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NATA

LumCAT: 4-1940-E
Luminaire: 92.76.233.00
Report No: NATA0100
Test No: GC2019022508
LampCAT: PL-CORE-AC-2000-G2 LES19
Lamp flux(lm): 1789.0
Number of Lamps: 1
Length(mm): 100
Phm Type: C

Voltage(V): 218.2000
Current(A): 0.0770
Power (W): 16.7000
PF: 0.9970
Ballast type: DC
Width(mm): 100
Height(mm): 0

Photometric Results

Lumens(lm): 1566.56
Efficiency(%): 87.57%
Lumens(lm)/Power(W): 94.46
Central intensity(cd): 2079.281
Maximum intensity(cd): 2079.281
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=55.1
 [C90/270]Total=55.1
Field angle(10%Imax): [C0/180]Total=76.8
 [C90/270]Total=76.8
Maximum s/h(1/2): C0_180=0.85 C90_270=0.85
Maximum s/h(1/4): C0_180=0.85 C90_270=0.85
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.18%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.137%

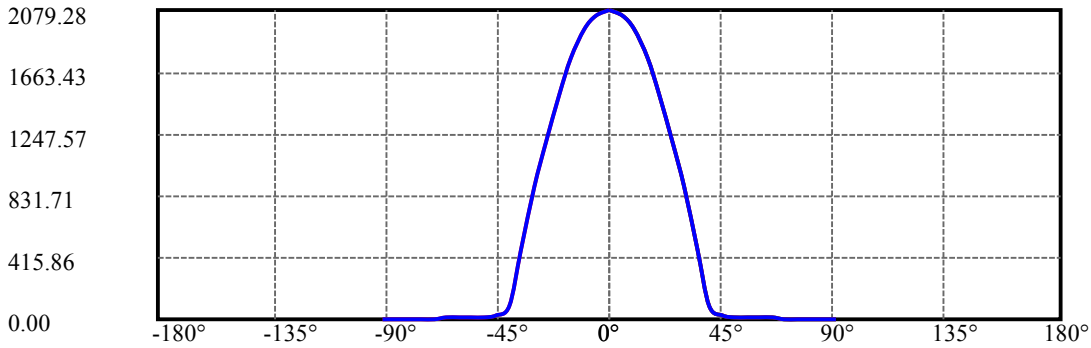
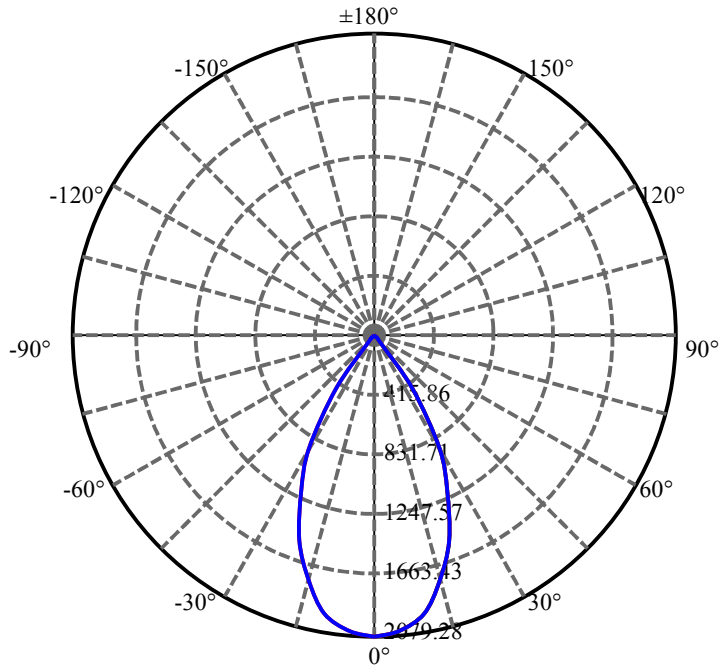
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2079.281	12.435	12.435	.695%	.794%
5.0	2046.938	97.789	110.224	5.466%	7.036%
10.0	1952.438	185.839	296.062	10.388%	18.899%
15.0	1759.500	249.617	545.68	13.953%	34.833%
20.0	1512.844	283.619	829.299	15.853%	52.937%
25.0	1189.990	275.665	1104.963	15.409%	70.534%
30.0	896.006	245.567	1350.531	13.727%	86.210%
35.0	458.817	144.252	1494.782	8.063%	95.418%
40.0	90.956	32.047	1526.829	1.791%	97.464%
45.0	24.630	9.547	1536.376	.534%	98.073%
50.0	12.396	5.205	1541.581	.291%	98.405%
55.0	7.594	3.410	1544.991	.191%	98.623%
60.0	6.574	3.121	1548.111	.174%	98.822%
65.0	6.483	3.221	1551.332	.180%	99.028%
70.0	6.420	3.307	1554.639	.185%	99.239%
75.0	6.370	3.373	1558.011	.189%	99.454%
80.0	6.342	3.424	1561.435	.191%	99.673%
85.0	6.300	3.440	1564.875	.192%	99.892%
90.0	6.159	1.688	1566.563	.094%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1350.53	75.49%	86.21%
0-40	1526.83	85.35%	97.46%
0-60	1548.11	86.54%	98.82%
0-90	1564.88	87.47%	99.89%
0-120	1564.88	87.47%	99.89%
0-180	1566.56	87.57%	100.00%
60-90	19.88	1.11%	1.27%
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%
0-28.02	1253.25	70.05%	80.00%

ZONAL LUMEN SUMMARY

0-10	296.06
10-20	533.24
20-30	521.23
30-40	176.30
40-50	14.75
50-60	6.53
60-70	6.53
70-80	6.80
80-90	3.44
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: ———

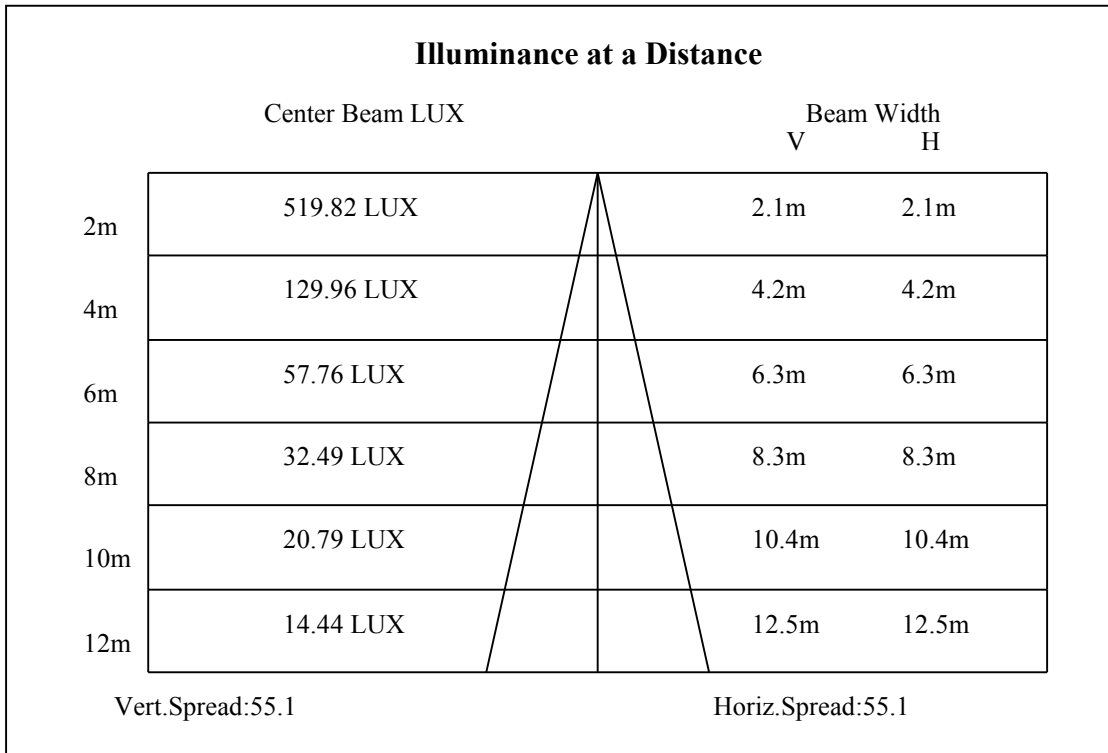
C90/C270: ———

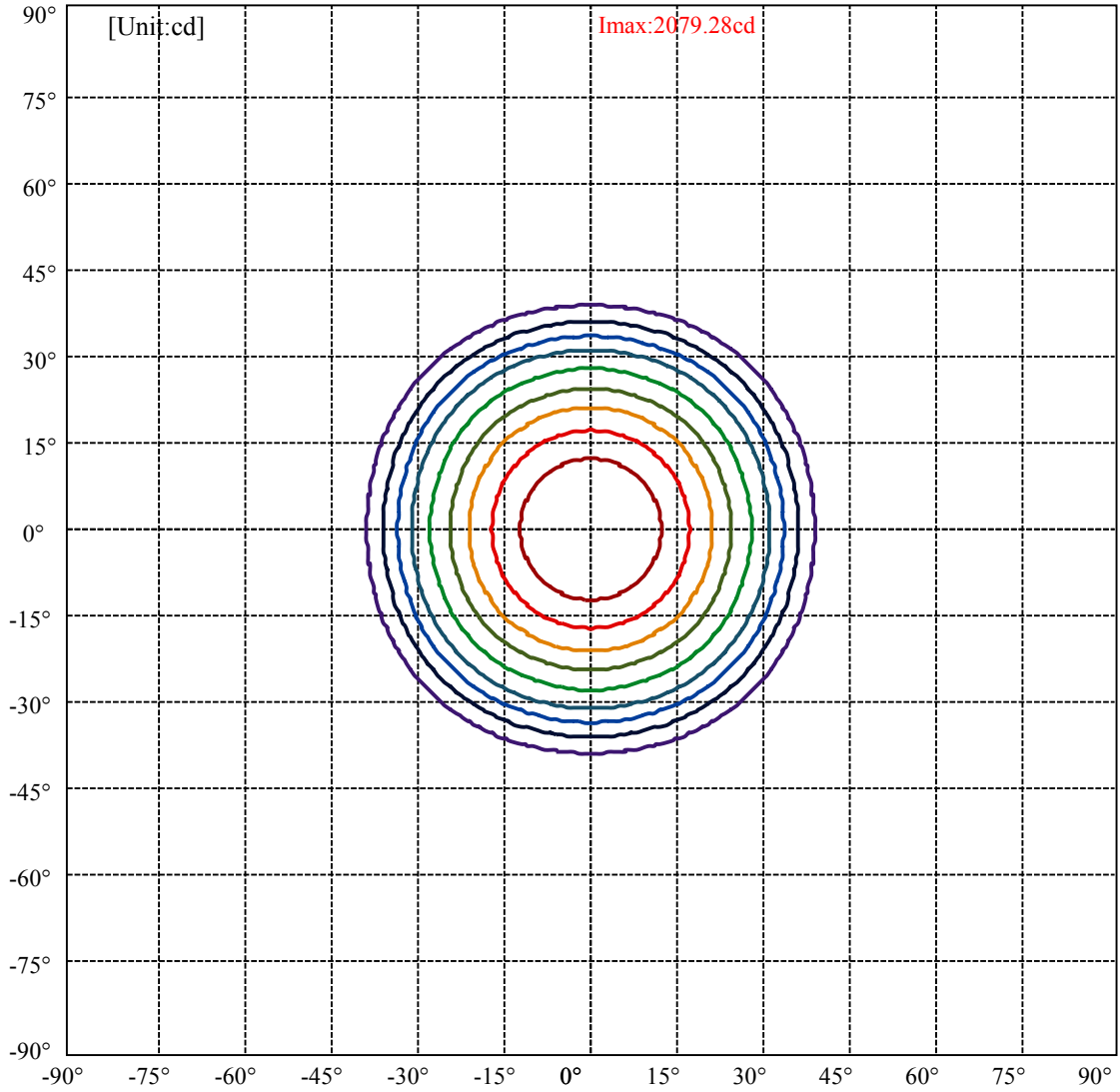
Field angle(10%Imax):C0/180Left:38.4 Right:38.4

:C90/270Left:38.4 Right:38.4

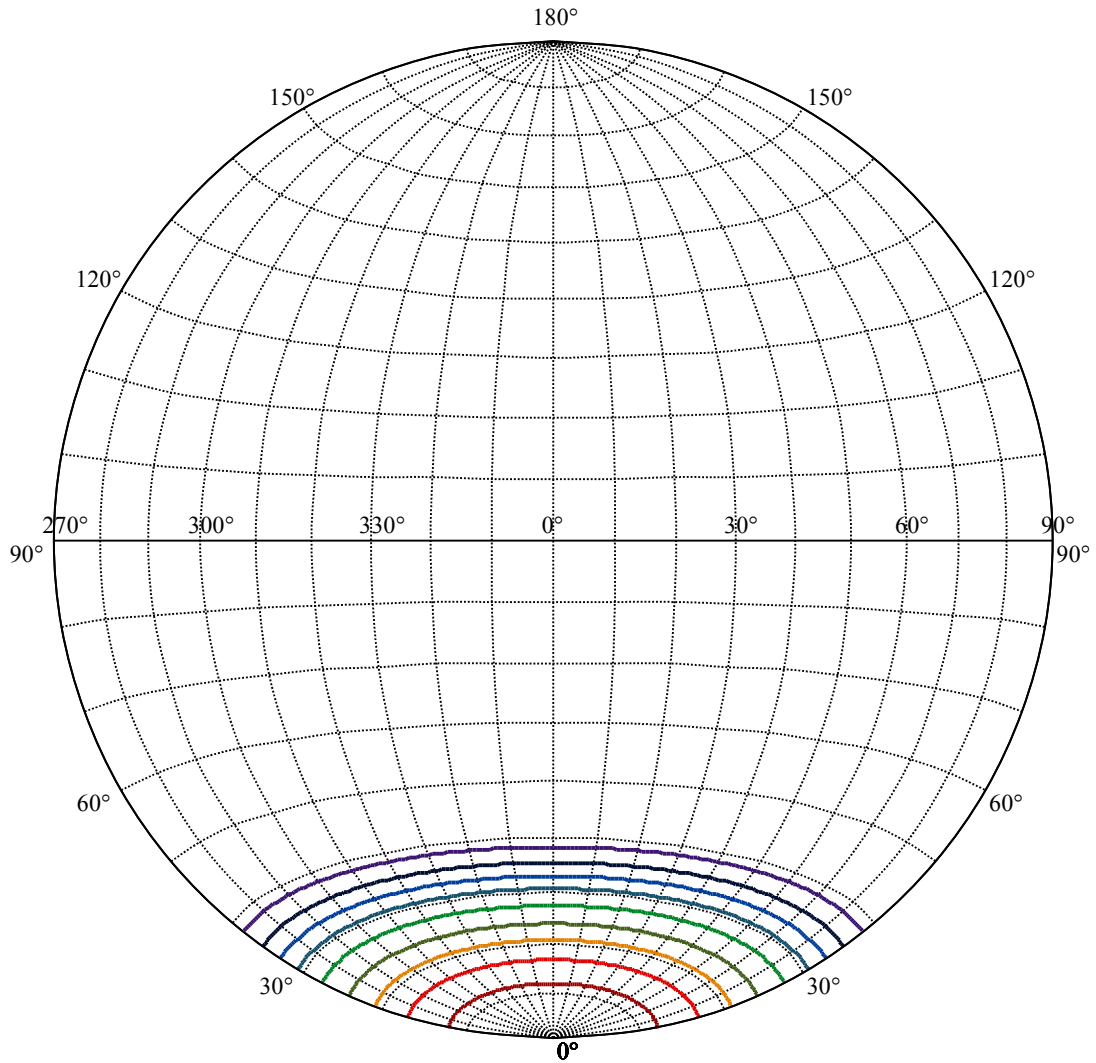
Beam Angle(50%Imax):C0/180Left:27.6 Right:27.6

:C90/270Left:27.6 Right:27.6





(10%Imax) 207.928	—
(20%Imax) 415.856	—
(30%Imax) 623.784	—
(40%Imax) 831.713	—
(50%Imax) 1039.64	—
(60%Imax) 1247.57	—
(70%Imax) 1455.5	—
(80%Imax) 1663.43	—
(90%Imax) 1871.35	—



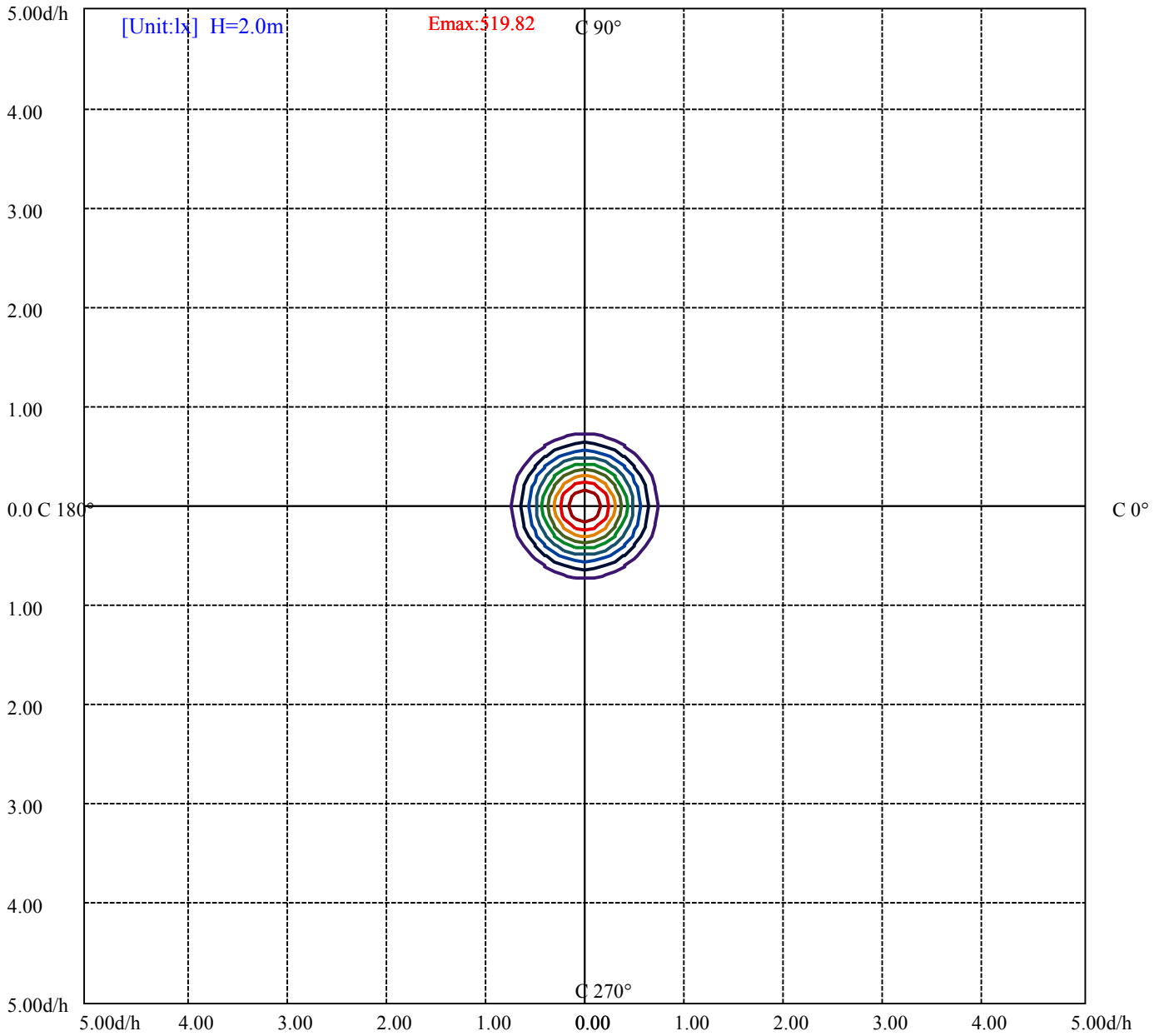
House

[Unit:cd]

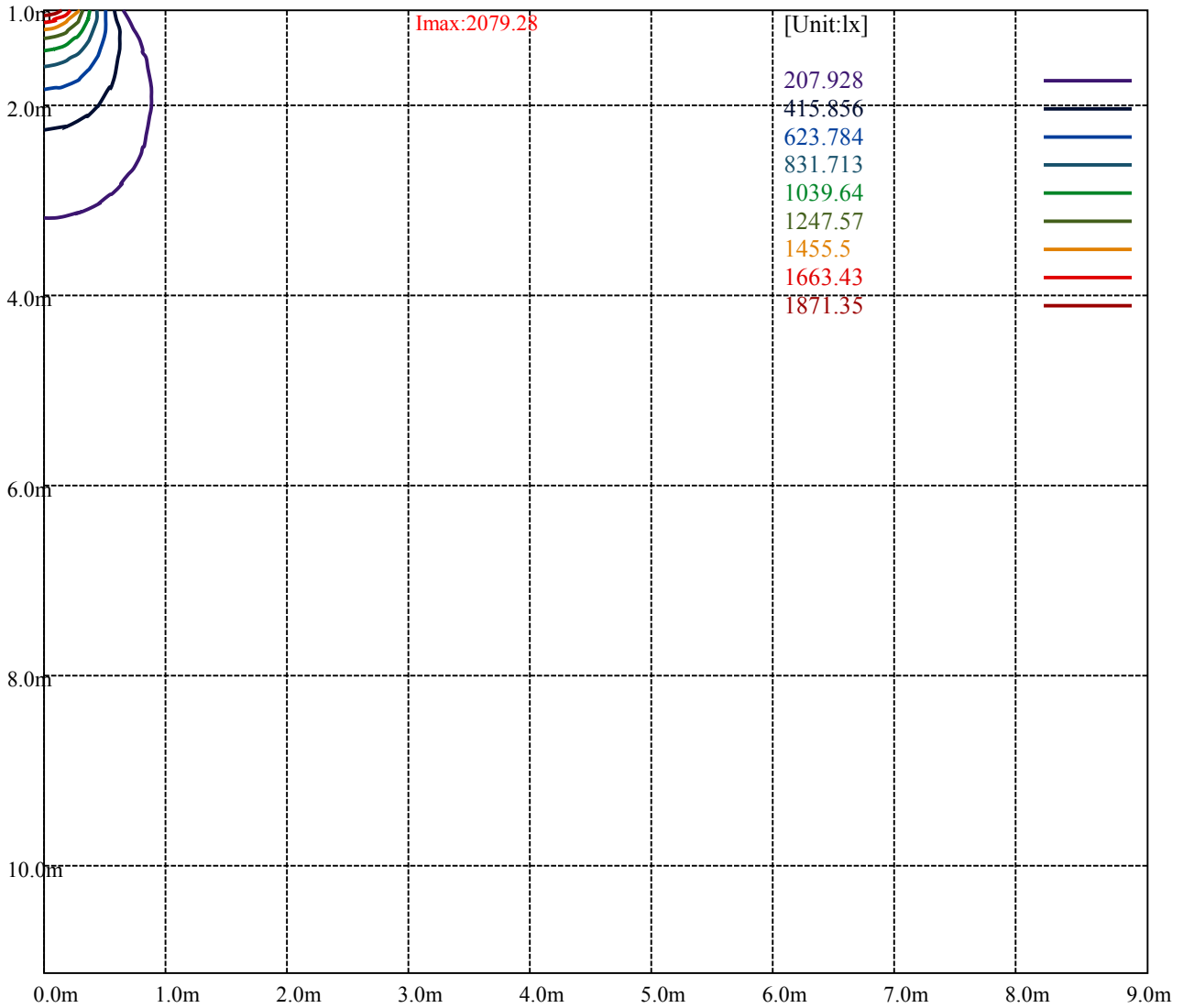
Road

I_{max}:2079.28

(10%I _{max})	207.928	—
(20%I _{max})	415.856	—
(30%I _{max})	623.784	—
(40%I _{max})	831.713	—
(50%I _{max})	1039.64	—
(60%I _{max})	1247.57	—
(70%I _{max})	1455.5	—
(80%I _{max})	1663.43	—
(90%I _{max})	1871.35	—



(10%Emax) 51.982	—
(20%Emax) 103.964	—
(30%Emax) 155.946	—
(40%Emax) 207.928	—
(50%Emax) 259.91	—
(60%Emax) 311.8925	—
(70%Emax) 363.875	—
(80%Emax) 415.855	—
(90%Emax) 467.8375	—



Luminance Table

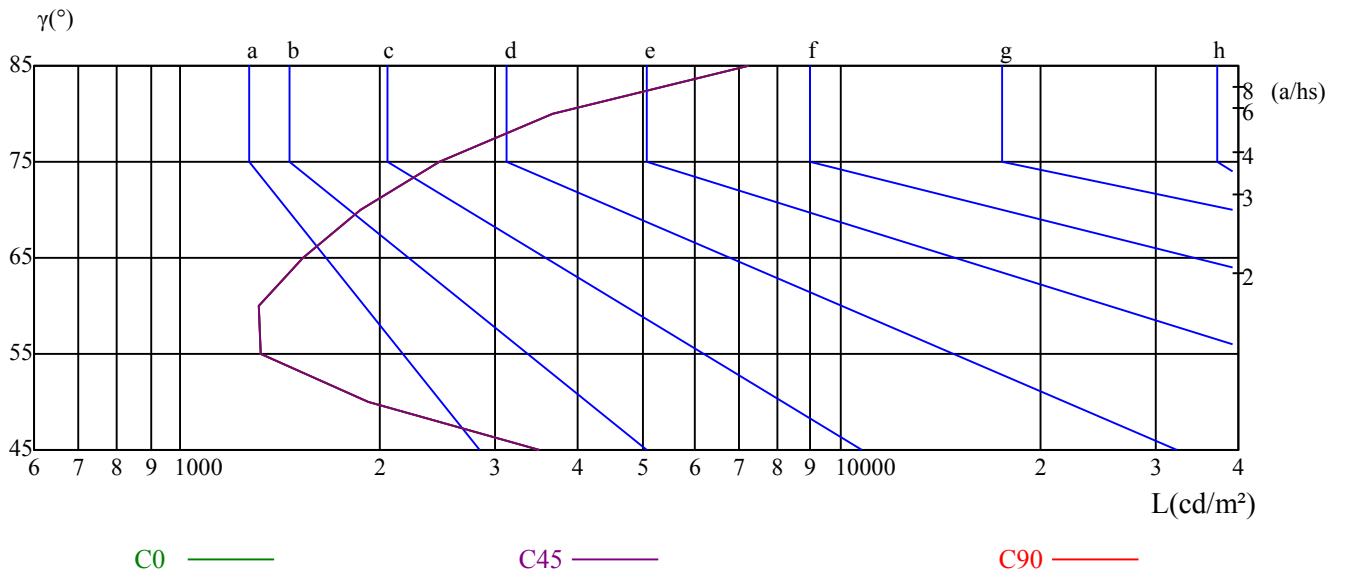
γ	45	50	55	60	65	70	75	80	85
C0	3483	1928	1324	1315	1534	1877	2461	3652	7228
C45	3483	1928	1324	1315	1534	1877	2461	3652	7228
C90	3483	1928	1324	1315	1534	1877	2461	3652	7228

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1534	1534	1534	2461	2461	2461	7228	7228	7228

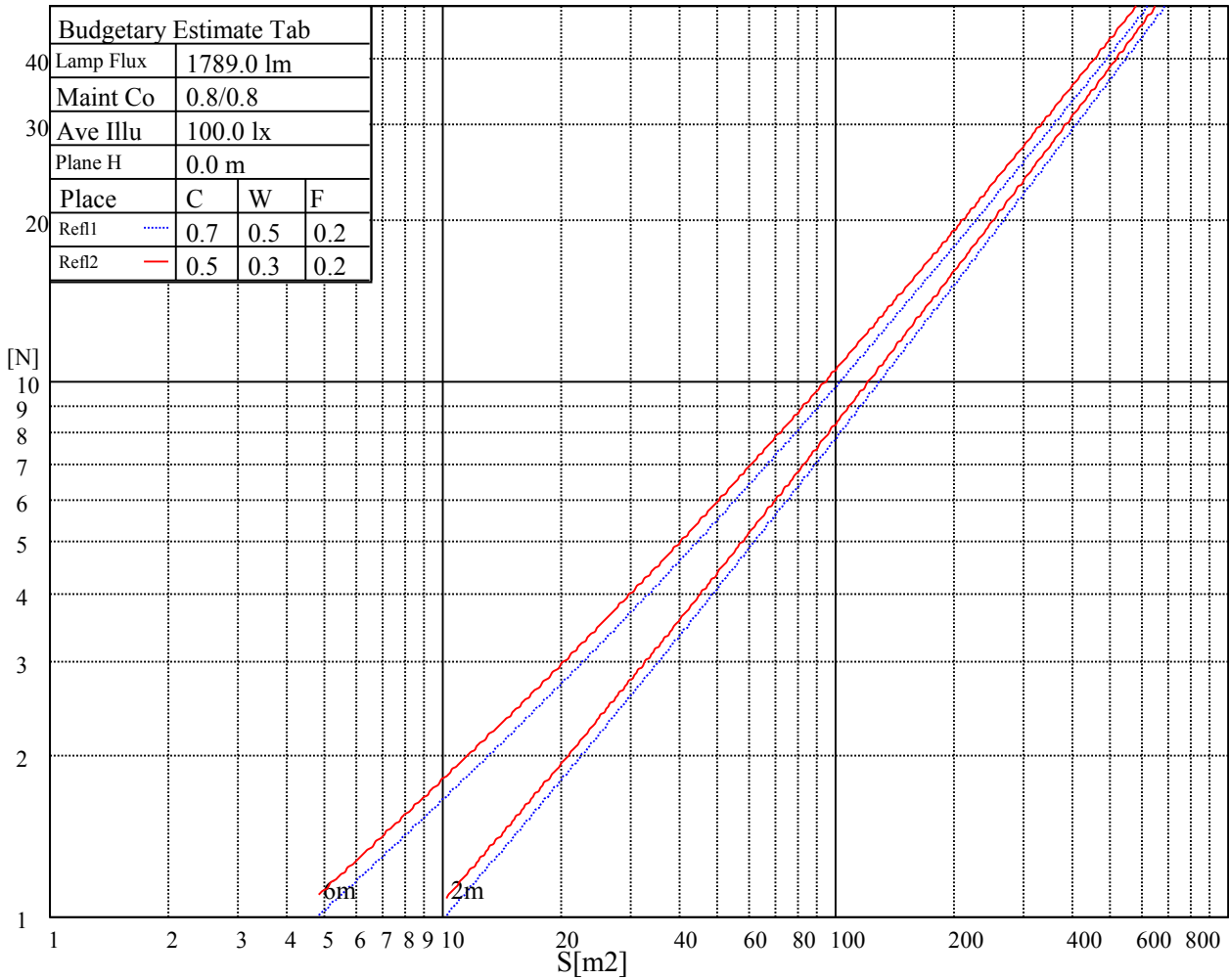
Glare Table

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

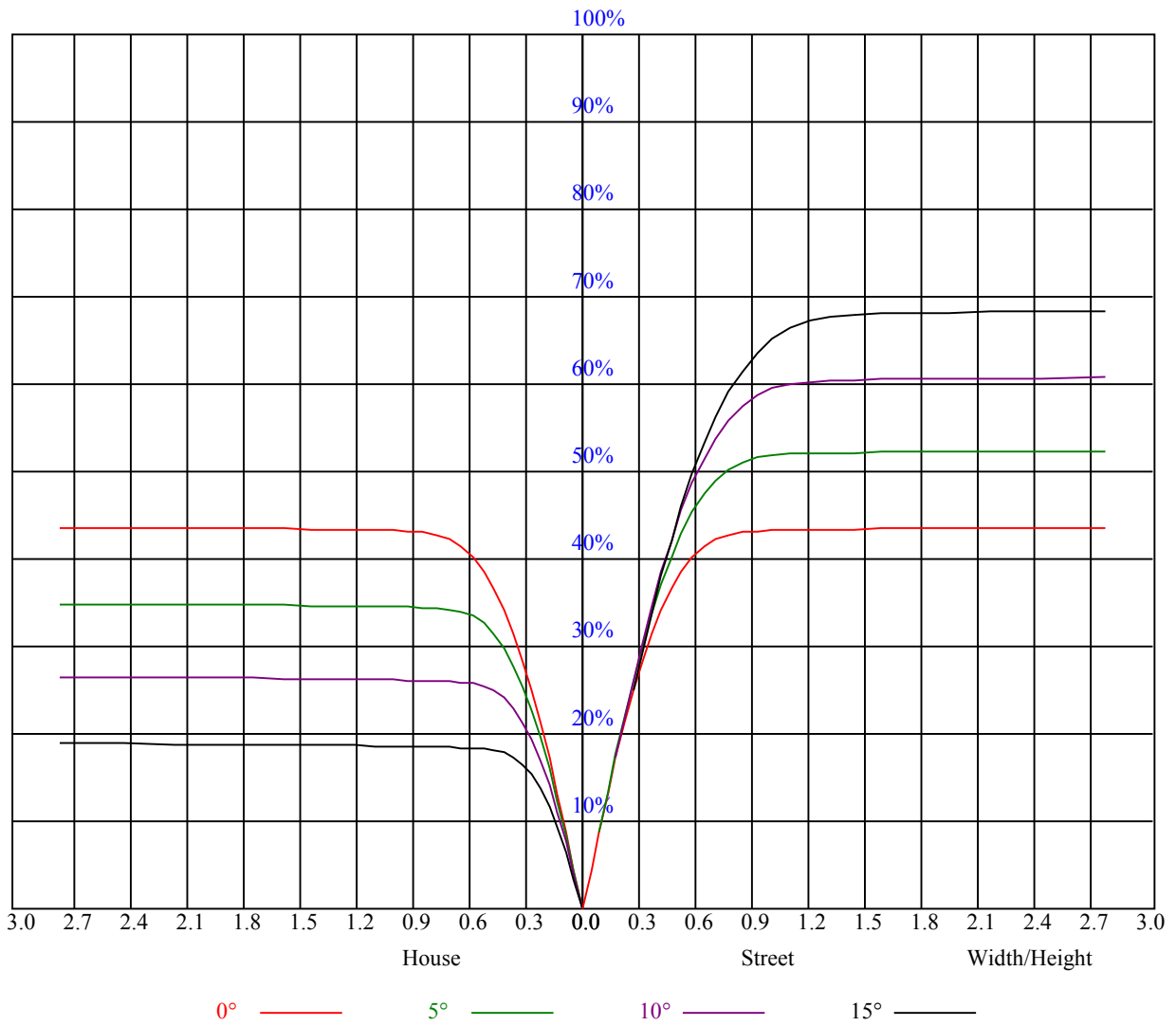
Luminance Limiting Curve



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	-0.04	0.88	0.32	1.19	1.51	0.01	0.93	0.37	1.24	1.56
	3H	3.07	3.88	3.45	4.22	4.59	3.12	3.93	3.50	4.26	4.63
	4H	4.81	5.57	5.22	5.92	6.31	4.87	5.62	5.27	5.97	6.36
	6H	6.80	7.49	7.22	7.86	8.26	6.86	7.54	7.27	7.92	8.32
	8H	7.90	8.55	8.34	8.94	9.35	7.96	8.60	8.40	9.00	9.41
	12H	9.68	10.30	10.12	10.68	11.12	9.74	10.36	10.18	10.74	11.18
4H	2H	0.81	1.56	1.21	1.91	2.30	0.84	1.59	1.25	1.95	2.34
	3H	4.21	4.82	4.62	5.23	5.64	4.24	4.86	4.66	5.27	5.68
	4H	6.13	6.68	6.57	7.10	7.55	6.17	6.72	6.61	7.15	7.60
	6H	8.27	8.74	8.74	9.19	9.67	8.31	8.79	8.79	9.24	9.71
	8H	9.47	9.91	9.95	10.36	10.84	9.52	9.96	10.00	10.41	10.88
	12H	11.15	11.53	11.64	12.02	12.50	11.20	11.58	11.70	12.07	12.55
8H	4H	6.87	7.31	7.35	7.76	8.24	6.90	7.34	7.38	7.79	8.27
	6H	9.28	9.63	9.79	10.13	10.62	9.32	9.67	9.83	10.17	10.66
	8H	10.67	10.98	11.20	11.50	12.00	10.71	11.02	11.24	11.54	12.04
	12H	12.48	12.74	13.00	13.24	13.82	12.52	12.78	13.04	13.28	13.86
12H	4H	7.08	7.46	7.58	7.95	8.43	7.11	7.49	7.61	7.98	8.46
	6H	9.81	9.91	10.14	10.38	10.93	9.85	9.95	10.18	10.42	10.97
	8H	11.12	11.39	11.65	11.89	12.47	11.16	11.42	11.68	11.92	12.50
Variation with the observer position at spacings:											
S = 1.0H		5.8/-9.3					5.8/-9.3				
S = 1.5H		8.3/-7.2					8.3/-7.2				
S = 2.0H		9.9/-5.8					9.9/-5.8				
Standard tables:		BK1					BK1				
Uncorrected UGR		-1.1					-1.1				



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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.97	0.95	0.93	0.95	0.93	0.92	0.92	0.90	0.89	0.89	0.87	0.86	0.86	0.85	0.84	0.82
2	0.92	0.88	0.85	0.90	0.87	0.84	0.87	0.85	0.82	0.85	0.82	0.81	0.82	0.80	0.79	0.78
3	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.73
4	0.82	0.77	0.74	0.81	0.77	0.73	0.79	0.75	0.72	0.77	0.74	0.72	0.75	0.73	0.71	0.70
5	0.77	0.73	0.69	0.77	0.72	0.69	0.75	0.71	0.68	0.74	0.70	0.68	0.72	0.70	0.67	0.66
6	0.74	0.69	0.65	0.73	0.68	0.65	0.72	0.68	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
7	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
8	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
9	0.64	0.59	0.56	0.63	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.55	0.54
10	0.61	0.57	0.54	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.56	0.53	0.59	0.55	0.53	0.52



NATA 4-1940-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	2075.06	2083.50	2023.31	1860.75	1621.69	1298.25	967.50	534.94	93.04
45.0	2084.63	2053.69	1974.38	1789.31	1545.19	1266.19	937.13	489.38	111.94
90.0	2074.50	2005.88	1882.69	1699.31	1429.88	1114.65	856.80	407.59	82.18
135.0	2082.94	2012.63	1903.50	1703.25	1481.06	1209.38	897.75	497.25	110.19
180.0	2075.06	2014.31	1891.69	1674.00	1418.06	1109.59	822.15	382.89	87.41
225.0	2084.63	2045.81	1938.38	1733.06	1476.00	1121.91	871.82	422.55	74.76
270.0	2074.50	2077.88	2003.63	1816.88	1585.69	1285.31	951.75	506.81	96.98
315.0	2082.94	2081.81	2001.94	1799.44	1545.19	1114.65	863.16	429.13	71.16
360.0	2075.06	2083.50	2023.31	1860.75	1621.69	1298.25	967.50	534.94	93.04
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	24.36	12.26	7.71	6.53	6.41	6.41	6.36	6.36	6.36
45.0	24.81	12.26	7.37	6.53	6.41	6.36	6.36	6.30	6.24
90.0	22.22	12.43	7.43	6.53	6.47	6.36	6.30	6.30	6.24
135.0	31.78	14.23	8.33	6.64	6.53	6.47	6.41	6.36	6.30
180.0	25.88	12.66	7.59	6.69	6.58	6.47	6.41	6.41	6.36
225.0	24.58	12.15	7.43	6.64	6.53	6.47	6.41	6.36	6.30
270.0	24.64	12.04	7.71	6.58	6.53	6.41	6.36	6.36	6.30
315.0	18.79	11.14	7.20	6.47	6.41	6.41	6.36	6.30	6.30
360.0	24.36	12.26	7.71	6.53	6.41	6.41	6.36	6.36	6.36
C/γ(°)	90.0								
0.0	6.19								
45.0	6.13								
90.0	6.13								
135.0	6.19								
180.0	6.19								
225.0	6.13								
270.0	6.13								
315.0	6.19								
360.0	6.19								