
Nata

Client:

LumCAT: 1687-M

Luminaire: 92.70.124.00

Report No: nata-0100

Test No:

LampCAT: CREE CMT1420

Lamp flux(lm): 2017.0

Number of Lamps: 1

Length(mm): 46

Phm Type: C

Voltage(V): 35.4000

Current(A): 0.4000

Power (W): 14.1600

PF: 0.0000

Ballast type: DC

Width(mm): 46

Height(mm): 0

Photometric Results

Lumens(lm): 1859.16, Efficiency(%): 92.17% , Luminous Efficacy(lm/W): 131.30

Central intensity(cd): 5134.009, Maximum intensity(cd): 5134.009

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=25.4

[C90/270]Total=25.4

Field angle(10%Imax): [C0/180]Total=78.0

[C90/270]Total=78.0

Maximum s/h(1/2): C0_180=0.43 C90_270=0.43

Maximum s/h(1/4): C0_180=0.43 C90_270=0.43

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 92.40%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.587%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5134.009	4.913	4.913	.244%	.264%
2.0	5051.287	38.662	43.575	1.917%	2.344%
4.0	4811.585	73.610	117.185	3.649%	6.303%
6.0	4417.450	101.268	218.453	5.021%	11.750%
8.0	3924.489	119.785	338.239	5.939%	18.193%
10.0	3370.897	128.375	466.614	6.365%	25.098%
12.0	2791.772	127.299	593.912	6.311%	31.945%
14.0	2188.836	116.132	710.045	5.758%	38.192%
16.0	1687.754	102.026	812.071	5.058%	43.680%
18.0	1279.139	86.689	898.76	4.298%	48.342%
20.0	1001.476	75.120	973.881	3.724%	52.383%
22.0	863.849	70.971	1044.851	3.519%	56.200%
24.0	774.210	69.062	1113.913	3.424%	59.915%
26.0	725.175	69.719	1183.632	3.457%	63.665%
28.0	690.160	71.060	1254.692	3.523%	67.487%
30.0	663.911	72.802	1327.494	3.609%	71.403%
32.0	643.038	74.733	1402.227	3.705%	75.423%
34.0	623.934	76.518	1478.745	3.794%	79.538%
36.0	599.261	77.250	1555.995	3.830%	83.694%
38.0	552.869	74.650	1630.645	3.701%	87.709%
40.0	472.308	66.582	1697.228	3.301%	91.290%
42.0	364.625	53.508	1750.736	2.653%	94.168%
44.0	251.993	38.391	1789.127	1.903%	96.233%
46.0	145.032	22.880	1812.007	1.134%	97.464%
48.0	68.697	11.196	1823.203	.555%	98.066%
50.0	29.613	4.975	1828.179	.247%	98.334%
52.0	16.297	2.816	1830.995	.140%	98.485%
54.0	10.770	1.911	1832.906	.095%	98.588%
56.0	8.740	1.589	1834.495	.079%	98.673%
58.0	7.969	1.482	1835.977	.073%	98.753%
60.0	7.749	1.472	1837.449	.073%	98.832%
62.0	7.550	1.462	1838.911	.072%	98.911%
64.0	7.426	1.464	1840.375	.073%	98.990%
66.0	7.323	1.467	1841.842	.073%	99.069%
68.0	7.254	1.475	1843.317	.073%	99.148%
70.0	7.199	1.484	1844.8	.074%	99.228%
72.0	7.123	1.486	1846.286	.074%	99.308%
74.0	7.089	1.494	1847.781	.074%	99.388%

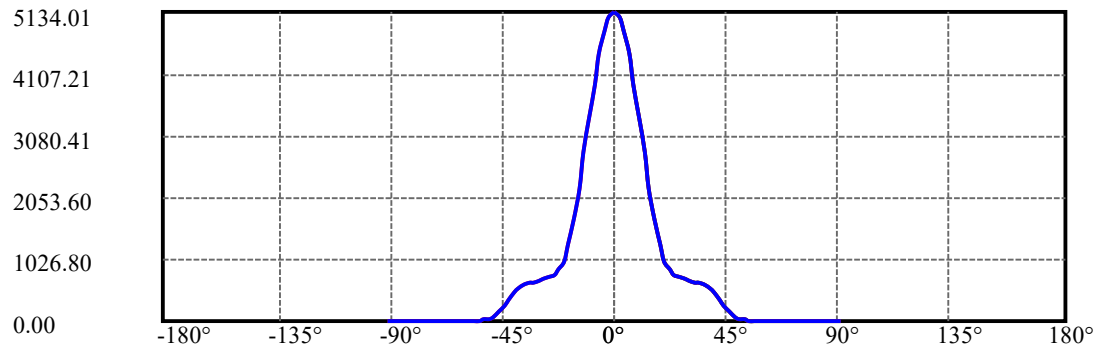
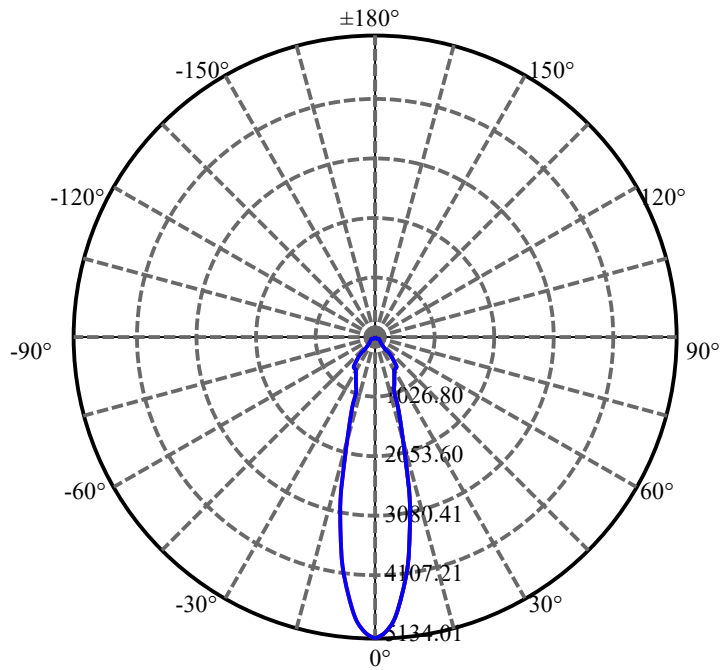
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.068	1.504	1849.285	.075%	99.469%
78.0	7.040	1.510	1850.795	.075%	99.550%
80.0	7.013	1.515	1852.309	.075%	99.632%
82.0	6.992	1.519	1853.828	.075%	99.713%
84.0	6.985	1.524	1855.352	.076%	99.795%
86.0	6.958	1.522	1856.874	.075%	99.877%
88.0	6.951	1.523	1858.397	.076%	99.959%
90.0	6.937	0.761	1859.158	.038%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1327.49	65.82%	71.40%
0-40	1697.23	84.15%	91.29%
0-60	1837.45	91.10%	98.83%
0-90	1858.40	92.14%	99.96%
0-120	1858.40	92.14%	99.96%
0-180	1859.16	92.17%	100.00%
60-90	22.42	1.11%	1.21%
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%
0-34.22	1487.33	73.74%	80.00%

ZONAL LUMEN SUMMARY

0-10	466.61
10-20	507.27
20-30	353.61
30-40	369.73
40-50	130.95
50-60	9.27
60-70	7.35
70-80	7.51
80-90	6.09
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: —————

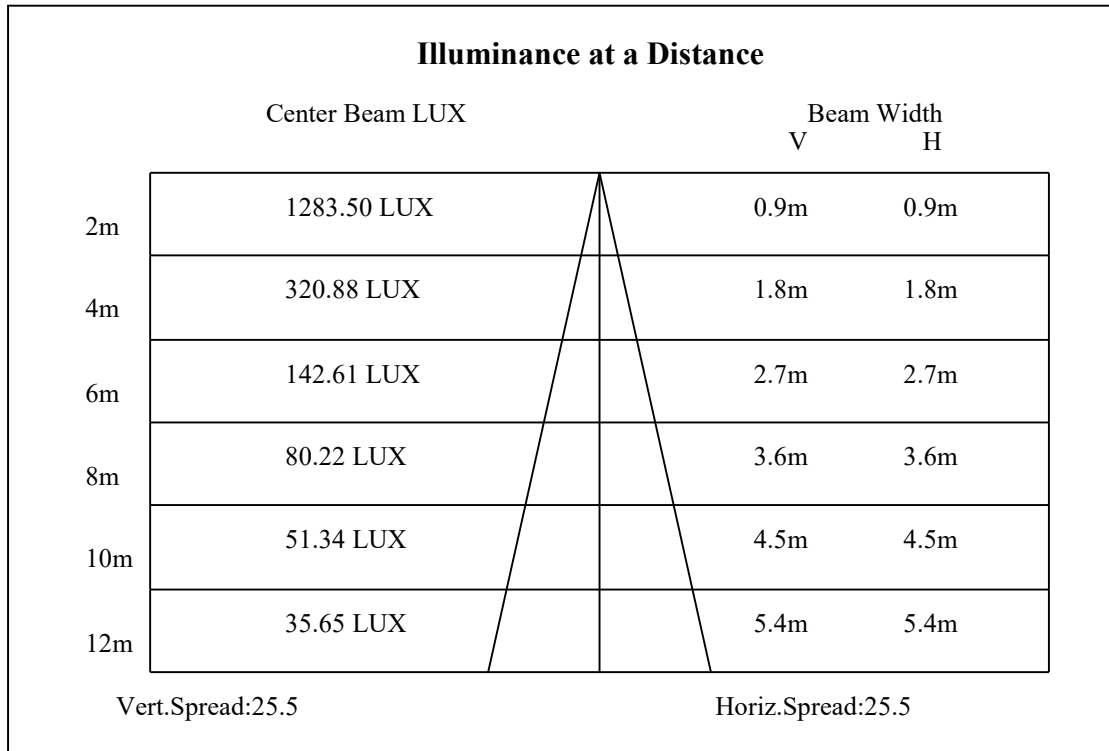
C90/C270: —————

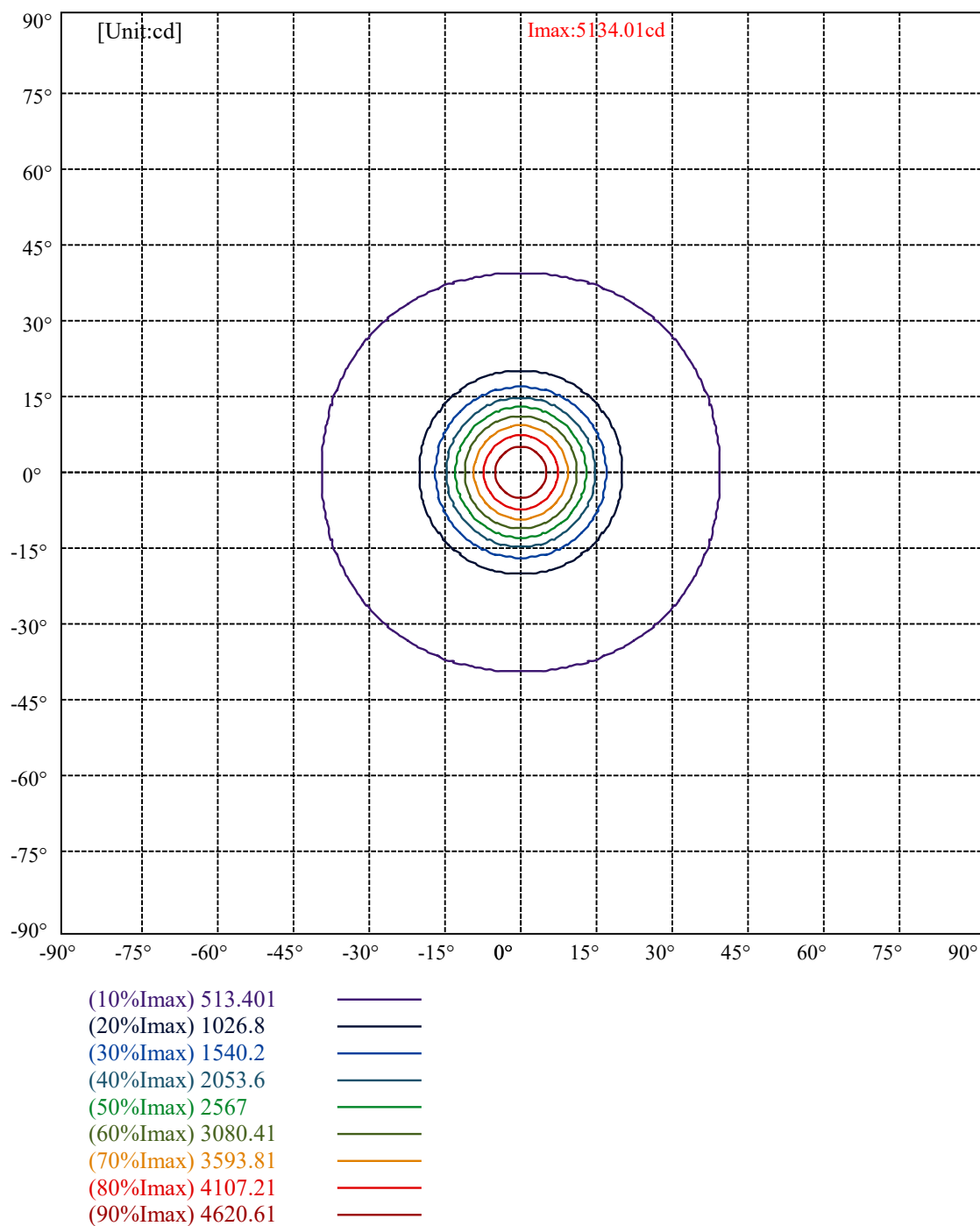
Field angle(10%Imax):C0/180Left:39.0 Right:39.0

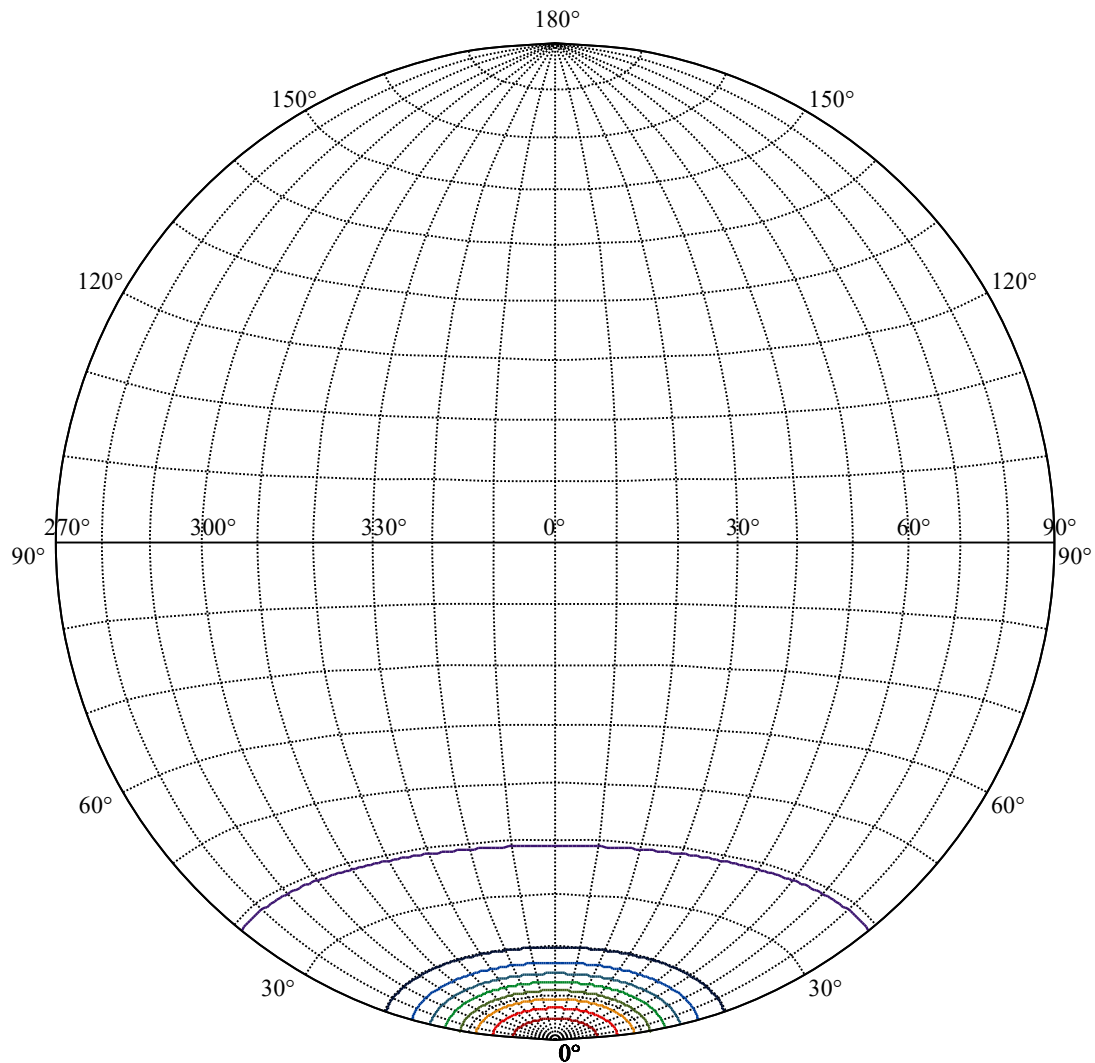
:C90/270Left:39.0 Right:39.0

Beam Angle(50%Imax):C0/180Left:12.7 Right:12.7

:C90/270Left:12.7 Right:12.7







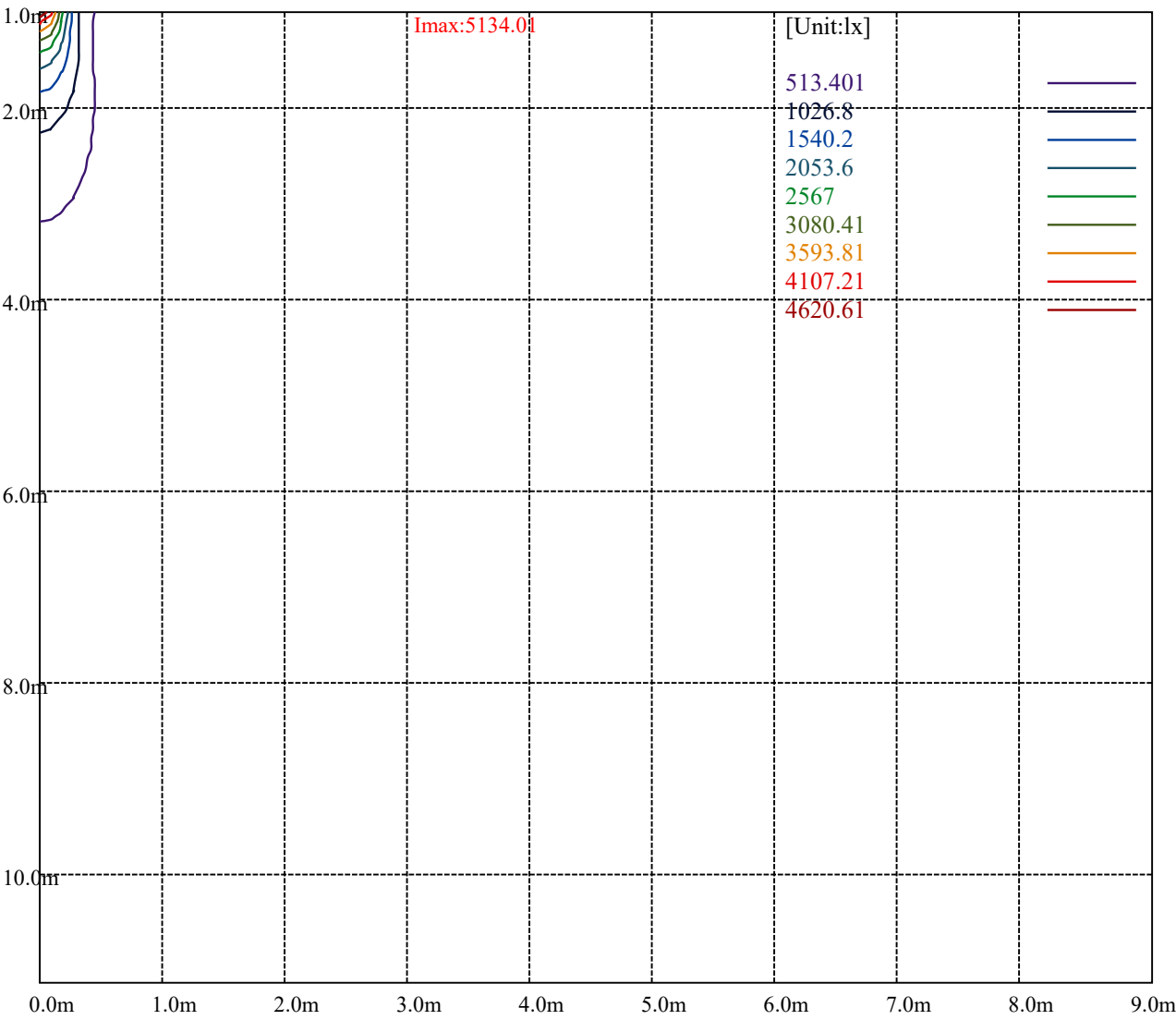
House

[Unit:cd]

Road

Imax:5134.01

(10%Imax)	513.401	—
(20%Imax)	1026.8	—
(30%Imax)	1540.2	—
(40%Imax)	2053.6	—
(50%Imax)	2567	—
(60%Imax)	3080.41	—
(70%Imax)	3593.81	—
(80%Imax)	4107.21	—
(90%Imax)	4620.61	—



Luminance Table

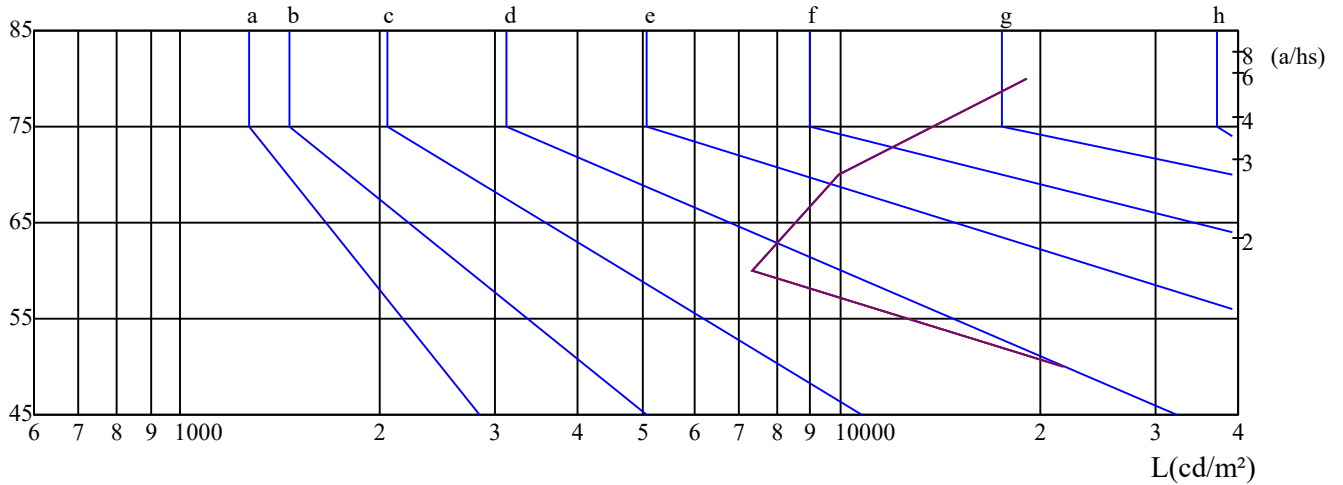
γ	45	50	55	60	65	70	75	80	85
C0	0	21772	0	7324	0	9947	0	19086	0
C45	0	21772	0	7324	0	9947	0	19086	0
C90	0	21772	0	7324	0	9947	0	19086	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8573	8573	8573	13823	13823	13823	40974	40974	40974

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

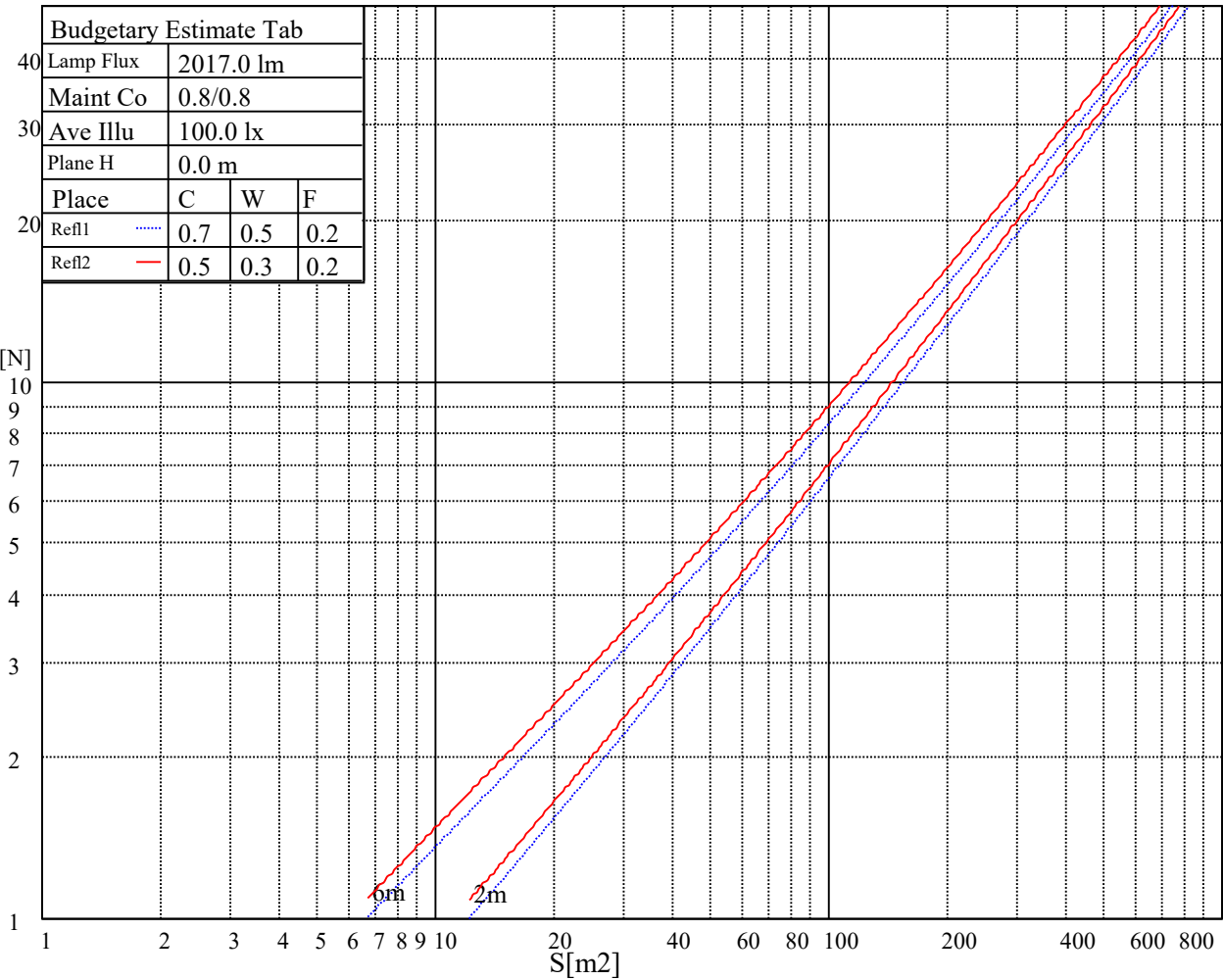
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

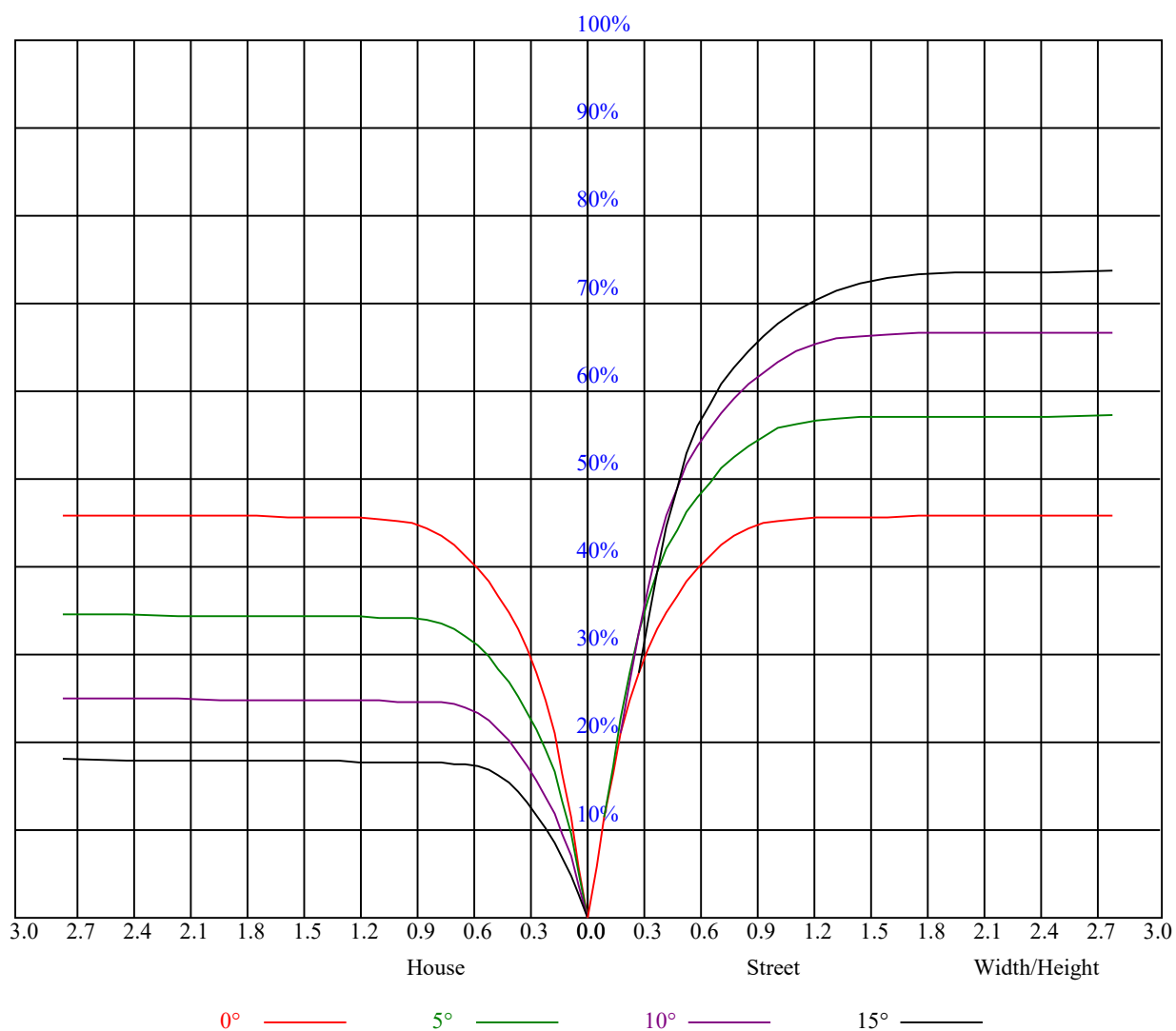
C0 ———

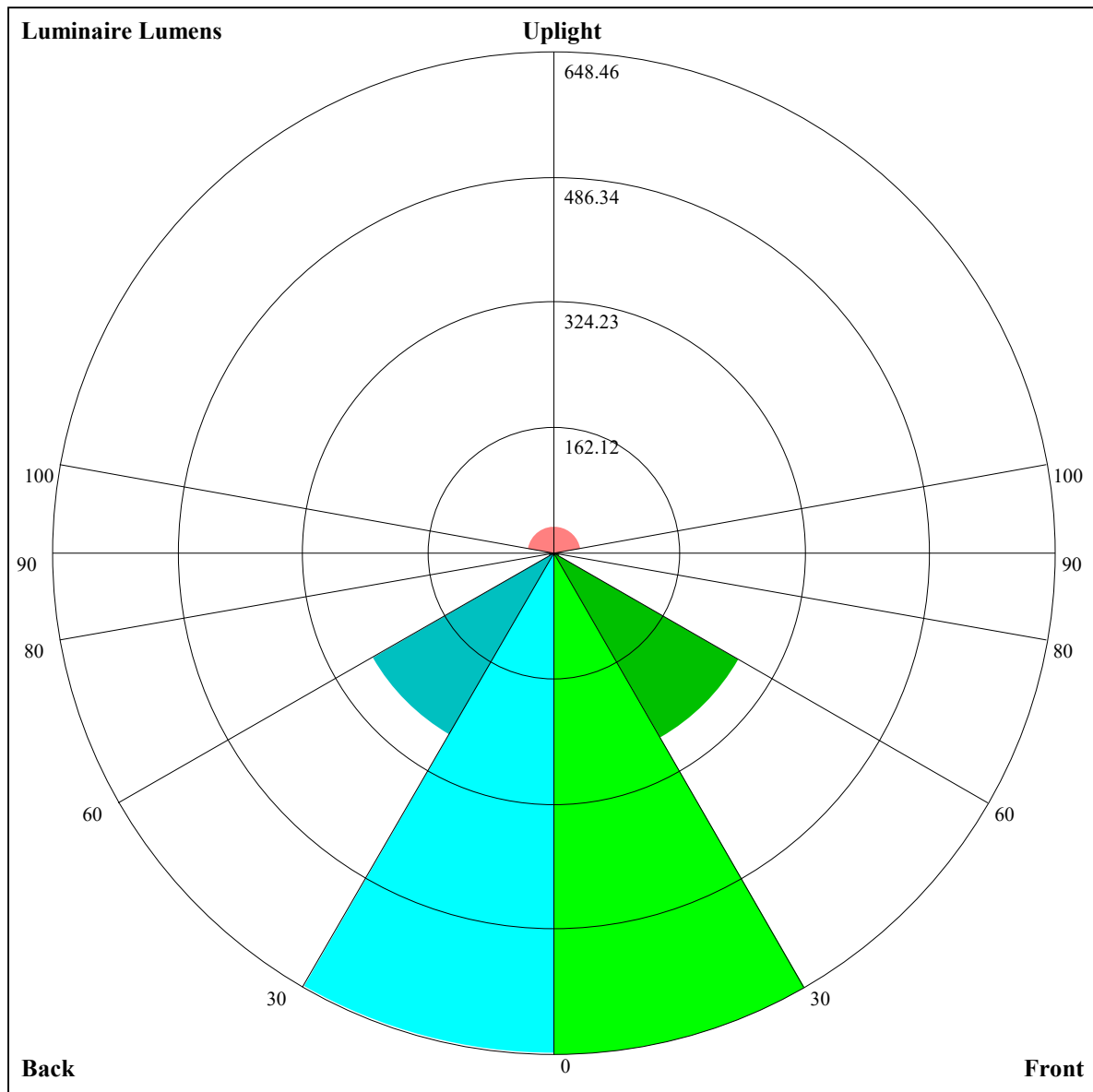
C45 ———

C90 ———



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	1.10	1.10	1.10	1.07	1.07	1.07	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.02	1.00	0.98	1.00	0.98	0.97	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87
2	0.96	0.92	0.89	0.94	0.91	0.88	0.91	0.89	0.86	0.89	0.86	0.85	0.86	0.84	0.83	0.81
3	0.90	0.86	0.82	0.89	0.85	0.82	0.87	0.83	0.80	0.84	0.82	0.79	0.82	0.80	0.78	0.77
4	0.85	0.80	0.77	0.84	0.80	0.76	0.82	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.72
5	0.80	0.75	0.72	0.80	0.75	0.71	0.78	0.74	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.68
6	0.76	0.71	0.68	0.76	0.71	0.67	0.74	0.70	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.65
7	0.73	0.67	0.64	0.72	0.67	0.64	0.71	0.67	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.62
8	0.69	0.64	0.61	0.69	0.64	0.61	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.59
9	0.66	0.61	0.58	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.57	0.63	0.60	0.57	0.56
10	0.63	0.59	0.55	0.63	0.58	0.55	0.62	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.54





Luminaire Lumens:

FL=648.46,FM=275.59,FH=7.43,FVH=3.81

BL=648.12,BM=272.15,BH=7.42,BVH=3.8

UL=7.57,UH=36.02

BUG Rating:B2-U2-G0

Nata 1687-M

Intensity data(cd)									
Appendix Page: 16 Total:17									
C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	5140.62	5079.50	4833.40	4454.61	3971.77	3407.99	2870.09	2257.31	1696.29
45.0	5135.66	4891.21	4552.61	4042.79	3491.68	2913.58	2318.43	1751.34	1357.69
90.0	5104.83	4816.33	4389.10	3838.53	3267.60	2664.73	2081.13	1560.85	1092.32
135.0	5154.93	4967.19	4642.91	4152.90	3618.86	3049.02	2433.49	1841.64	1393.48
180.0	5140.62	5063.54	4780.00	4368.73	3869.91	3269.80	2665.28	2087.74	1587.83
225.0	5135.66	5202.83	5088.31	4799.82	4377.53	3856.15	3281.36	2637.20	2084.99
270.0	5104.83	5226.50	5183.56	4971.59	4597.21	4099.50	3546.73	2908.63	2326.13
315.0	5154.93	5163.19	5022.80	4710.63	4201.35	3706.40	3137.66	2465.98	1963.31
360.0	5140.62	5079.50	4833.40	4454.61	3971.77	3407.99	2870.09	2257.31	1696.29
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1316.40	1025.70	874.85	791.16	739.41	706.37	679.95	659.58	640.31
45.0	1047.17	869.89	788.96	733.90	700.87	672.24	651.32	632.05	613.33
90.0	950.11	821.00	752.13	708.25	679.78	655.45	635.85	617.90	597.80
135.0	1075.25	878.15	789.51	730.60	696.46	666.73	645.26	625.99	605.07
180.0	1084.01	953.14	815.11	745.57	707.69	674.22	648.23	631.94	613.82
225.0	1554.24	1095.46	940.69	810.32	744.86	703.57	673.34	649.72	632.43
270.0	1737.58	1298.78	1030.66	859.98	777.40	726.74	694.26	666.18	647.46
315.0	1468.35	1069.69	918.89	813.90	754.93	715.95	683.08	660.95	641.24
360.0	1316.40	1025.70	874.85	791.16	739.41	706.37	679.95	659.58	640.31
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	620.49	584.70	506.52	388.70	282.99	152.34	62.43	25.66	16.30
45.0	581.95	502.66	395.30	281.89	162.64	61.00	25.99	17.23	10.46
90.0	552.71	466.77	347.63	229.75	121.56	43.11	23.62	14.42	10.41
135.0	582.50	510.37	412.37	290.70	174.31	81.81	29.35	18.55	11.34
180.0	592.46	550.34	452.62	340.14	225.62	120.68	44.21	23.07	13.71
225.0	614.32	596.48	544.51	450.36	336.89	214.33	110.06	41.79	22.68
270.0	628.19	609.47	579.74	495.51	387.60	280.24	158.51	64.25	25.44
315.0	621.48	602.15	539.77	439.96	324.34	206.74	95.41	31.93	20.04
360.0	620.49	584.70	506.52	388.70	282.99	152.34	62.43	25.66	16.30
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	10.63	8.31	8.04	7.82	7.60	7.43	7.32	7.27	7.21
45.0	8.42	7.98	7.76	7.60	7.43	7.38	7.27	7.21	7.16
90.0	8.09	7.87	7.65	7.54	7.43	7.32	7.27	7.21	7.16
135.0	8.59	7.98	7.76	7.60	7.49	7.38	7.32	7.27	7.21
180.0	9.63	8.09	7.82	7.65	7.49	7.38	7.27	7.21	7.16
225.0	13.16	9.69	8.20	7.93	7.65	7.49	7.38	7.27	7.21
270.0	16.02	10.46	8.42	7.98	7.71	7.54	7.38	7.32	7.27
315.0	11.62	9.52	8.09	7.87	7.60	7.49	7.38	7.27	7.21
360.0	10.63	8.31	8.04	7.82	7.60	7.43	7.32	7.27	7.21
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	7.10	7.10	7.05	7.05	6.99	6.99	6.99	6.94	6.94
45.0	7.10	7.10	7.05	7.05	6.99	6.99	6.94	6.94	6.94
90.0	7.10	7.05	7.05	7.05	6.99	6.99	6.99	6.94	6.94
135.0	7.10	7.10	7.10	7.05	7.05	6.99	7.05	6.99	6.94
180.0	7.10	7.05	7.05	6.99	6.99	6.94	6.94	6.94	6.94
225.0	7.16	7.10	7.05	7.05	6.99	6.99	6.99	6.94	6.94
270.0	7.16	7.10	7.10	7.05	7.05	7.05	6.99	6.99	6.99
315.0	7.16	7.10	7.10	7.05	7.05	6.99	6.99	6.99	6.99
360.0	7.10	7.10	7.05	7.05	6.99	6.99	6.99	6.94	6.94

Intensity data(cd)

Appendix Page: 17 Total:17

C/ γ (°)	90.0
0.0	6.94
45.0	6.94
90.0	6.94
135.0	6.94
180.0	6.94
225.0	6.94
270.0	6.94
315.0	6.94
360.0	6.94