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NATA

LumCAT: LM30L28080150BD

Luminaire:

Report No: NATA0100

Voltage(V): 30.5000

Test No: GC2018122402

Current(A): 0.7100

LampCAT: LUMILEDS LUXEON 3030 2D(ROUND LES) Power (W): 21.6550

Lamp flux(lm): 2427.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 80

Width(mm): 280

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2206.46

Efficiency(%): 90.91%

Lumens(lm)/Power(W): 101.96

Central intensity(cd): 595.969

Maximum intensity(cd): 928.125

Angle of maximum intensity: C=195.0 γ =55.0

Beam Angle(50%Imax): [C0/180]Total=145.7

[C90/270]Total=78.7

Field angle(10%Imax): [C0/180]Total=157.3

[C90/270]Total=132.9

Maximum s/h(1/2): C0_180=1.54 C90_270=0.85

Maximum s/h(1/4): C0_180=1.89 C90_270=1.03

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 90.98%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 81.310%

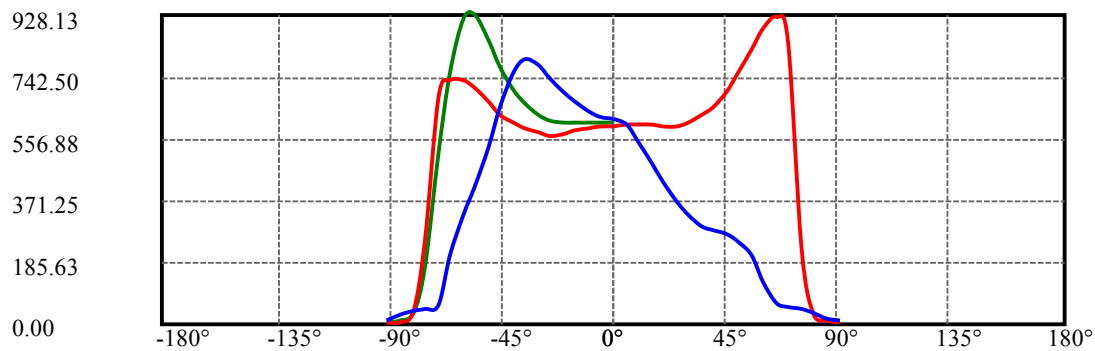
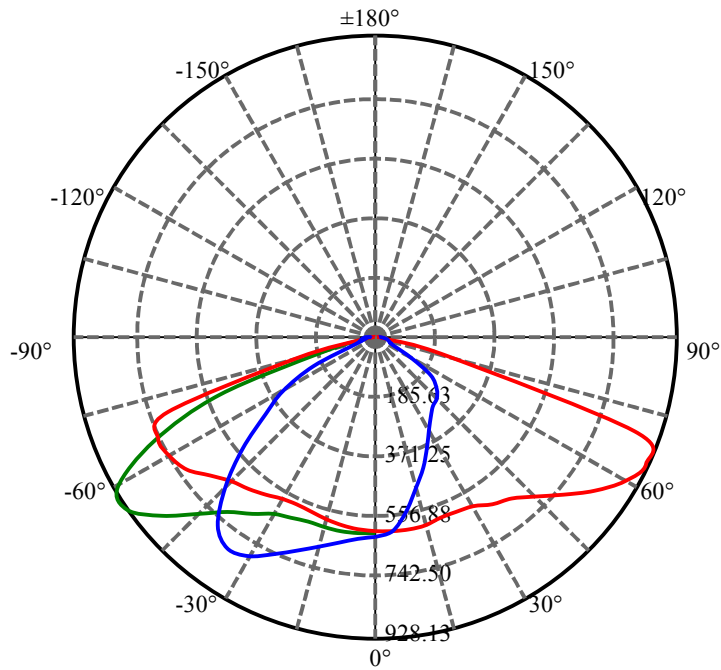
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	609.267	3.644	3.644	.150%	.165%
5.0	607.259	29.011	32.654	1.195%	1.480%
10.0	599.974	57.107	89.762	2.353%	4.068%
15.0	587.196	83.305	173.066	3.432%	7.844%
20.0	574.076	107.624	280.691	4.434%	12.721%
25.0	568.277	131.643	412.334	5.424%	18.688%
30.0	571.083	156.516	568.85	6.449%	25.781%
35.0	572.482	179.988	748.837	7.416%	33.938%
40.0	565.315	199.181	948.018	8.207%	42.966%
45.0	546.195	211.700	1159.718	8.723%	52.560%
50.0	518.046	217.526	1377.245	8.963%	62.419%
55.0	479.749	215.411	1592.656	8.876%	72.182%
60.0	426.947	202.672	1795.328	8.351%	81.367%
65.0	347.827	172.794	1968.122	7.120%	89.198%
70.0	256.102	131.913	2100.035	5.435%	95.177%
75.0	128.416	67.991	2168.026	2.801%	98.258%
80.0	48.363	26.107	2194.133	1.076%	99.442%
85.0	17.412	9.508	2203.641	.392%	99.872%
90.0	10.270	2.815	2206.455	.116%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	568.85	23.44%	25.78%
0-40	948.02	39.06%	42.97%
0-60	1795.33	73.97%	81.37%
0-90	2203.64	90.80%	99.87%
0-120	2203.64	90.80%	99.87%
0-180	2206.46	90.91%	100.00%
60-90	610.98	25.17%	27.69%
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%
0-59.26	1765.16	72.73%	80.00%

ZONAL LUMEN SUMMARY

0-10	89.76
10-20	190.93
20-30	288.16
30-40	379.17
40-50	429.23
50-60	418.08
60-70	304.71
70-80	94.10
80-90	9.51
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



C195(Max): —————

C0/C180: —————

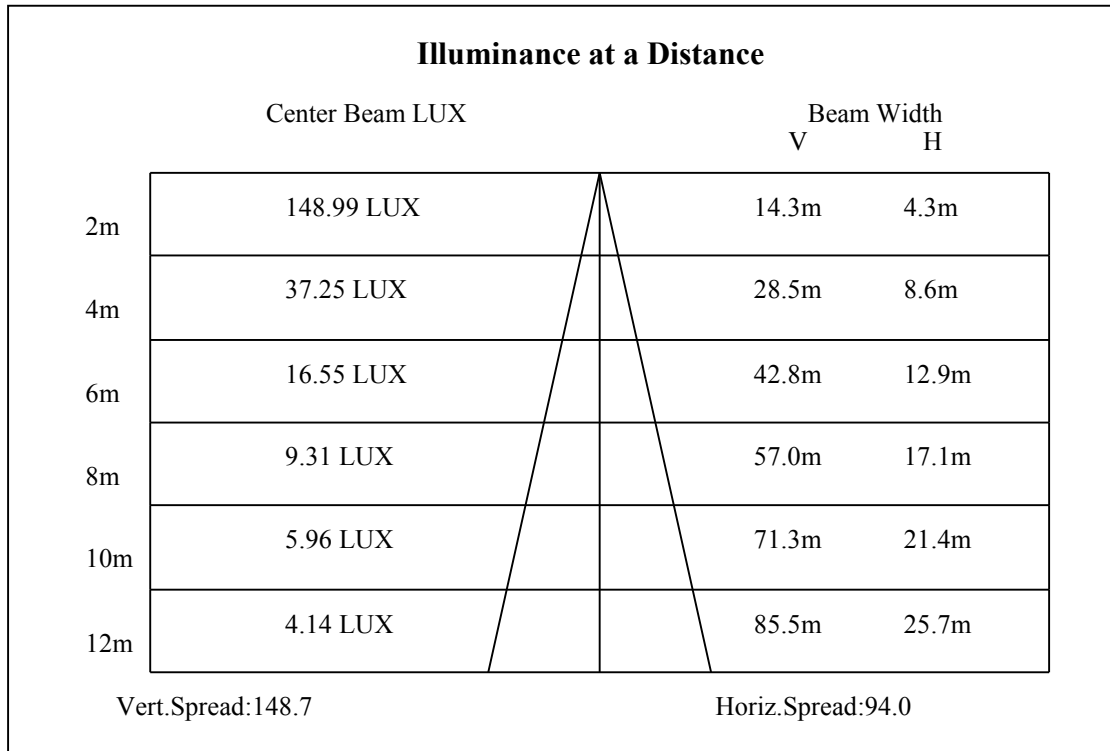
C90/C270: —————

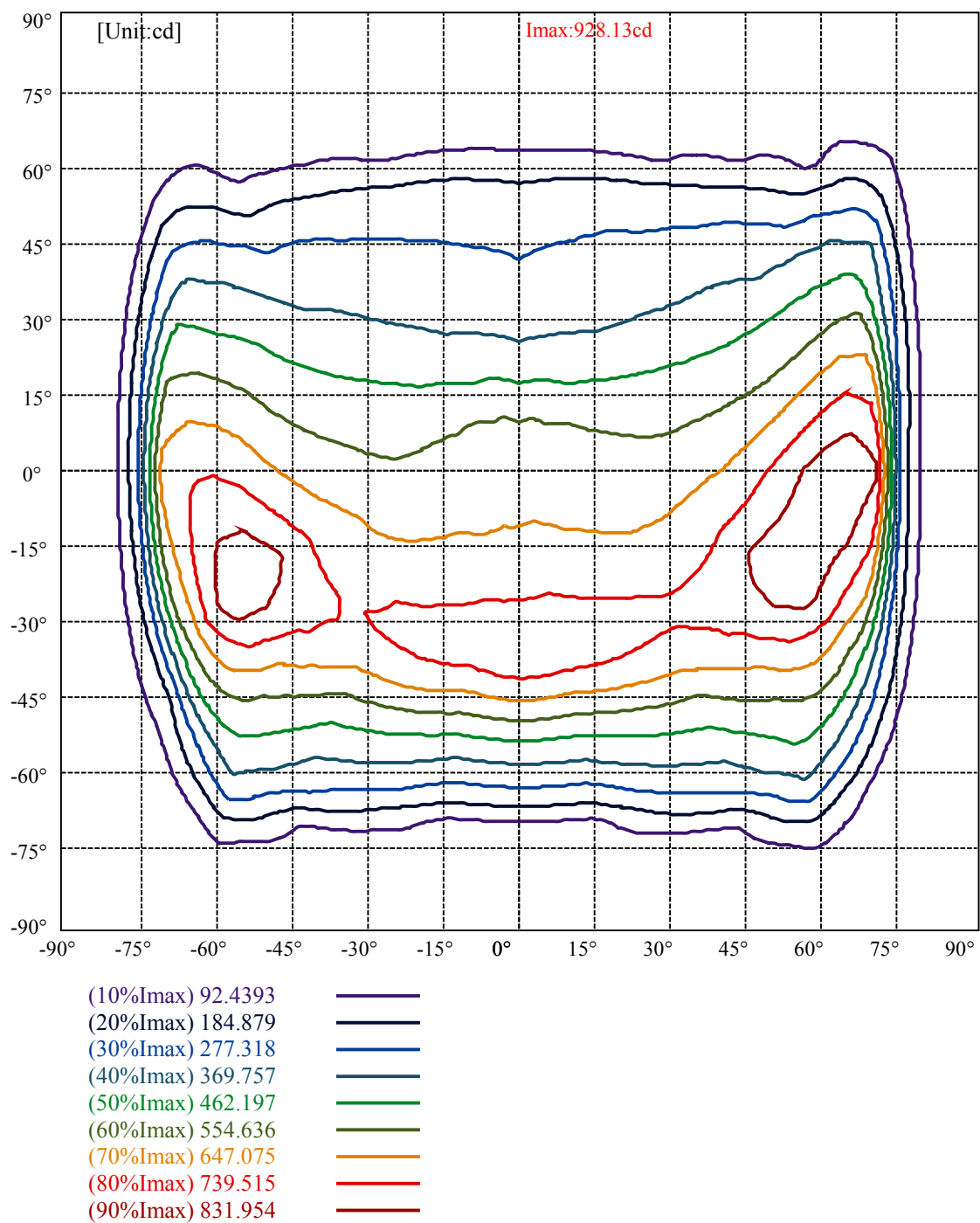
Field angle(10%Imax):C0/180Left:143.7 Right:13.6

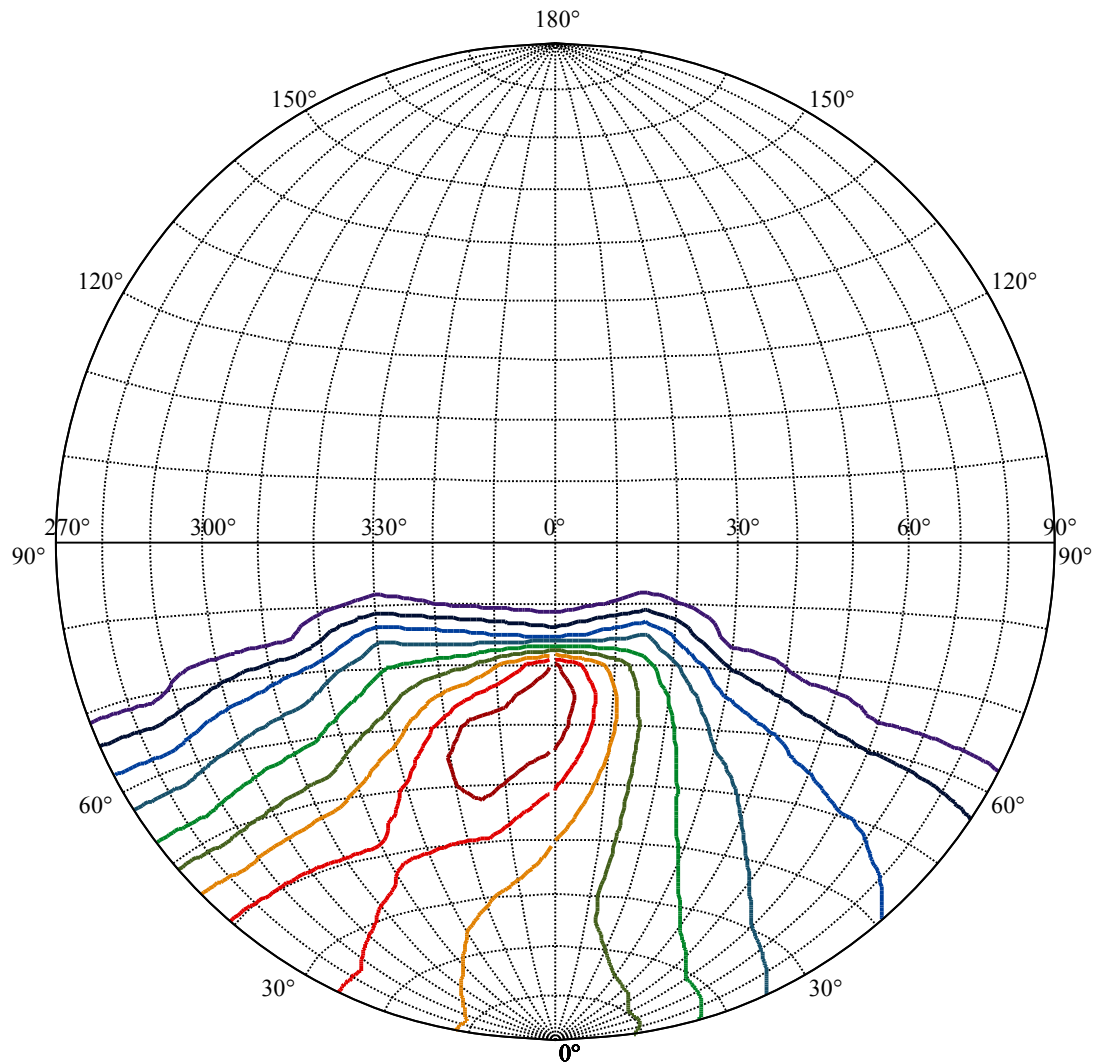
:C90/270Left:34.2 Right:98.7

Beam Angle(50%Imax):C0/180Left:137.6 Right:8.1

:C90/270Left:21.0 Right:57.7







House

[Unit:cd]

Road

I_{max}:928.13

(10%I_{max}) 92.8125

(20%I_{max}) 185.625

(30%I_{max}) 278.438

(40%I_{max}) 371.25

(50%I_{max}) 464.063

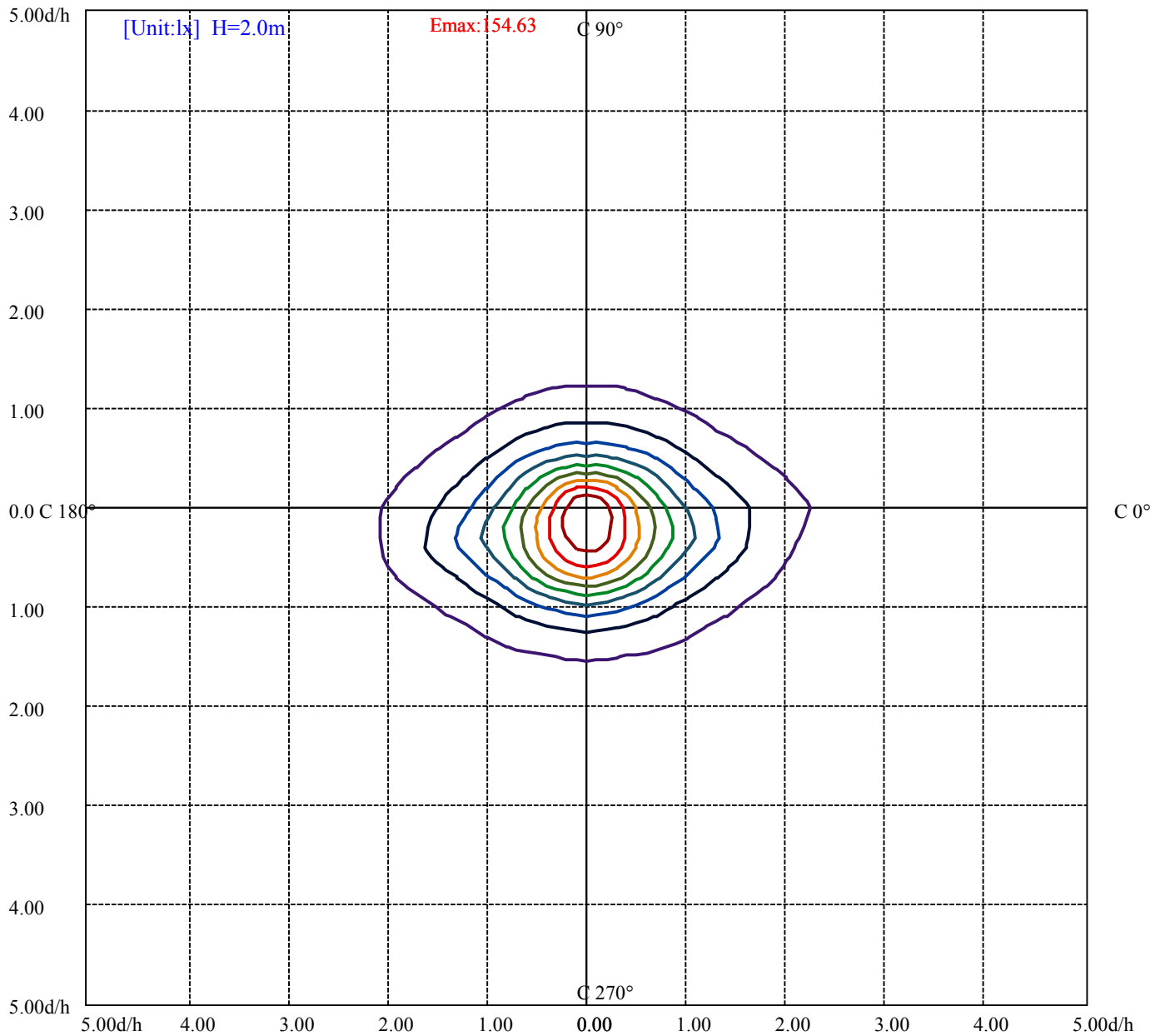
(60%I_{max}) 556.875

(70%I_{max}) 649.688

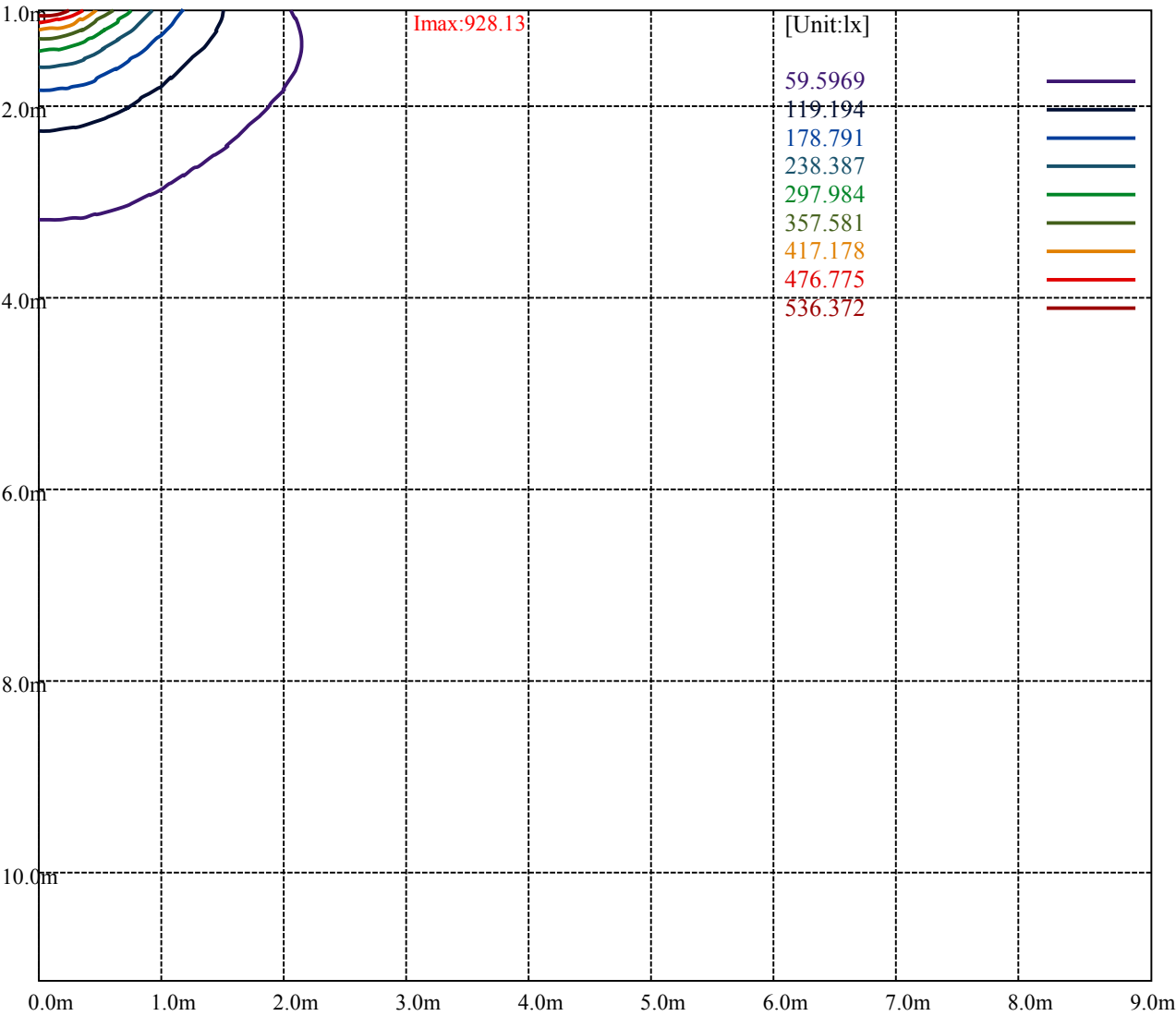
(80%I_{max}) 742.5

(90%I_{max}) 835.313





(10%E _{max}) 15.46272	—
(20%E _{max}) 30.9255	—
(30%E _{max}) 46.38825	—
(40%E _{max}) 61.851	—
(50%E _{max}) 77.31375	—
(60%E _{max}) 92.7765	—
(70%E _{max}) 108.239	—
(80%E _{max}) 123.7018	—
(90%E _{max}) 139.1645	—



Luminance Table

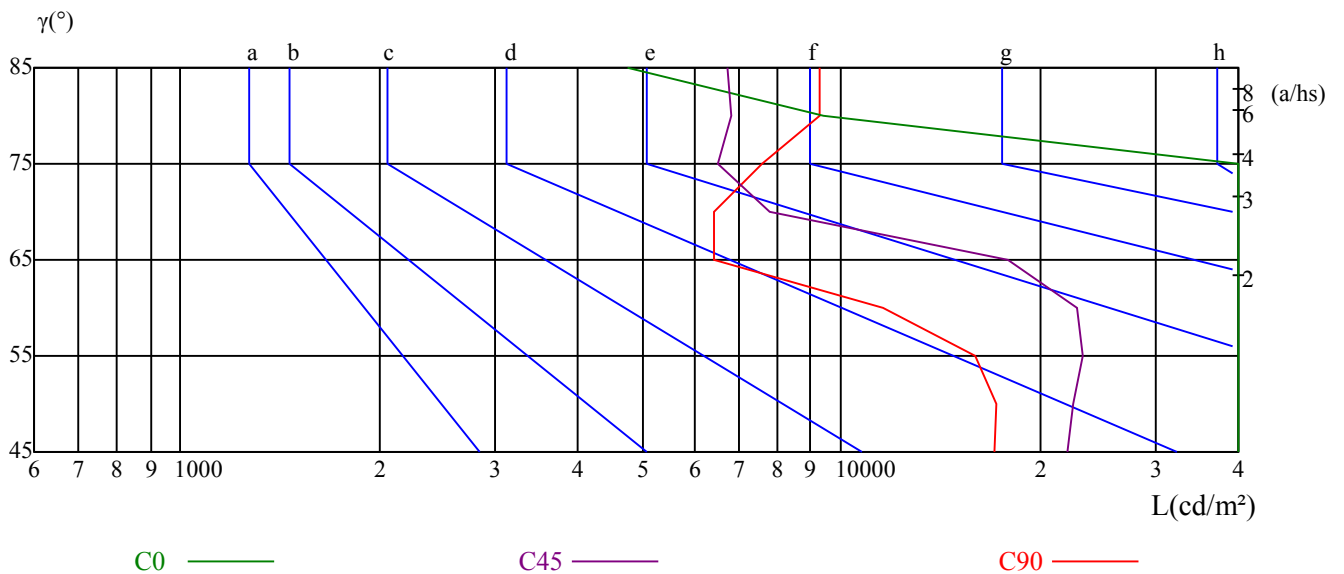
γ	45	50	55	60	65	70	75	80	85
C0	43990	52455	64310	79112	97174	110646	39945	9400	4754
C45	21986	22526	23217	22806	17867	7805	6510	6811	6713
C90	17082	17240	16028	11576	6447	6439	7597	9270	9278

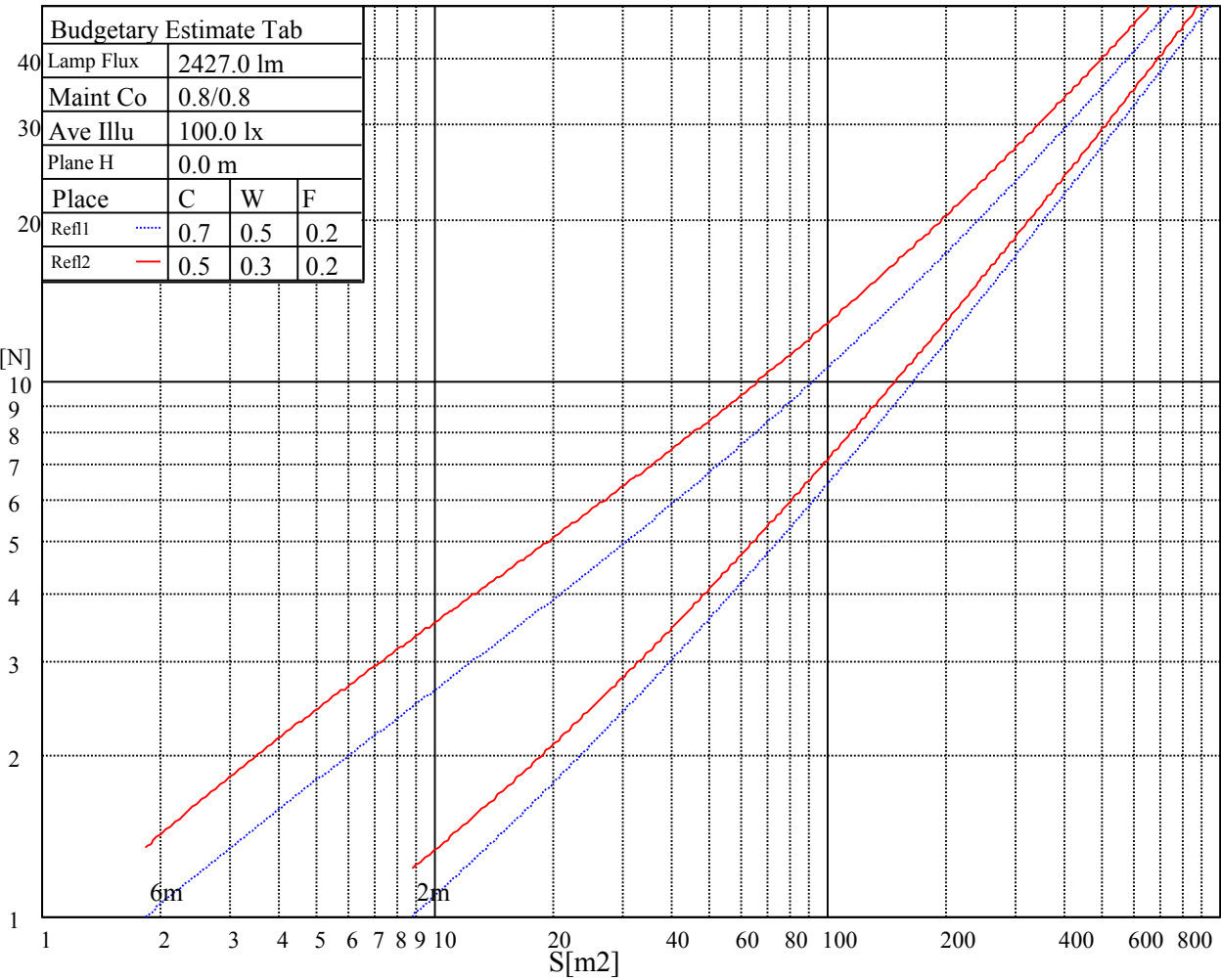
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
87403	14335	27948	41769	7786	11580	4524	11611	8139

Glare Table

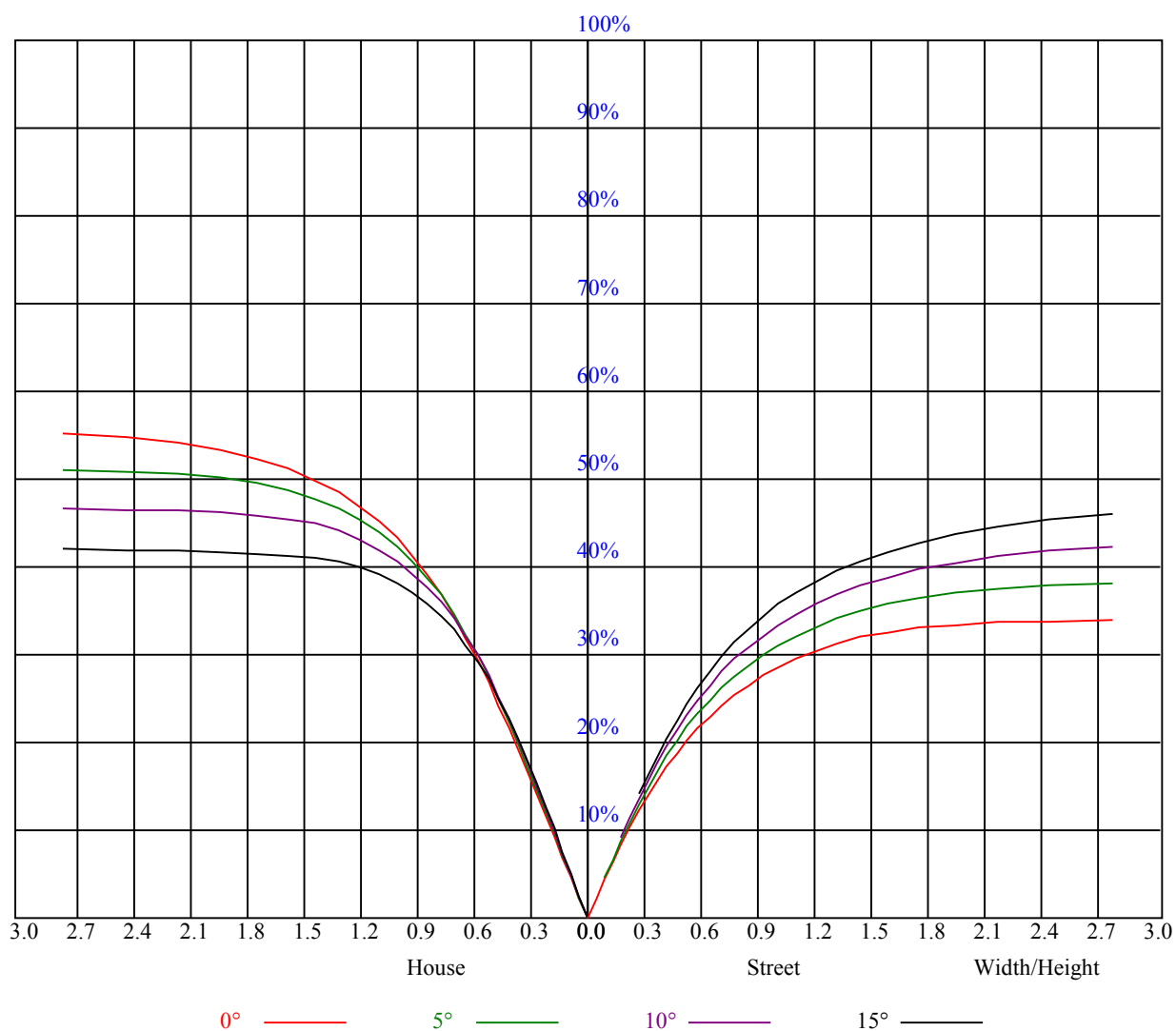
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	1.08	1.08	1.08	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	0.95	0.92	0.88	0.93	0.90	0.87	0.89	0.87	0.84	0.86	0.84	0.82	0.83	0.81	0.79	0.77
2	0.83	0.77	0.72	0.81	0.76	0.71	0.78	0.74	0.69	0.75	0.71	0.68	0.73	0.69	0.66	0.64
3	0.73	0.66	0.60	0.71	0.65	0.59	0.69	0.63	0.58	0.66	0.61	0.57	0.64	0.60	0.56	0.54
4	0.64	0.56	0.50	0.63	0.56	0.50	0.61	0.54	0.49	0.59	0.53	0.48	0.57	0.52	0.48	0.46
5	0.57	0.49	0.43	0.56	0.48	0.43	0.54	0.47	0.42	0.52	0.46	0.42	0.51	0.46	0.41	0.39
6	0.51	0.43	0.37	0.50	0.43	0.37	0.49	0.42	0.37	0.47	0.41	0.36	0.46	0.40	0.36	0.34
7	0.46	0.38	0.33	0.46	0.38	0.33	0.44	0.37	0.32	0.43	0.37	0.32	0.42	0.36	0.32	0.30
8	0.42	0.34	0.29	0.42	0.34	0.29	0.40	0.34	0.29	0.39	0.33	0.29	0.38	0.33	0.28	0.27
9	0.39	0.31	0.26	0.38	0.31	0.26	0.37	0.30	0.26	0.36	0.30	0.26	0.35	0.30	0.26	0.24
10	0.36	0.28	0.24	0.35	0.28	0.24	0.34	0.28	0.23	0.33	0.27	0.23	0.33	0.27	0.23	0.22



NATA LM30L28080150BD

Intensity data(cd)

Appendix Page: 14 Total:15

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	595.97	596.81	599.29	599.46	594.11	594.00	603.73	627.58	649.35
15.0	602.83	601.31	597.71	586.18	569.25	551.93	545.40	547.76	548.55
30.0	605.53	599.12	584.16	558.79	528.36	501.58	487.86	472.11	454.67
45.0	609.64	601.99	578.48	540.84	498.32	459.06	430.59	399.77	375.02
60.0	610.43	596.31	559.86	508.05	455.57	411.47	374.91	340.48	316.74
75.0	613.80	600.47	561.71	500.96	444.99	390.83	348.13	311.68	290.42
90.0	616.05	596.93	548.89	486.39	426.15	371.36	331.03	295.48	280.07
105.0	618.98	604.13	565.14	506.64	446.68	392.18	349.03	311.57	290.03
120.0	617.57	603.11	563.79	511.31	456.13	408.54	371.19	336.60	311.68
135.0	612.96	603.11	579.60	538.37	490.28	448.99	419.91	387.62	358.48
150.0	605.64	598.50	581.18	548.94	513.62	485.27	469.80	448.93	425.25
165.0	601.82	597.26	589.11	570.21	547.43	529.76	524.25	519.08	512.21
180.0	595.97	593.16	589.67	581.12	570.26	566.61	574.20	589.33	606.21
195.0	602.83	603.34	605.14	604.63	604.46	612.90	630.17	664.59	705.38
210.0	605.53	609.24	614.19	620.72	629.10	641.98	664.31	691.43	728.16
225.0	609.64	615.60	628.31	642.26	655.26	678.71	711.84	743.85	748.97
240.0	610.43	617.91	630.73	649.18	668.25	702.23	741.88	767.70	751.22
255.0	613.80	622.80	641.19	663.58	689.06	731.36	769.33	779.91	733.11
270.0	616.05	625.39	642.43	665.94	695.98	736.43	778.44	793.63	754.82
285.0	618.98	628.71	646.09	667.74	699.08	741.60	779.91	789.30	742.56
300.0	617.57	626.34	638.72	657.73	681.19	715.05	753.19	772.03	752.91
315.0	612.96	617.34	626.57	642.04	662.74	691.43	722.42	749.93	752.18
330.0	605.64	609.64	616.56	627.47	635.74	651.83	680.34	715.84	748.24
345.0	601.82	605.70	610.88	614.14	615.83	623.59	644.12	683.38	731.36
360.0	595.97	596.81	599.29	599.46	594.11	594.00	603.73	627.58	649.35
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	696.77	755.27	826.26	886.05	919.91	847.69	231.58	36.56	9.28
15.0	550.69	552.71	557.61	561.21	547.48	502.88	378.73	140.06	16.59
30.0	434.59	414.45	384.86	347.40	289.13	187.31	46.29	26.61	12.83
45.0	348.24	324.34	298.29	255.43	169.14	59.79	37.74	26.49	13.11
60.0	301.50	283.61	243.39	184.39	75.26	45.34	38.93	29.98	13.22
75.0	280.80	265.39	230.12	160.43	64.18	48.83	40.44	31.89	16.43
90.0	270.56	248.23	205.93	129.66	61.03	49.33	44.04	36.06	18.11
105.0	277.43	259.76	226.52	157.95	68.51	52.54	43.99	36.56	21.32
120.0	293.63	274.56	239.68	175.11	74.93	50.23	42.24	33.47	19.69
135.0	331.99	306.56	276.13	237.88	146.59	54.23	37.18	27.17	15.86
150.0	403.03	375.53	342.23	294.08	234.00	120.60	32.96	19.80	10.18
165.0	505.69	502.03	501.64	482.57	446.34	395.49	256.78	54.68	8.55
180.0	631.18	666.00	709.03	731.76	734.91	680.68	252.73	38.14	8.38
195.0	770.57	853.14	928.13	916.88	753.13	511.93	172.58	34.82	14.12
210.0	754.09	749.08	687.83	597.88	521.16	443.08	345.88	120.26	16.26
225.0	700.43	623.53	522.34	443.14	365.91	284.01	94.50	26.33	13.78
240.0	683.04	574.48	472.44	386.94	301.73	163.58	43.76	36.62	22.67
255.0	629.55	522.45	409.95	319.44	205.71	58.44	43.26	36.56	23.18
270.0	652.05	531.96	414.28	325.86	210.38	55.46	46.24	41.12	27.23
285.0	637.26	523.46	417.04	326.08	210.60	58.84	47.36	41.68	29.25
300.0	673.93	570.94	479.31	393.08	308.93	185.29	50.23	43.71	32.23
315.0	711.51	629.66	531.96	455.74	376.65	288.96	99.11	31.39	20.81
330.0	766.58	754.93	694.58	608.12	526.78	459.23	354.43	132.86	17.78
345.0	803.59	871.03	914.46	869.68	735.47	542.70	300.99	77.91	17.04
360.0	696.77	755.27	826.26	886.05	919.91	847.69	231.58	36.56	9.28

Intensity data(cd)

C/ γ (°)	90.0
0.0	5.51
15.0	7.88
30.0	7.71
45.0	8.10
60.0	8.72
75.0	10.97
90.0	12.83
105.0	16.82
120.0	18.28
135.0	12.49
150.0	9.62
165.0	6.02
180.0	5.51
195.0	8.27
210.0	7.93
225.0	7.99
240.0	9.00
255.0	9.84
270.0	12.94
285.0	14.68
300.0	16.54
315.0	14.12
330.0	8.04
345.0	6.69
360.0	5.51