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Nata

LumCAT: 4-2273-M	
Luminaire: 92.70.129.00	
Report No: GC2017061905	Voltage(V): 218.3000
Test No: NT-0010	Current(A): 0.1000
LampCAT: CREE CXA1830	Power (W): 19.7000
Lamp flux(lm): 2036.0	PF: 0.9010
Number of Lamps: 1	Ballast type: DC
Length(mm): 100	Width(mm): 100
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1801.01
Efficiency(%): 88.46%
Lumens(lm)/Power(W): 91.42
Central intensity(cd): 23142.960
Maximum intensity(cd): 23142.960
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=10.5
 [C90/270]Total=10.5
Field angle(10%Imax): [C0/180]Total=21.8
 [C90/270]Total=21.8
Maximum s/h(1/2): C0_180=0.18 C90_270=0.18
Maximum s/h(1/4): C0_180=0.19 C90_270=0.19
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.46%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.785%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	23142.957	0.000	0	.000%	.000%
1.0	22599.275	21.887	21.887	1.075%	1.215%
2.0	20913.174	62.453	84.34	3.067%	4.683%
3.0	18485.186	94.228	178.568	4.628%	9.915%
4.0	15645.652	114.247	292.815	5.611%	16.258%
5.0	12448.252	120.859	413.673	5.936%	22.969%
6.0	9146.933	113.488	527.162	5.574%	29.270%
7.0	7236.613	101.692	628.854	4.995%	34.917%
8.0	5341.434	90.019	718.873	4.421%	39.915%
9.0	3951.535	75.314	794.187	3.699%	44.097%
10.0	3263.881	65.297	859.484	3.207%	47.722%
11.0	2231.986	54.915	914.399	2.697%	50.771%
12.0	1734.277	43.357	957.756	2.130%	53.179%
13.0	1400.360	37.200	994.956	1.827%	55.244%
14.0	1140.218	32.519	1027.475	1.597%	57.050%
15.0	1018.282	29.633	1057.108	1.455%	58.695%
16.0	932.476	28.584	1085.692	1.404%	60.282%
17.0	877.310	28.183	1113.876	1.384%	61.847%
18.0	840.119	28.317	1142.192	1.391%	63.420%
19.0	816.459	28.821	1171.013	1.416%	65.020%
20.0	797.836	29.546	1200.559	1.451%	66.660%
21.0	780.782	30.313	1230.872	1.489%	68.343%
22.0	765.559	31.074	1261.947	1.526%	70.069%
23.0	750.777	31.817	1293.763	1.563%	71.835%
24.0	736.792	32.524	1326.287	1.597%	73.641%
25.0	722.835	33.189	1359.476	1.630%	75.484%
26.0	710.503	33.834	1393.31	1.662%	77.363%
27.0	698.101	34.462	1427.772	1.693%	79.276%
28.0	685.700	35.035	1462.807	1.721%	81.222%
29.0	672.060	35.523	1498.329	1.745%	83.194%
30.0	658.364	35.921	1534.251	1.764%	85.188%
31.0	644.380	36.253	1570.504	1.781%	87.201%
32.0	621.601	36.269	1606.773	1.781%	89.215%
33.0	576.344	35.292	1642.065	1.733%	91.175%
34.0	499.334	32.553	1674.618	1.599%	92.982%
35.0	409.496	28.225	1702.843	1.386%	94.549%
36.0	333.656	23.662	1726.505	1.162%	95.863%
37.0	206.971	17.632	1744.137	.866%	96.842%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	120.353	10.926	1755.063	.537%	97.449%
39.0	55.910	6.016	1761.079	.295%	97.783%
40.0	26.179	2.863	1763.942	.141%	97.942%
41.0	17.549	1.557	1765.499	.076%	98.028%
42.0	14.149	1.152	1766.651	.057%	98.092%
43.0	10.970	0.930	1767.581	.046%	98.144%
44.0	9.676	0.779	1768.361	.038%	98.187%
45.0	8.644	0.704	1769.065	.035%	98.226%
46.0	8.451	0.669	1769.733	.033%	98.263%
47.0	8.286	0.666	1770.399	.033%	98.300%
48.0	8.162	0.665	1771.064	.033%	98.337%
49.0	7.997	0.664	1771.727	.033%	98.374%
50.0	7.873	0.662	1772.389	.032%	98.411%
51.0	7.777	0.662	1773.051	.033%	98.448%
52.0	7.680	0.663	1773.715	.033%	98.484%
53.0	7.625	0.666	1774.38	.033%	98.521%
54.0	7.556	0.669	1775.049	.033%	98.559%
55.0	7.488	0.672	1775.721	.033%	98.596%
56.0	7.419	0.674	1776.395	.033%	98.633%
57.0	7.350	0.675	1777.07	.033%	98.671%
58.0	7.323	0.679	1777.748	.033%	98.708%
59.0	7.295	0.683	1778.432	.034%	98.746%
60.0	7.226	0.686	1779.118	.034%	98.785%
61.0	7.185	0.688	1779.806	.034%	98.823%
62.0	7.157	0.691	1780.497	.034%	98.861%
63.0	7.130	0.695	1781.191	.034%	98.900%
64.0	7.144	0.700	1781.892	.034%	98.939%
65.0	7.089	0.704	1782.596	.035%	98.978%
66.0	7.089	0.707	1783.304	.035%	99.017%
67.0	7.033	0.710	1784.014	.035%	99.056%
68.0	7.020	0.712	1784.726	.035%	99.096%
69.0	7.033	0.717	1785.442	.035%	99.136%
70.0	7.006	0.721	1786.163	.035%	99.176%
71.0	7.006	0.724	1786.888	.036%	99.216%
72.0	6.951	0.726	1787.613	.036%	99.256%
73.0	6.951	0.727	1788.34	.036%	99.297%
74.0	6.951	0.731	1789.071	.036%	99.337%
75.0	6.951	0.735	1789.806	.036%	99.378%

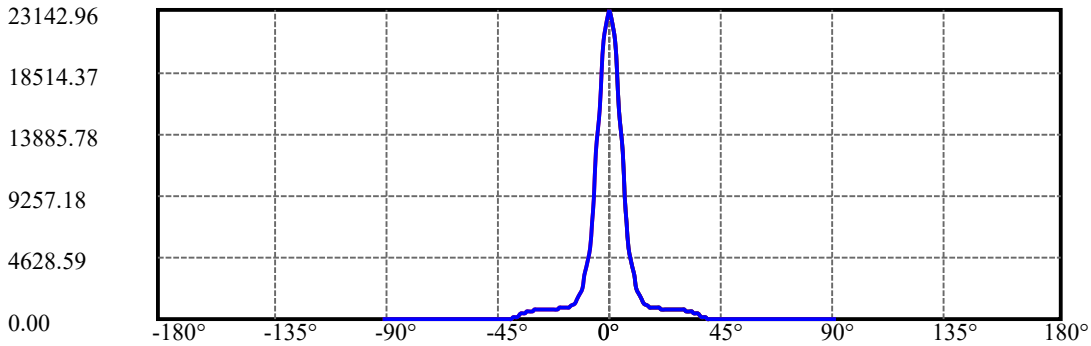
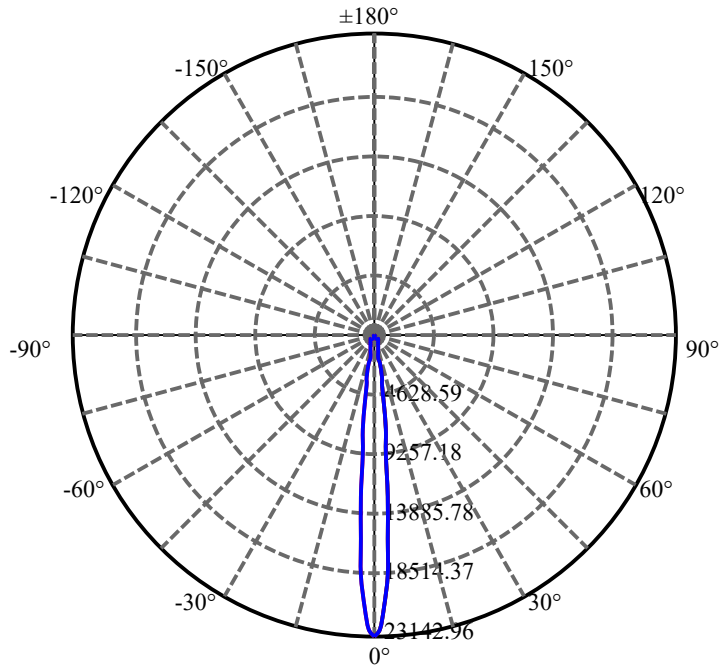
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.951	0.738	1790.544	.036%	99.419%
77.0	6.923	0.740	1791.283	.036%	99.460%
78.0	6.896	0.740	1792.023	.036%	99.501%
79.0	6.896	0.741	1792.764	.036%	99.542%
80.0	6.896	0.744	1793.508	.037%	99.584%
81.0	6.896	0.746	1794.254	.037%	99.625%
82.0	6.896	0.748	1795.001	.037%	99.666%
83.0	6.910	0.750	1795.752	.037%	99.708%
84.0	6.868	0.751	1796.503	.037%	99.750%
85.0	6.882	0.750	1797.253	.037%	99.791%
86.0	6.882	0.752	1798.005	.037%	99.833%
87.0	6.855	0.752	1798.757	.037%	99.875%
88.0	6.841	0.750	1799.507	.037%	99.917%
89.0	6.855	0.751	1800.258	.037%	99.958%
90.0	6.841	0.751	1801.009	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1534.25	75.36%	85.19%
0-40	1763.94	86.64%	97.94%
0-60	1779.12	87.38%	98.78%
0-90	1800.26	88.42%	99.96%
0-120	1800.26	88.42%	99.96%
0-180	1801.01	88.46%	100.00%
60-90	21.83	1.07%	1.21%
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%
0-27.37	1440.81	70.77%	80.00%

ZONAL LUMEN SUMMARY

0-10	859.48
10-20	341.08
20-30	333.69
30-40	229.69
40-50	8.45
50-60	6.73
60-70	7.05
70-80	7.34
80-90	6.75
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



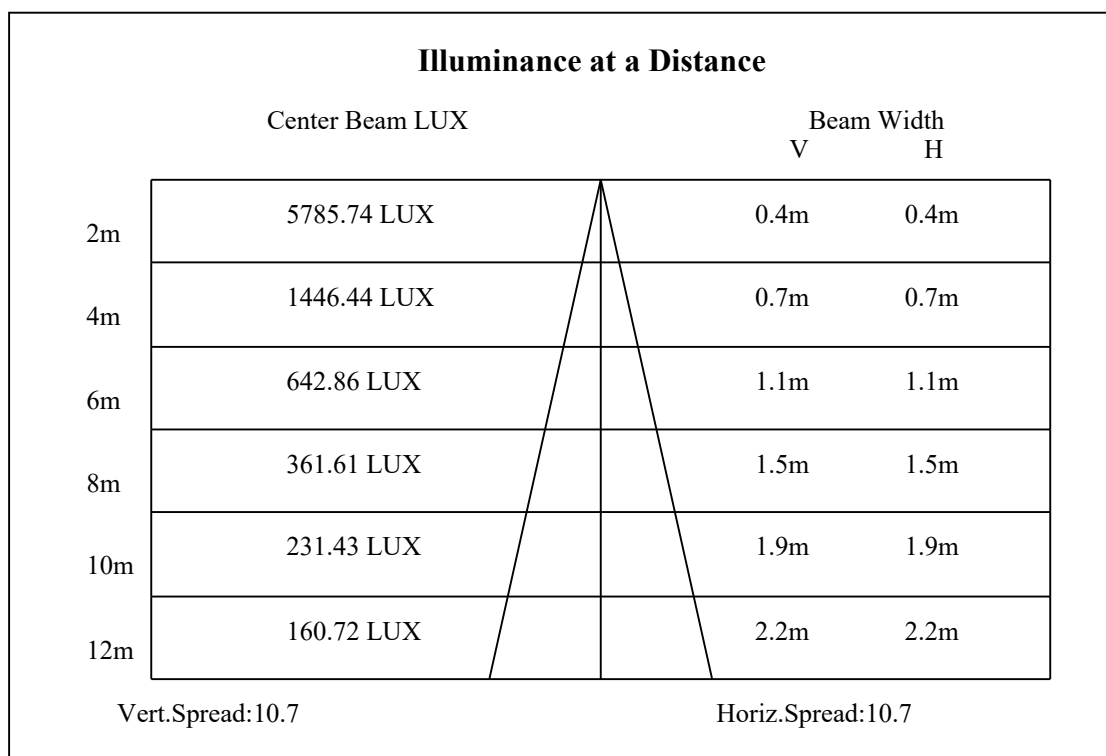
C0(Max): —————

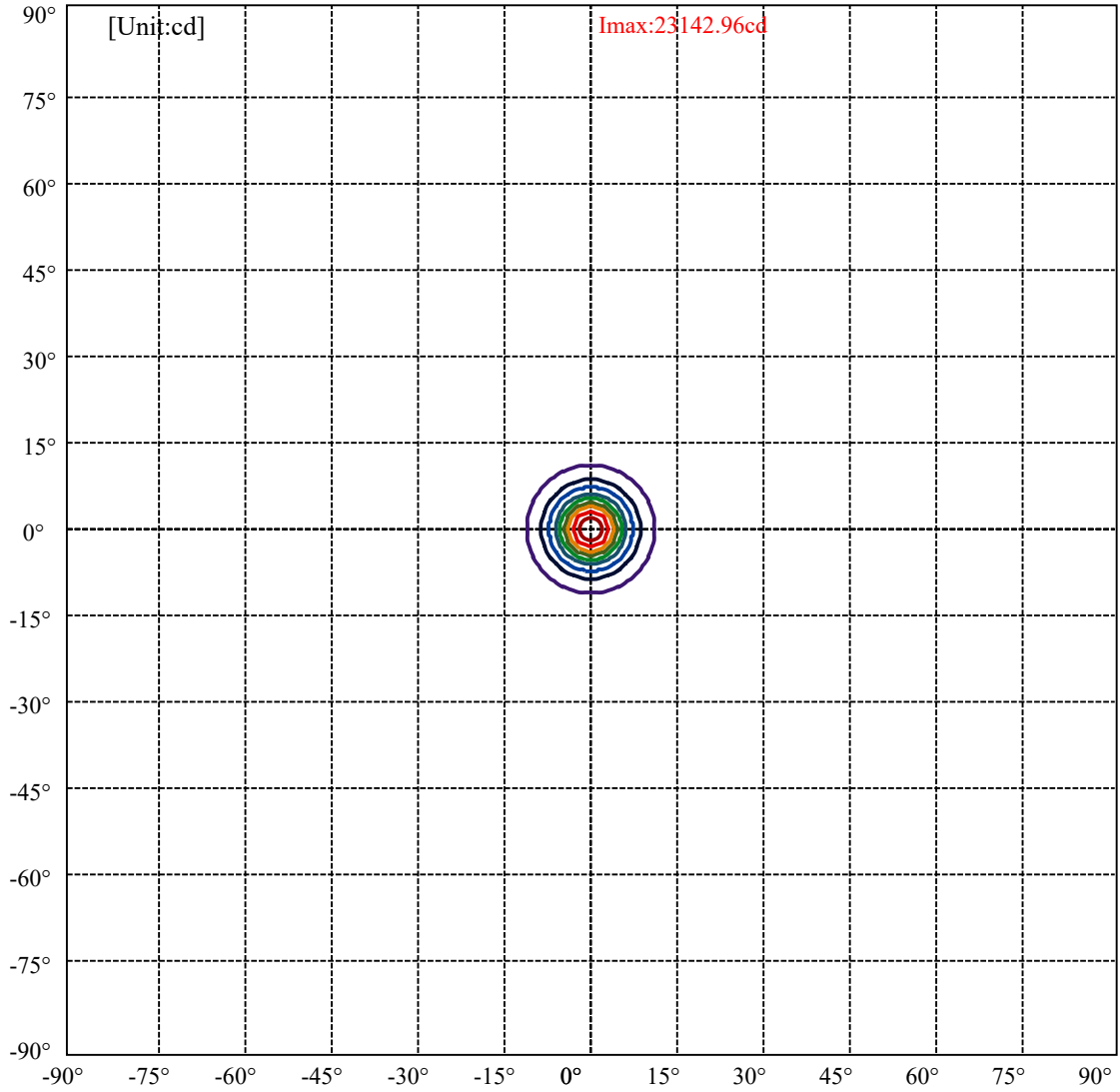
C0/C180: —————

C90/C270: —————

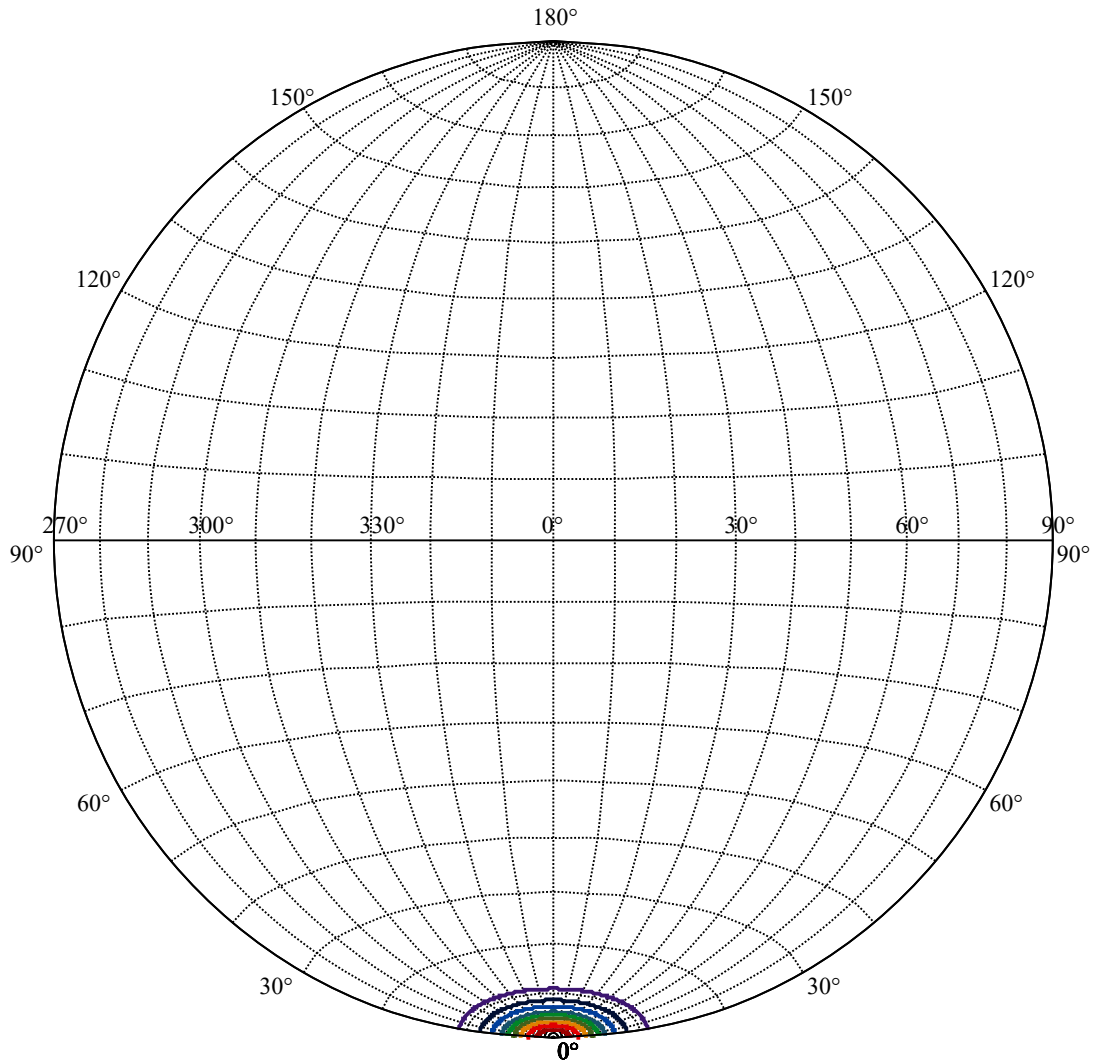
Field angle(10%Imax):C0/180Left:10.9 Right:10.9
:C90/270Left:10.9 Right:10.9

Beam Angle(50%Imax):C0/180Left:5.3 Right:5.3
:C90/270Left:5.3 Right:5.3





(10%I _{max}) 2314.3	—
(20%I _{max}) 4628.59	—
(30%I _{max}) 6942.89	—
(40%I _{max}) 9257.18	—
(50%I _{max}) 11571.5	—
(60%I _{max}) 13885.8	—
(70%I _{max}) 16200.1	—
(80%I _{max}) 18514.4	—
(90%I _{max}) 20828.7	—



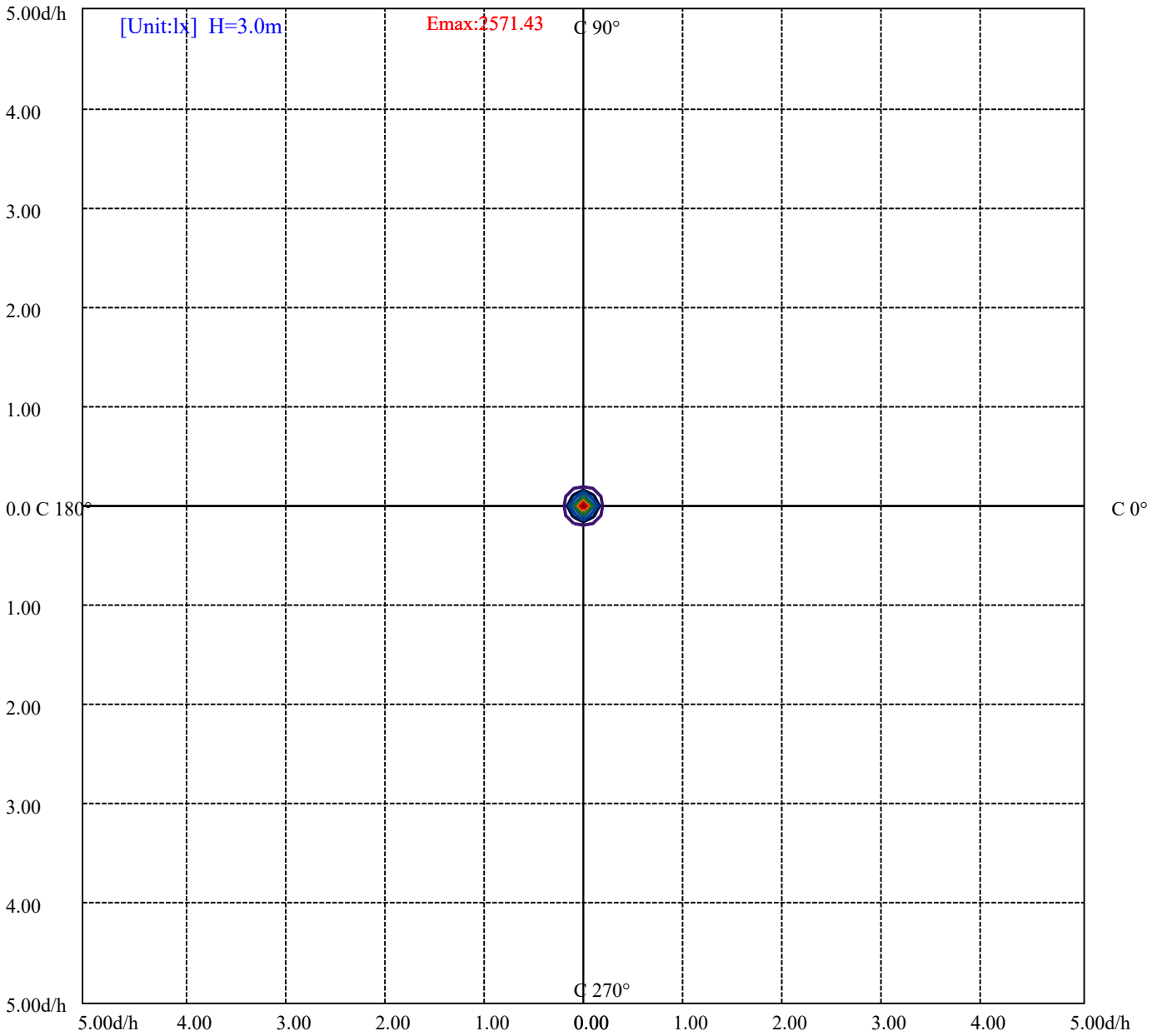
House

[Unit:cd]

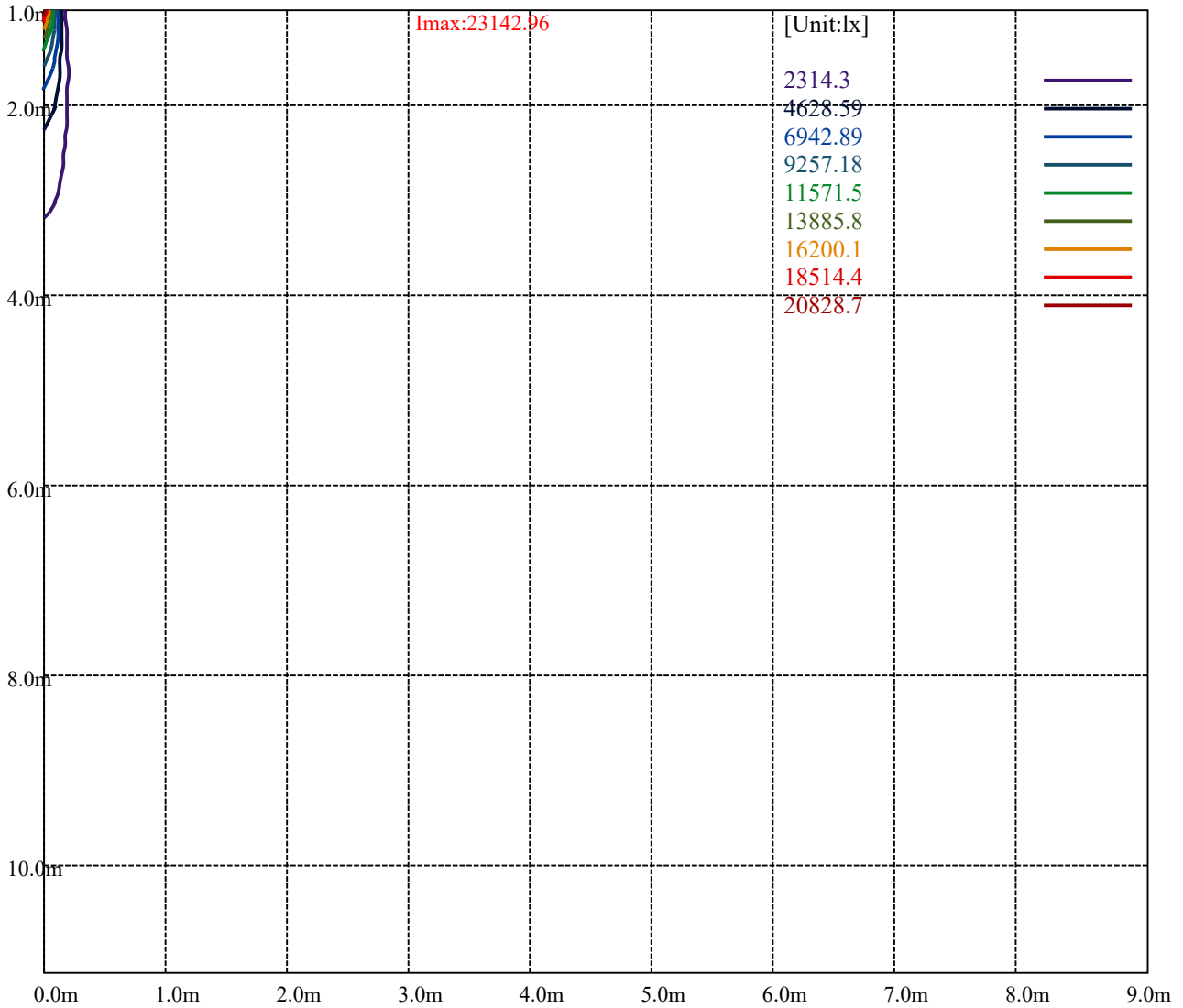
Road

Imax:23142.96

(10%Imax)	2314.3	—
(20%Imax)	4628.59	—
(30%Imax)	6942.89	—
(40%Imax)	9257.18	—
(50%Imax)	11571.5	—
(60%Imax)	13885.8	—
(70%Imax)	16200.1	—
(80%Imax)	18514.4	—
(90%Imax)	20828.7	—



(10%Emax) 257.1433	—
(20%Emax) 514.2867	—
(30%Emax) 771.4289	—
(40%Emax) 1028.572	—
(50%Emax) 1285.711	—
(60%Emax) 1542.856	—
(70%Emax) 1800	—
(80%Emax) 2057.145	—
(90%Emax) 2314.289	—



Luminance Table

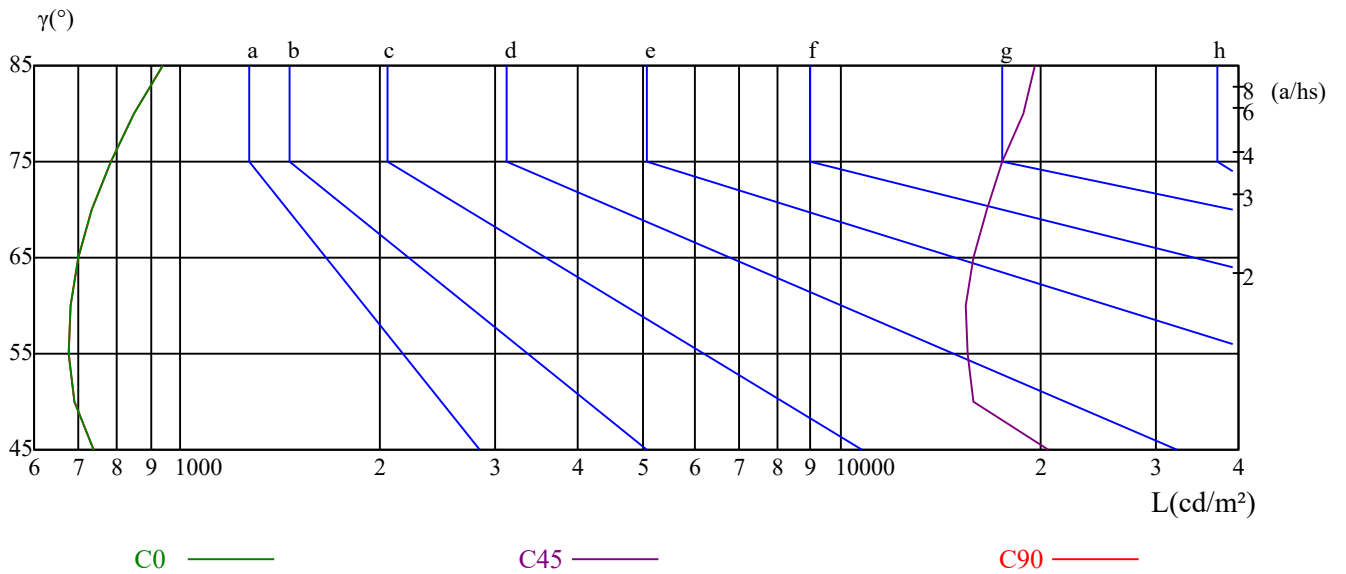
γ	45	50	55	60	65	70	75	80	85
C0	741	690	677	680	701	735	784	847	937
C45	20604	15921	15524	15501	15836	16596	17589	18868	19656
C90	741	690	677	680	701	735	784	847	937

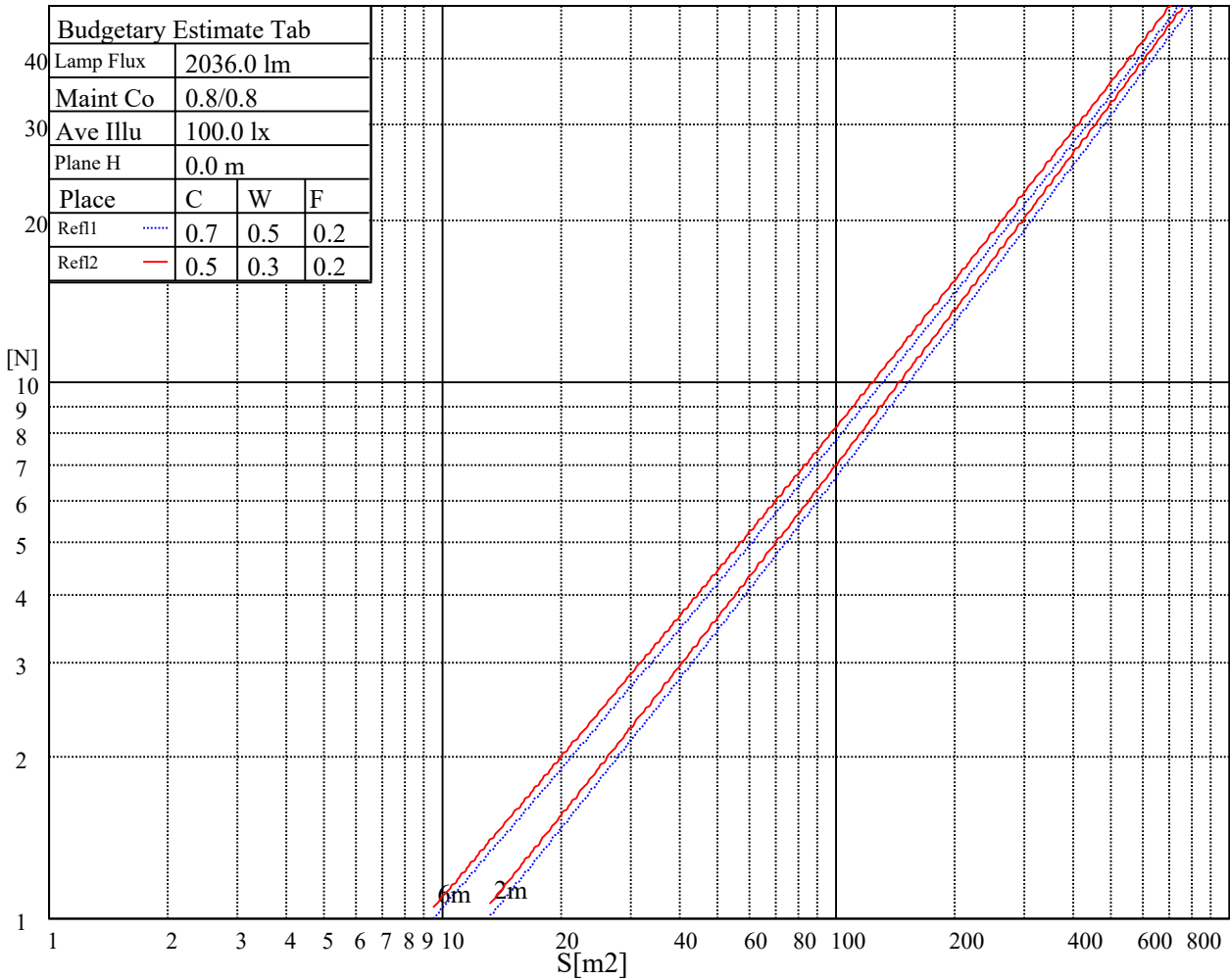
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1677	1677	47054	2686	2686	77931	7896	7896	226181

Glare Table

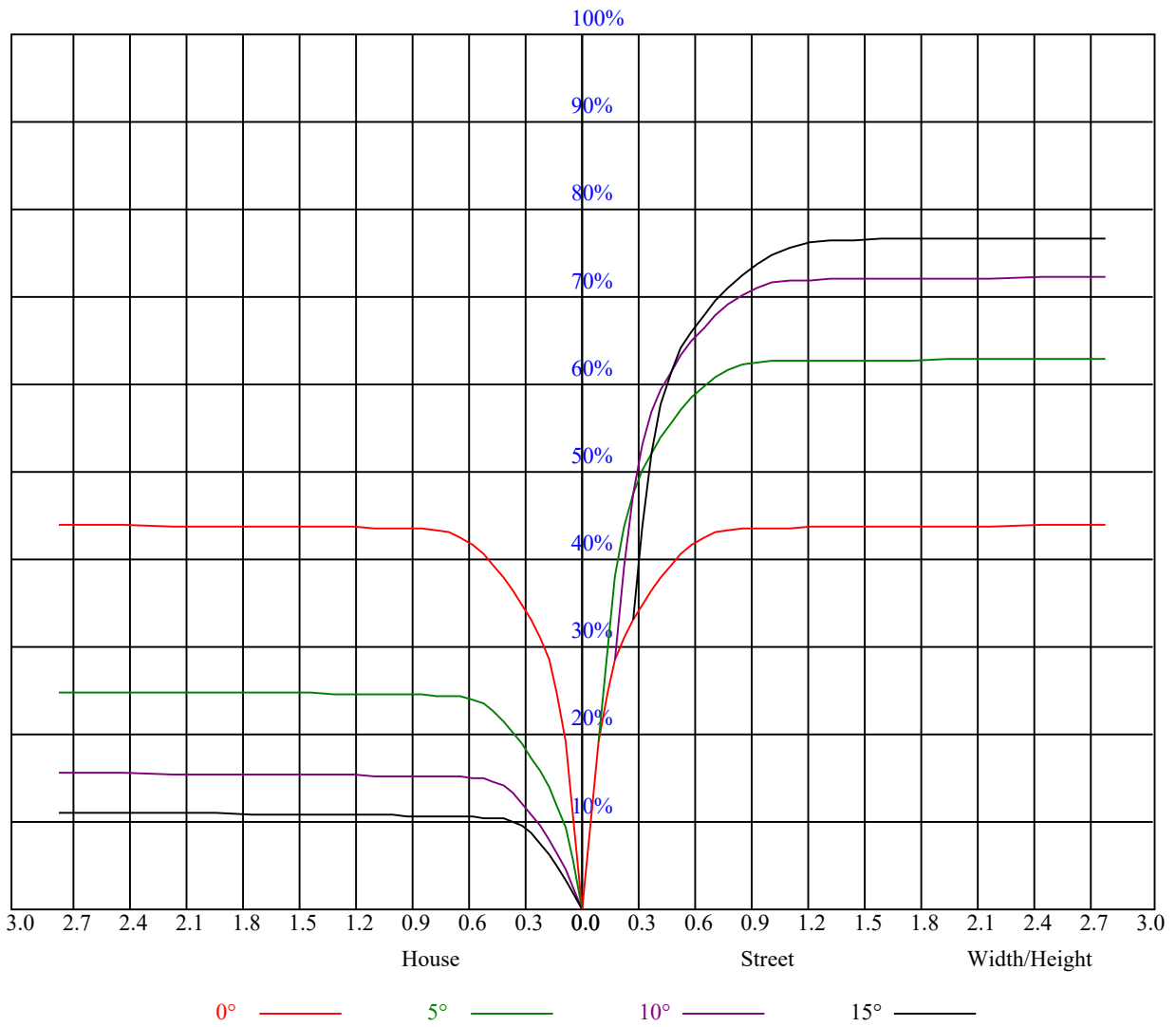
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.99	0.98	0.96	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.95	0.92	0.89	0.93	0.91	0.88	0.90	0.88	0.87	0.88	0.86	0.85	0.85	0.84	0.83	0.82
3	0.90	0.87	0.84	0.89	0.86	0.84	0.87	0.84	0.82	0.85	0.83	0.81	0.83	0.81	0.80	0.79
4	0.87	0.83	0.80	0.86	0.82	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.81	0.79	0.77	0.76
5	0.83	0.80	0.77	0.83	0.79	0.77	0.81	0.78	0.76	0.80	0.77	0.75	0.79	0.76	0.75	0.74
6	0.80	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.75	0.72	0.70	0.69
8	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.73	0.70	0.68	0.67
9	0.73	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.67	0.66
10	0.71	0.68	0.65	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.69	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	22418.97	21180.20	18609.06	15916.81	12916.23	9497.23	7328.01	5593.73	4112.71
90.0	23866.95	21829.86	19165.13	16346.25	12899.71	9805.54	7548.23	5516.65	4167.77
180.0	22418.97	22716.27	21851.89	19979.97	17618.05	14402.75	10778.94	8595.41	6078.23
270.0	23866.95	24670.77	24026.61	21697.73	19148.62	16087.48	10932.55	9240.67	7007.03
360.0	22418.97	21180.20	18609.06	15916.81	12916.23	9497.23	7328.01	5593.73	4112.71
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3050.12	2857.43	1792.09	1436.97	1184.26	1027.90	935.41	872.09	836.86
90.0	3088.66	2895.97	1820.16	1470.56	1193.07	1056.53	959.08	885.31	848.97
180.0	4735.40	3585.82	2496.26	2005.15	1593.33	1182.06	1087.42	992.56	916.25
270.0	4931.95	3716.31	2819.44	2024.42	1630.77	1294.38	1091.22	979.95	907.16
360.0	3050.12	2857.43	1792.09	1436.97	1184.26	1027.90	935.41	872.09	836.86
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	815.94	799.97	782.35	769.14	756.47	740.51	728.95	717.38	704.72
90.0	824.74	803.82	786.76	771.34	754.82	740.51	725.64	712.98	700.87
180.0	860.15	832.40	812.30	791.66	776.96	762.81	747.45	732.20	719.81
270.0	859.65	829.64	809.93	791.00	773.98	759.28	745.13	728.78	716.61
360.0	815.94	799.97	782.35	769.14	756.47	740.51	728.95	717.38	704.72
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	692.06	681.05	665.08	650.77	636.45	606.17	528.54	429.99	335.29
90.0	689.86	678.29	662.88	649.67	636.45	603.97	530.19	422.28	318.23
180.0	705.88	691.78	679.95	663.93	650.99	635.90	620.32	571.16	491.98
270.0	704.61	691.67	680.33	669.10	653.63	640.36	626.32	573.91	492.48
360.0	692.06	681.05	665.08	650.77	636.45	606.17	528.54	429.99	335.29
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	287.39	134.34	60.45	23.23	19.38	15.14	11.73	9.36	8.81
90.0	282.99	132.14	45.92	22.24	18.50	14.04	11.40	8.92	8.64
180.0	376.86	282.05	189.17	86.22	33.58	20.54	16.24	12.61	10.35
270.0	387.38	279.36	185.87	91.94	33.25	20.48	17.23	12.99	10.90
360.0	287.39	134.34	60.45	23.23	19.38	15.14	11.73	9.36	8.81
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	8.53	8.37	8.20	8.09	7.93	7.82	7.76	7.65	7.60
90.0	8.42	8.31	8.15	8.09	7.93	7.82	7.71	7.65	7.60
180.0	8.70	8.48	8.37	8.20	8.04	7.93	7.82	7.71	7.65
270.0	8.92	8.64	8.42	8.26	8.09	7.93	7.82	7.71	7.65
360.0	8.53	8.37	8.20	8.09	7.93	7.82	7.76	7.65	7.60
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.54	7.49	7.43	7.32	7.32	7.27	7.27	7.21	7.16
90.0	7.54	7.49	7.38	7.38	7.32	7.32	7.21	7.16	7.16
180.0	7.54	7.49	7.43	7.38	7.32	7.32	7.21	7.21	7.16
270.0	7.60	7.49	7.43	7.32	7.32	7.27	7.21	7.16	7.16
360.0	7.54	7.49	7.43	7.32	7.32	7.27	7.27	7.21	7.16
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.10	7.16	7.10	7.10	7.05	7.05	6.99	6.99	7.05
90.0	7.16	7.16	7.10	7.10	7.05	7.05	7.05	7.05	6.99
180.0	7.16	7.16	7.05	7.05	7.05	6.99	7.05	6.99	6.99
270.0	7.10	7.10	7.10	7.10	6.99	6.99	7.05	6.99	6.99
360.0	7.10	7.16	7.10	7.10	7.05	7.05	6.99	6.99	7.05

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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	6.99	6.99	6.99	6.94	6.94	6.88	6.94	6.94	6.94	
90.0	6.94	6.94	6.94	6.99	6.99	6.94	6.88	6.88	6.88	
180.0	6.94	6.94	6.94	6.94	6.94	6.94	6.88	6.88	6.88	
270.0	6.94	6.94	6.94	6.94	6.94	6.94	6.88	6.88	6.88	
360.0	6.99	6.99	6.99	6.94	6.94	6.88	6.94	6.94	6.94	
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0	
0.0	6.88	6.94	6.94	6.88	6.88	6.94	6.88	6.83	6.88	
90.0	6.94	6.88	6.94	6.83	6.88	6.83	6.88	6.88	6.83	
180.0	6.88	6.88	6.88	6.88	6.88	6.88	6.83	6.83	6.83	
270.0	6.88	6.88	6.88	6.88	6.88	6.88	6.83	6.83	6.88	
360.0	6.88	6.94	6.94	6.88	6.88	6.94	6.88	6.83	6.88	
C/γ(°)	90.0									
0.0	6.88									
90.0	6.83									
180.0	6.83									
270.0	6.83									
360.0	6.88									