



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440221 RIO 18W 6500K 1800lm

Luminaire:

Report No:

Voltage(V): 230.0000

Test No: KYZ-A251011059-02-002

Current(A): 0.0810

LampCAT: LED

Power (W): 18.0000

Lamp flux(lm)

PF: 0.9608

Number of Lamps: 1

Ballast type:

Length(mm): -192

Width(mm): -192

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1800.00

Lumens(lm)/Power(W): 100.00

Central intensity(cd): 733.824

Maximum intensity(cd): 755.084

Angle of maximum intensity: C=90.0 γ =10.0

Beam Angle(50%Imax): [C0/180]Total=92.2

[C90/270]Total=93.0

Field angle(10%Imax): [C0/180]Total=148.4

[C90/270]Total=150.5

Maximum s/h(1/2): C0_180=1.32 C90_270=1.36

Maximum s/h(1/4): C0_180=1.29 C90_270=1.35

Up flux rate of LUM(%): 0.62%

Down flux rate of LUM(%): 99.38%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 85.707%

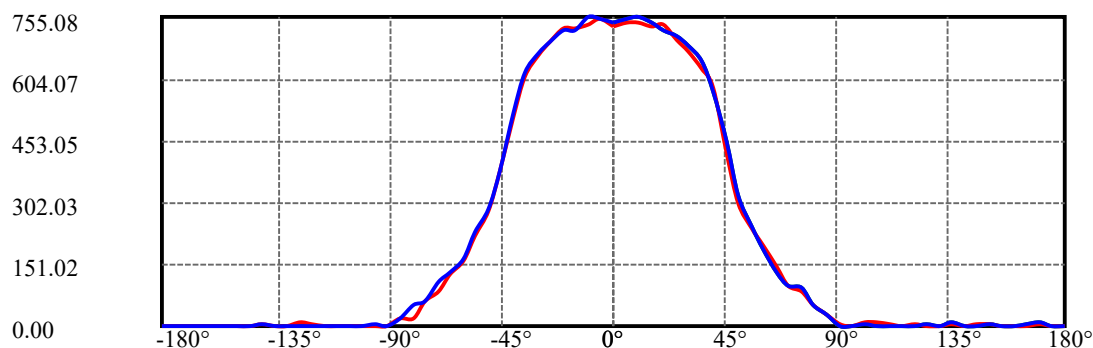
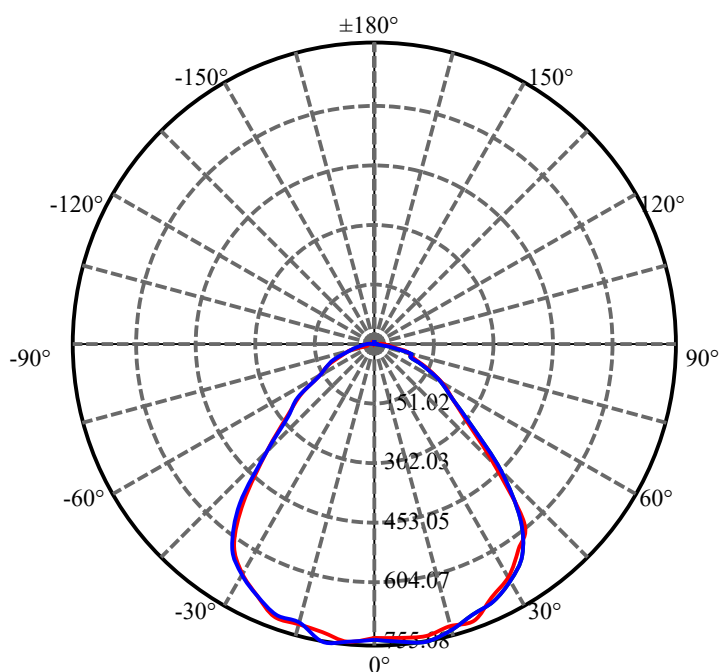
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	876.817	0.000	0	.000%	.000%
5.0	875.269	17.672	17.672	.982%	.982%
10.0	876.844	52.883	70.555	2.938%	3.920%
15.0	872.364	87.545	158.1	4.864%	8.783%
20.0	858.652	120.364	278.464	6.687%	15.470%
25.0	829.571	149.390	427.854	8.299%	23.770%
30.0	788.299	172.744	600.598	9.597%	33.367%
35.0	734.401	189.184	789.782	10.510%	43.877%
40.0	643.086	193.905	983.687	10.772%	54.649%
45.0	504.200	179.229	1162.916	9.957%	64.606%
50.0	387.904	152.090	1315.005	8.449%	73.056%
55.0	299.305	126.069	1441.075	7.004%	80.060%
60.0	221.947	101.655	1542.73	5.648%	85.707%
65.0	166.446	79.662	1622.392	4.426%	90.133%
70.0	118.902	60.960	1683.352	3.387%	93.520%
75.0	90.039	46.078	1729.43	2.560%	96.079%
80.0	60.252	33.929	1763.359	1.885%	97.964%
85.0	23.894	19.291	1782.65	1.072%	99.036%
90.0	2.580	6.116	1788.766	.340%	99.376%
95.0	1.738	0.997	1789.763	.055%	99.431%
100.0	1.412	0.722	1790.485	.040%	99.471%
105.0	1.874	0.742	1791.227	.041%	99.513%
110.0	1.629	0.772	1792	.043%	99.556%
115.0	0.787	0.516	1792.516	.029%	99.584%
120.0	1.493	0.468	1792.984	.026%	99.610%
125.0	3.068	0.890	1793.873	.049%	99.660%
130.0	3.258	1.161	1795.034	.064%	99.724%
135.0	3.503	1.153	1796.187	.064%	99.788%
140.0	2.417	0.925	1797.111	.051%	99.839%
145.0	3.150	0.784	1797.895	.044%	99.883%
150.0	2.770	0.735	1798.63	.041%	99.924%
155.0	1.249	0.429	1799.059	.024%	99.948%
160.0	1.249	0.221	1799.28	.012%	99.960%
165.0	2.335	0.249	1799.53	.014%	99.974%
170.0	2.797	0.257	1799.786	.014%	99.988%
175.0	2.417	0.157	1799.944	.009%	99.997%
180.0	3.204	0.057	1800	.003%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-30	600.60	33.37%
0-40	983.69	54.65%
0-60	1542.73	85.71%
0-90	1788.77	99.38%
0-120	1792.98	99.61%
0-180	1800.00	100.00%
60-90	347.69	19.32%
90-120	10.33	0.57%
90-130	12.38	0.69%
90-150	15.98	0.89%
90-180	17.29	0.96%
0-54.96	1440.00	80.00%

ZONAL LUMEN SUMMARY

0-10	70.55
10-20	207.91
20-30	322.13
30-40	383.09
40-50	331.32
50-60	227.72
60-70	140.62
70-80	80.01
80-90	25.41
90-100	1.72
100-110	1.51
110-120	0.98
120-130	2.05
130-140	2.08
140-150	1.52
150-160	0.65
160-170	0.51
170-180	0.16



C90(Max): —————

C0/C180: —————

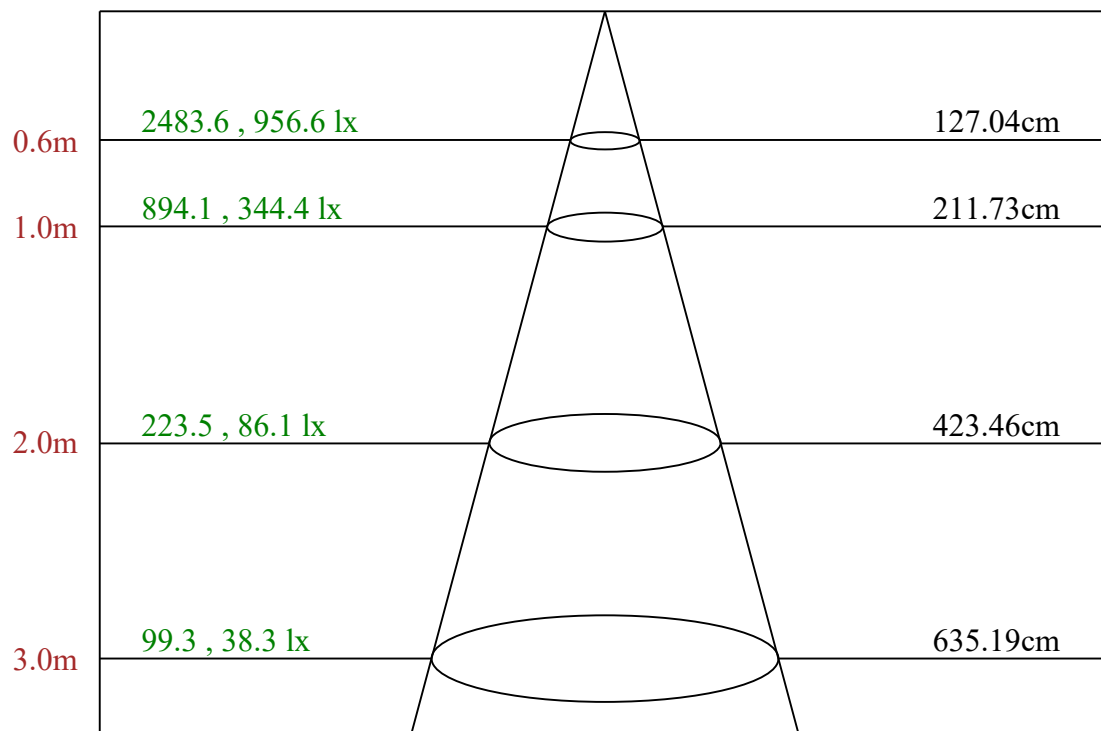
C90/C270: —————

Field angle(10%Imax):C0/180Left:67.0 Right:81.4

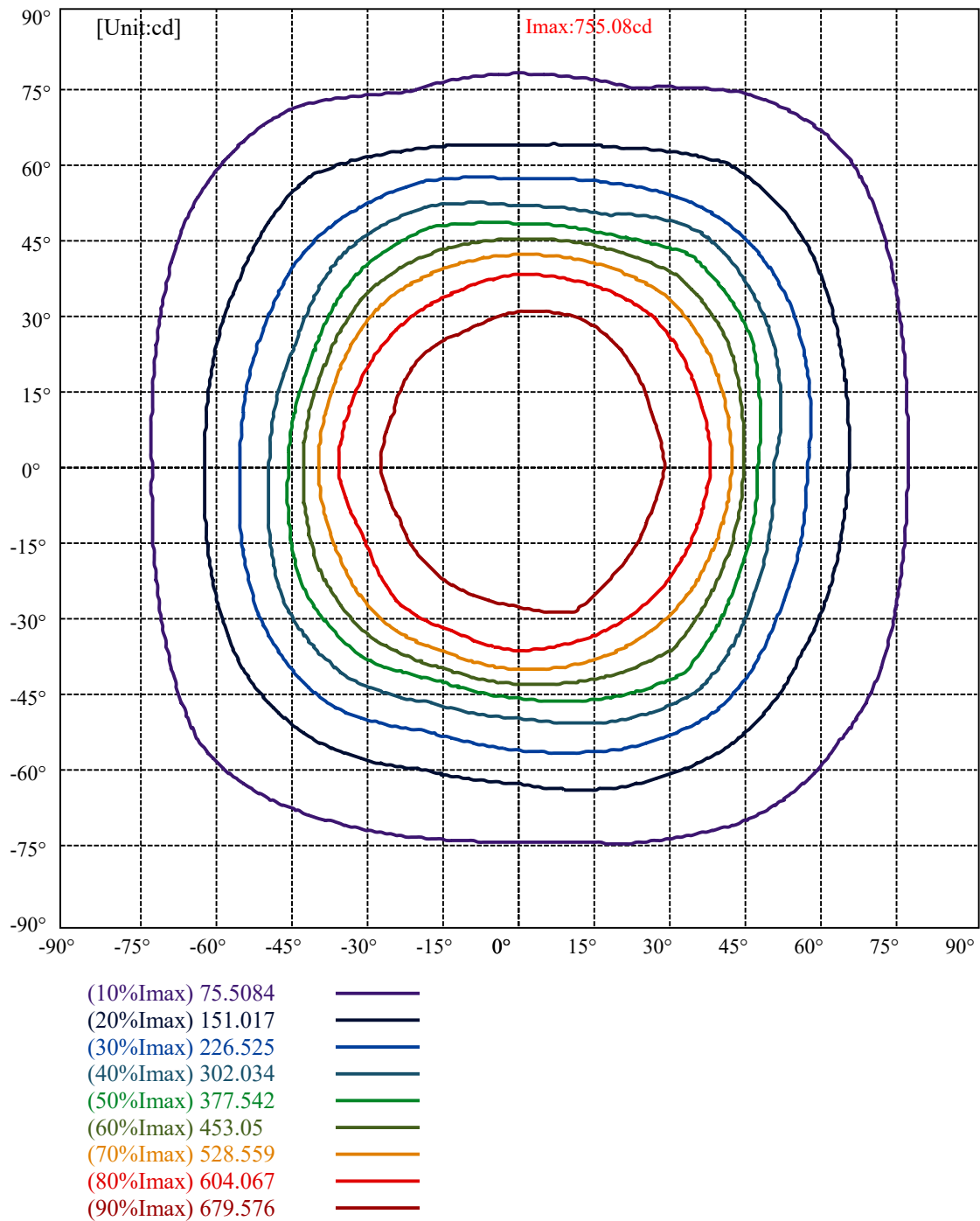
:C90/270Left:83.3 Right:67.2

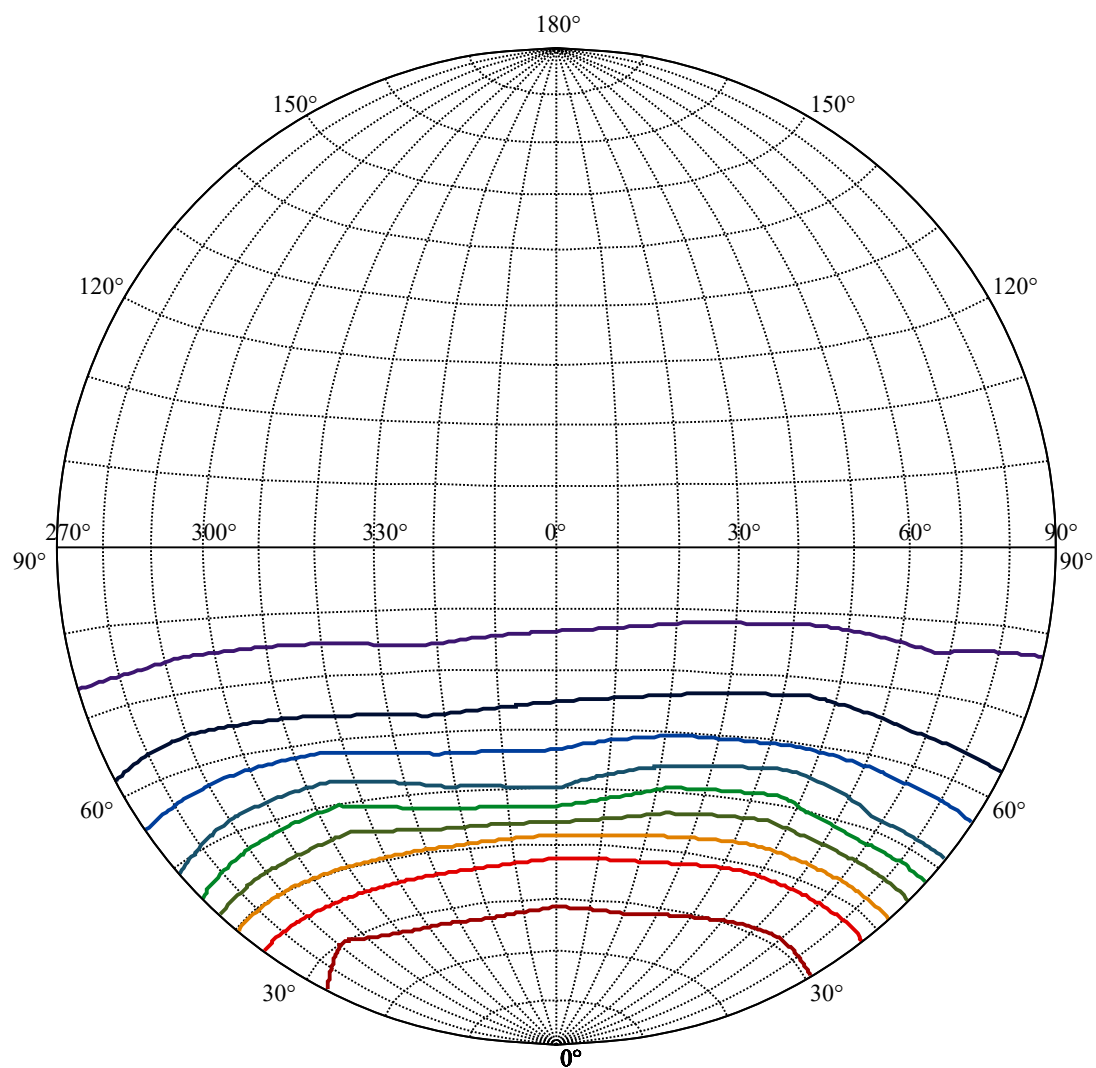
Beam Angle(50%Imax):C0/180Left:40.2 Right:52.0

:C90/270Left:55.2 Right:37.8



Max , Ave Beam angle of C90 plane 93.26





House

[Unit:cd]

Road

Imax:755.08

(10%Imax) 63.70733

(20%Imax) 127.4148

(30%Imax) 191.1218

(40%Imax) 254.8297

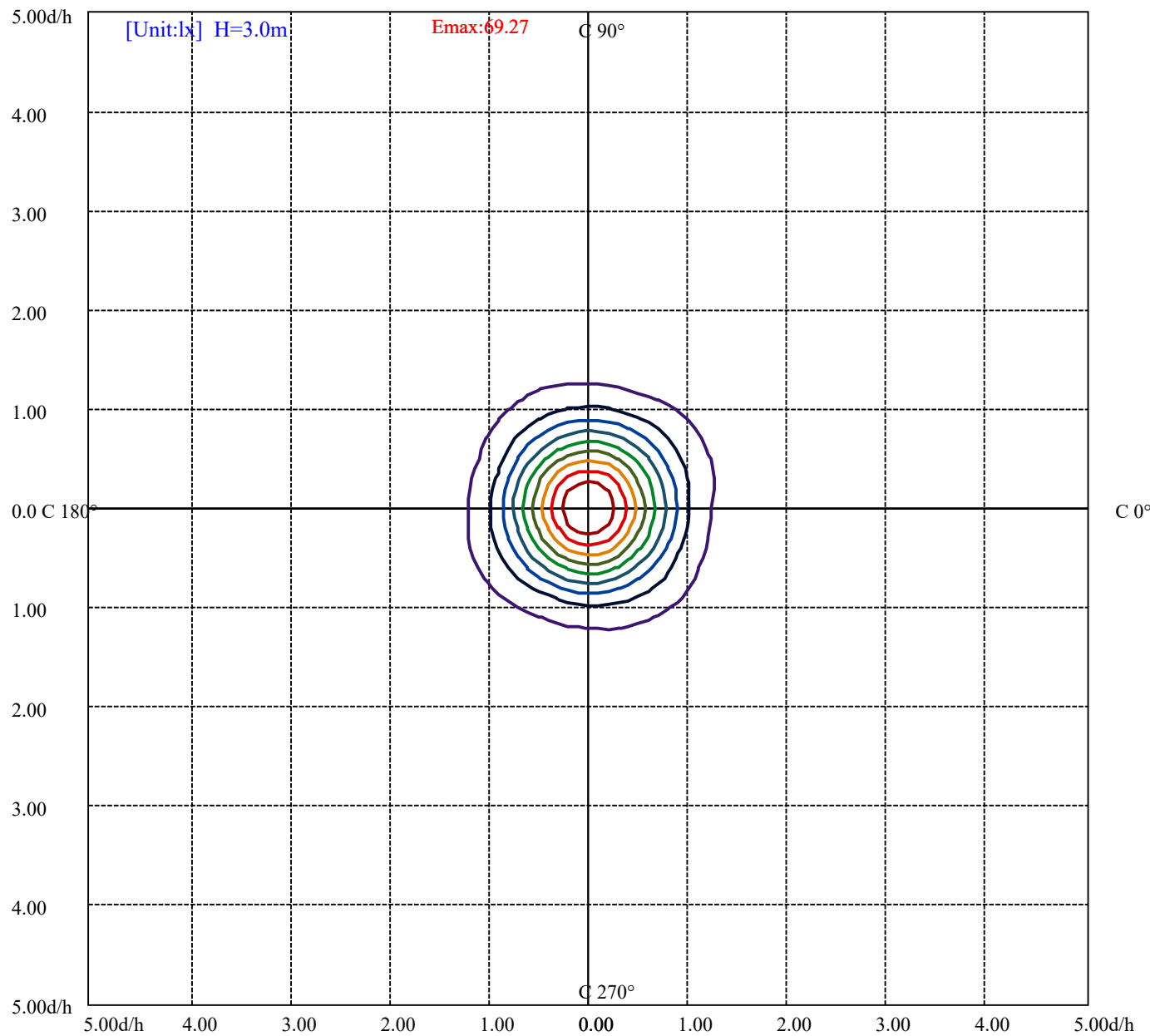
(50%Imax) 318.5366

(60%Imax) 382.2436

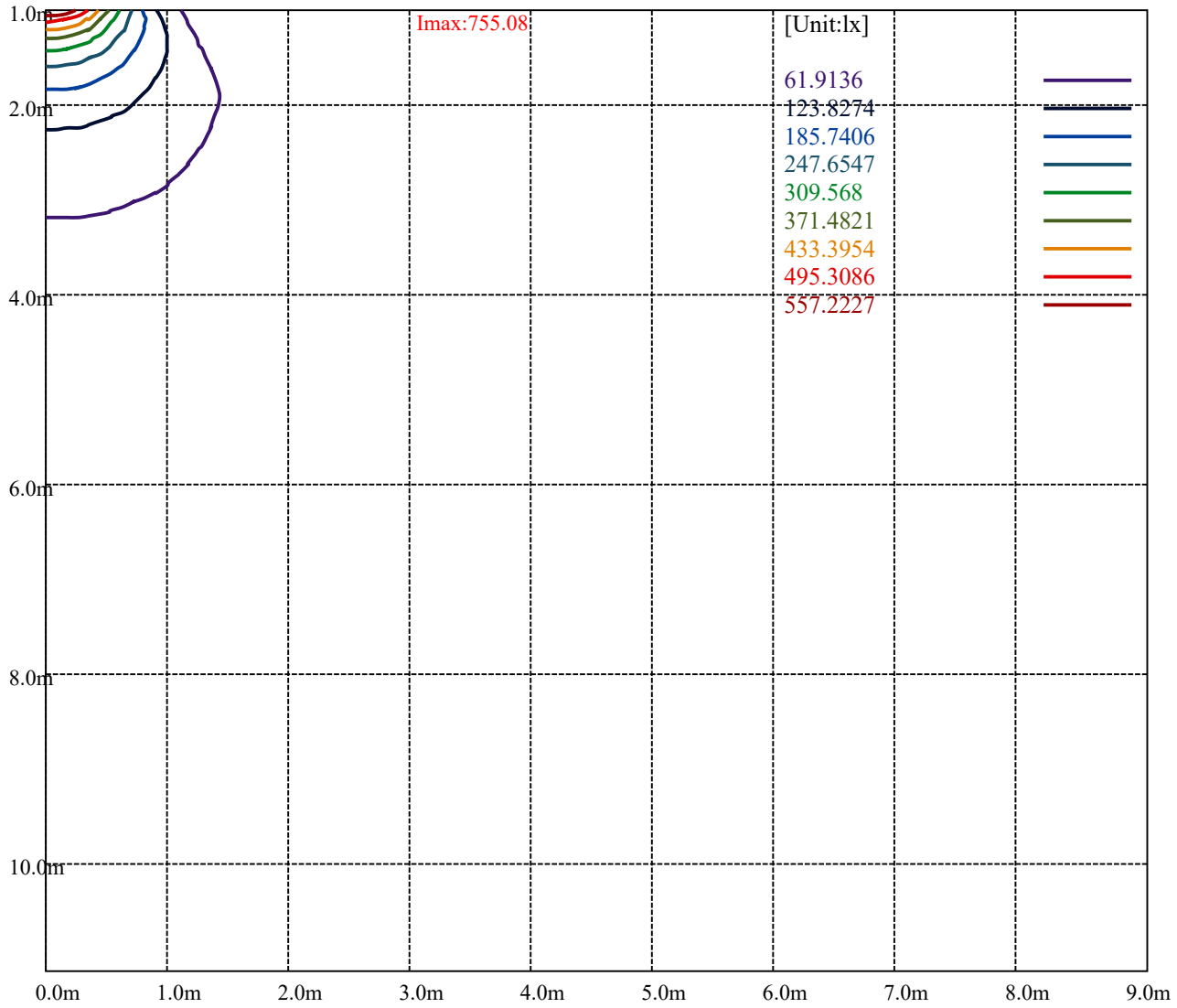
(70%Imax) 445.9515

(80%Imax) 509.6585

(90%Imax) 573.3663



(10%E _{max}) 6.927211	
(20%E _{max}) 13.8544	
(30%E _{max}) 20.78165	
(40%E _{max}) 27.70881	
(50%E _{max}) 34.63605	
(60%E _{max}) 41.5633	
(70%E _{max}) 48.49046	
(80%E _{max}) 55.41771	
(90%E _{max}) 62.34496	



Luminance Table

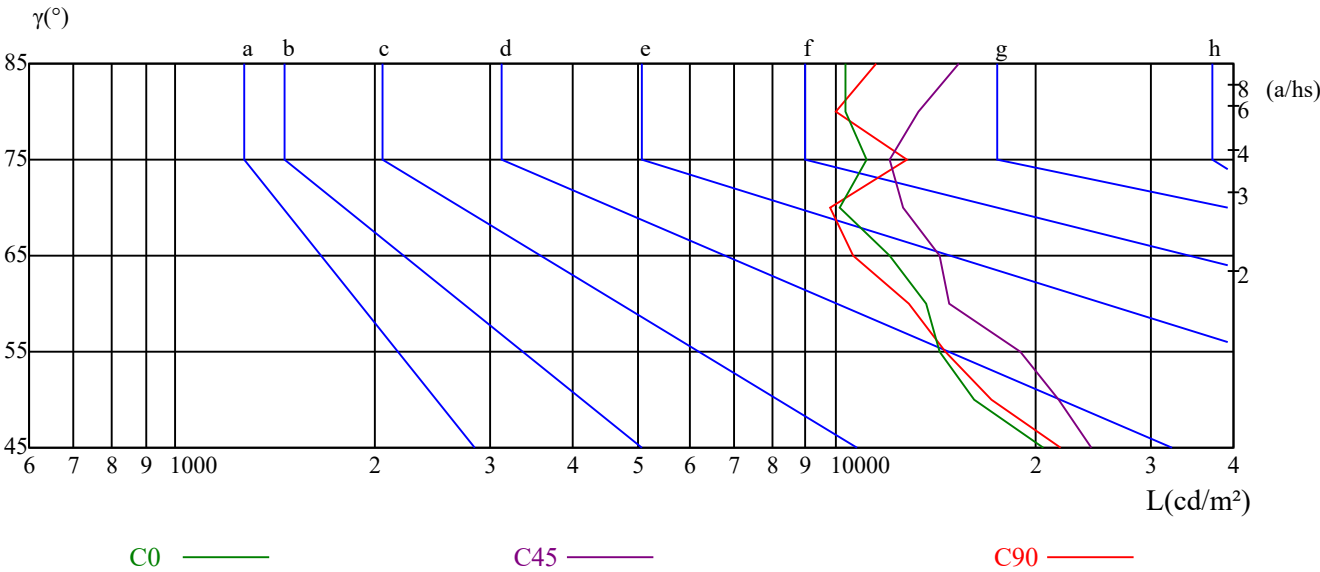
γ	45	50	55	60	65	70	75	80	85
C0	20625	16170	14391	13698	12072	10105	11153	10353	10313
C45	24314	21764	19070	14863	14379	12659	12033	13342	15397
C90	21915	17253	14612	12888	10634	9772	12816	9988	11475

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
11144	10724	12372	9538	10419	10663	9297	9224	7953

Glare Table

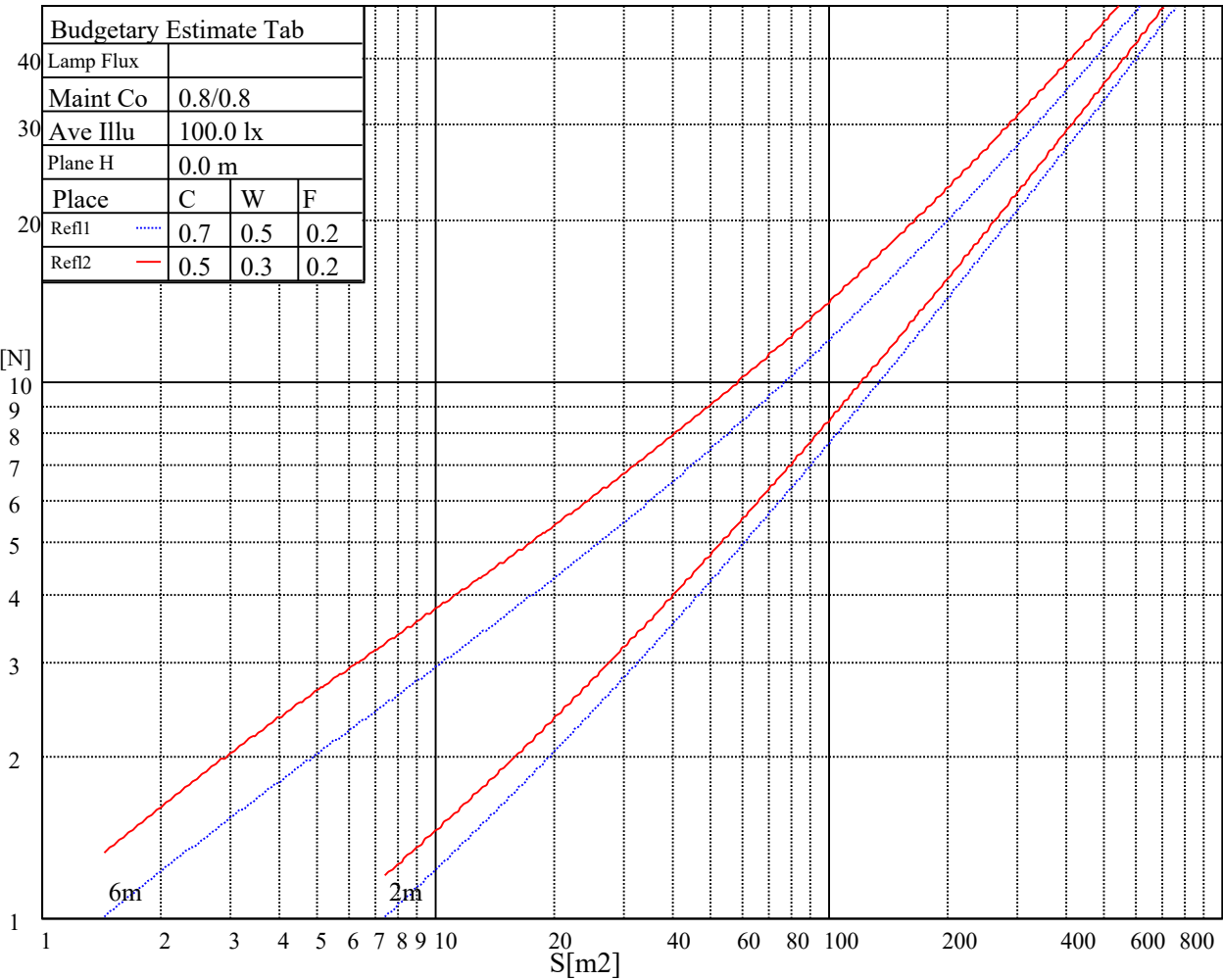
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

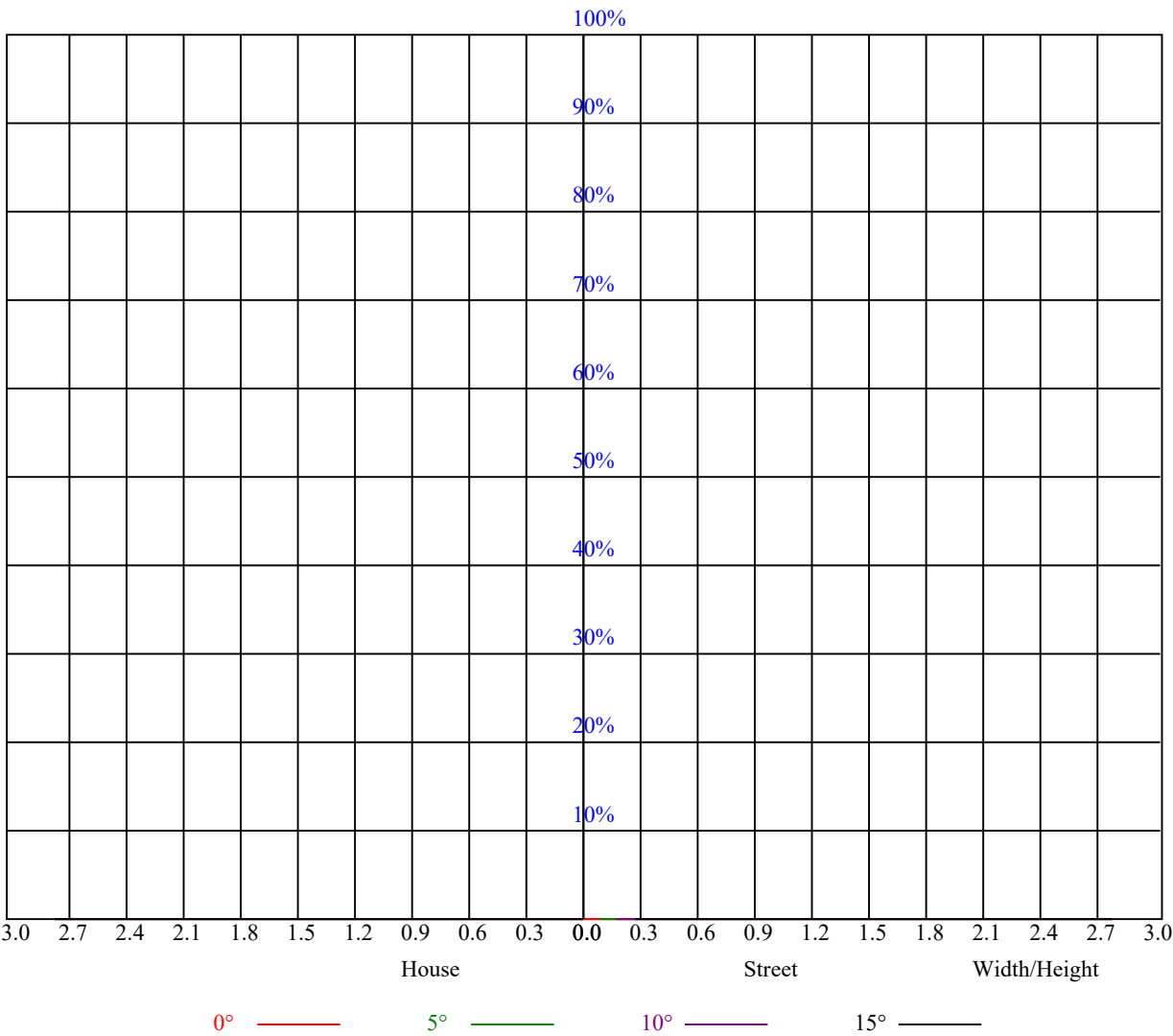


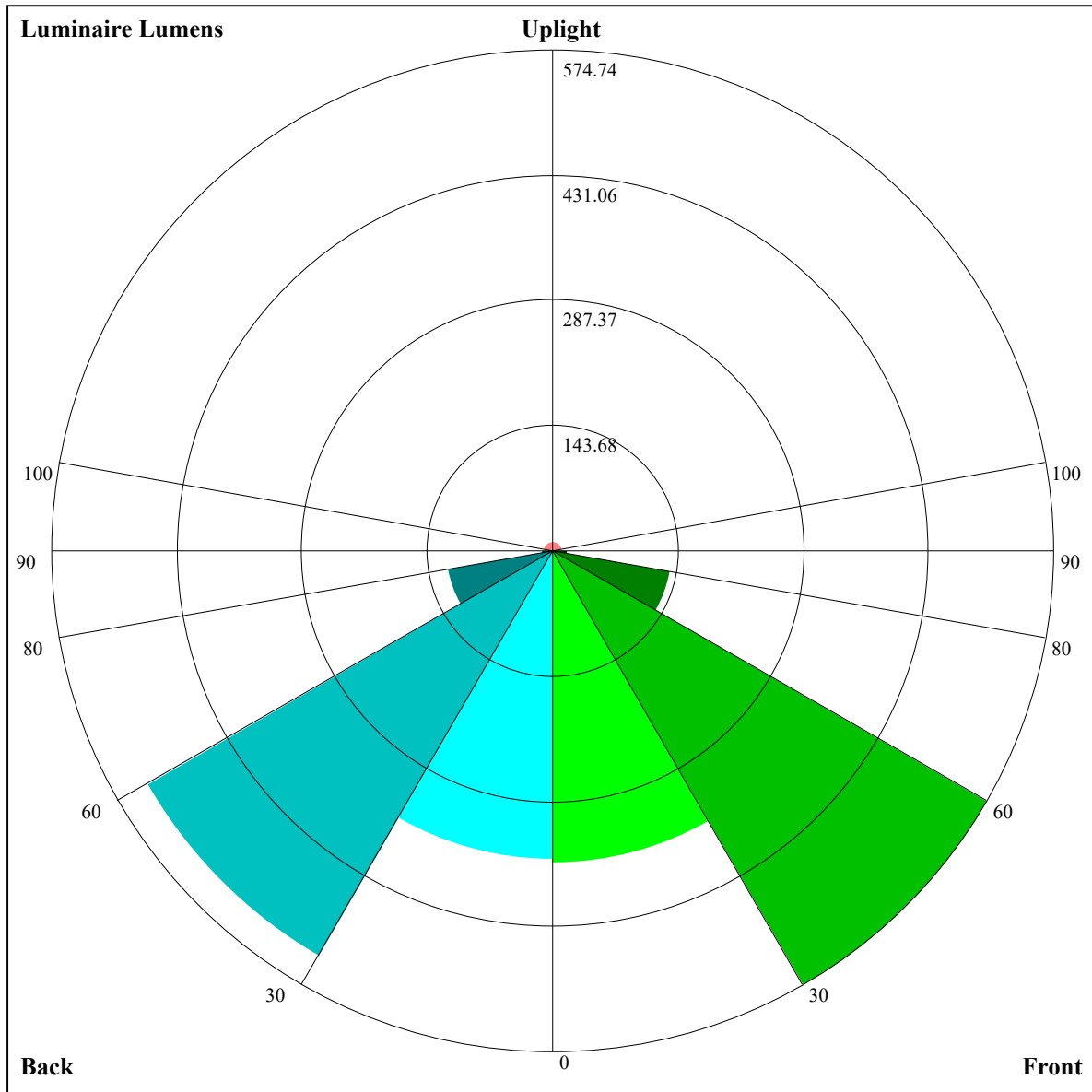
Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	18.61	20.10	18.98	20.43	20.76	18.24	19.72	18.61	20.05	20.38
	3H	19.58	20.92	19.97	21.27	21.62	19.09	20.44	19.49	20.79	21.14
	4H	20.02	21.28	20.43	21.64	22.02	19.62	20.87	20.02	21.24	21.62
	6H	20.44	21.60	20.86	21.98	22.39	20.09	21.25	20.51	21.63	22.04
	8H	20.56	21.68	20.99	22.07	22.49	20.24	21.36	20.66	21.75	22.16
	12H	20.64	21.71	21.07	22.11	22.54	20.37	21.44	20.80	21.84	22.27
4H	2H	19.10	20.36	19.51	20.72	21.10	18.80	20.06	19.21	20.42	20.80
	3H	20.28	21.34	20.71	21.74	22.16	19.83	20.89	20.26	21.29	21.72
	4H	20.92	21.86	21.37	22.29	22.74	20.51	21.44	20.95	21.87	22.32
	6H	21.47	22.30	21.94	22.75	23.21	21.07	21.90	21.55	22.36	22.82
	8H	21.67	22.45	22.15	22.91	23.38	21.33	22.10	21.81	22.56	23.04
	12H	21.81	22.53	22.30	22.98	23.50	21.56	22.28	22.05	22.74	23.25
8H	4H	21.16	21.94	21.64	22.39	22.87	20.79	21.57	21.27	22.03	22.50
	6H	21.89	22.54	22.39	23.02	23.53	21.54	22.19	22.04	22.67	23.18
	8H	22.23	22.80	22.75	23.32	23.82	21.97	22.54	22.49	23.06	23.56
	12H	22.41	22.89	22.94	23.41	23.93	22.35	22.83	22.89	23.35	23.87
12H	4H	21.19	21.91	21.68	22.37	22.89	20.84	21.56	21.33	22.01	22.53
	6H	22.03	22.59	22.55	23.12	23.62	21.70	22.26	22.22	22.78	23.29
	8H	22.38	22.85	22.91	23.37	23.90	22.15	22.63	22.69	23.15	23.68
Variation with the observer position at spacings:											
S = 1.0H		0.3/-0.7					0.3/-0.8				
S = 1.5H		0.7/-1.0					0.6/-1.0				
S = 2.0H		1.3/-1.3					1.2/-1.3				
Standard tables:		BK4					BK3				
Uncorrected UGR		7.0					6.7				

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



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 RHOF=20 CU															
0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.01	1.01	1.01	0.99
1	1.06	1.02	0.98	1.03	1.00	0.97	0.99	0.96	0.93	0.95	0.93	0.91	0.91	0.89	0.88	0.86
2	0.94	0.87	0.82	0.92	0.86	0.81	0.88	0.83	0.79	0.85	0.81	0.77	0.82	0.78	0.76	0.74
3	0.83	0.76	0.70	0.82	0.75	0.69	0.79	0.73	0.68	0.76	0.71	0.67	0.73	0.69	0.66	0.64
4	0.75	0.67	0.60	0.73	0.66	0.60	0.71	0.64	0.59	0.68	0.63	0.58	0.66	0.61	0.57	0.55
5	0.67	0.59	0.53	0.66	0.58	0.53	0.64	0.57	0.52	0.62	0.56	0.51	0.60	0.55	0.51	0.49
6	0.61	0.53	0.47	0.60	0.52	0.46	0.58	0.51	0.46	0.57	0.50	0.46	0.55	0.49	0.45	0.43
7	0.56	0.47	0.42	0.55	0.47	0.41	0.53	0.46	0.41	0.52	0.46	0.41	0.50	0.45	0.40	0.39
8	0.51	0.43	0.37	0.50	0.43	0.37	0.49	0.42	0.37	0.48	0.41	0.37	0.47	0.41	0.37	0.35
9	0.47	0.39	0.34	0.46	0.39	0.34	0.45	0.38	0.34	0.44	0.38	0.33	0.43	0.37	0.33	0.31
10	0.43	0.36	0.31	0.43	0.36	0.31	0.42	0.35	0.31	0.41	0.35	0.30	0.40	0.34	0.30	0.29





Luminaire Lumens:

FL=357.66,FM=574.74,FH=136.6,FVH=17.09

BL=354.13,BM=537.91,BH=123.85,BVH=13.11

UL=2.04,UH=11.27

BUG Rating:B1-U2-G1

Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	733.82	740.06	743.35	732.72	734.92	698.27	672.61	628.26	582.81
22.5	754.35	727.59	749.95	726.13	736.39	700.84	665.28	633.39	577.31
45.0	731.99	739.69	731.26	741.16	730.53	718.06	678.48	657.22	586.84
67.5	732.36	744.09	730.53	752.52	736.02	721.73	691.67	647.69	578.04
90.0	742.62	749.22	755.08	742.62	721.73	708.90	683.61	648.05	570.34
112.5	732.36	734.19	742.62	734.19	727.23	704.13	669.68	619.46	554.58
135.0	751.05	740.79	737.12	744.09	714.40	703.03	670.78	609.93	544.69
157.5	739.69	737.12	735.66	732.72	725.39	692.77	653.92	602.60	515.00
180.0	733.82	749.59	734.56	726.13	726.13	693.50	660.51	611.40	512.43
202.5	754.35	734.56	738.59	729.79	705.60	682.51	642.19	577.31	511.70
225.0	731.99	725.03	733.09	740.06	701.57	686.17	648.05	603.33	517.56
247.5	732.36	733.09	742.25	742.25	729.43	692.77	645.49	597.47	499.60
270.0	742.62	749.22	754.72	723.93	720.63	692.77	663.81	620.56	520.50
292.5	732.36	739.69	735.29	731.99	731.99	704.13	681.41	615.06	530.76
315.0	751.05	740.79	742.62	733.46	716.60	701.57	659.05	618.00	533.69
337.5	739.69	730.89	730.16	742.62	732.72	697.54	655.02	624.23	545.42
360.0	733.82	740.06	743.35	732.72	734.92	698.27	672.61	628.26	582.81
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	422.26	300.93	238.99	198.30	147.72	100.07	83.57	52.05	26.03
22.5	476.14	392.57	292.14	219.56	162.75	118.76	89.80	65.61	18.33
45.0	497.77	405.03	316.70	215.16	175.94	125.36	90.17	67.08	38.85
67.5	465.88	322.56	261.71	195.00	145.52	98.23	77.34	59.01	41.42
90.0	448.65	321.09	242.65	186.57	130.12	96.77	96.03	50.22	28.96
112.5	446.45	369.48	268.31	199.77	142.22	107.40	73.68	57.91	22.73
135.0	436.56	335.76	257.68	184.37	160.55	90.90	81.37	54.98	19.43
157.5	373.14	277.47	228.72	173.38	128.66	98.23	70.74	46.92	10.26
180.0	379.74	280.41	221.03	161.28	124.99	85.04	59.38	18.69	20.89
202.5	416.40	325.86	247.42	180.34	131.59	90.17	72.94	59.01	17.96
225.0	410.53	317.06	247.42	179.61	127.19	86.50	71.11	51.68	7.33
247.5	347.85	278.21	208.93	156.88	125.72	100.07	65.61	30.79	0.00
270.0	381.57	285.17	232.02	163.11	132.32	106.66	60.11	49.85	17.59
292.5	422.63	333.92	255.85	196.10	145.52	96.77	74.78	42.89	12.46
315.0	459.65	375.71	277.84	200.87	141.85	107.03	76.97	51.32	14.66
337.5	421.16	315.23	243.02	185.84	124.26	97.13	71.84	55.35	25.66
360.0	422.26	300.93	238.99	198.30	147.72	100.07	83.57	52.05	26.03
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	3.30	1.47	11.00	7.33	4.40	0.00	5.86	0.00	0.00
22.5	0.00	0.00	0.00	3.30	0.00	0.00	0.00	0.00	11.73
45.0	5.50	0.00	0.00	12.46	12.10	1.10	0.00	0.00	12.83
67.5	1.83	0.00	0.00	0.37	0.00	1.10	0.00	3.67	0.00
90.0	0.00	0.00	4.40	0.00	0.00	0.00	0.00	4.40	0.00
112.5	4.40	0.00	1.47	0.00	0.00	3.30	0.00	0.00	0.00
135.0	4.77	0.00	0.00	0.00	0.00	0.00	5.13	9.16	0.00
157.5	6.60	5.50	0.00	0.00	0.00	0.73	0.00	2.93	0.00
180.0	0.00	0.00	0.00	1.10	0.73	0.73	4.77	8.43	0.00
202.5	5.13	6.96	0.37	0.00	0.00	0.00	4.03	0.00	7.70
225.0	1.10	0.00	0.00	0.00	0.00	0.00	0.00	8.06	5.50
247.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.77	4.03
270.0	0.00	4.40	1.83	0.00	0.00	1.10	0.37	0.00	0.00
292.5	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
315.0	0.00	0.00	0.00	0.73	4.77	0.00	0.00	0.00	0.00
337.5	0.00	5.13	0.00	0.00	0.00	2.57	0.00	0.00	2.20
360.0	3.30	1.47	11.00	7.33	4.40	0.00	5.86	0.00	0.00

Intensity data(cd)

Appendix Page: 17 Total:17

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	6.23	0.00	3.30	2.93	0.00	0.00	0.00	4.40	0.00
22.5	2.20	0.37	6.23	0.00	0.00	0.00	0.00	4.77	0.00
45.0	5.86	2.57	0.73	0.00	0.00	0.00	0.00	0.00	0.00
67.5	0.00	5.86	0.00	0.00	0.00	0.00	3.30	0.00	0.00
90.0	8.80	0.00	0.00	2.93	0.00	1.83	2.93	7.33	2.20
112.5	4.03	0.00	2.57	0.37	0.00	0.73	0.00	11.73	0.00
135.0	0.00	0.00	6.23	4.77	1.10	0.00	0.00	0.00	0.00
157.5	0.73	0.37	9.53	6.23	0.00	0.37	0.00	0.00	0.00
180.0	0.00	6.96	0.00	0.00	0.00	0.00	0.00	0.00	2.20
202.5	3.67	0.00	0.73	0.00	14.30	5.50	1.83	0.00	3.67
225.0	0.00	1.47	0.00	7.33	0.00	7.70	7.70	8.06	0.00
247.5	7.70	0.00	0.00	0.00	0.00	0.00	2.57	0.00	0.00
270.0	0.00	5.86	0.00	1.10	0.00	0.73	0.00	0.00	0.00
292.5	0.00	0.00	7.70	2.93	0.00	0.00	8.06	0.00	16.13
315.0	8.06	9.16	0.00	0.00	0.00	0.00	0.00	1.47	8.43
337.5	0.00	0.00	5.50	8.80	1.47	0.00	5.13	0.00	0.00
360.0	6.23	0.00	3.30	2.93	0.00	0.00	0.00	4.40	0.00
C/γ(°)	180.0								
0.0	0.00								
22.5	0.00								
45.0	0.00								
67.5	16.13								
90.0	0.00								
112.5	0.00								
135.0	4.77								
157.5	0.73								
180.0	0.00								
202.5	0.00								
225.0	0.00								
247.5	16.13								
270.0	0.00								
292.5	0.00								
315.0	4.77								
337.5	0.73								
360.0	0.00								