
Nata

LumCAT: 2-1795-N	
Luminaire: 92.70.129.00	
Report No: nata-0100	Voltage(V): 33.2000
Test No: GC2018041005	Current(A): 0.3800
LampCAT: CREE CXA1816	Power (W): 12.6160
Lamp flux(lm): 1408.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 69	Width(mm): 69
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1236.07
Efficiency(%): 87.79%
Lumens(lm)/Power(W): 97.98
Central intensity(cd): 2978.551
Maximum intensity(cd): 2978.551
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=36.1
[C90/270]Total=36.1
Field angle(10%Imax): [C0/180]Total=61.3
[C90/270]Total=61.3
Maximum s/h(1/2): C0_180=0.60 C90_270=0.60
Maximum s/h(1/4): C0_180=0.60 C90_270=0.60
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 87.79%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.496%

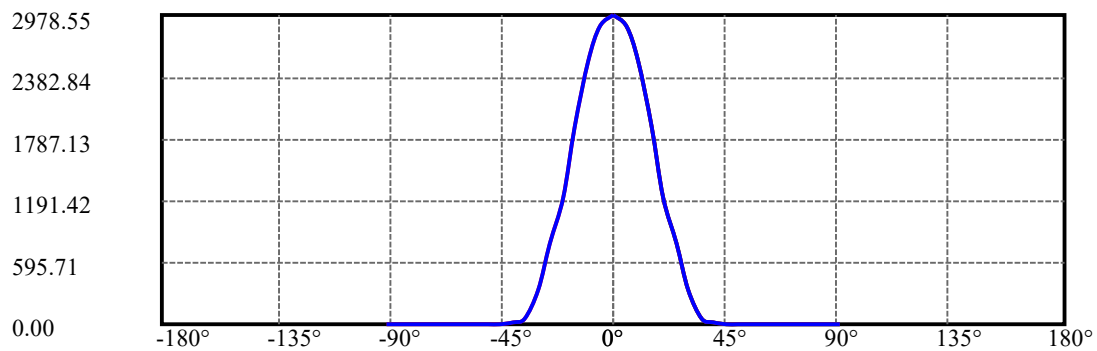
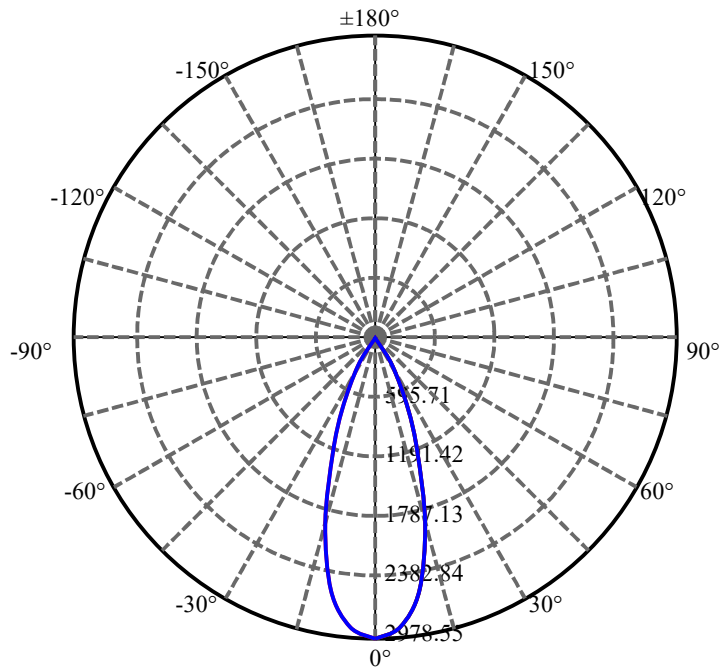
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2978.551	0.000	0	.000%	.000%
5.0	2869.746	69.915	69.915	4.966%	5.656%
10.0	2543.606	193.653	263.567	13.754%	21.323%
15.0	1903.713	263.812	527.379	18.737%	42.666%
20.0	1220.669	257.493	784.872	18.288%	63.497%
25.0	781.987	210.042	994.914	14.918%	80.490%
30.0	336.649	141.564	1136.478	10.054%	91.943%
35.0	49.255	56.827	1193.305	4.036%	96.540%
40.0	13.496	10.469	1203.775	.744%	97.387%
45.0	8.775	4.124	1207.898	.293%	97.721%
50.0	7.570	3.303	1211.201	.235%	97.988%
55.0	6.944	3.156	1214.357	.224%	98.243%
60.0	6.572	3.124	1217.481	.222%	98.496%
65.0	6.276	3.124	1220.605	.222%	98.749%
70.0	6.091	3.131	1223.736	.222%	99.002%
75.0	5.967	3.152	1226.888	.224%	99.257%
80.0	5.774	3.142	1230.029	.223%	99.511%
85.0	5.526	3.071	1233.1	.218%	99.759%
90.0	5.334	2.974	1236.073	.211%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1136.48	80.72%	91.94%
0-40	1203.77	85.50%	97.39%
0-60	1217.48	86.47%	98.50%
0-90	1233.10	87.58%	99.76%
0-120	1233.10	87.58%	99.76%
0-180	1236.07	87.79%	100.00%
60-90	18.74	1.33%	1.52%
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%
0-24.86	988.86	70.23%	80.00%

ZONAL LUMEN SUMMARY

0-10	263.57
10-20	521.30
20-30	351.61
30-40	67.30
40-50	7.43
50-60	6.28
60-70	6.25
70-80	6.29
80-90	3.07
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

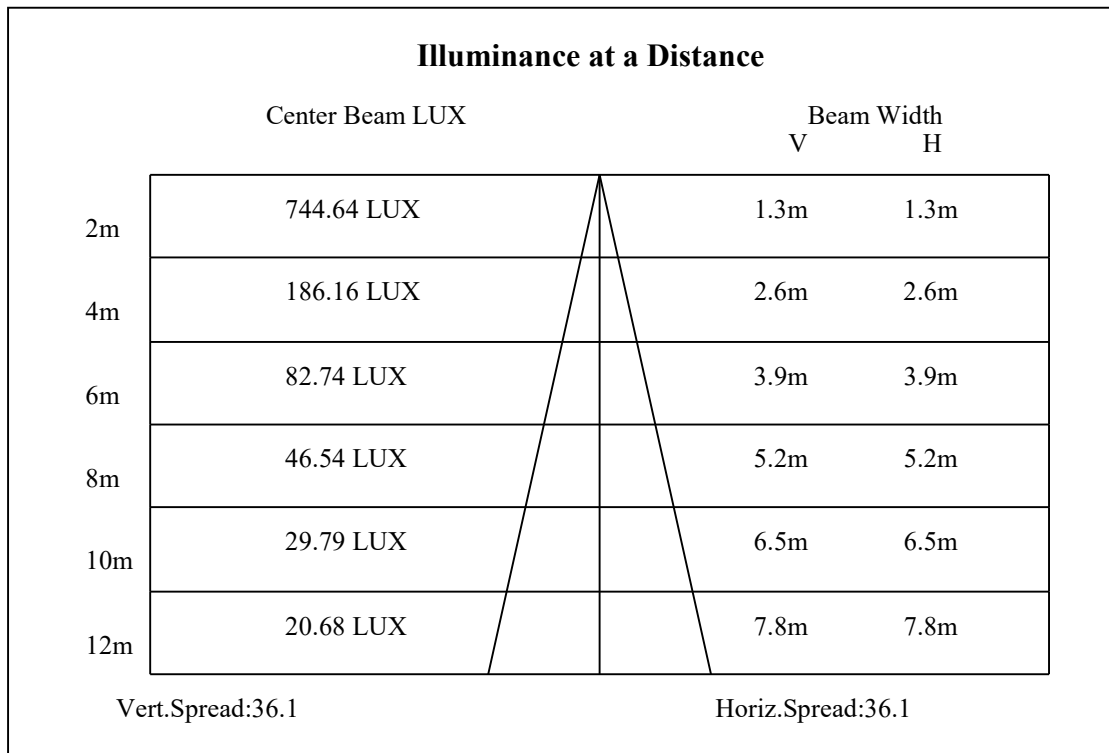
C0(Max): —————C0/C180: —————C90/C270: —————

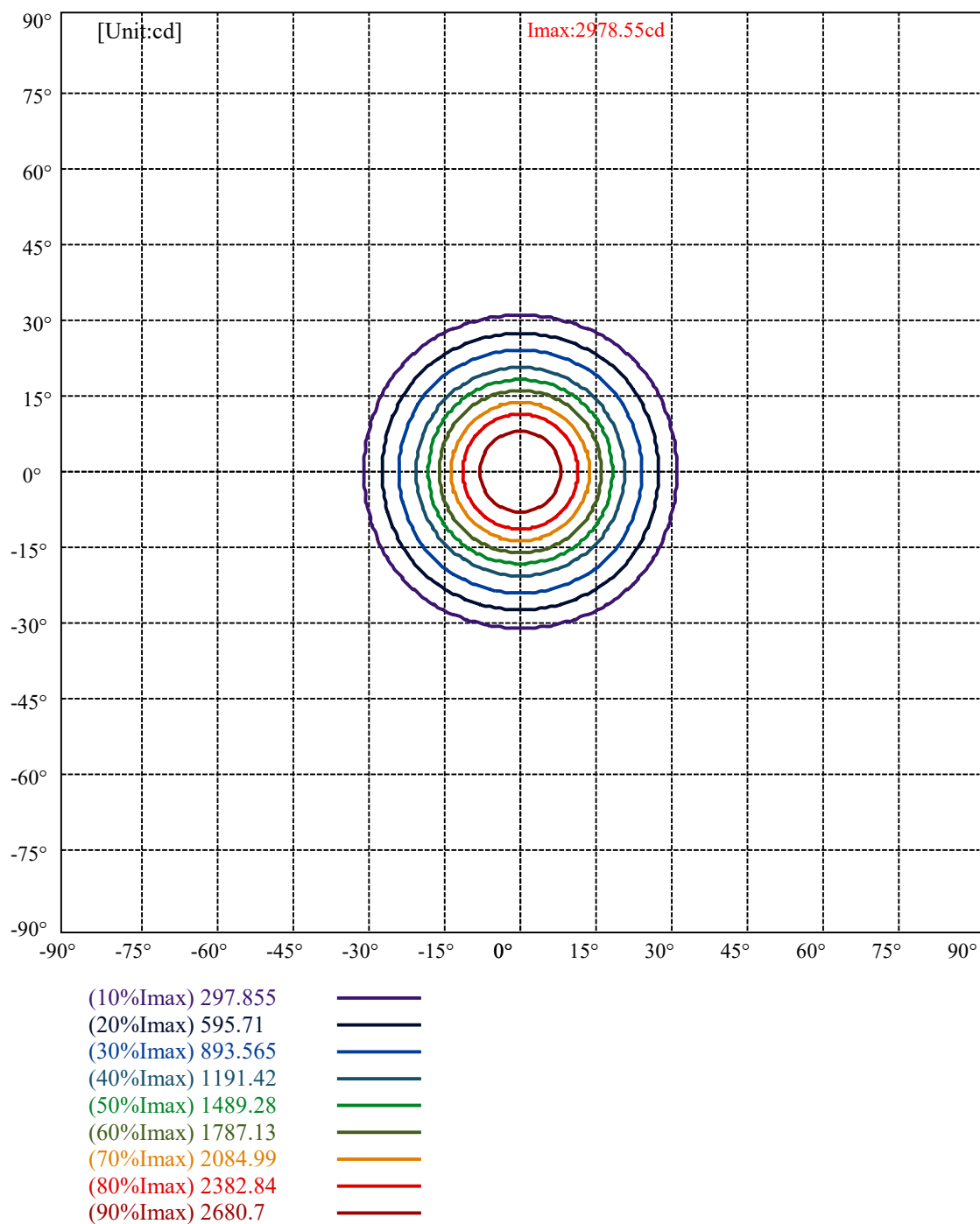
Field angle(10%Imax):C0/180Left:30.7 Right:30.7

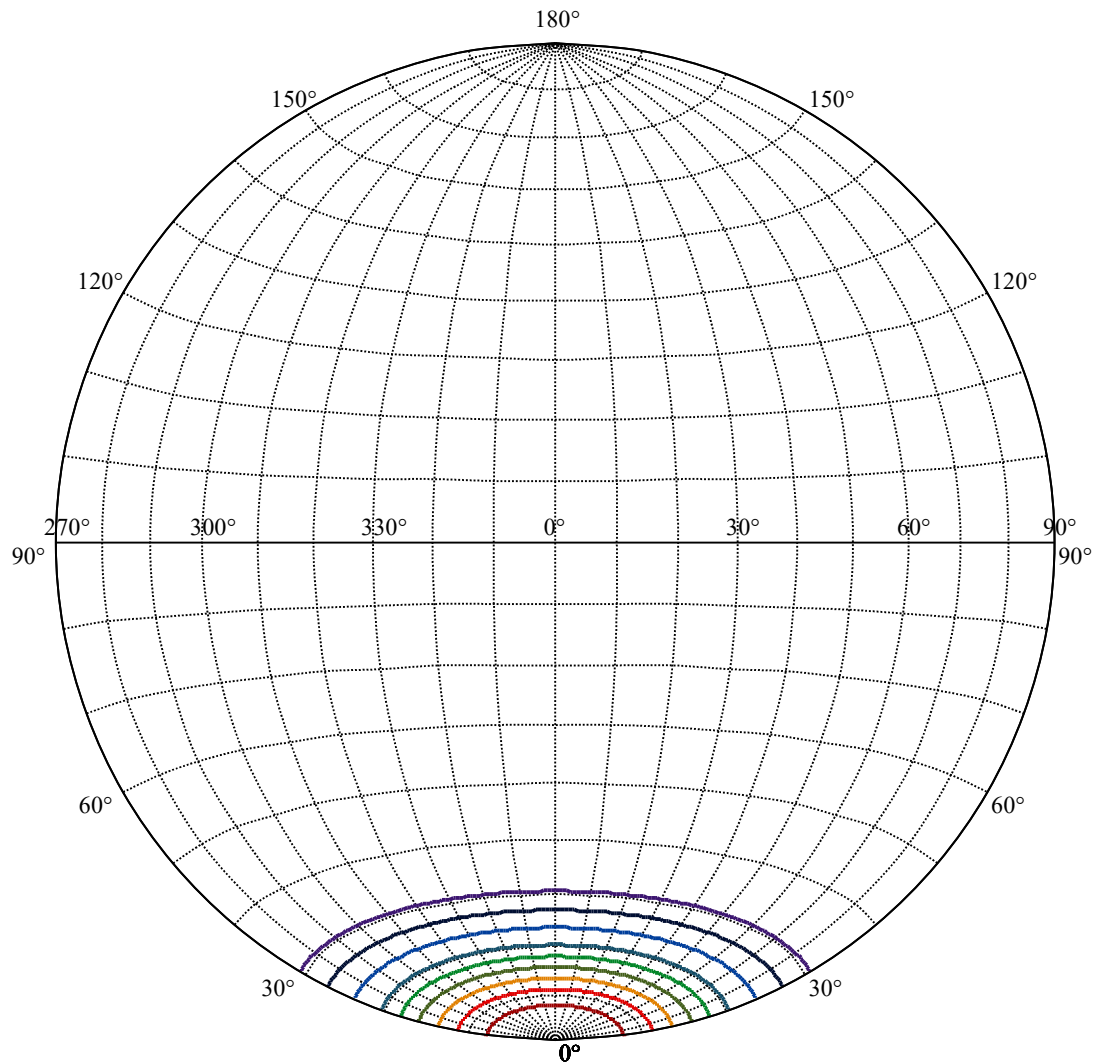
:C90/270Left:30.7 Right:30.7

Beam Angle(50%Imax):C0/180Left:18.0 Right:18.0

:C90/270Left:18.0 Right:18.0







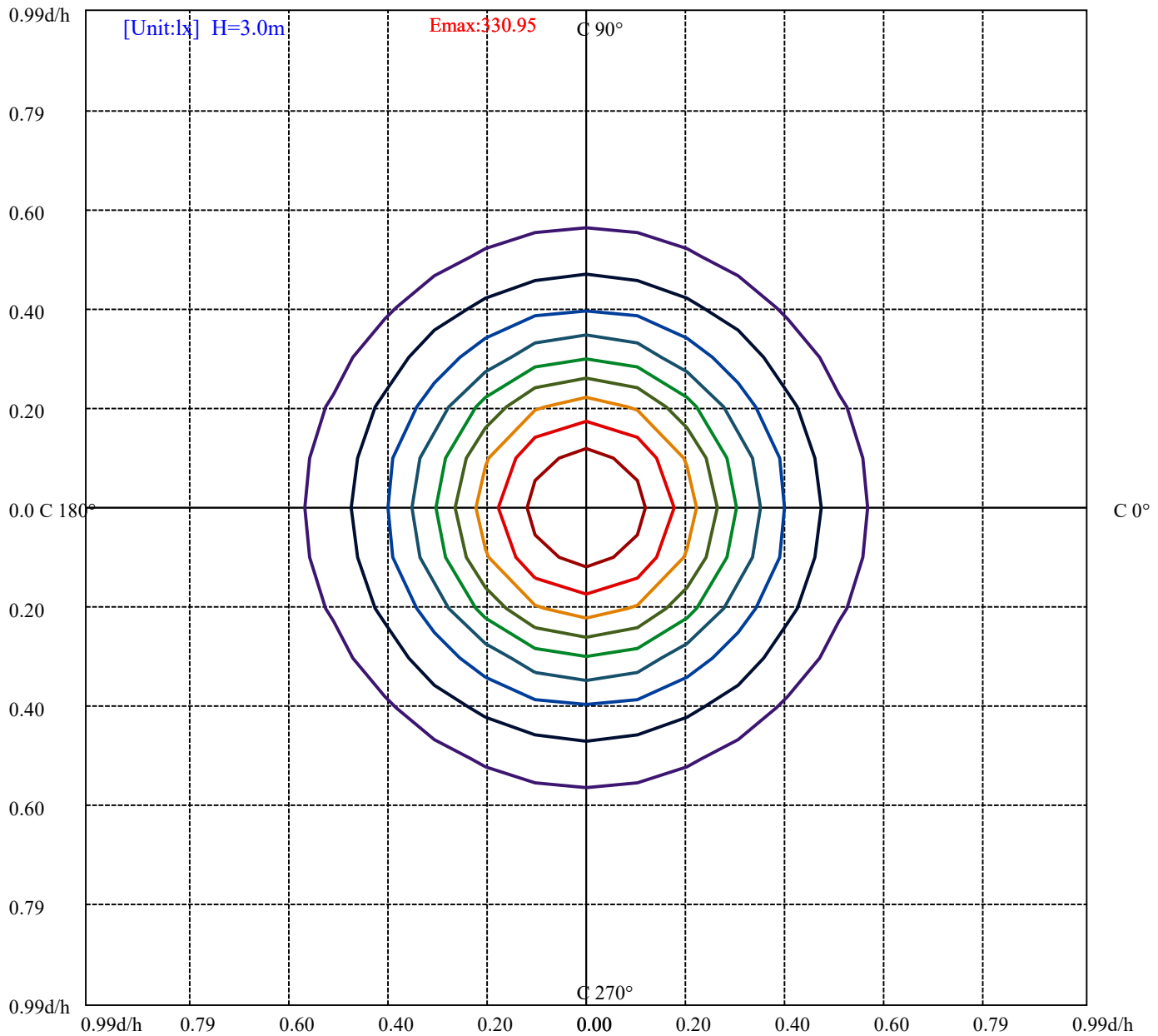
House

[Unit:cd]

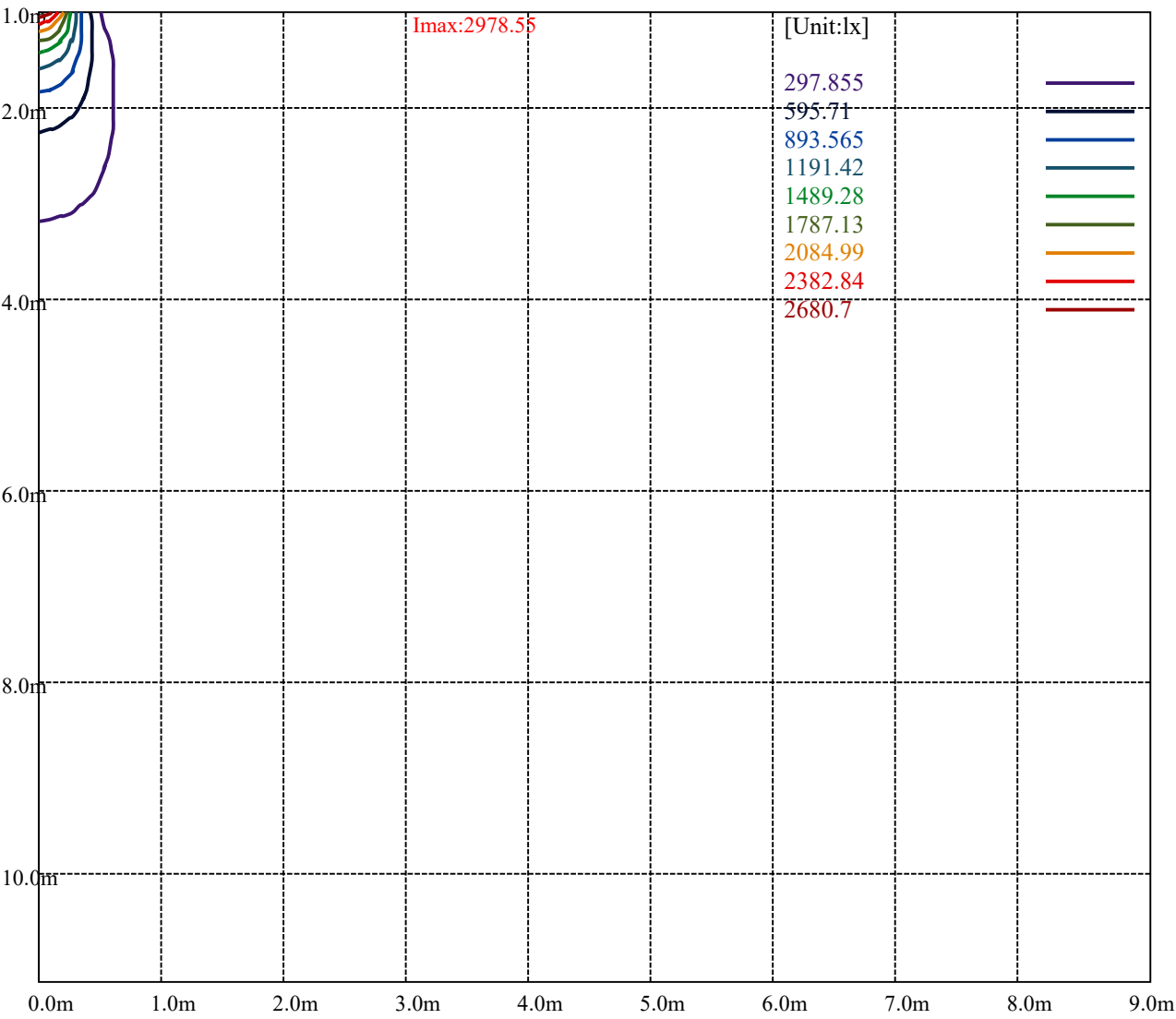
Road

Imax:2978.55

(10%Imax)	297.855	—
(20%Imax)	595.71	—
(30%Imax)	893.565	—
(40%Imax)	1191.42	—
(50%Imax)	1489.28	—
(60%Imax)	1787.13	—
(70%Imax)	2084.99	—
(80%Imax)	2382.84	—
(90%Imax)	2680.7	—



(10%Emax) 33.095	—
(20%Emax) 66.19	—
(30%Emax) 99.28489	—
(40%Emax) 132.38	—
(50%Emax) 165.4744	—
(60%Emax) 198.57	—
(70%Emax) 231.6644	—
(80%Emax) 264.76	—
(90%Emax) 297.8544	—



Luminance Table

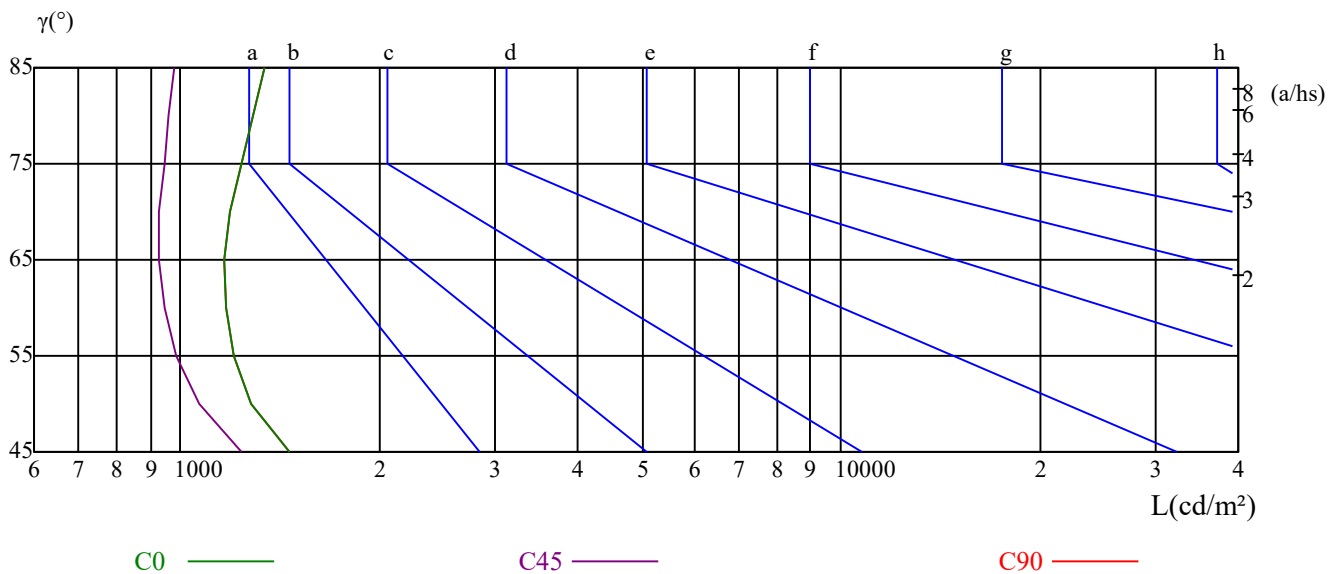
γ	45	50	55	60	65	70	75	80	85
C0	1462	1280	1201	1172	1165	1187	1235	1284	1339
C45	1237	1067	985	946	925	926	944	960	976
C90	1462	1280	1201	1172	1165	1187	1235	1284	1339

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3119	3119	3119	4842	4842	4842	13318	13318	13318

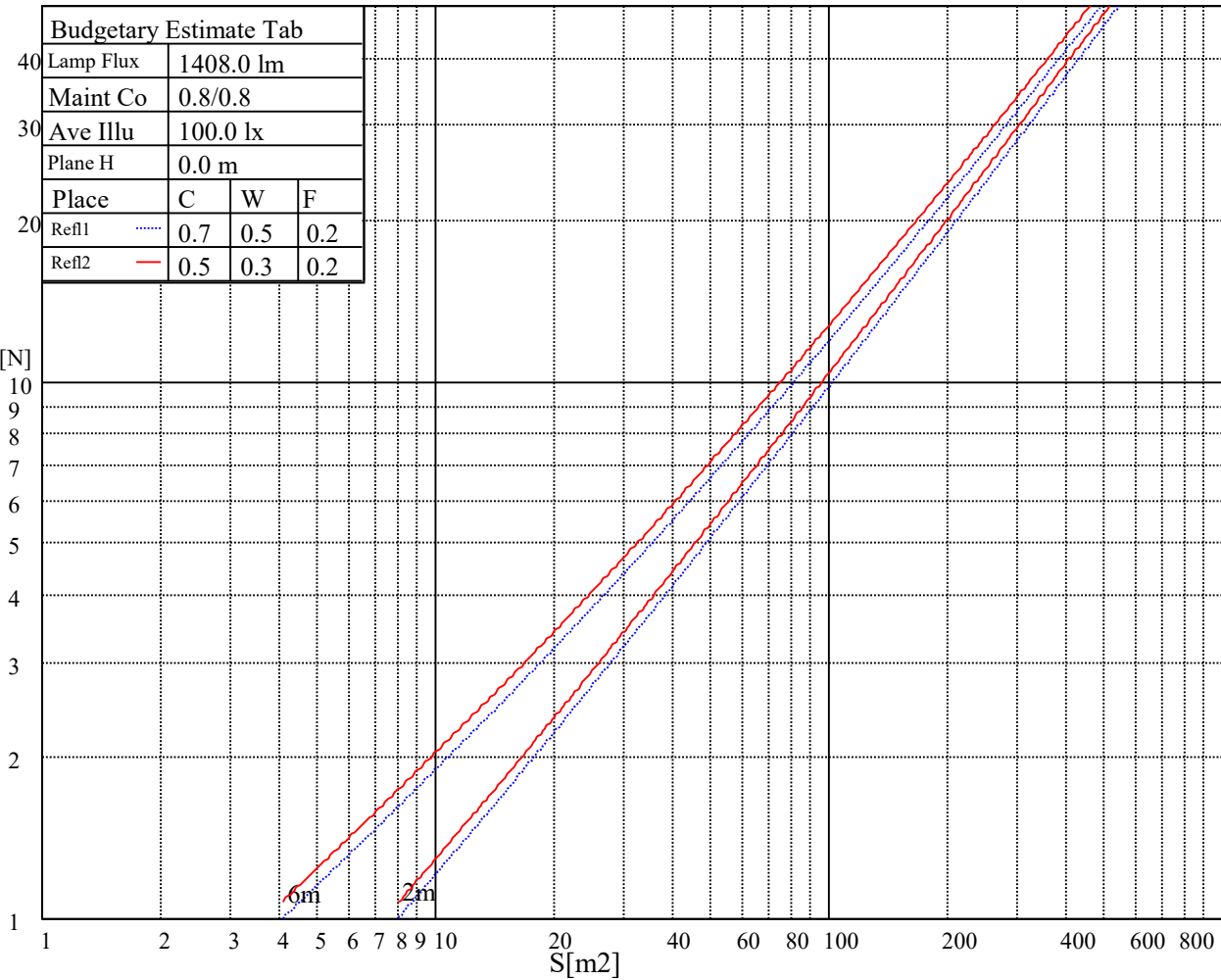
Glare Table

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

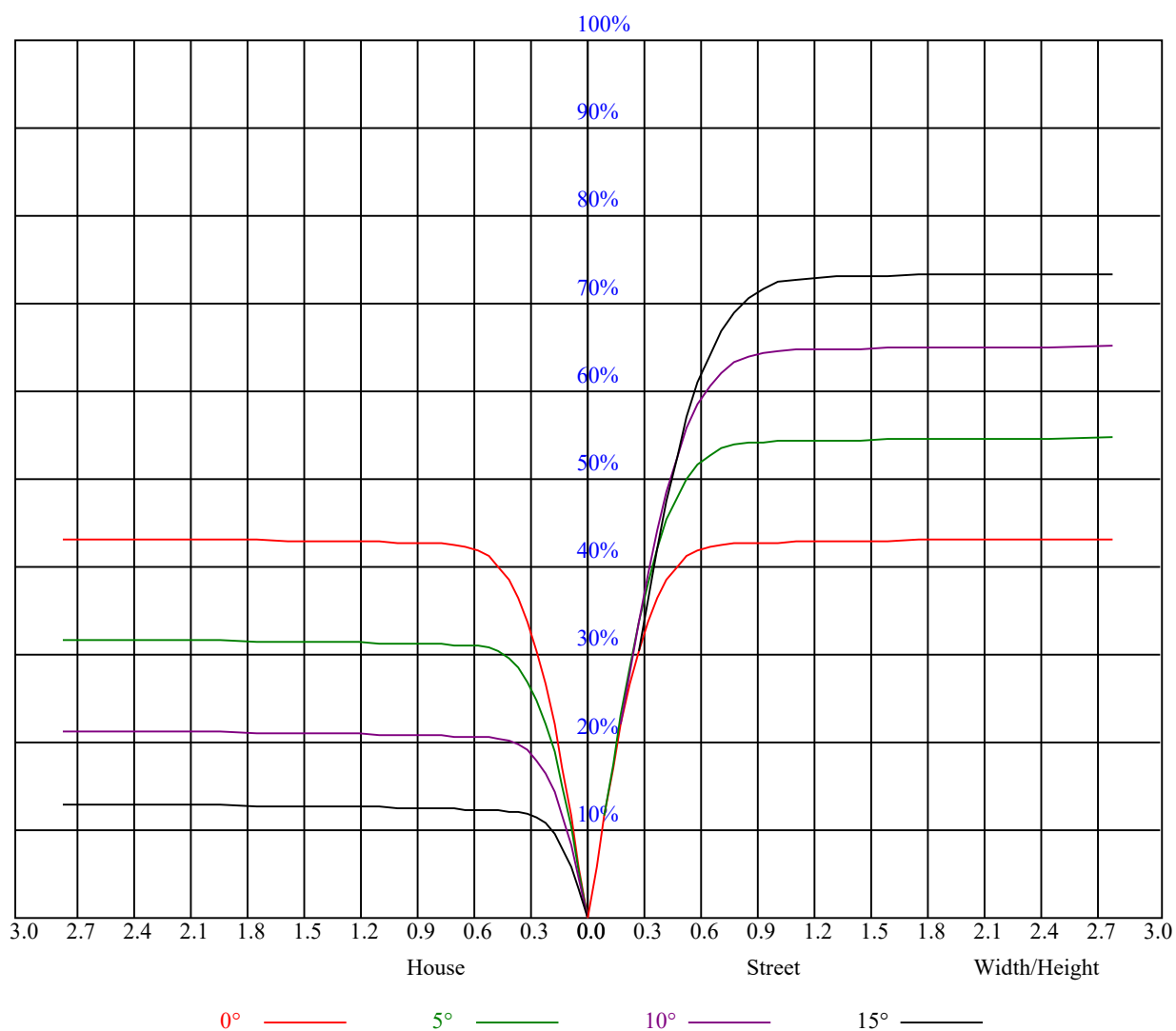
Luminance Limiting Curve



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	1.51	2.43	1.88	2.74	3.06	1.47	2.38	1.83	2.69	3.01
	3H	3.55	4.36	3.93	4.69	5.06	3.46	4.27	3.85	4.61	4.98
	4H	4.65	5.40	5.06	5.76	6.15	4.57	5.32	4.98	5.67	6.07
	6H	5.82	6.50	6.23	6.88	7.27	5.74	6.43	6.16	6.80	7.20
	8H	6.39	7.04	6.83	7.43	7.84	6.33	6.97	6.76	7.36	7.77
	12H	7.29	7.91	7.73	8.29	8.72	7.24	7.85	7.68	8.24	8.67
4H	2H	2.01	2.76	2.42	3.11	3.51	1.97	2.72	2.38	3.08	3.47
	3H	4.36	4.97	4.77	5.38	5.79	4.29	4.91	4.71	5.32	5.73
	4H	5.64	6.19	6.08	6.62	7.07	5.58	6.13	6.02	6.55	7.00
	6H	6.88	7.35	7.35	7.80	8.27	6.81	7.28	7.29	7.74	8.21
	8H	7.56	8.00	8.04	8.45	8.93	7.50	7.94	7.98	8.39	8.87
	12H	8.46	8.83	8.95	9.32	9.80	8.41	8.79	8.91	9.28	9.76
8H	4H	6.09	6.53	6.57	6.98	7.46	6.04	6.48	6.52	6.93	7.40
	6H	7.57	7.91	8.08	8.42	8.90	7.52	7.86	8.03	8.37	8.86
	8H	8.40	8.70	8.93	9.22	9.72	8.35	8.66	8.89	9.18	9.68
	12H	9.42	9.69	9.95	10.19	10.77	9.39	9.65	9.91	10.15	10.73
12H	4H	6.17	6.55	6.66	7.04	7.51	6.12	6.50	6.61	6.99	7.46
	6H	7.94	8.04	8.27	8.51	9.06	7.89	7.99	8.22	8.47	9.02
	8H	8.66	8.92	9.18	9.42	10.00	8.62	8.88	9.14	9.38	9.96
Variation with the observer position at spacings:											
S = 1.0H		5.3/-3.7					5.3/-3.7				
S = 1.5H		6.9/-2.7					6.9/-2.7				
S = 2.0H		8.0/-2.0					8.0/-2.0				
Standard tables:		BK4					BK4				
Uncorrected UGR		-7.2					-7.2				



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	1.05	1.05	1.05	1.02	1.02	1.02	0.98	0.98	0.98	0.93	0.93	0.93	0.90	0.90	0.90	0.88
1	0.98	0.96	0.94	0.96	0.94	0.93	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.83
2	0.93	0.90	0.87	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.81	0.79
3	0.88	0.84	0.81	0.87	0.83	0.81	0.84	0.82	0.79	0.82	0.80	0.78	0.80	0.79	0.77	0.76
4	0.84	0.80	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.76	0.74	0.78	0.75	0.73	0.72
5	0.80	0.75	0.72	0.79	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
6	0.76	0.72	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
7	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64
8	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.61
9	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.59
10	0.65	0.61	0.58	0.64	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.58	0.63	0.60	0.57	0.57



Intensity data(cd)									Appendix Page: 15 Total:15		
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	2979.10	2928.45	2681.25	2101.50	1419.35	890.26	464.68	66.01	15.53		
45.0	2970.29	2925.70	2694.46	2111.41	1435.32	912.84	468.53	71.08	17.40		
90.0	2980.20	2872.84	2557.92	1958.91	1094.74	808.17	377.30	52.25	14.04		
135.0	2984.61	2895.97	2610.77	1984.78	1338.97	824.19	380.99	60.62	15.03		
180.0	2979.10	2824.39	2430.19	1793.19	1091.27	690.79	244.89	33.75	11.12		
225.0	2970.29	2786.40	2381.19	1694.64	1083.62	663.10	217.25	31.05	11.01		
270.0	2980.20	2858.53	2500.11	1836.13	1219.50	768.59	301.16	41.29	12.11		
315.0	2984.61	2865.69	2492.95	1749.14	1082.57	697.95	238.39	37.99	11.73		
360.0	2979.10	2928.45	2681.25	2101.50	1419.35	890.26	464.68	66.01	15.53		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	9.41	7.87	6.94	6.44	6.06	5.78	5.67	5.56	5.51		
45.0	10.24	8.37	7.38	6.72	6.28	5.95	5.84	5.67	5.62		
90.0	9.14	7.82	6.99	6.50	6.17	5.89	5.73	5.62	5.45		
135.0	8.75	7.65	7.16	6.99	6.72	6.66	6.44	6.28	5.45		
180.0	7.93	6.99	6.44	6.11	5.78	5.56	5.51	5.45	5.40		
225.0	8.15	7.16	6.72	6.50	6.22	6.11	6.00	5.78	5.56		
270.0	8.15	7.10	6.55	6.17	5.89	5.67	5.56	5.45	5.45		
315.0	8.42	7.60	7.38	7.16	7.10	7.10	6.99	6.39	5.78		
360.0	9.41	7.87	6.94	6.44	6.06	5.78	5.67	5.56	5.51		
C/ γ (°)	90.0										
0.0	5.29										
45.0	5.45										
90.0	5.34										
135.0	5.29										
180.0	5.29										
225.0	5.40										
270.0	5.34										
315.0	5.29										
360.0	5.29										