
Nata

Client:

LumCAT: 1655-S

Luminaire: 92.70.043.00

Report No: NT2018040404

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): 331.05, Efficiency(%): 87.58% , Luminous Efficacy(lm/W): 83.18

Central intensity(cd): 930.797, Maximum intensity(cd): 930.797

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=30.0

[C90/270]Total=30.0

Field angle(10%Imax): [C0/180]Total=63.6

[C90/270]Total=63.6

Maximum s/h(1/2): C0_180=0.50 C90_270=0.50

Maximum s/h(1/4): C0_180=0.51 C90_270=0.51

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 88.97%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.927%

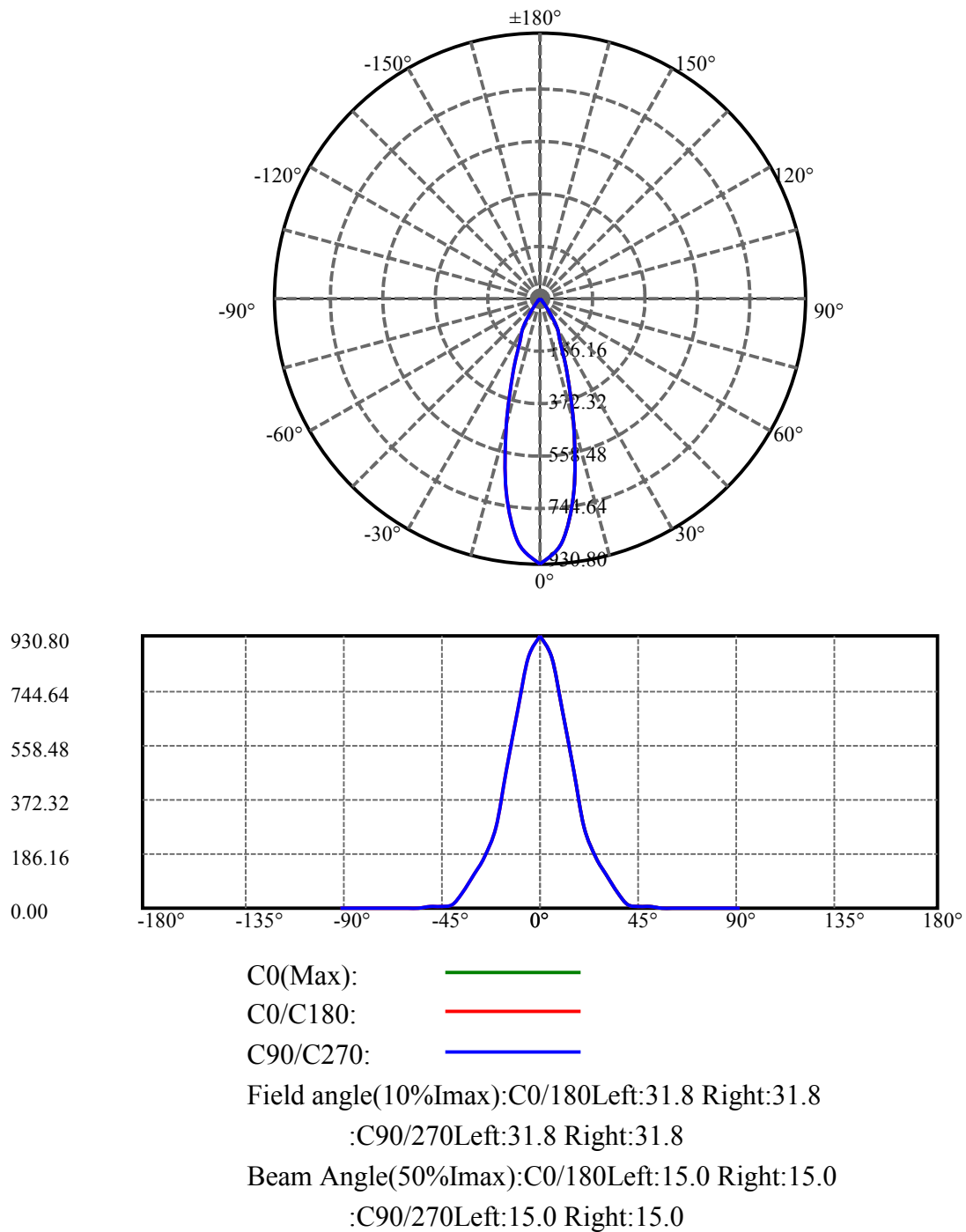
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	930.797	5.566	5.566	1.473%	1.681%
5.0	856.368	40.912	46.478	10.823%	14.039%
10.0	683.849	65.091	111.569	17.220%	33.701%
15.0	466.156	66.133	177.701	17.495%	53.677%
20.0	280.278	52.545	230.246	13.901%	69.549%
25.0	170.812	39.569	269.816	10.468%	81.502%
30.0	117.862	32.302	302.118	8.546%	91.259%
35.0	49.289	15.496	317.614	4.100%	95.940%
40.0	8.823	3.109	320.723	.822%	96.879%
45.0	4.212	1.632	322.355	.432%	97.372%
50.0	3.193	1.341	323.696	.355%	97.777%
55.0	2.643	1.187	324.883	.314%	98.136%
60.0	2.292	1.088	325.971	.288%	98.464%
65.0	2.065	1.026	326.996	.271%	98.774%
70.0	1.927	0.993	327.989	.263%	99.074%
75.0	1.789	0.947	328.936	.251%	99.360%
80.0	1.638	0.884	329.82	.234%	99.627%
85.0	1.555	0.849	330.67	.225%	99.884%
90.0	1.404	0.385	331.055	.102%	100.000%

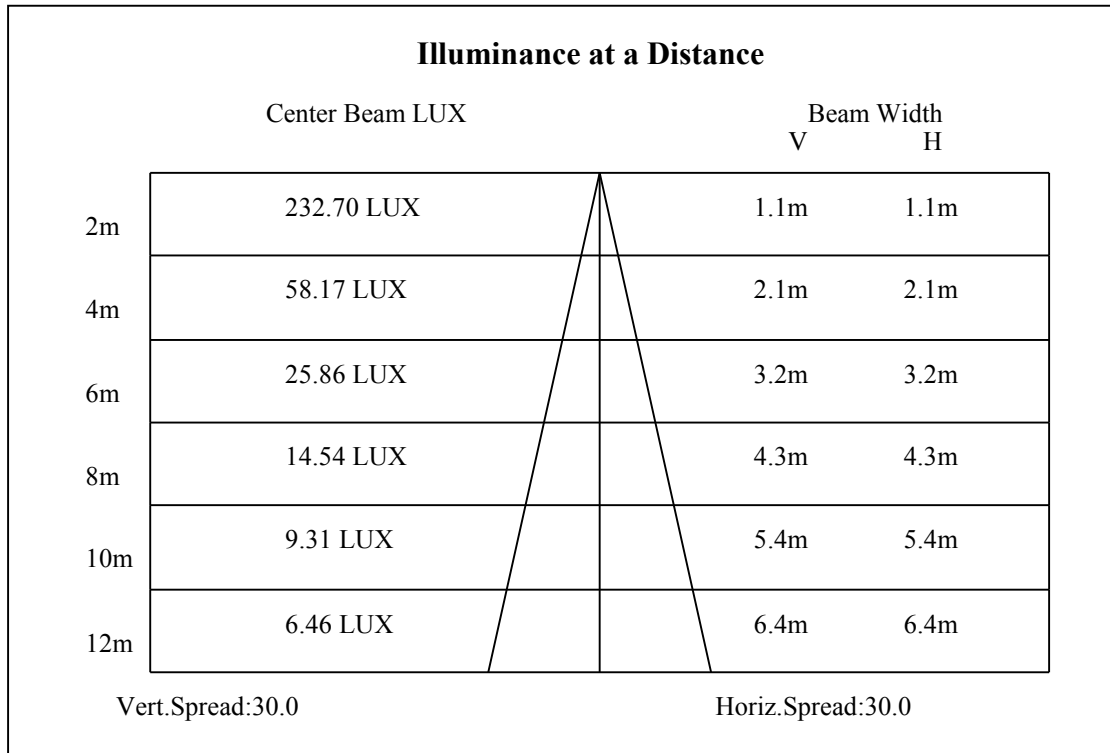
ZONAL LUMEN SUMMARY

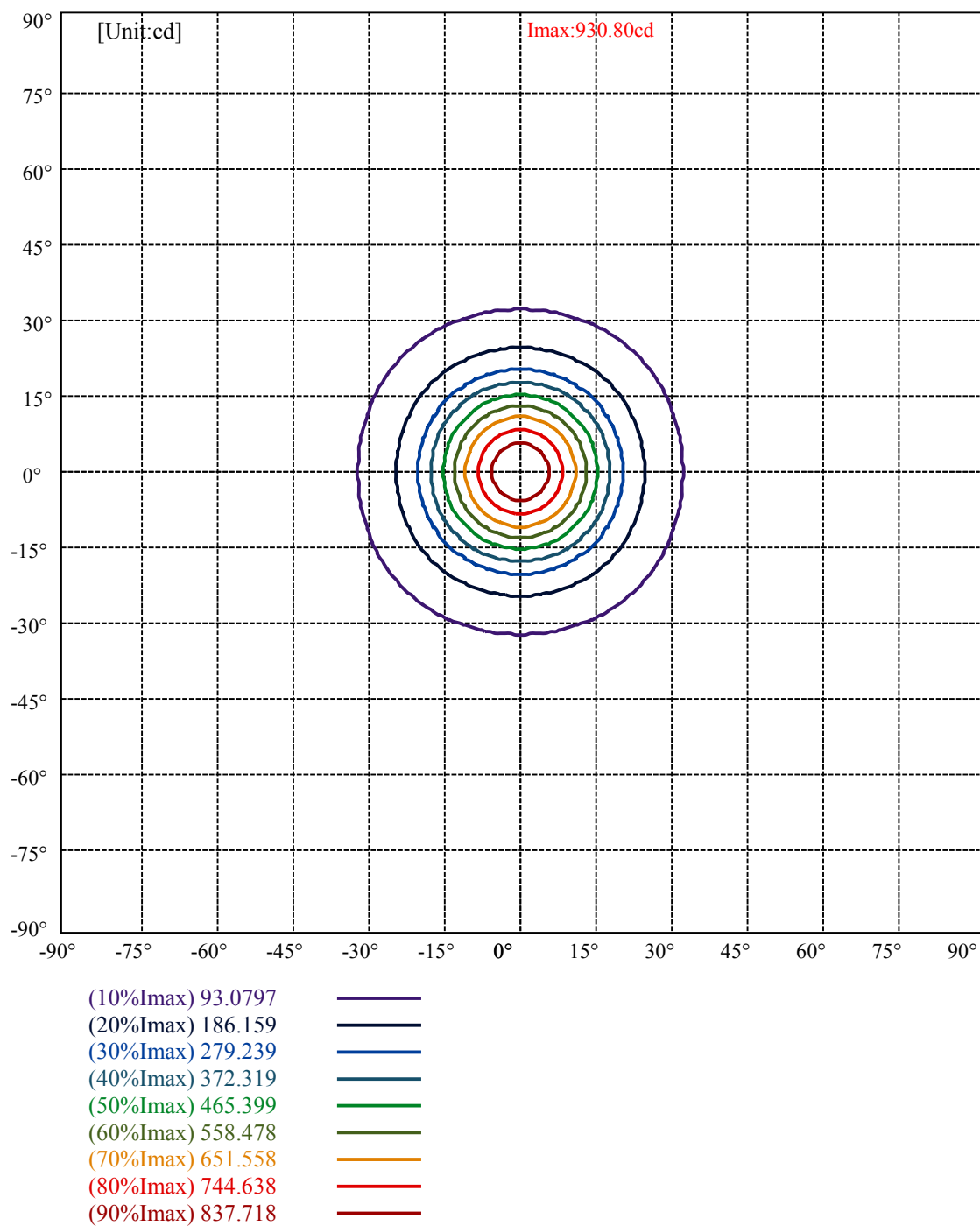
Zone	Lumens	%Lamp	%Fixt
0-30	302.12	79.93%	91.26%
0-40	320.72	84.85%	96.88%
0-60	325.97	86.24%	98.46%
0-90	330.67	87.48%	99.88%
0-120	330.67	87.48%	99.88%
0-180	331.05	87.58%	100.00%
60-90	5.79	1.53%	1.75%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.37	264.84	70.06%	80.00%

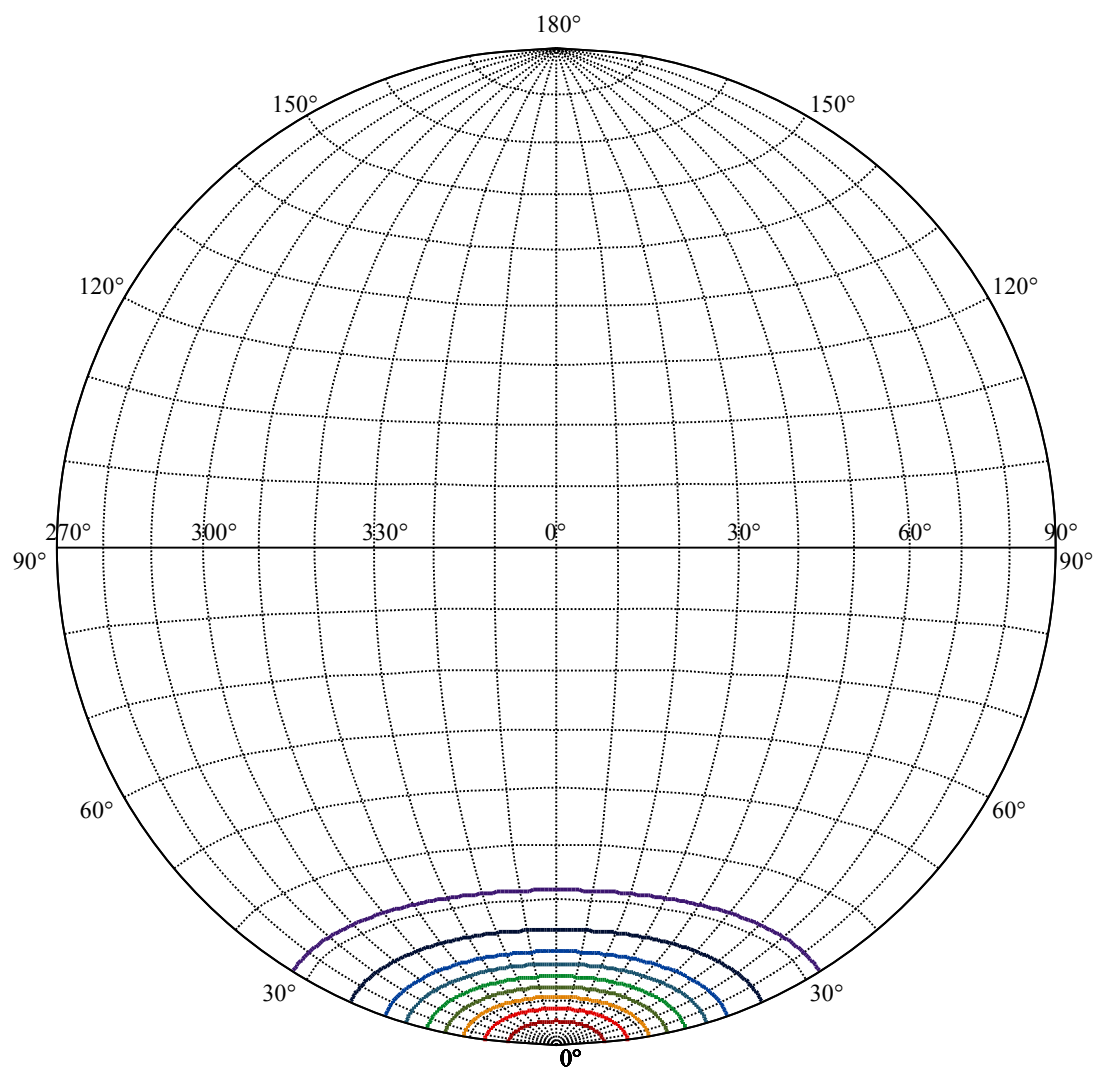
ZONAL LUMEN SUMMARY

0-10	111.57
10-20	118.68
20-30	71.87
30-40	18.61
40-50	2.97
50-60	2.27
60-70	2.02
70-80	1.83
80-90	0.85
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:930.80

(10%Imax) 93.0797

(20%Imax) 186.159

(30%Imax) 279.239

(40%Imax) 372.319

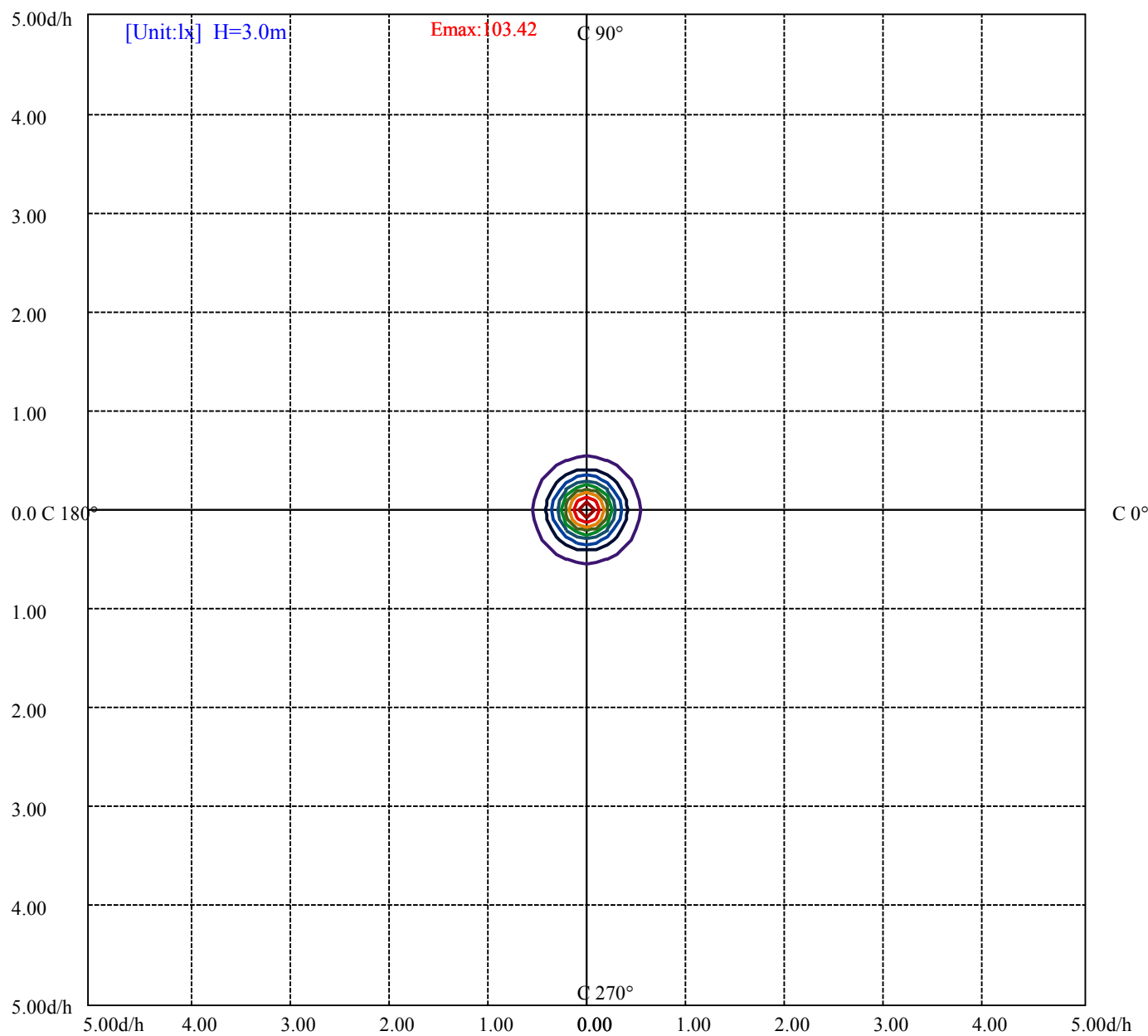
(50%Imax) 465.399

(60%Imax) 558.478

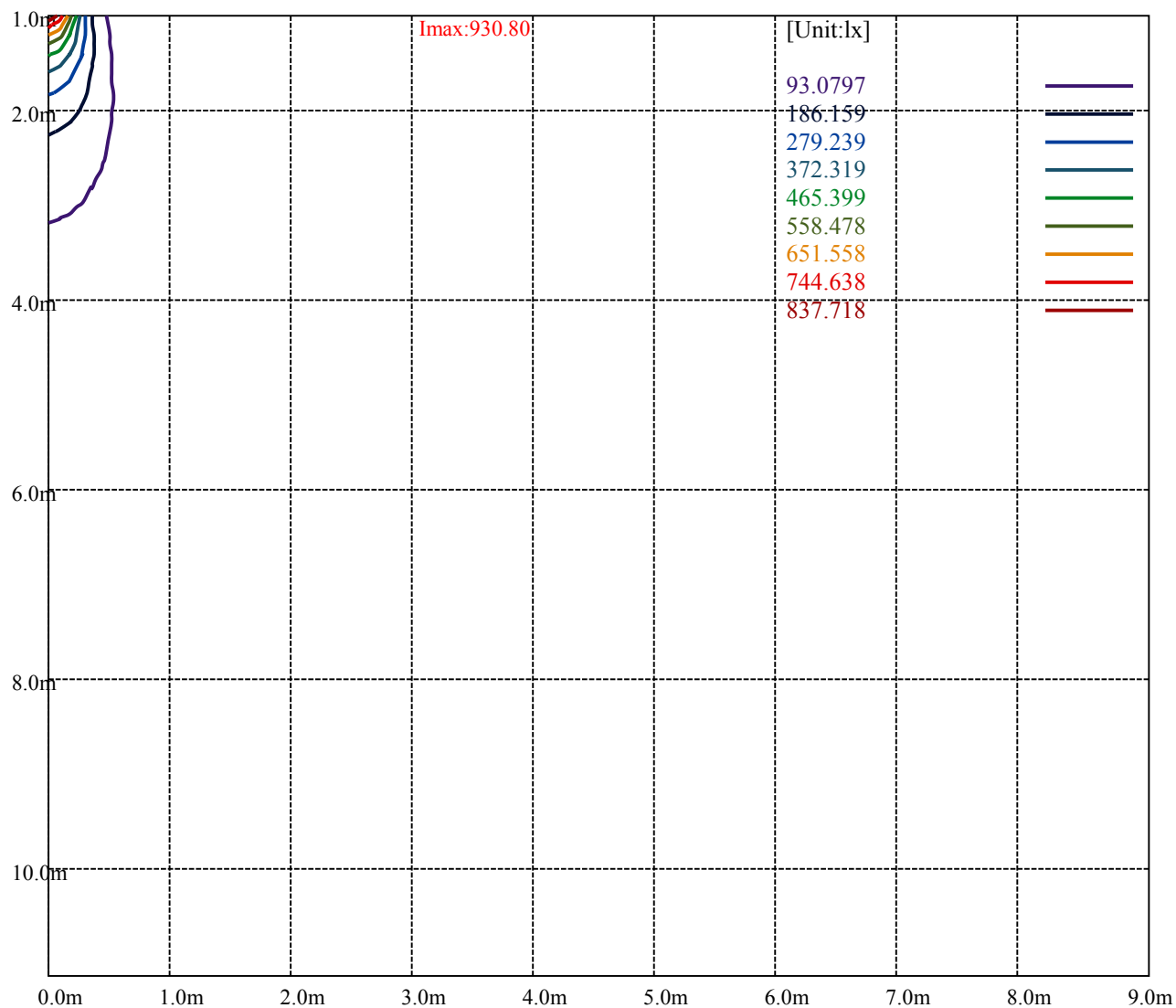
(70%Imax) 651.558

(80%Imax) 744.638

(90%Imax) 837.718



(10%E _{max}) 10.34217	—
(20%E _{max}) 20.68433	—
(30%E _{max}) 31.02645	—
(40%E _{max}) 41.36867	—
(50%E _{max}) 51.71078	—
(60%E _{max}) 62.053	—
(70%E _{max}) 72.39523	—
(80%E _{max}) 82.73734	—
(90%E _{max}) 93.07944	—



Luminance Table

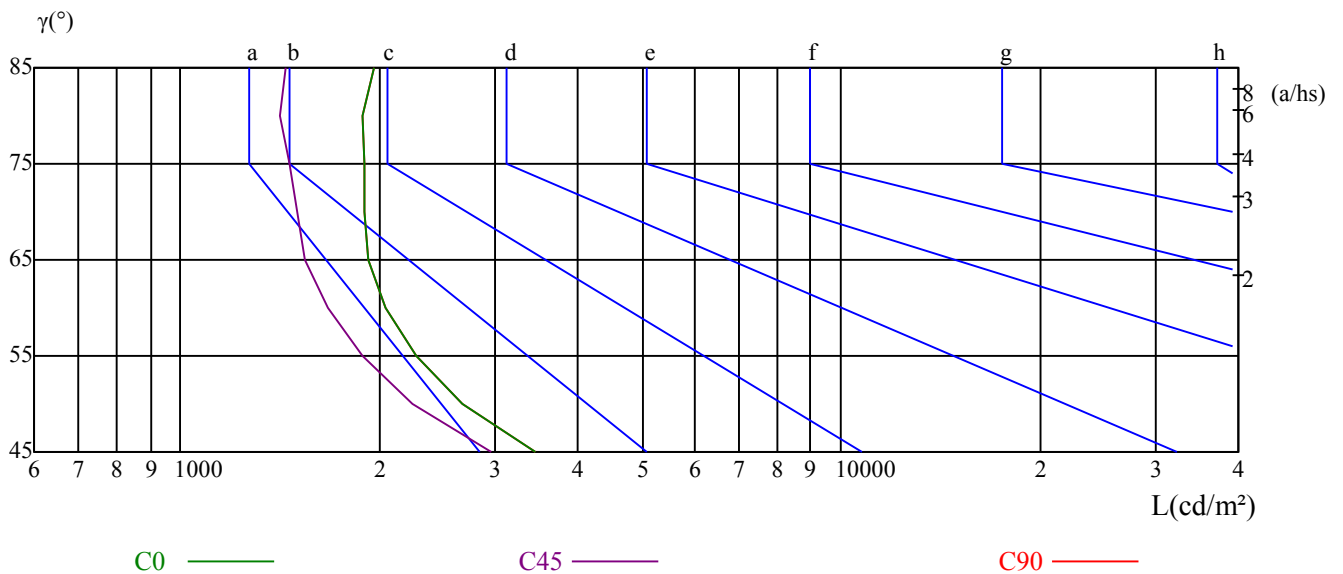
γ	45	50	55	60	65	70	75	80	85
C0	3447	2667	2270	2043	1928	1905	1893	1880	1967
C45	2949	2247	1884	1668	1546	1499	1459	1414	1439
C90	3447	2667	2270	2043	1928	1905	1893	1880	1967

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4771	4771	4771	6751	6751	6751	17427	17427	17427

Glare Table

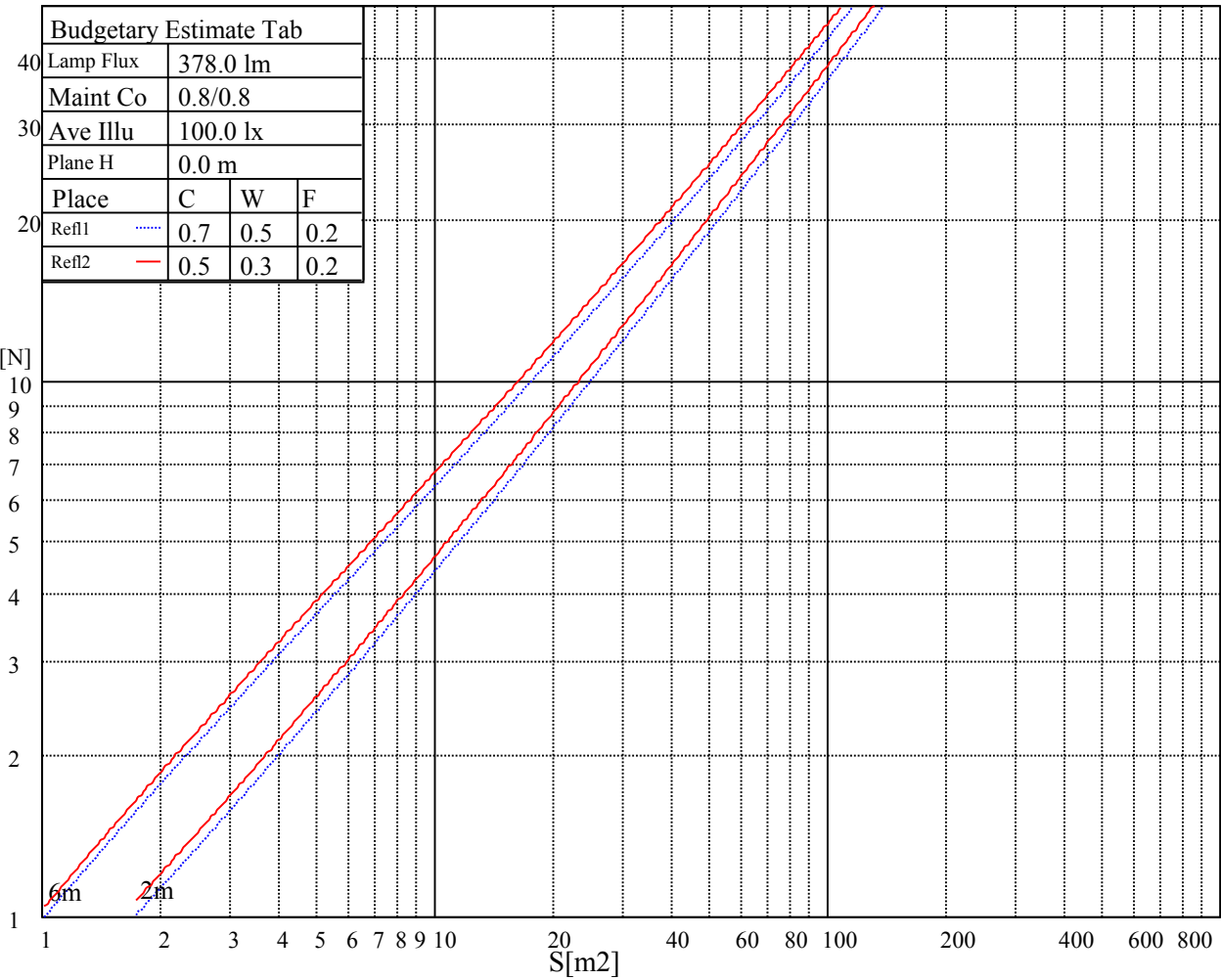
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

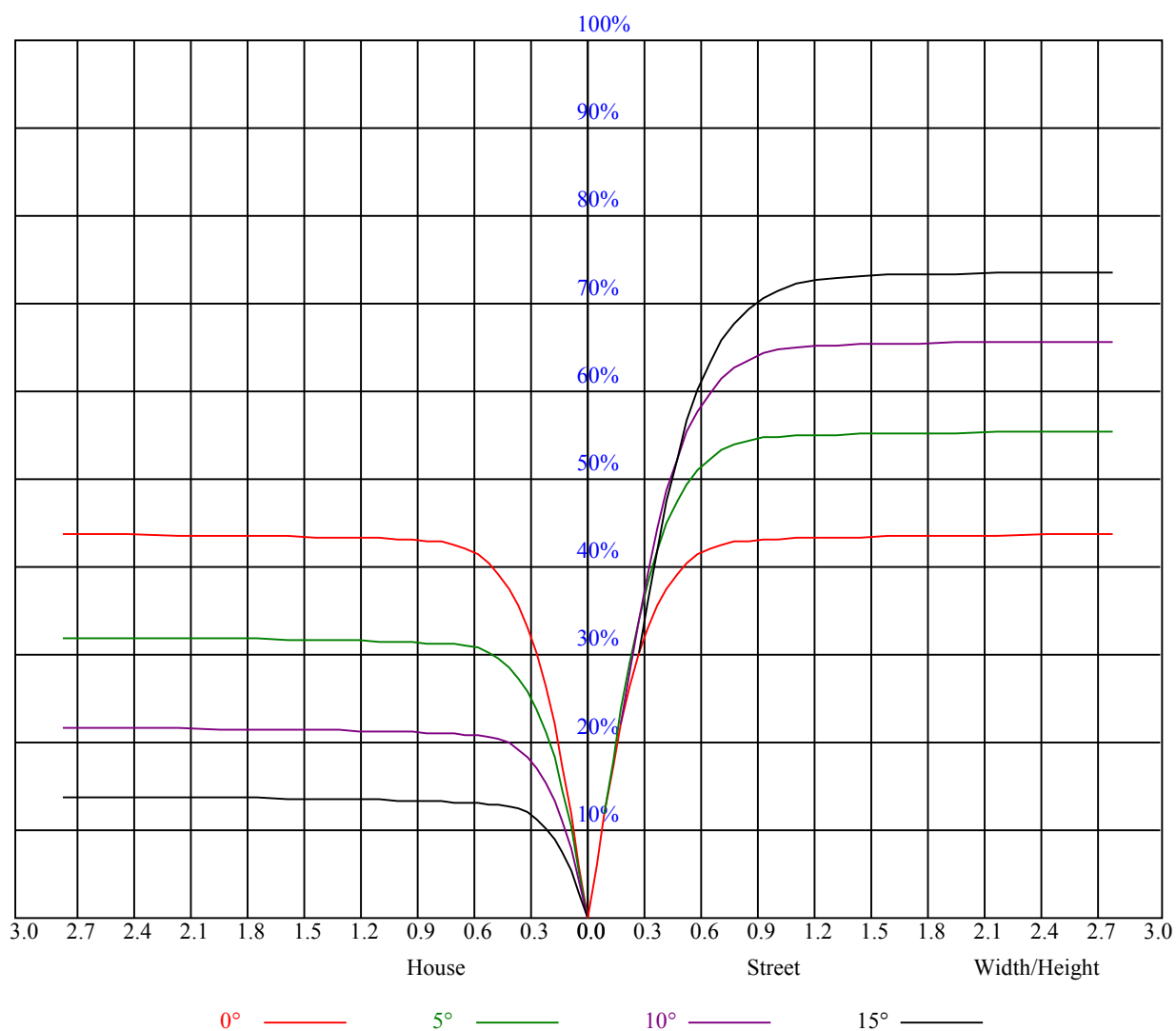


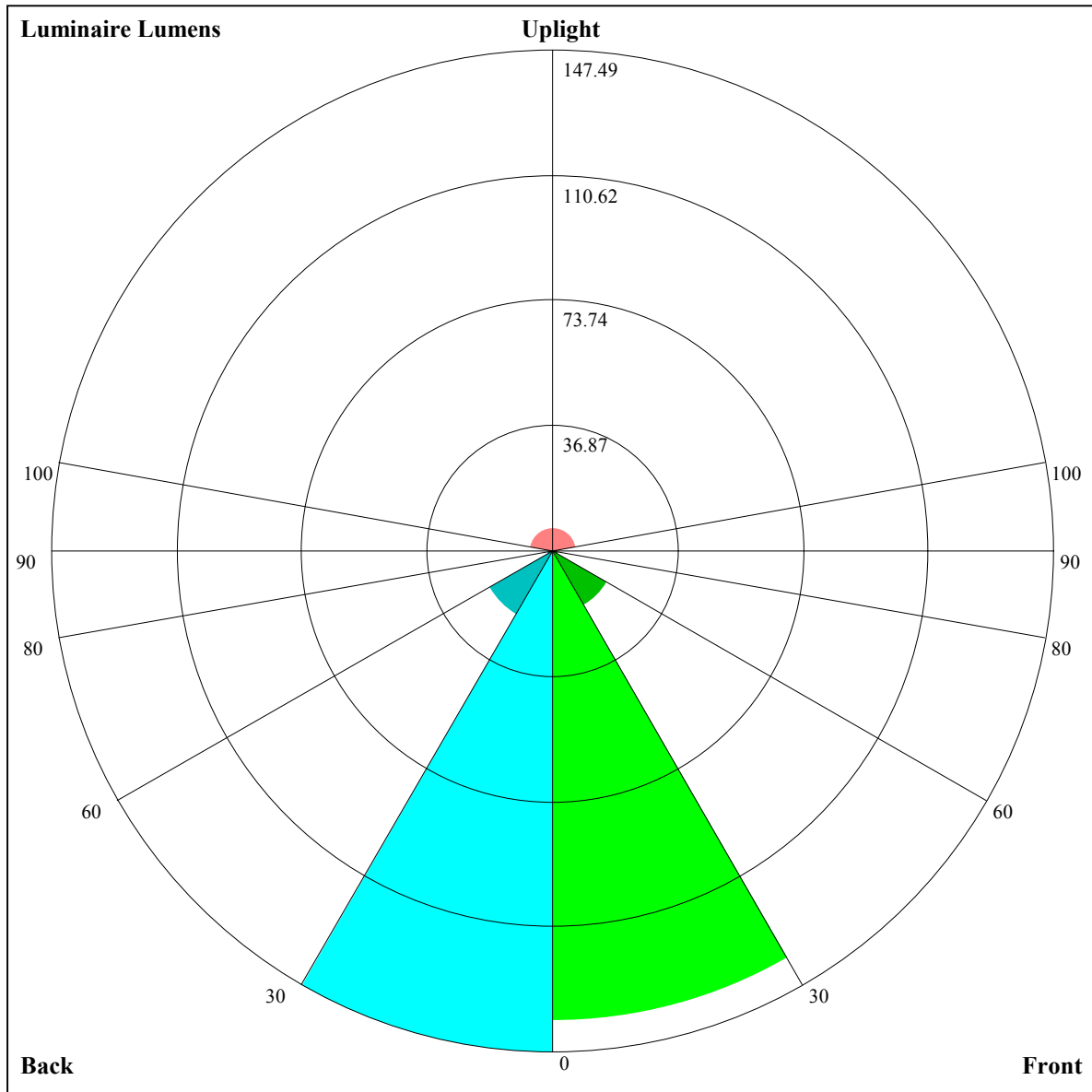
Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	12.00	12.93	12.36	13.24	13.55	9.95	10.88	10.31	11.19	11.50
	3H	12.12	12.95	12.51	13.28	13.63	10.35	11.17	10.74	11.51	11.86
	4H	12.28	13.04	12.68	13.40	13.77	10.66	11.42	11.06	11.78	12.15
	6H	12.55	13.25	12.97	13.63	14.03	11.11	11.80	11.53	12.18	12.58
	8H	12.71	13.38	13.13	13.76	14.17	11.36	12.02	11.78	12.41	12.82
	12H	12.90	13.53	13.33	13.93	14.35	11.65	12.28	12.08	12.68	13.09
4H	2H	11.79	12.55	12.19	12.91	13.28	9.84	10.60	10.24	10.96	11.32
	3H	12.02	12.66	12.45	13.06	13.47	10.42	11.06	10.84	11.45	11.87
	4H	12.34	12.89	12.77	13.31	13.76	10.93	11.49	11.37	11.91	12.36
	6H	12.74	13.23	13.22	13.69	14.14	11.55	12.04	12.02	12.49	12.95
	8H	13.03	13.49	13.52	13.95	14.42	11.95	12.40	12.44	12.86	13.34
	12H	13.38	13.79	13.87	14.25	14.77	12.40	12.82	12.89	13.27	13.79
8H	4H	12.33	12.79	12.82	13.25	13.72	11.03	11.48	11.52	11.94	12.42
	6H	12.90	13.27	13.41	13.75	14.26	11.84	12.21	12.35	12.69	13.21
	8H	13.36	13.66	13.89	14.19	14.69	12.43	12.74	12.96	13.26	13.76
	12H	13.86	14.09	14.40	14.61	15.13	13.05	13.28	13.59	13.80	14.33
12H	4H	12.33	12.75	12.82	13.20	13.72	11.05	11.47	11.54	11.92	12.44
	6H	12.99	13.29	13.52	13.82	14.31	11.97	12.28	12.50	12.80	13.30
	8H	13.46	13.70	14.01	14.21	14.74	12.58	12.81	13.13	13.33	13.86
Variation with the observer position at spacings:											
S = 1.0H		5.4/-5.0					5.4/-5.0				
S = 1.5H		7.6/-3.8					7.6/-3.8				
S = 2.0H		9.0/-3.2					9.0/-3.2				
Standard tables:		BK2					BK2				
Uncorrected UGR		-4.2					-4.2				

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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.98	0.95	0.93	0.96	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.86	0.86	0.85	0.84	0.82
2	0.93	0.89	0.86	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.79
3	0.88	0.84	0.81	0.87	0.83	0.81	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
4	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.81	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
6	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.71	0.69	0.73	0.71	0.69	0.68
7	0.75	0.70	0.67	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
8	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
9	0.70	0.66	0.63	0.69	0.65	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.61
10	0.67	0.63	0.61	0.67	0.63	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.59





Luminaire Lumens:

FL=138.51,FM=18.56,FH=1.98,FVH=0.83

BL=147.49,BM=21.52,BH=2,BVH=0.85

UL=1.53,UH=7.29

BUG Rating:B1-U1-G0

Nata 1655-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	933.15	841.26	661.50	440.51	256.29	160.27	115.67	38.48	6.33		
45.0	934.69	818.80	613.77	400.26	231.84	149.20	99.54	27.09	5.78		
90.0	920.60	789.51	569.39	344.93	200.68	129.27	75.59	16.85	6.22		
135.0	932.82	849.24	667.45	454.88	258.16	157.19	117.82	44.16	7.10		
180.0	933.15	862.57	717.05	503.82	302.81	186.53	130.87	58.75	7.27		
225.0	938.55	905.29	764.07	536.85	339.70	195.89	140.61	79.01	11.84		
270.0	920.60	923.79	787.09	580.18	368.49	207.12	133.51	78.51	18.39		
315.0	932.82	860.48	690.46	467.81	284.26	181.03	129.27	51.48	7.65		
360.0	933.15	841.26	661.50	440.51	256.29	160.27	115.67	38.48	6.33		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	3.85	3.08	2.59	2.26	2.04	1.87	1.76	1.65	1.60		
45.0	3.63	2.97	2.53	2.20	1.93	1.87	1.65	1.60	1.43		
90.0	4.02	3.08	2.64	2.31	2.09	1.93	1.71	1.60	1.54		
135.0	4.07	3.14	2.59	2.31	2.04	1.93	1.82	1.60	1.54		
180.0	3.74	2.97	2.53	2.20	2.09	1.93	1.82	1.71	1.65		
225.0	4.40	3.25	2.64	2.26	2.04	1.87	1.76	1.60	1.54		
270.0	6.06	3.96	3.03	2.53	2.26	2.09	1.93	1.71	1.60		
315.0	3.91	3.08	2.59	2.26	2.04	1.93	1.87	1.65	1.54		
360.0	3.85	3.08	2.59	2.26	2.04	1.87	1.76	1.65	1.60		
C/γ(°)	90.0										
0.0	1.38										
45.0	1.38										
90.0	1.38										
135.0	1.38										
180.0	1.49										
225.0	1.43										
270.0	1.43										
315.0	1.38										
360.0	1.38										