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Nata

LumCAT: 1-0926-M
Luminaire: 92.70.124.00
Report No: 210719-B015
Test No: 210719-C015
LampCAT: Fortimo LED SLM 1204 G7N
Lamp flux(lm): 2370.0
Number of Lamps: 1
Length(mm): 570
Phm Type: C

Voltage(V): 36.1400
Current(A): 0.5110
Power (W): 18.4670
PF: 0.0000
Ballast type: DC
Width(mm): 45
Height(mm): 20

Photometric Results

Lumens(lm): 1853.17
Efficiency(%): 78.19%
Lumens(lm)/Power(W): 100.35
Central intensity(cd): 13754.640
Maximum intensity(cd): 13754.640
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=17.5
[C90/270]Total=17.5
Field angle(10%Imax): [C0/180]Total=38.7
[C90/270]Total=38.7
Maximum s/h(1/2): C0_180=0.30 C90_270=0.30
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 78.19%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.588%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13754.644	0.000	0	.000%	.000%
1.0	13603.472	13.090	13.09	.552%	.706%
2.0	12948.286	38.110	51.2	1.608%	2.763%
3.0	12305.208	60.398	111.598	2.548%	6.022%
4.0	11376.563	79.270	190.868	3.345%	10.300%
5.0	10473.455	93.998	284.866	3.966%	15.372%
6.0	9477.619	104.848	389.714	4.424%	21.030%
7.0	8510.119	111.650	501.364	4.711%	27.054%
8.0	7551.900	114.953	616.317	4.850%	33.257%
9.0	6621.806	114.870	731.187	4.847%	39.456%
10.0	5836.978	112.747	843.934	4.757%	45.540%
11.0	5141.517	109.698	953.632	4.629%	51.460%
12.0	4514.189	105.551	1059.183	4.454%	57.155%
13.0	3923.845	100.138	1159.321	4.225%	62.559%
14.0	3416.892	93.961	1253.282	3.965%	67.629%
15.0	2995.861	88.037	1341.319	3.715%	72.380%
16.0	2613.122	82.187	1423.506	3.468%	76.815%
17.0	2197.772	74.919	1498.425	3.161%	80.858%
18.0	1798.523	65.890	1564.315	2.780%	84.413%
19.0	1497.825	57.350	1621.665	2.420%	87.508%
20.0	1168.538	48.802	1670.467	2.059%	90.141%
21.0	885.016	39.432	1709.899	1.664%	92.269%
22.0	658.856	31.025	1740.924	1.309%	93.943%
23.0	446.280	23.189	1764.112	.978%	95.194%
24.0	268.038	15.618	1779.73	.659%	96.037%
25.0	144.028	9.369	1789.099	.395%	96.543%
26.0	71.733	5.093	1794.193	.215%	96.818%
27.0	40.556	2.747	1796.94	.116%	96.966%
28.0	28.146	1.739	1798.679	.073%	97.060%
29.0	23.766	1.358	1800.037	.057%	97.133%
30.0	21.164	1.213	1801.25	.051%	97.198%
31.0	19.280	1.125	1802.376	.047%	97.259%
32.0	17.691	1.059	1803.435	.045%	97.316%
33.0	16.446	1.006	1804.441	.042%	97.371%
34.0	15.420	0.964	1805.405	.041%	97.423%
35.0	14.449	0.928	1806.333	.039%	97.473%
36.0	13.704	0.896	1807.229	.038%	97.521%
37.0	13.106	0.874	1808.103	.037%	97.568%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	12.572	0.857	1808.961	.036%	97.615%
39.0	12.073	0.841	1809.802	.035%	97.660%
40.0	11.700	0.829	1810.631	.035%	97.705%
41.0	11.377	0.822	1811.453	.035%	97.749%
42.0	11.081	0.816	1812.269	.034%	97.793%
43.0	10.828	0.812	1813.08	.034%	97.837%
44.0	10.610	0.809	1813.889	.034%	97.881%
45.0	10.413	0.808	1814.697	.034%	97.924%
46.0	10.230	0.807	1815.505	.034%	97.968%
47.0	10.076	0.808	1816.312	.034%	98.011%
48.0	9.935	0.809	1817.121	.034%	98.055%
49.0	9.802	0.810	1817.932	.034%	98.099%
50.0	9.682	0.812	1818.744	.034%	98.142%
51.0	9.570	0.815	1819.558	.034%	98.186%
52.0	9.471	0.817	1820.376	.034%	98.231%
53.0	9.380	0.820	1821.196	.035%	98.275%
54.0	9.260	0.822	1822.017	.035%	98.319%
55.0	9.176	0.823	1822.84	.035%	98.364%
56.0	9.091	0.825	1823.665	.035%	98.408%
57.0	9.021	0.828	1824.494	.035%	98.453%
58.0	8.944	0.831	1825.324	.035%	98.498%
59.0	8.880	0.833	1826.158	.035%	98.543%
60.0	8.817	0.836	1826.994	.035%	98.588%
61.0	8.754	0.839	1827.832	.035%	98.633%
62.0	8.698	0.841	1828.673	.035%	98.678%
63.0	8.655	0.844	1829.517	.036%	98.724%
64.0	8.599	0.847	1830.364	.036%	98.770%
65.0	8.564	0.849	1831.213	.036%	98.815%
66.0	8.536	0.853	1832.066	.036%	98.861%
67.0	8.501	0.857	1832.923	.036%	98.908%
68.0	8.459	0.859	1833.782	.036%	98.954%
69.0	8.416	0.861	1834.643	.036%	99.000%
70.0	8.395	0.863	1835.507	.036%	99.047%
71.0	8.360	0.866	1836.373	.037%	99.094%
72.0	8.346	0.869	1837.241	.037%	99.141%
73.0	8.318	0.871	1838.113	.037%	99.188%
74.0	8.290	0.873	1838.986	.037%	99.235%
75.0	8.276	0.875	1839.861	.037%	99.282%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.262	0.878	1840.739	.037%	99.329%
77.0	8.248	0.880	1841.619	.037%	99.377%
78.0	8.241	0.883	1842.502	.037%	99.424%
79.0	8.220	0.884	1843.386	.037%	99.472%
80.0	8.213	0.886	1844.272	.037%	99.520%
81.0	8.198	0.887	1845.159	.037%	99.568%
82.0	8.198	0.889	1846.049	.038%	99.616%
83.0	8.191	0.891	1846.94	.038%	99.664%
84.0	8.177	0.892	1847.831	.038%	99.712%
85.0	8.170	0.892	1848.724	.038%	99.760%
86.0	8.121	0.891	1849.614	.038%	99.808%
87.0	8.114	0.889	1850.503	.037%	99.856%
88.0	8.100	0.888	1851.391	.037%	99.904%
89.0	8.107	0.888	1852.279	.037%	99.952%
90.0	8.086	0.888	1853.167	.037%	100.000%

Zonal flux distribution table

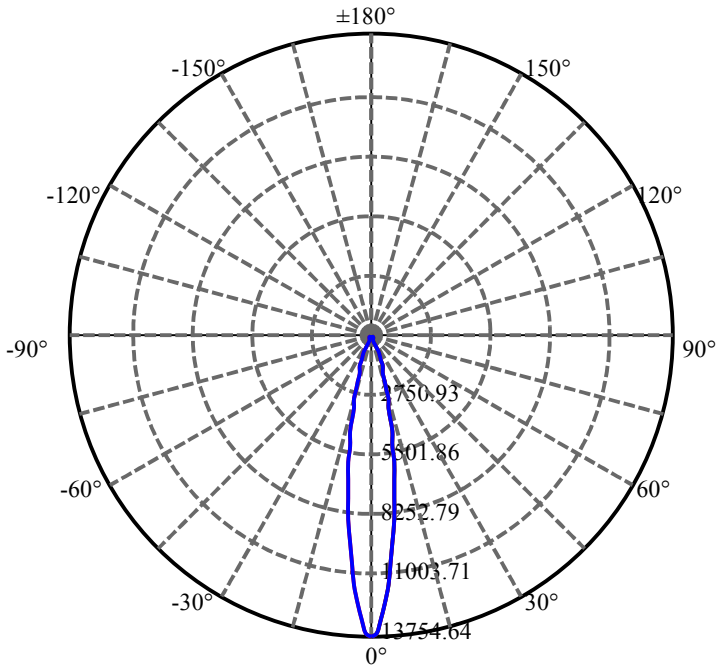
ZONAL LUMEN SUMMARY

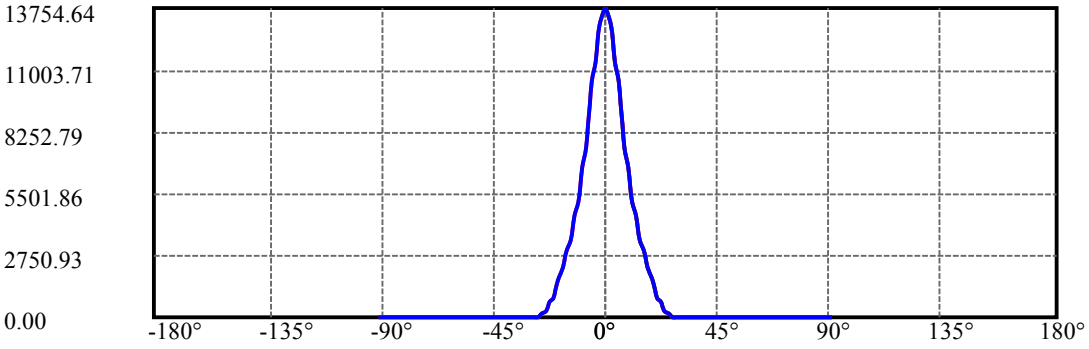
Zone	Lumens	%Lamp	%Fixt
0-30	1801.25	76.00%	97.20%
0-40	1810.63	76.40%	97.70%
0-60	1826.99	77.09%	98.59%
0-90	1852.28	78.16%	99.95%
0-120	1852.28	78.16%	99.95%
0-180	1853.17	78.19%	100.00%
60-90	26.12	1.10%	1.41%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.79	1482.53	62.55%	80.00%

ZONAL LUMEN SUMMARY

0-10	843.93
10-20	826.53
20-30	130.78
30-40	9.38
40-50	8.11
50-60	8.25
60-70	8.51
70-80	8.77
80-90	8.01
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

Light Distribution Curve [Unit:cd]





C0(Max):

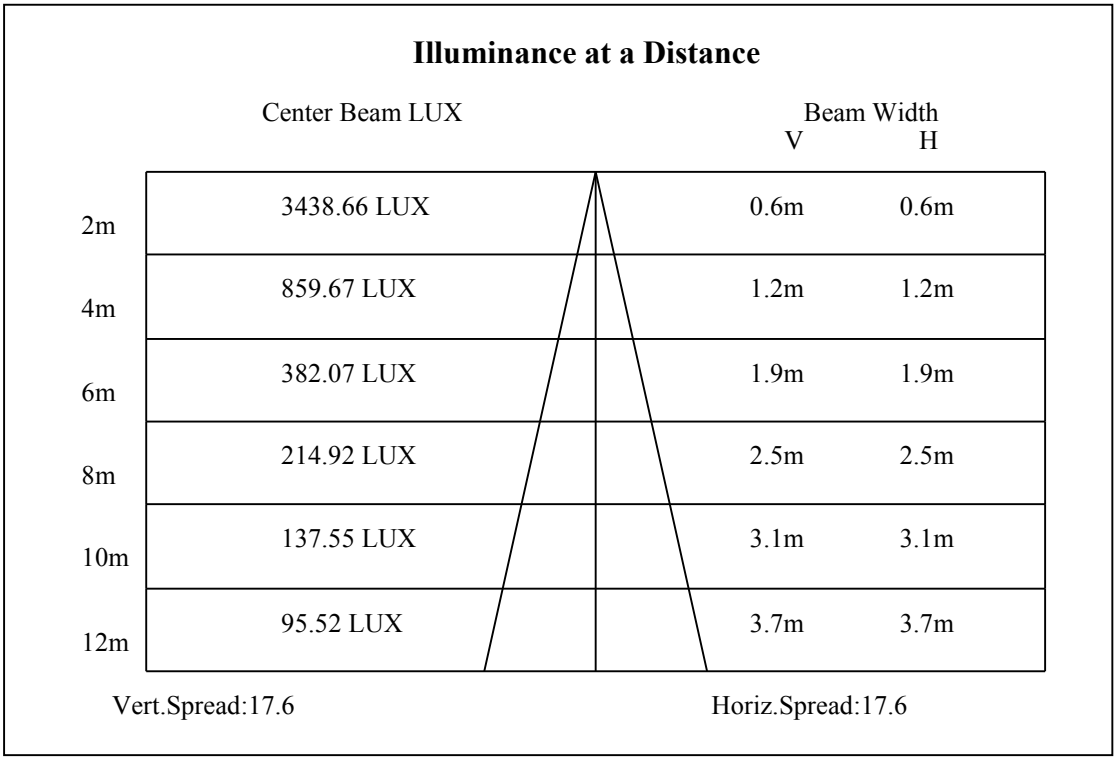
C0/C180:

C90/C270:

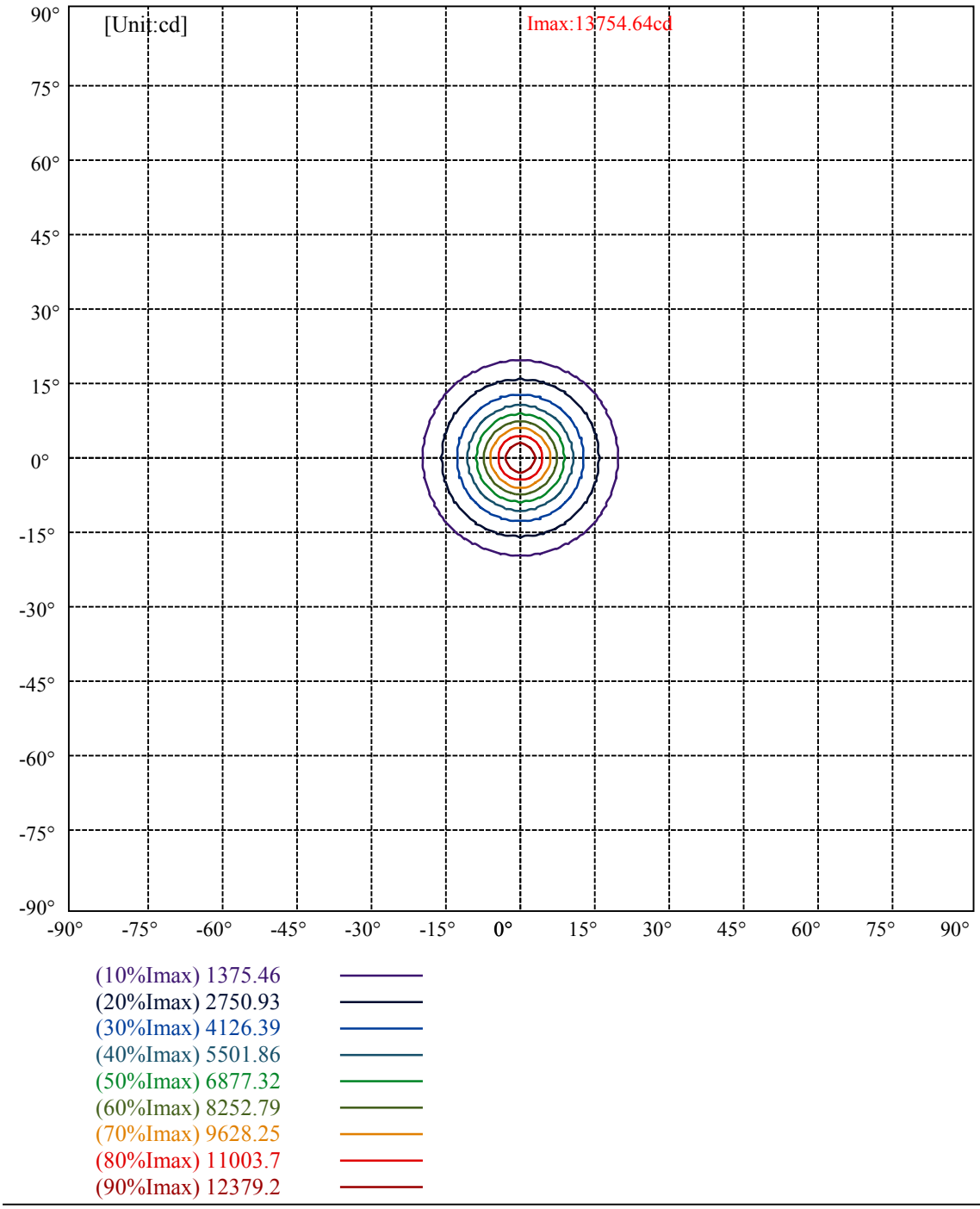
Field angle(10%Imax):C0/180Left:19.4 Right:19.4
:C90/270Left:19.4 Right:19.4

Beam Angle(50%Imax):C0/180Left:8.7 Right:8.7
:C90/270Left:8.7 Right:8.7

Lux distance Curve



ISO-Intensity(V-H)



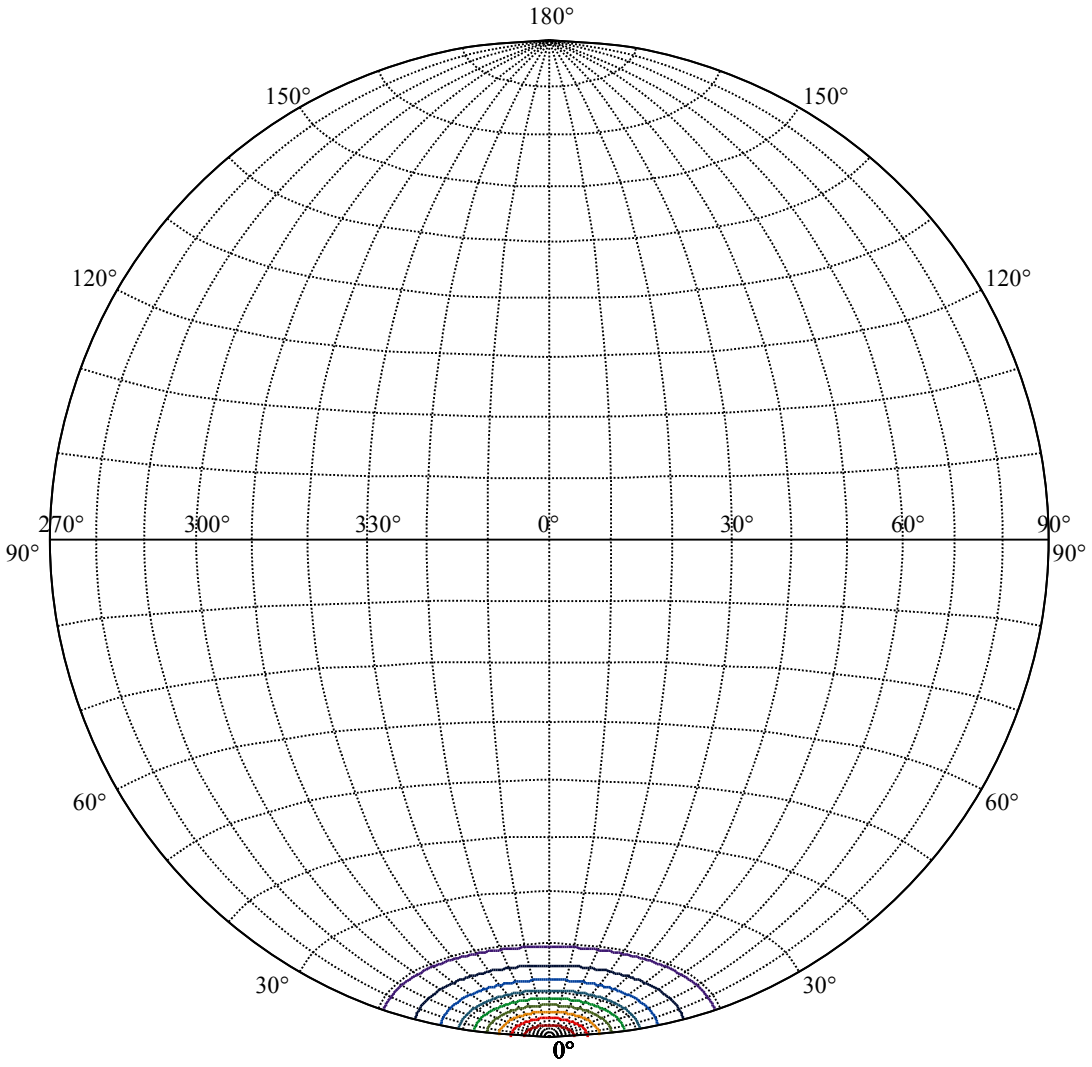
(10%Imax) 1375.46
(20%Imax) 2750.93
(30%Imax) 4126.39
(40%Imax) 5501.86
(50%Imax) 6877.32
(60%Imax) 8252.79
(70%Imax) 9628.25
(80%Imax) 11003.7
(90%Imax) 12379.2

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/7/19
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:13754.64

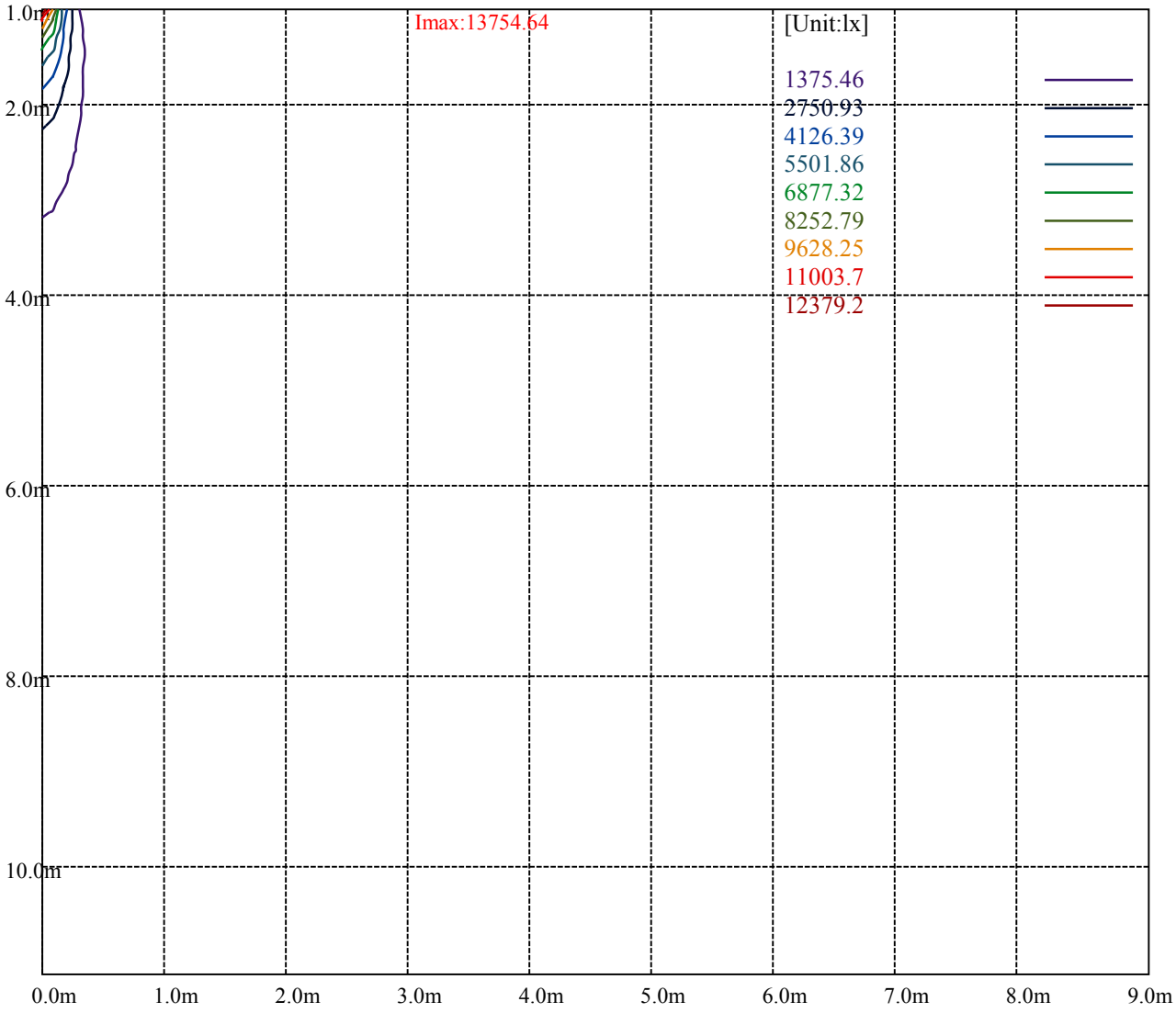
(10%Imax) 1375.46
(20%Imax) 2750.93
(30%Imax) 4126.39
(40%Imax) 5501.86
(50%Imax) 6877.32
(60%Imax) 8252.79
(70%Imax) 9628.25
(80%Imax) 11003.7
(90%Imax) 12379.2

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/7/19
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/7/19
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

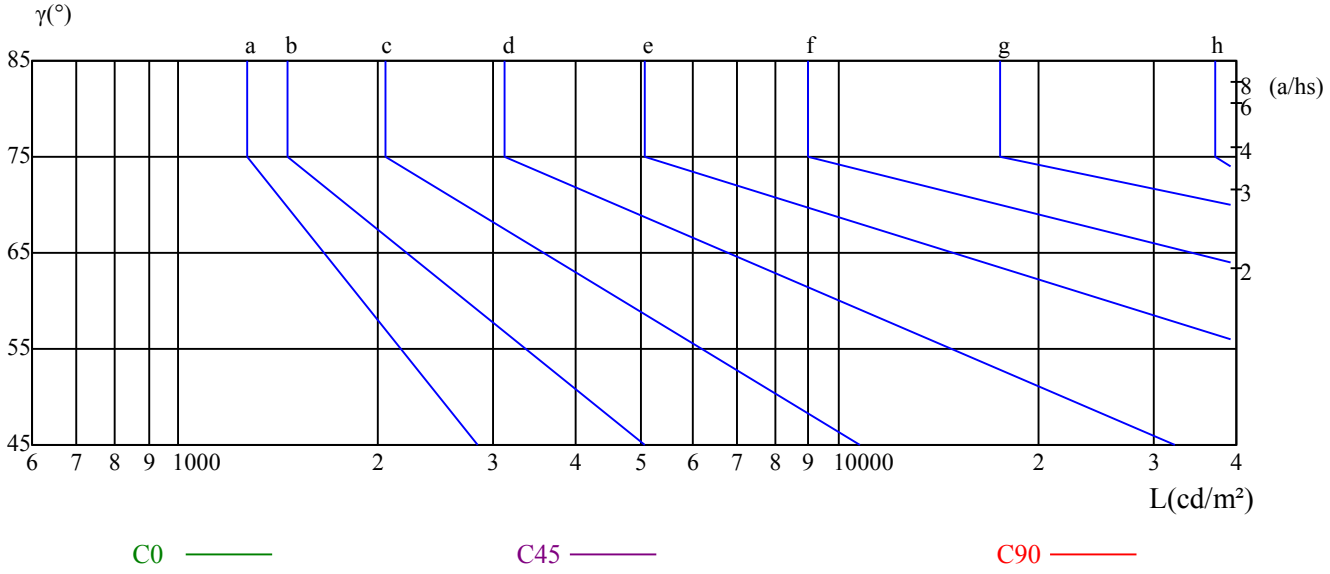
γ	45	50	55	60	65	70	75	80	85
C0	397	384	382	388	404	431	469	524	601
C45	429	418	420	433	457	495	550	631	750
C90	555	564	594	648	735	873	1102	1538	2609

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
790	790	790	1247	1247	1247	3655	3655	3655

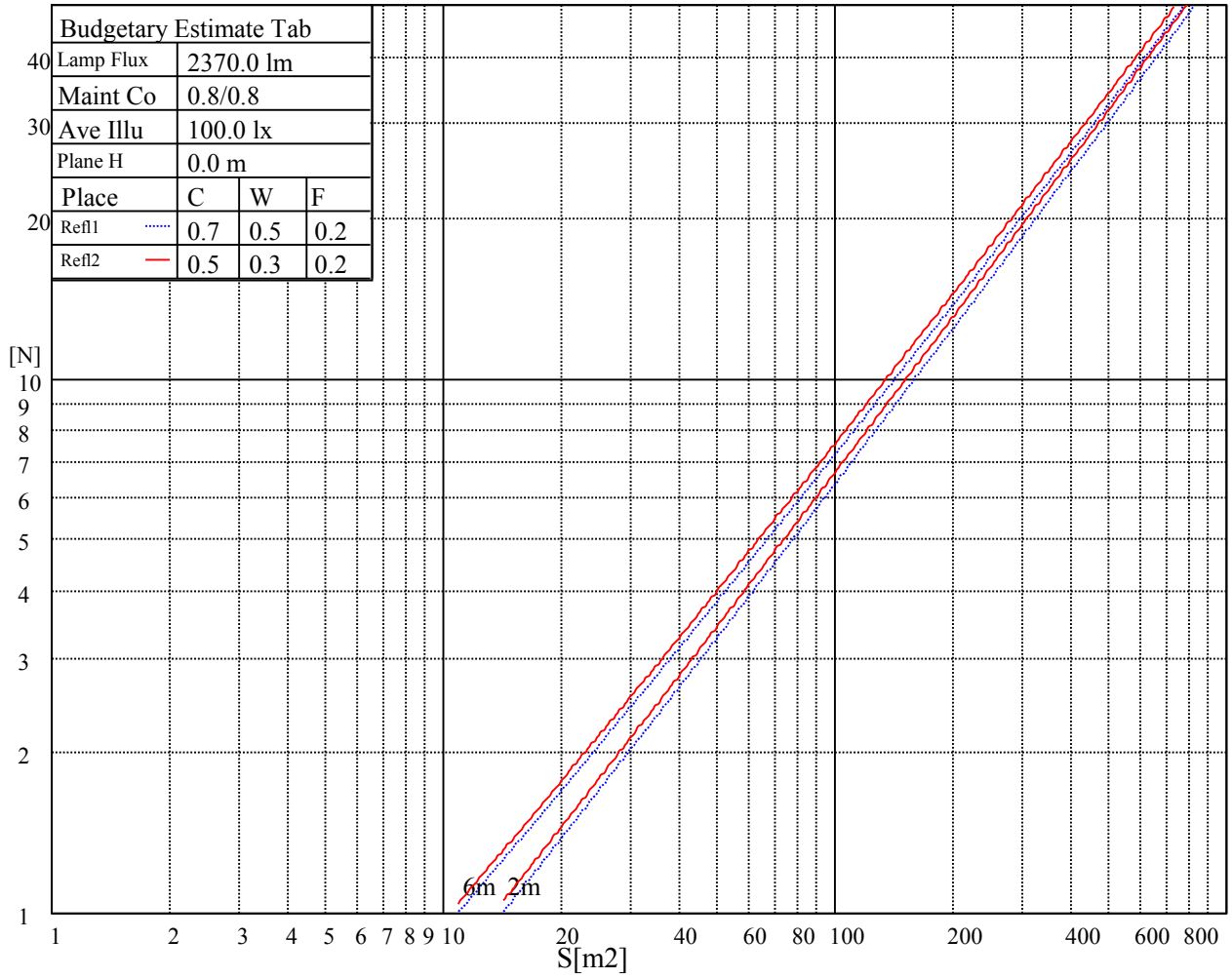
Glare Table

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



Budgetary Estimate Table

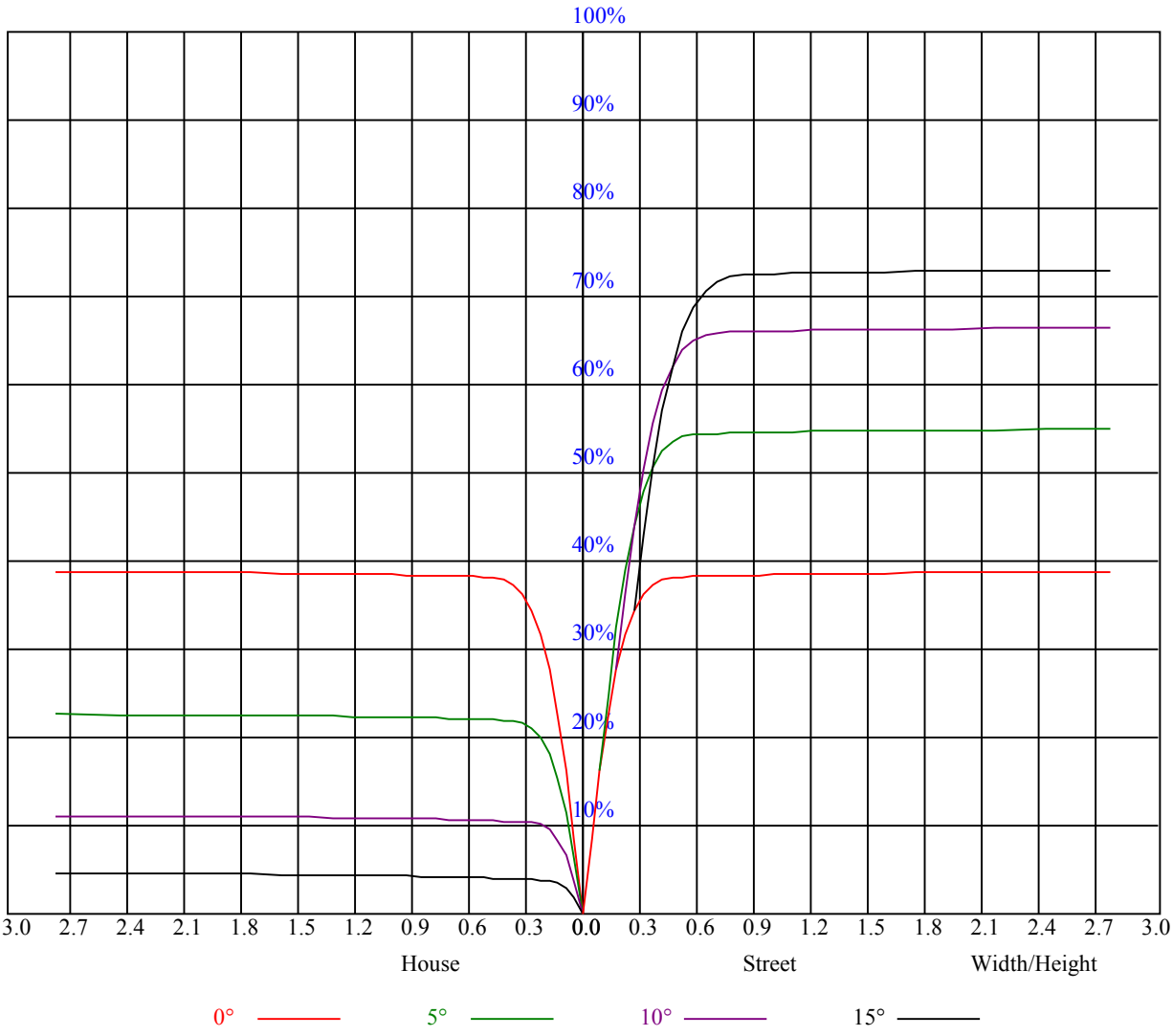


Equipment: GMS1980 Date: 2021/7/19 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.93	0.93	0.93	0.91	0.91	0.91	0.87	0.87	0.87	0.83	0.83	0.83	0.80	0.80	0.80	0.78
1	0.88	0.87	0.86	0.87	0.85	0.84	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.76
2	0.85	0.82	0.80	0.83	0.81	0.80	0.81	0.79	0.78	0.79	0.77	0.76	0.77	0.76	0.75	0.74
3	0.81	0.79	0.77	0.80	0.78	0.76	0.79	0.77	0.75	0.77	0.75	0.74	0.75	0.74	0.73	0.72
4	0.79	0.76	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.75	0.73	0.72	0.74	0.72	0.71	0.70
5	0.76	0.73	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.70	0.72	0.71	0.69	0.68
6	0.74	0.71	0.69	0.74	0.71	0.69	0.73	0.70	0.69	0.72	0.70	0.68	0.71	0.69	0.68	0.67
7	0.72	0.69	0.67	0.72	0.69	0.67	0.71	0.69	0.67	0.70	0.68	0.67	0.70	0.68	0.66	0.66
8	0.71	0.68	0.66	0.70	0.68	0.66	0.70	0.67	0.65	0.69	0.67	0.65	0.68	0.66	0.65	0.64
9	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.64	0.63
10	0.68	0.65	0.63	0.67	0.65	0.63	0.67	0.64	0.63	0.66	0.64	0.63	0.66	0.64	0.62	0.62

Coefficient Utilization Curve



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/7/19
Humidity(%): 65.0%

Operator: NT07
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	13938.86	13854.49	13297.61	12555.11	11705.74	10704.49	9630.11	8685.11	7644.49
45.0	13747.61	13066.99	12138.86	11272.61	10271.36	9326.36	8257.61	7245.11	6457.61
90.0	13488.86	12841.99	11211.75	10983.38	10074.38	9148.50	7977.94	7098.75	6324.75
135.0	13843.24	13618.24	12791.36	12003.86	11266.99	10068.86	9112.61	8291.36	7205.74
180.0	13938.86	13680.11	12931.99	12150.11	11124.56	10451.81	9251.44	8272.13	7223.06
225.0	13747.61	14028.86	13955.74	13381.99	12656.36	11223.00	10766.81	9823.50	8827.31
270.0	13488.86	13916.36	13899.49	13511.36	12757.61	11936.36	10963.24	9883.24	8898.86
315.0	13843.24	13820.74	13359.49	12583.24	11155.50	10928.25	9861.19	8781.75	7833.38
360.0	13938.86	13854.49	13297.61	12555.11	11705.74	10704.49	9630.11	8685.11	7644.49

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6710.74	5973.86	5248.24	4651.99	4044.49	3493.24	3054.49	2851.99	2209.50
45.0	5686.99	4978.24	4398.86	3892.61	3324.49	2925.11	2874.49	2211.19	1817.44
90.0	5553.56	4875.75	4331.81	3786.19	3291.19	2891.81	2480.63	2135.25	1778.63
135.0	6339.49	5720.74	4944.49	4376.36	3870.11	3307.61	2908.24	2658.94	2106.56
180.0	6417.00	5622.75	4916.81	4352.06	3773.81	3322.13	2855.81	2475.56	2076.19
225.0	7617.38	6753.94	5980.50	5132.81	4512.94	3957.75	3351.38	2970.00	2513.25
270.0	7818.86	6811.99	6035.74	5338.24	4556.36	3988.24	3481.99	3031.99	2874.49
315.0	6830.44	5958.56	5275.69	4583.25	4017.38	3449.25	2959.88	2570.06	2206.13
360.0	6710.74	5973.86	5248.24	4651.99	4044.49	3493.24	3054.49	2851.99	2209.50

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1878.75	1581.19	1230.75	965.81	718.88	477.00	300.38	152.27	70.76
45.0	1520.44	1228.50	903.94	659.25	444.38	290.25	113.74	52.59	29.98
90.0	1438.88	1116.23	889.71	569.14	395.04	237.54	90.00	46.63	29.53
135.0	1796.06	1498.50	1144.13	883.13	644.06	390.38	286.88	113.74	50.23
180.0	1714.50	1419.75	1104.41	816.53	586.63	390.99	209.31	107.04	54.79
225.0	2068.88	1792.13	1488.94	1099.69	881.21	651.66	426.66	246.49	132.64
270.0	2169.00	1840.50	1464.19	1186.31	931.50	671.63	445.50	300.38	138.77
315.0	1801.69	1505.81	1122.24	900.28	669.15	460.80	271.86	133.09	67.16
360.0	1878.75	1581.19	1230.75	965.81	718.88	477.00	300.38	152.27	70.76

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	37.07	27.79	24.81	22.22	20.19	18.56	17.16	16.09	14.91
45.0	24.24	21.38	19.41	17.72	16.43	15.36	14.51	13.78	13.11
90.0	23.34	20.76	18.96	17.33	16.14	15.08	14.12	13.44	12.88
135.0	29.42	23.85	21.32	19.35	17.72	16.31	15.41	14.46	13.61
180.0	31.22	24.53	22.05	19.91	18.28	16.82	15.64	14.79	13.95
225.0	70.43	37.69	28.69	24.81	22.22	20.08	18.51	17.04	15.75
270.0	70.31	40.16	29.76	25.48	22.67	20.53	18.90	17.55	16.14
315.0	38.42	29.03	25.14	22.50	20.59	18.79	17.33	16.20	15.24
360.0	37.07	27.79	24.81	22.22	20.19	18.56	17.16	16.09	14.91

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	14.12	13.50	12.94	12.32	11.93	11.59	11.25	11.03	10.80
45.0	12.60	12.15	11.76	11.42	11.14	10.86	10.69	10.46	10.24
90.0	12.32	11.93	11.59	11.25	10.97	10.74	10.58	10.35	10.18
135.0	13.11	12.54	12.04	11.64	11.36	11.08	10.80	10.63	10.41
180.0	13.22	12.77	12.26	11.81	11.48	11.19	10.86	10.63	10.46
225.0	14.85	13.95	13.33	12.71	12.21	11.81	11.48	11.08	10.86
270.0	15.19	14.40	13.67	12.99	12.49	12.04	11.70	11.36	11.08
315.0	14.23	13.61	12.99	12.43	12.04	11.70	11.31	11.08	10.86
360.0	14.12	13.50	12.94	12.32	11.93	11.59	11.25	11.03	10.80

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	10.58	10.35	10.18	10.07	9.90	9.79	9.68	9.56	9.45
45.0	10.13	10.01	9.84	9.73	9.62	9.51	9.45	9.34	9.23
90.0	10.07	9.90	9.79	9.68	9.56	9.45	9.39	9.28	9.23
135.0	10.24	10.07	9.96	9.79	9.68	9.56	9.45	9.39	9.34
180.0	10.24	10.13	9.96	9.84	9.68	9.56	9.45	9.34	9.28
225.0	10.63	10.41	10.24	10.07	9.90	9.79	9.62	9.56	9.45
270.0	10.86	10.58	10.41	10.24	10.13	9.96	9.84	9.73	9.62
315.0	10.58	10.41	10.24	10.07	9.96	9.84	9.68	9.56	9.45
360.0	10.58	10.35	10.18	10.07	9.90	9.79	9.68	9.56	9.45

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.34	9.23	9.11	9.06	9.00	8.94	8.83	8.78	8.72
45.0	9.11	9.06	8.94	8.89	8.83	8.78	8.72	8.66	8.61
90.0	9.11	9.06	9.00	8.89	8.89	8.83	8.78	8.72	8.61
135.0	9.23	9.11	9.06	9.00	8.89	8.83	8.78	8.72	8.72
180.0	9.11	9.06	9.00	8.89	8.83	8.78	8.72	8.66	8.61
225.0	9.34	9.23	9.11	9.06	8.94	8.89	8.83	8.78	8.72
270.0	9.51	9.39	9.34	9.28	9.17	9.06	9.00	8.94	8.89
315.0	9.34	9.28	9.17	9.11	9.00	8.94	8.89	8.78	8.72
360.0	9.34	9.23	9.11	9.06	9.00	8.94	8.83	8.78	8.72

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.66	8.55	8.55	8.49	8.44	8.44	8.44	8.38	8.33
45.0	8.61	8.55	8.49	8.49	8.44	8.38	8.33	8.33	8.33
90.0	8.61	8.55	8.55	8.55	8.49	8.49	8.44	8.38	8.38
135.0	8.66	8.61	8.55	8.55	8.49	8.44	8.38	8.38	8.38
180.0	8.55	8.49	8.49	8.44	8.44	8.38	8.33	8.33	8.27
225.0	8.66	8.61	8.55	8.49	8.49	8.44	8.38	8.38	8.33
270.0	8.83	8.78	8.72	8.72	8.66	8.61	8.61	8.55	8.49
315.0	8.66	8.66	8.61	8.55	8.55	8.49	8.44	8.44	8.38
360.0	8.66	8.55	8.55	8.49	8.44	8.44	8.44	8.38	8.33

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.33	8.27	8.27	8.27	8.21	8.21	8.21	8.16	8.16
45.0	8.27	8.27	8.21	8.27	8.21	8.21	8.21	8.21	8.21
90.0	8.38	8.38	8.33	8.33	8.33	8.33	8.33	8.33	8.27
135.0	8.33	8.33	8.27	8.27	8.27	8.27	8.27	8.21	8.27
180.0	8.27	8.27	8.21	8.21	8.16	8.16	8.16	8.16	8.10
225.0	8.33	8.27	8.27	8.21	8.21	8.21	8.16	8.16	8.16
270.0	8.49	8.44	8.44	8.38	8.38	8.33	8.33	8.33	8.33
315.0	8.38	8.33	8.33	8.27	8.33	8.27	8.27	8.21	8.21
360.0	8.33	8.27	8.27	8.27	8.21	8.21	8.21	8.16	8.16

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.16	8.16	8.16	8.16	8.16	8.16	8.10	8.10	8.04
45.0	8.16	8.16	8.16	8.16	8.21	8.10	8.04	8.10	8.10
90.0	8.27	8.27	8.33	8.21	8.16	8.10	8.16	8.10	8.16
135.0	8.21	8.27	8.21	8.27	8.21	8.16	8.16	8.10	8.16
180.0	8.16	8.16	8.10	8.10	8.10	8.04	8.04	8.04	8.10
225.0	8.16	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.04
270.0	8.27	8.27	8.27	8.27	8.27	8.16	8.16	8.16	8.16
315.0	8.21	8.21	8.21	8.16	8.16	8.16	8.16	8.10	8.10
360.0	8.16	8.16	8.16	8.16	8.16	8.16	8.10	8.10	8.04

Intensity data(cd)

C/γ(°)	90.0
0.0	8.04
45.0	8.10
90.0	8.10
135.0	8.16
180.0	8.04
225.0	8.04
270.0	8.10
315.0	8.10
360.0	8.04