
Nata

LumCAT: 3-2099-M	
Luminaire: 92.70.136.00	
Report No: GC2017071302	Voltage(V): 51.2500
Test No: NT-0010	Current(A): 0.8000
LampCAT: CITIZEN CLU044	Power (W): 41.0000
Lamp flux(lm): 5855.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 84	Width(mm): 84
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 5169.43
Efficiency(%): 88.29%
Lumens(lm)/Power(W): 126.08
Central intensity(cd): 21911.430
Maximum intensity(cd): 21911.430
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=21.4
[C90/270]Total=21.4
Field angle(10%Imax): [C0/180]Total=51.9
[C90/270]Total=51.9
Maximum s/h(1/2): C0_180=0.37 C90_270=0.37
Maximum s/h(1/4): C0_180=0.36 C90_270=0.36
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.29%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.706%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	21911.426	0.000	0	.000%	.000%
1.0	21900.297	20.963	20.963	.358%	.406%
2.0	21807.078	62.733	83.696	1.071%	1.619%
3.0	21595.604	103.805	187.501	1.773%	3.627%
4.0	21233.172	143.362	330.863	2.449%	6.400%
5.0	20489.527	179.489	510.352	3.066%	9.872%
6.0	19446.061	209.872	720.224	3.584%	13.932%
7.0	18078.422	232.914	953.137	3.978%	18.438%
8.0	16230.093	245.540	1198.677	4.194%	23.188%
9.0	14047.229	245.381	1444.058	4.191%	27.935%
10.0	12384.359	239.196	1683.254	4.085%	32.562%
11.0	10281.494	226.478	1909.733	3.868%	36.943%
12.0	8911.004	209.801	2119.534	3.583%	41.001%
13.0	7519.644	194.990	2314.525	3.330%	44.773%
14.0	6387.065	178.005	2492.529	3.040%	48.217%
15.0	5592.360	164.459	2656.988	2.809%	51.398%
16.0	4913.341	153.938	2810.926	2.629%	54.376%
17.0	4280.999	143.181	2954.107	2.445%	57.146%
18.0	3835.926	133.830	3087.937	2.286%	59.735%
19.0	3484.764	127.365	3215.302	2.175%	62.198%
20.0	3145.359	121.350	3336.652	2.073%	64.546%
21.0	2923.657	116.537	3453.189	1.990%	66.800%
22.0	2709.189	113.194	3566.384	1.933%	68.990%
23.0	2558.026	110.520	3676.904	1.888%	71.128%
24.0	2391.419	108.213	3785.117	1.848%	73.221%
25.0	2284.498	106.320	3891.437	1.816%	75.278%
26.0	2184.812	105.499	3996.935	1.802%	77.319%
27.0	2098.065	104.782	4101.717	1.790%	79.346%
28.0	2012.571	104.073	4205.79	1.777%	81.359%
29.0	1913.998	102.730	4308.52	1.755%	83.346%
30.0	1804.364	100.395	4408.915	1.715%	85.288%
31.0	1672.400	96.753	4505.668	1.652%	87.160%
32.0	1515.115	91.319	4596.987	1.560%	88.926%
33.0	1337.858	84.050	4681.036	1.436%	90.552%
34.0	1201.532	76.849	4757.886	1.313%	92.039%
35.0	1015.308	68.847	4826.733	1.176%	93.371%
36.0	852.861	59.483	4886.215	1.016%	94.521%
37.0	701.537	50.696	4936.911	.866%	95.502%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	551.222	41.815	4978.727	.714%	96.311%
39.0	388.365	32.071	5010.797	.548%	96.931%
40.0	271.823	23.025	5033.822	.393%	97.377%
41.0	178.057	16.020	5049.842	.274%	97.687%
42.0	106.218	10.328	5060.17	.176%	97.886%
43.0	54.163	5.941	5066.111	.101%	98.001%
44.0	37.467	3.458	5069.57	.059%	98.068%
45.0	30.288	2.604	5072.174	.044%	98.119%
46.0	26.288	2.213	5074.386	.038%	98.161%
47.0	24.751	2.030	5076.416	.035%	98.201%
48.0	24.229	1.980	5078.396	.034%	98.239%
49.0	23.881	1.976	5080.372	.034%	98.277%
50.0	23.548	1.977	5082.35	.034%	98.316%
51.0	23.228	1.979	5084.329	.034%	98.354%
52.0	22.991	1.983	5086.312	.034%	98.392%
53.0	22.782	1.991	5088.303	.034%	98.431%
54.0	22.602	2.000	5090.303	.034%	98.469%
55.0	22.421	2.010	5092.313	.034%	98.508%
56.0	22.275	2.020	5094.333	.034%	98.547%
57.0	22.108	2.029	5096.362	.035%	98.587%
58.0	21.982	2.039	5098.401	.035%	98.626%
59.0	21.899	2.051	5100.452	.035%	98.666%
60.0	21.802	2.065	5102.517	.035%	98.706%
61.0	21.718	2.077	5104.594	.035%	98.746%
62.0	21.669	2.091	5106.684	.036%	98.786%
63.0	21.600	2.104	5108.789	.036%	98.827%
64.0	21.572	2.118	5110.907	.036%	98.868%
65.0	21.502	2.132	5113.039	.036%	98.909%
66.0	21.468	2.144	5115.183	.037%	98.951%
67.0	21.412	2.156	5117.339	.037%	98.992%
68.0	21.377	2.168	5119.506	.037%	99.034%
69.0	21.363	2.180	5121.687	.037%	99.076%
70.0	21.349	2.194	5123.881	.037%	99.119%
71.0	21.322	2.205	5126.086	.038%	99.162%
72.0	21.273	2.215	5128.301	.038%	99.204%
73.0	21.259	2.224	5130.525	.038%	99.247%
74.0	21.224	2.233	5132.758	.038%	99.291%
75.0	21.238	2.244	5135.002	.038%	99.334%

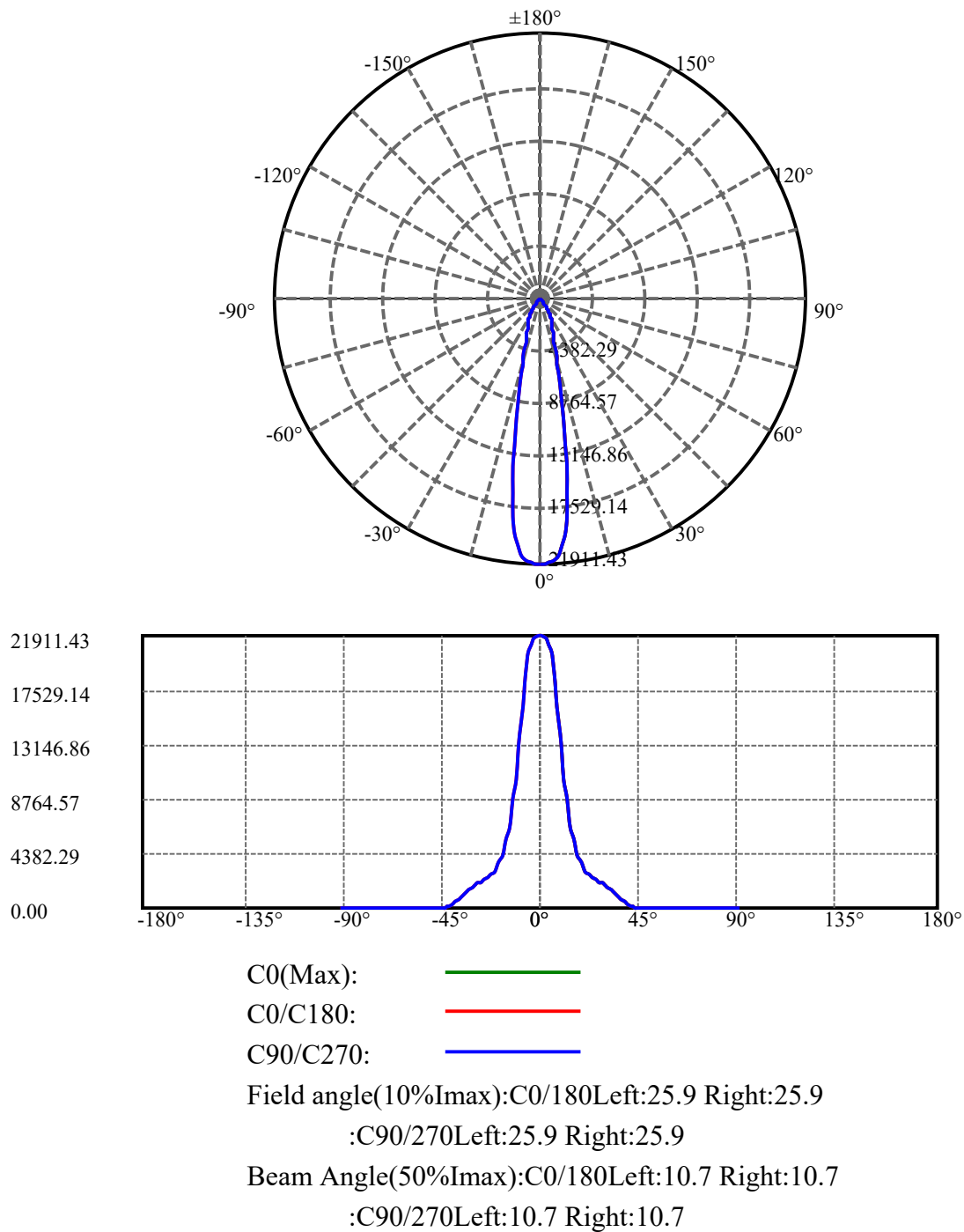
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	21.238	2.255	5137.257	.039%	99.378%
77.0	21.238	2.265	5139.521	.039%	99.421%
78.0	21.224	2.273	5141.794	.039%	99.465%
79.0	21.224	2.281	5144.075	.039%	99.510%
80.0	21.203	2.287	5146.362	.039%	99.554%
81.0	21.210	2.294	5148.656	.039%	99.598%
82.0	21.224	2.301	5150.957	.039%	99.643%
83.0	21.231	2.308	5153.265	.039%	99.687%
84.0	21.217	2.312	5155.578	.039%	99.732%
85.0	21.210	2.316	5157.893	.040%	99.777%
86.0	21.113	2.313	5160.207	.040%	99.822%
87.0	21.092	2.310	5162.516	.039%	99.866%
88.0	21.022	2.307	5164.823	.039%	99.911%
89.0	20.981	2.302	5167.126	.039%	99.955%
90.0	20.988	2.301	5169.427	.039%	100.000%

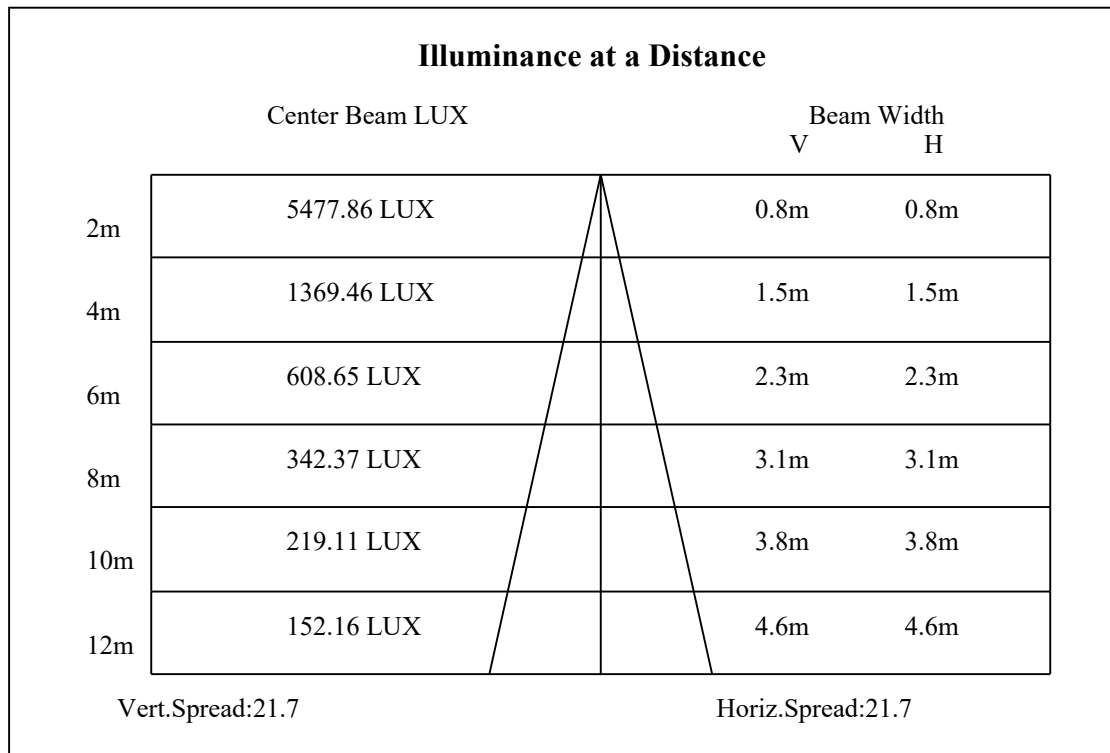
ZONAL LUMEN SUMMARY

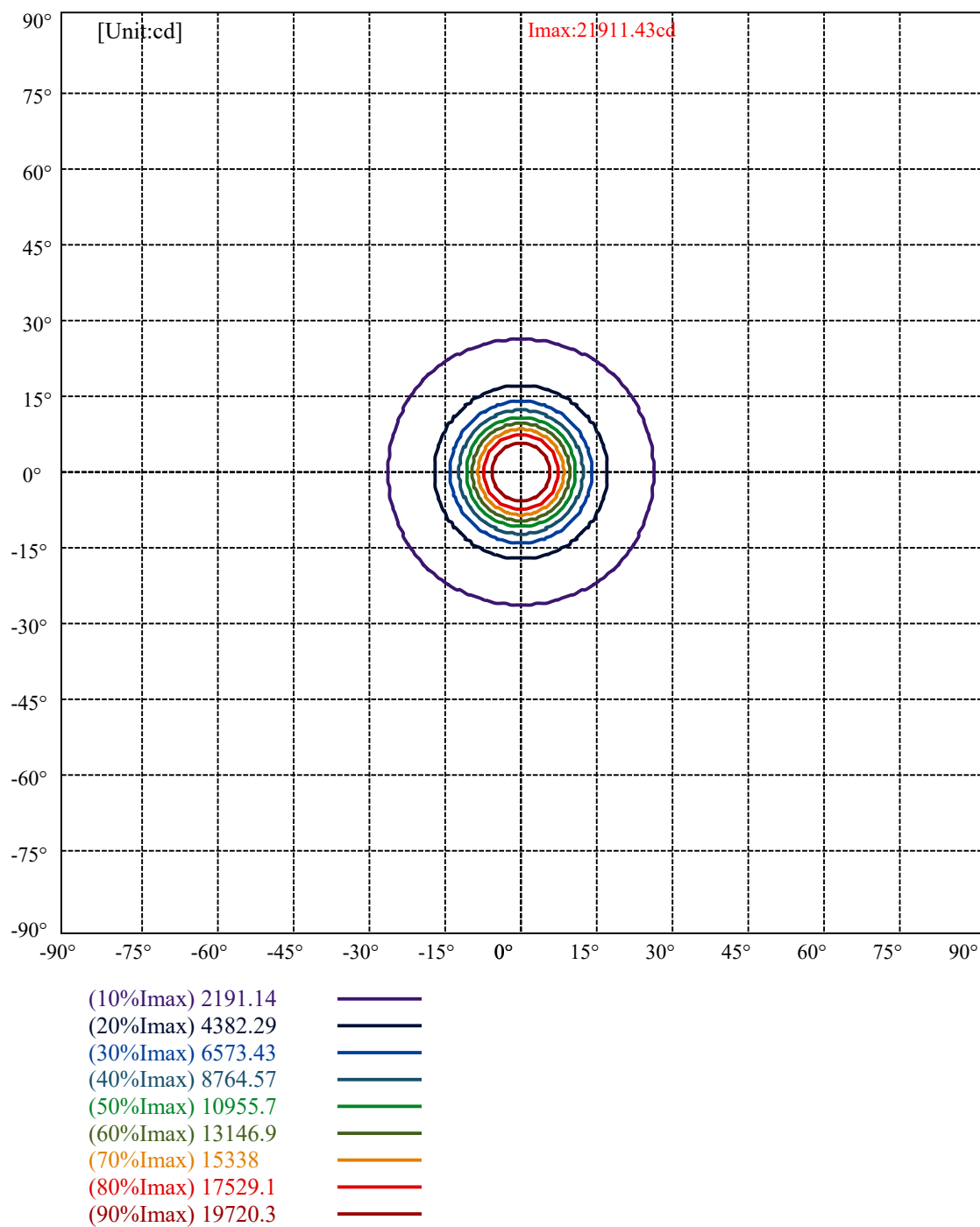
Zone	Lumens	%Lamp	%Fixt
0-30	4408.91	75.30%	85.29%
0-40	5033.82	85.97%	97.38%
0-60	5102.52	87.15%	98.71%
0-90	5167.13	88.25%	99.96%
0-120	5167.13	88.25%	99.96%
0-180	5169.43	88.29%	100.00%
60-90	66.67	1.14%	1.29%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.33	4135.54	70.63%	80.00%

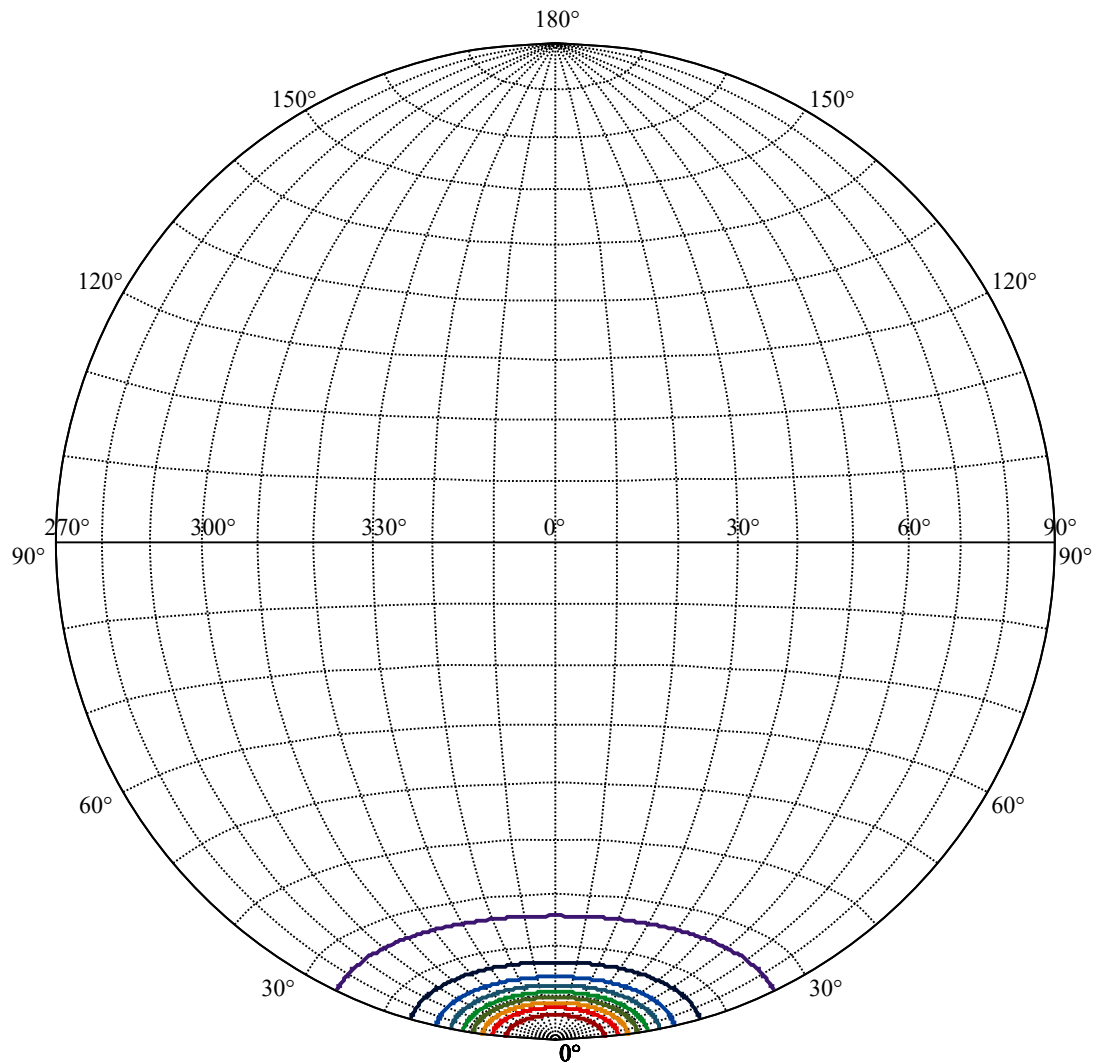
ZONAL LUMEN SUMMARY

0-10	1683.25
10-20	1653.40
20-30	1072.26
30-40	624.91
40-50	48.53
50-60	20.17
60-70	21.36
70-80	22.48
80-90	20.76
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









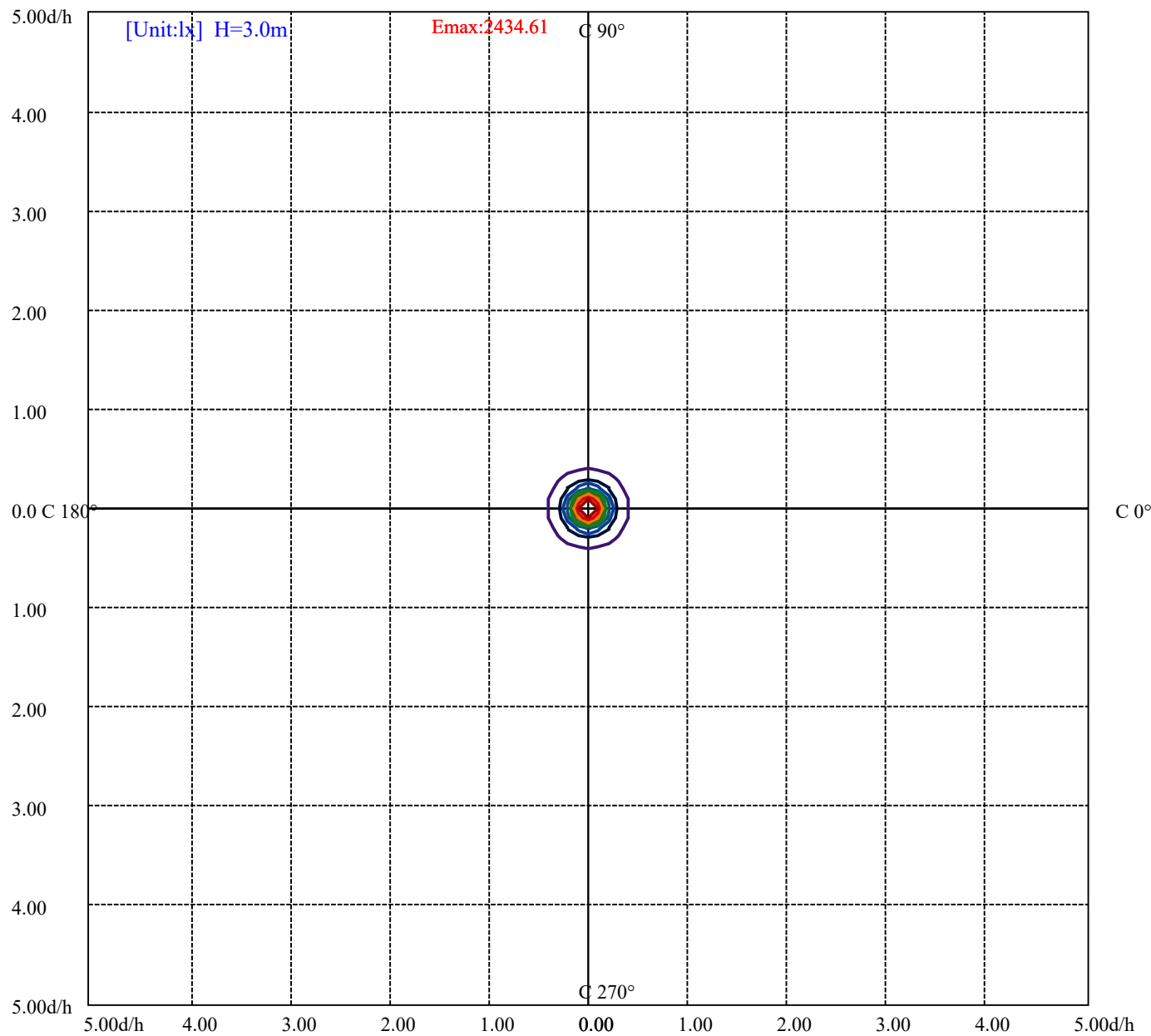
House

[Unit:cd]

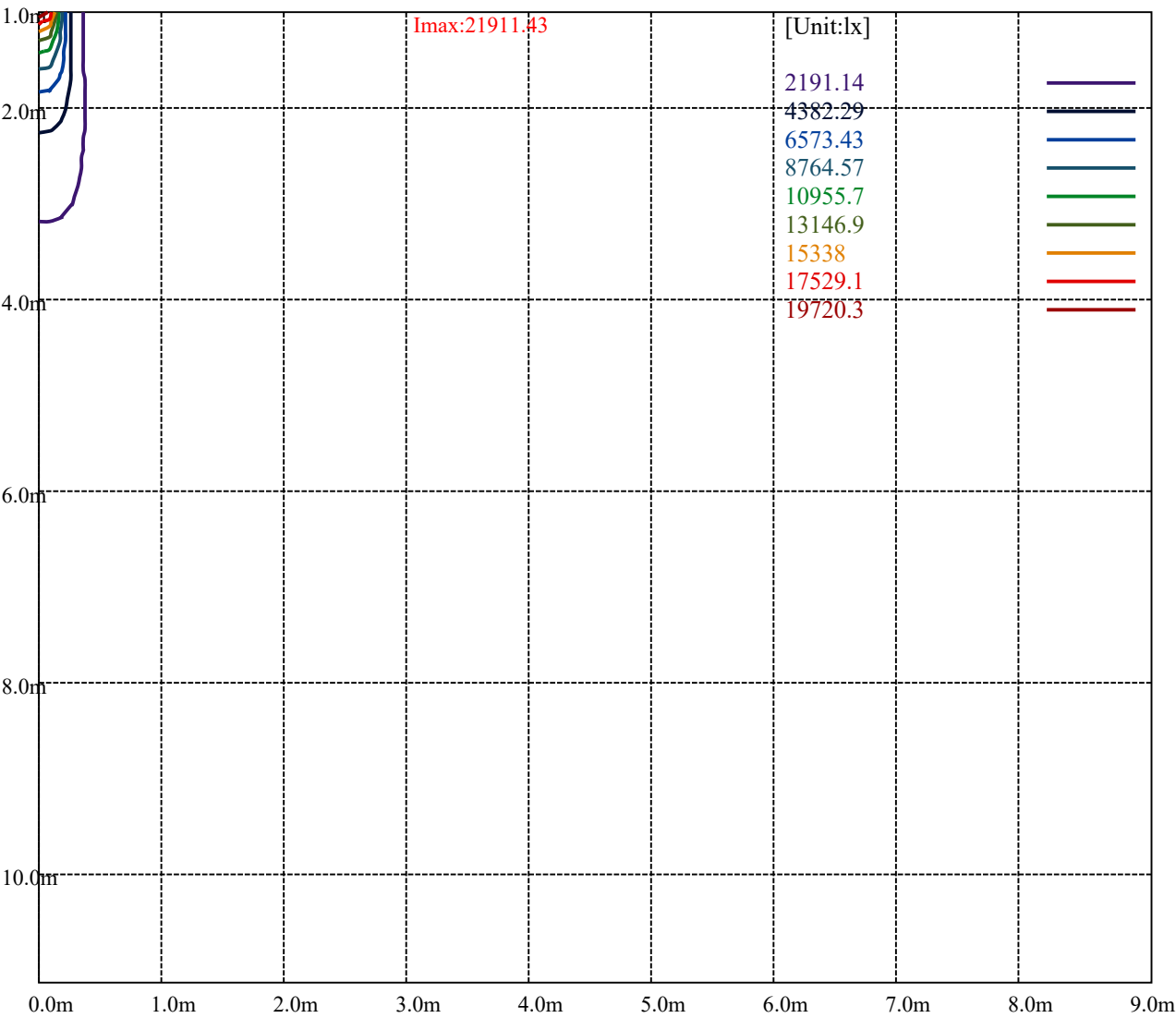
Road

Imax:21911.43

(10%Imax)	2191.14	—
(20%Imax)	4382.29	—
(30%Imax)	6573.43	—
(40%Imax)	8764.57	—
(50%Imax)	10955.7	—
(60%Imax)	13146.9	—
(70%Imax)	15338	—
(80%Imax)	17529.1	—
(90%Imax)	19720.3	—



(10%Emax)	243.46	
(20%Emax)	486.92	
(30%Emax)	730.3811	
(40%Emax)	973.8411	
(50%Emax)	1217.3	
(60%Emax)	1460.767	
(70%Emax)	1704.222	
(80%Emax)	1947.678	
(90%Emax)	2191.145	



Luminance Table

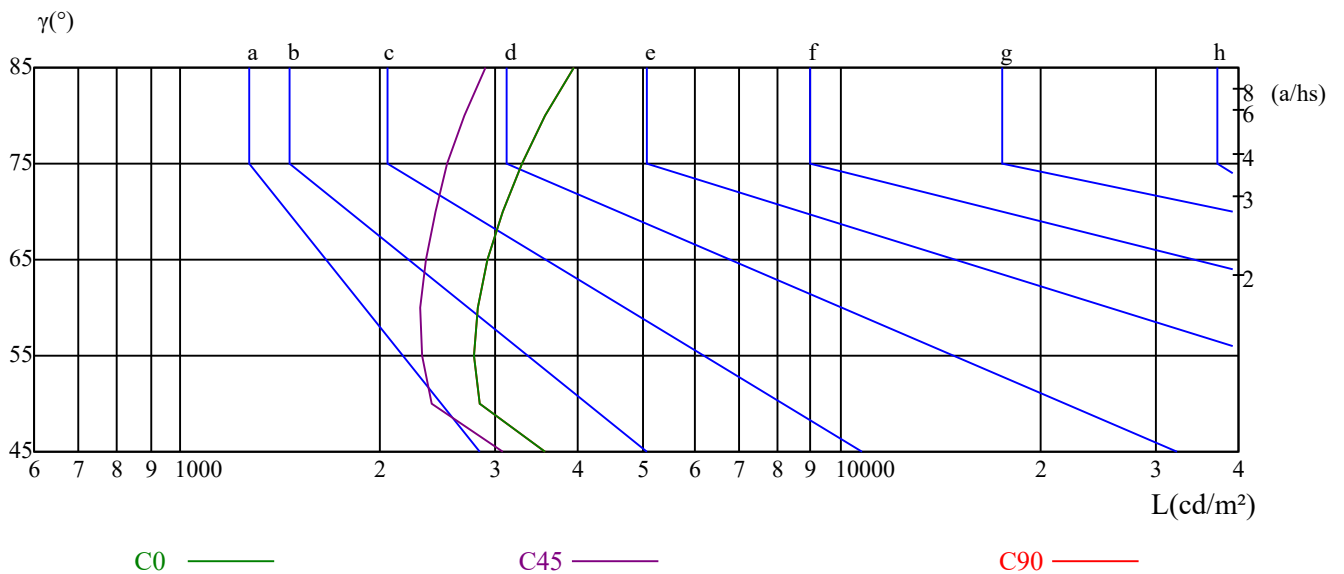
γ	45	50	55	60	65	70	75	80	85
C0	3574	2840	2788	2819	2919	3074	3284	3568	3949
C45	3069	2403	2321	2309	2349	2427	2537	2689	2891
C90	3574	2840	2788	2819	2919	3074	3284	3568	3949

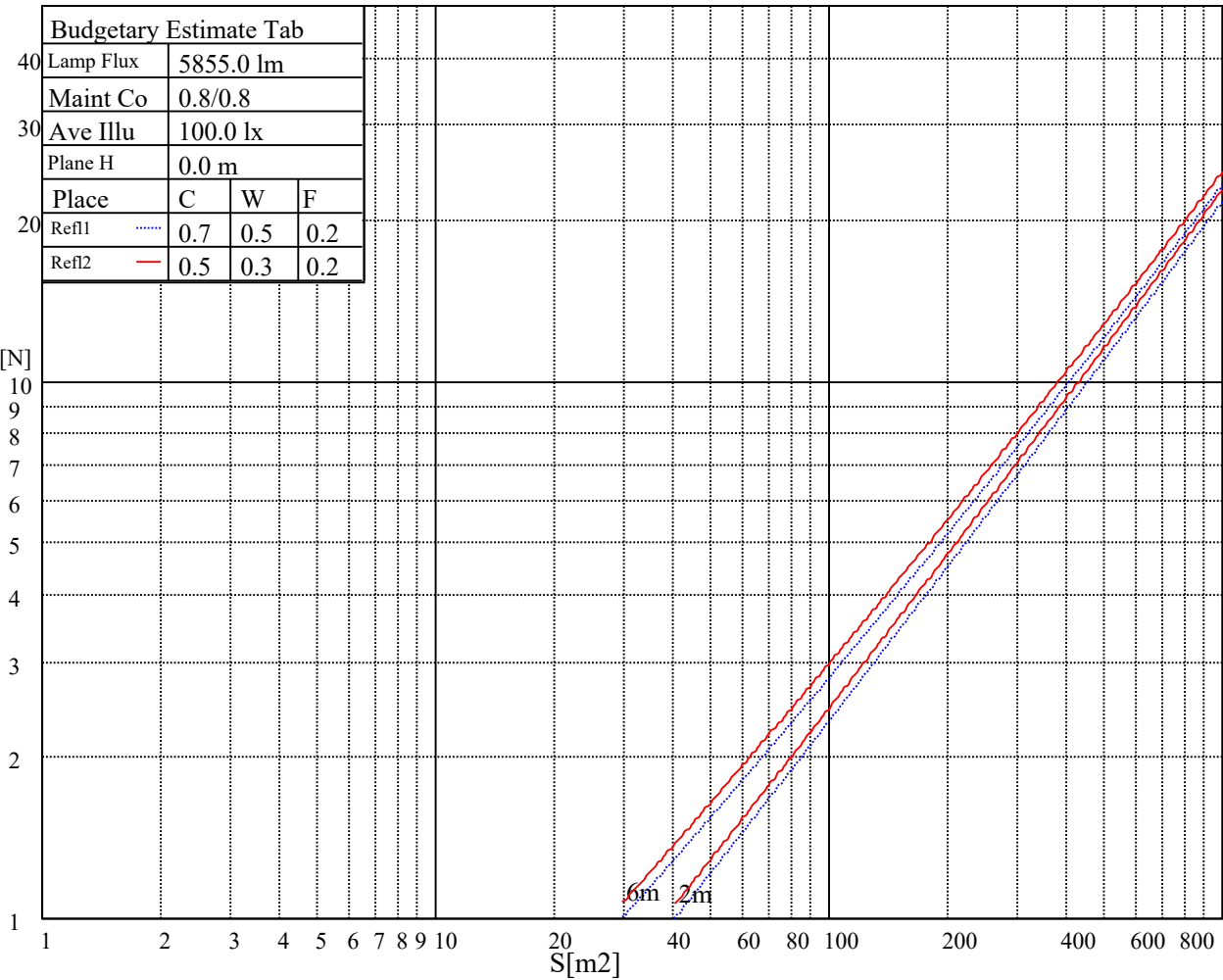
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7042	7042	7042	11357	11357	11357	33683	33683	33683

Glare Table

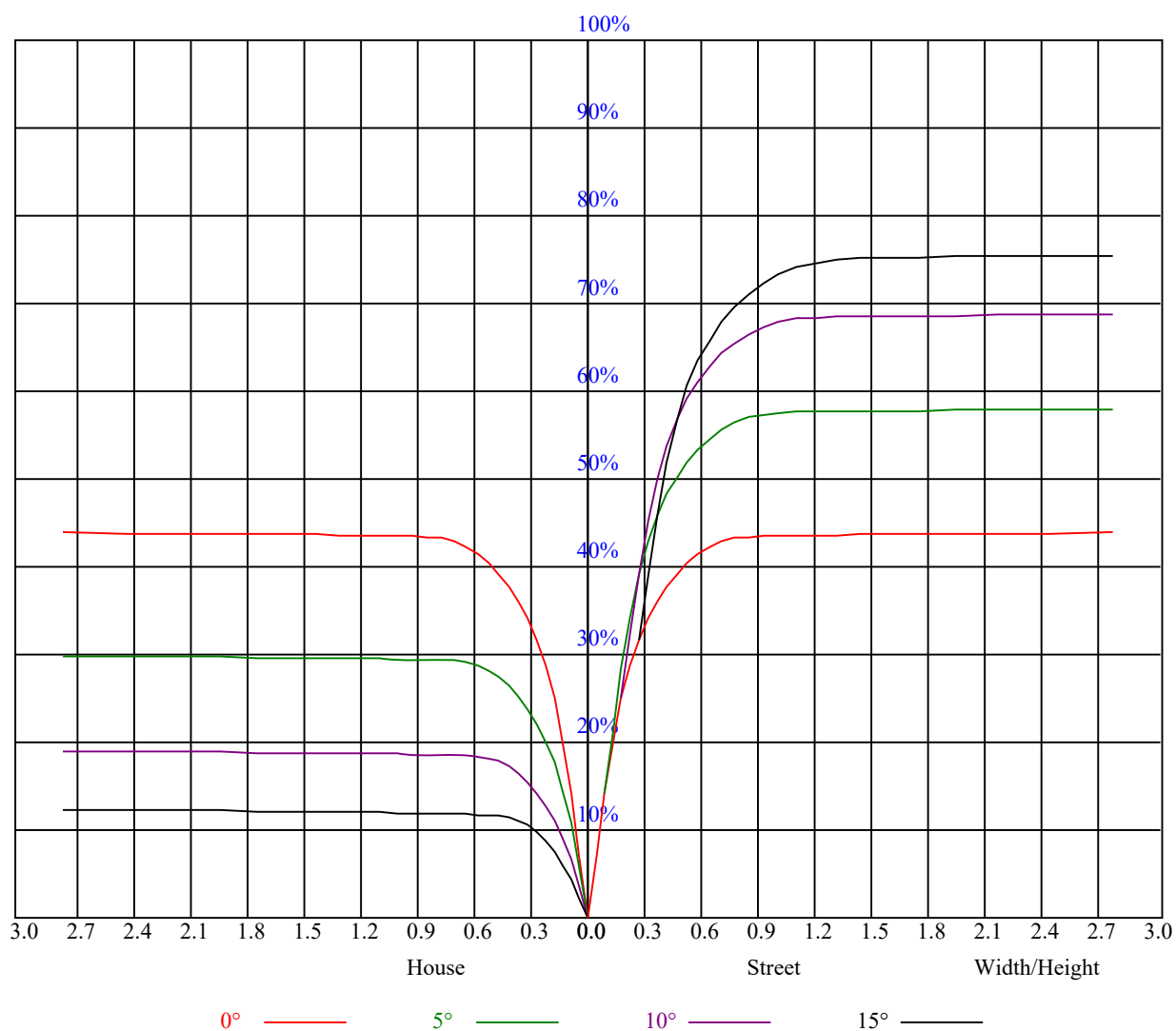
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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 RHOF=20 CU															
0	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.99	0.97	0.95	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.84
2	0.94	0.91	0.88	0.92	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.82	0.80
3	0.89	0.85	0.82	0.88	0.84	0.82	0.85	0.83	0.80	0.83	0.81	0.79	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.76	0.80	0.78	0.76	0.79	0.77	0.75	0.74
5	0.81	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.77	0.75	0.72	0.76	0.74	0.72	0.71
6	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
7	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.69	0.67	0.66
8	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
9	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
10	0.67	0.63	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.66	0.62	0.60	0.65	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	21904.47	21915.60	21937.86	21820.99	21626.21	21192.13	20407.44	19361.19	17780.69
45.0	21904.47	21904.47	21715.25	21398.04	20913.87	19867.62	18587.63	16990.43	14914.63
90.0	21921.17	21843.25	21609.52	21136.48	20401.88	19222.06	17736.16	15704.88	13545.60
135.0	21915.60	21915.60	21743.08	21437.00	20941.70	19967.79	18531.98	16901.39	14814.46
180.0	21904.47	21915.60	21765.34	21425.87	20897.18	19906.58	18431.81	16790.09	14680.89
225.0	21904.47	21910.03	21893.34	21843.25	21665.17	21186.56	20529.88	19361.19	17713.90
270.0	21921.17	21893.34	21887.77	21887.77	21793.17	21464.82	20936.13	20129.18	18799.11
315.0	21915.60	21904.47	21904.47	21815.43	21626.21	21108.65	20407.44	19389.02	17591.47
360.0	21904.47	21915.60	21937.86	21820.99	21626.21	21192.13	20407.44	19361.19	17780.69
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	15838.45	13985.25	11853.79	10123.03	8431.22	7134.54	6199.59	5442.73	4663.60
45.0	12755.35	10891.02	9032.25	7696.62	6527.93	5631.94	4986.38	4374.22	3878.92
90.0	10915.50	9667.80	8056.13	6990.95	6085.50	5215.67	4625.76	4143.82	3683.02
135.0	12688.56	10846.50	9026.69	7718.88	6566.89	5670.90	5025.34	4468.82	3912.31
180.0	11095.26	10648.93	8890.34	7634.29	6497.88	5624.15	4961.34	4414.28	3853.87
225.0	15966.44	13840.55	10981.17	9902.09	8425.10	6984.28	6105.54	5353.13	4596.82
270.0	17046.09	15237.41	13306.30	11197.10	9293.82	7780.09	6694.89	5726.55	5047.60
315.0	16072.18	13957.42	11105.28	10025.08	8328.82	7054.95	6140.04	5383.18	4611.85
360.0	15838.45	13985.25	11853.79	10123.03	8431.22	7134.54	6199.59	5442.73	4663.60
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	4162.74	3762.05	3355.79	3088.66	2866.06	2815.97	2497.09	2375.77	2273.92
45.0	3511.62	3211.10	2910.58	2821.54	2556.63	2400.25	2283.39	2201.58	2127.56
90.0	3312.38	3056.94	2809.85	2609.50	2466.48	2336.81	2242.20	2144.26	2058.55
135.0	3539.44	3227.79	2916.14	2810.41	2554.96	2395.80	2271.70	2182.66	2085.82
180.0	3492.14	3196.63	2900.56	2709.12	2548.29	2388.01	2275.59	2197.13	2093.61
225.0	4122.67	3720.87	3319.62	3063.62	2849.92	2628.98	2498.20	2357.96	2237.19
270.0	4413.17	3967.96	3550.57	3222.23	2977.36	2821.54	2568.32	2438.10	2327.35
315.0	4133.24	3734.78	3399.76	3064.18	2853.81	2676.84	2494.86	2378.55	2274.48
360.0	4162.74	3762.05	3355.79	3088.66	2866.06	2815.97	2497.09	2375.77	2273.92
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	2174.86	2078.03	2019.04	1911.63	1783.63	1666.77	1489.24	1336.19	1180.93
45.0	2029.06	1950.03	1864.89	1705.17	1555.46	1423.01	1217.10	1052.93	919.36
90.0	1984.54	1893.27	1742.45	1611.11	1465.86	1274.98	1102.35	972.34	798.49
135.0	2015.14	1942.24	1823.15	1707.95	1555.46	1379.60	1229.34	1071.85	874.29
180.0	2032.40	1951.70	1814.80	1711.29	1572.71	1382.39	1107.52	1070.18	896.38
225.0	2158.17	2079.70	1983.42	1901.06	1783.63	1602.77	1478.11	1328.40	1070.79
270.0	2211.59	2120.33	2045.75	1969.51	1860.99	1741.34	1589.41	1443.60	1286.66
315.0	2178.76	2085.27	2018.48	1917.20	1801.44	1650.07	1489.79	1336.75	1095.56
360.0	2174.86	2078.03	2019.04	1911.63	1783.63	1666.77	1489.24	1336.19	1180.93
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	990.04	834.77	680.62	494.74	354.50	291.06	117.76	62.39	44.35
45.0	721.24	579.89	443.54	283.82	217.93	93.33	47.53	37.23	28.83
90.0	629.20	485.89	333.91	205.86	117.59	63.16	42.52	31.67	25.93
135.0	717.35	570.43	432.97	293.28	171.41	100.17	48.70	37.18	29.11
180.0	727.42	578.61	435.64	279.20	174.13	96.39	51.37	38.57	29.38
225.0	969.12	811.12	659.53	477.16	345.54	232.01	128.78	64.50	45.30
270.0	1092.44	936.62	761.31	592.69	444.66	313.32	283.27	97.11	51.31
315.0	976.07	814.96	662.25	480.16	348.82	235.02	129.84	64.67	45.52
360.0	990.04	834.77	680.62	494.74	354.50	291.06	117.76	62.39	44.35

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	33.67	27.16	25.49	24.82	24.38	23.93	23.60	23.32	23.10
45.0	25.15	24.71	24.26	23.93	23.65	23.37	23.10	22.87	22.71
90.0	24.49	24.10	23.65	23.37	23.15	22.93	22.71	22.54	22.37
135.0	24.88	24.26	23.87	23.60	23.32	23.15	22.82	22.65	22.48
180.0	25.60	24.49	24.10	23.82	23.60	23.26	22.98	22.82	22.65
225.0	33.72	27.27	25.60	24.88	24.43	24.10	23.65	23.37	23.10
270.0	40.18	30.50	25.88	24.99	24.49	23.99	23.65	23.32	23.04
315.0	34.62	27.83	25.15	24.43	24.04	23.65	23.32	23.04	22.82
360.0	33.67	27.16	25.49	24.82	24.38	23.93	23.60	23.32	23.10
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	22.87	22.65	22.48	22.32	22.15	22.04	21.93	21.82	21.76
45.0	22.54	22.37	22.20	22.04	21.98	21.87	21.76	21.70	21.65
90.0	22.20	22.04	21.98	21.87	21.76	21.70	21.65	21.54	21.54
135.0	22.37	22.26	22.15	21.93	21.87	21.76	21.76	21.70	21.65
180.0	22.54	22.37	22.26	22.15	22.04	22.04	21.87	21.82	21.76
225.0	22.82	22.65	22.43	22.20	22.09	22.04	21.87	21.70	21.65
270.0	22.87	22.59	22.43	22.26	22.04	21.93	21.82	21.76	21.70
315.0	22.59	22.43	22.26	22.09	21.93	21.82	21.76	21.70	21.65
360.0	22.87	22.65	22.48	22.32	22.15	22.04	21.93	21.82	21.76
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	21.70	21.70	21.65	21.59	21.54	21.48	21.48	21.43	21.48
45.0	21.54	21.48	21.43	21.43	21.37	21.31	21.26	21.26	21.20
90.0	21.48	21.48	21.37	21.37	21.31	21.26	21.26	21.26	21.26
135.0	21.59	21.54	21.48	21.43	21.43	21.43	21.43	21.43	21.31
180.0	21.76	21.70	21.70	21.65	21.59	21.54	21.48	21.48	21.43
225.0	21.59	21.54	21.48	21.43	21.37	21.31	21.31	21.31	21.26
270.0	21.59	21.59	21.48	21.43	21.37	21.37	21.37	21.31	21.31
315.0	21.54	21.54	21.43	21.43	21.31	21.31	21.31	21.31	21.31
360.0	21.70	21.70	21.65	21.59	21.54	21.48	21.48	21.43	21.48
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	21.37	21.37	21.31	21.37	21.37	21.37	21.37	21.31	21.26
45.0	21.20	21.20	21.15	21.09	21.09	21.09	21.09	21.09	21.04
90.0	21.20	21.15	21.15	21.15	21.20	21.20	21.20	21.20	21.15
135.0	21.31	21.31	21.26	21.31	21.31	21.31	21.26	21.31	21.31
180.0	21.48	21.48	21.43	21.37	21.37	21.37	21.37	21.37	21.37
225.0	21.20	21.15	21.15	21.15	21.15	21.15	21.09	21.09	21.09
270.0	21.20	21.20	21.15	21.20	21.26	21.26	21.20	21.20	21.20
315.0	21.20	21.20	21.20	21.26	21.15	21.15	21.20	21.20	21.20
360.0	21.37	21.37	21.31	21.37	21.37	21.37	21.37	21.31	21.26
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	21.31	21.37	21.31	21.37	21.43	21.37	21.31	21.15	21.04
45.0	21.04	20.98	21.04	21.04	20.98	20.98	20.87	20.93	20.93
90.0	21.15	21.20	21.20	21.20	21.15	20.93	20.98	20.98	20.93
135.0	21.37	21.43	21.37	21.37	21.31	21.04	21.04	21.04	20.98
180.0	21.43	21.43	21.43	21.26	21.26	21.09	21.09	21.09	21.09
225.0	21.09	21.09	21.09	21.09	21.15	21.15	20.98	20.93	20.87
270.0	21.15	21.15	21.20	21.26	21.20	21.20	21.26	21.04	20.98
315.0	21.15	21.15	21.20	21.15	21.20	21.15	21.20	21.04	21.04
360.0	21.31	21.37	21.31	21.37	21.43	21.37	21.31	21.15	21.04

Intensity data(cd)

Appendix Page: 18 Total:18

C/γ(°)	90.0
0.0	21.09
45.0	20.93
90.0	20.98
135.0	20.98
180.0	21.04
225.0	20.93
270.0	20.93
315.0	21.04
360.0	21.09