NATA LIGHTING CO.,LTD.
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Nata

LumCAT: LN01D04524DA-N
Luminaire: 97.70.234.00

Report No: 210707-B001	Voltage(V): 36.7300
Test No: 210707-C001	Current(A): 0.4510
LampCAT: Fortimo LED SLM 1203 G7N	Power (W): 16.5650
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): 1932.82
Efficiency(%): 88.55%
Lumens(lm)/Power(W): 116.68
Central intensity(cd): 6208.031
Maximum intensity(cd): 6208.031
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=50.6
[C90/270]Total=50.6
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(%): 88.55%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.249%

Equipment: GMS1980	Date: 2021/7/07	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	6208.031	0.000	0	.000%	.000%
1.0	6197.414	5.936	5.936	.272%	.307%
2.0	6139.547	17.707	23.643	.811%	1.223%
3.0	6057.211	29.171	52.814	1.336%	2.732%
4.0	5947.172	40.183	92.996	1.841%	4.811%
5.0	5795.438	50.516	143.512	2.314%	7.425%
6.0	5618.883	59.985	203.497	2.748%	10.529%
7.0	5428.617	68.572	272.069	3.142%	14.076%
8.0	5203.477	76.092	348.161	3.486%	18.013%
9.0	4964.555	82.406	430.567	3.775%	22.277%
10.0	4699.266	87.454	518.021	4.007%	26.801%
11.0	4409.719	91.017	609.039	4.170%	31.510%
12.0	4124.813	93.295	702.334	4.274%	36.337%
13.0	3787.594	93.900	796.234	4.302%	41.195%
14.0	3425.625	92.329	888.562	4.230%	45.972%
15.0	3095.297	89.522	978.085	4.101%	50.604%
16.0	2759.766	85.793	1063.878	3.931%	55.043%
17.0	2385.070	80.119	1143.997	3.671%	59.188%
18.0	2077.383	73.576	1217.573	3.371%	62.995%
19.0	1781.803	67.142	1284.715	3.076%	66.468%
20.0	1517.534	60.387	1345.102	2.767%	69.593%
21.0	1274.498	53.613	1398.714	2.456%	72.366%
22.0	1085.154	47.418	1446.133	2.172%	74.820%
23.0	911.777	41.901	1488.034	1.920%	76.988%
24.0	761.527	36.584	1524.618	1.676%	78.880%
25.0	648.963	32.071	1556.689	1.469%	80.540%
26.0	548.705	28.271	1584.961	1.295%	82.002%
27.0	466.327	24.833	1609.793	1.138%	83.287%
28.0	396.640	21.848	1631.642	1.001%	84.418%
29.0	341.093	19.301	1650.943	.884%	85.416%
30.0	301.409	17.347	1668.291	.795%	86.314%
31.0	263.461	15.720	1684.01	.720%	87.127%
32.0	234.584	14.268	1698.278	.654%	87.865%
33.0	202.908	12.889	1711.167	.590%	88.532%
34.0	182.426	11.661	1722.828	.534%	89.135%
35.0	162.780	10.721	1733.549	.491%	89.690%
36.0	146.538	9.849	1743.398	.451%	90.200%
37.0	133.657	9.138	1752.536	.419%	90.672%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	121.718	8.524	1761.06	.391%	91.113%
39.0	110.067	7.911	1768.972	.362%	91.523%
40.0	101.102	7.365	1776.337	.337%	91.904%
41.0	92.925	6.909	1783.246	.317%	92.261%
42.0	85.078	6.467	1789.713	.296%	92.596%
43.0	78.490	6.059	1795.772	.278%	92.909%
44.0	72.436	5.696	1801.469	.261%	93.204%
45.0	66.973	5.358	1806.826	.245%	93.481%
46.0	61.833	5.037	1811.864	.231%	93.742%
47.0	57.291	4.738	1816.601	.217%	93.987%
48.0	53.234	4.468	1821.069	.205%	94.218%
49.0	49.444	4.217	1825.286	.193%	94.436%
50.0	45.816	3.972	1829.258	.182%	94.642%
51.0	42.757	3.747	1833.005	.172%	94.836%
52.0	40.148	3.558	1836.562	.163%	95.020%
53.0	37.659	3.385	1839.947	.155%	95.195%
54.0	35.522	3.226	1843.173	.148%	95.362%
55.0	33.841	3.096	1846.269	.142%	95.522%
56.0	32.379	2.992	1849.261	.137%	95.677%
57.0	30.832	2.890	1852.151	.132%	95.826%
58.0	29.665	2.798	1854.949	.128%	95.971%
59.0	28.645	2.726	1857.675	.125%	96.112%
60.0	27.555	2.655	1860.33	.122%	96.249%
61.0	26.655	2.587	1862.917	.119%	96.383%
62.0	25.938	2.534	1865.451	.116%	96.514%
63.0	25.467	2.500	1867.952	.115%	96.644%
64.0	25.439	2.498	1870.449	.114%	96.773%
65.0	25.826	2.537	1872.987	.116%	96.904%
66.0	26.191	2.595	1875.582	.119%	97.039%
67.0	26.613	2.655	1878.237	.122%	97.176%
68.0	26.965	2.714	1880.951	.124%	97.316%
69.0	27.584	2.783	1883.734	.127%	97.460%
70.0	28.160	2.863	1886.597	.131%	97.608%
71.0	28.779	2.943	1889.54	.135%	97.761%
72.0	29.580	3.035	1892.574	.139%	97.918%
73.0	30.178	3.125	1895.699	.143%	98.079%
74.0	30.769	3.204	1898.903	.147%	98.245%
75.0	31.057	3.267	1902.17	.150%	98.414%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	31.015	3.295	1905.465	.151%	98.585%
77.0	30.410	3.275	1908.74	.150%	98.754%
78.0	28.927	3.176	1911.916	.146%	98.918%
79.0	27.105	3.011	1914.927	.138%	99.074%
80.0	24.623	2.789	1917.716	.128%	99.218%
81.0	21.769	2.509	1920.224	.115%	99.348%
82.0	19.013	2.211	1922.436	.101%	99.463%
83.0	16.242	1.916	1924.352	.088%	99.562%
84.0	13.802	1.637	1925.989	.075%	99.647%
85.0	12.066	1.412	1927.401	.065%	99.720%
86.0	10.835	1.252	1928.653	.057%	99.784%
87.0	9.956	1.138	1929.791	.052%	99.843%
88.0	9.338	1.057	1930.848	.048%	99.898%
89.0	8.972	1.004	1931.851	.046%	99.950%
90.0	8.726	0.970	1932.821	.044%	100.000%

Zonal flux distribution table

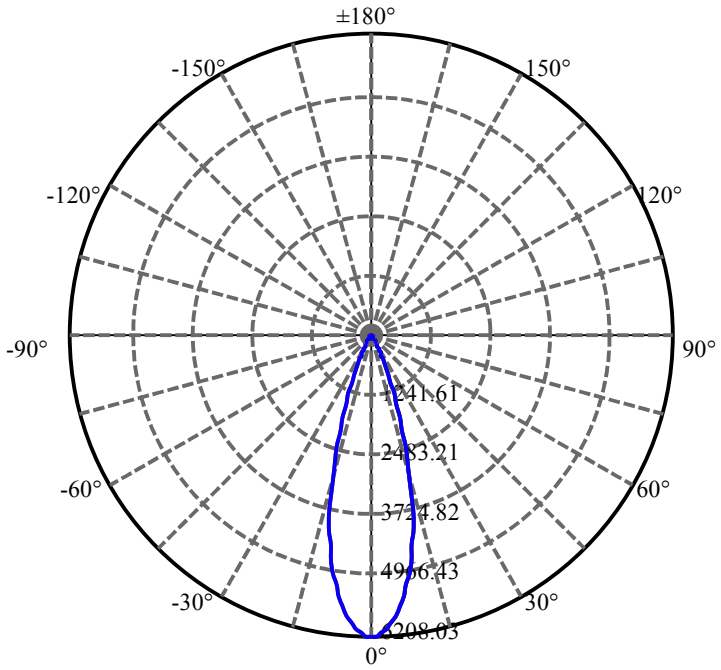
ZONAL LUMEN SUMMARY

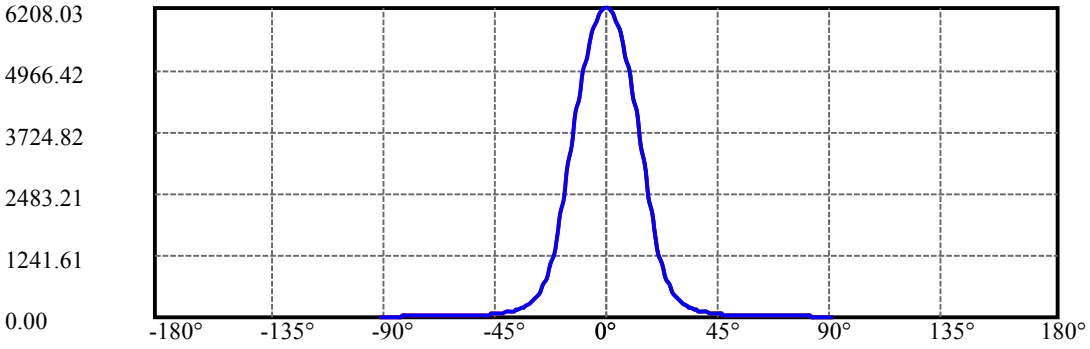
Zone	Lumens	%Lamp	%Fixt
0-30	1668.29	76.43%	86.31%
0-40	1776.34	81.38%	91.90%
0-60	1860.33	85.23%	96.25%
0-90	1931.85	88.51%	99.95%
0-120	1931.85	88.51%	99.95%
0-180	1932.82	88.55%	100.00%
60-90	74.18	3.40%	3.84%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.67	1546.26	70.84%	80.00%

ZONAL LUMEN SUMMARY

0-10	518.02
10-20	827.08
20-30	323.19
30-40	108.05
40-50	52.92
50-60	31.07
60-70	26.27
70-80	31.12
80-90	14.14
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

Light Distribution Curve [Unit:cd]





C0(Max):

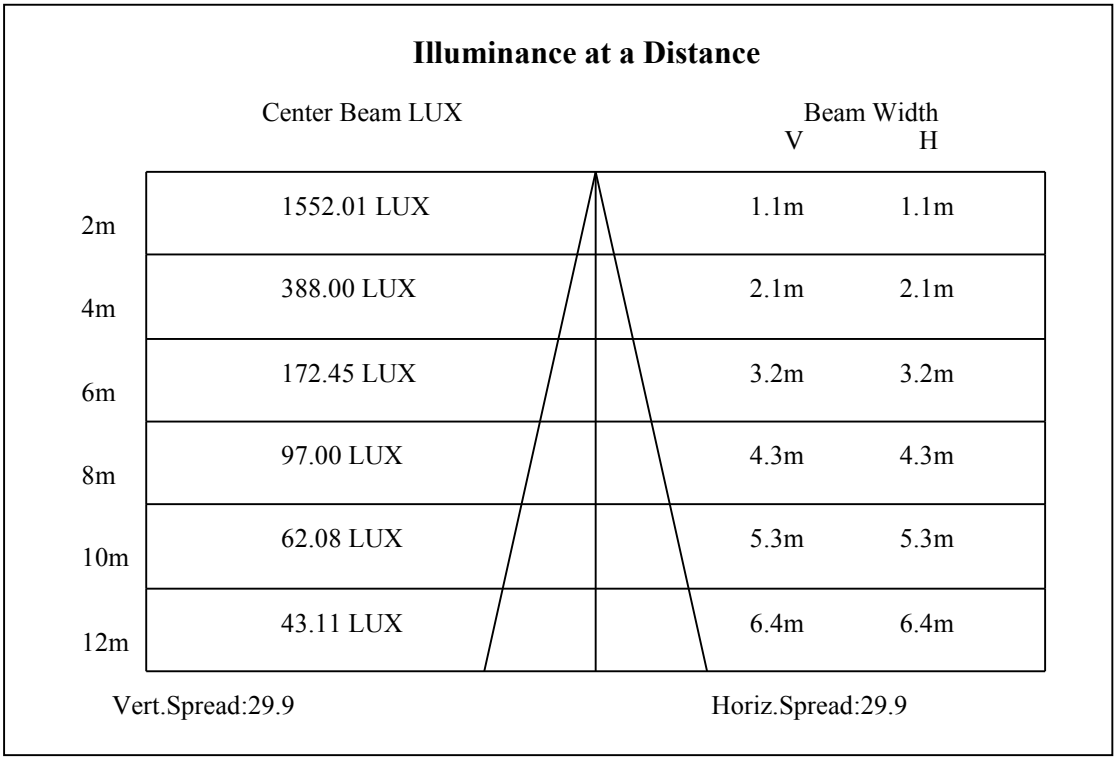
C0/C180:

C90/C270:

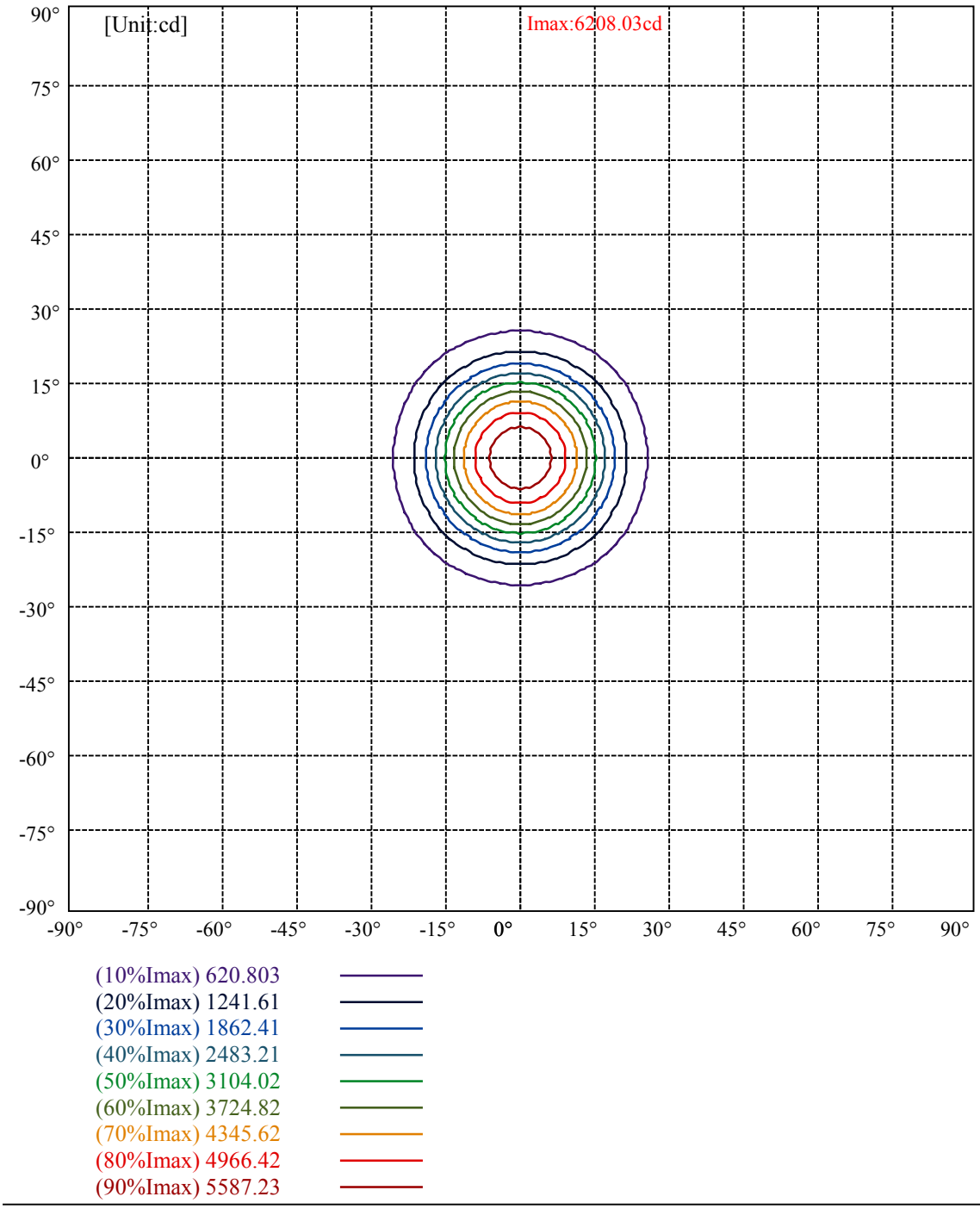
Field angle(10%Imax):C0/180Left:25.3 Right:25.3
:C90/270Left:25.3 Right:25.3

Beam Angle(50%Imax):C0/180Left:15.0 Right:15.0
:C90/270Left:15.0 Right:15.0

Lux distance Curve



ISO-Intensity(V-H)



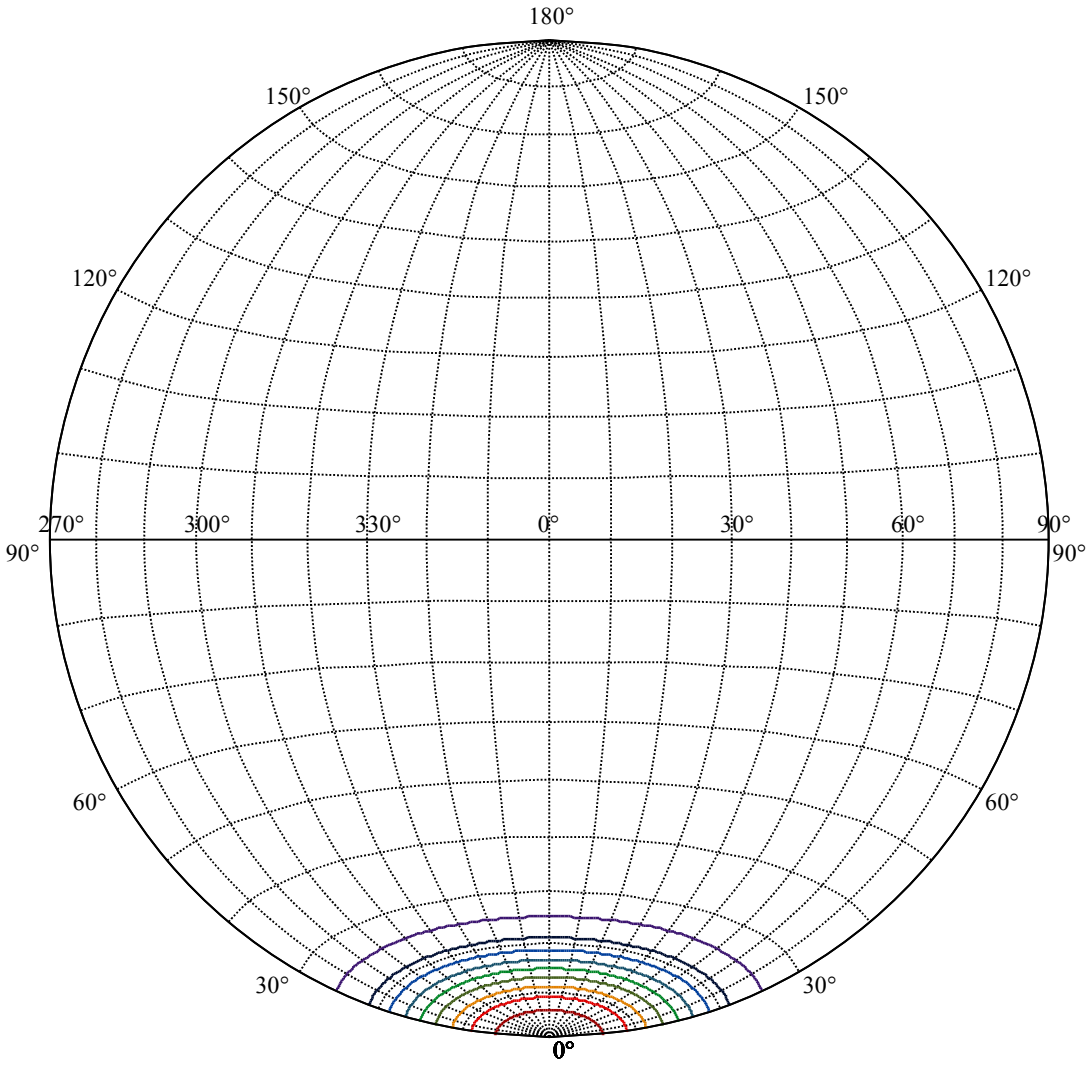
(10%Imax) 620.803
(20%Imax) 1241.61
(30%Imax) 1862.41
(40%Imax) 2483.21
(50%Imax) 3104.02
(60%Imax) 3724.82
(70%Imax) 4345.62
(80%Imax) 4966.42
(90%Imax) 5587.23

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/7/07
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:6208.03

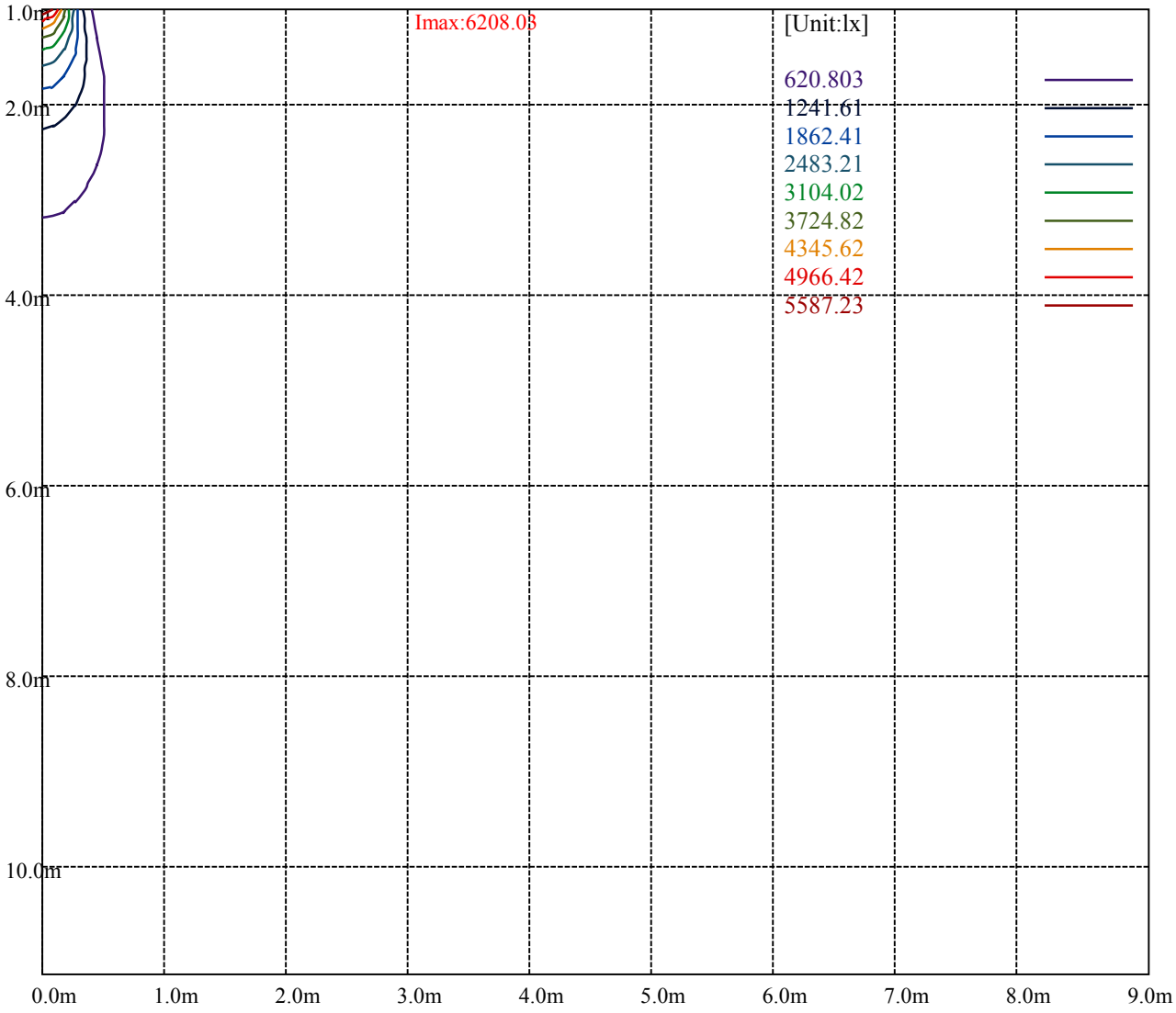
(10%Imax) 620.803
(20%Imax) 1241.61
(30%Imax) 1862.41
(40%Imax) 2483.21
(50%Imax) 3104.02
(60%Imax) 3724.82
(70%Imax) 4345.62
(80%Imax) 4966.42
(90%Imax) 5587.23

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/7/07
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/7/07
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

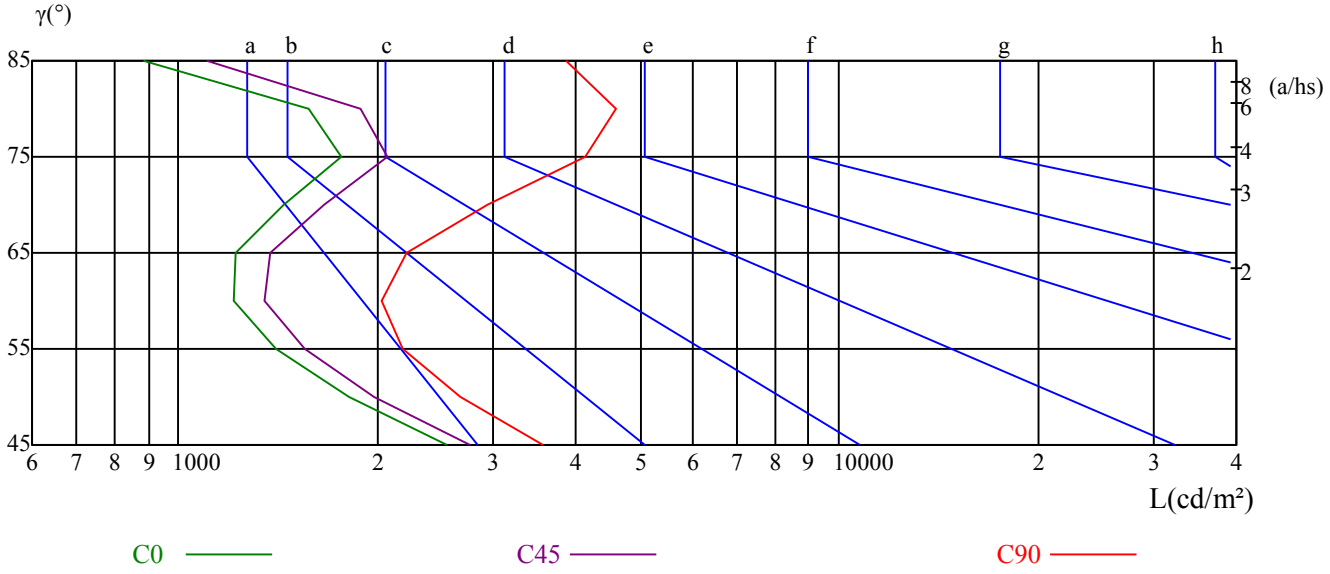
γ	45	50	55	60	65	70	75	80	85
C0	2556	1817	1407	1214	1220	1445	1760	1570	888
C45	2758	1979	1550	1354	1379	1662	2065	1891	1107
C90	3567	2667	2190	2025	2216	2928	4137	4611	3852

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2382	2382	2382	4678	4678	4678	5397	5397	5397

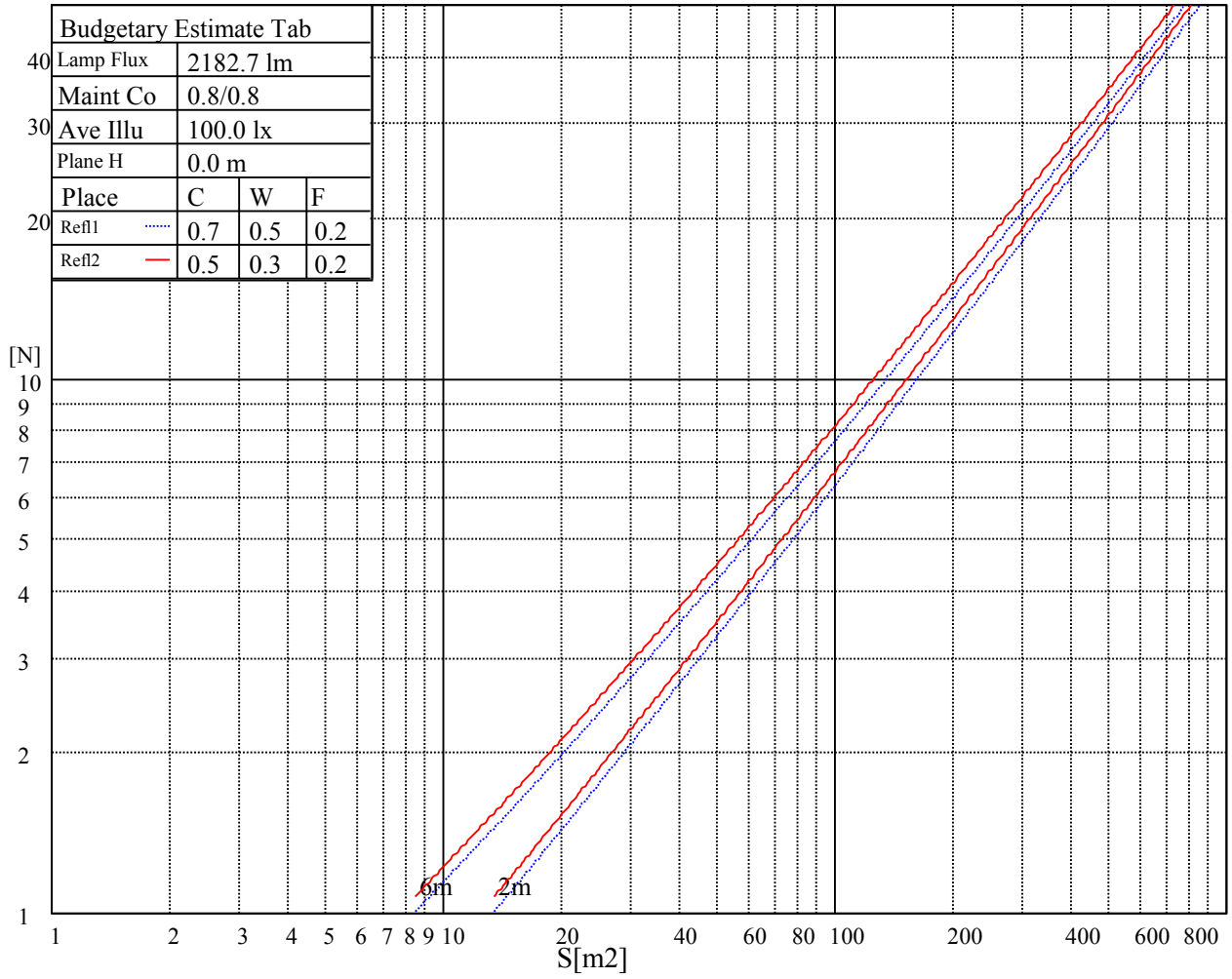
Glare Table

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

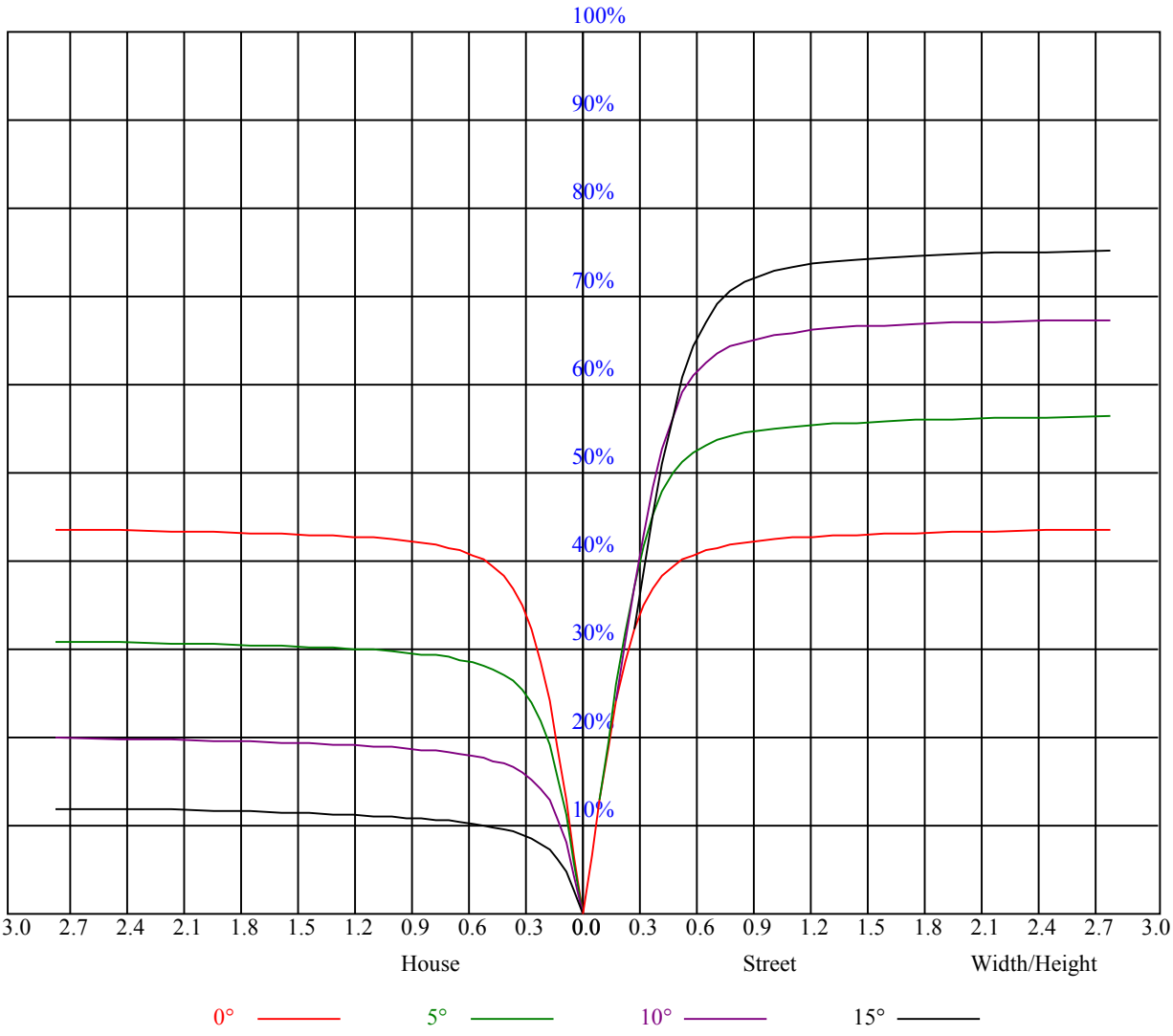


Equipment: GMS1980 Date: 2021/7/07 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	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	0.89
1	0.98	0.96	0.95	0.97	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.83
2	0.93	0.89	0.87	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.79
3	0.88	0.84	0.81	0.87	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.75
4	0.84	0.79	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.76	0.74	0.78	0.75	0.73	0.72
5	0.80	0.76	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
6	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.70	0.68	0.72	0.70	0.68	0.66
7	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
8	0.71	0.67	0.64	0.70	0.66	0.64	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.62
9	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.58

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	6183.00	6221.81	6223.50	6192.56	6139.13	6041.81	5907.38	5758.31	5568.75
45.0	6235.88	6223.50	6183.56	6105.94	5997.38	5877.56	5698.13	5515.88	5310.56
90.0	6200.44	6153.75	6077.81	5965.88	5834.25	5647.50	5470.31	5248.69	4991.63
135.0	6212.81	6170.63	6064.31	5960.81	5814.00	5637.94	5433.19	5221.13	4973.06
180.0	6183.00	6122.25	5985.00	5846.63	5698.13	5487.19	5253.19	5029.31	4744.69
225.0	6235.88	6220.69	6163.88	6064.88	5931.00	5780.25	5587.31	5369.63	5157.56
270.0	6200.44	6225.75	6207.19	6157.69	6075.00	5929.31	5795.44	5634.56	5433.75
315.0	6212.81	6240.94	6211.13	6163.31	6088.50	5961.94	5806.13	5651.44	5447.81
360.0	6183.00	6221.81	6223.50	6192.56	6139.13	6041.81	5907.38	5758.31	5568.75

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5353.31	5136.75	4861.13	4609.13	4299.75	3958.31	3629.81	3292.31	2862.00
45.0	5045.63	4799.81	4541.06	4231.69	3893.63	3572.44	3202.88	2873.25	2507.06
90.0	4764.94	4481.44	4173.19	3879.56	3562.88	3162.94	2840.63	2520.00	2184.75
135.0	4710.94	4446.56	4130.44	3826.69	3470.06	3095.44	2771.44	2460.38	2091.94
180.0	4476.38	4160.25	3818.81	3495.94	3123.56	2748.38	2426.06	2117.81	1764.56
225.0	4919.06	4599.56	4326.19	4034.81	3674.25	3297.94	2968.88	2598.19	2240.44
270.0	5205.38	4984.31	4710.94	4459.50	4141.69	3789.56	3462.19	3086.44	2711.81
315.0	5240.81	4985.44	4716.00	4461.19	4134.94	3780.00	3460.50	3129.75	2718.00
360.0	5353.31	5136.75	4861.13	4609.13	4299.75	3958.31	3629.81	3292.31	2862.00

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2532.94	2221.31	1861.31	1599.19	1359.56	1130.06	934.88	788.06	651.94
45.0	2152.69	1878.75	1594.13	1341.56	1143.56	972.56	785.81	676.13	579.38
90.0	1865.81	1612.69	1357.31	1114.03	967.95	791.21	686.42	572.57	467.27
135.0	1810.13	1572.75	1293.19	1100.81	925.31	771.19	639.56	549.00	462.38
180.0	1508.06	1099.80	1076.46	870.58	733.84	620.94	507.99	435.09	375.08
225.0	1946.81	1651.50	1422.00	1121.06	1015.26	850.39	714.26	612.73	518.85
270.0	2397.38	2102.06	1761.19	1521.00	1302.19	1070.44	915.19	782.44	668.81
315.0	2405.25	2115.56	1774.69	1527.75	1233.56	1087.43	908.10	775.69	665.94
360.0	2532.94	2221.31	1861.31	1599.19	1359.56	1130.06	934.88	788.06	651.94

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	554.63	465.19	393.75	342.00	295.88	290.81	228.49	205.31	180.34
45.0	484.88	410.63	355.50	303.75	285.19	233.44	205.37	185.57	164.87
90.0	406.80	349.48	287.78	256.56	227.25	194.85	177.47	160.71	144.79
135.0	398.25	337.50	292.50	288.00	223.43	199.29	177.24	160.76	143.38
180.0	319.67	276.47	244.91	215.33	193.67	173.19	156.32	143.10	130.11
225.0	449.44	378.34	332.83	293.74	261.45	227.03	203.96	183.88	162.56
270.0	552.94	477.00	412.88	354.38	306.56	284.06	235.29	206.89	187.76
315.0	564.02	478.52	408.60	357.53	314.27	273.99	239.12	213.19	188.44
360.0	554.63	465.19	393.75	342.00	295.88	290.81	228.49	205.31	180.34

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	163.97	149.51	135.00	122.40	112.78	102.99	94.39	87.41	80.49
45.0	148.16	135.45	124.09	112.50	103.44	95.51	87.69	81.06	75.15
90.0	131.06	120.43	109.63	101.03	92.19	84.32	77.91	71.49	65.42
135.0	130.67	119.59	109.63	99.56	91.29	84.43	76.73	71.66	66.26
180.0	118.69	109.63	101.36	92.19	85.67	79.59	73.46	67.84	63.17
225.0	147.60	134.83	122.34	111.43	102.83	94.11	87.19	80.38	73.91
270.0	164.64	148.50	134.33	119.31	108.90	99.79	89.78	82.69	76.16
315.0	167.51	151.31	137.36	122.12	111.71	102.66	93.49	85.39	78.92
360.0	163.97	149.51	135.00	122.40	112.78	102.99	94.39	87.41	80.49

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	74.87	69.02	63.68	59.29	55.29	50.57	47.19	44.21	40.84
45.0	70.26	64.35	60.19	56.53	51.98	48.83	45.90	42.75	40.11
90.0	60.86	56.59	51.64	48.15	44.89	41.12	38.53	36.23	34.03
135.0	60.92	56.53	52.71	48.77	45.00	42.19	39.43	37.13	34.88
180.0	58.44	54.11	50.57	46.97	43.93	41.01	38.48	36.34	34.65
225.0	68.91	63.62	58.84	55.01	51.53	47.53	44.49	41.96	39.32
270.0	69.13	64.01	59.18	54.34	49.95	46.29	42.64	39.94	37.29
315.0	72.39	66.43	61.54	56.81	52.99	48.99	45.39	42.64	40.16
360.0	74.87	69.02	63.68	59.29	55.29	50.57	47.19	44.21	40.84

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	38.64	36.51	34.82	32.85	31.50	30.43	29.14	28.13	27.28
45.0	38.03	36.11	34.48	32.96	31.50	30.26	28.91	27.84	26.83
90.0	32.18	30.83	29.70	28.58	27.68	26.94	26.38	25.93	26.10
135.0	33.02	31.56	30.43	28.86	27.84	27.00	25.88	25.09	24.41
180.0	32.74	31.44	30.38	29.08	28.13	27.34	26.38	25.43	24.69
225.0	37.07	35.38	33.69	32.06	30.77	29.42	28.24	27.17	26.10
270.0	35.04	33.24	31.56	30.09	28.97	28.07	27.00	26.27	25.65
315.0	37.46	35.66	33.98	32.18	30.94	29.70	28.52	27.39	26.44
360.0	38.64	36.51	34.82	32.85	31.50	30.43	29.14	28.13	27.28

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	26.27	25.31	24.53	23.68	22.95	22.22	21.60	20.98	20.36
45.0	25.82	24.81	24.08	23.40	22.61	21.88	21.32	20.70	20.03
90.0	28.01	31.44	36.79	40.11	43.65	47.81	51.58	55.18	59.79
135.0	23.57	22.89	22.39	21.71	21.26	20.87	20.59	20.64	20.87
180.0	23.85	23.12	22.39	21.66	21.15	20.53	19.97	19.41	18.90
225.0	25.20	24.36	23.34	22.61	21.88	21.04	20.48	19.80	19.18
270.0	25.48	26.83	29.14	33.08	36.68	39.32	43.59	47.36	49.84
315.0	25.54	24.75	23.96	23.29	22.73	22.05	21.54	21.21	21.26
360.0	26.27	25.31	24.53	23.68	22.95	22.22	21.60	20.98	20.36

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	19.74	19.18	18.68	18.00	17.55	17.04	16.48	16.03	15.47
45.0	19.46	18.73	18.23	17.61	17.10	16.54	15.98	15.24	14.74
90.0	63.17	66.26	68.74	70.37	70.48	67.89	60.75	54.17	45.17
135.0	21.26	21.71	22.11	22.44	22.28	21.60	19.91	18.00	16.20
180.0	18.34	17.83	17.33	16.65	16.03	15.47	14.91	14.29	13.73
225.0	18.51	18.00	17.38	16.93	16.43	15.86	15.41	14.85	14.23
270.0	54.56	57.66	61.03	63.17	64.58	65.03	64.46	61.93	56.76
315.0	21.60	22.05	22.67	23.29	23.68	23.85	23.51	22.33	20.70
360.0	19.74	19.18	18.68	18.00	17.55	17.04	16.48	16.03	15.47

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	14.96	14.40	13.84	13.28	12.77	12.04	11.48	10.58	9.96
45.0	14.23	13.44	12.83	12.21	11.53	10.80	10.13	9.56	9.11
90.0	36.00	27.45	18.06	13.33	10.69	9.79	9.17	8.61	8.38
135.0	14.18	13.16	12.49	11.59	10.63	9.51	8.94	8.55	8.33
180.0	13.16	12.60	12.09	11.42	11.03	9.90	9.23	8.89	8.94
225.0	13.73	13.16	12.54	11.93	11.31	10.69	9.96	9.34	8.94
270.0	49.39	41.51	33.58	23.34	15.98	12.71	10.46	9.62	9.06
315.0	18.51	16.37	14.51	13.33	12.60	11.25	10.29	9.56	9.06
360.0	14.96	14.40	13.84	13.28	12.77	12.04	11.48	10.58	9.96

Intensity data(cd)

C/γ(°)	90.0
0.0	9.39
45.0	8.78
90.0	8.33
135.0	8.33
180.0	8.78
225.0	8.89
270.0	8.61
315.0	8.72
360.0	9.39