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NATA

LumCAT: 4-2267-M
Luminaire: 92.70.135.00
Report No: NATA0100
Test No: GC2018101610
LampCAT: LUMILEDS LUXEON 1208
Lamp flux(lm): 3628.0
Number of Lamps: 1
Length(mm): 100
Phm Type: C

Voltage(V): 35.0000
Current(A): 0.7000
Power (W): 24.5000
PF: 1.0000
Ballast type: DC
Width(mm): 100
Height(mm): 0

Photometric Results

Lumens(lm): 3186.11
Efficiency(%): 87.82%
Lumens(lm)/Power(W): 131.60
Central intensity(cd): 6876.422
Maximum intensity(cd): 6876.422
Angle of maximum intensity: $C=0.0$ $\gamma=0.0$
Beam Angle(50%Imax): [C0/180]Total=36.1
[C90/270]Total=36.1
Field angle(10%Imax): [C0/180]Total=70.5
[C90/270]Total=70.5
Maximum s/h(1/2): C0_180=0.59 C90_270=0.59
Maximum s/h(1/4): C0_180=0.62 C90_270=0.62
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.87%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.510%

Equipment:
Temperature(°C): 25.0

Date: 2018/10/16
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.50

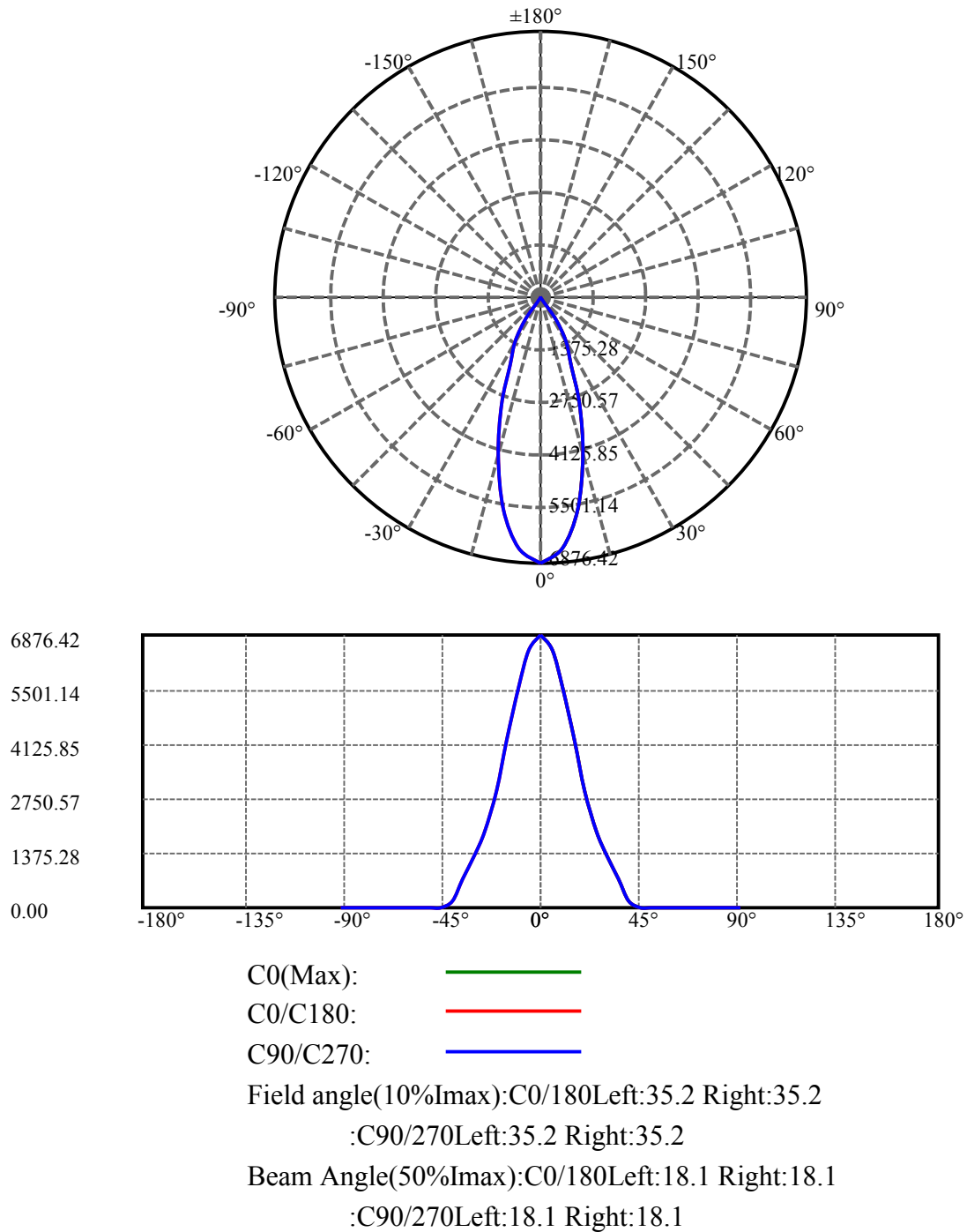
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6876.422	41.122	41.122	1.133%	1.291%
5.0	6508.055	310.911	352.034	8.570%	11.049%
10.0	5572.477	530.405	882.439	14.620%	27.696%
15.0	4214.813	597.949	1480.388	16.481%	46.464%
20.0	2944.617	552.039	2032.427	15.216%	63.790%
25.0	1916.578	443.981	2476.408	12.238%	77.725%
30.0	1317.171	360.995	2837.403	9.950%	89.056%
35.0	713.559	224.342	3061.745	6.184%	96.097%
40.0	155.566	54.812	3116.557	1.511%	97.817%
45.0	19.048	7.383	3123.94	.203%	98.049%
50.0	16.172	6.791	3130.73	.187%	98.262%
55.0	14.681	6.592	3137.322	.182%	98.469%
60.0	13.859	6.579	3143.901	.181%	98.675%
65.0	13.514	6.714	3150.614	.185%	98.886%
70.0	13.521	6.964	3157.579	.192%	99.105%
75.0	17.276	9.147	3166.726	.252%	99.392%
80.0	15.652	8.449	3175.175	.233%	99.657%
85.0	13.409	7.322	3182.496	.202%	99.887%
90.0	13.170	3.609	3186.106	.099%	100.000%

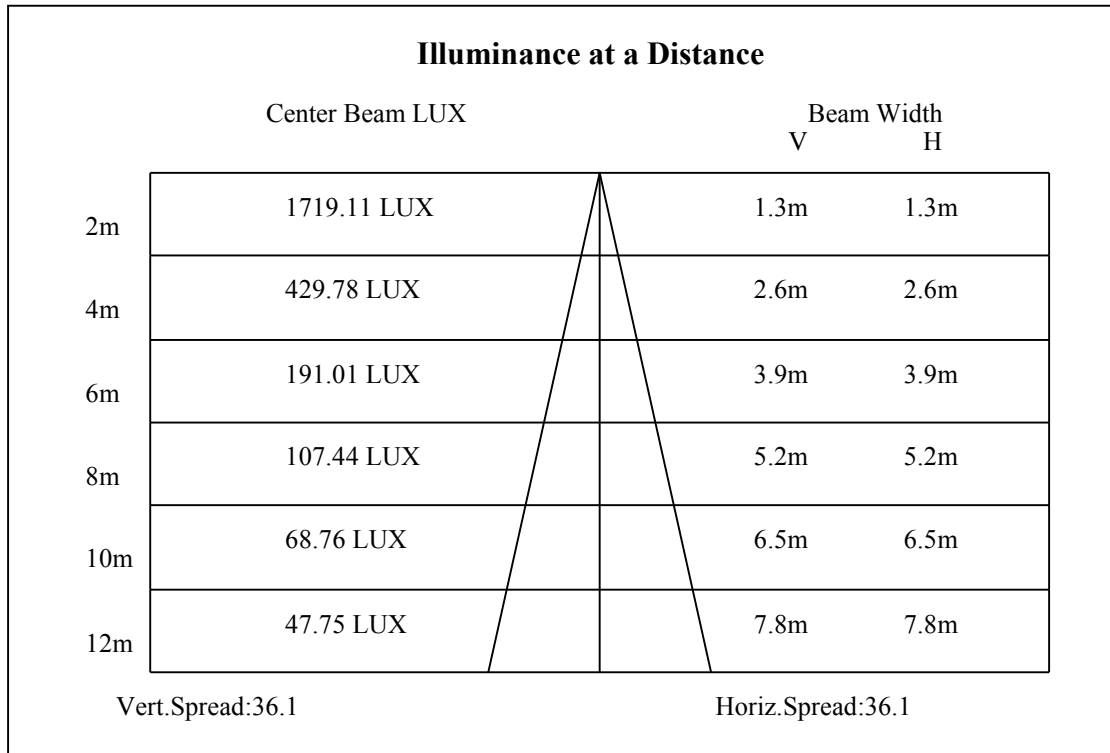
ZONAL LUMEN SUMMARY

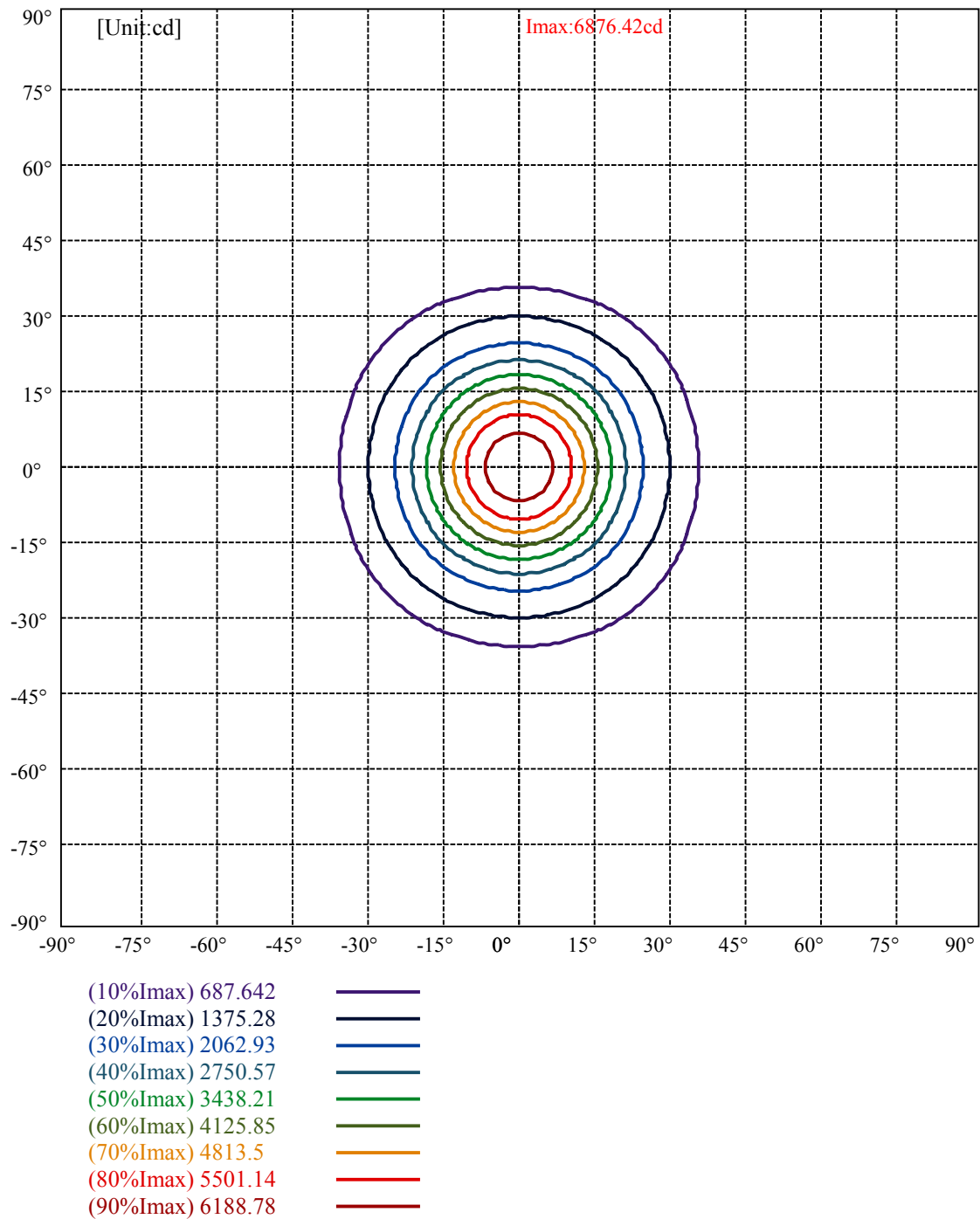
Zone	Lumens	%Lamp	%Fixt
0-30	2837.40	78.21%	89.06%
0-40	3116.56	85.90%	97.82%
0-60	3143.90	86.66%	98.68%
0-90	3182.50	87.72%	99.89%
0-120	3182.50	87.72%	99.89%
0-180	3186.11	87.82%	100.00%
60-90	45.17	1.25%	1.42%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.00	2548.89	70.26%	80.00%

ZONAL LUMEN SUMMARY

0-10	882.44
10-20	1149.99
20-30	804.98
30-40	279.15
40-50	14.17
50-60	13.17
60-70	13.68
70-80	17.60
80-90	7.32
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



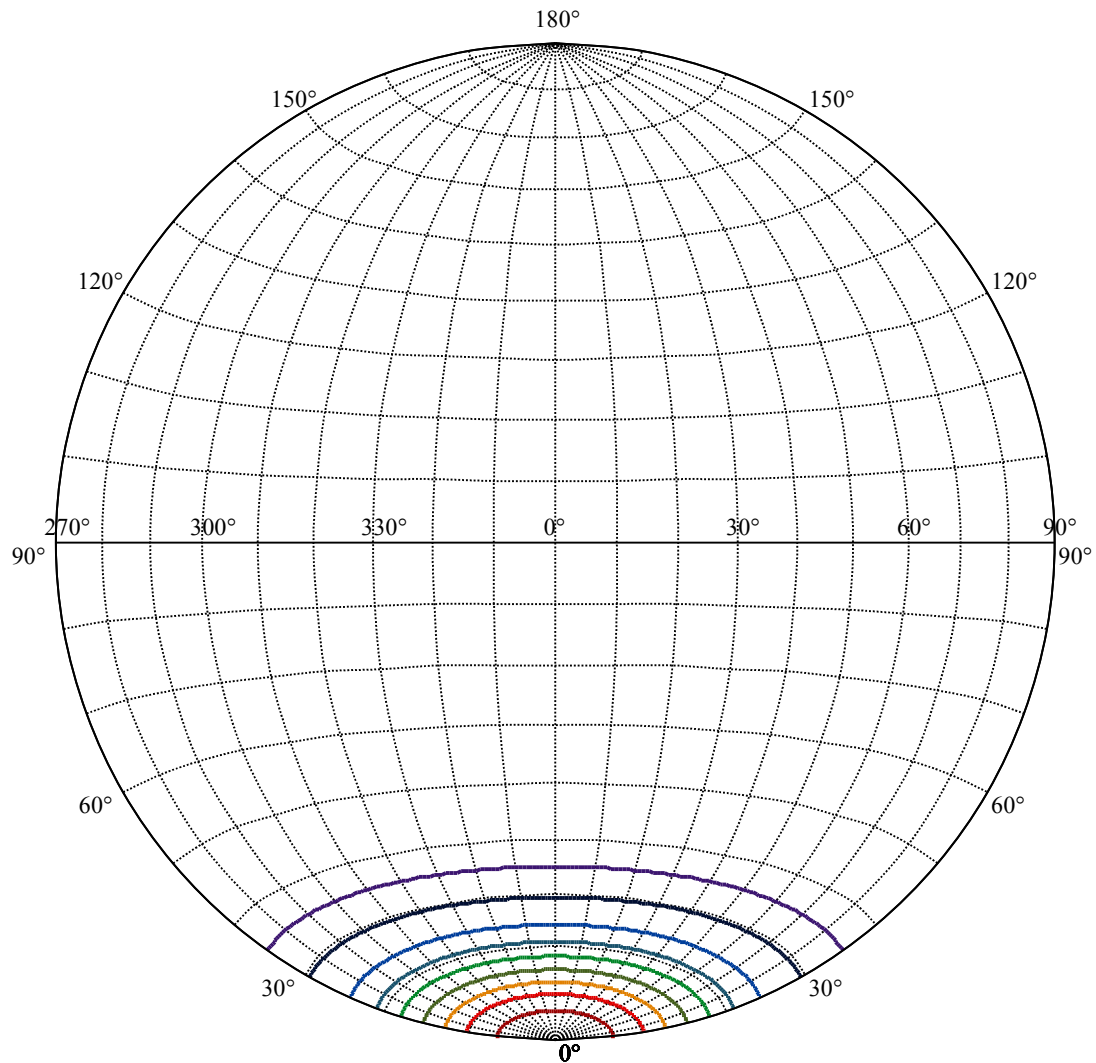




Equipment:
Temperature(°C): 25.0

Date: 2018/10/16
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.50



House

[Unit:cd]

Road

Imax:6876.42

(10%Imax) 687.642

(20%Imax) 1375.28

(30%Imax) 2062.93

(40%Imax) 2750.57

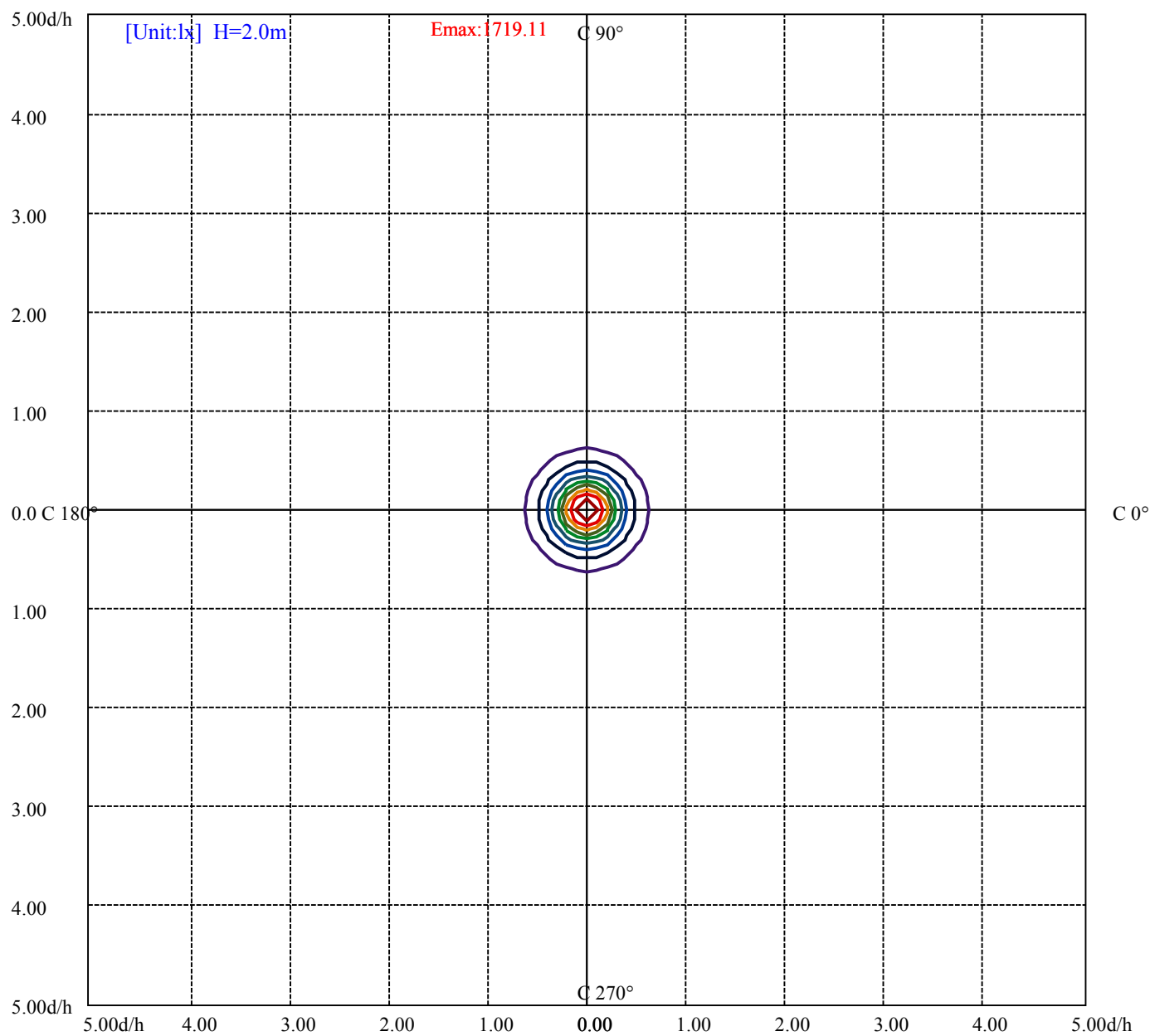
(50%Imax) 3438.21

(60%Imax) 4125.85

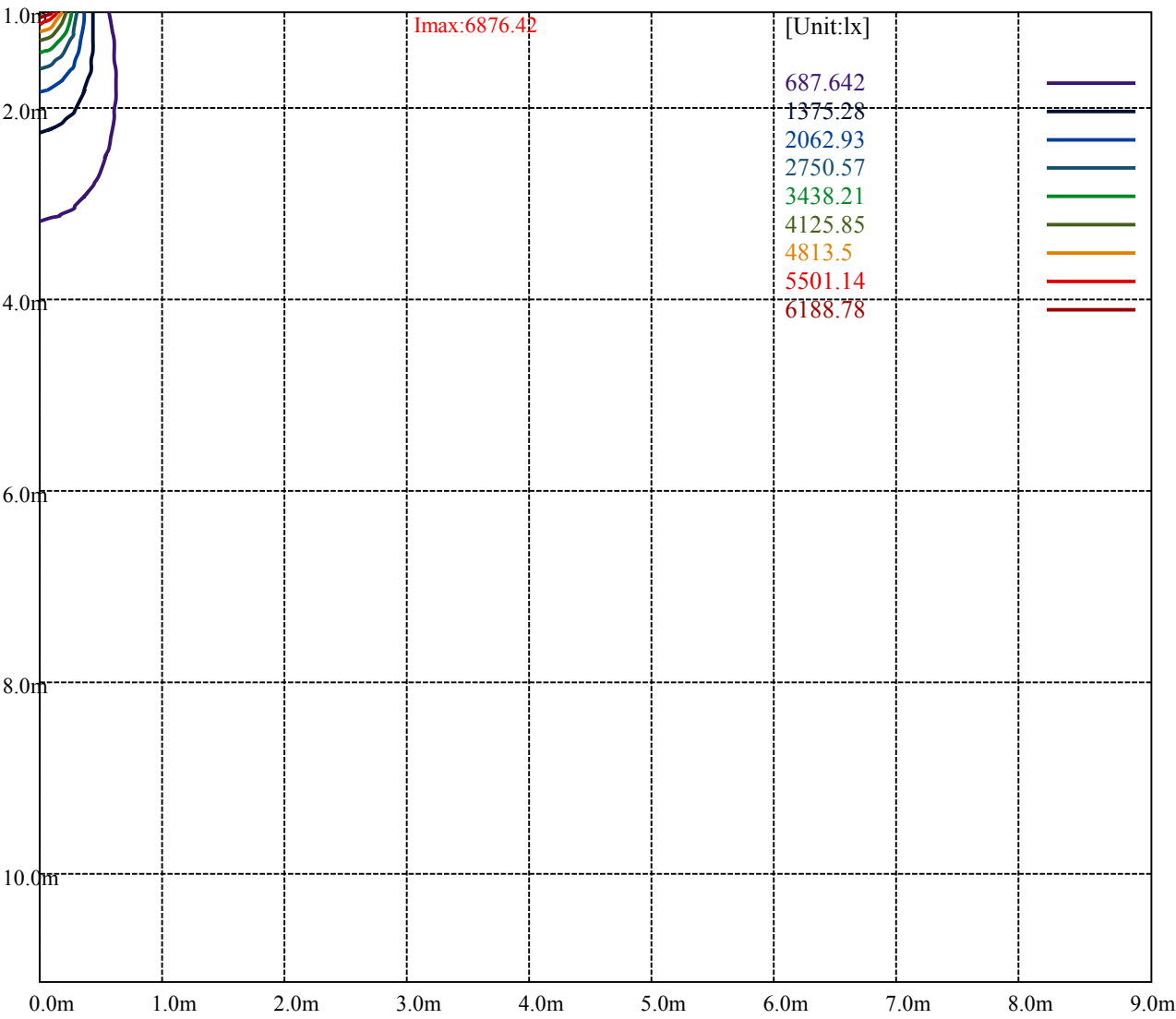
(70%Imax) 4813.5

(80%Imax) 5501.14

(90%Imax) 6188.78



(10%Emax)	171.9102	—
(20%Emax)	343.82	—
(30%Emax)	515.73	—
(40%Emax)	687.64	—
(50%Emax)	859.5525	—
(60%Emax)	1031.463	—
(70%Emax)	1203.373	—
(80%Emax)	1375.282	—
(90%Emax)	1547.193	—



Luminance Table

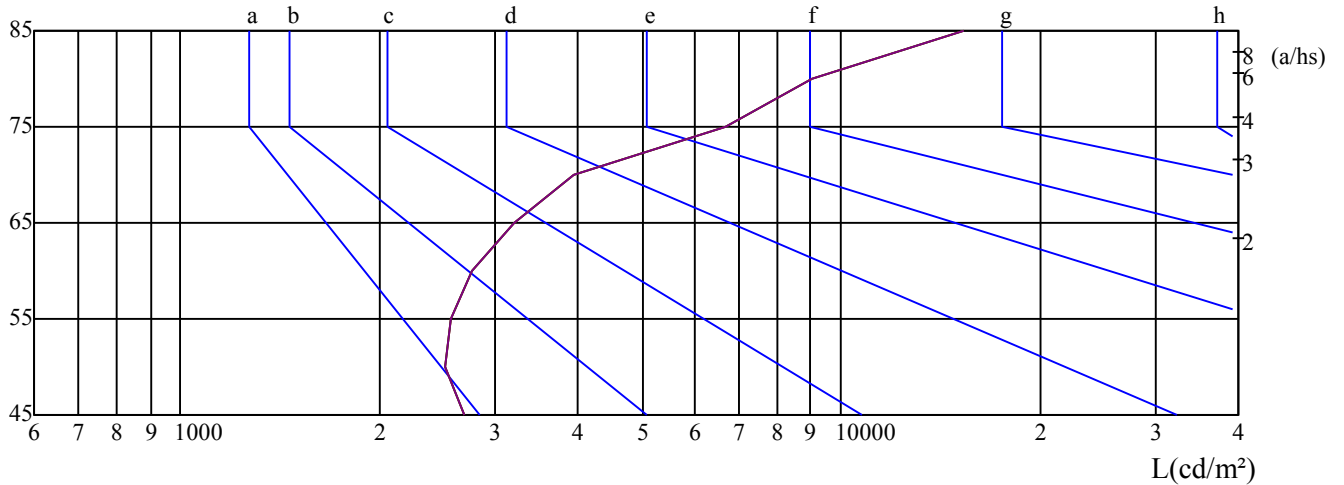
γ	45	50	55	60	65	70	75	80	85
C0	2694	2516	2560	2772	3198	3953	6675	9013	15385
C45	2694	2516	2560	2772	3198	3953	6675	9013	15385
C90	2694	2516	2560	2772	3198	3953	6675	9013	15385

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3198	3198	3198	6675	6675	6675	15385	15385	15385

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

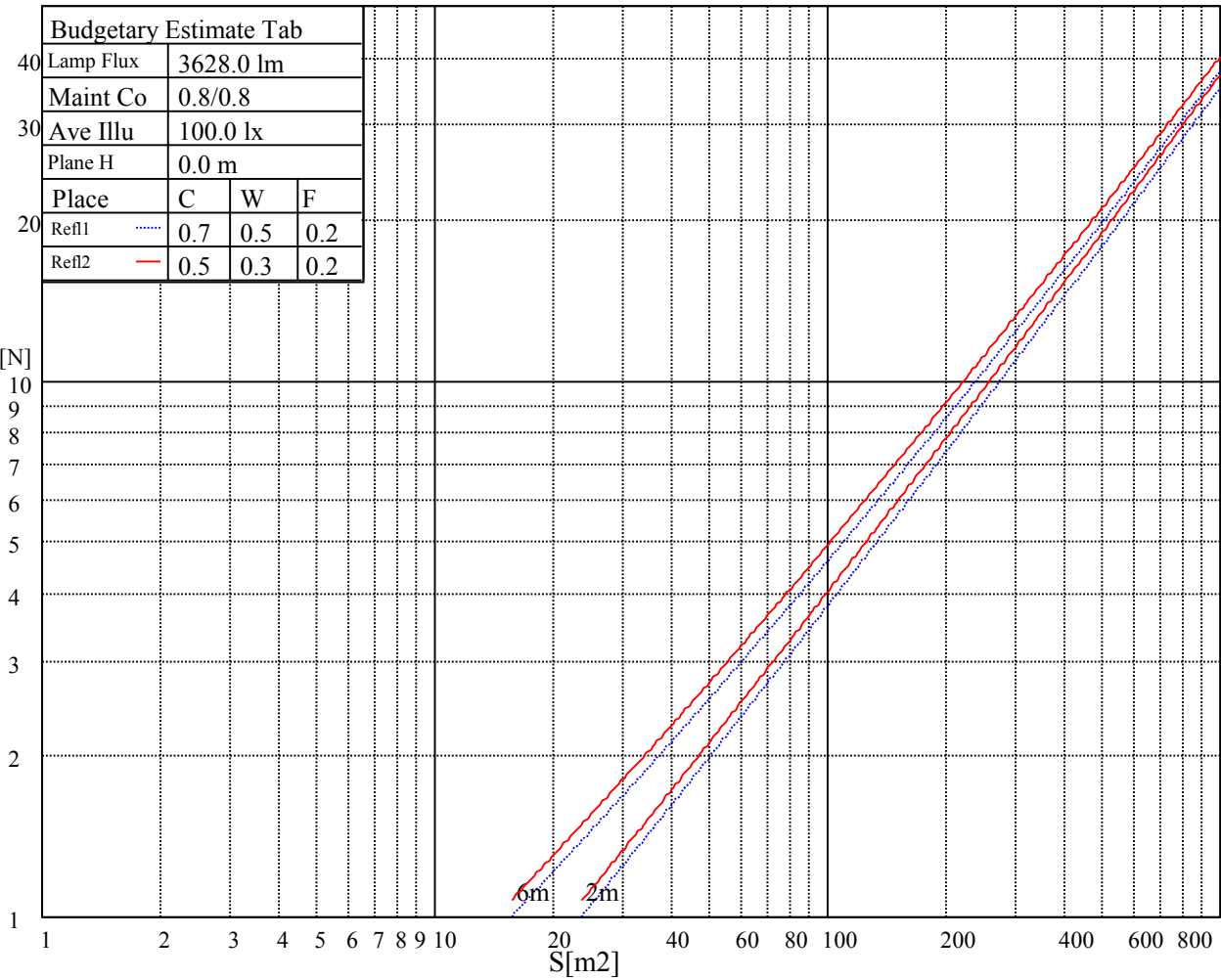
 $\gamma(^{\circ})$ 

C0 ———

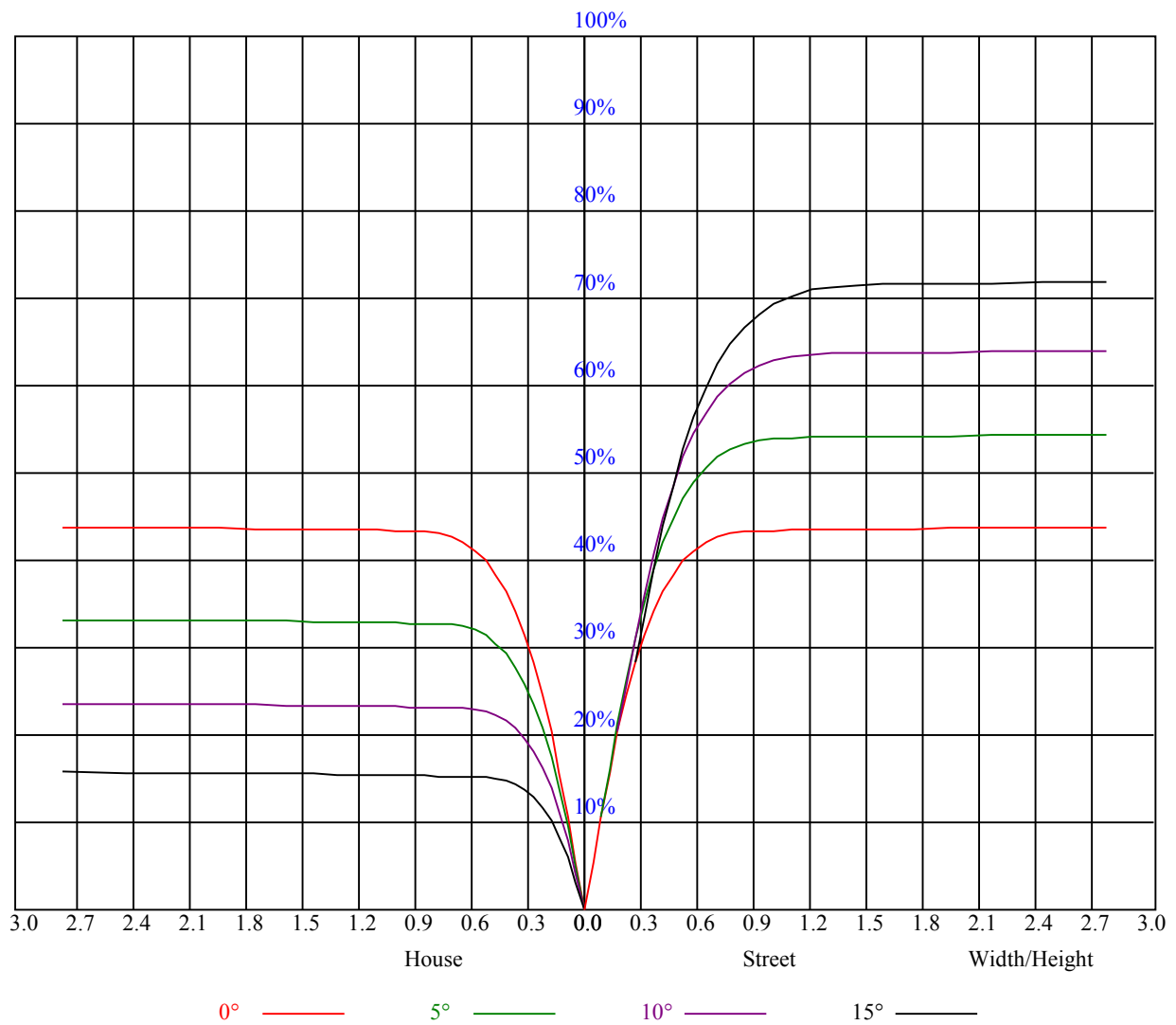
C45 ———

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	-0.06	0.86	0.31	1.17	1.48	-0.06	0.85	0.31	1.16	1.48
	3H	3.22	4.03	3.61	4.36	4.73	3.20	4.01	3.58	4.34	4.71
	4H	5.69	6.44	6.10	6.80	7.19	5.92	6.66	6.32	7.02	7.41
	6H	8.01	8.70	8.43	9.07	9.47	8.18	8.87	8.60	9.24	9.64
	8H	9.07	9.71	9.51	10.10	10.52	9.18	9.82	9.62	10.22	10.63
	12H	10.64	11.25	11.07	11.63	12.06	10.69	11.30	11.13	11.69	12.12
4H	2H	0.85	1.60	1.26	1.95	2.35	0.85	1.60	1.26	1.95	2.34
	3H	4.48	5.10	4.90	5.51	5.91	4.48	5.09	4.89	5.50	5.91
	4H	7.15	7.70	7.59	8.12	8.57	7.35	7.90	7.79	8.32	8.77
	6H	9.45	9.92	9.92	10.37	10.85	9.60	10.07	10.08	10.52	11.00
	8H	10.61	11.05	11.09	11.50	11.98	10.71	11.14	11.18	11.59	12.07
	12H	12.08	12.46	12.58	12.95	13.43	12.13	12.50	12.62	12.99	13.47
8H	4H	8.02	8.45	8.50	8.91	9.38	8.17	8.61	8.65	9.06	9.53
	6H	10.53	10.87	11.04	11.38	11.87	10.64	10.98	11.15	11.49	11.97
	8H	11.83	12.14	12.37	12.66	13.16	11.89	12.20	12.43	12.72	13.22
	12H	13.39	13.65	13.92	14.15	14.74	13.42	13.68	13.94	14.18	14.76
12H	4H	8.25	8.62	8.74	9.11	9.59	8.38	8.76	8.88	9.25	9.73
	6H	11.04	11.14	11.38	11.62	12.17	11.14	11.24	11.47	11.71	12.26
	8H	12.25	12.51	12.78	13.01	13.60	12.31	12.57	12.83	13.07	13.65
Variation with the observer position at spacings:											
S = 1.0H		5.5/-7.2					5.5/-7.2				
S = 1.5H		7.5/-5.1					7.5/-5.1				
S = 2.0H		8.7/-3.5					8.7/-3.5				
Standard tables:		BK3					BK3				
Uncorrected UGR		0.6					0.6				



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	1.06	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	0.98	0.96	0.94	0.96	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.87	0.86	0.85	0.84	0.82
2	0.93	0.89	0.86	0.91	0.88	0.85	0.88	0.86	0.84	0.86	0.84	0.82	0.83	0.81	0.80	0.79
3	0.88	0.84	0.81	0.87	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.76	0.75
4	0.84	0.79	0.76	0.83	0.79	0.76	0.81	0.77	0.75	0.79	0.76	0.74	0.77	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	0.68	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	0.73	0.69	0.66	0.72	0.68	0.65	0.71	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	0.68	0.63	0.61	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.59
10	0.65	0.61	0.58	0.65	0.61	0.58	0.64	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.58	0.57



NATA 4-2267-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	6887.81	6492.94	5562.56	4259.25	2968.88	1920.38	1409.63	735.75	135.90		
45.0	6874.88	6537.94	5665.50	4368.38	3087.00	1993.50	1437.75	798.75	304.31		
90.0	6874.31	6510.38	5469.75	4242.94	2948.63	1909.69	1378.13	726.81	64.63		
135.0	6868.69	6663.94	5878.13	4484.25	3241.69	2090.25	1467.56	933.19	288.00		
180.0	6887.81	6570.56	5598.56	4193.44	2877.19	1903.50	1258.31	651.15	69.92		
225.0	6874.88	6415.88	5495.06	4077.00	2781.00	1836.56	1104.98	613.18	48.04		
270.0	6874.31	6498.00	5627.25	4272.19	2945.25	1929.38	1361.81	701.44	292.50		
315.0	6868.69	6374.81	5283.00	3821.06	2707.31	1749.38	1119.21	548.21	41.23		
360.0	6887.81	6492.94	5562.56	4259.25	2968.88	1920.38	1409.63	735.75	135.90		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	19.07	16.14	14.63	13.78	13.50	13.56	21.77	16.14	13.33		
45.0	19.69	16.54	14.91	14.06	13.73	13.78	18.51	18.90	13.50		
90.0	19.01	16.20	14.74	13.95	13.61	13.61	16.71	16.76	13.50		
135.0	20.08	16.82	14.96	14.06	13.61	13.61	14.23	16.03	13.44		
180.0	18.90	16.03	14.63	13.78	13.39	13.39	15.41	15.08	13.39		
225.0	18.79	15.92	14.51	13.73	13.44	13.39	16.59	13.39	13.39		
270.0	19.07	16.09	14.74	13.89	13.44	13.44	17.49	14.74	13.39		
315.0	17.78	15.64	14.34	13.61	13.39	13.39	17.49	14.18	13.33		
360.0	19.07	16.14	14.63	13.78	13.50	13.56	21.77	16.14	13.33		
C/ γ (°)	90.0										
0.0	13.11										
45.0	13.22										
90.0	13.22										
135.0	13.16										
180.0	13.11										
225.0	13.22										
270.0	13.16										
315.0	13.16										
360.0	13.11										

Equipment:
Temperature(°C): 25.0

Date: 2018/10/16
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.50