
Nata

Client:

LumCAT: 1449-E

Luminaire: 92.70.046.00

Report No: nata-0100

Test No: GC2017083003

LampCAT: CREE CXA1512

Lamp flux(lm): 945.0

Number of Lamps: 1

Length(mm): 100

Phm Type: C

Voltage(V): 37.3000

Current(A): 0.3000

Power (W): 11.1900

PF: 0.0000

Ballast type: DC

Width(mm): 100

Height(mm): 0

Photometric Results

Lumens(lm): 855.21, Efficiency(%): 90.50% , Luminous Efficacy(lm/W): 76.43

Central intensity(cd): 4120.146, Maximum intensity(cd): 4120.146

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=17.4

[C90/270]Total=17.4

Field angle(10%Imax): [C0/180]Total=35.8

[C90/270]Total=35.8

Maximum s/h(1/2): C0_180=0.30 C90_270=0.30

Maximum s/h(1/4): C0_180=0.29 C90_270=0.29

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 90.90%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.215%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4120.146	3.943	3.943	.417%	.461%
2.0	4042.034	30.937	34.88	3.274%	4.079%
4.0	3732.824	57.107	91.987	6.043%	10.756%
6.0	3143.927	72.073	164.06	7.627%	19.184%
8.0	2353.730	71.842	235.902	7.602%	27.584%
10.0	1507.651	57.416	293.318	6.076%	34.298%
12.0	989.474	45.118	338.436	4.774%	39.574%
14.0	668.171	35.451	373.887	3.751%	43.719%
16.0	498.790	30.152	404.039	3.191%	47.245%
18.0	409.035	27.721	431.76	2.933%	50.486%
20.0	358.486	26.890	458.65	2.845%	53.630%
22.0	331.825	27.261	485.912	2.885%	56.818%
24.0	316.946	28.272	514.184	2.992%	60.124%
26.0	306.375	29.455	543.639	3.117%	63.568%
28.0	298.433	30.727	574.366	3.252%	67.161%
30.0	291.379	31.952	606.318	3.381%	70.897%
32.0	283.960	33.001	639.319	3.492%	74.756%
34.0	277.058	33.978	673.297	3.596%	78.729%
36.0	269.942	34.798	708.095	3.682%	82.798%
38.0	256.012	34.567	742.663	3.658%	86.840%
40.0	224.596	31.662	774.324	3.350%	90.542%
42.0	178.630	26.214	800.538	2.774%	93.608%
44.0	124.558	18.976	819.514	2.008%	95.826%
46.0	72.351	11.414	830.929	1.208%	97.161%
48.0	32.359	5.274	836.203	.558%	97.778%
50.0	12.959	2.177	838.38	.230%	98.032%
52.0	8.066	1.394	839.774	.148%	98.195%
54.0	6.091	1.081	840.854	.114%	98.322%
56.0	5.464	0.994	841.848	.105%	98.438%
58.0	5.031	0.936	842.784	.099%	98.547%
60.0	4.742	0.901	843.684	.095%	98.653%
62.0	4.515	0.874	844.558	.093%	98.755%
64.0	4.343	0.856	845.414	.091%	98.855%
66.0	4.232	0.848	846.262	.090%	98.954%
68.0	4.095	0.833	847.095	.088%	99.051%
70.0	3.992	0.823	847.918	.087%	99.148%
72.0	3.916	0.817	848.734	.086%	99.243%
74.0	3.813	0.804	849.538	.085%	99.337%

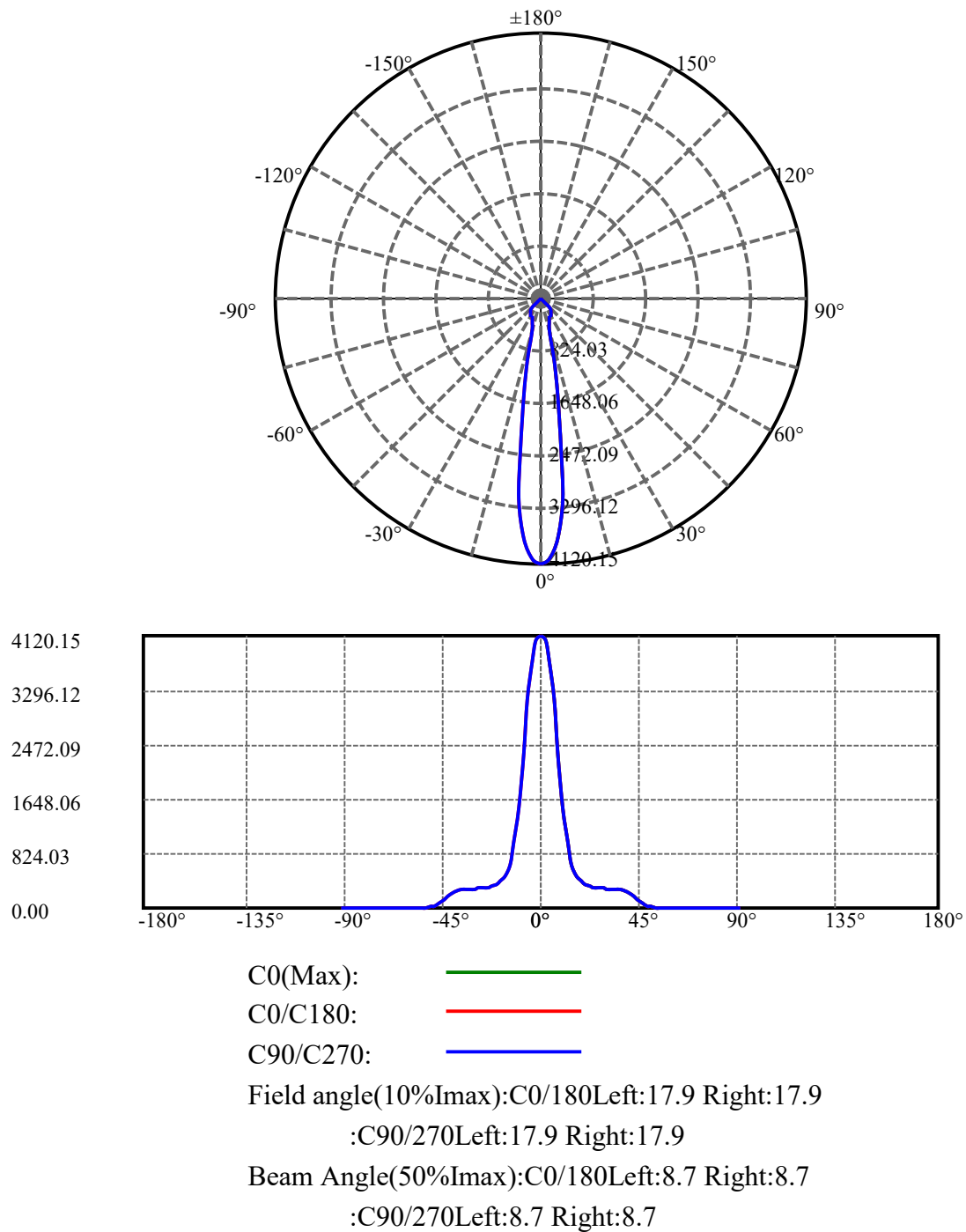
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.723	0.792	850.33	.084%	99.430%
78.0	3.689	0.791	851.122	.084%	99.522%
80.0	3.606	0.779	851.901	.082%	99.613%
82.0	3.551	0.771	852.672	.082%	99.704%
84.0	3.489	0.761	853.433	.081%	99.793%
86.0	3.317	0.726	854.159	.077%	99.877%
88.0	3.221	0.706	854.865	.075%	99.960%
90.0	3.124	0.343	855.207	.036%	100.000%

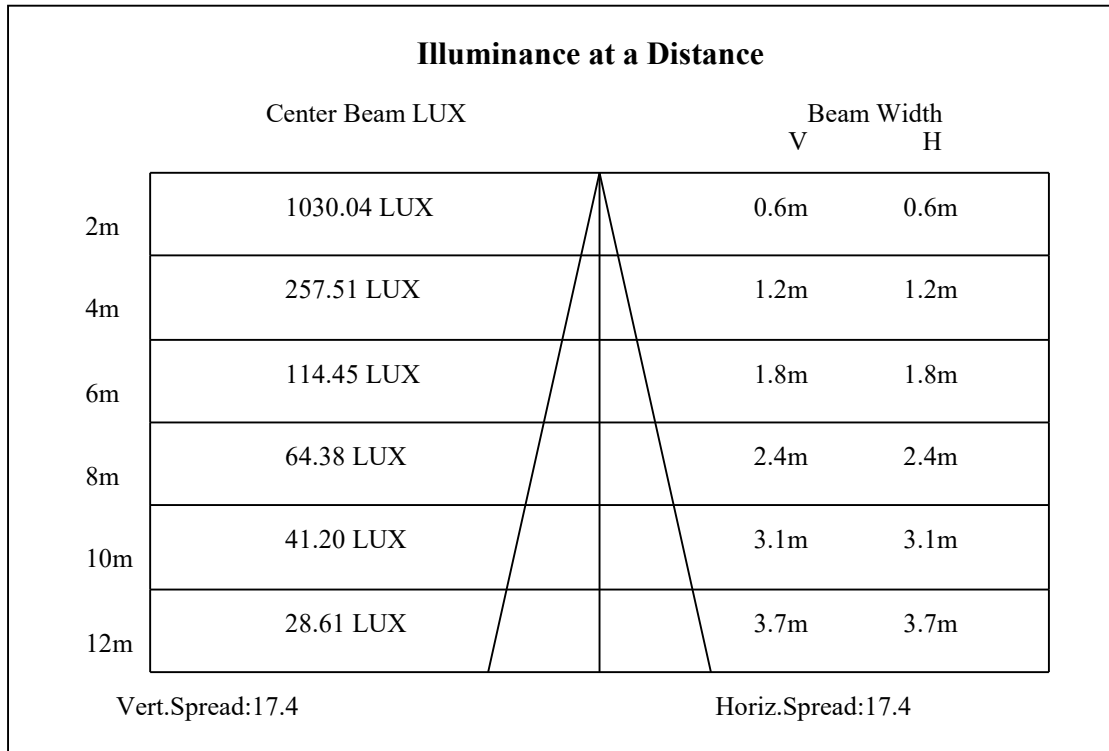
ZONAL LUMEN SUMMARY

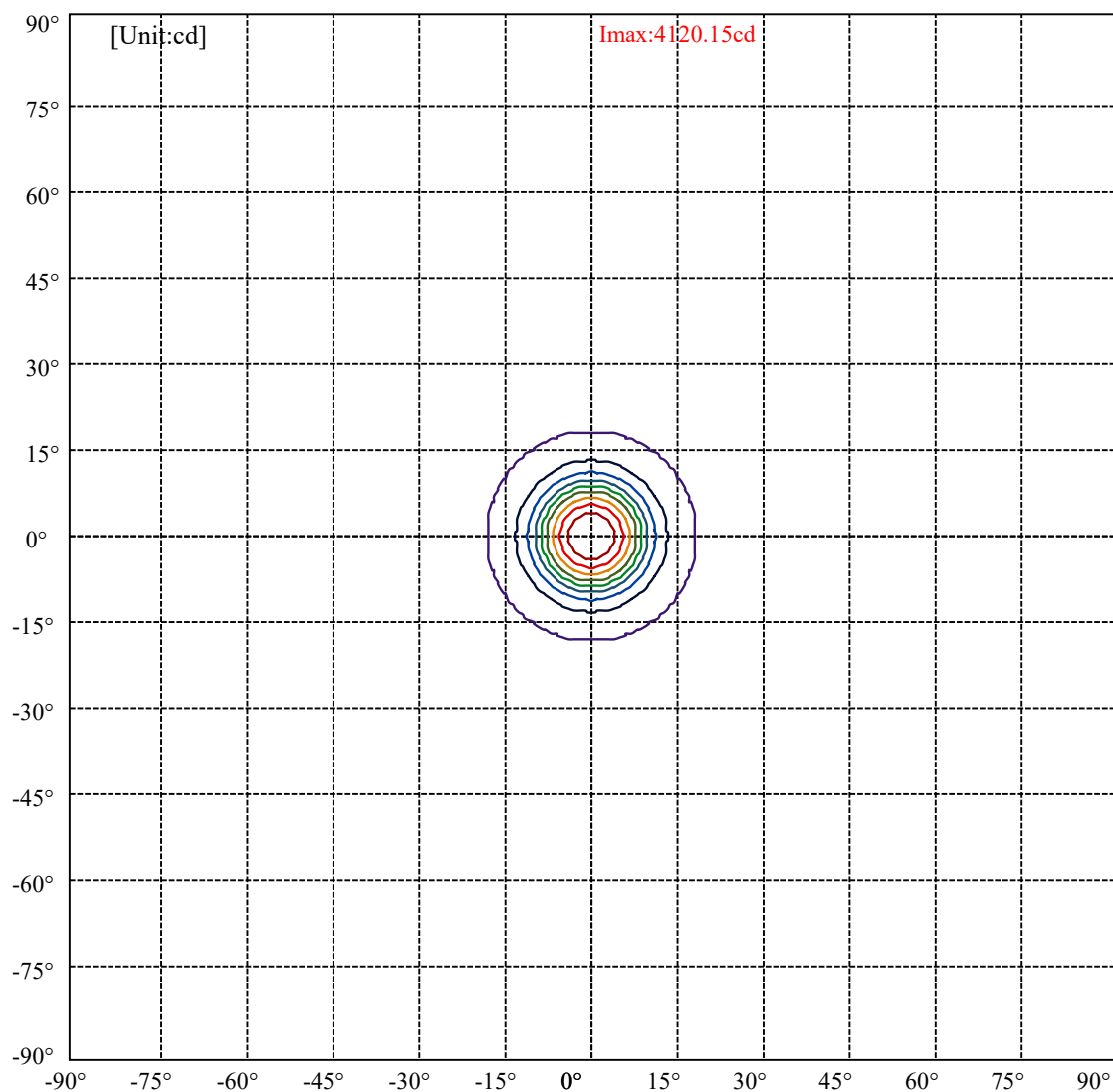
Zone	Lumens	%Lamp	%Fixt
0-30	606.32	64.16%	70.90%
0-40	774.32	81.94%	90.54%
0-60	843.68	89.28%	98.65%
0-90	854.86	90.46%	99.96%
0-120	854.86	90.46%	99.96%
0-180	855.21	90.50%	100.00%
60-90	12.08	1.28%	1.41%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-34.62	684.17	72.40%	80.00%

ZONAL LUMEN SUMMARY

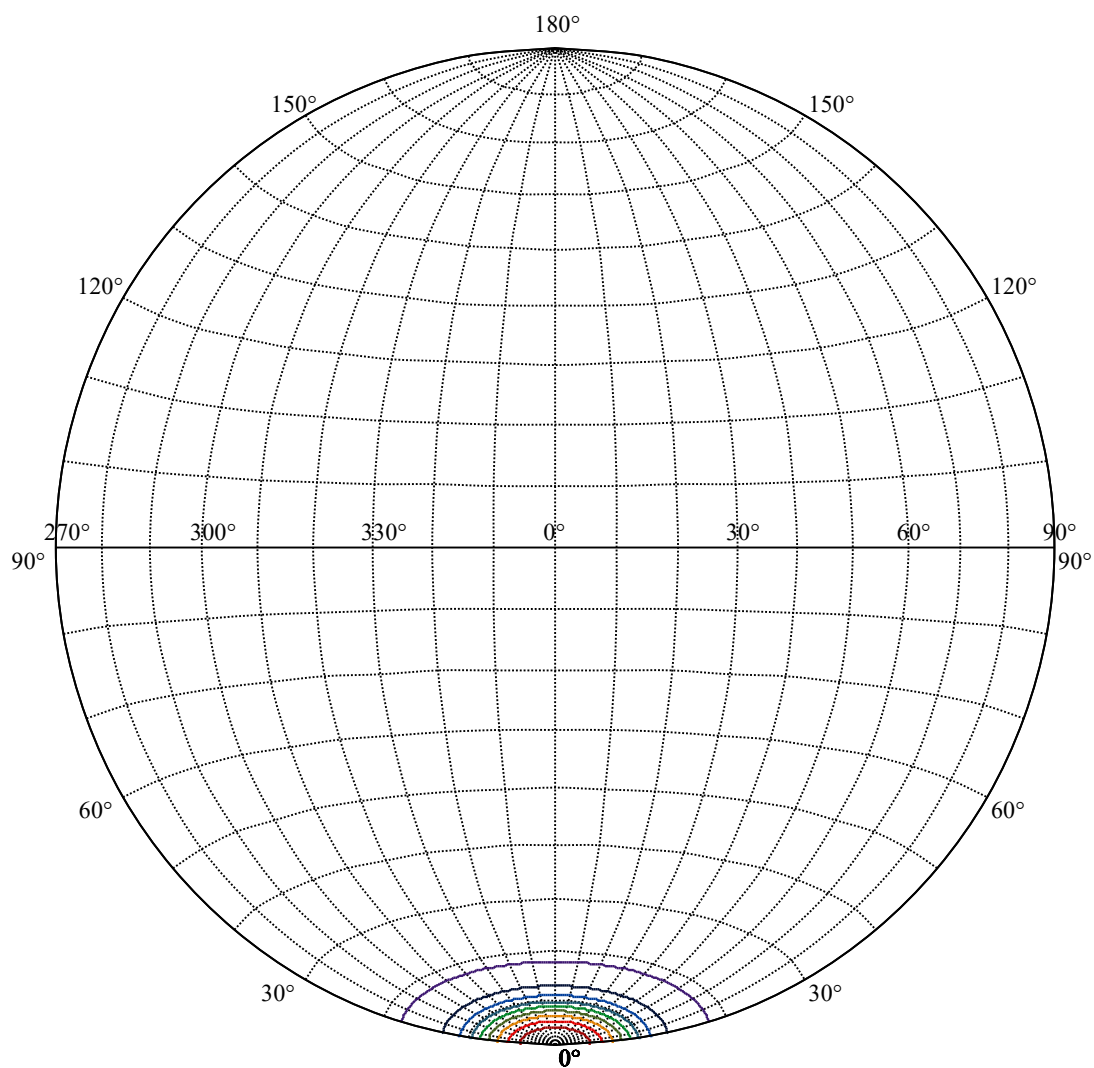
0-10	293.32
10-20	165.33
20-30	147.67
30-40	168.01
40-50	64.06
50-60	5.30
60-70	4.23
70-80	3.98
80-90	2.96
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00







(10%Imax) 412.015	—
(20%Imax) 824.029	—
(30%Imax) 1236.04	—
(40%Imax) 1648.06	—
(50%Imax) 2060.07	—
(60%Imax) 2472.09	—
(70%Imax) 2884.1	—
(80%Imax) 3296.12	—
(90%Imax) 3708.13	—



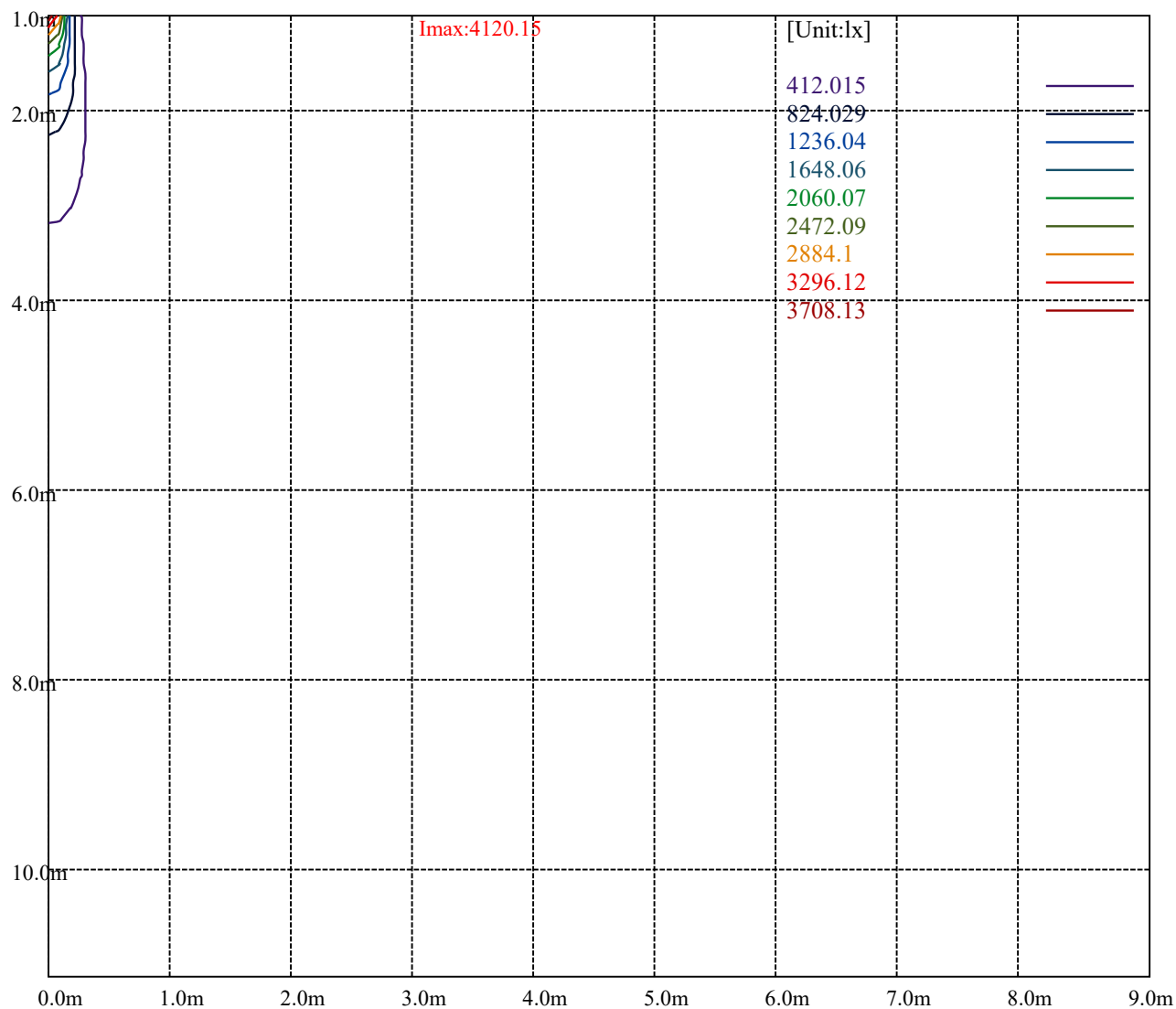
House

[Unit:cd]

Road

Imax:4120.15

(10%Imax)	412.015	—
(20%Imax)	824.029	—
(30%Imax)	1236.04	—
(40%Imax)	1648.06	—
(50%Imax)	2060.07	—
(60%Imax)	2472.09	—
(70%Imax)	2884.1	—
(80%Imax)	3296.12	—
(90%Imax)	3708.13	—



Luminance Table

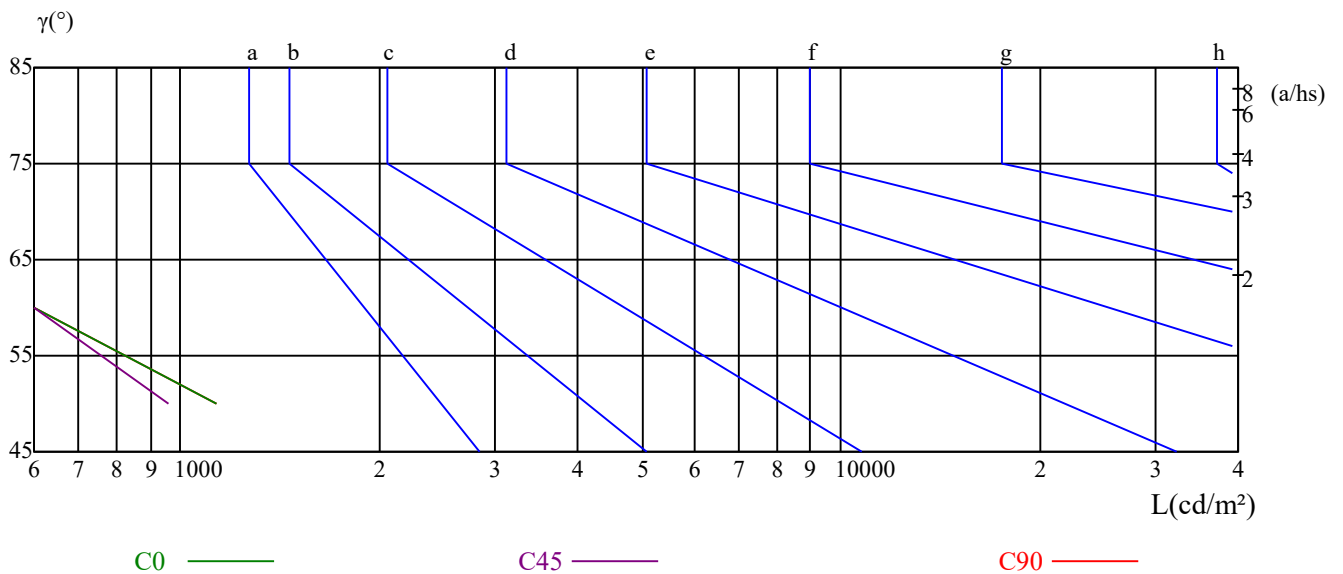
γ	45	50	55	60	65	70	75	80	85
C0	0	1136	0	446	0	419	0	443	0
C45	0	962	0	366	0	331	0	334	0
C90	0	1136	0	446	0	419	0	443	0

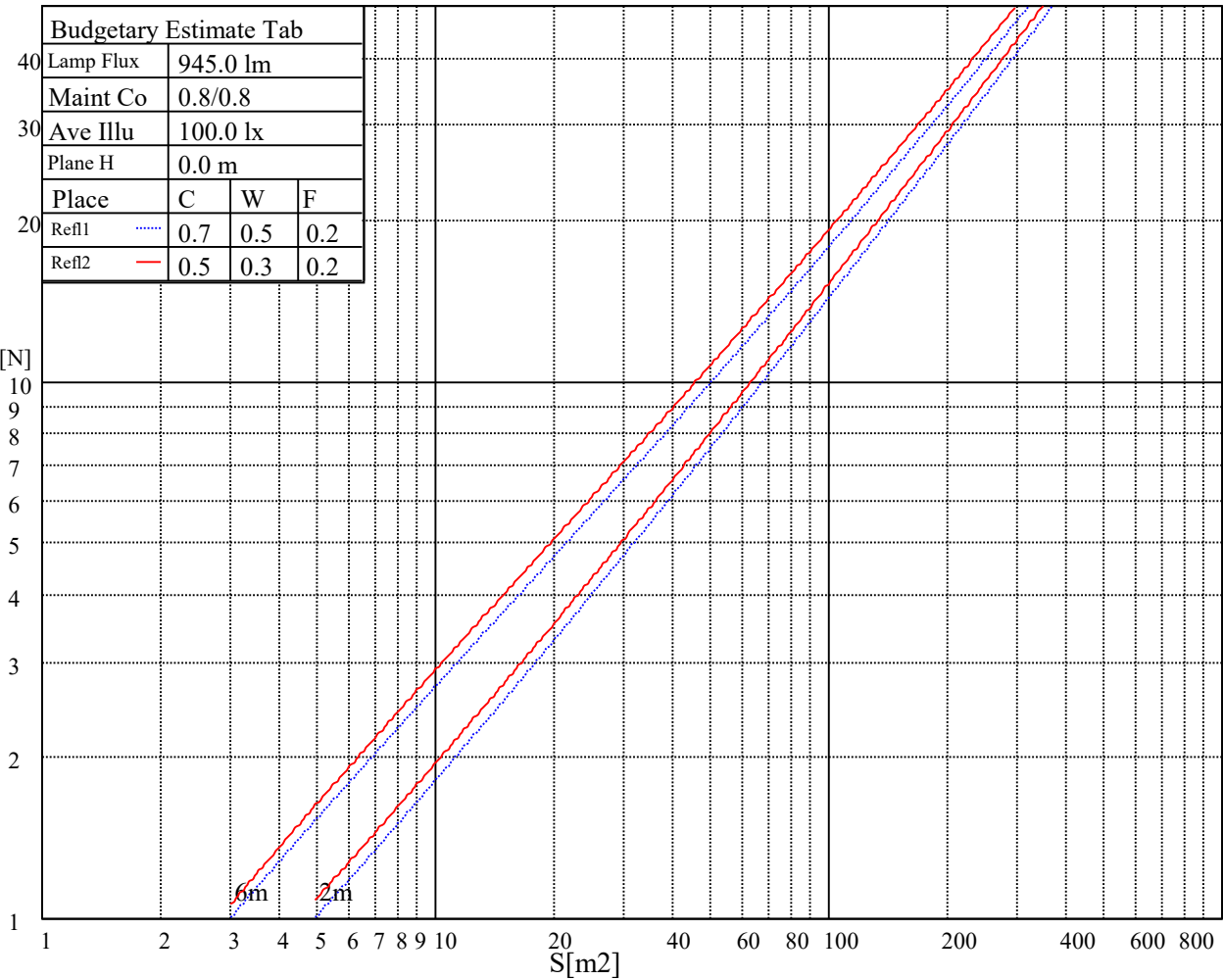
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
44919	44919	44919	74070	74070	74070	211746	211746	211746

Glare Table

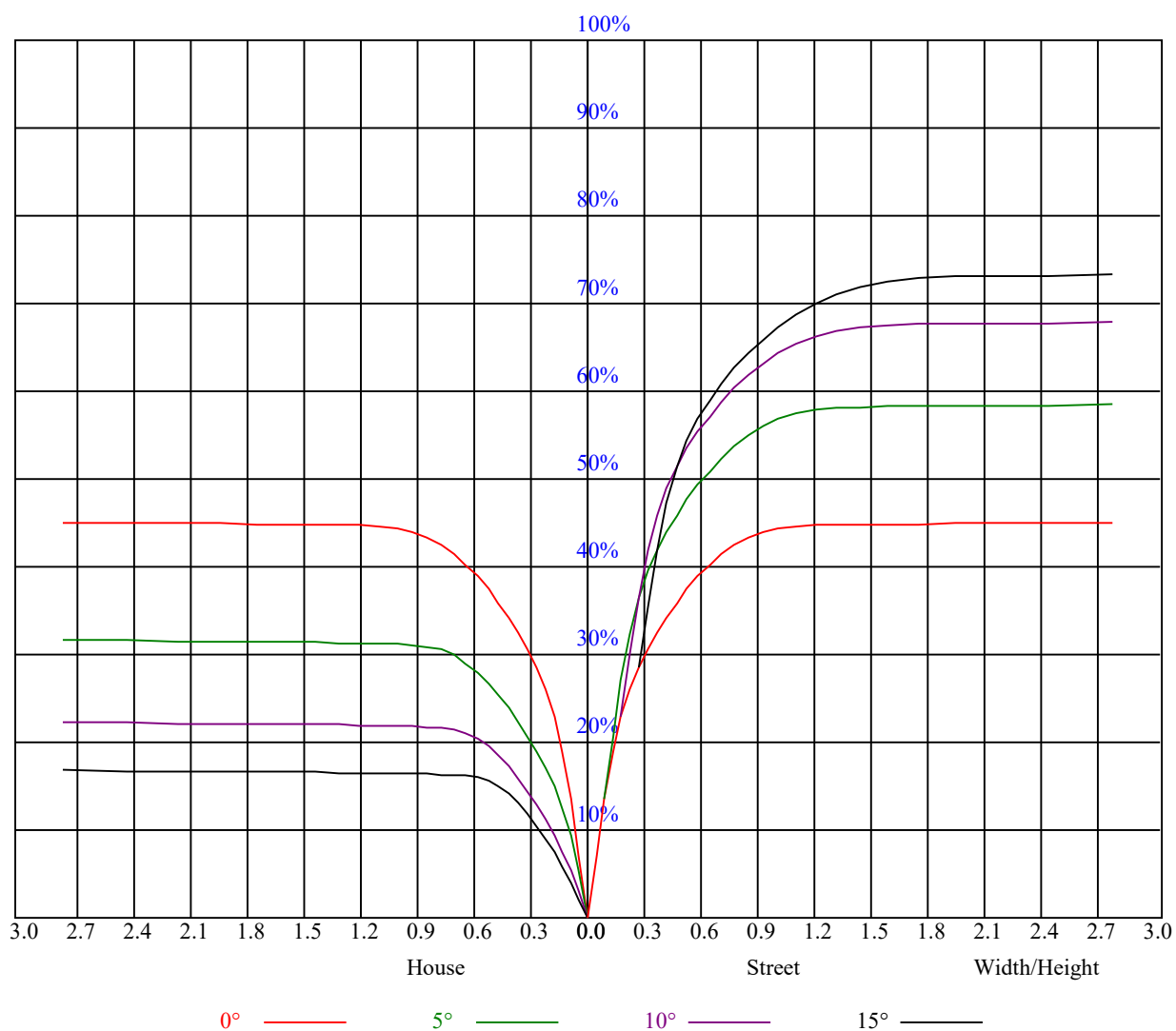
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

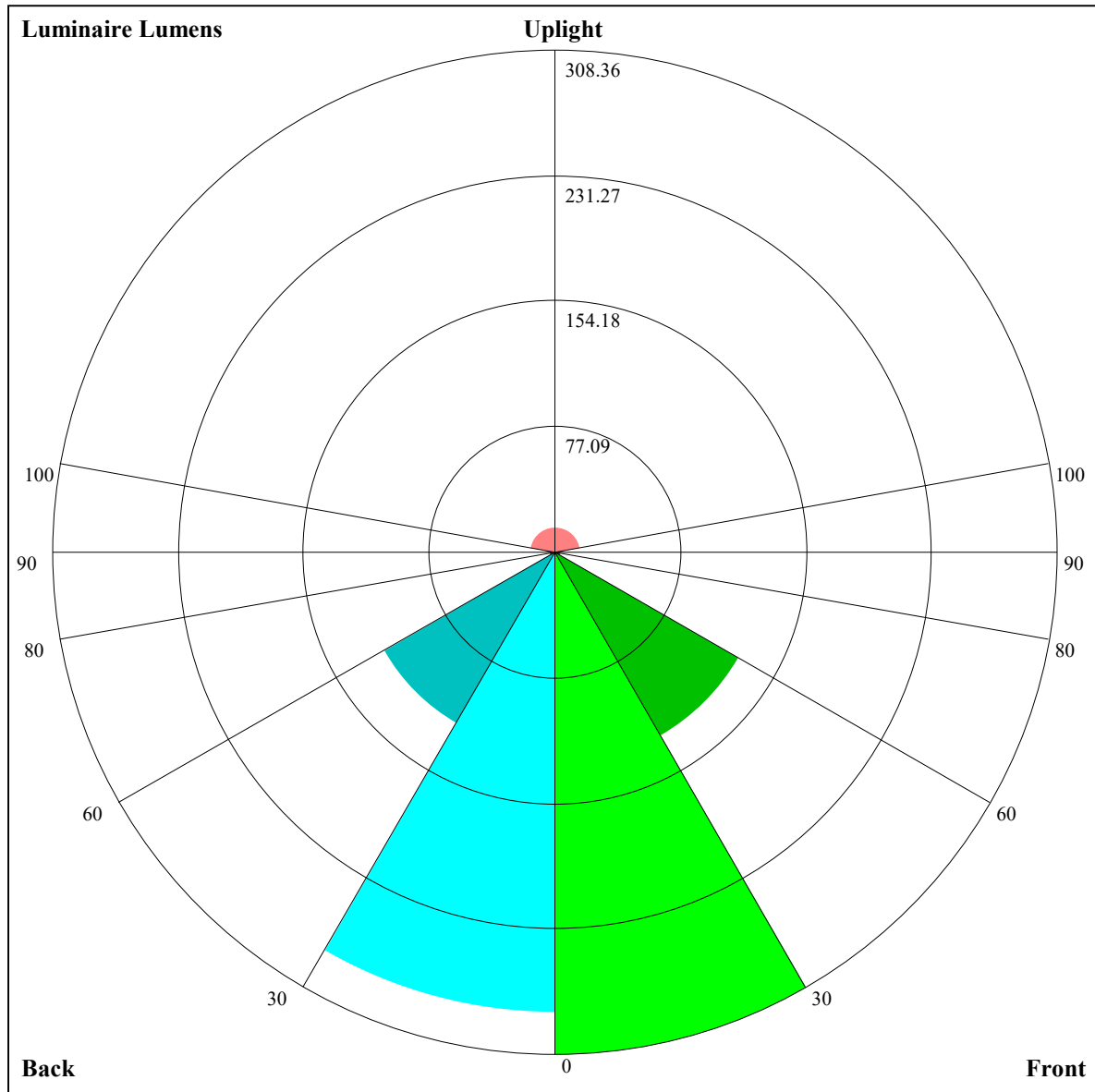
Luminance Limiting Curve





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	1.08	1.08	1.08	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.01	0.98	0.96	0.99	0.97	0.95	0.95	0.93	0.92	0.92	0.90	0.89	0.89	0.88	0.87	0.85
2	0.95	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.80
3	0.89	0.85	0.82	0.88	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.78	0.81	0.79	0.77	0.76
4	0.84	0.80	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.72
5	0.80	0.75	0.72	0.79	0.75	0.71	0.78	0.74	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.68
6	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.65
7	0.73	0.68	0.65	0.72	0.68	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.62
8	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.60
9	0.67	0.62	0.59	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.57
10	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.63	0.59	0.56	0.62	0.59	0.56	0.55





Luminaire Lumens:

FL=308.36,FM=130.6,FH=4.28,FVH=1.89

BL=282.85,BM=121.61,BH=4.14,BVH=1.84

UL=3.41,UH=16.22

BUG Rating:B1-U2-G0

Nata 1449-E

Intensity data(cd)										Appendix Page: 16 Total:17	
C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0		
0.0	4110.51	4120.97	3965.16	3492.23	2822.74	1942.39	1239.32	810.98	579.74		
45.0	4123.72	4119.87	3939.29	3483.42	2768.79	1943.49	1229.41	791.71	571.49		
90.0	4128.13	4071.42	3808.25	3339.72	2554.62	1720.51	1083.73	749.98	545.39		
135.0	4118.22	4047.75	3771.36	3175.10	2454.96	1646.74	1052.13	712.98	518.63		
180.0	4110.51	3938.18	3424.51	2739.61	1836.68	1096.45	755.59	538.45	435.55		
225.0	4123.72	3973.97	3549.49	2793.56	1951.75	1070.57	785.88	544.07	430.54		
270.0	4128.13	4032.88	3700.89	3015.44	2214.92	1380.81	887.51	595.16	449.26		
315.0	4118.22	4031.23	3703.64	3112.34	2225.38	1260.24	882.22	602.04	459.72		
360.0	4110.51	4120.97	3965.16	3492.23	2822.74	1942.39	1239.32	810.98	579.74		
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0		
0.0	464.13	399.16	360.62	336.95	322.63	311.07	300.06	291.25	281.89		
45.0	451.46	378.79	345.20	325.93	314.37	309.42	303.91	297.30	290.15		
90.0	430.21	366.35	327.75	309.64	295.54	286.62	278.59	271.10	265.10		
135.0	418.43	363.92	335.84	320.43	311.07	304.46	299.51	294.55	286.84		
180.0	370.03	339.59	323.46	313.22	305.84	299.84	292.79	283.32	276.22		
225.0	364.42	328.85	310.79	299.34	291.91	284.59	279.19	274.46	270.88		
270.0	379.34	337.50	317.12	306.11	296.20	287.94	281.34	272.09	265.48		
315.0	394.26	353.74	333.81	323.95	313.44	303.53	295.65	287.61	279.91		
360.0	464.13	399.16	360.62	336.95	322.63	311.07	300.06	291.25	281.89		
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0		
0.0	274.51	263.78	243.84	199.36	153.61	97.84	49.55	16.46	8.92		
45.0	281.89	273.47	255.41	211.97	161.59	103.78	54.95	20.87	11.29		
90.0	259.15	252.43	230.96	191.76	139.51	84.29	41.51	15.36	9.63		
135.0	279.14	266.31	233.22	189.50	130.81	74.60	33.86	10.68	7.27		
180.0	266.91	245.17	201.84	149.26	91.17	47.62	14.48	8.04	5.51		
225.0	266.20	245.83	203.38	152.07	93.82	43.16	14.26	8.70	6.06		
270.0	259.92	242.63	207.67	160.49	109.01	59.52	25.82	12.83	8.48		
315.0	271.81	258.49	220.45	174.64	116.94	67.99	24.45	10.74	7.38		
360.0	274.51	263.78	243.84	199.36	153.61	97.84	49.55	16.46	8.92		
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0		
0.0	5.78	5.29	4.90	4.79	4.57	4.35	4.24	4.02	3.85		
45.0	6.72	5.78	5.18	4.90	4.68	4.46	4.35	4.29	4.13		
90.0	7.10	6.28	5.56	5.18	4.84	4.62	4.57	4.40	4.35		
135.0	5.45	4.96	4.73	4.46	4.29	4.24	4.07	3.91	3.80		
180.0	5.12	4.68	4.51	4.35	4.13	3.96	3.91	3.74	3.74		
225.0	5.45	5.07	4.68	4.46	4.35	4.18	4.02	3.91	3.80		
270.0	6.99	6.11	5.62	5.18	4.79	4.62	4.57	4.46	4.40		
315.0	6.11	5.56	5.07	4.62	4.46	4.29	4.13	4.02	3.85		
360.0	5.78	5.29	4.90	4.79	4.57	4.35	4.24	4.02	3.85		
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0		
0.0	3.80	3.69	3.63	3.58	3.47	3.41	3.36	3.30	3.30		
45.0	4.13	3.96	3.85	3.85	3.85	4.07	3.96	3.36	3.25		
90.0	4.18	4.07	4.02	3.91	3.69	3.58	3.52	3.41	3.36		
135.0	3.74	3.63	3.52	3.52	3.41	3.36	3.30	3.25	3.19		
180.0	3.63	3.52	3.52	3.41	3.41	3.30	3.25	3.25	3.19		
225.0	3.69	3.63	3.47	3.47	3.41	3.30	3.30	3.19	3.19		
270.0	4.35	4.29	4.18	4.18	4.13	4.07	3.85	3.52	3.08		
315.0	3.80	3.69	3.58	3.58	3.47	3.30	3.36	3.25	3.19		
360.0	3.80	3.69	3.63	3.58	3.47	3.41	3.36	3.30	3.30		

Intensity data(cd)

Appendix Page: 17 Total:17

C/γ(°)	90.0
0.0	3.19
45.0	3.14
90.0	3.08
135.0	3.19
180.0	3.14
225.0	3.14
270.0	3.08
315.0	3.03
360.0	3.19