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Nata

LumCAT: 1-1009-M
Luminaire: BJB 47.360.1020

Report No: 210719-B021	Voltage(V): 36.2800
Test No: 210719-C021	Current(A): 0.5110
LampCAT: Fortimo LED SLM 1204 G7N	Power (W): 18.5390
Lamp flux(lm): 2455.6	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): 1813.59
Efficiency(%): 73.86%
Lumens(lm)/Power(W): 97.83
Central intensity(cd): 8754.891
Maximum intensity(cd): 8754.891
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=26.3
[C90/270]Total=26.3
Field angle(10%Imax): [C0/180]Total=42.5
[C90/270]Total=42.5
Maximum s/h(1/2): C0_180=0.45 C90_270=0.45
Maximum s/h(1/4): C0_180=0.43 C90_270=0.43
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 73.86%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.538%

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

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8754.891	0.000	0	.000%	.000%
1.0	8734.992	8.369	8.369	.341%	.461%
2.0	8643.656	24.943	33.312	1.016%	1.837%
3.0	8512.242	41.031	74.343	1.671%	4.099%
4.0	8329.711	56.375	130.719	2.296%	7.208%
5.0	8060.414	70.509	201.228	2.871%	11.096%
6.0	7734.094	83.004	284.233	3.380%	15.672%
7.0	7383.445	93.834	378.067	3.821%	20.846%
8.0	6960.586	102.658	480.724	4.181%	26.507%
9.0	6501.445	109.102	589.827	4.443%	32.523%
10.0	6026.836	113.376	703.203	4.617%	38.774%
11.0	5507.156	115.248	818.451	4.693%	45.129%
12.0	5011.313	114.982	933.433	4.682%	51.469%
13.0	4460.977	112.412	1045.846	4.578%	57.667%
14.0	3903.680	107.067	1152.912	4.360%	63.571%
15.0	3420.633	100.551	1253.464	4.095%	69.115%
16.0	2960.508	93.502	1346.965	3.808%	74.271%
17.0	2435.203	84.026	1430.991	3.422%	78.904%
18.0	2031.469	73.646	1504.637	2.999%	82.965%
19.0	1648.308	64.021	1568.657	2.607%	86.495%
20.0	1236.305	52.796	1621.454	2.150%	89.406%
21.0	929.095	41.580	1663.034	1.693%	91.699%
22.0	700.805	32.754	1695.787	1.334%	93.505%
23.0	470.201	24.571	1720.358	1.001%	94.859%
24.0	282.305	16.452	1736.811	.670%	95.767%
25.0	148.816	9.803	1746.614	.399%	96.307%
26.0	84.108	5.498	1752.112	.224%	96.610%
27.0	45.098	3.161	1755.273	.129%	96.785%
28.0	33.012	1.978	1757.25	.081%	96.894%
29.0	27.513	1.584	1758.834	.064%	96.981%
30.0	24.089	1.393	1760.227	.057%	97.058%
31.0	21.670	1.273	1761.501	.052%	97.128%
32.0	19.589	1.182	1762.683	.048%	97.193%
33.0	18.028	1.108	1763.791	.045%	97.254%
34.0	16.805	1.054	1764.845	.043%	97.312%
35.0	15.616	1.007	1765.852	.041%	97.368%
36.0	14.674	0.964	1766.816	.039%	97.421%
37.0	13.943	0.933	1767.75	.038%	97.473%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	13.289	0.909	1768.659	.037%	97.523%
39.0	12.635	0.885	1769.543	.036%	97.571%
40.0	12.164	0.865	1770.408	.035%	97.619%
41.0	11.798	0.853	1771.262	.035%	97.666%
42.0	11.405	0.843	1772.105	.034%	97.713%
43.0	11.102	0.834	1772.938	.034%	97.759%
44.0	10.856	0.829	1773.767	.034%	97.804%
45.0	10.610	0.825	1774.592	.034%	97.850%
46.0	10.406	0.822	1775.414	.033%	97.895%
47.0	10.216	0.820	1776.234	.033%	97.940%
48.0	10.076	0.820	1777.055	.033%	97.986%
49.0	9.949	0.822	1777.877	.033%	98.031%
50.0	9.795	0.823	1778.7	.034%	98.076%
51.0	9.682	0.824	1779.524	.034%	98.122%
52.0	9.584	0.827	1780.351	.034%	98.167%
53.0	9.492	0.830	1781.181	.034%	98.213%
54.0	9.387	0.832	1782.013	.034%	98.259%
55.0	9.316	0.835	1782.848	.034%	98.305%
56.0	9.253	0.839	1783.687	.034%	98.351%
57.0	9.169	0.842	1784.529	.034%	98.398%
58.0	9.113	0.845	1785.374	.034%	98.444%
59.0	9.063	0.850	1786.224	.035%	98.491%
60.0	9.000	0.853	1787.078	.035%	98.538%
61.0	8.937	0.856	1787.934	.035%	98.586%
62.0	8.895	0.859	1788.793	.035%	98.633%
63.0	8.852	0.863	1789.656	.035%	98.680%
64.0	8.810	0.867	1790.523	.035%	98.728%
65.0	8.782	0.871	1791.393	.035%	98.776%
66.0	8.733	0.874	1792.267	.036%	98.824%
67.0	8.684	0.876	1793.143	.036%	98.873%
68.0	8.655	0.878	1794.021	.036%	98.921%
69.0	8.613	0.881	1794.902	.036%	98.970%
70.0	8.592	0.884	1795.786	.036%	99.018%
71.0	8.564	0.887	1796.672	.036%	99.067%
72.0	8.522	0.888	1797.561	.036%	99.116%
73.0	8.508	0.891	1798.451	.036%	99.165%
74.0	8.480	0.893	1799.344	.036%	99.215%
75.0	8.445	0.894	1800.239	.036%	99.264%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.402	0.894	1801.133	.036%	99.313%
77.0	8.381	0.895	1802.028	.036%	99.363%
78.0	8.346	0.895	1802.923	.036%	99.412%
79.0	8.290	0.894	1803.817	.036%	99.461%
80.0	8.241	0.891	1804.708	.036%	99.510%
81.0	8.220	0.890	1805.598	.036%	99.560%
82.0	8.198	0.890	1806.489	.036%	99.609%
83.0	8.163	0.889	1807.378	.036%	99.658%
84.0	8.156	0.889	1808.267	.036%	99.707%
85.0	8.135	0.889	1809.156	.036%	99.756%
86.0	8.093	0.887	1810.043	.036%	99.805%
87.0	8.086	0.885	1810.929	.036%	99.853%
88.0	8.093	0.886	1811.815	.036%	99.902%
89.0	8.072	0.886	1812.701	.036%	99.951%
90.0	8.079	0.886	1813.587	.036%	100.000%

Zonal flux distribution table

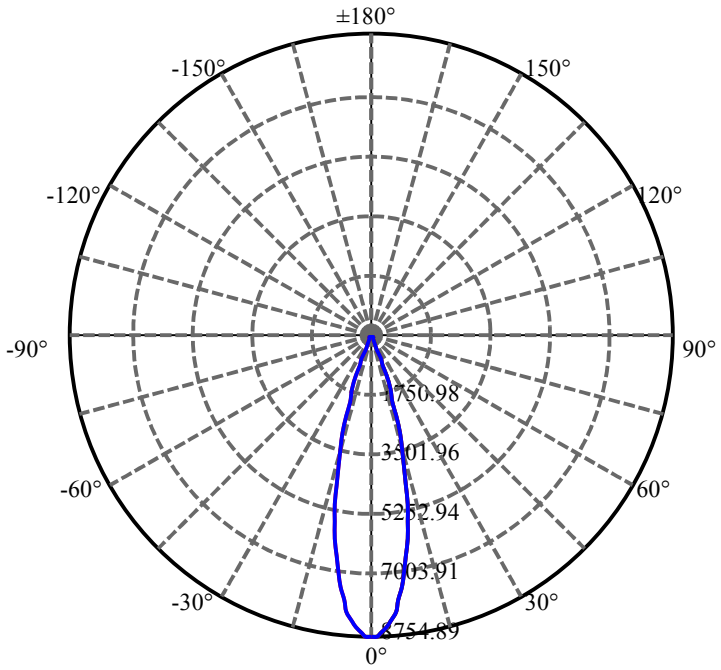
ZONAL LUMEN SUMMARY

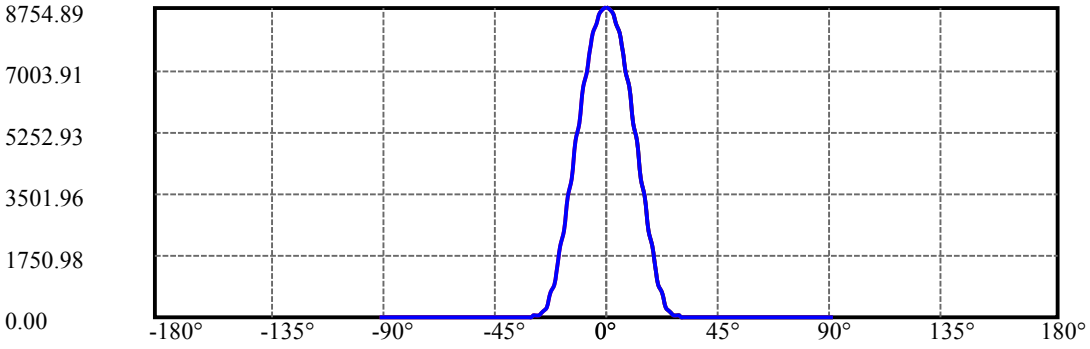
Zone	Lumens	%Lamp	%Fixt
0-30	1760.23	71.68%	97.06%
0-40	1770.41	72.10%	97.62%
0-60	1787.08	72.78%	98.54%
0-90	1812.70	73.82%	99.95%
0-120	1812.70	73.82%	99.95%
0-180	1813.59	73.86%	100.00%
60-90	26.48	1.08%	1.46%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-17.27	1450.87	59.08%	80.00%

ZONAL LUMEN SUMMARY

0-10	703.20
10-20	918.25
20-30	138.77
30-40	10.18
40-50	8.29
50-60	8.38
60-70	8.71
70-80	8.92
80-90	7.99
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):

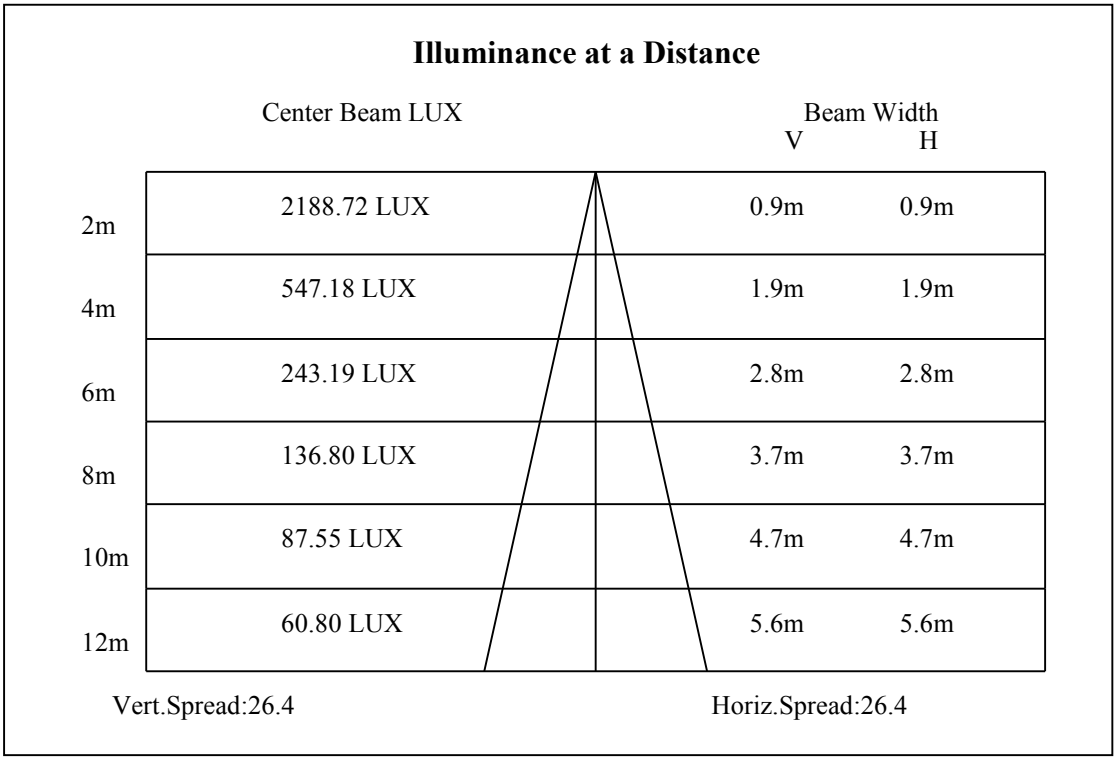
C0/C180:

C90/C270:

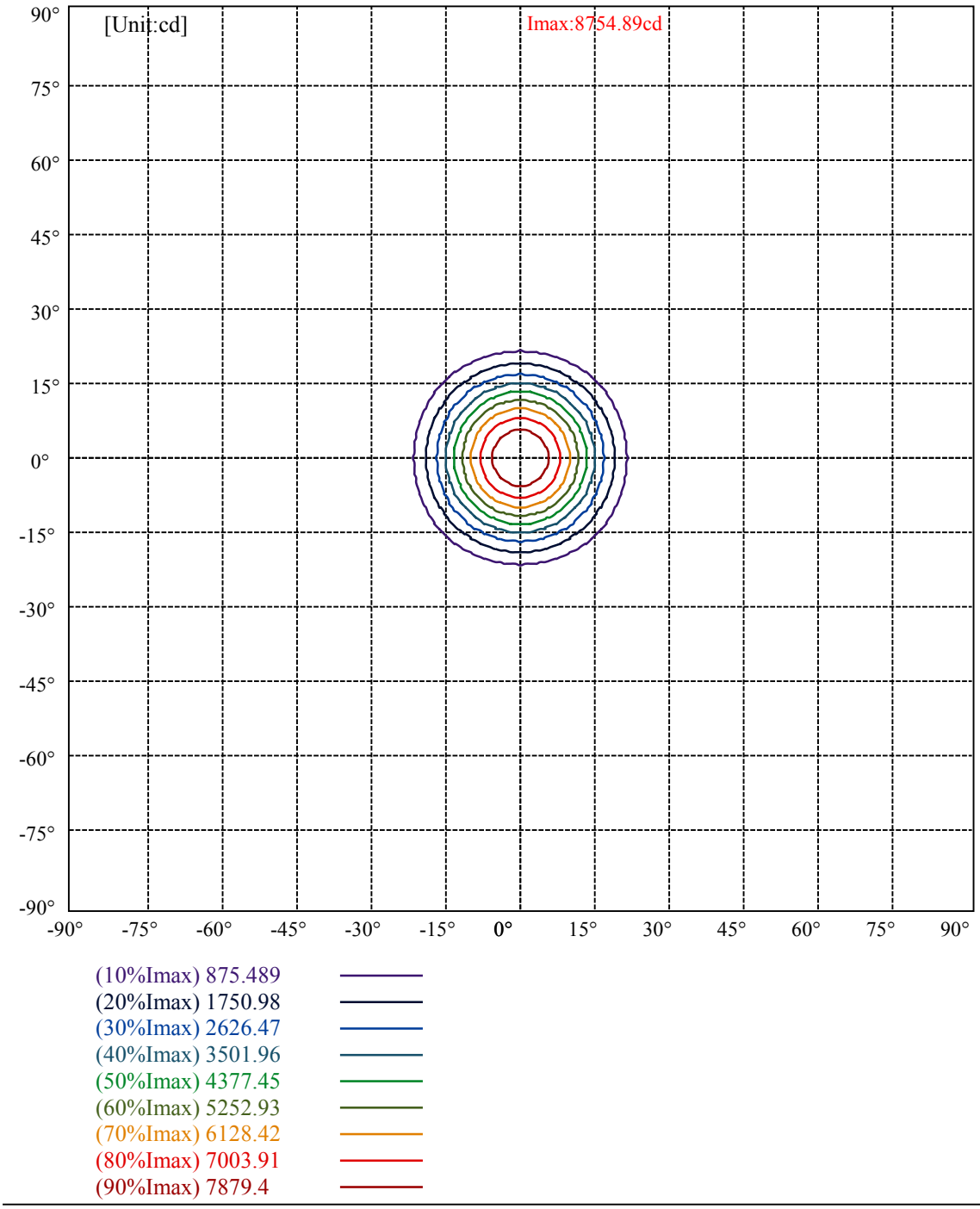
Field angle(10%Imax):C0/180Left:21.2 Right:21.2
:C90/270Left:21.2 Right:21.2

Beam Angle(50%Imax):C0/180Left:13.1 Right:13.1
:C90/270Left:13.1 Right:13.1

Lux distance Curve



ISO-Intensity(V-H)



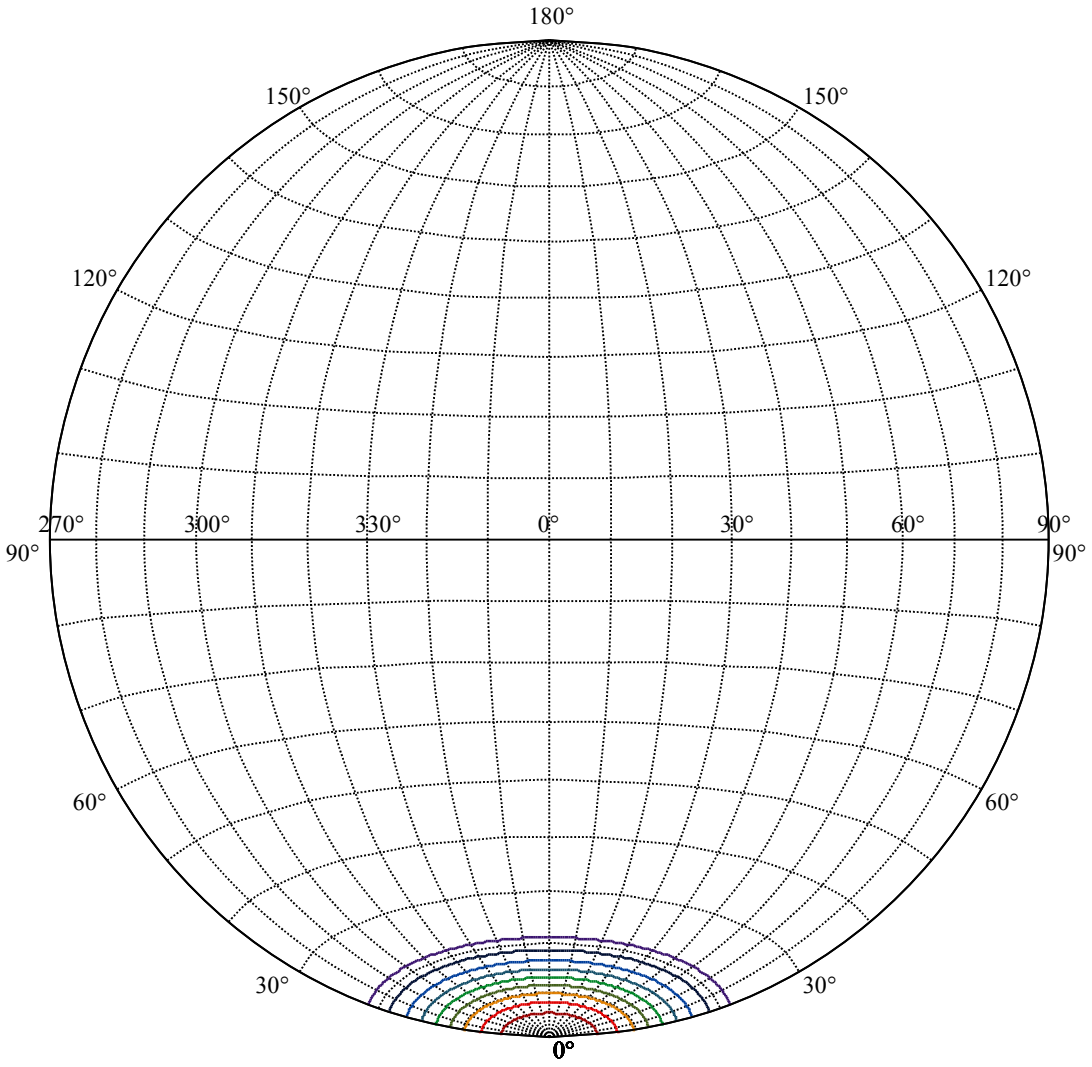
(10%Imax) 875.489
(20%Imax) 1750.98
(30%Imax) 2626.47
(40%Imax) 3501.96
(50%Imax) 4377.45
(60%Imax) 5252.93
(70%Imax) 6128.42
(80%Imax) 7003.91
(90%Imax) 7879.4

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



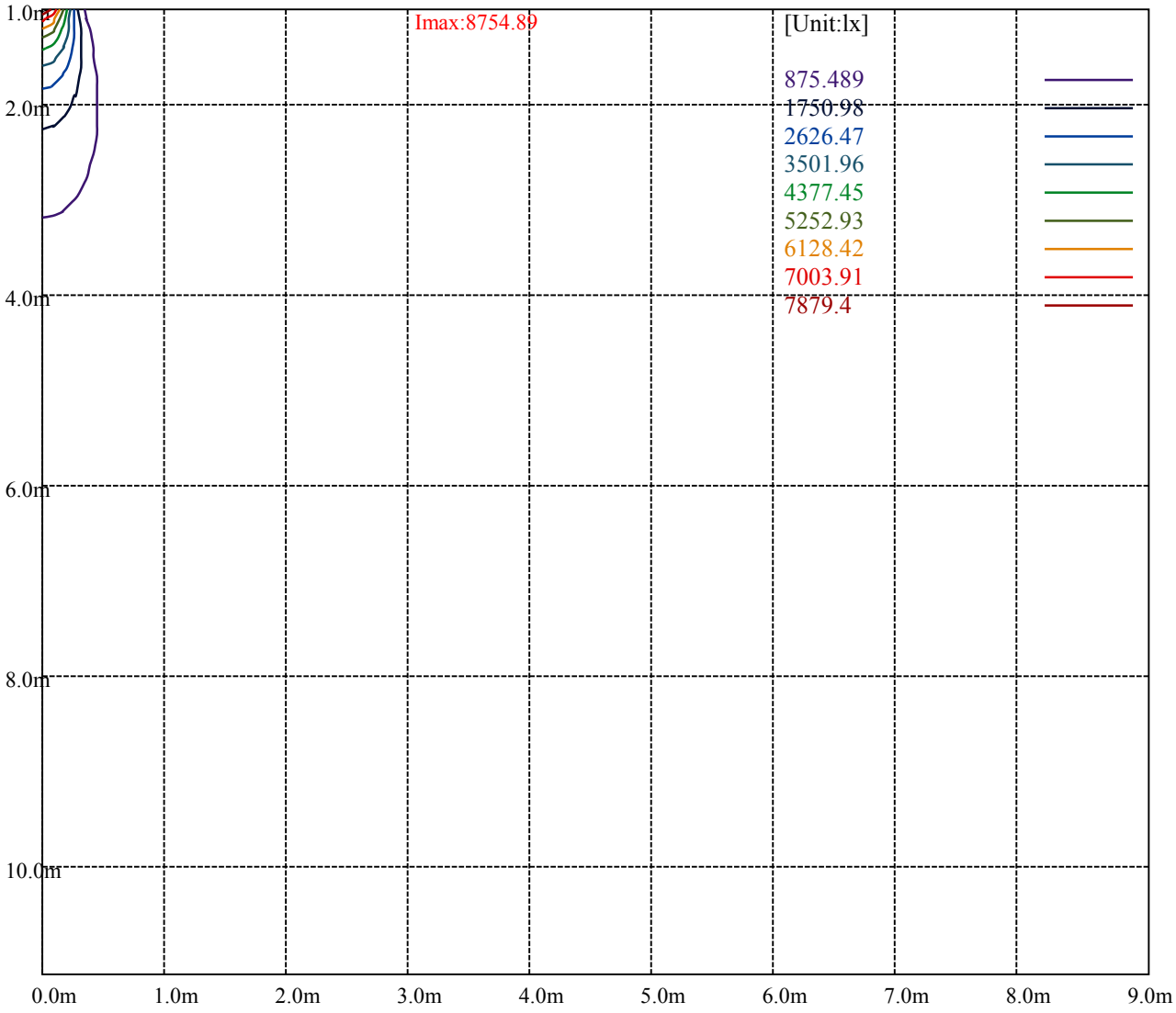
House [Unit:cd] Road

Imax:8754.89

(10%Imax) 875.489
(20%Imax) 1750.98
(30%Imax) 2626.47
(40%Imax) 3501.96
(50%Imax) 4377.45
(60%Imax) 5252.93
(70%Imax) 6128.42
(80%Imax) 7003.91
(90%Imax) 7879.4

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

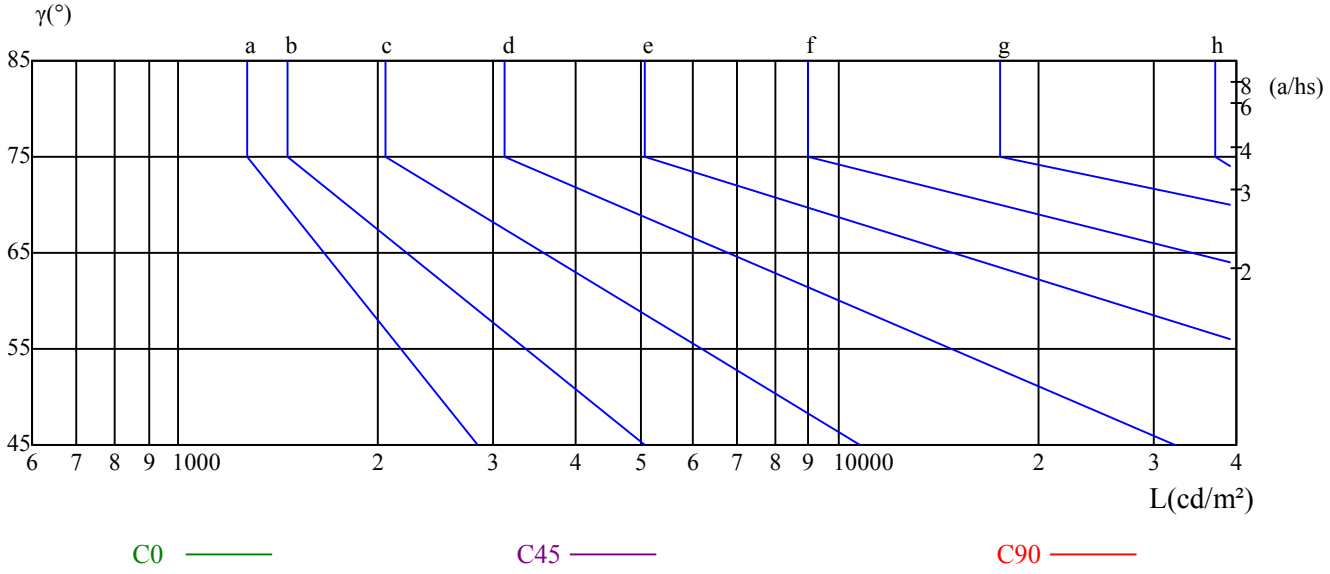
γ	45	50	55	60	65	70	75	80	85
C0	405	388	387	397	415	441	478	526	599
C45	437	423	427	442	469	507	561	633	746
C90	565	570	603	662	753	893	1125	1543	2597

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
810	810	810	1272	1272	1272	3639	3639	3639

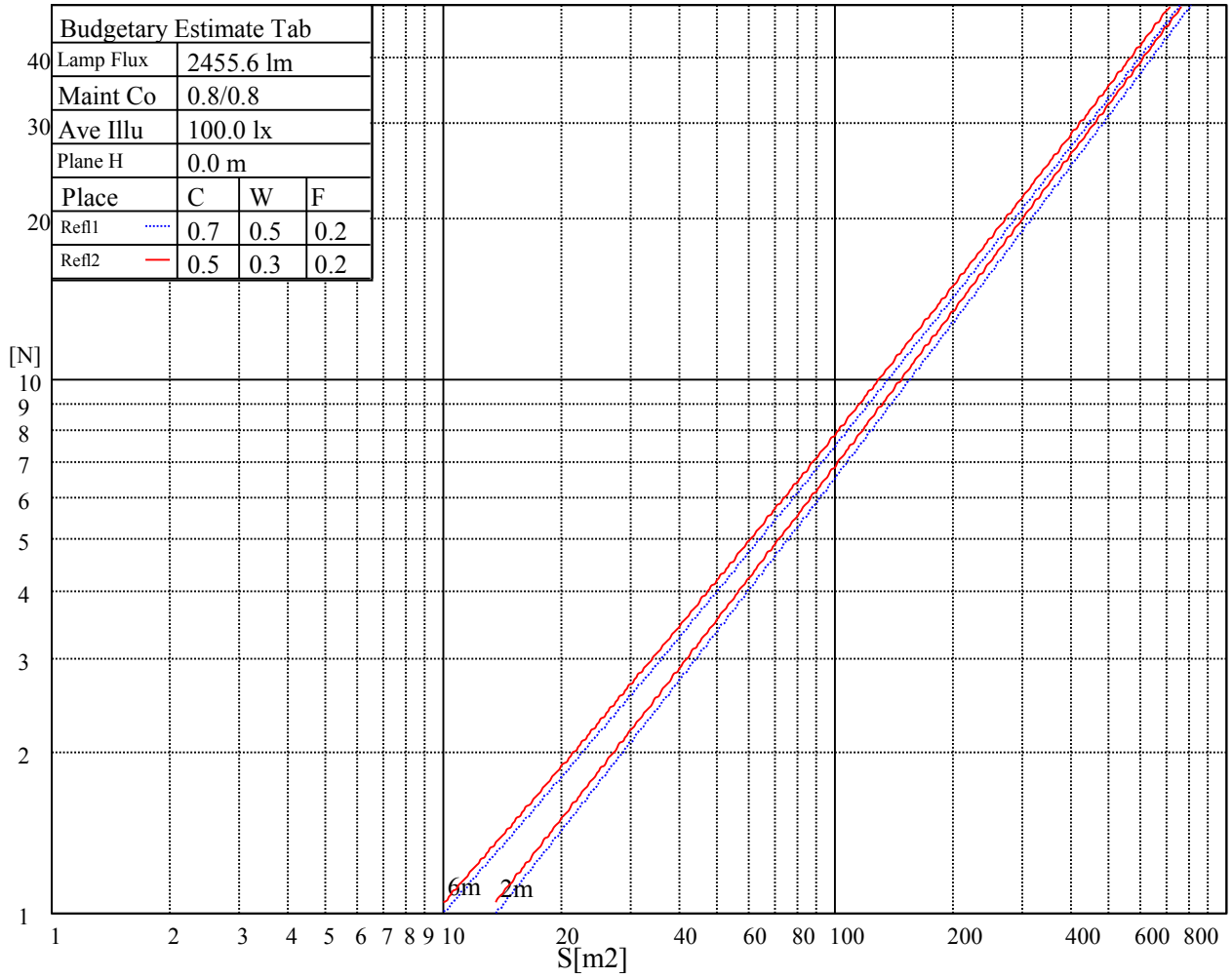
Glare Table

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

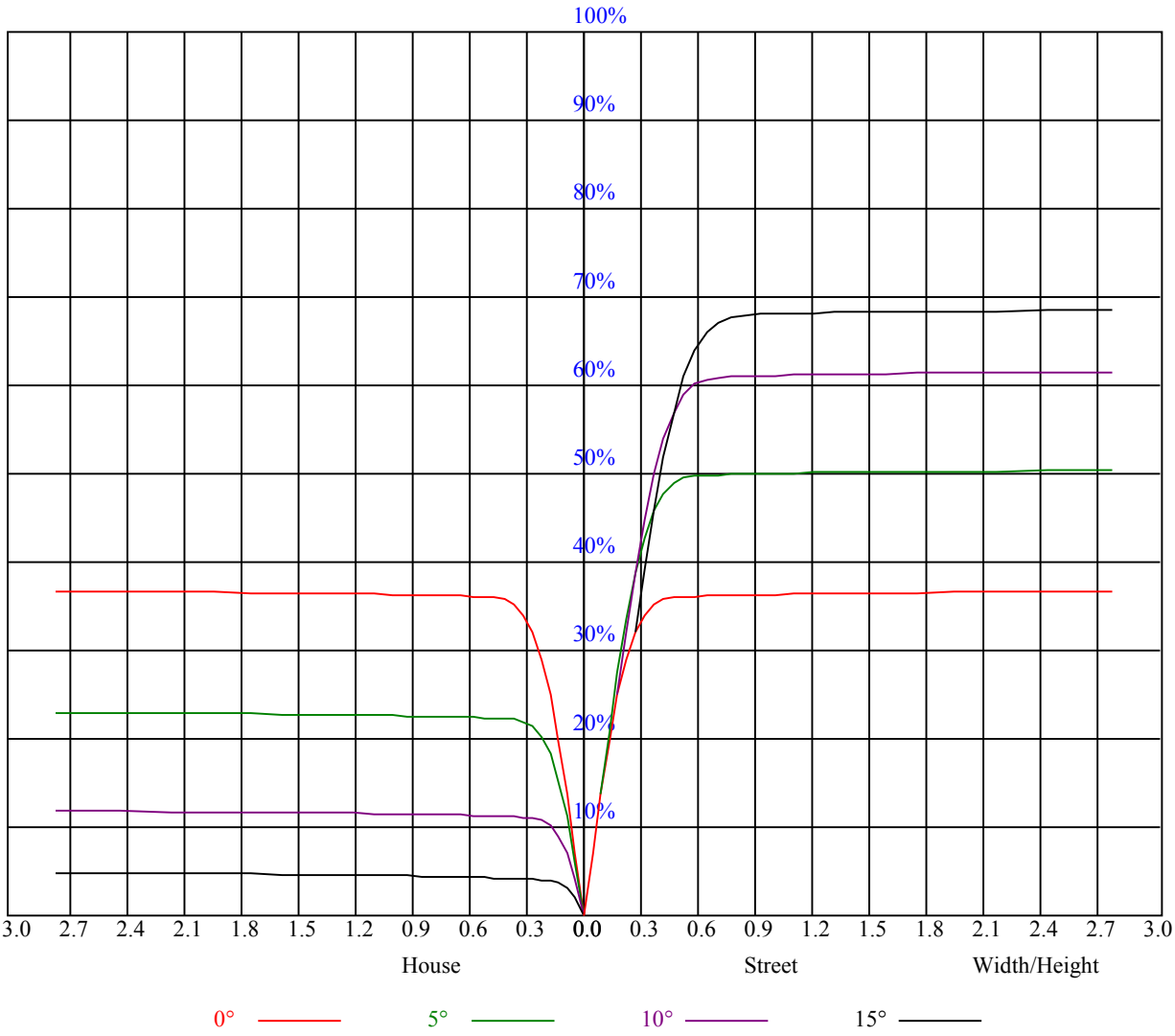


Equipment: GMS1980 Date: 2021/7/19 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.88	0.88	0.88	0.86	0.86	0.86	0.82	0.82	0.82	0.79	0.79	0.79	0.75	0.75	0.75	0.74
1	0.83	0.82	0.81	0.82	0.80	0.79	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.72	0.71
2	0.80	0.77	0.76	0.78	0.76	0.75	0.76	0.74	0.73	0.74	0.73	0.72	0.72	0.71	0.70	0.69
3	0.76	0.74	0.72	0.75	0.73	0.71	0.74	0.72	0.70	0.72	0.70	0.69	0.70	0.69	0.68	0.67
4	0.74	0.71	0.69	0.73	0.70	0.68	0.72	0.69	0.68	0.70	0.68	0.67	0.69	0.67	0.66	0.65
5	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.66	0.68	0.67	0.65	0.67	0.66	0.64	0.64
6	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.63	0.66	0.64	0.63	0.62
7	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.62	0.65	0.63	0.61	0.61
8	0.65	0.63	0.61	0.65	0.62	0.61	0.64	0.62	0.60	0.64	0.62	0.60	0.63	0.61	0.60	0.59
9	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.62	0.60	0.59	0.62	0.60	0.59	0.58
10	0.62	0.60	0.58	0.62	0.59	0.58	0.62	0.59	0.58	0.61	0.59	0.57	0.61	0.59	0.57	0.57

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2021/7/19	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	8787.94	8759.81	8651.25	8509.50	8309.81	8019.00	7663.50	7301.25	6848.44
45.0	8742.38	8652.38	8466.75	8255.25	8001.56	7623.00	7255.69	6859.69	6434.44
90.0	8722.13	8643.38	8474.06	8292.38	8042.06	7709.63	7315.88	6928.31	6456.38
135.0	8767.13	8755.88	8683.88	8551.69	8404.31	8162.44	7859.25	7516.69	7101.00
180.0	8787.94	8780.06	8718.19	8593.31	8426.25	8182.69	7866.56	7529.63	7101.56
225.0	8742.38	8793.00	8786.81	8731.13	8616.94	8427.38	8200.13	7878.38	7496.44
270.0	8722.13	8760.38	8742.38	8676.56	8555.06	8355.94	8073.56	7773.19	7419.94
315.0	8767.13	8735.06	8625.94	8488.13	8281.69	8003.25	7638.19	7280.44	6826.50
360.0	8787.94	8759.81	8651.25	8509.50	8309.81	8019.00	7663.50	7301.25	6848.44

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6368.06	5922.56	5392.13	4896.56	4323.94	3756.94	3281.06	2827.13	2288.81
45.0	5872.50	5391.00	4884.75	4311.00	3749.63	3278.81	2782.69	2313.00	1927.13
90.0	6006.94	5475.94	4922.44	4420.69	3862.69	3330.00	2875.50	2451.38	1950.75
135.0	6632.44	6188.06	5662.69	5173.31	4607.44	4045.50	3561.75	3107.81	2561.63
180.0	6679.69	6172.31	5648.63	5169.94	4617.00	4056.19	3570.19	3108.94	2498.06
225.0	7123.50	6664.50	6175.13	5707.69	5225.63	4598.44	4094.44	3605.06	3084.19
270.0	6939.00	6525.00	6031.13	5570.44	5026.50	4456.13	3952.69	3468.94	2896.88
315.0	6389.44	5875.31	5340.38	4840.88	4275.00	3707.44	3246.75	2801.81	2274.19
360.0	6368.06	5922.56	5392.13	4896.56	4323.94	3756.94	3281.06	2827.13	2288.81

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1903.50	1549.13	1150.88	862.31	608.63	398.81	290.25	97.82	52.65
45.0	1520.44	1193.06	837.00	585.56	374.63	289.69	83.59	45.79	34.43
90.0	1582.31	1092.15	879.19	623.36	408.99	205.93	101.03	51.98	35.55
135.0	2148.75	1765.13	1335.94	1027.13	749.81	482.06	294.19	137.81	71.66
180.0	2138.06	1759.50	1098.84	1024.88	751.16	486.45	282.38	149.85	64.18
225.0	2591.44	2190.94	1783.13	1121.63	1083.88	775.13	540.28	319.84	163.41
270.0	2467.69	2087.44	1693.13	1321.88	1017.00	747.00	464.63	286.88	199.74
315.0	1899.56	1549.13	1112.34	866.03	612.34	376.54	202.11	100.58	51.24
360.0	1903.50	1549.13	1150.88	862.31	608.63	398.81	290.25	97.82	52.65

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	37.97	31.05	27.11	24.02	21.60	19.80	18.11	16.88	15.69
45.0	27.90	24.58	22.28	19.97	18.39	17.04	15.86	14.91	14.18
90.0	29.14	25.09	21.99	20.31	18.73	17.04	16.14	15.24	14.23
135.0	39.49	30.32	26.78	23.12	21.04	19.35	17.72	16.71	15.64
180.0	40.28	30.88	26.21	23.40	21.21	19.01	17.61	16.43	15.30
225.0	79.09	47.36	34.48	29.36	25.82	22.56	20.53	18.84	17.27
270.0	68.46	43.71	34.59	28.69	24.92	22.50	20.25	18.68	17.16
315.0	38.48	31.11	26.66	23.85	21.66	19.41	18.00	16.76	15.47
360.0	37.97	31.05	27.11	24.02	21.60	19.80	18.11	16.88	15.69

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	14.68	13.89	13.33	12.49	12.04	11.70	11.19	10.91	10.69
45.0	13.50	12.99	12.43	11.98	11.64	11.36	11.03	10.86	10.63
90.0	13.73	13.16	12.66	12.21	11.87	11.53	11.31	11.03	10.80
135.0	14.63	14.06	13.39	12.83	12.38	11.98	11.59	11.31	11.08
180.0	14.34	13.67	13.05	12.43	11.93	11.59	11.19	10.86	10.63
225.0	15.98	14.96	14.06	13.28	12.66	12.15	11.76	11.36	11.03
270.0	15.92	14.96	14.18	13.33	12.77	12.38	11.87	11.53	11.25
315.0	14.63	13.84	13.22	12.54	12.04	11.70	11.31	10.97	10.74
360.0	14.68	13.89	13.33	12.49	12.04	11.70	11.19	10.91	10.69

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	10.41	10.24	10.07	9.90	9.79	9.62	9.51	9.45	9.34
45.0	10.46	10.29	10.13	10.07	9.90	9.79	9.73	9.62	9.56
90.0	10.63	10.46	10.29	10.24	10.13	10.01	9.90	9.84	9.79
135.0	10.80	10.58	10.41	10.24	10.13	10.01	9.90	9.79	9.68
180.0	10.41	10.18	10.01	9.90	9.79	9.56	9.45	9.34	9.28
225.0	10.74	10.52	10.24	10.07	9.96	9.73	9.62	9.51	9.39
270.0	10.91	10.69	10.46	10.24	10.13	9.96	9.79	9.68	9.56
315.0	10.52	10.29	10.13	9.96	9.79	9.68	9.56	9.45	9.34
360.0	10.41	10.24	10.07	9.90	9.79	9.62	9.51	9.45	9.34

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.23	9.17	9.11	9.00	8.94	8.89	8.83	8.78	8.72
45.0	9.45	9.39	9.34	9.28	9.23	9.23	9.11	9.06	9.06
90.0	9.68	9.62	9.56	9.51	9.45	9.39	9.39	9.34	9.28
135.0	9.56	9.45	9.39	9.28	9.28	9.23	9.11	9.06	9.00
180.0	9.17	9.11	9.06	8.94	8.89	8.83	8.78	8.72	8.66
225.0	9.34	9.23	9.17	9.06	9.00	8.94	8.89	8.83	8.78
270.0	9.45	9.39	9.28	9.23	9.17	9.11	9.06	8.94	8.94
315.0	9.23	9.17	9.11	9.06	8.94	8.89	8.83	8.78	8.72
360.0	9.23	9.17	9.11	9.00	8.94	8.89	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	8.72	8.66	8.61	8.55	8.55	8.44	8.44	8.38	8.38
45.0	9.00	9.00	8.94	8.89	8.83	8.83	8.83	8.78	8.78
90.0	9.23	9.17	9.17	9.11	9.06	9.00	8.94	8.94	8.89
135.0	9.00	8.89	8.89	8.83	8.78	8.72	8.66	8.66	8.61
180.0	8.61	8.55	8.55	8.49	8.44	8.44	8.38	8.38	8.33
225.0	8.72	8.72	8.66	8.66	8.61	8.61	8.55	8.49	8.49
270.0	8.89	8.83	8.83	8.78	8.72	8.72	8.66	8.66	8.61
315.0	8.66	8.66	8.61	8.55	8.49	8.49	8.44	8.44	8.44
360.0	8.72	8.66	8.61	8.55	8.55	8.44	8.44	8.38	8.38

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.38	8.33	8.27	8.21	8.21	8.16	8.16	8.16	8.10
45.0	8.72	8.72	8.66	8.61	8.55	8.49	8.44	8.38	8.27
90.0	8.83	8.83	8.83	8.78	8.72	8.66	8.61	8.38	8.27
135.0	8.55	8.55	8.49	8.49	8.44	8.44	8.38	8.33	8.33
180.0	8.27	8.27	8.27	8.21	8.16	8.16	8.16	8.16	8.10
225.0	8.44	8.44	8.44	8.44	8.38	8.38	8.38	8.33	8.33
270.0	8.61	8.55	8.55	8.49	8.49	8.49	8.44	8.38	8.33
315.0	8.38	8.38	8.33	8.33	8.27	8.27	8.21	8.21	8.21
360.0	8.38	8.33	8.27	8.21	8.21	8.16	8.16	8.16	8.10

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.10	8.10	8.04	8.10	8.04	8.04	7.99	7.99	7.93
45.0	8.21	8.21	8.21	8.21	8.16	8.10	8.10	8.10	8.10
90.0	8.27	8.27	8.21	8.21	8.21	8.16	8.16	8.16	8.16
135.0	8.33	8.27	8.21	8.21	8.16	8.10	8.10	8.10	8.10
180.0	8.10	8.10	8.04	7.99	7.99	7.99	7.99	7.99	7.93
225.0	8.27	8.21	8.16	8.16	8.16	8.10	8.10	8.10	8.10
270.0	8.27	8.27	8.21	8.21	8.21	8.16	8.16	8.21	8.16
315.0	8.21	8.16	8.21	8.16	8.16	8.10	8.10	8.10	8.10
360.0	8.10	8.10	8.04	8.10	8.04	8.04	7.99	7.99	7.93

Intensity data(cd)

C/γ(°)	90.0
0.0	7.99
45.0	8.10
90.0	8.16
135.0	8.10
180.0	7.99
225.0	8.04
270.0	8.16
315.0	8.10
360.0	7.99