



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

NATA

LumCAT: 1687-M
Luminaire: 92.70.124.00
Report No: NATA0100
Test No: GC2019011107
LampCAT: SEOUL SAWx10 LES9.8
Lamp flux(lm): 1512.0
Number of Lamps: 1
Length(mm): 46
Phm Type: C

Voltage(V): 34.7000
Current(A): 0.3000
Power (W): 10.4100
PF: 0.0000
Ballast type: DC
Width(mm): 46
Height(mm): 0

Photometric Results

Lumens(lm): 1383.52
Efficiency(%): 91.50%
Lumens(lm)/Power(W): 134.80
Central intensity(cd): 3528.703
Maximum intensity(cd): 3528.703
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=26.2
[C90/270]Total=26.2
Field angle(10%Imax): [C0/180]Total=80.6
[C90/270]Total=80.6
Maximum s/h(1/2): C0_180=0.44 C90_270=0.44
Maximum s/h(1/4): C0_180=0.46 C90_270=0.46
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.81%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.475%

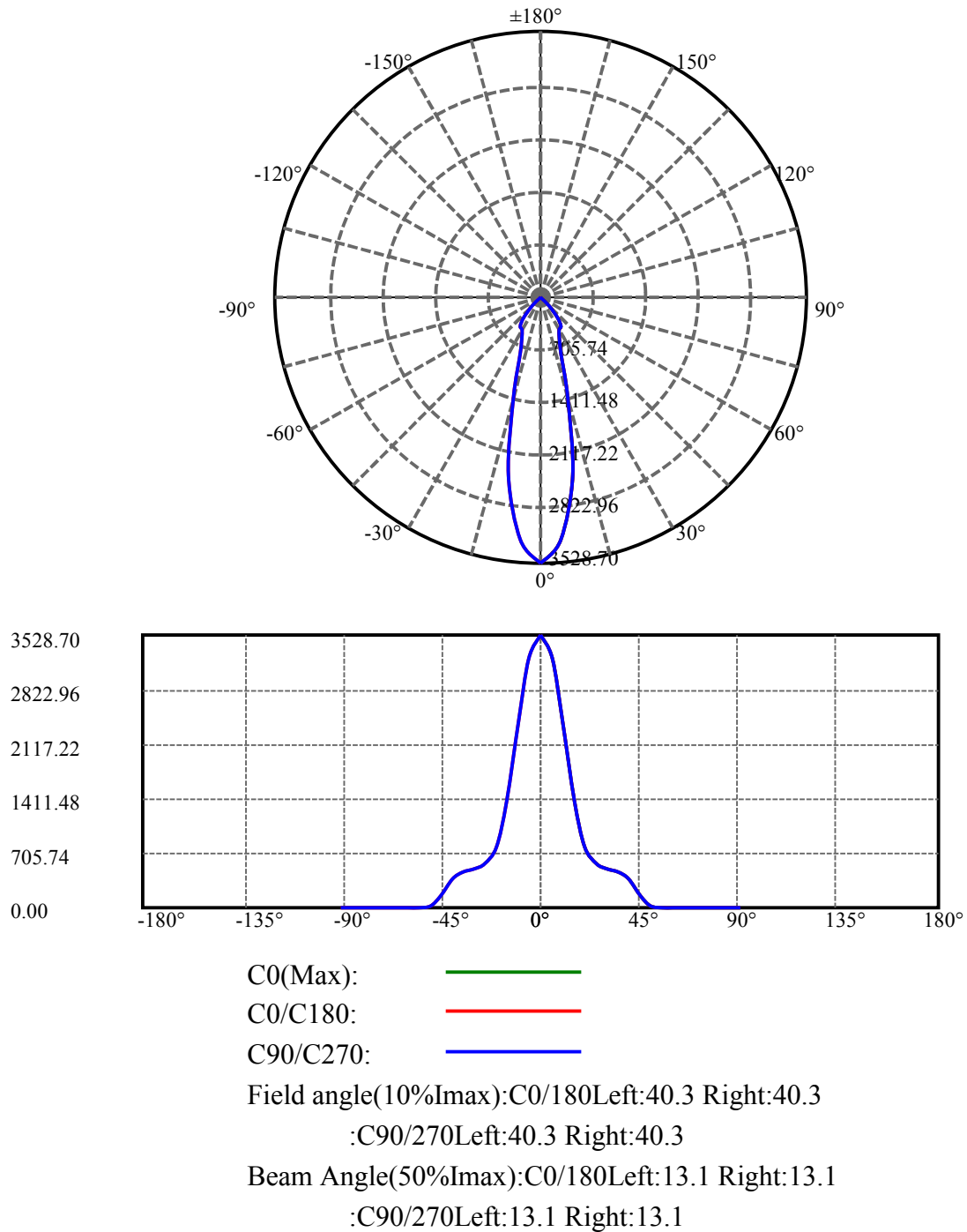
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3528.703	21.102	21.102	1.396%	1.525%
5.0	3215.109	153.596	174.699	10.158%	12.627%
10.0	2401.031	228.537	403.236	15.115%	29.146%
15.0	1380.530	195.854	599.09	12.953%	43.302%
20.0	785.180	147.201	746.291	9.736%	53.942%
25.0	566.353	131.197	877.488	8.677%	63.424%
30.0	502.523	137.726	1015.214	9.109%	73.379%
35.0	460.807	144.877	1160.091	9.582%	83.851%
40.0	365.808	128.887	1288.978	8.524%	93.167%
45.0	161.754	62.694	1351.673	4.146%	97.698%
50.0	22.535	9.462	1361.135	.626%	98.382%
55.0	8.016	3.599	1364.734	.238%	98.642%
60.0	6.602	3.134	1367.868	.207%	98.869%
65.0	5.998	2.980	1370.848	.197%	99.084%
70.0	5.520	2.843	1373.691	.188%	99.290%
75.0	5.330	2.822	1376.513	.187%	99.494%
80.0	5.203	2.809	1379.321	.186%	99.697%
85.0	5.140	2.807	1382.128	.186%	99.900%
90.0	5.070	1.389	1383.518	.092%	100.000%

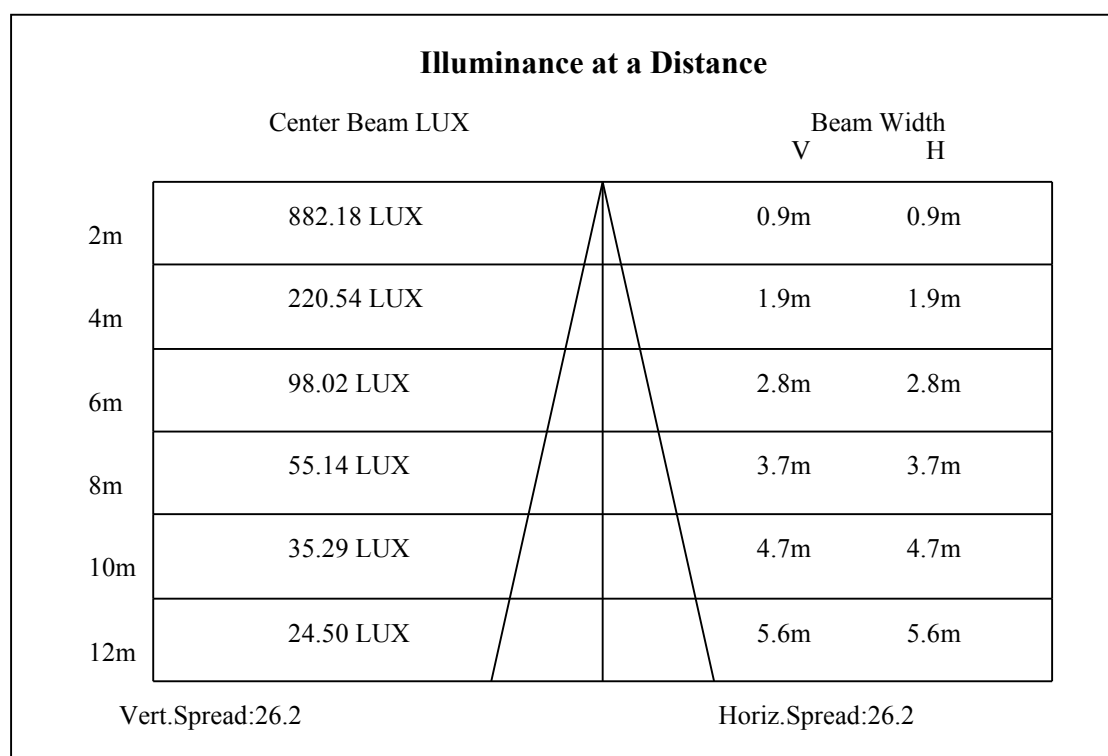
ZONAL LUMEN SUMMARY

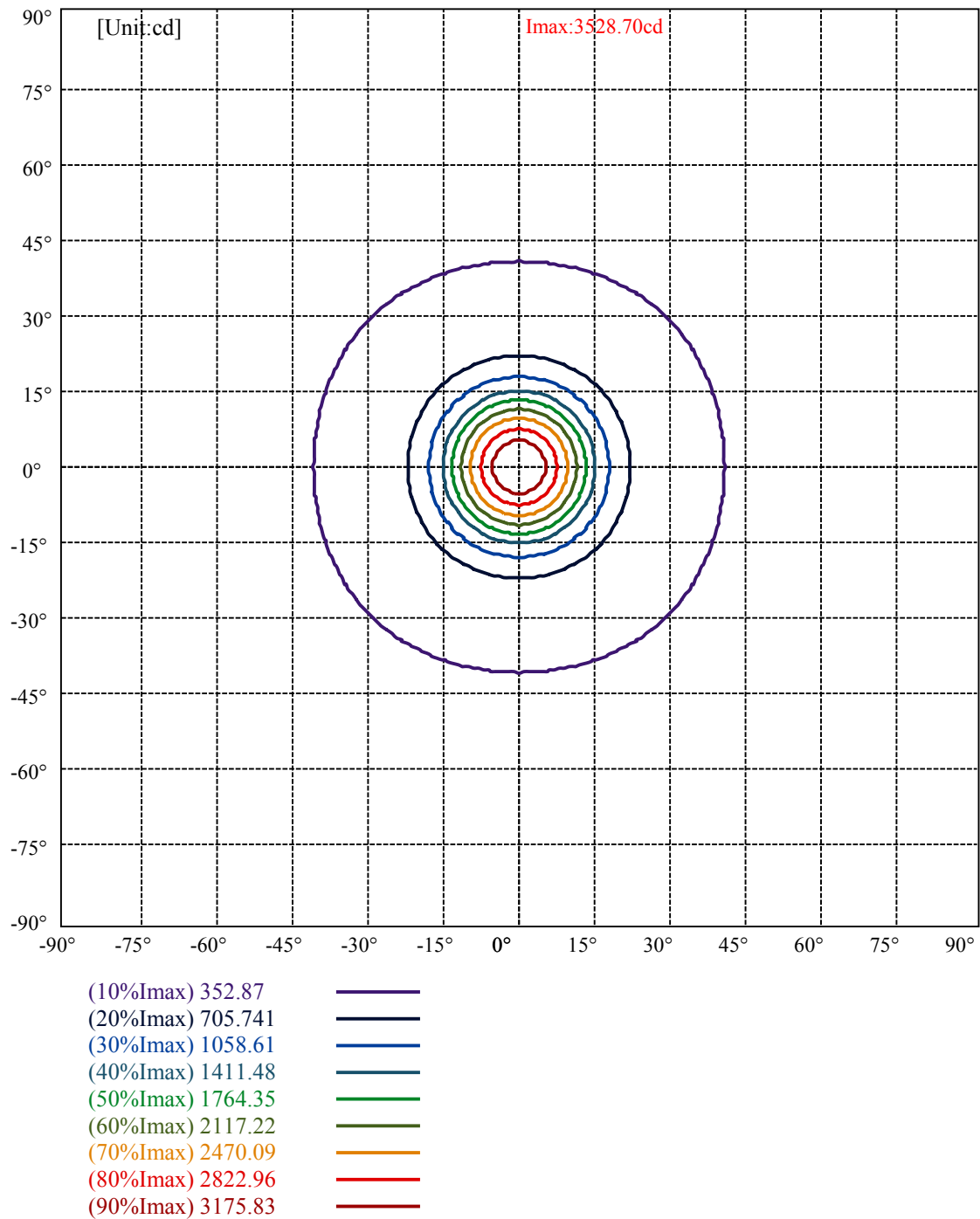
Zone	Lumens	%Lamp	%Fixt
0-30	1015.21	67.14%	73.38%
0-40	1288.98	85.25%	93.17%
0-60	1367.87	90.47%	98.87%
0-90	1382.13	91.41%	99.90%
0-120	1382.13	91.41%	99.90%
0-180	1383.52	91.50%	100.00%
60-90	17.39	1.15%	1.26%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-33.16	1106.81	73.20%	80.00%

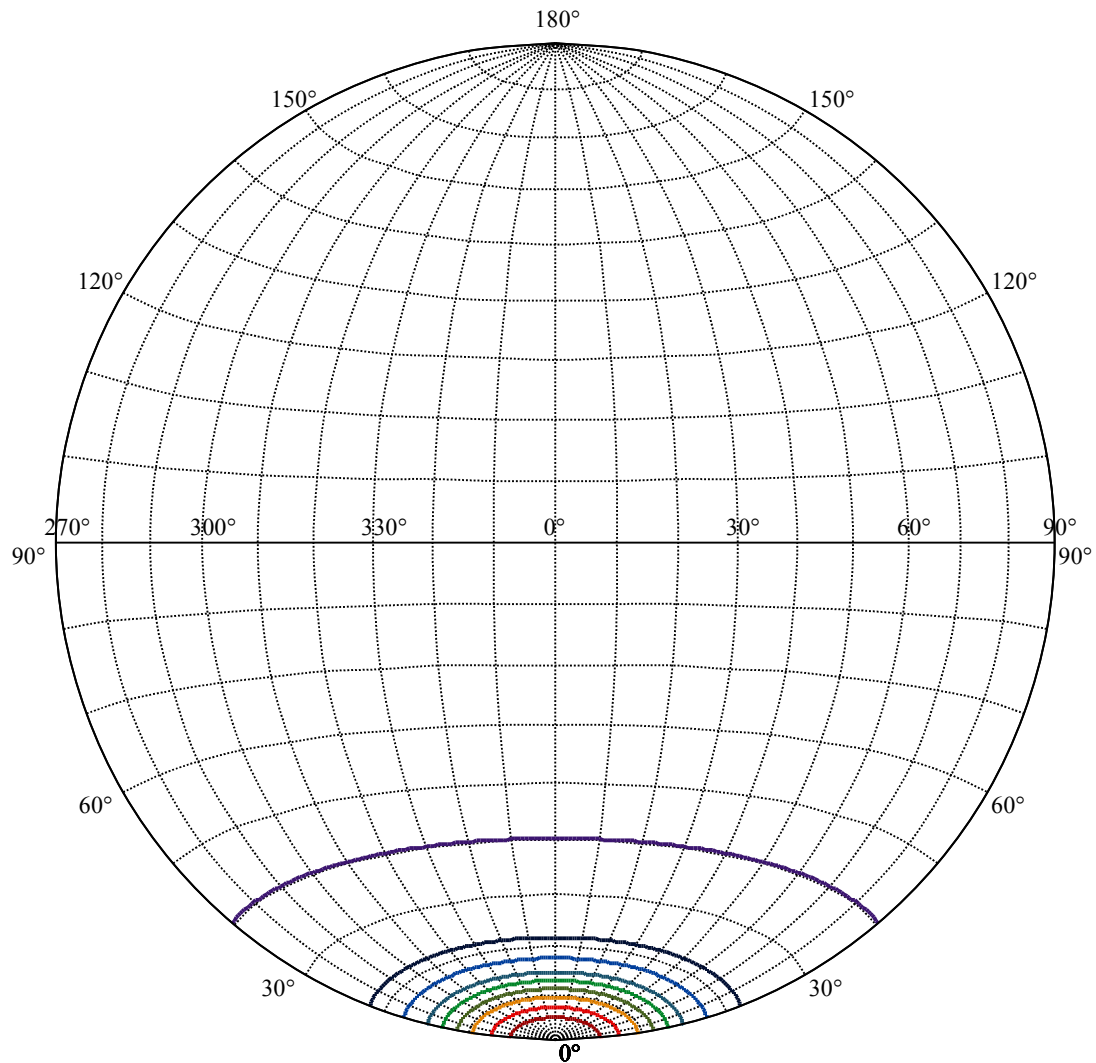
ZONAL LUMEN SUMMARY

0-10	403.24
10-20	343.05
20-30	268.92
30-40	273.76
40-50	72.16
50-60	6.73
60-70	5.82
70-80	5.63
80-90	2.81
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









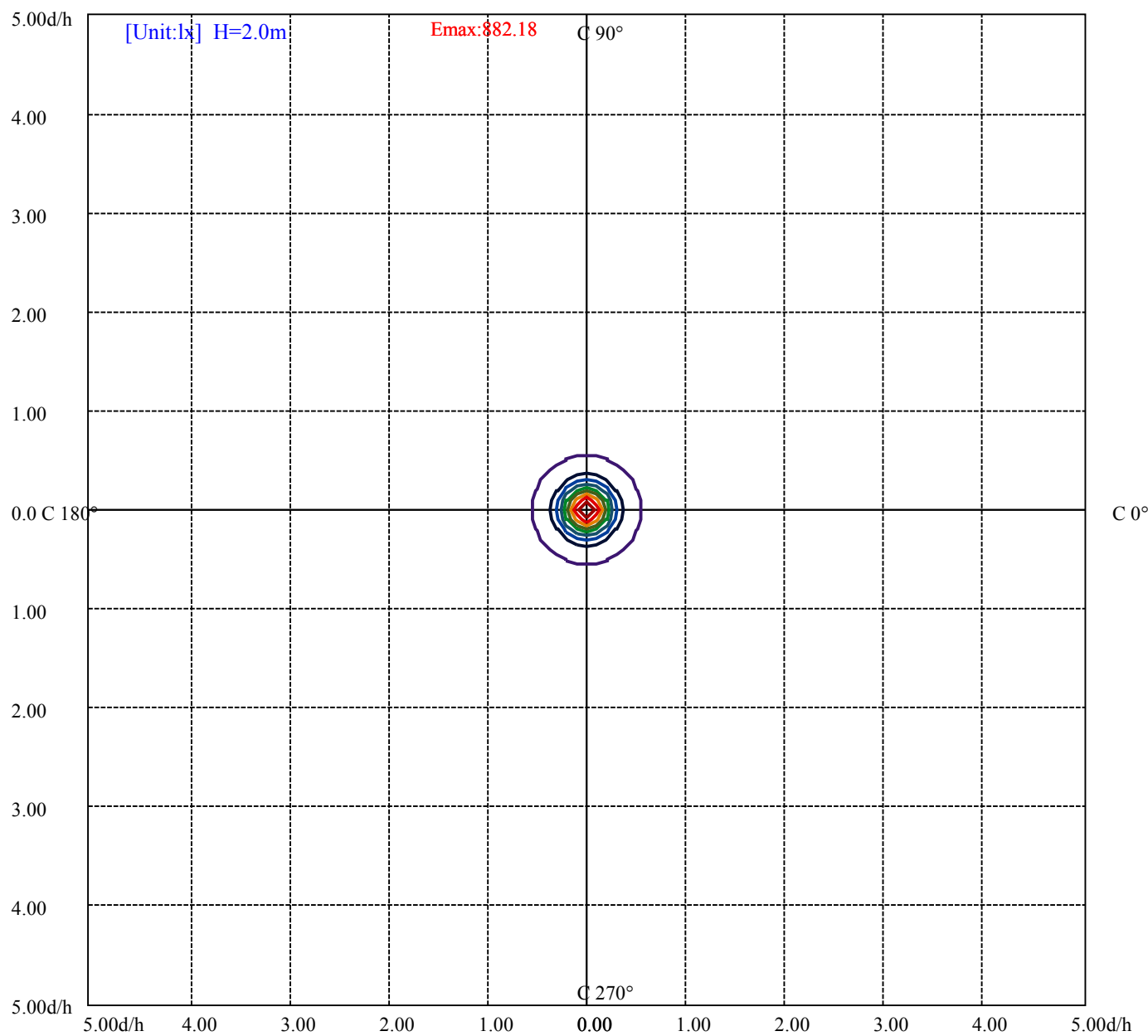
House

[Unit:cd]

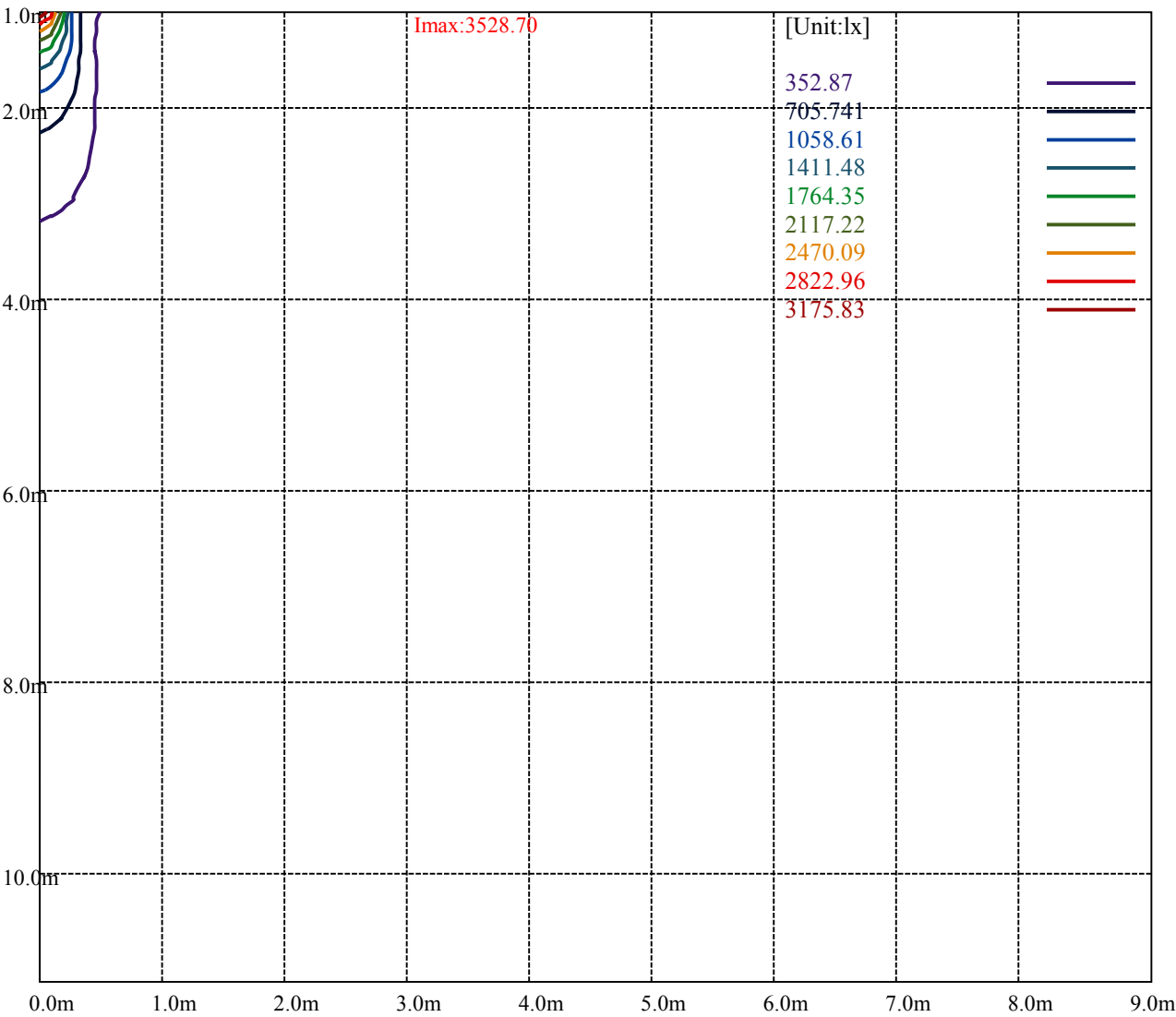
Road

Imax:3528.70

(10%Imax)	352.87	—
(20%Imax)	705.741	—
(30%Imax)	1058.61	—
(40%Imax)	1411.48	—
(50%Imax)	1764.35	—
(60%Imax)	2117.22	—
(70%Imax)	2470.09	—
(80%Imax)	2822.96	—
(90%Imax)	3175.83	—



(10%E _{max}) 88.21725	—
(20%E _{max}) 176.4348	—
(30%E _{max}) 264.6525	—
(40%E _{max}) 352.87	—
(50%E _{max}) 441.0875	—
(60%E _{max}) 529.305	—
(70%E _{max}) 617.5225	—
(80%E _{max}) 705.7375	—
(90%E _{max}) 793.955	—



Luminance Table

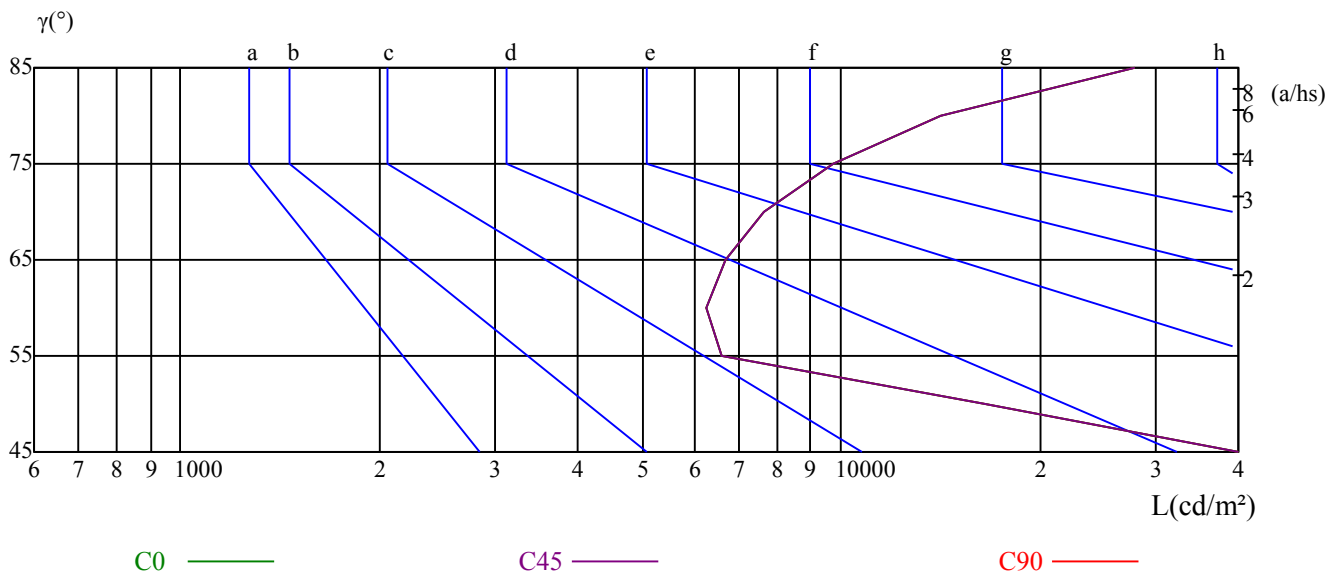
γ	45	50	55	60	65	70	75	80	85
C0	108107	16568	6604	6240	6707	7627	9732	14160	27870
C45	108107	16568	6604	6240	6707	7627	9732	14160	27870
C90	108107	16568	6604	6240	6707	7627	9732	14160	27870

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6707	6707	6707	9732	9732	9732	27870	27870	27870

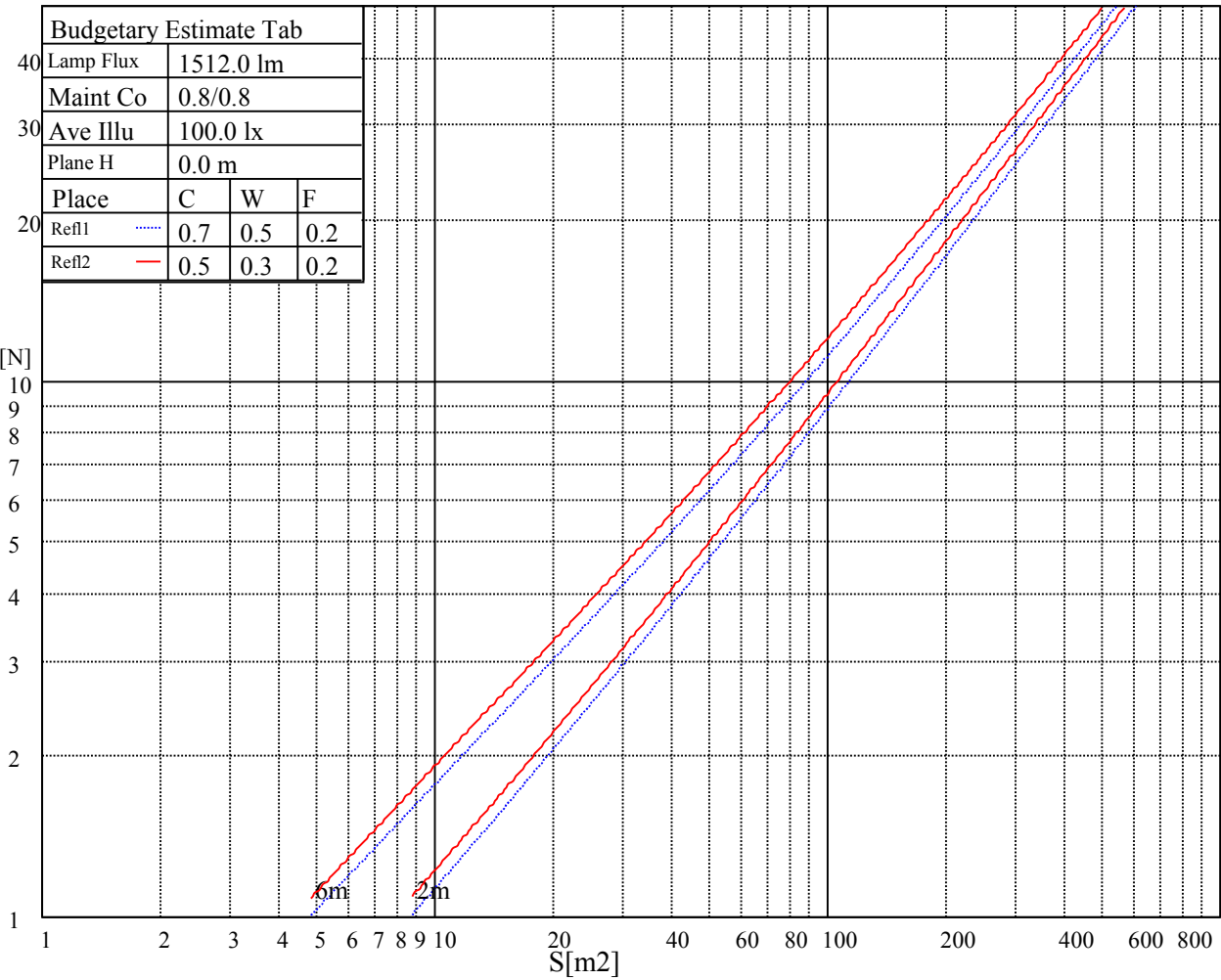
Glare Table

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

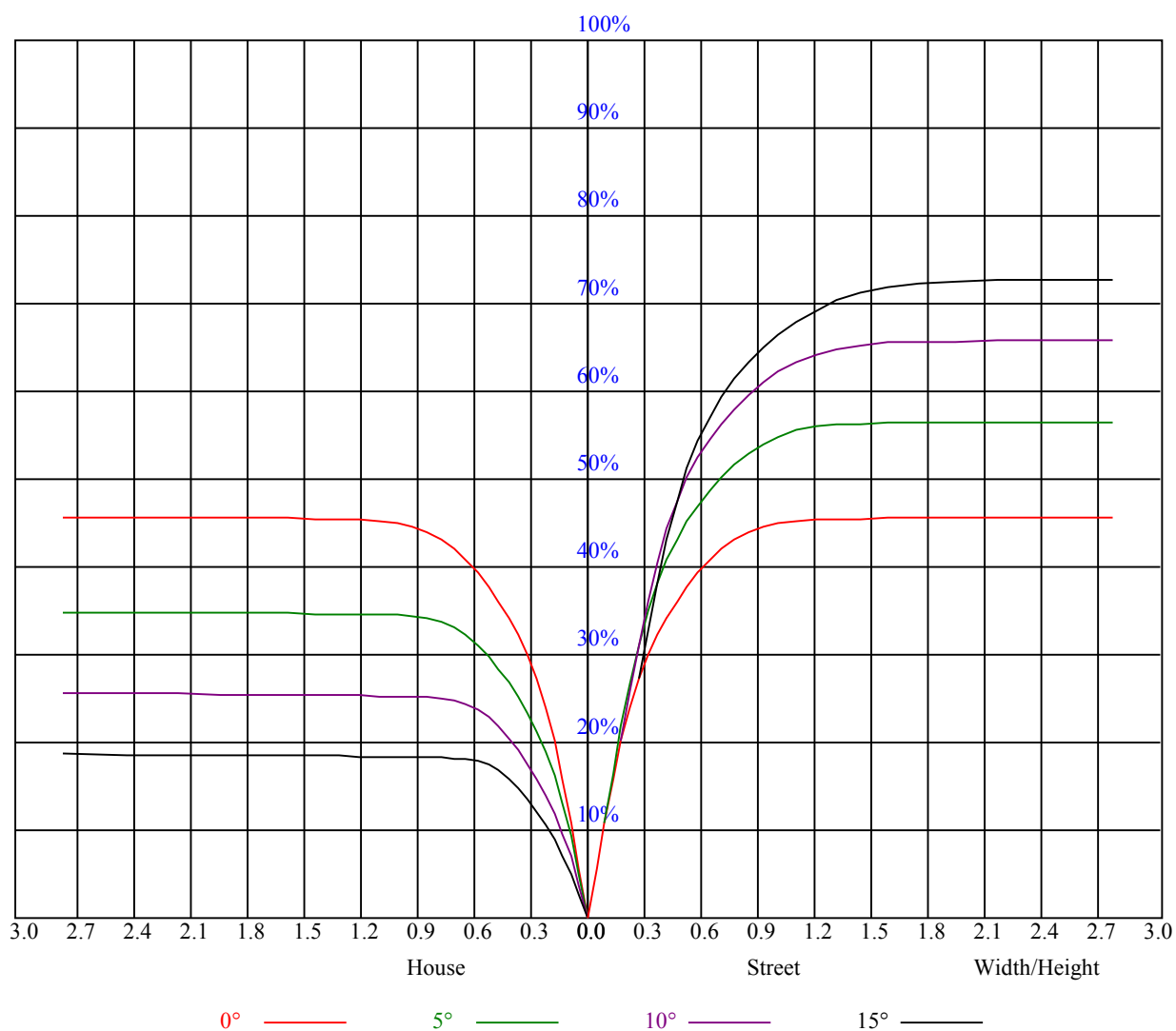
Luminance Limiting Curve



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	6.29	7.32	6.66	7.63	7.95	6.35	7.37	6.71	7.68	8.00
	3H	8.80	9.70	9.18	10.04	10.40	8.83	9.73	9.21	10.07	10.43
	4H	10.28	11.11	10.69	11.47	11.86	10.28	11.12	10.69	11.47	11.86
	6H	12.04	12.80	12.46	13.18	13.57	12.01	12.77	12.43	13.15	13.54
	8H	13.05	13.76	13.48	14.16	14.57	13.00	13.72	13.44	14.11	14.52
	12H	14.73	15.41	15.16	15.79	16.23	14.66	15.34	15.09	15.73	16.16
4H	2H	6.99	7.82	7.39	8.17	8.56	7.03	7.86	7.43	8.21	8.60
	3H	9.81	10.49	10.23	10.90	11.31	9.84	10.52	10.25	10.92	11.33
	4H	11.50	12.10	11.93	12.52	12.97	11.50	12.10	11.93	12.53	12.97
	6H	13.44	13.96	13.91	14.41	14.89	13.42	13.94	13.89	14.39	14.87
	8H	14.57	15.06	15.05	15.51	15.98	14.53	15.02	15.01	15.47	15.94
	12H	16.18	16.60	16.67	17.09	17.57	16.12	16.54	16.61	17.03	17.50
8H	4H	12.15	12.63	12.62	13.08	13.56	12.15	12.63	12.62	13.08	13.56
	6H	14.39	14.77	14.89	15.27	15.76	14.37	14.75	14.87	15.25	15.74
	8H	15.71	16.05	16.24	16.58	17.07	15.67	16.02	16.20	16.54	17.03
	12H	17.48	17.78	18.00	18.28	18.86	17.42	17.72	17.95	18.22	18.80
12H	4H	12.33	12.75	12.82	13.24	13.72	12.33	12.75	12.83	13.24	13.72
	6H	14.98	15.03	15.22	15.50	16.05	14.96	15.01	15.20	15.48	16.03
	8H	16.13	16.44	16.66	16.93	17.51	16.10	16.40	16.62	16.90	17.48
Variation with the observer position at spacings:											
S = 1.0H		3.2/-11.2					3.2/-11.2				
S = 1.5H		4.8/-9.2					4.8/-9.2				
S = 2.0H		6.6/-7.9					6.6/-7.9				
Standard tables:		BK1					BK1				
Uncorrected UGR		5.8					5.8				



RHOC	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	1.10	1.10	1.10	1.08	1.08	1.08	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	0.99	0.97	1.00	0.97	0.95	0.96	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.87	0.85
2	0.95	0.91	0.88	0.94	0.90	0.87	0.91	0.88	0.85	0.88	0.86	0.84	0.85	0.83	0.82	0.80
3	0.90	0.85	0.82	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.81	0.78	0.82	0.79	0.77	0.76
4	0.85	0.80	0.76	0.84	0.79	0.76	0.82	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.72
5	0.80	0.75	0.72	0.79	0.75	0.71	0.78	0.74	0.71	0.76	0.73	0.70	0.75	0.72	0.69	0.68
6	0.76	0.71	0.68	0.76	0.71	0.67	0.74	0.70	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.65
7	0.73	0.68	0.64	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.63	0.69	0.65	0.63	0.62
8	0.69	0.64	0.61	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.60	0.66	0.63	0.60	0.59
9	0.67	0.62	0.58	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.61	0.58	0.64	0.60	0.58	0.56
10	0.64	0.59	0.56	0.63	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.55	0.61	0.58	0.55	0.54



NATA 1687-M

Intensity data(cd)										Appendix Page: 15 Total:15	
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	3515.63	3398.63	2788.31	1748.81	938.81	604.13	525.38	480.38	426.94		
45.0	3526.31	3288.38	2566.69	1546.88	820.13	575.44	504.00	462.94	397.69		
90.0	3527.44	3078.00	2187.00	1042.93	691.76	537.36	483.19	445.39	315.06		
135.0	3545.44	3138.75	2258.44	1332.00	708.75	549.56	492.75	452.25	336.38		
180.0	3515.63	2982.38	2078.44	1088.72	653.51	535.84	482.74	439.99	305.49		
225.0	3526.31	3146.06	2208.94	1110.15	736.43	554.51	503.10	458.94	338.51		
270.0	3527.44	3359.81	2602.69	1664.44	895.50	596.81	519.75	477.56	405.56		
315.0	3545.44	3328.88	2517.75	1510.31	836.55	577.18	509.29	469.01	400.84		
360.0	3515.63	3398.63	2788.31	1748.81	938.81	604.13	525.38	480.38	426.94		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	295.31	37.52	9.23	6.92	6.24	5.68	5.40	5.29	5.18		
45.0	166.67	22.67	8.55	6.81	6.19	5.63	5.34	5.23	5.12		
90.0	101.03	16.93	7.20	6.36	5.85	5.46	5.34	5.23	5.12		
135.0	109.18	17.33	7.14	6.30	5.79	5.40	5.29	5.18	5.12		
180.0	77.91	13.78	7.03	6.30	5.74	5.34	5.23	5.12	5.06		
225.0	124.99	18.06	7.37	6.47	5.85	5.40	5.23	5.12	5.12		
270.0	234.62	31.89	8.83	6.81	6.13	5.63	5.40	5.29	5.29		
315.0	184.33	22.11	8.78	6.86	6.19	5.63	5.40	5.18	5.12		
360.0	295.31	37.52	9.23	6.92	6.24	5.68	5.40	5.29	5.18		
C/ γ (°)	90.0										
0.0	5.12										
45.0	5.06										
90.0	5.06										
135.0	5.06										
180.0	5.06										
225.0	5.06										
270.0	5.06										
315.0	5.06										
360.0	5.12										