



NATA LIGHTING CO.,LTD
www.nata.cn
Email:info@nata.cn
Tel:+86 0750-377 0000(10 lines) Fax:+86 0750-377 1111
Address:380JinOu Road,Gaoxin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 3-2033-M	
Luminaire: 92.70.131.00	
Report No: GC2017071907	Voltage(V): 34.7600
Test No: NT-0010	Current(A): 0.6000
LampCAT: SEOUL SAWx15	Power (W): 20.8560
Lamp flux(lm): 2937.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2610.56
Efficiency(%): 88.89%
Lumens(lm)/Power(W): 125.17
Central intensity(cd): 19270.760
Maximum intensity(cd): 19270.760
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=15.2
 [C90/270]Total=15.2
Field angle(10%Imax): [C0/180]Total=32.0
 [C90/270]Total=32.0
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.27 C90_270=0.27
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.89%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.733%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	19270.758	0.000	0	.000%	.000%
1.0	19078.760	18.350	18.35	.625%	.703%
2.0	18447.811	53.862	72.211	1.834%	2.766%
3.0	17402.951	85.743	157.954	2.919%	6.051%
4.0	16111.834	112.185	270.139	3.820%	10.348%
5.0	14180.654	130.317	400.456	4.437%	15.340%
6.0	12492.880	140.177	540.632	4.773%	20.709%
7.0	10766.289	144.369	685.002	4.916%	26.240%
8.0	8877.682	140.588	825.59	4.787%	31.625%
9.0	7264.273	130.822	956.412	4.454%	36.636%
10.0	5811.488	118.331	1074.742	4.029%	41.169%
11.0	4637.378	104.406	1179.148	3.555%	45.168%
12.0	3779.857	92.012	1271.161	3.133%	48.693%
13.0	3030.438	80.821	1351.982	2.752%	51.789%
14.0	2542.443	71.332	1423.314	2.429%	54.521%
15.0	2191.908	64.995	1488.309	2.213%	57.011%
16.0	1929.024	60.383	1548.692	2.056%	59.324%
17.0	1668.087	56.017	1604.709	1.907%	61.470%
18.0	1496.750	52.181	1656.89	1.777%	63.469%
19.0	1370.421	49.883	1706.773	1.698%	65.379%
20.0	1261.497	48.171	1754.945	1.640%	67.225%
21.0	1178.833	46.859	1801.804	1.595%	69.020%
22.0	1125.846	46.313	1848.117	1.577%	70.794%
23.0	1071.022	46.096	1894.214	1.570%	72.560%
24.0	1036.720	46.083	1940.296	1.569%	74.325%
25.0	1006.257	46.453	1986.749	1.582%	76.104%
26.0	981.200	46.914	2033.663	1.597%	77.901%
27.0	957.715	47.436	2081.099	1.615%	79.718%
28.0	939.260	48.027	2129.127	1.635%	81.558%
29.0	919.956	48.642	2177.769	1.656%	83.421%
30.0	894.634	48.994	2226.763	1.668%	85.298%
31.0	858.489	48.787	2275.55	1.661%	87.167%
32.0	802.427	47.583	2323.133	1.620%	88.990%
33.0	728.632	45.106	2368.238	1.536%	90.718%
34.0	647.054	41.632	2409.871	1.418%	92.312%
35.0	548.885	37.141	2447.012	1.265%	93.735%
36.0	444.719	31.637	2478.649	1.077%	94.947%
37.0	341.784	25.651	2504.3	.873%	95.929%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	246.829	19.647	2523.947	.669%	96.682%
39.0	163.539	14.007	2537.954	.477%	97.219%
40.0	108.013	9.471	2547.425	.322%	97.581%
41.0	57.892	5.908	2553.333	.201%	97.808%
42.0	30.977	3.229	2556.561	.110%	97.931%
43.0	22.094	1.966	2558.527	.067%	98.007%
44.0	18.407	1.529	2560.056	.052%	98.065%
45.0	15.889	1.318	2561.374	.045%	98.116%
46.0	14.685	1.196	2562.57	.041%	98.162%
47.0	13.788	1.132	2563.702	.039%	98.205%
48.0	13.322	1.096	2564.798	.037%	98.247%
49.0	13.022	1.082	2565.88	.037%	98.288%
50.0	12.751	1.075	2566.954	.037%	98.329%
51.0	12.487	1.068	2568.022	.036%	98.370%
52.0	12.285	1.063	2569.085	.036%	98.411%
53.0	12.069	1.059	2570.145	.036%	98.452%
54.0	11.847	1.054	2571.199	.036%	98.492%
55.0	11.701	1.051	2572.25	.036%	98.532%
56.0	11.548	1.051	2573.3	.036%	98.573%
57.0	11.388	1.049	2574.349	.036%	98.613%
58.0	11.290	1.049	2575.398	.036%	98.653%
59.0	11.193	1.051	2576.449	.036%	98.693%
60.0	11.116	1.054	2577.503	.036%	98.734%
61.0	11.026	1.057	2578.56	.036%	98.774%
62.0	10.977	1.060	2579.62	.036%	98.815%
63.0	10.901	1.064	2580.684	.036%	98.855%
64.0	10.838	1.067	2581.751	.036%	98.896%
65.0	10.776	1.070	2582.82	.036%	98.937%
66.0	10.727	1.073	2583.893	.037%	98.978%
67.0	10.671	1.076	2584.969	.037%	99.020%
68.0	10.636	1.079	2586.048	.037%	99.061%
69.0	10.609	1.084	2587.132	.037%	99.102%
70.0	10.602	1.089	2588.221	.037%	99.144%
71.0	10.567	1.094	2589.316	.037%	99.186%
72.0	10.504	1.096	2590.411	.037%	99.228%
73.0	10.490	1.098	2591.509	.037%	99.270%
74.0	10.463	1.102	2592.611	.038%	99.312%
75.0	10.469	1.106	2593.717	.038%	99.355%

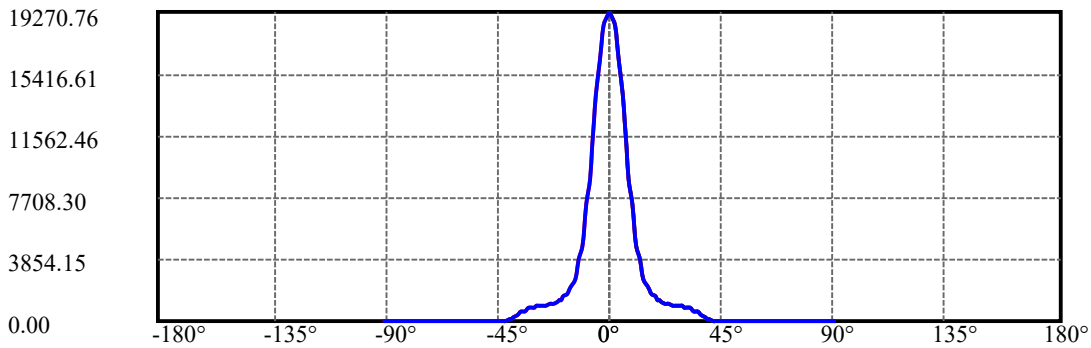
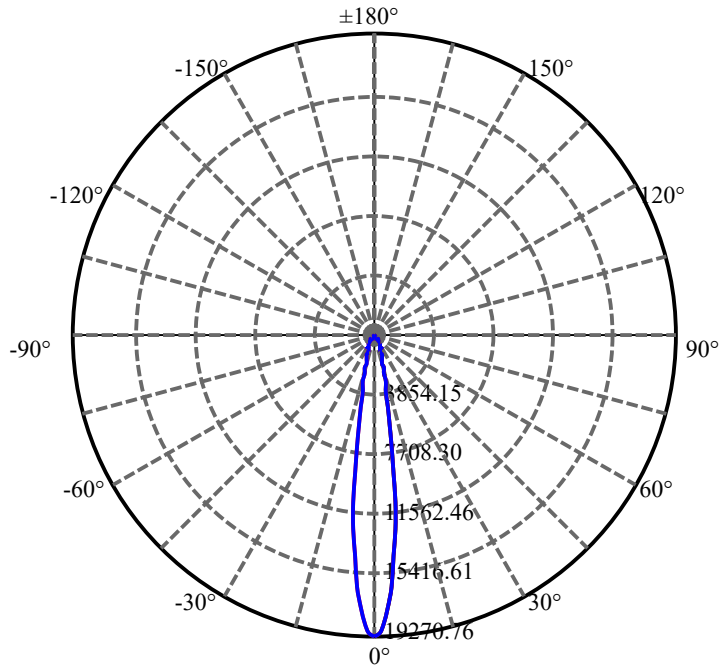
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.435	1.110	2594.826	.038%	99.397%
77.0	10.442	1.113	2595.939	.038%	99.440%
78.0	10.421	1.117	2597.056	.038%	99.483%
79.0	10.407	1.119	2598.175	.038%	99.525%
80.0	10.379	1.121	2599.296	.038%	99.568%
81.0	10.372	1.122	2600.418	.038%	99.611%
82.0	10.365	1.125	2601.542	.038%	99.654%
83.0	10.351	1.126	2602.669	.038%	99.698%
84.0	10.365	1.129	2603.797	.038%	99.741%
85.0	10.337	1.130	2604.927	.038%	99.784%
86.0	10.316	1.129	2606.056	.038%	99.827%
87.0	10.296	1.128	2607.184	.038%	99.871%
88.0	10.275	1.127	2608.311	.038%	99.914%
89.0	10.282	1.127	2609.438	.038%	99.957%
90.0	10.261	1.126	2610.564	.038%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2226.76	75.82%	85.30%
0-40	2547.42	86.74%	97.58%
0-60	2577.50	87.76%	98.73%
0-90	2609.44	88.85%	99.96%
0-120	2609.44	88.85%	99.96%
0-180	2610.56	88.89%	100.00%
60-90	32.99	1.12%	1.26%
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%
0-27.15	2088.45	71.11%	80.00%

ZONAL LUMEN SUMMARY

0-10	1074.74
10-20	680.20
20-30	471.82
30-40	320.66
40-50	19.53
50-60	10.55
60-70	10.72
70-80	11.07
80-90	10.14
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



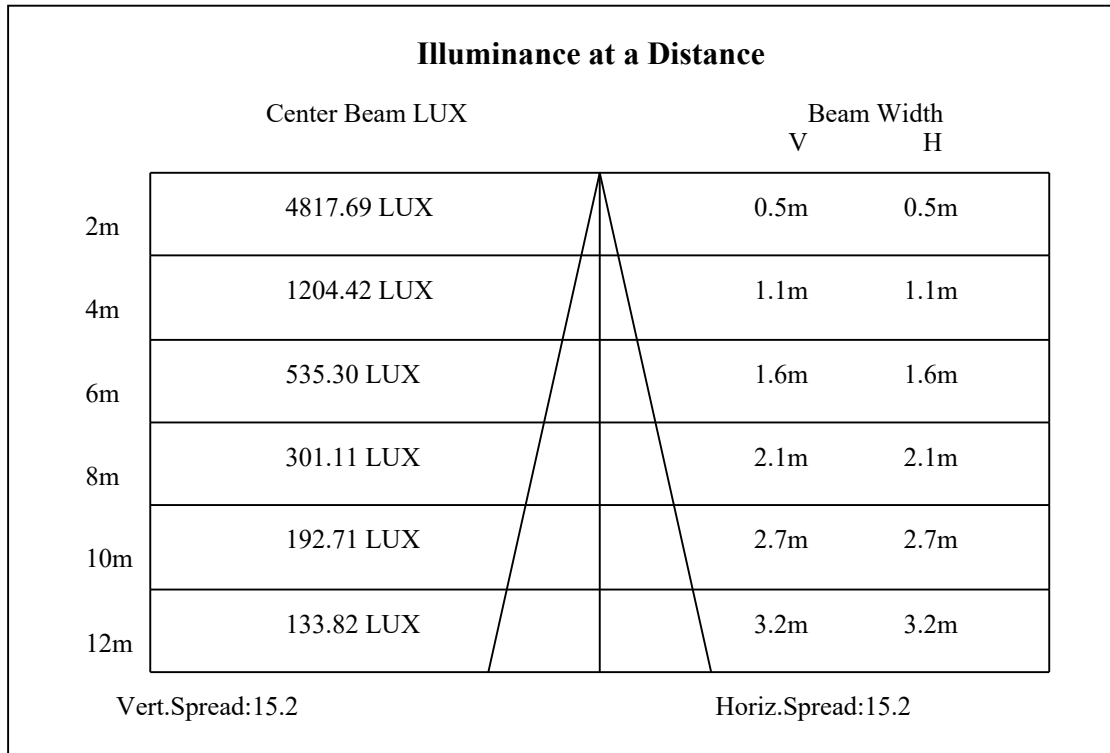
C0(Max): —————

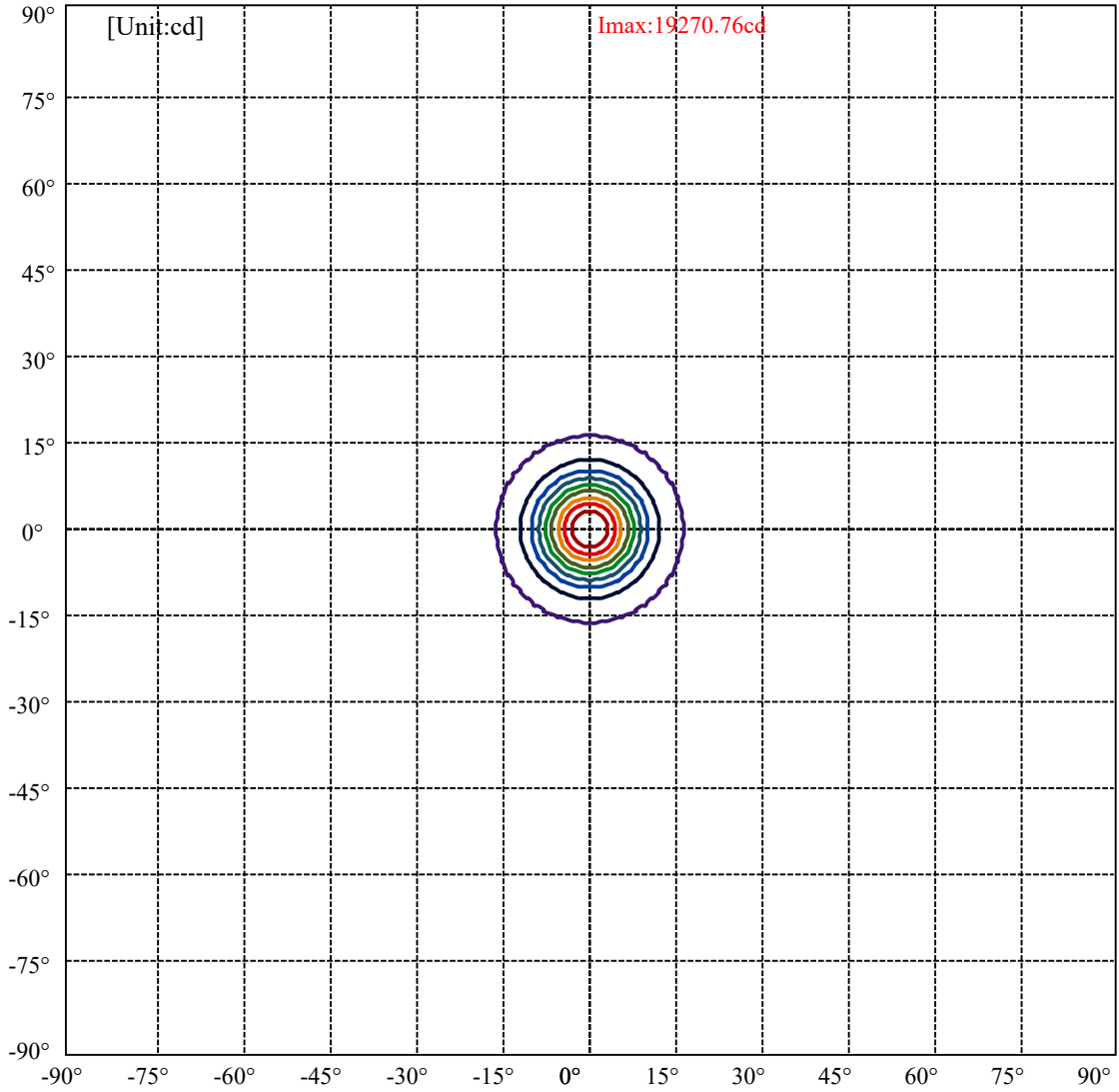
C0/C180: —————

C90/C270: —————

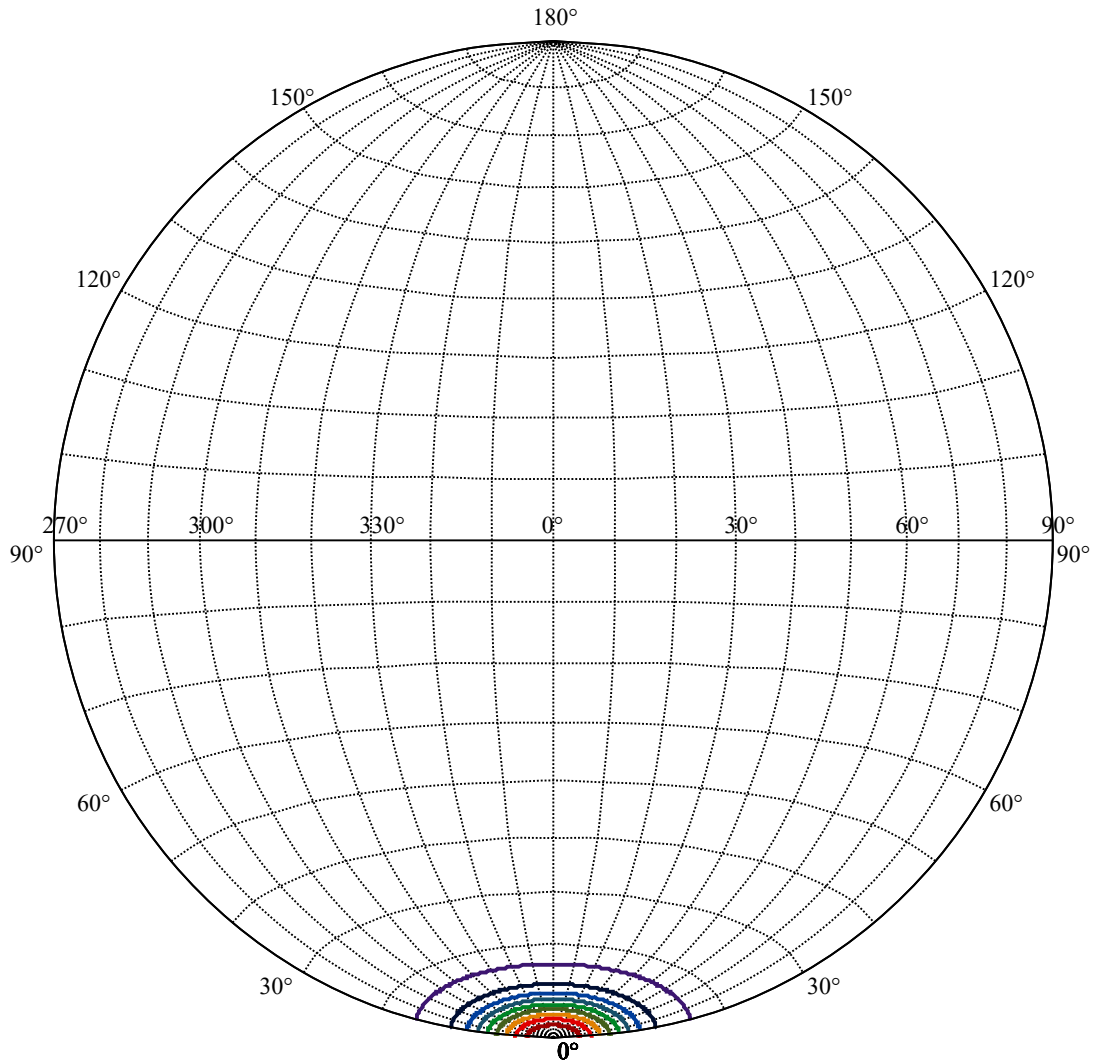
Field angle(10%Imax):C0/180Left:16.0 Right:16.0
:C90/270Left:16.0 Right:16.0

Beam Angle(50%Imax):C0/180Left:7.6 Right:7.6
:C90/270Left:7.6 Right:7.6





(10%I _{max}) 1927.08	—
(20%I _{max}) 3854.15	—
(30%I _{max}) 5781.23	—
(40%I _{max}) 7708.3	—
(50%I _{max}) 9635.38	—
(60%I _{max}) 11562.5	—
(70%I _{max}) 13489.5	—
(80%I _{max}) 15416.6	—
(90%I _{max}) 17343.7	—



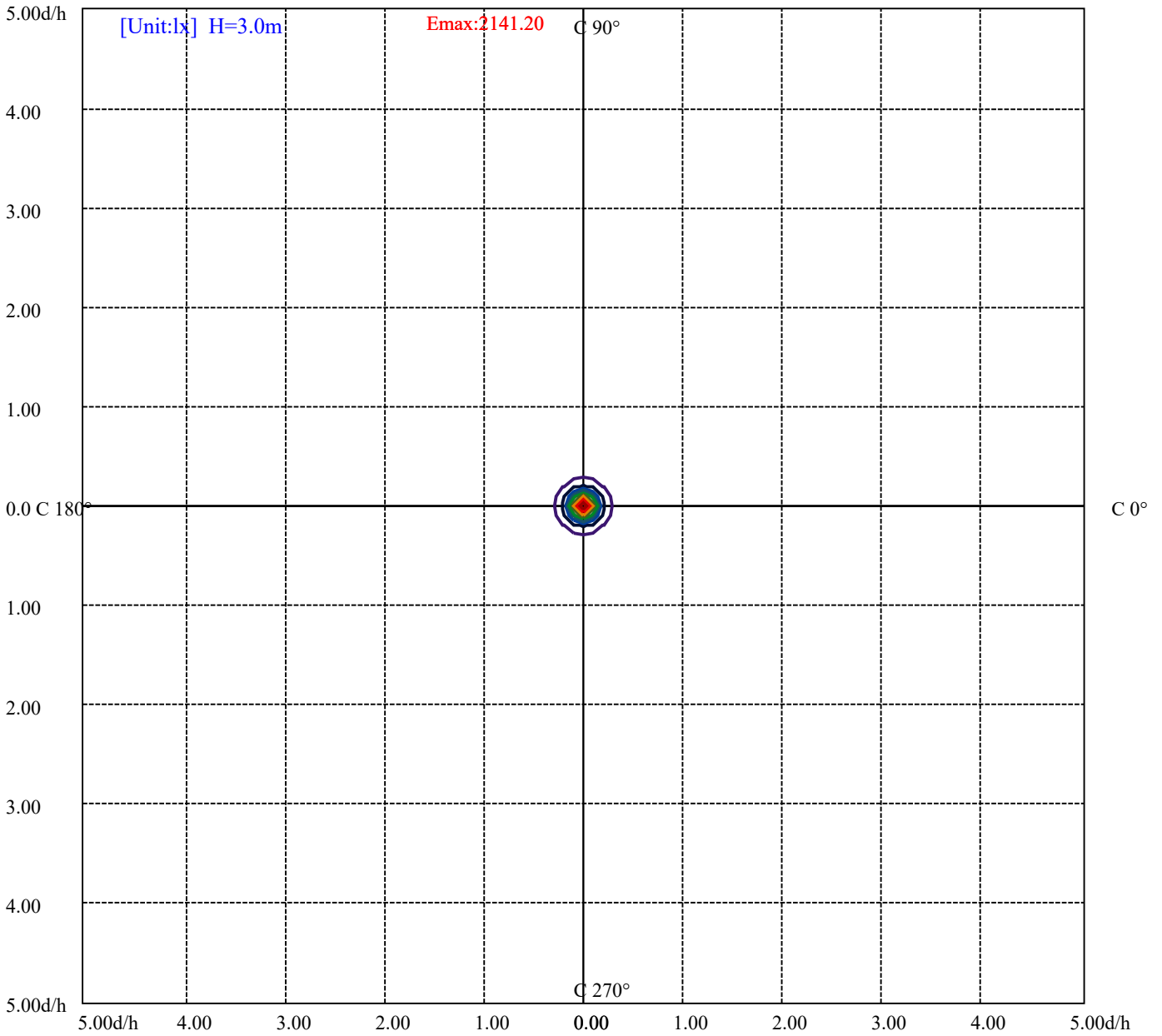
House

[Unit:cd]

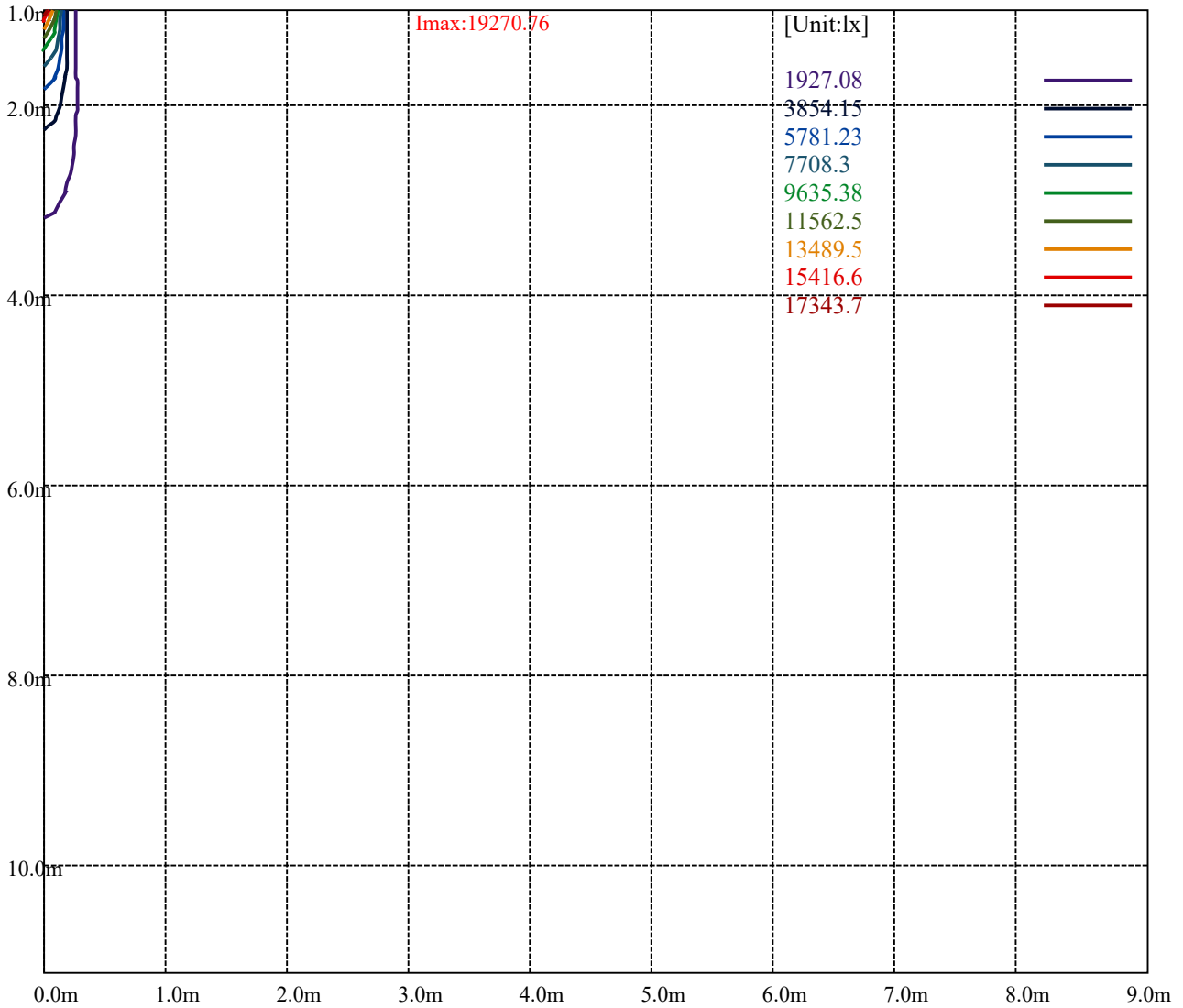
Road

Imax:19270.76

(10%Imax)	1927.08	—
(20%Imax)	3854.15	—
(30%Imax)	5781.23	—
(40%Imax)	7708.3	—
(50%Imax)	9635.38	—
(60%Imax)	11562.5	—
(70%Imax)	13489.5	—
(80%Imax)	15416.6	—
(90%Imax)	17343.7	—



- (10%Emax) 214.1189
- (20%Emax) 428.2389
- (30%Emax) 642.3578
- (40%Emax) 856.4767
- (50%Emax) 1070.596
- (60%Emax) 1284.711
- (70%Emax) 1498.833
- (80%Emax) 1712.956
- (90%Emax) 1927.078



Luminance Table

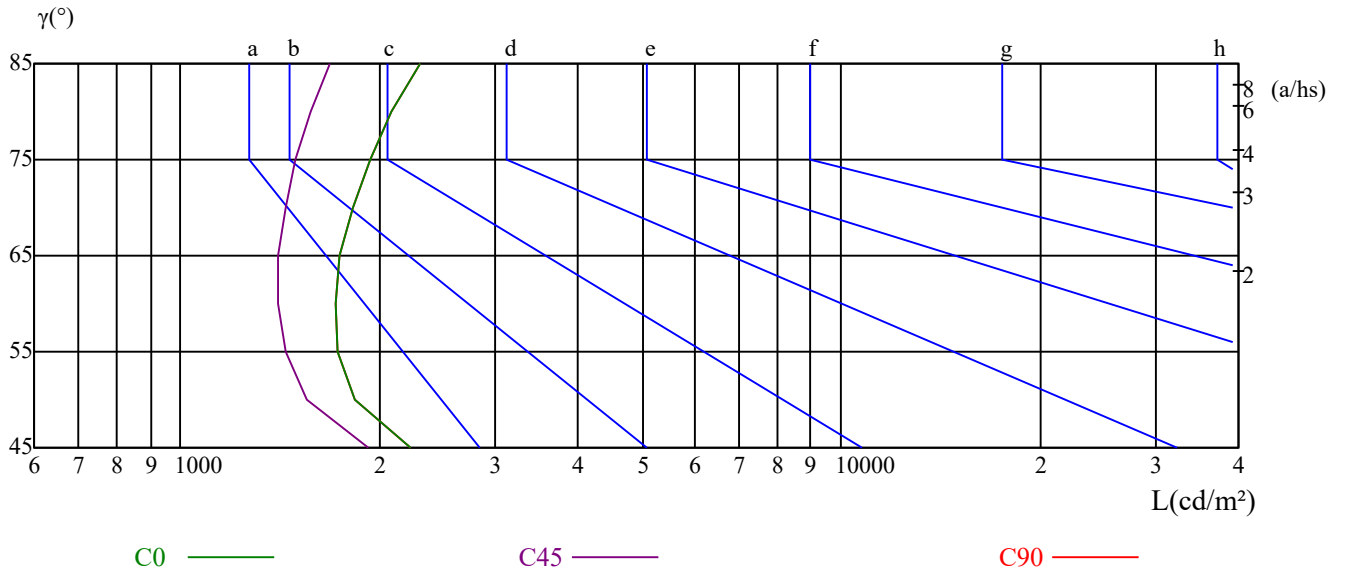
γ	45	50	55	60	65	70	75	80	85
C0	2233	1833	1734	1714	1745	1822	1933	2087	2301
C45	1919	1551	1445	1405	1405	1439	1494	1573	1685
C90	2233	1833	1734	1714	1745	1822	1933	2087	2301

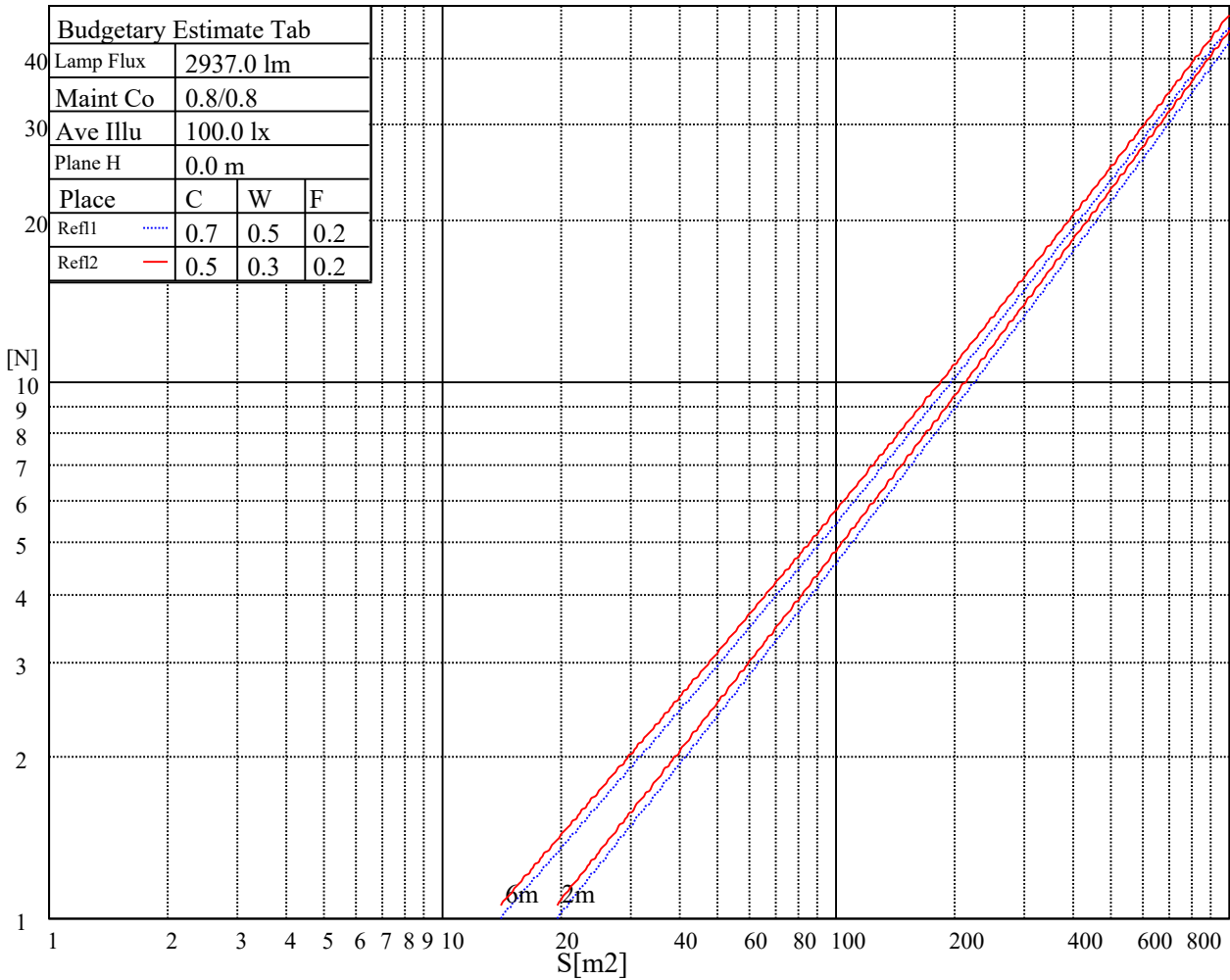
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4191	4191	4191	6649	6649	6649	19495	19495	19495

Glare Table

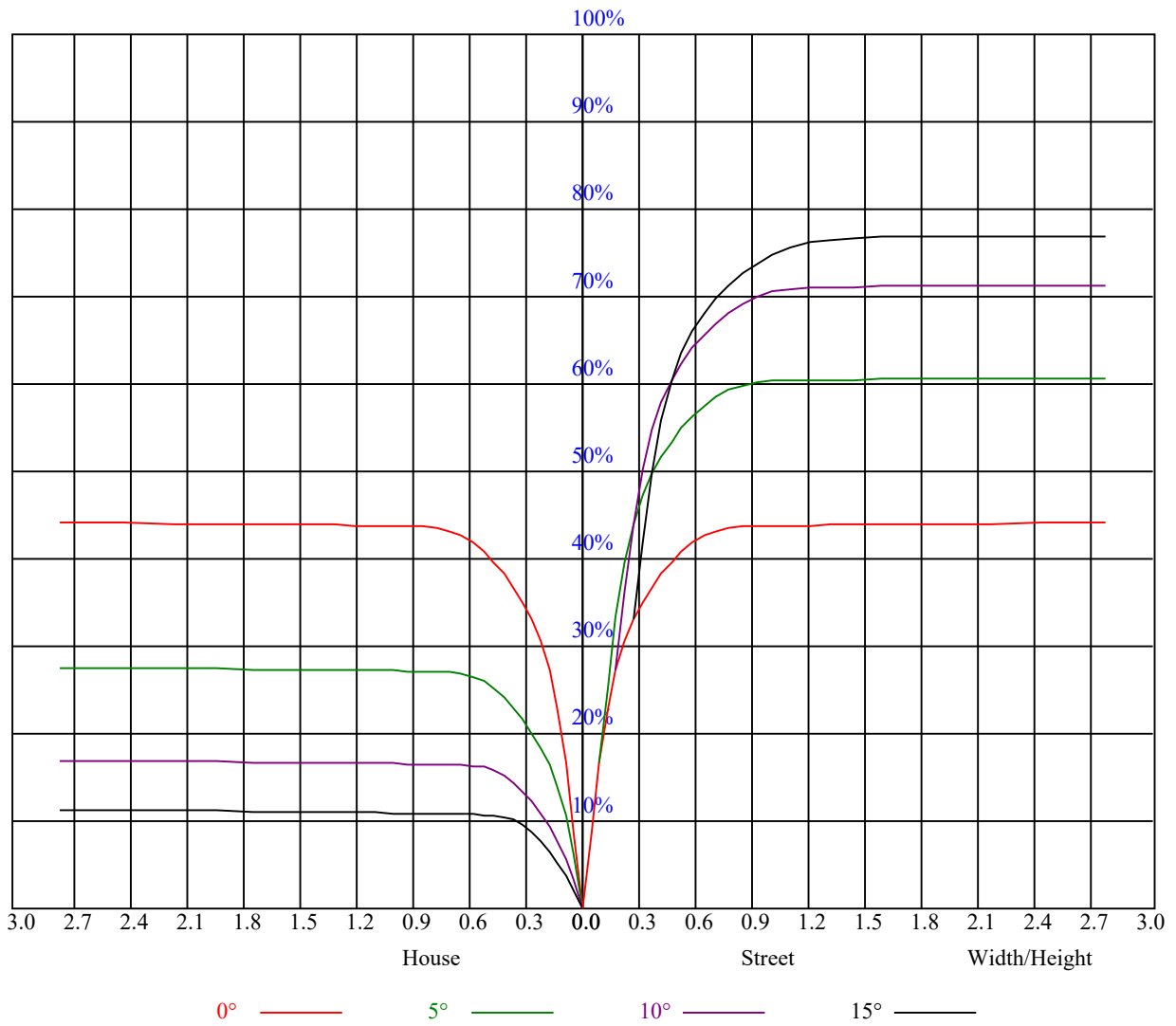
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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 RHOF=20 CU															
0	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	1.00	0.98	0.96	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.85
2	0.95	0.92	0.89	0.93	0.91	0.88	0.90	0.88	0.87	0.88	0.86	0.85	0.85	0.84	0.83	0.82
3	0.90	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.83	0.81	0.83	0.81	0.80	0.78
4	0.86	0.83	0.80	0.85	0.82	0.79	0.84	0.81	0.78	0.82	0.80	0.78	0.80	0.78	0.77	0.76
5	0.83	0.79	0.76	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.71
7	0.77	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
9	0.72	0.68	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.63



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	18988.33	19555.97	19800.84	19617.19	18966.07	17563.64	16105.57	14497.24	12571.70
45.0	19500.32	19416.84	18843.63	17897.55	16445.05	14736.54	13055.87	11019.02	9249.30
90.0	19222.06	18593.20	17602.60	15966.44	14397.07	11028.48	10554.88	8507.46	6881.32
135.0	19372.32	18659.98	17285.39	15899.66	14274.64	12048.57	10167.55	8364.44	6544.63
180.0	18988.33	17992.16	16545.22	14808.89	13072.56	11009.00	9170.27	7263.65	5587.98
225.0	19500.32	19227.63	18515.29	17096.17	15688.19	14124.38	11054.08	10166.43	8480.75
270.0	19222.06	19489.19	19344.50	18771.28	17775.12	16094.44	14525.07	12861.08	10907.71
315.0	19372.32	19695.10	19645.01	19166.41	18275.99	16840.17	15309.76	13450.99	10798.08
360.0	18988.33	19555.97	19800.84	19617.19	18966.07	17563.64	16105.57	14497.24	12571.70
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	10596.06	8898.69	7145.67	5782.20	4502.21	3522.75	2932.84	2810.41	2090.27
45.0	7429.49	5810.03	4607.95	3695.27	2927.27	2810.41	2157.06	1899.95	1658.97
90.0	5310.28	4075.37	3280.11	2675.73	2302.31	1986.76	1753.03	1589.97	1450.84
135.0	5008.64	3895.61	3010.75	2866.06	2141.47	1858.76	1668.43	1504.26	1367.36
180.0	4383.12	3382.50	2720.81	2315.66	2011.25	1729.65	1567.15	1430.80	1320.06
225.0	6729.39	5217.89	4155.50	3294.02	2760.32	2325.68	2005.13	1783.63	1604.44
270.0	8959.91	7373.84	5810.03	4658.04	3661.88	2971.80	2849.36	2168.19	1883.81
315.0	9697.29	7837.97	6368.21	4951.88	3936.79	3133.74	2602.27	2244.99	1968.95
360.0	10596.06	8898.69	7145.67	5782.20	4502.21	3522.75	2932.84	2810.41	2090.27
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1851.53	1666.77	1480.89	1360.13	1264.96	1172.58	1116.93	1071.85	1032.34
45.0	1502.04	1379.05	1262.18	1189.27	1131.40	1079.08	1040.68	1013.97	988.37
90.0	1310.04	1222.11	1108.69	1086.21	1047.75	1018.54	992.27	967.50	949.47
135.0	1268.86	1192.61	1119.15	1073.52	1036.79	1004.51	978.36	958.32	939.96
180.0	1217.66	1109.69	1098.56	1048.98	1017.65	992.49	966.89	945.02	928.55
225.0	1430.25	1322.84	1236.58	1108.13	1096.28	1055.71	1021.65	994.99	973.68
270.0	1685.13	1525.97	1372.92	1277.76	1202.07	1137.52	1086.32	1050.15	1018.42
315.0	1708.50	1544.33	1412.99	1286.66	1209.87	1107.75	1090.66	1048.25	1018.81
360.0	1851.53	1666.77	1480.89	1360.13	1264.96	1172.58	1116.93	1071.85	1032.34
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1002.84	979.47	957.76	943.29	924.93	906.01	887.64	854.25	766.32
45.0	963.33	946.63	928.27	912.13	894.32	858.70	781.90	691.19	587.12
90.0	930.44	913.63	893.71	858.76	801.61	705.55	592.13	504.93	411.43
135.0	922.70	907.12	887.09	849.24	785.24	679.51	575.44	464.13	338.36
180.0	911.63	894.60	876.85	827.32	748.18	650.34	534.42	431.30	324.67
225.0	951.81	938.06	921.37	904.23	885.81	827.54	741.95	646.06	559.91
270.0	990.04	968.34	948.86	933.83	916.03	898.22	863.71	784.13	686.18
315.0	988.93	966.22	945.74	928.27	911.80	893.54	851.86	800.44	717.07
360.0	1002.84	979.47	957.76	943.29	924.93	906.01	887.64	854.25	766.32
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	679.51	579.33	448.55	342.26	291.61	161.06	65.28	33.95	26.38
45.0	487.51	384.00	287.72	175.58	101.68	42.07	25.60	21.15	17.31
90.0	281.71	205.35	123.27	53.54	27.27	23.48	19.42	16.92	14.53
135.0	292.17	143.08	70.12	36.56	25.49	21.93	18.03	16.31	14.14
180.0	205.74	123.44	61.27	28.44	23.43	19.70	16.47	15.08	13.97
225.0	420.28	319.33	233.68	129.78	62.55	31.05	24.49	19.87	16.53
270.0	595.47	493.07	367.30	289.94	170.91	77.08	37.56	26.88	22.43
315.0	595.36	486.67	382.72	252.21	161.17	86.76	40.96	26.60	21.98
360.0	679.51	579.33	448.55	342.26	291.61	161.06	65.28	33.95	26.38

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	19.92	16.86	15.42	14.02	13.58	13.36	12.97	12.74	12.52
45.0	15.69	14.19	13.63	13.36	12.97	12.69	12.47	12.24	12.08
90.0	14.02	13.75	13.41	13.19	12.91	12.63	12.41	12.24	11.97
135.0	13.63	13.36	13.13	12.86	12.58	12.35	12.13	11.91	11.74
180.0	13.41	13.19	12.86	12.63	12.47	12.24	11.97	11.85	11.69
225.0	15.03	14.08	13.58	13.25	12.97	12.74	12.52	12.30	12.13
270.0	17.70	15.97	14.19	13.75	13.41	13.08	12.74	12.52	12.19
315.0	17.70	16.08	14.08	13.52	13.30	12.91	12.69	12.47	12.24
360.0	19.92	16.86	15.42	14.02	13.58	13.36	12.97	12.74	12.52
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.24	12.08	11.91	11.63	11.52	11.46	11.35	11.24	11.19
45.0	11.91	11.74	11.52	11.41	11.30	11.19	11.13	11.07	11.02
90.0	11.69	11.52	11.41	11.30	11.19	11.13	11.07	10.91	10.85
135.0	11.58	11.46	11.30	11.24	11.19	11.07	11.02	10.96	10.96
180.0	11.58	11.46	11.41	11.24	11.13	11.07	11.02	11.02	10.96
225.0	11.85	11.69	11.58	11.35	11.30	11.13	11.07	10.91	10.85
270.0	11.97	11.80	11.63	11.52	11.41	11.30	11.13	11.02	10.96
315.0	11.97	11.85	11.63	11.41	11.30	11.19	11.13	11.07	11.02
360.0	12.24	12.08	11.91	11.63	11.52	11.46	11.35	11.24	11.19
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.13	11.02	10.96	10.85	10.80	10.74	10.74	10.74	10.74
45.0	10.96	10.85	10.74	10.69	10.69	10.69	10.63	10.63	10.52
90.0	10.80	10.74	10.74	10.69	10.63	10.57	10.52	10.57	10.52
135.0	10.85	10.85	10.74	10.69	10.63	10.63	10.63	10.63	10.57
180.0	10.91	10.80	10.74	10.74	10.69	10.63	10.63	10.63	10.57
225.0	10.80	10.74	10.74	10.69	10.63	10.63	10.52	10.52	10.46
270.0	10.85	10.85	10.80	10.74	10.63	10.57	10.57	10.52	10.57
315.0	10.91	10.85	10.74	10.74	10.69	10.63	10.63	10.57	10.57
360.0	11.13	11.02	10.96	10.85	10.80	10.74	10.74	10.74	10.74
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.63	10.63	10.57	10.57	10.52	10.52	10.57	10.57	10.52
45.0	10.52	10.46	10.46	10.46	10.41	10.46	10.41	10.41	10.35
90.0	10.46	10.41	10.41	10.35	10.41	10.41	10.41	10.35	10.30
135.0	10.46	10.46	10.46	10.52	10.46	10.46	10.41	10.35	10.35
180.0	10.52	10.52	10.46	10.52	10.52	10.52	10.41	10.41	10.41
225.0	10.46	10.46	10.46	10.46	10.35	10.35	10.35	10.30	10.35
270.0	10.52	10.52	10.46	10.41	10.35	10.35	10.41	10.41	10.41
315.0	10.46	10.46	10.41	10.46	10.46	10.46	10.41	10.46	10.35
360.0	10.63	10.63	10.57	10.57	10.52	10.52	10.57	10.57	10.52
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.46	10.46	10.46	10.52	10.41	10.46	10.46	10.35	10.35
45.0	10.35	10.35	10.35	10.41	10.30	10.30	10.18	10.18	10.18
90.0	10.30	10.35	10.24	10.24	10.30	10.24	10.24	10.24	10.18
135.0	10.41	10.35	10.35	10.35	10.35	10.30	10.30	10.30	10.30
180.0	10.41	10.41	10.41	10.35	10.41	10.41	10.41	10.30	10.41
225.0	10.35	10.35	10.35	10.30	10.30	10.24	10.24	10.18	10.24
270.0	10.35	10.30	10.30	10.35	10.35	10.30	10.24	10.30	10.30
315.0	10.35	10.35	10.35	10.41	10.30	10.30	10.30	10.35	10.30
360.0	10.46	10.46	10.46	10.52	10.41	10.46	10.46	10.35	10.35

Intensity data(cd)

<i>C/γ(°)</i>	90.0
0.0	10.35
45.0	10.18
90.0	10.24
135.0	10.30
180.0	10.35
225.0	10.18
270.0	10.18
315.0	10.30
360.0	10.35