



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440221 RIO 24W 6500K 2400lm

Luminaire:

Report No:

Voltage(V): 230.0000

Test No: KYZ-A251011059-02-003

Current(A): 0.1070

LampCAT: LED

Power (W): 24.0000

Lamp flux(lm)

PF: 0.9737

Number of Lamps: 1

Ballast type:

Length(mm): -192

Width(mm): -192

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2400.00

Lumens(lm)/Power(W): 100.00

Central intensity(cd): 983.058

Maximum intensity(cd): 999.902

Angle of maximum intensity: $C=135.0$ $\gamma=0.0$

Beam Angle(50%Imax): [C0/180]Total=93.1

[C90/270]Total=93.9

Field angle(10%Imax): [C0/180]Total=148.2

[C90/270]Total=150.8

Maximum s/h(1/2): C0_180=1.32 C90_270=1.30

Maximum s/h(1/4): C0_180=1.32 C90_270=1.29

Up flux rate of LUM(%): 0.42%

Down flux rate of LUM(%): 99.58%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 85.600%

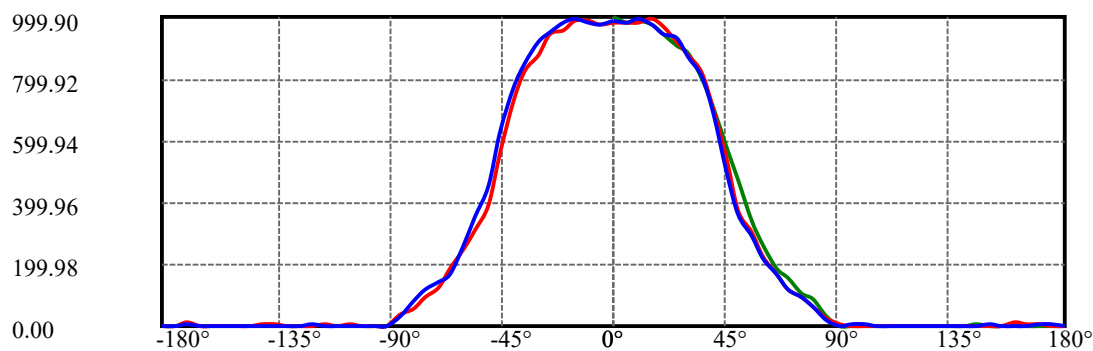
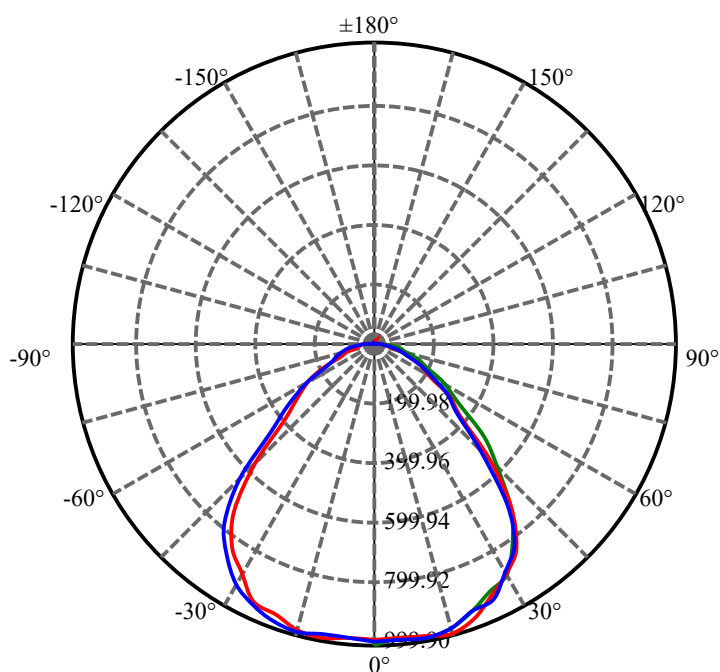
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1115.544	0.000	0	.000%	.000%
5.0	1113.372	23.479	23.479	.978%	.978%
10.0	1116.956	70.303	93.783	2.929%	3.908%
15.0	1114.105	116.616	210.398	4.859%	8.767%
20.0	1091.541	160.172	370.571	6.674%	15.440%
25.0	1051.816	198.082	568.652	8.253%	23.694%
30.0	1003.756	229.218	797.87	9.551%	33.245%
35.0	931.095	251.058	1048.928	10.461%	43.705%
40.0	818.764	257.253	1306.181	10.719%	54.424%
45.0	652.073	239.970	1546.151	9.999%	64.423%
50.0	500.181	205.158	1751.309	8.548%	72.971%
55.0	377.559	168.168	1919.477	7.007%	79.978%
60.0	284.860	134.918	2054.395	5.622%	85.600%
65.0	210.081	106.021	2160.416	4.418%	90.017%
70.0	157.730	82.064	2242.48	3.419%	93.437%
75.0	116.974	63.270	2305.749	2.636%	96.073%
80.0	84.717	47.553	2353.302	1.981%	98.054%
85.0	32.828	28.144	2381.446	1.173%	99.227%
90.0	2.118	8.431	2389.877	.351%	99.578%
95.0	1.358	0.839	2390.716	.035%	99.613%
100.0	1.032	0.572	2391.288	.024%	99.637%
105.0	1.738	0.653	2391.941	.027%	99.664%
110.0	1.276	0.694	2392.635	.029%	99.693%
115.0	2.145	0.763	2393.398	.032%	99.725%
120.0	1.412	0.762	2394.16	.032%	99.757%
125.0	0.462	0.382	2394.542	.016%	99.773%
130.0	1.548	0.385	2394.927	.016%	99.789%
135.0	1.521	0.546	2395.473	.023%	99.811%
140.0	2.770	0.700	2396.173	.029%	99.841%
145.0	3.693	0.950	2397.123	.040%	99.880%
150.0	3.095	0.881	2398.004	.037%	99.917%
155.0	2.199	0.590	2398.594	.025%	99.942%
160.0	2.797	0.462	2399.056	.019%	99.961%
165.0	2.905	0.414	2399.47	.017%	99.978%
170.0	2.987	0.308	2399.778	.013%	99.991%
175.0	2.389	0.169	2399.948	.007%	99.998%
180.0	2.335	0.050	2399.997	.002%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-30	797.87	33.24%
0-40	1306.18	54.42%
0-60	2054.40	85.60%
0-90	2389.88	99.58%
0-120	2394.16	99.76%
0-180	2400.00	100.00%
60-90	470.40	19.60%
90-120	12.71	0.53%
90-130	13.48	0.56%
90-150	16.56	0.69%
90-180	18.50	0.77%
0-55.02	1920.00	80.00%

ZONAL LUMEN SUMMARY

0-10	93.78
10-20	276.79
20-30	427.30
30-40	508.31
40-50	445.13
50-60	303.09
60-70	188.08
70-80	110.82
80-90	36.57
90-100	1.41
100-110	1.35
110-120	1.53
120-130	0.77
130-140	1.25
140-150	1.83
150-160	1.05
160-170	0.72
170-180	0.17



C135(Max): —————

C0/C180: —————

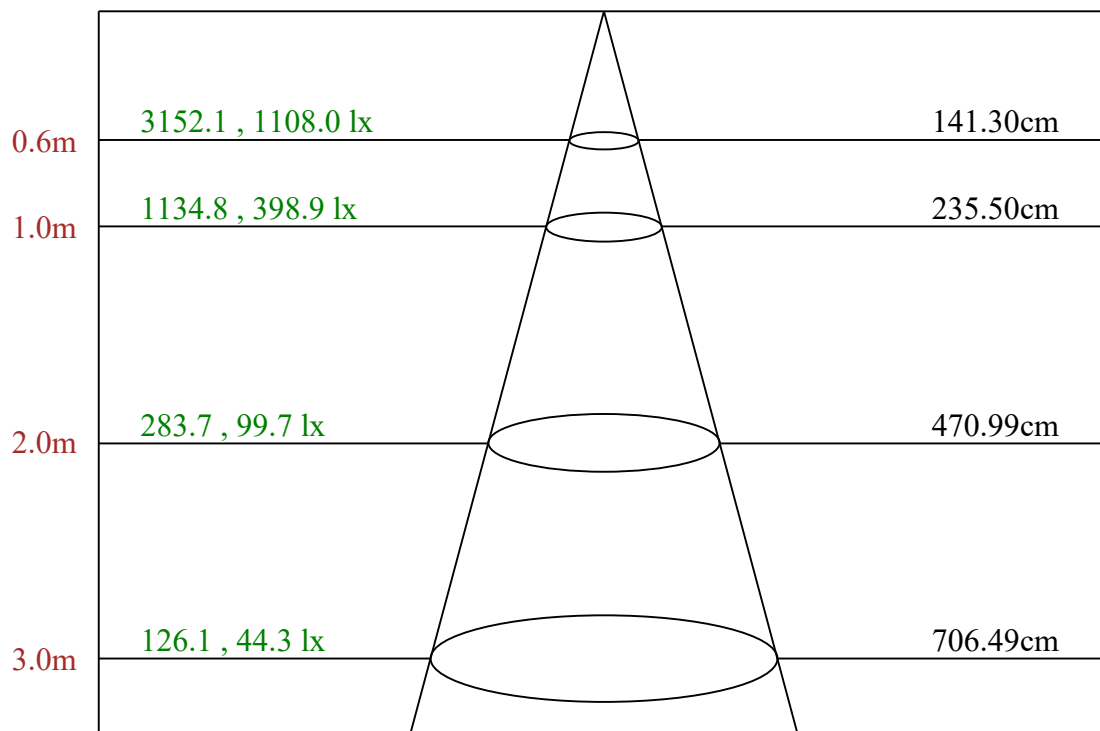
C90/C270: —————

Field angle(10%Imax):C0/180Left:89.2 Right:59.0

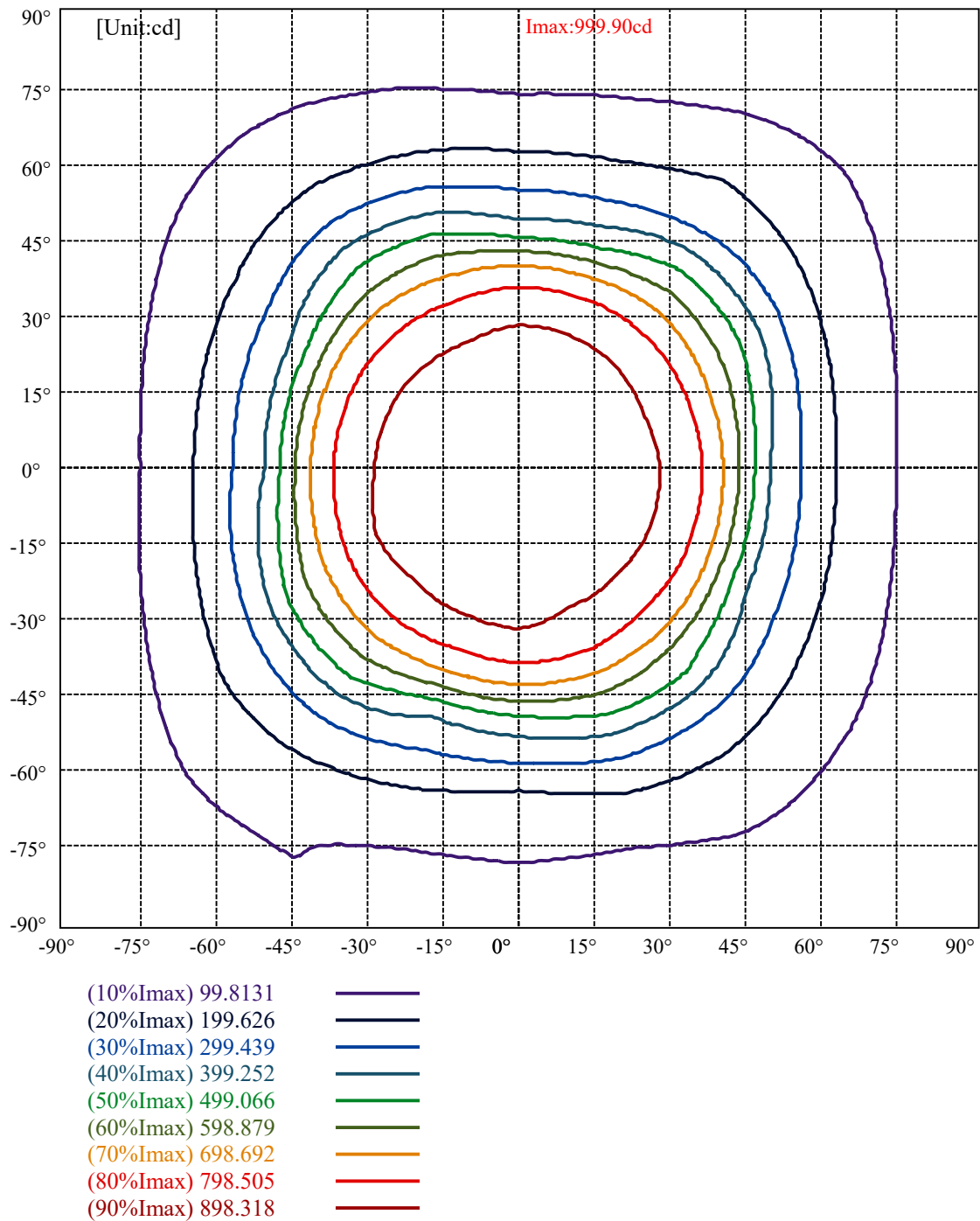
:C90/270Left:62.5 Right:88.3

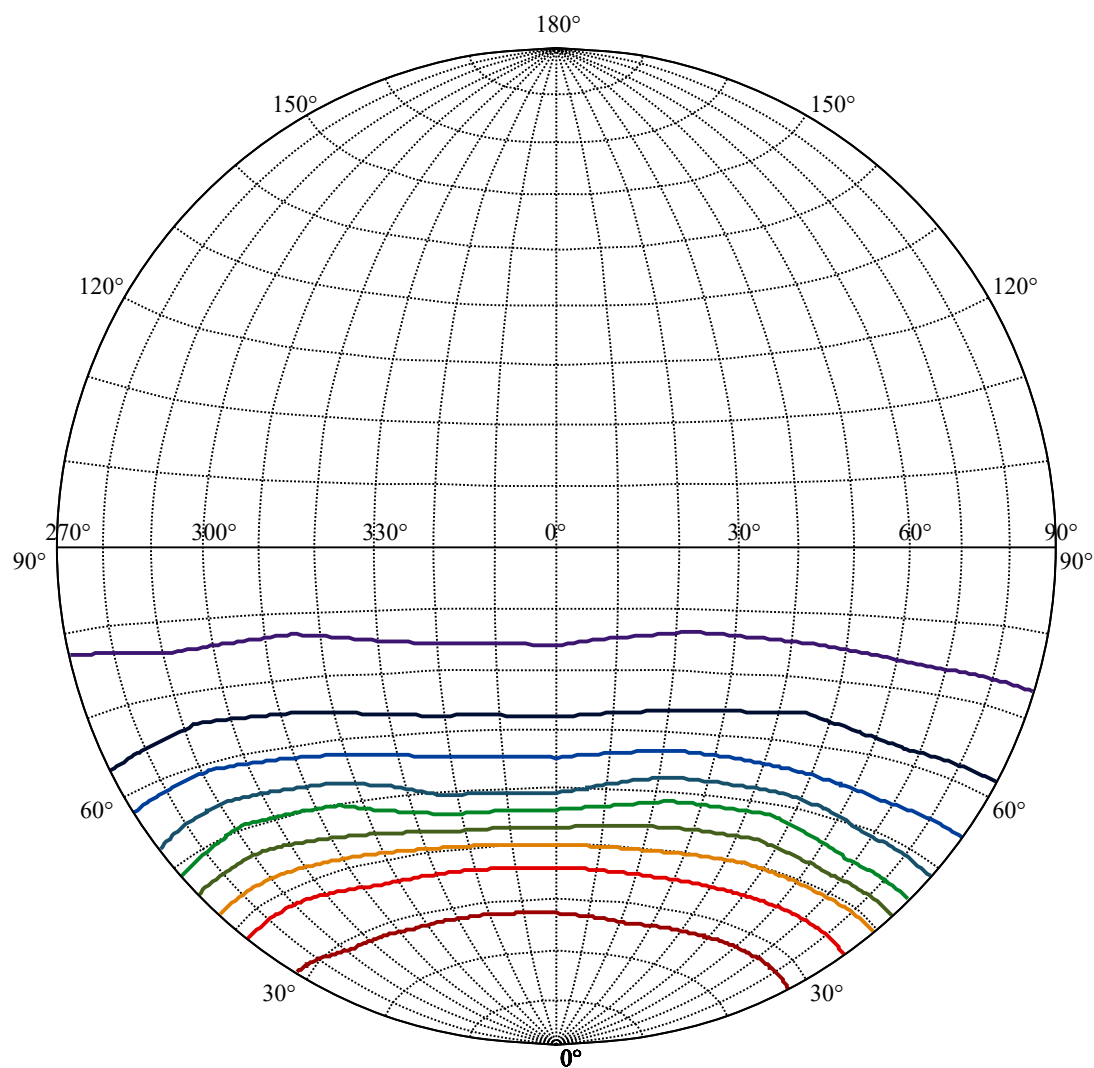
Beam Angle(50%Imax):C0/180Left:61.8 Right:31.3

:C90/270Left:33.8 Right:60.1



Max , Ave Beam angle of C135 plane 99.32





House

[Unit:cd]

Road

Imax:999.90

(10%Imax) 88.10647

(20%Imax) 176.2126

(30%Imax) 264.3198

(40%Imax) 352.4261

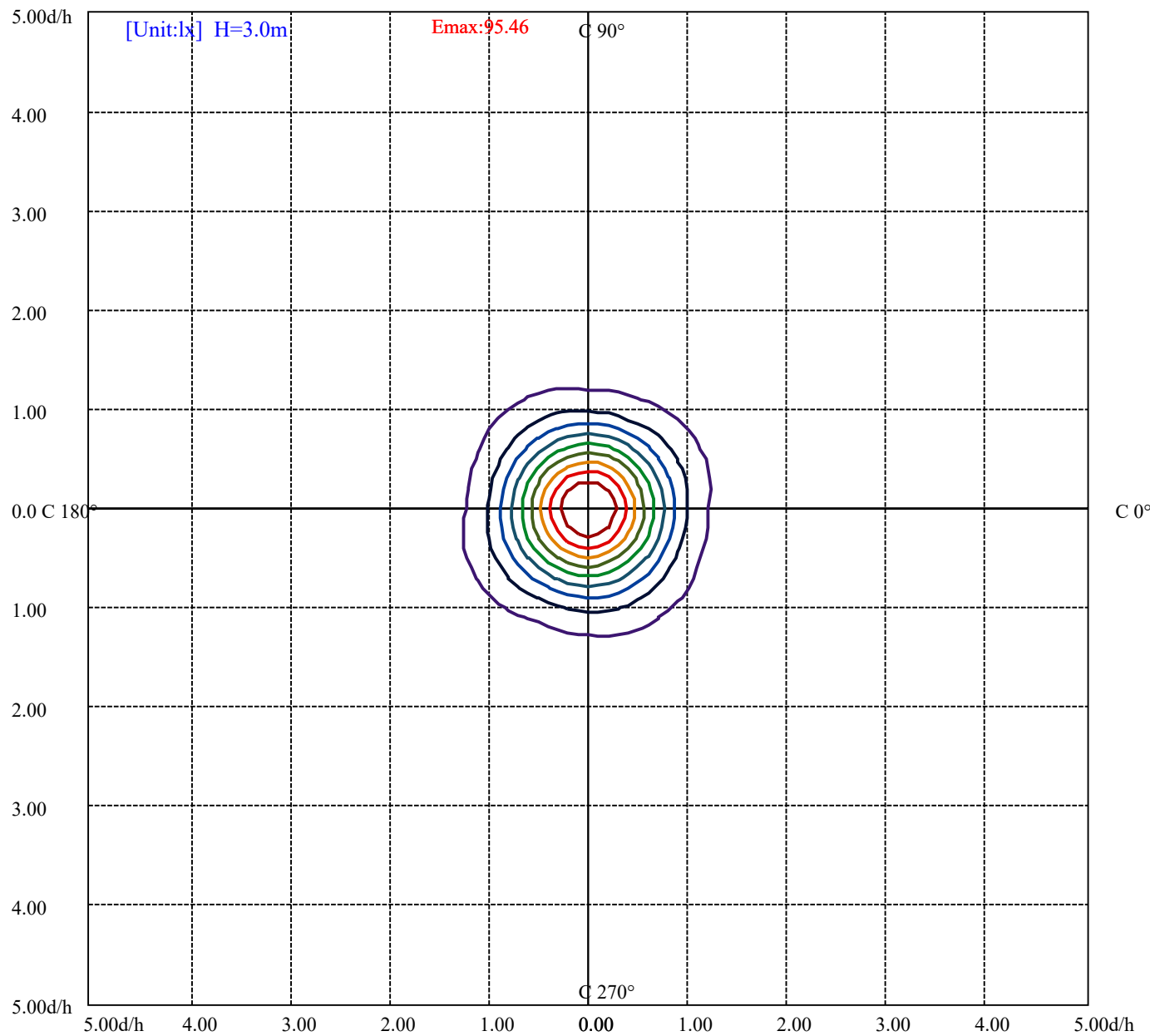
(50%Imax) 440.5323

(60%Imax) 528.6387

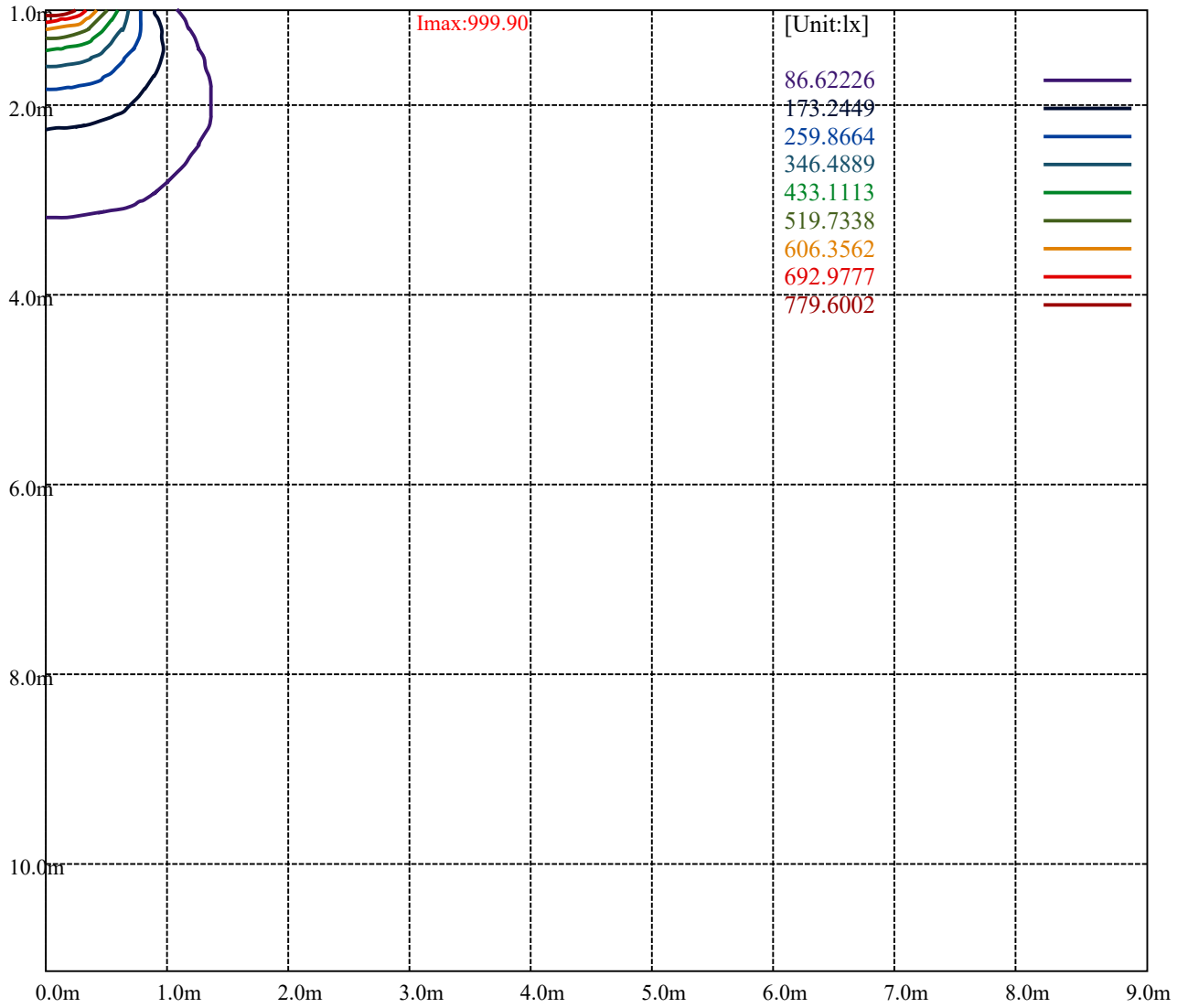
(70%Imax) 616.745

(80%Imax) 704.8521

(90%Imax) 792.9584



(10%E _{max}) 9.545999	
(20%E _{max}) 19.092	
(30%E _{max}) 28.638	
(40%E _{max}) 38.18399	
(50%E _{max}) 47.73	
(60%E _{max}) 57.276	
(70%E _{max}) 66.82199	
(80%E _{max}) 76.36799	
(90%E _{max}) 85.91399	



Luminance Table

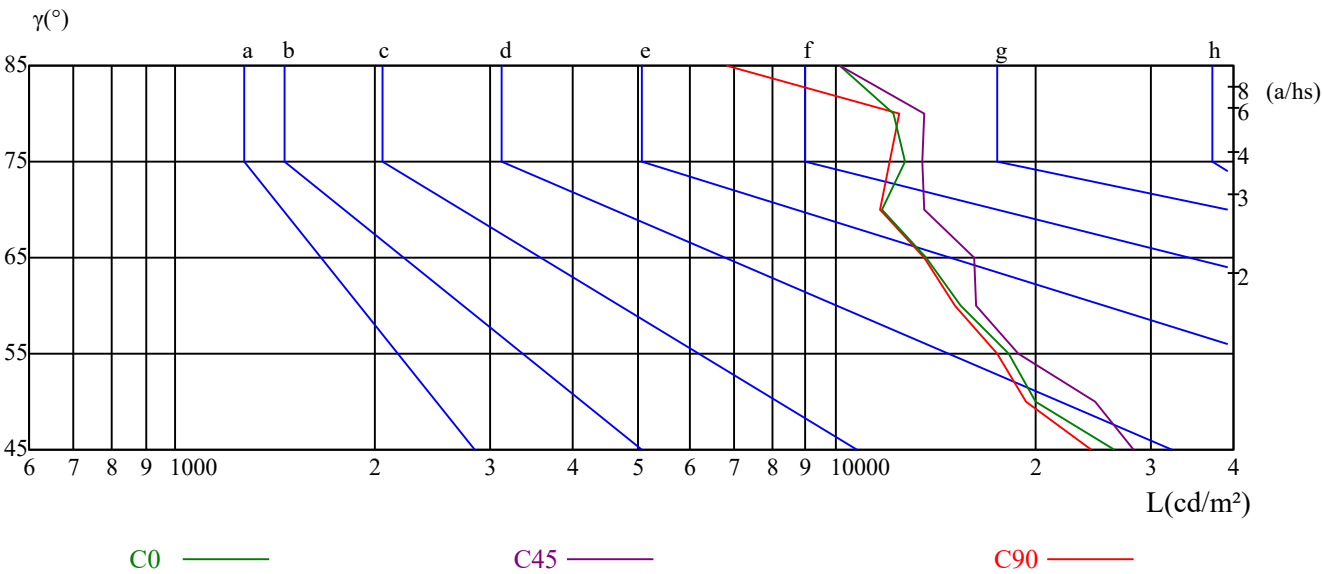
γ	45	50	55	60	65	70	75	80	85
C0	26421	20117	18257	15443	13672	11713	12720	12183	10164
C45	28310	24766	18925	16342	16237	13646	13538	13629	10164
C90	24327	19397	17565	15179	13578	11675	12056	12487	6827

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
14329	13719	16136	12695	13844	14036	12061	9709	12971

Glare Table

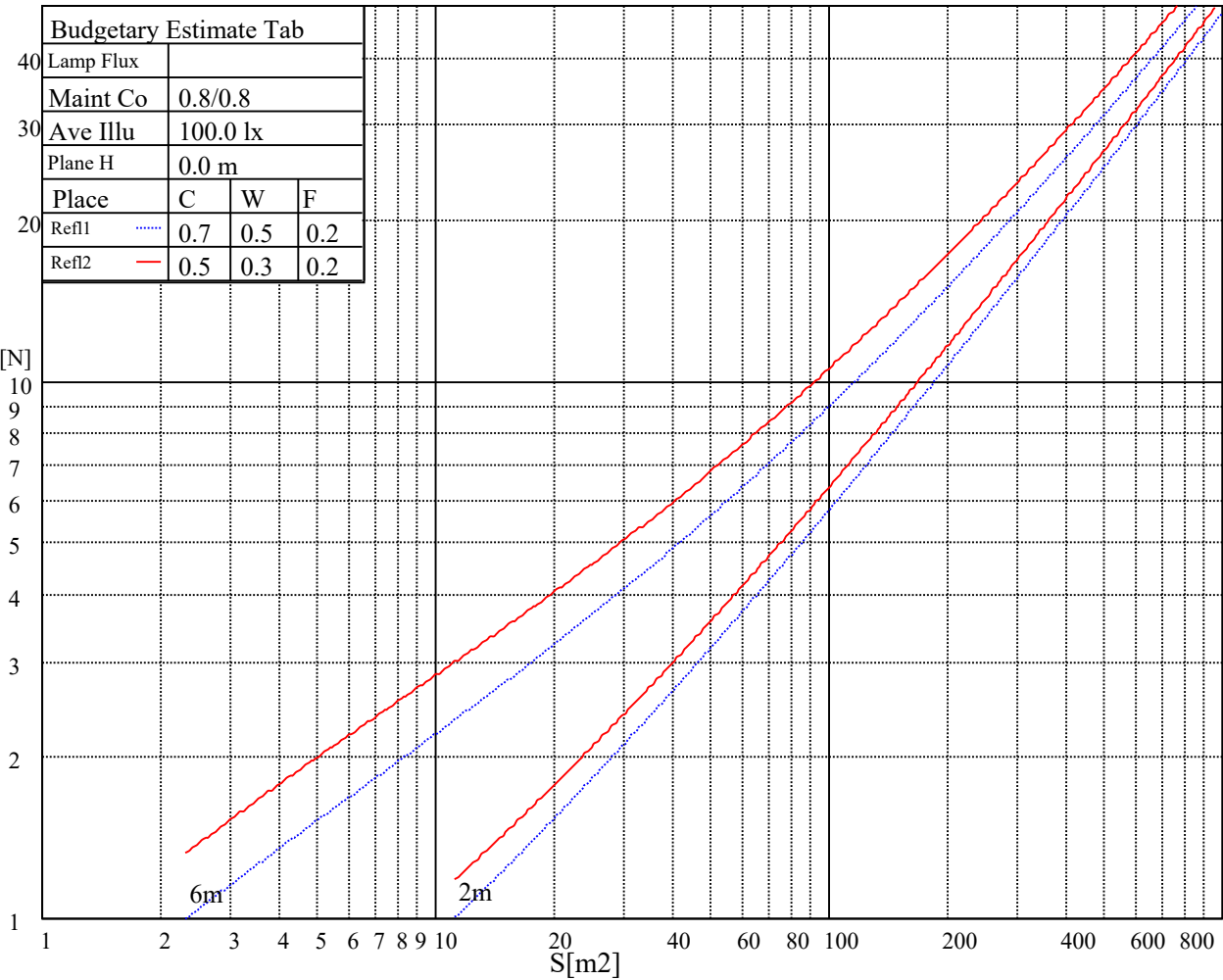
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

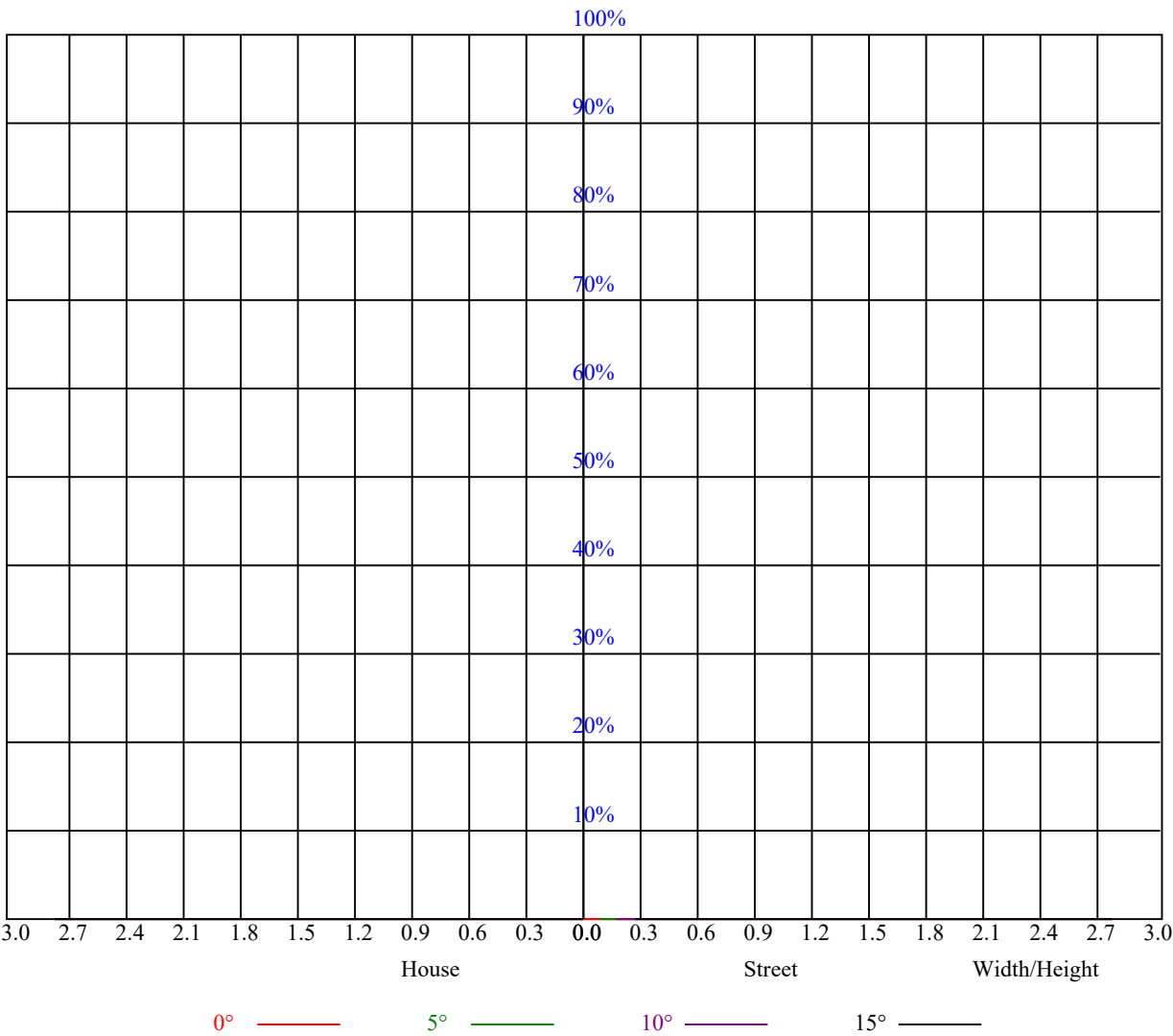


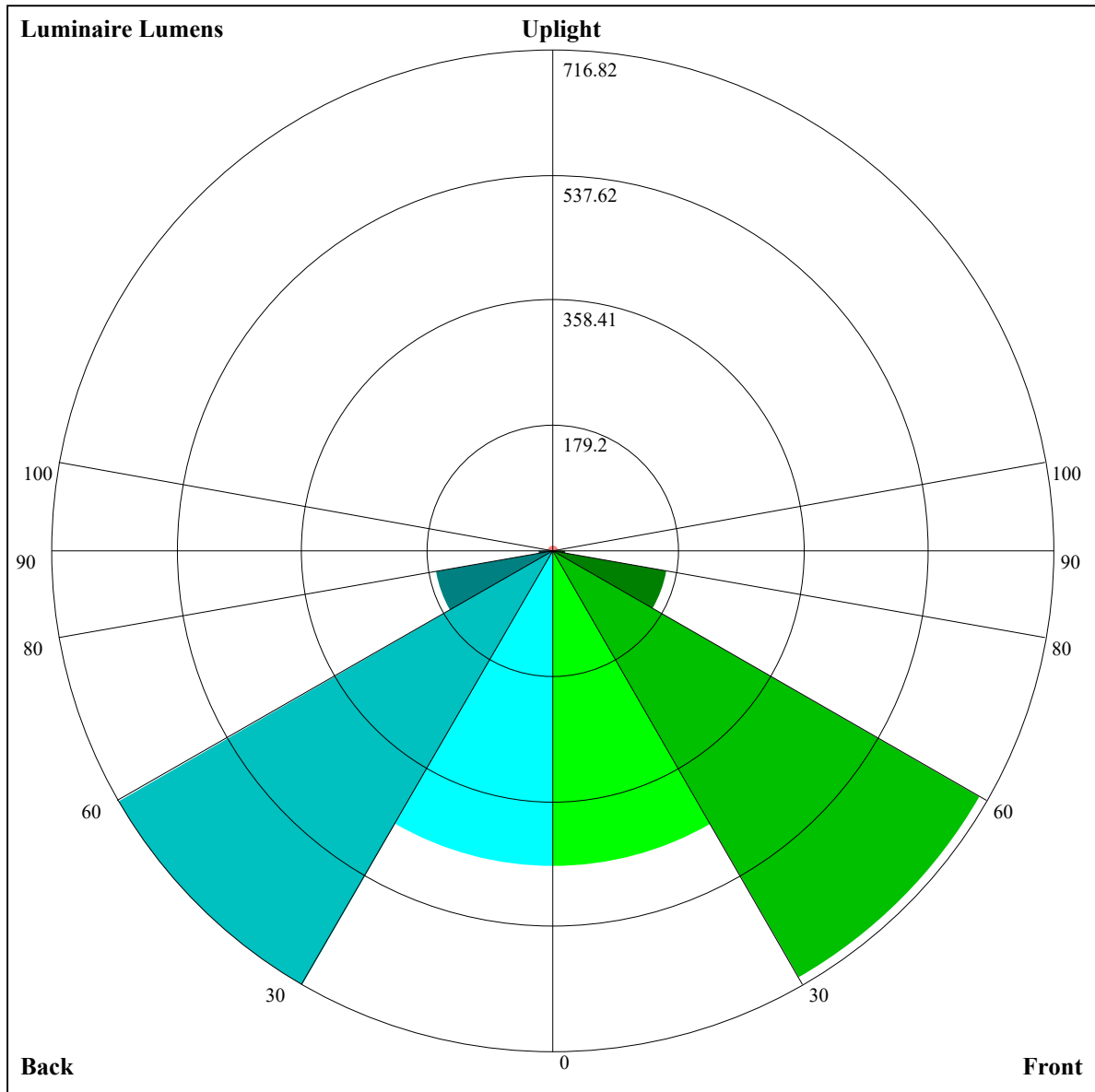
Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	18.41	19.90	18.77	20.23	20.55	17.91	19.41	18.28	19.73	20.06
	3H	19.29	20.64	19.68	20.99	21.34	18.88	20.23	19.27	20.58	20.93
	4H	19.74	21.00	20.14	21.36	21.73	19.30	20.57	19.70	20.93	21.30
	6H	20.17	21.34	20.58	21.71	22.12	19.73	20.90	20.14	21.27	21.68
	8H	20.29	21.42	20.70	21.80	22.21	19.84	20.96	20.25	21.35	21.76
	12H	20.35	21.43	20.77	21.82	22.24	19.85	20.93	20.28	21.33	21.75
4H	2H	18.83	20.09	19.23	20.45	20.83	18.43	19.69	18.83	20.05	20.43
	3H	19.92	20.99	20.34	21.38	21.80	19.59	20.66	20.02	21.06	21.48
	4H	20.59	21.54	21.03	21.96	22.41	20.17	21.12	20.61	21.54	21.99
	6H	21.16	21.99	21.63	22.44	22.90	20.68	21.52	21.15	21.97	22.42
	8H	21.37	22.15	21.85	22.61	23.08	20.85	21.64	21.33	22.09	22.56
	12H	21.50	22.23	21.98	22.67	23.19	20.91	21.64	21.40	22.09	22.60
8H	4H	20.82	21.60	21.30	22.05	22.53	20.43	21.21	20.91	21.67	22.14
	6H	21.55	22.21	22.05	22.68	23.19	21.07	21.73	21.57	22.20	22.71
	8H	21.91	22.48	22.43	23.00	23.50	21.33	21.91	21.86	22.42	22.92
	12H	22.11	22.60	22.64	23.11	23.63	21.40	21.89	21.93	22.40	22.92
12H	4H	20.83	21.56	21.32	22.01	22.53	20.47	21.20	20.96	21.65	22.16
	6H	21.65	22.23	22.17	22.74	23.24	21.19	21.77	21.72	22.29	22.78
	8H	22.01	22.49	22.54	23.01	23.53	21.44	21.93	21.97	22.44	22.96
Variation with the observer position at spacings:											
S = 1.0H		0.4/-0.7					0.3/-0.8				
S = 1.5H		0.8/-1.1					0.7/-1.1				
S = 2.0H		1.5/-1.3					1.5/-1.4				
Standard tables:		BK3					BK3				
Uncorrected UGR		6.3					6.9				

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	1.02	1.02	1.02	1.00
1	1.05	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	0.93	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	0.73
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	0.63
4	0.75	0.66	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	0.52	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	0.45	0.55	0.49	0.45	0.43
7	0.56	0.47	0.41	0.55	0.47	0.41	0.53	0.46	0.41	0.52	0.45	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	0.46	0.41	0.36	0.35
9	0.47	0.39	0.34	0.46	0.39	0.34	0.45	0.38	0.33	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=452.81,FM=704.52,FH=165.02,FVH=19.14

BL=452.89,BM=716.82,BH=171.8,BVH=21.87

UL=1.6,UH=9.88

BUG Rating:B1-U1-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	983.06	979.23	984.21	996.07	970.81	919.51	878.55	821.51	700.16
22.5	976.93	991.10	989.95	969.66	966.98	909.18	873.19	806.20	692.50
45.0	975.02	972.34	986.50	977.70	953.20	913.77	877.79	801.22	701.69
67.5	978.08	975.78	968.51	993.01	962.39	916.45	882.38	804.67	682.93
90.0	986.89	983.82	990.71	975.02	943.63	932.53	872.43	806.97	687.15
112.5	976.17	976.93	989.18	980.38	963.15	910.71	866.68	793.18	689.82
135.0	999.90	978.46	989.95	976.55	944.78	908.79	879.70	798.16	707.05
157.5	987.65	978.08	994.54	977.32	952.43	926.40	869.75	810.41	713.56
180.0	983.06	976.55	986.89	984.97	957.03	942.10	875.87	823.43	724.66
202.5	976.93	983.82	968.89	978.46	958.94	922.96	906.88	837.97	744.57
225.0	975.02	989.18	986.50	973.11	958.94	933.68	895.78	847.54	752.61
247.5	978.08	989.95	965.83	988.03	978.46	944.01	904.20	836.82	750.69
270.0	986.89	976.17	978.46	991.10	978.46	952.82	920.28	849.84	772.90
292.5	976.17	986.89	993.78	990.33	973.11	946.31	884.29	846.01	765.24
315.0	999.90	981.14	998.75	983.06	960.86	926.79	880.85	817.68	741.89
337.5	987.65	977.32	974.64	972.34	965.83	922.96	882.76	825.34	715.86
360.0	983.06	979.23	984.21	996.07	970.81	919.51	878.55	821.51	700.16
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	540.91	374.39	303.19	223.56	167.29	115.99	95.32	61.25	25.65
22.5	576.13	465.50	336.49	247.68	182.98	126.33	109.87	75.41	29.86
45.0	579.58	460.90	314.29	236.58	198.68	135.13	101.45	68.52	25.65
67.5	502.63	384.34	286.73	224.33	161.55	132.84	86.90	61.63	6.12
90.0	498.04	360.99	291.70	219.73	166.14	115.61	90.34	62.78	17.23
112.5	570.77	450.19	322.33	260.31	175.33	128.24	101.83	85.37	20.29
135.0	575.36	470.86	344.15	261.08	186.81	154.66	103.36	86.13	30.63
157.5	542.06	393.91	313.14	235.81	176.48	145.85	103.36	65.84	32.16
180.0	556.61	392.38	313.52	247.68	183.37	124.41	94.94	58.57	35.22
202.5	627.81	516.03	374.77	274.86	219.35	151.59	120.97	85.37	42.88
225.0	639.29	521.01	382.05	283.66	205.95	161.55	106.80	101.45	44.02
247.5	593.74	412.29	335.34	257.63	196.38	135.51	106.42	67.76	27.94
270.0	627.04	452.10	352.57	259.16	169.59	143.94	117.14	81.54	31.77
292.5	631.64	514.88	383.96	280.22	206.33	157.72	104.12	73.50	32.16
315.0	596.04	498.04	356.01	262.61	198.30	156.57	109.10	84.60	30.63
337.5	535.55	383.96	312.76	241.17	167.29	137.81	97.23	74.65	30.63
360.0	540.91	374.39	303.19	223.56	167.29	115.99	95.32	61.25	25.65
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	6.51	0.00	1.91	0.00	0.00	0.00	0.00	0.00	0.00
22.5	3.06	0.00	0.00	0.00	4.59	0.00	0.00	0.00	0.00
45.0	2.68	0.00	0.00	0.00	3.06	2.30	0.00	0.00	3.83
67.5	1.15	0.00	3.45	0.00	1.15	0.00	0.00	0.00	1.53
90.0	0.00	4.21	4.59	3.06	0.38	0.00	0.00	0.00	0.00
112.5	0.00	0.00	0.00	0.00	7.27	5.74	0.00	4.21	7.27
135.0	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00
157.5	10.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.0	0.00	0.00	0.00	8.80	0.00	3.83	0.00	0.00	0.00
202.5	5.74	0.00	0.00	4.98	0.00	0.00	0.00	0.00	0.00
225.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.51
247.5	0.00	0.38	1.91	7.66	0.00	5.74	2.68	0.00	0.00
270.0	0.00	0.00	0.38	0.00	0.00	0.00	7.27	0.00	0.00
292.5	0.00	0.00	2.30	0.00	1.53	9.19	0.77	0.00	0.00
315.0	0.00	6.12	0.00	0.00	0.00	3.06	0.00	2.30	0.00
337.5	0.00	8.42	0.00	0.00	0.00	0.00	9.19	0.00	2.68
360.0	6.51	0.00	1.91	0.00	0.00	0.00	0.00	0.00	0.00

Intensity data(cd)

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.00	0.00	0.00	0.00	0.00	10.34	5.36	5.74	2.68
22.5	0.00	4.59	7.66	0.00	3.06	0.00	5.74	0.00	5.36
45.0	0.00	4.98	0.77	11.48	4.59	8.04	15.70	0.00	0.00
67.5	4.59	0.00	0.00	7.66	0.00	0.00	9.95	0.00	0.00
90.0	0.00	2.30	2.68	4.21	0.00	0.00	0.00	8.42	4.21
112.5	0.00	0.00	3.45	11.48	4.21	0.00	2.30	0.00	0.00
135.0	2.30	0.00	8.42	0.00	0.00	4.98	0.00	0.00	0.00
157.5	0.00	0.77	0.00	2.30	10.72	0.00	0.00	0.00	0.00
180.0	5.74	4.98	0.00	0.00	1.91	0.00	0.00	12.63	0.00
202.5	2.68	0.00	10.34	0.00	0.00	0.00	1.91	0.00	4.98
225.0	0.00	1.91	0.00	0.00	0.00	0.00	0.00	0.77	0.00
247.5	0.00	0.00	0.00	1.15	6.51	5.36	0.00	0.00	0.00
270.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.42	2.68
292.5	0.00	4.21	2.68	0.00	0.00	0.77	0.00	0.00	3.45
315.0	0.00	4.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00
337.5	6.12	10.72	16.08	5.36	0.00	9.95	0.00	6.12	10.34
360.0	0.00	0.00	0.00	0.00	0.00	10.34	5.36	5.74	2.68

C/γ(°)	180.0
0.0	0.00
22.5	0.00
45.0	0.00
67.5	16.46
90.0	0.00
112.5	0.00
135.0	0.00
157.5	0.00
180.0	0.00
202.5	0.00
225.0	0.00
247.5	16.46
270.0	0.00
292.5	0.00
315.0	0.00
337.5	0.00
360.0	0.00