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Nata

LumCAT: 4-2221-A
Luminaire: BJB47.319.2030
Report No: NT2017091910
Test No: GC2017091910
LampCAT: CITIZEN CLU044
Lamp flux(lm): 5761.0
Number of Lamps: 1
Length(mm): 100
Phm Type: C
Voltage(V): 51.4000
Current(A): 0.8000
Power (W): 41.1200
PF: 0.0000
Ballast type: DC
Width(mm): 100
Height(mm): 0

Photometric Results

Lumens(lm): 5173.20
Efficiency(%): 89.80%
Lumens(lm)/Power(W): 125.81
Central intensity(cd): 11050.780
Maximum intensity(cd): 11050.780
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=38.7
[C90/270]Total=38.7
Field angle(10%Imax): [C0/180]Total=68.0
[C90/270]Total=68.0
Maximum s/h(1/2): C0_180=0.64 C90_270=0.64
Maximum s/h(1/4): C0_180=0.61 C90_270=0.61
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.86%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.562%

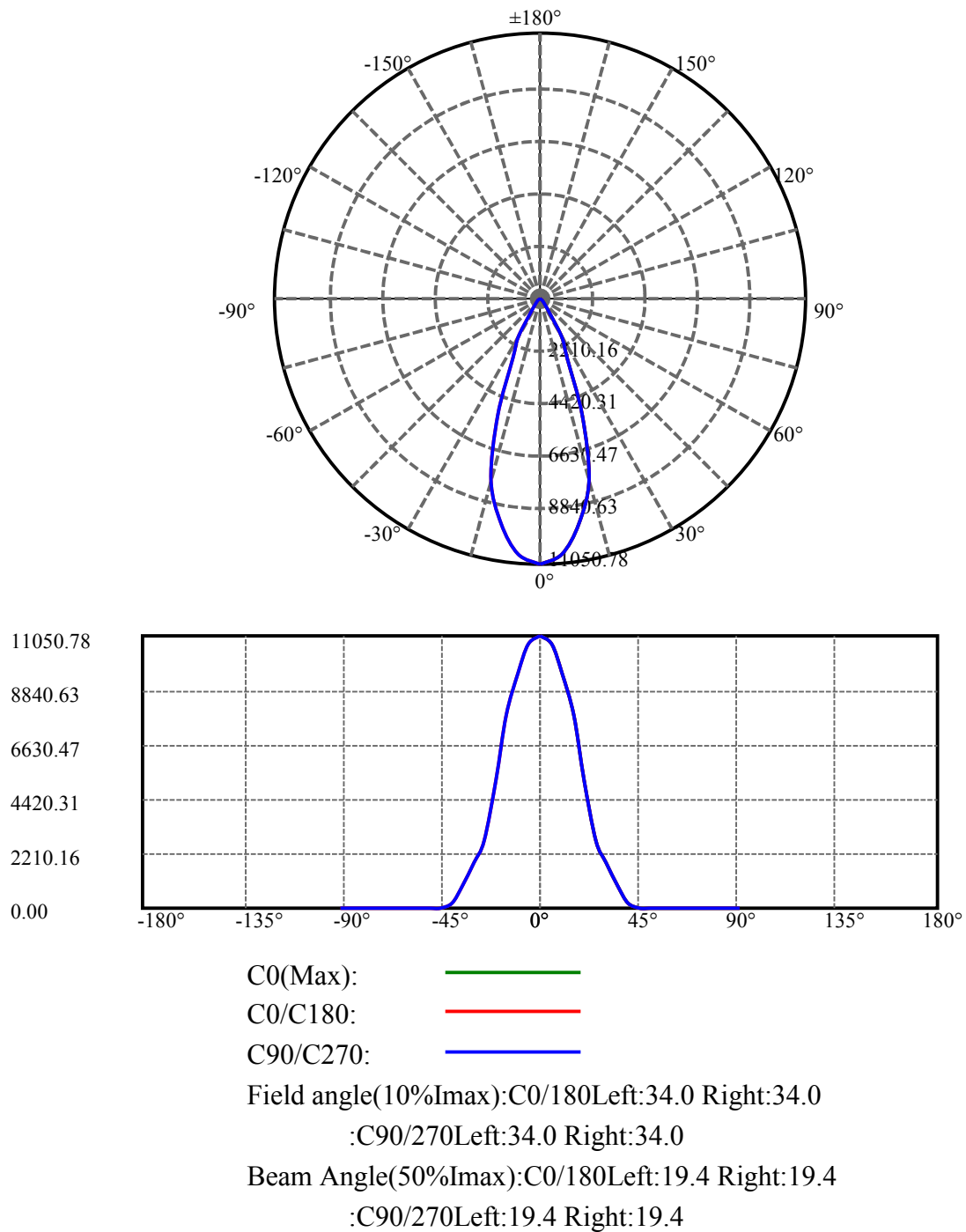
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11050.783	66.086	66.086	1.147%	1.277%
5.0	10688.512	510.626	576.712	8.863%	11.148%
10.0	9524.275	906.550	1483.261	15.736%	28.672%
15.0	7810.645	1108.084	2591.345	19.234%	50.092%
20.0	5192.782	973.512	3564.857	16.898%	68.910%
25.0	2733.137	633.139	4197.996	10.990%	81.149%
30.0	1845.284	505.735	4703.73	8.779%	90.925%
35.0	919.524	289.097	4992.828	5.018%	96.513%
40.0	192.814	67.935	5060.763	1.179%	97.827%
45.0	32.304	12.521	5073.284	.217%	98.069%
50.0	26.028	10.929	5084.213	.190%	98.280%
55.0	24.775	11.124	5095.337	.193%	98.495%
60.0	24.032	11.408	5106.745	.198%	98.715%
65.0	23.482	11.665	5118.411	.202%	98.941%
70.0	23.144	11.921	5130.332	.207%	99.171%
75.0	22.876	12.112	5142.444	.210%	99.405%
80.0	22.752	12.282	5154.726	.213%	99.643%
85.0	22.566	12.322	5167.048	.214%	99.881%
90.0	22.442	6.151	5173.199	.107%	100.000%

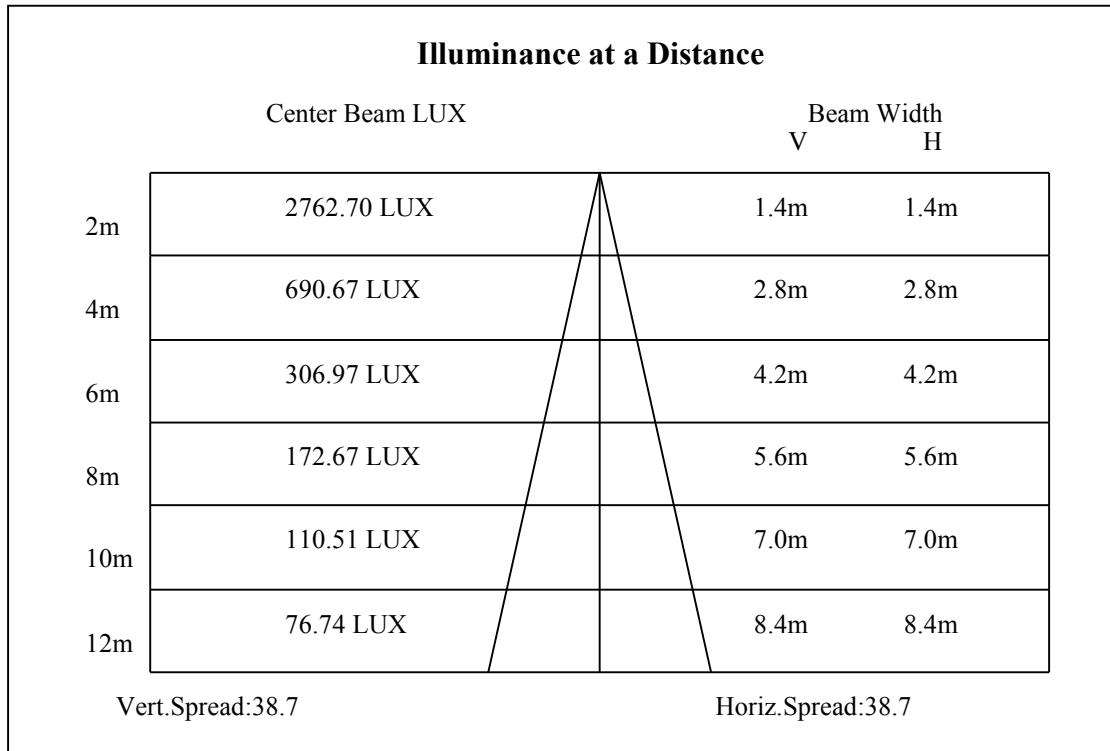
ZONAL LUMEN SUMMARY

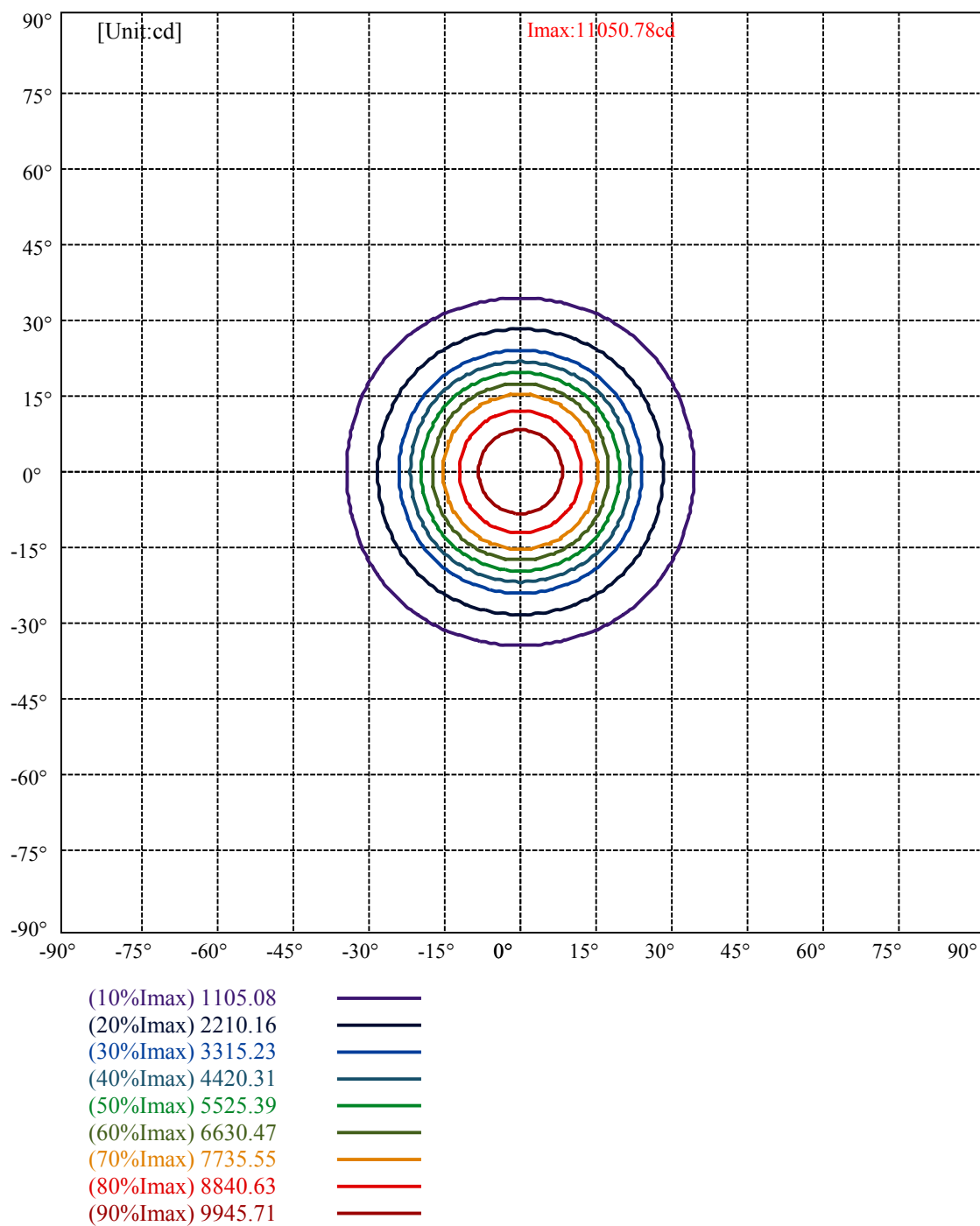
Zone	Lumens	%Lamp	%Fixt
0-30	4703.73	81.65%	90.92%
0-40	5060.76	87.85%	97.83%
0-60	5106.75	88.64%	98.72%
0-90	5167.05	89.69%	99.88%
0-120	5167.05	89.69%	99.88%
0-180	5173.20	89.80%	100.00%
60-90	71.71	1.24%	1.39%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.53	4138.56	71.84%	80.00%

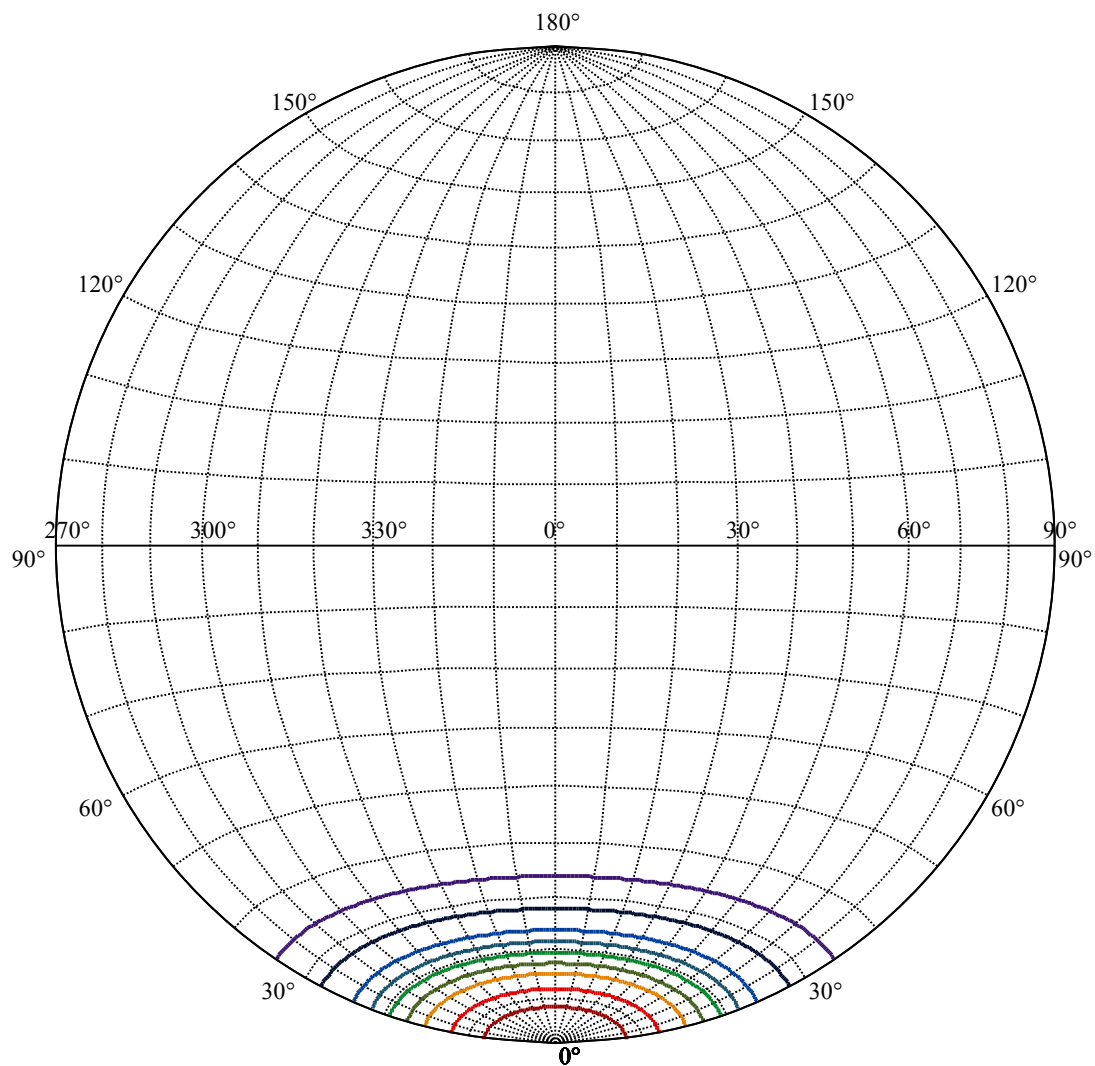
ZONAL LUMEN SUMMARY

0-10	1483.26
10-20	2081.60
20-30	1138.87
30-40	357.03
40-50	23.45
50-60	22.53
60-70	23.59
70-80	24.39
80-90	12.32
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









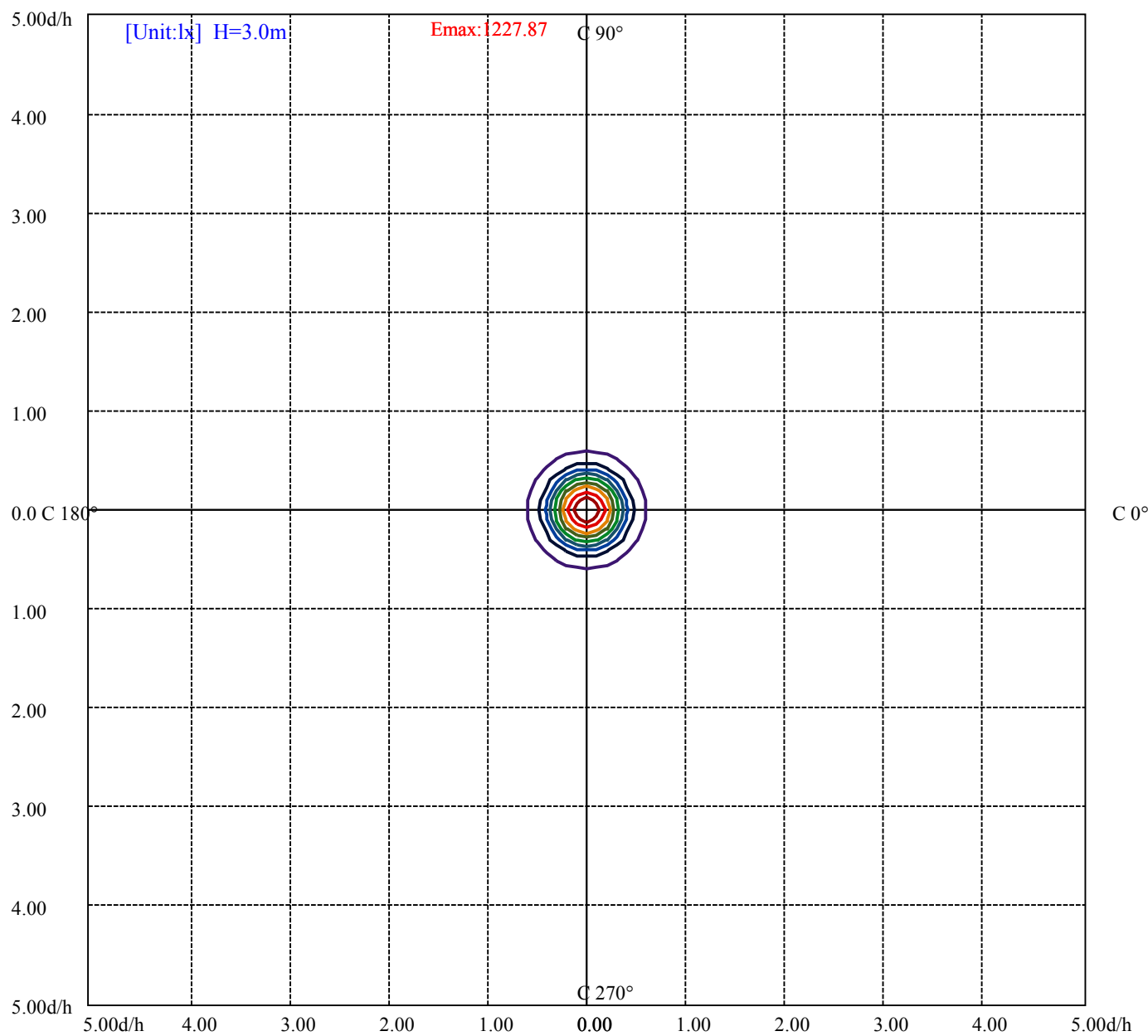
House

[Unit:cd]

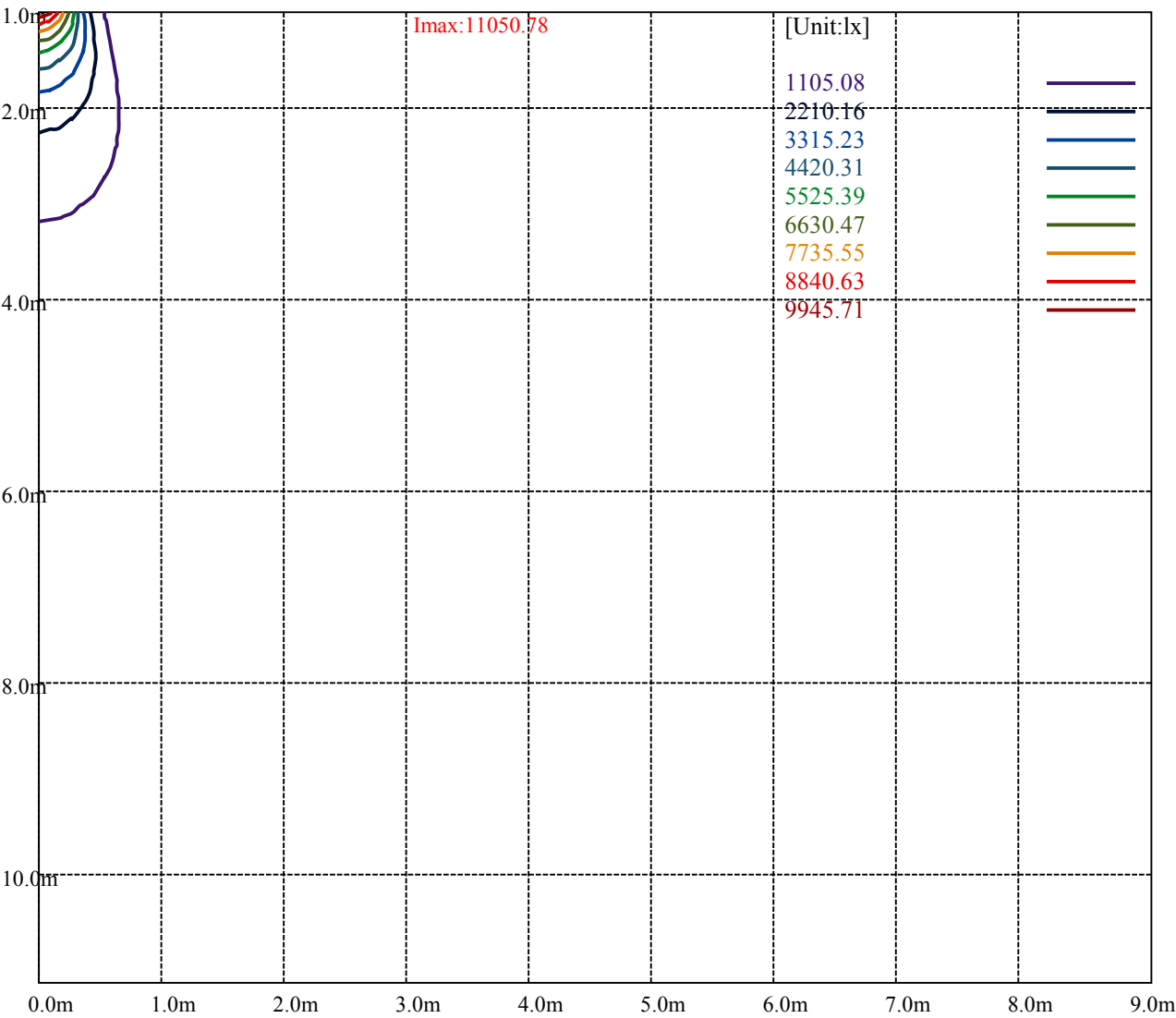
Road

Imax:11050.78

(10%Imax)	1105.08	
(20%Imax)	2210.16	
(30%Imax)	3315.23	
(40%Imax)	4420.31	
(50%Imax)	5525.39	
(60%Imax)	6630.47	
(70%Imax)	7735.55	
(80%Imax)	8840.63	
(90%Imax)	9945.71	



(10%E _{max}) 122.7867	—
(20%E _{max}) 245.5722	—
(30%E _{max}) 368.3589	—
(40%E _{max}) 491.1456	—
(50%E _{max}) 613.9323	—
(60%E _{max}) 736.7178	—
(70%E _{max}) 859.5045	—
(80%E _{max}) 982.2911	—
(90%E _{max}) 1105.078	—



Luminance Table

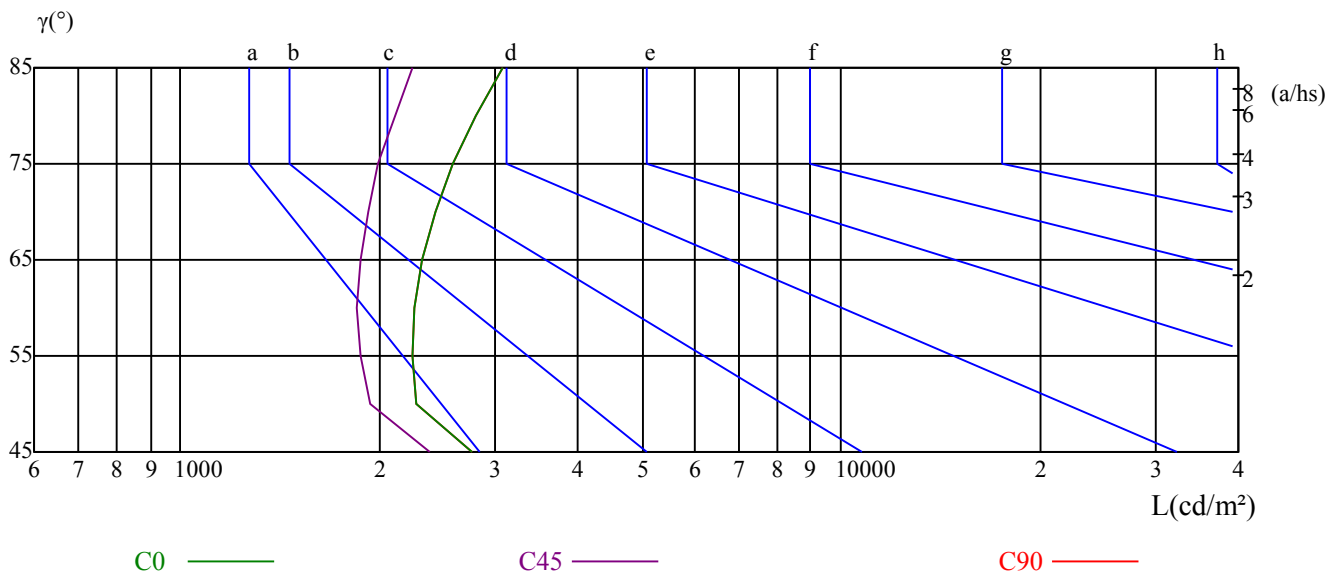
γ	45	50	55	60	65	70	75	80	85
C0	2769	2282	2240	2261	2321	2429	2580	2796	3072
C45	2380	1932	1868	1854	1870	1919	1995	2109	2250
C90	2769	2282	2240	2261	2321	2429	2580	2796	3072

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5556	5556	5556	8839	8839	8839	25892	25892	25892

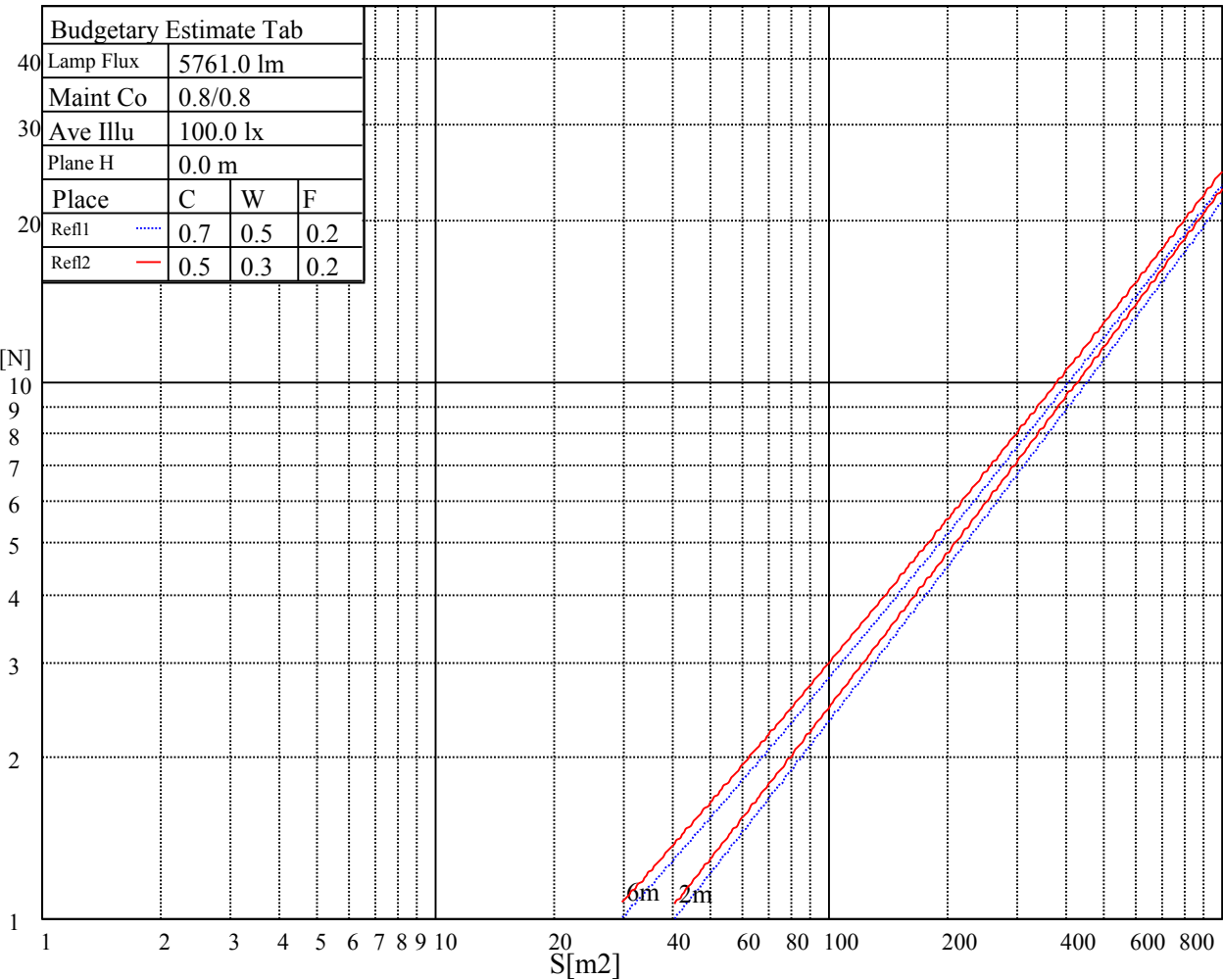
Glare Table

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

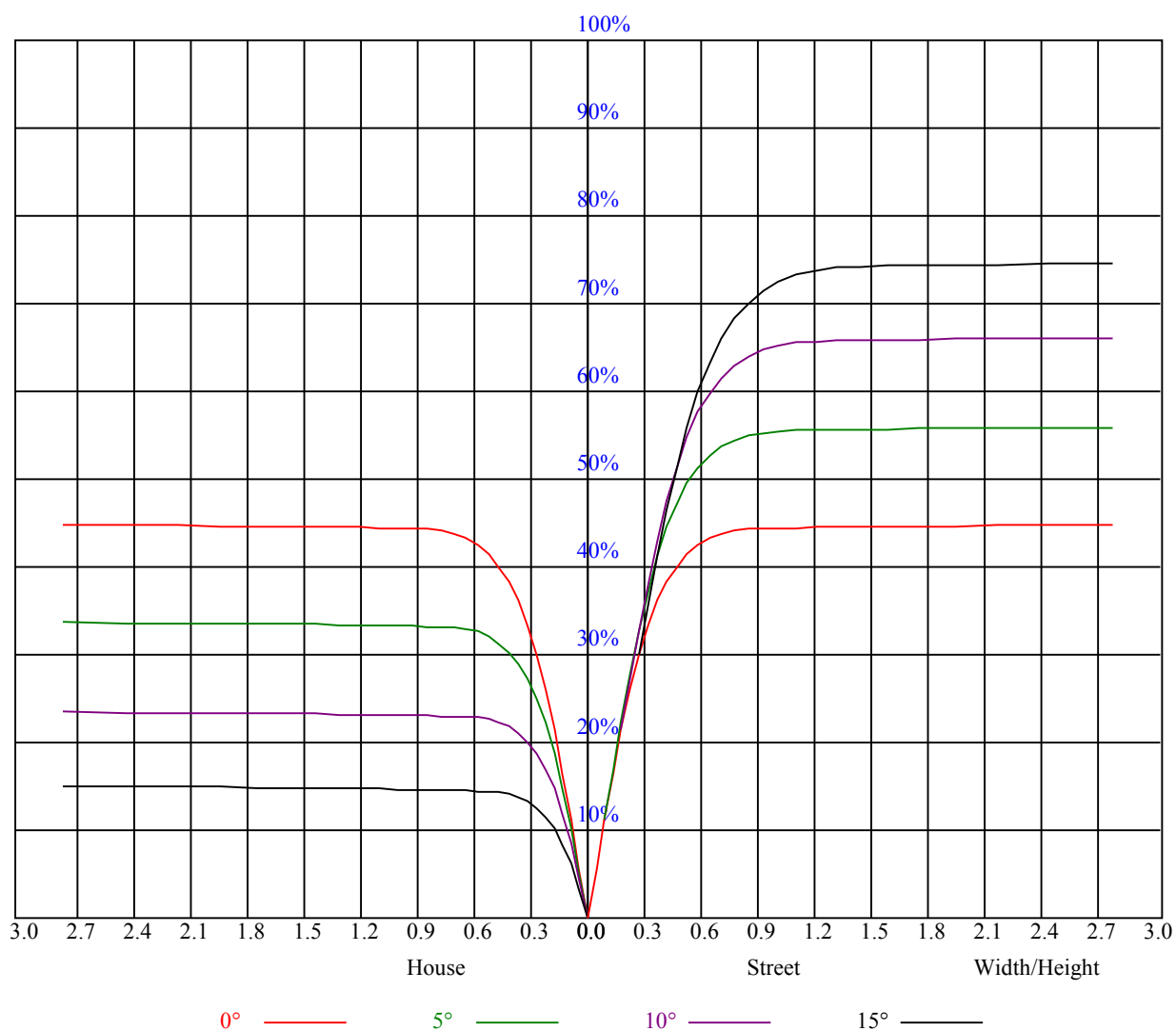
Luminance Limiting Curve



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	-1.74	-0.83	-1.38	-0.52	-0.20	-1.79	-0.88	-1.43	-0.57	-0.25
	3H	0.58	1.39	0.96	1.72	2.09	0.53	1.34	0.92	1.67	2.04
	4H	1.83	2.58	2.24	2.93	3.32	1.80	2.54	2.21	2.90	3.29
	6H	3.15	3.83	3.57	4.21	4.61	3.13	3.82	3.55	4.19	4.59
	8H	3.81	4.45	4.25	4.84	5.25	3.80	4.44	4.23	4.83	5.24
	12H	4.83	5.44	5.26	5.82	6.25	4.81	5.42	5.25	5.81	6.24
4H	2H	-1.24	-0.49	-0.83	-0.14	0.25	-1.28	-0.53	-0.87	-0.18	0.21
	3H	1.37	1.98	1.79	2.39	2.80	1.34	1.95	1.75	2.36	2.77
	4H	2.79	3.34	3.23	3.77	4.22	2.77	3.32	3.21	3.74	4.19
	6H	4.22	4.69	4.69	5.14	5.61	4.20	4.67	4.67	5.12	5.59
	8H	4.99	5.42	5.47	5.88	6.35	4.97	5.41	5.45	5.86	6.34
	12H	6.00	6.37	6.49	6.86	7.34	5.98	6.36	6.48	6.85	7.33
8H	4H	3.24	3.67	3.72	4.13	4.60	3.22	3.65	3.70	4.10	4.58
	6H	4.90	5.24	5.41	5.75	6.23	4.89	5.23	5.40	5.73	6.22
	8H	5.82	6.13	6.36	6.65	7.15	5.81	6.12	6.35	6.64	7.14
	12H	6.96	7.22	7.49	7.72	8.30	6.95	7.21	7.47	7.71	8.29
12H	4H	3.33	3.70	3.82	4.19	4.67	3.31	3.68	3.80	4.17	4.65
	6H	5.27	5.38	5.61	5.85	6.40	5.26	5.36	5.60	5.84	6.39
	8H	6.09	6.35	6.62	6.85	7.43	6.08	6.34	6.61	6.84	7.43
Variation with the observer position at spacings:											
S = 1.0H		5.7/-7.3					5.7/-7.3				
S = 1.5H		8.0/-5.7					8.0/-5.7				
S = 2.0H		9.5/-4.5					9.5/-4.5				
Standard tables:		BK2					BK2				
Uncorrected UGR		-2.5					-2.5				



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	1.08	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	0.98	0.96	0.98	0.96	0.94	0.95	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.95	0.92	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.83	0.89	0.85	0.83	0.87	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.77
4	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.82	0.79	0.76	0.80	0.78	0.76	0.74
5	0.82	0.78	0.75	0.82	0.78	0.74	0.80	0.77	0.74	0.79	0.76	0.73	0.77	0.75	0.73	0.71
6	0.79	0.75	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
7	0.76	0.72	0.68	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.70	0.67	0.66
8	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.64
9	0.71	0.66	0.63	0.70	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.60



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	11192.97	10802.07	9684.42	8071.27	5340.47	2829.90	1922.02	991.02	302.81		
45.0	10985.40	10901.17	9987.23	8434.64	5984.63	3094.17	2034.33	1177.11	285.19		
90.0	11055.33	10846.11	9676.16	8076.77	5502.34	2808.43	1924.77	1020.91	177.39		
135.0	10969.44	10846.11	9744.98	8379.58	5885.53	3011.59	1980.38	1126.45	290.15		
180.0	11192.97	10638.00	9384.91	7640.73	4962.78	2538.10	1788.23	826.89	87.81		
225.0	10985.40	10416.67	9129.45	7159.53	4348.35	2378.99	1632.42	648.34	50.98		
270.0	11055.33	10565.32	9365.09	7493.18	5109.23	2785.85	1782.73	867.69	286.29		
315.0	10969.44	10492.65	9221.95	7229.46	4408.92	2418.08	1697.39	697.78	61.88		
360.0	11192.97	10802.07	9684.42	8071.27	5340.47	2829.90	1922.02	991.02	302.81		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	33.09	25.93	24.67	23.84	23.34	23.01	22.79	22.57	22.41		
45.0	36.67	26.37	25.11	24.33	23.73	23.45	23.12	23.01	22.68		
90.0	33.47	26.32	25.00	24.17	23.56	23.18	22.85	22.68	22.52		
135.0	35.51	26.48	25.11	24.22	23.62	23.18	22.85	22.68	22.52		
180.0	31.00	25.60	24.45	23.84	23.29	23.07	22.85	22.85	22.57		
225.0	29.23	25.60	24.56	23.95	23.51	23.18	23.07	23.12	22.96		
270.0	30.23	26.10	24.78	24.00	23.45	23.12	22.79	22.63	22.52		
315.0	29.23	25.82	24.56	23.89	23.34	22.96	22.68	22.46	22.35		
360.0	33.09	25.93	24.67	23.84	23.34	23.01	22.79	22.57	22.41		
C/ γ (°)	90.0										
0.0	22.30										
45.0	22.63										
90.0	22.46										
135.0	22.41										
180.0	22.24										
225.0	22.63										
270.0	22.46										
315.0	22.41										
360.0	22.30										