



NATA LIGHTING CO.,LTD.  
www.nata.cn  
Email:info@nata.com  
Tel:+86-750-3770000 Fax:+86-750-3771111  
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

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## Nata

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LumCAT: 2-1259-N  
Luminaire: 92.70.065.00+92.70.059.00  
Report No: NATA0100  
Test No: GC2018091118  
LampCAT: LUMINUS CXM-11-AC30  
Lamp flux(lm): 2557.0  
Number of Lamps: 1  
Length(mm): 70  
Phm Type: C

Voltage(V): 34.7000  
Current(A): 0.5000  
Power (W): 17.3500  
PF: 0.0000  
Ballast type: DC  
Width(mm): 70  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 1968.03  
Efficiency(%): 76.97%  
Lumens(lm)/Power(W): 113.65  
Central intensity(cd): 4201.031  
Maximum intensity(cd): 4201.031  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=36.3  
                                  [C90/270]Total=36.3  
Field angle(10%Imax): [C0/180]Total=63.4  
                                  [C90/270]Total=63.4  
Maximum s/h(1/2): C0\_180=0.60 C90\_270=0.60  
Maximum s/h(1/4): C0\_180=0.58 C90\_270=0.58  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 77.11%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.185%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4201.031	4.020	4.02	.157%	.204%
2.0	4186.055	32.040	36.06	1.253%	1.832%
4.0	4137.539	63.298	99.358	2.475%	5.049%
6.0	4035.586	92.514	191.872	3.618%	9.749%
8.0	3867.328	118.041	309.913	4.616%	15.747%
10.0	3613.570	137.617	447.53	5.382%	22.740%
12.0	3319.313	151.353	598.883	5.919%	30.431%
14.0	2949.750	156.504	755.387	6.121%	38.383%
16.0	2551.852	154.262	909.649	6.033%	46.221%
18.0	2131.664	144.466	1054.115	5.650%	53.562%
20.0	1724.414	129.348	1183.463	5.059%	60.134%
22.0	1342.181	110.269	1293.731	4.312%	65.737%
24.0	1033.488	92.190	1385.921	3.605%	70.422%
26.0	809.480	77.824	1463.745	3.044%	74.376%
28.0	634.866	65.367	1529.112	2.556%	77.698%
30.0	503.184	55.178	1584.29	2.158%	80.501%
32.0	404.156	46.970	1631.26	1.837%	82.888%
34.0	336.734	41.297	1672.556	1.615%	84.986%
36.0	285.427	36.794	1709.351	1.439%	86.856%
38.0	247.366	33.400	1742.751	1.306%	88.553%
40.0	208.772	29.431	1772.182	1.151%	90.049%
42.0	174.354	25.586	1797.768	1.001%	91.349%
44.0	144.977	22.087	1819.855	.864%	92.471%
46.0	120.572	19.022	1838.876	.744%	93.438%
48.0	101.166	16.488	1855.365	.645%	94.275%
50.0	84.277	14.159	1869.523	.554%	94.995%
52.0	71.290	12.320	1881.844	.482%	95.621%
54.0	59.576	10.570	1892.414	.413%	96.158%
56.0	50.266	9.139	1901.554	.357%	96.622%
58.0	42.448	7.895	1909.448	.309%	97.023%
60.0	35.789	6.797	1916.246	.266%	97.369%
62.0	30.241	5.856	1922.102	.229%	97.666%
64.0	26.177	5.160	1927.262	.202%	97.929%
66.0	23.723	4.753	1932.015	.186%	98.170%
68.0	21.881	4.449	1936.464	.174%	98.396%
70.0	20.363	4.196	1940.661	.164%	98.609%
72.0	18.858	3.933	1944.594	.154%	98.809%
74.0	17.508	3.691	1948.285	.144%	98.997%

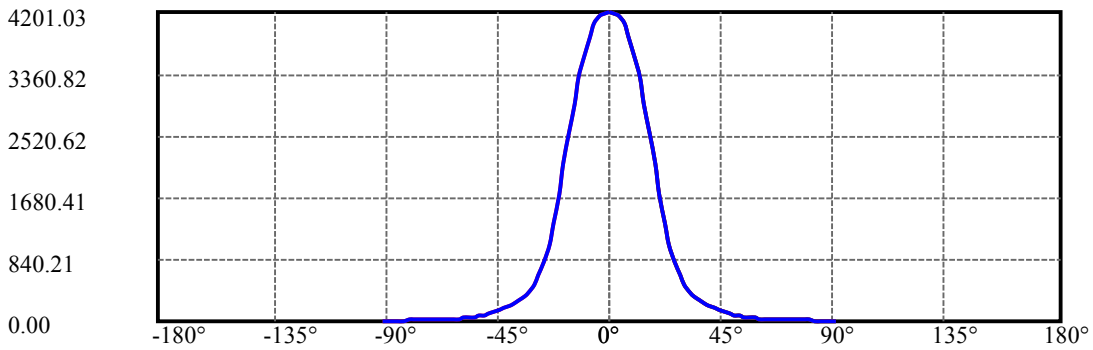
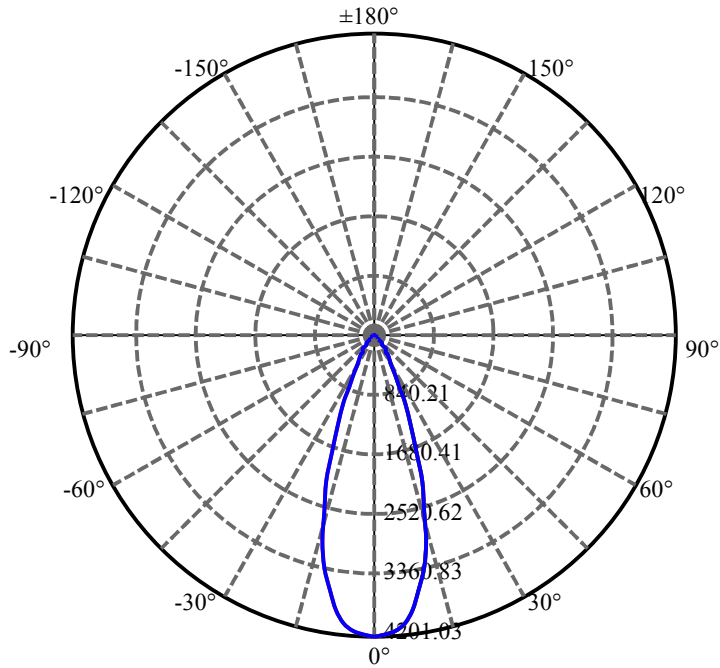
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	16.165	3.440	1951.725	.135%	99.172%
78.0	14.885	3.193	1954.918	.125%	99.334%
80.0	13.528	2.922	1957.84	.114%	99.482%
82.0	12.319	2.675	1960.515	.105%	99.618%
84.0	11.102	2.422	1962.937	.095%	99.741%
86.0	9.921	2.171	1965.107	.085%	99.852%
88.0	9.007	1.974	1967.082	.077%	99.952%
90.0	8.620	0.945	1968.027	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1584.29	61.96%	80.50%
0-40	1772.18	69.31%	90.05%
0-60	1916.25	74.94%	97.37%
0-90	1967.08	76.93%	99.95%
0-120	1967.08	76.93%	99.95%
0-180	1968.03	76.97%	100.00%
60-90	57.63	2.25%	2.93%
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%
0-29.64	1574.42	61.57%	80.00%

ZONAL LUMEN SUMMARY

0-10	447.53
10-20	735.93
20-30	400.83
30-40	187.89
40-50	97.34
50-60	46.72
60-70	24.41
70-80	17.18
80-90	9.24
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: —————

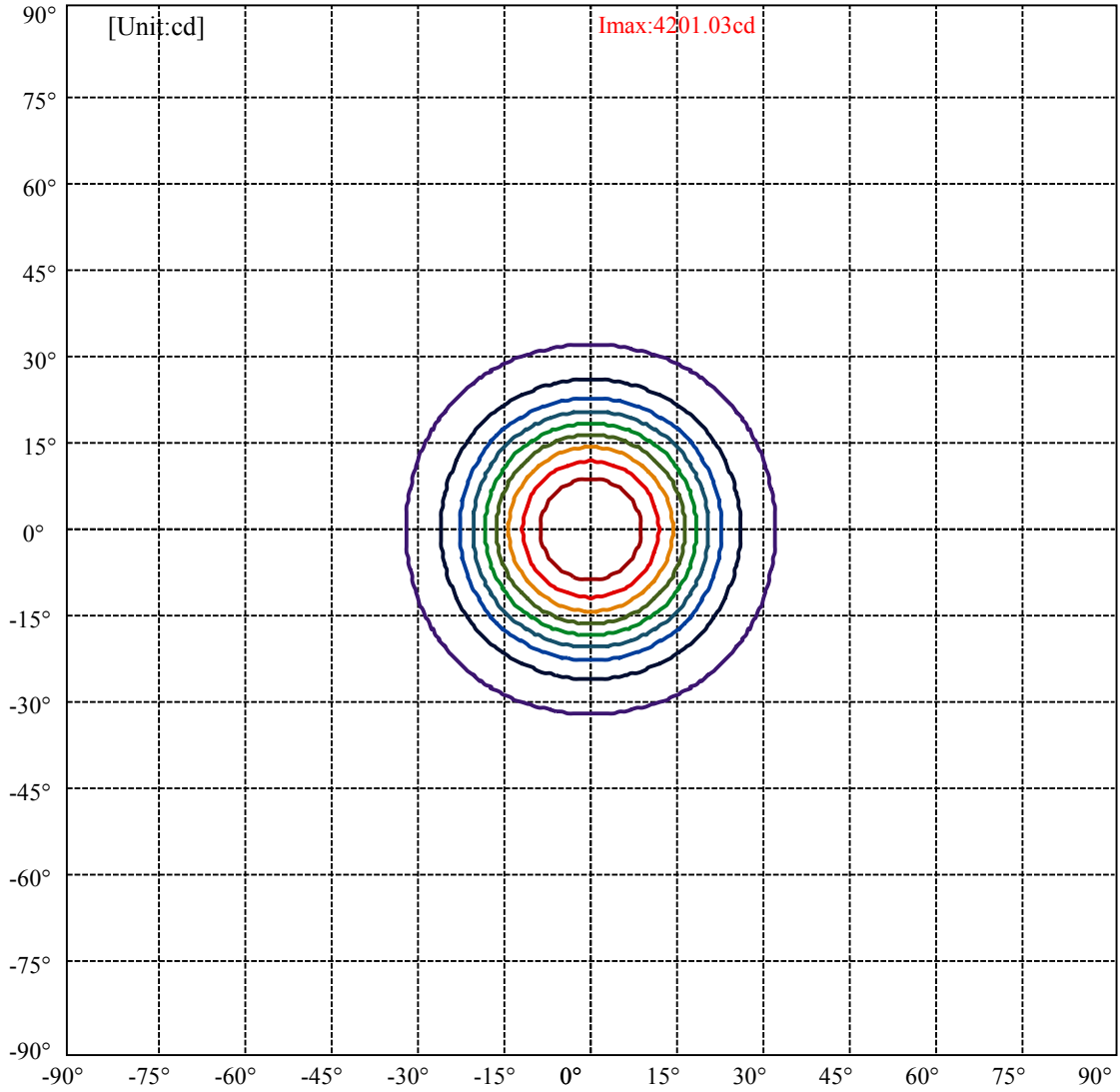
Field angle(10%Imax):C0/180Left:31.7 Right:31.7

:C90/270Left:31.7 Right:31.7

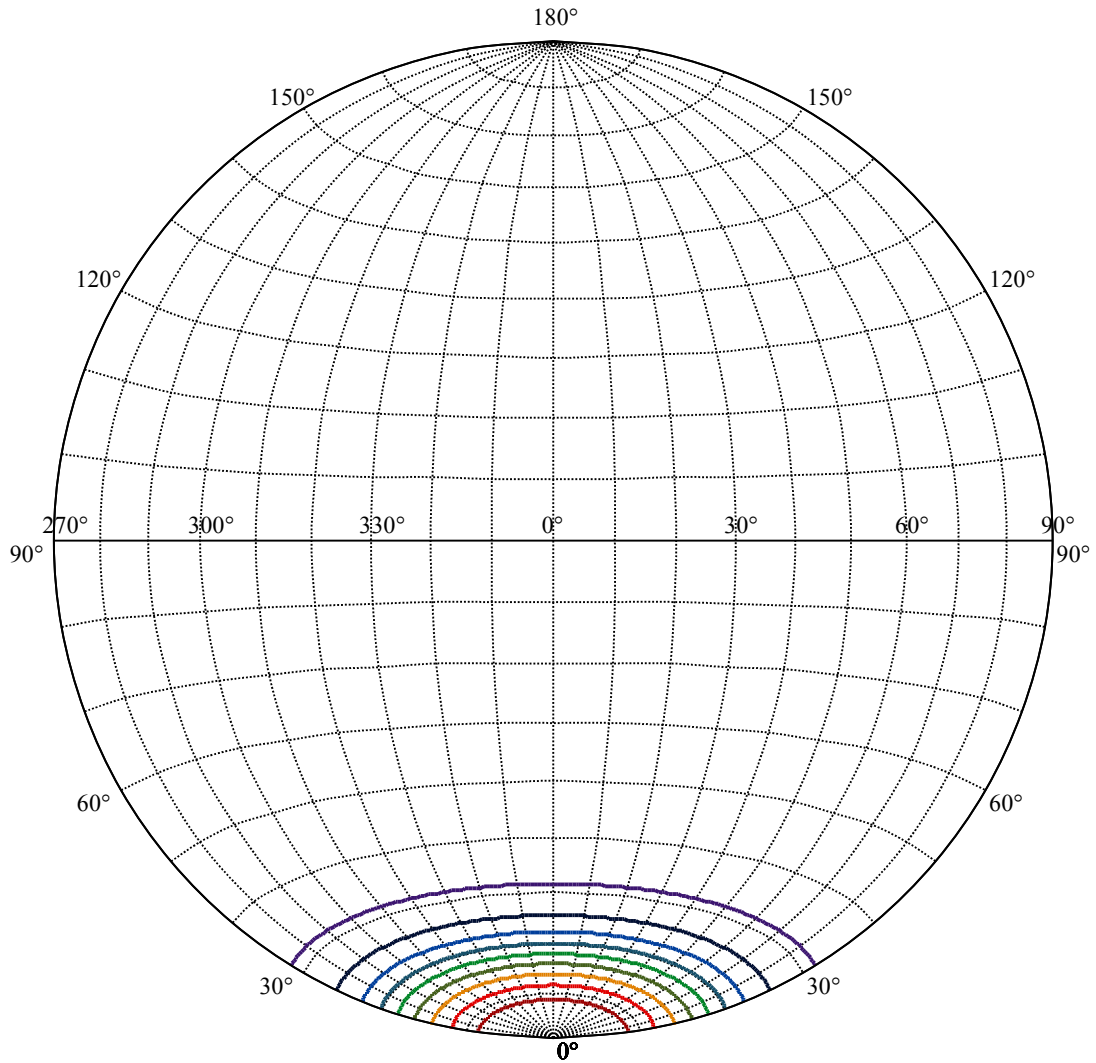
Beam Angle(50%Imax):C0/180Left:18.2 Right:18.2

:C90/270Left:18.2 Right:18.2





(10%Imax) 420.103	—
(20%Imax) 840.206	—
(30%Imax) 1260.31	—
(40%Imax) 1680.41	—
(50%Imax) 2100.52	—
(60%Imax) 2520.62	—
(70%Imax) 2940.72	—
(80%Imax) 3360.82	—
(90%Imax) 3780.93	—



House

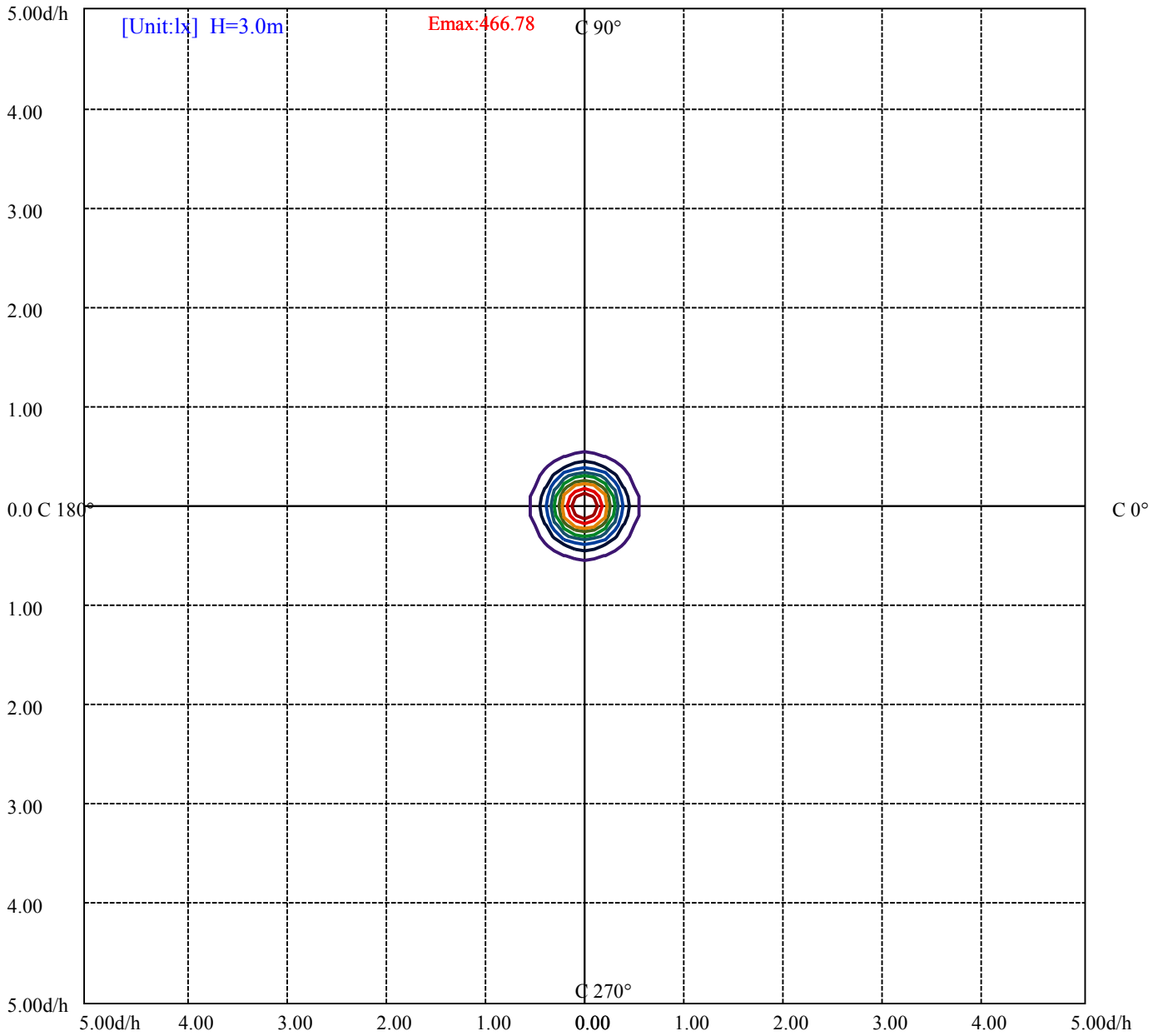
[Unit:cd]

Road

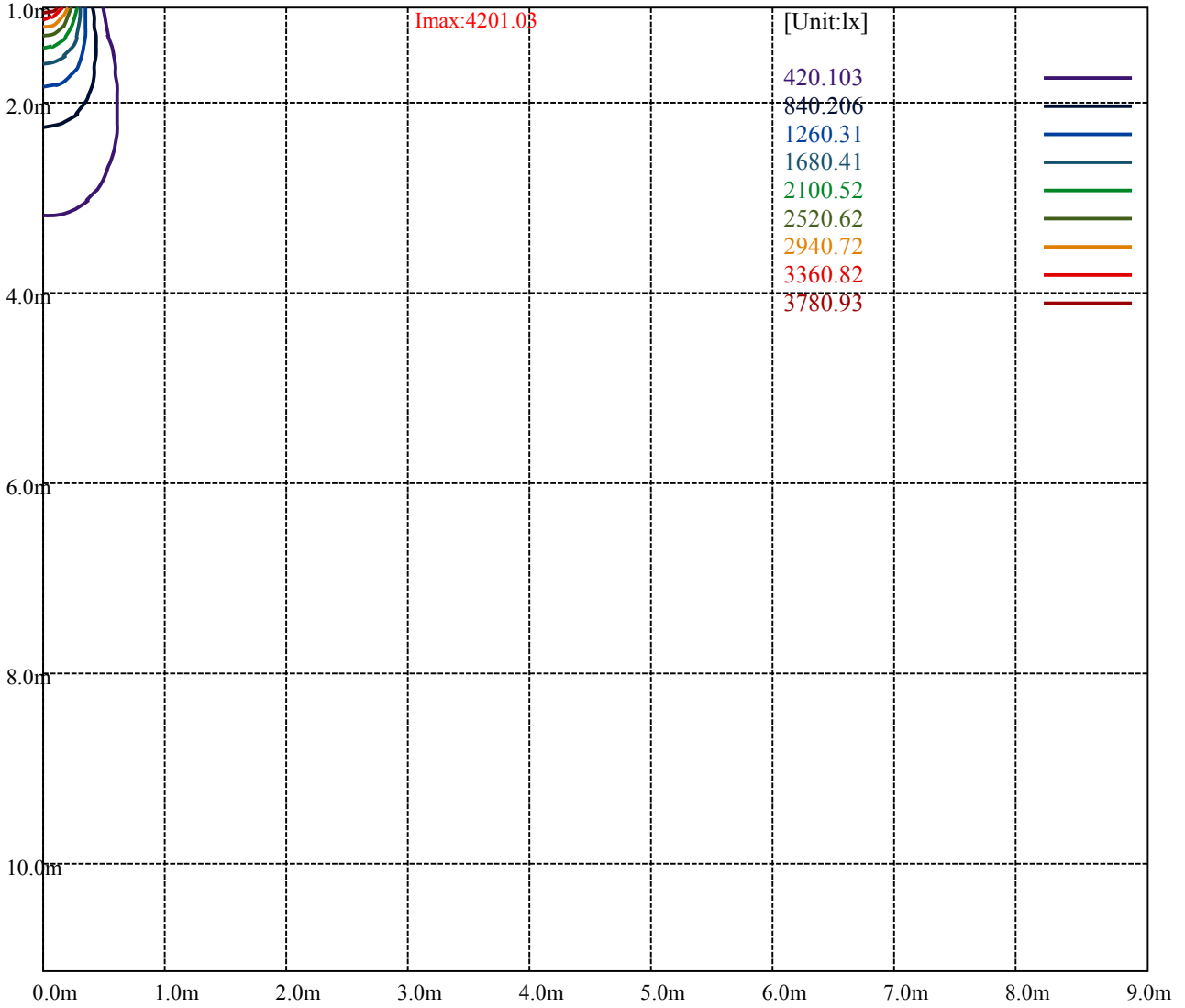
**Imax:4201.03**

(10%Imax) 420.103	—
(20%Imax) 840.206	—
(30%Imax) 1260.31	—
(40%Imax) 1680.41	—
(50%Imax) 2100.52	—
(60%Imax) 2520.62	—
(70%Imax) 2940.72	—
(80%Imax) 3360.82	—
(90%Imax) 3780.93	—





(10%Emax) 46.67811	—
(20%Emax) 93.35622	—
(30%Emax) 140.0345	—
(40%Emax) 186.7122	—
(50%Emax) 233.3911	—
(60%Emax) 280.0689	—
(70%Emax) 326.7467	—
(80%Emax) 373.4244	—
(90%Emax) 420.1033	—



Luminance Table

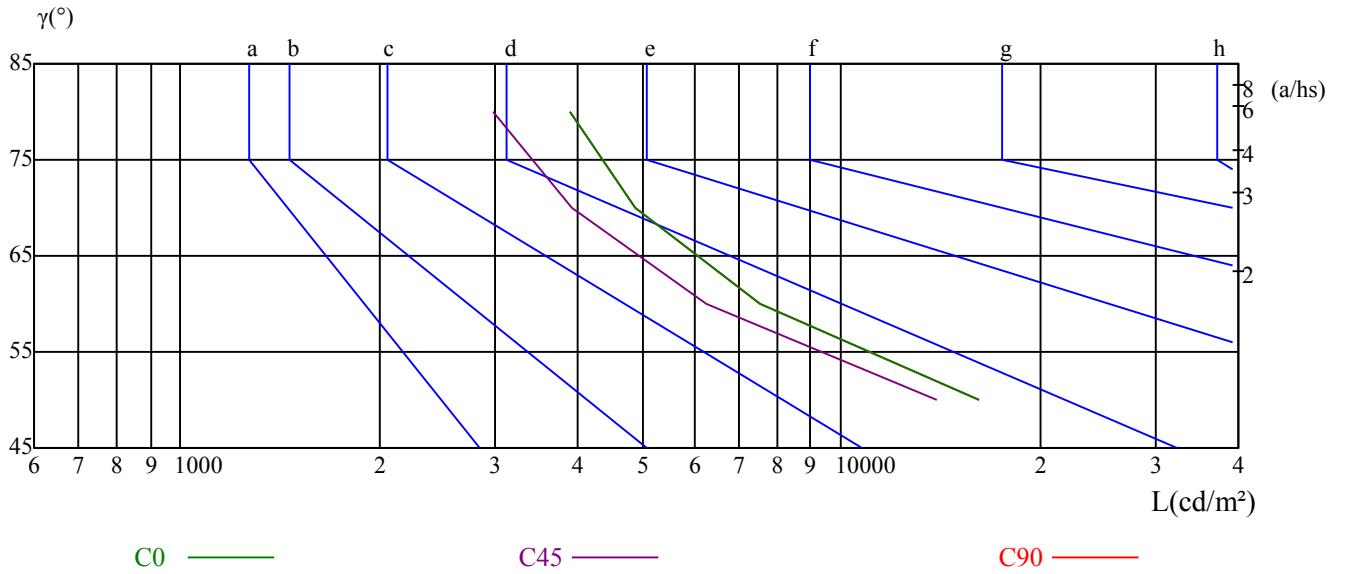
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	16247	0	7529	0	4877	0	3898	0
C45	0	13973	0	6270	0	3908	0	2970	0
C90	0	16247	0	7529	0	4877	0	3898	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
9371	9371	9371	11538	11538	11538	23840	23840	23840

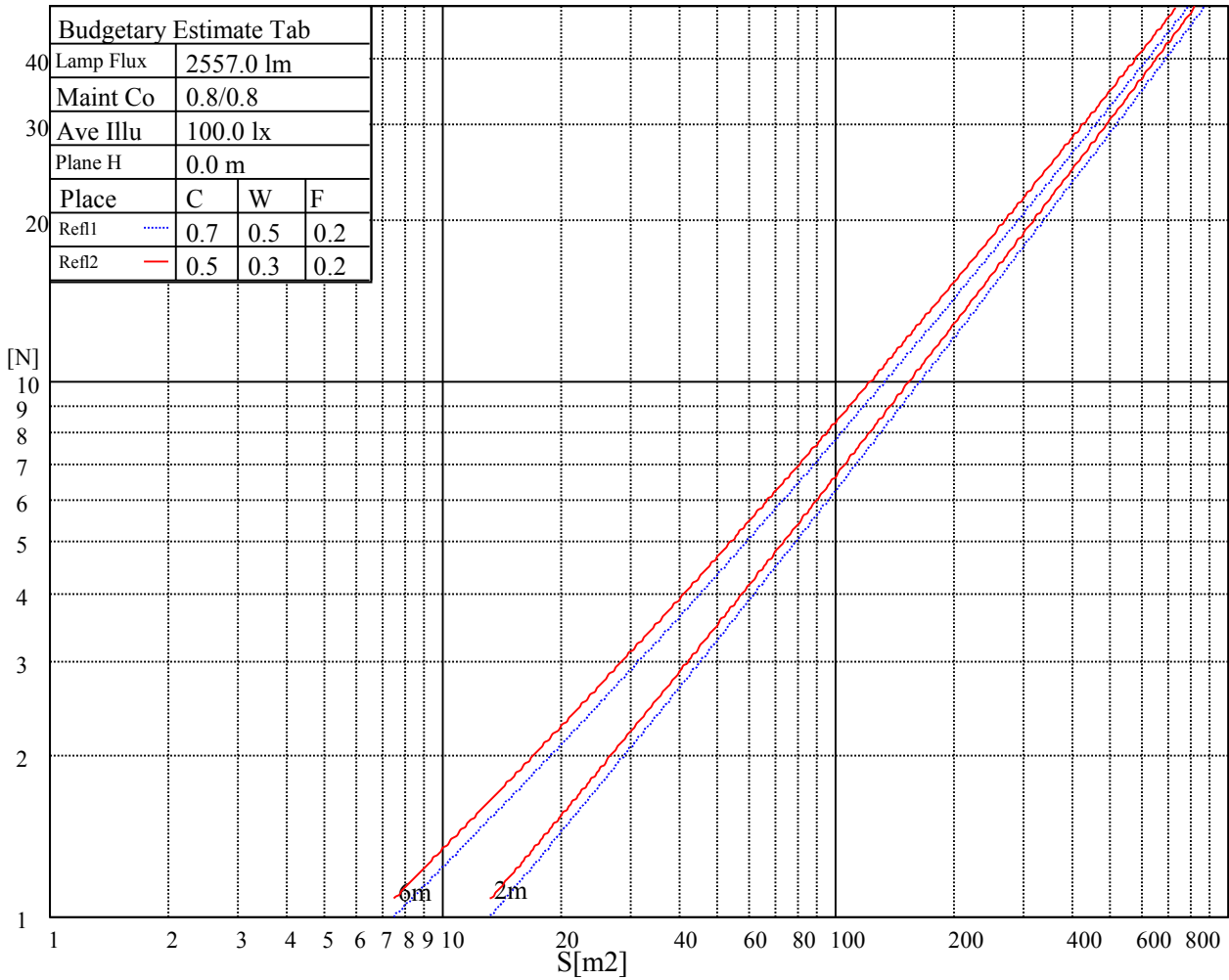
Glare Table

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

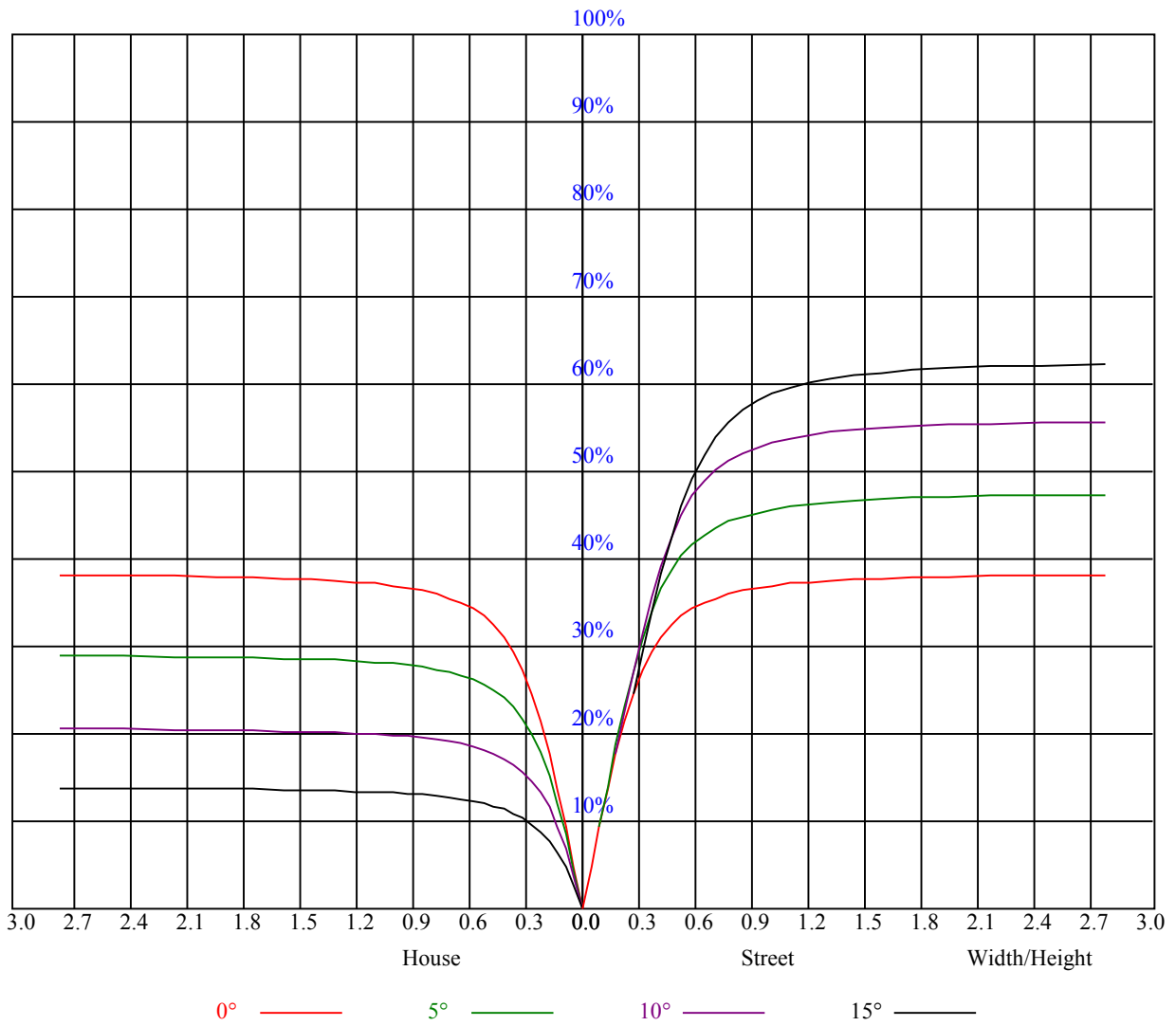
Luminance Limiting Curve



Illumination assessment according UGR											
Rf of Ceiling	70	70	50	50	30	70	70	50	50	30	
Rf of Wall	50	30	50	30	30	50	30	50	30	30	
Rf of Floor	20	20	20	20	20	20	20	20	20	20	
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	11.75	12.78	12.11	13.09	13.41	11.78	12.81	12.14	13.12	13.43
	3H	12.44	13.35	12.82	13.68	14.05	12.46	13.37	12.84	13.71	14.07
	4H	12.80	13.64	13.20	13.99	14.38	12.82	13.66	13.23	14.02	14.41
	6H	13.14	13.91	13.56	14.29	14.69	13.17	13.94	13.58	14.31	14.71
	8H	13.30	14.02	13.73	14.42	14.82	13.32	14.05	13.76	14.44	14.85
	12H	13.55	14.25	13.99	14.63	15.06	13.57	14.27	14.01	14.65	15.08
4H	2H	11.78	12.62	12.19	12.98	13.36	11.80	12.65	12.21	13.00	13.39
	3H	12.68	13.37	13.09	13.77	14.18	12.70	13.39	13.11	13.80	14.20
	4H	13.16	13.78	13.60	14.20	14.65	13.18	13.80	13.62	14.22	14.67
	6H	13.57	14.10	14.04	14.55	15.02	13.59	14.12	14.06	14.57	15.04
	8H	13.80	14.29	14.27	14.74	15.22	13.82	14.31	14.29	14.76	15.24
	12H	14.11	14.54	14.60	15.03	15.50	14.13	14.56	14.62	15.05	15.52
8H	4H	13.26	13.75	13.73	14.20	14.67	13.28	13.77	13.75	14.22	14.69
	6H	13.81	14.20	14.32	14.70	15.19	13.83	14.22	14.33	14.72	15.21
	8H	14.13	14.48	14.66	15.01	15.50	14.15	14.50	14.68	15.02	15.52
	12H	14.63	14.94	15.15	15.44	16.02	14.65	14.95	15.17	15.45	16.03
12H	4H	13.25	13.67	13.74	14.16	14.64	13.27	13.69	13.76	14.18	14.66
	6H	14.15	14.19	14.37	14.66	15.21	14.17	14.21	14.39	14.68	15.23
	8H	14.22	14.53	14.75	15.03	15.61	14.24	14.55	14.76	15.04	15.62
Variation with the observer position at spacings:											
S = 1.0H	1.9/-2.2					1.9/-2.2					
S = 1.5H	3.4/-2.8					3.4/-2.8					
S = 2.0H	5.1/-2.7					5.1/-2.7					
Standard tables:	BK2					BK2					
Uncorrected UGR	-0.2					-0.2					



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	0.92	0.92	0.92	0.90	0.90	0.90	0.86	0.86	0.86	0.82	0.82	0.82	0.79	0.79	0.79	0.77
1	0.85	0.84	0.82	0.84	0.82	0.81	0.81	0.79	0.78	0.78	0.77	0.76	0.75	0.74	0.74	0.72
2	0.80	0.77	0.75	0.79	0.76	0.74	0.76	0.74	0.72	0.74	0.72	0.71	0.72	0.70	0.69	0.68
3	0.75	0.72	0.69	0.74	0.71	0.68	0.72	0.70	0.67	0.71	0.68	0.66	0.69	0.67	0.65	0.64
4	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.63	0.67	0.65	0.63	0.66	0.64	0.62	0.61
5	0.68	0.64	0.61	0.67	0.63	0.60	0.66	0.62	0.60	0.64	0.62	0.59	0.63	0.61	0.59	0.58
6	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.61	0.58	0.56	0.55
7	0.62	0.57	0.55	0.61	0.57	0.54	0.60	0.57	0.54	0.59	0.56	0.54	0.58	0.56	0.54	0.53
8	0.59	0.55	0.52	0.58	0.55	0.52	0.58	0.54	0.52	0.57	0.54	0.52	0.56	0.53	0.51	0.50
9	0.56	0.53	0.50	0.56	0.52	0.50	0.55	0.52	0.50	0.55	0.52	0.49	0.54	0.51	0.49	0.48
10	0.54	0.50	0.48	0.54	0.50	0.48	0.53	0.50	0.48	0.53	0.50	0.48	0.52	0.49	0.47	0.47



Intensity data(cd)

C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	4203.00	4169.81	4119.19	4001.63	3820.50	3574.69	3254.06	2861.44	2480.06
45.0	4201.88	4204.13	4177.13	4111.88	3996.00	3795.19	3530.81	3196.13	2793.38
90.0	4202.44	4209.75	4186.69	4111.31	3970.13	3729.38	3484.13	3128.06	2748.94
135.0	4196.81	4213.13	4199.06	4125.38	4008.94	3792.38	3528.56	3219.75	2800.69
180.0	4203.00	4198.50	4156.88	4058.44	3894.75	3662.44	3373.88	3007.69	2651.06
225.0	4201.88	4161.38	4071.94	3939.19	3719.81	3414.38	3096.56	2689.31	2250.00
270.0	4202.44	4172.06	4105.13	3971.81	3796.31	3513.38	3183.19	2800.13	2388.38
315.0	4196.81	4159.69	4084.31	3965.06	3732.19	3426.75	3103.31	2695.50	2302.31
360.0	4203.00	4169.81	4119.19	4001.63	3820.50	3574.69	3254.06	2861.44	2480.06
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	2040.19	1618.88	1290.38	991.13	770.06	595.69	470.25	376.31	318.38
45.0	2385.00	1958.06	1545.19	1175.06	921.38	714.38	563.63	450.56	363.38
90.0	2332.13	1901.81	1477.13	1118.76	880.65	691.09	547.99	433.18	359.44
135.0	2399.06	2009.81	1568.81	1202.06	950.06	744.75	592.88	477.56	383.06
180.0	2213.44	1801.69	1422.56	1095.02	858.88	677.42	537.08	422.27	354.15
225.0	1868.63	1486.69	1114.59	891.28	690.92	557.72	442.24	358.65	305.78
270.0	1946.81	1548.00	1201.50	912.94	720.00	555.75	444.38	365.06	309.38
315.0	1868.06	1470.38	1117.29	881.66	683.89	542.14	427.05	349.65	300.32
360.0	2040.19	1618.88	1290.38	991.13	770.06	595.69	470.25	376.31	318.38
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	284.06	233.10	198.79	165.09	139.05	115.03	96.36	80.89	68.23
45.0	307.69	272.53	229.39	194.12	161.16	132.58	113.85	93.66	78.64
90.0	300.66	259.54	226.29	190.74	156.32	130.22	109.18	90.62	76.84
135.0	318.38	285.75	232.26	193.89	162.96	133.99	112.28	94.22	79.59
180.0	293.29	250.09	215.33	179.89	149.06	124.93	104.91	87.41	74.31
225.0	258.64	223.88	186.08	155.76	128.81	108.62	90.23	75.04	63.90
270.0	262.97	230.18	193.73	159.30	134.33	111.21	92.93	77.79	65.31
315.0	257.74	223.88	188.33	156.04	128.14	108.00	89.61	74.59	63.51
360.0	284.06	233.10	198.79	165.09	139.05	115.03	96.36	80.89	68.23
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	57.09	48.94	41.01	34.59	29.31	25.59	23.46	21.77	20.19
45.0	66.77	55.18	47.03	40.11	33.64	28.29	25.09	22.95	21.32
90.0	63.90	53.94	45.68	38.76	32.34	27.51	24.58	22.56	21.04
135.0	66.15	55.69	47.31	39.49	33.47	28.01	24.75	22.78	21.09
180.0	61.82	52.26	44.10	37.13	31.22	26.49	24.02	22.11	20.64
225.0	53.27	44.89	37.80	31.78	27.06	24.47	22.50	20.93	19.46
270.0	54.56	46.46	38.87	32.46	27.84	24.64	22.89	21.21	19.74
315.0	53.04	44.78	37.80	32.01	27.06	24.41	22.50	20.76	19.41
360.0	57.09	48.94	41.01	34.59	29.31	25.59	23.46	21.77	20.19
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	18.68	17.38	15.98	14.74	13.44	12.21	10.97	9.73	8.83
45.0	19.80	18.39	16.99	15.75	14.34	12.99	11.70	10.58	9.45
90.0	19.46	18.00	16.76	15.41	14.01	12.77	11.48	10.29	9.23
135.0	19.52	18.17	16.71	15.36	14.12	12.77	11.59	10.35	9.34
180.0	19.13	17.83	16.37	15.08	13.73	12.49	11.19	10.07	9.00
225.0	18.06	16.71	15.47	14.12	12.71	11.64	10.46	9.39	8.72
270.0	18.28	16.99	15.64	14.51	13.11	11.93	10.80	9.51	8.78
315.0	17.94	16.59	15.41	14.12	12.77	11.76	10.63	9.45	8.72
360.0	18.68	17.38	15.98	14.74	13.44	12.21	10.97	9.73	8.83



Intensity data(cd)

C/γ(°)	90.0
0.0	8.55
45.0	8.72
90.0	8.66
135.0	8.66
180.0	8.55
225.0	8.61
270.0	8.61
315.0	8.61
360.0	8.55