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Nata

LumCAT: 3-1698-N
Luminaire: 92.70.045.00+92.70.089.00
Report No: NATA0100
Test No: GC2018062018
LampCAT: NICHIA NFCW108B-V3
Lamp flux(lm): 2255.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 33.8000
Current(A): 0.5000
Power (W): 16.9000
PF: 0.0000
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 1766.24
Efficiency(%): 78.33%
Lumens(lm)/Power(W): 105.11
Central intensity(cd): 10920.300
Maximum intensity(cd): 10920.300
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=17.9
 [C90/270]Total=17.9
Field angle(10%Imax): [C0/180]Total=34.8
 [C90/270]Total=34.8
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.30 C90_270=0.30
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 78.78%
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%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10920.299	10.450	10.45	.463%	.592%
2.0	10642.264	81.455	91.905	3.612%	5.203%
4.0	9737.894	148.975	240.881	6.606%	13.638%
6.0	8218.888	188.414	429.295	8.355%	24.306%
8.0	6413.382	195.753	625.047	8.681%	35.389%
10.0	4449.452	169.450	794.497	7.514%	44.983%
12.0	2941.319	134.118	928.615	5.948%	52.576%
14.0	1868.752	99.150	1027.765	4.397%	58.190%
16.0	1285.106	77.686	1105.451	3.445%	62.588%
18.0	1011.641	68.560	1174.011	3.040%	66.470%
20.0	839.507	62.971	1236.983	2.793%	70.035%
22.0	707.158	58.097	1295.08	2.576%	73.324%
24.0	602.964	53.786	1348.866	2.385%	76.370%
26.0	508.549	48.892	1397.758	2.168%	79.138%
28.0	427.754	44.042	1441.8	1.953%	81.631%
30.0	364.921	40.016	1481.816	1.775%	83.897%
32.0	305.914	35.553	1517.369	1.577%	85.910%
34.0	266.384	32.669	1550.038	1.449%	87.759%
36.0	222.098	28.630	1578.669	1.270%	89.380%
38.0	190.419	25.711	1604.38	1.140%	90.836%
40.0	164.144	23.140	1627.519	1.026%	92.146%
42.0	140.559	20.627	1648.146	.915%	93.314%
44.0	118.013	17.979	1666.125	.797%	94.332%
46.0	97.078	15.315	1681.44	.679%	95.199%
48.0	79.040	12.882	1694.322	.571%	95.928%
50.0	61.842	10.390	1704.712	.461%	96.517%
52.0	48.574	8.395	1713.107	.372%	96.992%
54.0	37.376	6.632	1719.738	.294%	97.367%
56.0	28.258	5.138	1724.876	.228%	97.658%
58.0	21.513	4.001	1728.877	.177%	97.885%
60.0	17.446	3.314	1732.191	.147%	98.072%
62.0	15.533	3.008	1735.199	.133%	98.243%
64.0	14.583	2.875	1738.073	.127%	98.405%
66.0	13.792	2.763	1740.836	.123%	98.562%
68.0	13.097	2.663	1743.5	.118%	98.713%
70.0	12.518	2.580	1746.079	.114%	98.859%
72.0	11.968	2.496	1748.576	.111%	99.000%
74.0	11.452	2.414	1750.99	.107%	99.137%

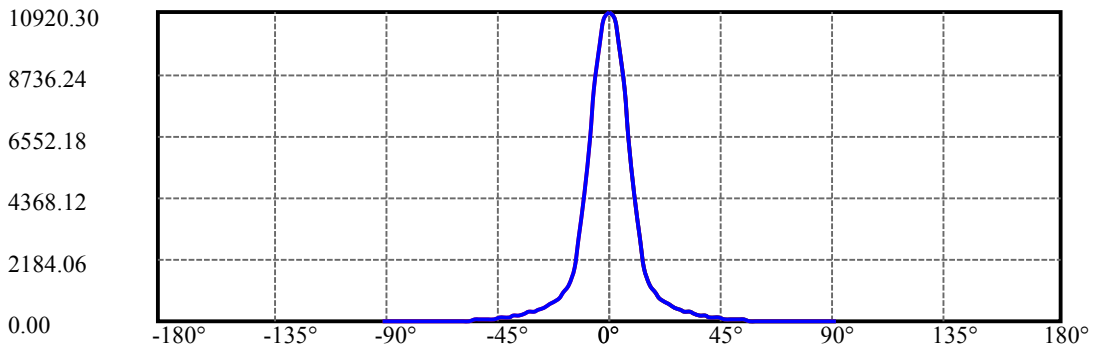
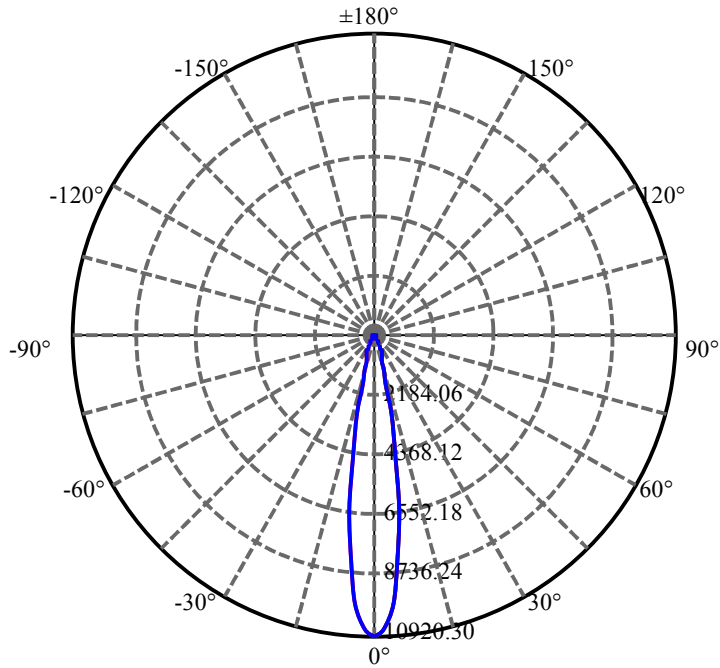
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.991	2.339	1753.329	.104%	99.269%
78.0	10.667	2.288	1755.617	.101%	99.399%
80.0	10.316	2.228	1757.845	.099%	99.525%
82.0	9.814	2.131	1759.977	.095%	99.646%
84.0	9.112	1.987	1761.964	.088%	99.758%
86.0	8.279	1.811	1763.775	.080%	99.861%
88.0	7.570	1.659	1765.434	.074%	99.955%
90.0	7.309	0.801	1766.236	.036%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1481.82	65.71%	83.90%
0-40	1627.52	72.17%	92.15%
0-60	1732.19	76.82%	98.07%
0-90	1765.43	78.29%	99.95%
0-120	1765.43	78.29%	99.95%
0-180	1766.24	78.33%	100.00%
60-90	36.56	1.62%	2.07%
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%
0-26.69	1412.99	62.66%	80.00%

ZONAL LUMEN SUMMARY

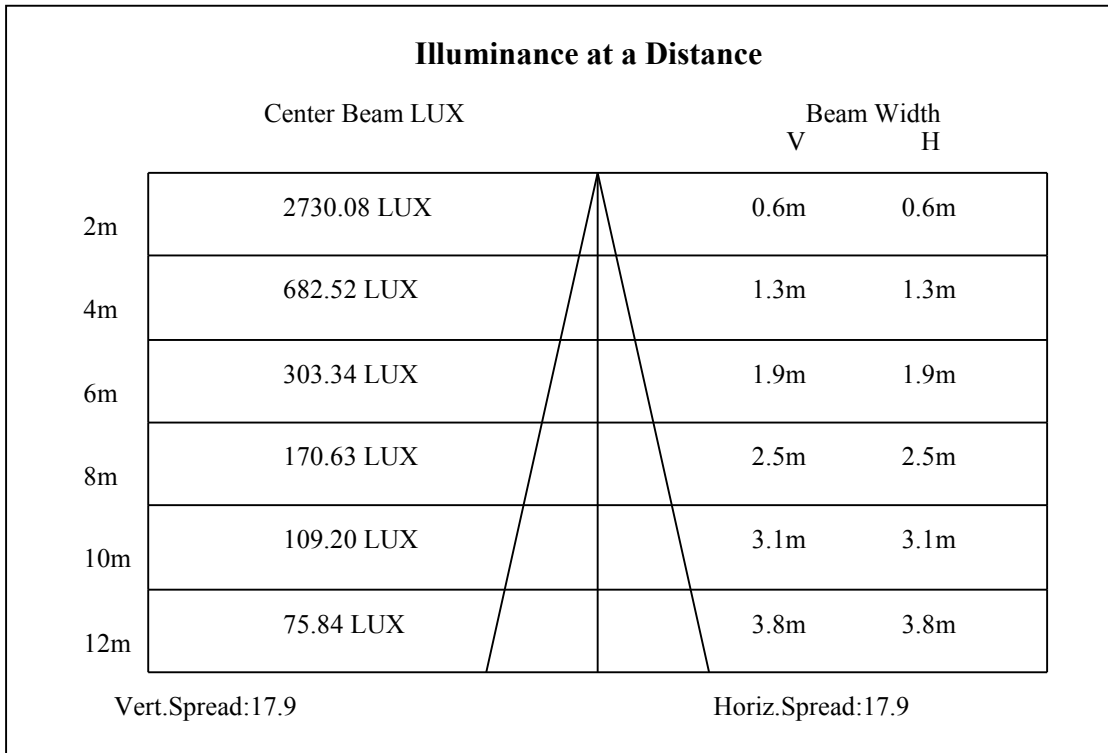
0-10	794.50
10-20	442.49
20-30	244.83
30-40	145.70
40-50	77.19
50-60	27.48
60-70	13.89
70-80	11.77
80-90	7.59
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

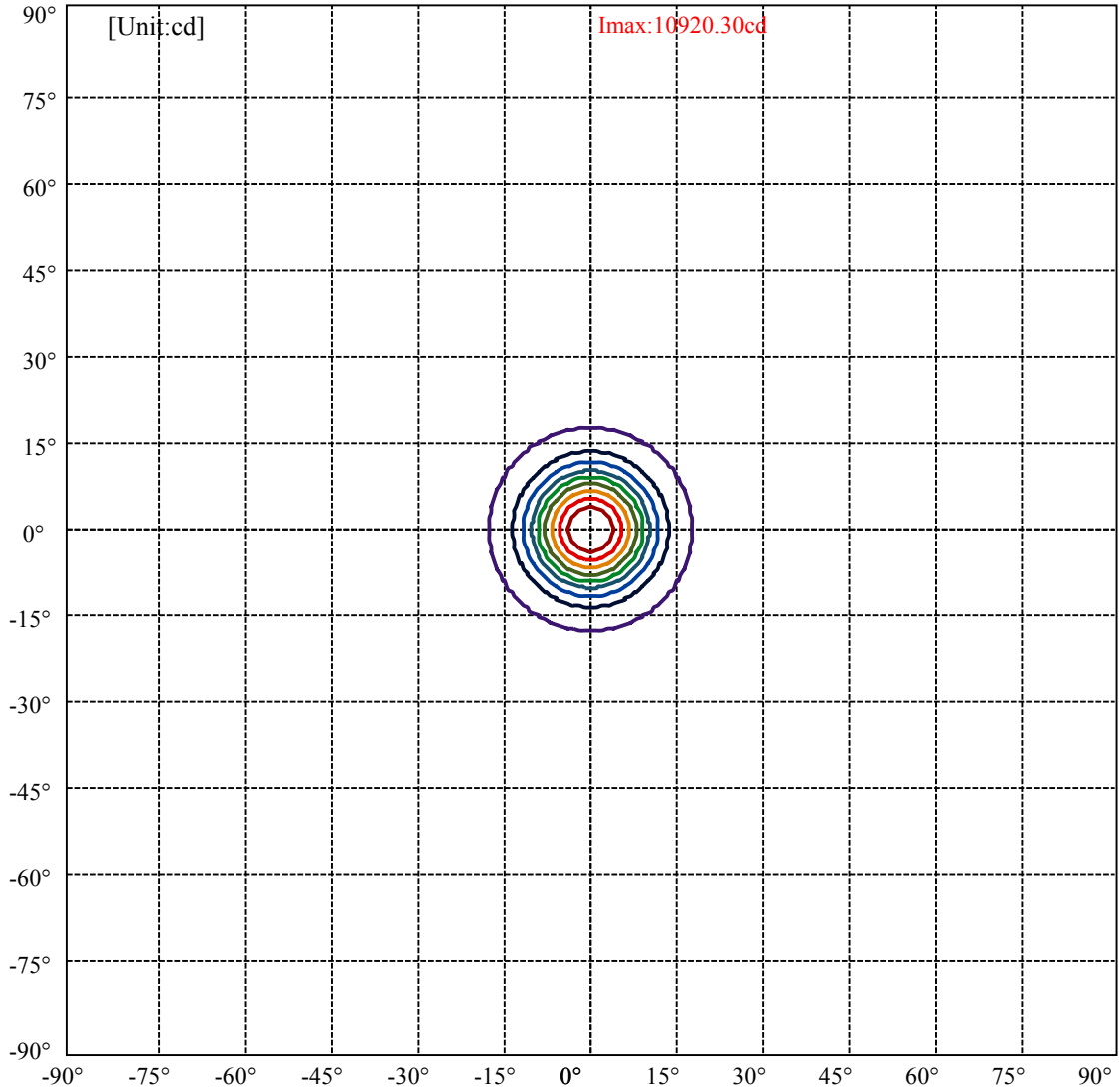


C0(Max): —————
C0/C180: —————
C90/C270: —————

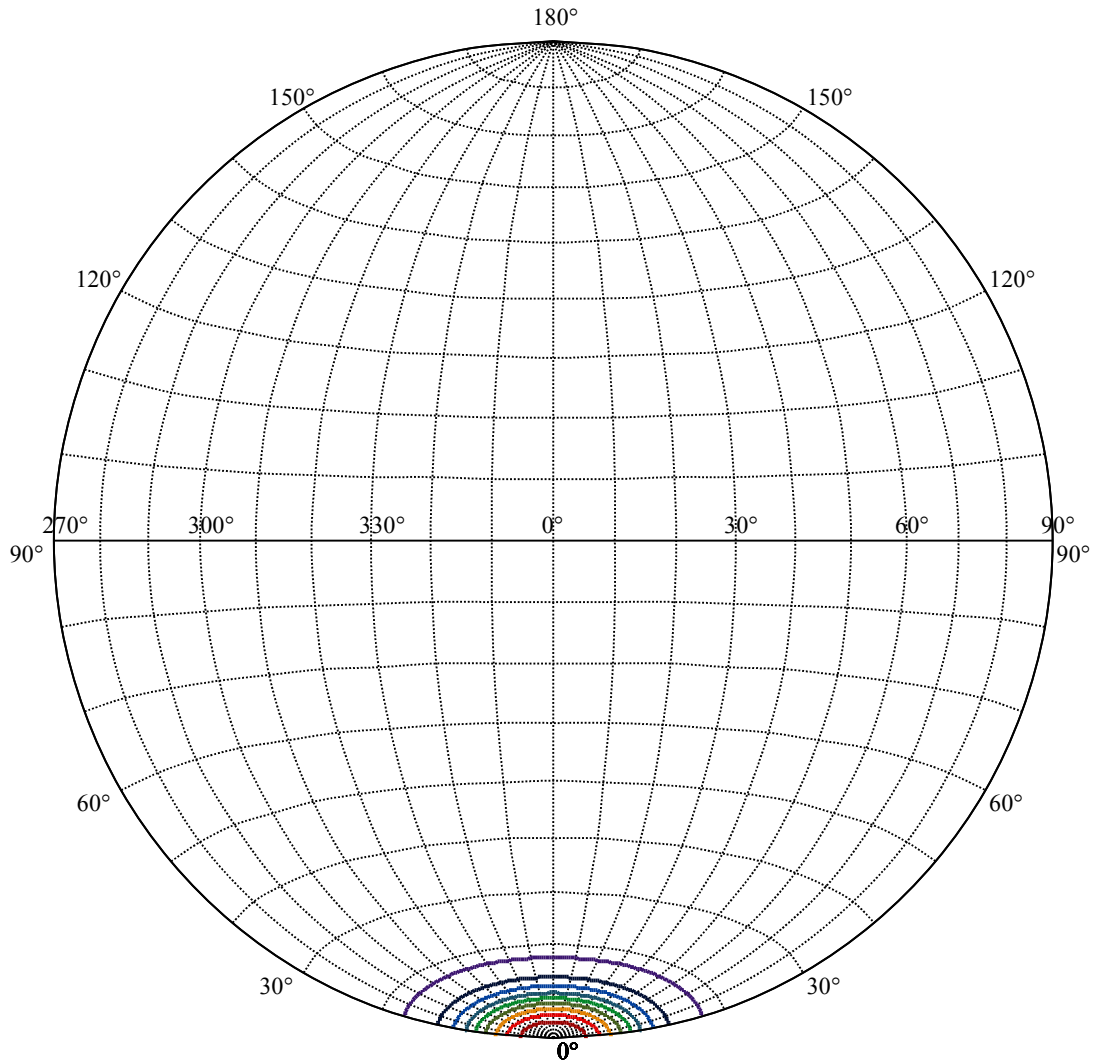
Field angle(10%Imax):C0/180Left:17.4 Right:17.4
:C90/270Left:17.4 Right:17.4

Beam Angle(50%Imax):C0/180Left:9.0 Right:9.0
:C90/270Left:9.0 Right:9.0





(10%Imax) 1092.03	—
(20%Imax) 2184.06	—
(30%Imax) 3276.09	—
(40%Imax) 4368.12	—
(50%Imax) 5460.15	—
(60%Imax) 6552.18	—
(70%Imax) 7644.21	—
(80%Imax) 8736.24	—
(90%Imax) 9828.27	—



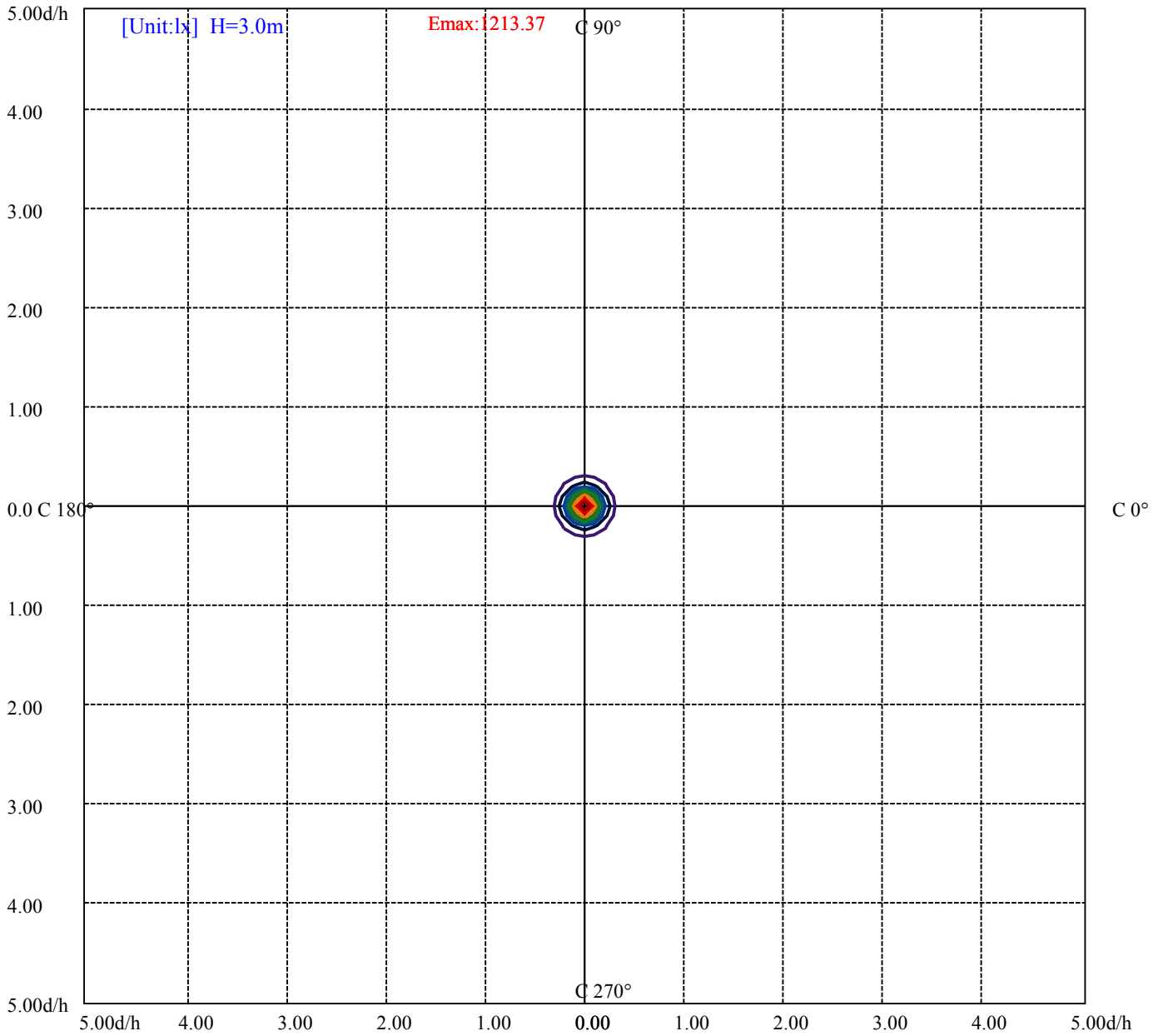
House

[Unit:cd]

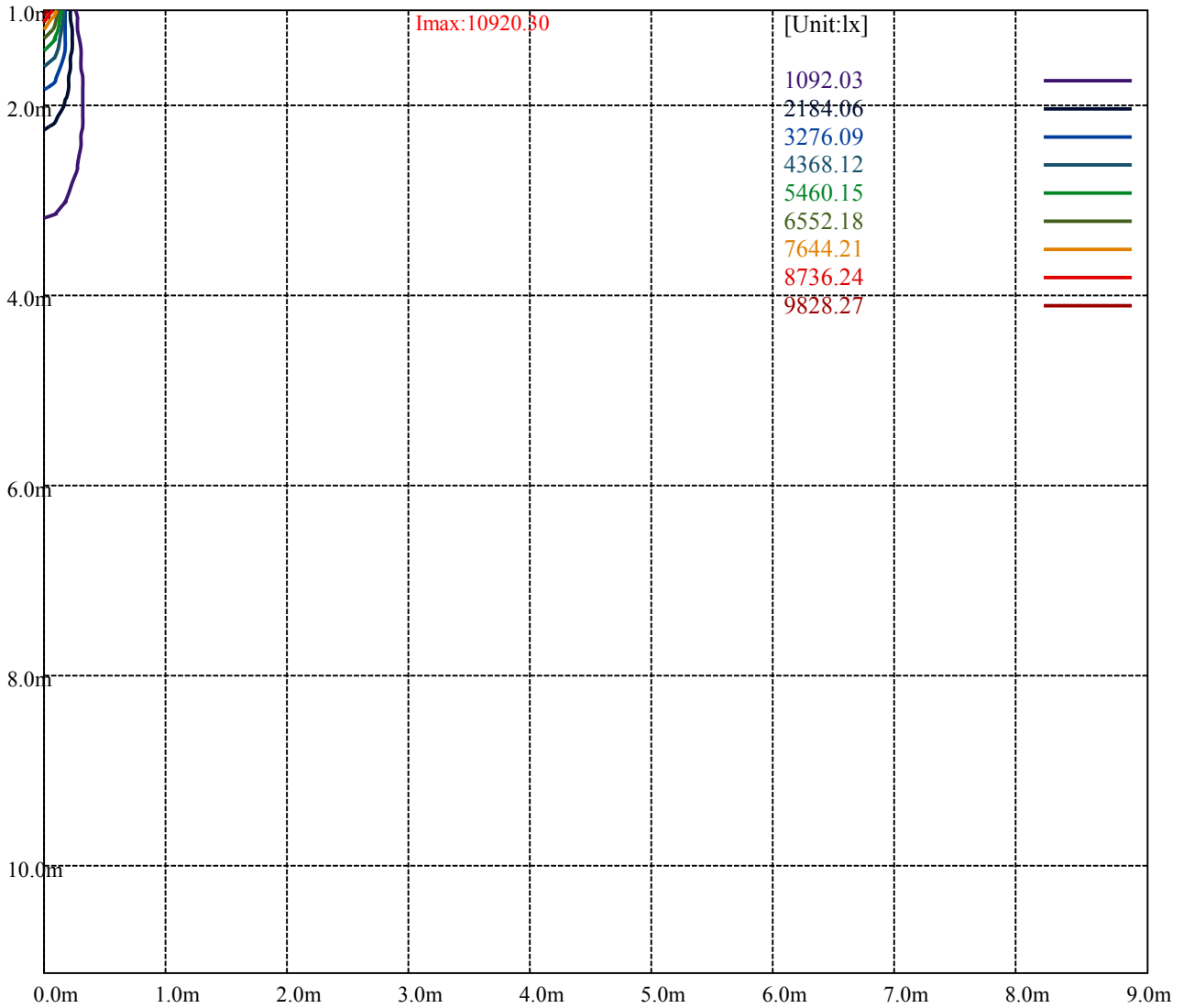
Road

Imax:10920.30

(10%Imax)	1092.03	—
(20%Imax)	2184.06	—
(30%Imax)	3276.09	—
(40%Imax)	4368.12	—
(50%Imax)	5460.15	—
(60%Imax)	6552.18	—
(70%Imax)	7644.21	—
(80%Imax)	8736.24	—
(90%Imax)	9828.27	—



(10%Emax) 121.3367	—
(20%Emax) 242.6733	—
(30%Emax) 364.0089	—
(40%Emax) 485.3456	—
(50%Emax) 606.6823	—
(60%Emax) 728.0189	—
(70%Emax) 849.3556	—
(80%Emax) 970.6911	—
(90%Emax) 1092.028	—



Luminance Table

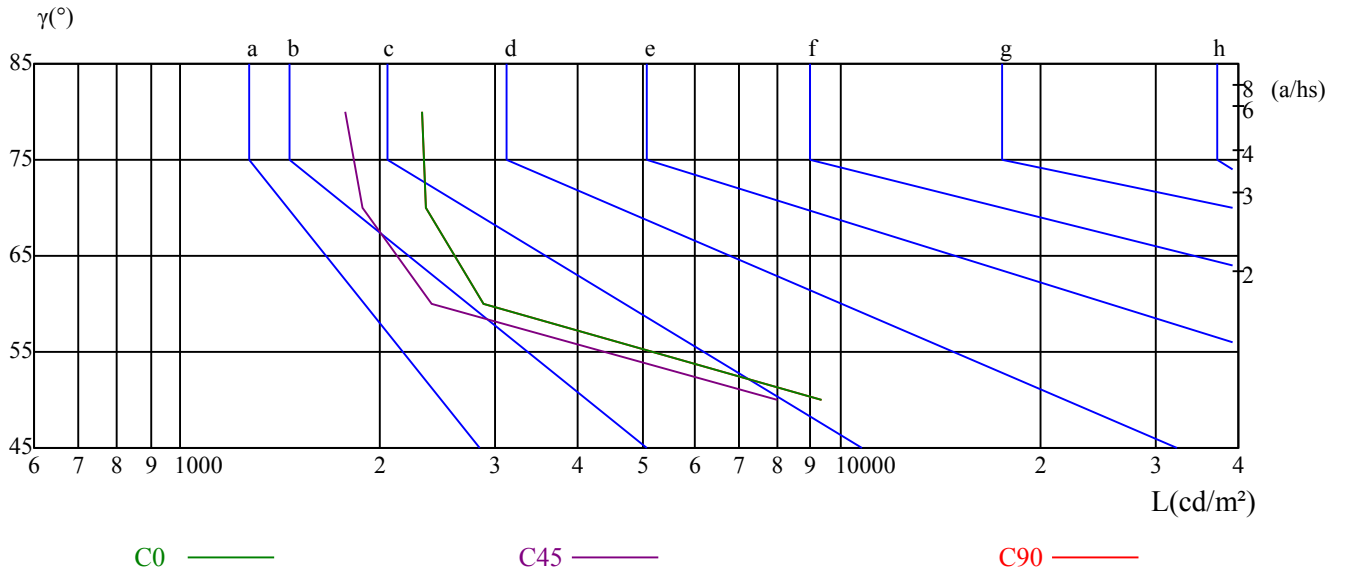
γ	45	50	55	60	65	70	75	80	85
C0	0	9350	0	2878	0	2350	0	2329	0
C45	0	8040	0	2396	0	1883	0	1774	0
C90	0	9350	0	2878	0	2350	0	2329	0

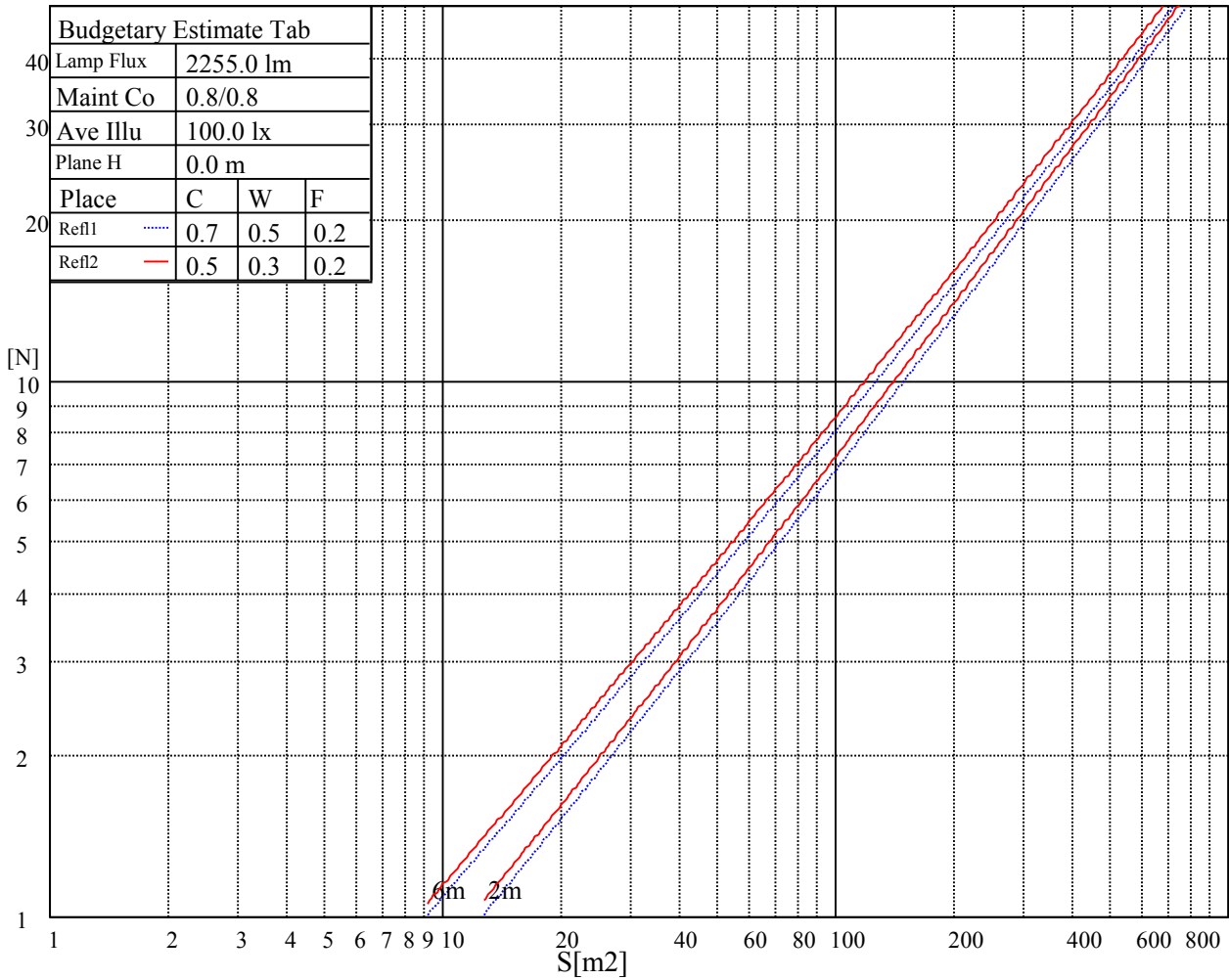
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6771	6771	6771	8087	8087	8087	16435	16435	16435

Glare Table

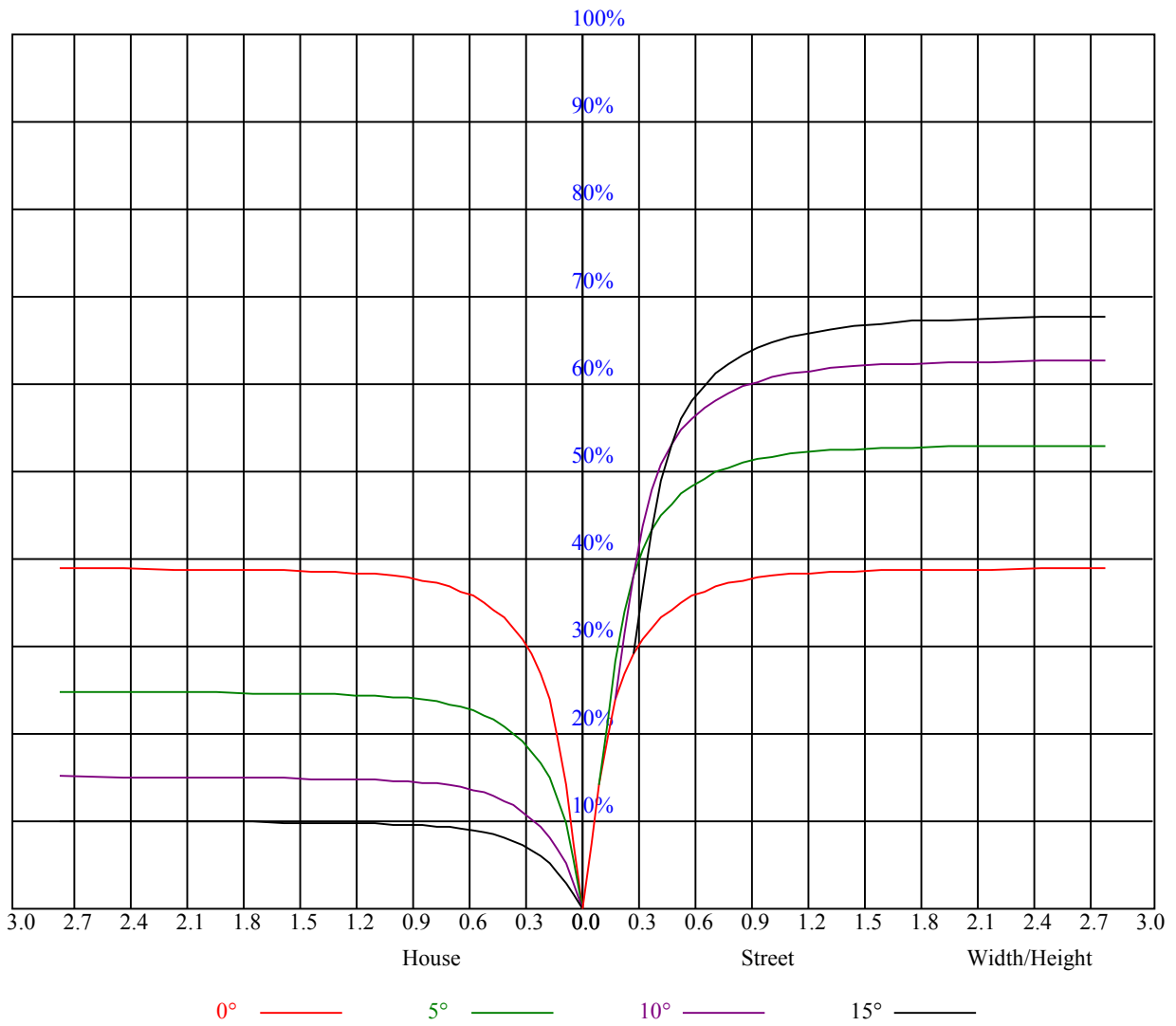
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.94	0.94	0.94	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.80	0.80	0.80	0.79
1	0.88	0.86	0.84	0.86	0.84	0.83	0.83	0.82	0.80	0.80	0.79	0.78	0.77	0.76	0.76	0.74
2	0.83	0.80	0.78	0.82	0.79	0.77	0.79	0.77	0.76	0.77	0.75	0.74	0.75	0.74	0.72	0.71
3	0.79	0.76	0.73	0.78	0.75	0.73	0.76	0.74	0.72	0.74	0.72	0.71	0.73	0.71	0.69	0.68
4	0.76	0.72	0.70	0.75	0.72	0.69	0.73	0.71	0.68	0.72	0.69	0.68	0.70	0.68	0.67	0.66
5	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.68	0.66	0.65	0.64
6	0.70	0.66	0.64	0.70	0.66	0.64	0.68	0.65	0.63	0.67	0.65	0.63	0.67	0.64	0.62	0.62
7	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.66	0.63	0.61	0.65	0.62	0.61	0.60
8	0.66	0.62	0.60	0.65	0.62	0.60	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.58
9	0.64	0.60	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.59	0.58	0.62	0.59	0.57	0.57
10	0.62	0.59	0.56	0.62	0.59	0.56	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.55



Intensity data(cd)

C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	10799.86	10887.40	10339.59	9220.85	7568.05	5541.98	3929.38	2384.49	1537.17
45.0	10973.84	10809.77	10070.37	8636.15	6930.50	4836.15	3150.33	1982.58	1311.99
90.0	10988.71	10740.40	9865.01	8426.93	6546.21	4497.01	3022.60	1866.41	1267.40
135.0	10918.79	10687.00	9847.94	8311.86	6596.31	4550.41	2990.11	1918.16	1315.30
180.0	10799.86	10209.11	8902.62	6985.01	5095.47	3314.95	2145.00	1456.24	1094.69
225.0	10973.84	10560.92	9485.12	7862.05	5946.09	3977.27	2639.95	1683.07	1223.35
270.0	10988.71	10653.41	9722.96	8109.81	6364.52	4393.50	2879.45	1850.45	1276.21
315.0	10918.79	10590.10	9669.56	8198.45	6259.91	4484.34	2773.74	1808.60	1254.74
360.0	10799.86	10887.40	10339.59	9220.85	7568.05	5541.98	3929.38	2384.49	1537.17
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1149.58	913.39	770.79	661.23	550.56	458.62	392.55	327.04	280.24
45.0	1016.89	847.87	722.34	611.13	523.04	443.20	379.34	319.88	279.69
90.0	990.13	824.19	694.10	595.93	497.43	415.51	352.20	292.57	251.94
135.0	1013.59	852.82	711.33	600.11	506.52	434.39	364.47	308.32	278.59
180.0	921.09	776.24	653.35	559.98	471.23	394.48	334.25	281.94	242.52
225.0	1004.83	845.23	713.81	612.61	517.36	437.64	376.81	316.30	268.18
270.0	1009.18	835.21	711.88	605.07	512.58	427.24	363.37	305.01	278.03
315.0	987.82	821.11	679.67	577.65	489.67	410.94	356.38	296.26	251.88
360.0	1149.58	913.39	770.79	661.23	550.56	458.62	392.55	327.04	280.24
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	235.97	201.07	173.87	152.18	129.22	107.75	89.25	70.36	55.72
45.0	229.14	193.47	167.37	143.04	120.13	98.77	82.09	63.54	50.16
90.0	215.05	186.37	162.97	140.01	116.94	97.61	79.39	62.65	49.50
135.0	222.81	192.64	165.55	140.01	119.14	98.83	78.62	62.32	49.22
180.0	209.76	181.85	154.98	131.36	108.30	87.21	70.75	54.89	41.95
225.0	227.44	193.96	165.66	140.56	116.88	95.14	75.98	58.80	45.81
270.0	220.89	188.90	164.29	139.84	118.15	96.84	79.50	62.05	48.67
315.0	215.71	185.10	158.45	137.48	115.34	94.48	76.75	60.12	47.57
360.0	235.97	201.07	173.87	152.18	129.22	107.75	89.25	70.36	55.72
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	44.05	33.64	25.44	20.04	16.46	15.20	14.31	13.54	12.94
45.0	38.92	29.29	22.24	18.17	16.02	14.98	14.15	13.38	12.77
90.0	37.66	28.63	22.19	17.62	15.69	14.76	13.87	13.16	12.61
135.0	37.22	27.97	21.20	17.07	15.36	14.42	13.65	13.05	12.44
180.0	32.10	24.50	18.55	16.08	14.92	14.15	13.49	12.77	12.22
225.0	35.02	26.37	20.10	16.63	15.20	14.37	13.60	12.94	12.33
270.0	37.44	28.19	21.53	17.01	15.36	14.42	13.71	13.10	12.55
315.0	36.61	27.47	20.87	16.96	15.25	14.37	13.54	12.83	12.28
360.0	44.05	33.64	25.44	20.04	16.46	15.20	14.31	13.54	12.94
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	12.28	11.73	11.23	10.90	10.68	10.30	9.69	8.86	7.93
45.0	12.17	11.67	11.23	10.96	10.63	10.13	9.47	8.59	7.76
90.0	12.00	11.45	10.96	10.74	10.52	10.08	9.25	8.31	7.60
135.0	11.89	11.40	10.96	10.63	10.24	9.69	8.92	8.09	7.49
180.0	11.73	11.18	10.63	10.19	9.69	9.08	8.37	7.65	7.21
225.0	11.84	11.29	10.85	10.41	9.91	9.41	8.75	8.09	7.54
270.0	12.06	11.62	11.12	10.85	10.52	10.02	9.36	8.37	7.49
315.0	11.78	11.29	10.96	10.68	10.35	9.80	9.08	8.26	7.54
360.0	12.28	11.73	11.23	10.90	10.68	10.30	9.69	8.86	7.93

Intensity data(cd)

C/γ(°)	90.0
0.0	7.38
45.0	7.38
90.0	7.27
135.0	7.27
180.0	7.27
225.0	7.38
270.0	7.27
315.0	7.27
360.0	7.38