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NATA

LumCAT: 2978-E	
Luminaire: 92.76.233.00	
Report No: NATA0100	Voltage(V): 218.2000
Test No: GC2019022506	Current(A): 0.0760
LampCAT: PL-CORE-AC-2000-G2 LES19	Power (W): 16.7000
Lamp flux(lm): 1789.0	PF: 0.9960
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1598.03
Efficiency(%): 89.33%
Lumens(lm)/Power(W): 95.69
Central intensity(cd): 3556.406
Maximum intensity(cd): 3556.406
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=34.1
 [C90/270]Total=34.1
Field angle(10%Imax): [C0/180]Total=71.4
 [C90/270]Total=71.4
Maximum s/h(1/2): C0_180=0.56 C90_270=0.56
Maximum s/h(1/4): C0_180=0.59 C90_270=0.59
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.43%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.629%

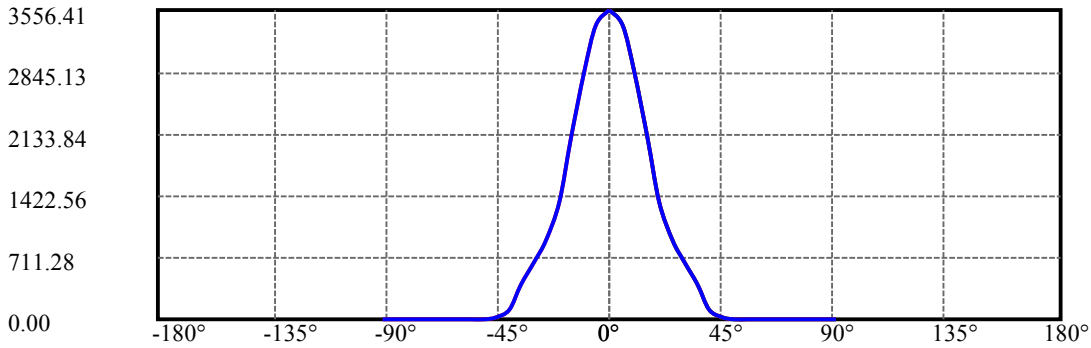
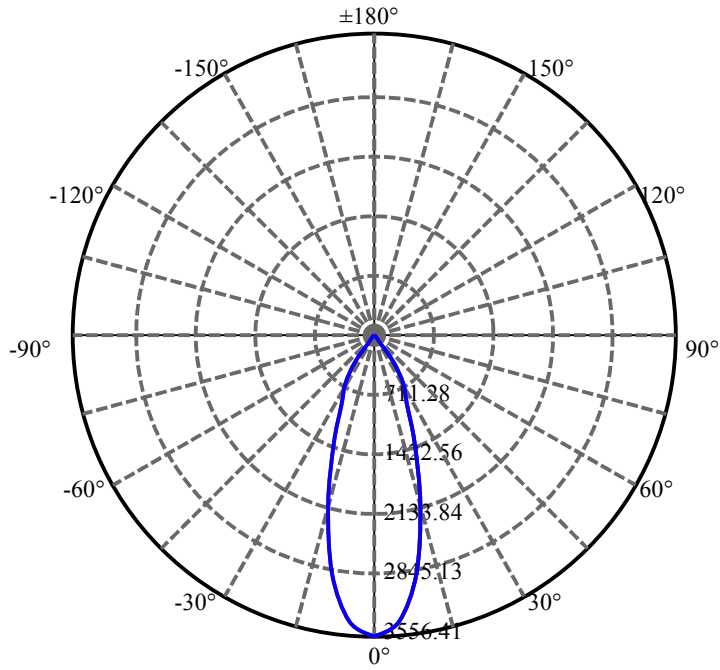
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3556.406	21.268	21.268	1.189%	1.331%
5.0	3379.641	161.457	182.725	9.025%	11.434%
10.0	2841.469	270.460	453.184	15.118%	28.359%
15.0	2073.586	294.176	747.361	16.444%	46.768%
20.0	1358.494	254.682	1002.043	14.236%	62.705%
25.0	907.657	210.261	1212.304	11.753%	75.863%
30.0	666.450	182.653	1394.957	10.210%	87.292%
35.0	395.402	124.314	1519.271	6.949%	95.072%
40.0	120.600	42.492	1561.763	2.375%	97.731%
45.0	21.305	8.258	1570.021	.462%	98.247%
50.0	7.313	3.071	1573.091	.172%	98.440%
55.0	6.947	3.119	1576.21	.174%	98.635%
60.0	6.750	3.204	1579.415	.179%	98.835%
65.0	6.616	3.287	1582.701	.184%	99.041%
70.0	6.525	3.361	1586.062	.188%	99.251%
75.0	6.420	3.399	1589.461	.190%	99.464%
80.0	6.363	3.435	1592.896	.192%	99.679%
85.0	6.321	3.452	1596.348	.193%	99.895%
90.0	6.131	1.680	1598.028	.094%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1394.96	77.97%	87.29%
0-40	1561.76	87.30%	97.73%
0-60	1579.41	88.28%	98.84%
0-90	1596.35	89.23%	99.89%
0-120	1596.35	89.23%	99.89%
0-180	1598.03	89.33%	100.00%
60-90	20.14	1.13%	1.26%
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%
0-26.81	1278.42	71.46%	80.00%

ZONAL LUMEN SUMMARY

0-10	453.18
10-20	548.86
20-30	392.91
30-40	166.81
40-50	11.33
50-60	6.32
60-70	6.65
70-80	6.83
80-90	3.45
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



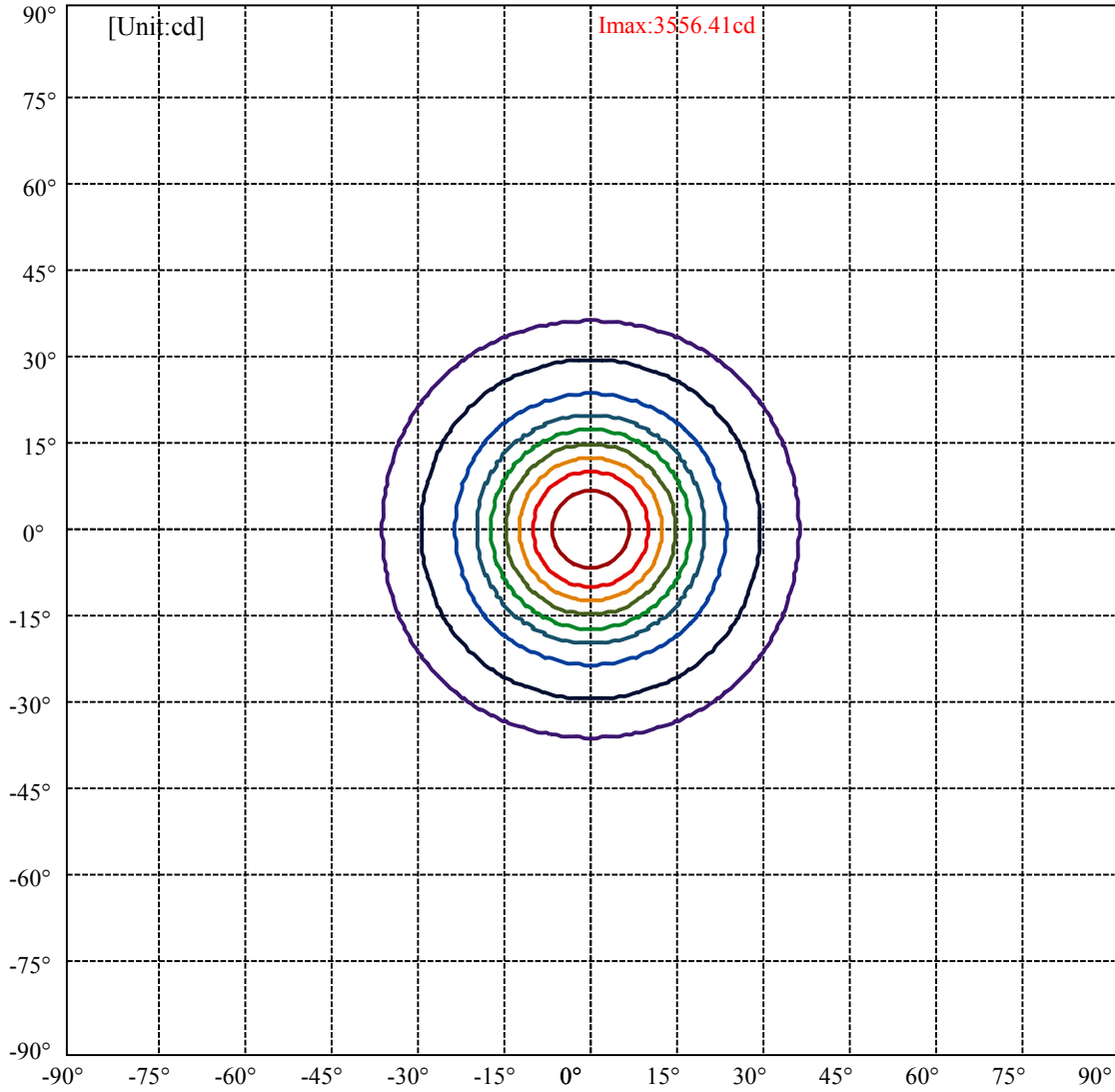
C0(Max): —————

C0/C180: —————

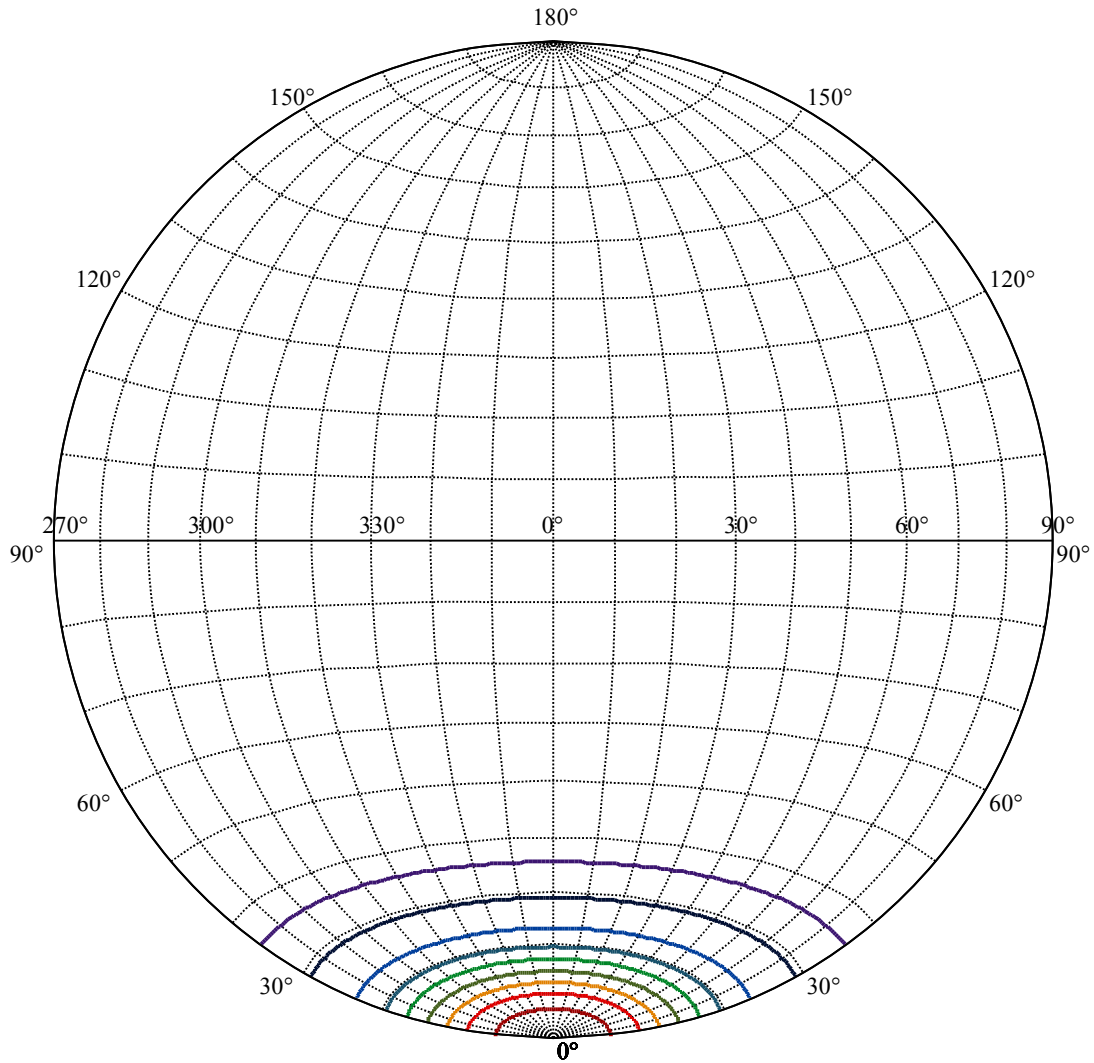
C90/C270: —————

Field angle(10%Imax):C0/180Left:35.7 Right:35.7
:C90/270Left:35.7 Right:35.7

Beam Angle(50%Imax):C0/180Left:17.1 Right:17.1
:C90/270Left:17.1 Right:17.1



(10%Imax) 355.641	—
(20%Imax) 711.281	—
(30%Imax) 1066.92	—
(40%Imax) 1422.56	—
(50%Imax) 1778.2	—
(60%Imax) 2133.84	—
(70%Imax) 2489.48	—
(80%Imax) 2845.13	—
(90%Imax) 3200.77	—



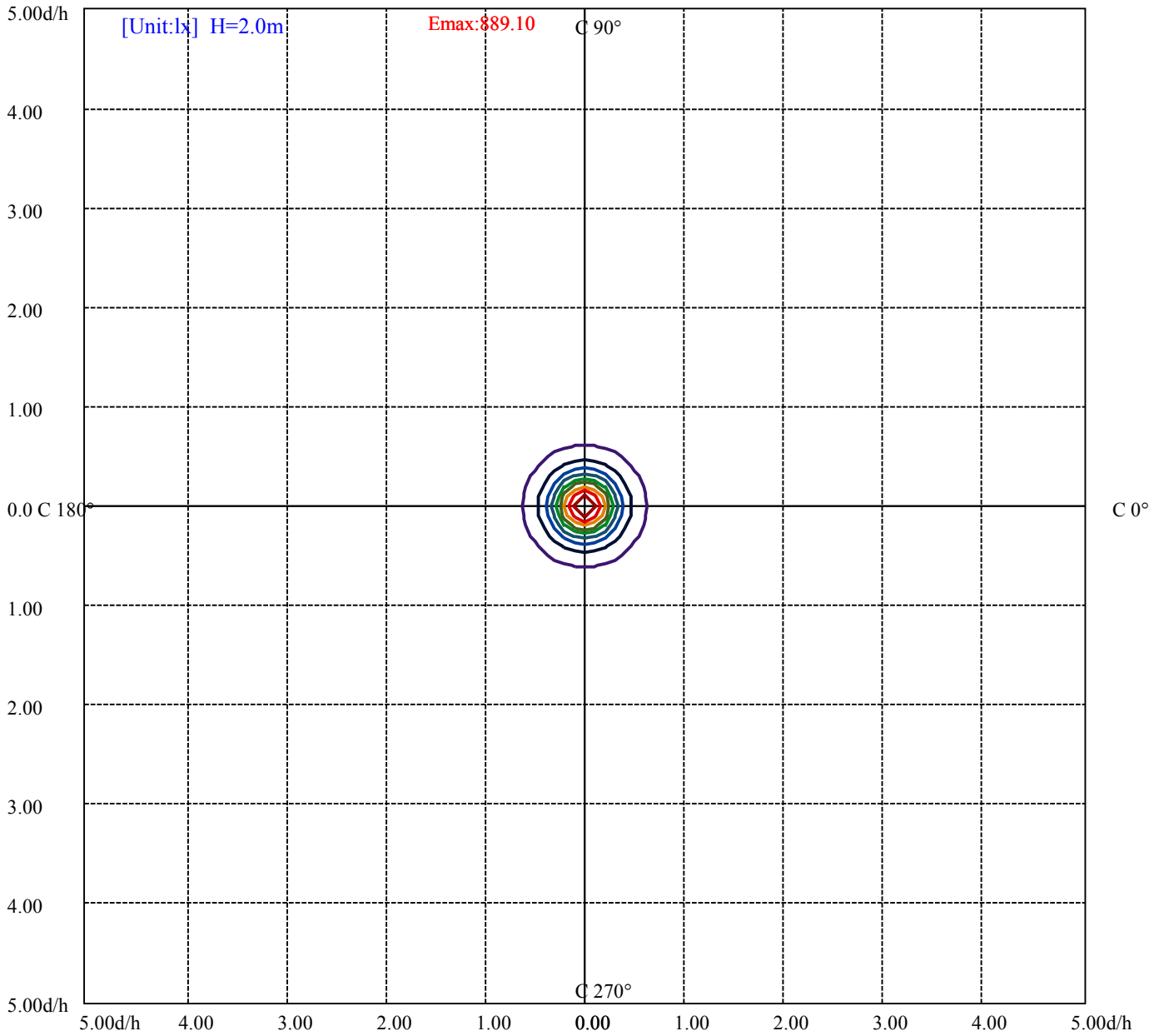
House

[Unit:cd]

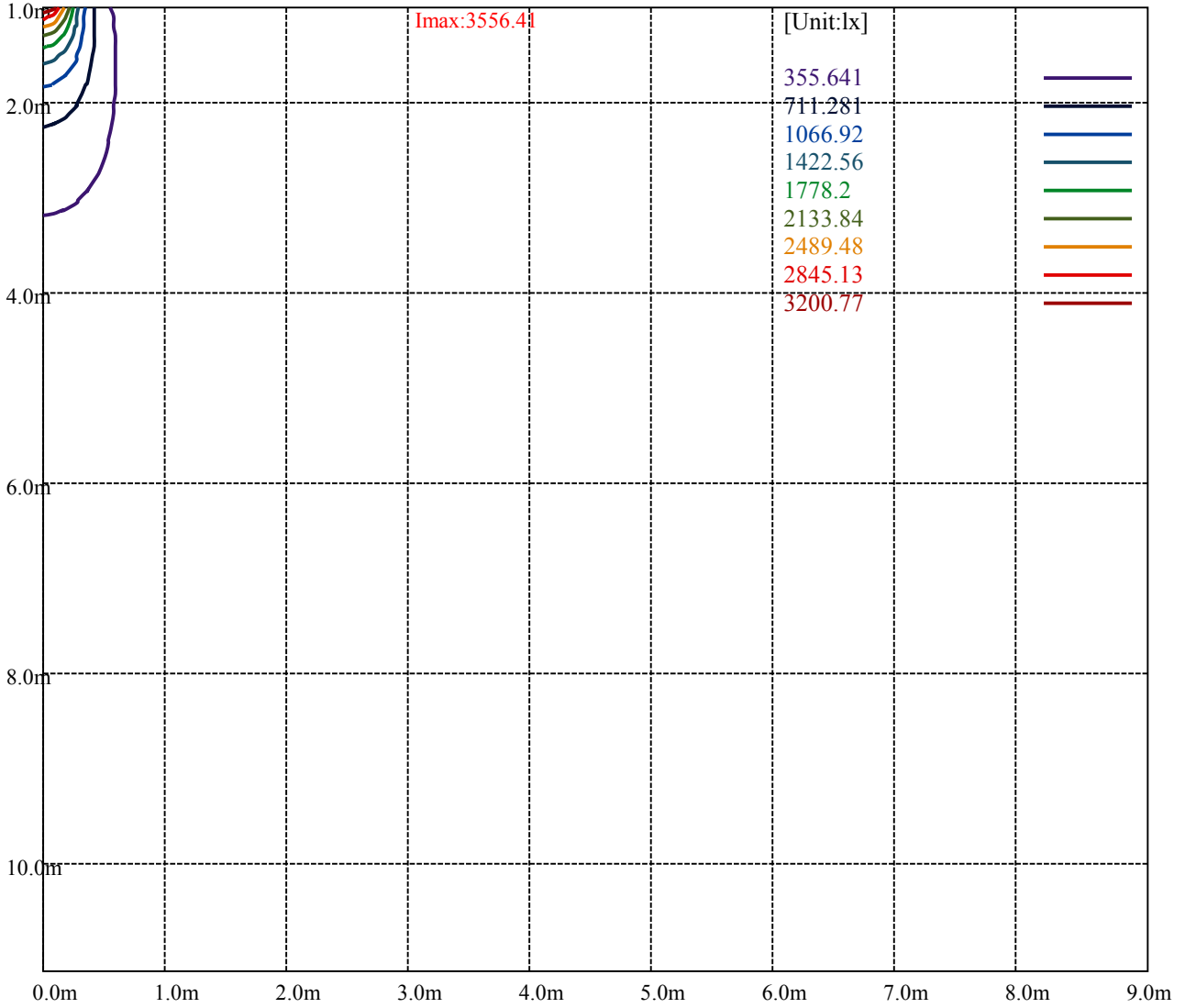
Road

Imax:3556.41

(10%Imax)	355.641	—
(20%Imax)	711.281	—
(30%Imax)	1066.92	—
(40%Imax)	1422.56	—
(50%Imax)	1778.2	—
(60%Imax)	2133.84	—
(70%Imax)	2489.48	—
(80%Imax)	2845.13	—
(90%Imax)	3200.77	—



(10%Emax) 88.91	—
(20%Emax) 177.82	—
(30%Emax) 266.73	—
(40%Emax) 355.64	—
(50%Emax) 444.55	—
(60%Emax) 533.46	—
(70%Emax) 622.37	—
(80%Emax) 711.28	—
(90%Emax) 800.19	—



Luminance Table

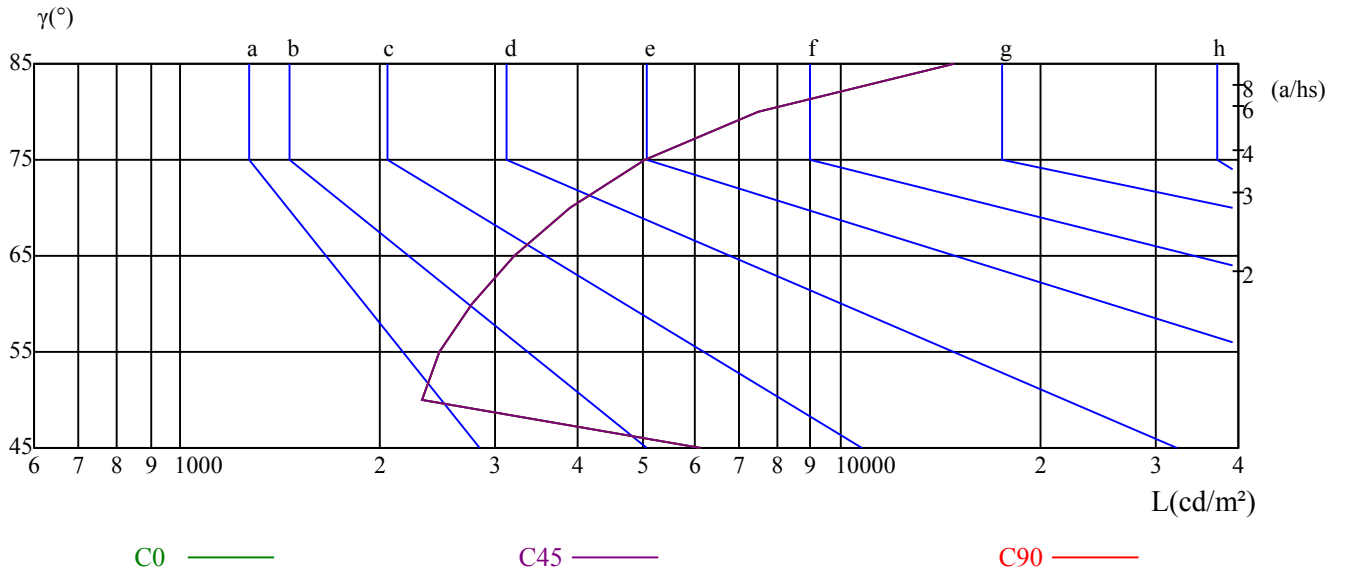
γ	45	50	55	60	65	70	75	80	85
C0	6149	2322	2472	2755	3195	3893	5062	7479	14801
C45	6149	2322	2472	2755	3195	3893	5062	7479	14801
C90	6149	2322	2472	2755	3195	3893	5062	7479	14801

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3195	3195	3195	5062	5062	5062	14801	14801	14801

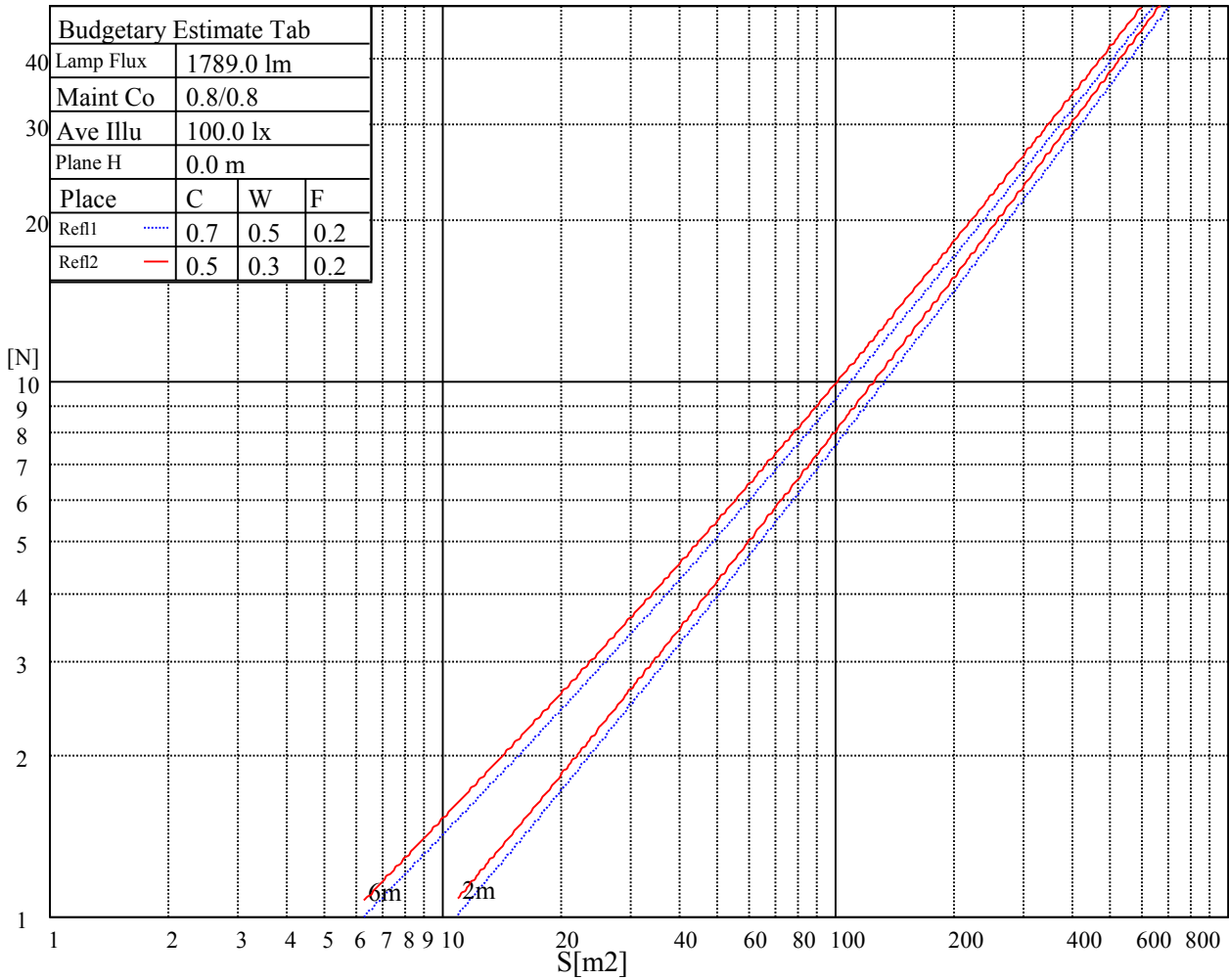
Glare Table

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

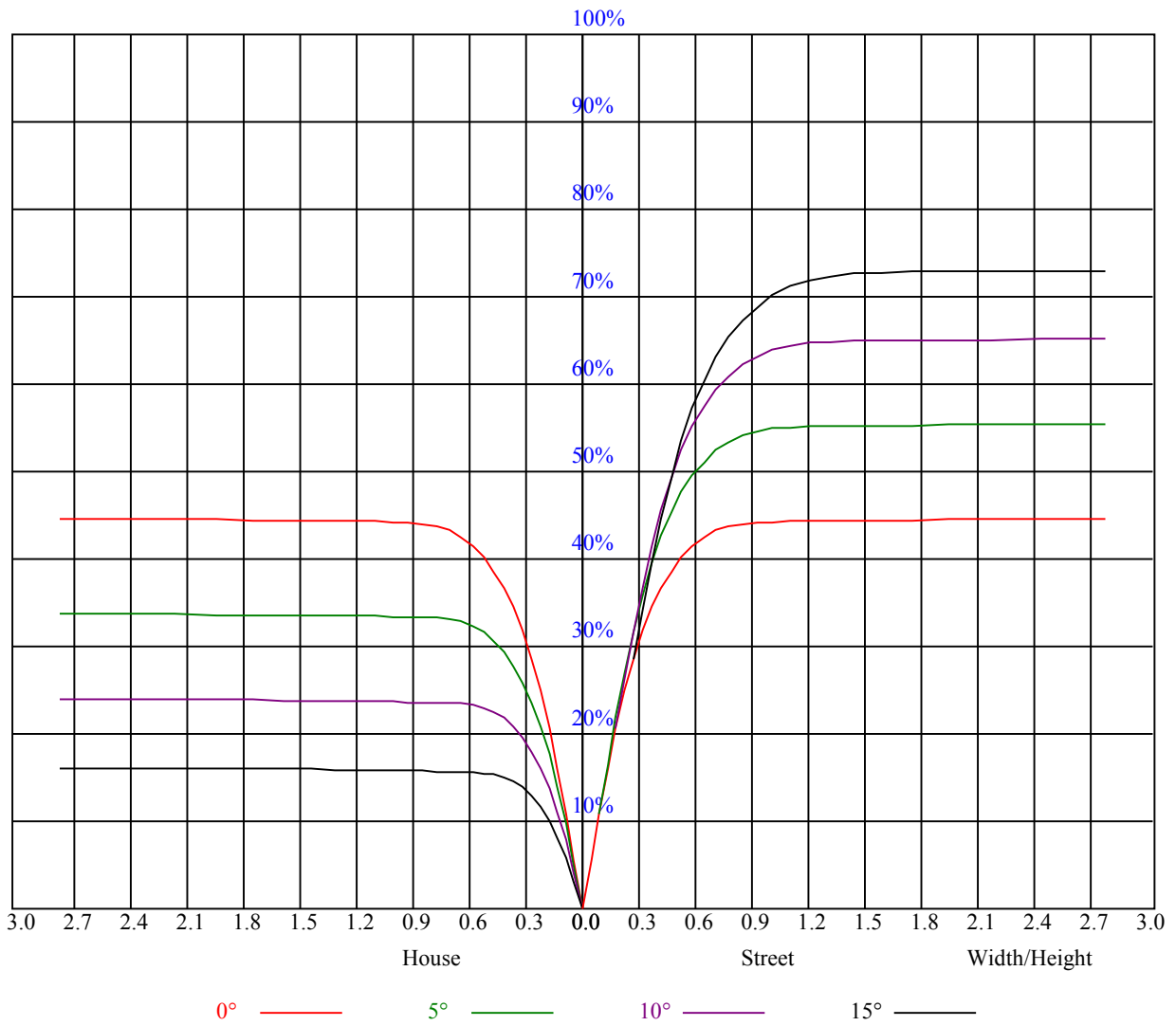
Luminance Limiting Curve



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	2.11	3.03	2.48	3.34	3.65	2.13	3.05	2.50	3.36	3.68
	3H	5.42	6.23	5.80	6.56	6.93	5.46	6.27	5.84	6.60	6.97
	4H	7.20	7.95	7.61	8.30	8.69	7.25	8.00	7.66	8.35	8.75
	6H	9.20	9.88	9.62	10.26	10.65	9.24	9.92	9.66	10.30	10.70
	8H	10.30	10.94	10.74	11.33	11.74	10.33	10.97	10.77	11.37	11.78
	12H	12.08	12.70	12.52	13.08	13.51	12.09	12.71	12.53	13.09	13.52
4H	2H	3.06	3.81	3.47	4.16	4.55	3.07	3.82	3.48	4.18	4.57
	3H	6.59	7.21	7.01	7.62	8.03	6.62	7.24	7.04	7.65	8.05
	4H	8.53	9.08	8.97	9.51	9.96	8.57	9.12	9.01	9.55	10.00
	6H	10.66	11.13	11.14	11.58	12.06	10.70	11.17	11.17	11.62	12.10
	8H	11.87	12.31	12.35	12.76	13.24	11.89	12.33	12.37	12.78	13.26
	12H	13.56	13.93	14.05	14.42	14.90	13.56	13.93	14.05	14.42	14.90
8H	4H	9.27	9.71	9.75	10.16	10.63	9.30	9.74	9.78	10.19	10.66
	6H	11.68	12.02	12.19	12.53	13.01	11.71	12.05	12.22	12.55	13.04
	8H	13.07	13.38	13.61	13.90	14.40	13.09	13.39	13.62	13.92	14.41
	12H	14.89	15.15	15.41	15.65	16.23	14.88	15.14	15.41	15.64	16.22
12H	4H	9.48	9.86	9.98	10.35	10.83	9.51	9.88	10.00	10.37	10.85
	6H	12.20	12.31	12.54	12.78	13.33	12.23	12.33	12.56	12.80	13.35
	8H	13.53	13.79	14.05	14.29	14.87	13.54	13.80	14.06	14.30	14.88
Variation with the observer position at spacings:											
S = 1.0H	5.3/-8.3					5.3/-8.3					
S = 1.5H	7.7/-6.3					7.7/-6.3					
S = 2.0H	9.1/-4.9					9.1/-4.9					
Standard tables:	BK2					BK2					
Uncorrected UGR	0.5					0.5					



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	1.08	1.08	1.08	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.00	0.97	0.95	0.98	0.96	0.94	0.94	0.92	0.91	0.91	0.89	0.88	0.88	0.86	0.85	0.84
2	0.94	0.91	0.88	0.93	0.89	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.81	0.80
3	0.89	0.85	0.82	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.79	0.78	0.76
4	0.85	0.81	0.77	0.84	0.80	0.77	0.82	0.79	0.76	0.80	0.77	0.75	0.79	0.76	0.74	0.73
5	0.81	0.76	0.73	0.80	0.76	0.73	0.79	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
6	0.77	0.73	0.70	0.77	0.73	0.69	0.76	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.67
7	0.74	0.70	0.67	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
8	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.62
9	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.57



NATA 2978-E

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	3560.06	3382.31	2850.19	2193.19	1462.50	963.00	689.63	424.69	122.74
45.0	3554.44	3405.94	2937.94	2116.69	1400.06	883.69	666.00	398.25	114.64
90.0	3566.25	3408.19	2779.31	1991.81	1097.89	824.01	630.90	360.62	89.16
135.0	3548.25	3491.44	2984.06	2159.44	1447.88	907.31	669.38	463.50	204.98
180.0	3560.06	3379.50	2823.19	2014.88	1251.00	872.16	641.42	388.69	114.24
225.0	3554.44	3335.06	2793.94	2025.00	1370.81	922.95	672.53	370.58	110.93
270.0	3566.25	3361.50	2862.56	2133.56	1470.38	997.31	707.06	419.06	125.38
315.0	3541.50	3273.19	2700.56	1954.13	1367.44	890.83	654.69	337.84	82.74
360.0	3560.06	3382.31	2850.19	2193.19	1462.50	963.00	689.63	424.69	122.74
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	20.19	7.43	7.03	6.81	6.64	6.64	6.53	6.41	6.36
45.0	22.56	7.43	7.03	6.86	6.69	6.53	6.41	6.41	6.36
90.0	16.43	7.20	6.86	6.69	6.58	6.47	6.41	6.36	6.30
135.0	29.19	7.26	6.92	6.69	6.58	6.47	6.36	6.30	6.30
180.0	26.10	7.26	6.92	6.69	6.64	6.58	6.41	6.36	6.24
225.0	18.39	7.31	6.92	6.75	6.58	6.47	6.41	6.36	6.30
270.0	22.39	7.37	6.98	6.75	6.64	6.53	6.41	6.36	6.36
315.0	15.19	7.26	6.92	6.75	6.58	6.53	6.41	6.36	6.36
360.0	20.19	7.43	7.03	6.81	6.64	6.64	6.53	6.41	6.36
C/ γ (°)	90.0								
0.0	6.19								
45.0	6.08								
90.0	6.13								
135.0	6.08								
180.0	6.13								
225.0	6.13								
270.0	6.13								
315.0	6.19								
360.0	6.19								