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Nata

LumCAT: 2-1536-A
Luminaire: 99.02.73.181+92.76.323.00
Report No: NT2017032001 Voltage(V): 217.7000
Test No: GC2017032001 Current(A): 0.1360
LampCAT: LUMILEDS 1208 Power (W): 28.0000
Lamp flux(lm): 2607.0 PF: 0.9420
Number of Lamps: 1 Ballast type: DC
Length(mm): 70 Width(mm): 70
Phm Type: C Height(mm): 0

Photometric Results

Lumens(lm): 2371.25
Efficiency(%): 90.96%
Lumens(lm)/Power(W): 84.69
Central intensity(cd): 13486.070
Maximum intensity(cd): 13486.070
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=16.9
 [C90/270]Total=16.9
Field angle(10%Imax): [C0/180]Total=37.6
 [C90/270]Total=37.6
Maximum s/h(1/2): C0_180=0.29 C90_270=0.29
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(%): 91.08%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.653%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13486.065	3.226	3.226	.124%	.136%
1.0	13383.523	25.614	28.84	.983%	1.216%
2.0	13081.401	50.064	78.904	1.920%	3.328%
3.0	12387.071	71.092	149.996	2.727%	6.326%
4.0	11818.682	90.408	240.404	3.468%	10.138%
5.0	10909.150	104.265	344.669	3.999%	14.535%
6.0	9662.192	110.755	455.424	4.248%	19.206%
7.0	8452.121	112.957	568.38	4.333%	23.970%
8.0	7291.326	111.279	679.659	4.268%	28.662%
9.0	6046.707	103.730	783.389	3.979%	33.037%
10.0	4956.039	94.375	877.764	3.620%	37.017%
11.0	4134.116	86.503	964.268	3.318%	40.665%
12.0	3466.420	79.034	1043.301	3.032%	43.998%
13.0	2832.101	69.863	1113.164	2.680%	46.944%
14.0	2416.563	64.110	1177.274	2.459%	49.648%
15.0	2135.844	60.620	1237.894	2.325%	52.204%
16.0	1822.160	55.078	1292.972	2.113%	54.527%
17.0	1603.036	51.396	1344.368	1.971%	56.694%
18.0	1454.934	49.303	1393.672	1.891%	58.774%
19.0	1321.333	47.174	1440.846	1.810%	60.763%
20.0	1226.127	45.987	1486.834	1.764%	62.702%
21.0	1159.171	45.554	1532.388	1.747%	64.624%
22.0	1102.553	45.293	1577.68	1.737%	66.534%
23.0	1058.934	45.373	1623.053	1.740%	68.447%
24.0	1029.754	45.930	1668.984	1.762%	70.384%
25.0	1002.020	46.438	1715.422	1.781%	72.342%
26.0	978.875	47.057	1762.479	1.805%	74.327%
27.0	957.300	47.659	1810.138	1.828%	76.337%
28.0	929.572	47.857	1857.995	1.836%	78.355%
29.0	908.286	48.289	1906.283	1.852%	80.391%
30.0	884.653	48.506	1954.789	1.861%	82.437%
31.0	847.944	47.891	2002.681	1.837%	84.457%
32.0	802.282	46.622	2049.302	1.788%	86.423%
33.0	752.098	44.919	2094.222	1.723%	88.317%
34.0	691.887	42.428	2136.65	1.627%	90.106%
35.0	609.984	38.367	2175.017	1.472%	91.724%
36.0	534.701	34.465	2209.482	1.322%	93.178%
37.0	448.235	29.582	2239.064	1.135%	94.425%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	375.636	25.361	2264.424	.973%	95.495%
39.0	287.628	19.850	2284.274	.761%	96.332%
40.0	205.938	14.516	2298.79	.557%	96.944%
41.0	149.141	10.730	2309.52	.412%	97.397%
42.0	97.195	7.132	2316.652	.274%	97.697%
43.0	60.775	4.545	2321.197	.174%	97.889%
44.0	39.414	3.002	2324.2	.115%	98.016%
45.0	27.391	2.124	2326.324	.081%	98.105%
46.0	22.697	1.790	2328.114	.069%	98.181%
47.0	19.125	1.534	2329.648	.059%	98.245%
48.0	15.753	1.284	2330.932	.049%	98.300%
49.0	13.530	1.120	2332.052	.043%	98.347%
50.0	11.775	0.989	2333.041	.038%	98.388%
51.0	11.300	0.963	2334.004	.037%	98.429%
52.0	10.839	0.937	2334.94	.036%	98.469%
53.0	10.674	0.935	2335.875	.036%	98.508%
54.0	10.516	0.933	2336.808	.036%	98.547%
55.0	10.385	0.933	2337.741	.036%	98.587%
56.0	10.289	0.935	2338.676	.036%	98.626%
57.0	10.130	0.932	2339.608	.036%	98.665%
58.0	10.055	0.935	2340.543	.036%	98.705%
59.0	9.965	0.937	2341.48	.036%	98.744%
60.0	9.890	0.939	2342.419	.036%	98.784%
61.0	9.800	0.940	2343.359	.036%	98.824%
62.0	9.752	0.944	2344.303	.036%	98.863%
63.0	9.697	0.947	2345.251	.036%	98.903%
64.0	9.635	0.950	2346.2	.036%	98.943%
65.0	9.587	0.953	2347.153	.037%	98.984%
66.0	9.518	0.954	2348.107	.037%	99.024%
67.0	9.497	0.959	2349.065	.037%	99.064%
68.0	9.470	0.963	2350.028	.037%	99.105%
69.0	9.463	0.969	2350.997	.037%	99.146%
70.0	9.422	0.971	2351.968	.037%	99.187%
71.0	9.401	0.975	2352.943	.037%	99.228%
72.0	9.401	0.980	2353.923	.038%	99.269%
73.0	9.353	0.981	2354.904	.038%	99.310%
74.0	9.339	0.984	2355.888	.038%	99.352%
75.0	9.298	0.985	2356.873	.038%	99.394%

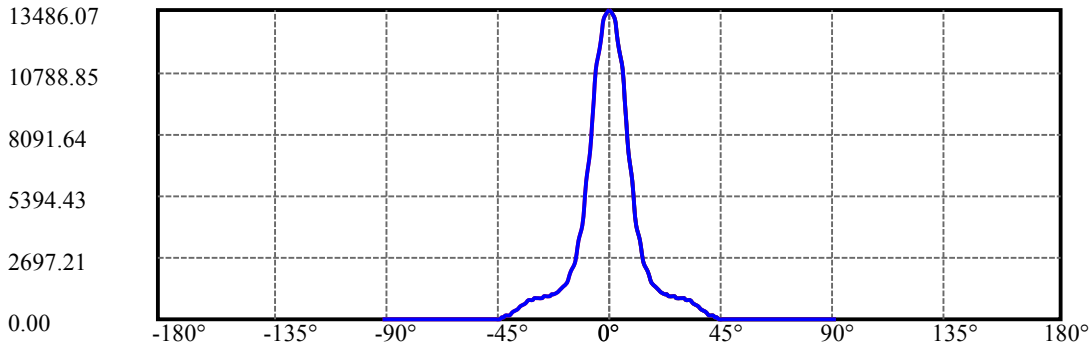
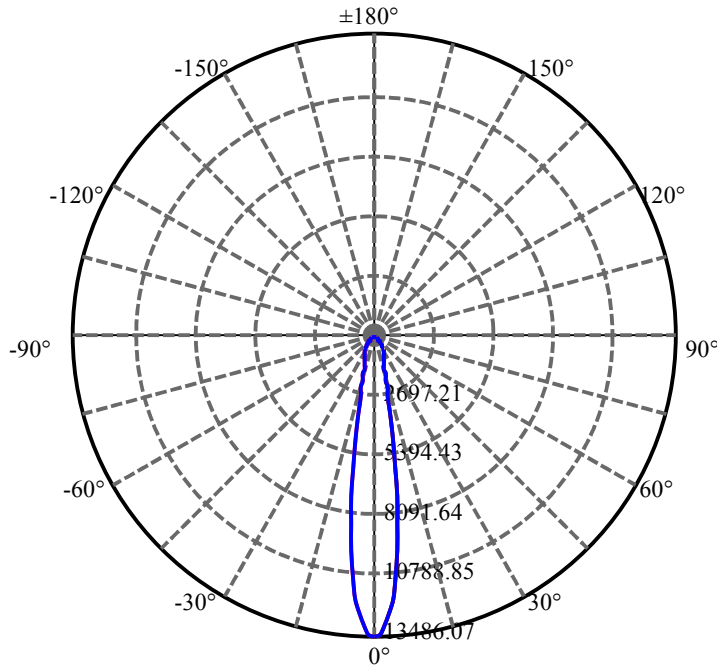
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.277	0.987	2357.86	.038%	99.435%
77.0	9.249	0.988	2358.849	.038%	99.477%
78.0	9.222	0.989	2359.838	.038%	99.519%
79.0	9.194	0.990	2360.827	.038%	99.560%
80.0	9.167	0.990	2361.817	.038%	99.602%
81.0	9.167	0.993	2362.81	.038%	99.644%
82.0	9.153	0.994	2363.804	.038%	99.686%
83.0	9.126	0.993	2364.798	.038%	99.728%
84.0	9.132	0.996	2365.794	.038%	99.770%
85.0	9.119	0.996	2366.79	.038%	99.812%
86.0	9.071	0.992	2367.782	.038%	99.854%
87.0	9.043	0.990	2368.772	.038%	99.895%
88.0	9.057	0.993	2369.765	.038%	99.937%
89.0	9.057	0.993	2370.758	.038%	99.979%
90.0	9.050	0.496	2371.254	.019%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1954.79	74.98%	82.44%
0-40	2298.79	88.18%	96.94%
0-60	2342.42	89.85%	98.78%
0-90	2370.76	90.94%	99.98%
0-120	2370.76	90.94%	99.98%
0-180	2371.25	90.96%	100.00%
60-90	29.28	1.12%	1.23%
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%
0-28.81	1897.00	72.77%	80.00%

ZONAL LUMEN SUMMARY

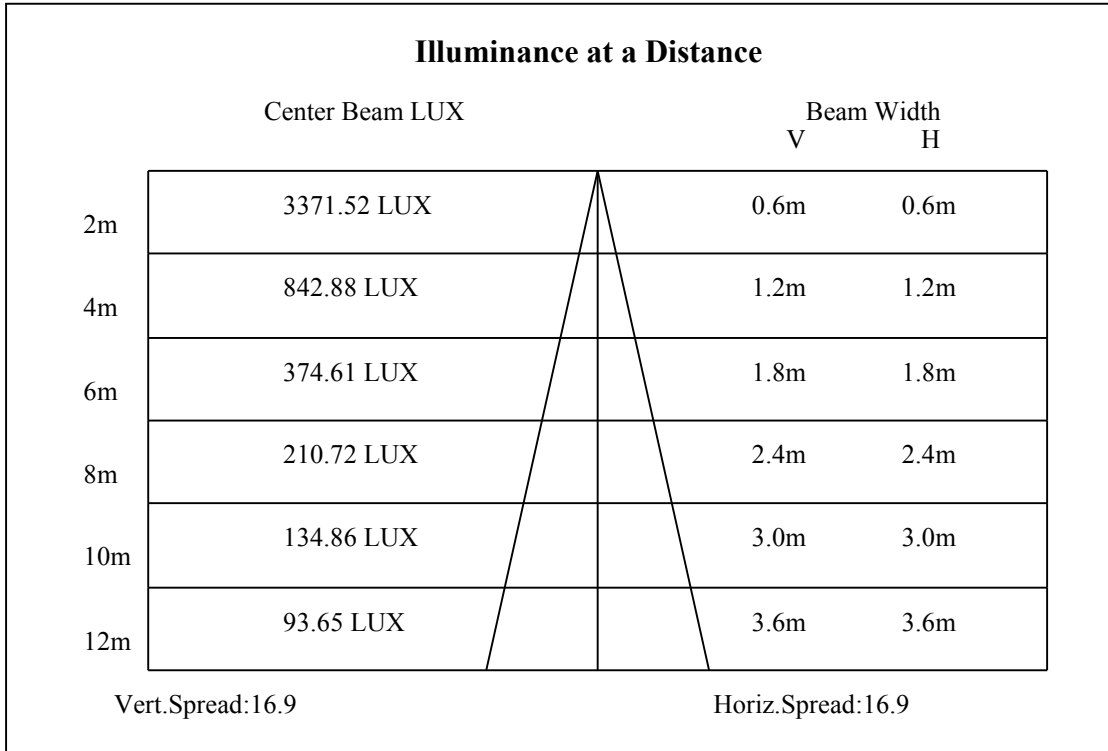
0-10	877.76
10-20	609.07
20-30	467.96
30-40	344.00
40-50	34.25
50-60	9.38
60-70	9.55
70-80	9.85
80-90	8.94
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

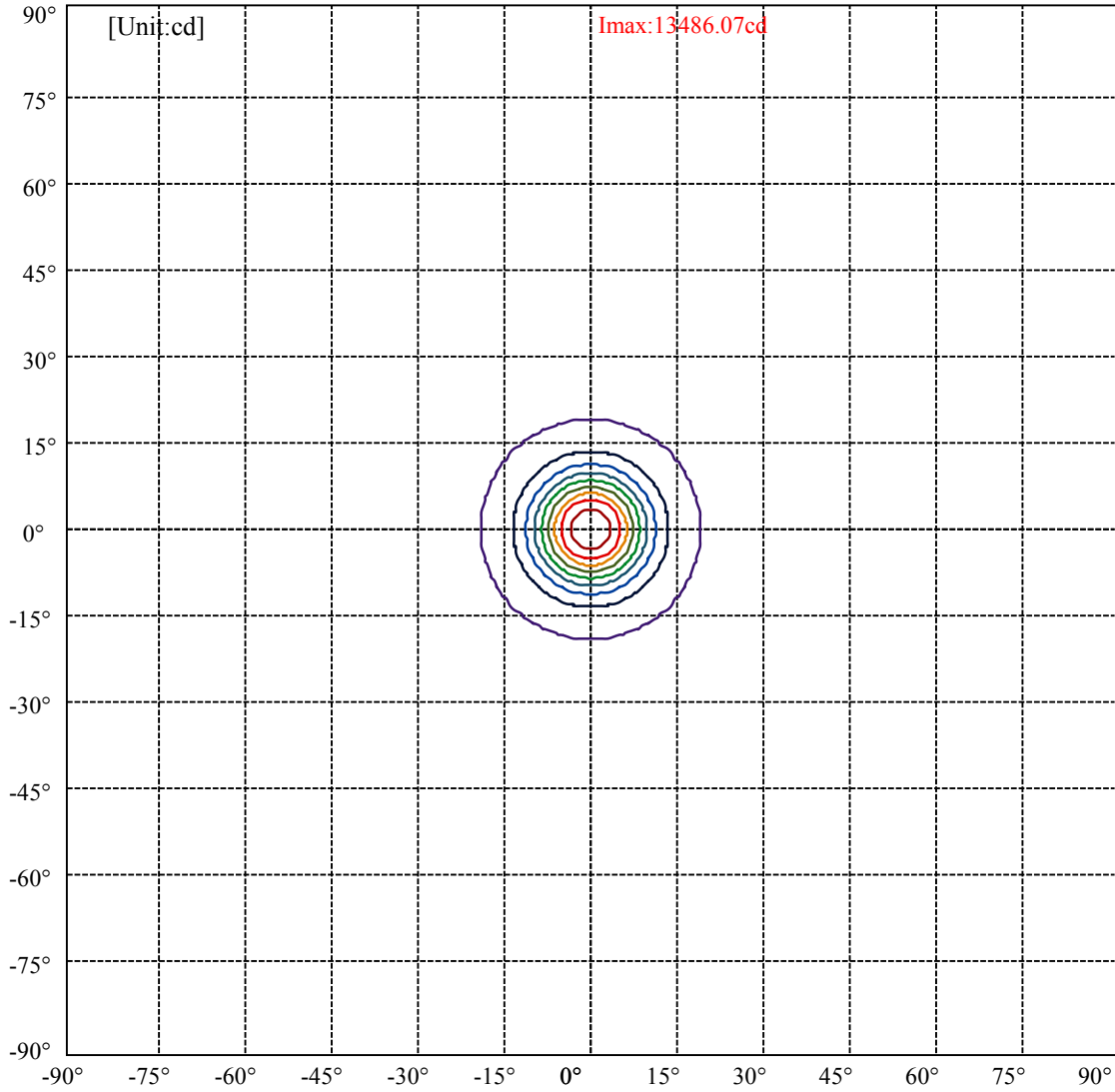


C0(Max): —————
C0/C180: —————
C90/C270: —————

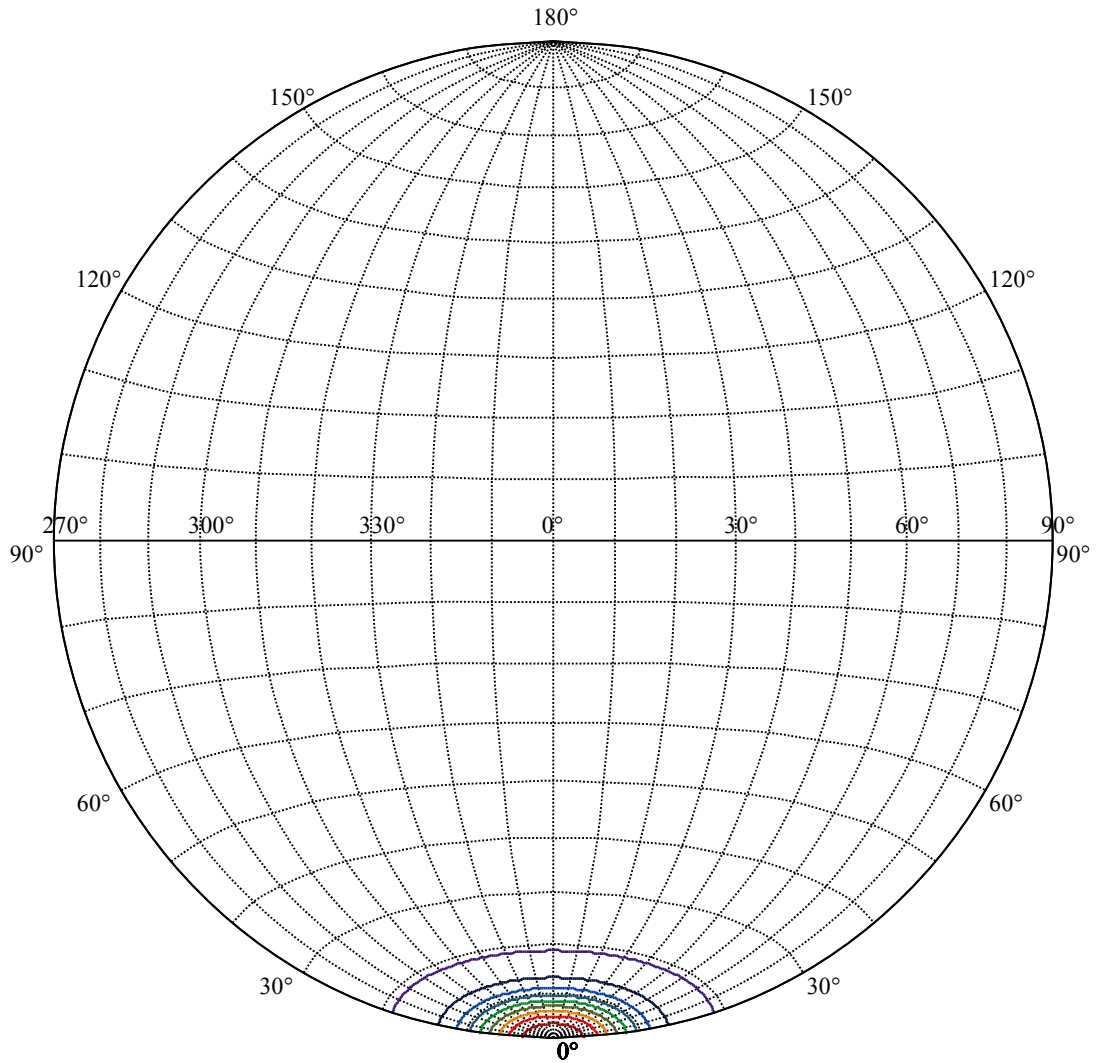
Field angle(10%Imax):C0/180Left:18.8 Right:18.8
:C90/270Left:18.8 Right:18.8

Beam Angle(50%Imax):C0/180Left:8.4 Right:8.4
:C90/270Left:8.4 Right:8.4





(10%Imax) 1348.61	—
(20%Imax) 2697.21	—
(30%Imax) 4045.82	—
(40%Imax) 5394.43	—
(50%Imax) 6743.03	—
(60%Imax) 8091.64	—
(70%Imax) 9440.25	—
(80%Imax) 10788.9	—
(90%Imax) 12137.5	—



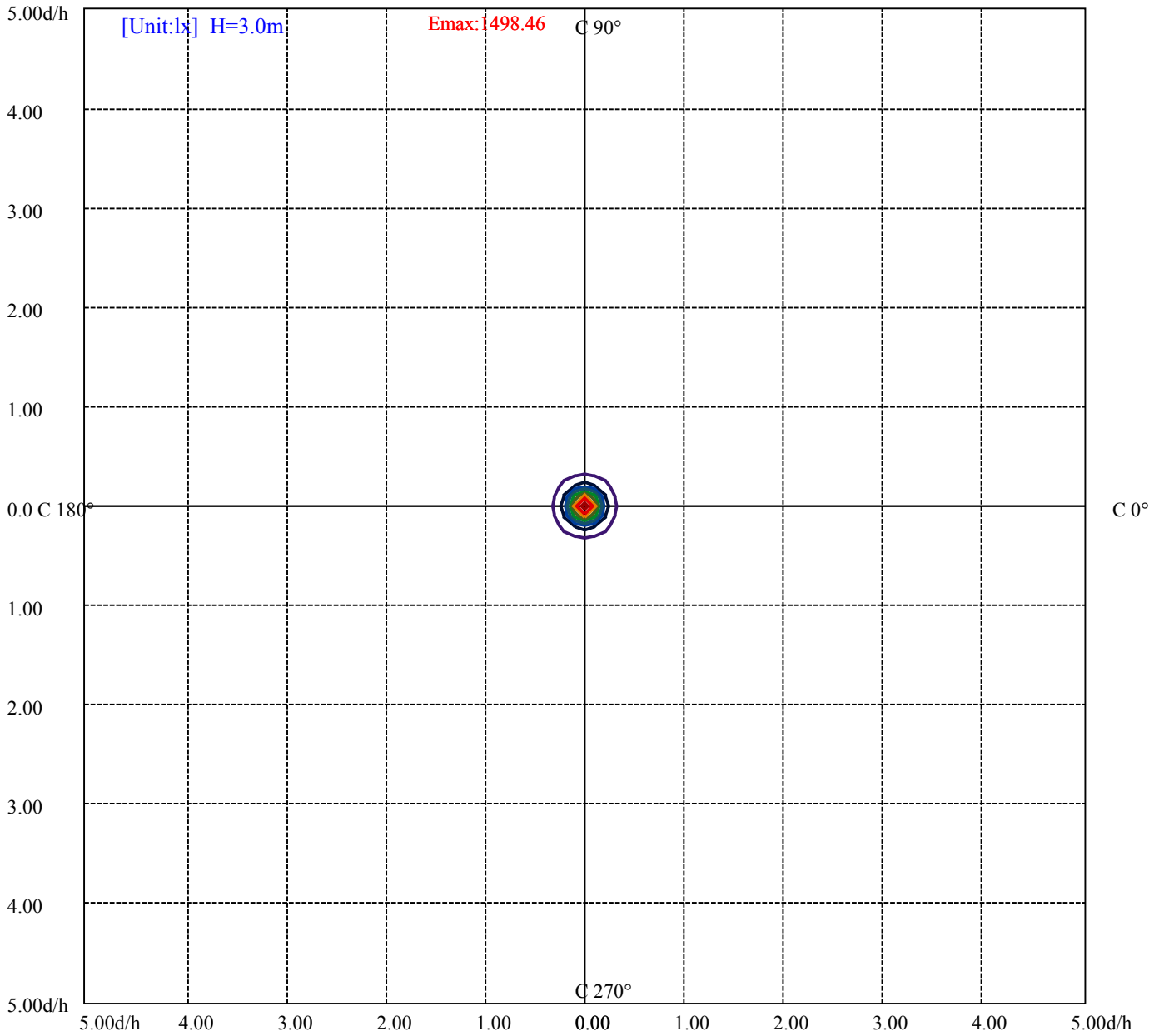
House

[Unit:cd]

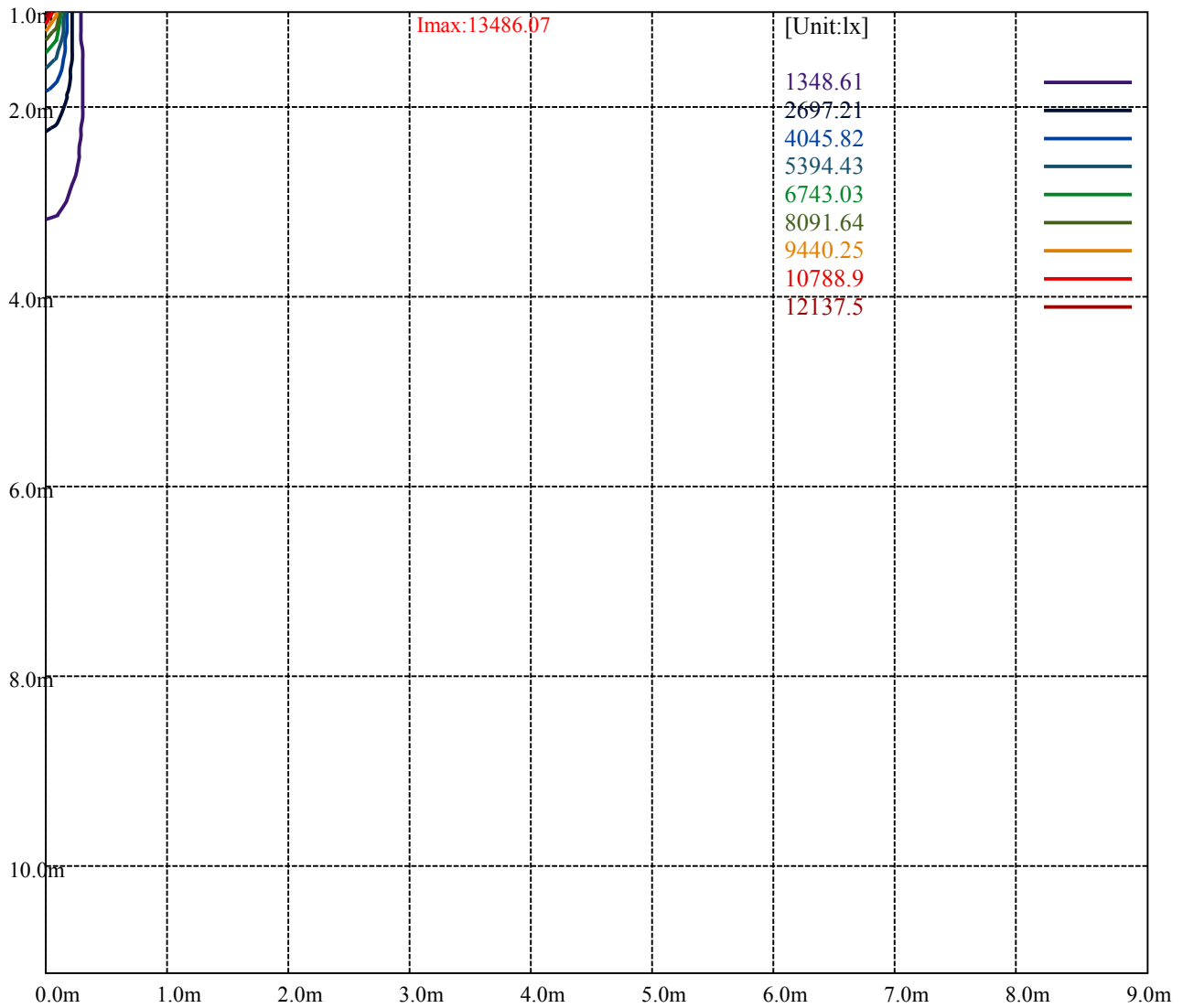
Road

Imax:13486.07

(10%Imax) 1348.61	—
(20%Imax) 2697.21	—
(30%Imax) 4045.82	—
(40%Imax) 5394.43	—
(50%Imax) 6743.03	—
(60%Imax) 8091.64	—
(70%Imax) 9440.25	—
(80%Imax) 10788.9	—
(90%Imax) 12137.5	—



- (10%Emax) 149.8456
- (20%Emax) 299.69
- (30%Emax) 449.5356
- (40%Emax) 599.38
- (50%Emax) 749.2255
- (60%Emax) 899.07
- (70%Emax) 1048.916
- (80%Emax) 1198.755
- (90%Emax) 1348.6



Luminance Table

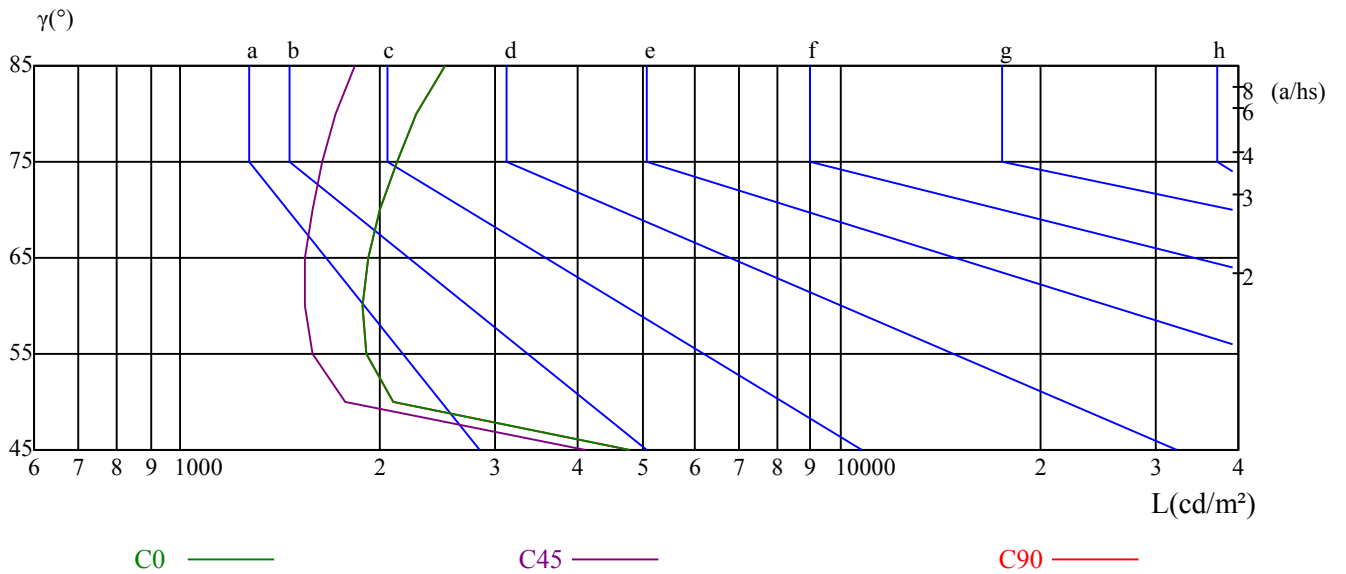
γ	45	50	55	60	65	70	75	80	85
C0	4770	2097	1906	1888	1922	2004	2123	2279	2509
C45	4097	1774	1588	1547	1547	1582	1641	1718	1837
C90	4770	2097	1906	1888	1922	2004	2123	2279	2509

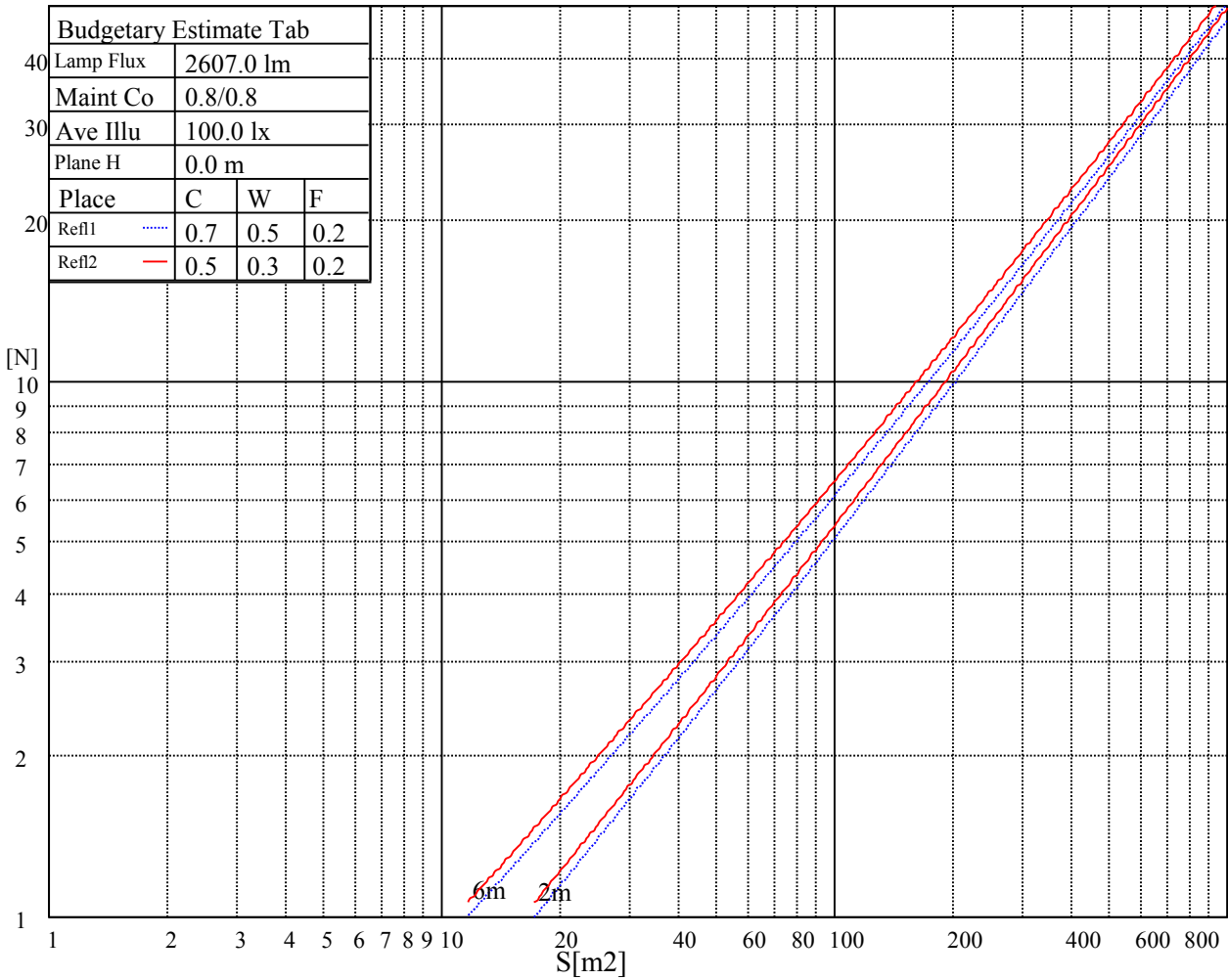
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4629	4629	4629	7331	7331	7331	21352	21352	21352

Glare Table

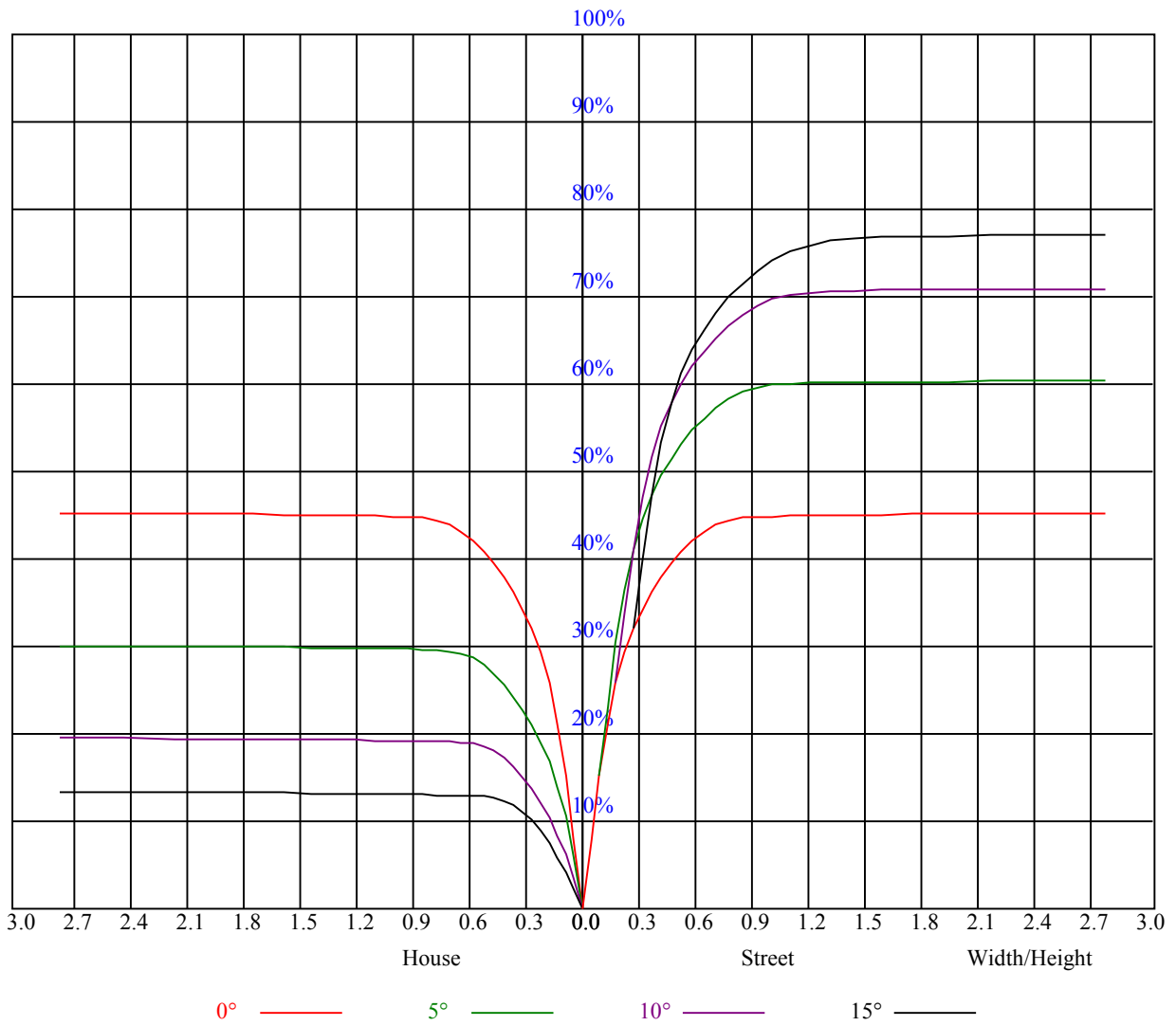
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.08	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	1.02	1.00	0.98	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87
2	0.96	0.93	0.91	0.95	0.92	0.90	0.92	0.90	0.88	0.89	0.87	0.86	0.87	0.85	0.84	0.83
3	0.92	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.83	0.80	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.84	0.79	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.73
6	0.80	0.76	0.73	0.80	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
7	0.77	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.69	0.68
8	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
9	0.72	0.68	0.65	0.71	0.67	0.65	0.71	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	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.61



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	13461.29	13598.93	13609.94	13450.28	13097.92	12508.81	11435.21	10405.66	9238.46
45.0	13516.35	13406.23	13092.41	12525.33	11793.08	10851.62	9436.67	8214.41	6997.67
90.0	13428.26	12993.31	12360.16	10879.70	10178.28	8970.89	7555.39	6186.69	5102.08
135.0	13538.37	13180.50	12492.30	11523.30	10449.70	9238.46	7812.50	6408.56	5296.43
180.0	13461.29	13092.41	12464.77	10747.01	10463.47	9260.49	7819.66	6392.60	5243.02
225.0	13516.35	13461.29	13224.55	12800.61	12035.33	10973.84	9850.14	8475.38	7215.69
270.0	13428.26	13620.95	13670.50	13543.87	13246.57	12723.53	11754.54	10769.03	9618.35
315.0	13538.37	13714.55	13736.57	13626.46	13285.11	12745.56	11633.42	10764.63	9618.90
360.0	13461.29	13598.93	13609.94	13450.28	13097.92	12508.81	11435.21	10405.66	9238.46
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7702.39	6485.64	5384.52	4349.46	3573.16	3044.62	2824.39	2246.30	1950.10
45.0	5577.21	4608.22	3837.43	3160.24	2802.37	2288.69	1964.96	1733.73	1522.86
90.0	4205.21	3352.38	2835.40	2419.18	2011.76	1762.36	1566.35	1378.61	1266.85
135.0	4162.26	3468.55	2929.00	2813.38	2085.54	1829.52	1626.37	1444.68	1305.94
180.0	4287.24	3399.73	2877.80	2467.63	2068.47	1819.61	1621.96	1450.74	1324.11
225.0	6002.25	4689.15	3858.90	3224.10	2628.94	2267.77	1980.93	1750.24	1525.61
270.0	8065.76	6832.50	5681.82	4602.72	3754.85	3171.25	2813.38	2298.60	1975.97
315.0	8371.33	6812.13	5668.06	4694.66	3731.72	3148.68	2688.40	2274.38	1952.85
360.0	7702.39	6485.64	5384.52	4349.46	3573.16	3044.62	2824.39	2246.30	1950.10
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1761.25	1534.97	1374.76	1278.41	1176.00	1119.30	1076.90	1038.36	1014.14
45.0	1365.40	1261.34	1174.90	1111.04	1068.09	1034.51	1000.93	980.55	962.39
90.0	1183.71	1095.46	1070.19	1034.01	1006.60	986.34	965.85	946.80	926.54
135.0	1220.05	1146.82	1098.38	1064.24	1032.86	1009.73	984.96	962.94	940.91
180.0	1238.77	1165.54	1097.55	1070.46	1033.19	1011.99	987.05	963.27	938.99
225.0	1390.72	1287.77	1201.88	1137.47	1097.71	1064.57	1037.54	1017.06	996.08
270.0	1748.04	1544.33	1390.17	1289.97	1205.18	1147.38	1097.27	1058.18	1029.00
315.0	1731.52	1534.42	1401.19	1287.77	1200.78	1097.66	1087.53	1048.99	1022.95
360.0	1761.25	1534.97	1374.76	1278.41	1176.00	1119.30	1076.90	1038.36	1014.14
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	993.77	969.54	949.72	929.35	905.13	886.41	868.24	831.35	766.39
45.0	942.57	918.34	896.87	875.40	852.27	815.94	748.77	678.29	591.86
90.0	906.23	881.12	861.63	837.24	787.80	705.05	630.12	553.59	455.04
135.0	918.34	890.26	868.24	843.46	777.95	715.18	641.96	555.52	464.13
180.0	914.76	884.92	862.73	836.25	789.29	710.72	639.54	563.23	464.18
225.0	976.37	946.53	920.65	897.20	873.75	832.18	775.91	706.81	611.40
270.0	1006.43	973.95	951.93	928.25	895.77	873.19	854.48	819.24	760.33
315.0	999.93	971.91	954.51	930.07	901.60	879.58	857.78	827.06	766.55
360.0	993.77	969.54	949.72	929.35	905.13	886.41	868.24	831.35	766.39
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	694.26	603.97	520.83	424.48	331.99	282.44	171.12	103.89	59.08
45.0	505.97	421.73	340.80	292.90	175.80	111.93	57.42	32.92	29.01
90.0	374.88	297.25	214.55	138.74	82.03	40.52	30.56	26.15	20.92
135.0	385.95	291.80	282.44	139.35	76.69	40.52	30.72	25.93	20.98
180.0	382.97	293.45	219.29	142.87	84.73	41.46	31.99	26.87	20.70
225.0	531.73	452.07	361.11	271.98	198.20	124.92	71.90	38.81	33.03
270.0	703.62	611.13	531.84	449.81	348.51	279.69	185.15	113.31	64.03
315.0	698.23	614.48	534.21	440.89	349.55	271.65	198.70	118.32	67.55
360.0	694.26	603.97	520.83	424.48	331.99	282.44	171.12	103.89	59.08

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	37.88	32.87	28.02	22.79	16.74	12.83	12.06	11.40	11.12
45.0	25.16	18.83	15.86	13.93	12.50	11.01	10.79	10.68	10.46
90.0	17.29	15.31	11.78	11.07	10.85	10.68	10.52	10.41	10.35
135.0	17.73	14.59	12.17	11.56	11.12	10.90	10.79	10.63	10.52
180.0	16.35	13.93	13.10	12.00	11.23	11.01	10.85	10.74	10.57
225.0	27.91	22.35	19.60	13.05	11.67	11.07	10.85	10.68	10.52
270.0	37.60	31.38	26.10	20.87	17.01	13.10	12.00	11.07	10.90
315.0	39.20	32.32	26.37	20.76	17.12	13.60	12.55	11.12	10.96
360.0	37.88	32.87	28.02	22.79	16.74	12.83	12.06	11.40	11.12
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.96	10.74	10.63	10.41	10.35	10.24	10.13	10.02	9.97
45.0	10.35	10.24	10.08	9.97	9.91	9.86	9.80	9.69	9.63
90.0	10.13	10.08	9.97	9.91	9.80	9.74	9.69	9.63	9.63
135.0	10.41	10.30	10.19	10.02	9.97	9.97	9.86	9.80	9.80
180.0	10.41	10.30	10.52	10.13	10.08	9.97	9.91	9.86	9.80
225.0	10.41	10.24	10.13	10.02	9.91	9.86	9.74	9.63	9.63
270.0	10.68	10.52	10.41	10.24	10.13	10.02	9.97	9.86	9.74
315.0	10.79	10.68	10.41	10.35	10.30	10.08	10.02	9.91	9.80
360.0	10.96	10.74	10.63	10.41	10.35	10.24	10.13	10.02	9.97
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	9.91	9.74	9.74	9.63	9.63	9.58	9.63	9.47	9.47
45.0	9.58	9.52	9.47	9.41	9.41	9.36	9.36	9.30	9.30
90.0	9.63	9.58	9.52	9.47	9.41	9.41	9.47	9.47	9.47
135.0	9.69	9.69	9.63	9.58	9.58	9.52	9.52	9.47	9.47
180.0	9.74	9.69	9.63	9.58	9.52	9.58	9.52	9.52	9.41
225.0	9.58	9.52	9.41	9.41	9.36	9.36	9.30	9.30	9.25
270.0	9.69	9.63	9.58	9.52	9.47	9.47	9.41	9.41	9.36
315.0	9.74	9.69	9.69	9.52	9.58	9.47	9.47	9.41	9.47
360.0	9.91	9.74	9.74	9.63	9.63	9.58	9.63	9.47	9.47
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	9.47	9.36	9.36	9.36	9.36	9.30	9.30	9.25	9.19
45.0	9.30	9.25	9.19	9.19	9.19	9.14	9.14	9.08	9.03
90.0	9.58	9.58	9.58	9.36	9.41	9.30	9.30	9.19	9.19
135.0	9.47	9.36	9.36	9.30	9.30	9.30	9.25	9.25	9.25
180.0	9.41	9.41	9.36	9.36	9.30	9.30	9.25	9.25	9.25
225.0	9.19	9.19	9.19	9.19	9.14	9.14	9.08	9.08	9.08
270.0	9.36	9.30	9.30	9.30	9.25	9.19	9.19	9.14	9.14
315.0	9.41	9.36	9.36	9.30	9.25	9.30	9.25	9.30	9.19
360.0	9.47	9.36	9.36	9.36	9.36	9.30	9.30	9.25	9.19
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.19	9.19	9.19	9.19	9.19	9.19	9.14	9.14	9.14
45.0	9.03	9.03	9.03	9.03	9.03	8.97	8.97	8.92	8.97
90.0	9.14	9.14	9.08	9.14	9.14	8.97	8.97	9.03	9.03
135.0	9.25	9.25	9.19	9.19	9.19	9.08	9.08	9.08	9.03
180.0	9.25	9.25	9.19	9.19	9.19	9.08	9.08	9.14	9.14
225.0	9.08	9.08	9.03	9.03	9.03	9.03	9.03	8.97	8.97
270.0	9.14	9.14	9.08	9.08	9.03	9.08	9.03	9.03	9.03
315.0	9.25	9.14	9.19	9.19	9.14	9.14	9.03	9.14	9.14
360.0	9.19	9.19	9.19	9.19	9.19	9.19	9.14	9.14	9.14

Intensity data(cd)

C/γ(°)	90.0
0.0	9.14
45.0	8.97
90.0	8.97
135.0	9.08
180.0	9.14
225.0	8.97
270.0	9.03
315.0	9.08
360.0	9.14