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Nata

LumCAT: 1408-N	
Luminaire: 92.70.043.00	
Report No: NATA0100	Voltage(V): 37.3000
Test No: GC2018092605	Current(A): 0.2100
LampCAT: CITIZEN CLU7A2-1201C9	Power (W): 7.8330
Lamp flux(lm): 762.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 39	Width(mm): 39
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 645.23
Efficiency(%): 84.68%
Lumens(lm)/Power(W): 82.75
Central intensity(cd): 593.691
Maximum intensity(cd): 593.691
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=58.9
[C90/270]Total=58.9
Field angle(10%Imax): [C0/180]Total=100.7
[C90/270]Total=100.7
Maximum s/h(1/2): C0_180=0.87 C90_270=0.87
Maximum s/h(1/4): C0_180=0.91 C90_270=0.91
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 85.06%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 95.116%

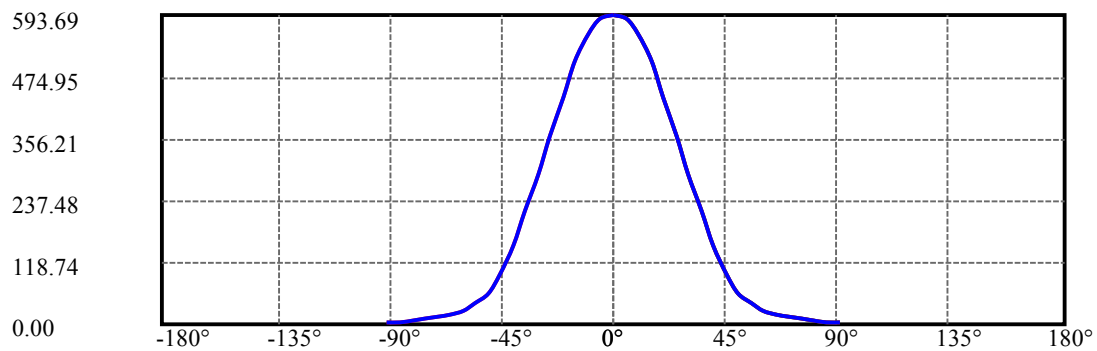
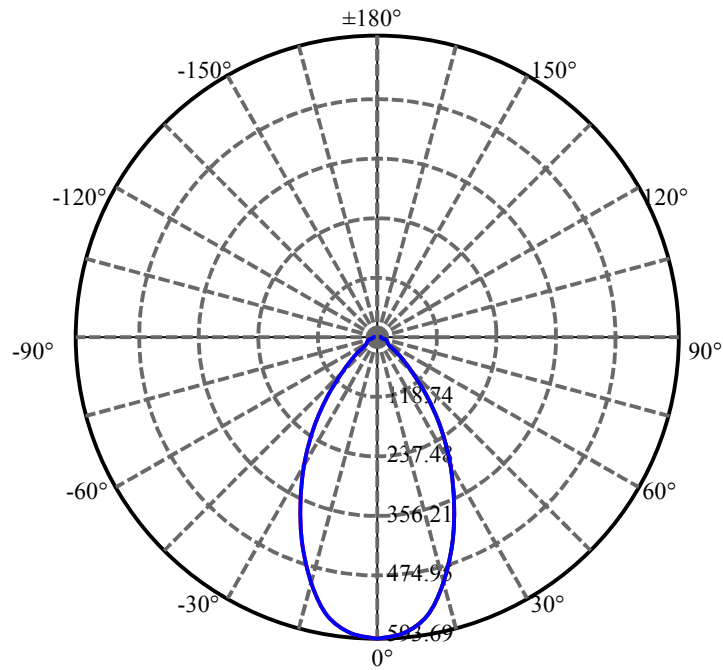
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	593.691	3.550	3.55	.466%	.550%
5.0	585.851	27.988	31.538	3.673%	4.888%
10.0	558.042	53.116	84.655	6.971%	13.120%
15.0	503.782	71.471	156.125	9.379%	24.197%
20.0	436.205	81.777	237.902	10.732%	36.871%
25.0	361.420	83.724	321.626	10.987%	49.847%
30.0	289.223	79.267	400.894	10.403%	62.132%
35.0	215.775	67.839	468.733	8.903%	72.645%
40.0	152.522	53.739	522.472	7.052%	80.974%
45.0	97.608	37.832	560.304	4.965%	86.837%
50.0	60.806	25.532	585.836	3.351%	90.794%
55.0	39.122	17.566	603.402	2.305%	93.517%
60.0	27.619	13.111	616.513	1.721%	95.549%
65.0	19.695	9.784	626.297	1.284%	97.065%
70.0	14.189	7.309	633.605	.959%	98.198%
75.0	9.851	5.216	638.821	.684%	99.006%
80.0	6.504	3.511	642.332	.461%	99.550%
85.0	3.980	2.173	644.505	.285%	99.887%
90.0	2.658	0.728	645.233	.096%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	400.89	52.61%	62.13%
0-40	522.47	68.57%	80.97%
0-60	616.51	80.91%	95.55%
0-90	644.50	84.58%	99.89%
0-120	644.50	84.58%	99.89%
0-180	645.23	84.68%	100.00%
60-90	41.10	5.39%	6.37%
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%
0-39.42	516.19	67.74%	80.00%

ZONAL LUMEN SUMMARY

0-10	84.65
10-20	153.25
20-30	162.99
30-40	121.58
40-50	63.36
50-60	30.68
60-70	17.09
70-80	8.73
80-90	2.17
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:

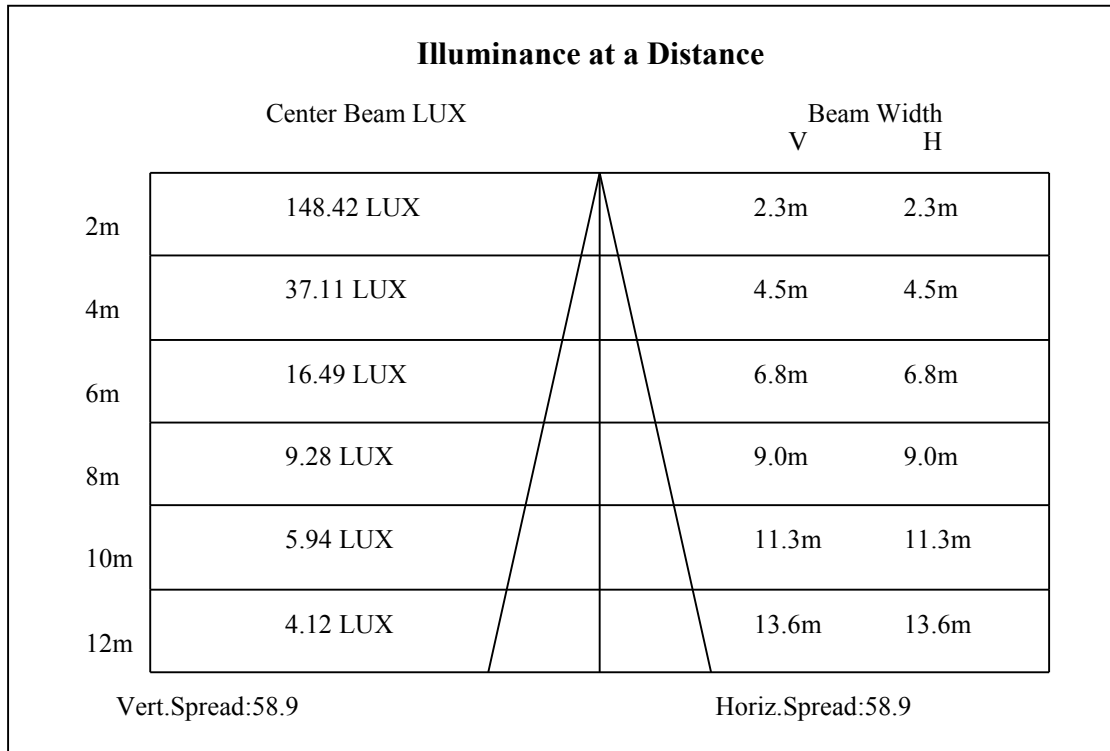
C90/C270:

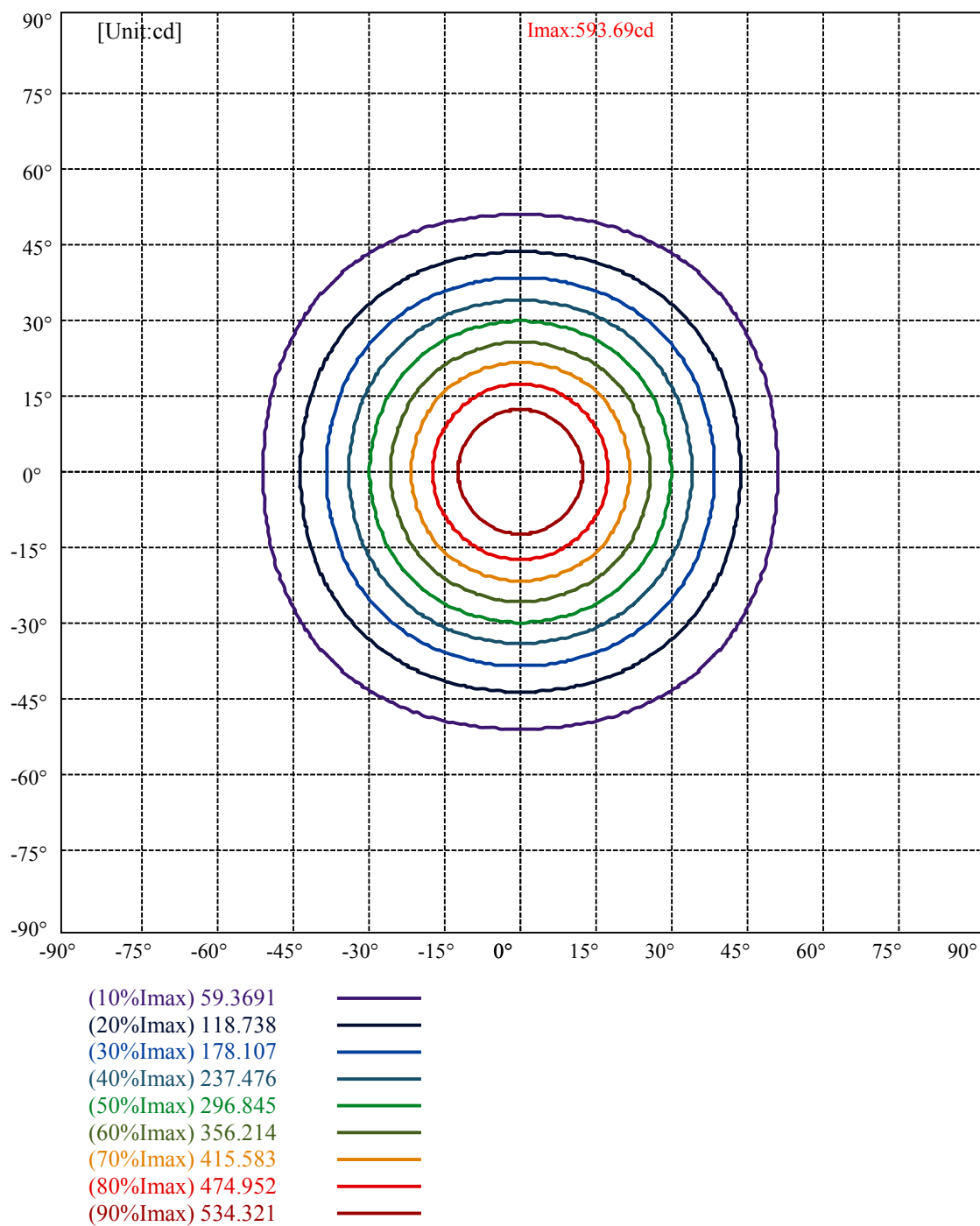
Field angle(10%Imax):C0/180Left:50.3 Right:50.3

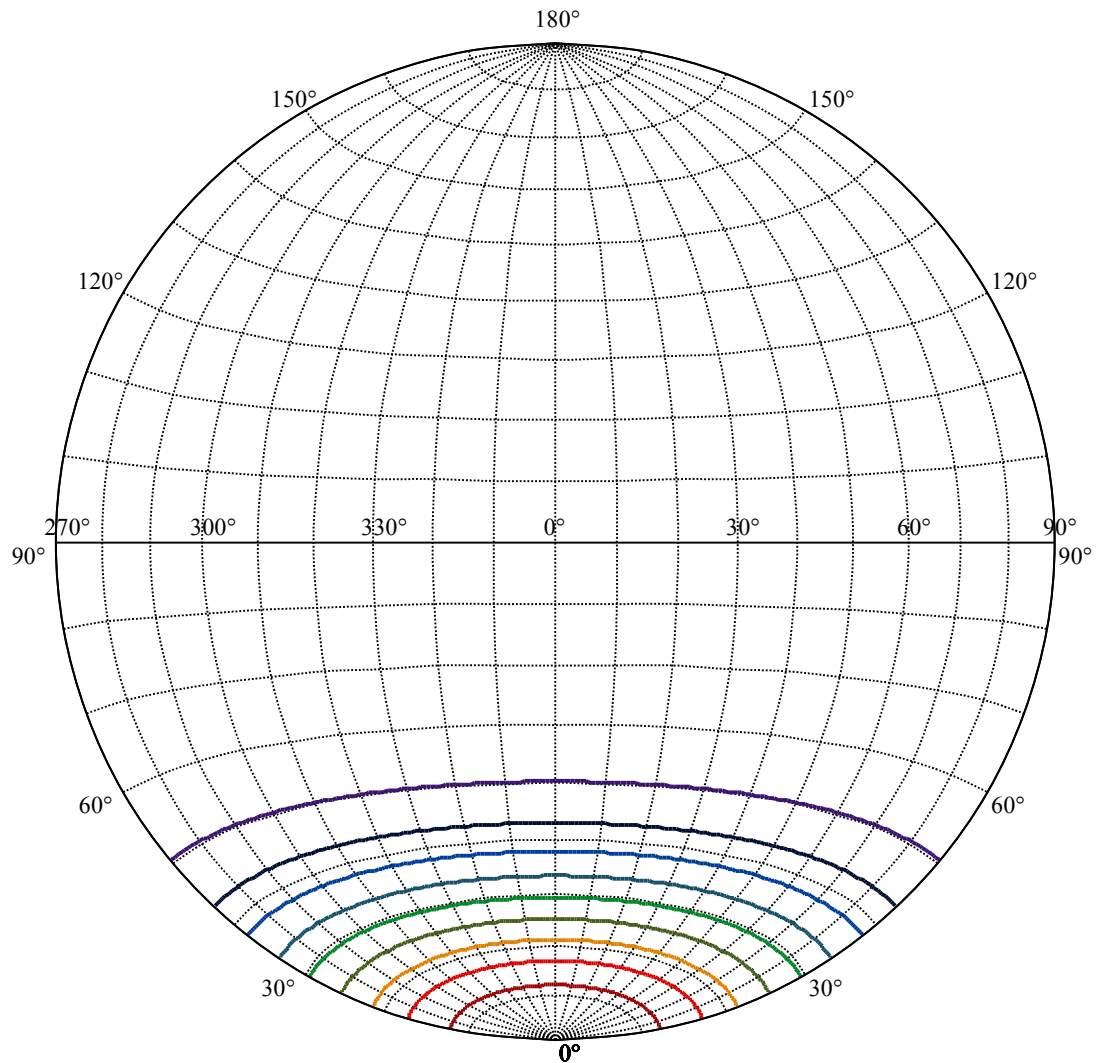
:C90/270Left:50.3 Right:50.3

Beam Angle(50%Imax):C0/180Left:29.5 Right:29.5

:C90/270Left:29.5 Right:29.5







House

[Unit:cd]

Road

Imax:593.69

(10%Imax) 59.3691

(20%Imax) 118.738

(30%Imax) 178.107

(40%Imax) 237.476

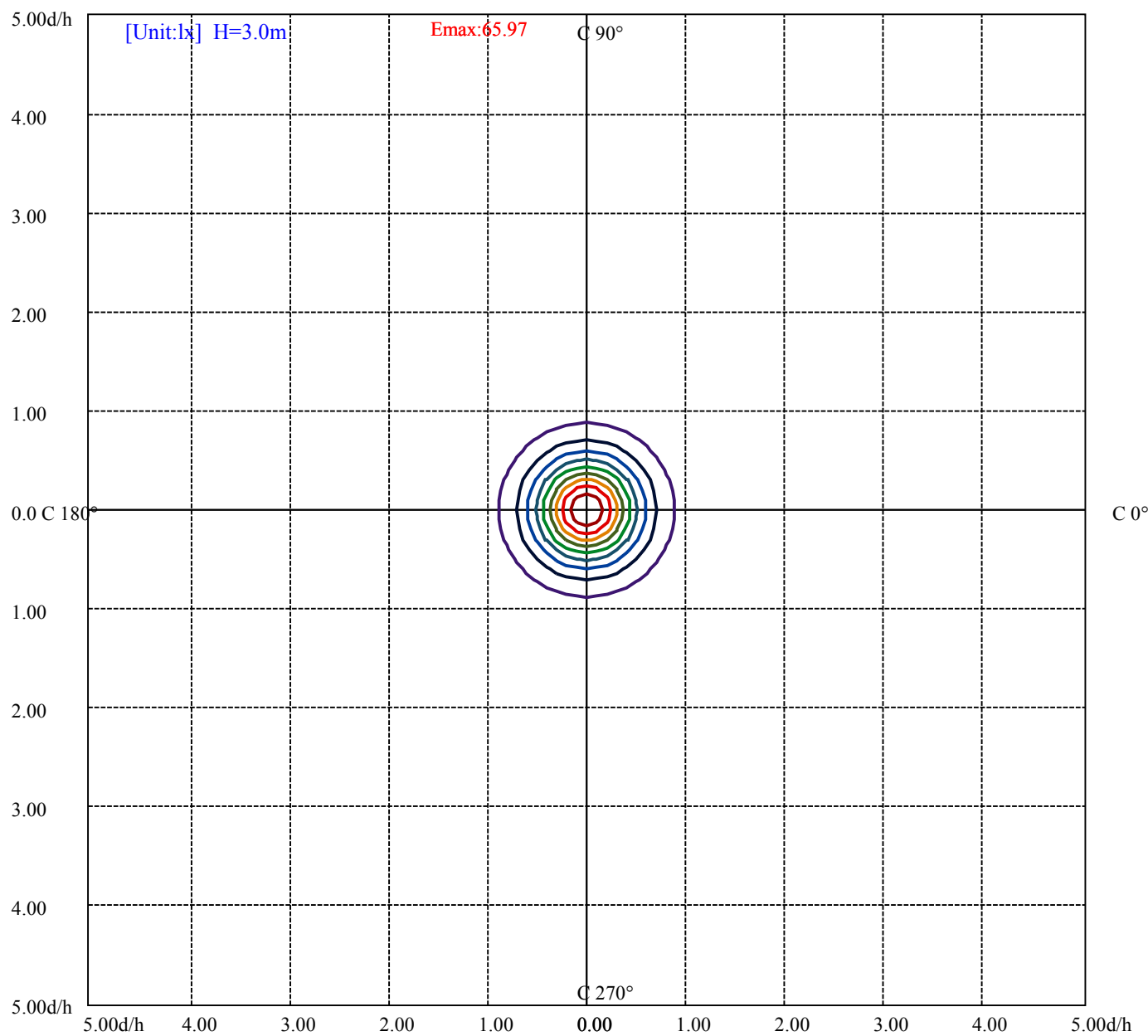
(50%Imax) 296.845

(60%Imax) 356.214

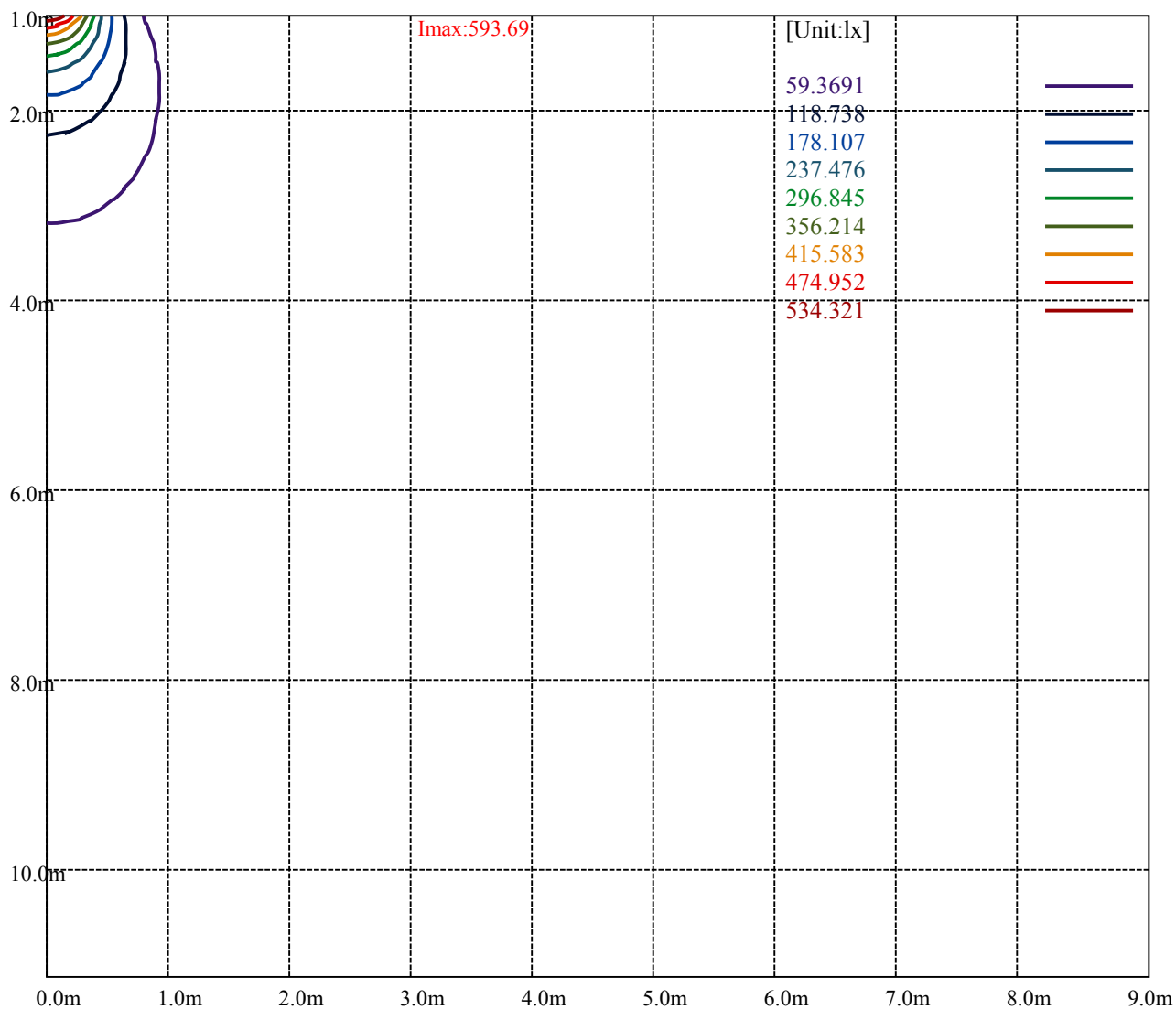
(70%Imax) 415.583

(80%Imax) 474.952

(90%Imax) 534.321



(10%E _{max}) 6.596556	—
(20%E _{max}) 13.19311	—
(30%E _{max}) 19.78967	—
(40%E _{max}) 26.38622	—
(50%E _{max}) 32.98278	—
(60%E _{max}) 39.57933	—
(70%E _{max}) 46.17589	—
(80%E _{max}) 52.77245	—
(90%E _{max}) 59.369	—



Luminance Table

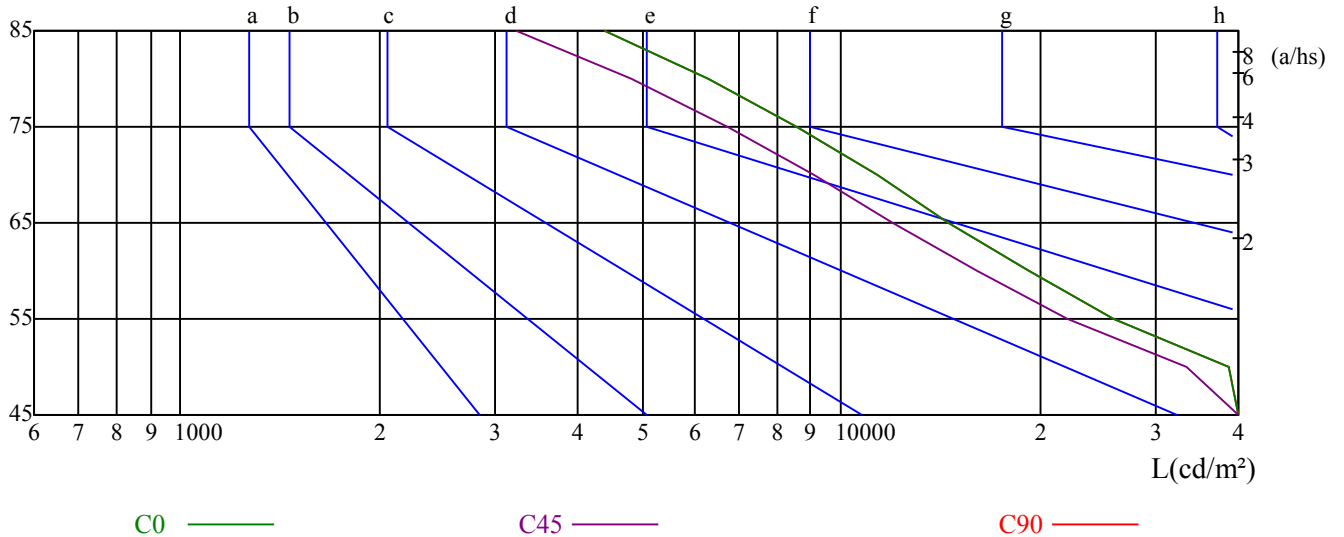
γ	45	50	55	60	65	70	75	80	85
C0	59991	38602	25885	19233	14592	11323	8588	6301	4375
C45	52604	33361	22028	16097	11990	9114	6751	4816	3232
C90	59991	38602	25885	19233	14592	11323	8588	6301	4375

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
30639	30639	30639	25023	25023	25023	30021	30021	30021

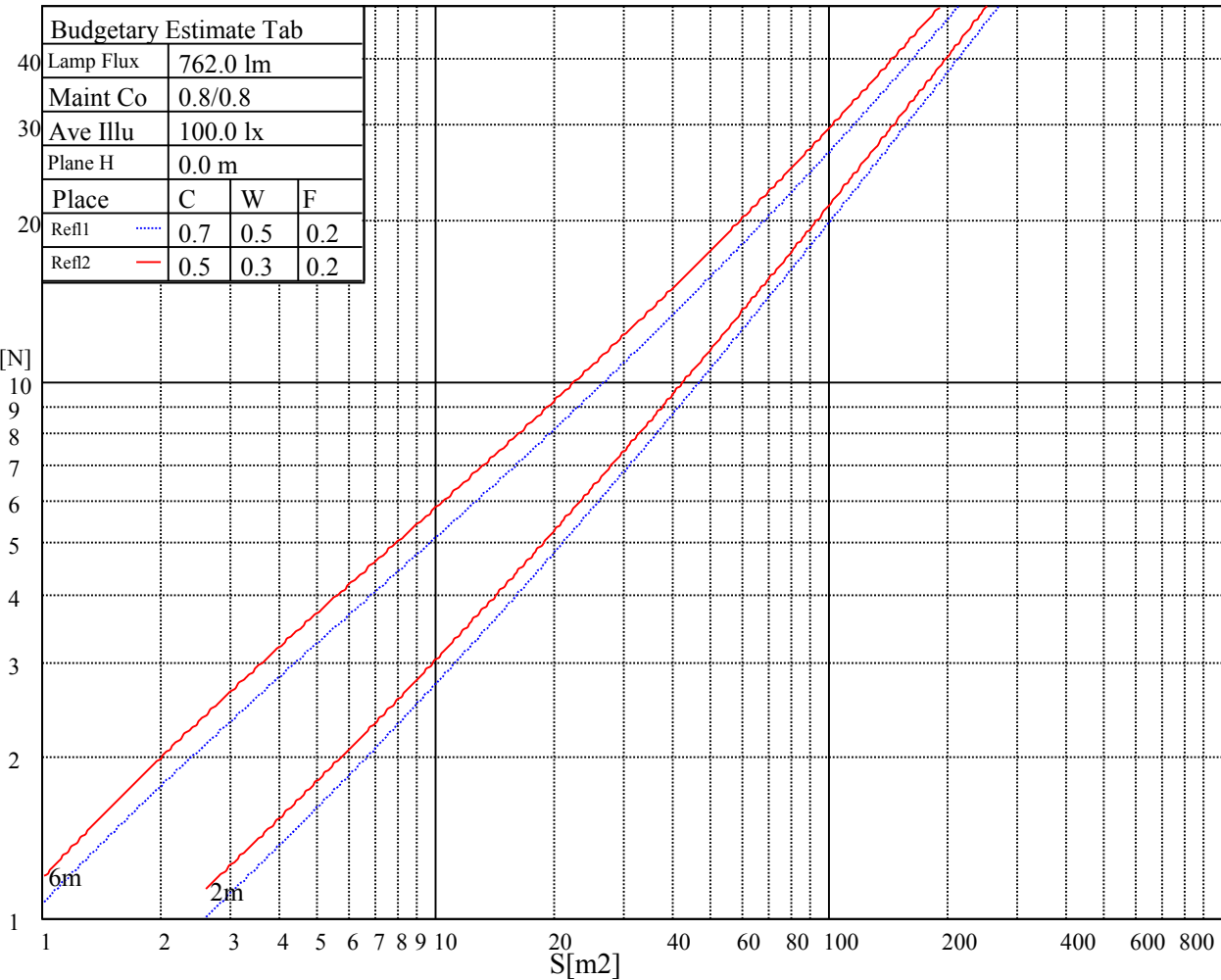
Glare Table

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

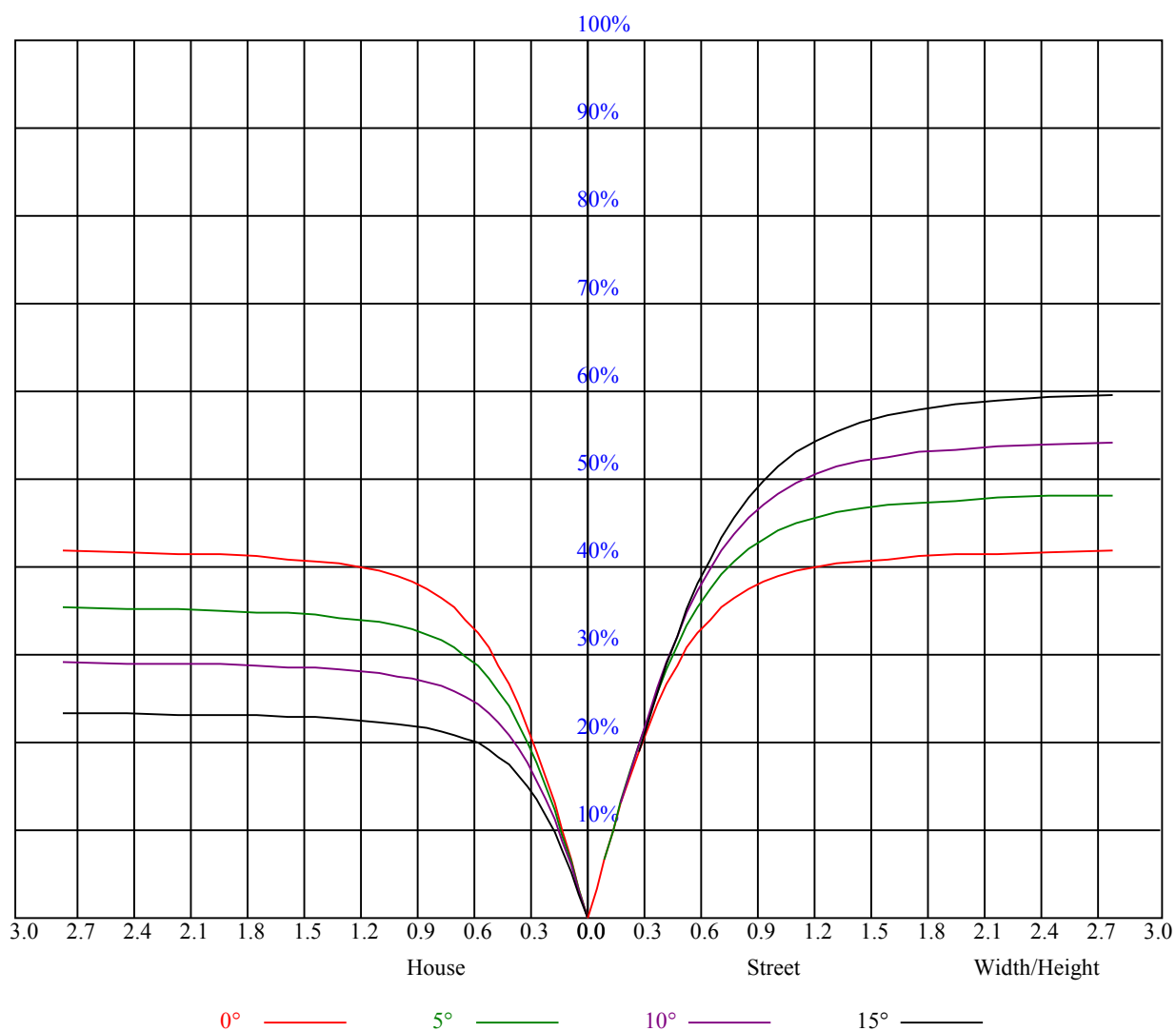
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

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	21.28	22.48	21.64	22.79	23.10	21.37	22.57	21.73	22.88	23.19
	3H	21.98	23.04	22.36	23.37	23.74	22.07	23.13	22.45	23.46	23.83
	4H	22.20	23.19	22.61	23.54	23.93	22.30	23.29	22.71	23.64	24.03
	6H	22.35	23.26	22.77	23.63	24.03	22.46	23.36	22.87	23.74	24.13
	8H	22.39	23.25	22.82	23.64	24.05	22.50	23.36	22.93	23.75	24.16
	12H	22.45	23.27	22.89	23.66	24.09	22.57	23.39	23.00	23.77	24.20
4H	2H	21.40	22.39	21.80	22.74	23.12	21.48	22.47	21.88	22.82	23.21
	3H	22.26	23.07	22.67	23.48	23.88	22.34	23.15	22.76	23.56	23.96
	4H	22.57	23.29	23.00	23.71	24.16	22.66	23.38	23.09	23.80	24.25
	6H	22.74	23.37	23.21	23.81	24.28	22.84	23.46	23.30	23.91	24.38
	8H	22.81	23.39	23.28	23.84	24.31	22.91	23.49	23.38	23.94	24.41
	12H	22.89	23.40	23.38	23.89	24.37	23.00	23.51	23.49	24.00	24.47
8H	4H	22.60	23.18	23.07	23.63	24.11	22.69	23.27	23.16	23.72	24.19
	6H	22.85	23.32	23.35	23.82	24.30	22.94	23.41	23.44	23.91	24.39
	8H	22.96	23.38	23.48	23.90	24.39	23.05	23.48	23.58	23.99	24.49
	12H	23.24	23.61	23.76	24.11	24.68	23.35	23.72	23.86	24.21	24.79
12H	4H	22.58	23.09	23.06	23.57	24.05	22.66	23.17	23.15	23.65	24.13
	6H	23.32	23.26	23.37	23.73	24.27	23.41	23.35	23.45	23.82	24.36
	8H	22.98	23.35	23.50	23.85	24.42	23.07	23.45	23.59	23.94	24.52
Variation with the observer position at spacings:											
S = 1.0H		1.5/-2.2					1.5/-2.2				
S = 1.5H		3.0/-2.9					3.0/-2.9				
S = 2.0H		5.0/-3.2					5.0/-3.2				
Standard tables:		BK2					BK2				
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	1.01	1.01	1.01	0.99	0.99	0.99	0.95	0.95	0.95	0.90	0.90	0.90	0.87	0.87	0.87	0.85
1	0.93	0.90	0.88	0.91	0.88	0.86	0.87	0.85	0.84	0.84	0.83	0.81	0.81	0.80	0.79	0.77
2	0.85	0.81	0.78	0.84	0.80	0.77	0.81	0.78	0.75	0.78	0.76	0.74	0.76	0.74	0.72	0.71
3	0.79	0.74	0.70	0.77	0.73	0.69	0.75	0.71	0.68	0.73	0.70	0.67	0.71	0.68	0.66	0.65
4	0.73	0.68	0.64	0.72	0.67	0.63	0.70	0.66	0.62	0.68	0.65	0.62	0.67	0.64	0.61	0.60
5	0.68	0.62	0.58	0.67	0.62	0.58	0.65	0.61	0.58	0.64	0.60	0.57	0.63	0.59	0.56	0.55
6	0.63	0.58	0.54	0.63	0.57	0.54	0.61	0.57	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.51
7	0.59	0.54	0.50	0.59	0.54	0.50	0.58	0.53	0.50	0.57	0.52	0.49	0.56	0.52	0.49	0.48
8	0.56	0.50	0.47	0.55	0.50	0.47	0.54	0.50	0.46	0.54	0.49	0.46	0.53	0.49	0.46	0.45
9	0.53	0.47	0.44	0.52	0.47	0.44	0.51	0.47	0.44	0.51	0.46	0.43	0.50	0.46	0.43	0.42
10	0.50	0.45	0.41	0.49	0.44	0.41	0.49	0.44	0.41	0.48	0.44	0.41	0.47	0.44	0.41	0.40



Nata 1408-N

Intensity data(cd)										Appendix Page: 15 Total:15	
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	592.65	587.87	561.09	505.63	441.00	370.29	294.69	219.99	158.01		
45.0	594.68	590.57	569.03	520.43	458.89	387.96	314.61	238.28	174.38		
90.0	593.27	586.69	560.36	511.26	444.21	369.73	294.92	220.84	155.31		
135.0	594.17	589.44	569.53	522.34	459.17	392.74	314.83	241.09	176.06		
180.0	592.65	584.55	557.49	510.81	443.93	365.63	294.86	220.16	154.58		
225.0	594.68	582.92	547.54	491.85	423.00	344.53	275.63	201.60	137.70		
270.0	593.27	582.13	553.28	489.09	417.04	338.29	269.16	199.29	137.59		
315.0	594.17	582.64	546.02	478.86	402.41	322.20	255.09	184.95	126.56		
360.0	592.65	587.87	561.09	505.63	441.00	370.29	294.69	219.99	158.01		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	100.52	62.66	40.73	29.25	20.70	14.96	10.41	6.92	4.11		
45.0	111.83	69.92	45.96	31.16	22.11	16.03	11.48	7.65	4.61		
90.0	102.99	63.11	40.05	28.91	20.53	14.91	10.46	6.86	4.22		
135.0	115.31	68.57	42.13	29.87	21.32	15.41	11.19	7.26	4.28		
180.0	98.21	60.19	37.97	25.99	19.07	13.73	9.39	6.36	3.99		
225.0	81.62	54.06	35.38	24.75	17.66	12.49	8.44	5.51	3.71		
270.0	88.88	55.69	36.00	25.82	18.28	13.16	8.89	5.91	3.49		
315.0	81.51	52.26	34.76	25.20	17.89	12.83	8.55	5.57	3.43		
360.0	100.52	62.66	40.73	29.25	20.70	14.96	10.41	6.92	4.11		
C/γ(°)	90.0										
0.0	2.70										
45.0	2.76										
90.0	2.76										
135.0	2.70										
180.0	2.70										
225.0	2.53										
270.0	2.53										
315.0	2.59										
360.0	2.70										