



NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

NATA

LumCAT: 6495-EG

Luminaire:

Report No: NATA0100

Test No: GC2019022608

LampCAT: OSRAM PL-CUBE-AC-2000

Lamp flux(lm): 1594.0

Number of Lamps: 1

Length(mm): 144

Phm Type: C

Voltage(V): 218.1000

Current(A): 0.1080

Power (W): 23.7000

PF: 1.0000

Ballast type: DC

Width(mm): 144

Height(mm): 0

Photometric Results

Lumens(lm): 1431.95

Efficiency(%): 89.83%

Lumens(lm)/Power(W): 60.75

Central intensity(cd): 1543.078

Maximum intensity(cd): 1543.078

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=56.5

[C90/270]Total=56.5

Field angle(10%Imax): [C0/180]Total=93.4

[C90/270]Total=93.4

Maximum s/h(1/2): C0_180=0.83 C90_270=0.83

Maximum s/h(1/4): C0_180=0.89 C90_270=0.89

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 90.33%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.126%

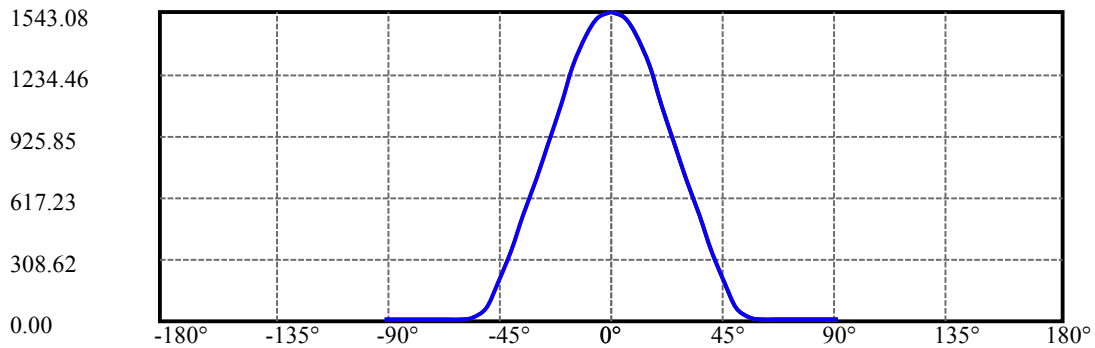
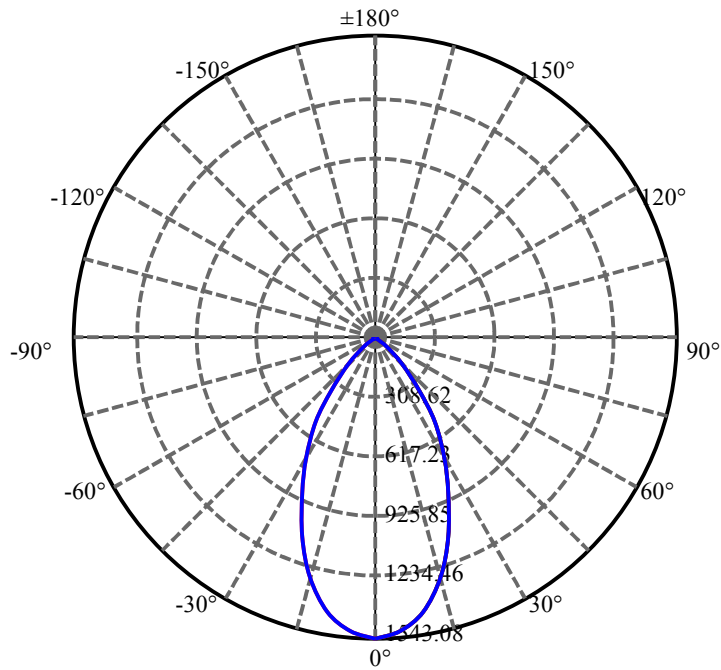
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1543.078	9.228	9.228	.579%	.644%
5.0	1512.492	72.257	81.485	4.533%	5.690%
10.0	1424.109	135.551	217.036	8.504%	15.157%
15.0	1276.453	181.088	398.124	11.361%	27.803%
20.0	1086.659	203.720	601.844	12.780%	42.030%
25.0	882.014	204.321	806.165	12.818%	56.299%
30.0	713.032	195.420	1001.585	12.260%	69.946%
35.0	528.539	166.172	1167.757	10.425%	81.550%
40.0	355.254	125.169	1292.926	7.852%	90.292%
45.0	196.284	76.078	1369.004	4.773%	95.604%
50.0	71.402	29.982	1398.986	1.881%	97.698%
55.0	17.817	8.000	1406.986	.502%	98.257%
60.0	12.305	5.841	1412.827	.366%	98.665%
65.0	9.260	4.600	1417.427	.289%	98.986%
70.0	7.530	3.879	1421.306	.243%	99.257%
75.0	6.342	3.358	1424.664	.211%	99.491%
80.0	5.660	3.055	1427.719	.192%	99.705%
85.0	5.217	2.849	1430.568	.179%	99.904%
90.0	5.027	1.378	1431.946	.086%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1001.59	62.83%	69.95%
0-40	1292.93	81.11%	90.29%
0-60	1412.83	88.63%	98.66%
0-90	1430.57	89.75%	99.90%
0-120	1430.57	89.75%	99.90%
0-180	1431.95	89.83%	100.00%
60-90	23.58	1.48%	1.65%
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%
0-34.33	1145.56	71.87%	80.00%

ZONAL LUMEN SUMMARY

0-10	217.04
10-20	384.81
20-30	399.74
30-40	291.34
40-50	106.06
50-60	13.84
60-70	8.48
70-80	6.41
80-90	2.85
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:

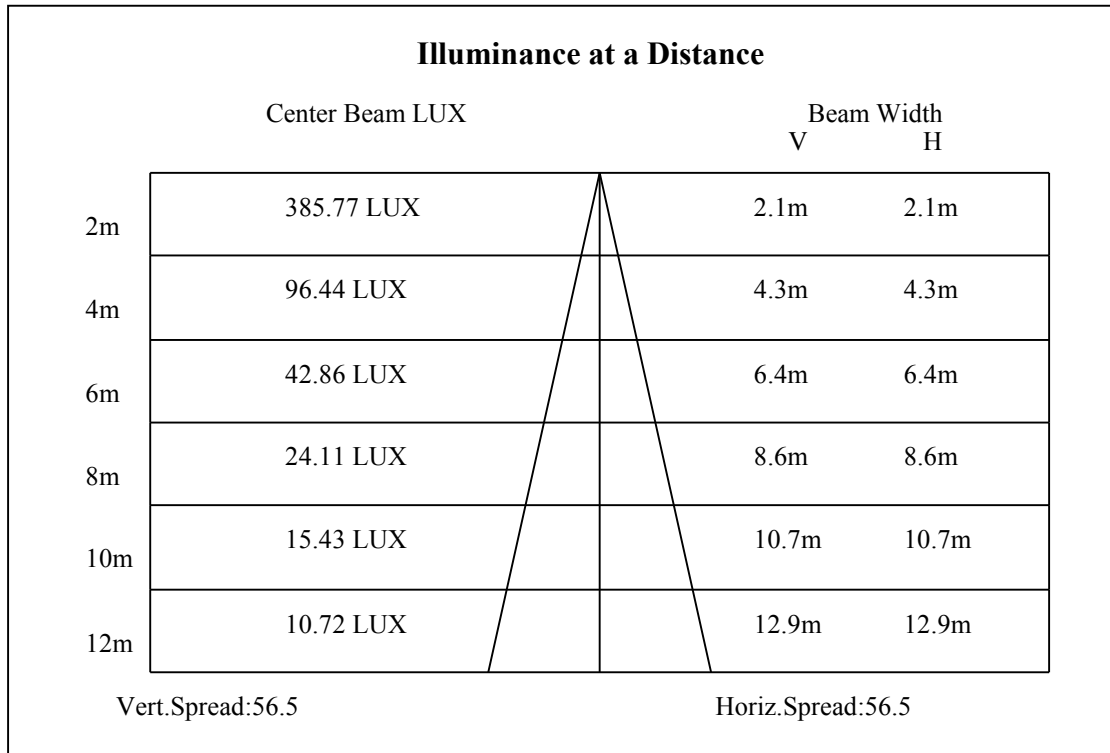
C90/C270:

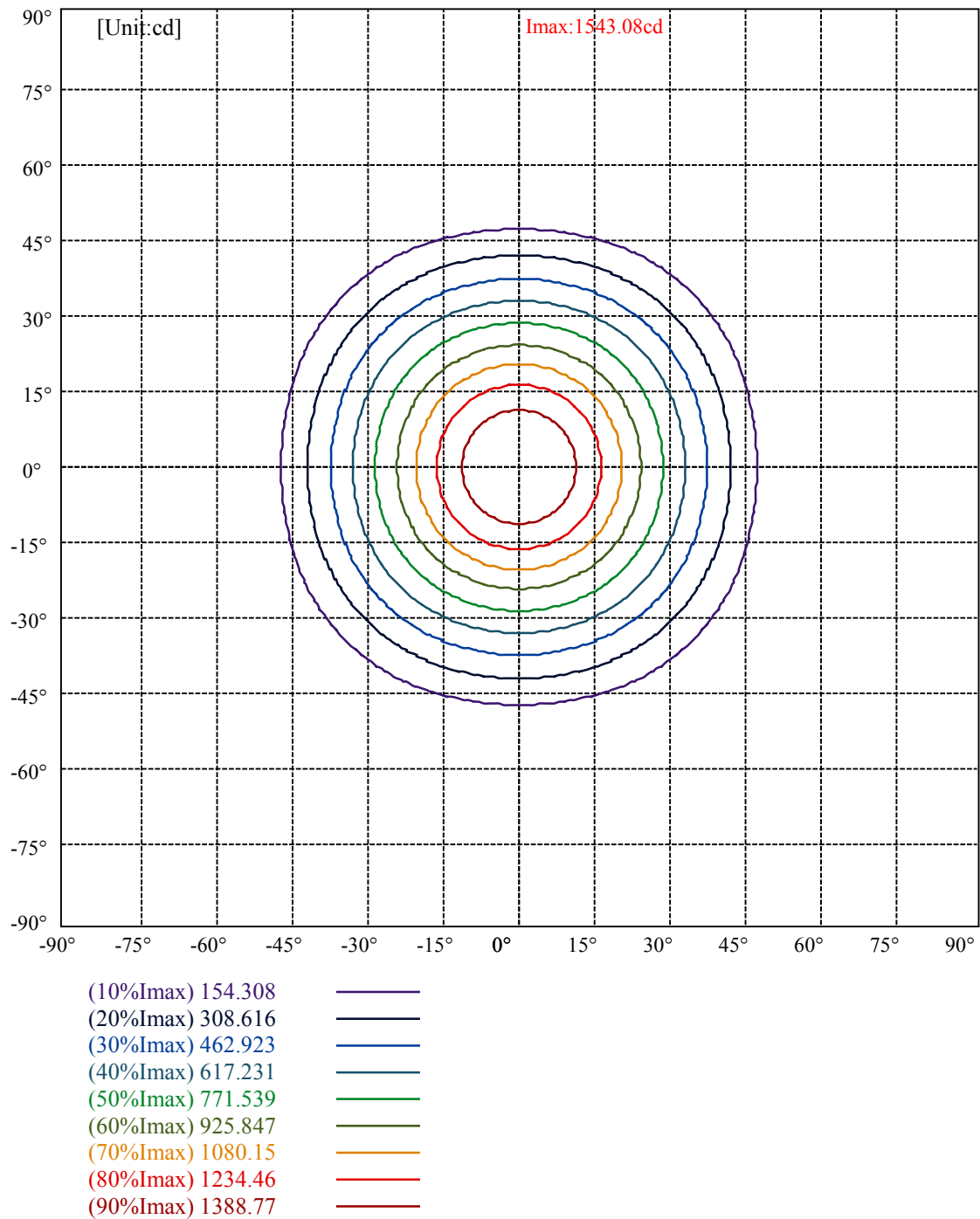
Field angle(10%Imax):C0/180Left:46.7 Right:46.7

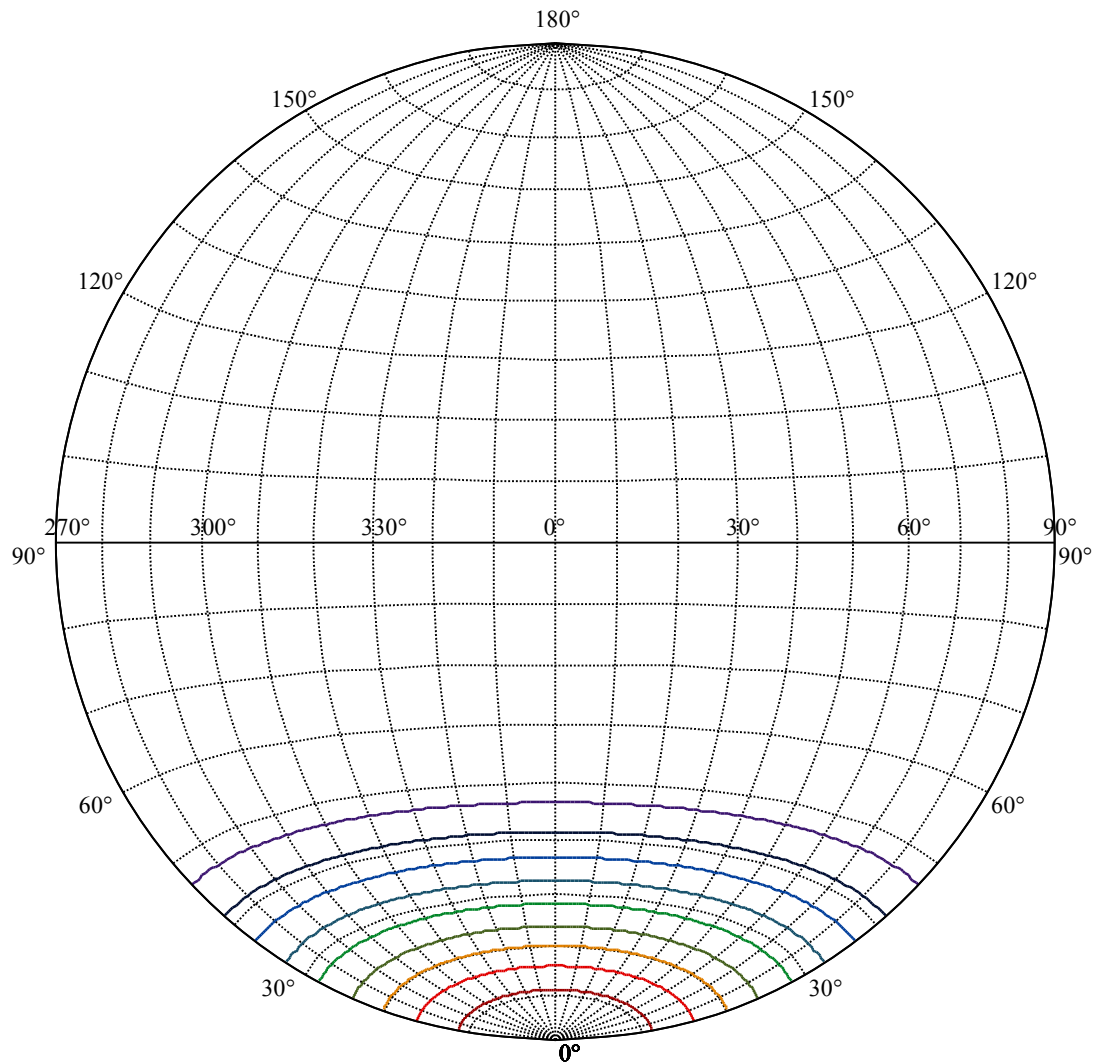
:C90/270Left:46.7 Right:46.7

Beam Angle(50%Imax):C0/180Left:28.3 Right:28.3

:C90/270Left:28.3 Right:28.3







House

[Unit:cd]

Road

Imax:1543.08

(10%Imax) 154.308

(20%Imax) 308.616

(30%Imax) 462.923

(40%Imax) 617.231

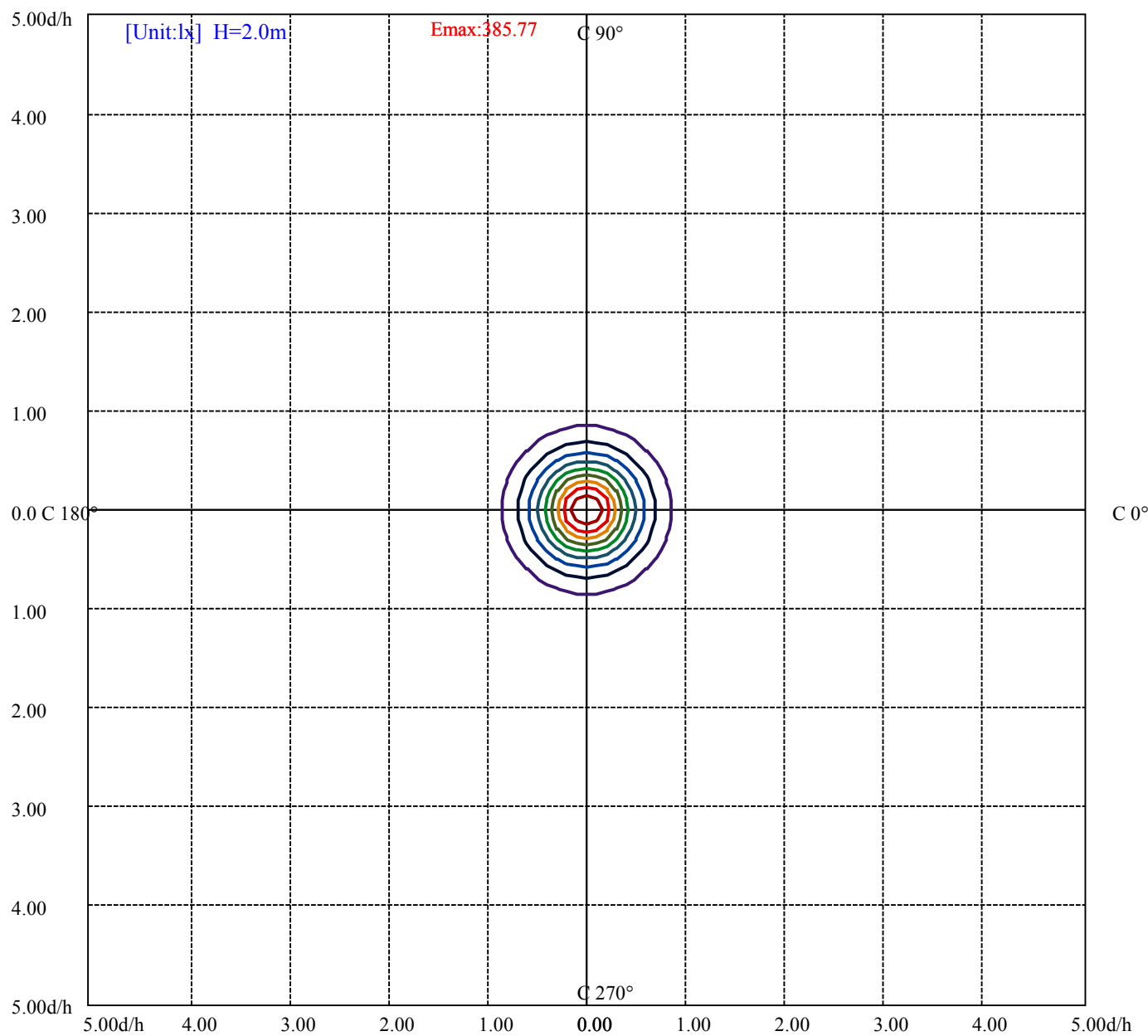
(50%Imax) 771.539

(60%Imax) 925.847

(70%Imax) 1080.15

(80%Imax) 1234.46

(90%Imax) 1388.77



(10%E_{max}) 38.577

(20%E_{max}) 77.15375

(30%E_{max}) 115.7308

(40%E_{max}) 154.3078

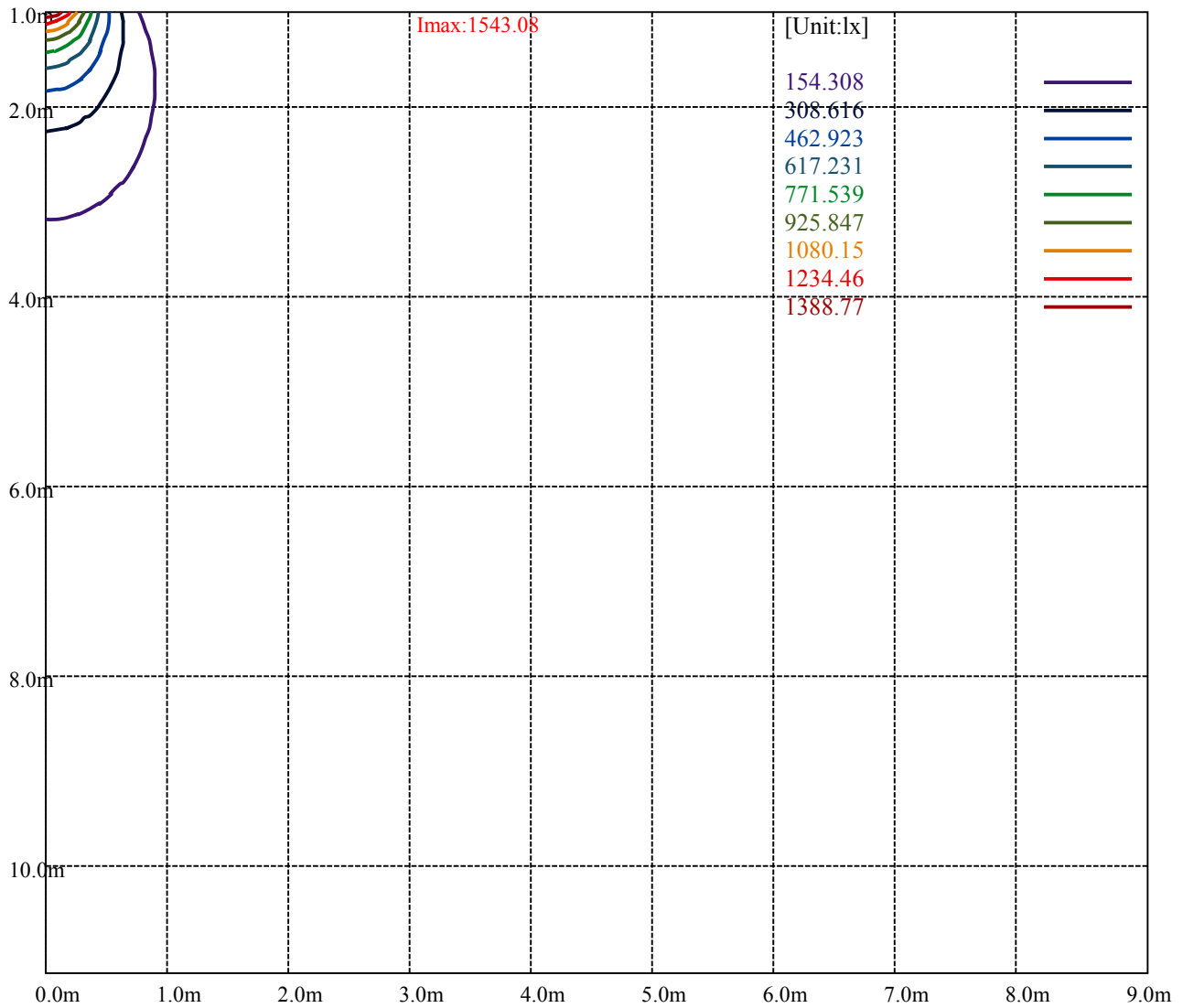
(50%E_{max}) 192.8848

(60%E_{max}) 231.4615

(70%E_{max}) 270.0375

(80%E_{max}) 308.615

(90%E_{max}) 347.1925



Luminance Table

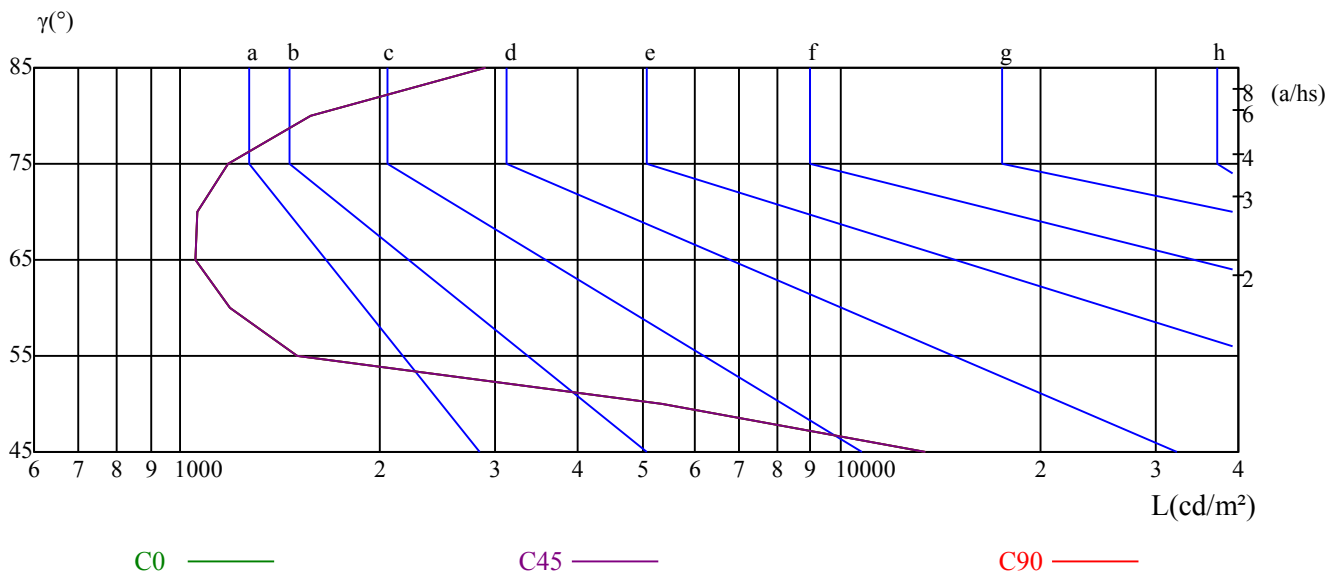
γ	45	50	55	60	65	70	75	80	85
C0	13387	5357	1498	1187	1057	1062	1182	1572	2887
C45	13387	5357	1498	1187	1057	1062	1182	1572	2887
C90	13387	5357	1498	1187	1057	1062	1182	1572	2887

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1057	1057	1057	1182	1182	1182	2887	2887	2887

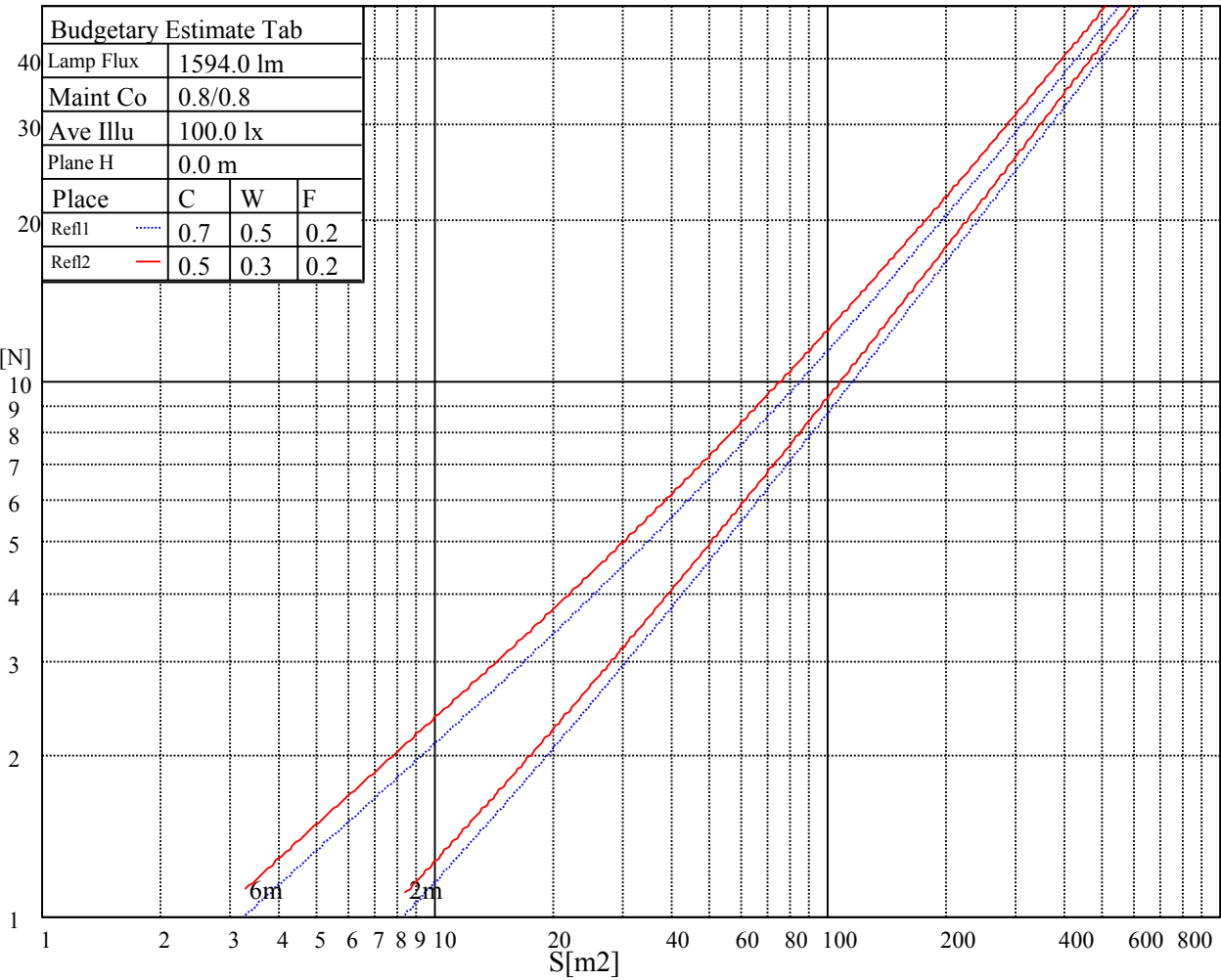
Glare Table

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

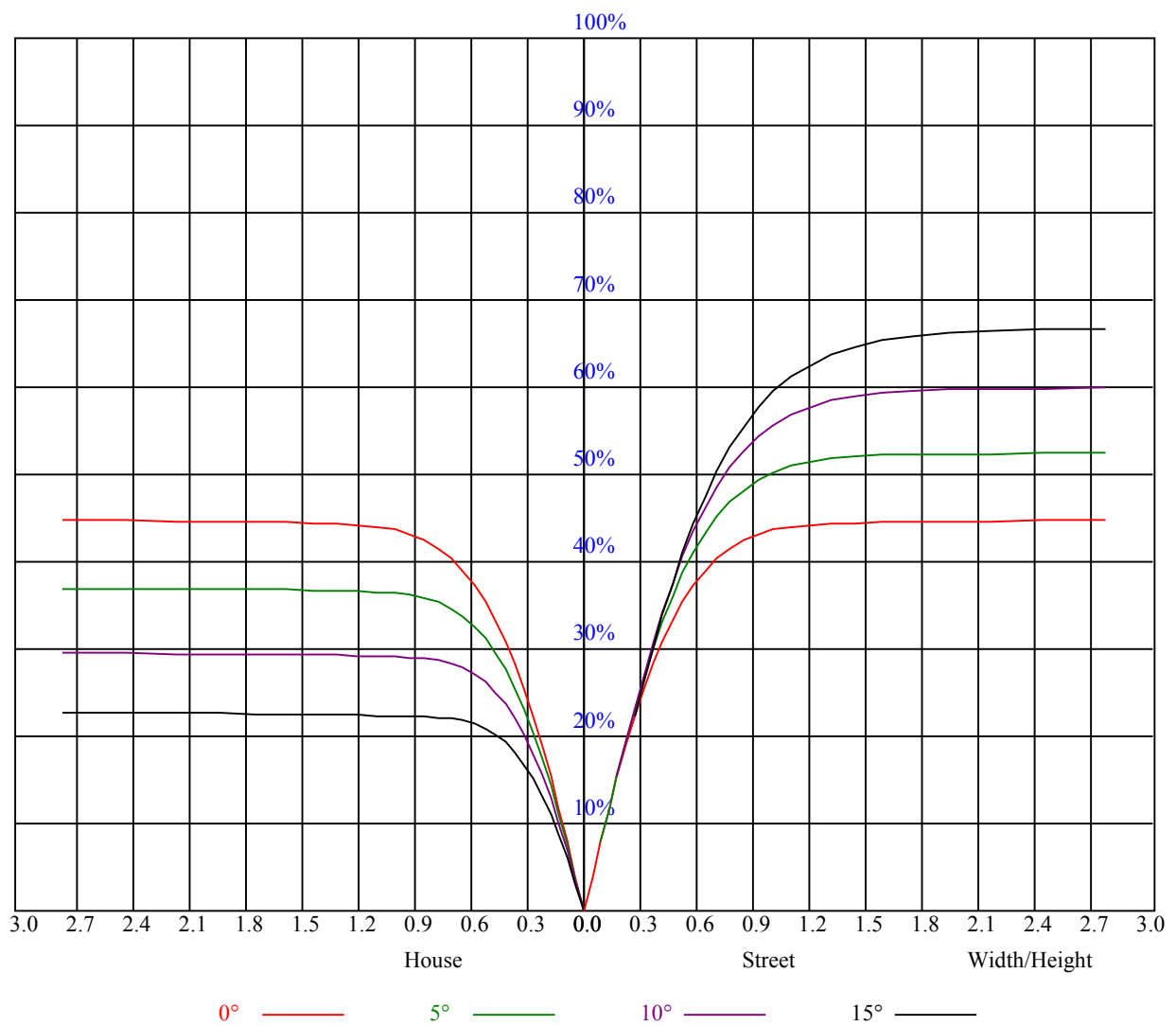
Luminance Limiting Curve



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	2.72	3.78	3.08	4.09	4.41	3.39	4.46	3.76	4.77	5.08
	3H	4.04	4.98	4.43	5.31	5.68	4.79	5.72	5.17	6.05	6.42
	4H	4.84	5.70	5.24	6.05	6.44	5.53	6.39	5.93	6.74	7.13
	6H	5.85	6.64	6.27	7.02	7.41	6.43	7.22	6.85	7.60	7.99
	8H	6.48	7.23	6.92	7.62	8.03	6.99	7.73	7.42	8.12	8.53
	12H	7.65	8.35	8.08	8.74	9.17	8.02	8.73	8.46	9.12	9.55
4H	2H	3.10	3.96	3.51	4.32	4.70	3.67	4.53	4.07	4.88	5.27
	3H	4.74	5.44	5.16	5.85	6.26	5.35	6.05	5.77	6.46	6.87
	4H	5.74	6.36	6.18	6.79	7.23	6.29	6.92	6.73	7.34	7.79
	6H	6.95	7.48	7.42	7.93	8.41	7.40	7.93	7.87	8.38	8.86
	8H	7.72	8.22	8.20	8.67	9.15	8.11	8.61	8.58	9.06	9.53
	12H	8.91	9.35	9.40	9.84	10.31	9.20	9.63	9.69	10.12	10.60
8H	4H	6.16	6.66	6.63	7.11	7.58	6.63	7.13	7.10	7.58	8.05
	6H	7.66	8.06	8.17	8.56	9.05	8.02	8.42	8.53	8.92	9.41
	8H	8.64	8.99	9.17	9.52	10.01	8.93	9.29	9.46	9.81	10.31
	12H	10.12	10.43	10.64	10.93	11.51	10.36	10.67	10.88	11.17	11.75
12H	4H	6.26	6.69	6.75	7.18	7.66	6.70	7.14	7.19	7.62	8.10
	6H	8.20	8.23	8.41	8.70	9.25	8.53	8.56	8.74	9.03	9.58
	8H	8.98	9.29	9.50	9.79	10.37	9.24	9.56	9.76	10.06	10.63
Variation with the observer position at spacings:											
S = 1.0H		3.0/-9.3					3.0/-9.3				
S = 1.5H		5.4/-8.6					5.4/-8.6				
S = 2.0H		7.3/-7.6					7.3/-7.6				
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	1.08	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	0.99	0.97	0.95	0.97	0.95	0.93	0.94	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.83
2	0.92	0.89	0.85	0.91	0.87	0.84	0.88	0.85	0.82	0.85	0.83	0.81	0.83	0.81	0.79	0.78
3	0.86	0.82	0.78	0.85	0.81	0.77	0.82	0.79	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.72
4	0.81	0.76	0.72	0.80	0.75	0.71	0.78	0.74	0.70	0.76	0.72	0.70	0.74	0.71	0.69	0.67
5	0.76	0.70	0.66	0.75	0.70	0.66	0.73	0.69	0.65	0.72	0.68	0.65	0.70	0.67	0.64	0.63
6	0.71	0.66	0.62	0.70	0.65	0.62	0.69	0.65	0.61	0.68	0.64	0.61	0.67	0.63	0.60	0.59
7	0.67	0.62	0.58	0.66	0.61	0.58	0.65	0.61	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.55
8	0.63	0.58	0.54	0.63	0.58	0.54	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.53	0.52
9	0.60	0.55	0.51	0.60	0.54	0.51	0.59	0.54	0.51	0.58	0.54	0.51	0.57	0.53	0.50	0.49
10	0.57	0.52	0.48	0.57	0.52	0.48	0.56	0.51	0.48	0.55	0.51	0.48	0.54	0.51	0.48	0.47



NATA 6495-EG

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	1539.56	1540.13	1477.69	1332.56	1134.56	905.63	725.06	527.63	343.69		
45.0	1544.63	1528.31	1450.13	1306.69	1113.19	891.56	709.88	526.50	348.75		
90.0	1542.94	1494.56	1398.94	1242.00	1049.40	859.95	692.44	507.04	342.06		
135.0	1545.19	1492.88	1398.38	1248.75	1076.63	895.50	736.88	566.44	410.63		
180.0	1539.56	1479.38	1369.69	1213.88	1033.26	858.32	706.05	531.96	360.56		
225.0	1544.63	1500.75	1404.56	1249.88	1075.05	879.13	717.53	541.97	366.13		
270.0	1542.94	1530.00	1451.81	1323.00	1125.56	906.75	731.81	540.00	358.88		
315.0	1545.19	1533.94	1441.69	1294.88	1085.63	859.28	684.62	486.79	311.34		
360.0	1539.56	1540.13	1477.69	1332.56	1134.56	905.63	725.06	527.63	343.69		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	182.19	65.14	12.21	8.89	7.20	6.36	5.74	5.46	5.18		
45.0	176.51	68.51	14.01	9.73	7.71	6.64	5.85	5.46	5.18		
90.0	175.44	65.36	17.61	12.09	9.00	7.26	6.30	5.63	5.23		
135.0	286.88	94.67	27.06	17.21	12.26	9.28	7.20	5.96	5.29		
180.0	200.25	82.07	25.20	17.94	12.94	9.84	7.48	6.08	5.29		
225.0	195.81	71.10	20.93	14.23	10.29	8.10	6.64	5.79	5.23		
270.0	195.36	74.59	14.74	10.07	7.82	6.64	5.96	5.57	5.23		
315.0	157.84	49.78	10.80	8.27	6.86	6.13	5.57	5.34	5.12		
360.0	182.19	65.14	12.21	8.89	7.20	6.36	5.74	5.46	5.18		
C/γ(°)	90.0										
0.0	5.06										
45.0	5.01										
90.0	5.01										
135.0	5.01										
180.0	5.06										
225.0	5.06										
270.0	5.01										
315.0	5.01										
360.0	5.06										