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Nata

LumCAT: 1656-N
Luminaire: 92.70.125.00
Report No: NATA0100
Test No: GC2018070508
LampCAT: NICHIA NTCWT012B-V3
Lamp flux(lm): 747.0
Number of Lamps: 1
Length(mm): 47
Phm Type: C

Voltage(V): 38.5000
Current(A): 0.2000
Power (W): 7.7000
PF: 0.0000
Ballast type: DC
Width(mm): 47
Height(mm): 0

Photometric Results

Lumens(lm): 683.62
Efficiency(%): 91.51%
Lumens(lm)/Power(W): 89.84
Central intensity(cd): 8634.771
Maximum intensity(cd): 8634.771
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=10.9
[C90/270]Total=10.9
Field angle(10%Imax): [C0/180]Total=23.2
[C90/270]Total=23.2
Maximum s/h(1/2): C0_180=0.19 C90_270=0.19
Maximum s/h(1/4): C0_180=0.20 C90_270=0.20
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.61%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.531%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8634.770	8.263	8.263	1.106%	1.209%
2.0	7724.206	59.121	67.384	7.914%	9.857%
4.0	5789.662	88.573	155.957	11.857%	22.814%
6.0	3776.869	86.583	242.54	11.591%	35.479%
8.0	2265.640	69.153	311.693	9.257%	45.595%
10.0	1269.339	48.341	360.034	6.471%	52.666%
12.0	756.317	34.486	394.52	4.617%	57.711%
14.0	489.424	25.967	420.487	3.476%	61.509%
16.0	368.960	22.304	442.791	2.986%	64.772%
18.0	311.144	21.087	463.878	2.823%	67.856%
20.0	283.176	21.241	485.119	2.843%	70.964%
22.0	268.930	22.094	507.213	2.958%	74.196%
24.0	256.969	22.922	530.135	3.069%	77.549%
26.0	248.944	23.934	554.069	3.204%	81.050%
28.0	241.464	24.861	578.931	3.328%	84.686%
30.0	233.708	25.628	604.558	3.431%	88.435%
32.0	221.141	25.701	630.259	3.441%	92.195%
34.0	171.652	21.051	651.31	2.818%	95.274%
36.0	93.272	12.024	663.334	1.610%	97.033%
38.0	28.698	3.875	667.209	.519%	97.600%
40.0	9.284	1.309	668.517	.175%	97.791%
42.0	6.414	0.941	669.459	.126%	97.929%
44.0	4.322	0.658	670.117	.088%	98.025%
46.0	3.641	0.574	670.691	.077%	98.109%
48.0	3.482	0.568	671.259	.076%	98.192%
50.0	3.372	0.567	671.825	.076%	98.275%
52.0	3.290	0.569	672.394	.076%	98.358%
54.0	3.207	0.569	672.963	.076%	98.442%
56.0	3.159	0.574	673.537	.077%	98.526%
58.0	3.104	0.577	674.115	.077%	98.610%
60.0	3.049	0.579	674.694	.078%	98.695%
62.0	3.042	0.589	675.283	.079%	98.781%
64.0	2.994	0.590	675.873	.079%	98.867%
66.0	2.987	0.598	676.471	.080%	98.955%
68.0	2.966	0.603	677.074	.081%	99.043%
70.0	2.946	0.607	677.681	.081%	99.132%
72.0	2.932	0.612	678.293	.082%	99.221%
74.0	2.925	0.617	678.909	.083%	99.311%

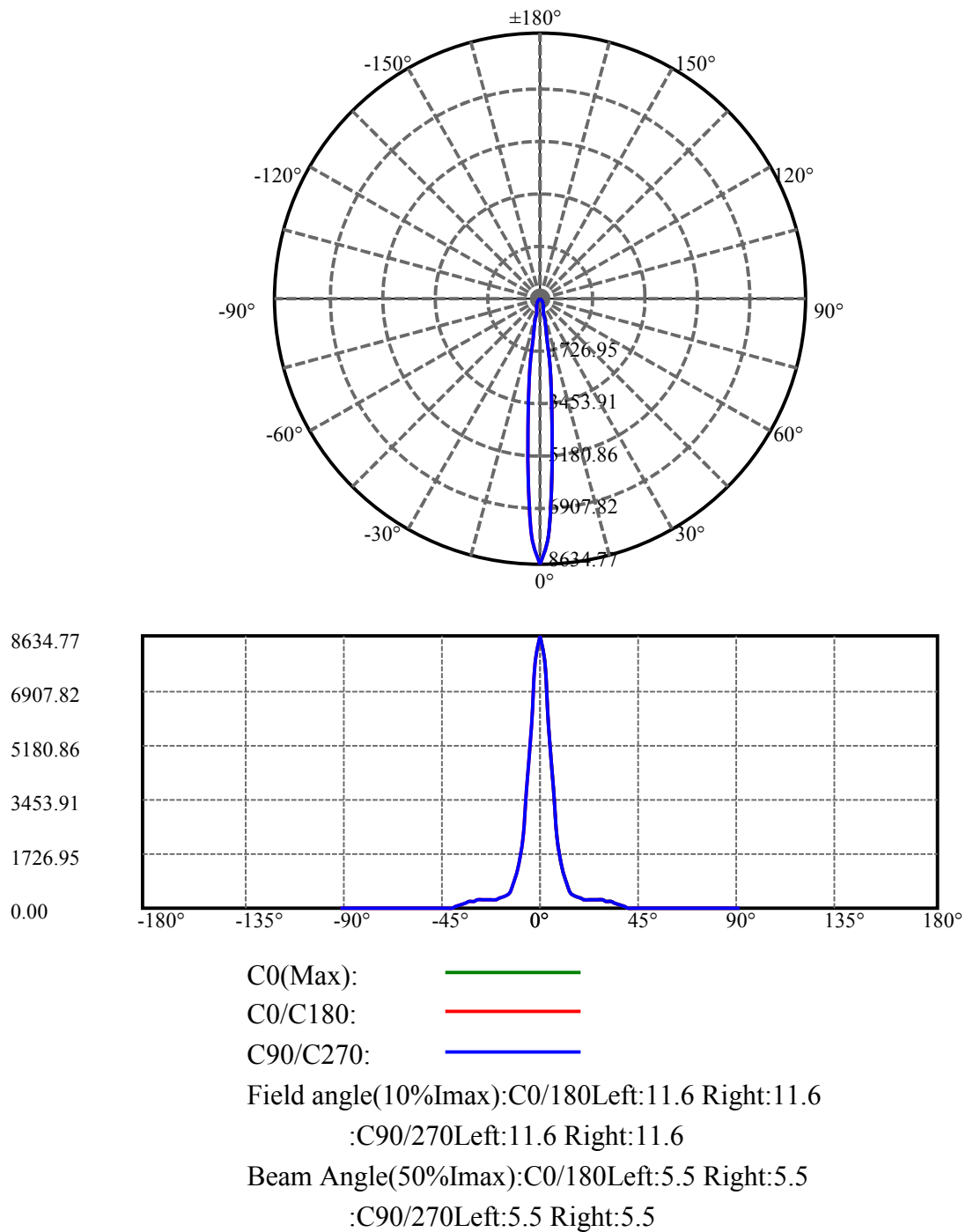
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.918	0.621	679.53	.083%	99.402%
78.0	2.918	0.626	680.156	.084%	99.494%
80.0	2.911	0.629	680.785	.084%	99.586%
82.0	2.911	0.632	681.417	.085%	99.678%
84.0	2.904	0.633	682.051	.085%	99.771%
86.0	2.884	0.631	682.682	.084%	99.863%
88.0	2.849	0.624	683.306	.084%	99.955%
90.0	2.829	0.310	683.616	.042%	100.000%

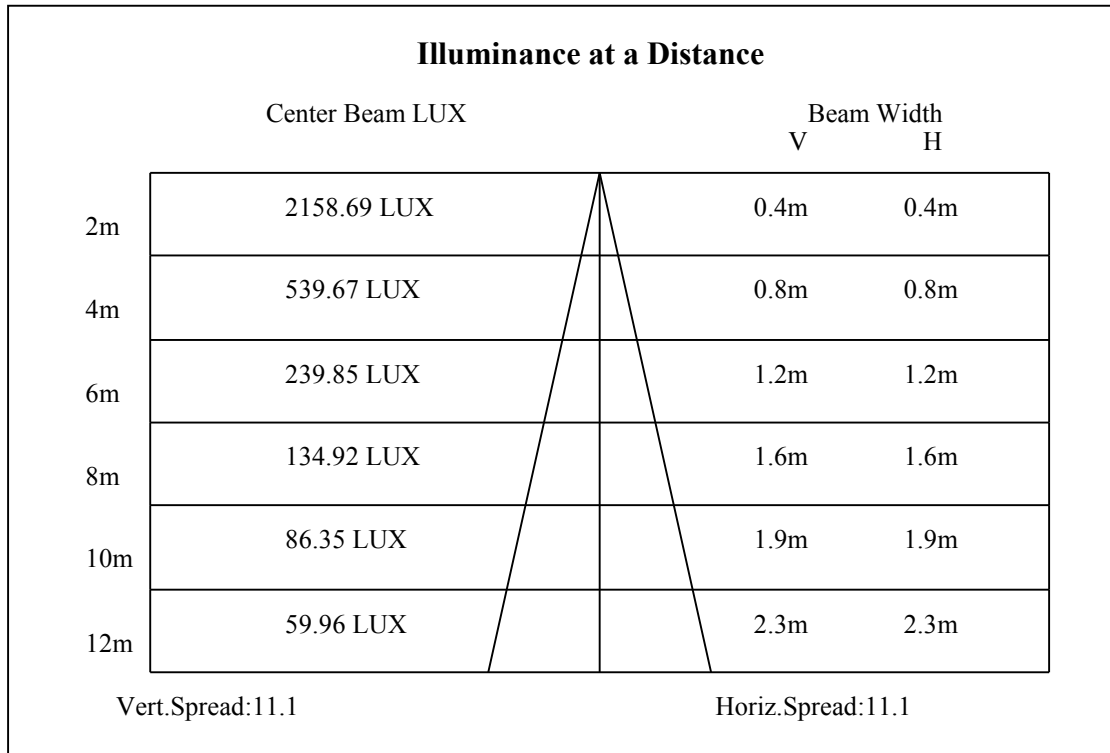
ZONAL LUMEN SUMMARY

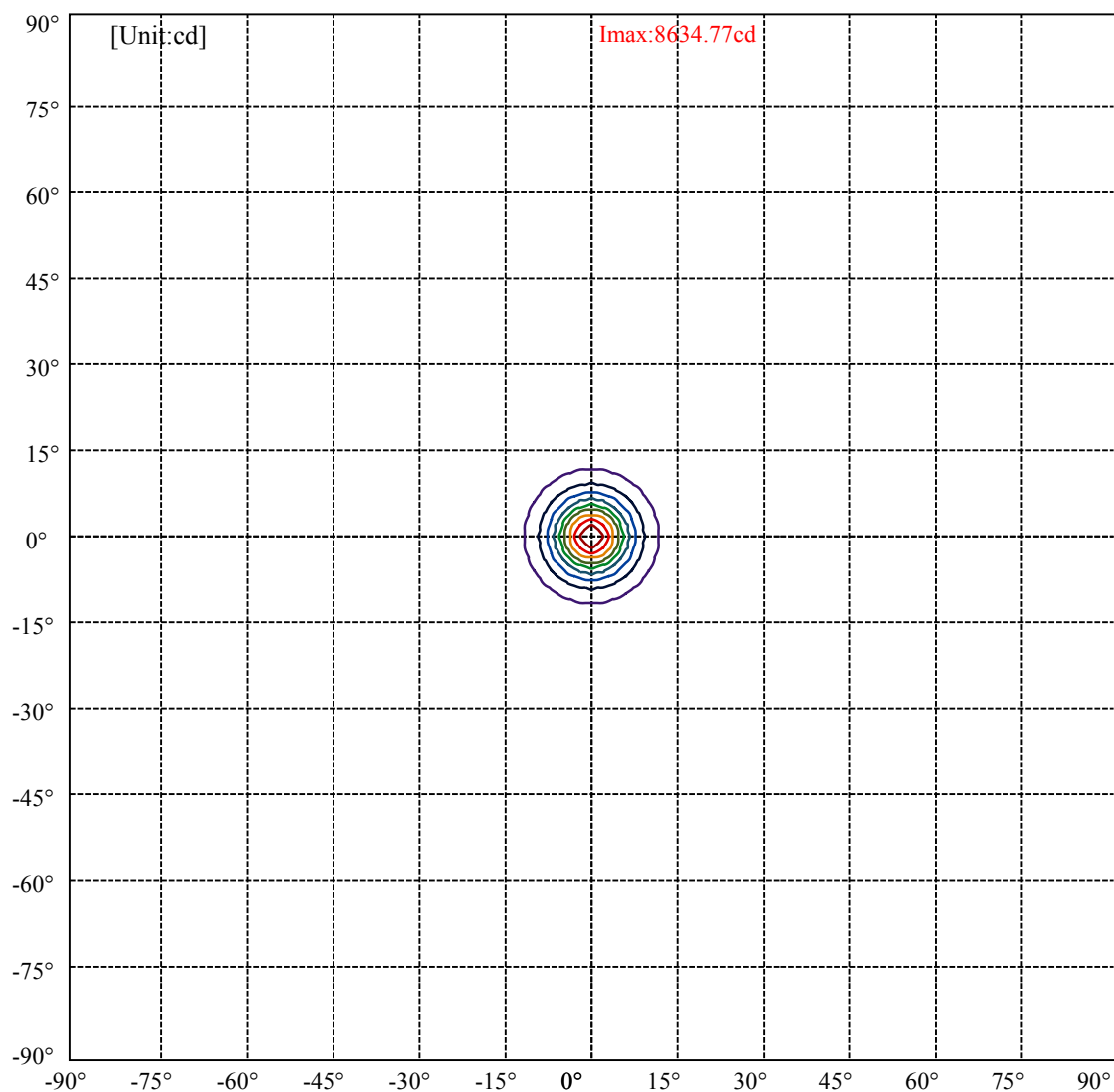
Zone	Lumens	%Lamp	%Fixt
0-30	604.56	80.93%	88.44%
0-40	668.52	89.49%	97.79%
0-60	674.69	90.32%	98.69%
0-90	683.31	91.47%	99.95%
0-120	683.31	91.47%	99.95%
0-180	683.62	91.51%	100.00%
60-90	9.19	1.23%	1.34%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-25.40	546.89	73.21%	80.00%

ZONAL LUMEN SUMMARY

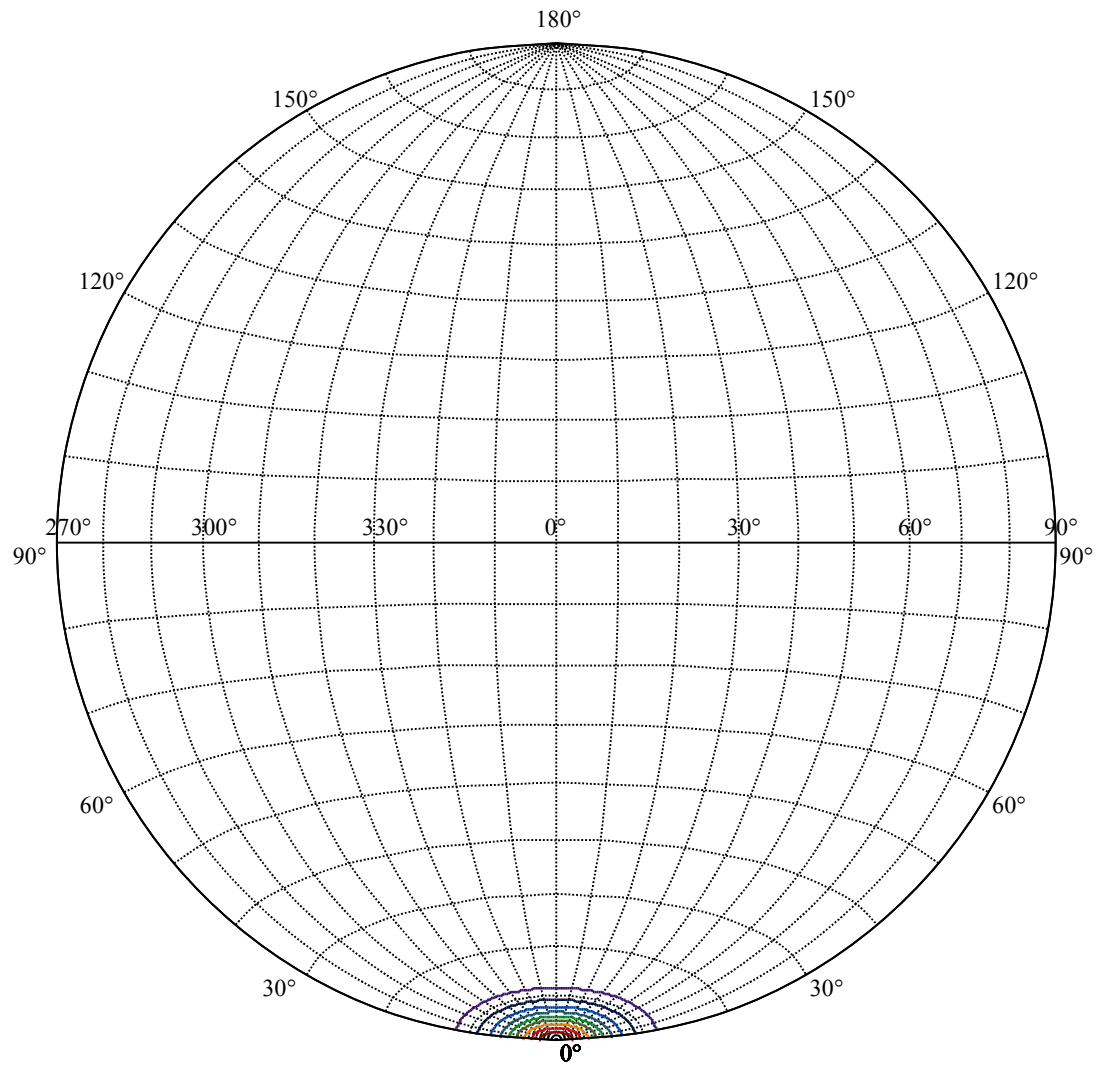
0-10	360.03
10-20	125.09
20-30	119.44
30-40	63.96
40-50	3.31
50-60	2.87
60-70	2.99
70-80	3.10
80-90	2.52
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00







(10%Imax) 863.477	—————
(20%Imax) 1726.95	—————
(30%Imax) 2590.43	—————
(40%Imax) 3453.91	—————
(50%Imax) 4317.39	—————
(60%Imax) 5180.86	—————
(70%Imax) 6044.34	—————
(80%Imax) 6907.82	—————
(90%Imax) 7771.29	—————

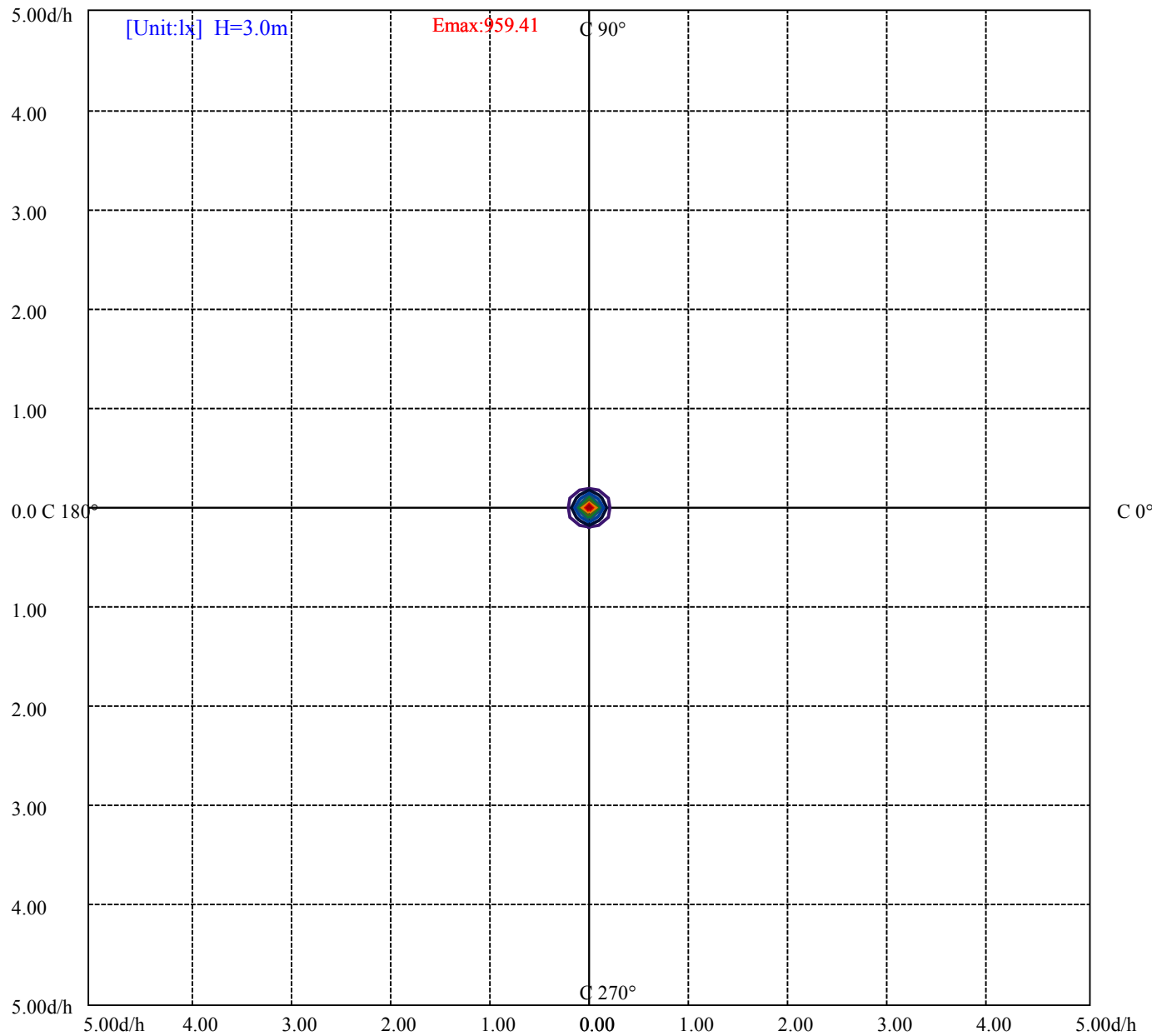


House

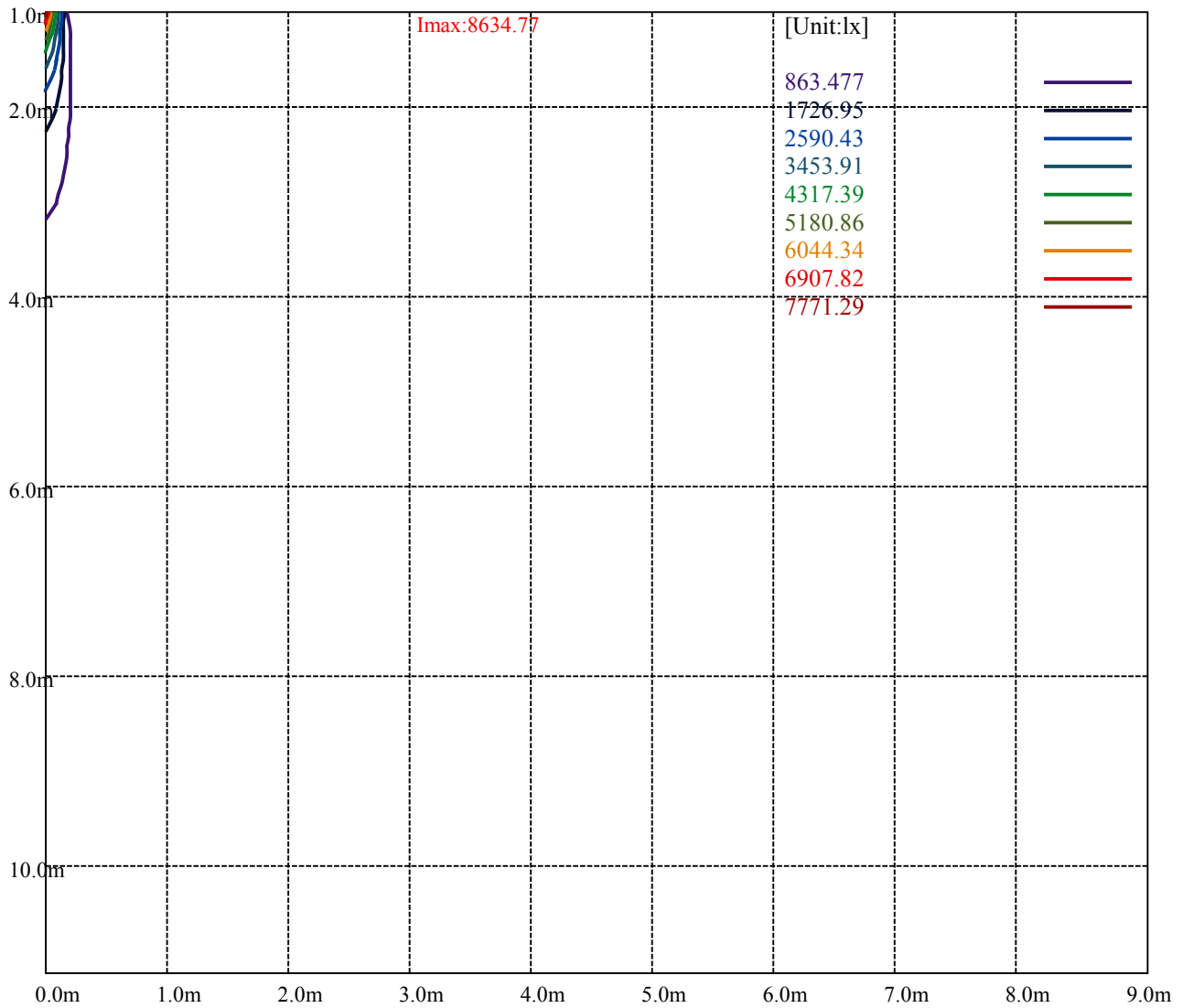
[Unit:cd]

Road

Imax:8634.77	
(10%Imax) 863.477	_____
(20%Imax) 1726.95	_____
(30%Imax) 2590.43	_____
(40%Imax) 3453.91	_____
(50%Imax) 4317.39	_____
(60%Imax) 5180.86	_____
(70%Imax) 6044.34	_____
(80%Imax) 6907.82	_____
(90%Imax) 7771.29	_____



(10%Emax) 95.94111	—
(20%Emax) 191.8822	—
(30%Emax) 287.8233	—
(40%Emax) 383.7644	—
(50%Emax) 479.7056	—
(60%Emax) 575.6467	—
(70%Emax) 671.5878	—
(80%Emax) 767.5289	—
(90%Emax) 863.47	—



Luminance Table

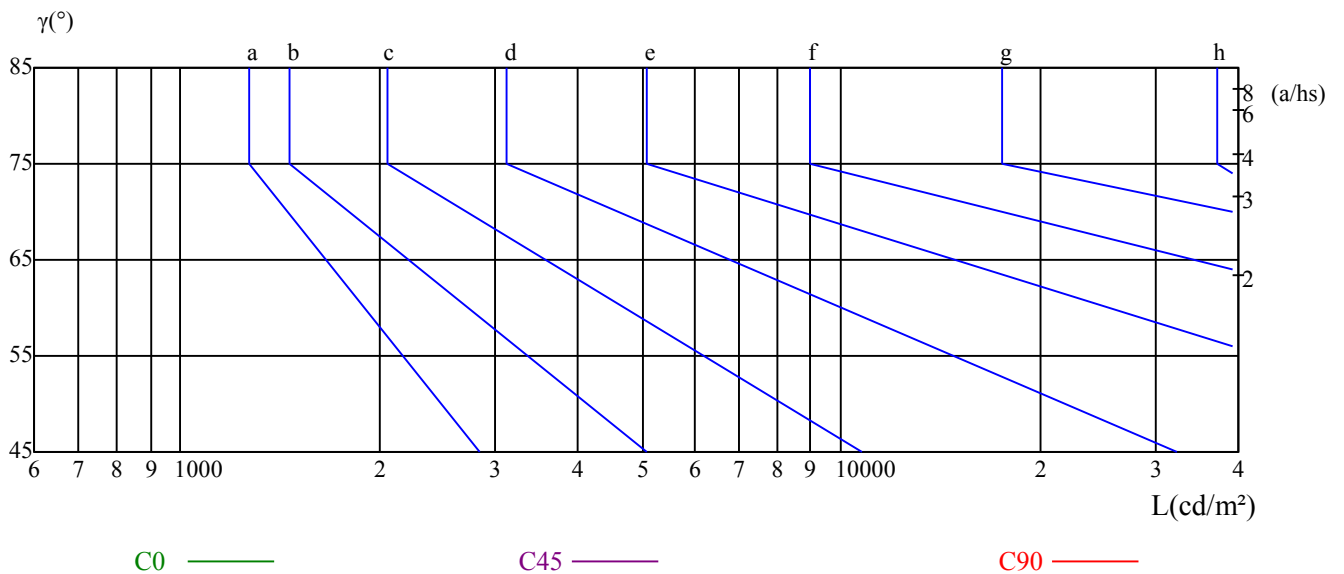
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

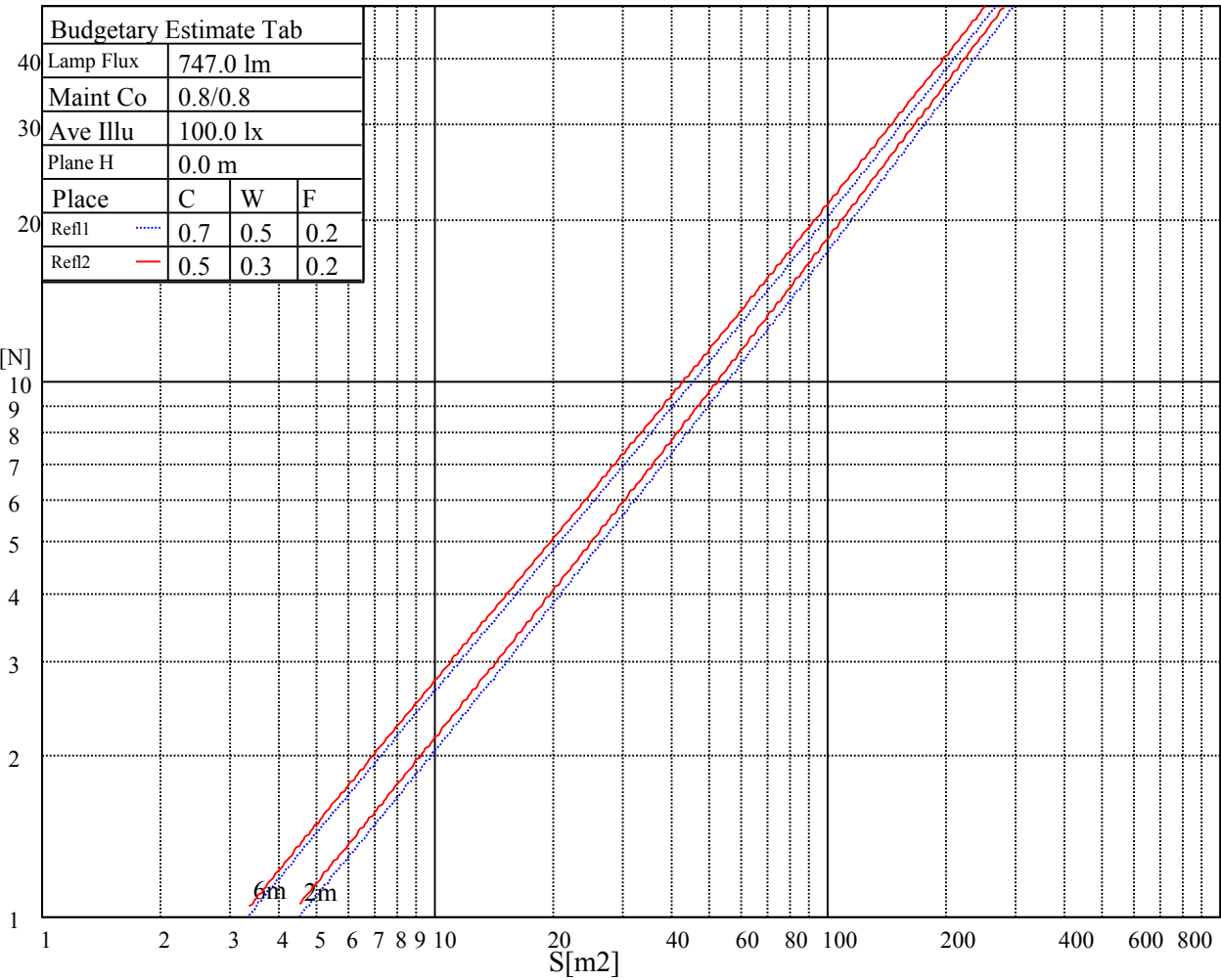
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

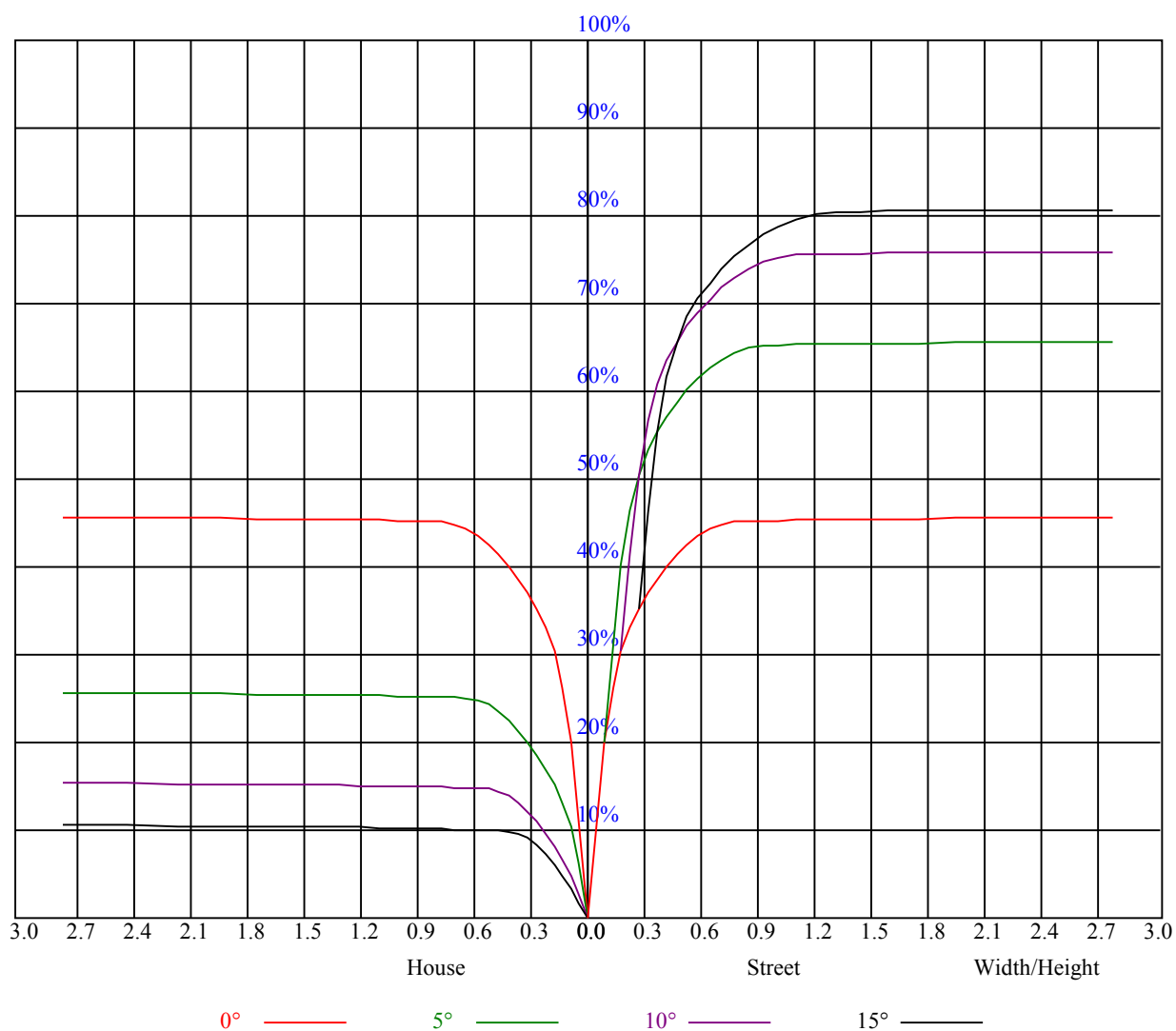
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	1.10	1.10	1.10	1.08	1.08	1.08	1.03	1.03	1.03	0.99	0.99	0.99	0.94	0.94	0.94	0.93
1	1.03	1.01	0.99	1.01	0.99	0.97	0.97	0.96	0.94	0.94	0.92	0.91	0.91	0.90	0.89	0.87
2	0.98	0.95	0.92	0.96	0.94	0.91	0.94	0.91	0.89	0.91	0.89	0.87	0.88	0.87	0.86	0.84
3	0.94	0.90	0.87	0.93	0.89	0.87	0.90	0.88	0.85	0.88	0.86	0.84	0.86	0.84	0.83	0.81
4	0.90	0.86	0.83	0.89	0.86	0.83	0.87	0.84	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.79
5	0.87	0.83	0.80	0.86	0.83	0.80	0.85	0.82	0.79	0.83	0.81	0.78	0.82	0.80	0.78	0.77
6	0.84	0.80	0.77	0.84	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.80	0.78	0.76	0.75
7	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.78	0.76	0.74	0.73
8	0.79	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.77	0.74	0.72	0.71
9	0.77	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.70
10	0.76	0.72	0.69	0.75	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.68



Nata 1656-N

Intensity data(cd)									
Appendix Page: 15 Total:16									
C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	8744.61	8354.81	6618.88	4244.30	2607.47	1503.59	867.69	539.00	393.10
45.0	8389.49	8713.78	7195.87	4996.92	3376.61	1874.67	1054.88	651.87	428.34
90.0	8682.94	8026.67	6087.04	4115.47	2424.68	1291.62	799.25	499.20	376.53
135.0	8722.03	7942.44	6008.86	3949.20	2355.31	1351.08	779.60	494.41	373.83
180.0	8744.61	7368.20	5117.49	3276.96	1830.07	1043.54	632.05	436.21	346.14
225.0	8389.49	6482.89	4452.96	2742.36	1533.87	884.54	553.48	391.40	324.39
270.0	8682.94	7361.04	5383.97	3379.36	1989.19	1138.57	683.80	452.56	351.81
315.0	8722.03	7543.83	5452.24	3510.40	2007.91	1067.10	679.78	450.75	357.54
360.0	8744.61	8354.81	6618.88	4244.30	2607.47	1503.59	867.69	539.00	393.10
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	323.73	287.94	278.03	258.77	249.63	241.64	233.82	226.28	191.93
45.0	338.60	297.86	278.59	260.53	252.65	244.62	237.57	229.25	209.65
90.0	310.63	282.05	267.46	257.00	248.91	241.42	233.44	224.69	185.15
135.0	316.02	285.74	269.56	259.10	251.50	244.56	236.63	227.55	175.08
180.0	299.56	277.48	263.89	254.75	246.93	239.72	231.73	215.22	149.09
225.0	288.77	271.65	260.58	251.61	244.23	237.40	229.81	200.68	131.03
270.0	306.11	280.79	267.08	257.88	250.29	242.36	234.82	223.86	164.89
315.0	305.73	281.89	266.25	256.12	247.42	239.99	231.84	221.60	166.38
360.0	323.73	287.94	278.03	258.77	249.63	241.64	233.82	226.28	191.93
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	118.76	39.09	9.25	7.10	4.96	3.80	3.58	3.47	3.36
45.0	144.69	65.46	14.59	7.93	5.56	3.80	3.58	3.47	3.36
90.0	105.76	32.87	9.25	7.10	4.24	3.58	3.41	3.30	3.25
135.0	97.06	26.10	8.64	6.44	4.24	3.63	3.47	3.41	3.30
180.0	65.96	14.65	7.54	5.45	3.80	3.52	3.41	3.30	3.25
225.0	48.45	9.86	7.65	4.84	3.69	3.52	3.41	3.30	3.25
270.0	83.58	19.60	8.86	6.11	3.96	3.63	3.52	3.36	3.25
315.0	81.92	21.97	8.48	6.33	4.13	3.63	3.47	3.36	3.30
360.0	118.76	39.09	9.25	7.10	4.96	3.80	3.58	3.47	3.36
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	3.30	3.19	3.14	3.08	3.08	2.97	2.97	2.97	2.97
45.0	3.25	3.25	3.14	3.08	3.08	3.03	3.03	2.97	2.97
90.0	3.19	3.14	3.08	3.03	3.03	2.97	2.97	2.97	2.92
135.0	3.19	3.14	3.14	3.08	3.03	3.03	3.03	2.97	2.97
180.0	3.19	3.14	3.08	3.03	3.03	2.97	2.97	2.97	2.92
225.0	3.14	3.14	3.08	3.03	3.03	2.97	2.97	2.92	2.92
270.0	3.19	3.14	3.08	3.03	3.03	2.97	2.97	2.97	2.92
315.0	3.19	3.14	3.08	3.03	3.03	2.97	2.97	2.97	2.97
360.0	3.30	3.19	3.14	3.08	3.08	2.97	2.97	2.97	2.97
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.86
45.0	2.97	2.92	2.92	2.86	2.92	2.92	2.92	2.86	2.86
90.0	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.86
135.0	2.97	2.97	2.92	2.97	2.92	2.92	2.92	2.92	2.81
180.0	2.92	2.92	2.92	2.92	2.86	2.92	2.86	2.86	2.86
225.0	2.92	2.92	2.92	2.92	2.92	2.86	2.86	2.86	2.81
270.0	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.86	2.86
315.0	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.86	2.86
360.0	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.86

Intensity data(cd)

Appendix Page: 16 Total:16

C/ γ (°)	90.0
0.0	2.86
45.0	2.86
90.0	2.81
135.0	2.81
180.0	2.81
225.0	2.86
270.0	2.81
315.0	2.81
360.0	2.86