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## Nata

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LumCAT: 1658-S	
Luminaire: 92.70.123.00	
Report No: NATA0100	Voltage(V): 37.2000
Test No: GC2018092616	Current(A): 0.2100
LampCAT: CITIZEN CLU7A2-1201C9	Power (W): 7.8120
Lamp flux(lm): 767.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 47	Width(mm): 47
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 671.51  
Efficiency(%): 87.55%  
Lumens(lm)/Power(W): 85.96  
Central intensity(cd): 2027.531  
Maximum intensity(cd): 2027.531  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=28.9  
                                  [C90/270]Total=28.9  
Field angle(10%Imax): [C0/180]Total=62.4  
                                  [C90/270]Total=62.4  
Maximum s/h(1/2): C0\_180=0.48 C90\_270=0.48  
Maximum s/h(1/4): C0\_180=0.50 C90\_270=0.50  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 89.05%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.029%

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Equipment: GMS1980  
Temperature(°C): 25.0

Date: 2018/9/26  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.50

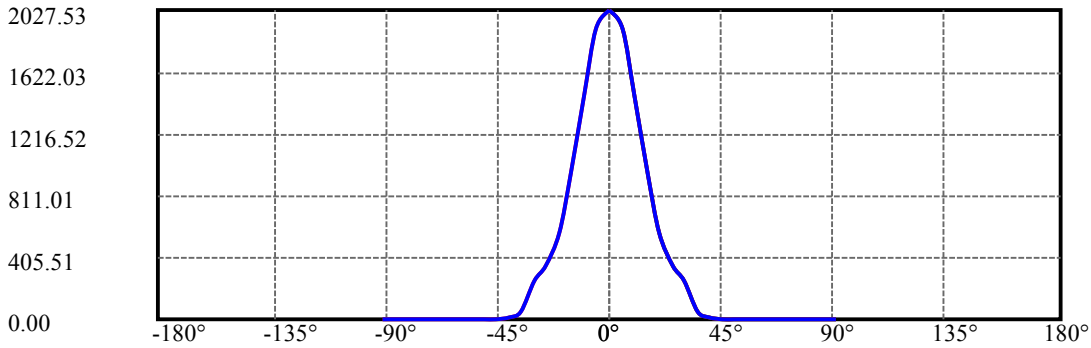
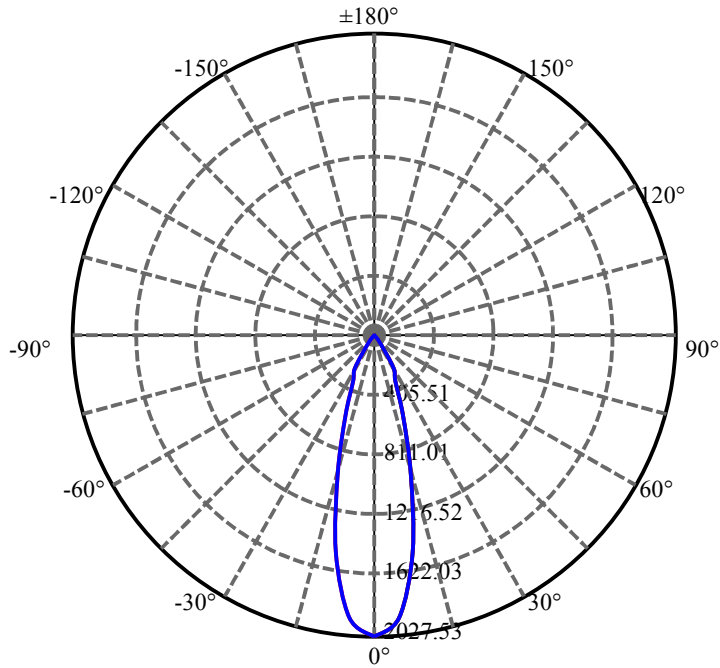
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2027.531	12.125	12.125	1.581%	1.806%
5.0	1902.586	90.893	103.018	11.850%	15.341%
10.0	1475.634	140.455	243.473	18.312%	36.257%
15.0	958.219	135.941	379.414	17.724%	56.501%
20.0	572.266	107.285	486.699	13.988%	72.478%
25.0	348.792	80.799	567.498	10.534%	84.510%
30.0	249.891	68.487	635.985	8.929%	94.709%
35.0	56.412	17.736	653.721	2.312%	97.350%
40.0	7.622	2.685	656.406	.350%	97.750%
45.0	4.177	1.619	658.025	.211%	97.991%
50.0	3.755	1.577	659.602	.206%	98.226%
55.0	3.459	1.553	661.155	.203%	98.457%
60.0	3.270	1.552	662.707	.202%	98.689%
65.0	3.143	1.561	664.269	.204%	98.921%
70.0	3.073	1.583	665.851	.206%	99.157%
75.0	3.023	1.601	667.452	.209%	99.395%
80.0	2.995	1.617	669.069	.211%	99.636%
85.0	2.995	1.636	670.705	.213%	99.879%
90.0	2.953	0.809	671.514	.106%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	635.99	82.92%	94.71%
0-40	656.41	85.58%	97.75%
0-60	662.71	86.40%	98.69%
0-90	670.70	87.45%	99.88%
0-120	670.70	87.45%	99.88%
0-180	671.51	87.55%	100.00%
60-90	9.55	1.25%	1.42%
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%
0-23.13	537.21	70.04%	80.00%

ZONAL LUMEN SUMMARY

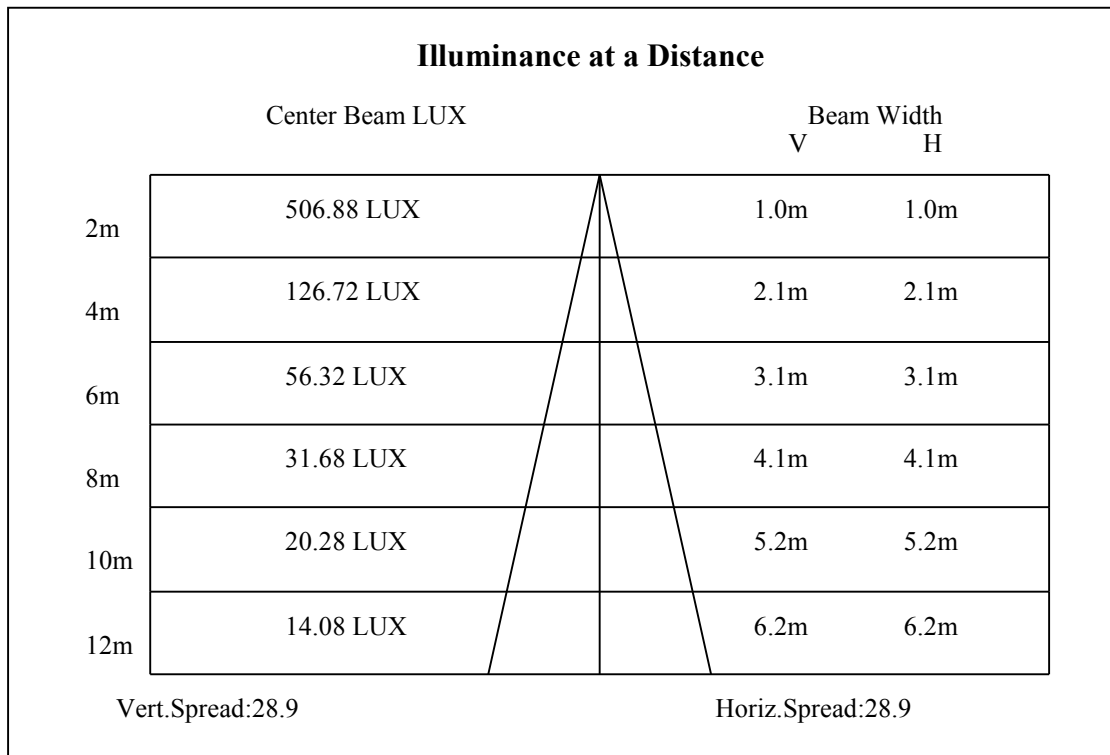
0-10	243.47
10-20	243.23
20-30	149.29
30-40	20.42
40-50	3.20
50-60	3.11
60-70	3.14
70-80	3.22
80-90	1.64
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

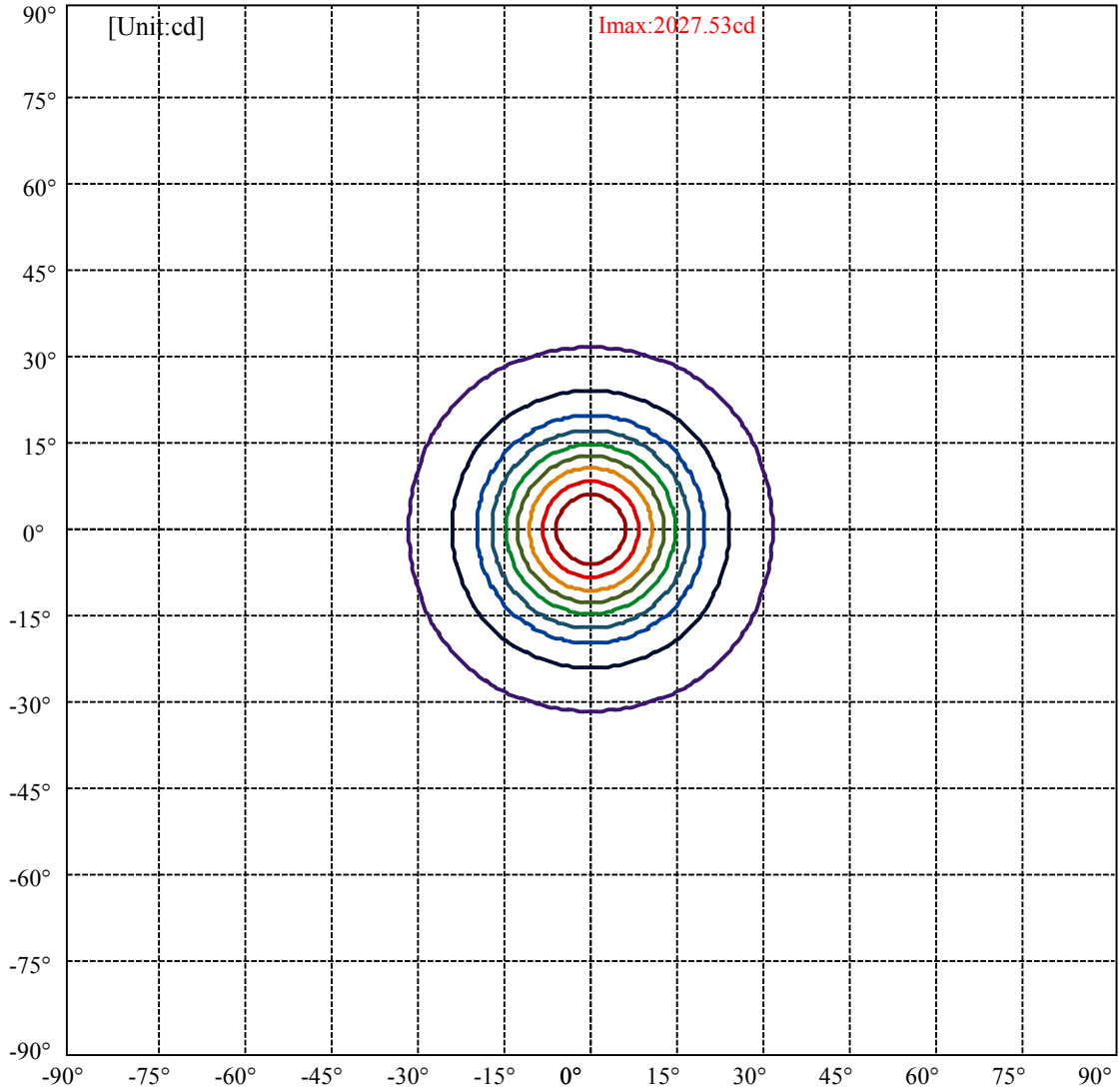


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

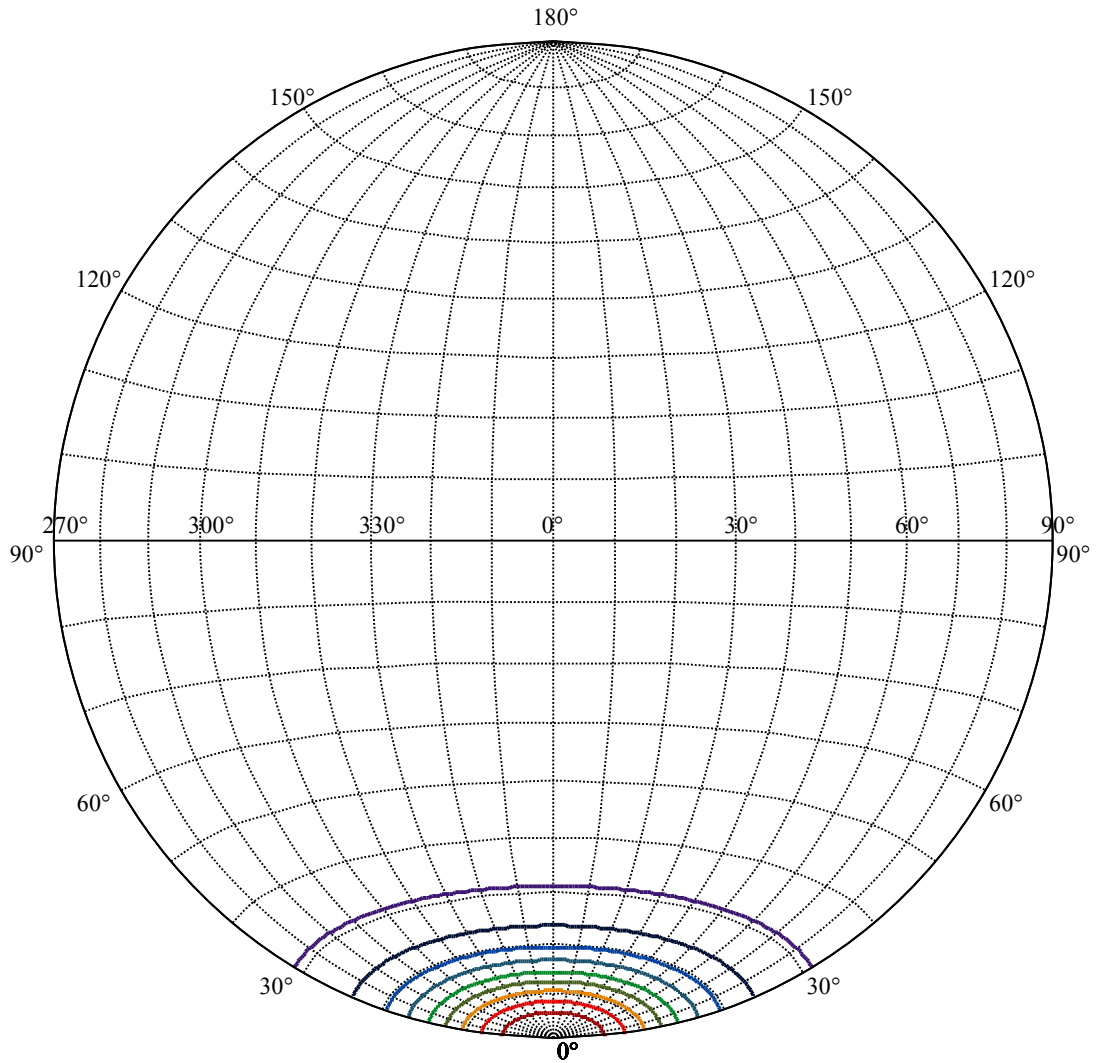
Field angle(10%Imax):C0/180Left:31.2 Right:31.2  
:C90/270Left:31.2 Right:31.2

Beam Angle(50%Imax):C0/180Left:14.5 Right:14.5  
:C90/270Left:14.5 Right:14.5





(10%Imax) 202.753	—
(20%Imax) 405.506	—
(30%Imax) 608.259	—
(40%Imax) 811.013	—
(50%Imax) 1013.77	—
(60%Imax) 1216.52	—
(70%Imax) 1419.27	—
(80%Imax) 1622.03	—
(90%Imax) 1824.78	—



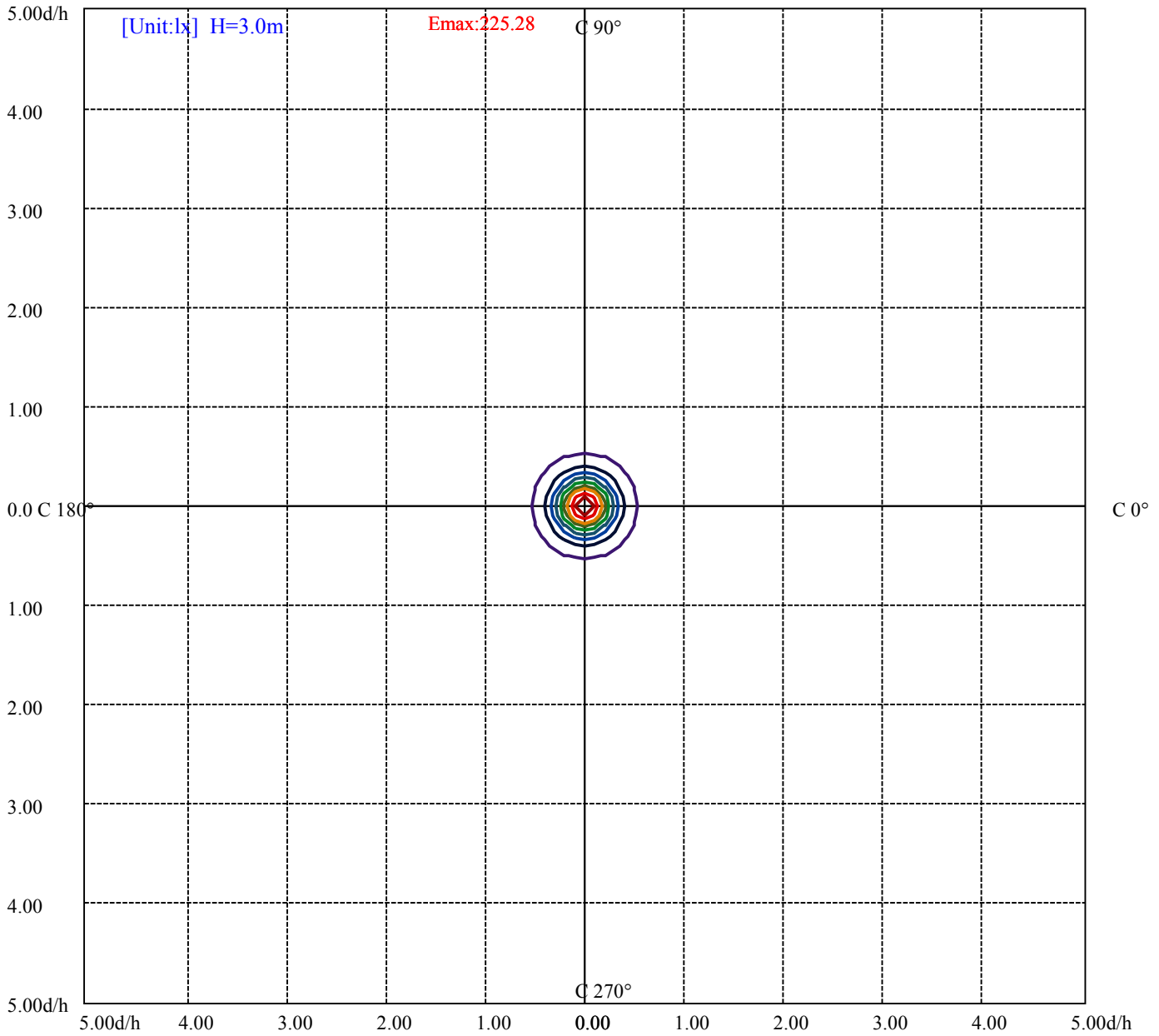
House

[Unit:cd]

Road

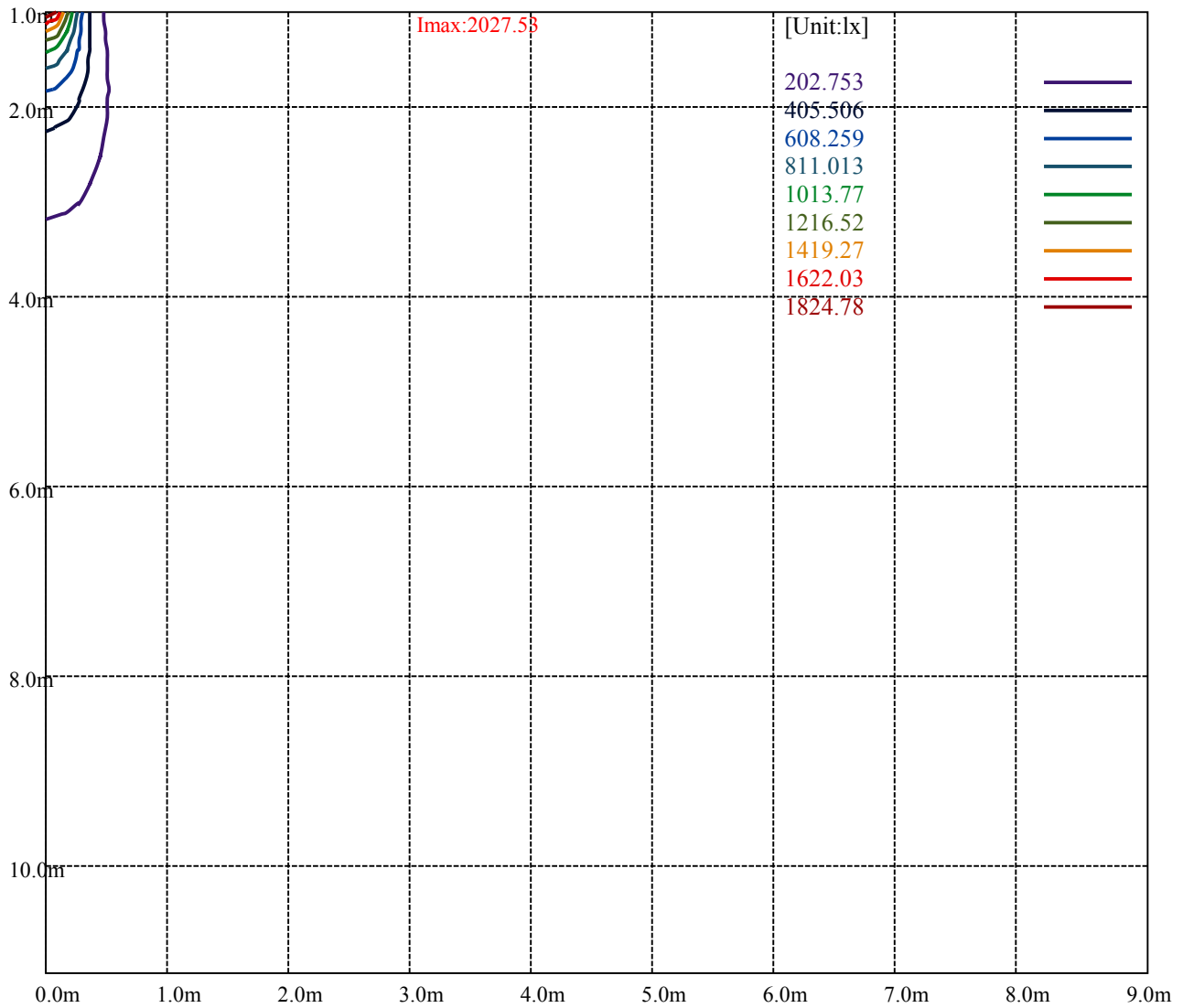
Imax:2027.53

(10%Imax)	202.753	—
(20%Imax)	405.506	—
(30%Imax)	608.259	—
(40%Imax)	811.013	—
(50%Imax)	1013.77	—
(60%Imax)	1216.52	—
(70%Imax)	1419.27	—
(80%Imax)	1622.03	—
(90%Imax)	1824.78	—



- (10%Emax) 22.52811
- (20%Emax) 45.05622
- (30%Emax) 67.58422
- (40%Emax) 90.11234
- (50%Emax) 112.64
- (60%Emax) 135.1689
- (70%Emax) 157.6967
- (80%Emax) 180.2244
- (90%Emax) 202.7522





Luminance Table

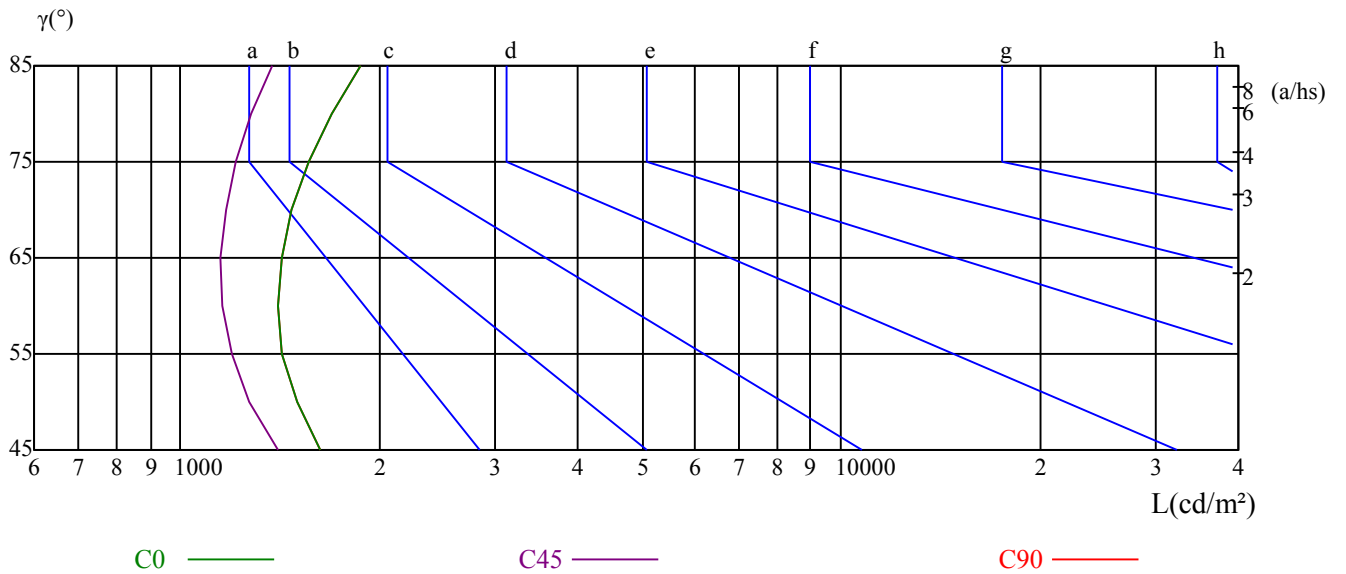
$\gamma$	45	50	55	60	65	70	75	80	85
C0	1632	1502	1428	1406	1421	1477	1564	1690	1875
C45	1405	1274	1193	1155	1147	1169	1210	1276	1375
C90	1632	1502	1428	1406	1421	1477	1564	1690	1875

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3367	3367	3367	5288	5288	5288	15558	15558	15558

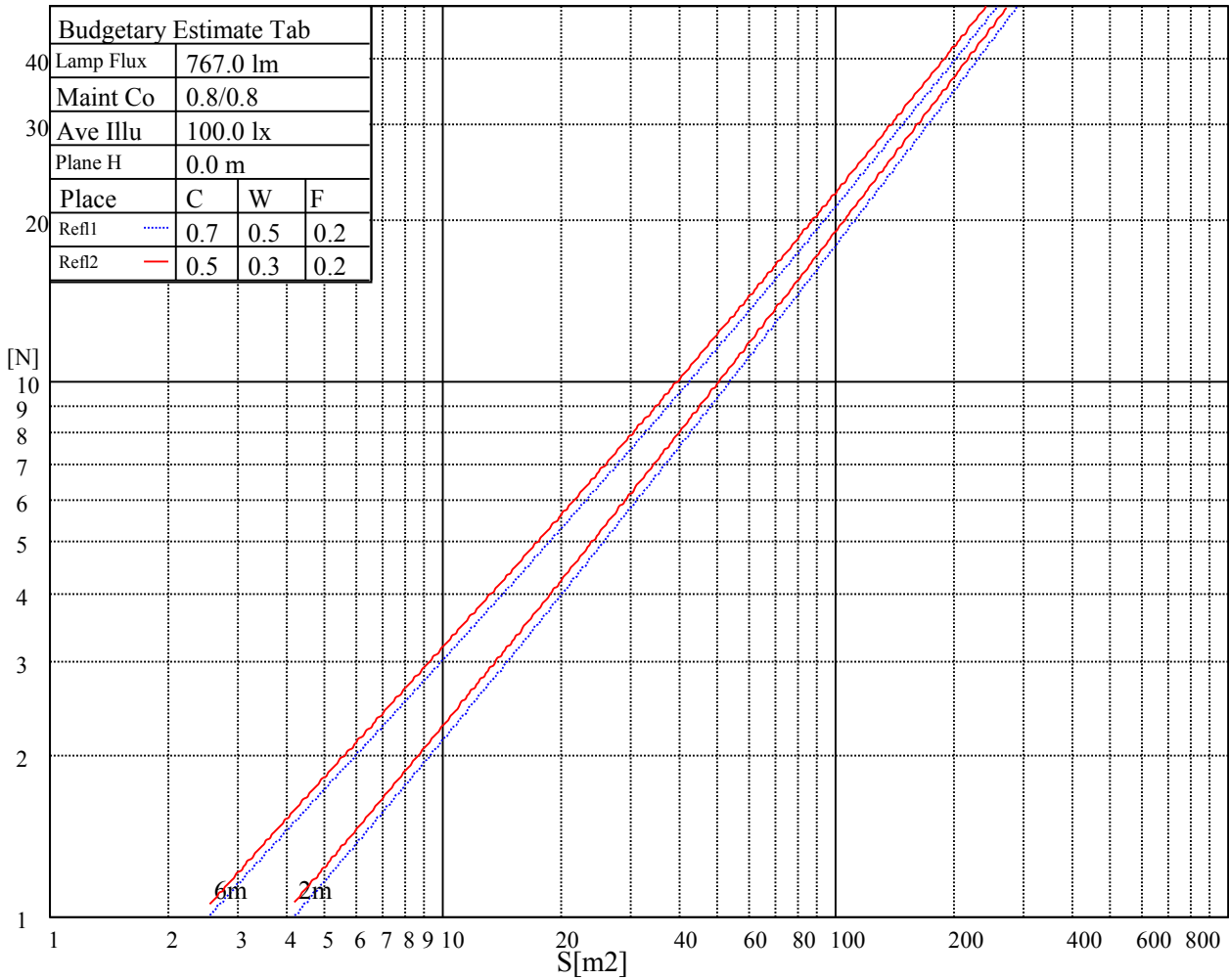
Glare Table

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

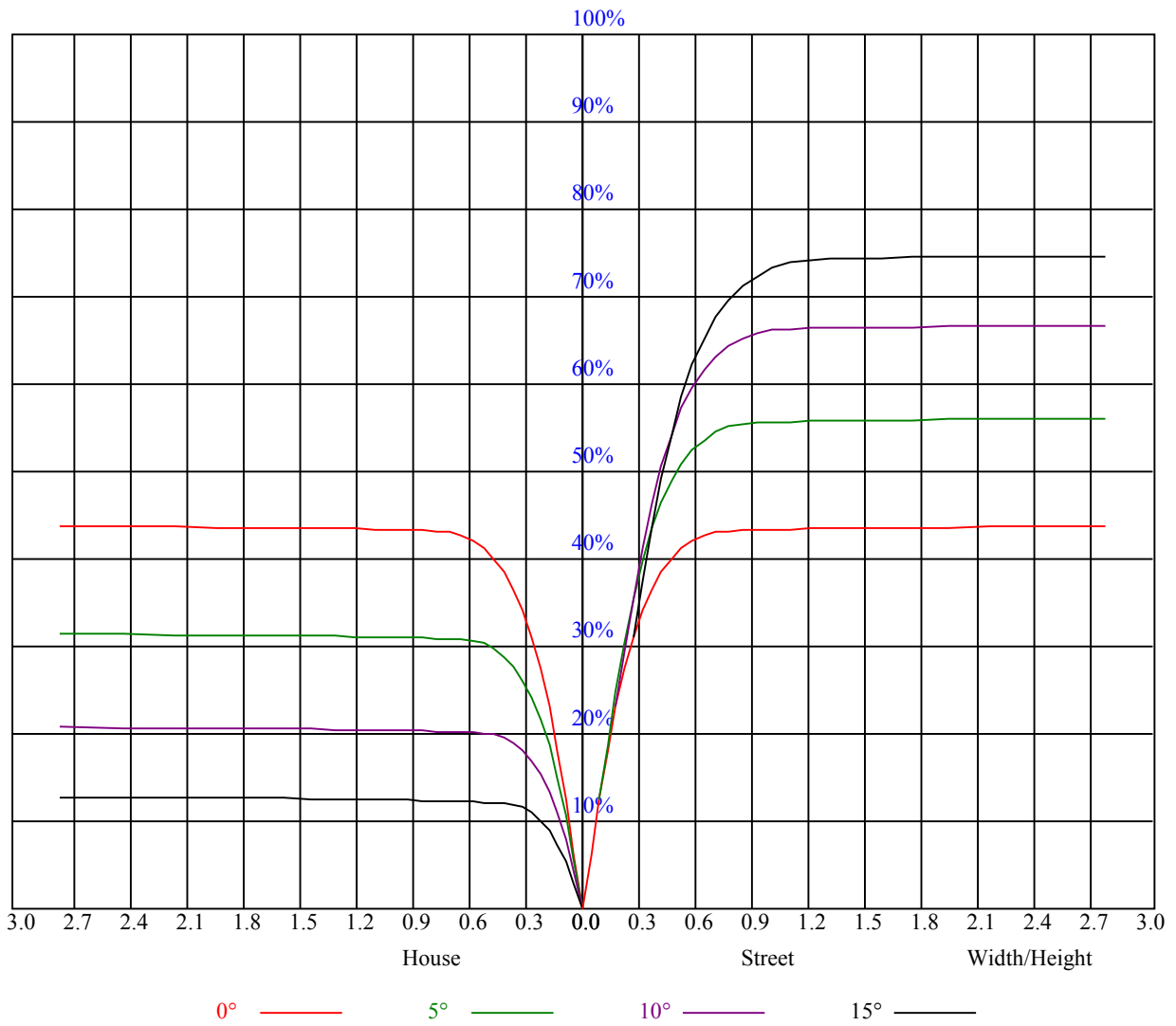
Luminance Limiting Curve



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	3.96	4.88	4.33	5.19	5.51	3.88	4.80	4.25	5.11	5.43
	3H	6.15	6.96	6.54	7.29	7.66	6.10	6.90	6.48	7.24	7.61
	4H	7.37	8.12	7.78	8.47	8.86	7.30	8.05	7.71	8.41	8.80
	6H	8.68	9.36	9.10	9.74	10.13	8.57	9.25	8.99	9.63	10.03
	8H	9.34	9.98	9.78	10.37	10.79	9.20	9.84	9.64	10.24	10.65
	12H	10.37	10.99	10.81	11.37	11.80	10.19	10.81	10.63	11.19	11.62
4H	2H	4.43	5.18	4.84	5.53	5.92	4.37	5.11	4.78	5.47	5.86
	3H	6.92	7.54	7.34	7.95	8.36	6.88	7.49	7.29	7.90	8.31
	4H	8.32	8.87	8.76	9.29	9.74	8.26	8.81	8.70	9.23	9.68
	6H	9.73	10.19	10.20	10.65	11.12	9.63	10.10	10.10	10.55	11.03
	8H	10.50	10.94	10.98	11.39	11.87	10.38	10.82	10.86	11.27	11.74
	12H	11.53	11.91	12.03	12.40	12.88	11.37	11.74	11.86	12.23	12.71
8H	4H	8.75	9.19	9.23	9.64	10.11	8.70	9.14	9.18	9.59	10.06
	6H	10.40	10.74	10.91	11.25	11.73	10.31	10.66	10.82	11.16	11.65
	8H	11.33	11.63	11.87	12.16	12.66	11.21	11.52	11.75	12.04	12.54
	12H	12.49	12.75	13.02	13.25	13.83	12.34	12.60	12.86	13.10	13.68
12H	4H	8.84	9.21	9.33	9.70	10.18	8.79	9.17	9.28	9.66	10.13
	6H	10.77	10.87	11.10	11.34	11.89	10.69	10.79	11.03	11.27	11.82
	8H	11.59	11.86	12.12	12.36	12.94	11.49	11.75	12.01	12.25	12.83
Variation with the observer position at spacings:											
S = 1.0H	6.1/-5.8					6.1/-5.8					
S = 1.5H	8.1/-4.3					8.1/-4.3					
S = 2.0H	9.5/-3.3					9.5/-3.3					
Standard tables:	BK3					BK3					
Uncorrected UGR	-5.2					-5.2					



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	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.98	0.96	0.94	0.96	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.87	0.86	0.85	0.84	0.82
2	0.93	0.90	0.87	0.92	0.89	0.86	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.81	0.79
3	0.89	0.85	0.82	0.88	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.78	0.76
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.74
5	0.82	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.77	0.74	0.72	0.71
6	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
7	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.67
8	0.74	0.69	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
9	0.71	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.61



Intensity data(cd)

C/ $\gamma$ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	2035.69	1836.00	1382.06	852.75	523.13	331.31	236.93	25.14	6.92
45.0	2031.19	1955.25	1554.19	1002.38	617.06	370.13	285.19	81.34	8.55
90.0	2032.31	1987.31	1595.25	1044.39	617.12	364.73	267.98	72.06	8.33
135.0	2010.94	2051.44	1757.25	1224.56	712.13	415.13	286.31	141.86	9.96
180.0	2035.69	1980.00	1583.44	1019.93	610.59	361.29	266.23	77.23	8.44
225.0	2031.19	1873.13	1404.00	864.51	519.13	322.20	226.46	22.61	6.58
270.0	2032.31	1821.94	1407.38	888.75	523.13	326.25	239.29	19.80	6.81
315.0	2010.94	1715.63	1121.51	768.49	455.85	299.31	190.74	11.25	5.40
360.0	2035.69	1836.00	1382.06	852.75	523.13	331.31	236.93	25.14	6.92
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	4.16	3.77	3.43	3.26	3.09	3.04	2.98	2.93	2.93
45.0	4.39	3.94	3.60	3.38	3.21	3.15	3.09	3.04	2.98
90.0	4.33	3.88	3.54	3.32	3.21	3.09	3.04	3.04	3.04
135.0	4.50	3.83	3.54	3.32	3.21	3.09	3.04	2.98	2.98
180.0	4.05	3.71	3.38	3.21	3.09	3.04	2.98	2.93	2.93
225.0	3.94	3.66	3.38	3.26	3.15	3.09	3.04	3.04	2.98
270.0	4.05	3.66	3.43	3.21	3.09	3.04	3.04	3.04	3.09
315.0	3.99	3.60	3.38	3.21	3.09	3.04	2.98	2.98	3.04
360.0	4.16	3.77	3.43	3.26	3.09	3.04	2.98	2.93	2.93
C/ $\gamma$ (°)	90.0								
0.0	2.93								
45.0	2.98								
90.0	2.98								
135.0	2.93								
180.0	2.93								
225.0	2.98								
270.0	2.98								
315.0	2.93								
360.0	2.93								