



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440221 RIO 24W 3000K 2400lm

Luminaire:

Report No:

Voltage(V): 230.0000

Test No: KYZ-A251030009-02-006

Current(A): 0.1070

LampCAT: LED

Power (W): 24.0000

Lamp flux(lm)

PF: 0.9746

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): 1219.348

Maximum intensity(cd): 1231.206

Angle of maximum intensity: C=45.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=85.4

[C90/270]Total=84.4

Field angle(10%Imax): [C0/180]Total=142.0

[C90/270]Total=140.7

Maximum s/h(1/2): C0_180=1.14 C90_270=1.10

Maximum s/h(1/4): C0_180=1.19 C90_270=1.17

Up flux rate of LUM(%): 0.44%

Down flux rate of LUM(%): 99.56%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 87.411%

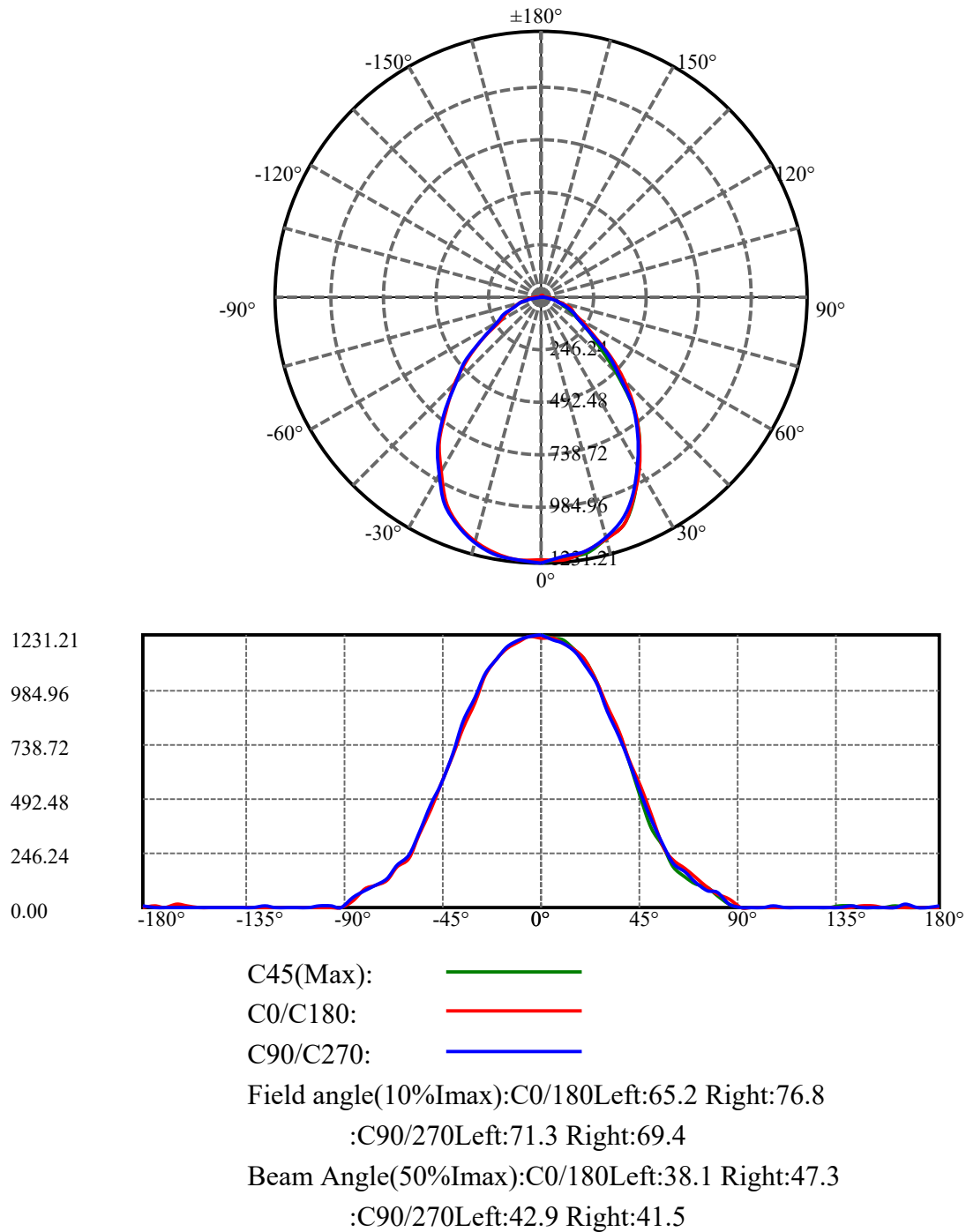
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1278.651	0.000	0	.000%	.000%
5.0	1269.539	29.218	29.218	1.217%	1.217%
10.0	1252.645	86.540	115.758	3.606%	4.823%
15.0	1216.674	140.493	256.25	5.854%	10.677%
20.0	1162.478	188.063	444.314	7.836%	18.513%
25.0	1075.188	225.100	669.413	9.379%	27.892%
30.0	954.272	246.335	915.748	10.264%	38.156%
35.0	837.246	253.033	1168.782	10.543%	48.699%
40.0	705.086	246.811	1415.593	10.284%	58.983%
45.0	554.008	223.605	1639.198	9.317%	68.300%
50.0	422.114	189.180	1828.378	7.882%	76.182%
55.0	309.245	152.523	1980.901	6.355%	82.537%
60.0	218.384	116.976	2097.877	4.874%	87.411%
65.0	168.238	90.148	2188.025	3.756%	91.168%
70.0	125.339	71.298	2259.323	2.971%	94.138%
75.0	97.788	55.939	2315.262	2.331%	96.469%
80.0	67.945	42.533	2357.795	1.772%	98.241%
85.0	25.899	24.458	2382.253	1.019%	99.260%
90.0	1.545	7.207	2389.461	.300%	99.561%
95.0	2.665	1.106	2390.566	.046%	99.607%
100.0	0.906	0.931	2391.497	.039%	99.646%
105.0	2.345	0.834	2392.331	.035%	99.680%
110.0	0.107	0.615	2392.946	.026%	99.706%
115.0	0.746	0.207	2393.153	.009%	99.715%
120.0	1.652	0.559	2393.712	.023%	99.738%
125.0	2.078	0.827	2394.539	.034%	99.772%
130.0	0.640	0.567	2395.106	.024%	99.796%
135.0	2.452	0.599	2395.705	.025%	99.821%
140.0	3.411	1.041	2396.746	.043%	99.864%
145.0	2.398	0.930	2397.675	.039%	99.903%
150.0	2.398	0.677	2398.353	.028%	99.931%
155.0	1.013	0.414	2398.767	.017%	99.948%
160.0	2.078	0.311	2399.078	.013%	99.961%
165.0	3.730	0.459	2399.537	.019%	99.981%
170.0	1.599	0.303	2399.84	.013%	99.993%
175.0	1.279	0.099	2399.939	.004%	99.997%
180.0	4.370	0.065	2400.004	.003%	100.000%

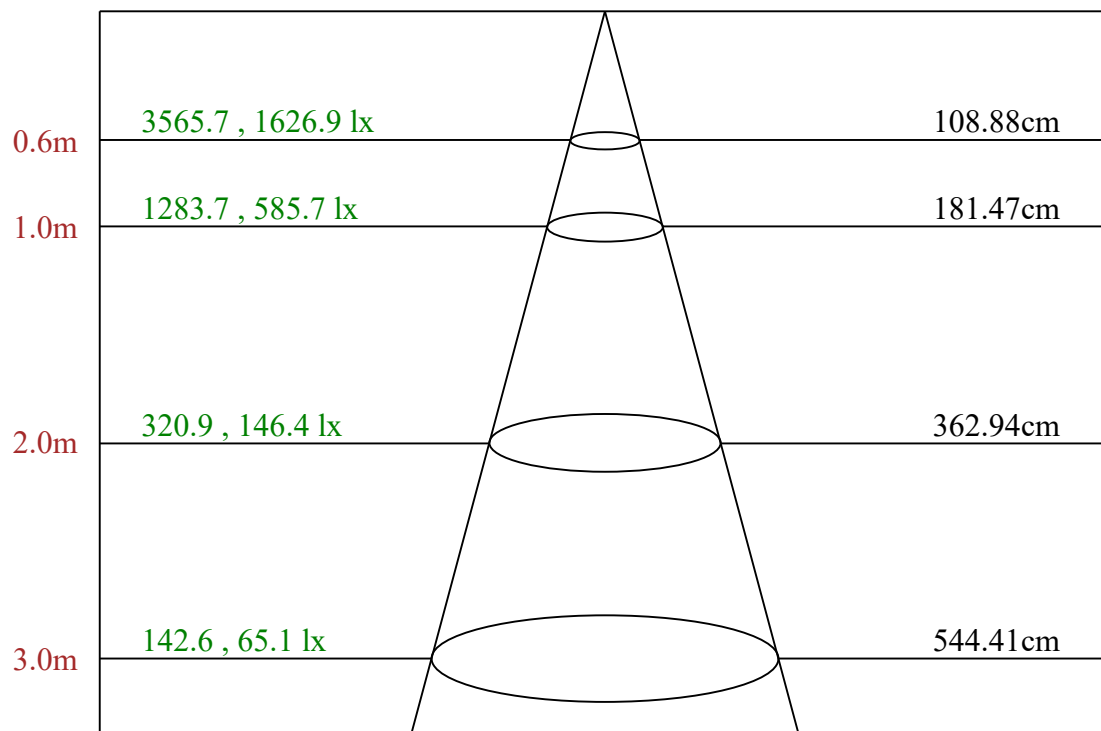
ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-30	915.75	38.16%
0-40	1415.59	58.98%
0-60	2097.88	87.41%
0-90	2389.46	99.56%
0-120	2393.71	99.74%
0-180	2400.00	100.00%
60-90	408.56	17.02%
90-120	11.46	0.48%
90-130	12.85	0.54%
90-150	16.10	0.67%
90-180	17.69	0.74%
0-53.00	1920.00	80.00%

ZONAL LUMEN SUMMARY

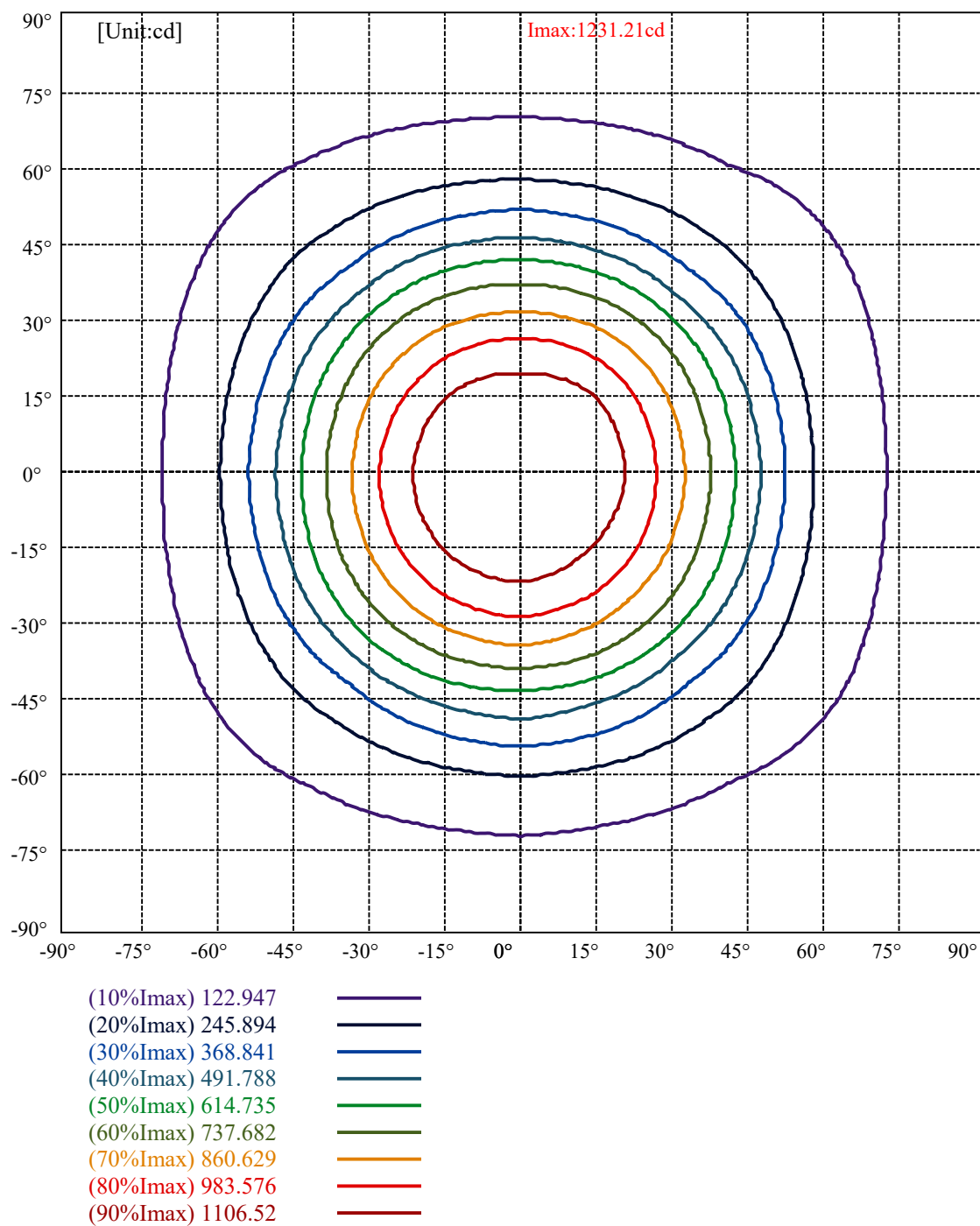
0-10	115.76
10-20	328.56
20-30	471.43
30-40	499.84
40-50	412.78
50-60	269.50
60-70	161.45
70-80	98.47
80-90	31.67
90-100	2.04
100-110	1.45
110-120	0.77
120-130	1.39
130-140	1.64
140-150	1.61
150-160	0.72
160-170	0.76
170-180	0.10

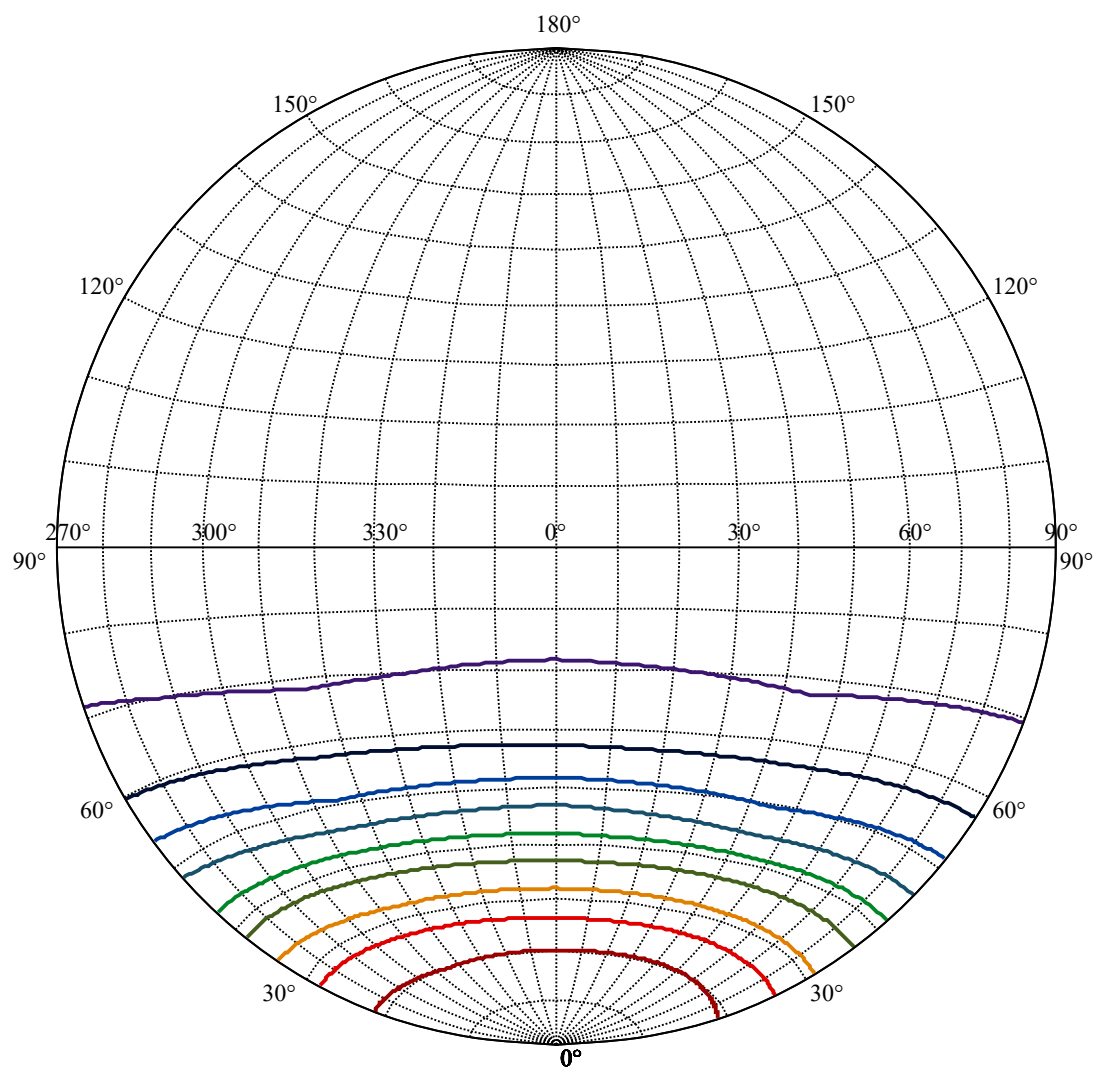




Max , Ave

Beam angle of C45 plane 84.44





House

[Unit:cd]

Road

Imax:1231.21

(10%Imax) 118.0899

(20%Imax) 236.1788

(30%Imax) 354.2687

(40%Imax) 472.3576

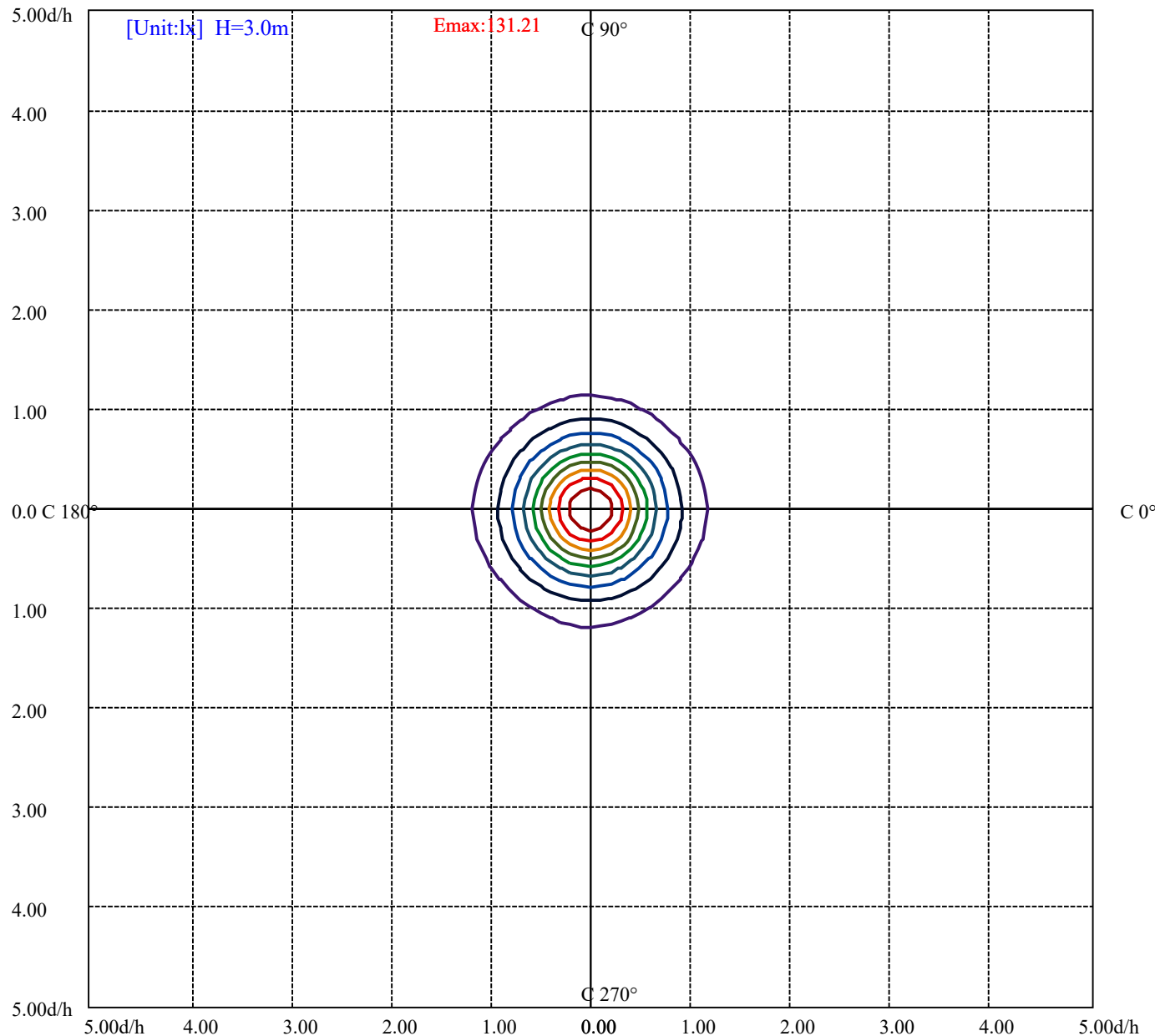
(50%Imax) 590.4475

(60%Imax) 708.5364

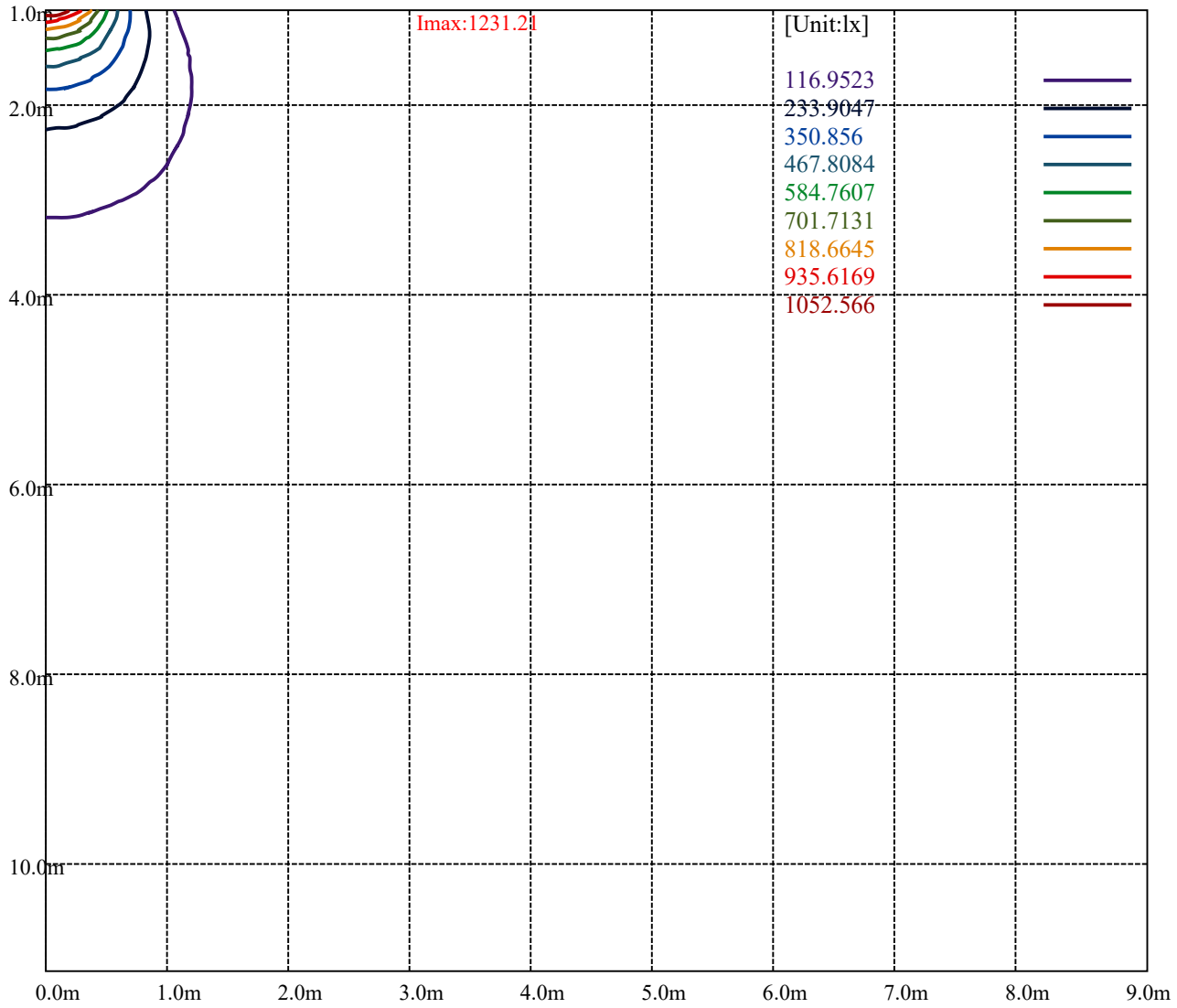
(70%Imax) 826.6263

(80%Imax) 944.7152

(90%Imax) 1062.8



(10%Emax)	13.12099	—
(20%Emax)	26.24209	—
(30%Emax)	39.36308	—
(40%Emax)	52.48418	—
(50%Emax)	65.60517	—
(60%Emax)	78.72627	—
(70%Emax)	91.84726	—
(80%Emax)	104.9684	—
(90%Emax)	118.0889	—



Luminance Table

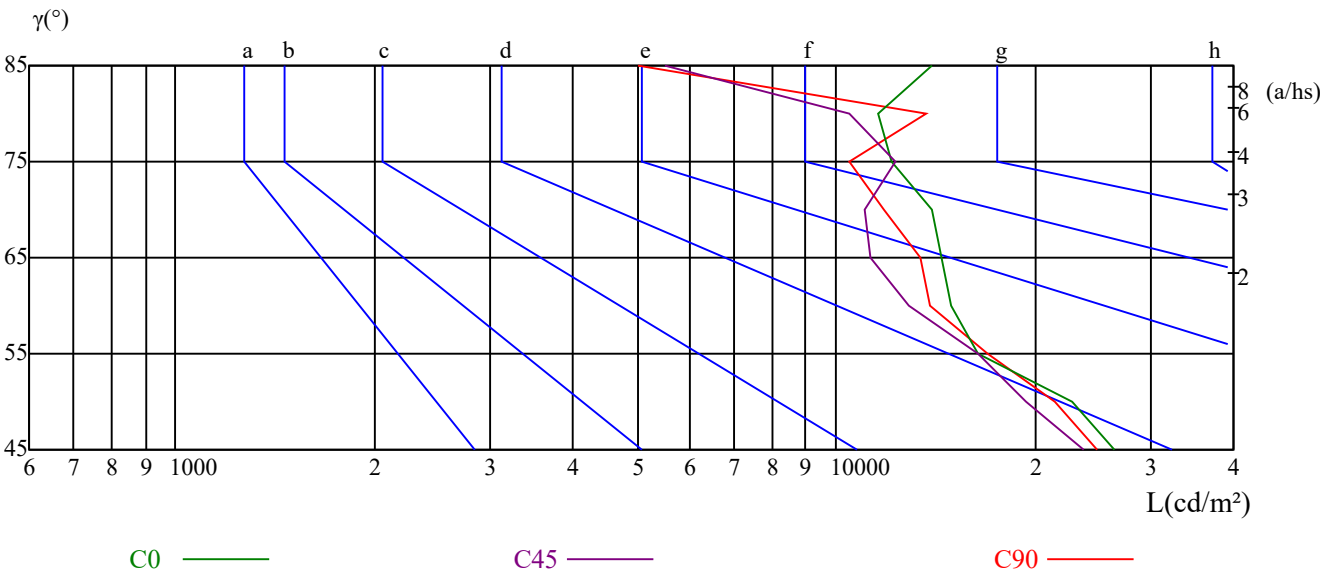
γ	45	50	55	60	65	70	75	80	85
C0	26444	22762	16448	14914	14470	13998	12168	11549	13936
C45	23728	19379	16374	12880	11295	11025	12332	10492	5509
C90	24906	21444	16916	13897	13434	11851	10477	13664	5023

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
14687	14403	11830	12796	12005	12632	13774	11991	6806

Glare Table

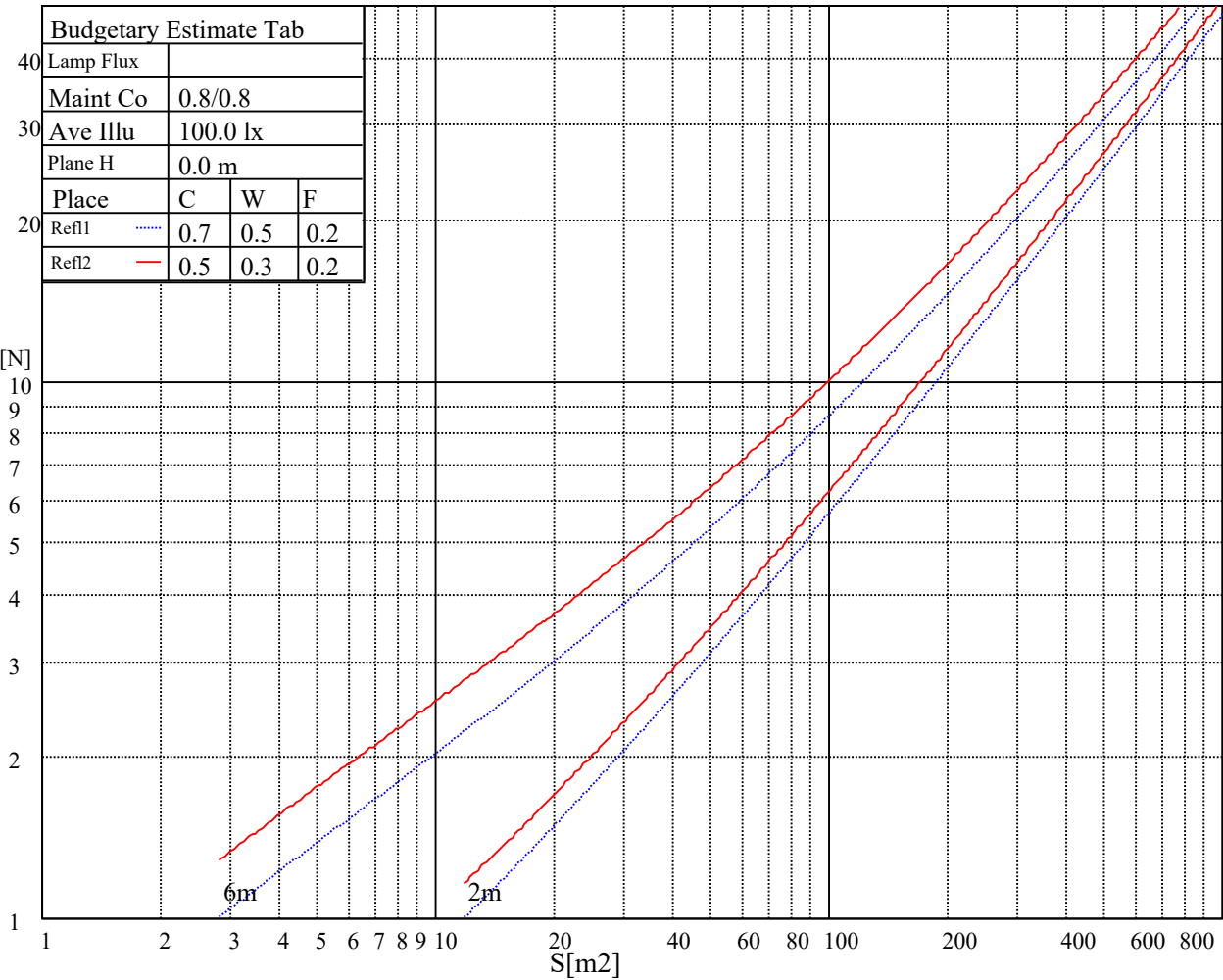
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

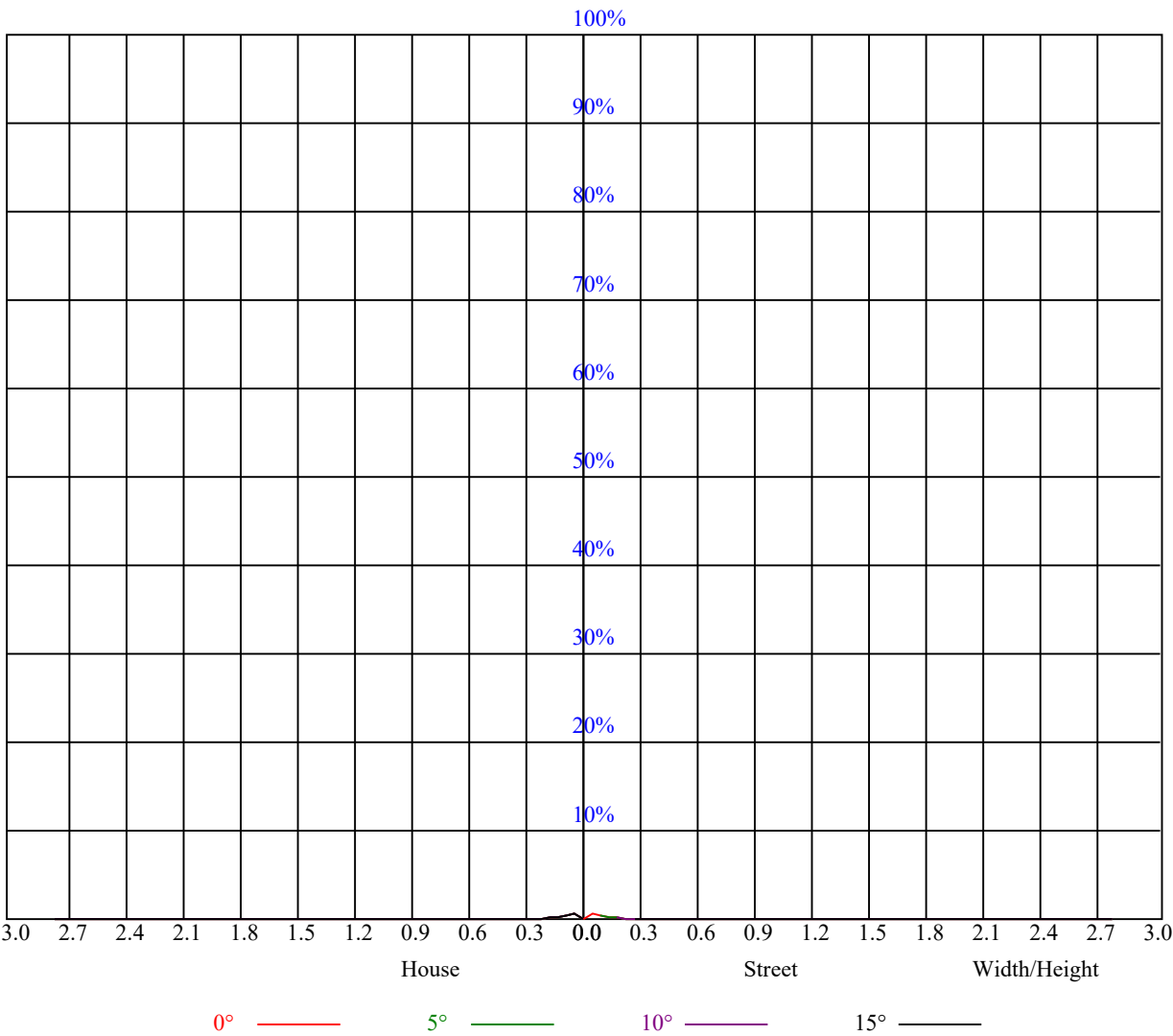


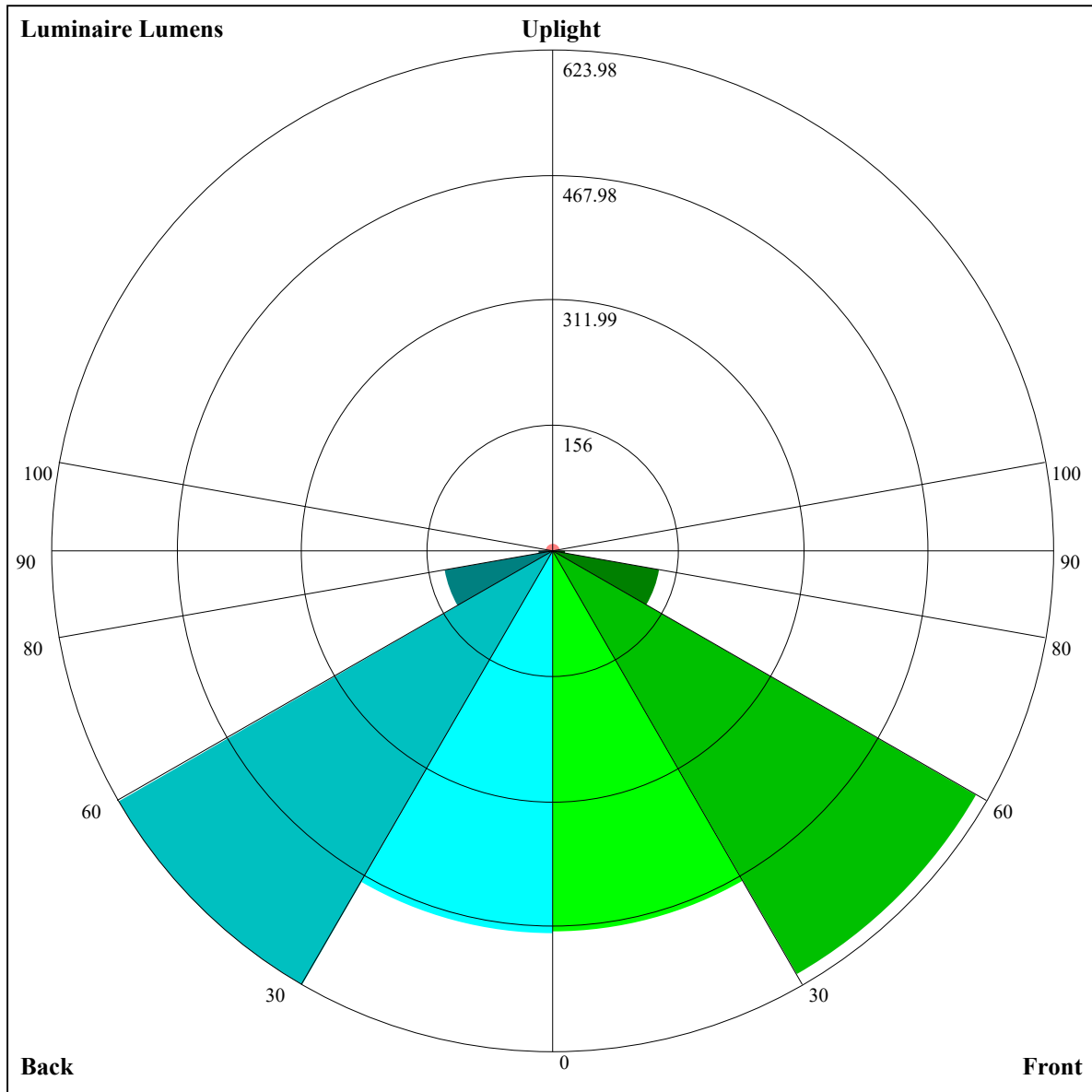
Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	17.11	18.55	17.48	18.88	19.20	16.96	18.40	17.33	18.72	19.05
	3H	18.24	19.53	18.63	19.88	20.23	17.94	19.23	18.33	19.58	19.93
	4H	18.72	19.93	19.12	20.29	20.66	18.34	19.55	18.74	19.91	20.28
	6H	19.11	20.23	19.52	20.61	21.01	18.82	19.94	19.24	20.32	20.72
	8H	19.24	20.32	19.66	20.71	21.12	18.97	20.05	19.39	20.43	20.84
	12H	19.37	20.40	19.79	20.80	21.22	18.98	20.01	19.41	20.41	20.83
4H	2H	17.41	18.62	17.81	18.98	19.35	17.28	18.49	17.68	18.85	19.22
	3H	18.73	19.75	19.15	20.14	20.56	18.44	19.46	18.87	19.86	20.28
	4H	19.40	20.30	19.84	20.72	21.17	19.05	19.94	19.49	20.37	20.82
	6H	19.89	20.69	20.36	21.14	21.60	19.65	20.45	20.12	20.90	21.35
	8H	20.11	20.85	20.59	21.31	21.79	19.87	20.62	20.35	21.08	21.55
	12H	20.31	21.01	20.80	21.46	21.97	19.94	20.63	20.42	21.08	21.60
8H	4H	19.58	20.33	20.06	20.78	21.26	19.26	20.01	19.75	20.47	20.94
	6H	20.18	20.81	20.69	21.29	21.80	19.99	20.62	20.49	21.09	21.60
	8H	20.52	21.06	21.04	21.58	22.08	20.32	20.86	20.85	21.38	21.88
	12H	20.79	21.25	21.33	21.77	22.29	20.41	20.87	20.95	21.39	21.91
12H	4H	19.59	20.29	20.08	20.74	21.25	19.28	19.97	19.77	20.42	20.94
	6H	20.27	20.81	20.79	21.33	21.83	20.08	20.62	20.60	21.14	21.64
	8H	20.59	21.04	21.12	21.56	22.08	20.38	20.84	20.92	21.36	21.88
Variation with the observer position at spacings:											
S = 1.0H		0.3/-0.7					0.3/-0.7				
S = 1.5H		0.9/-1.2					0.9/-1.1				
S = 2.0H		1.7/-1.1					1.6/-1.1				
Standard tables:		BK3					BK3				
Uncorrected UGR		6.1					6.4				

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 RHOFC=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	1.06	1.02	0.99	1.04	1.01	0.98	1.00	0.97	0.94	0.96	0.93	0.91	0.92	0.90	0.89	0.87
2	0.95	0.89	0.84	0.93	0.87	0.83	0.89	0.85	0.81	0.86	0.82	0.79	0.83	0.80	0.77	0.75
3	0.85	0.78	0.72	0.83	0.77	0.71	0.80	0.75	0.70	0.78	0.73	0.69	0.75	0.71	0.68	0.66
4	0.76	0.69	0.63	0.75	0.68	0.62	0.73	0.66	0.61	0.70	0.65	0.61	0.68	0.64	0.60	0.58
5	0.69	0.61	0.55	0.68	0.61	0.55	0.66	0.60	0.54	0.64	0.58	0.54	0.62	0.57	0.53	0.51
6	0.63	0.55	0.49	0.62	0.55	0.49	0.61	0.54	0.49	0.59	0.53	0.48	0.57	0.52	0.48	0.46
7	0.58	0.50	0.44	0.57	0.50	0.44	0.56	0.49	0.44	0.54	0.48	0.44	0.53	0.47	0.43	0.41
8	0.53	0.46	0.40	0.53	0.45	0.40	0.51	0.45	0.40	0.50	0.44	0.40	0.49	0.43	0.39	0.38
9	0.49	0.42	0.37	0.49	0.41	0.37	0.48	0.41	0.36	0.47	0.40	0.36	0.46	0.40	0.36	0.34
10	0.46	0.38	0.34	0.45	0.38	0.34	0.44	0.38	0.33	0.43	0.37	0.33	0.43	0.37	0.33	0.31





Luminaire Lumens:

FL=475.66,FM=610.65,FH=136.11,FVH=16.14

BL=477.7,BM=623.98,BH=137.05,BVH=17.77

UL=2.12,UH=8.86

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	1219.35	1218.94	1194.40	1164.96	1114.26	1014.90	911.44	792.45	666.10
45.0	1231.21	1213.62	1204.63	1161.28	1115.08	1018.99	897.54	787.55	654.65
90.0	1228.75	1206.26	1194.40	1154.74	1095.45	1008.35	886.91	775.69	657.92
135.0	1226.30	1214.03	1199.72	1171.10	1113.03	1019.80	898.36	800.63	665.29
180.0	1219.35	1219.76	1198.49	1166.60	1121.62	1048.02	925.35	813.72	686.55
225.0	1231.21	1225.07	1205.85	1163.33	1126.53	1044.75	940.07	820.26	698.41
270.0	1228.75	1222.21	1208.31	1176.82	1127.75	1057.83	947.84	839.48	693.09
315.0	1226.30	1221.39	1205.85	1176.82	1106.08	1037.39	914.72	794.50	688.18
360.0	1219.35	1218.94	1194.40	1164.96	1114.26	1014.90	911.44	792.45	666.10
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	541.39	423.62	273.15	215.90	177.05	138.62	91.19	58.06	35.17
45.0	485.78	360.65	271.92	186.46	138.21	109.18	92.41	52.75	13.90
90.0	509.90	399.09	280.92	201.18	164.38	117.36	78.51	68.70	12.68
135.0	511.13	374.96	282.55	201.59	145.98	116.13	84.64	56.02	11.86
180.0	561.83	442.02	328.35	219.17	182.37	123.08	100.59	81.78	34.35
225.0	563.88	391.32	302.59	206.50	145.16	117.36	92.82	66.24	26.58
270.0	556.11	463.29	338.98	237.98	188.10	130.44	101.41	75.65	47.84
315.0	520.94	383.96	294.41	206.90	149.66	109.59	108.77	62.15	16.36
360.0	541.39	423.62	273.15	215.90	177.05	138.62	91.19	58.06	35.17
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	0.00	0.00	0.00	2.04	0.00	2.86	0.00	0.00	0.00
45.0	0.00	0.00	2.45	0.41	0.00	0.00	0.00	0.00	1.64
90.0	0.00	0.00	0.00	4.91	0.00	0.82	0.00	2.04	0.00
135.0	2.86	6.54	0.41	0.82	0.00	0.00	0.00	5.32	0.00
180.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.00
225.0	9.00	0.00	0.00	1.23	0.00	0.00	11.86	0.00	3.27
270.0	0.00	8.18	4.09	2.04	0.82	0.00	0.82	5.32	0.00
315.0	0.00	5.73	0.00	6.54	0.00	2.04	0.00	2.04	0.00
360.0	0.00	0.00	0.00	2.04	0.00	2.86	0.00	0.00	0.00
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	3.27	1.64	7.36	7.77	1.64	0.00	0.00	0.00	0.00
45.0	6.95	7.36	0.00	0.00	0.00	7.36	2.45	0.00	0.00
90.0	2.04	4.50	3.68	0.00	0.00	0.00	11.86	0.00	0.00
135.0	0.00	0.00	2.04	0.00	0.00	2.04	0.00	1.64	4.91
180.0	0.00	3.27	0.00	0.82	0.00	4.50	11.86	0.00	4.91
225.0	6.54	0.00	0.00	6.13	6.13	0.41	0.00	6.95	0.00
270.0	0.00	0.00	3.27	2.45	0.00	1.64	2.45	2.86	0.00
315.0	0.00	9.40	2.04	1.23	0.00	0.00	0.00	0.82	0.00
360.0	3.27	1.64	7.36	7.77	1.64	0.00	0.00	0.00	0.00
C/γ(°)	180.0								
0.0	0.00								
45.0	0.00								
90.0	4.50								
135.0	12.27								
180.0	0.00								
225.0	0.00								
270.0	4.50								
315.0	12.27								
360.0	0.00								