



NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.cn
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 1-0935-N
Luminaire: 92.70.361.000
Report No: 220516-B017
Test No: 220516-C017
LampCAT: CREE CMA1516
Lamp flux(lm): 1745.8
Number of Lamps: 1
Length(mm): 43
Phm Type: C
Voltage(V): 35.3400
Current(A): 0.3600
Power (W): 12.7220
PF: 0.0000
Ballast type: DC
Width(mm): 43
Height(mm): 0

Photometric Results

Lumens(lm): 1450.09
Efficiency(%): 83.06%
Lumens(lm)/Power(W): 113.98
Central intensity(cd): 8140.288
Maximum intensity(cd): 8140.288
Angle of maximum intensity: $C=0.0$ $\gamma=0.0$
Beam Angle(50%Imax): [C0/180]Total=18.1
[C90/270]Total=18.1
Field angle(10%Imax): [C0/180]Total=45.5
[C90/270]Total=45.5
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 83.06%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.149%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8140.287	0.000	0	.000%	.000%
1.0	8090.543	7.766	7.766	.445%	.536%
2.0	7917.857	22.977	30.743	1.316%	2.120%
3.0	7638.288	37.205	67.948	2.131%	4.686%
4.0	7256.243	49.857	117.805	2.856%	8.124%
5.0	6731.314	60.174	177.979	3.447%	12.274%
6.0	6068.953	67.269	245.247	3.853%	16.913%
7.0	5398.824	71.180	316.428	4.077%	21.821%
8.0	4737.210	72.542	388.969	4.155%	26.824%
9.0	4090.609	71.545	460.514	4.098%	31.758%
10.0	3541.256	69.066	529.58	3.956%	36.521%
11.0	3100.429	66.364	595.944	3.801%	41.097%
12.0	2724.732	63.677	659.621	3.647%	45.488%
13.0	2392.133	60.724	720.345	3.478%	49.676%
14.0	2118.614	57.737	778.082	3.307%	53.658%
15.0	1893.719	55.083	833.166	3.155%	57.456%
16.0	1701.389	52.678	885.844	3.017%	61.089%
17.0	1515.408	50.094	935.938	2.869%	64.544%
18.0	1346.554	47.188	983.126	2.703%	67.798%
19.0	1226.473	44.765	1027.891	2.564%	70.885%
20.0	1096.989	42.526	1070.417	2.436%	73.817%
21.0	985.497	39.988	1110.405	2.291%	76.575%
22.0	890.423	37.697	1148.102	2.159%	79.175%
23.0	791.405	35.289	1183.392	2.021%	81.608%
24.0	686.187	32.305	1215.697	1.850%	83.836%
25.0	592.794	29.081	1244.778	1.666%	85.842%
26.0	496.502	25.713	1270.491	1.473%	87.615%
27.0	407.530	22.117	1292.609	1.267%	89.140%
28.0	328.828	18.643	1311.252	1.068%	90.426%
29.0	254.428	15.260	1326.511	.874%	91.478%
30.0	195.228	12.141	1338.652	.695%	92.315%
31.0	141.428	9.369	1348.02	.537%	92.961%
32.0	104.269	7.039	1355.059	.403%	93.447%
33.0	83.198	5.523	1360.582	.316%	93.828%
34.0	71.703	4.688	1365.27	.269%	94.151%
35.0	65.504	4.261	1369.531	.244%	94.445%
36.0	61.620	4.048	1373.579	.232%	94.724%
37.0	58.042	3.903	1377.481	.224%	94.993%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	54.345	3.751	1381.233	.215%	95.252%
39.0	49.834	3.556	1384.789	.204%	95.497%
40.0	45.636	3.330	1388.118	.191%	95.727%
41.0	41.304	3.096	1391.214	.177%	95.940%
42.0	36.681	2.833	1394.048	.162%	96.136%
43.0	32.857	2.576	1396.624	.148%	96.313%
44.0	29.533	2.355	1398.978	.135%	96.476%
45.0	26.590	2.157	1401.135	.124%	96.624%
46.0	24.192	1.986	1403.121	.114%	96.761%
47.0	22.377	1.852	1404.973	.106%	96.889%
48.0	20.831	1.747	1406.72	.100%	97.009%
49.0	19.644	1.662	1408.382	.095%	97.124%
50.0	18.494	1.590	1409.972	.091%	97.234%
51.0	17.508	1.523	1411.495	.087%	97.339%
52.0	16.693	1.468	1412.963	.084%	97.440%
53.0	15.917	1.419	1414.382	.081%	97.538%
54.0	15.192	1.371	1415.753	.079%	97.632%
55.0	14.595	1.330	1417.082	.076%	97.724%
56.0	14.012	1.293	1418.375	.074%	97.813%
57.0	13.474	1.257	1419.632	.072%	97.900%
58.0	13.049	1.227	1420.858	.070%	97.984%
59.0	12.660	1.202	1422.06	.069%	98.067%
60.0	12.287	1.179	1423.239	.068%	98.149%
61.0	11.951	1.157	1424.395	.066%	98.228%
62.0	11.644	1.137	1425.532	.065%	98.307%
63.0	11.353	1.118	1426.651	.064%	98.384%
64.0	11.099	1.102	1427.753	.063%	98.460%
65.0	10.815	1.085	1428.837	.062%	98.535%
66.0	10.576	1.067	1429.904	.061%	98.608%
67.0	10.337	1.052	1430.956	.060%	98.681%
68.0	10.098	1.035	1431.991	.059%	98.752%
69.0	9.852	1.018	1433.009	.058%	98.822%
70.0	9.620	1.000	1434.009	.057%	98.891%
71.0	9.344	0.980	1434.989	.056%	98.959%
72.0	9.045	0.956	1435.945	.055%	99.025%
73.0	8.799	0.933	1436.878	.053%	99.089%
74.0	8.522	0.911	1437.789	.052%	99.152%
75.0	8.276	0.888	1438.677	.051%	99.213%

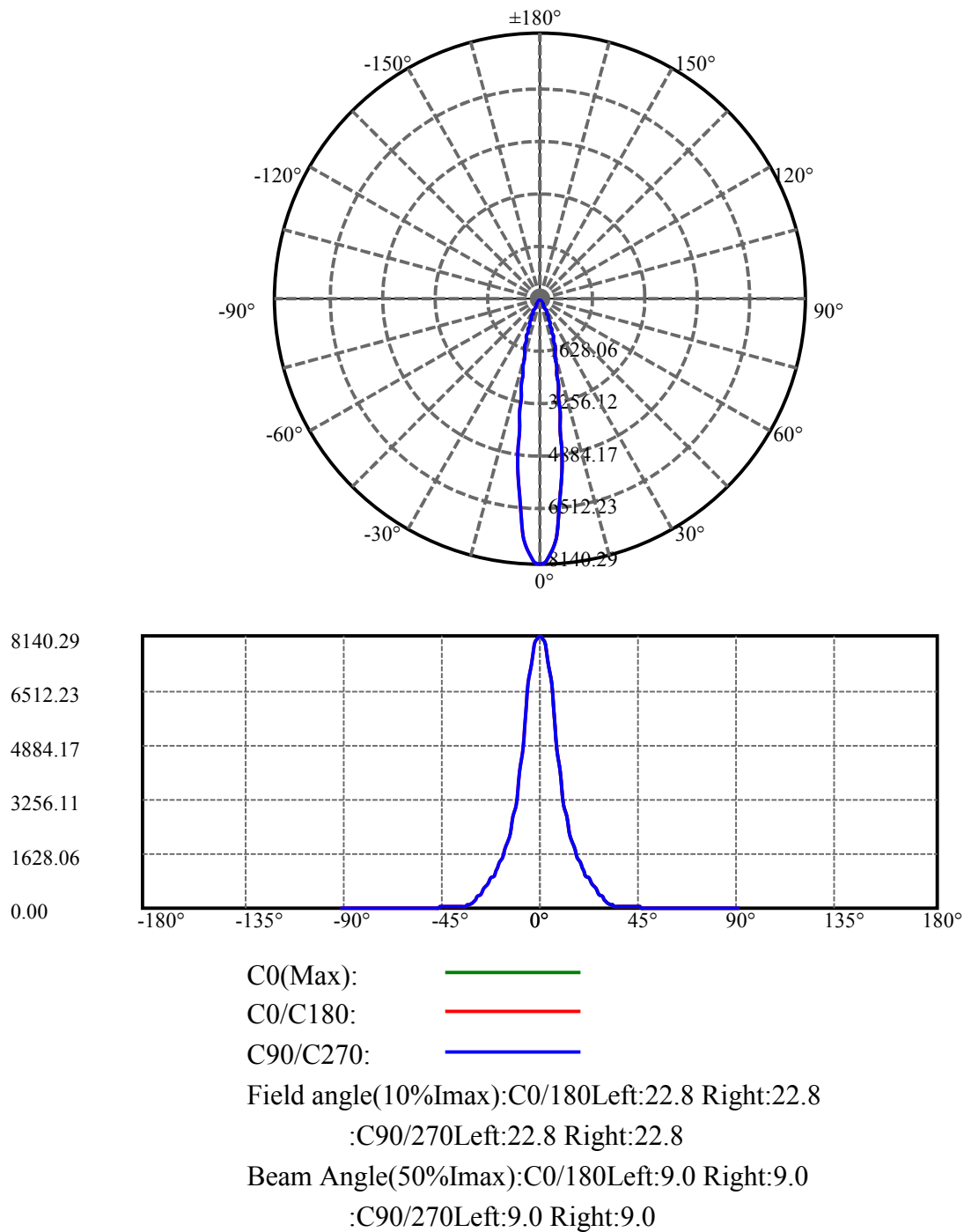
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.082	0.868	1439.545	.050%	99.273%
77.0	7.887	0.851	1440.396	.049%	99.332%
78.0	7.693	0.834	1441.23	.048%	99.389%
79.0	7.529	0.818	1442.048	.047%	99.446%
80.0	7.342	0.802	1442.85	.046%	99.501%
81.0	7.193	0.786	1443.636	.045%	99.555%
82.0	7.051	0.772	1444.408	.044%	99.608%
83.0	6.931	0.760	1445.168	.044%	99.661%
84.0	6.782	0.747	1445.915	.043%	99.712%
85.0	6.640	0.733	1446.648	.042%	99.763%
86.0	6.476	0.717	1447.365	.041%	99.812%
87.0	6.311	0.700	1448.065	.040%	99.861%
88.0	6.192	0.685	1448.75	.039%	99.908%
89.0	6.072	0.672	1449.422	.039%	99.954%
90.0	6.035	0.664	1450.086	.038%	100.000%

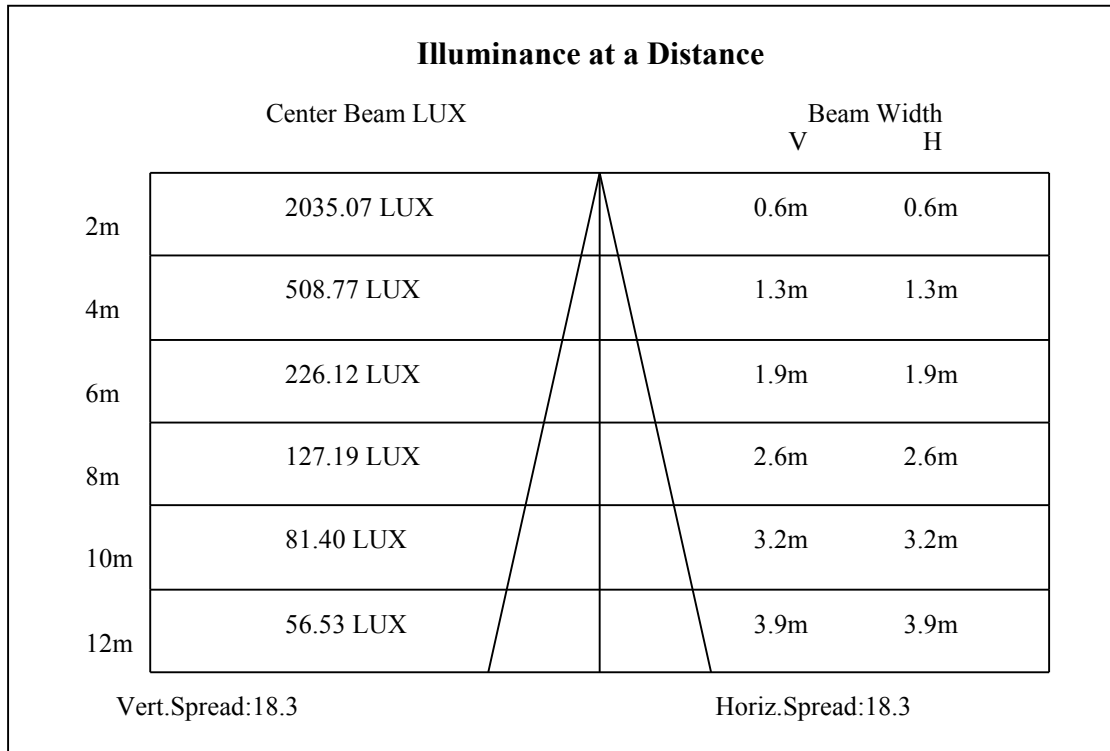
ZONAL LUMEN SUMMARY

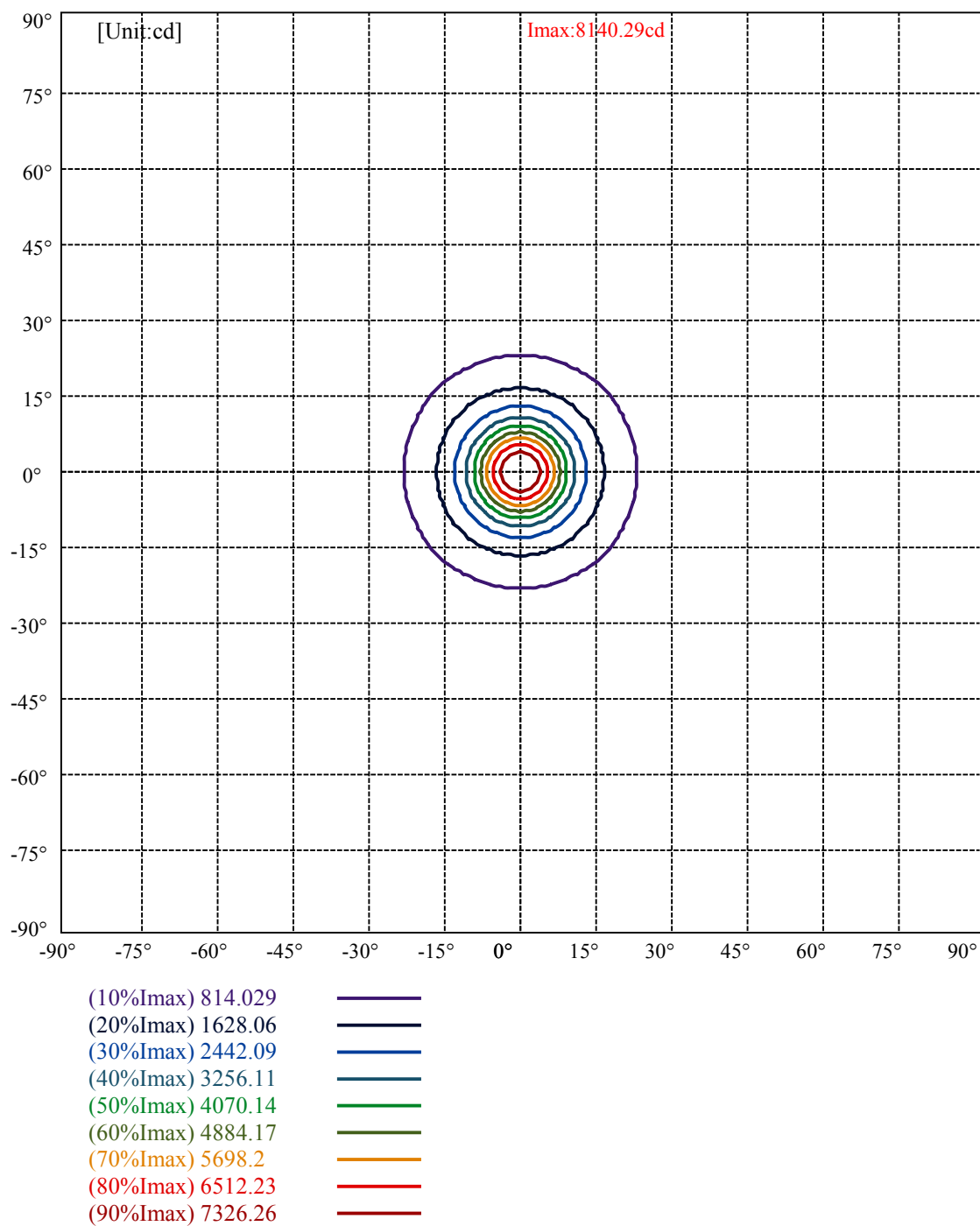
Zone	Lumens	%Lamp	%Fixt
0-30	1338.65	76.68%	92.32%
0-40	1388.12	79.51%	95.73%
0-60	1423.24	81.52%	98.15%
0-90	1449.42	83.02%	99.95%
0-120	1449.42	83.02%	99.95%
0-180	1450.09	83.06%	100.00%
60-90	27.36	1.57%	1.89%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-22.34	1160.07	66.45%	80.00%

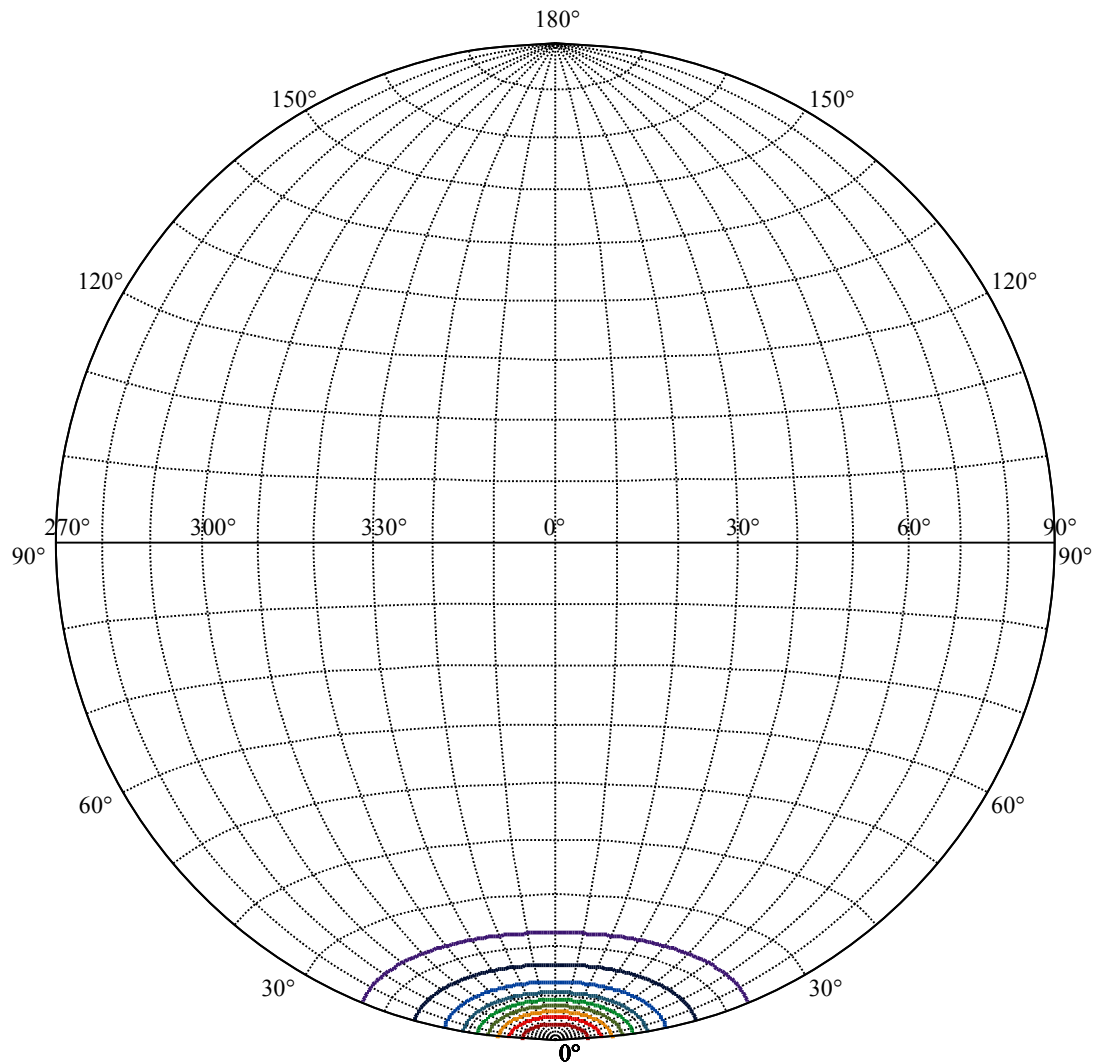
ZONAL LUMEN SUMMARY

0-10	529.58
10-20	540.84
20-30	268.23
30-40	49.47
40-50	21.85
50-60	13.27
60-70	10.77
70-80	8.84
80-90	6.57
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









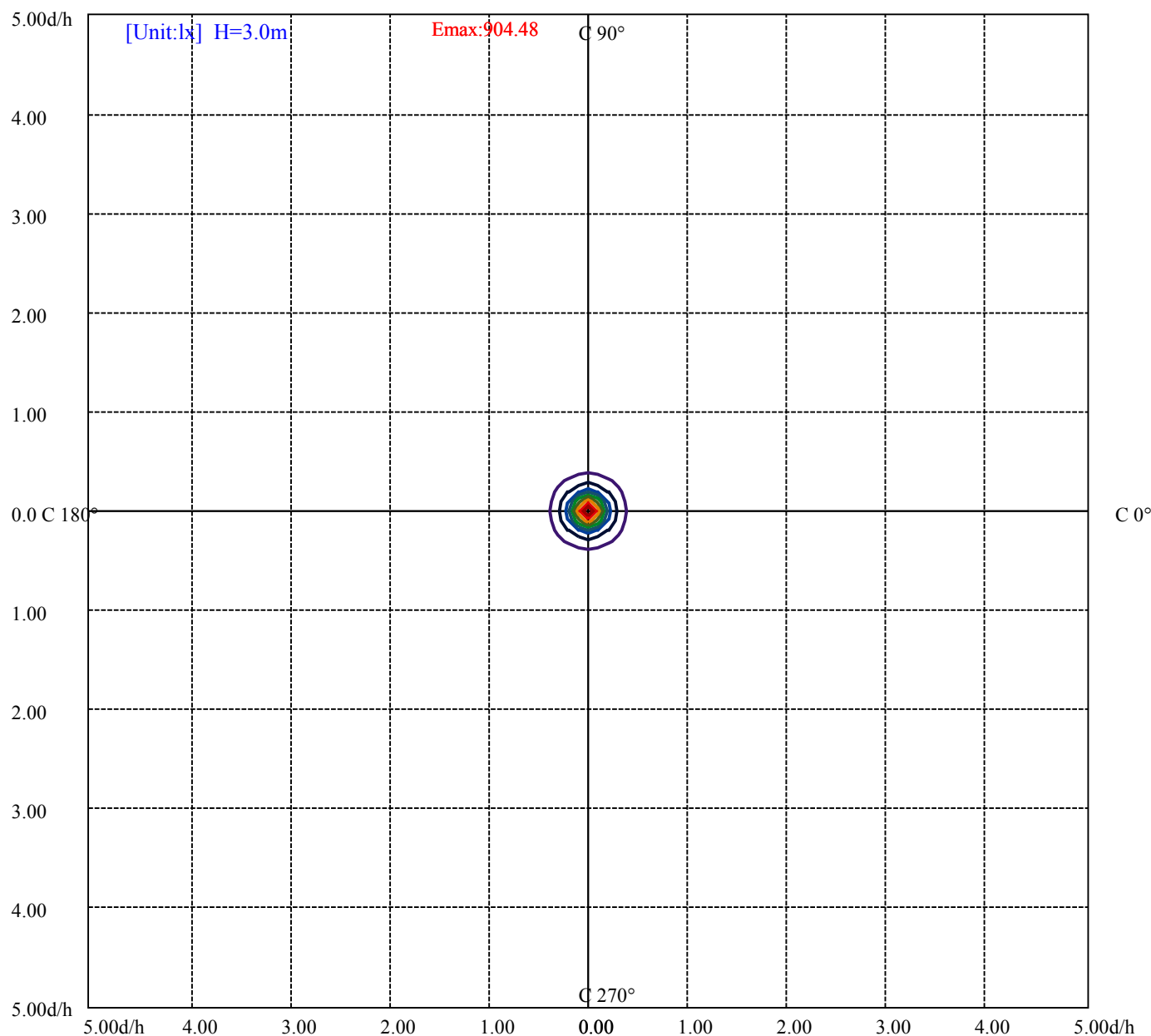
House

[Unit:cd]

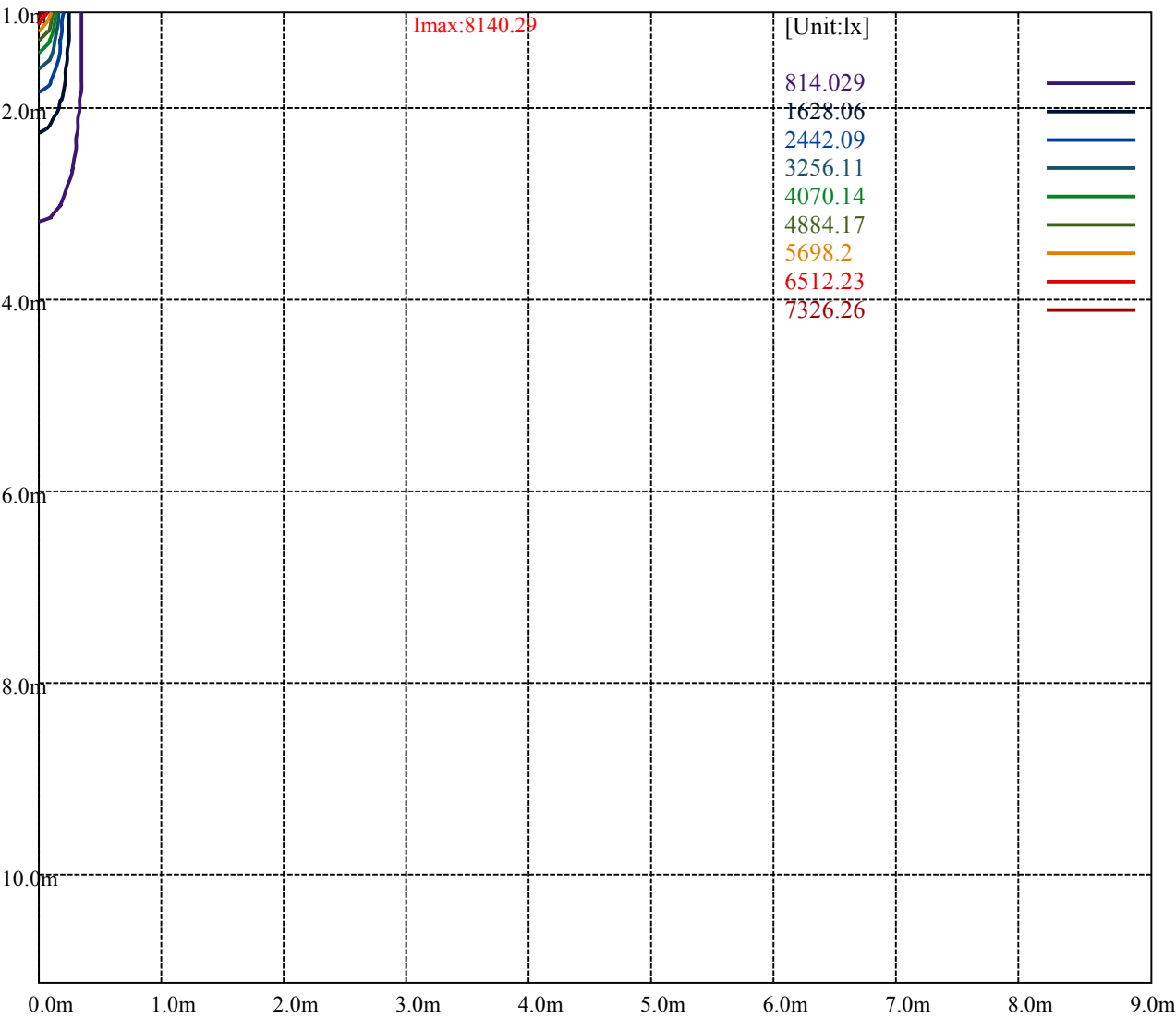
Road

Imax:8140.29

(10%Imax)	814.029	—
(20%Imax)	1628.06	—
(30%Imax)	2442.09	—
(40%Imax)	3256.11	—
(50%Imax)	4070.14	—
(60%Imax)	4884.17	—
(70%Imax)	5698.2	—
(80%Imax)	6512.23	—
(90%Imax)	7326.26	—



(10%Emax)	90.44756	—
(20%Emax)	180.8956	—
(30%Emax)	271.3422	—
(40%Emax)	361.79	—
(50%Emax)	452.2378	—
(60%Emax)	542.6855	—
(70%Emax)	633.1334	—
(80%Emax)	723.58	—
(90%Emax)	814.0278	—



Luminance Table

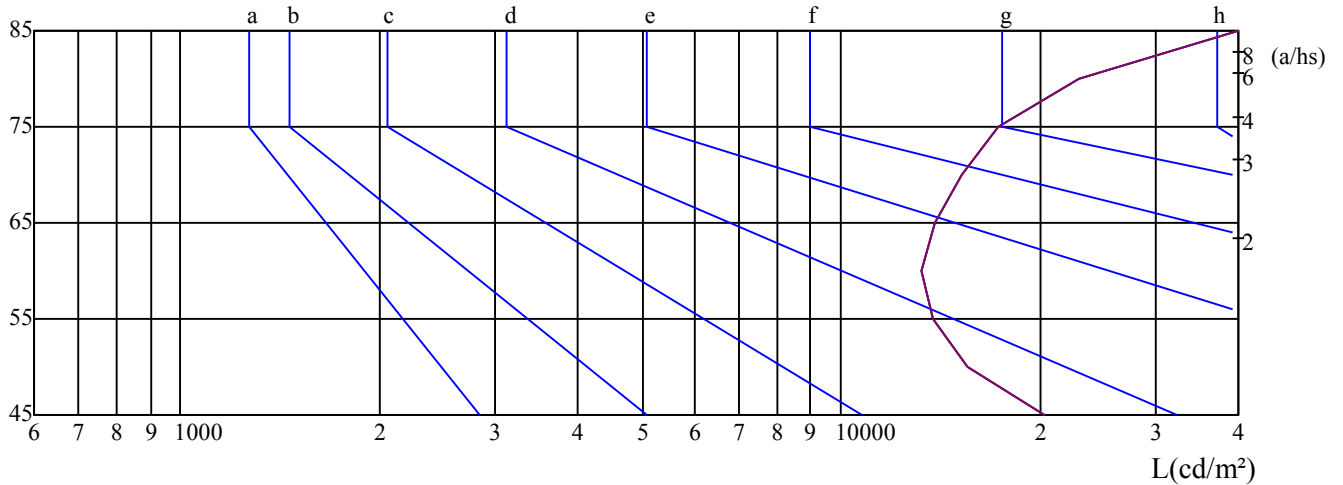
γ	45	50	55	60	65	70	75	80	85
C0	20337	15560	13761	13290	13841	15212	17293	22867	41204
C45	20337	15560	13761	13290	13841	15212	17293	22867	41204
C90	20337	15560	13761	13290	13841	15212	17293	22867	41204

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
13841	13841	13841	17293	17293	17293	41204	41204	41204

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

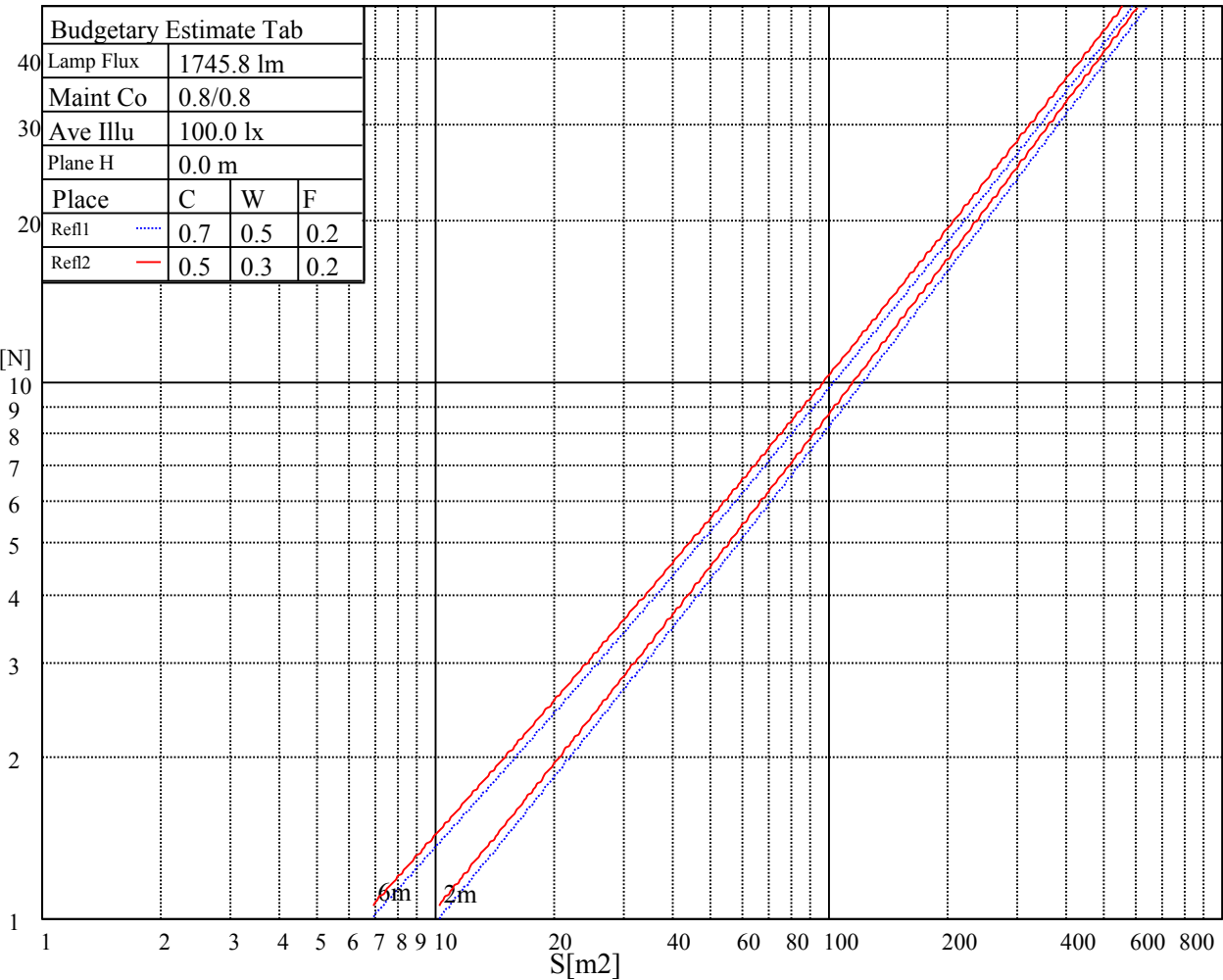
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

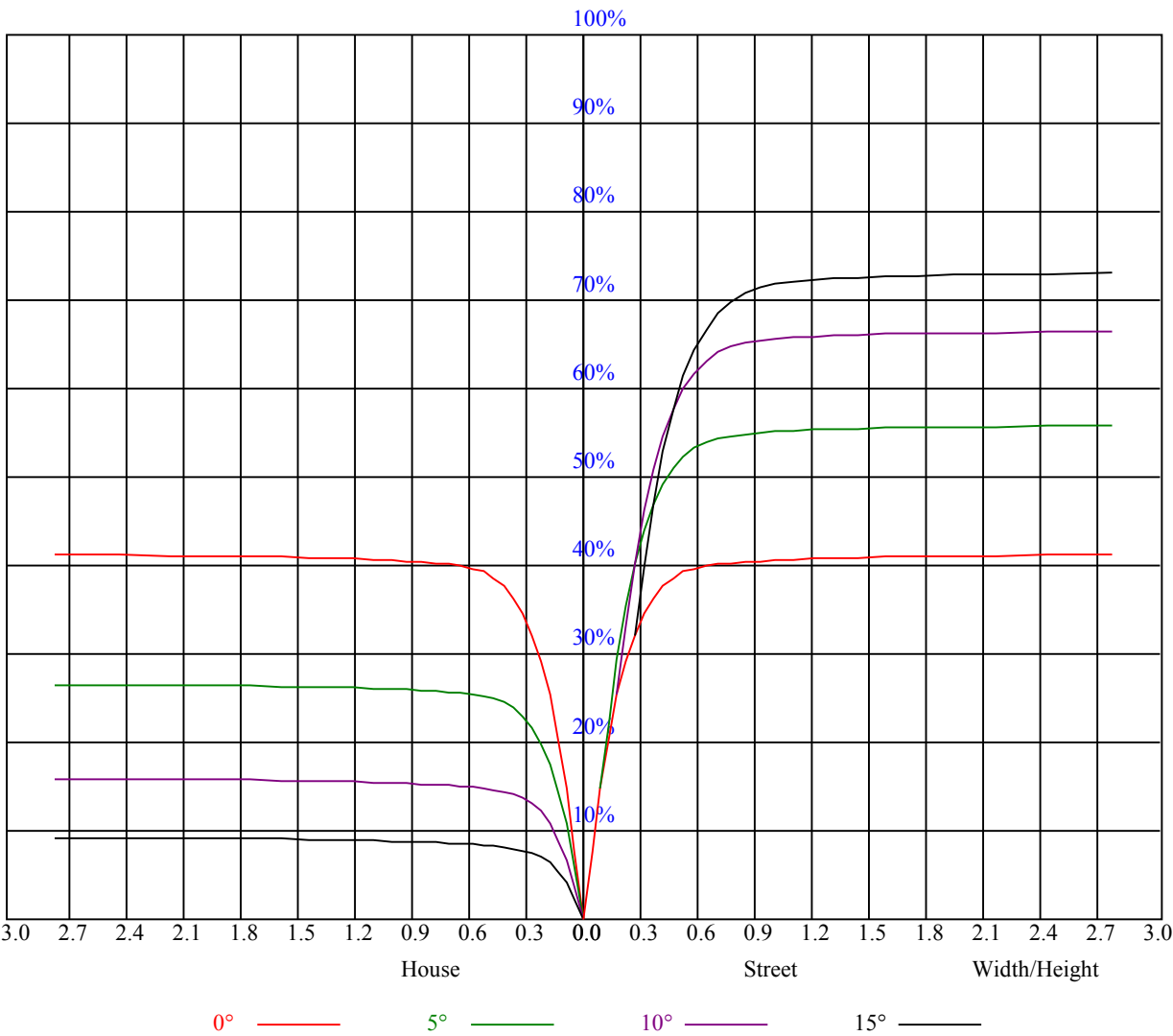
C0 ———

C45 ———

C90 ———



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	0.99	0.99	0.99	0.97	0.97	0.97	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85	0.83
1	0.93	0.91	0.90	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.79
2	0.89	0.86	0.84	0.87	0.85	0.83	0.85	0.83	0.81	0.82	0.81	0.79	0.80	0.79	0.78	0.76
3	0.84	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.79	0.77	0.76	0.78	0.76	0.75	0.73
4	0.81	0.77	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.77	0.75	0.73	0.75	0.74	0.72	0.71
5	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.70	0.69
6	0.75	0.71	0.69	0.75	0.71	0.69	0.73	0.70	0.68	0.72	0.70	0.68	0.71	0.69	0.67	0.66
7	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.69	0.67	0.65	0.64
8	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.68	0.65	0.63	0.63
9	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.62	0.61
10	0.66	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.59



Intensity data(cd)

C/ γ (°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	8110.86	8161.05	8089.35	7920.25	7635.82	7164.97	6551.91	5919.12	5169.22
45.0	8150.89	8045.13	7843.17	7432.07	6974.36	6411.49	5590.48	4915.27	4296.83
90.0	8134.16	7997.93	7729.04	7324.51	6848.88	6192.79	5531.33	4783.82	4114.58
135.0	8165.23	8086.96	7862.29	7572.49	7185.88	6636.16	5965.73	5313.23	4603.96
180.0	8110.86	7968.05	7674.06	7332.28	6894.29	6284.21	5573.75	4918.86	4238.27
225.0	8150.89	8143.72	8053.50	7836.59	7451.19	7087.89	6504.70	5754.20	5190.14
270.0	8134.16	8173.60	8097.71	7931.00	7654.94	7209.78	6635.56	6036.84	5470.98
315.0	8165.23	8147.91	7993.74	7757.12	7404.58	6863.22	6198.17	5549.25	4813.69
360.0	8110.86	8161.05	8089.35	7920.25	7635.82	7164.97	6551.91	5919.12	5169.22

C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4458.16	3905.45	3365.28	2963.15	2580.13	2259.85	2019.65	1812.31	1592.41
45.0	3622.82	3168.10	2787.47	2430.15	2136.76	1916.87	1710.13	1549.39	1386.86
90.0	3593.54	3104.16	2704.42	2404.46	2150.51	1880.42	1697.58	1535.05	1373.72
135.0	3971.78	3481.80	3021.70	2676.93	2348.29	2075.22	1865.49	1683.84	1484.86
180.0	3707.67	3211.72	2804.80	2502.45	2209.66	1960.49	1768.09	1597.20	1413.16
225.0	4562.13	3805.06	3393.96	2994.82	2623.15	2311.24	2075.82	1846.36	1648.58
270.0	4593.80	4025.55	3589.95	3062.34	2672.75	2418.20	2106.29	1868.47	1707.14
315.0	4214.97	3628.20	3135.83	2763.57	2415.81	2126.61	1906.72	1718.49	1516.53
360.0	4458.16	3905.45	3365.28	2963.15	2580.13	2259.85	2019.65	1812.31	1592.41

C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1440.04	1306.80	1153.23	1040.90	941.71	839.53	733.77	640.55	537.78
45.0	1239.87	1122.16	1000.26	892.11	799.49	704.49	587.37	495.95	415.88
90.0	1177.85	1105.43	984.07	882.19	793.40	691.40	599.98	500.67	405.66
135.0	1345.64	1220.75	1079.14	973.37	884.34	794.71	675.81	583.19	495.95
180.0	1185.56	1156.10	1031.39	924.97	839.53	740.16	636.13	545.25	447.55
225.0	1496.21	1340.86	1182.63	1082.60	980.31	878.67	777.15	683.33	579.36
270.0	1509.96	1373.72	1247.64	1100.65	990.70	900.48	791.13	699.11	606.49
315.0	1377.30	1185.98	1097.54	987.18	893.90	781.81	688.17	594.30	483.34
360.0	1440.04	1306.80	1153.23	1040.90	941.71	839.53	733.77	640.55	537.78

C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	448.74	354.33	316.09	208.66	155.48	118.13	89.15	75.17	68.90
45.0	328.04	309.52	188.34	137.13	101.22	79.89	70.21	65.79	61.61
90.0	326.97	255.68	182.43	136.71	101.52	75.59	67.88	63.76	59.81
135.0	399.15	309.52	264.82	175.67	129.72	94.23	74.15	67.16	62.68
180.0	365.33	280.06	209.25	159.60	119.21	84.49	70.93	65.79	61.31
225.0	490.15	394.13	307.85	241.88	187.15	133.01	101.10	80.97	69.97
270.0	492.96	406.32	327.45	309.52	188.22	145.50	107.38	81.68	72.48
315.0	408.89	321.05	239.19	192.64	148.90	103.31	84.79	73.32	67.28
360.0	448.74	354.33	316.09	208.66	155.48	118.13	89.15	75.17	68.90

C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	64.41	61.07	58.20	52.82	48.88	45.29	39.68	35.55	32.21
45.0	57.90	54.43	50.97	46.25	42.01	37.47	32.74	29.64	26.65
90.0	56.11	52.76	48.70	44.93	40.21	35.61	32.15	28.68	25.63
135.0	59.04	55.51	51.93	47.09	42.96	38.84	34.00	30.89	27.96
180.0	58.08	54.32	50.61	45.77	41.47	37.47	33.34	29.70	27.07
225.0	65.91	62.14	58.14	53.96	50.01	45.29	40.87	36.39	32.33
270.0	67.64	63.76	59.75	55.45	51.45	47.03	41.53	37.29	33.58
315.0	63.88	60.35	56.47	52.40	48.10	43.44	39.14	34.72	30.83
360.0	64.41	61.07	58.20	52.82	48.88	45.29	39.68	35.55	32.21

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	28.32	25.51	23.72	21.69	20.38	19.24	17.99	17.09	16.37
45.0	24.02	22.05	20.61	19.30	18.22	17.21	16.37	15.66	14.94
90.0	23.54	21.93	20.26	19.12	18.16	17.15	16.37	15.60	14.82
135.0	25.39	23.24	21.81	20.38	19.36	18.22	17.33	16.55	15.77
180.0	24.62	22.65	21.27	19.96	18.94	17.93	17.03	16.25	15.60
225.0	29.28	26.17	23.78	22.23	20.91	19.54	18.52	17.69	16.85
270.0	29.64	26.77	24.50	22.47	20.85	19.72	18.46	17.57	16.67
315.0	27.90	25.22	23.06	21.51	20.32	18.94	17.99	17.15	16.31
360.0	28.32	25.51	23.72	21.69	20.38	19.24	17.99	17.09	16.37
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	15.54	14.94	14.40	13.68	13.27	12.91	12.55	12.19	11.89
45.0	14.28	13.74	13.21	12.73	12.37	12.07	11.71	11.41	11.17
90.0	14.22	13.68	13.09	12.79	12.43	11.95	11.71	11.35	11.05
135.0	15.06	14.46	13.98	13.38	12.97	12.61	12.19	11.89	11.59
180.0	14.88	14.34	13.80	13.32	12.91	12.55	12.13	11.77	11.53
225.0	16.13	15.42	14.82	14.22	13.68	13.27	12.85	12.49	12.19
270.0	15.89	15.24	14.58	13.98	13.56	13.15	12.67	12.37	12.01
315.0	15.54	14.94	14.22	13.68	13.21	12.79	12.49	12.13	11.71
360.0	15.54	14.94	14.40	13.68	13.27	12.91	12.55	12.19	11.89
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.53	11.23	10.99	10.70	10.52	10.28	10.04	9.74	9.56
45.0	10.93	10.76	10.52	10.28	10.04	9.86	9.62	9.38	9.08
90.0	10.88	10.64	10.34	10.10	9.92	9.74	9.50	9.26	8.96
135.0	11.29	10.99	10.70	10.46	10.22	9.98	9.74	9.56	9.20
180.0	11.23	10.99	10.70	10.40	10.16	9.92	9.62	9.38	9.08
225.0	11.89	11.65	11.35	11.11	10.82	10.52	10.28	10.04	9.74
270.0	11.65	11.35	11.11	10.93	10.64	10.40	10.10	9.92	9.68
315.0	11.41	11.17	10.82	10.64	10.40	10.10	9.92	9.68	9.44
360.0	11.53	11.23	10.99	10.70	10.52	10.28	10.04	9.74	9.56
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	9.20	8.96	8.66	8.43	8.25	8.07	7.83	7.65	7.41
45.0	8.84	8.60	8.31	8.13	7.95	7.77	7.59	7.41	7.23
90.0	8.72	8.48	8.25	8.01	7.83	7.59	7.47	7.35	7.17
135.0	8.90	8.60	8.43	8.19	7.95	7.77	7.59	7.41	7.23
180.0	8.78	8.54	8.31	8.07	7.89	7.65	7.47	7.29	7.17
225.0	9.44	9.14	8.84	8.60	8.37	8.13	7.95	7.77	7.53
270.0	9.38	9.14	8.78	8.48	8.31	8.19	7.89	7.77	7.59
315.0	9.08	8.90	8.60	8.31	8.13	7.95	7.77	7.59	7.41
360.0	9.20	8.96	8.66	8.43	8.25	8.07	7.83	7.65	7.41
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.23	7.11	6.93	6.69	6.63	6.45	6.39	6.21	6.09
45.0	7.17	6.99	6.93	6.81	6.57	6.45	6.27	6.15	6.04
90.0	7.11	6.99	6.93	6.81	6.63	6.45	6.21	6.15	6.04
135.0	7.11	7.05	6.93	6.87	6.75	6.51	6.27	6.15	5.98
180.0	6.99	6.87	6.81	6.69	6.51	6.33	6.15	6.04	5.92
225.0	7.41	7.17	7.05	6.87	6.75	6.57	6.45	6.27	6.15
270.0	7.35	7.17	6.99	6.81	6.69	6.57	6.45	6.33	6.21
315.0	7.17	7.05	6.87	6.69	6.57	6.45	6.27	6.21	6.15
360.0	7.23	7.11	6.93	6.69	6.63	6.45	6.39	6.21	6.09

Intensity data(cd)

Appendix Page: 18 Total:18

C/ γ (°)	90.0
0.0	5.98
45.0	6.09
90.0	6.04
135.0	5.98
180.0	5.98
225.0	6.09
270.0	6.09
315.0	6.04
360.0	5.98