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NATA

LumCAT: 2-1122-A4
Luminaire: 99.02.73.172+92.76.365.00
Report No: NATA0100 Voltage(V): 36.2000
Test No: GC2018111606 Current(A): 0.5000
LampCAT: OSRAM OPTO SOLERIQ S13 G2 Power (W): 18.1000
Lamp flux(lm): 1702.0 PF: 0.0000
Number of Lamps: 1 Ballast type: DC
Length(mm): 70 Width(mm): 70
Phm Type: C Height(mm): 0

Photometric Results

Lumens(lm): 1562.46
Efficiency(%): 91.80%
Lumens(lm)/Power(W): 87.47
Central intensity(cd): 3717.422
Maximum intensity(cd): 3717.422
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=33.9
 [C90/270]Total=33.9
Field angle(10%Imax): [C0/180]Total=70.9
 [C90/270]Total=70.9
Maximum s/h(1/2): C0_180=0.57 C90_270=0.57
Maximum s/h(1/4): C0_180=0.55 C90_270=0.55
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 93.02%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.468%

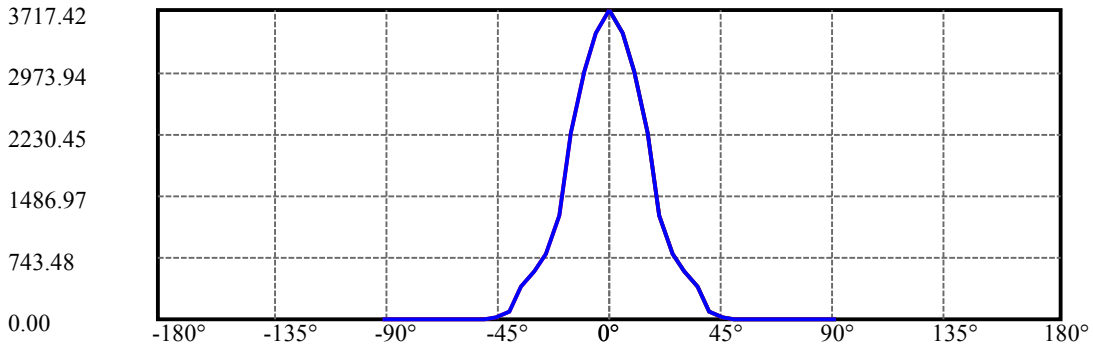
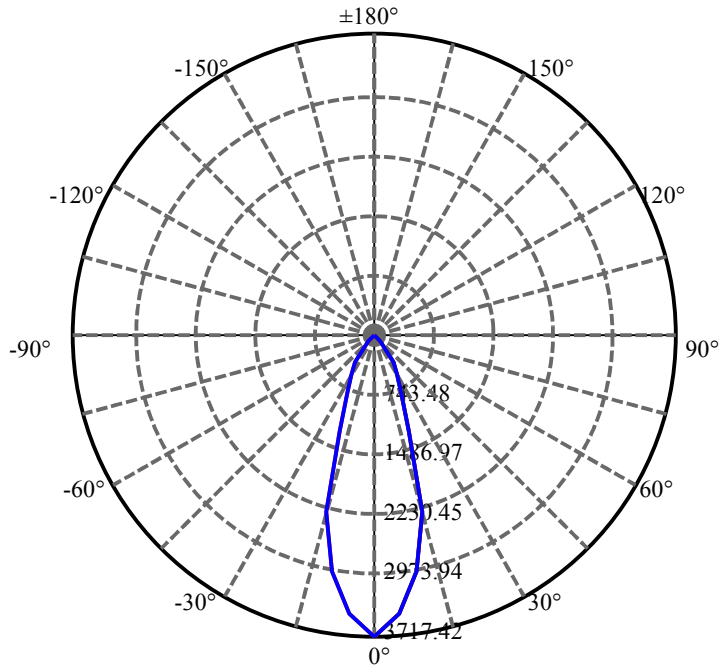
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3717.422	22.231	22.231	1.306%	1.423%
5.0	3450.023	164.819	187.05	9.684%	11.972%
10.0	2968.664	282.567	469.617	16.602%	30.056%
15.0	2246.063	318.645	788.262	18.722%	50.450%
20.0	1255.866	235.442	1023.704	13.833%	65.519%
25.0	792.035	183.477	1207.181	10.780%	77.262%
30.0	584.944	160.315	1367.496	9.419%	87.522%
35.0	400.613	125.952	1493.448	7.400%	95.583%
40.0	95.224	33.551	1526.999	1.971%	97.731%
45.0	14.752	5.718	1532.717	.336%	98.097%
50.0	8.304	3.487	1536.203	.205%	98.320%
55.0	7.671	3.444	1539.648	.202%	98.540%
60.0	7.291	3.461	1543.109	.203%	98.762%
65.0	6.982	3.469	1546.577	.204%	98.984%
70.0	6.799	3.502	1550.08	.206%	99.208%
75.0	6.652	3.522	1553.601	.207%	99.433%
80.0	6.560	3.541	1557.143	.208%	99.660%
85.0	6.497	3.548	1560.69	.208%	99.887%
90.0	6.441	1.765	1562.455	.104%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1367.50	80.35%	87.52%
0-40	1527.00	89.72%	97.73%
0-60	1543.11	90.66%	98.76%
0-90	1560.69	91.70%	99.89%
0-120	1560.69	91.70%	99.89%
0-180	1562.46	91.80%	100.00%
60-90	21.04	1.24%	1.35%
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%
0-26.33	1249.96	73.44%	80.00%

ZONAL LUMEN SUMMARY

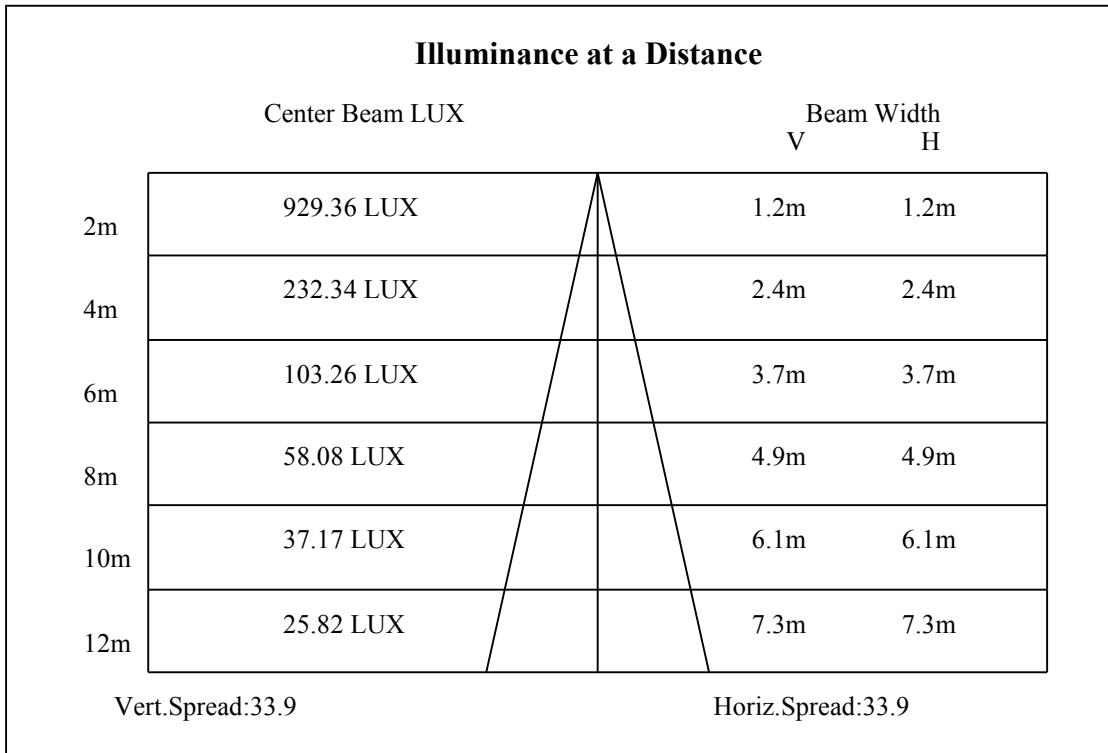
0-10	469.62
10-20	554.09
20-30	343.79
30-40	159.50
40-50	9.20
50-60	6.91
60-70	6.97
70-80	7.06
80-90	3.55
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

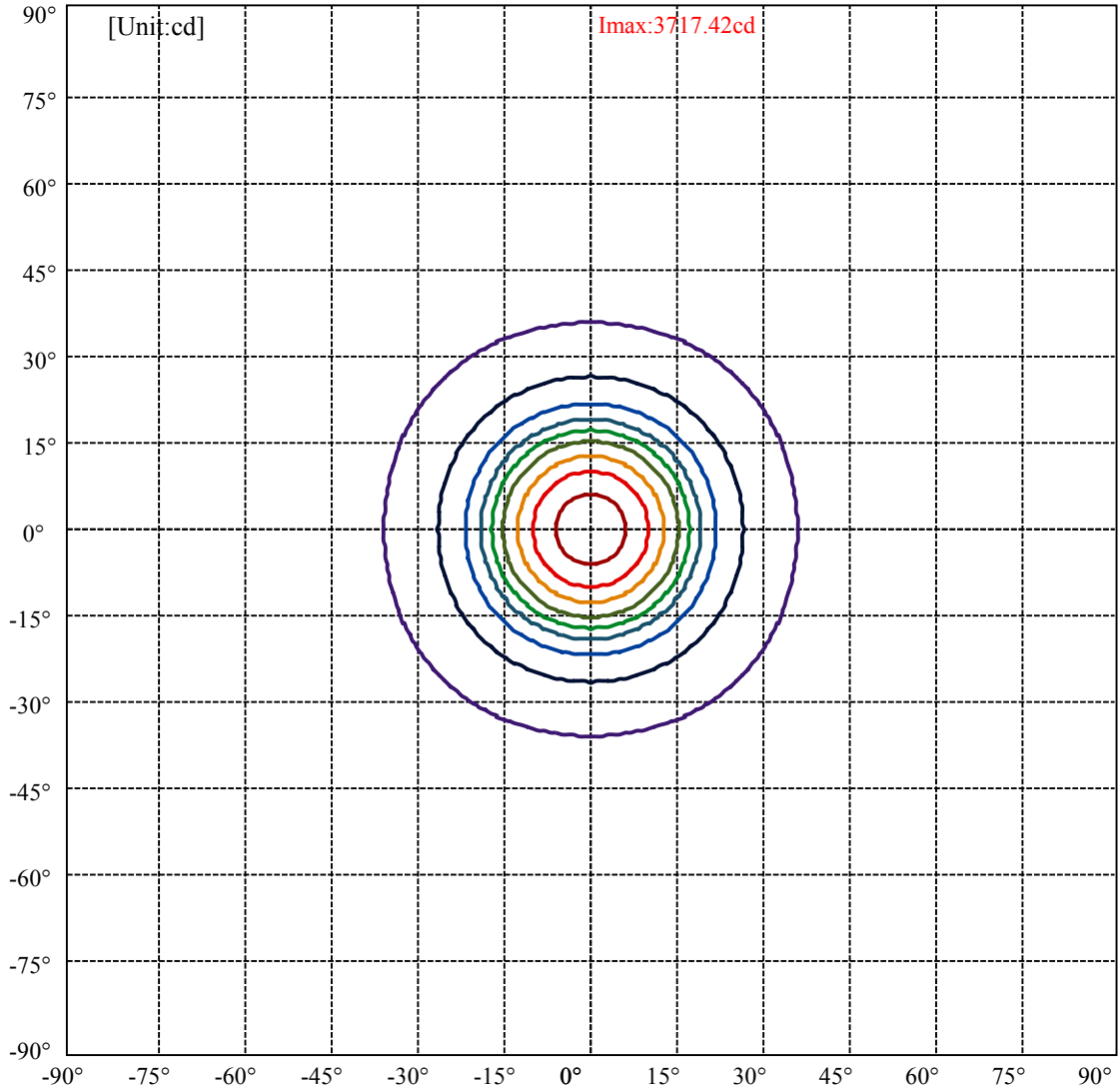


C0(Max): ———
C0/C180: ———
C90/C270: ———

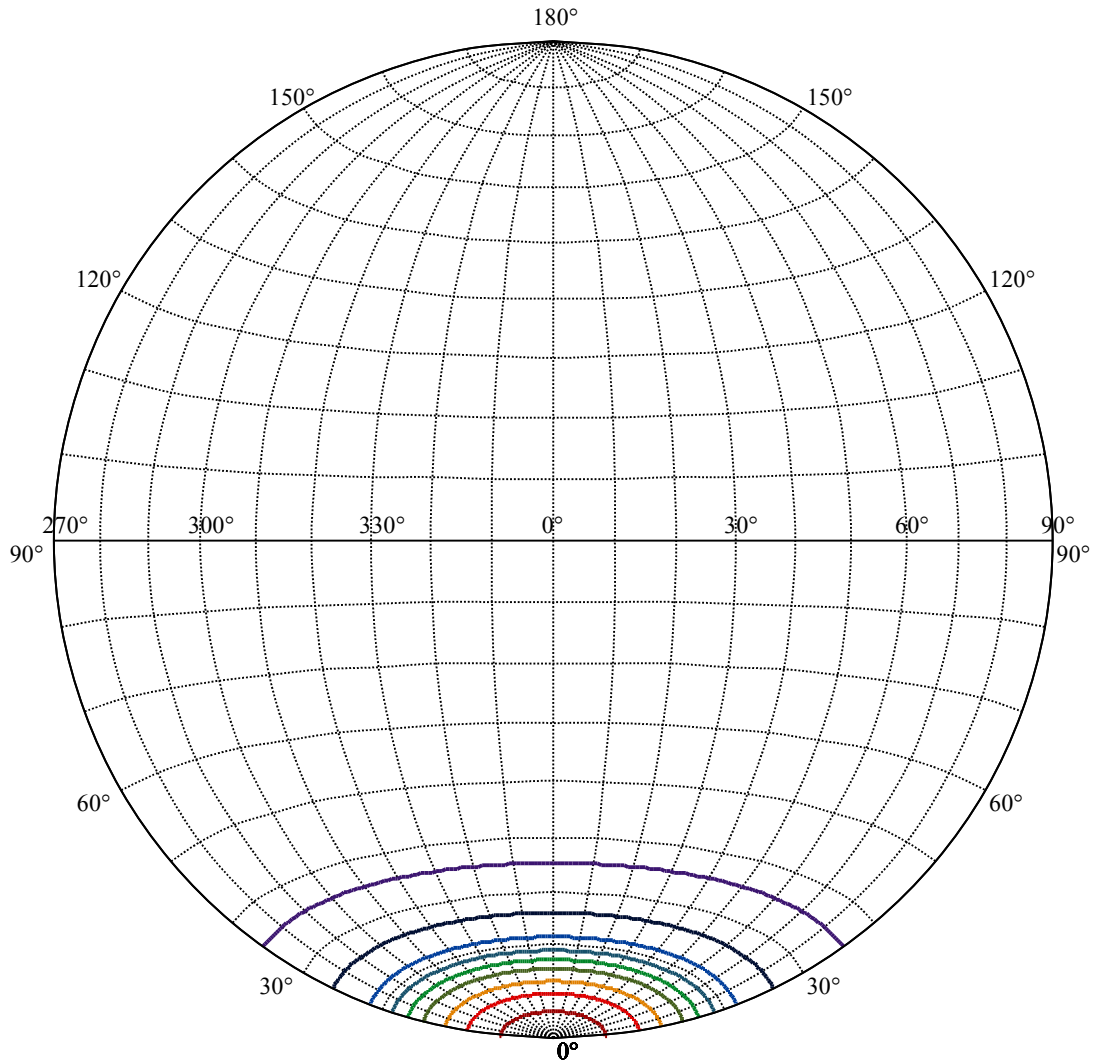
Field angle(10%Imax):C0/180Left:35.5 Right:35.5
:C90/270Left:35.5 Right:35.5

Beam Angle(50%Imax):C0/180Left:17.0 Right:17.0
:C90/270Left:17.0 Right:17.0





(10%Imax) 371.742	—
(20%Imax) 743.484	—
(30%Imax) 1115.23	—
(40%Imax) 1486.97	—
(50%Imax) 1858.71	—
(60%Imax) 2230.45	—
(70%Imax) 2602.2	—
(80%Imax) 2973.94	—
(90%Imax) 3345.68	—



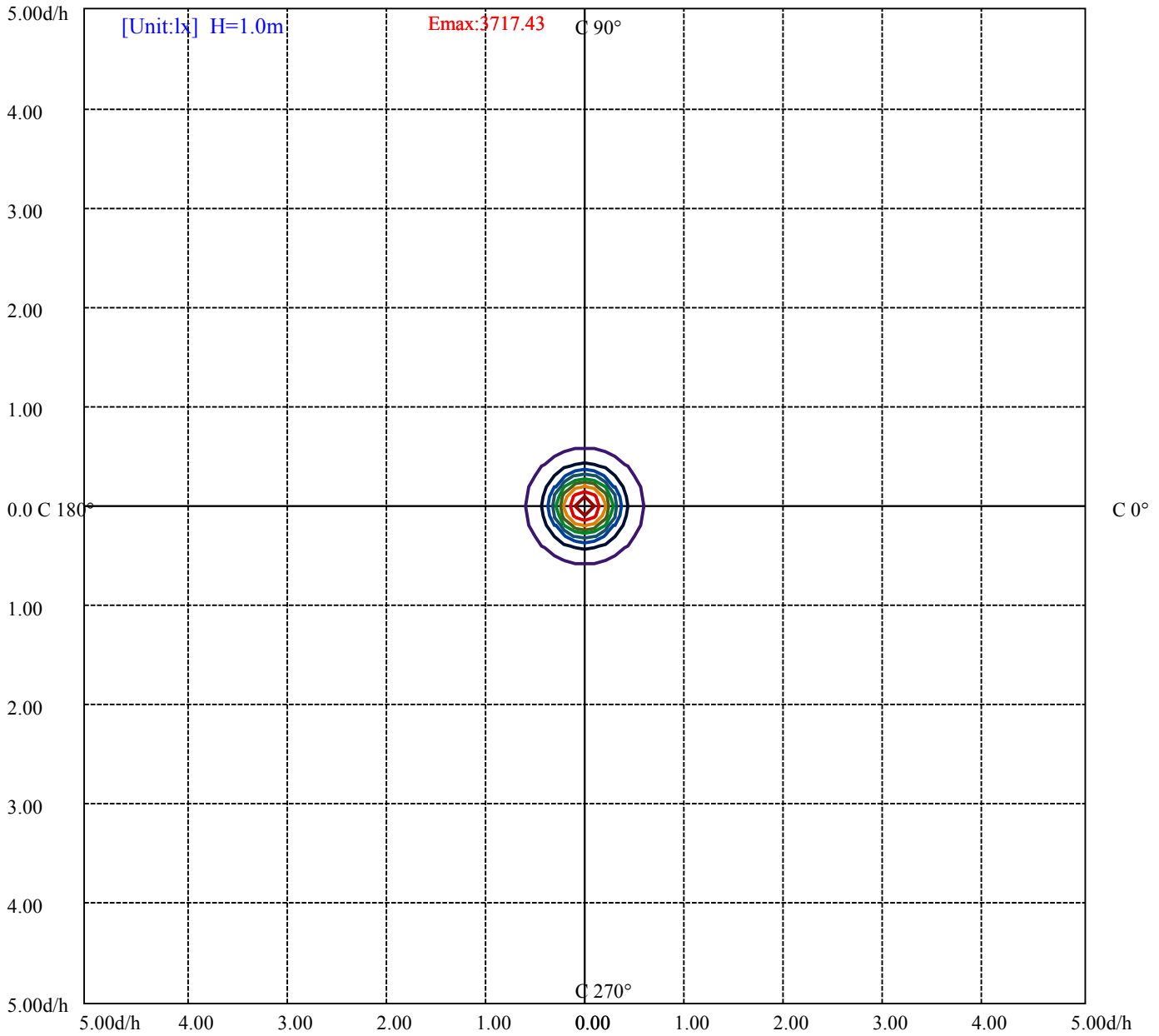
House

[Unit:cd]

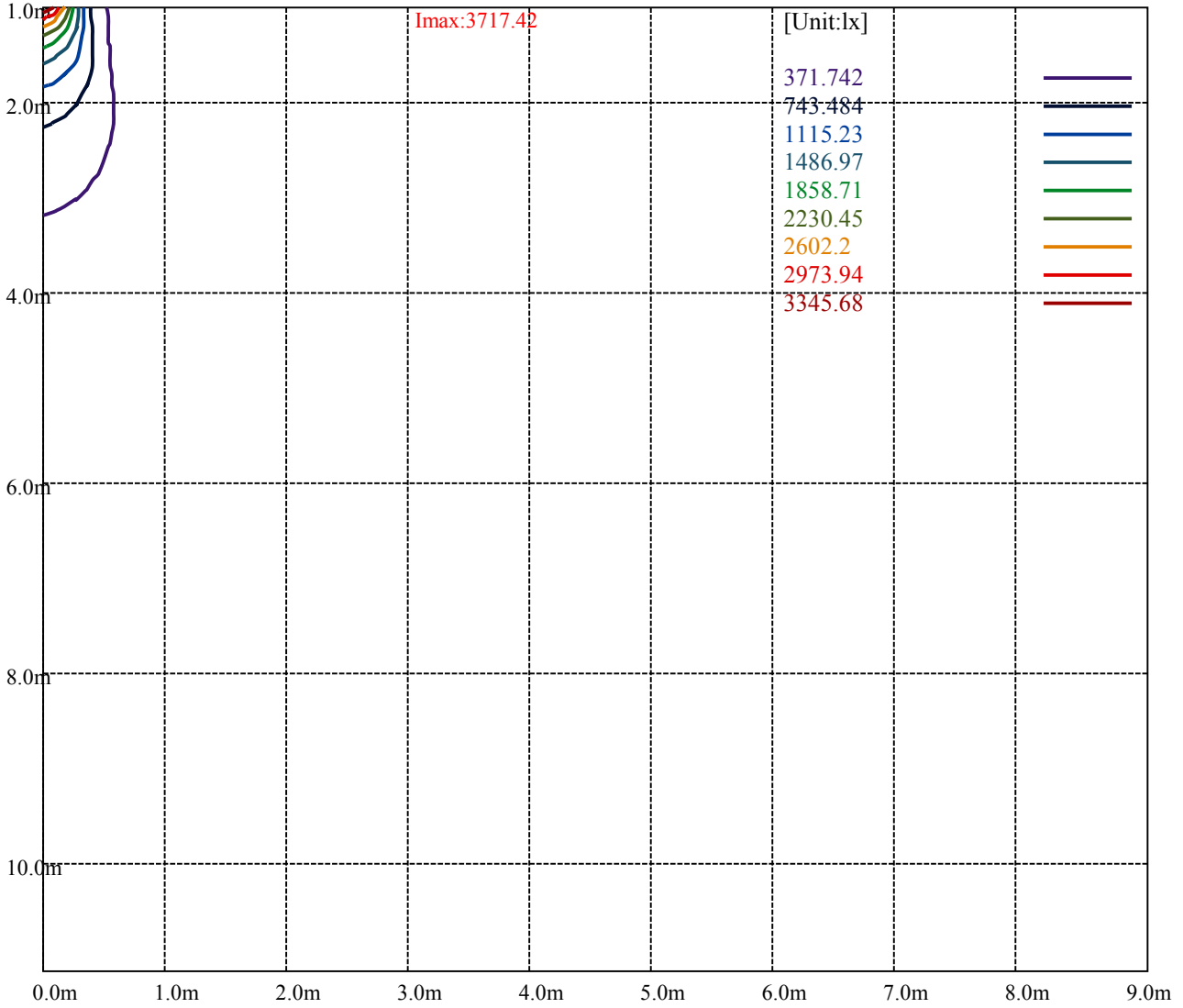
Road

Imax:3717.42

(10%Imax) 371.742	—
(20%Imax) 743.484	—
(30%Imax) 1115.23	—
(40%Imax) 1486.97	—
(50%Imax) 1858.71	—
(60%Imax) 2230.45	—
(70%Imax) 2602.2	—
(80%Imax) 2973.94	—
(90%Imax) 3345.68	—



(10%E _{max}) 371.741	—
(20%E _{max}) 743.483	—
(30%E _{max}) 1115.22	—
(40%E _{max}) 1486.97	—
(50%E _{max}) 1858.71	—
(60%E _{max}) 2230.45	—
(70%E _{max}) 2602.19	—
(80%E _{max}) 2973.93	—
(90%E _{max}) 3345.67	—



Luminance Table

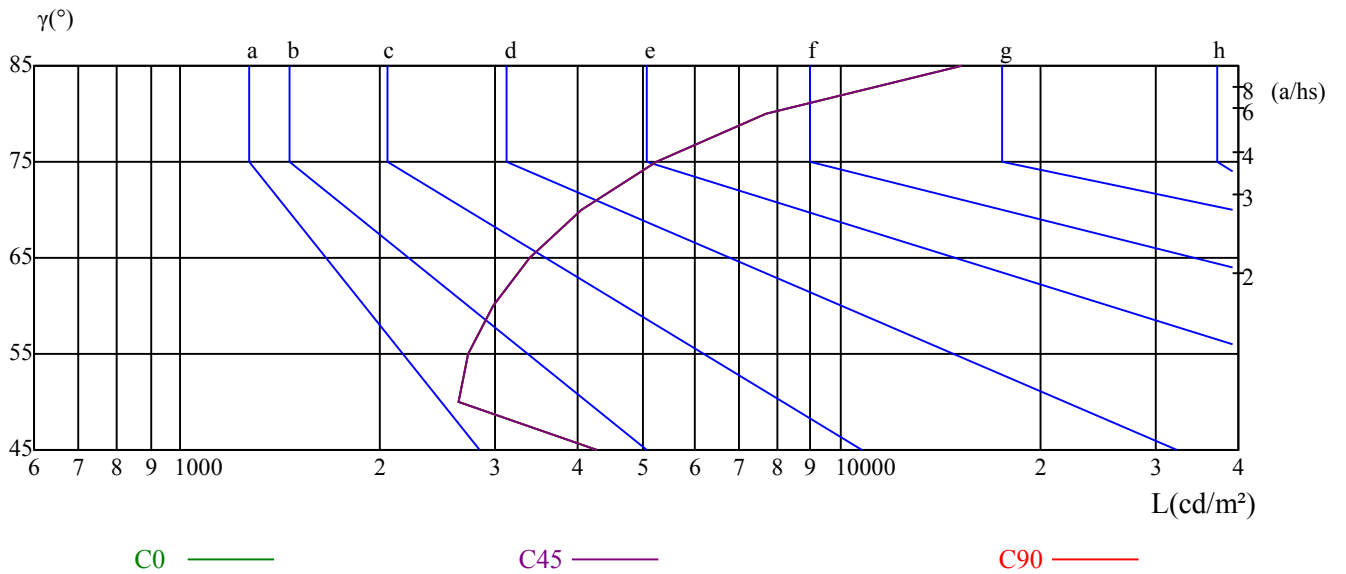
γ	45	50	55	60	65	70	75	80	85
C0	4258	2636	2729	2976	3372	4057	5245	7710	15213
C45	4258	2636	2729	2976	3372	4057	5245	7710	15213
C90	4258	2636	2729	2976	3372	4057	5245	7710	15213

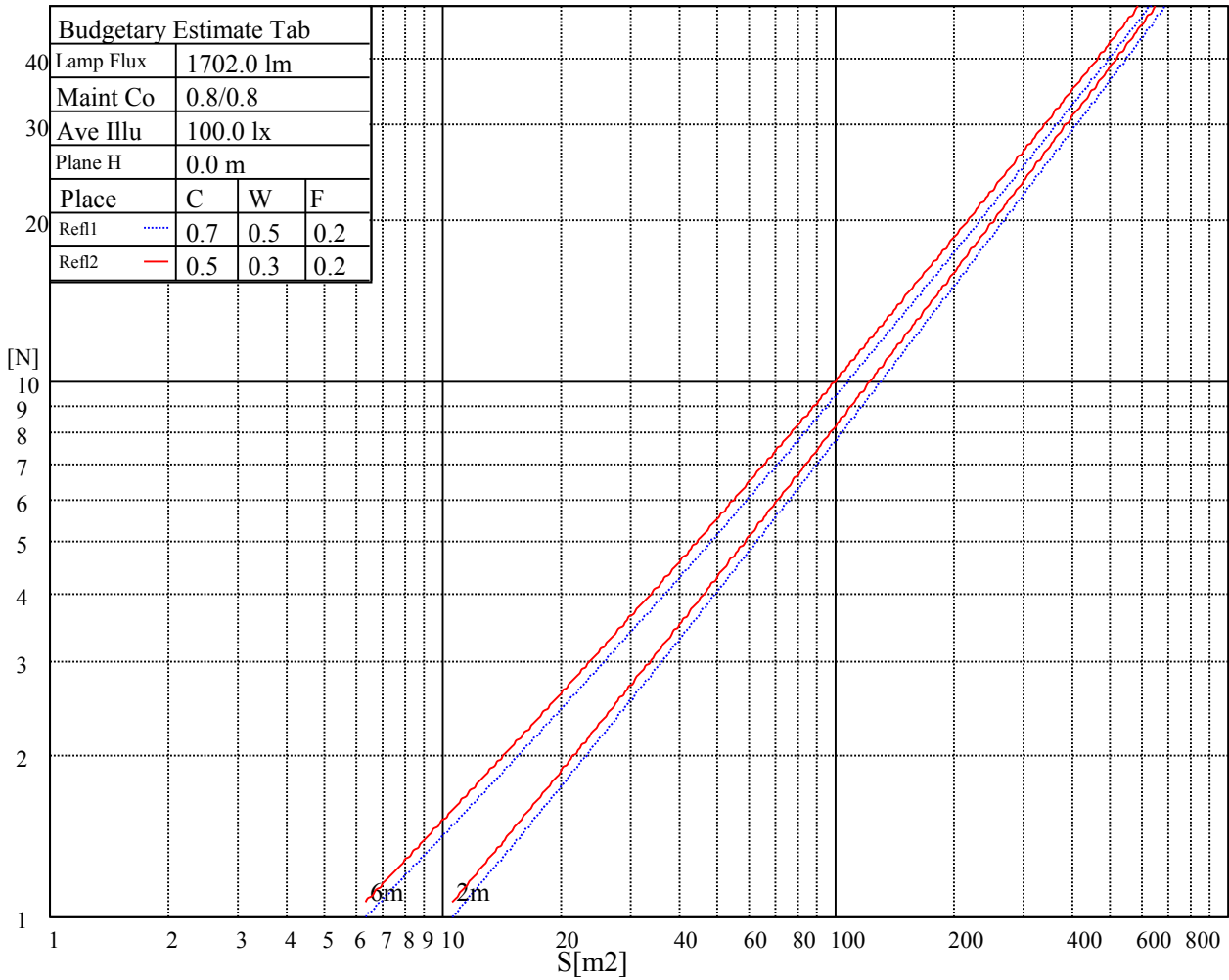
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3372	3372	3372	5245	5245	5245	15213	15213	15213

Glare Table

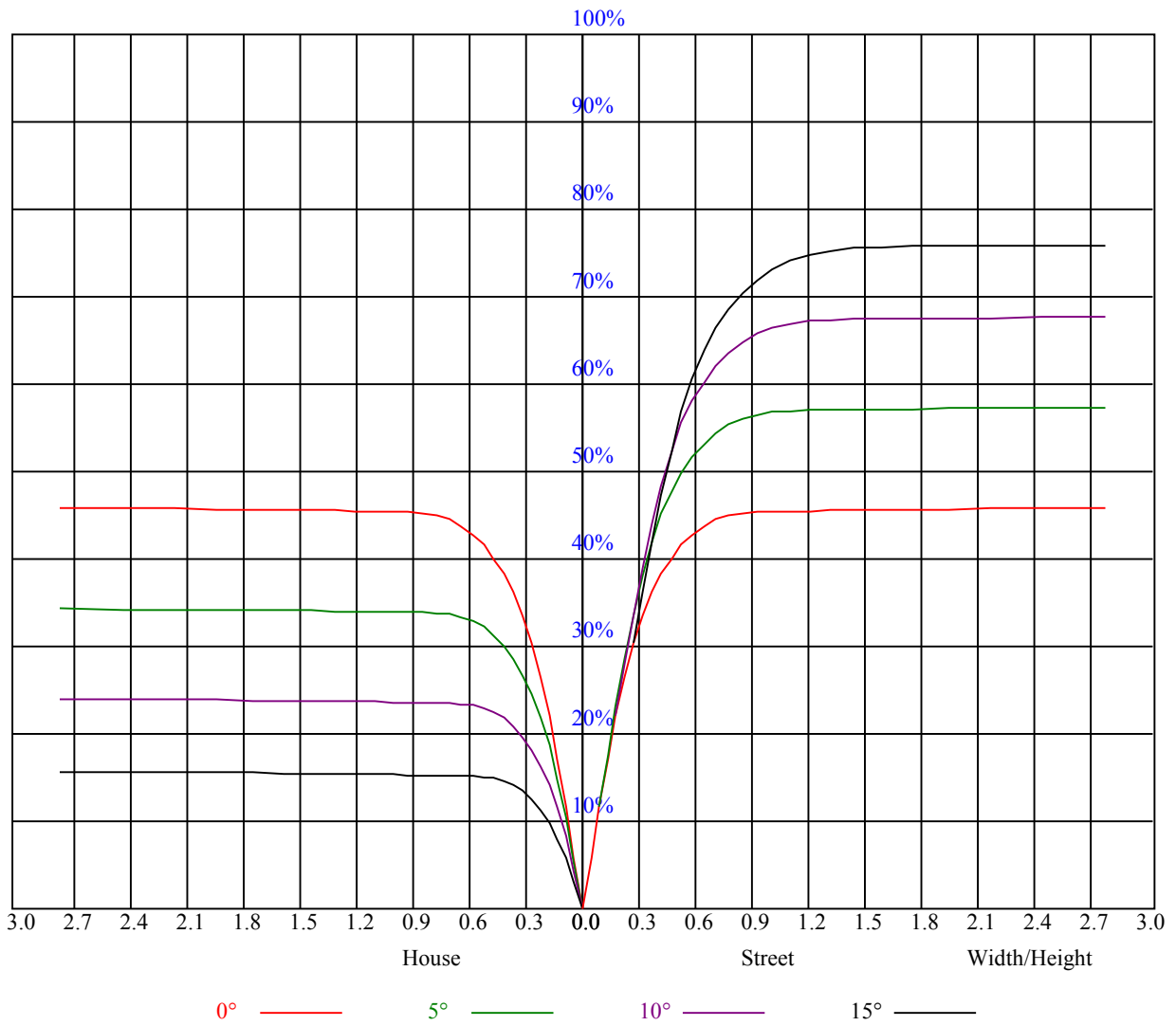
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	1.11	1.11	1.11	1.08	1.08	1.08	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	1.00	0.98	1.00	0.98	0.96	0.97	0.95	0.93	0.93	0.92	0.91	0.90	0.89	0.88	0.86
2	0.97	0.93	0.90	0.95	0.92	0.89	0.92	0.90	0.87	0.90	0.87	0.86	0.87	0.85	0.84	0.82
3	0.92	0.88	0.85	0.91	0.87	0.84	0.88	0.85	0.83	0.86	0.83	0.81	0.84	0.82	0.80	0.79
4	0.88	0.83	0.80	0.87	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.79	0.77	0.75
5	0.84	0.79	0.76	0.83	0.79	0.75	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.73	0.72
6	0.80	0.76	0.72	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.69
7	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
8	0.74	0.69	0.66	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.64
9	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.69	0.66	0.63	0.62
10	0.69	0.65	0.62	0.69	0.64	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.60



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	3698.44	3517.31	3063.38	2446.31	1485.56	855.56	615.94	470.25	198.00
45.0	3712.50	3427.31	2967.75	2188.69	1260.00	780.75	574.31	381.38	79.65
90.0	3731.06	3417.19	2912.63	2165.63	1118.70	730.58	560.14	354.60	54.79
135.0	3727.69	3543.75	3069.56	2397.94	1462.50	819.00	587.25	426.94	106.43
180.0	3698.44	3390.19	2860.31	2067.19	1088.66	727.09	552.71	341.89	43.88
225.0	3712.50	3449.25	2982.94	2250.00	1121.23	815.12	598.05	417.60	95.57
270.0	3731.06	3477.38	3008.25	2352.94	1410.19	844.31	614.25	438.19	122.01
315.0	3727.69	3377.81	2884.50	2099.81	1100.08	763.88	576.90	374.06	61.48
360.0	3698.44	3517.31	3063.38	2446.31	1485.56	855.56	615.94	470.25	198.00
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	17.94	8.38	7.65	7.26	6.92	6.75	6.58	6.53	6.47
45.0	15.53	8.16	7.59	7.26	6.98	6.81	6.69	6.64	6.53
90.0	13.56	8.21	7.59	7.26	6.98	6.81	6.69	6.58	6.53
135.0	15.08	8.33	7.71	7.31	6.98	6.81	6.64	6.53	6.47
180.0	11.03	8.10	7.54	7.20	6.92	6.75	6.58	6.47	6.41
225.0	13.73	8.49	7.82	7.43	7.09	6.86	6.69	6.64	6.58
270.0	16.59	8.49	7.88	7.37	7.09	6.86	6.75	6.58	6.53
315.0	14.57	8.27	7.59	7.26	6.92	6.75	6.58	6.53	6.47
360.0	17.94	8.38	7.65	7.26	6.92	6.75	6.58	6.53	6.47
C/γ(°)	90.0								
0.0	6.41								
45.0	6.47								
90.0	6.47								
135.0	6.41								
180.0	6.36								
225.0	6.53								
270.0	6.47								
315.0	6.41								
360.0	6.41								