
Client:

LumCAT: 0017440221 RIO 10W 6500K 1000lm

Luminaire:

Report No:

Voltage(V): 230.0000

Test No: KYZ-A251011059-02-001

Current(A): 0.0490

LampCAT: LED

Power (W): 10.0000

Lamp flux(lm)

PF: 0.8964

Number of Lamps: 1

Ballast type:

Length(mm): -192

Width(mm): -192

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1000.00

Lumens(lm)/Power(W): 100.00

Central intensity(cd): 407.181

Maximum intensity(cd): 431.195

Angle of maximum intensity: $C=67.5$ $\gamma=0.0$

Beam Angle(50%Imax): [C0/180]Total=93.2

[C90/270]Total=93.7

Field angle(10%Imax): [C0/180]Total=150.3

[C90/270]Total=152.2

Maximum s/h(1/2): C0_180=1.34 C90_270=1.29

Maximum s/h(1/4): C0_180=1.33 C90_270=1.28

Up flux rate of LUM(%): 0.98%

Down flux rate of LUM(%): 99.02%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 85.631%

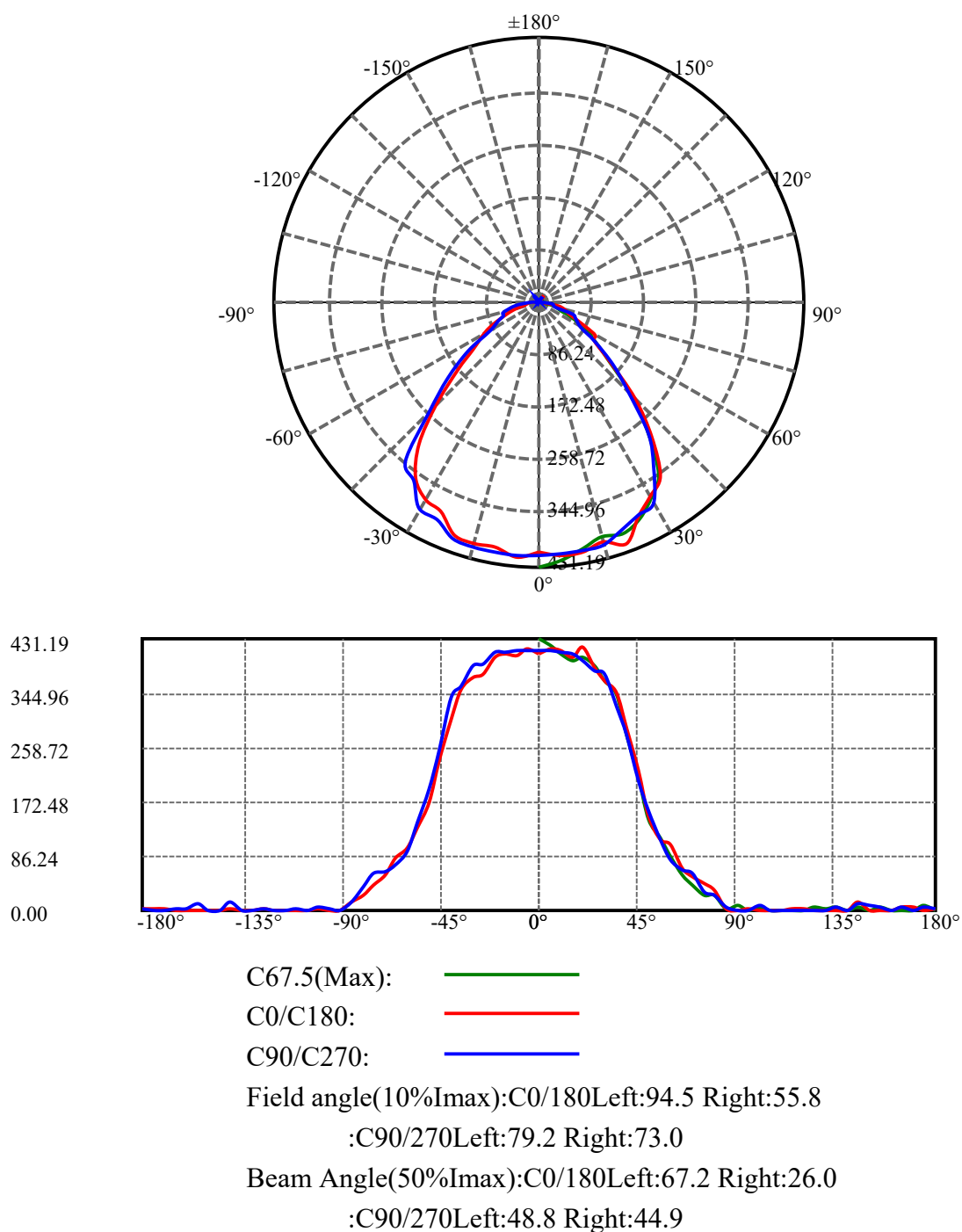
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	509.114	0.000	0	.000%	.000%
5.0	505.611	9.861	9.861	.986%	.986%
10.0	504.254	29.366	39.227	2.937%	3.923%
15.0	502.462	48.543	87.77	4.854%	8.777%
20.0	496.271	66.907	154.677	6.691%	15.468%
25.0	476.667	82.948	237.626	8.295%	23.763%
30.0	450.899	95.419	333.045	9.542%	33.304%
35.0	422.769	104.579	437.624	10.458%	43.762%
40.0	369.685	107.474	545.098	10.747%	54.510%
45.0	296.970	100.339	645.437	10.034%	64.544%
50.0	225.802	85.867	731.304	8.587%	73.130%
55.0	169.433	69.856	801.16	6.986%	80.116%
60.0	124.061	55.146	856.306	5.515%	85.631%
65.0	93.596	43.011	899.317	4.301%	89.932%
70.0	71.303	33.940	933.258	3.394%	93.326%
75.0	48.848	25.529	958.787	2.553%	95.879%
80.0	35.706	18.391	977.177	1.839%	97.718%
85.0	11.241	10.370	987.547	1.037%	98.755%
90.0	0.625	2.641	990.188	.264%	99.019%
95.0	1.575	0.490	990.677	.049%	99.068%
100.0	3.747	1.175	991.853	.118%	99.185%
105.0	1.249	1.087	992.94	.109%	99.294%
110.0	0.978	0.473	993.413	.047%	99.341%
115.0	1.249	0.458	993.871	.046%	99.387%
120.0	0.570	0.360	994.23	.036%	99.423%
125.0	1.901	0.464	994.695	.046%	99.470%
130.0	1.439	0.590	995.285	.059%	99.529%
135.0	1.982	0.562	995.847	.056%	99.585%
140.0	4.127	0.920	996.766	.092%	99.677%
145.0	3.313	1.009	997.775	.101%	99.778%
150.0	1.575	0.585	998.361	.059%	99.836%
155.0	2.933	0.464	998.824	.046%	99.883%
160.0	1.385	0.368	999.192	.037%	99.919%
165.0	2.742	0.276	999.469	.028%	99.947%
170.0	3.231	0.288	999.757	.029%	99.976%
175.0	3.258	0.189	999.946	.019%	99.995%
180.0	2.227	0.053	999.999	.005%	100.000%

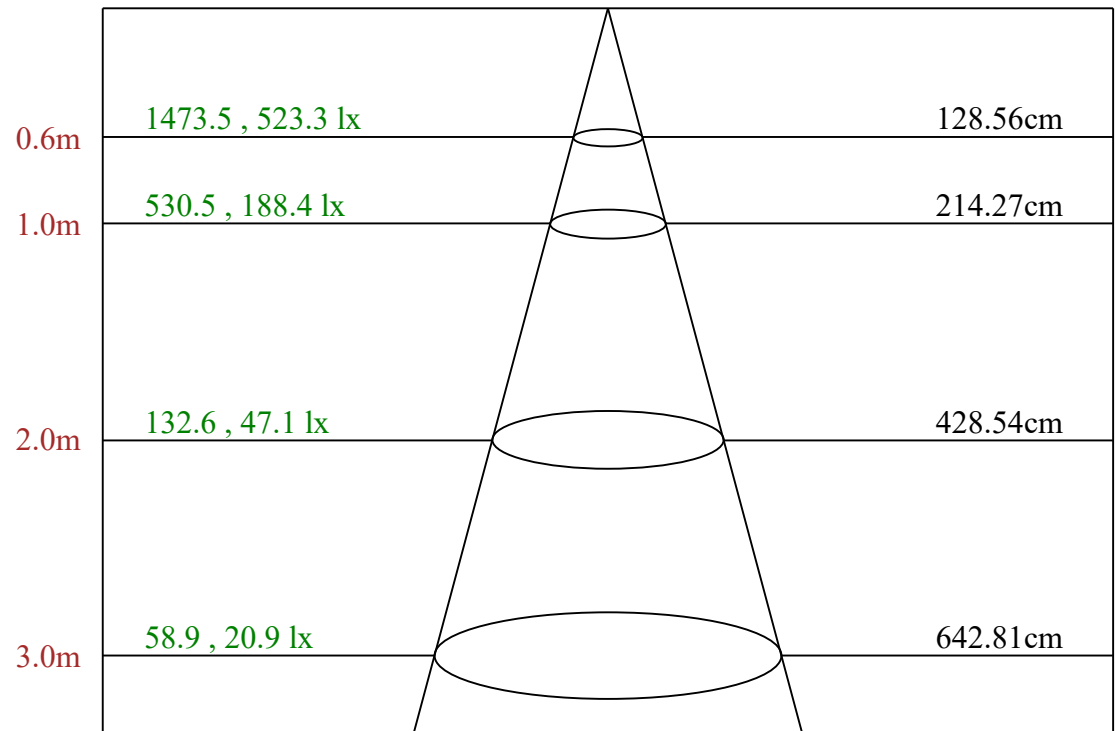
ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-30	333.04	33.30%
0-40	545.10	54.51%
0-60	856.31	85.63%
0-90	990.19	99.02%
0-120	994.23	99.42%
0-180	1000.00	100.00%
60-90	189.03	18.90%
90-120	6.68	0.67%
90-130	7.74	0.77%
90-150	10.81	1.08%
90-180	12.40	1.24%
0-54.92	800.00	80.00%

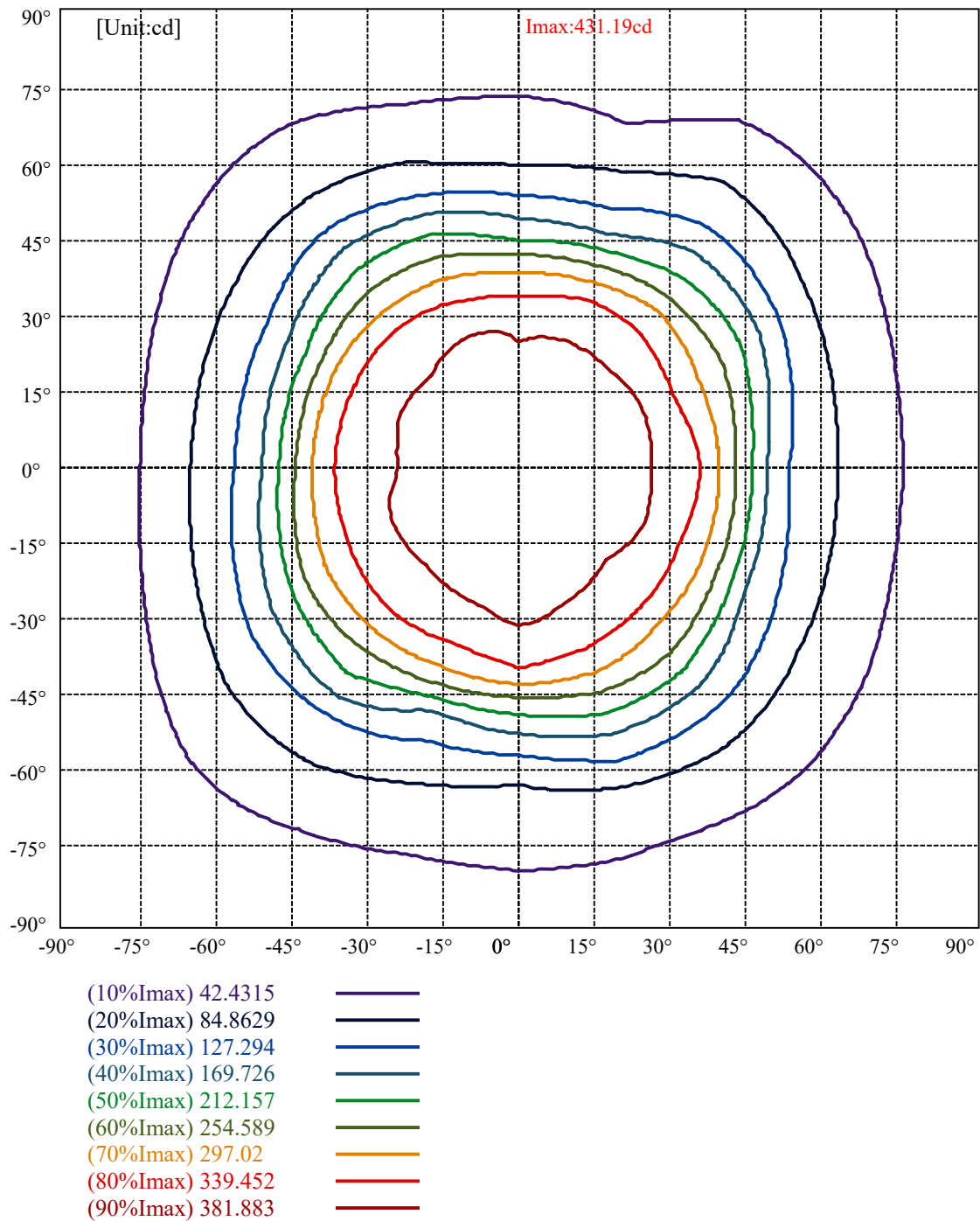
ZONAL LUMEN SUMMARY

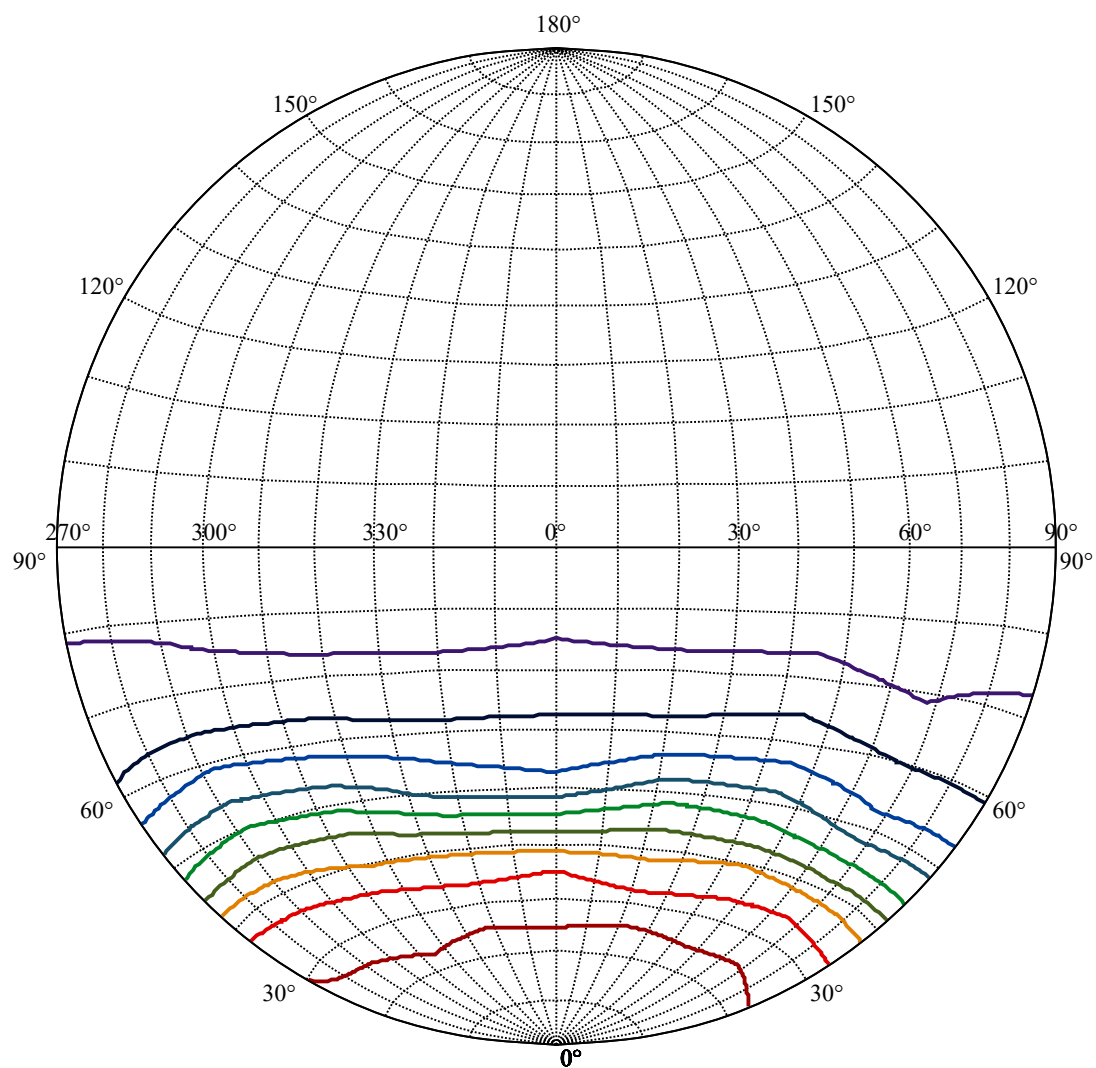
0-10	39.23
10-20	115.45
20-30	178.37
30-40	212.05
40-50	186.21
50-60	125.00
60-70	76.95
70-80	43.92
80-90	13.01
90-100	1.66
100-110	1.56
110-120	0.82
120-130	1.05
130-140	1.48
140-150	1.59
150-160	0.83
160-170	0.56
170-180	0.19





Max , Ave Beam angle of C67.5 plane 93.95





House

[Unit:cd]

Road

Imax:431.19

(10%Imax) 35.03869

(20%Imax) 70.07738

(30%Imax) 105.1162

(40%Imax) 140.1544

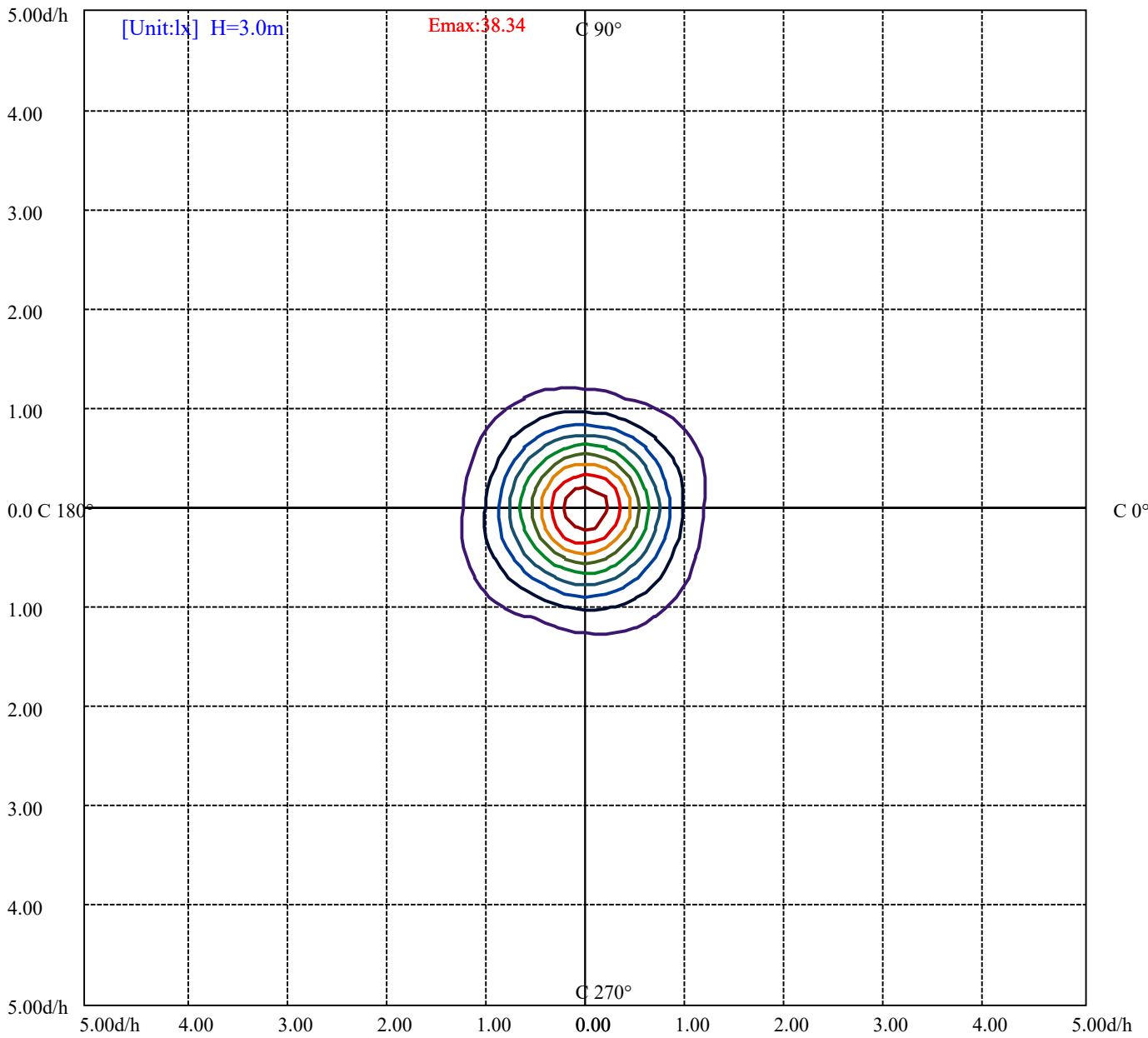
(50%Imax) 175.1935

(60%Imax) 210.2317

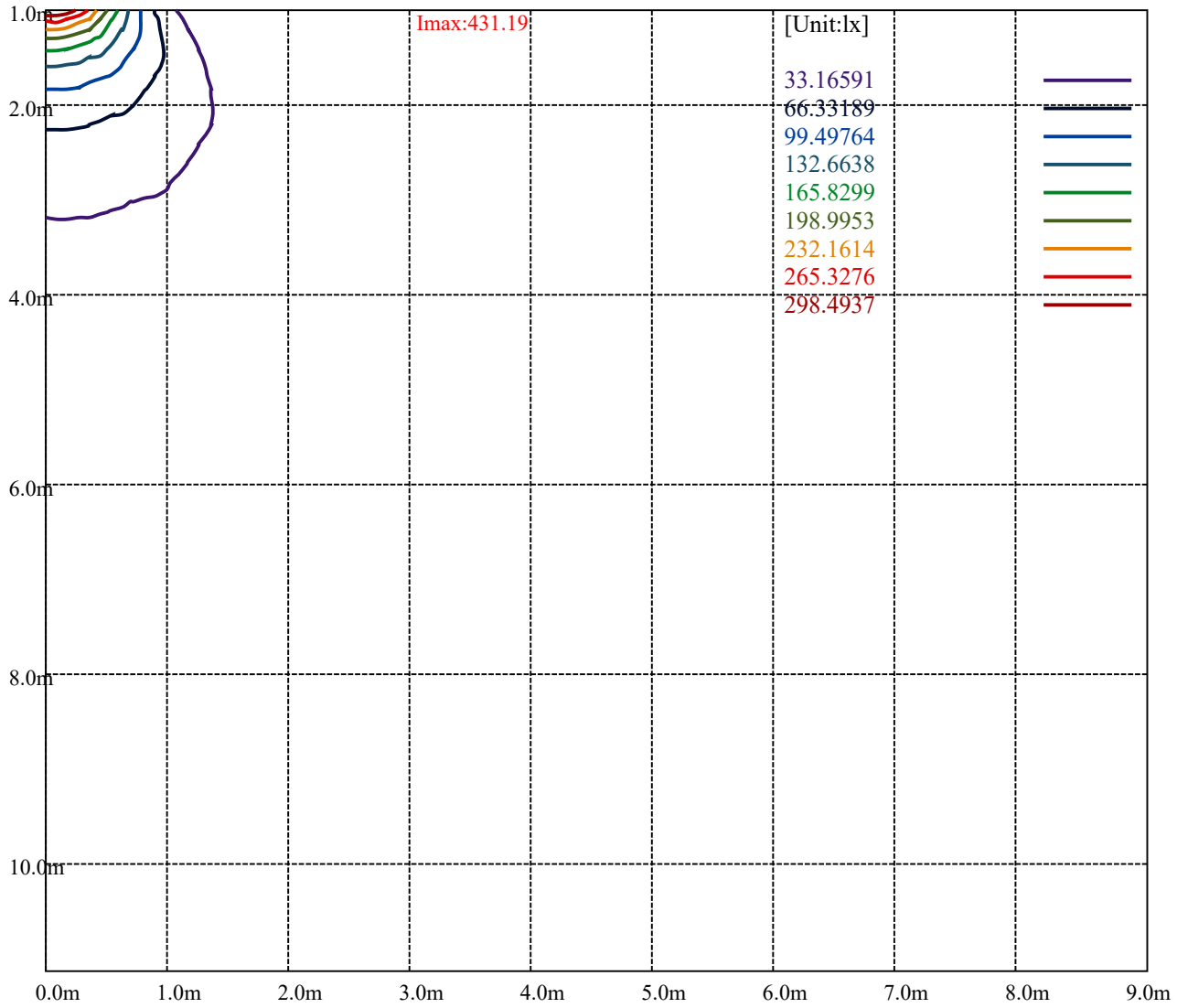
(70%Imax) 245.2707

(80%Imax) 280.3097

(90%Imax) 315.3479



(10%Emax)	3.833938	
(20%Emax)	7.667868	
(30%Emax)	11.50183	
(40%Emax)	15.33572	
(50%Emax)	19.16969	
(60%Emax)	23.00358	
(70%Emax)	26.83755	
(80%Emax)	30.67152	
(90%Emax)	34.50541	



Luminance Table

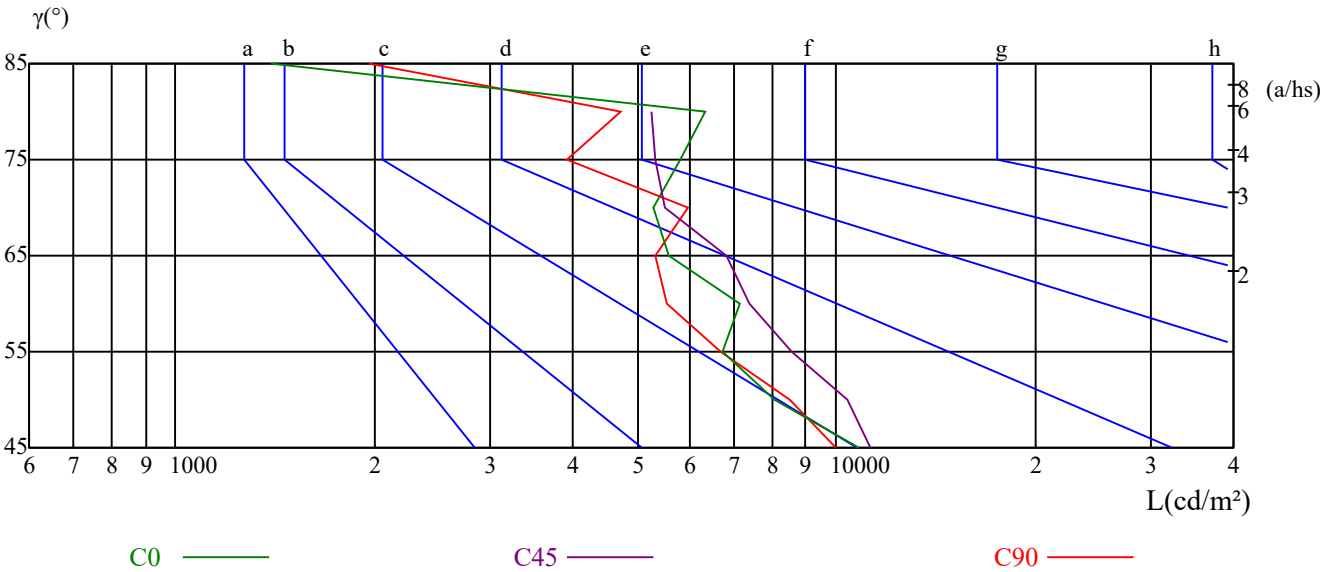
γ	45	50	55	60	65	70	75	80	85
C0	10850	8046	6741	7148	5570	5278	5797	6322	1399
C45	11299	10418	8549	7416	6811	5492	5325	5268	0
C90	10022	8520	6699	5538	5339	5956	3912	4706	1959

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6162	5671	6689	5561	5891	5325	3359	3639	2974

Glare Table

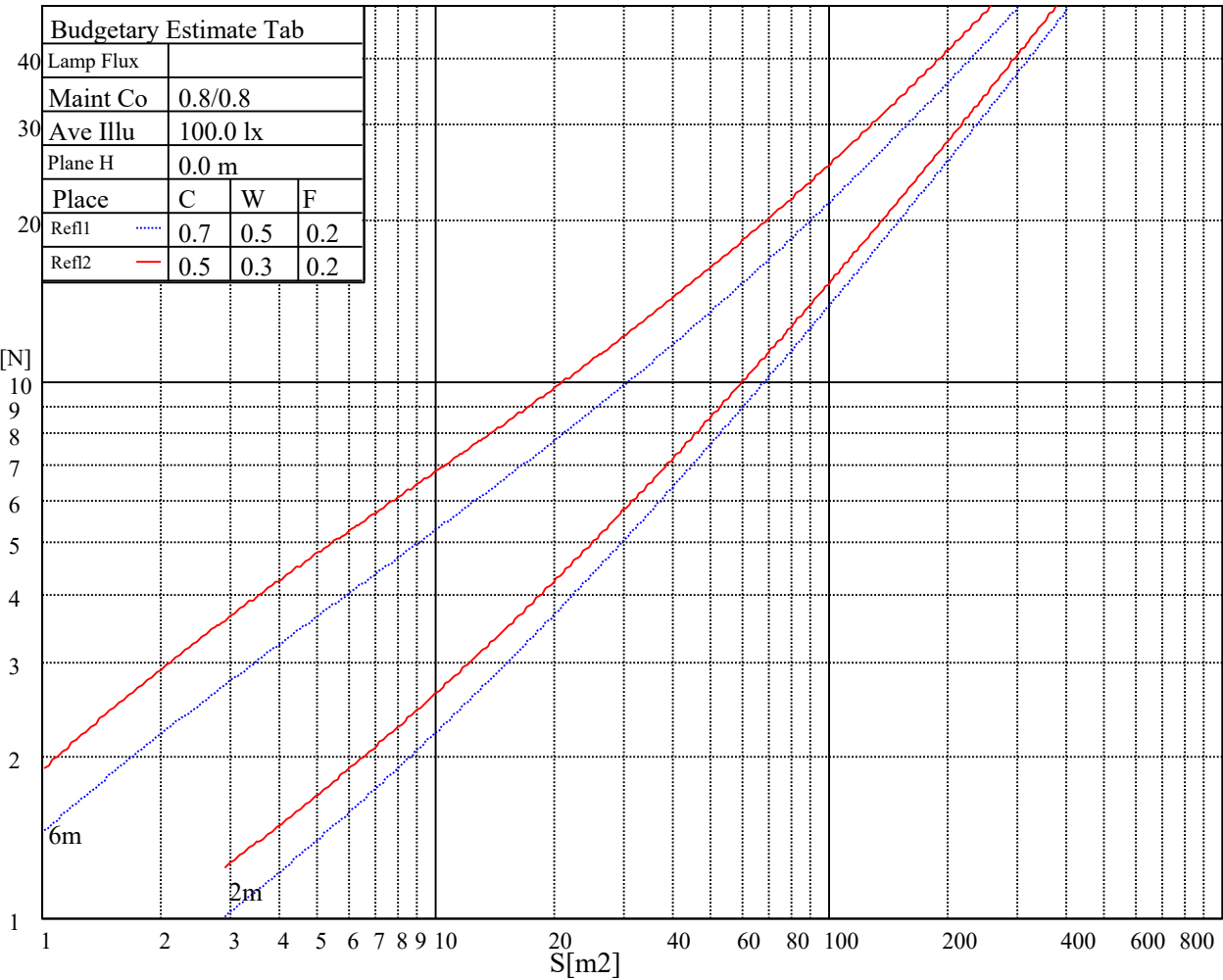
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

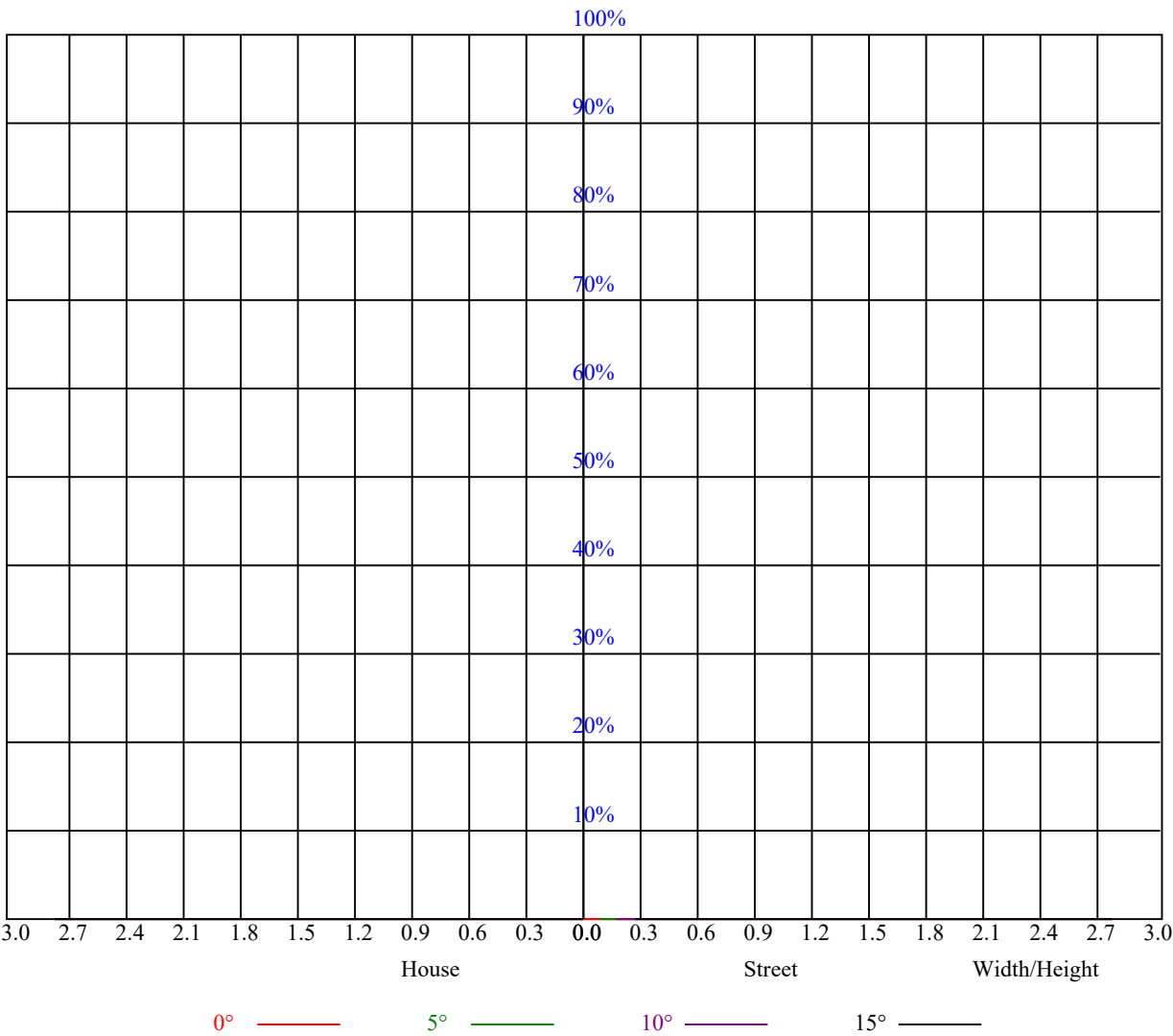


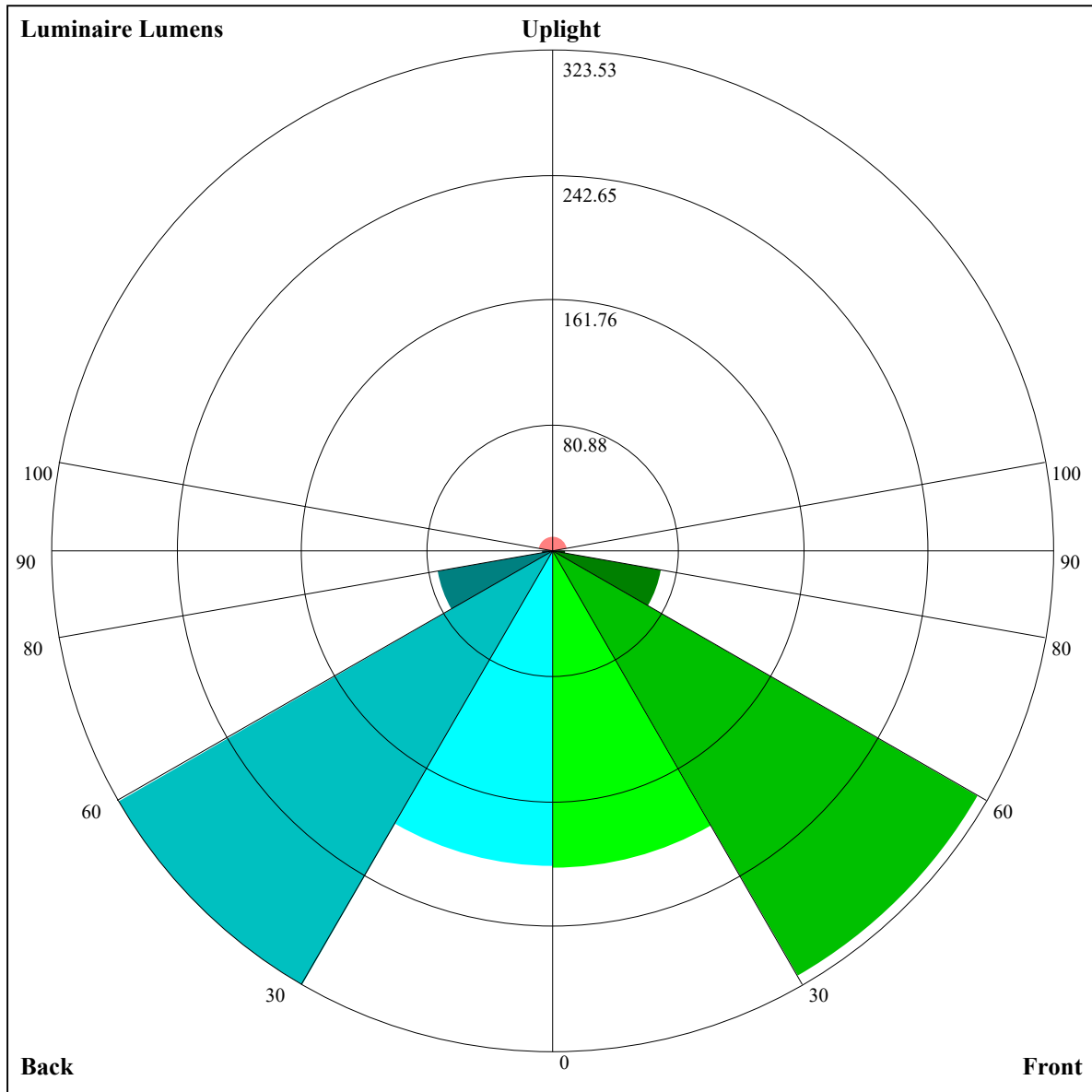
Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	15.91	17.39	16.29	17.73	18.07	15.14	16.62	15.51	16.95	17.29
	3H	16.84	18.17	17.24	18.53	18.90	16.01	17.35	16.41	17.70	18.07
	4H	17.29	18.54	17.70	18.91	19.29	16.33	17.57	16.74	17.94	18.33
	6H	17.84	18.99	18.26	19.38	19.80	16.68	17.83	17.10	18.22	18.64
	8H	17.99	19.10	18.41	19.49	19.92	16.78	17.89	17.21	18.29	18.71
	12H	17.99	19.05	18.42	19.46	19.89	16.78	17.84	17.21	18.25	18.68
4H	2H	16.34	17.59	16.75	17.96	18.35	15.71	16.95	16.12	17.33	17.71
	3H	17.46	18.51	17.89	18.91	19.35	16.67	17.72	17.10	18.13	18.56
	4H	18.07	19.00	18.52	19.43	19.89	17.09	18.02	17.54	18.45	18.92
	6H	18.79	19.61	19.27	20.07	20.54	17.53	18.36	18.01	18.82	19.29
	8H	19.04	19.81	19.53	20.27	20.76	17.71	18.48	18.20	18.94	19.43
	12H	19.09	19.81	19.59	20.27	20.80	17.75	18.47	18.25	18.93	19.45
8H	4H	18.23	19.00	18.72	19.47	19.95	17.35	18.12	17.84	18.58	19.07
	6H	19.16	19.80	19.66	20.28	20.81	17.93	18.58	18.44	19.06	19.59
	8H	19.56	20.12	20.09	20.65	21.16	18.21	18.77	18.74	19.29	19.81
	12H	19.67	20.14	20.21	20.67	21.20	18.27	18.74	18.80	19.27	19.80
12H	4H	18.24	18.96	18.74	19.42	19.95	17.41	18.12	17.90	18.58	19.11
	6H	19.23	19.79	19.76	20.32	20.83	18.06	18.63	18.59	19.15	19.66
	8H	19.61	20.08	20.15	20.61	21.14	18.30	18.78	18.84	19.30	19.84
Variation with the observer position at spacings:											
S = 1.0H		0.4/-0.8					0.3/-0.8				
S = 1.5H		0.8/-1.3					0.6/-1.1				
S = 2.0H		1.8/-1.7					1.3/-1.3				
Standard tables:		BK3					BK3				
Uncorrected UGR		2.6					3.5				

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	0.90	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	0.75	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	0.67	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	0.47	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	0.42	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	0.37	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=205.34,FM=317.41,FH=71.99,FVH=8.07

BL=204.39,BM=323.53,BH=76.23,BVH=7.98

UL=2.05,UH=10.02

BUG Rating:B1-U2-G0

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	407.18	414.24	413.54	402.59	416.72	385.99	364.45	346.44	288.17
22.5	411.07	407.89	413.89	414.24	407.89	393.05	360.56	326.31	286.76
45.0	424.49	400.82	411.42	413.54	405.06	385.64	360.56	339.38	299.12
67.5	431.19	420.95	406.83	396.59	401.18	388.46	365.51	341.85	279.69
90.0	412.83	411.77	410.71	408.24	395.88	380.69	376.10	324.90	279.69
112.5	399.06	408.24	415.30	403.65	380.34	399.41	363.04	336.90	290.29
135.0	417.07	411.42	410.71	405.42	401.88	380.34	352.09	345.38	292.41
157.5	407.89	406.83	408.59	407.18	395.17	383.52	363.04	343.97	299.12
180.0	407.18	415.66	405.06	407.89	401.88	375.04	370.10	349.62	301.94
202.5	411.07	408.24	408.24	409.65	391.64	393.05	363.04	347.85	311.83
225.0	424.49	411.07	407.89	417.42	405.42	387.40	360.56	354.21	314.66
247.5	431.19	399.41	405.06	410.71	421.31	395.53	369.04	349.97	313.60
270.0	412.83	412.83	412.12	411.07	409.30	391.29	387.76	355.97	336.55
292.5	399.06	410.01	418.13	409.65	411.42	390.23	374.69	355.27	322.78
315.0	417.07	416.72	408.95	413.54	398.00	380.34	365.16	345.03	297.70
337.5	407.89	419.89	401.88	403.65	411.42	389.52	368.69	335.49	293.82
360.0	407.18	414.24	413.54	402.59	416.72	385.99	364.45	346.44	288.17
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	222.13	149.73	111.95	103.47	68.16	52.27	43.44	31.78	3.53
22.5	247.20	197.06	141.97	98.88	75.57	56.15	37.08	37.79	10.24
45.0	231.31	193.88	141.97	107.36	83.34	54.38	39.91	26.49	0.00
67.5	212.60	145.50	114.07	85.11	55.09	38.85	25.43	24.72	3.53
90.0	205.18	158.56	111.24	80.17	65.33	58.98	29.31	23.66	4.94
112.5	240.14	194.23	132.08	87.93	80.17	55.80	30.02	28.96	8.48
135.0	247.56	195.64	148.32	98.53	74.87	68.86	36.37	20.48	0.00
157.5	227.43	171.98	126.43	96.41	75.93	58.27	32.49	38.85	8.83
180.0	238.02	171.63	131.72	99.94	82.64	56.15	39.91	24.72	13.42
202.5	271.92	202.71	161.04	120.42	90.76	70.28	49.09	28.25	11.30
225.0	259.21	217.19	166.69	105.94	91.11	65.33	44.85	34.26	12.71
247.5	249.68	165.98	130.31	100.29	79.46	47.68	49.79	29.66	8.12
270.0	253.91	192.11	140.20	93.23	73.45	62.51	58.98	38.14	13.42
292.5	266.63	216.48	162.80	122.90	79.81	67.45	46.62	36.37	13.42
315.0	260.98	204.47	152.91	111.59	78.05	57.21	38.49	18.36	17.30
337.5	228.49	159.62	129.96	101.35	63.57	57.21	33.55	21.90	16.95
360.0	222.13	149.73	111.95	103.47	68.16	52.27	43.44	31.78	3.53
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	0.00	3.53	0.00	0.00	0.00	1.41	2.12	0.00	0.00
22.5	0.00	0.00	0.00	0.00	0.00	2.47	0.00	0.35	0.00
45.0	0.00	0.00	6.71	2.12	0.00	1.06	0.00	0.00	12.01
67.5	6.71	0.00	5.65	0.00	0.00	0.00	0.00	6.00	3.53
90.0	0.00	0.00	7.42	0.00	0.00	0.00	0.00	0.00	0.00
112.5	0.00	7.06	0.00	0.00	0.00	0.00	5.30	3.18	0.00
135.0	0.00	0.00	0.00	4.59	0.00	0.00	0.00	0.00	0.00
157.5	0.00	7.42	0.00	0.00	3.53	0.00	0.00	0.00	0.00
180.0	0.00	0.00	1.77	0.00	0.71	0.00	0.00	2.12	0.00
202.5	0.00	0.00	0.00	0.00	0.00	3.18	0.00	0.00	0.00
225.0	0.00	0.00	2.12	0.00	4.94	3.53	0.00	0.00	0.00
247.5	0.00	0.00	0.00	9.54	2.12	0.00	0.00	0.71	3.18
270.0	0.00	1.41	4.94	0.00	1.41	0.00	0.00	2.83	0.00
292.5	0.00	0.00	14.13	0.00	0.00	2.47	0.00	6.36	0.00
315.0	1.41	0.00	0.00	0.00	0.00	0.00	0.00	3.18	0.00
337.5	0.00	1.06	6.00	0.00	0.00	2.12	0.00	0.00	0.00
360.0	0.00	3.53	0.00	0.00	0.00	1.41	2.12	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	0.00	0.00	12.36	0.00	0.00	0.00	4.94	5.30	0.00
22.5	0.00	7.42	0.00	0.00	0.00	3.53	0.00	12.01	6.36
45.0	0.00	2.83	0.00	0.00	0.00	2.47	4.24	11.65	7.77
67.5	6.00	0.00	4.94	0.00	4.94	0.00	0.00	0.00	6.71
90.0	5.65	0.00	10.95	8.48	5.30	0.00	4.24	0.00	4.59
112.5	4.24	0.00	0.00	5.30	2.12	1.06	0.71	2.47	7.42
135.0	0.00	0.00	0.00	0.00	0.00	0.00	1.06	1.06	6.71
157.5	0.00	1.06	5.30	0.00	0.00	0.00	11.65	2.47	0.71
180.0	1.06	2.12	0.00	0.00	0.00	0.00	0.00	1.41	1.41
202.5	0.00	12.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225.0	2.47	0.00	4.24	3.18	7.77	0.00	5.30	0.00	0.00
247.5	0.35	0.00	0.00	1.77	0.00	0.00	0.71	5.65	0.00
270.0	0.00	12.71	0.00	0.00	9.89	2.83	2.12	0.00	0.71
292.5	1.77	3.18	0.00	0.00	4.24	0.00	0.00	0.00	0.00
315.0	0.00	11.65	5.30	1.41	0.00	0.00	0.71	0.00	0.00
337.5	4.24	0.00	0.00	0.35	3.88	8.12	0.00	0.00	0.00
360.0	0.00	0.00	12.36	0.00	0.00	0.00	4.94	5.30	0.00

C/γ(°)	180.0
0.0	1.77
22.5	0.00
45.0	0.00
67.5	0.00
90.0	2.83
112.5	0.00
135.0	0.00
157.5	9.89
180.0	1.77
202.5	0.00
225.0	0.00
247.5	0.00
270.0	2.83
292.5	0.00
315.0	0.00
337.5	9.89
360.0	1.77