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## NATA

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LumCAT: 1405-N	
Luminaire: 92.70.044.00	
Report No: NATA0100	Voltage(V): 35.7000
Test No: GC2019021806	Current(A): 0.2000
LampCAT: LUMILEDS LUXEON 1202S	Power (W): 7.1400
Lamp flux(lm): 890.6	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 39	Width(mm): 39
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 771.21  
Efficiency(%): 86.59%  
Lumens(lm)/Power(W): 109.71  
Central intensity(cd): 2151.422  
Maximum intensity(cd): 2151.422  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=20.8  
                                  [C90/270]Total=20.8  
Field angle(10%Imax): [C0/180]Total=69.5  
                                  [C90/270]Total=69.5  
Maximum s/h(1/2): C0\_180=0.35 C90\_270=0.35  
Maximum s/h(1/4): C0\_180=0.40 C90\_270=0.40  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 87.95%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 94.675%

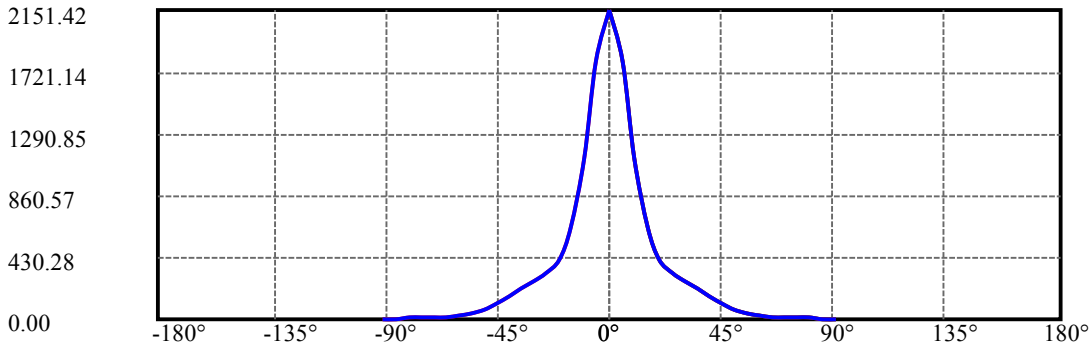
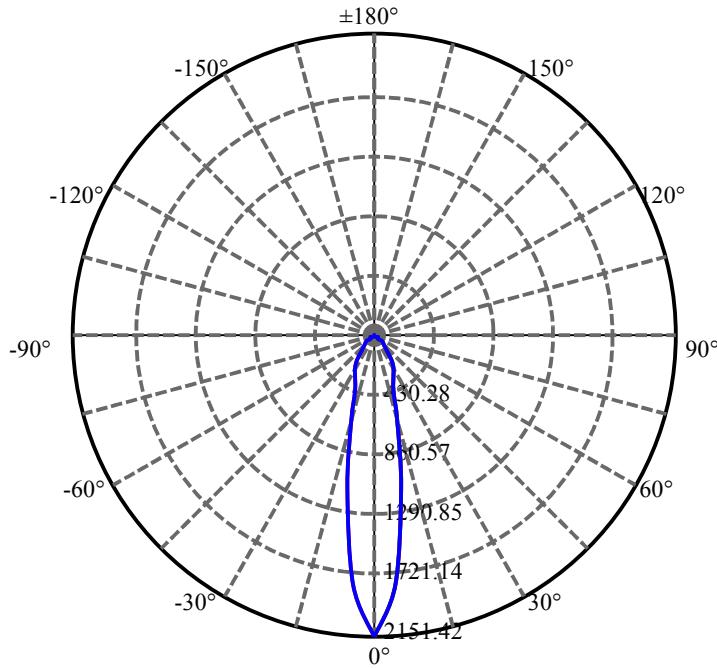
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2151.422	12.866	12.866	1.445%	1.668%
5.0	1785.094	85.280	98.146	9.575%	12.726%
10.0	1116.295	106.252	204.398	11.930%	26.504%
15.0	635.569	90.167	294.565	10.124%	38.195%
20.0	417.713	78.310	372.876	8.793%	48.349%
25.0	318.593	73.803	446.679	8.287%	57.919%
30.0	267.075	73.197	519.875	8.219%	67.410%
35.0	212.520	66.816	586.691	7.502%	76.074%
40.0	159.539	56.211	642.903	6.311%	83.363%
45.0	103.598	40.154	683.057	4.508%	88.569%
50.0	64.111	26.920	709.977	3.023%	92.060%
55.0	40.479	18.175	728.152	2.041%	94.417%
60.0	28.399	13.481	741.633	1.514%	96.165%
65.0	20.018	9.945	751.578	1.117%	97.454%
70.0	14.548	7.493	759.071	.841%	98.426%
75.0	10.041	5.316	764.387	.597%	99.115%
80.0	6.806	3.674	768.061	.413%	99.592%
85.0	4.226	2.307	770.368	.259%	99.891%
90.0	3.073	0.842	771.211	.095%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	519.88	58.37%	67.41%
0-40	642.90	72.19%	83.36%
0-60	741.63	83.27%	96.16%
0-90	770.37	86.50%	99.89%
0-120	770.37	86.50%	99.89%
0-180	771.21	86.59%	100.00%
60-90	42.22	4.74%	5.47%
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%
0-37.69	616.97	69.27%	80.00%

ZONAL LUMEN SUMMARY

0-10	204.40
10-20	168.48
20-30	147.00
30-40	123.03
40-50	67.07
50-60	31.66
60-70	17.44
70-80	8.99
80-90	2.31
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: —————

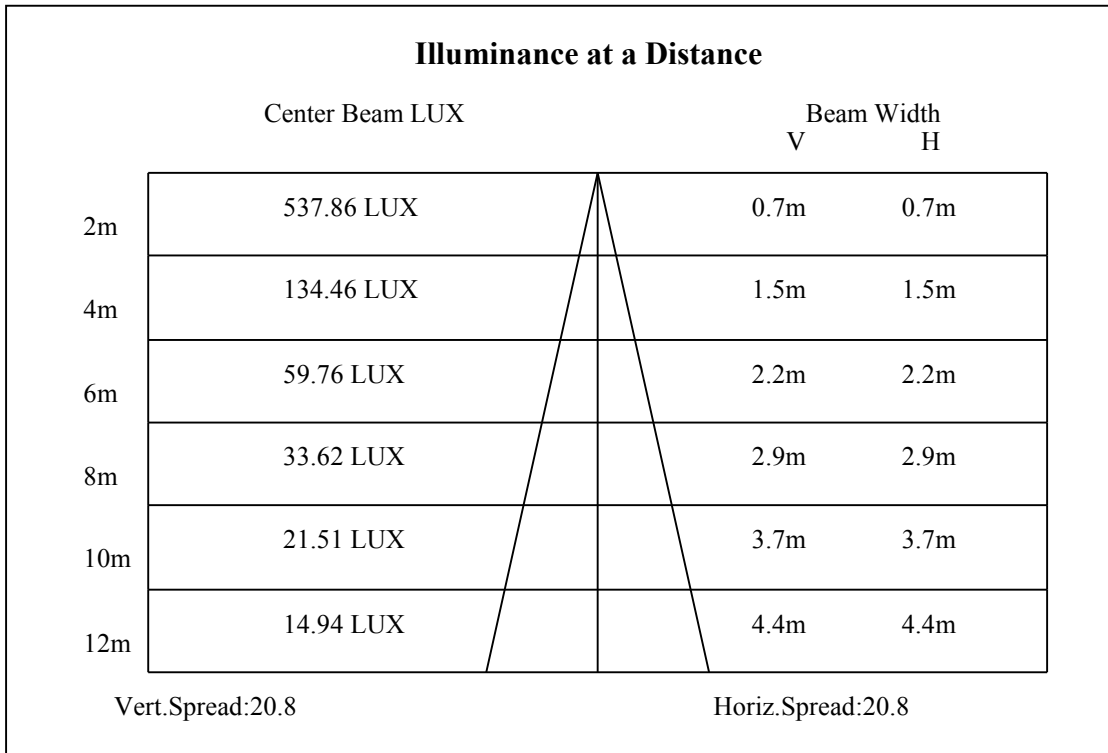
C90/C270: —————

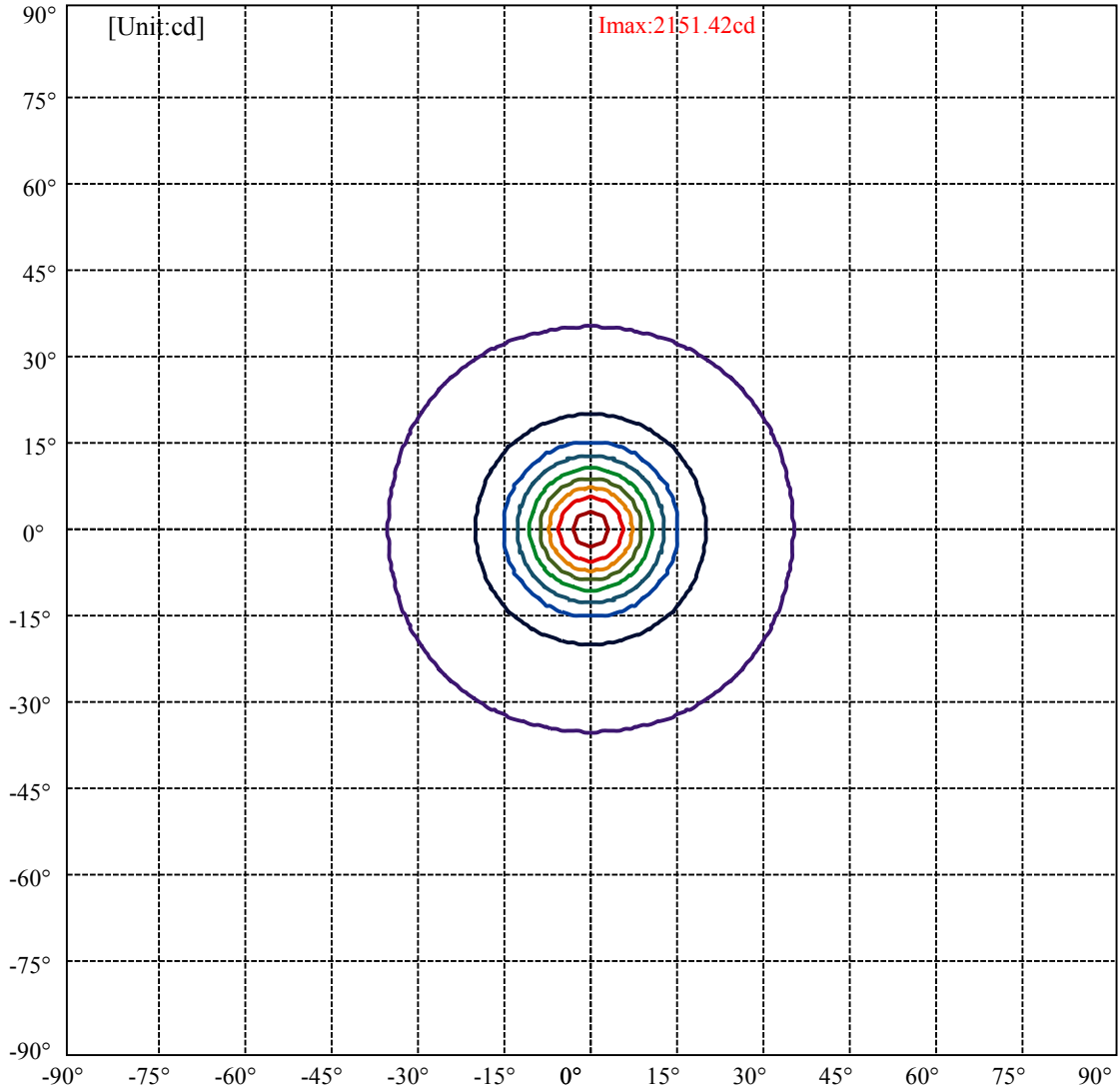
Field angle(10%Imax):C0/180Left:34.8 Right:34.8

:C90/270Left:34.8 Right:34.8

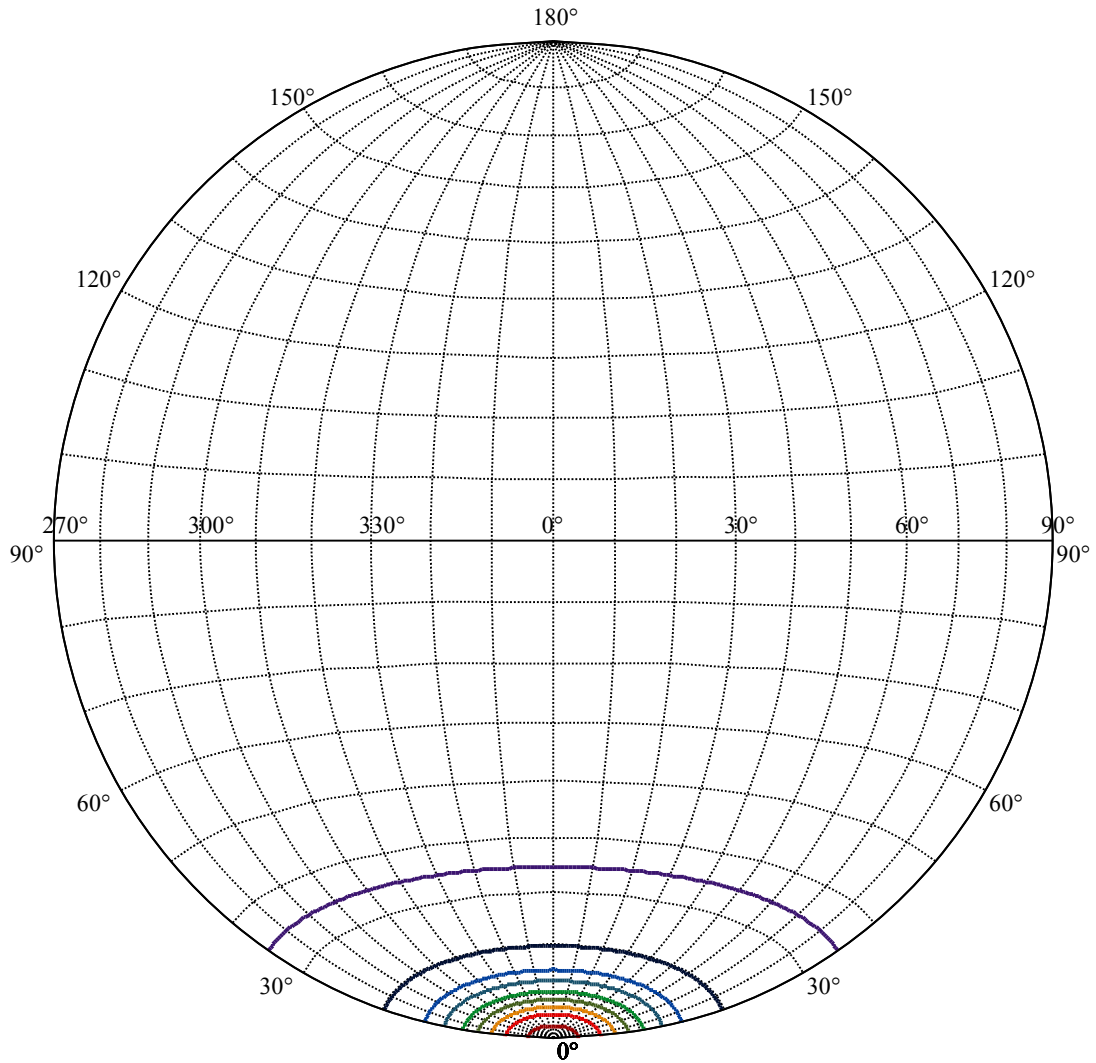
Beam Angle(50%Imax):C0/180Left:10.4 Right:10.4

:C90/270Left:10.4 Right:10.4





(10%Imax) 215.142	—
(20%Imax) 430.284	—
(30%Imax) 645.427	—
(40%Imax) 860.569	—
(50%Imax) 1075.71	—
(60%Imax) 1290.85	—
(70%Imax) 1506	—
(80%Imax) 1721.14	—
(90%Imax) 1936.28	—



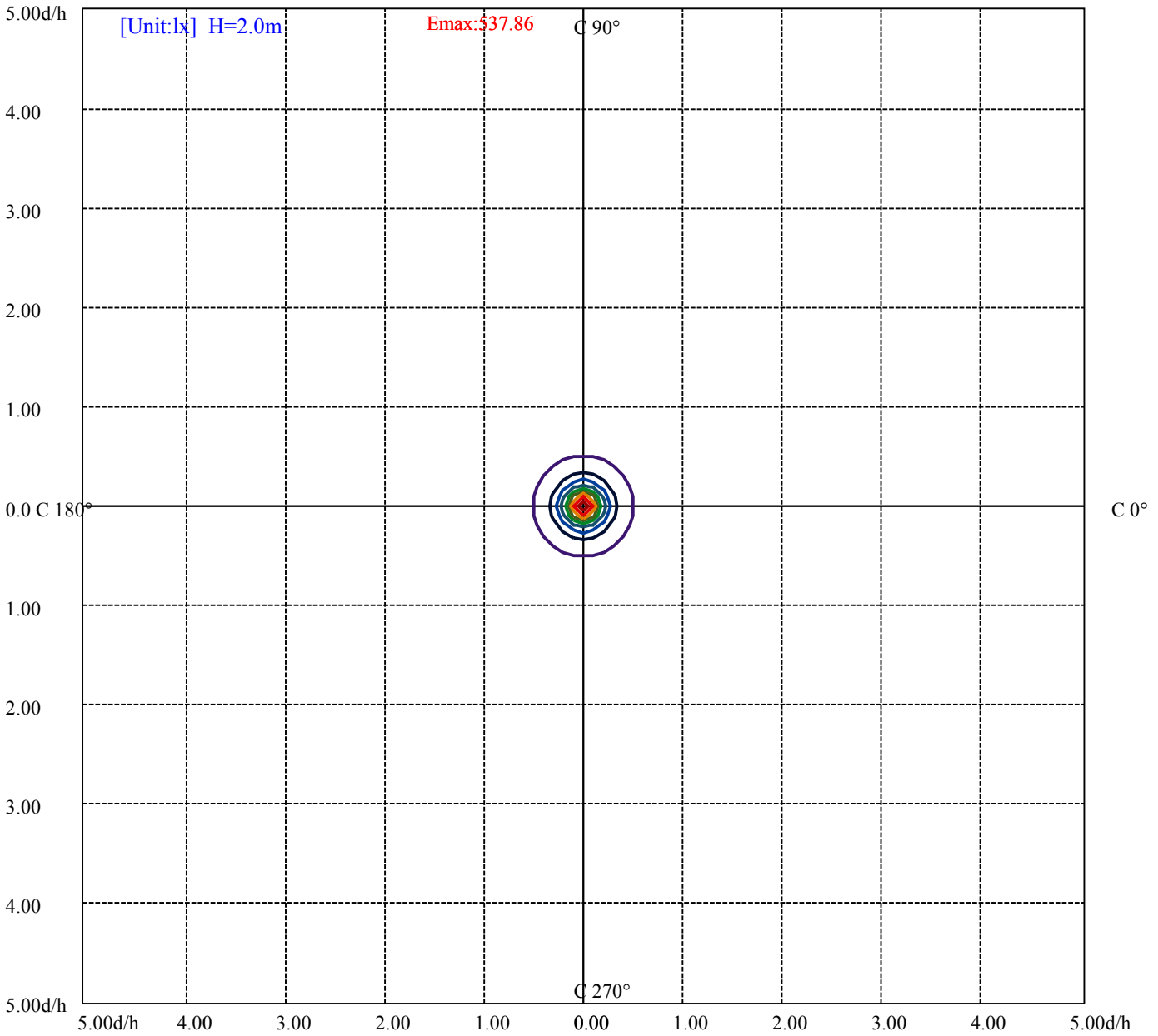
House

[Unit:cd]

Road

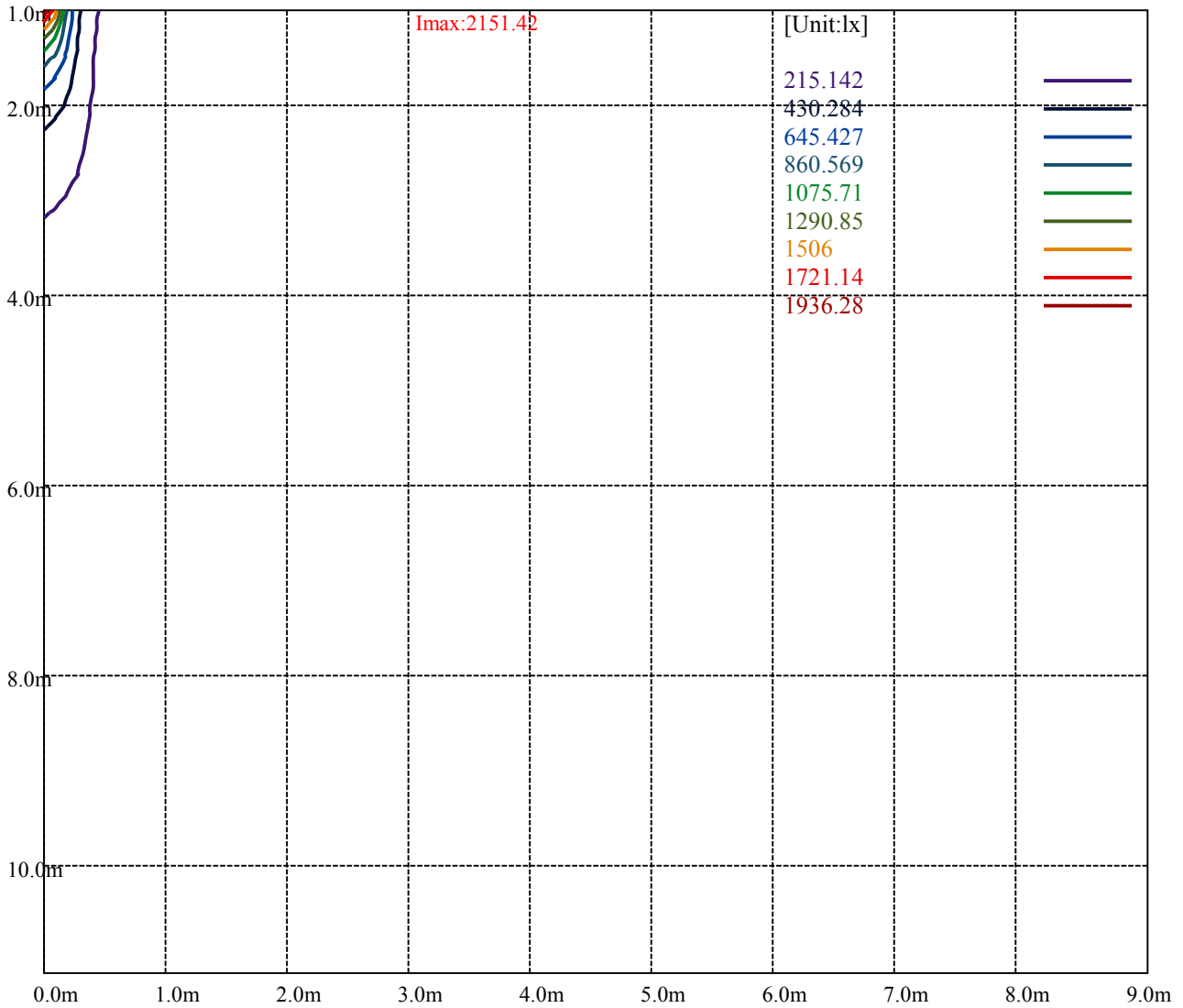
**Imax:2151.42**

(10%Imax) 215.142	—
(20%Imax) 430.284	—
(30%Imax) 645.427	—
(40%Imax) 860.569	—
(50%Imax) 1075.71	—
(60%Imax) 1290.85	—
(70%Imax) 1506	—
(80%Imax) 1721.14	—
(90%Imax) 1936.28	—



(10%Emax) 53.78525	—
(20%Emax) 107.5705	—
(30%Emax) 161.3557	—
(40%Emax) 215.141	—
(50%Emax) 268.9275	—
(60%Emax) 322.7125	—
(70%Emax) 376.4975	—
(80%Emax) 430.2825	—
(90%Emax) 484.0675	—





Luminance Table

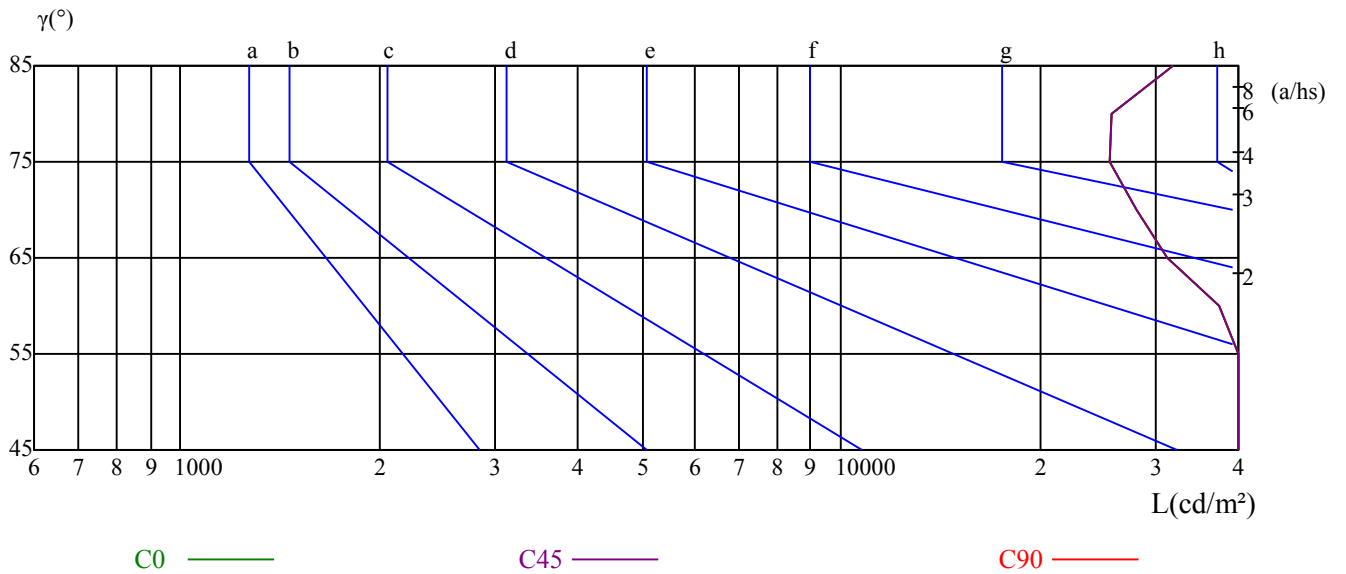
$\gamma$	45	50	55	60	65	70	75	80	85
C0	96325	65575	46399	37343	31142	27965	25506	25770	31877
C45	96325	65575	46399	37343	31142	27965	25506	25770	31877
C90	96325	65575	46399	37343	31142	27965	25506	25770	31877

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
31142	31142	31142	25506	25506	25506	31877	31877	31877

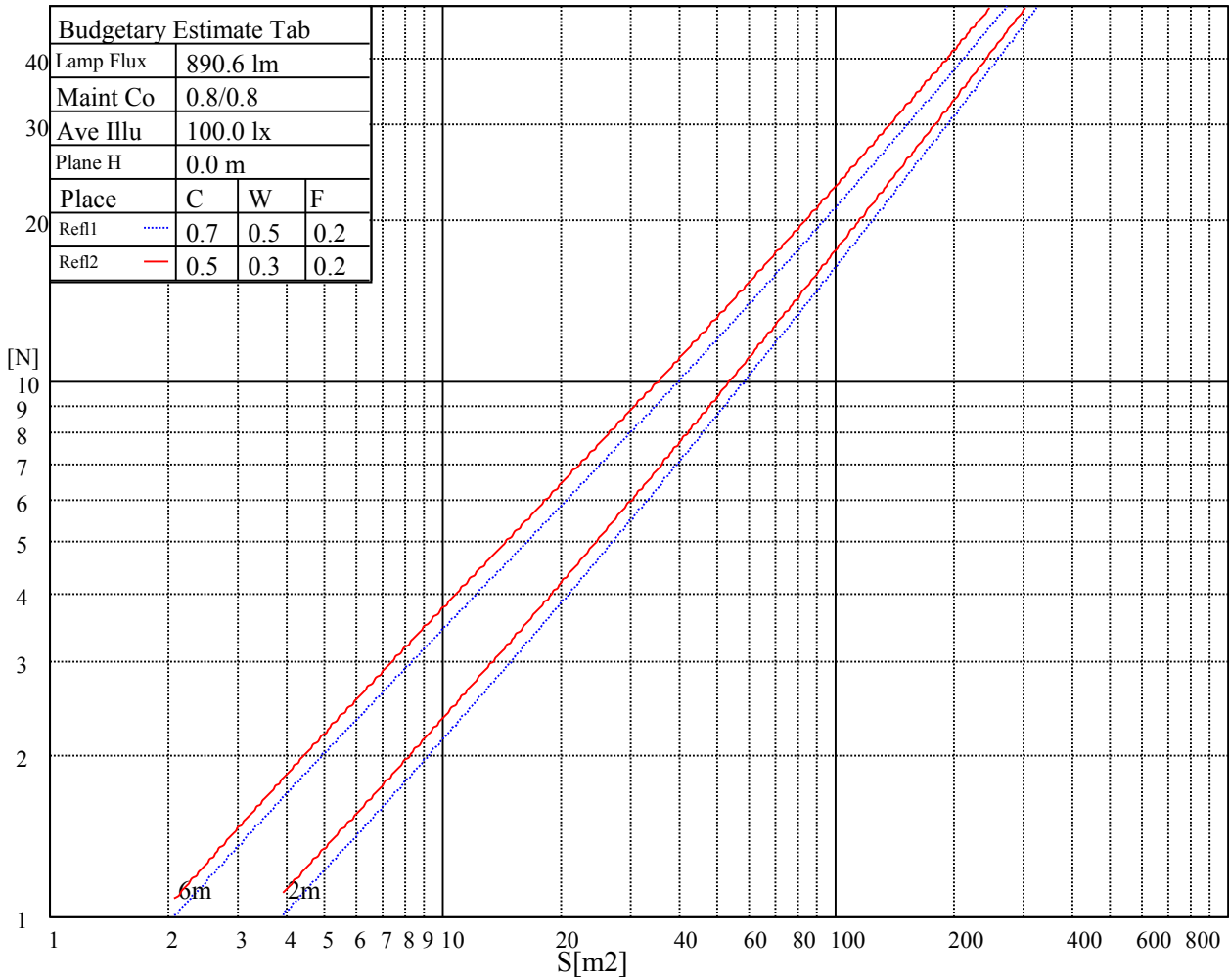
Glare Table

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

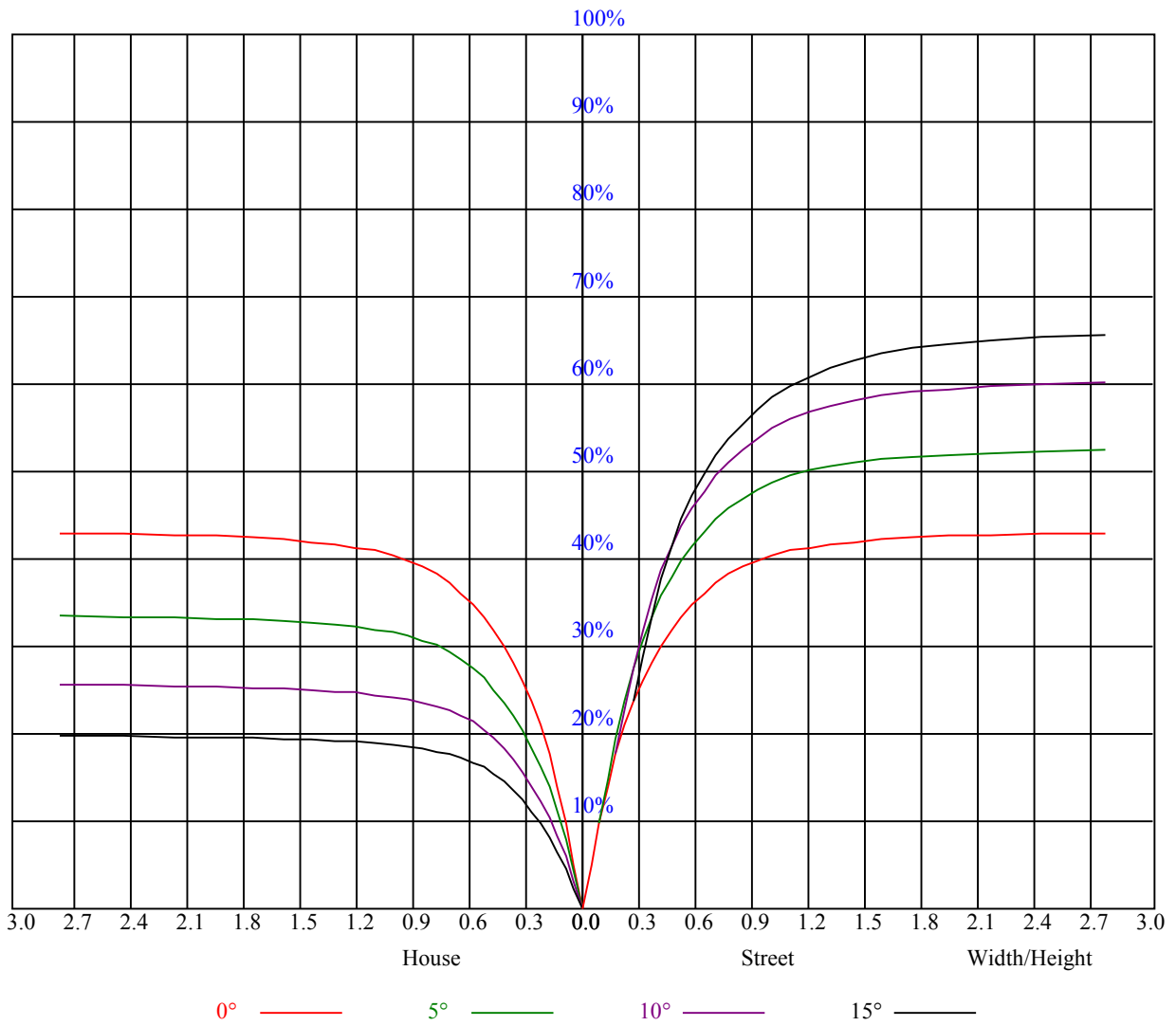
Luminance Limiting Curve



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	22.04	23.20	22.41	23.51	23.83	22.16	23.32	22.52	23.63	23.94
	3H	23.11	24.14	23.49	24.47	24.84	23.23	24.25	23.61	24.58	24.95
	4H	23.53	24.48	23.93	24.83	25.22	23.64	24.59	24.05	24.95	25.33
	6H	23.89	24.76	24.31	25.13	25.53	24.01	24.88	24.43	25.26	25.65
	8H	24.05	24.87	24.48	25.26	25.67	24.18	25.00	24.61	25.40	25.80
	12H	24.31	25.10	24.75	25.48	25.91	24.47	25.26	24.91	25.64	26.07
4H	2H	22.32	23.27	22.73	23.63	24.01	22.42	23.37	22.83	23.72	24.11
	3H	23.62	24.40	24.03	24.80	25.21	23.71	24.49	24.13	24.90	25.30
	4H	24.15	24.85	24.59	25.27	25.72	24.25	24.95	24.69	25.37	25.82
	6H	24.58	25.18	25.05	25.63	26.10	24.69	25.29	25.16	25.73	26.21
	8H	24.81	25.37	25.28	25.81	26.29	24.93	25.49	25.40	25.94	26.41
	12H	25.12	25.61	25.61	26.09	26.57	25.27	25.76	25.76	26.25	26.72
8H	4H	24.32	24.88	24.80	25.33	25.80	24.41	24.97	24.89	25.42	25.89
	6H	24.90	25.36	25.41	25.86	26.34	25.00	25.45	25.51	25.95	26.44
	8H	25.24	25.64	25.76	26.16	26.65	25.35	25.75	25.88	26.27	26.77
	12H	26.05	26.40	26.57	26.90	27.48	26.19	26.54	26.71	27.04	27.62
12H	4H	24.33	24.82	24.82	25.30	25.78	24.42	24.90	24.90	25.39	25.87
	6H	25.40	25.36	25.49	25.83	26.38	25.49	25.46	25.58	25.93	26.47
	8H	25.36	25.71	25.88	26.21	26.78	25.47	25.82	25.98	26.32	26.89
Variation with the observer position at spacings:											
S = 1.0H	1.1/-1.8					1.1/-1.8					
S = 1.5H	2.1/-2.4					2.1/-2.4					
S = 2.0H	3.9/-2.5					3.9/-2.5					
Standard tables:	BK2					BK2					
Uncorrected UGR	7.6					7.6					



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	1.05	1.05	1.05	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.95	0.92	0.90	0.93	0.91	0.88	0.90	0.88	0.86	0.86	0.85	0.83	0.83	0.82	0.81	0.79
2	0.88	0.84	0.81	0.87	0.83	0.80	0.84	0.81	0.78	0.81	0.79	0.76	0.79	0.77	0.75	0.73
3	0.82	0.78	0.74	0.81	0.77	0.73	0.79	0.75	0.72	0.77	0.73	0.71	0.75	0.72	0.70	0.68
4	0.77	0.72	0.68	0.76	0.71	0.68	0.74	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.65	0.64
5	0.73	0.67	0.63	0.72	0.67	0.63	0.70	0.66	0.62	0.69	0.65	0.62	0.67	0.64	0.61	0.60
6	0.69	0.63	0.59	0.68	0.63	0.59	0.67	0.62	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
7	0.65	0.60	0.56	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.55	0.61	0.58	0.55	0.54
8	0.62	0.57	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.52	0.59	0.55	0.52	0.51
9	0.59	0.54	0.51	0.59	0.54	0.50	0.58	0.53	0.50	0.57	0.53	0.50	0.56	0.53	0.50	0.49
10	0.56	0.52	0.48	0.56	0.51	0.48	0.55	0.51	0.48	0.55	0.51	0.48	0.54	0.50	0.48	0.47



NATA 1405-N

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	2151.00	1844.44	1213.31	717.19	451.69	343.69	285.19	225.39	172.07
45.0	2154.94	1838.25	1167.19	673.31	439.88	334.13	285.19	221.68	165.32
90.0	2158.31	1773.56	1077.13	595.18	395.10	301.44	253.69	202.73	150.08
135.0	2141.44	1938.94	1234.13	673.31	434.81	320.06	270.06	211.33	162.11
180.0	2151.00	1730.25	1083.83	604.74	405.56	313.88	267.08	213.64	156.49
225.0	2154.94	1703.81	1031.51	581.96	397.74	314.66	264.04	215.04	162.28
270.0	2158.31	1754.44	1118.25	624.38	409.50	315.56	260.10	212.18	162.17
315.0	2141.44	1697.06	1005.02	614.48	407.42	305.33	251.27	198.17	145.80
360.0	2151.00	1844.44	1213.31	717.19	451.69	343.69	285.19	225.39	172.07

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	113.40	70.31	43.76	30.32	20.81	14.91	10.46	7.03	4.33
45.0	108.56	66.88	41.85	30.21	20.81	15.13	10.46	7.14	4.22
90.0	98.38	60.86	38.03	27.11	19.29	14.01	9.45	6.47	3.99
135.0	105.92	65.08	41.40	28.86	20.42	15.30	10.46	6.98	4.39
180.0	100.46	61.76	39.09	27.96	19.91	14.51	9.84	6.86	4.50
225.0	101.14	61.20	38.87	27.62	19.63	14.23	10.18	6.86	4.44
270.0	106.43	66.38	42.69	29.48	20.53	14.85	10.35	6.98	4.16
315.0	94.50	60.41	38.14	25.65	18.73	13.44	9.11	6.13	3.77
360.0	113.40	70.31	43.76	30.32	20.81	14.91	10.46	7.03	4.33

C/γ(°)	90.0
0.0	3.04
45.0	3.04
90.0	2.98
135.0	3.09
180.0	3.21
225.0	3.26
270.0	3.09
315.0	2.87
360.0	3.04