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Nata

LumCAT: LM01D01560BY

Luminaire:

Report No: 200417-B012

Voltage(V): 24.6800

Test No: 200417-C012

Current(A): 0.1310

LampCAT: OSRAM DURIS S8

Power (W): 3.2330

Lamp flux(lm): 381.0

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): 359.95

Efficiency(%): 94.48%

Lumens(lm)/Power(W): 111.34

Central intensity(cd): 264.305

Maximum intensity(cd): 264.305

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=64.4

[C90/270]Total=64.4

Field angle(10%Imax): [C0/180]Total=117.2

[C90/270]Total=117.2

Maximum s/h(1/2): C0_180=0.95 C90_270=0.95

Maximum s/h(1/4): C0_180=0.97 C90_270=0.97

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 94.48%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 89.342%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	264.305	0.000	0	.000%	.000%
1.0	264.277	0.253	0.253	.066%	.070%
2.0	264.199	0.759	1.011	.199%	.281%
3.0	263.813	1.263	2.274	.331%	.632%
4.0	263.229	1.764	4.038	.463%	1.122%
5.0	262.343	2.261	6.299	.593%	1.750%
6.0	261.366	2.752	9.052	.722%	2.515%
7.0	260.086	3.237	12.288	.850%	3.414%
8.0	258.525	3.712	16	.974%	4.445%
9.0	256.591	4.175	20.175	1.096%	5.605%
10.0	254.109	4.622	24.796	1.213%	6.889%
11.0	251.508	5.052	29.848	1.326%	8.292%
12.0	248.716	5.468	35.317	1.435%	9.811%
13.0	245.384	5.864	41.18	1.539%	11.441%
14.0	241.629	6.234	47.414	1.636%	13.172%
15.0	237.705	6.581	53.995	1.727%	15.001%
16.0	233.304	6.902	60.896	1.811%	16.918%
17.0	228.291	7.188	68.084	1.887%	18.915%
18.0	223.228	7.445	75.529	1.954%	20.983%
19.0	218.271	7.681	83.21	2.016%	23.117%
20.0	212.393	7.882	91.093	2.069%	25.307%
21.0	206.459	8.043	99.135	2.111%	27.541%
22.0	200.784	8.184	107.319	2.148%	29.815%
23.0	194.513	8.294	115.613	2.177%	32.119%
24.0	187.685	8.356	123.97	2.193%	34.441%
25.0	181.315	8.390	132.36	2.202%	36.772%
26.0	174.600	8.401	140.761	2.205%	39.106%
27.0	167.955	8.381	149.142	2.200%	41.434%
28.0	161.051	8.330	157.472	2.186%	43.748%
29.0	154.062	8.244	165.716	2.164%	46.038%
30.0	147.438	8.140	173.856	2.137%	48.300%
31.0	140.435	8.011	181.868	2.103%	50.526%
32.0	133.425	7.846	189.713	2.059%	52.705%
33.0	127.005	7.672	197.386	2.014%	54.837%
34.0	120.466	7.489	204.875	1.966%	56.917%
35.0	113.695	7.272	212.147	1.909%	58.938%
36.0	107.473	7.042	219.189	1.848%	60.894%
37.0	101.454	6.814	226.003	1.788%	62.787%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	95.273	6.566	232.57	1.723%	64.611%
39.0	89.177	6.296	238.865	1.652%	66.360%
40.0	84.030	6.041	244.906	1.586%	68.039%
41.0	78.785	5.798	250.704	1.522%	69.649%
42.0	73.828	5.545	256.249	1.455%	71.190%
43.0	69.103	5.295	261.543	1.390%	72.661%
44.0	64.758	5.052	266.596	1.326%	74.064%
45.0	60.652	4.820	271.415	1.265%	75.403%
46.0	56.777	4.592	276.008	1.205%	76.679%
47.0	53.037	4.368	280.375	1.146%	77.893%
48.0	49.866	4.160	284.535	1.092%	79.048%
49.0	46.786	3.969	288.504	1.042%	80.151%
50.0	43.615	3.769	292.273	.989%	81.198%
51.0	41.027	3.581	295.854	.940%	82.193%
52.0	38.714	3.422	299.276	.898%	83.143%
53.0	36.246	3.261	302.537	.856%	84.049%
54.0	34.073	3.099	305.636	.813%	84.910%
55.0	32.288	2.962	308.599	.777%	85.733%
56.0	30.473	2.836	311.435	.744%	86.521%
57.0	28.723	2.707	314.141	.710%	87.273%
58.0	27.253	2.589	316.73	.679%	87.992%
59.0	25.833	2.482	319.211	.651%	88.682%
60.0	24.490	2.377	321.589	.624%	89.342%
61.0	23.245	2.278	323.867	.598%	89.975%
62.0	22.071	2.184	326.051	.573%	90.582%
63.0	21.016	2.096	328.146	.550%	91.164%
64.0	19.941	2.010	330.156	.527%	91.722%
65.0	18.942	1.924	332.08	.505%	92.257%
66.0	18.070	1.847	333.927	.485%	92.770%
67.0	17.234	1.775	335.702	.466%	93.263%
68.0	16.397	1.704	337.406	.447%	93.736%
69.0	15.673	1.636	339.042	.429%	94.191%
70.0	14.991	1.575	340.616	.413%	94.628%
71.0	14.302	1.514	342.13	.397%	95.049%
72.0	13.627	1.452	343.583	.381%	95.452%
73.0	13.029	1.394	344.976	.366%	95.840%
74.0	12.452	1.340	346.316	.352%	96.212%
75.0	11.855	1.284	347.6	.337%	96.569%

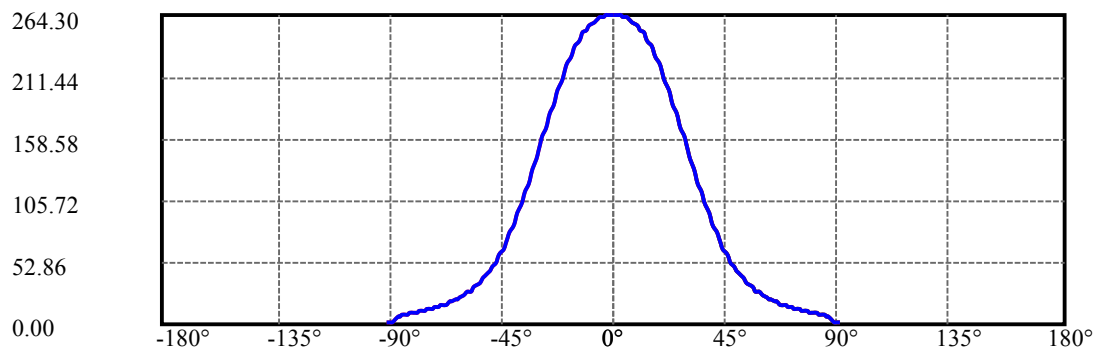
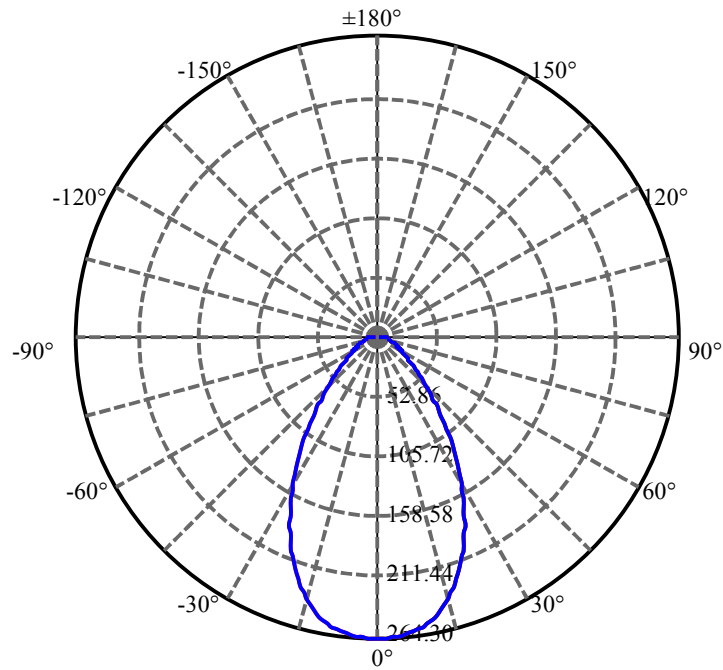
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.348	1.232	348.832	.323%	96.911%
77.0	10.891	1.186	350.018	.311%	97.240%
78.0	10.448	1.142	351.16	.300%	97.558%
79.0	10.020	1.100	352.26	.289%	97.863%
80.0	9.654	1.061	353.321	.278%	98.158%
81.0	9.253	1.022	354.343	.268%	98.442%
82.0	8.873	0.983	355.326	.258%	98.715%
83.0	8.409	0.940	356.265	.247%	98.976%
84.0	7.868	0.887	357.152	.233%	99.222%
85.0	7.186	0.822	357.974	.216%	99.451%
86.0	6.131	0.728	358.702	.191%	99.653%
87.0	3.881	0.548	359.25	.144%	99.805%
88.0	2.208	0.334	359.583	.088%	99.898%
89.0	1.526	0.205	359.788	.054%	99.955%
90.0	1.455	0.163	359.951	.043%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	173.86	45.63%	48.30%
0-40	244.91	64.28%	68.04%
0-60	321.59	84.41%	89.34%
0-90	359.79	94.43%	99.95%
0-120	359.79	94.43%	99.95%
0-180	359.95	94.48%	100.00%
60-90	40.58	10.65%	11.27%
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%
0-48.86	287.96	75.58%	80.00%

ZONAL LUMEN SUMMARY

0-10	24.80
10-20	66.30
20-30	82.76
30-40	71.05
40-50	47.37
50-60	29.32
60-70	19.03
70-80	12.70
80-90	6.47
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: —————

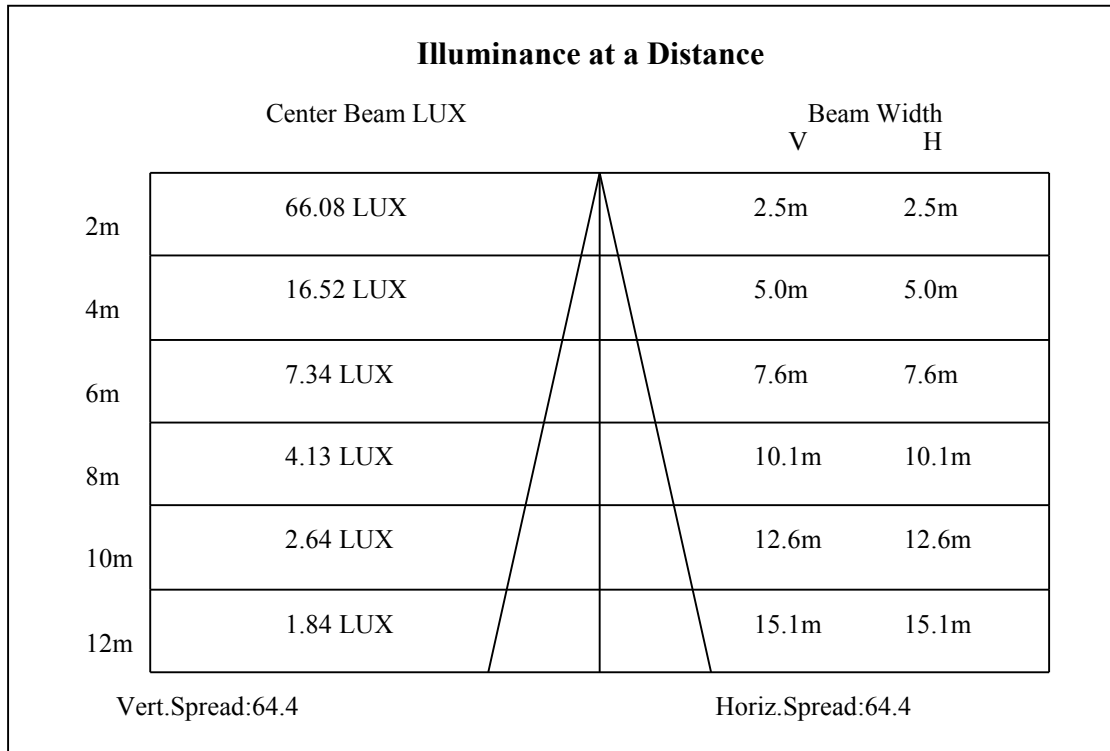
C90/C270: —————

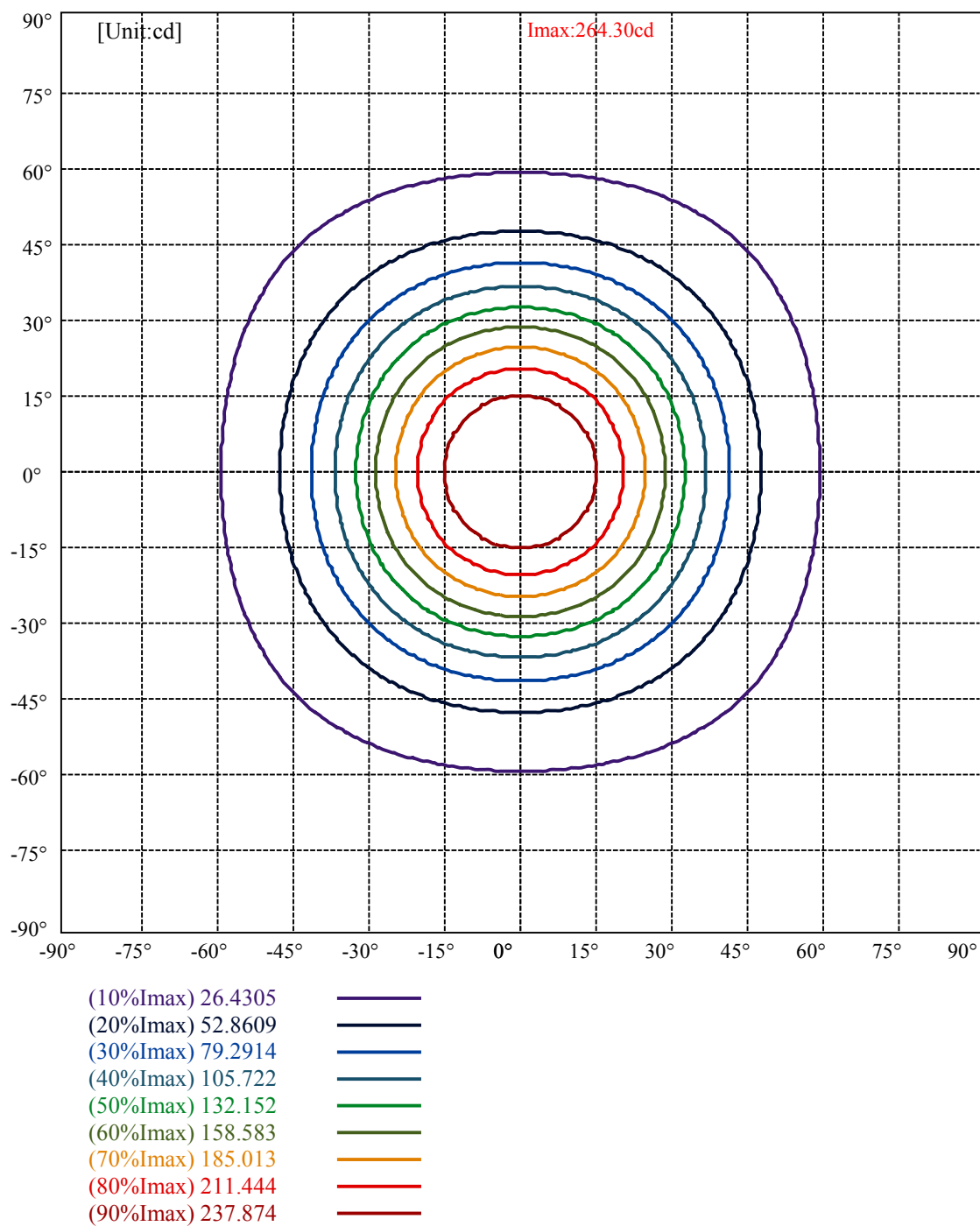
Field angle(10%Imax):C0/180Left:58.6 Right:58.6

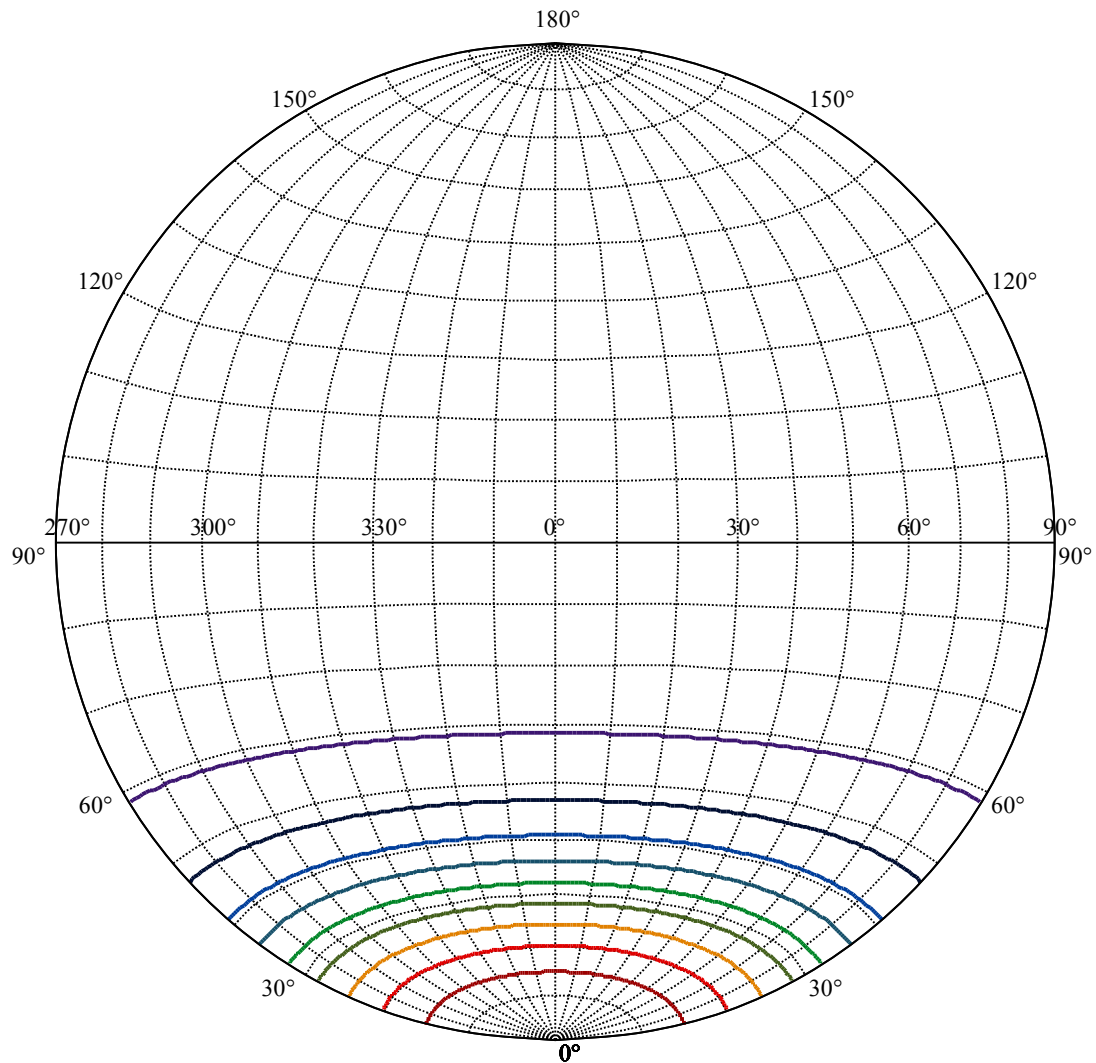
:C90/270Left:58.6 Right:58.6

Beam Angle(50%Imax):C0/180Left:32.2 Right:32.2

:C90/270Left:32.2 Right:32.2







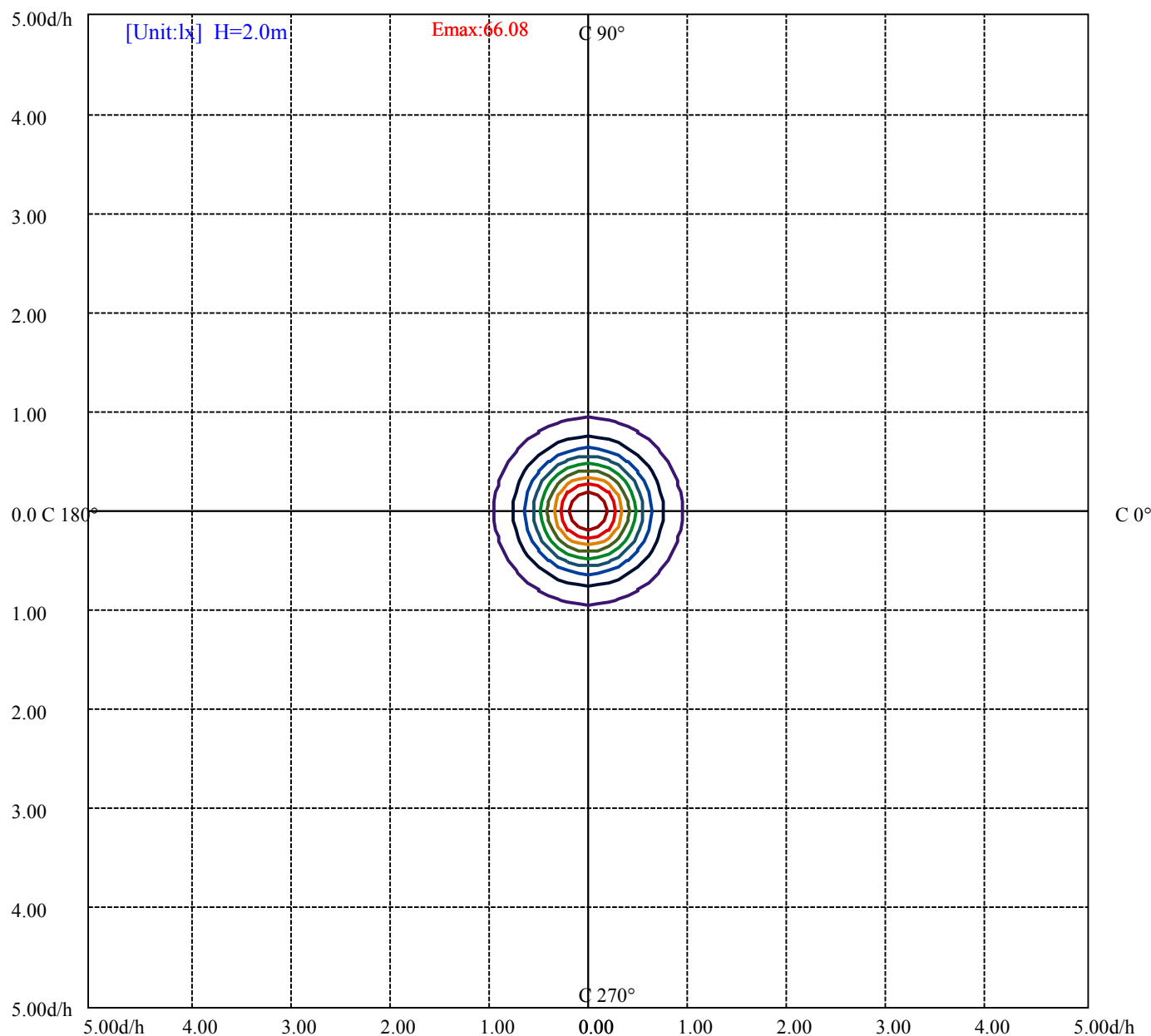
House

[Unit:cd]

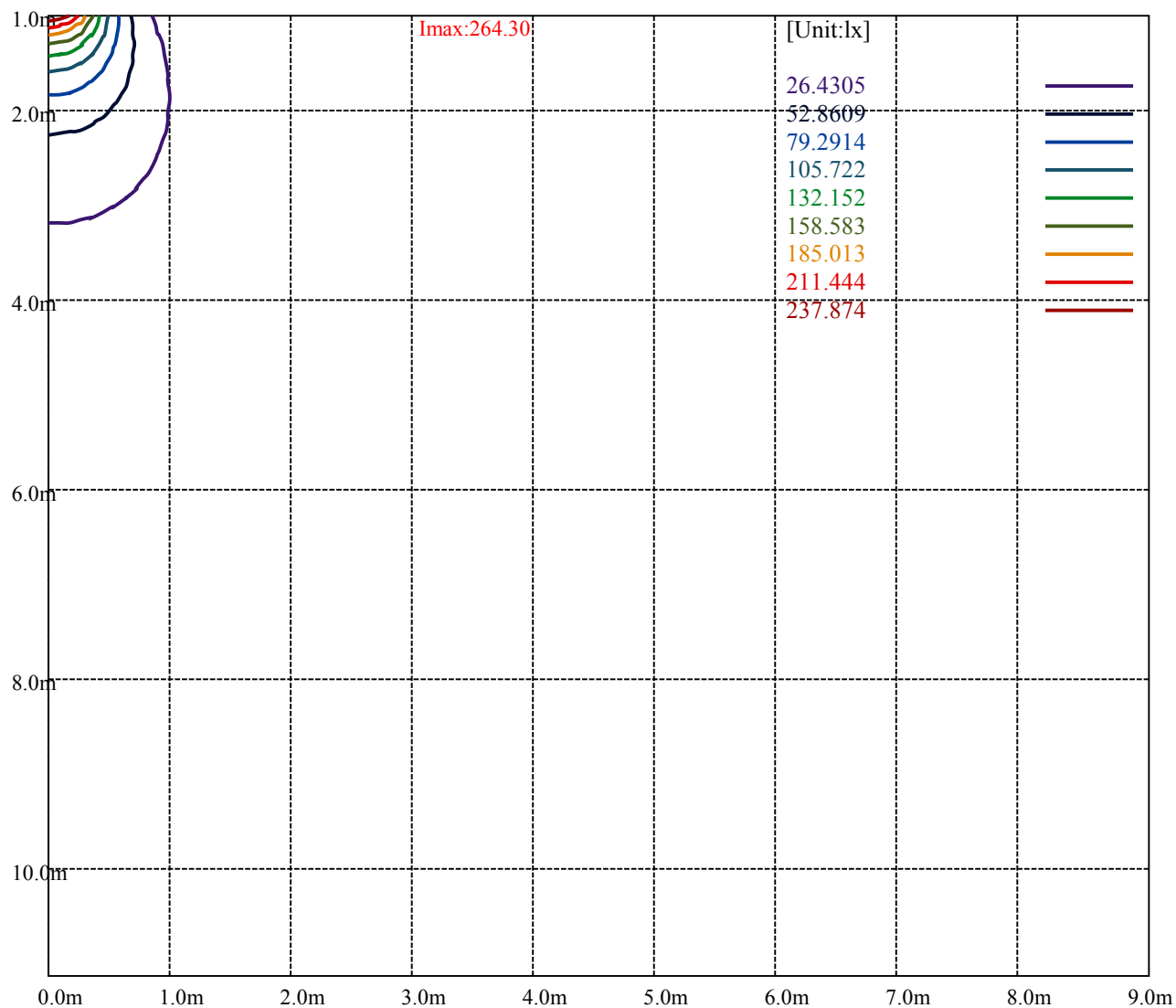
Road

Imax:264.30
 (10%Imax) 26.4305
 (20%Imax) 52.8609
 (30%Imax) 79.2914
 (40%Imax) 105.722
 (50%Imax) 132.152
 (60%Imax) 158.583
 (70%Imax) 185.013
 (80%Imax) 211.444
 (90%Imax) 237.874





(10%Emax)	6.607625	—
(20%Emax)	13.21523	—
(30%Emax)	19.82285	—
(40%Emax)	26.4305	—
(50%Emax)	33.038	—
(60%Emax)	39.64575	—
(70%Emax)	46.25325	—
(80%Emax)	52.861	—
(90%Emax)	59.4685	—



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

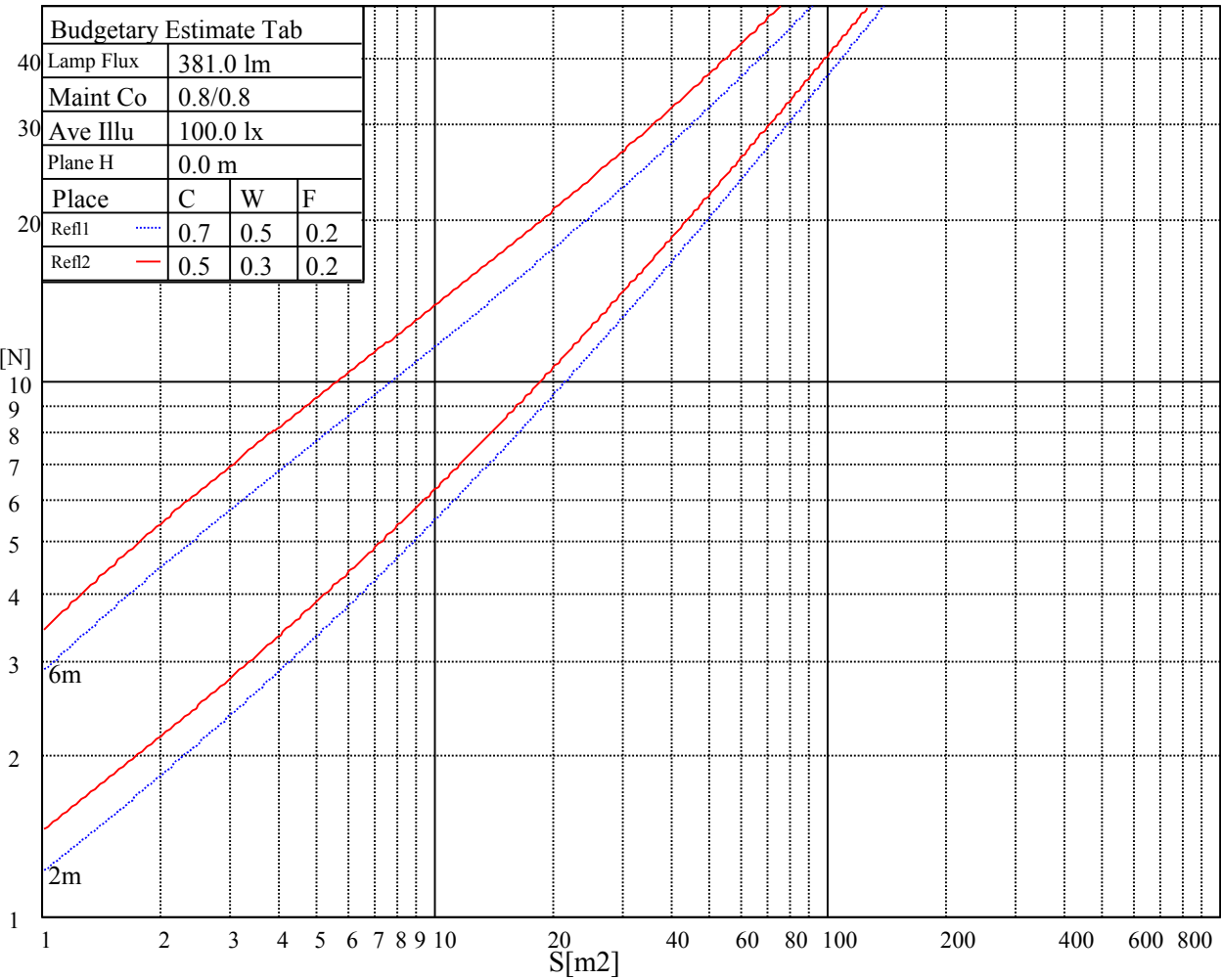
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

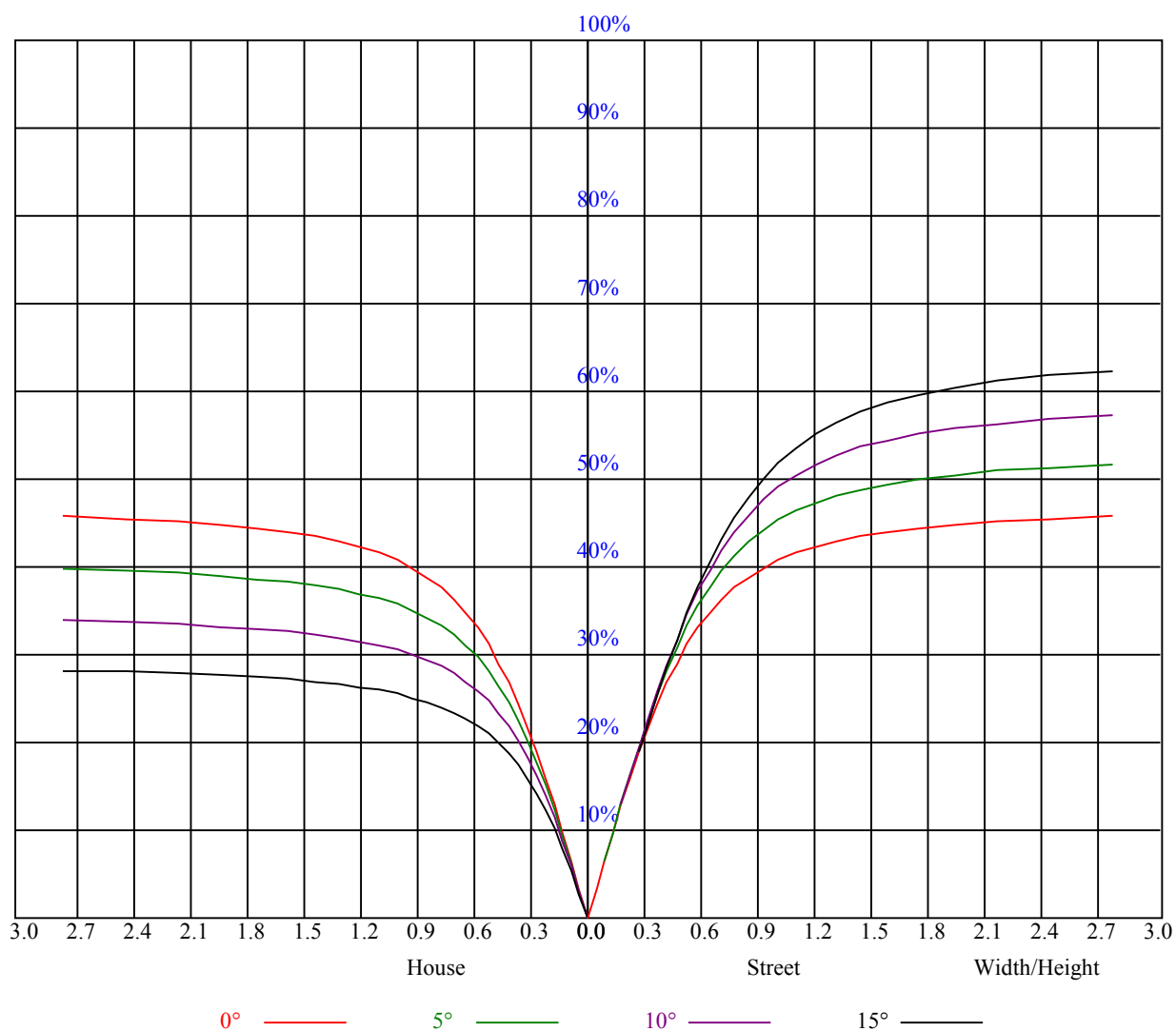
C0 ———

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	1.12	1.12	1.12	1.10	1.10	1.10	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.94
1	1.01	0.98	0.95	0.99	0.96	0.93	0.95	0.93	0.90	0.91	0.89	0.88	0.88	0.86	0.85	0.83
2	0.91	0.86	0.82	0.89	0.85	0.81	0.86	0.82	0.79	0.83	0.80	0.77	0.80	0.78	0.75	0.74
3	0.83	0.76	0.71	0.81	0.75	0.71	0.79	0.74	0.70	0.76	0.72	0.68	0.74	0.70	0.67	0.66
4	0.75	0.69	0.63	0.74	0.68	0.63	0.72	0.67	0.62	0.70	0.65	0.61	0.68	0.64	0.61	0.59
5	0.69	0.62	0.57	0.68	0.62	0.57	0.66	0.61	0.56	0.65	0.60	0.56	0.63	0.59	0.55	0.53
6	0.64	0.57	0.52	0.63	0.56	0.51	0.61	0.55	0.51	0.60	0.55	0.51	0.59	0.54	0.50	0.49
7	0.59	0.52	0.47	0.58	0.52	0.47	0.57	0.51	0.47	0.56	0.50	0.46	0.55	0.50	0.46	0.44
8	0.55	0.48	0.43	0.54	0.48	0.43	0.53	0.47	0.43	0.52	0.47	0.43	0.51	0.46	0.43	0.41
9	0.51	0.44	0.40	0.51	0.44	0.40	0.50	0.44	0.40	0.49	0.43	0.40	0.48	0.43	0.39	0.38
10	0.48	0.41	0.37	0.47	0.41	0.37	0.47	0.41	0.37	0.46	0.40	0.37	0.45	0.40	0.37	0.35



Nata LM01D01560BY

Intensity data(cd)										Appendix Page: 16 Total:18	
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0		
0.0	264.71	264.71	265.11	265.11	264.71	264.09	263.36	262.24	260.72		
45.0	265.16	265.84	266.40	266.18	265.61	265.16	264.60	263.59	262.07		
90.0	263.70	264.49	264.88	264.83	264.54	263.87	263.08	261.79	259.88		
135.0	263.64	264.43	264.83	265.11	265.16	264.66	263.98	263.31	262.41		
180.0	264.71	264.54	264.32	264.32	264.32	263.64	262.86	261.73	260.44		
225.0	265.16	264.60	263.98	262.97	262.29	261.06	260.10	259.03	257.57		
270.0	263.70	262.58	261.62	260.38	258.64	257.06	255.15	253.35	251.27		
315.0	263.64	263.03	262.46	261.62	260.55	259.20	257.79	255.66	253.86		
360.0	264.71	264.71	265.11	265.11	264.71	264.09	263.36	262.24	260.72		
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0		
0.0	259.37	257.46	255.09	252.84	250.03	246.77	243.23	239.18	234.00		
45.0	260.04	258.08	255.60	252.96	249.81	246.21	242.66	238.84	233.21		
90.0	257.46	254.19	251.27	247.44	244.13	239.91	235.13	230.68	225.90		
135.0	260.89	259.14	257.18	254.59	251.55	248.29	244.24	239.85	235.63		
180.0	259.14	257.01	254.59	252.11	248.79	244.91	241.26	237.43	231.75		
225.0	255.94	253.41	250.37	247.78	244.52	240.98	237.49	233.55	228.09		
270.0	248.34	244.69	241.59	238.28	233.89	229.78	225.23	218.81	213.75		
315.0	251.55	248.91	246.38	243.73	240.36	236.19	232.43	228.09	223.99		
360.0	259.37	257.46	255.09	252.84	250.03	246.77	243.23	239.18	234.00		
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0		
0.0	229.11	224.55	218.48	213.24	208.13	201.49	194.63	188.55	181.41		
45.0	228.77	224.10	218.14	212.91	207.34	200.87	193.67	187.37	180.39		
90.0	219.54	214.43	208.80	202.11	196.76	191.59	185.29	179.16	173.59		
135.0	230.23	225.51	219.88	213.98	208.35	202.44	194.63	188.38	181.91		
180.0	226.91	221.63	215.49	208.97	202.78	196.03	189.06	182.64	175.39		
225.0	223.48	218.53	212.63	206.21	200.19	193.16	186.02	179.72	172.46		
270.0	208.74	203.85	197.61	192.43	187.14	180.84	174.54	168.81	162.00		
315.0	219.04	213.58	208.13	201.83	195.58	189.68	183.66	177.89	169.65		
360.0	229.11	224.55	218.48	213.24	208.13	201.49	194.63	188.55	181.41		
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0		
0.0	174.94	167.46	159.92	153.28	146.08	138.94	132.53	126.23	118.41		
45.0	173.93	166.89	159.30	152.49	144.62	137.08	130.44	123.98	116.04		
90.0	167.23	161.49	154.74	147.66	141.53	134.55	127.58	121.44	115.14		
135.0	173.93	167.74	161.10	153.39	145.35	139.05	131.68	123.98	117.62		
180.0	168.86	161.27	153.39	146.53	139.89	131.63	125.16	118.69	111.09		
225.0	166.11	158.68	151.48	145.13	138.88	131.06	124.82	118.86	111.60		
270.0	155.42	149.74	143.55	138.15	132.08	126.06	120.88	114.98	109.24		
315.0	163.24	155.14	149.01	142.88	135.06	129.04	122.96	115.59	110.42		
360.0	174.94	167.46	159.92	153.28	146.08	138.94	132.53	126.23	118.41		
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0		
0.0	112.28	106.09	100.01	92.93	87.75	82.18	76.89	72.45	68.18		
45.0	110.08	104.01	97.26	90.96	85.61	79.93	74.59	70.09	65.31		
90.0	107.66	101.87	96.19	89.33	84.15	79.03	73.69	68.63	64.52		
135.0	110.93	104.74	98.10	91.63	86.51	81.23	75.21	70.71	66.38		
180.0	105.13	99.06	92.59	86.63	81.62	76.16	71.66	66.83	62.33		
225.0	105.86	100.18	93.38	88.09	83.31	77.51	73.63	68.91	63.96		
270.0	103.89	98.78	92.48	87.53	82.91	77.85	73.01	68.85	64.41		
315.0	103.95	96.92	92.19	86.34	80.38	76.39	71.94	66.38	63.00		
360.0	112.28	106.09	100.01	92.93	87.75	82.18	76.89	72.45	68.18		

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	63.68	59.34	55.35	52.09	48.94	45.62	42.64	40.22	37.69
45.0	61.31	57.15	53.38	50.23	47.19	43.88	41.34	39.04	36.23
90.0	60.02	56.48	52.71	49.16	46.24	43.14	40.28	37.91	35.78
135.0	61.43	57.77	54.39	50.85	47.48	44.78	41.85	39.49	36.96
180.0	58.61	54.73	51.13	48.21	45.51	42.30	39.94	37.74	35.27
225.0	60.69	56.70	52.59	49.78	46.86	43.26	41.06	38.87	36.56
270.0	60.24	56.76	53.16	50.06	46.74	43.59	41.12	39.04	36.11
315.0	59.23	55.29	51.58	48.54	45.34	42.36	39.99	37.41	35.38
360.0	63.68	59.34	55.35	52.09	48.94	45.62	42.64	40.22	37.69
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	35.33	33.36	31.67	29.53	28.07	26.61	25.14	23.79	22.67
45.0	34.26	32.46	30.77	28.86	27.39	26.10	24.58	23.46	22.33
90.0	33.30	31.56	29.93	28.18	26.66	25.37	23.96	22.67	21.60
135.0	34.71	32.85	30.99	29.19	27.73	26.38	24.86	23.68	22.56
180.0	33.36	31.67	29.81	28.35	27.00	25.43	24.47	23.23	21.88
225.0	34.31	32.57	30.71	28.91	27.45	25.99	24.75	23.46	22.22
270.0	34.20	32.63	30.32	28.74	27.51	25.82	24.41	23.34	22.05
315.0	33.13	31.22	29.59	28.01	26.21	24.98	23.74	22.33	21.26
360.0	35.33	33.36	31.67	29.53	28.07	26.61	25.14	23.79	22.67
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	21.49	20.36	19.46	18.45	17.61	16.76	16.03	15.36	14.63
45.0	21.15	20.03	19.18	18.17	17.38	16.65	15.86	15.24	14.68
90.0	20.48	19.46	18.45	17.55	16.76	16.03	15.19	14.51	13.95
135.0	21.43	20.25	19.24	18.39	17.38	16.59	15.98	15.19	14.57
180.0	21.04	20.03	18.90	18.23	17.44	16.48	15.92	15.36	14.68
225.0	21.21	20.14	19.13	18.28	17.55	16.59	15.92	15.30	14.74
270.0	21.04	20.08	19.01	18.17	17.38	16.43	15.75	15.13	14.34
315.0	20.31	19.18	18.17	17.33	16.37	15.64	14.74	13.84	12.83
360.0	21.49	20.36	19.46	18.45	17.61	16.76	16.03	15.36	14.63
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	14.06	13.50	13.11	12.54	12.15	11.76	11.31	10.86	10.63
45.0	14.01	13.56	13.22	12.66	12.26	12.04	11.70	11.36	11.08
90.0	13.28	12.77	12.26	11.64	11.19	10.86	10.41	10.07	9.73
135.0	14.06	13.56	13.11	12.66	12.21	11.93	11.48	11.14	10.91
180.0	14.06	13.56	12.94	12.38	11.93	11.42	10.97	10.46	10.07
225.0	14.06	13.56	12.99	12.54	12.15	11.70	11.31	10.97	10.58
270.0	13.78	13.16	12.66	12.15	11.76	11.25	10.91	10.52	10.13
315.0	11.70	10.58	9.34	8.27	7.14	6.19	5.51	4.78	4.11
360.0	14.06	13.50	13.11	12.54	12.15	11.76	11.31	10.86	10.63
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.18	9.68	9.17	8.49	7.99	7.43	5.51	2.93	1.74
45.0	10.69	10.35	9.96	9.34	8.38	6.98	4.22	2.19	1.46
90.0	9.28	9.00	8.61	8.16	7.31	6.24	3.60	2.08	1.46
135.0	10.63	10.29	10.07	9.39	8.38	7.03	4.50	2.36	1.58
180.0	9.62	9.17	8.44	7.99	7.54	5.29	2.93	1.80	1.46
225.0	10.18	9.79	9.17	8.44	7.88	6.92	4.11	2.19	1.46
270.0	9.79	9.45	8.94	8.49	7.59	6.98	4.33	2.48	1.58
315.0	3.66	3.26	2.93	2.64	2.42	2.19	1.86	1.63	1.46
360.0	10.18	9.68	9.17	8.49	7.99	7.43	5.51	2.93	1.74

Intensity data(cd)

Appendix Page: 18 Total:18

C/γ(°)	90.0
0.0	1.46
45.0	1.46
90.0	1.46
135.0	1.46
180.0	1.46
225.0	1.46
270.0	1.41
315.0	1.46
360.0	1.46