
Nata

Client:

LumCAT: 1654-S

Luminaire: 92.70.064.00

Report No: NT2018040402

Test No: nata-0100

LampCAT: CITIZEN CLU700

Lamp flux(lm): 378.0

Number of Lamps: 1

Length(mm): 32

Phm Type: C

Voltage(V): 9.7000

Current(A): 0.4100

Power (W): 3.9800

PF: 0.0000

Ballast type: DC

Width(mm): 32

Height(mm): 0

Photometric Results

Lumens(lm): 336.16, Efficiency(%): 88.93% , Luminous Efficacy(lm/W): 84.46

Central intensity(cd): 1775.156, Maximum intensity(cd): 1775.156

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=19.2

[C90/270]Total=19.2

Field angle(10%Imax): [C0/180]Total=42.4

[C90/270]Total=42.4

Maximum s/h(1/2): C0_180=0.33 C90_270=0.33

Maximum s/h(1/4): C0_180=0.35 C90_270=0.35

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.66%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 95.647%

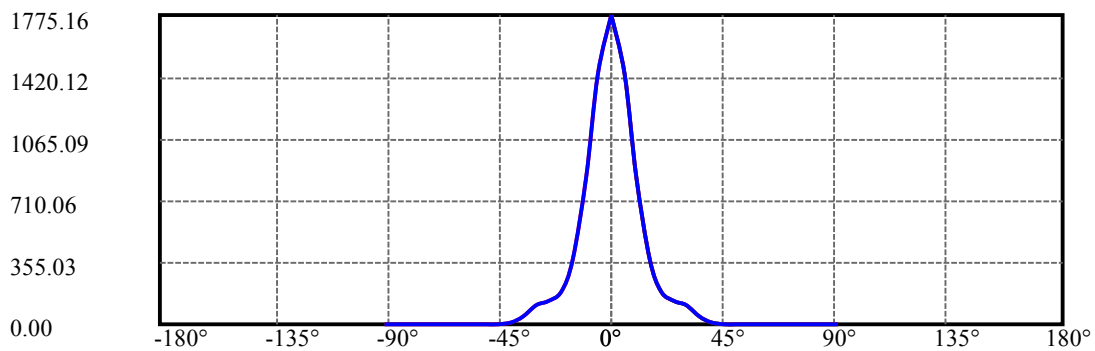
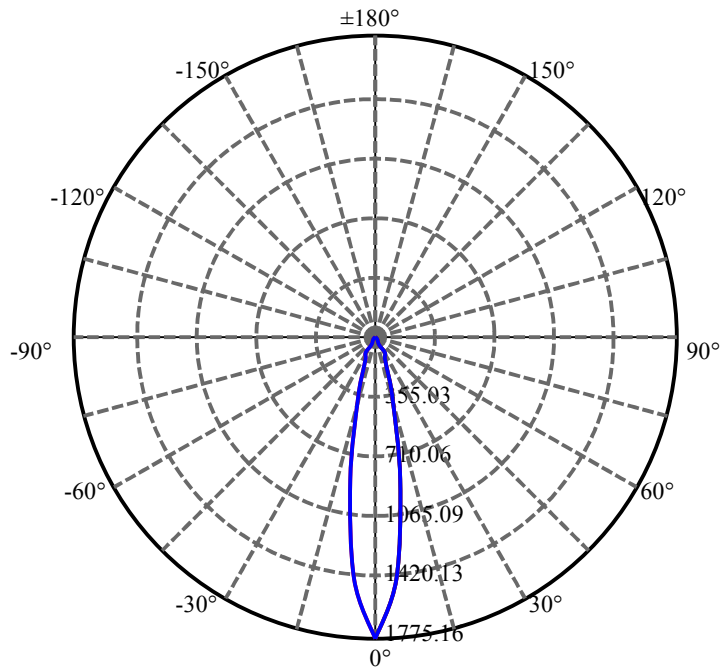
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1775.156	10.616	10.616	2.808%	3.158%
5.0	1431.879	68.406	79.021	18.097%	23.507%
10.0	845.646	80.491	159.513	21.294%	47.451%
15.0	377.088	53.497	213.009	14.153%	63.365%
20.0	191.128	35.832	248.841	9.479%	74.024%
25.0	132.418	30.675	279.516	8.115%	83.149%
30.0	105.054	28.792	308.308	7.617%	91.713%
35.0	48.670	15.302	323.61	4.048%	96.265%
40.0	9.676	3.409	327.019	.902%	97.279%
45.0	3.455	1.339	328.358	.354%	97.678%
50.0	2.533	1.063	329.422	.281%	97.994%
55.0	2.230	1.001	330.423	.265%	98.292%
60.0	2.016	0.957	331.38	.253%	98.577%
65.0	1.872	0.930	332.31	.246%	98.853%
70.0	1.769	0.911	333.221	.241%	99.124%
75.0	1.679	0.889	334.11	.235%	99.389%
80.0	1.590	0.858	334.968	.227%	99.644%
85.0	1.507	0.823	335.791	.218%	99.889%
90.0	1.363	0.373	336.165	.099%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	308.31	81.56%	91.71%
0-40	327.02	86.51%	97.28%
0-60	331.38	87.67%	98.58%
0-90	335.79	88.83%	99.89%
0-120	335.79	88.83%	99.89%
0-180	336.16	88.93%	100.00%
60-90	5.37	1.42%	1.60%
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%
0-23.27	268.93	71.15%	80.00%

ZONAL LUMEN SUMMARY

0-10	159.51
10-20	89.33
20-30	59.47
30-40	18.71
40-50	2.40
50-60	1.96
60-70	1.84
70-80	1.75
80-90	0.82
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



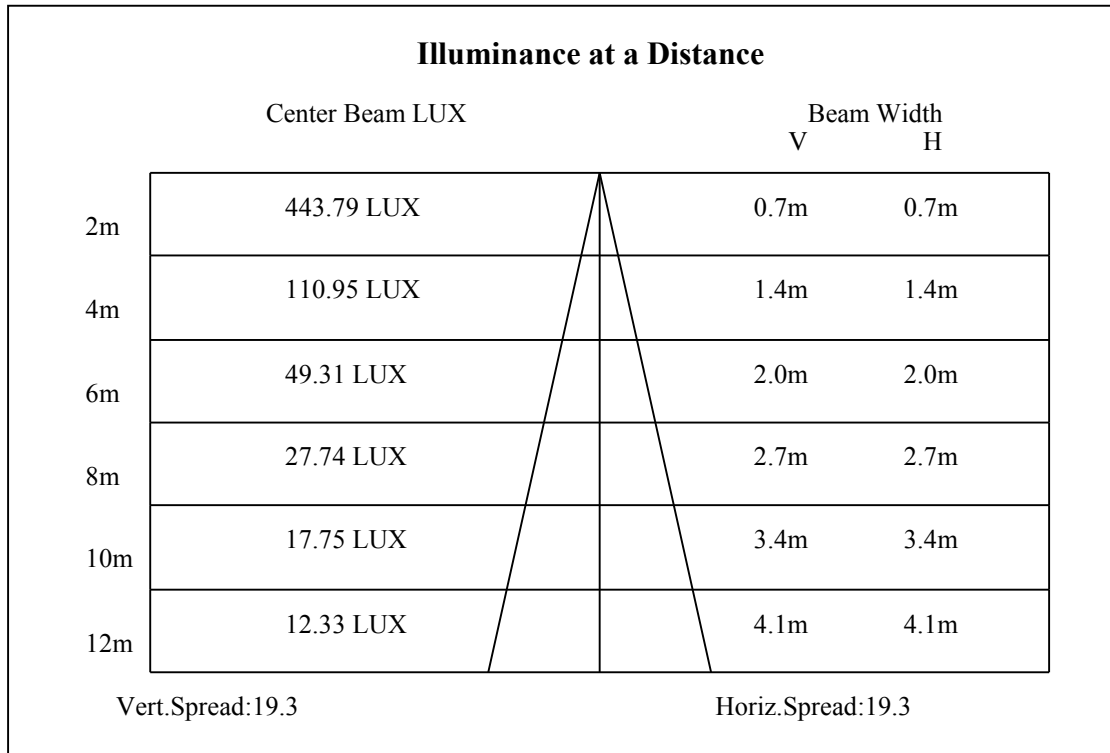
C0(Max): —————

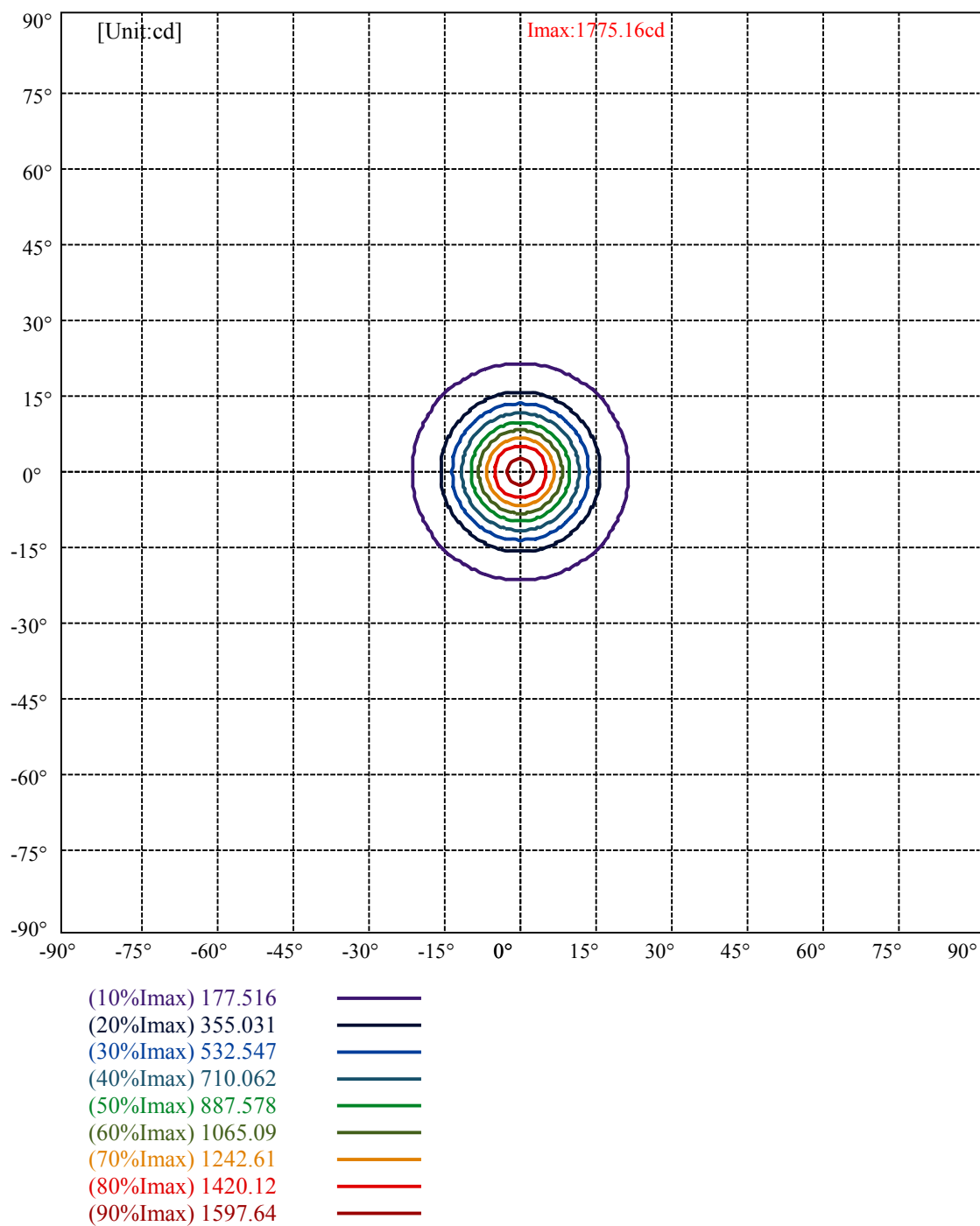
C0/C180: —————

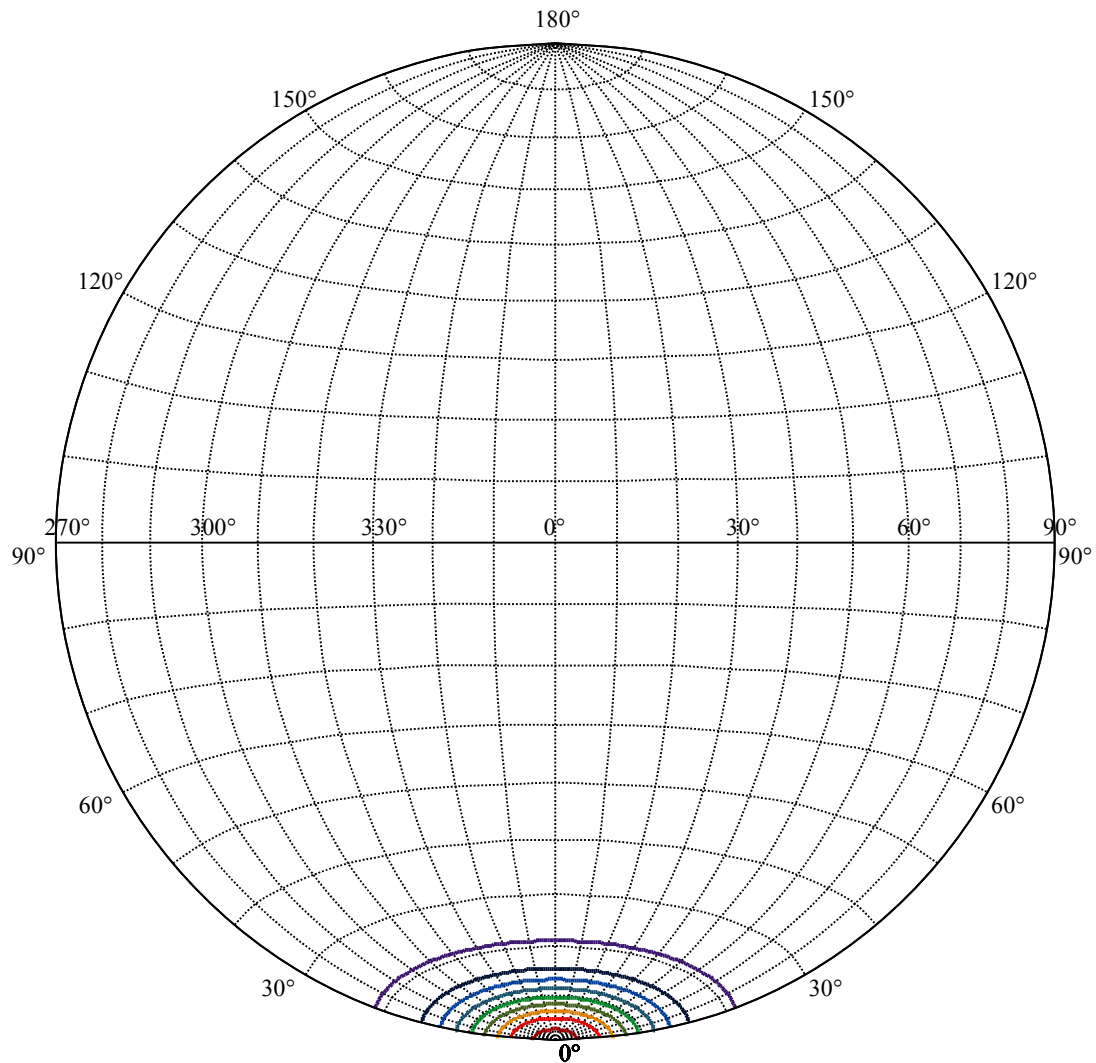
C90/C270: —————

Field angle(10%Imax):C0/180Left:21.2 Right:21.2
:C90/270Left:21.2 Right:21.2

Beam Angle(50%Imax):C0/180Left:9.6 Right:9.6
:C90/270Left:9.6 Right:9.6







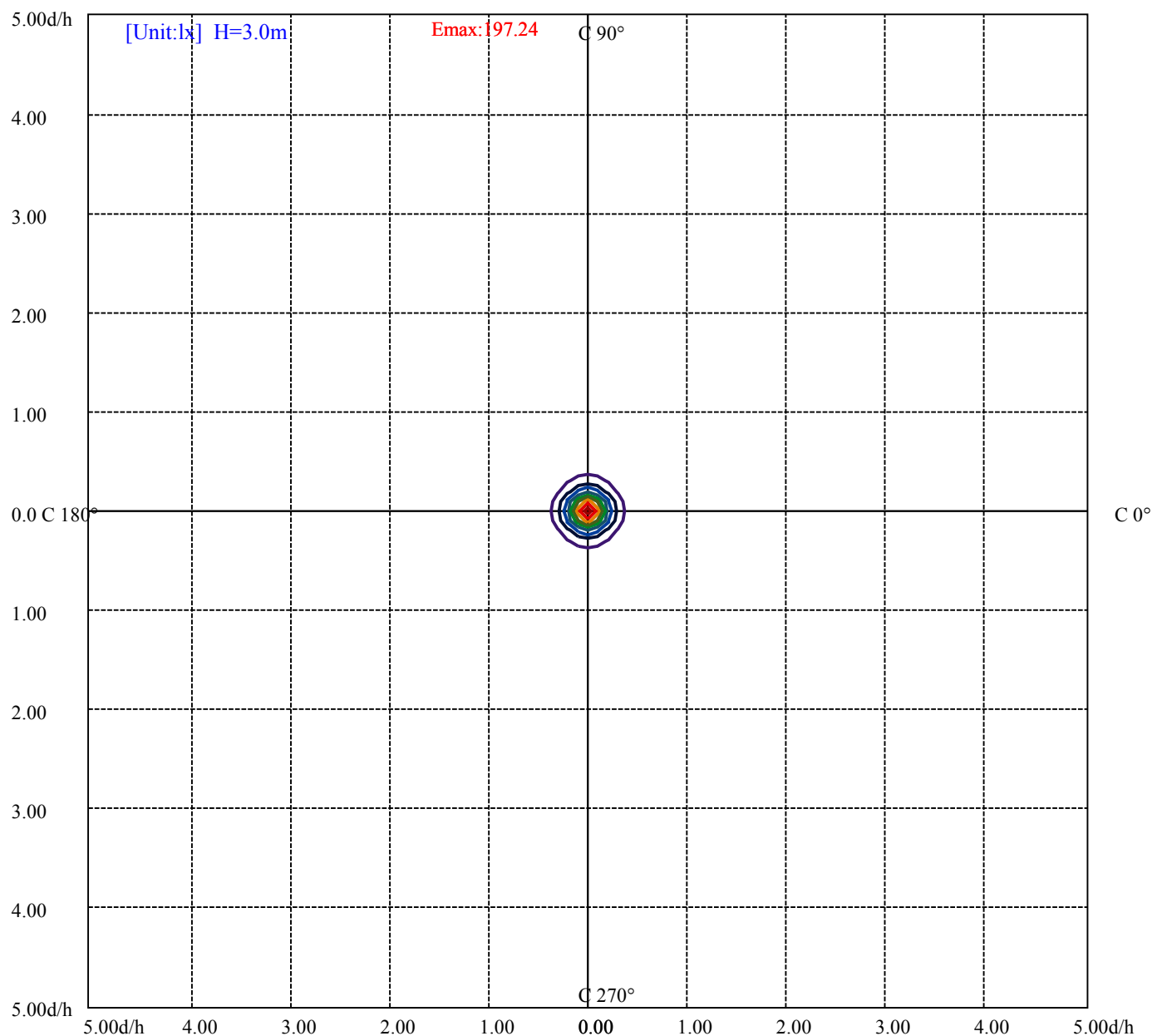
House

[Unit:cd]

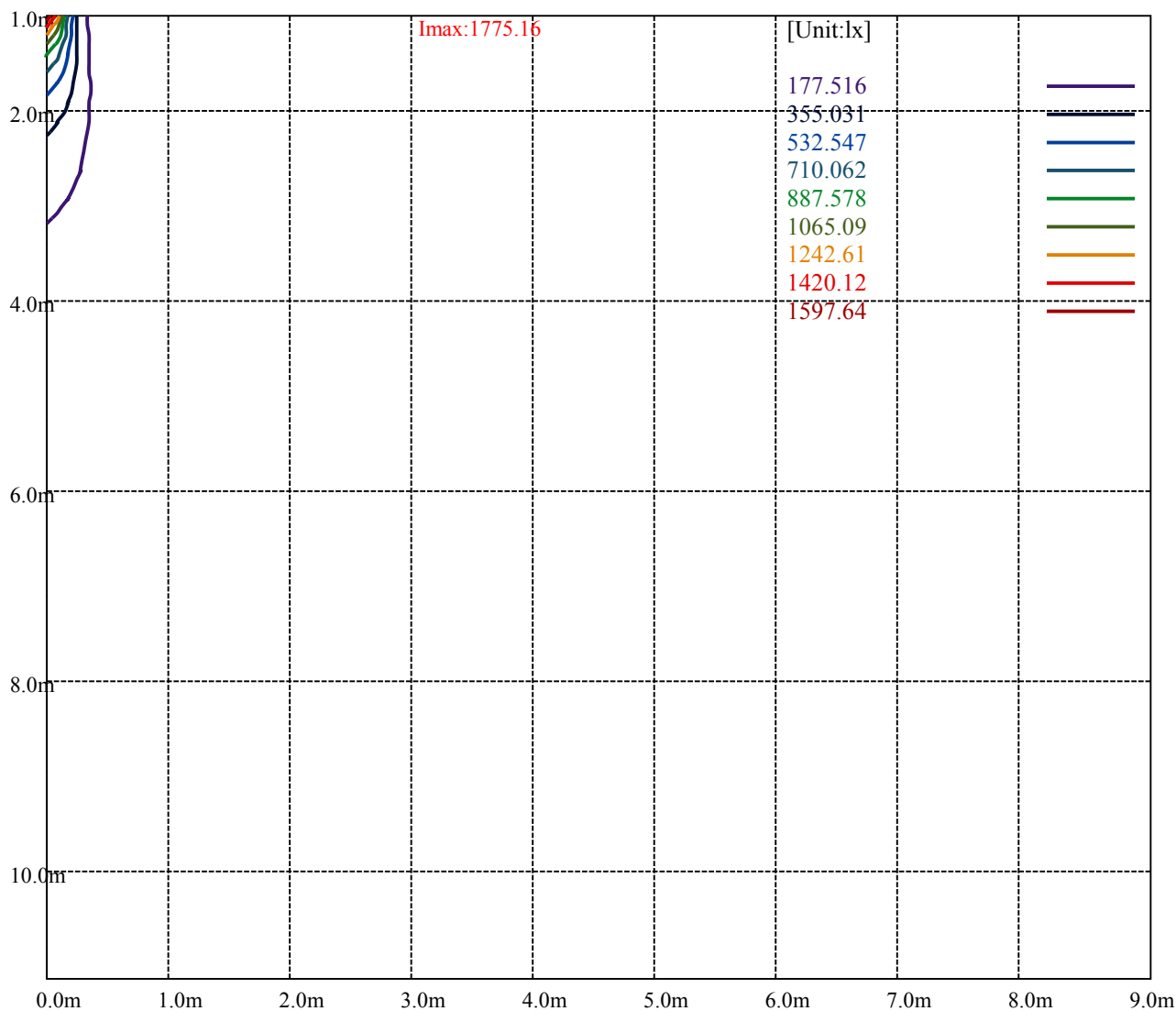
Road

Imax:1775.16

(10%Imax)	177.516	—
(20%Imax)	355.031	—
(30%Imax)	532.547	—
(40%Imax)	710.062	—
(50%Imax)	887.578	—
(60%Imax)	1065.09	—
(70%Imax)	1242.61	—
(80%Imax)	1420.12	—
(90%Imax)	1597.64	—



(10%Emax)	19.72389	—
(20%Emax)	39.44767	—
(30%Emax)	59.17155	—
(40%Emax)	78.89533	—
(50%Emax)	98.61922	—
(60%Emax)	118.3433	—
(70%Emax)	138.0667	—
(80%Emax)	157.7911	—
(90%Emax)	177.5145	—



Luminance Table

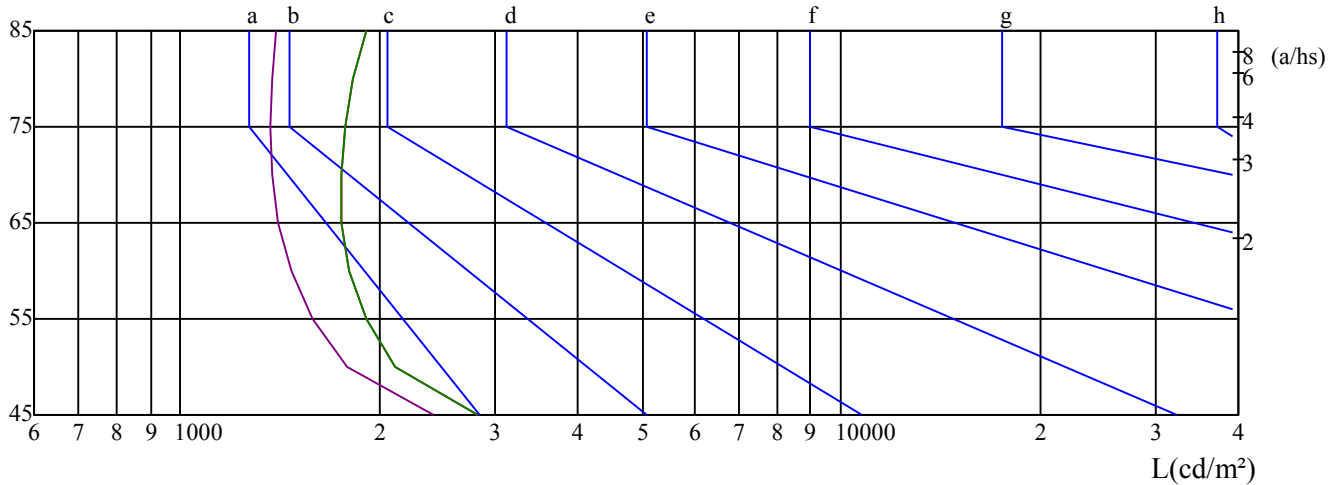
γ	45	50	55	60	65	70	75	80	85
C0	2827	2115	1916	1798	1748	1748	1777	1825	1906
C45	2419	1782	1589	1467	1402	1376	1369	1372	1394
C90	2827	2115	1916	1798	1748	1748	1777	1825	1906

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4326	4326	4326	6336	6336	6336	16888	16888	16888

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

 $\gamma(^{\circ})$ 

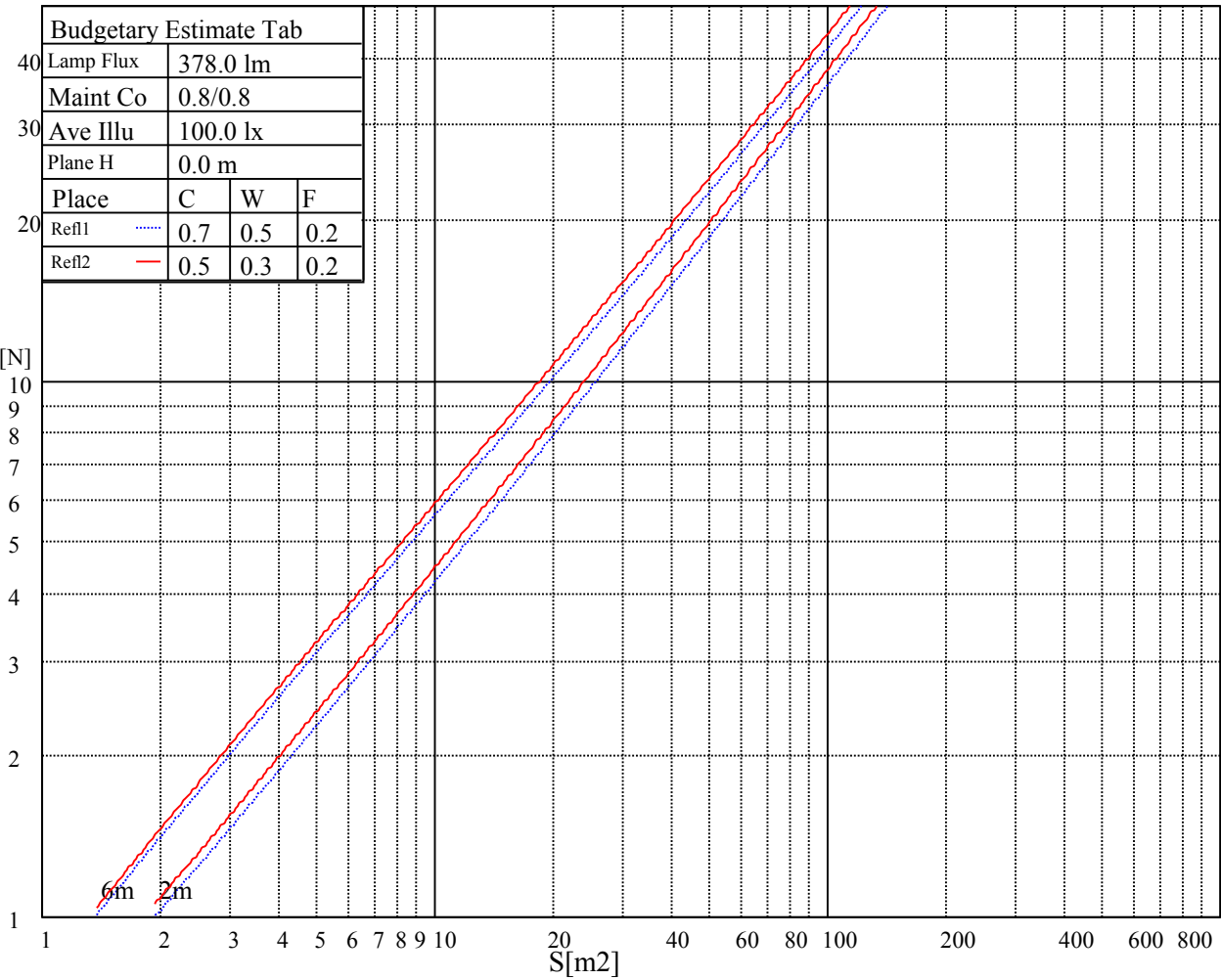
C0 ———

C45 ———

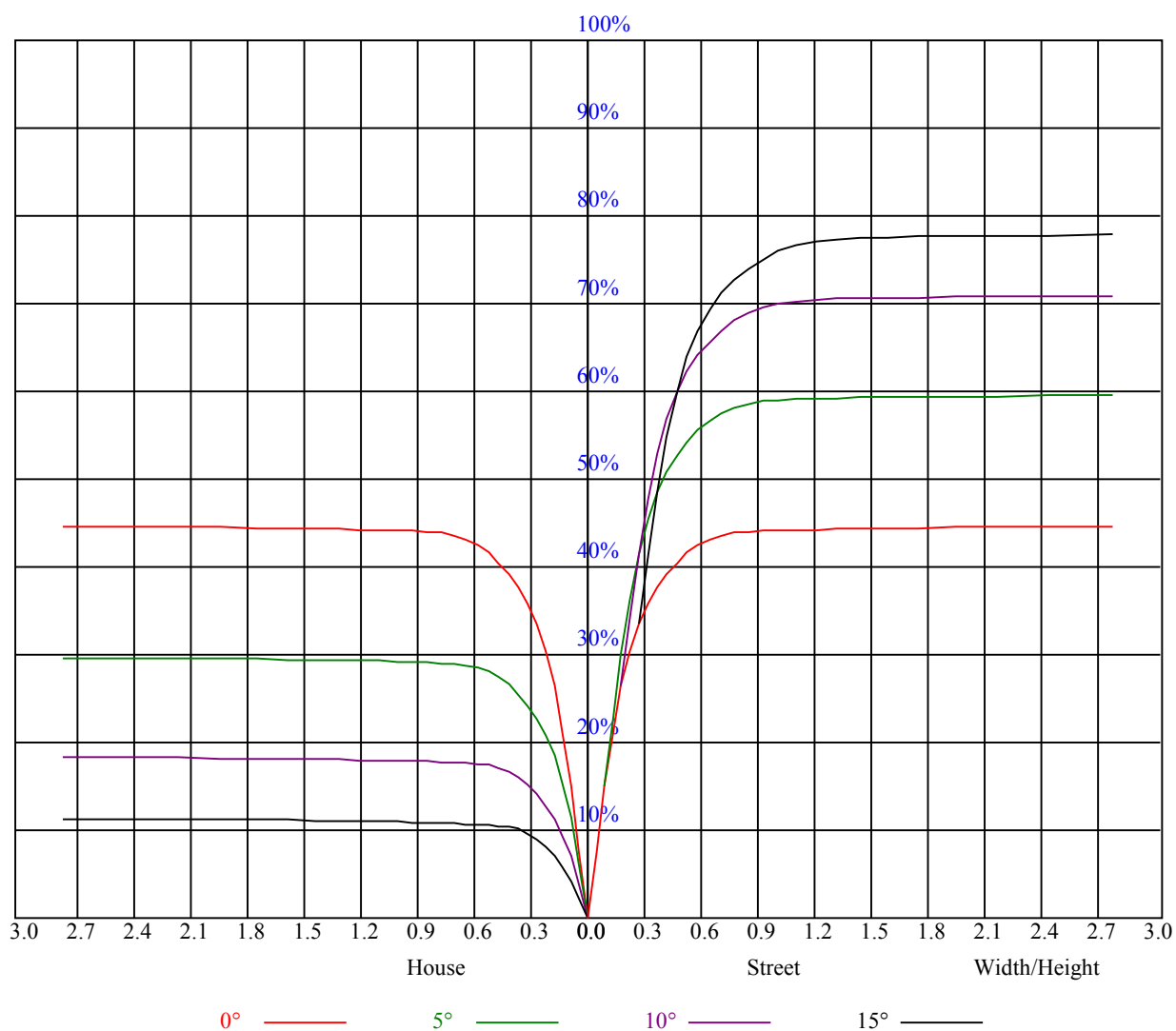
C90 ———

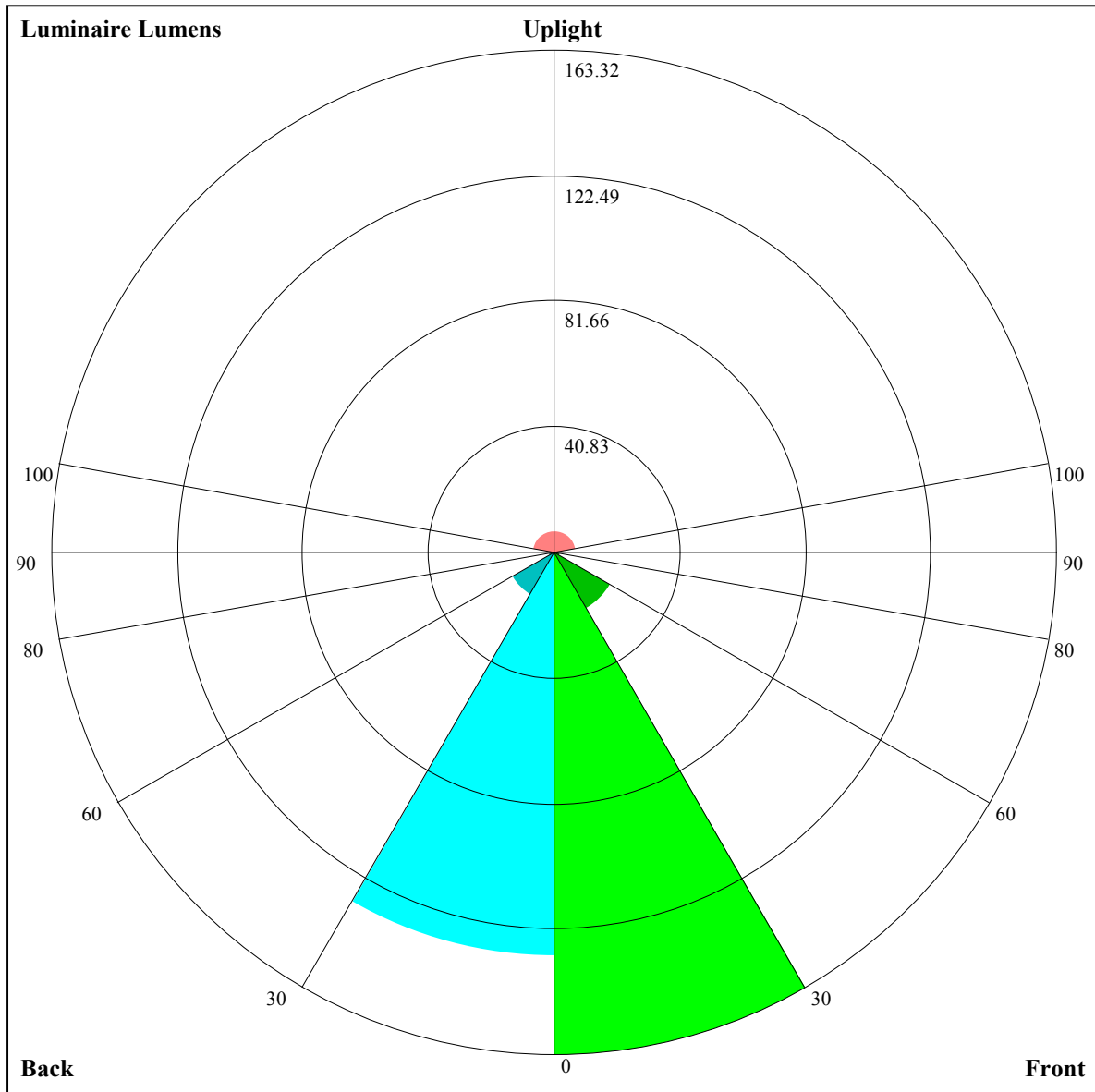
Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	15.37	16.29	15.73	16.60	16.92	14.91	15.83	15.28	16.14	16.46
	3H	15.27	16.08	15.65	16.42	16.77	14.83	15.65	15.22	15.99	16.33
	4H	15.26	16.02	15.66	16.38	16.74	14.84	15.60	15.24	15.95	16.32
	6H	15.33	16.03	15.75	16.40	16.80	14.92	15.61	15.34	15.99	16.39
	8H	15.37	16.03	15.79	16.42	16.82	14.96	15.62	15.38	16.01	16.42
	12H	15.43	16.05	15.86	16.45	16.87	15.02	15.64	15.45	16.04	16.46
4H	2H	15.08	15.83	15.48	16.19	16.56	14.62	15.38	15.03	15.74	16.11
	3H	14.99	15.63	15.42	16.02	16.44	14.57	15.21	15.00	15.60	16.02
	4H	15.08	15.63	15.52	16.05	16.50	14.67	15.22	15.11	15.65	16.10
	6H	15.20	15.69	15.68	16.14	16.60	14.82	15.30	15.29	15.76	16.21
	8H	15.33	15.78	15.82	16.24	16.71	14.95	15.40	15.44	15.86	16.33
	12H	15.50	15.91	15.99	16.37	16.89	15.12	15.53	15.61	15.99	16.51
8H	4H	14.97	15.42	15.45	15.87	16.35	14.57	15.02	15.06	15.48	15.96
	6H	15.18	15.54	15.68	16.02	16.54	14.81	15.18	15.32	15.66	16.17
	8H	15.43	15.74	15.97	16.26	16.76	15.07	15.38	15.61	15.90	16.40
	12H	15.71	15.94	16.26	16.46	16.99	15.36	15.59	15.90	16.10	16.63
12H	4H	14.94	15.35	15.43	15.80	16.32	14.55	14.96	15.04	15.41	15.93
	6H	15.22	15.52	15.75	16.05	16.54	14.86	15.16	15.39	15.68	16.18
	8H	15.47	15.70	16.02	16.22	16.74	15.12	15.35	15.67	15.87	16.40
Variation with the observer position at spacings:											
S = 1.0H		5.4/-5.3					5.4/-5.3				
S = 1.5H		7.4/-4.0					7.4/-4.0				
S = 2.0H		8.9/-3.2					8.9/-3.2				
Standard tables:		BK2					BK2				
Uncorrected UGR		-4.8					-4.8				

UGR calculation is based on CIE Publ. 117 ,S/H = 0.25



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	1.09	1.09	1.09	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.00	0.97	0.94	0.98	0.95	0.93	0.94	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.83
2	0.95	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.81	0.80
3	0.90	0.86	0.83	0.89	0.85	0.82	0.87	0.84	0.81	0.85	0.82	0.80	0.83	0.80	0.79	0.77
4	0.87	0.82	0.79	0.86	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.75
5	0.84	0.79	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.73
6	0.81	0.76	0.73	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.69
8	0.76	0.72	0.69	0.75	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
9	0.74	0.70	0.67	0.73	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
10	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64





Luminaire Lumens:

FL=163.32,FM=21.19,FH=1.84,FVH=0.83

BL=131.45,BM=15.95,BH=1.83,BVH=0.8

UL=1.49,UH=7.08

BUG Rating:B1-U1-G0

Nata 1654-S

Intensity data(cd)										Appendix Page: 16 Total:16
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	
0.0	1773.92	1722.71	1120.40	512.02	289.05	145.84	127.46	78.84	11.34	
45.0	1732.07	1879.63	1369.25	684.35	291.80	150.41	125.64	96.18	25.44	
90.0	1815.21	1770.61	1057.36	464.95	187.63	129.66	110.06	67.50	12.50	
135.0	1779.42	1605.44	959.08	377.14	176.84	132.85	123.16	64.14	8.64	
180.0	1773.92	1096.45	567.08	229.25	153.17	130.76	93.10	22.79	4.73	
225.0	1732.07	1068.70	461.48	180.09	130.43	120.24	73.78	9.69	4.46	
270.0	1815.21	1228.86	606.72	304.46	139.62	117.16	80.11	19.16	5.62	
315.0	1779.42	1082.63	623.79	264.44	160.49	132.41	107.14	31.05	4.68	
360.0	1773.92	1722.71	1120.40	512.02	289.05	145.84	127.46	78.84	11.34	
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	
0.0	3.08	2.15	1.87	1.76	1.82	1.82	1.76	1.71	1.65	
45.0	4.24	2.42	2.15	1.98	1.87	1.76	1.71	1.65	1.54	
90.0	4.68	3.19	2.75	2.31	1.98	1.82	1.71	1.65	1.54	
135.0	3.47	2.64	2.31	2.04	1.87	1.76	1.65	1.54	1.43	
180.0	2.75	2.26	2.04	1.98	1.87	1.82	1.65	1.54	1.54	
225.0	3.14	2.53	2.20	1.98	1.82	1.71	1.60	1.49	1.43	
270.0	3.74	2.92	2.53	2.15	1.87	1.76	1.71	1.60	1.49	
315.0	2.53	2.15	1.98	1.93	1.87	1.71	1.65	1.54	1.43	
360.0	3.08	2.15	1.87	1.76	1.82	1.82	1.76	1.71	1.65	
C/γ(°)	90.0									
0.0	1.49									
45.0	1.43									
90.0	1.38									
135.0	1.32									
180.0	1.32									
225.0	1.38									
270.0	1.32									
315.0	1.27									
360.0	1.49									