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Nata

LumCAT: LN01D05024DA-N
Luminaire: 97.70.234.00

Report No: 210707-B006	Voltage(V): 36.7100
Test No: 210707-C006	Current(A): 0.4510
LampCAT: Fortimo LED SLM 1203 G7N	Power (W): 16.5560
Lamp flux(lm): 2182.7	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 570	Width(mm): 45
Phm Type: C	Height(mm): 20

Photometric Results

Lumens(lm): 1979.14
Efficiency(%): 90.67%
Lumens(lm)/Power(W): 119.54
Central intensity(cd): 6518.391
Maximum intensity(cd): 6518.391
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=29.9
[C90/270]Total=29.9
Field angle(10%Imax): [C0/180]Total=49.9
[C90/270]Total=49.9
Maximum s/h(1/2): C0_180=0.50 C90_270=0.50
Maximum s/h(1/4): C0_180=0.48 C90_270=0.48
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.67%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.755%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6518.391	0.000	0	.000%	.000%
1.0	6506.438	6.232	6.232	.286%	.315%
2.0	6459.328	18.610	24.842	.853%	1.255%
3.0	6383.461	30.716	55.558	1.407%	2.807%
4.0	6280.242	42.389	97.947	1.942%	4.949%
5.0	6152.625	53.486	151.433	2.450%	7.651%
6.0	5964.820	63.680	215.113	2.917%	10.869%
7.0	5774.625	72.867	287.98	3.338%	14.551%
8.0	5551.383	81.058	369.038	3.714%	18.646%
9.0	5295.234	87.906	456.944	4.027%	23.088%
10.0	5009.133	93.251	550.194	4.272%	27.800%
11.0	4704.328	97.057	647.252	4.447%	32.704%
12.0	4369.570	99.191	746.442	4.544%	37.716%
13.0	3978.773	99.074	845.516	4.539%	42.722%
14.0	3597.820	96.980	942.496	4.443%	47.622%
15.0	3234.023	93.791	1036.287	4.297%	52.361%
16.0	2888.227	89.708	1125.995	4.110%	56.893%
17.0	2486.109	83.693	1209.688	3.834%	61.122%
18.0	2159.859	76.602	1286.289	3.509%	64.993%
19.0	1871.789	70.142	1356.432	3.214%	68.537%
20.0	1580.766	63.191	1419.623	2.895%	71.729%
21.0	1281.220	54.956	1474.579	2.518%	74.506%
22.0	1107.731	48.007	1522.586	2.199%	76.932%
23.0	943.580	43.042	1565.628	1.972%	79.107%
24.0	767.412	37.408	1603.037	1.714%	80.997%
25.0	644.534	32.105	1635.141	1.471%	82.619%
26.0	535.669	27.859	1663	1.276%	84.027%
27.0	446.442	24.028	1687.028	1.101%	85.241%
28.0	372.888	20.744	1707.771	.950%	86.289%
29.0	316.259	18.030	1725.801	.826%	87.200%
30.0	276.560	16.006	1741.807	.733%	88.009%
31.0	240.342	14.385	1756.192	.659%	88.735%
32.0	207.443	12.829	1769.02	.588%	89.384%
33.0	184.725	11.553	1780.574	.529%	89.967%
34.0	166.022	10.615	1791.188	.486%	90.504%
35.0	147.185	9.727	1800.916	.446%	90.995%
36.0	133.130	8.925	1809.841	.409%	91.446%
37.0	121.683	8.311	1818.151	.381%	91.866%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	111.164	7.772	1825.923	.356%	92.259%
39.0	100.322	7.219	1833.142	.331%	92.623%
40.0	92.243	6.716	1839.858	.308%	92.963%
41.0	84.839	6.306	1846.164	.289%	93.281%
42.0	77.330	5.892	1852.056	.270%	93.579%
43.0	71.311	5.506	1857.562	.252%	93.857%
44.0	65.728	5.172	1862.734	.237%	94.119%
45.0	60.427	4.848	1867.582	.222%	94.364%
46.0	55.463	4.532	1872.114	.208%	94.593%
47.0	51.300	4.246	1876.361	.195%	94.807%
48.0	47.215	3.982	1880.343	.182%	95.008%
49.0	43.875	3.741	1884.084	.171%	95.197%
50.0	40.430	3.515	1887.599	.161%	95.375%
51.0	37.575	3.300	1890.899	.151%	95.542%
52.0	35.353	3.129	1894.028	.143%	95.700%
53.0	33.152	2.980	1897.008	.137%	95.850%
54.0	31.240	2.838	1899.847	.130%	95.994%
55.0	29.784	2.724	1902.571	.125%	96.131%
56.0	28.434	2.631	1905.201	.121%	96.264%
57.0	27.091	2.539	1907.74	.116%	96.393%
58.0	26.079	2.459	1910.199	.113%	96.517%
59.0	25.102	2.393	1912.592	.110%	96.638%
60.0	24.188	2.329	1914.92	.107%	96.755%
61.0	23.351	2.269	1917.189	.104%	96.870%
62.0	22.634	2.216	1919.405	.102%	96.982%
63.0	21.980	2.170	1921.574	.099%	97.092%
64.0	21.382	2.128	1923.702	.097%	97.199%
65.0	21.066	2.101	1925.803	.096%	97.305%
66.0	20.995	2.099	1927.901	.096%	97.411%
67.0	21.368	2.130	1930.032	.098%	97.519%
68.0	22.170	2.205	1932.237	.101%	97.630%
69.0	22.760	2.292	1934.529	.105%	97.746%
70.0	23.365	2.369	1936.898	.109%	97.866%
71.0	24.096	2.453	1939.351	.112%	97.990%
72.0	24.884	2.547	1941.898	.117%	98.119%
73.0	25.685	2.644	1944.542	.121%	98.252%
74.0	26.515	2.744	1947.287	.126%	98.391%
75.0	27.211	2.839	1950.125	.130%	98.534%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	27.661	2.913	1953.038	.133%	98.681%
77.0	27.872	2.961	1955.999	.136%	98.831%
78.0	27.598	2.969	1958.968	.136%	98.981%
79.0	26.198	2.890	1961.859	.132%	99.127%
80.0	23.941	2.703	1964.562	.124%	99.264%
81.0	21.248	2.444	1967.005	.112%	99.387%
82.0	18.197	2.139	1969.145	.098%	99.495%
83.0	15.384	1.826	1970.97	.084%	99.587%
84.0	12.945	1.543	1972.513	.071%	99.665%
85.0	11.461	1.332	1973.845	.061%	99.733%
86.0	10.308	1.190	1975.035	.055%	99.793%
87.0	9.689	1.094	1976.13	.050%	99.848%
88.0	9.239	1.037	1977.166	.048%	99.901%
89.0	8.930	0.996	1978.162	.046%	99.951%
90.0	8.810	0.973	1979.135	.045%	100.000%

Zonal flux distribution table

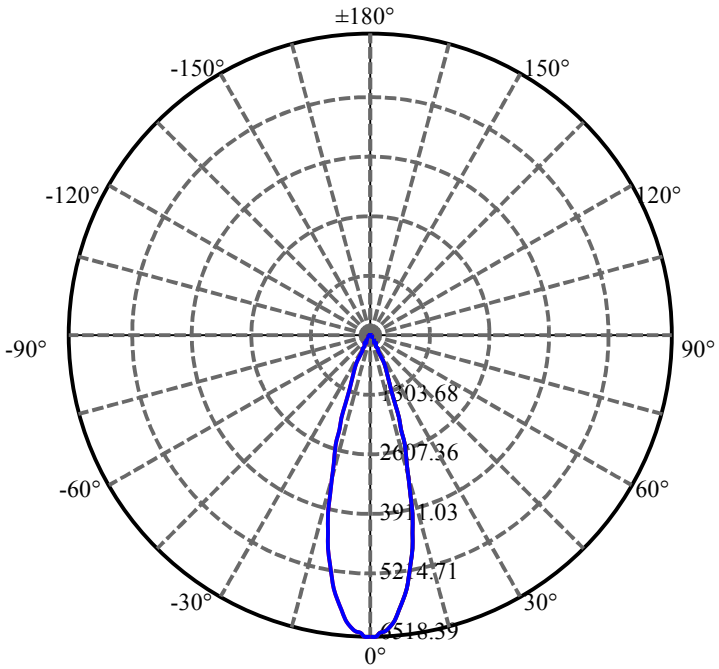
ZONAL LUMEN SUMMARY

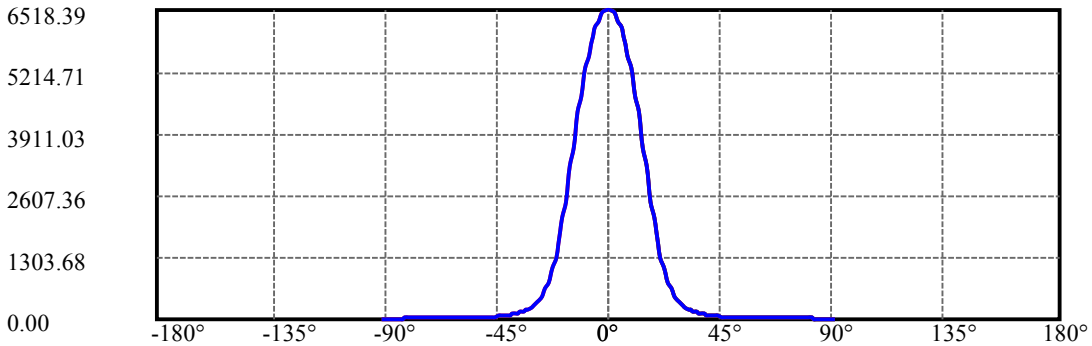
Zone	Lumens	%Lamp	%Fixt
0-30	1741.81	79.80%	88.01%
0-40	1839.86	84.29%	92.96%
0-60	1914.92	87.73%	96.76%
0-90	1978.16	90.63%	99.95%
0-120	1978.16	90.63%	99.95%
0-180	1979.14	90.67%	100.00%
60-90	65.57	3.00%	3.31%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-23.47	1583.31	72.54%	80.00%

ZONAL LUMEN SUMMARY

0-10	550.19
10-20	869.43
20-30	322.18
30-40	98.05
40-50	47.74
50-60	27.32
60-70	21.98
70-80	27.66
80-90	13.60
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

Light Distribution Curve [Unit:cd]





C0(Max):

C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:24.9 Right:24.9
:C90/270Left:24.9 Right:24.9

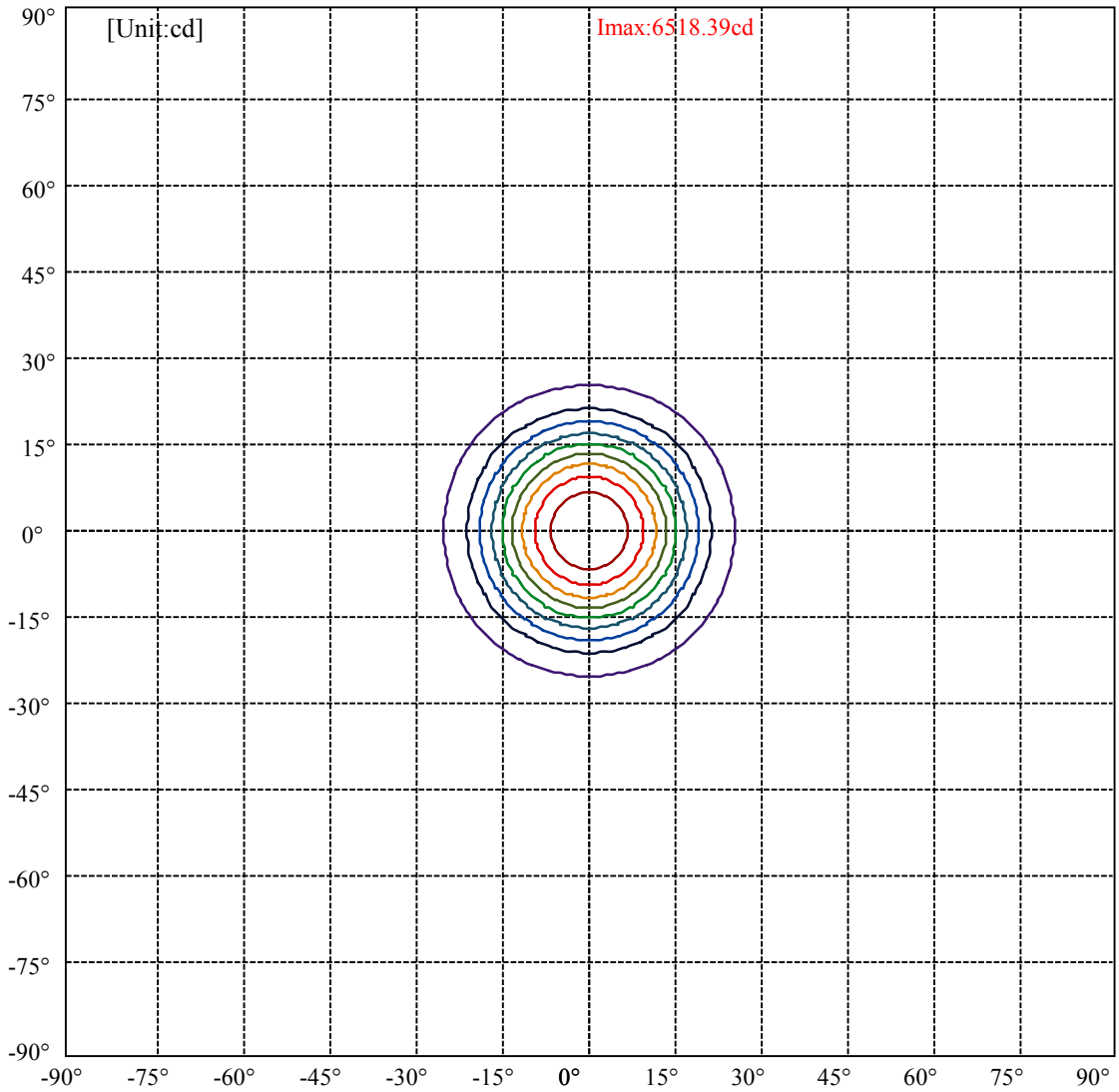
Beam Angle(50%Imax):C0/180Left:14.9 Right:14.9
:C90/270Left:14.9 Right:14.9

Illuminance at a Distance

	Center Beam LUX	Beam Width V	Beam Width H
2m	1629.60 LUX	1.1m	1.1m
4m	407.40 LUX	2.1m	2.1m
6m	181.07 LUX	3.2m	3.2m
8m	101.85 LUX	4.3m	4.3m
10m	65.18 LUX	5.3m	5.3m
12m	45.27 LUX	6.4m	6.4m

Vert.Spread:29.9 Horiz.Spread:29.9

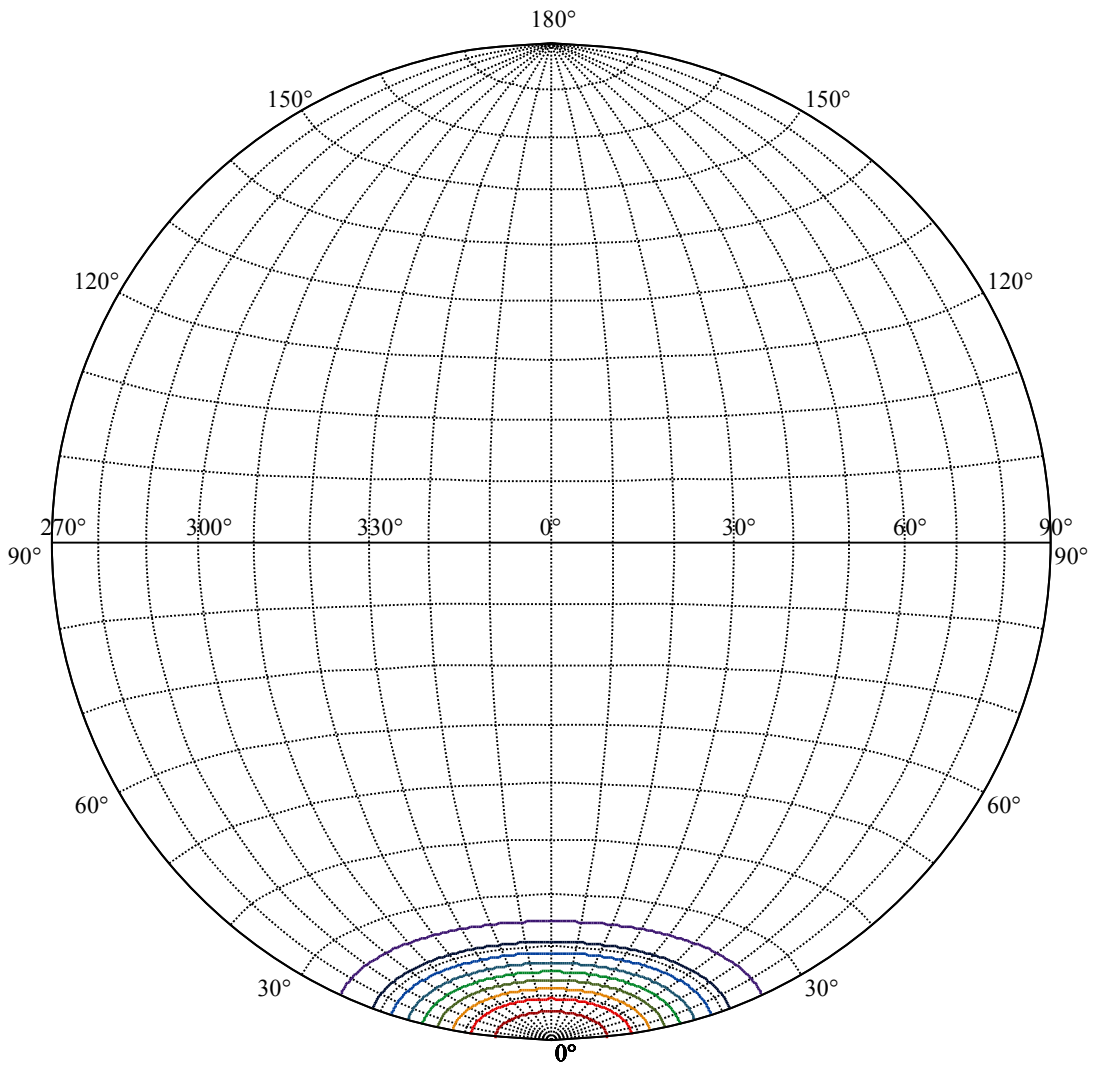
ISO-Intensity(V-H)



(10%Imax) 651.839
(20%Imax) 1303.68
(30%Imax) 1955.52
(40%Imax) 2607.36
(50%Imax) 3259.2
(60%Imax) 3911.03
(70%Imax) 4562.87
(80%Imax) 5214.71
(90%Imax) 5866.55

Equipment: GMS1980 Date: 2021/7/07 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO candela diagram on circular web

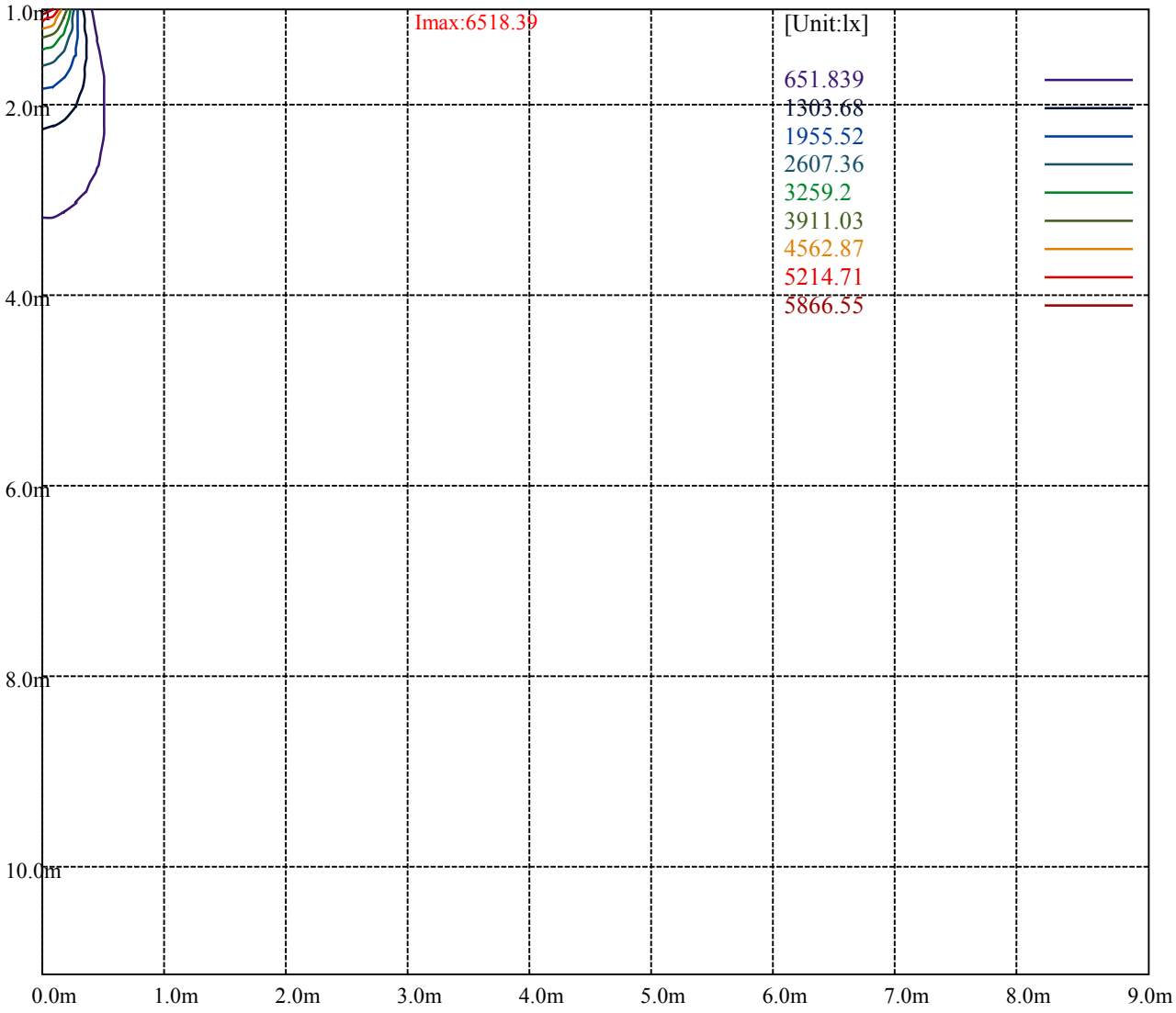


House [Unit:cd] Road

Imax:6518.39

(10%Imax) 651.839
(20%Imax) 1303.68
(30%Imax) 1955.52
(40%Imax) 2607.36
(50%Imax) 3259.2
(60%Imax) 3911.03
(70%Imax) 4562.87
(80%Imax) 5214.71
(90%Imax) 5866.55

Space ISO Lux diagram



Equipment: GMS1980 Date: 2021/7/07 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

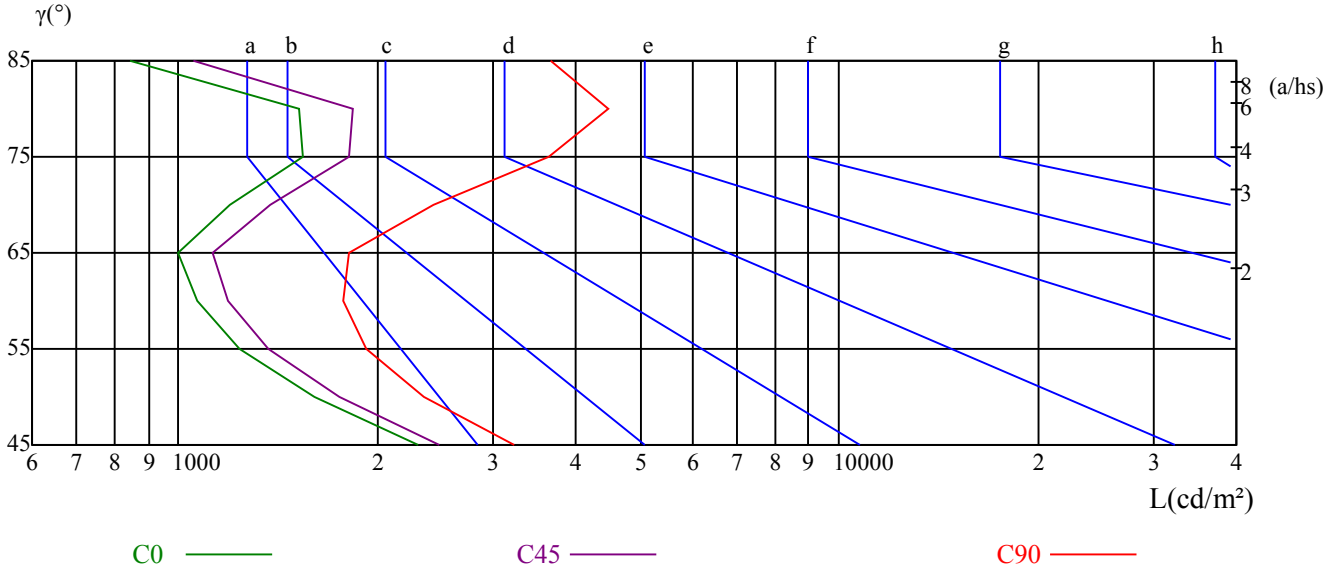
γ	45	50	55	60	65	70	75	80	85
C0	2307	1603	1238	1066	995	1199	1542	1527	843
C45	2488	1746	1364	1188	1125	1379	1809	1839	1051
C90	3219	2354	1928	1778	1807	2429	3624	4483	3659

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1943	1943	1943	4099	4099	4099	5127	5127	5127

Glare Table

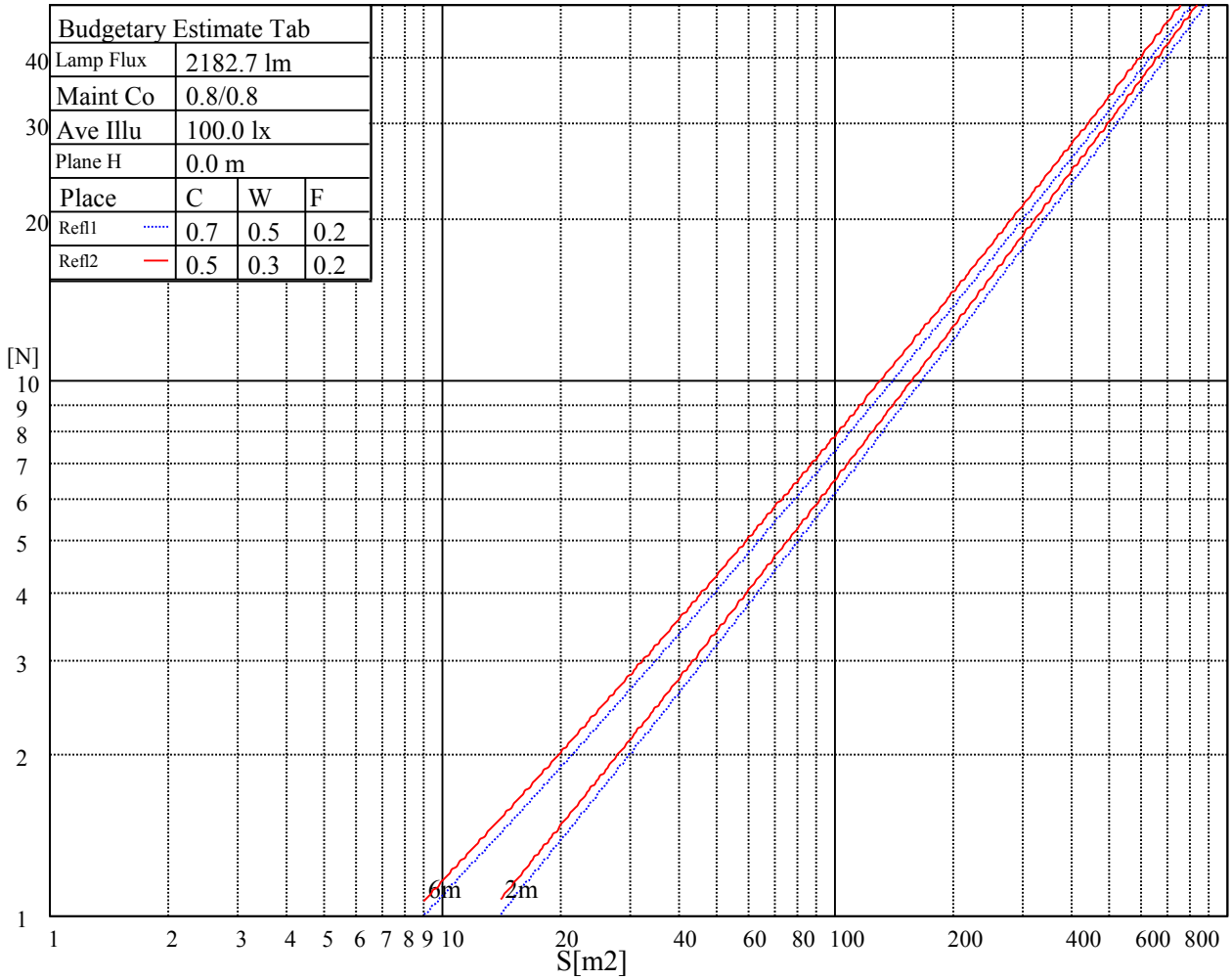
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve



Equipment: GMS1980 Date: 2021/7/07 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

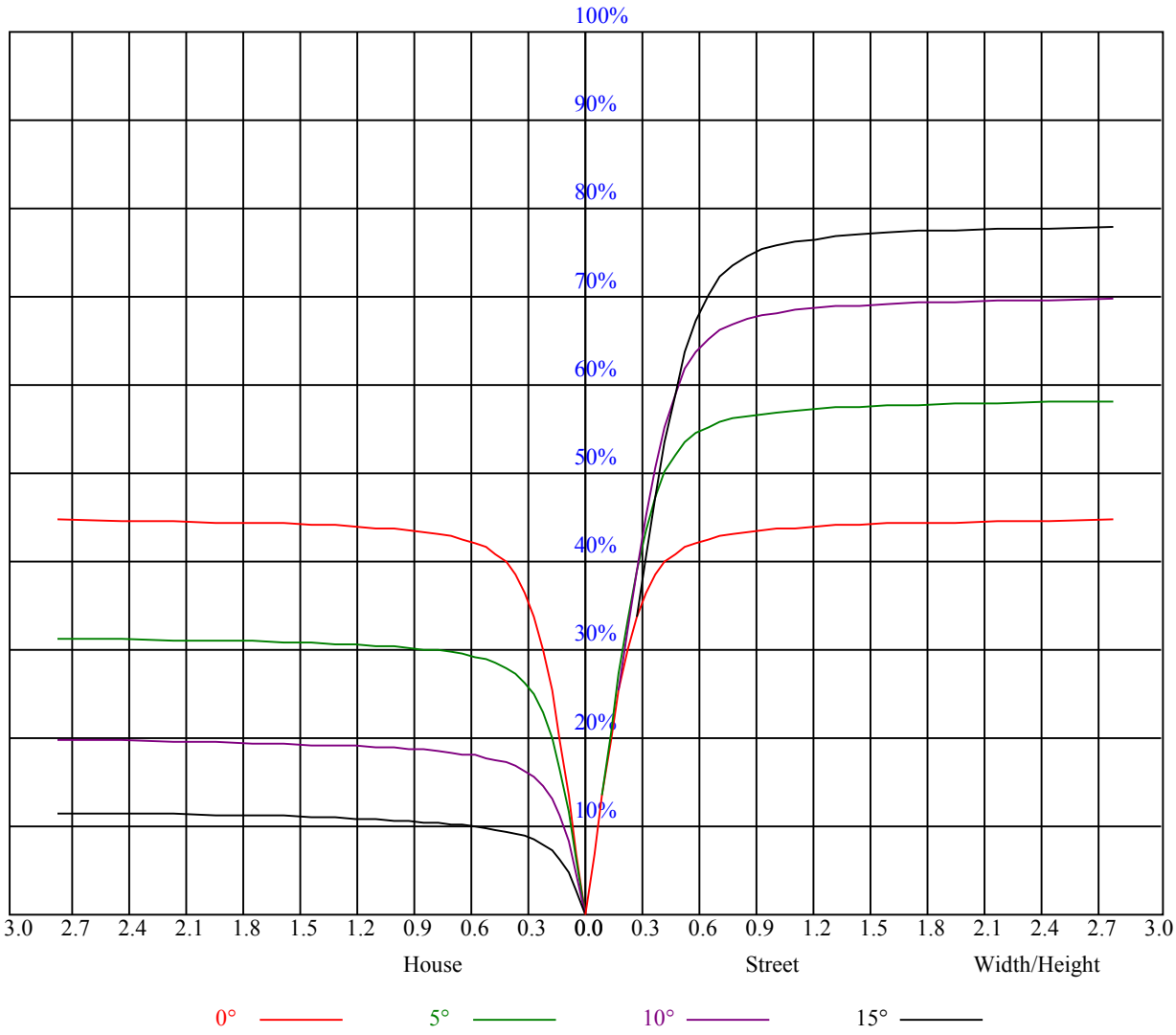
Budgetary Estimate Table



Utilization factor table for indoor luminaire

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	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.93	0.93	0.93	0.91
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	0.89	0.94	0.91	0.88	0.91	0.89	0.87	0.88	0.86	0.85	0.86	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	0.82	0.80	0.83	0.81	0.79	0.78
4	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.78	0.75	0.82	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.72
6	0.79	0.75	0.72	0.79	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
7	0.76	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.67
8	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.65	0.64
9	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.62
10	0.69	0.65	0.62	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.67	0.64	0.61	0.60

Coefficient Utilization Curve



Equipment: GMS1980 Date: 2021/7/07 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	6526.13	6514.88	6462.56	6381.00	6280.31	6131.25	5947.88	5757.75	5517.00
45.0	6519.94	6485.63	6413.63	6316.31	6187.50	6064.31	5818.50	5608.69	5377.50
90.0	6505.31	6458.06	6393.38	6301.69	6170.63	6020.44	5830.88	5603.06	5376.94
135.0	6522.19	6516.56	6469.31	6393.94	6306.75	6192.56	6011.44	5831.44	5613.19
180.0	6526.13	6514.31	6462.00	6390.00	6287.06	6142.50	5952.38	5757.75	5506.31
225.0	6519.94	6540.75	6522.19	6483.38	6393.38	6289.31	6137.44	5960.25	5758.31
270.0	6505.31	6518.25	6506.44	6448.50	6370.88	6287.06	6111.56	5956.31	5776.31
315.0	6522.19	6503.06	6445.13	6352.88	6245.44	6093.56	5908.50	5721.75	5485.50
360.0	6526.13	6514.88	6462.56	6381.00	6280.31	6131.25	5947.88	5757.75	5517.00

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5281.88	4986.00	4652.44	4336.31	3951.56	3544.31	3186.00	2831.63	2410.31
45.0	5058.00	4770.00	4498.88	4080.38	3686.63	3336.19	2948.63	2613.94	2255.06
90.0	5115.38	4813.88	4476.94	4155.19	3772.69	3378.38	3033.56	2698.31	2300.06
135.0	5361.75	5110.88	4830.75	4488.75	4111.31	3720.94	3371.63	3028.50	2653.31
180.0	5263.31	4956.75	4623.19	4302.56	3907.69	3503.25	3143.81	2795.06	2378.25
225.0	5531.63	5216.63	4944.94	4637.81	4218.19	3866.06	3508.88	3153.38	2714.63
270.0	5506.31	5271.75	5001.75	4676.06	4298.06	3952.69	3548.25	3192.19	2794.50
315.0	5243.63	4947.19	4605.75	4279.50	3884.06	3480.75	3131.44	2792.81	2382.75
360.0	5281.88	4986.00	4652.44	4336.31	3951.56	3544.31	3186.00	2831.63	2410.31

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2100.38	1820.81	1509.19	1283.06	1083.38	892.13	729.56	608.63	497.25
45.0	1926.00	1663.88	1400.63	1168.31	989.44	830.81	667.13	560.81	471.94
90.0	1998.56	1726.31	1455.19	1117.97	1028.93	849.43	700.20	588.32	483.36
135.0	2298.94	2005.88	1675.69	1433.81	1217.25	1027.69	825.19	696.38	585.00
180.0	2066.06	1782.00	1496.25	1118.81	1049.85	861.98	706.16	591.13	484.88
225.0	2387.25	2049.75	1775.81	1497.94	1107.90	1061.27	876.99	736.88	605.70
270.0	2418.19	2116.69	1803.94	1524.94	1303.31	1133.44	901.13	759.94	651.38
315.0	2083.50	1809.00	1529.44	1104.92	1081.80	891.90	732.94	614.19	505.86
360.0	2100.38	1820.81	1509.19	1283.06	1083.38	892.13	729.56	608.63	497.25

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	417.38	347.06	293.06	288.00	220.67	197.38	175.33	158.96	142.76
45.0	390.38	330.19	284.63	241.76	212.68	190.01	167.12	151.37	136.29
90.0	408.71	341.16	287.78	250.65	220.16	190.01	170.21	153.28	137.53
135.0	481.50	406.13	343.69	292.50	263.64	220.33	193.05	173.87	155.19
180.0	409.84	342.39	288.90	252.34	222.30	193.44	174.66	158.74	141.24
225.0	510.19	422.38	353.87	305.44	266.85	228.32	203.51	182.59	160.43
270.0	524.81	435.38	380.25	317.81	284.06	242.38	214.54	188.10	163.69
315.0	428.74	358.43	297.90	263.98	232.37	197.66	179.38	161.27	140.34
360.0	417.38	347.06	293.06	288.00	220.67	197.38	175.33	158.96	142.76

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	129.15	118.24	109.80	97.82	90.17	84.21	75.71	70.26	65.70
45.0	122.79	112.67	103.67	94.22	86.46	79.88	72.68	67.89	62.78
90.0	123.98	113.51	102.83	93.43	85.84	78.13	71.16	65.59	59.79
135.0	138.99	127.13	115.37	103.89	95.18	87.53	79.03	73.07	67.56
180.0	129.88	119.36	110.03	99.39	91.86	84.94	77.85	71.44	65.64
225.0	145.52	132.53	120.04	108.96	100.18	91.63	84.83	77.79	71.44
270.0	145.80	132.36	121.16	108.39	99.56	91.63	82.80	76.33	70.54
315.0	128.93	117.68	106.43	96.47	88.71	80.78	74.59	68.12	62.38
360.0	129.15	118.24	109.80	97.82	90.17	84.21	75.71	70.26	65.70

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	59.79	55.01	51.58	46.91	43.76	40.73	37.46	35.33	33.24
45.0	57.83	53.61	49.89	46.29	43.31	40.22	37.63	35.44	33.36
90.0	55.29	50.57	46.35	43.03	39.99	36.68	34.43	32.46	30.38
135.0	61.43	56.31	52.37	47.98	44.55	41.12	38.19	35.83	33.53
180.0	60.81	56.08	52.03	47.81	44.66	41.29	38.25	36.11	33.92
225.0	66.15	60.81	56.03	52.14	48.54	44.66	41.68	39.21	36.73
270.0	64.46	58.56	53.83	48.60	44.49	40.50	37.07	34.65	32.23
315.0	57.66	52.76	48.32	44.94	41.68	38.25	35.89	33.81	31.84
360.0	59.79	55.01	51.58	46.91	43.76	40.73	37.46	35.33	33.24

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	31.28	29.76	28.52	27.11	26.10	25.14	24.13	23.34	22.67
45.0	31.56	30.15	28.86	27.39	26.33	25.31	24.30	23.46	22.61
90.0	28.97	27.73	26.44	25.48	24.69	23.74	23.18	22.56	21.99
135.0	31.61	30.09	28.86	27.45	26.38	25.48	24.53	23.57	22.89
180.0	31.84	30.32	29.03	27.56	26.55	25.59	24.64	23.79	23.01
225.0	34.37	32.74	30.99	29.48	28.24	27.06	26.04	24.92	24.02
270.0	30.21	28.74	27.39	25.99	25.03	24.13	23.12	22.44	21.83
315.0	30.09	28.74	27.39	26.27	25.31	24.36	23.57	22.73	22.05
360.0	31.28	29.76	28.52	27.11	26.10	25.14	24.13	23.34	22.67

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	21.94	21.21	20.76	20.19	19.74	19.29	18.84	18.39	17.89
45.0	21.88	21.04	20.42	19.86	19.35	18.79	18.28	17.78	17.21
90.0	21.66	21.49	22.67	25.20	29.42	34.99	37.41	41.40	46.07
135.0	22.11	21.43	20.87	20.31	19.80	19.41	19.01	18.68	18.45
180.0	22.28	21.60	20.98	20.36	19.91	19.35	18.84	18.39	17.89
225.0	23.18	22.39	21.60	20.98	20.36	19.69	19.18	18.68	18.11
270.0	21.38	21.09	20.98	21.21	22.89	26.83	31.84	35.27	38.98
315.0	21.43	20.81	20.25	19.86	19.46	19.01	18.68	18.34	18.17
360.0	21.94	21.21	20.76	20.19	19.74	19.29	18.84	18.39	17.89

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	17.38	16.93	16.43	15.92	15.41	14.96	14.46	14.01	13.56
45.0	16.71	16.20	15.75	15.19	14.74	14.34	13.89	13.28	12.88
90.0	49.16	53.44	56.08	58.84	60.19	61.65	60.69	55.13	46.35
135.0	18.68	19.18	20.03	21.15	21.88	22.22	21.71	20.36	18.62
180.0	17.38	16.93	16.43	15.81	15.41	14.96	14.46	13.95	13.56
225.0	17.61	17.10	16.54	15.98	15.58	14.96	14.57	14.12	13.67
270.0	43.88	47.03	51.53	54.79	57.66	59.46	61.26	60.58	56.64
315.0	18.28	18.68	19.35	20.03	20.42	20.42	19.74	18.17	16.26
360.0	17.38	16.93	16.43	15.92	15.41	14.96	14.46	14.01	13.56

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	13.05	12.54	12.15	11.64	11.31	10.74	9.79	9.23	8.94
45.0	12.43	11.93	11.48	10.97	10.46	9.84	9.45	9.11	8.89
90.0	38.14	29.08	19.18	13.16	11.25	9.96	9.39	9.00	8.78
135.0	16.26	14.29	12.94	12.26	11.42	10.13	9.62	9.11	8.78
180.0	13.11	12.71	12.21	11.76	11.03	10.18	9.68	9.28	8.94
225.0	13.22	12.77	12.26	11.76	11.36	10.69	10.13	9.68	9.34
270.0	49.22	39.04	30.38	20.14	13.73	11.03	10.13	9.62	9.11
315.0	14.57	13.22	12.49	11.87	11.14	9.90	9.34	8.89	8.66
360.0	13.05	12.54	12.15	11.64	11.31	10.74	9.79	9.23	8.94

Intensity data(cd)

C/γ(°)	90.0
0.0	8.83
45.0	8.89
90.0	8.72
135.0	8.61
180.0	8.78
225.0	9.17
270.0	8.89
315.0	8.61
360.0	8.83