
Nata

LumCAT: 3-2033-M	
Luminaire: 92.70.131.00	
Report No: GC2017061906	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): 2417.71
Efficiency(%): 91.06%
Lumens(lm)/Power(W): 97.88
Central intensity(cd): 17885.070
Maximum intensity(cd): 17885.070
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=15.4
[C90/270]Total=15.4
Field angle(10%Imax): [C0/180]Total=31.7
[C90/270]Total=31.7
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
Maximum s/h(1/4): C0_180=0.27 C90_270=0.27
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.06%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.817%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	17885.072	0.000	0	.000%	.000%
1.0	17699.256	17.026	17.026	.641%	.704%
2.0	17133.553	49.995	67.022	1.883%	2.772%
3.0	16175.570	79.664	146.686	3.001%	6.067%
4.0	15006.998	104.378	251.064	3.931%	10.384%
5.0	13476.155	122.533	373.597	4.615%	15.453%
6.0	11827.216	132.976	506.573	5.009%	20.953%
7.0	9974.155	135.321	641.894	5.097%	26.550%
8.0	8551.085	132.582	774.476	4.994%	32.033%
9.0	6874.067	125.012	899.488	4.709%	37.204%
10.0	5551.612	112.448	1011.936	4.235%	41.855%
11.0	4373.267	99.170	1111.106	3.735%	45.957%
12.0	3481.354	85.862	1196.968	3.234%	49.508%
13.0	2823.292	74.820	1271.788	2.818%	52.603%
14.0	2304.110	65.630	1337.419	2.472%	55.318%
15.0	2029.104	59.488	1396.907	2.241%	57.778%
16.0	1740.333	55.233	1452.14	2.080%	60.063%
17.0	1533.596	50.984	1503.124	1.920%	62.171%
18.0	1377.373	47.996	1551.119	1.808%	64.157%
19.0	1253.827	45.778	1596.897	1.724%	66.050%
20.0	1155.180	44.092	1640.988	1.661%	67.874%
21.0	1072.058	42.767	1683.756	1.611%	69.643%
22.0	1019.424	42.029	1725.785	1.583%	71.381%
23.0	973.425	41.815	1767.6	1.575%	73.111%
24.0	937.046	41.770	1809.37	1.573%	74.838%
25.0	908.499	41.964	1851.334	1.581%	76.574%
26.0	885.954	42.358	1893.692	1.595%	78.326%
27.0	865.335	42.846	1936.538	1.614%	80.098%
28.0	847.772	43.372	1979.91	1.634%	81.892%
29.0	832.907	43.971	2023.881	1.656%	83.711%
30.0	816.307	44.528	2068.41	1.677%	85.553%
31.0	787.885	44.642	2113.052	1.681%	87.399%
32.0	743.495	43.872	2156.924	1.652%	89.214%
33.0	680.924	41.964	2198.888	1.581%	90.949%
34.0	604.519	38.901	2237.789	1.465%	92.558%
35.0	509.740	34.605	2272.394	1.303%	93.990%
36.0	409.620	29.273	2301.667	1.103%	95.200%
37.0	327.696	24.047	2325.714	.906%	96.195%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	224.231	18.423	2344.137	.694%	96.957%
39.0	153.428	12.891	2357.027	.486%	97.490%
40.0	87.237	8.394	2365.421	.316%	97.837%
41.0	44.004	4.673	2370.094	.176%	98.031%
42.0	23.234	2.443	2372.537	.092%	98.132%
43.0	16.544	1.474	2374.01	.055%	98.193%
44.0	14.122	1.157	2375.168	.044%	98.241%
45.0	12.154	1.010	2376.178	.038%	98.282%
46.0	11.548	0.927	2377.105	.035%	98.321%
47.0	10.488	0.876	2377.981	.033%	98.357%
48.0	10.227	0.837	2378.818	.032%	98.392%
49.0	10.117	0.835	2379.654	.031%	98.426%
50.0	9.993	0.838	2380.492	.032%	98.461%
51.0	9.896	0.841	2381.334	.032%	98.496%
52.0	9.814	0.846	2382.179	.032%	98.531%
53.0	9.731	0.850	2383.03	.032%	98.566%
54.0	9.649	0.854	2383.884	.032%	98.601%
55.0	9.566	0.858	2384.742	.032%	98.637%
56.0	9.511	0.862	2385.604	.032%	98.672%
57.0	9.456	0.867	2386.471	.033%	98.708%
58.0	9.415	0.873	2387.343	.033%	98.744%
59.0	9.387	0.879	2388.222	.033%	98.781%
60.0	9.332	0.884	2389.107	.033%	98.817%
61.0	9.305	0.889	2389.996	.033%	98.854%
62.0	9.249	0.894	2390.89	.034%	98.891%
63.0	9.249	0.900	2391.79	.034%	98.928%
64.0	9.236	0.907	2392.697	.034%	98.966%
65.0	9.208	0.913	2393.61	.034%	99.003%
66.0	9.194	0.918	2394.528	.035%	99.041%
67.0	9.153	0.923	2395.451	.035%	99.079%
68.0	9.139	0.927	2396.377	.035%	99.118%
69.0	9.153	0.933	2397.31	.035%	99.156%
70.0	9.139	0.939	2398.25	.035%	99.195%
71.0	9.112	0.943	2399.193	.036%	99.234%
72.0	9.098	0.947	2400.14	.036%	99.273%
73.0	9.084	0.951	2401.091	.036%	99.313%
74.0	9.084	0.955	2402.046	.036%	99.352%
75.0	9.071	0.959	2403.005	.036%	99.392%

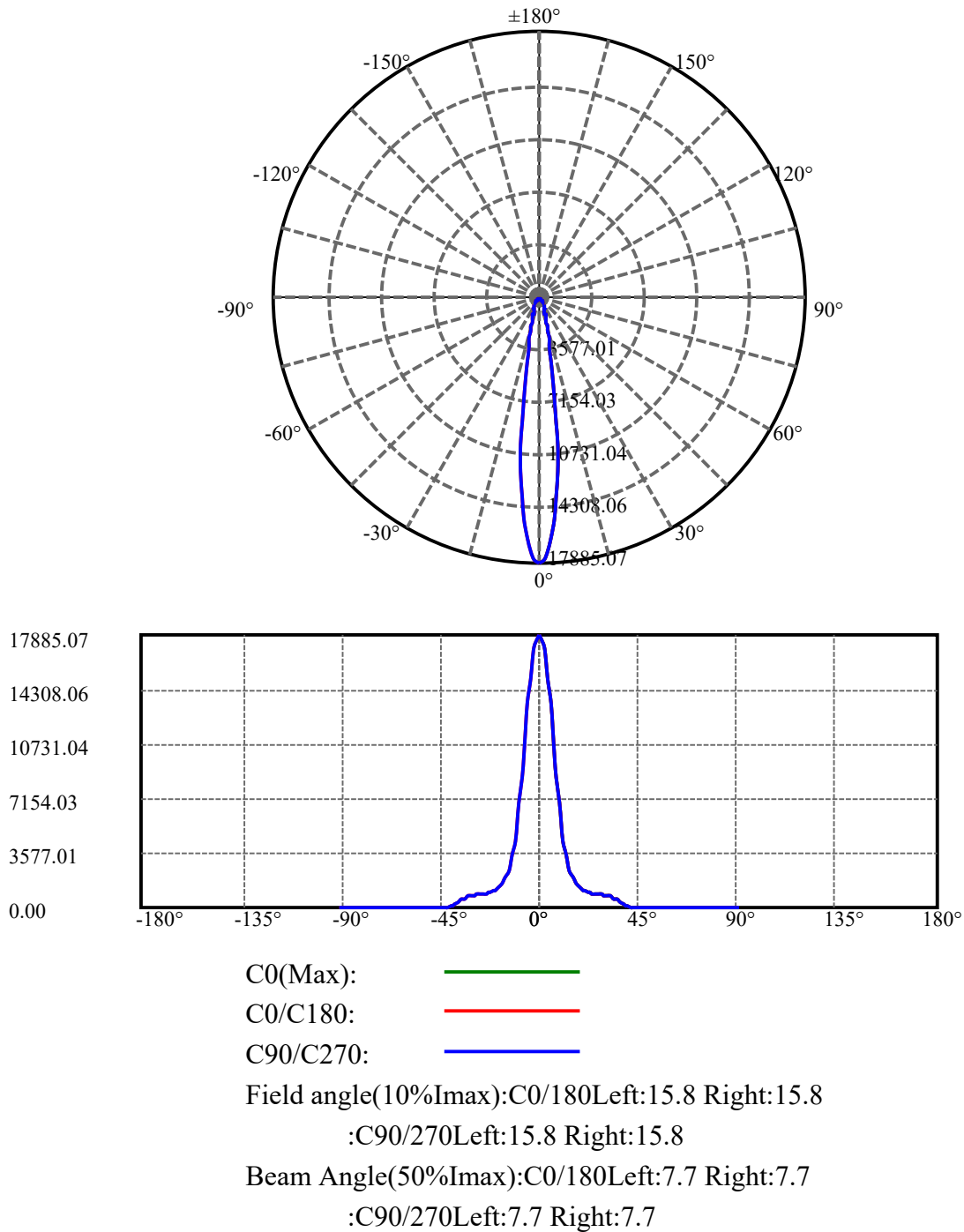
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.071	0.963	2403.968	.036%	99.432%
77.0	9.043	0.966	2404.934	.036%	99.472%
78.0	9.057	0.969	2405.903	.036%	99.512%
79.0	9.043	0.972	2406.875	.037%	99.552%
80.0	9.057	0.976	2407.851	.037%	99.592%
81.0	9.043	0.979	2408.83	.037%	99.633%
82.0	9.015	0.979	2409.809	.037%	99.673%
83.0	9.057	0.982	2410.792	.037%	99.714%
84.0	9.029	0.985	2411.777	.037%	99.755%
85.0	9.043	0.986	2412.763	.037%	99.796%
86.0	9.015	0.987	2413.75	.037%	99.836%
87.0	9.043	0.988	2414.739	.037%	99.877%
88.0	9.002	0.988	2415.727	.037%	99.918%
89.0	9.029	0.988	2416.715	.037%	99.959%
90.0	9.029	0.990	2417.706	.037%	100.000%

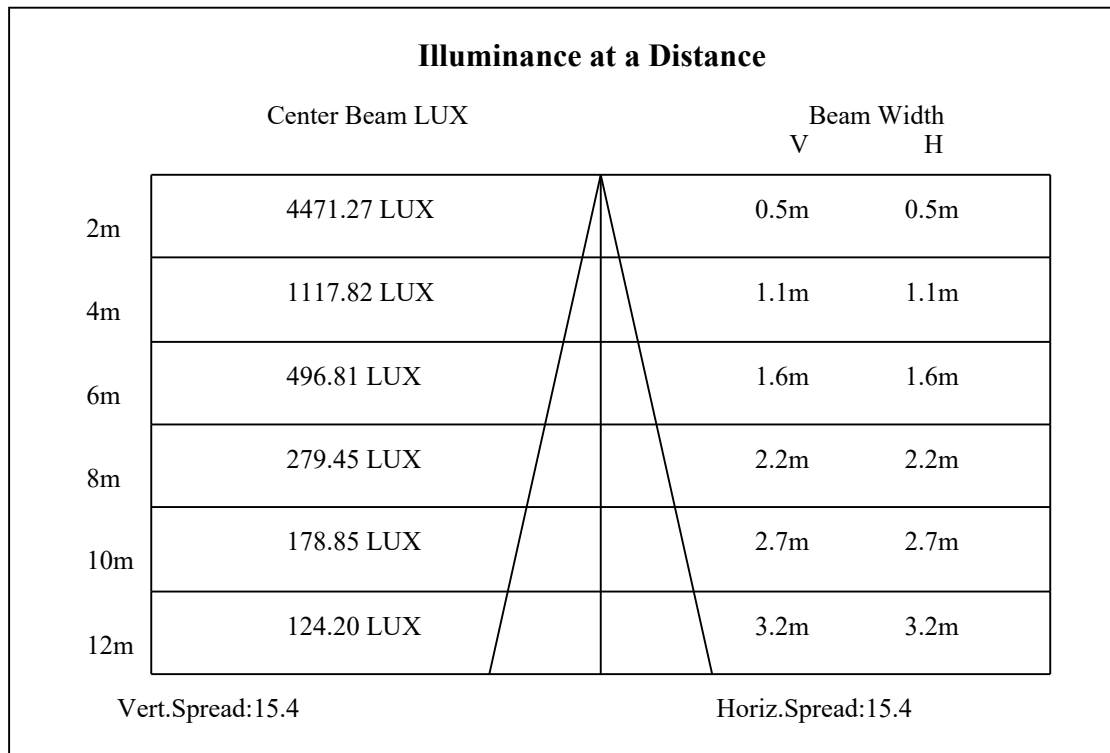
ZONAL LUMEN SUMMARY

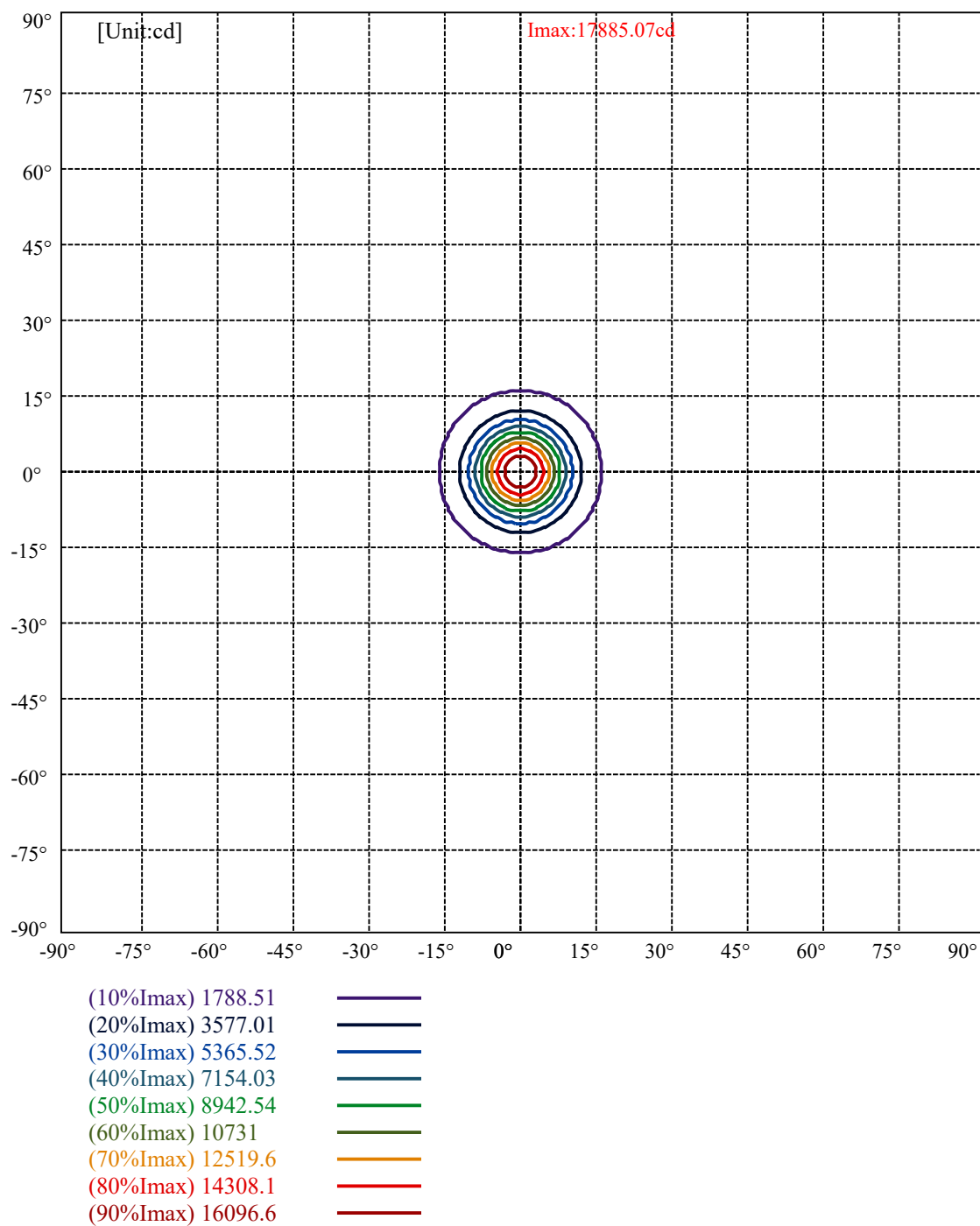
Zone	Lumens	%Lamp	%Fixt
0-30	2068.41	77.91%	85.55%
0-40	2365.42	89.09%	97.84%
0-60	2389.11	89.99%	98.82%
0-90	2416.72	91.03%	99.96%
0-120	2416.72	91.03%	99.96%
0-180	2417.71	91.06%	100.00%
60-90	28.49	1.07%	1.18%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.94	1934.16	72.85%	80.00%

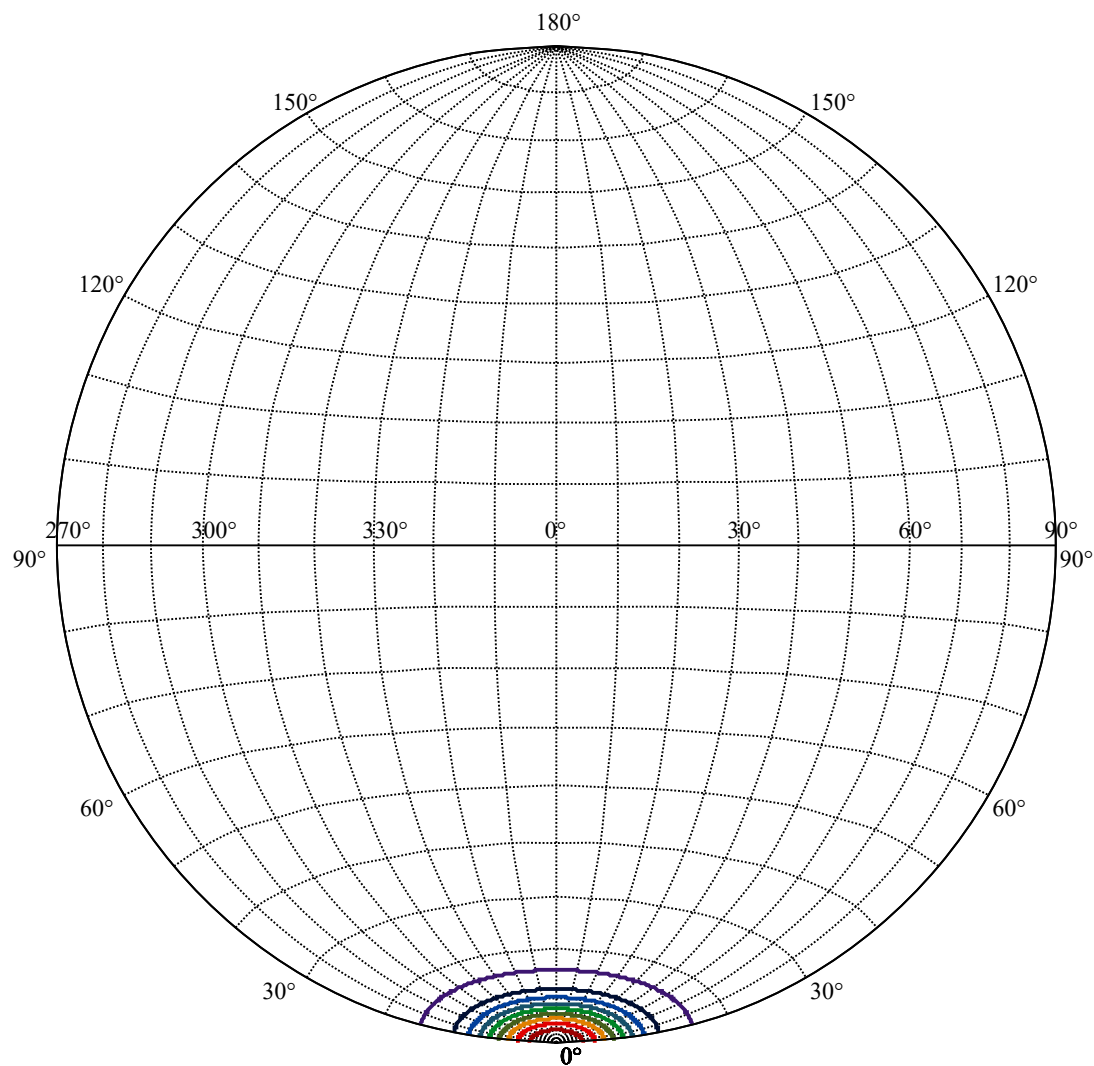
ZONAL LUMEN SUMMARY

0-10	1011.94
10-20	629.05
20-30	427.42
30-40	297.01
40-50	15.07
50-60	8.61
60-70	9.14
70-80	9.60
80-90	8.86
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









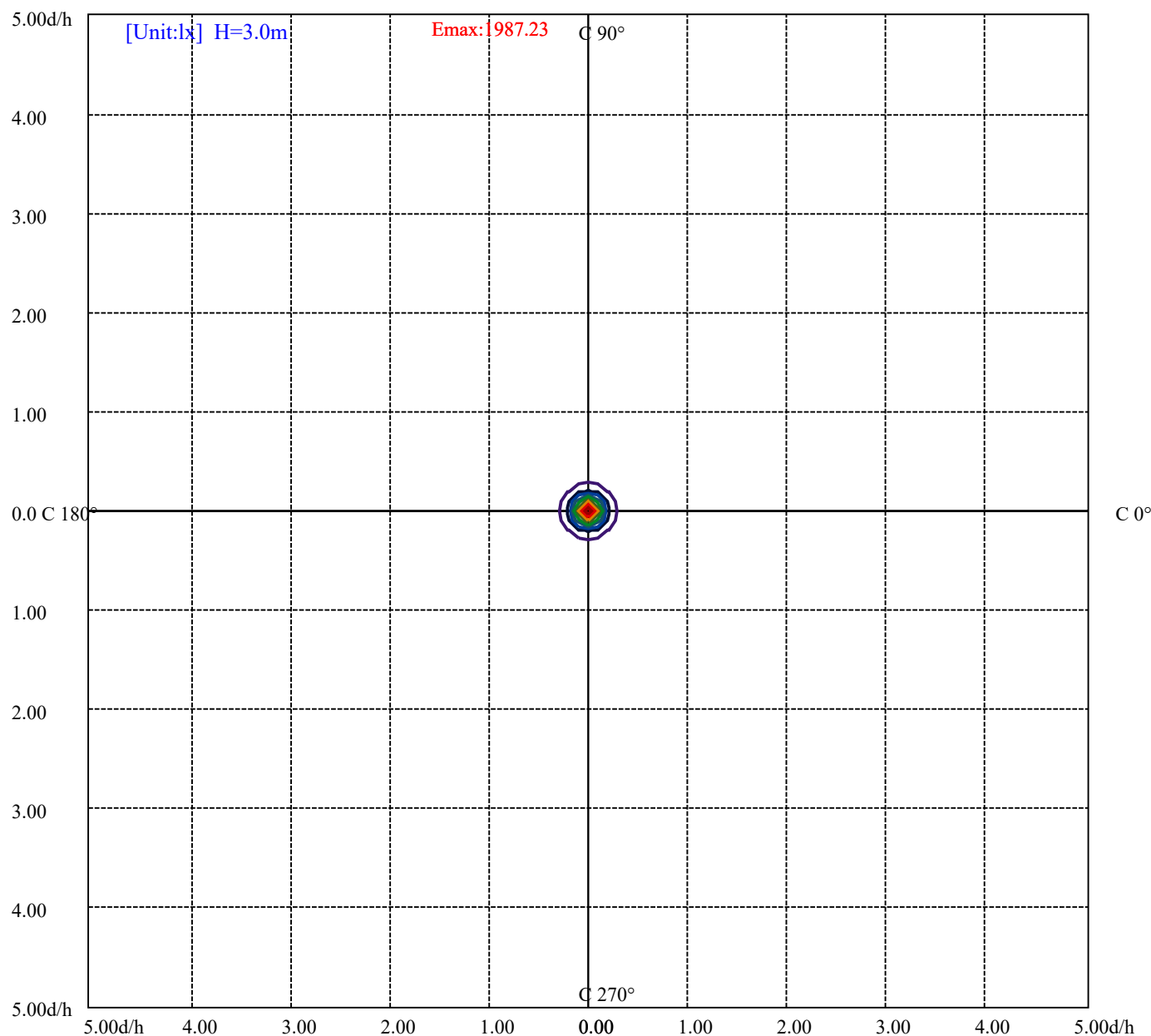
House

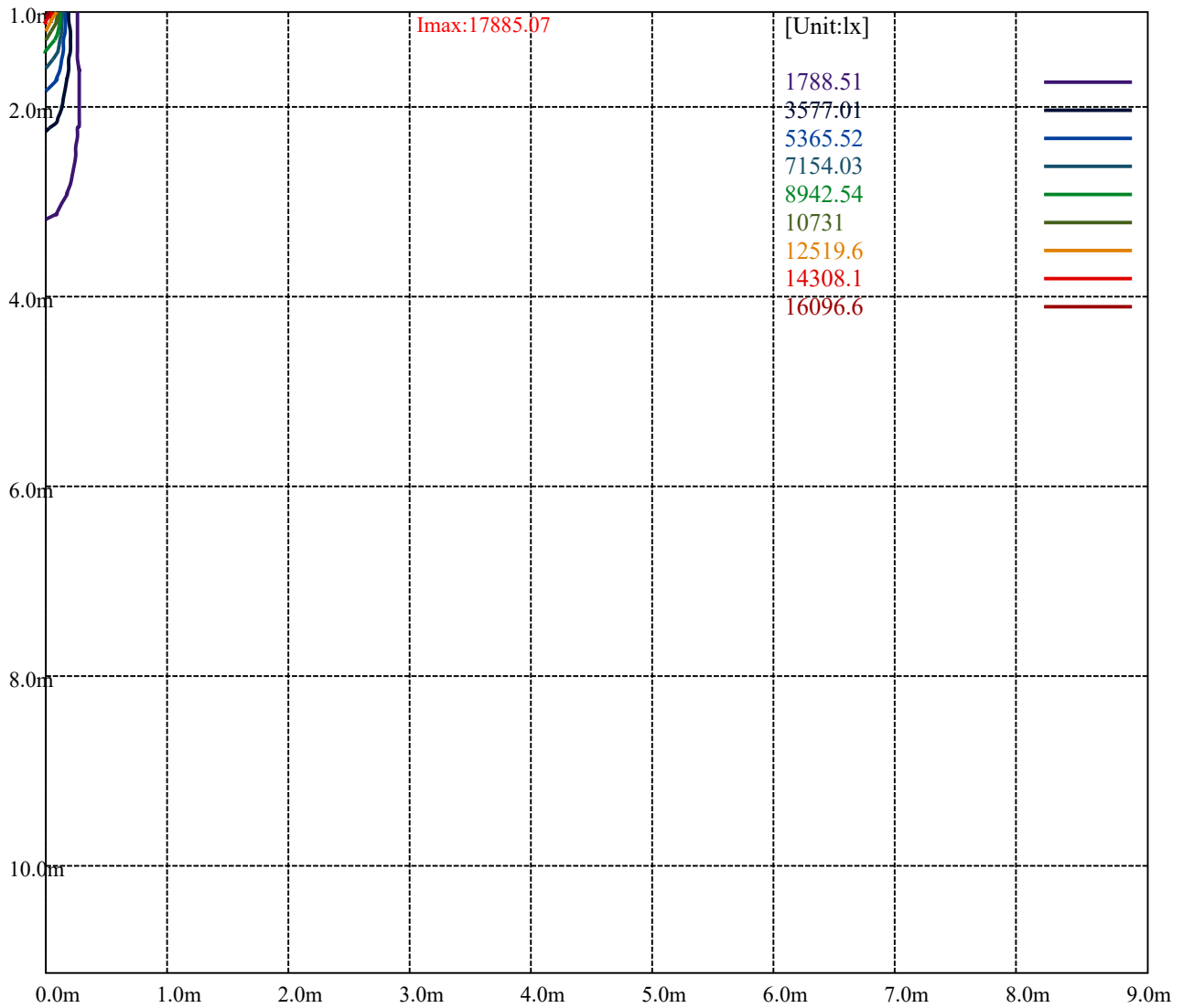
[Unit:cd]

Road

Imax:17885.07

(10%Imax)	1788.51	—
(20%Imax)	3577.01	—
(30%Imax)	5365.52	—
(40%Imax)	7154.03	—
(50%Imax)	8942.54	—
(60%Imax)	10731	—
(70%Imax)	12519.6	—
(80%Imax)	14308.1	—
(90%Imax)	16096.6	—





Luminance Table

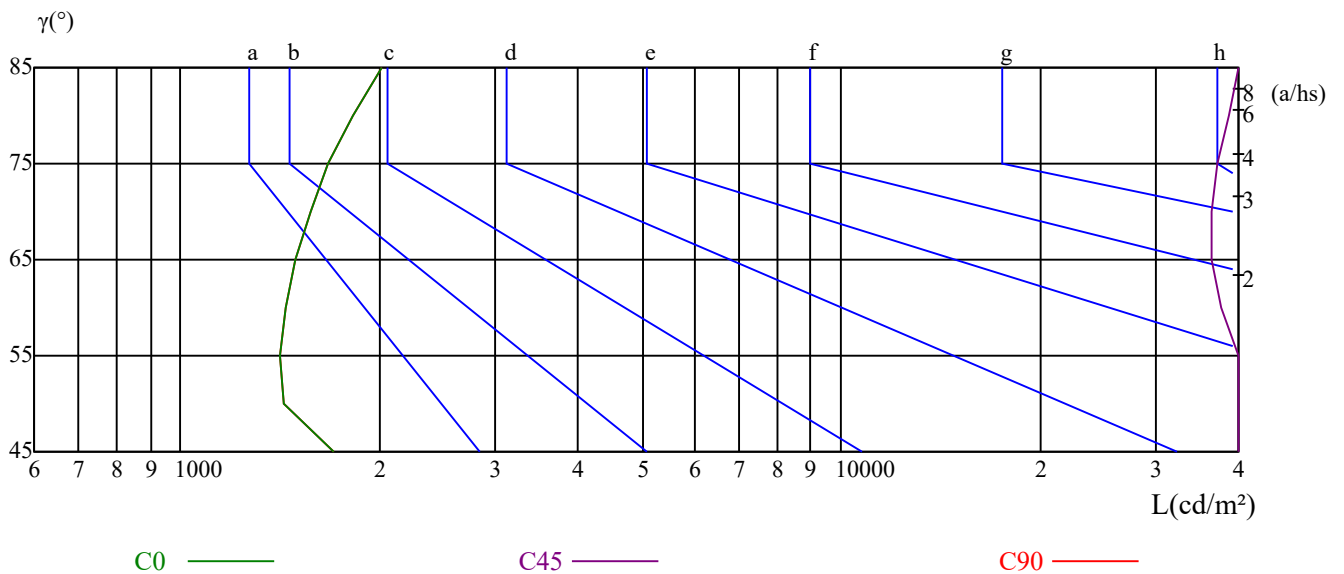
γ	45	50	55	60	65	70	75	80	85
C0	1708	1436	1418	1439	1491	1571	1674	1821	2013
C45	50637	44221	40163	37733	36421	36369	37111	38657	41029
C90	1708	1436	1418	1439	1491	1571	1674	1821	2013

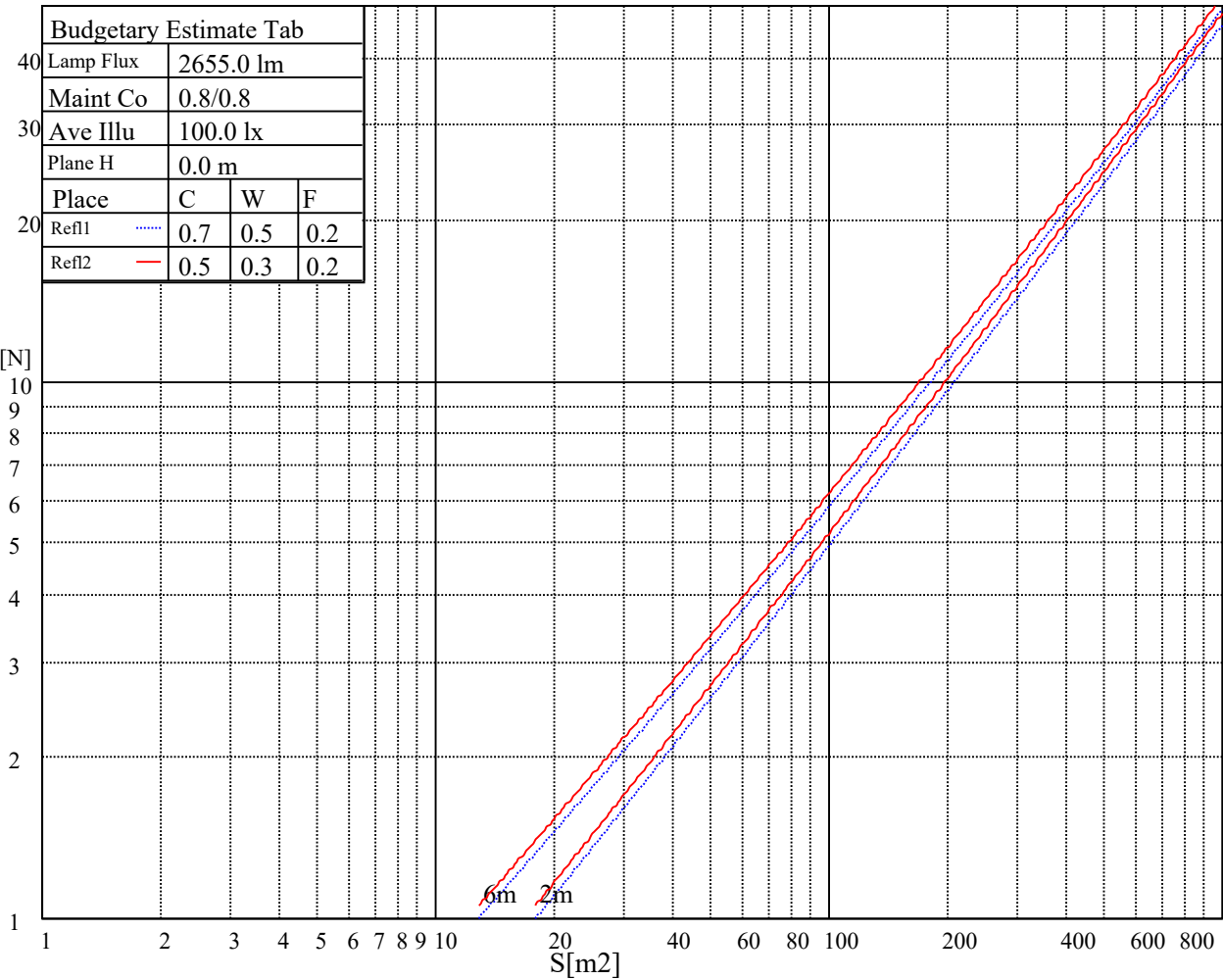
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3581	3581	108642	5760	5760	165179	17054	17054	474671

Glare Table

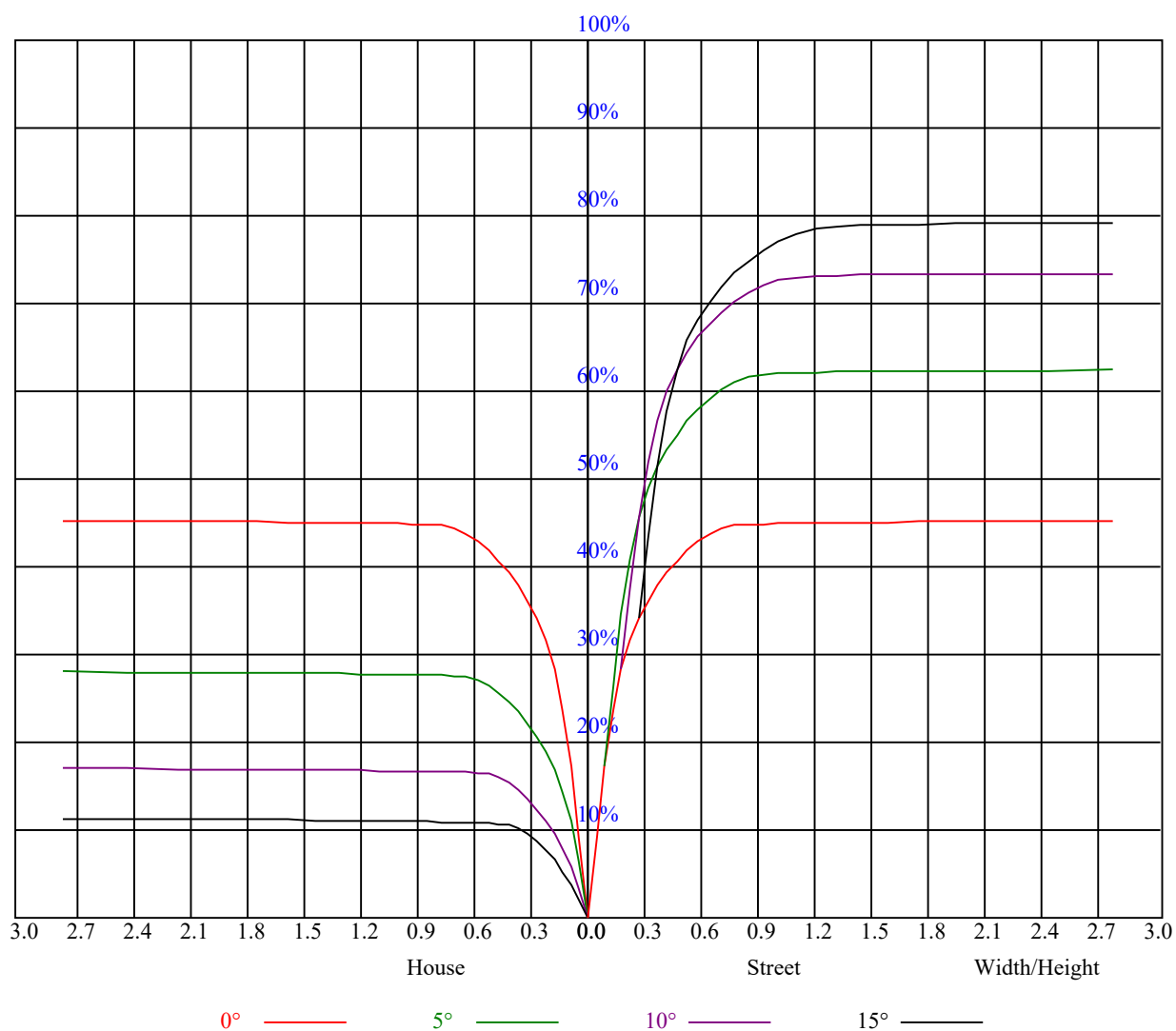
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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



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	18003.44	17518.95	16577.48	15245.12	13764.10	12343.64	10086.33	8495.20	7184.86		
90.0	17766.70	18080.52	18091.53	17711.64	17117.03	15718.60	14402.75	13037.36	10945.21		
180.0	18003.44	18113.56	17926.36	17287.71	16258.15	15030.40	13417.24	10727.74	9874.37		
270.0	17766.70	17084.00	15938.83	14457.81	12888.70	10811.98	9402.53	7636.32	6199.90		
360.0	18003.44	17518.95	16577.48	15245.12	13764.10	12343.64	10086.33	8495.20	7184.86		
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0		
0.0	5373.50	4283.39	3529.12	2829.90	2327.78	2027.18	1769.51	1590.03	1420.46		
90.0	9084.31	7696.88	5902.05	4652.27	3655.74	2813.38	2546.36	2008.46	1749.69		
180.0	8236.99	6520.88	5050.32	3964.06	3158.59	2502.31	2145.55	1876.32	1613.70		
270.0	4801.47	3705.30	3011.59	2479.19	2151.05	1873.57	1655.00	1486.52	1350.53		
360.0	5373.50	4283.39	3529.12	2829.90	2327.78	2027.18	1769.51	1590.03	1420.46		
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0		
0.0	1281.16	1186.47	1099.48	1034.51	991.57	957.98	926.05	899.62	878.70		
90.0	1565.25	1419.90	1272.35	1173.80	1097.82	1024.60	979.45	944.22	914.49		
180.0	1452.39	1315.30	1195.27	1090.89	1035.94	986.17	943.56	915.81	890.15		
270.0	1210.69	1093.64	1053.61	989.03	952.37	924.95	899.13	874.35	860.48		
360.0	1281.16	1186.47	1099.48	1034.51	991.57	957.98	926.05	899.62	878.70		
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0		
0.0	859.98	844.01	830.25	817.04	784.55	727.30	643.61	559.37	456.42		
90.0	889.16	867.69	848.97	835.76	818.69	803.82	774.64	713.53	630.40		
180.0	867.91	847.98	834.49	821.06	805.64	781.91	738.03	671.58	574.57		
270.0	844.29	831.41	817.92	791.38	742.66	660.95	567.41	473.60	377.58		
360.0	859.98	844.01	830.25	817.04	784.55	727.30	643.61	559.37	456.42		
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0		
0.0	349.06	279.14	167.70	87.26	35.51	20.92	17.73	14.48	12.99		
90.0	540.10	456.97	338.05	282.44	164.67	85.01	35.73	20.76	17.34		
180.0	487.30	397.45	287.78	205.20	128.23	52.52	25.66	18.50	14.70		
270.0	262.01	177.23	103.40	38.81	20.54	17.56	13.82	12.44	11.45		
360.0	349.06	279.14	167.70	87.26	35.51	20.92	17.73	14.48	12.99		
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	10.85	10.46	10.35	10.19	10.02	9.91	9.80	9.69	9.63		
90.0	14.31	13.21	11.07	10.46	10.35	10.24	10.13	10.08	9.97		
180.0	12.94	12.17	10.35	10.24	10.13	10.02	9.91	9.80	9.74		
270.0	10.52	10.35	10.19	10.02	9.97	9.80	9.74	9.69	9.58		
360.0	10.85	10.46	10.35	10.19	10.02	9.91	9.80	9.69	9.63		
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	9.58	9.47	9.41	9.36	9.36	9.30	9.25	9.25	9.19		
90.0	9.86	9.74	9.69	9.63	9.58	9.58	9.47	9.41	9.36		
180.0	9.69	9.58	9.52	9.47	9.36	9.36	9.36	9.30	9.25		
270.0	9.47	9.47	9.41	9.36	9.36	9.30	9.25	9.25	9.19		
360.0	9.58	9.47	9.41	9.36	9.36	9.30	9.25	9.25	9.19		
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	9.19	9.19	9.14	9.14	9.08	9.08	9.08	9.08	9.08		
90.0	9.36	9.36	9.30	9.30	9.25	9.25	9.25	9.25	9.19		
180.0	9.25	9.19	9.19	9.19	9.14	9.08	9.14	9.08	9.08		
270.0	9.19	9.19	9.19	9.14	9.14	9.14	9.14	9.14	9.08		
360.0	9.19	9.19	9.14	9.14	9.08	9.08	9.08	9.08	9.08		

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Intensity data(cd)										Appendix Page: 17 Total:17	
C/ $\gamma(^{\circ})$	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03		
90.0	9.19	9.14	9.14	9.14	9.14	9.14	9.08	9.08	9.14		
180.0	9.08	9.08	9.08	9.03	9.03	8.97	9.03	9.03	9.03		
270.0	9.08	9.08	9.08	9.08	9.08	9.03	9.08	9.03	9.03		
360.0	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03		
C/ $\gamma(^{\circ})$	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	9.03	8.97	9.03	9.03	9.03	8.97	9.03	8.97	9.03		
90.0	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.03	9.08		
180.0	8.97	8.97	9.03	8.97	8.97	8.97	8.97	8.97	8.97		
270.0	9.08	9.03	9.08	9.03	9.08	9.03	9.08	9.03	9.03		
360.0	9.03	8.97	9.03	9.03	9.03	8.97	9.03	8.97	9.03		
C/ $\gamma(^{\circ})$	90.0										
0.0	8.97										
90.0	9.08										
180.0	8.97										
270.0	9.08										
360.0	8.97										