



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: 1546-E

Luminaire:

Report No: NATA0100

Voltage(V): 28.7200

Test No: GC2019010820

Current(A): 0.3490

LampCAT: XICATO XTM LES 9MM

Power (W): 10.0000

Lamp flux(lm): 538.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 21

Width(mm): 21

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 475.67

Efficiency(%): 88.41%

Lumens(lm)/Power(W): 47.84

Central intensity(cd): 538.861

Maximum intensity(cd): 538.861

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=50.7

[C90/270]Total=50.7

Field angle(10%Imax): [C0/180]Total=96.1

[C90/270]Total=96.1

Maximum s/h(1/2): C0_180=0.76 C90_270=0.76

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(%): 88.93%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.754%

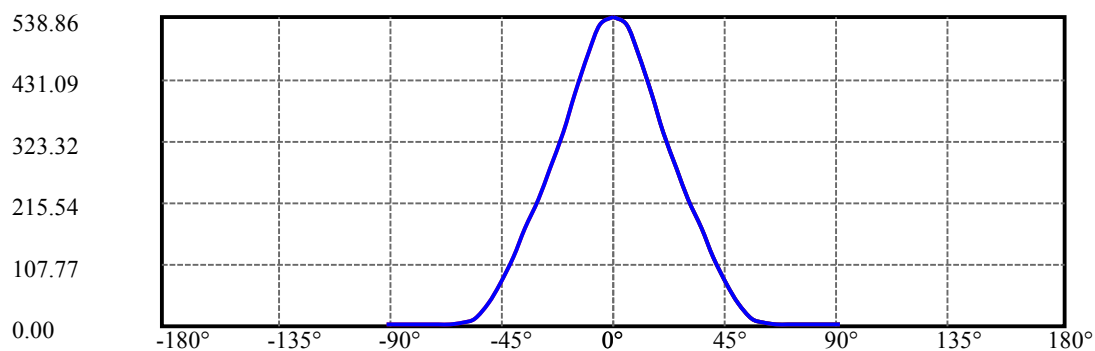
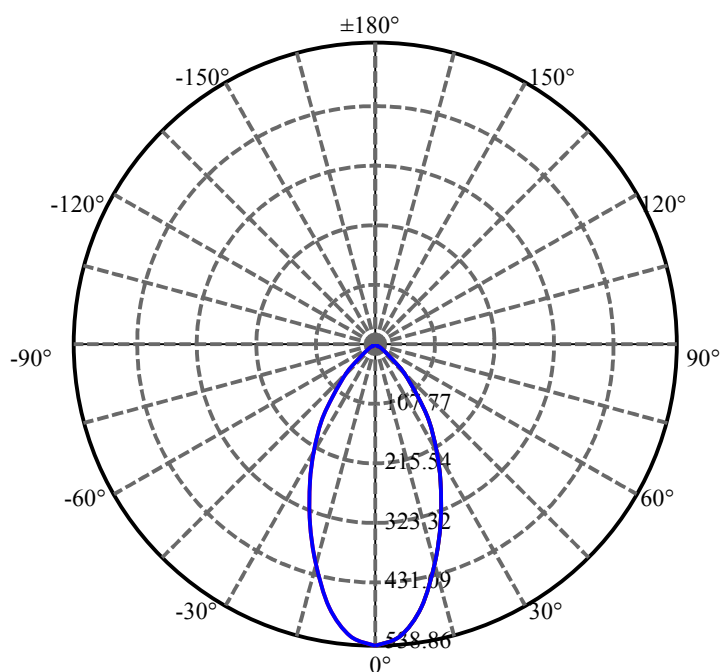
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	538.861	3.222	3.222	.599%	.677%
5.0	525.255	25.093	28.316	4.664%	5.953%
10.0	475.854	45.293	73.609	8.419%	15.475%
15.0	405.619	57.544	131.153	10.696%	27.573%
20.0	338.934	63.541	194.695	11.811%	40.931%
25.0	272.995	63.240	257.935	11.755%	54.226%
30.0	220.823	60.521	318.456	11.249%	66.949%
35.0	169.481	53.285	371.74	9.904%	78.152%
40.0	119.306	42.036	413.776	7.813%	86.989%
45.0	74.932	29.043	442.819	5.398%	93.095%
50.0	40.458	16.988	459.807	3.158%	96.666%
55.0	12.227	5.490	465.298	1.020%	97.820%
60.0	5.041	2.393	467.691	.445%	98.323%
65.0	3.881	1.928	469.619	.358%	98.729%
70.0	3.234	1.666	471.285	.310%	99.079%
75.0	2.756	1.459	472.744	.271%	99.386%
80.0	2.398	1.294	474.038	.241%	99.658%
85.0	2.088	1.140	475.179	.212%	99.898%
90.0	1.779	0.488	475.666	.091%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	318.46	59.19%	66.95%
0-40	413.78	76.91%	86.99%
0-60	467.69	86.93%	98.32%
0-90	475.18	88.32%	99.90%
0-120	475.18	88.32%	99.90%
0-180	475.67	88.41%	100.00%
60-90	9.88	1.84%	2.08%
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%
0-36.05	380.53	70.73%	80.00%

ZONAL LUMEN SUMMARY

0-10	73.61
10-20	121.09
20-30	123.76
30-40	95.32
40-50	46.03
50-60	7.88
60-70	3.59
70-80	2.75
80-90	1.14
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:

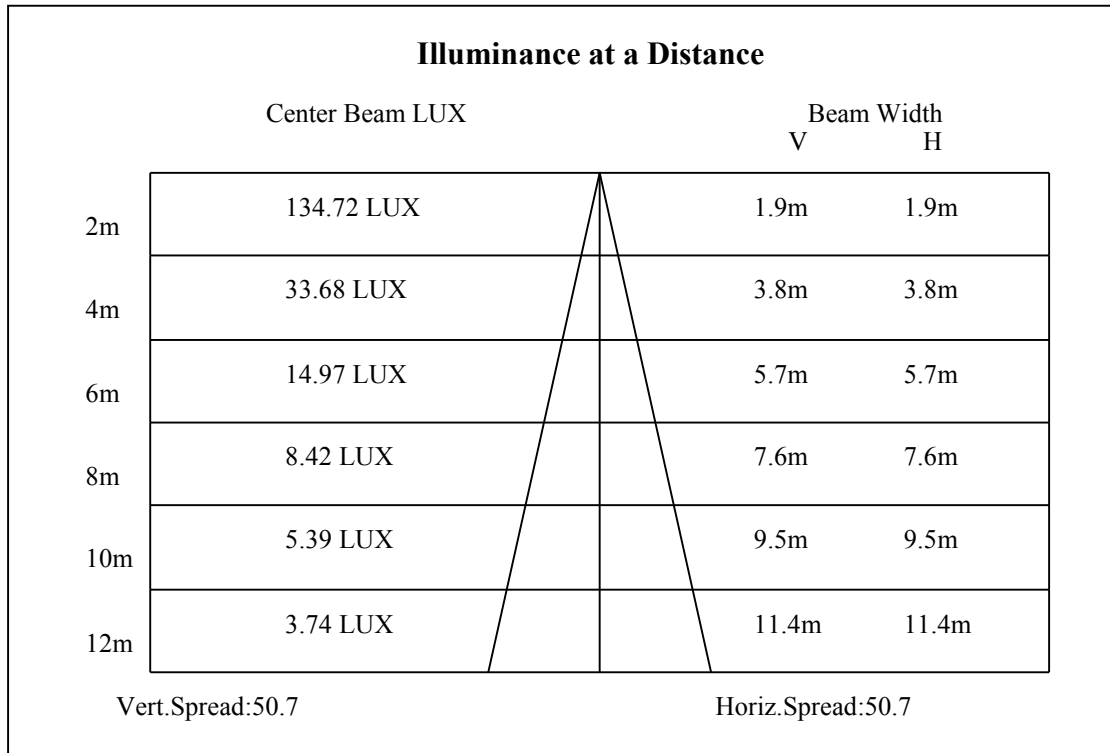
C90/C270:

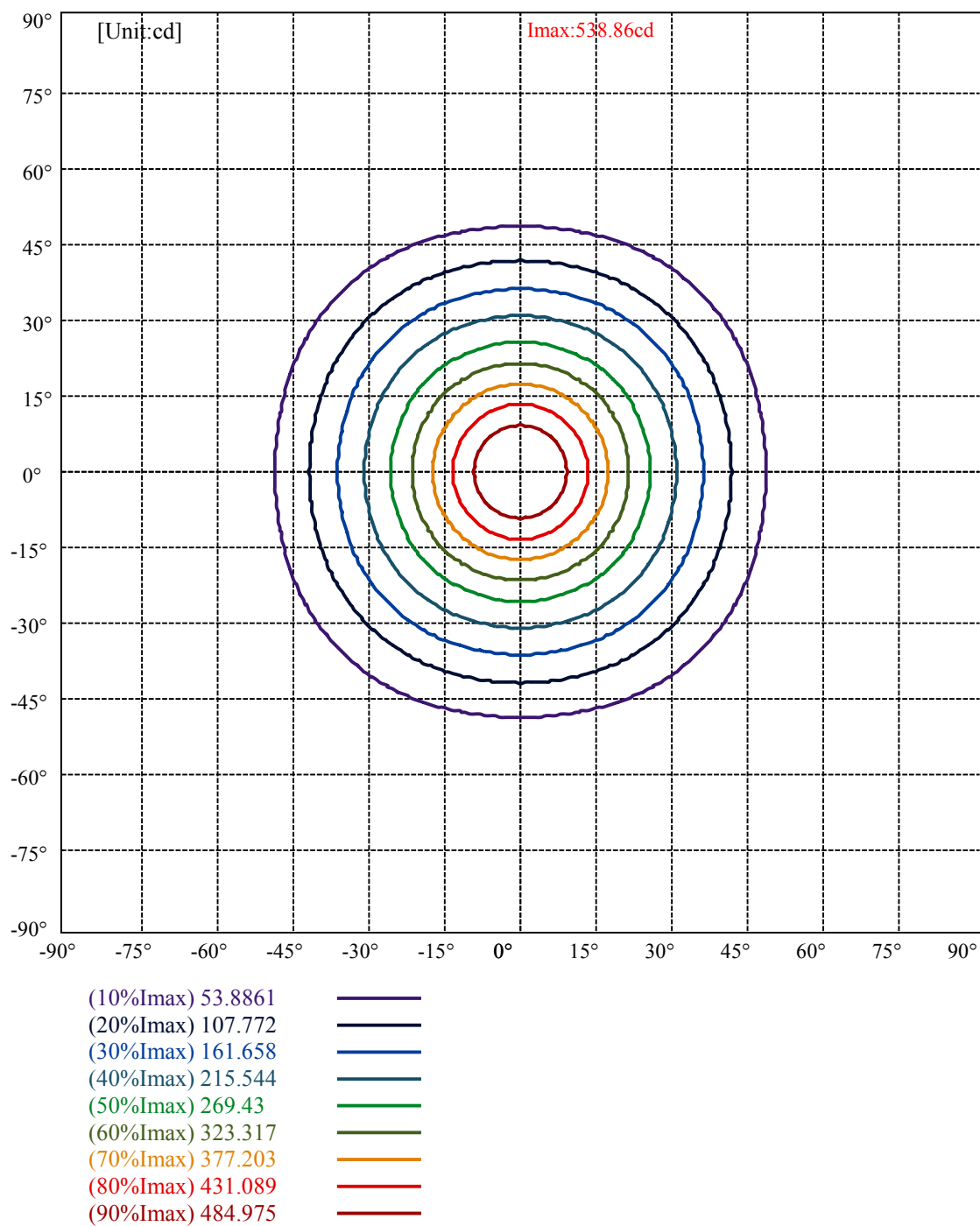
Field angle(10%Imax):C0/180Left:48.1 Right:48.1

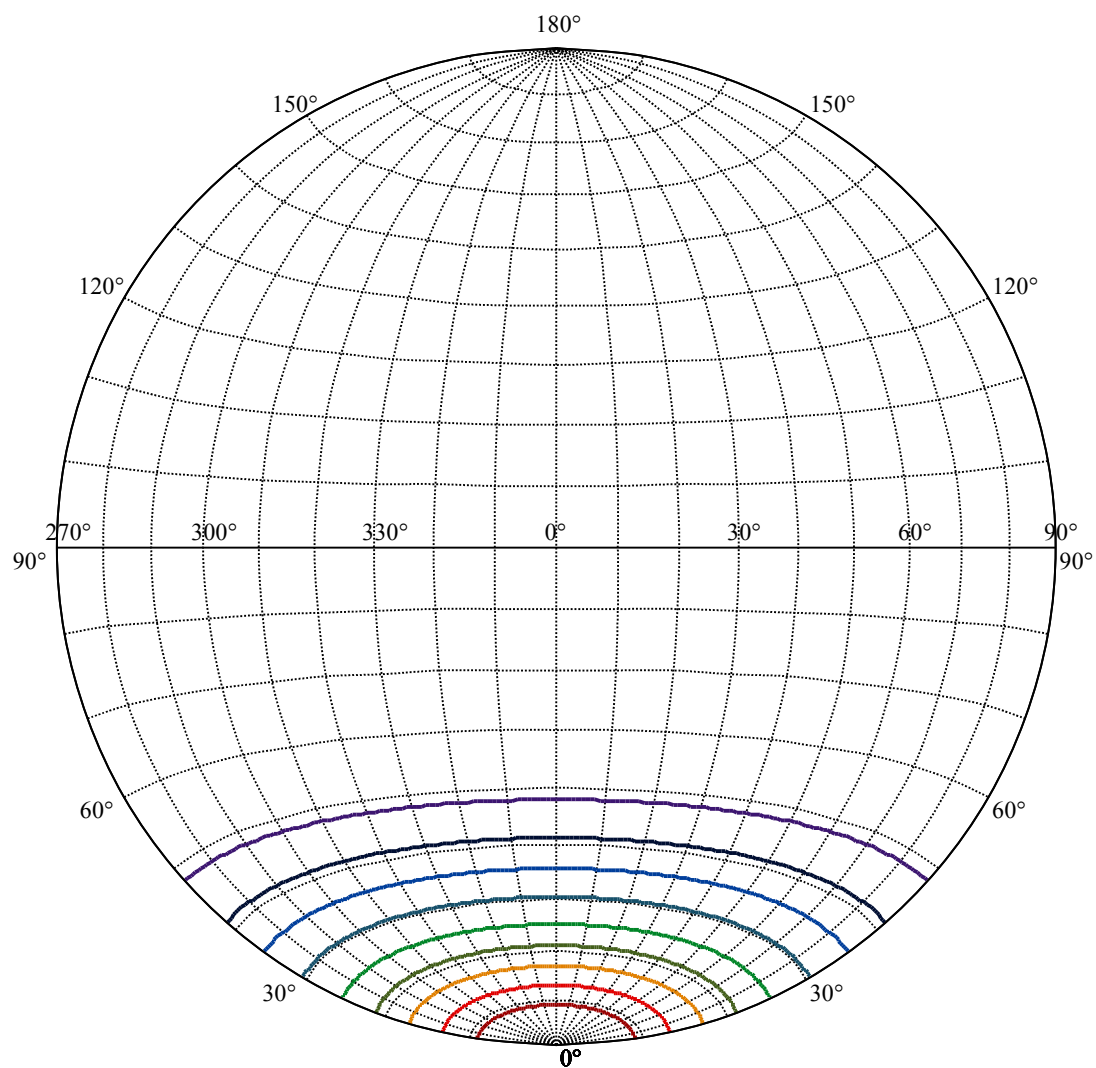
:C90/270Left:48.1 Right:48.1

Beam Angle(50%Imax):C0/180Left:25.3 Right:25.3

:C90/270Left:25.3 Right:25.3







House

[Unit:cd]

Road

Imax:538.86

(10%Imax) 53.8861

(20%Imax) 107.772

(30%Imax) 161.658

(40%Imax) 215.544

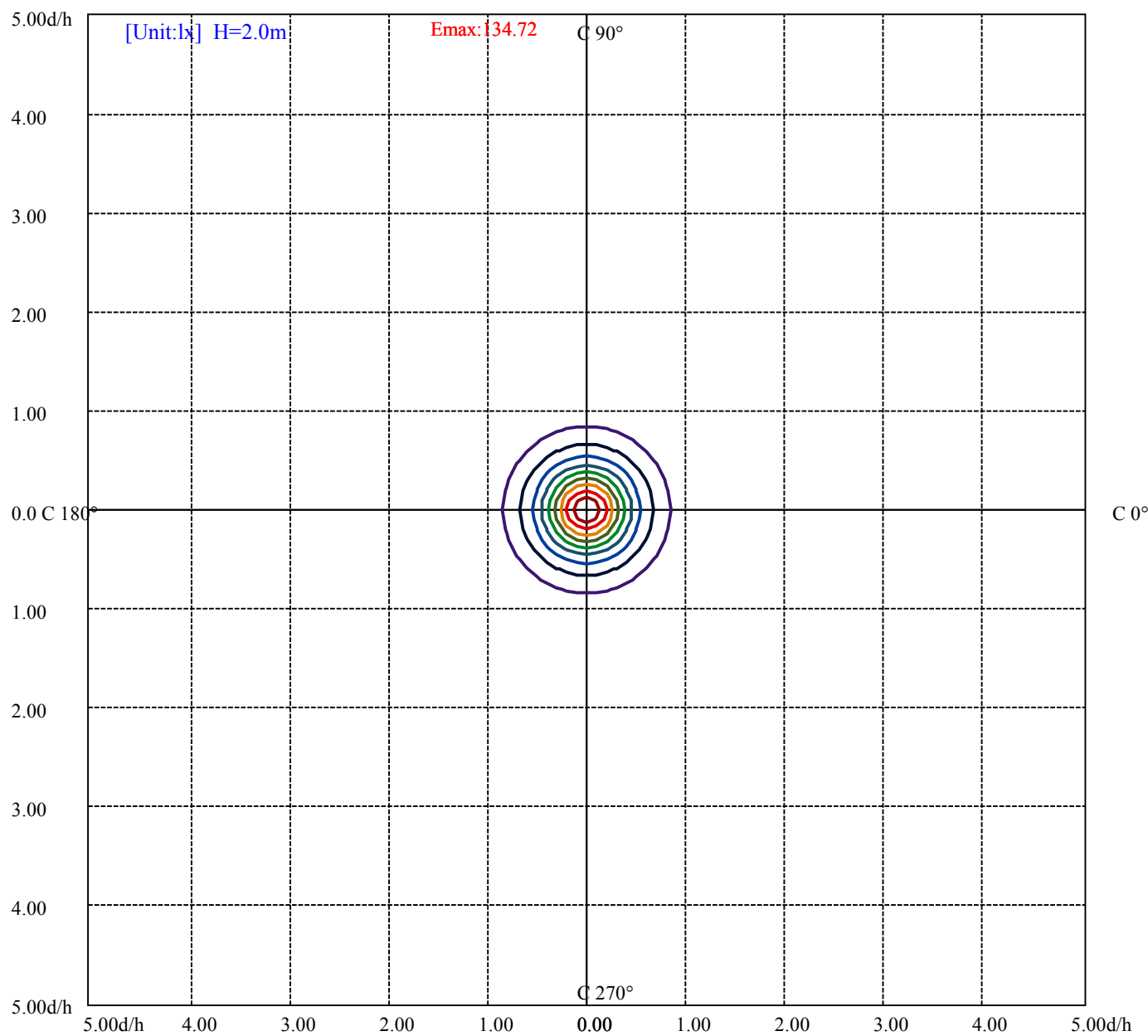
(50%Imax) 269.43

(60%Imax) 323.317

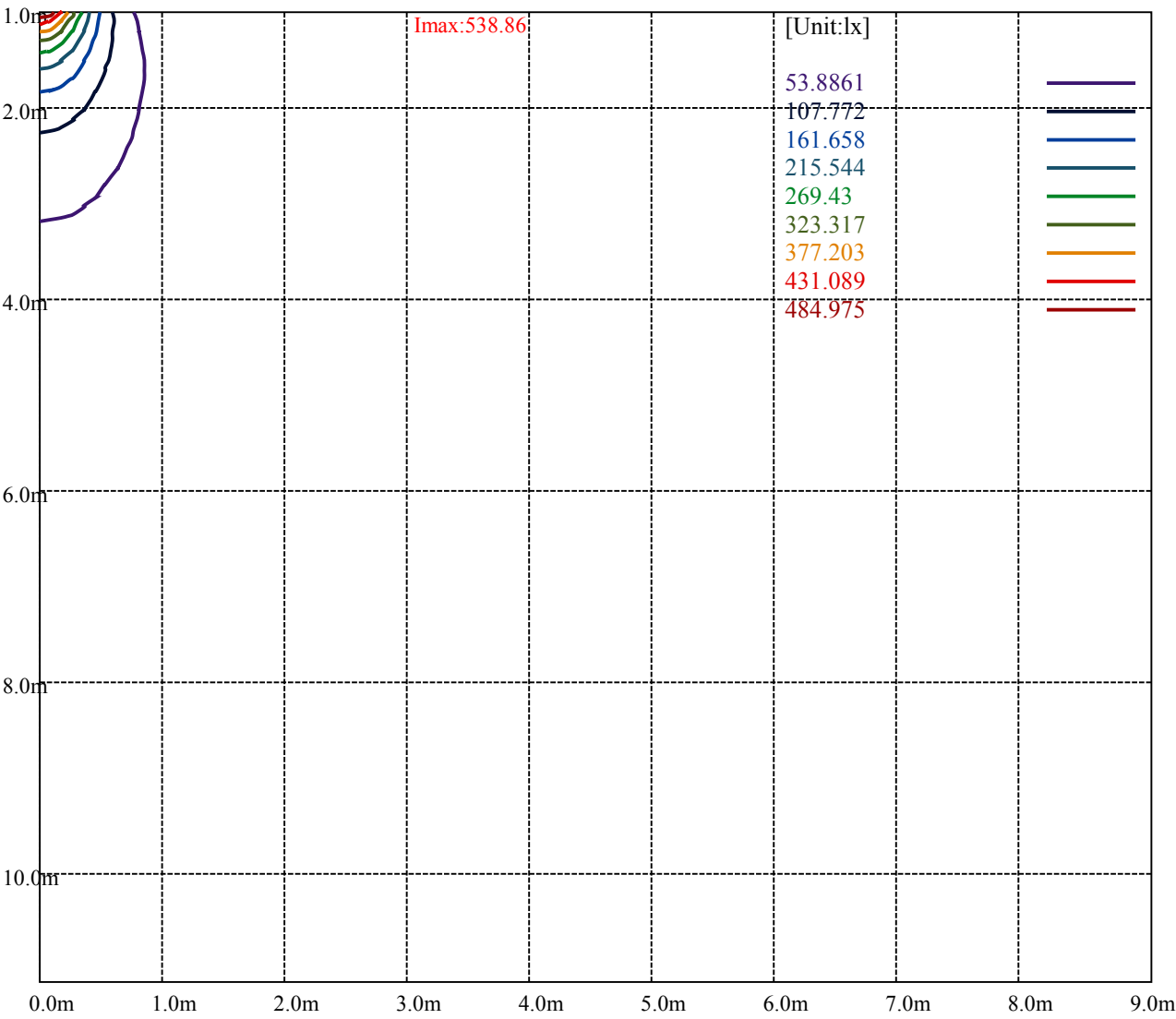
(70%Imax) 377.203

(80%Imax) 431.089

(90%Imax) 484.975



(10%E _{max}) 13.47153	—
(20%E _{max}) 26.943	—
(30%E _{max}) 40.4145	—
(40%E _{max}) 53.886	—
(50%E _{max}) 67.3575	—
(60%E _{max}) 80.829	—
(70%E _{max}) 94.3005	—
(80%E _{max}) 107.772	—
(90%E _{max}) 121.2435	—



Luminance Table

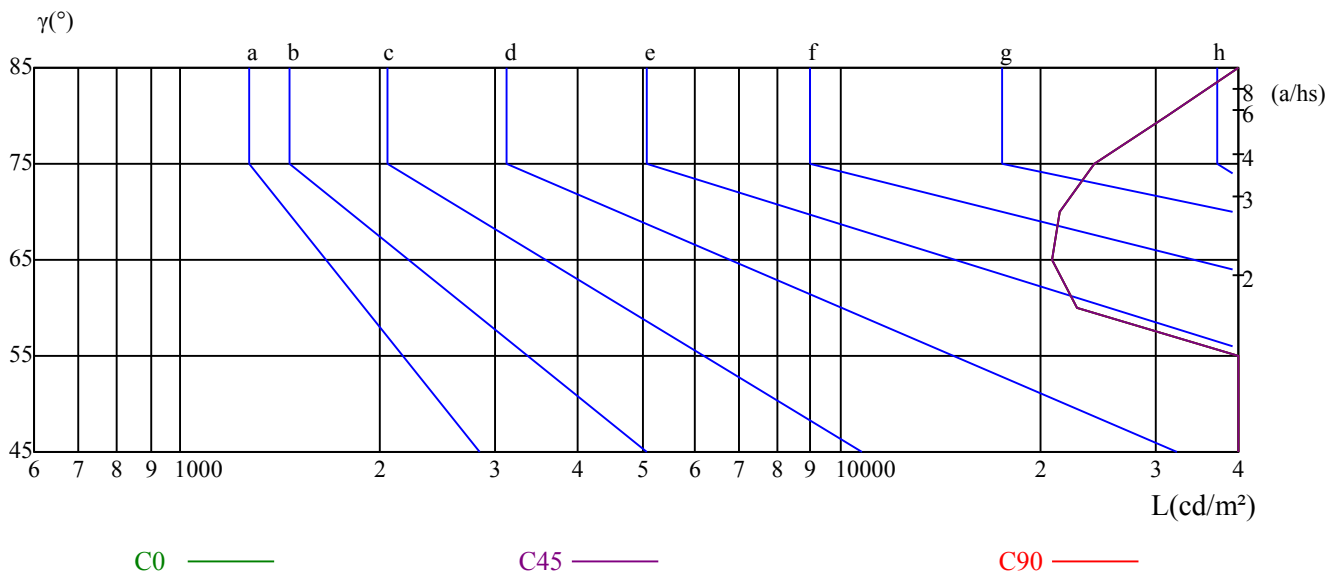
γ	45	50	55	60	65	70	75	80	85
C0	240295	142724	48340	22864	20825	21444	24148	31310	54332
C45	240295	142724	48340	22864	20825	21444	24148	31310	54332
C90	240295	142724	48340	22864	20825	21444	24148	31310	54332

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
20825	20825	20825	24148	24148	24148	54332	54332	54332

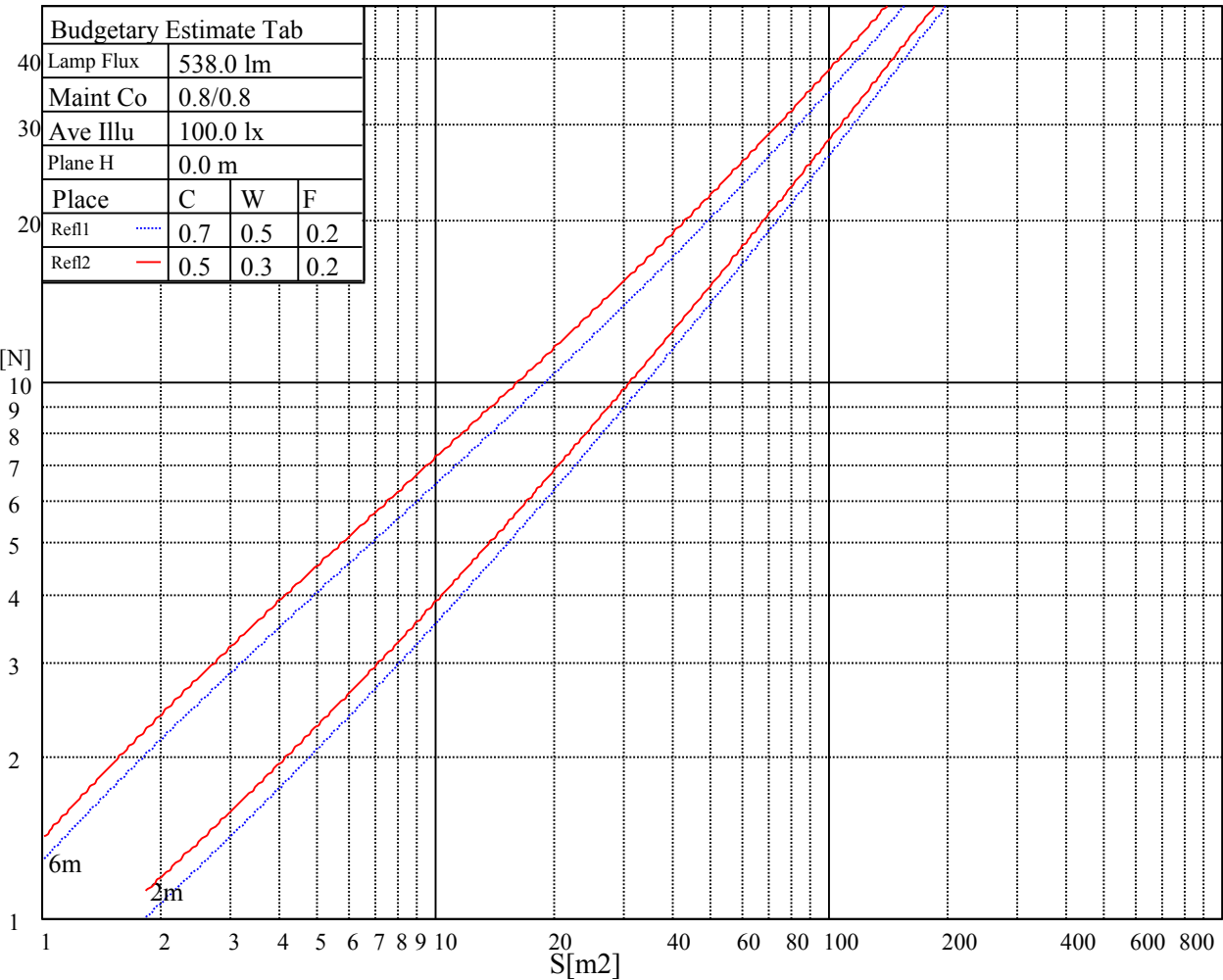
Glare Table

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

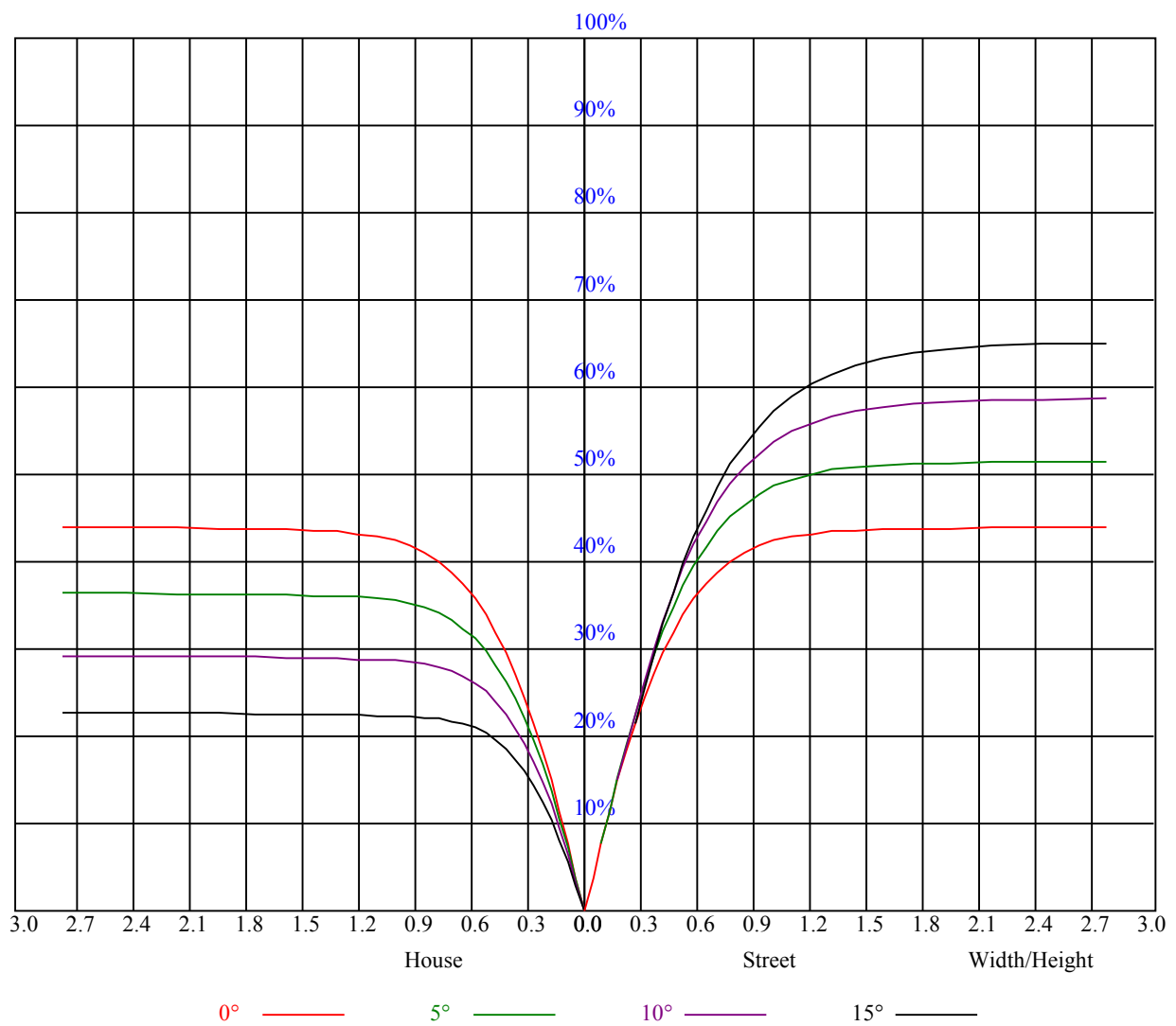
Luminance Limiting Curve



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	19.70	20.81	20.07	21.12	21.43	20.45	21.55	20.81	21.86	22.18
	3H	20.62	21.59	21.00	21.92	22.29	21.13	22.10	21.51	22.44	22.80
	4H	21.24	22.14	21.65	22.49	22.88	21.59	22.49	21.99	22.84	23.23
	6H	22.04	22.86	22.46	23.24	23.63	22.18	23.01	22.60	23.38	23.78
	8H	22.51	23.28	22.94	23.68	24.08	22.57	23.34	23.00	23.73	24.14
	12H	23.34	24.08	23.78	24.47	24.90	23.33	24.07	23.77	24.46	24.89
4H	2H	19.80	20.70	20.21	21.05	21.44	20.48	21.38	20.88	21.73	22.12
	3H	21.02	21.75	21.44	22.16	22.57	21.44	22.17	21.85	22.58	22.98
	4H	21.85	22.50	22.29	22.93	23.37	22.09	22.74	22.52	23.16	23.61
	6H	22.81	23.37	23.28	23.82	24.30	22.87	23.43	23.34	23.88	24.35
	8H	23.44	23.97	23.92	24.42	24.89	23.41	23.94	23.89	24.39	24.86
	12H	24.37	24.83	24.86	25.31	25.79	24.29	24.75	24.78	25.24	25.71
8H	4H	22.14	22.66	22.61	23.11	23.58	22.34	22.86	22.82	23.31	23.79
	6H	23.38	23.80	23.89	24.30	24.79	23.40	23.82	23.91	24.32	24.81
	8H	24.20	24.58	24.73	25.10	25.60	24.14	24.52	24.67	25.04	25.53
	12H	25.44	25.77	25.96	26.27	26.84	25.34	25.67	25.86	26.17	26.74
12H	4H	22.19	22.65	22.68	23.14	23.61	22.40	22.86	22.89	23.34	23.82
	6H	23.92	23.92	24.07	24.39	24.93	23.94	23.94	24.10	24.41	24.96
	8H	24.48	24.81	25.00	25.31	25.89	24.42	24.75	24.94	25.25	25.83
Variation with the observer position at spacings:											
S = 1.0H		2.2/-6.7					2.2/-6.7				
S = 1.5H		4.4/-7.5					4.4/-7.5				
S = 2.0H		6.3/-6.6					6.3/-6.6				
Standard tables:		BK1					BK1				
Uncorrected UGR		9.0					9.0				



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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.97	0.95	0.93	0.95	0.93	0.91	0.92	0.90	0.88	0.89	0.87	0.86	0.85	0.84	0.83	0.82
2	0.90	0.87	0.83	0.89	0.85	0.82	0.86	0.83	0.81	0.83	0.81	0.79	0.81	0.79	0.77	0.76
3	0.84	0.80	0.76	0.83	0.79	0.75	0.81	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.70
4	0.79	0.73	0.70	0.78	0.73	0.69	0.76	0.72	0.68	0.74	0.70	0.67	0.72	0.69	0.67	0.65
5	0.74	0.68	0.64	0.73	0.68	0.64	0.71	0.67	0.63	0.70	0.66	0.63	0.68	0.65	0.62	0.61
6	0.69	0.64	0.60	0.68	0.63	0.59	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.58	0.57
7	0.65	0.60	0.56	0.64	0.59	0.56	0.63	0.59	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.53
8	0.61	0.56	0.52	0.61	0.56	0.52	0.60	0.55	0.52	0.59	0.55	0.52	0.58	0.54	0.51	0.50
9	0.58	0.53	0.49	0.58	0.53	0.49	0.57	0.52	0.49	0.56	0.52	0.49	0.55	0.51	0.49	0.47
10	0.55	0.50	0.46	0.55	0.50	0.46	0.54	0.49	0.46	0.53	0.49	0.46	0.53	0.49	0.46	0.45



NATA 1546-E

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	539.27	532.58	492.24	423.39	358.99	292.67	239.96	193.84	139.50		
45.0	538.09	528.75	487.41	417.77	347.40	284.23	230.29	179.55	129.83		
90.0	538.54	522.73	468.51	401.40	331.03	265.22	215.16	160.93	111.60		
135.0	539.33	524.70	475.26	403.20	337.95	270.96	218.19	168.08	118.18		
180.0	539.72	518.91	459.17	387.17	321.92	257.01	206.33	155.81	108.23		
225.0	538.09	519.47	462.49	393.75	326.59	259.31	209.98	154.91	105.58		
270.0	538.54	528.02	484.48	414.28	348.30	280.13	223.48	169.43	119.98		
315.0	539.33	526.89	477.28	403.99	339.30	274.44	223.20	173.31	121.56		
360.0	539.27	532.58	492.24	423.39	358.99	292.67	239.96	193.84	139.50		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	91.24	55.07	20.48	5.57	4.11	3.43	2.87	2.36	2.08		
45.0	82.46	46.58	16.20	5.18	3.99	3.32	2.87	2.53	2.25		
90.0	69.19	36.23	9.56	5.34	4.16	3.43	2.98	2.59	2.08		
135.0	75.43	41.23	11.70	5.12	3.77	3.15	2.64	2.31	2.08		
180.0	67.78	32.46	7.65	4.67	3.60	2.98	2.48	2.14	1.97		
225.0	63.56	31.67	8.38	4.61	3.71	3.09	2.64	2.36	2.08		
270.0	74.42	38.53	11.81	5.01	3.88	3.26	2.87	2.48	2.03		
315.0	75.38	41.91	12.04	4.84	3.83	3.21	2.70	2.42	2.14		
360.0	91.24	55.07	20.48	5.57	4.11	3.43	2.87	2.36	2.08		
C/ γ (°)	90.0										
0.0	1.97										
45.0	1.80										
90.0	1.74										
135.0	1.74										
180.0	1.69										
225.0	1.80										
270.0	1.69										
315.0	1.80										
360.0	1.97										