
Nata

LumCAT: 3-1915-E
Luminaire: 99.02.73.181+92.76.323.00
Report No: GC2017032006
Test No: NT-0010
LampCAT: LUXEON CoB 1208
Lamp flux(lm): 2607.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 217.8000
Current(A): 0.1360
Power (W): 28.0000
PF: 0.9420
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 2341.83
Efficiency(%): 89.83%
Lumens(lm)/Power(W): 83.64
Central intensity(cd): 15024.890
Maximum intensity(cd): 15024.890
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=16.0
[C90/270]Total=16.0
Field angle(10%Imax): [C0/180]Total=35.0
[C90/270]Total=35.0
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
Maximum s/h(1/4): C0_180=0.28 C90_270=0.28
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.83%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.722%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15024.892	0.000	0	.000%	.000%
1.0	14874.175	14.306	14.306	.549%	.611%
2.0	14404.131	42.023	56.329	1.612%	2.405%
3.0	13355.857	66.393	122.722	2.547%	5.240%
4.0	12657.398	87.075	209.797	3.340%	8.959%
5.0	11495.295	103.904	313.7	3.986%	13.395%
6.0	10157.080	113.789	427.489	4.365%	18.254%
7.0	8692.993	117.002	544.491	4.488%	23.251%
8.0	7517.470	116.015	660.506	4.450%	28.205%
9.0	6251.517	111.590	772.097	4.280%	32.970%
10.0	5063.881	102.400	874.497	3.928%	37.342%
11.0	4195.848	92.524	967.021	3.549%	41.293%
12.0	3475.435	83.858	1050.879	3.217%	44.874%
13.0	2813.933	74.639	1125.518	2.863%	48.061%
14.0	2370.660	66.362	1191.88	2.546%	50.895%
15.0	2108.041	61.486	1253.366	2.358%	53.521%
16.0	1783.139	57.017	1310.382	2.187%	55.955%
17.0	1575.645	52.305	1362.688	2.006%	58.189%
18.0	1432.292	49.594	1412.282	1.902%	60.307%
19.0	1299.854	47.534	1459.816	1.823%	62.336%
20.0	1220.731	46.134	1505.949	1.770%	64.306%
21.0	1149.825	45.519	1551.469	1.746%	66.250%
22.0	1098.857	45.188	1596.657	1.733%	68.180%
23.0	1059.258	45.283	1641.94	1.737%	70.113%
24.0	1024.448	45.557	1687.497	1.747%	72.059%
25.0	996.163	45.944	1733.442	1.762%	74.021%
26.0	972.337	46.467	1779.908	1.782%	76.005%
27.0	950.583	47.045	1826.953	1.805%	78.014%
28.0	924.046	47.462	1874.415	1.821%	80.040%
29.0	901.941	47.773	1922.188	1.832%	82.080%
30.0	868.171	47.793	1969.98	1.833%	84.121%
31.0	818.744	46.944	2016.925	1.801%	86.126%
32.0	760.652	45.248	2062.173	1.736%	88.058%
33.0	697.971	42.972	2105.144	1.648%	89.893%
34.0	609.488	39.568	2144.712	1.518%	91.583%
35.0	515.562	34.940	2179.652	1.340%	93.075%
36.0	430.355	30.118	2209.77	1.155%	94.361%
37.0	328.081	24.736	2234.506	.949%	95.417%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	250.286	19.305	2253.811	.741%	96.241%
39.0	166.621	14.230	2268.041	.546%	96.849%
40.0	127.889	10.271	2278.313	.394%	97.288%
41.0	70.321	7.058	2285.371	.271%	97.589%
42.0	43.095	4.121	2289.491	.158%	97.765%
43.0	28.395	2.648	2292.139	.102%	97.878%
44.0	23.922	1.975	2294.114	.076%	97.962%
45.0	20.123	1.693	2295.807	.065%	98.035%
46.0	16.427	1.429	2297.236	.055%	98.096%
47.0	14.322	1.223	2298.459	.047%	98.148%
48.0	13.454	1.123	2299.582	.043%	98.196%
49.0	12.828	1.079	2300.661	.041%	98.242%
50.0	12.505	1.056	2301.718	.041%	98.287%
51.0	12.243	1.047	2302.765	.040%	98.332%
52.0	11.975	1.039	2303.804	.040%	98.376%
53.0	11.734	1.031	2304.835	.040%	98.420%
54.0	11.514	1.025	2305.86	.039%	98.464%
55.0	11.314	1.019	2306.879	.039%	98.507%
56.0	11.128	1.014	2307.893	.039%	98.551%
57.0	10.929	1.008	2308.901	.039%	98.594%
58.0	10.784	1.004	2309.905	.039%	98.637%
59.0	10.633	1.001	2310.907	.038%	98.679%
60.0	10.509	0.999	2311.906	.038%	98.722%
61.0	10.371	0.996	2312.902	.038%	98.765%
62.0	10.254	0.994	2313.896	.038%	98.807%
63.0	10.144	0.992	2314.888	.038%	98.849%
64.0	10.062	0.991	2315.879	.038%	98.892%
65.0	9.979	0.992	2316.871	.038%	98.934%
66.0	9.903	0.992	2317.863	.038%	98.976%
67.0	9.814	0.991	2318.855	.038%	99.019%
68.0	9.752	0.991	2319.846	.038%	99.061%
69.0	9.697	0.992	2320.838	.038%	99.103%
70.0	9.635	0.993	2321.831	.038%	99.146%
71.0	9.594	0.994	2322.825	.038%	99.188%
72.0	9.559	0.996	2323.82	.038%	99.231%
73.0	9.504	0.997	2324.817	.038%	99.273%
74.0	9.483	0.998	2325.816	.038%	99.316%
75.0	9.442	1.000	2326.816	.038%	99.359%

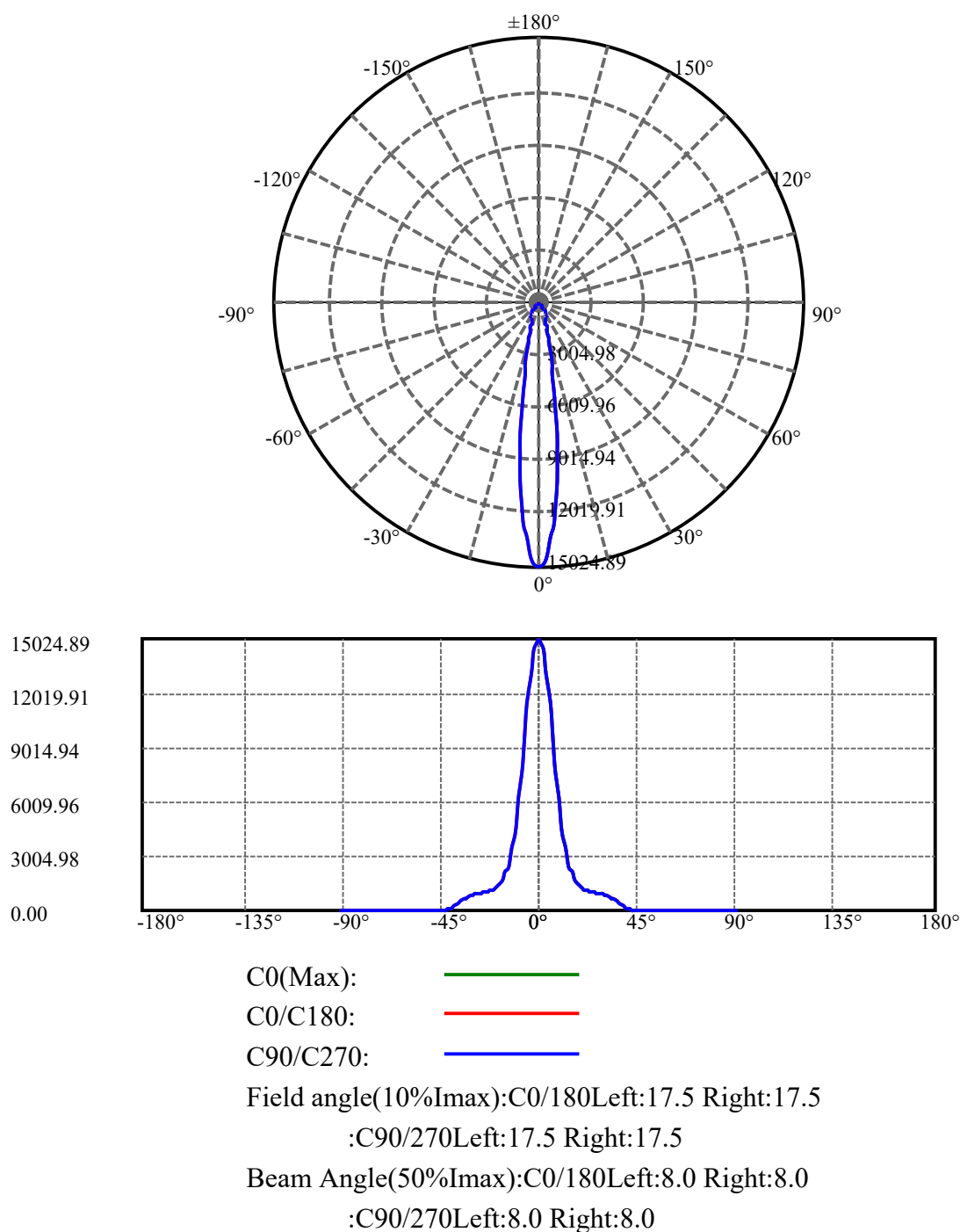
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.408	1.001	2327.816	.038%	99.401%
77.0	9.366	1.001	2328.817	.038%	99.444%
78.0	9.353	1.002	2329.819	.038%	99.487%
79.0	9.311	1.003	2330.822	.038%	99.530%
80.0	9.305	1.004	2331.826	.038%	99.573%
81.0	9.284	1.005	2332.831	.039%	99.616%
82.0	9.243	1.005	2333.836	.039%	99.658%
83.0	9.222	1.004	2334.839	.039%	99.701%
84.0	9.194	1.003	2335.843	.038%	99.744%
85.0	9.188	1.003	2336.846	.038%	99.787%
86.0	9.153	1.003	2337.848	.038%	99.830%
87.0	9.105	0.999	2338.848	.038%	99.872%
88.0	9.091	0.997	2339.844	.038%	99.915%
89.0	9.071	0.995	2340.84	.038%	99.958%
90.0	9.064	0.994	2341.834	.038%	100.000%

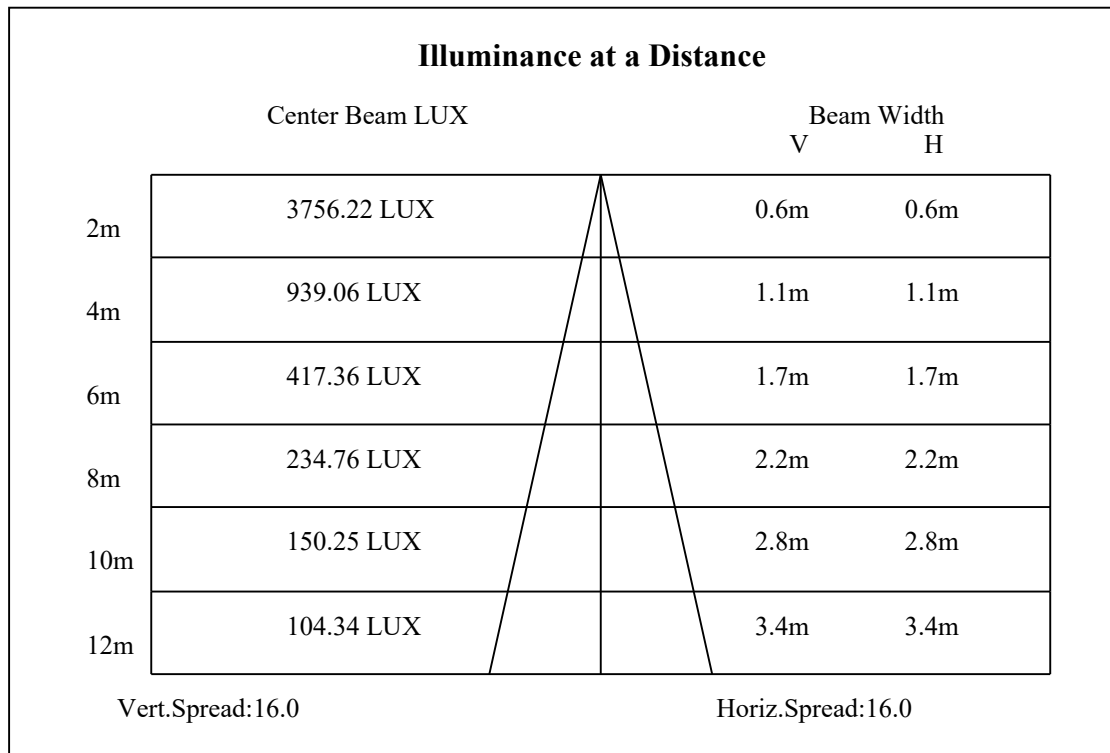
ZONAL LUMEN SUMMARY

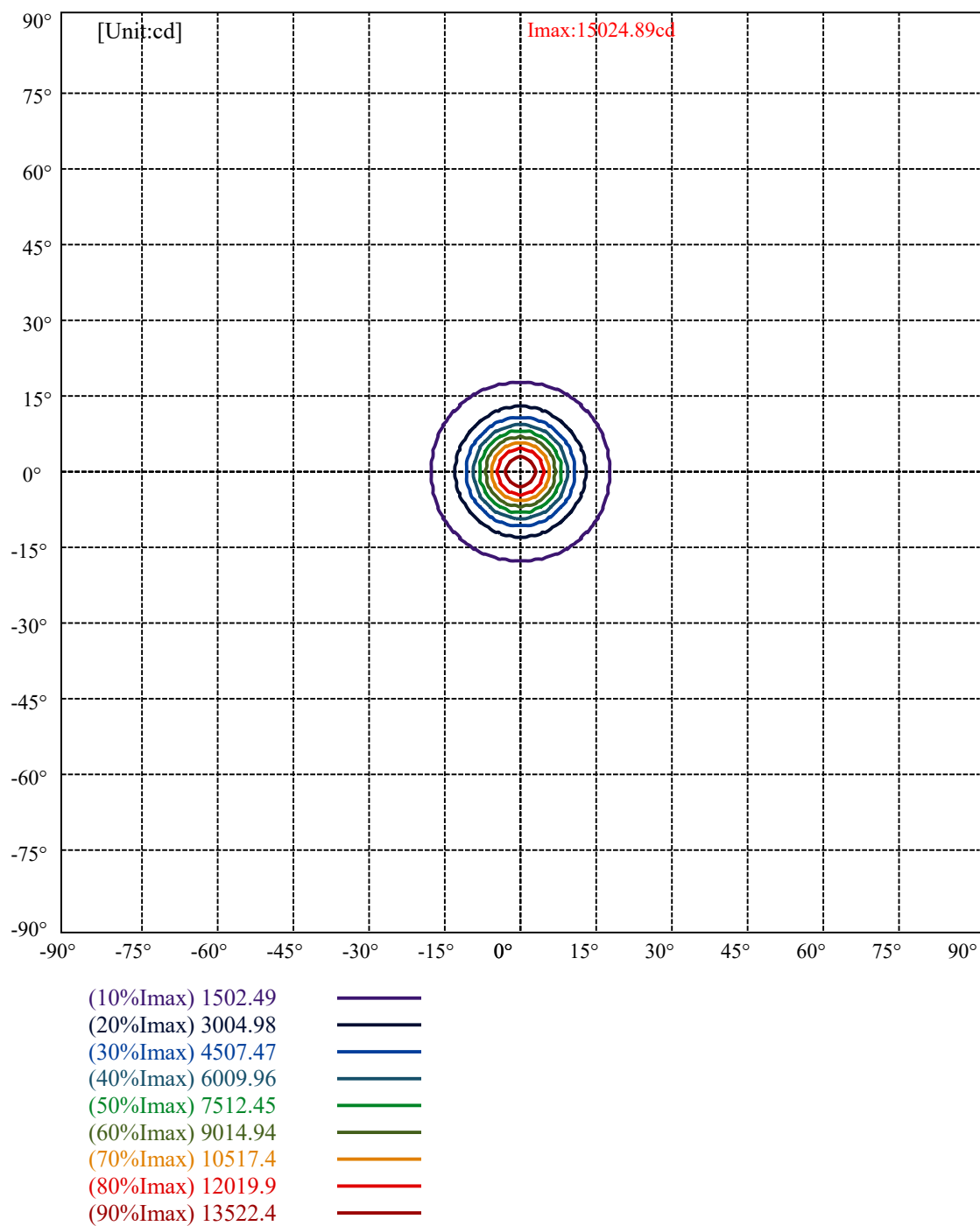
Zone	Lumens	%Lamp	%Fixt
0-30	1969.98	75.57%	84.12%
0-40	2278.31	87.39%	97.29%
0-60	2311.91	88.68%	98.72%
0-90	2340.84	89.79%	99.96%
0-120	2340.84	89.79%	99.96%
0-180	2341.83	89.83%	100.00%
60-90	29.93	1.15%	1.28%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.98	1873.47	71.86%	80.00%

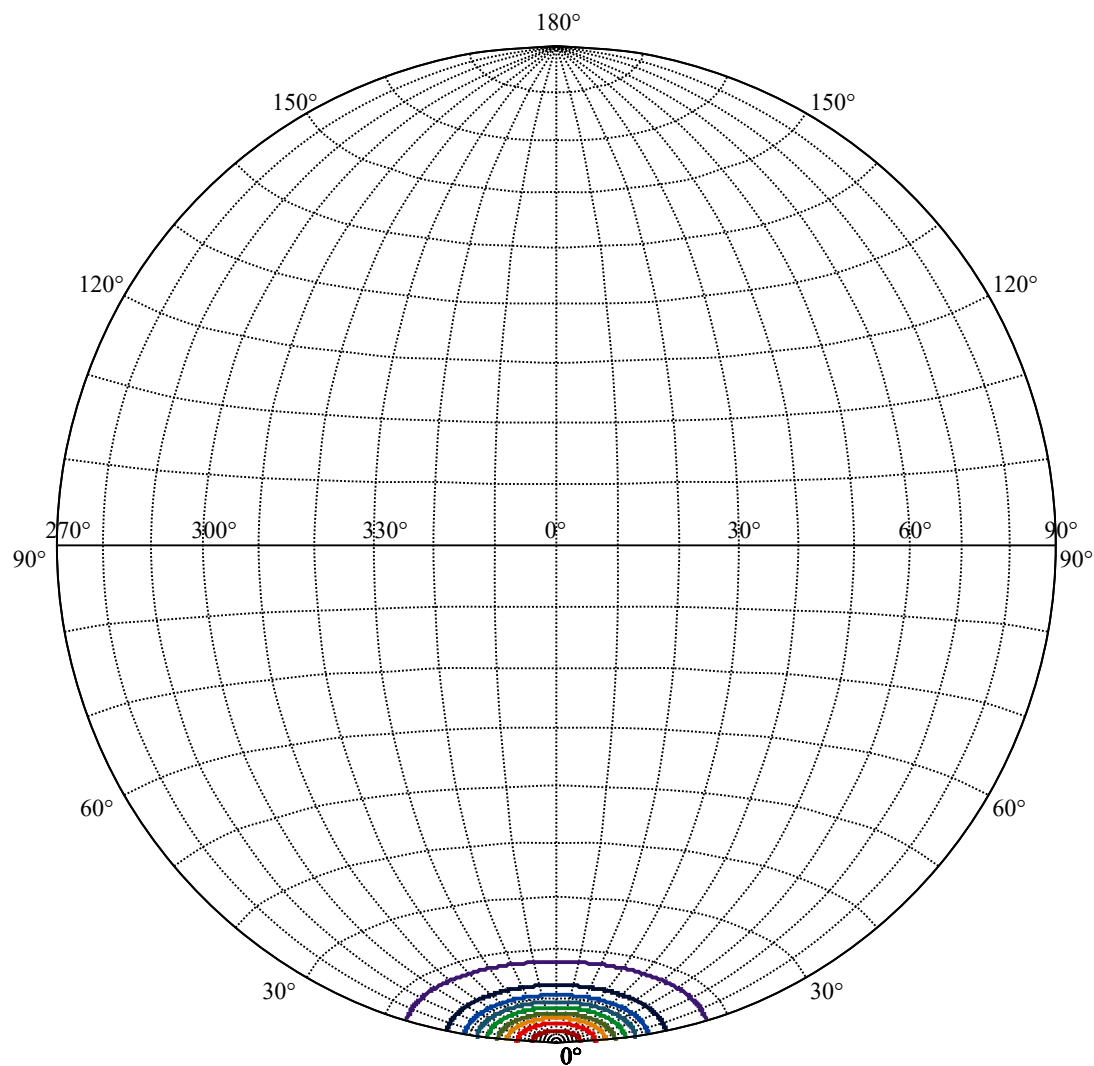
ZONAL LUMEN SUMMARY

0-10	874.50
10-20	631.45
20-30	464.03
30-40	308.33
40-50	23.41
50-60	10.19
60-70	9.93
70-80	9.99
80-90	9.01
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









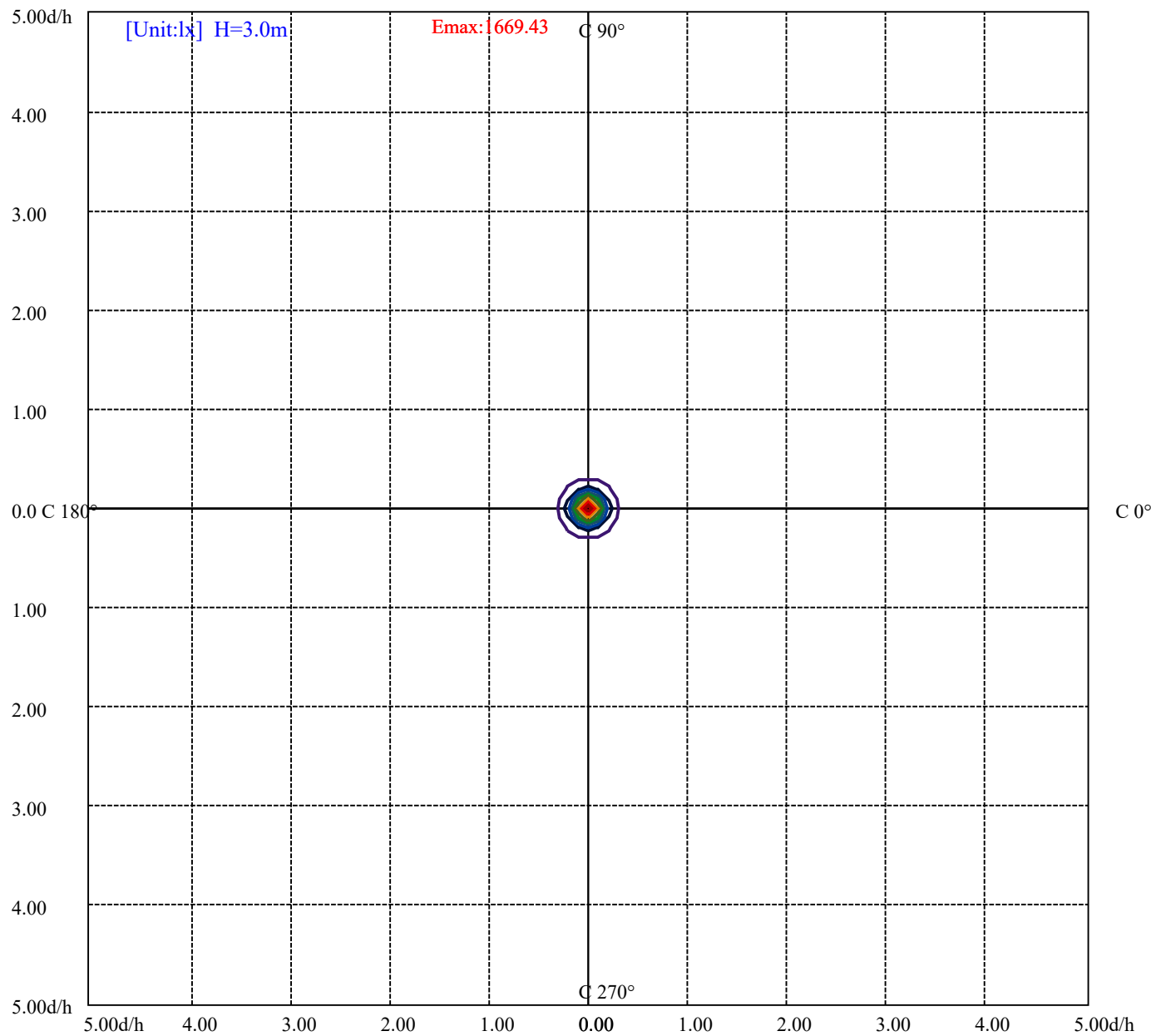
House

[Unit:cd]

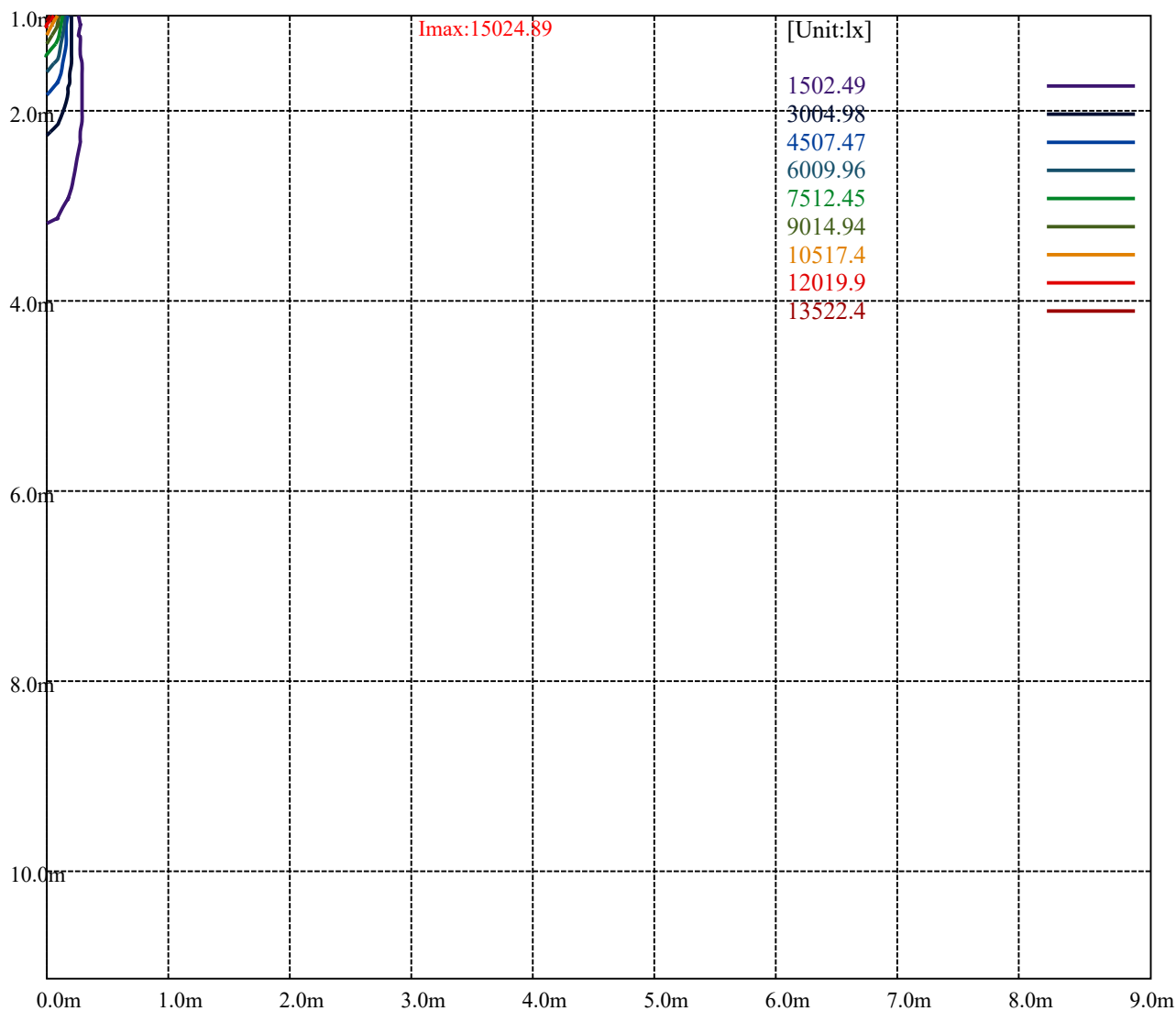
Road

Imax:15024.89

(10%Imax)	1502.49	—
(20%Imax)	3004.98	—
(30%Imax)	4507.47	—
(40%Imax)	6009.96	—
(50%Imax)	7512.45	—
(60%Imax)	9014.94	—
(70%Imax)	10517.4	—
(80%Imax)	12019.9	—
(90%Imax)	13522.4	—



(10%Emax)	166.9433	
(20%Emax)	333.8856	
(30%Emax)	500.8289	
(40%Emax)	667.7722	
(50%Emax)	834.7156	
(60%Emax)	1001.658	
(70%Emax)	1168.6	
(80%Emax)	1335.544	
(90%Emax)	1502.489	



Luminance Table

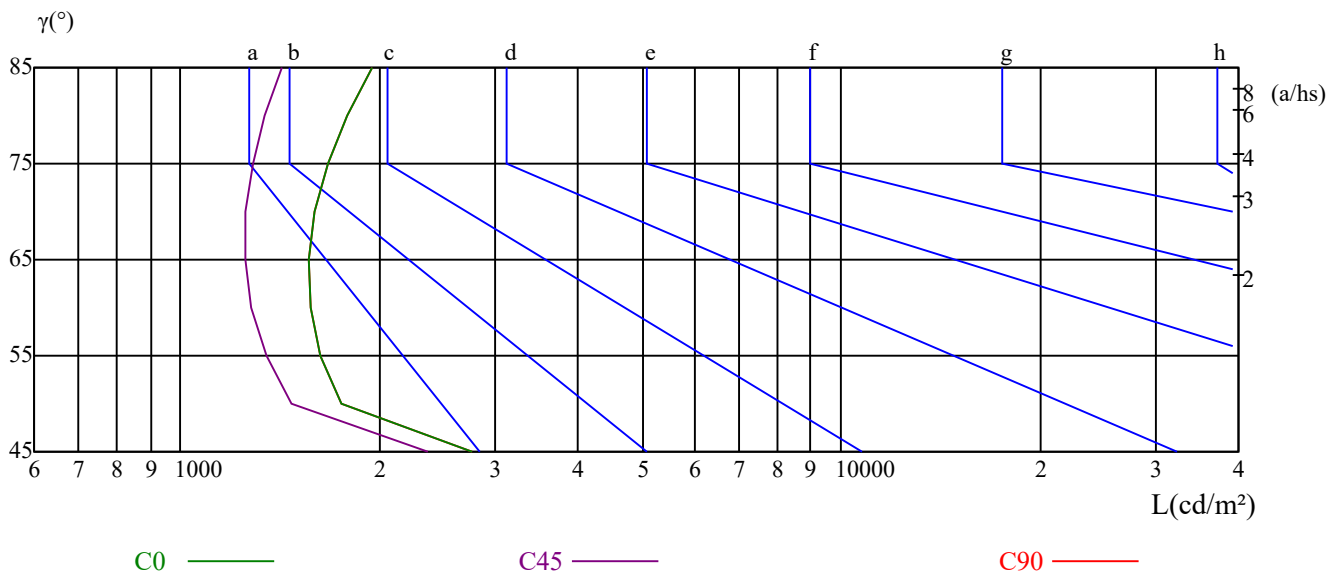
γ	45	50	55	60	65	70	75	80	85
C0	2764	1752	1630	1571	1562	1595	1673	1788	1944
C45	2364	1476	1352	1281	1252	1255	1288	1344	1421
C90	2764	1752	1630	1571	1562	1595	1673	1788	1944

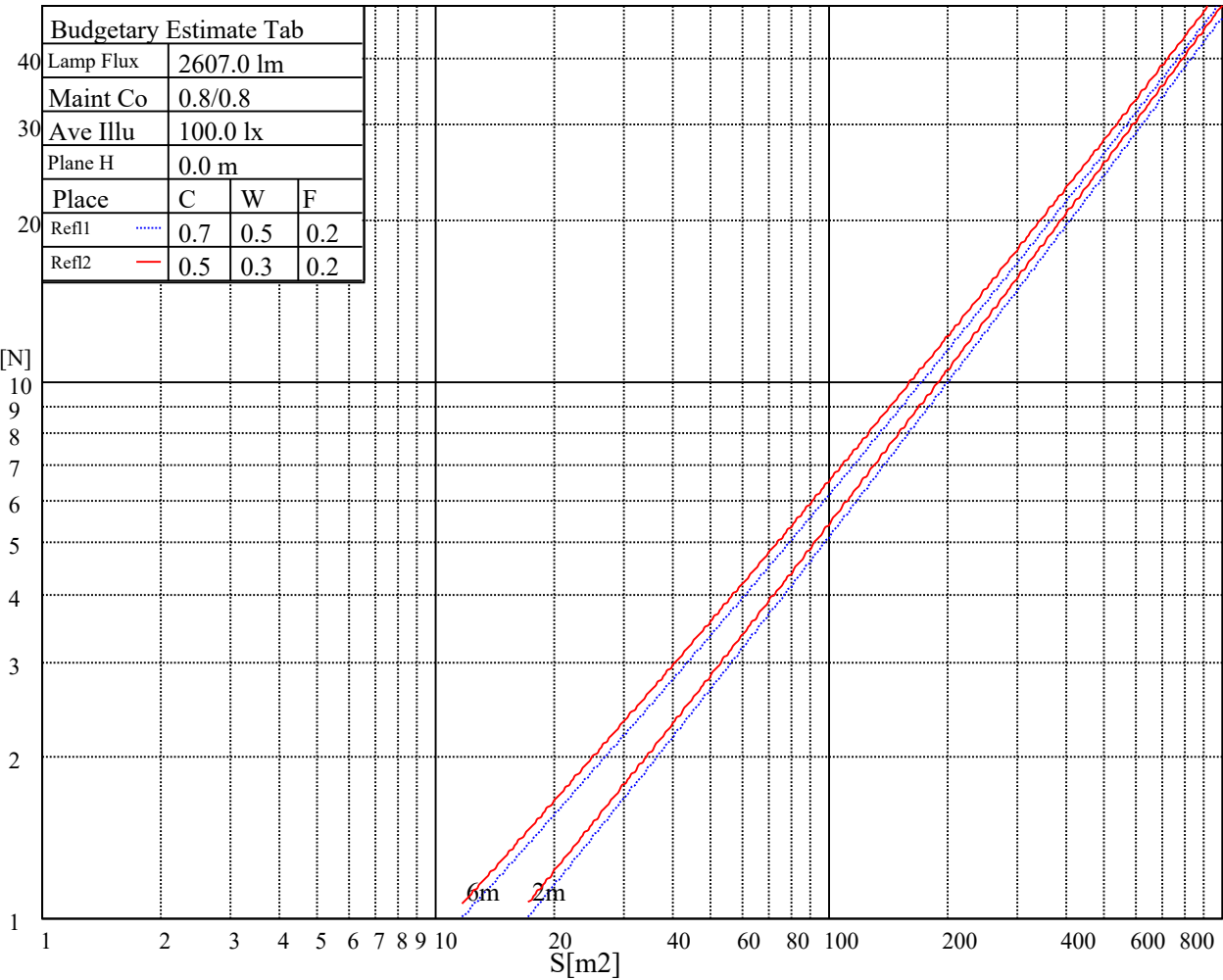
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3881	3881	3881	5996	5996	5996	17327	17327	17327

Glare Table

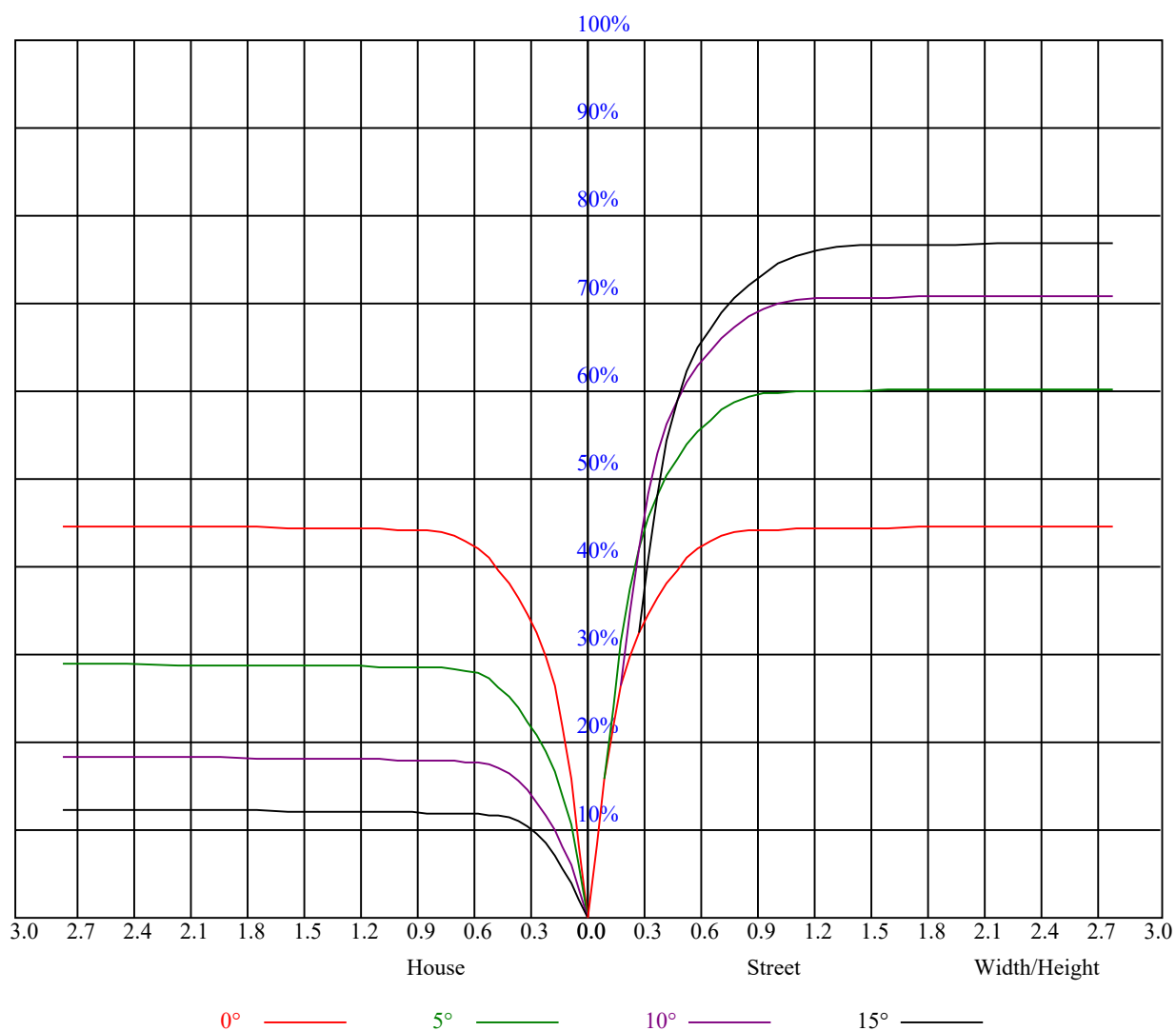
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.01	0.99	0.97	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.95	0.92	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.88	0.87	0.85	0.86	0.85	0.83	0.82
3	0.91	0.87	0.84	0.90	0.86	0.84	0.87	0.85	0.82	0.85	0.83	0.81	0.83	0.81	0.80	0.79
4	0.87	0.83	0.80	0.86	0.82	0.79	0.84	0.81	0.78	0.82	0.80	0.77	0.81	0.78	0.77	0.75
5	0.83	0.79	0.76	0.82	0.78	0.76	0.81	0.77	0.75	0.79	0.76	0.74	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.70
7	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.68	0.67
8	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
9	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.61



Nata 3-1915-E

Intensity data(cd)									
Appendix Page: 16 Total:18									
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	14953.32	15327.70	15360.74	15090.96	14446.80	13593.43	12376.68	10989.26	9684.42
45.0	15041.41	14936.80	14457.81	13775.11	12745.56	11616.90	10207.46	8742.96	7476.66
90.0	14892.76	14254.10	13373.20	10906.67	10741.50	9413.54	8080.08	6491.70	5334.97
135.0	15212.08	14479.83	13422.75	12288.59	10857.12	9508.24	7994.19	6562.72	5417.55
180.0	14953.32	14314.66	13296.12	10933.10	10768.48	9443.27	7786.08	6529.69	5380.66
225.0	15041.41	14843.21	14369.72	13411.74	12409.71	10908.32	9783.52	8350.40	7112.19
270.0	14892.76	15289.16	15333.21	15096.46	14479.83	13499.83	12415.22	11027.80	9722.96
315.0	15212.08	15547.93	15619.50	15344.22	14810.17	13978.82	12613.42	10849.41	10010.35
360.0	14953.32	15327.70	15360.74	15090.96	14446.80	13593.43	12376.68	10989.26	9684.42
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	8236.44	6849.02	5709.35	4701.82	3661.25	3039.11	2780.35	2211.07	1871.37
45.0	6133.28	4922.04	3997.09	3264.84	2785.85	2256.76	2004.05	1722.16	1530.57
90.0	4313.67	3319.35	2759.98	2346.50	1996.90	1734.28	1555.89	1398.43	1290.52
135.0	4266.87	3363.95	2785.85	2532.04	1963.31	1727.12	1545.43	1384.12	1260.79
180.0	4139.69	3381.56	2831.00	2329.99	2026.08	1786.03	1554.24	1425.41	1296.03
225.0	5958.20	4672.09	3801.64	3132.71	2592.61	2195.10	1920.37	1675.37	1488.17
270.0	8280.48	6898.57	5753.39	4619.23	3688.78	3066.64	2818.89	2175.28	1909.91
315.0	8683.50	7104.48	5928.47	4876.35	3796.69	3160.24	2685.10	2273.28	1957.81
360.0	8236.44	6849.02	5709.35	4701.82	3661.25	3039.11	2780.35	2211.07	1871.37
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1669.31	1491.48	1358.24	1267.95	1197.48	1136.91	1090.12	1056.53	1025.15
45.0	1407.79	1272.35	1184.26	1131.41	1076.35	1042.22	1014.14	983.86	965.14
90.0	1198.58	1094.58	1078.39	1035.01	1002.85	979.51	959.30	936.89	915.75
135.0	1179.31	1113.24	1066.44	1034.51	1005.88	984.96	964.04	945.32	924.40
180.0	1193.07	1094.80	1090.23	1044.31	1014.80	990.30	966.13	945.98	925.94
225.0	1365.40	1260.79	1189.77	1097.22	1073.21	1042.11	1013.59	982.15	963.43
270.0	1700.69	1516.80	1374.76	1277.31	1194.72	1133.06	1091.77	1055.43	1027.90
315.0	1744.19	1554.79	1423.76	1310.89	1225.56	1164.99	1096.50	1063.14	1030.99
360.0	1669.31	1491.48	1358.24	1267.95	1197.48	1136.91	1090.12	1056.53	1025.15
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1002.03	977.25	952.48	928.80	903.48	880.35	854.48	799.97	703.07
45.0	945.32	916.69	897.42	876.50	850.62	795.56	715.73	621.04	521.38
90.0	897.31	874.13	849.91	797.93	705.27	618.78	528.71	416.28	338.38
135.0	905.68	883.10	861.63	806.03	719.59	626.54	540.10	425.59	319.88
180.0	905.90	881.34	860.31	813.07	733.63	639.31	548.58	444.36	340.25
225.0	943.89	912.50	893.73	873.41	843.90	780.04	705.71	610.25	505.91
270.0	1001.48	976.15	953.03	928.80	900.17	877.60	848.42	775.19	695.91
315.0	1003.07	971.19	947.03	920.82	893.29	867.03	842.03	783.23	699.71
360.0	1002.03	977.25	952.48	928.80	903.48	880.35	854.48	799.97	703.07
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	612.23	518.63	409.07	302.81	280.24	129.66	66.07	39.92	33.97
45.0	421.73	318.23	285.74	150.14	80.33	41.84	35.02	29.07	24.00
90.0	242.14	146.28	91.45	43.94	32.21	27.91	22.41	16.96	16.02
135.0	282.44	155.64	81.92	39.59	32.92	27.47	21.97	19.32	14.31
180.0	251.55	161.43	95.58	45.86	33.14	28.08	22.57	18.28	15.09
225.0	411.27	309.47	223.53	134.56	67.50	39.15	34.02	26.15	20.48
270.0	607.27	502.66	395.30	302.26	279.69	127.79	64.69	39.03	34.02
315.0	614.21	512.30	419.69	313.82	217.09	140.67	78.01	38.43	33.47
360.0	612.23	518.63	409.07	302.81	280.24	129.66	66.07	39.92	33.97

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	27.58	21.36	17.01	14.26	13.38	12.94	12.66	12.33	12.06
45.0	19.88	13.76	13.05	12.66	12.33	12.06	11.84	11.56	11.34
90.0	14.26	12.99	12.61	12.33	12.06	11.84	11.62	11.40	11.23
135.0	13.54	13.05	12.72	12.50	12.17	11.89	11.67	11.56	11.29
180.0	13.87	13.10	12.77	12.55	12.22	12.00	11.84	11.56	11.40
225.0	18.00	15.75	13.60	13.10	12.77	12.50	12.22	11.95	11.73
270.0	26.81	21.20	15.97	14.76	13.93	13.54	13.16	12.88	12.50
315.0	27.03	20.21	16.85	15.47	13.76	13.27	12.94	12.55	12.33
360.0	27.58	21.36	17.01	14.26	13.38	12.94	12.66	12.33	12.06
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.84	11.62	11.45	11.23	11.07	10.85	10.74	10.57	10.46
45.0	11.12	10.96	10.79	10.63	10.52	10.35	10.24	10.13	10.02
90.0	11.01	10.85	10.68	10.52	10.46	10.35	10.24	10.08	10.02
135.0	11.12	10.96	10.85	10.63	10.57	10.41	10.30	10.24	10.13
180.0	11.29	11.07	10.90	10.79	10.63	10.52	10.41	10.30	10.19
225.0	11.51	11.29	11.12	10.90	10.74	10.63	10.46	10.30	10.19
270.0	12.22	12.00	11.67	11.45	11.23	11.07	10.90	10.74	10.57
315.0	12.00	11.78	11.56	11.29	11.07	10.90	10.79	10.63	10.46
360.0	11.84	11.62	11.45	11.23	11.07	10.85	10.74	10.57	10.46
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.35	10.30	10.19	10.08	10.02	9.97	9.91	9.80	9.74
45.0	9.91	9.86	9.74	9.69	9.58	9.58	9.47	9.47	9.41
90.0	9.91	9.80	9.80	9.74	9.63	9.58	9.52	9.47	9.41
135.0	10.02	9.97	9.91	9.86	9.80	9.69	9.69	9.63	9.63
180.0	10.08	10.02	9.97	9.86	9.74	9.74	9.69	9.63	9.63
225.0	10.08	10.02	9.86	9.80	9.69	9.63	9.58	9.47	9.47
270.0	10.46	10.30	10.19	10.13	10.02	9.91	9.86	9.80	9.69
315.0	10.35	10.24	10.19	10.08	10.02	9.91	9.86	9.80	9.74
360.0	10.35	10.30	10.19	10.08	10.02	9.97	9.91	9.80	9.74
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	9.69	9.63	9.63	9.58	9.58	9.47	9.47	9.47	9.47
45.0	9.36	9.36	9.30	9.25	9.25	9.19	9.19	9.14	9.14
90.0	9.41	9.36	9.36	9.30	9.25	9.25	9.19	9.14	9.14
135.0	9.63	9.63	9.63	9.63	9.63	9.58	9.58	9.58	9.58
180.0	9.63	9.52	9.52	9.47	9.41	9.47	9.41	9.36	9.30
225.0	9.41	9.36	9.36	9.30	9.25	9.19	9.19	9.14	9.14
270.0	9.69	9.58	9.52	9.47	9.41	9.36	9.36	9.30	9.30
315.0	9.63	9.58	9.52	9.52	9.47	9.41	9.41	9.36	9.36
360.0	9.69	9.63	9.63	9.58	9.58	9.47	9.47	9.47	9.47
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.41	9.41	9.36	9.30	9.30	9.30	9.19	9.25	9.19
45.0	9.08	9.08	9.03	9.03	9.03	8.97	8.97	8.97	8.92
90.0	9.14	9.08	9.08	9.03	9.03	9.03	9.03	9.03	9.03
135.0	9.52	9.41	9.41	9.41	9.41	9.30	9.14	9.19	9.14
180.0	9.36	9.36	9.30	9.30	9.25	9.19	9.19	9.14	9.14
225.0	9.14	9.08	9.08	9.03	9.03	9.03	8.97	8.92	8.92
270.0	9.25	9.19	9.19	9.19	9.19	9.14	9.14	9.08	9.08
315.0	9.36	9.30	9.30	9.25	9.25	9.25	9.19	9.14	9.14
360.0	9.41	9.41	9.36	9.30	9.30	9.30	9.19	9.25	9.19

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	9.19
45.0	8.97
90.0	8.97
135.0	9.14
180.0	9.14
225.0	8.92
270.0	9.03
315.0	9.14
360.0	9.19