
NATA

LumCAT: 3-1940-M	
Luminaire: BJB 47.319.2135	
Report No: NATA0100	Voltage(V): 36.9500
Test No: GC2019012108	Current(A): 0.5000
LampCAT: PHILIPS Certaflux slm 1205	Power (W): 36.9500
Lamp flux(lm): 2360.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 78	Width(mm): 78
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2105.49
Efficiency(%): 89.22%
Lumens(lm)/Power(W): 57.79
Central intensity(cd): 5309.719
Maximum intensity(cd): 5309.719
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=32.9
[C90/270]Total=32.9
Field angle(10%Imax): [C0/180]Total=65.8
[C90/270]Total=65.8
Maximum s/h(1/2): C0_180=0.53 C90_270=0.53
Maximum s/h(1/4): C0_180=0.57 C90_270=0.57
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.48%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.347%

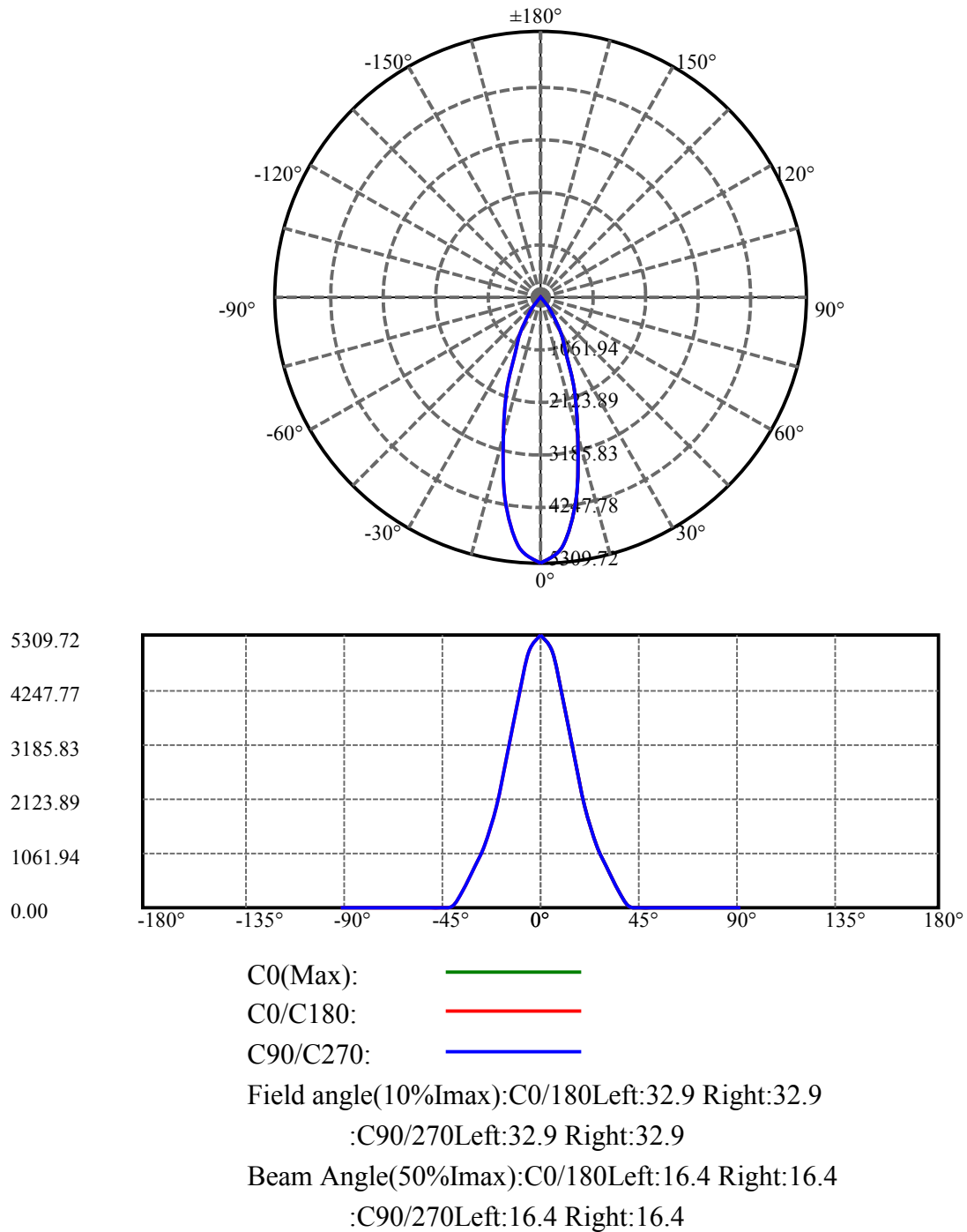
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5309.719	31.753	31.753	1.345%	1.508%
5.0	4983.891	238.097	269.85	10.089%	12.816%
10.0	4077.281	388.088	657.938	16.444%	31.249%
15.0	2934.844	416.362	1074.3	17.642%	51.024%
20.0	1965.797	368.536	1442.836	15.616%	68.527%
25.0	1218.171	282.193	1725.029	11.957%	81.930%
30.0	803.123	220.111	1945.14	9.327%	92.384%
35.0	331.805	104.319	2049.458	4.420%	97.339%
40.0	26.705	9.409	2058.868	.399%	97.786%
45.0	13.416	5.200	2064.067	.220%	98.033%
50.0	11.665	4.898	2068.965	.208%	98.265%
55.0	10.716	4.811	2073.777	.204%	98.494%
60.0	10.132	4.810	2078.586	.204%	98.722%
65.0	9.724	4.831	2083.417	.205%	98.952%
70.0	9.478	4.882	2088.299	.207%	99.183%
75.0	9.274	4.910	2093.21	.208%	99.417%
80.0	9.113	4.919	2098.129	.208%	99.650%
85.0	8.986	4.907	2103.035	.208%	99.883%
90.0	8.965	2.457	2105.492	.104%	100.000%

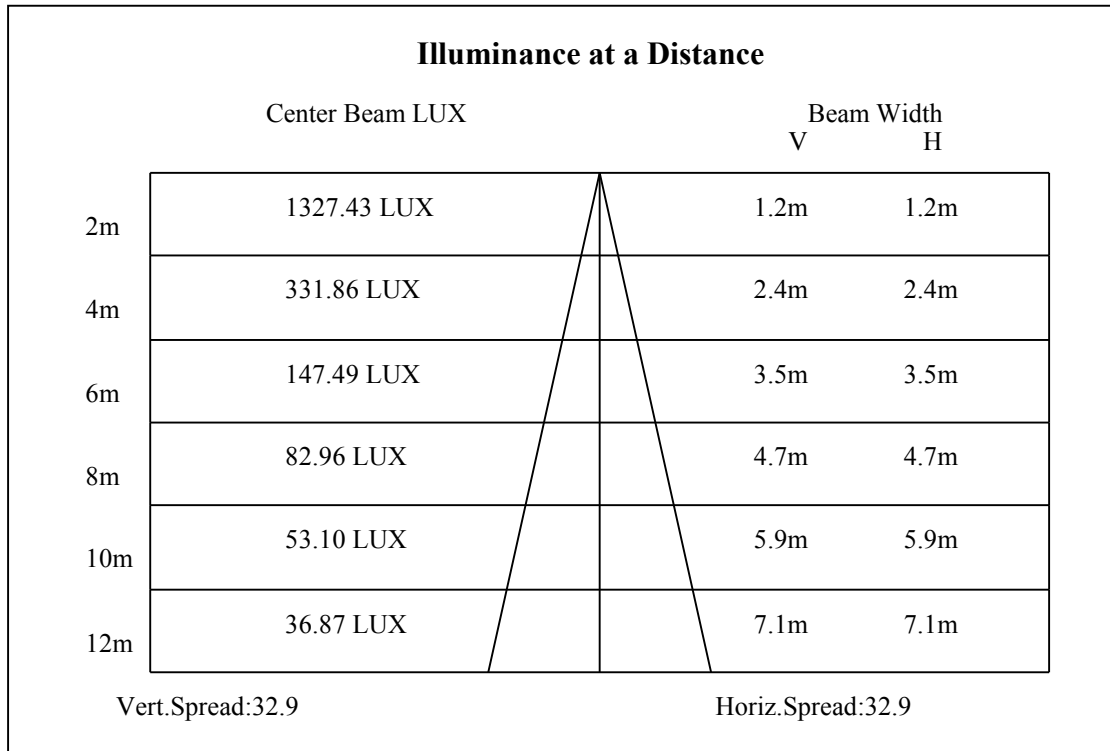
ZONAL LUMEN SUMMARY

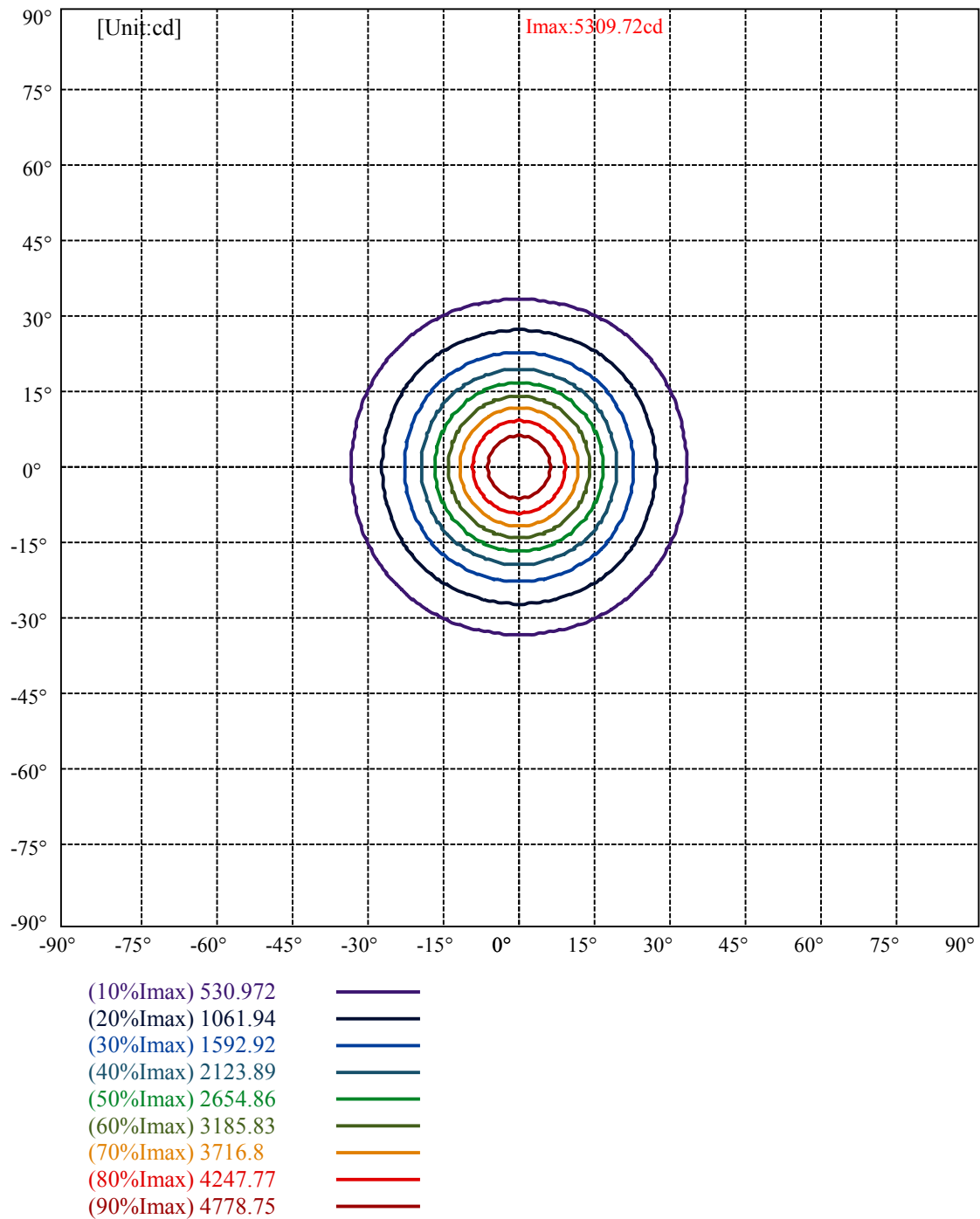
Zone	Lumens	%Lamp	%Fixt
0-30	1945.14	82.42%	92.38%
0-40	2058.87	87.24%	97.79%
0-60	2078.59	88.08%	98.72%
0-90	2103.04	89.11%	99.88%
0-120	2103.04	89.11%	99.88%
0-180	2105.49	89.22%	100.00%
60-90	29.26	1.24%	1.39%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.28	1684.39	71.37%	80.00%

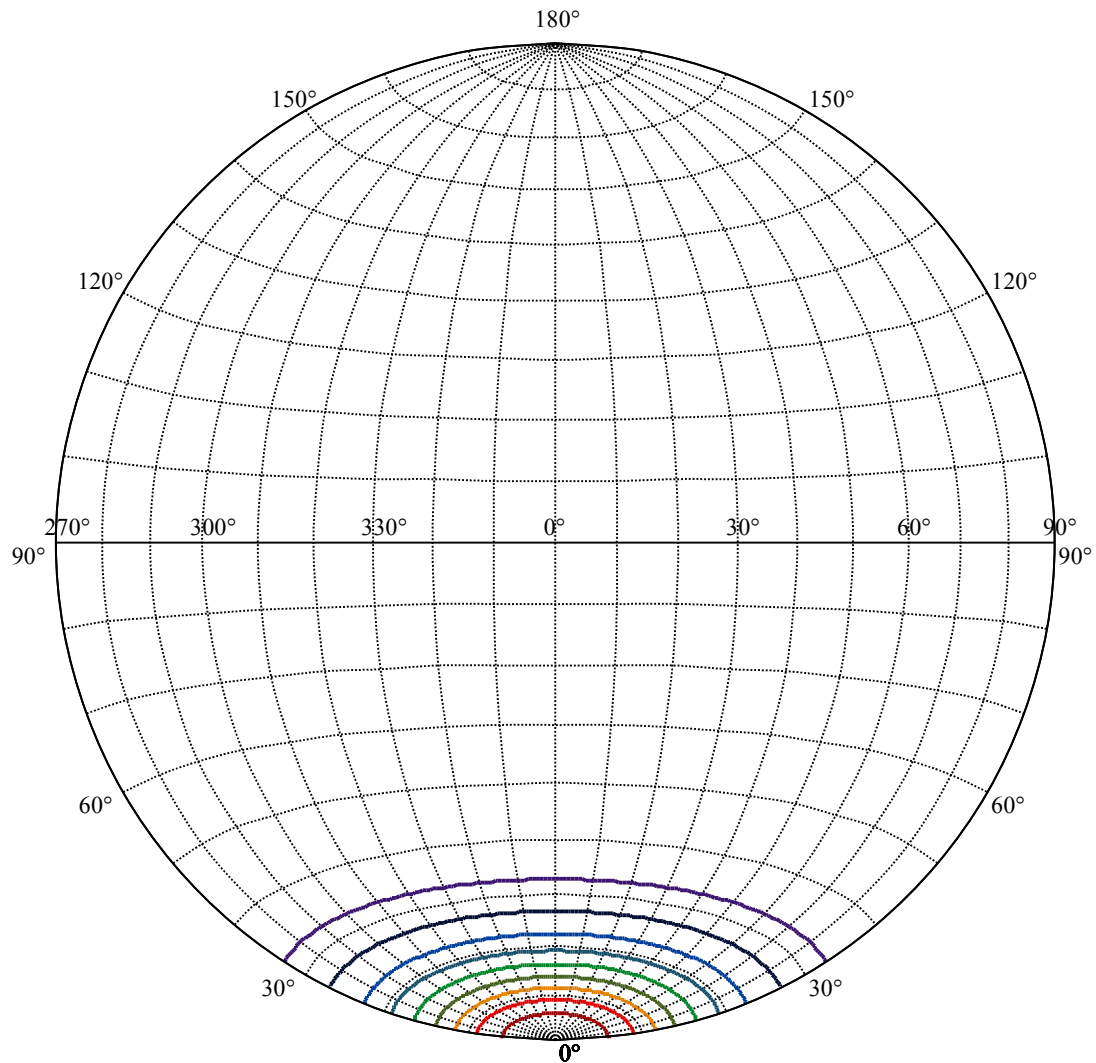
ZONAL LUMEN SUMMARY

0-10	657.94
10-20	784.90
20-30	502.30
30-40	113.73
40-50	10.10
50-60	9.62
60-70	9.71
70-80	9.83
80-90	4.91
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









House

[Unit:cd]

Road

Imax:5309.72

(10%Imax) 530.972

(20%Imax) 1061.94

(30%Imax) 1592.92

(40%Imax) 2123.89

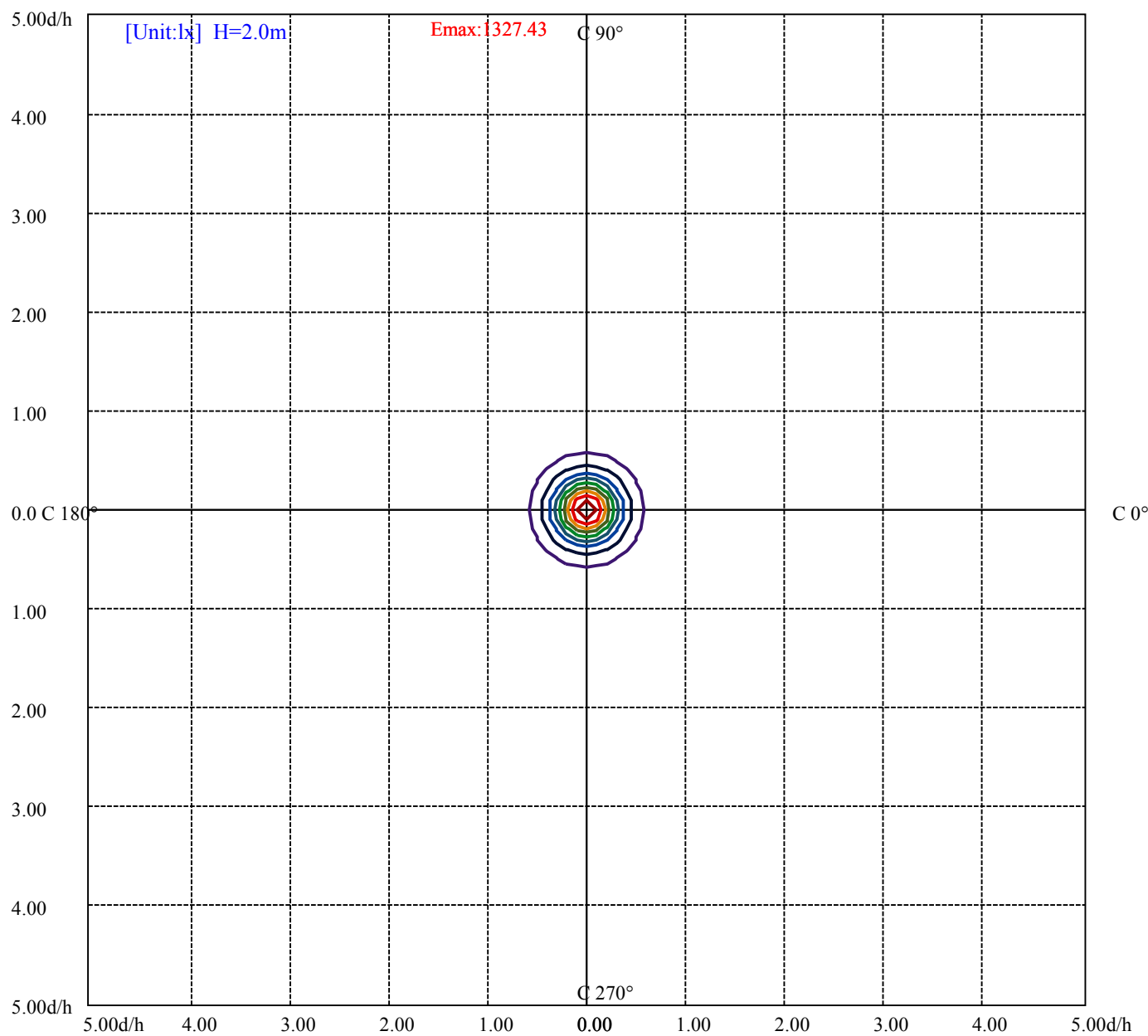
(50%Imax) 2654.86

(60%Imax) 3185.83

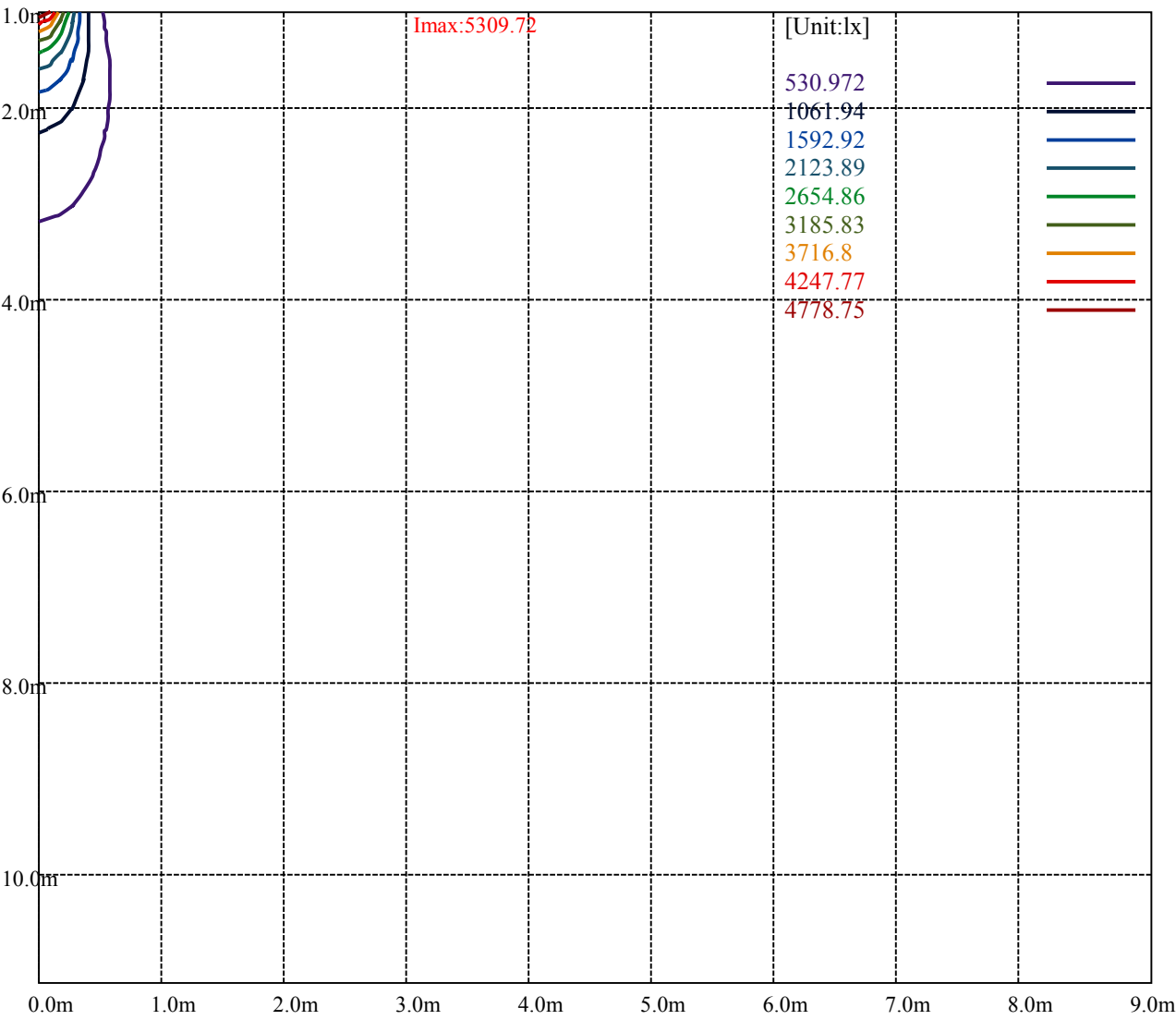
(70%Imax) 3716.8

(80%Imax) 4247.77

(90%Imax) 4778.75



(10%E _{max}) 132.7428	—
(20%E _{max}) 265.485	—
(30%E _{max}) 398.2275	—
(40%E _{max}) 530.97	—
(50%E _{max}) 663.7125	—
(60%E _{max}) 796.4575	—
(70%E _{max}) 929.2	—
(80%E _{max}) 1061.943	—
(90%E _{max}) 1194.685	—



Luminance Table

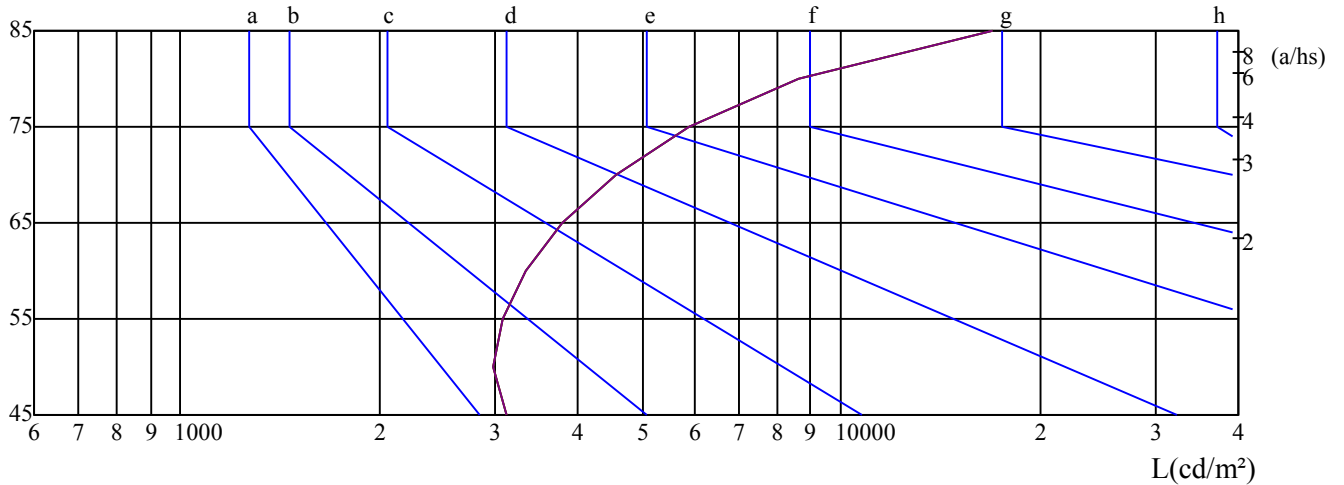
γ	45	50	55	60	65	70	75	80	85
C0	3118	2983	3071	3331	3782	4555	5890	8625	16946
C45	3118	2983	3071	3331	3782	4555	5890	8625	16946
C90	3118	2983	3071	3331	3782	4555	5890	8625	16946

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3782	3782	3782	5890	5890	5890	16946	16946	16946

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

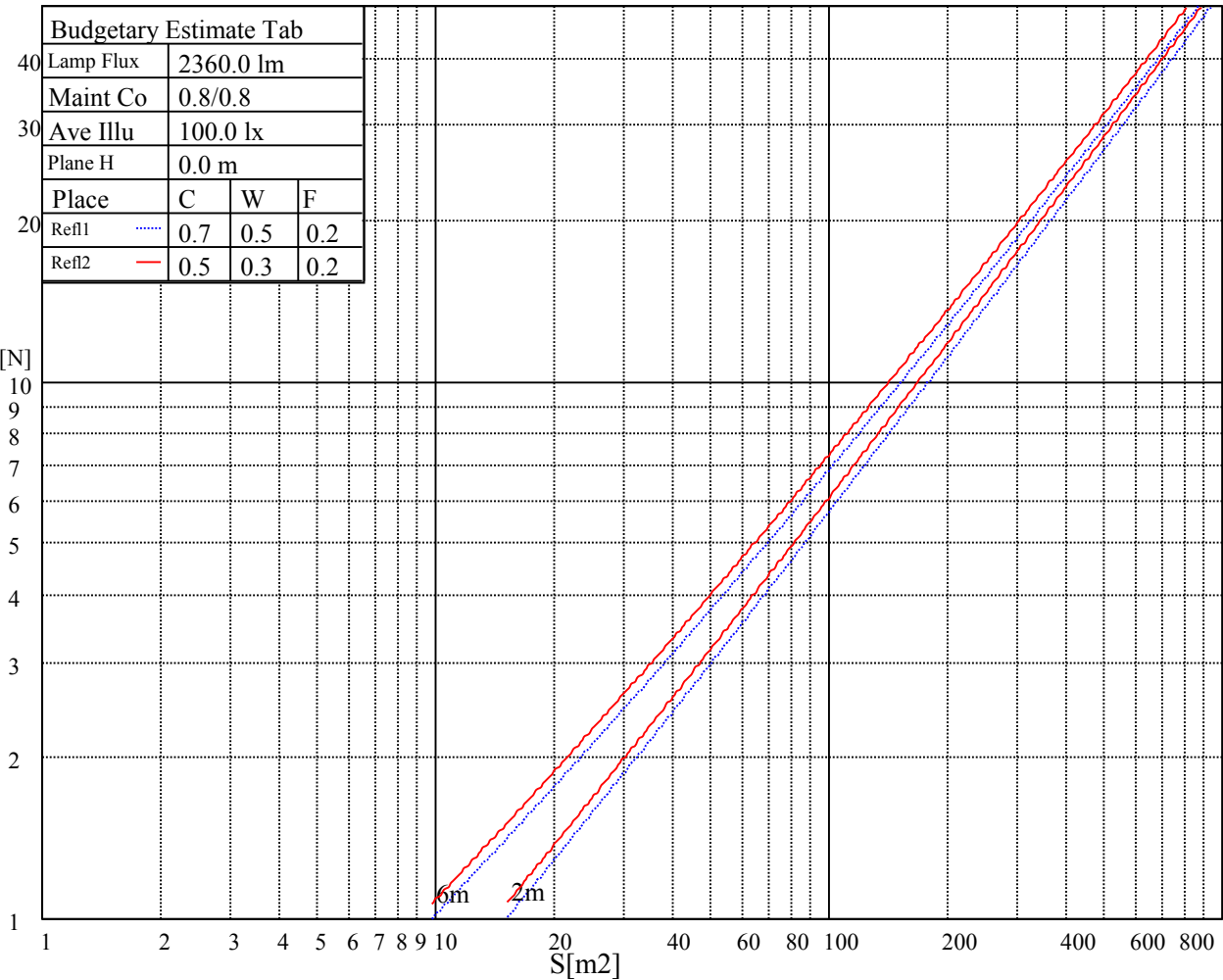
 $\gamma(^{\circ})$ 

C0 ———

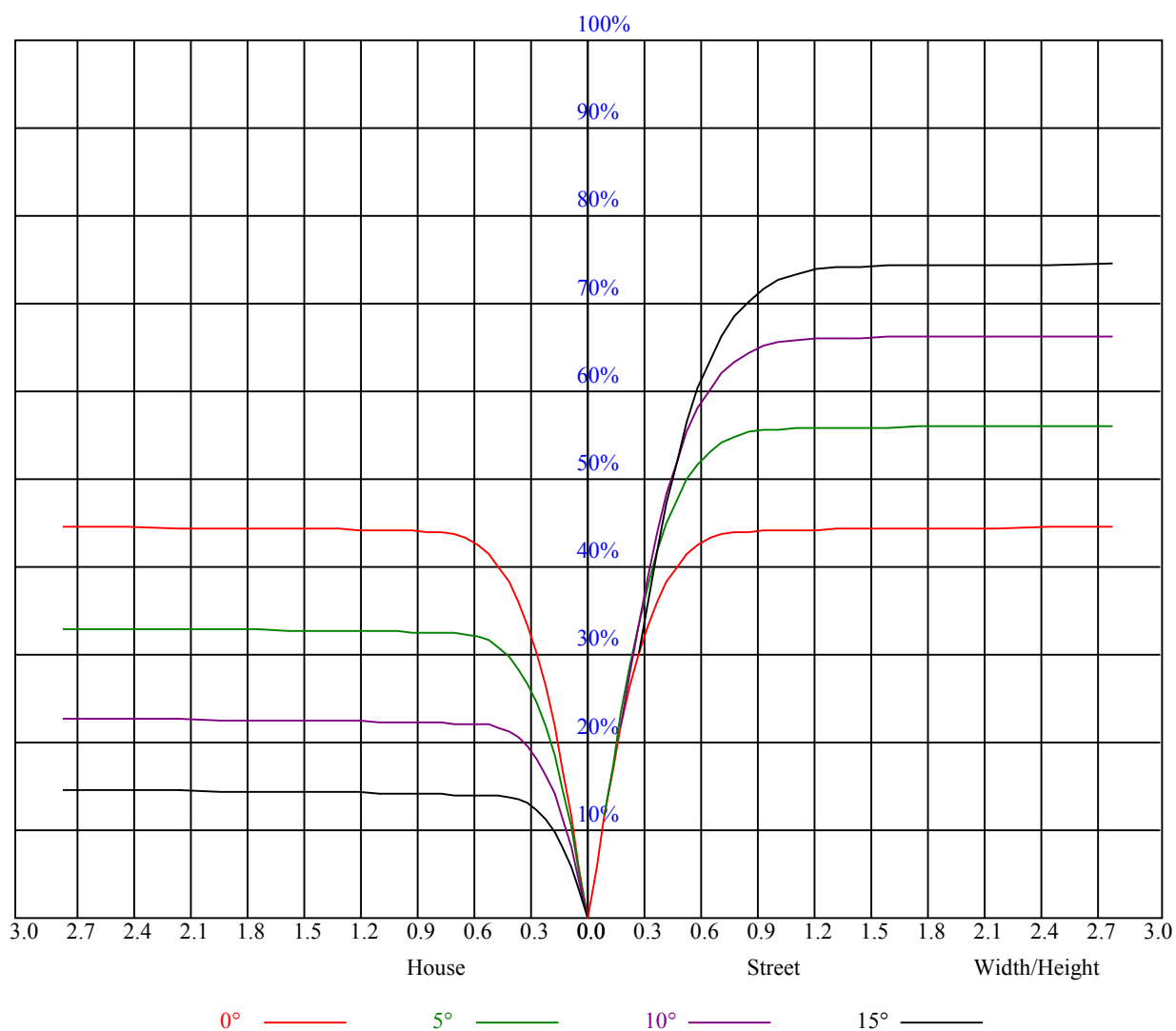
C45 ———

C90 ———

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	2.35	3.26	2.72	3.57	3.89	2.40	3.31	2.76	3.62	3.94
	3H	5.48	6.29	5.87	6.62	6.99	5.55	6.35	5.93	6.69	7.06
	4H	7.19	7.94	7.60	8.29	8.68	7.25	8.00	7.66	8.35	8.75
	6H	9.11	9.79	9.53	10.17	10.57	9.17	9.85	9.59	10.22	10.62
	8H	10.18	10.82	10.61	11.21	11.62	10.23	10.87	10.67	11.26	11.67
	12H	11.91	12.52	12.35	12.91	13.34	11.96	12.57	12.40	12.96	13.39
4H	2H	3.23	3.98	3.64	4.33	4.72	3.27	4.01	3.68	4.37	4.76
	3H	6.62	7.23	7.03	7.64	8.05	6.66	7.27	7.08	7.68	8.09
	4H	8.50	9.04	8.94	9.47	9.92	8.54	9.09	8.98	9.51	9.96
	6H	10.58	11.05	11.05	11.50	11.98	10.62	11.09	11.10	11.54	12.02
	8H	11.75	12.18	12.22	12.63	13.11	11.79	12.22	12.26	12.67	13.15
	12H	13.38	13.76	13.88	14.25	14.73	13.43	13.80	13.92	14.29	14.77
8H	4H	9.21	9.65	9.69	10.10	10.58	9.25	9.68	9.72	10.13	10.61
	6H	11.57	11.91	12.08	12.42	12.90	11.60	11.95	12.11	12.45	12.94
	8H	12.93	13.23	13.46	13.75	14.25	12.96	13.26	13.49	13.79	14.28
	12H	14.71	14.97	15.23	15.47	16.05	14.74	15.00	15.27	15.50	16.09
12H	4H	9.41	9.79	9.91	10.28	10.76	9.44	9.82	9.94	10.31	10.79
	6H	12.08	12.19	12.42	12.66	13.21	12.11	12.22	12.45	12.69	13.24
	8H	13.37	13.63	13.90	14.13	14.71	13.40	13.66	13.92	14.16	14.74
Variation with the observer position at spacings:											
S = 1.0H		5.7/-6.2					5.7/-6.2				
S = 1.5H		7.6/-4.4					7.6/-4.4				
S = 2.0H		8.8/-3.2					8.8/-3.2				
Standard tables:		BK3					BK3				
Uncorrected UGR		-0.3					-0.3				



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	1.01	1.01	1.01	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	0.87	0.86	0.84
2	0.94	0.91	0.88	0.93	0.90	0.87	0.90	0.88	0.85	0.87	0.85	0.84	0.85	0.83	0.82	0.80
3	0.90	0.86	0.83	0.89	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.78	0.77
4	0.86	0.82	0.78	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.80	0.77	0.75	0.74
5	0.82	0.78	0.75	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.75	0.73	0.77	0.75	0.72	0.71
6	0.79	0.75	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
7	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.70	0.67	0.66
8	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
9	0.71	0.66	0.64	0.70	0.66	0.64	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.62	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



NATA 3-1940-M

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	5300.44	5209.31	4469.63	3323.25	2265.19	1446.19	895.50	544.50	40.33		
45.0	5295.94	5187.94	4394.81	3362.06	2205.56	1380.38	859.50	462.38	34.65		
90.0	5320.13	4957.31	4026.38	2863.69	1873.69	1095.08	793.41	282.94	24.02		
135.0	5322.38	4925.81	4033.13	2867.06	1906.88	1253.25	817.88	312.19	25.26		
180.0	5300.44	4763.25	3667.50	2465.44	1721.25	1077.64	674.83	181.74	19.29		
225.0	5295.94	4799.81	3757.50	2598.19	1773.00	1106.38	730.58	178.59	19.97		
270.0	5320.13	4992.75	4161.38	3023.44	2013.75	1279.69	837.56	362.25	25.14		
315.0	5322.38	5034.94	4107.94	2975.63	1967.06	1106.78	815.74	329.85	24.98		
360.0	5300.44	5209.31	4469.63	3323.25	2265.19	1446.19	895.50	544.50	40.33		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	14.91	12.26	11.03	10.29	9.84	9.62	9.39	9.17	9.06		
45.0	14.06	11.87	10.86	10.18	9.79	9.51	9.34	9.17	9.00		
90.0	13.11	11.59	10.58	10.07	9.68	9.45	9.23	9.06	8.94		
135.0	13.50	11.81	10.86	10.18	9.79	9.51	9.28	9.11	9.00		
180.0	12.54	11.36	10.52	10.01	9.68	9.45	9.28	9.11	9.00		
225.0	12.38	11.08	10.46	10.01	9.56	9.34	9.17	9.06	8.94		
270.0	13.33	11.59	10.63	10.13	9.68	9.45	9.23	9.11	8.94		
315.0	13.50	11.76	10.80	10.18	9.79	9.51	9.28	9.11	9.00		
360.0	14.91	12.26	11.03	10.29	9.84	9.62	9.39	9.17	9.06		
C/γ(°)	90.0										
0.0	9.00										
45.0	8.94										
90.0	8.94										
135.0	8.94										
180.0	9.00										
225.0	9.00										
270.0	8.94										
315.0	8.94										
360.0	9.00										