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NATA

LumCAT: 3-1641-E	
Luminaire: 92.76.227.00	
Report No: NATA0100	Voltage(V): 36.4000
Test No: GC2019022807	Current(A): 0.9000
LampCAT: BRIDGELUX VERO29	Power (W): 32.7600
Lamp flux(lm): 3985.1	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 88	Width(mm): 88
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 3591.24
Efficiency(%): 90.12%
Lumens(lm)/Power(W): 110.69
Central intensity(cd): 6400.406
Maximum intensity(cd): 6400.406
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=37.4
[C90/270]Total=37.4
Field angle(10%Imax): [C0/180]Total=80.7
[C90/270]Total=80.7
Maximum s/h(1/2): C0_180=0.59 C90_270=0.59
Maximum s/h(1/4): C0_180=0.65 C90_270=0.65
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.99%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.778%

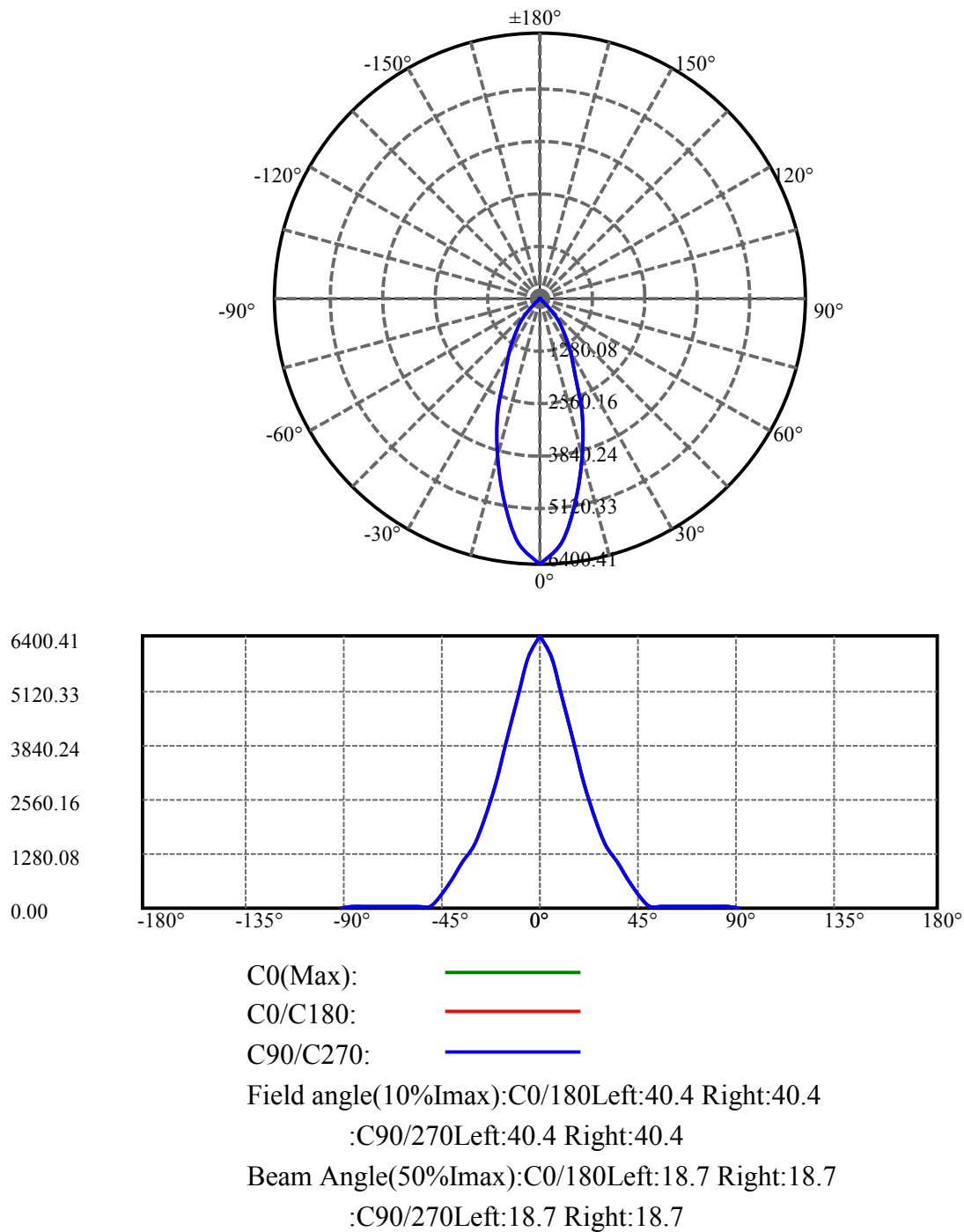
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6400.406	38.276	38.276	.960%	1.066%
5.0	5897.320	281.735	320.01	7.070%	8.911%
10.0	4960.125	472.120	792.13	11.847%	22.057%
15.0	3909.867	554.687	1346.817	13.919%	37.503%
20.0	2950.734	553.186	1900.003	13.881%	52.907%
25.0	2050.102	474.912	2374.915	11.917%	66.131%
30.0	1480.500	405.759	2780.673	10.182%	77.429%
35.0	1073.285	337.439	3118.113	8.468%	86.826%
40.0	667.498	235.183	3353.296	5.902%	93.374%
45.0	290.334	112.531	3465.827	2.824%	96.508%
50.0	53.698	22.548	3488.375	.566%	97.136%
55.0	23.963	10.759	3499.134	.270%	97.435%
60.0	21.361	10.140	3509.274	.254%	97.718%
65.0	21.818	10.839	3520.113	.272%	98.020%
70.0	26.543	13.672	3533.785	.343%	98.400%
75.0	32.984	17.463	3551.248	.438%	98.887%
80.0	34.320	18.526	3569.774	.465%	99.402%
85.0	31.331	17.108	3586.883	.429%	99.879%
90.0	15.884	4.353	3591.236	.109%	100.000%

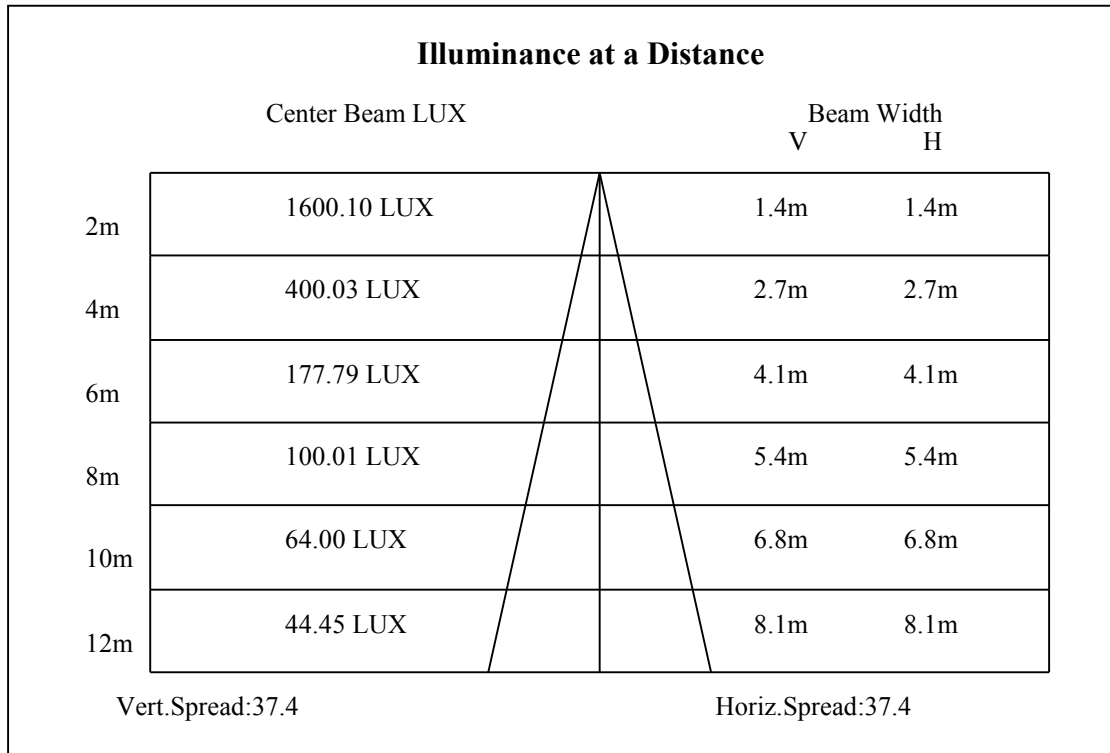
ZONAL LUMEN SUMMARY

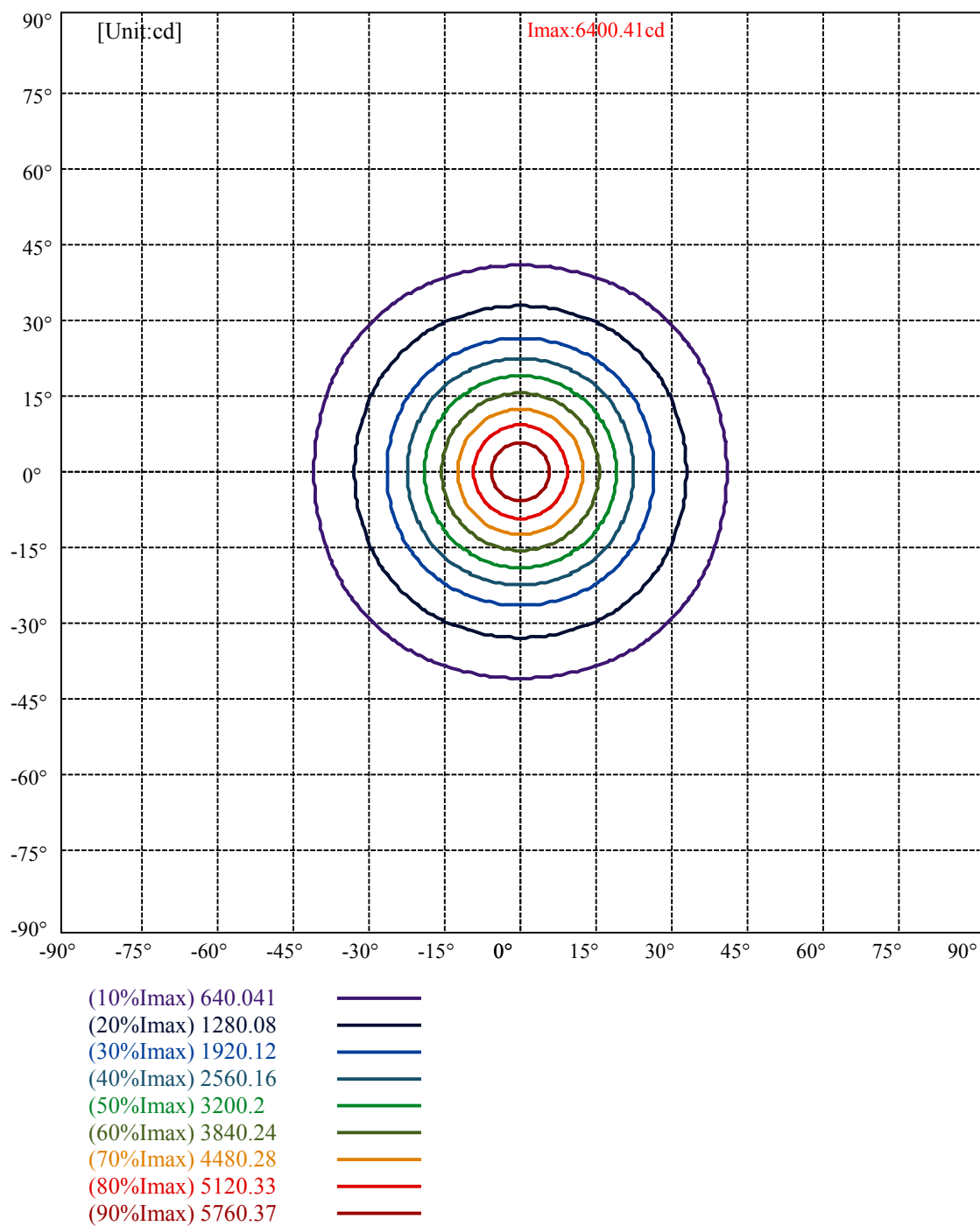
Zone	Lumens	%Lamp	%Fixt
0-30	2780.67	69.78%	77.43%
0-40	3353.30	84.15%	93.37%
0-60	3509.27	88.06%	97.72%
0-90	3586.88	90.01%	99.88%
0-120	3586.88	90.01%	99.88%
0-180	3591.24	90.12%	100.00%
60-90	87.75	2.20%	2.44%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-31.37	2872.99	72.09%	80.00%

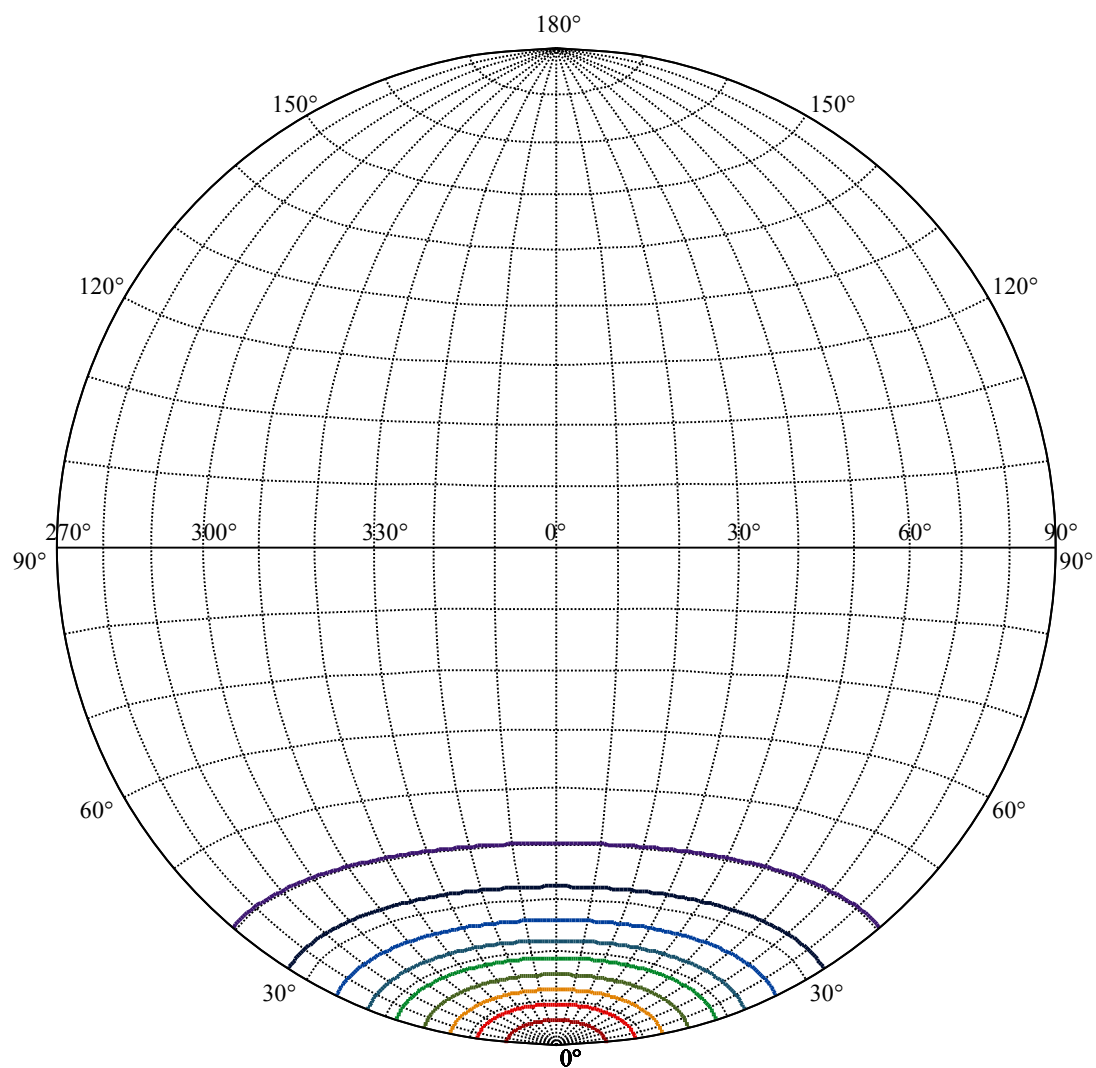
ZONAL LUMEN SUMMARY

0-10	792.13
10-20	1107.87
20-30	880.67
30-40	572.62
40-50	135.08
50-60	20.90
60-70	24.51
70-80	35.99
80-90	17.11
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







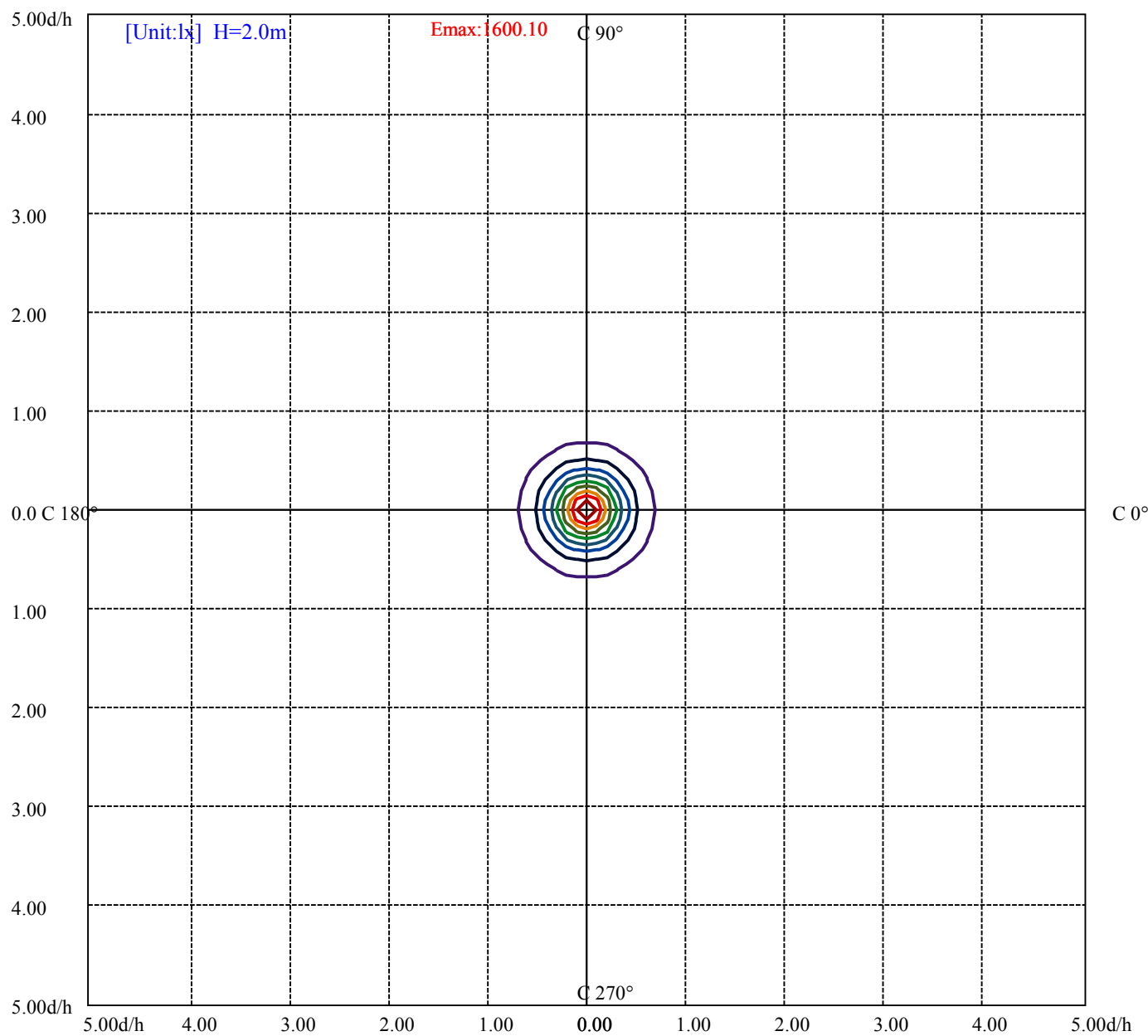


House

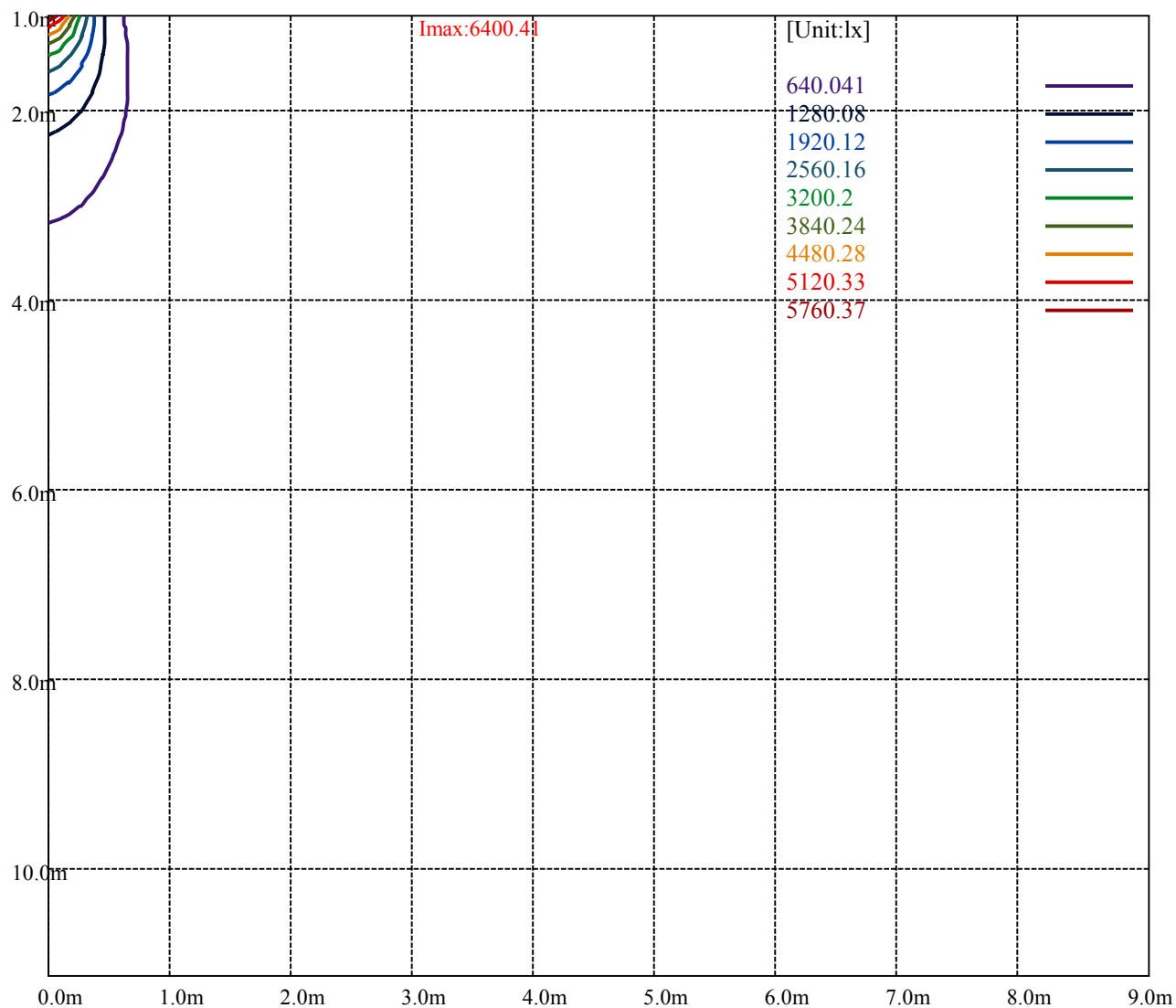
[Unit:cd]

Road

I_{max}:6400.41(10%I_{max}) 640.041(20%I_{max}) 1280.08(30%I_{max}) 1920.12(40%I_{max}) 2560.16(50%I_{max}) 3200.2(60%I_{max}) 3840.24(70%I_{max}) 4480.28(80%I_{max}) 5120.33(90%I_{max}) 5760.37



(10%E _{max}) 160.0098	—
(20%E _{max}) 320.02	—
(30%E _{max}) 480.03	—
(40%E _{max}) 640.04	—
(50%E _{max}) 800.05	—
(60%E _{max}) 960.0575	—
(70%E _{max}) 1120.068	—
(80%E _{max}) 1280.078	—
(90%E _{max}) 1440.088	—



Luminance Table

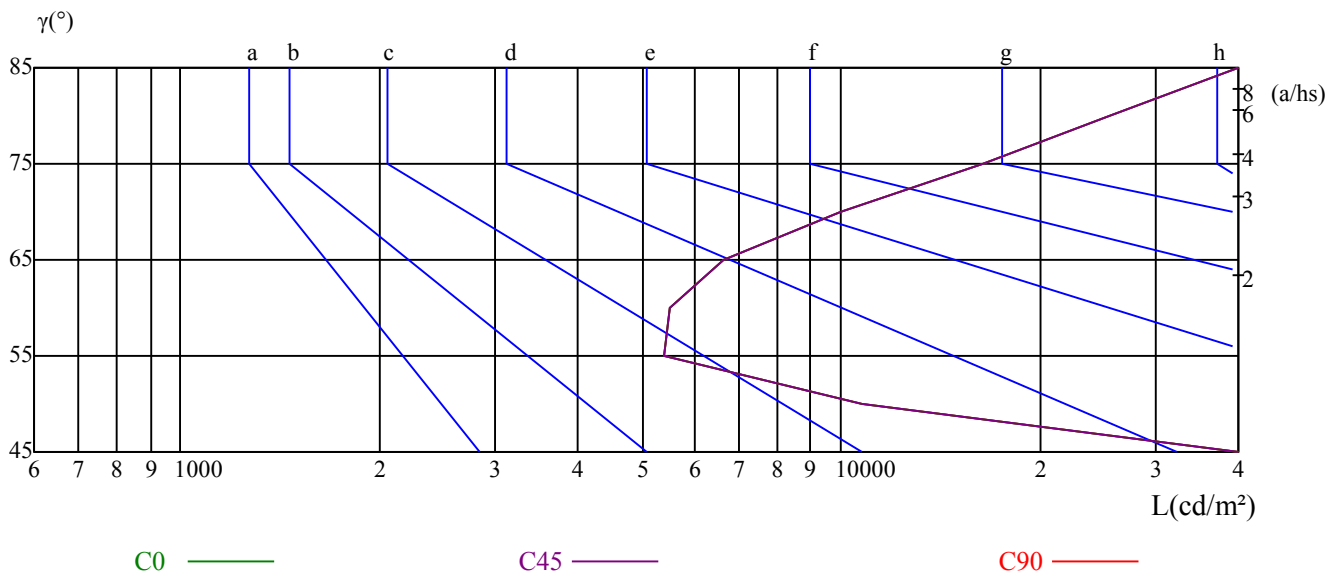
γ	45	50	55	60	65	70	75	80	85
C0	53021	10788	5395	5517	6667	10021	16456	25521	46421
C45	53021	10788	5395	5517	6667	10021	16456	25521	46421
C90	53021	10788	5395	5517	6667	10021	16456	25521	46421

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6667	6667	6667	16456	16456	16456	46421	46421	46421

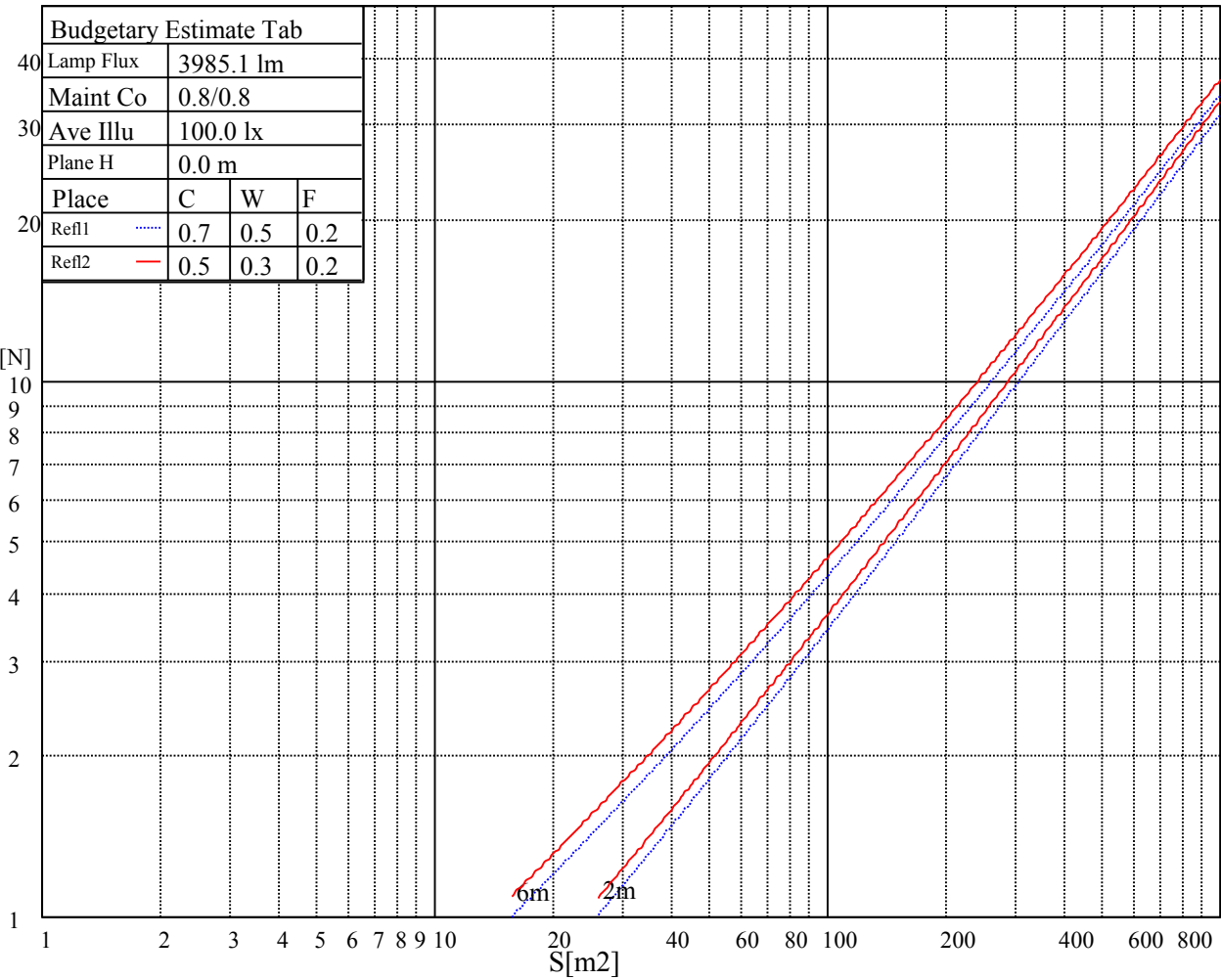
Glare Table

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

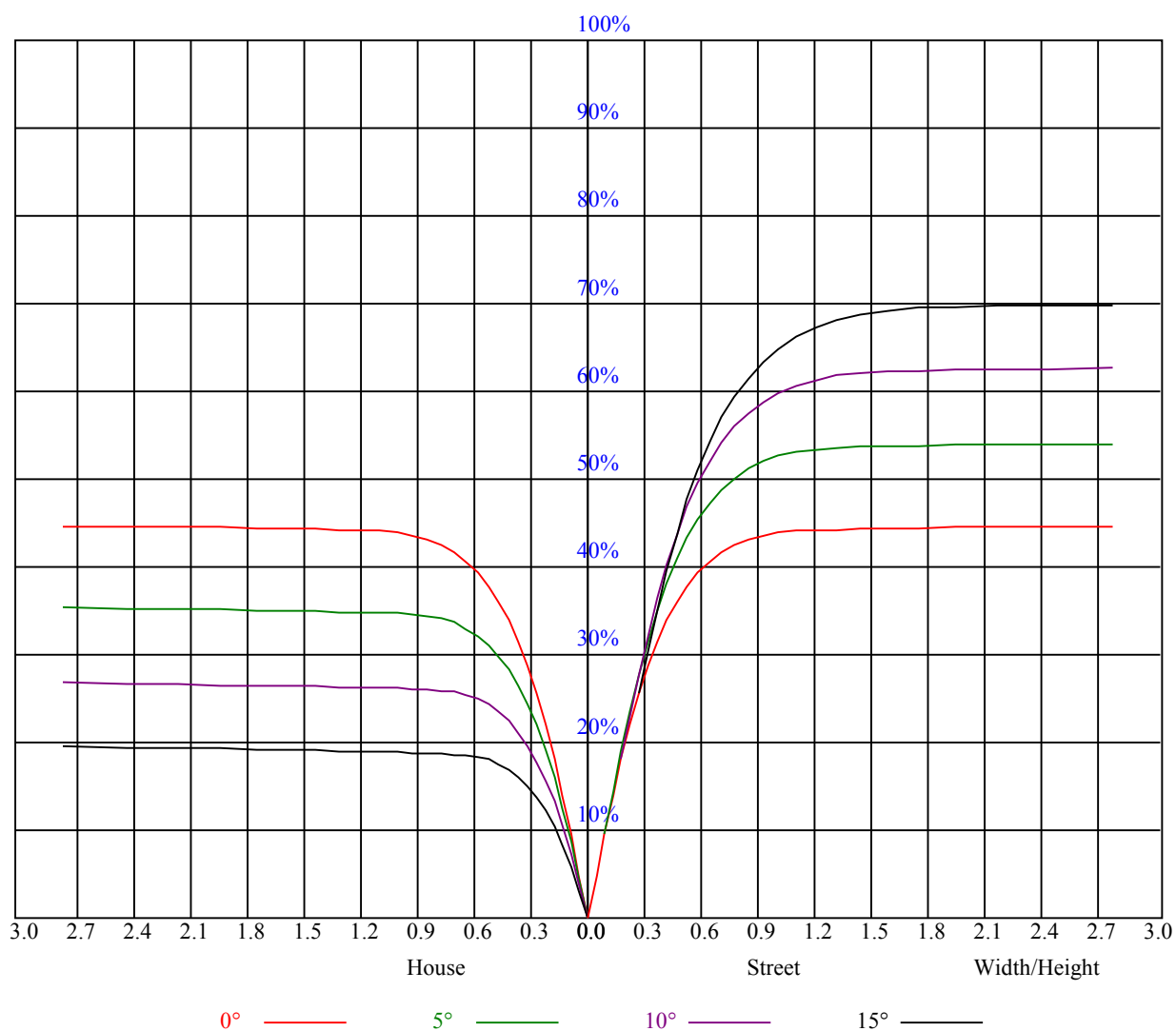
Luminance Limiting Curve



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	3.01	4.03	3.38	4.34	4.65	3.15	4.16	3.51	4.47	4.79
	3H	7.58	8.47	7.96	8.80	9.17	6.89	7.79	7.28	8.12	8.49
	4H	10.78	11.61	11.18	11.96	12.35	9.34	10.17	9.74	10.52	10.91
	6H	13.67	14.43	14.09	14.80	15.20	11.93	12.69	12.35	13.07	13.46
	8H	14.94	15.66	15.38	16.05	16.46	13.22	13.93	13.65	14.32	14.73
	12H	16.73	17.41	17.16	17.79	18.22	15.12	15.80	15.56	16.19	16.62
4H	2H	3.94	4.77	4.35	5.13	5.52	4.04	4.87	4.45	5.22	5.61
	3H	8.89	9.57	9.31	9.98	10.39	8.28	8.97	8.70	9.37	9.78
	4H	12.20	12.81	12.64	13.24	13.68	10.96	11.57	11.40	11.99	12.44
	6H	14.81	15.33	15.28	15.78	16.26	13.32	13.84	13.79	14.29	14.77
	8H	16.29	16.78	16.77	17.23	17.70	14.78	15.27	15.26	15.72	16.20
	12H	18.05	18.47	18.54	18.96	19.44	16.61	17.03	17.10	17.52	18.00
8H	4H	13.03	13.52	13.50	13.97	14.44	12.13	12.62	12.61	13.07	13.54
	6H	15.92	16.31	16.43	16.81	17.30	14.78	15.17	15.29	15.68	16.16
	8H	17.52	17.87	18.05	18.39	18.89	16.33	16.68	16.86	17.20	17.70
	12H	19.31	19.62	19.84	20.12	20.70	18.13	18.43	18.65	18.93	19.51
12H	4H	13.26	13.69	13.75	14.18	14.65	12.52	12.95	13.01	13.44	13.91
	6H	16.54	16.58	16.77	17.06	17.60	15.57	15.61	15.80	16.09	16.63
	8H	17.94	18.24	18.46	18.74	19.32	16.91	17.22	17.44	17.72	18.30
Variation with the observer position at spacings:											
S = 1.0H		3.3/-6.2					3.3/-6.2				
S = 1.5H		5.0/-4.3					5.0/-4.3				
S = 2.0H		6.0/-3.1					6.0/-3.1				
Standard tables:		BK4					BK4				
Uncorrected UGR		5.7					5.7				



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	1.08	1.08	1.08	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	1.00	0.97	0.95	0.98	0.95	0.93	0.94	0.92	0.91	0.91	0.89	0.88	0.87	0.86	0.85	0.84
2	0.93	0.90	0.86	0.92	0.88	0.85	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.80	0.79
3	0.88	0.83	0.80	0.86	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.75	0.74
4	0.83	0.78	0.74	0.82	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.72	0.76	0.74	0.71	0.70
5	0.78	0.73	0.70	0.78	0.73	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.66
6	0.74	0.69	0.66	0.74	0.69	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.63
7	0.71	0.66	0.62	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.60
8	0.67	0.62	0.59	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
9	0.64	0.60	0.56	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.59	0.56	0.62	0.58	0.56	0.54
10	0.62	0.57	0.54	0.61	0.57	0.54	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.56	0.53	0.52



NATA 3-1641-E

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	6357.38	6022.13	5149.69	4074.19	3159.00	2250.56	1598.06	1216.69	779.63		
45.0	6399.56	6179.06	5294.25	4271.06	3252.94	2284.88	1595.81	1214.44	808.31		
90.0	6462.00	6034.50	5117.06	4047.75	3041.44	2131.88	1481.63	1063.63	687.99		
135.0	6382.69	6005.81	5162.63	4098.94	3117.38	2198.81	1538.44	1124.44	730.13		
180.0	6357.38	5719.50	4717.69	3659.63	2728.13	1845.00	1377.00	962.10	563.01		
225.0	6399.56	5704.31	4674.38	3601.69	2698.31	1846.13	1386.56	956.36	545.29		
270.0	6462.00	5777.44	4824.00	3805.88	2850.19	1965.38	1452.38	1038.94	619.88		
315.0	6382.69	5735.81	4741.31	3719.81	2758.50	1878.19	1414.13	1009.69	605.76		
360.0	6357.38	6022.13	5149.69	4074.19	3159.00	2250.56	1598.06	1216.69	779.63		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	372.94	78.30	25.03	21.21	19.80	22.28	24.81	28.24	29.53		
45.0	394.31	92.08	28.35	21.26	19.97	20.64	23.40	25.59	30.43		
90.0	308.08	55.18	24.92	21.83	22.50	28.97	34.43	34.03	35.33		
135.0	332.44	56.25	23.51	21.21	20.31	23.63	29.98	34.26	33.58		
180.0	191.14	38.19	23.91	22.39	23.74	26.72	30.32	30.49	26.94		
225.0	177.92	33.64	22.44	21.88	24.24	32.96	39.43	38.25	31.05		
270.0	301.50	39.21	21.88	20.64	23.46	33.13	45.45	45.90	33.24		
315.0	244.35	36.73	21.66	20.48	20.53	24.02	36.06	37.80	30.54		
360.0	372.94	78.30	25.03	21.21	19.80	22.28	24.81	28.24	29.53		
C/ γ (°)	90.0										
0.0	13.67										
45.0	13.95										
90.0	15.75										
135.0	16.26										
180.0	17.33										
225.0	19.35										
270.0	17.27										
315.0	13.50										
360.0	13.67										