.47	9.41	9.41	9.41	9.41	9.41
360.0	9.47	9.41	9.41	9.41	9.41	9.36	9.36	9.30	9.30

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Intensity data(cd)								Appendix Page: 17 Total:17	
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.25	9.30
90.0	9.47	9.47	9.41	9.41	9.41	9.41	9.41	9.41	9.36
180.0	9.30	9.30	9.30	9.30	9.25	9.25	9.25	9.25	9.25
270.0	9.36	9.36	9.36	9.36	9.30	9.30	9.30	9.36	9.36
360.0	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.25	9.30
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.25	9.30	9.25	9.25	9.25	9.25	9.19	9.25	9.19
90.0	9.36	9.36	9.30	9.36	9.36	9.36	9.36	9.30	9.30
180.0	9.25	9.19	9.25	9.25	9.19	9.19	9.19	9.19	9.19
270.0	9.36	9.30	9.36	9.30	9.30	9.30	9.25	9.30	9.30
360.0	9.25	9.30	9.25	9.25	9.25	9.25	9.19	9.25	9.19
C/ γ (°)	90.0								
0.0	9.19								
90.0	9.30								
180.0	9.19								
270.0	9.30								
360.0	9.19								