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Nata

LumCAT: 3-1545-A3
Luminaire: TE 2213130-1+92.76.365.00
Report No: GC20170511508 Voltage(V): 219.9000
Test No: NT-0010 Current(A): 0.1350
LampCAT: LUMILEDS LUXEON CoB 1208 Power (W): 28.1000
Lamp flux(lm): 3194.0 PF: 0.9420
Number of Lamps: 1 Ballast type: DC
Length(mm): 84 Width(mm): 84
Phm Type: C Height(mm): 0

Photometric Results

Lumens(lm): 2913.39
Efficiency(%): 91.21%
Lumens(lm)/Power(W): 103.68
Central intensity(cd): 23401.720
Maximum intensity(cd): 23401.720
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=14.1
 [C90/270]Total=14.1
Field angle(10%Imax): [C0/180]Total=28.4
 [C90/270]Total=28.4
Maximum s/h(1/2): C0_180=0.24 C90_270=0.24
Maximum s/h(1/4): C0_180=0.24 C90_270=0.24
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.21%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.693%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	23401.723	0.000	0	.000%	.000%
1.0	23270.965	22.332	22.332	.699%	.767%
2.0	22809.867	66.140	88.472	2.071%	3.037%
3.0	21849.133	106.810	195.281	3.344%	6.703%
4.0	20289.660	141.052	336.333	4.416%	11.544%
5.0	18090.156	165.108	501.441	5.169%	17.212%
6.0	15490.118	176.473	677.914	5.525%	23.269%
7.0	11826.252	169.552	847.467	5.308%	29.089%
8.0	9920.750	155.639	1003.106	4.873%	34.431%
9.0	7421.327	140.548	1143.654	4.400%	39.255%
10.0	5610.110	117.930	1261.584	3.692%	43.303%
11.0	4304.998	99.072	1360.656	3.102%	46.703%
12.0	3413.497	84.374	1445.03	2.642%	49.600%
13.0	2822.742	74.008	1519.039	2.317%	52.140%
14.0	2419.591	67.101	1586.14	2.101%	54.443%
15.0	2035.986	61.168	1647.308	1.915%	56.543%
16.0	1817.549	56.465	1703.773	1.768%	58.481%
17.0	1659.262	54.143	1757.917	1.695%	60.339%
18.0	1541.992	52.782	1810.698	1.653%	62.151%
19.0	1457.481	52.185	1862.883	1.634%	63.942%
20.0	1380.815	51.949	1914.832	1.626%	65.725%
21.0	1325.345	51.964	1966.795	1.627%	67.509%
22.0	1287.769	52.512	2019.307	1.644%	69.311%
23.0	1254.598	53.346	2072.653	1.670%	71.142%
24.0	1223.904	54.189	2126.842	1.697%	73.002%
25.0	1196.651	55.038	2181.88	1.723%	74.891%
26.0	1170.224	55.870	2237.75	1.749%	76.809%
27.0	1142.283	56.576	2294.326	1.771%	78.751%
28.0	1108.946	56.996	2351.323	1.784%	80.707%
29.0	1084.528	57.387	2408.71	1.797%	82.677%
30.0	1056.257	57.801	2466.511	1.810%	84.661%
31.0	1028.591	58.018	2524.529	1.816%	86.653%
32.0	971.690	57.306	2581.835	1.794%	88.619%
33.0	878.824	54.517	2636.352	1.707%	90.491%
34.0	768.106	49.841	2686.193	1.560%	92.201%
35.0	646.816	43.942	2730.135	1.376%	93.710%
36.0	516.443	37.038	2767.173	1.160%	94.981%
37.0	398.705	29.847	2797.02	.934%	96.006%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	288.908	22.952	2819.972	.719%	96.793%
39.0	182.471	16.089	2836.061	.504%	97.346%
40.0	85.971	9.362	2845.424	.293%	97.667%
41.0	44.100	4.632	2850.055	.145%	97.826%
42.0	34.424	2.853	2852.908	.089%	97.924%
43.0	29.607	2.372	2855.28	.074%	98.005%
44.0	24.101	2.027	2857.307	.063%	98.075%
45.0	17.040	1.581	2858.888	.050%	98.129%
46.0	13.943	1.212	2860.1	.038%	98.171%
47.0	13.530	1.093	2861.193	.034%	98.208%
48.0	13.227	1.082	2862.274	.034%	98.245%
49.0	12.980	1.076	2863.351	.034%	98.282%
50.0	12.801	1.075	2864.425	.034%	98.319%
51.0	12.635	1.076	2865.502	.034%	98.356%
52.0	12.512	1.079	2866.581	.034%	98.393%
53.0	12.346	1.081	2867.662	.034%	98.430%
54.0	12.223	1.083	2868.745	.034%	98.467%
55.0	12.099	1.086	2869.831	.034%	98.505%
56.0	11.989	1.088	2870.919	.034%	98.542%
57.0	11.906	1.093	2872.011	.034%	98.580%
58.0	11.810	1.097	2873.108	.034%	98.617%
59.0	11.755	1.102	2874.21	.034%	98.655%
60.0	11.686	1.107	2875.317	.035%	98.693%
61.0	11.617	1.112	2876.429	.035%	98.731%
62.0	11.548	1.116	2877.545	.035%	98.770%
63.0	11.548	1.123	2878.669	.035%	98.808%
64.0	11.521	1.132	2879.801	.035%	98.847%
65.0	11.548	1.142	2880.942	.036%	98.886%
66.0	11.589	1.154	2882.097	.036%	98.926%
67.0	11.658	1.169	2883.266	.037%	98.966%
68.0	11.672	1.182	2884.448	.037%	99.006%
69.0	11.755	1.195	2885.643	.037%	99.047%
70.0	11.865	1.213	2886.856	.038%	99.089%
71.0	12.002	1.234	2888.089	.039%	99.131%
72.0	12.250	1.261	2889.35	.039%	99.175%
73.0	12.470	1.293	2890.643	.040%	99.219%
74.0	12.691	1.323	2891.966	.041%	99.264%
75.0	12.828	1.348	2893.314	.042%	99.311%

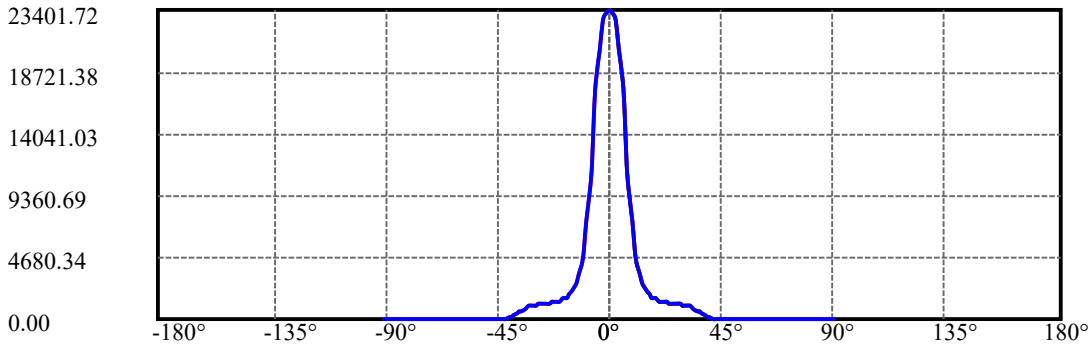
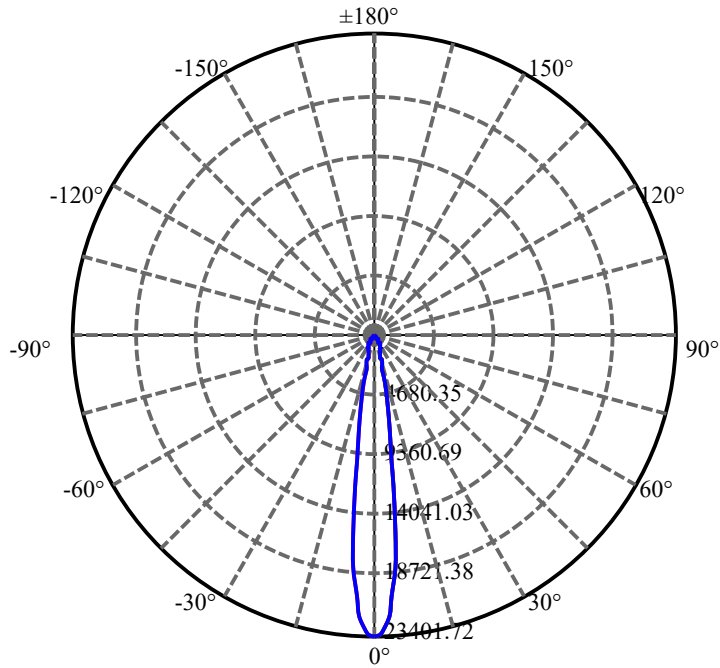
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.076	1.375	2894.689	.043%	99.358%
77.0	13.269	1.405	2896.094	.044%	99.406%
78.0	13.461	1.431	2897.525	.045%	99.455%
79.0	13.585	1.453	2898.978	.045%	99.505%
80.0	13.626	1.467	2900.445	.046%	99.556%
81.0	13.613	1.473	2901.918	.046%	99.606%
82.0	13.269	1.458	2903.376	.046%	99.656%
83.0	12.512	1.401	2904.777	.044%	99.704%
84.0	11.699	1.319	2906.096	.041%	99.750%
85.0	11.259	1.253	2907.349	.039%	99.793%
86.0	11.190	1.227	2908.576	.038%	99.835%
87.0	11.121	1.221	2909.797	.038%	99.877%
88.0	10.915	1.207	2911.004	.038%	99.918%
89.0	10.901	1.196	2912.2	.037%	99.959%
90.0	10.874	1.194	2913.394	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2466.51	77.22%	84.66%
0-40	2845.42	89.09%	97.67%
0-60	2875.32	90.02%	98.69%
0-90	2912.20	91.18%	99.96%
0-120	2912.20	91.18%	99.96%
0-180	2913.39	91.21%	100.00%
60-90	37.99	1.19%	1.30%
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%
0-27.64	2330.72	72.97%	80.00%

ZONAL LUMEN SUMMARY

0-10	1261.58
10-20	653.25
20-30	551.68
30-40	378.91
40-50	19.00
50-60	10.89
60-70	11.54
70-80	13.59
80-90	11.76
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



C0(Max): —————

C0/C180: —————

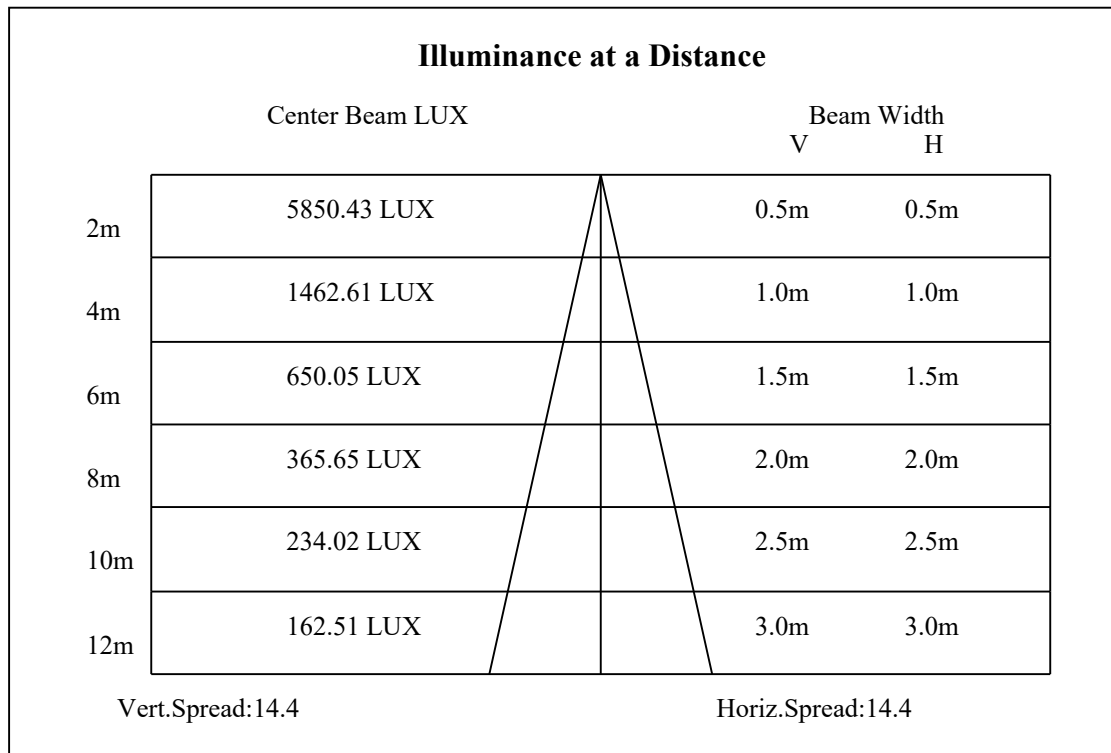
C90/C270: —————

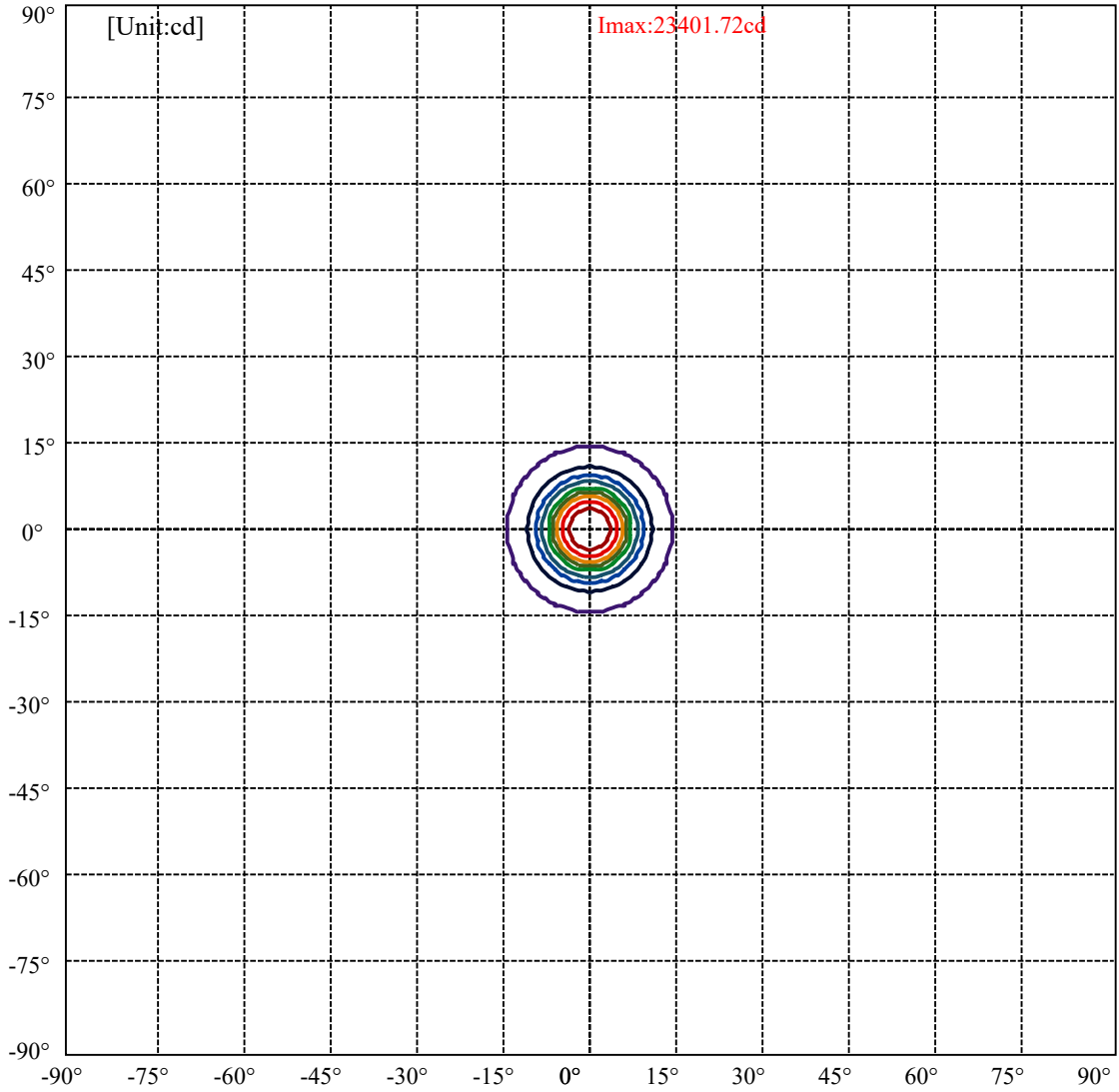
Field angle(10%Imax):C0/180Left:14.2 Right:14.2

:C90/270Left:14.2 Right:14.2

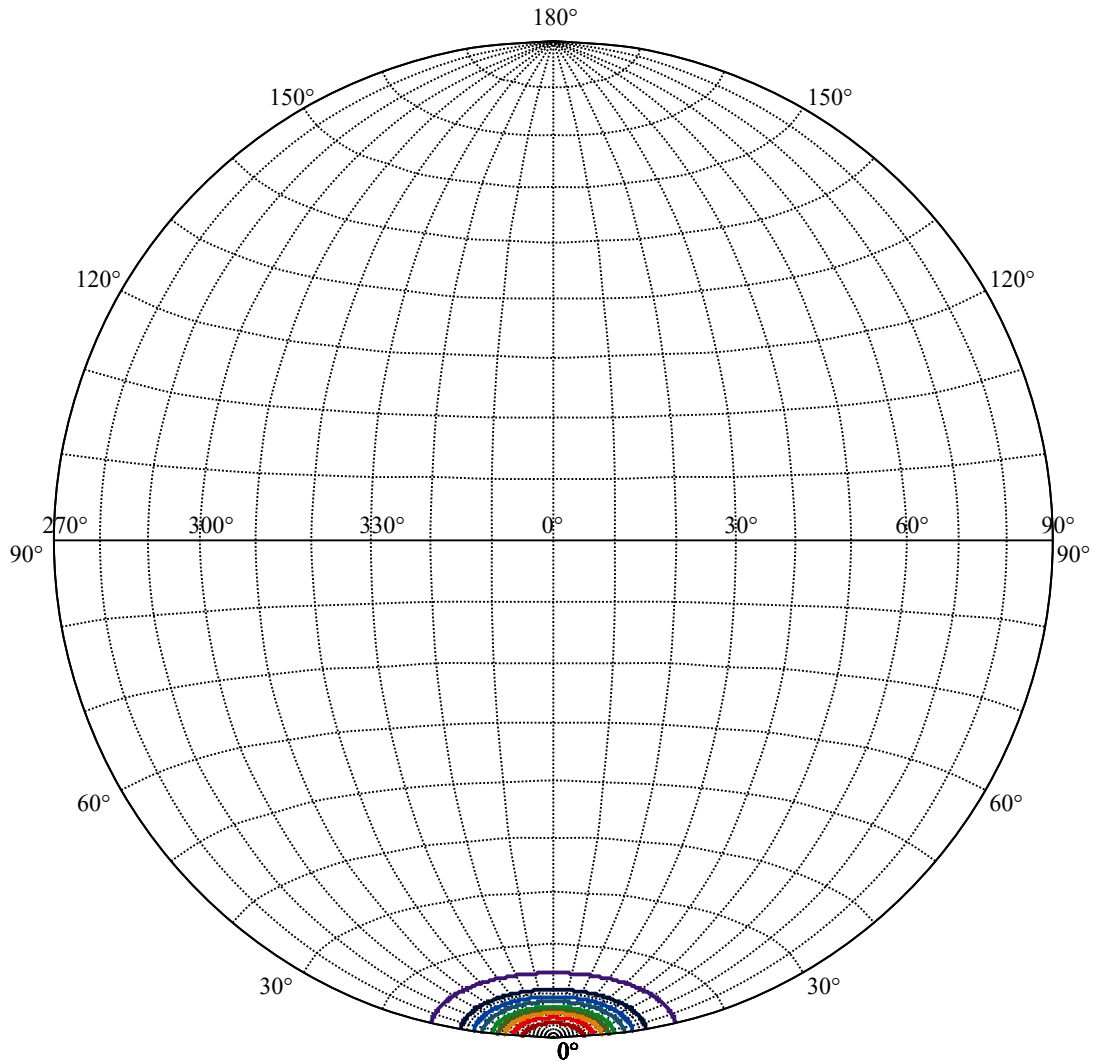
Beam Angle(50%Imax):C0/180Left:7.1 Right:7.1

:C90/270Left:7.1 Right:7.1





(10%Imax) 2340.17	—
(20%Imax) 4680.34	—
(30%Imax) 7020.52	—
(40%Imax) 9360.69	—
(50%Imax) 11700.9	—
(60%Imax) 14041	—
(70%Imax) 16381.2	—
(80%Imax) 18721.4	—
(90%Imax) 21061.6	—



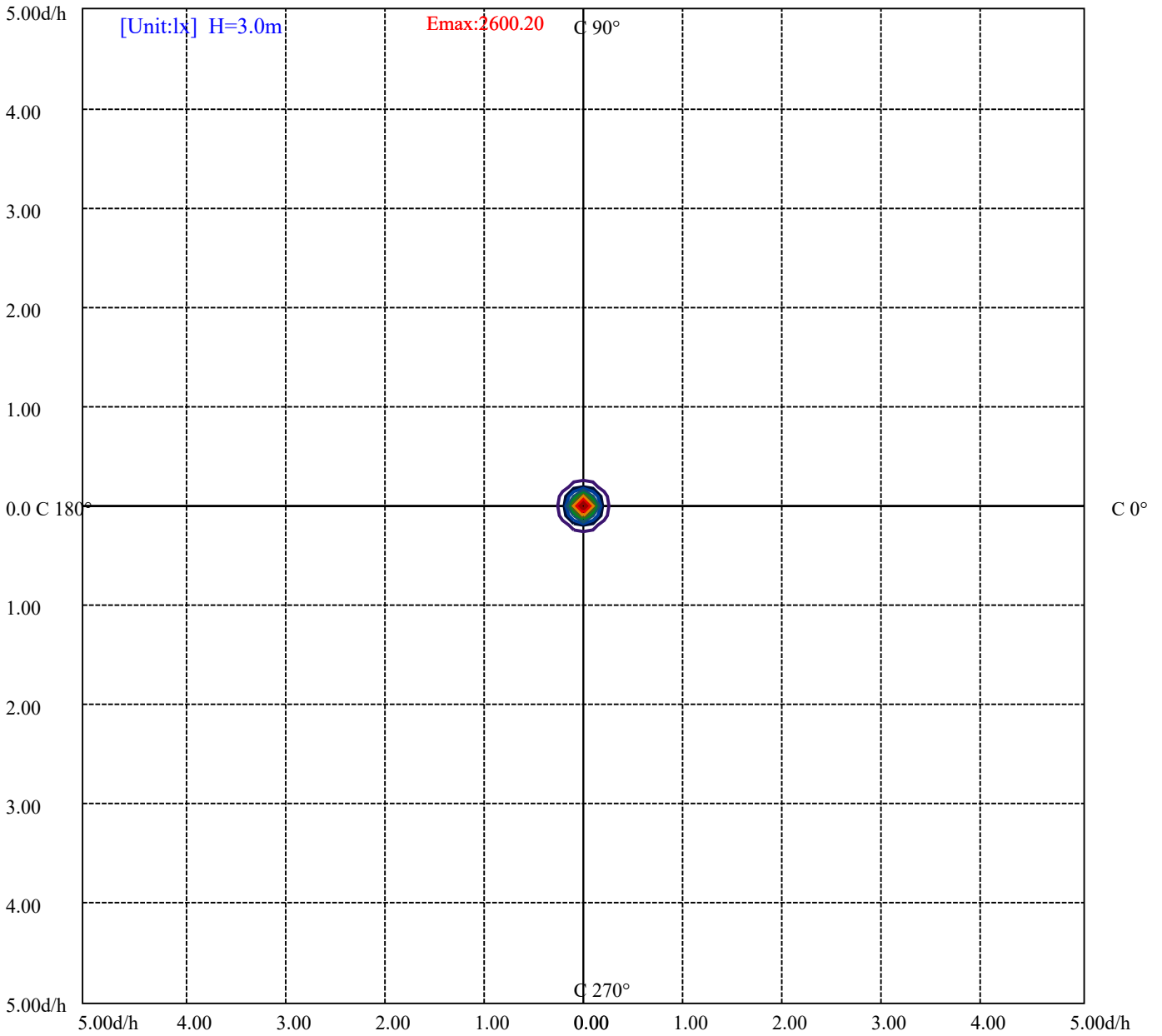
House

[Unit:cd]

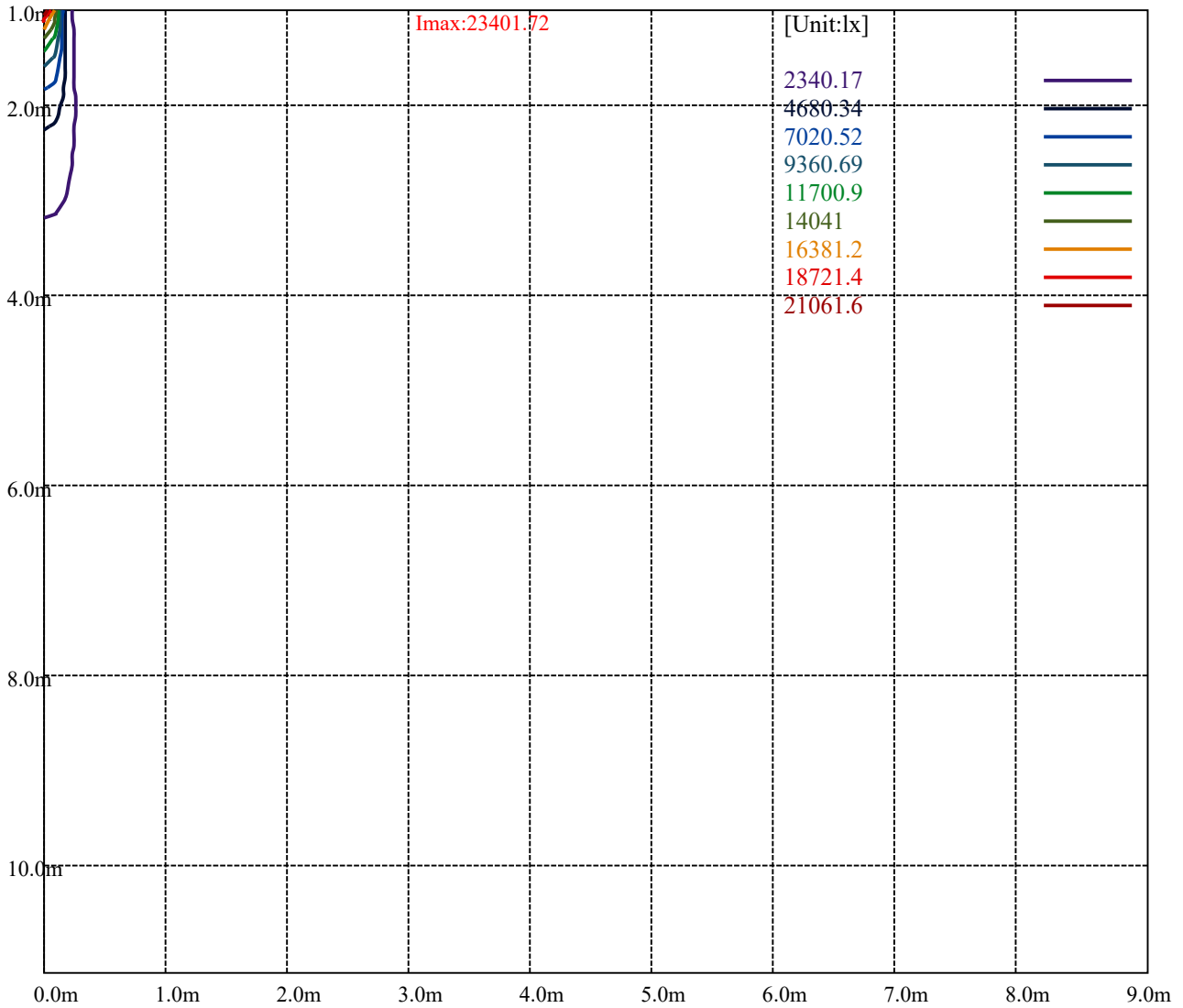
Road

Imax:23401.72

(10%Imax) 2340.17	—
(20%Imax) 4680.34	—
(30%Imax) 7020.52	—
(40%Imax) 9360.69	—
(50%Imax) 11700.9	—
(60%Imax) 14041	—
(70%Imax) 16381.2	—
(80%Imax) 18721.4	—
(90%Imax) 21061.6	—



(10%Emax) 260.0189	—
(20%Emax) 520.0378	—
(30%Emax) 780.0566	—
(40%Emax) 1040.076	—
(50%Emax) 1300.1	—
(60%Emax) 1560.111	—
(70%Emax) 1820.133	—
(80%Emax) 2080.156	—
(90%Emax) 2340.167	—



Luminance Table

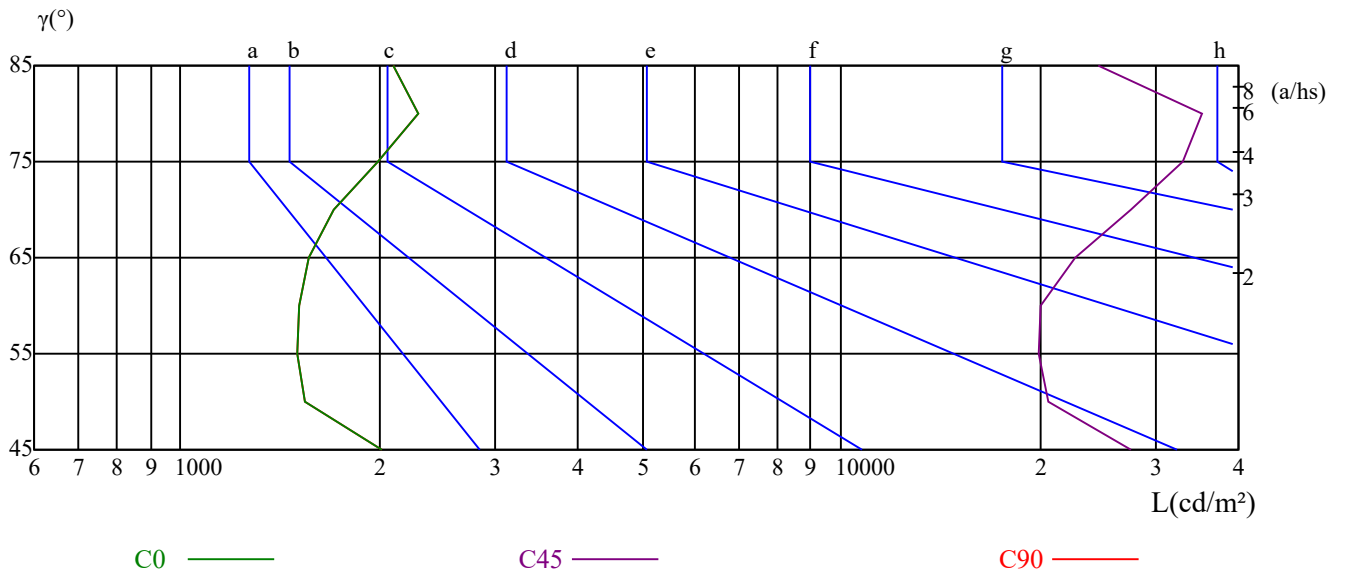
γ	45	50	55	60	65	70	75	80	85
C0	2011	1544	1504	1511	1567	1709	1983	2293	2096
C45	27467	20653	19929	20120	22660	27448	32929	35235	24489
C90	2011	1544	1504	1511	1567	1709	1983	2293	2096

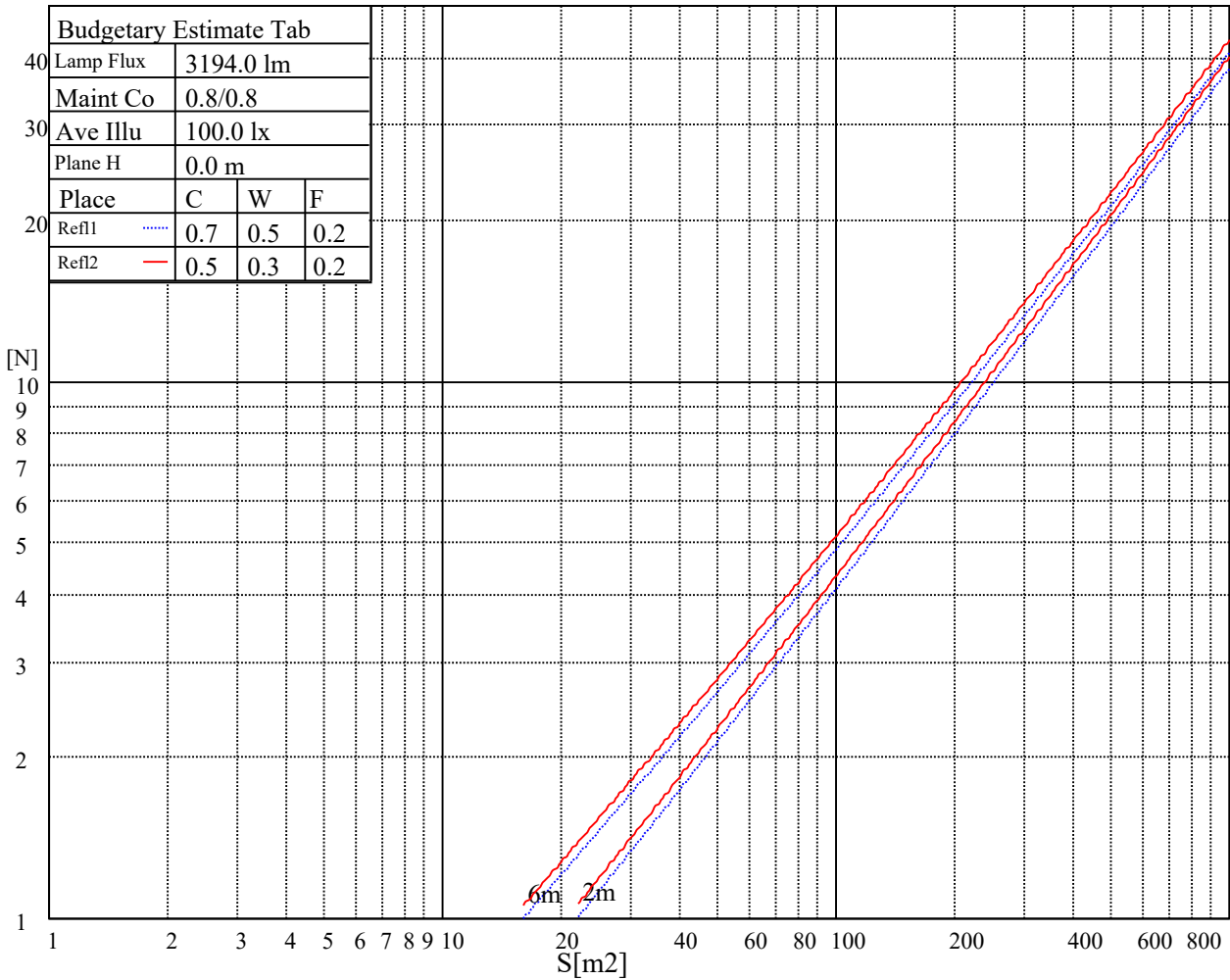
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3782	3782	67937	6860	6860	147429	17880	17880	285282

Glare Table

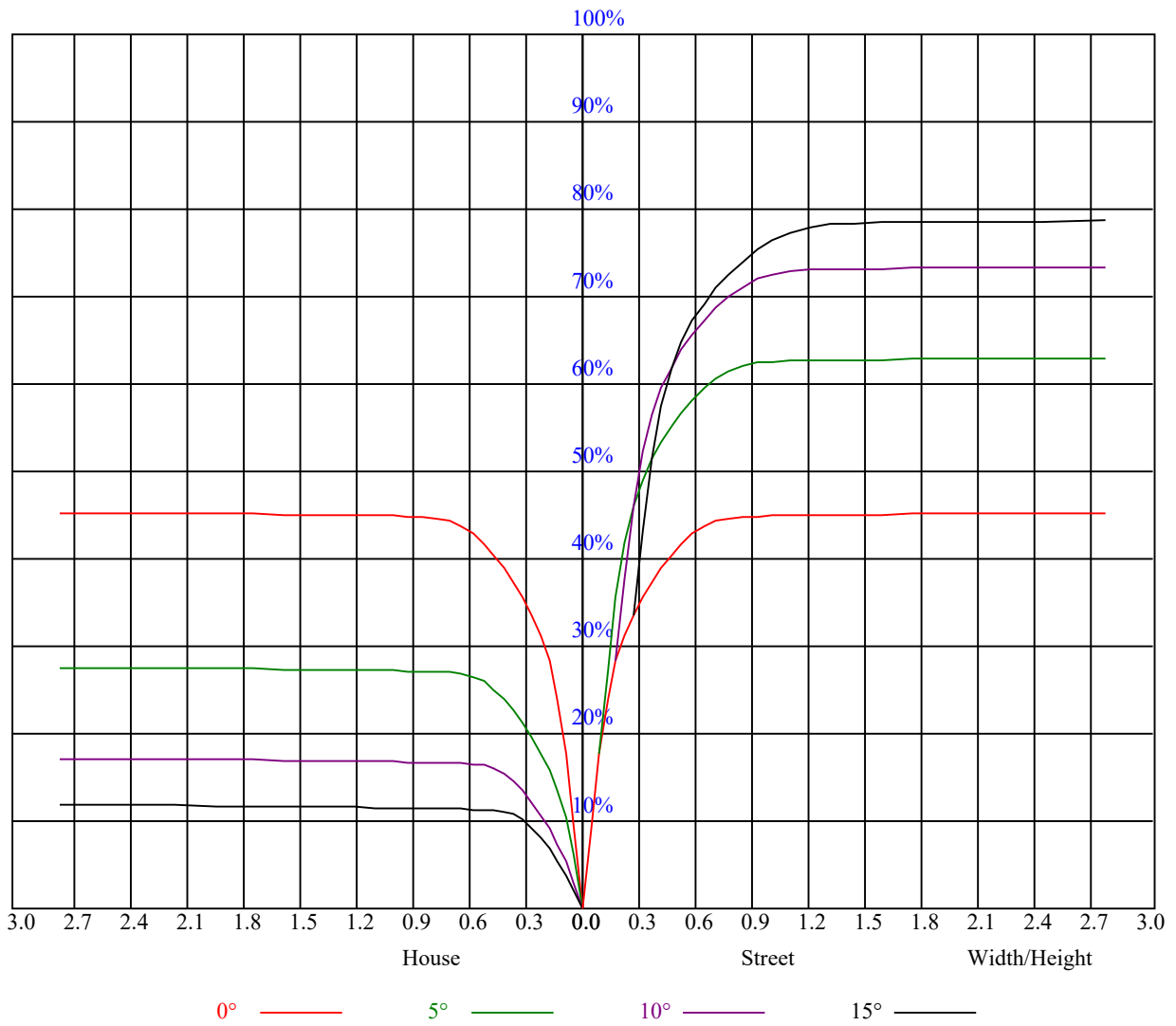
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.09	1.09	1.09	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	1.01	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	0.81	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	0.75	0.73	0.72
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	0.72	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	0.70	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	0.65	0.70	0.67	0.65	0.64



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	23393.46	23145.71	22672.23	21389.41	19732.21	17546.47	14413.77	11815.10	9332.06
90.0	23409.98	23432.00	23112.68	22457.51	21257.28	18933.90	16577.48	13923.76	10912.18
180.0	23393.46	23354.92	23090.65	22341.89	20728.73	19033.00	16649.06	10840.61	10509.17
270.0	23409.98	23151.22	22363.91	21207.73	19440.41	16847.26	14320.17	10725.54	8929.60
360.0	23393.46	23145.71	22672.23	21389.41	19732.21	17546.47	14413.77	11815.10	9332.06
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6738.90	5219.35	4123.72	3270.35	2802.37	2322.28	2015.61	1800.89	1665.46
90.0	8214.41	6298.45	4723.84	3743.84	2989.56	2796.87	2156.01	1894.49	1711.15
180.0	8052.00	5877.27	4367.07	3459.19	2835.96	2310.17	2021.12	1812.46	1648.94
270.0	6679.99	5045.37	4005.35	3180.61	2663.08	2249.05	1951.20	1762.36	1611.50
360.0	6738.90	5219.35	4123.72	3270.35	2802.37	2322.28	2015.61	1800.89	1665.46
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1547.64	1461.20	1381.92	1325.76	1289.97	1259.69	1227.21	1202.98	1179.31
90.0	1593.88	1500.84	1402.84	1342.28	1295.48	1254.74	1221.70	1195.27	1167.75
180.0	1531.12	1447.98	1374.21	1319.70	1283.36	1249.23	1221.15	1190.87	1162.24
270.0	1495.33	1419.90	1364.30	1313.65	1282.26	1254.74	1225.56	1197.48	1171.60
360.0	1547.64	1461.20	1381.92	1325.76	1289.97	1259.69	1227.21	1202.98	1179.31
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1149.58	1124.25	1097.82	1068.64	1037.26	975.05	871.54	749.32	631.50
90.0	1140.22	1117.09	1086.81	1059.29	1031.21	997.07	921.09	810.98	686.00
180.0	1137.47	1096.34	1073.54	1046.29	1020.64	952.70	862.51	758.90	633.64
270.0	1141.87	1098.10	1079.93	1050.81	1025.26	961.95	860.15	753.23	636.12
360.0	1149.58	1124.25	1097.82	1068.64	1037.26	975.05	871.54	749.32	631.50
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	494.41	374.93	288.50	145.13	64.20	36.23	30.83	25.00	19.99
90.0	577.54	453.66	331.99	278.03	120.96	56.38	32.43	28.30	23.45
180.0	506.57	395.19	275.83	167.92	90.13	44.60	39.70	35.02	28.02
270.0	487.25	371.03	259.32	138.80	68.60	39.20	34.74	30.12	24.94
360.0	494.41	374.93	288.50	145.13	64.20	36.23	30.83	25.00	19.99
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	14.48	13.82	13.54	13.27	12.88	12.72	12.55	12.44	12.28
90.0	17.45	13.98	13.60	13.10	12.88	12.66	12.55	12.44	12.28
180.0	20.43	14.04	13.65	13.43	13.27	13.10	12.94	12.77	12.61
270.0	15.80	13.93	13.32	13.10	12.88	12.72	12.50	12.39	12.22
360.0	14.48	13.82	13.54	13.27	12.88	12.72	12.55	12.44	12.28
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.17	12.00	11.89	11.84	11.73	11.67	11.62	11.51	11.51
90.0	12.17	12.06	11.95	11.84	11.78	11.73	11.67	11.62	11.51
180.0	12.50	12.39	12.22	12.17	12.00	11.95	11.89	11.84	11.73
270.0	12.06	11.95	11.89	11.78	11.73	11.67	11.56	11.51	11.45
360.0	12.17	12.00	11.89	11.84	11.73	11.67	11.62	11.51	11.51
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.45	11.40	11.34	11.34	11.40	11.34	11.34	11.29	11.29
90.0	11.51	11.45	11.51	11.56	11.62	11.62	11.67	11.73	11.73
180.0	11.78	11.84	11.95	12.06	12.17	12.28	12.55	13.05	13.60
270.0	11.45	11.40	11.40	11.40	11.45	11.45	11.45	11.40	11.40
360.0	11.45	11.40	11.34	11.34	11.40	11.34	11.34	11.29	11.29

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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	11.29	11.23	11.29	11.23	11.23	11.23	11.18	11.12	11.12	
90.0	11.73	11.73	11.73	11.78	11.89	12.06	12.39	12.66	12.83	
180.0	14.53	15.47	16.24	16.79	17.67	18.28	18.83	19.10	19.16	
270.0	11.45	11.45	11.51	11.51	11.51	11.51	11.45	11.45	11.40	
360.0	11.29	11.23	11.29	11.23	11.23	11.23	11.18	11.12	11.12	
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0	
0.0	11.12	11.12	11.07	11.07	11.07	10.96	10.96	10.90	10.96	
90.0	12.94	12.77	12.17	11.51	11.29	11.29	11.23	10.90	10.85	
180.0	18.99	17.84	15.53	13.05	11.56	11.45	11.40	11.01	10.96	
270.0	11.40	11.34	11.29	11.18	11.12	11.07	10.90	10.85	10.85	
360.0	11.12	11.12	11.07	11.07	11.07	10.96	10.96	10.90	10.96	
C/γ(°)	90.0									
0.0	10.90									
90.0	10.85									
180.0	10.90									
270.0	10.85									
360.0	10.90									