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Nata

LumCAT: LN01D04524DA-N
Luminaire: 97.70.234.00
Report No: 200708-B011
Test No: 200708-C011
LampCAT: CREE CXA1304
Lamp flux(lm): 506.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 37.3800
Current(A): 0.1510
Power (W): 5.6400
PF: 1.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 444.53
Efficiency(%): 87.85%
Lumens(lm)/Power(W): 78.82
Central intensity(cd): 1915.031
Maximum intensity(cd): 1915.664
Angle of maximum intensity: C=0.0 γ=1.0
Beam Angle(50%Imax): [C0/180]Total=26.6
[C90/270]Total=26.6
Field angle(10%Imax): [C0/180]Total=41.5
[C90/270]Total=41.5
Maximum s/h(1/2): C0_180=0.45 C90_270=0.45
Maximum s/h(1/4): C0_180=0.42 C90_270=0.42
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 87.85%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.875%

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2020/7/8
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Nata LM01D04524DA

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1915.031	0.000	0	.000%	.000%
1.0	1915.664	1.833	1.833	.362%	.412%
2.0	1911.445	5.493	7.326	1.086%	1.648%
3.0	1904.625	9.127	16.453	1.804%	3.701%
4.0	1887.891	12.695	29.147	2.509%	6.557%
5.0	1863.633	16.139	45.286	3.189%	10.188%
6.0	1822.359	19.371	64.657	3.828%	14.545%
7.0	1753.734	22.197	86.854	4.387%	19.539%
8.0	1678.148	24.561	111.415	4.854%	25.064%
9.0	1569.375	26.319	137.735	5.201%	30.985%
10.0	1434.727	27.186	164.921	5.373%	37.100%
11.0	1278.359	27.109	192.03	5.358%	43.199%
12.0	1146.959	26.512	218.542	5.240%	49.163%
13.0	1000.392	25.484	244.026	5.036%	54.896%
14.0	854.297	23.740	267.766	4.692%	60.236%
15.0	717.370	21.577	289.342	4.264%	65.090%
16.0	582.736	19.050	308.392	3.765%	69.375%
17.0	472.219	16.428	324.821	3.247%	73.071%
18.0	372.445	13.927	338.748	2.752%	76.204%
19.0	293.055	11.578	350.326	2.288%	78.809%
20.0	241.298	9.780	360.106	1.933%	81.009%
21.0	176.681	8.026	368.132	1.586%	82.814%
22.0	136.680	6.297	374.429	1.244%	84.231%
23.0	107.641	5.127	379.556	1.013%	85.384%
24.0	85.746	4.228	383.784	.836%	86.335%
25.0	69.870	3.538	387.322	.699%	87.131%
26.0	59.702	3.059	390.381	.604%	87.819%
27.0	51.771	2.727	393.108	.539%	88.433%
28.0	45.541	2.464	395.572	.487%	88.987%
29.0	41.077	2.266	397.838	.448%	89.497%
30.0	37.554	2.123	399.961	.420%	89.975%
31.0	33.912	1.989	401.95	.393%	90.422%
32.0	30.959	1.858	403.808	.367%	90.840%
33.0	28.512	1.752	405.56	.346%	91.234%
34.0	25.910	1.647	407.207	.325%	91.605%
35.0	23.871	1.546	408.753	.306%	91.953%
36.0	22.071	1.463	410.216	.289%	92.282%
37.0	20.412	1.386	411.602	.274%	92.593%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	18.963	1.314	412.916	.260%	92.889%
39.0	17.663	1.250	414.166	.247%	93.170%
40.0	16.453	1.190	415.356	.235%	93.438%
41.0	15.462	1.136	416.492	.225%	93.693%
42.0	14.477	1.088	417.58	.215%	93.938%
43.0	13.472	1.035	418.615	.205%	94.171%
44.0	12.677	0.987	419.602	.195%	94.393%
45.0	11.890	0.944	420.547	.187%	94.605%
46.0	11.081	0.898	421.445	.178%	94.808%
47.0	10.385	0.854	422.299	.169%	95.000%
48.0	9.780	0.815	423.114	.161%	95.183%
49.0	9.105	0.776	423.889	.153%	95.357%
50.0	8.543	0.736	424.625	.145%	95.523%
51.0	8.051	0.702	425.327	.139%	95.681%
52.0	7.587	0.671	425.998	.133%	95.832%
53.0	7.186	0.643	426.641	.127%	95.976%
54.0	6.863	0.619	427.26	.122%	96.116%
55.0	6.567	0.599	427.86	.118%	96.251%
56.0	6.307	0.582	428.441	.115%	96.381%
57.0	6.096	0.567	429.008	.112%	96.509%
58.0	5.892	0.554	429.563	.110%	96.634%
59.0	5.702	0.542	430.105	.107%	96.756%
60.0	5.534	0.531	430.636	.105%	96.875%
61.0	5.351	0.519	431.155	.103%	96.992%
62.0	5.189	0.508	431.663	.100%	97.106%
63.0	5.048	0.498	432.161	.098%	97.218%
64.0	4.887	0.488	432.648	.096%	97.328%
65.0	4.760	0.477	433.126	.094%	97.435%
66.0	4.634	0.469	433.595	.093%	97.541%
67.0	4.500	0.459	434.054	.091%	97.644%
68.0	4.388	0.450	434.504	.089%	97.745%
69.0	4.282	0.442	434.946	.087%	97.845%
70.0	4.282	0.440	435.386	.087%	97.944%
71.0	4.486	0.453	435.839	.090%	98.046%
72.0	4.859	0.486	436.325	.096%	98.155%
73.0	5.295	0.531	436.856	.105%	98.274%
74.0	5.709	0.579	437.435	.114%	98.405%
75.0	5.970	0.617	438.052	.122%	98.543%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.152	0.643	438.695	.127%	98.688%
77.0	6.131	0.655	439.35	.129%	98.836%
78.0	5.941	0.646	439.996	.128%	98.981%
79.0	5.688	0.625	440.621	.123%	99.121%
80.0	5.280	0.591	441.213	.117%	99.254%
81.0	4.725	0.541	441.754	.107%	99.376%
82.0	4.029	0.475	442.228	.094%	99.483%
83.0	3.410	0.404	442.633	.080%	99.574%
84.0	2.848	0.341	442.974	.067%	99.651%
85.0	2.609	0.298	443.271	.059%	99.718%
86.0	2.468	0.277	443.549	.055%	99.780%
87.0	2.299	0.261	443.81	.052%	99.839%
88.0	2.166	0.245	444.054	.048%	99.894%
89.0	2.025	0.230	444.284	.045%	99.945%
90.0	2.398	0.242	444.527	.048%	100.000%

Zonal flux distribution table

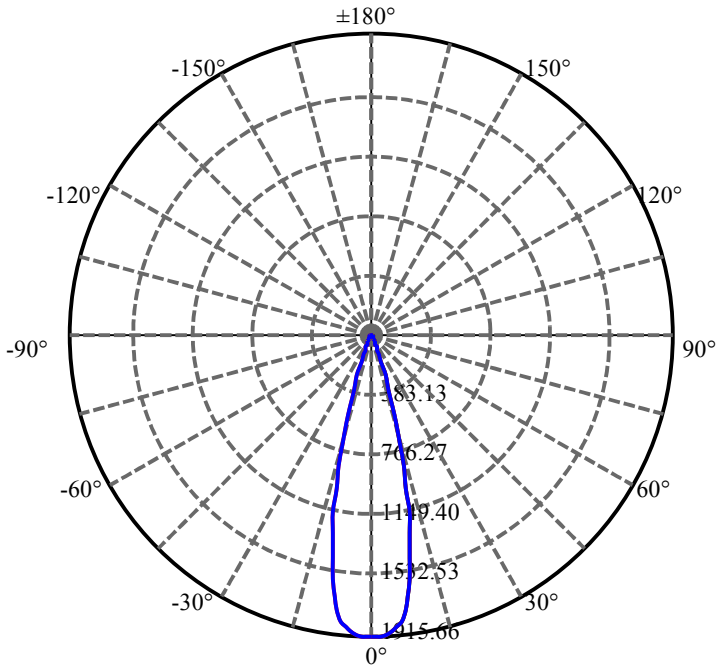
ZONAL LUMEN SUMMARY

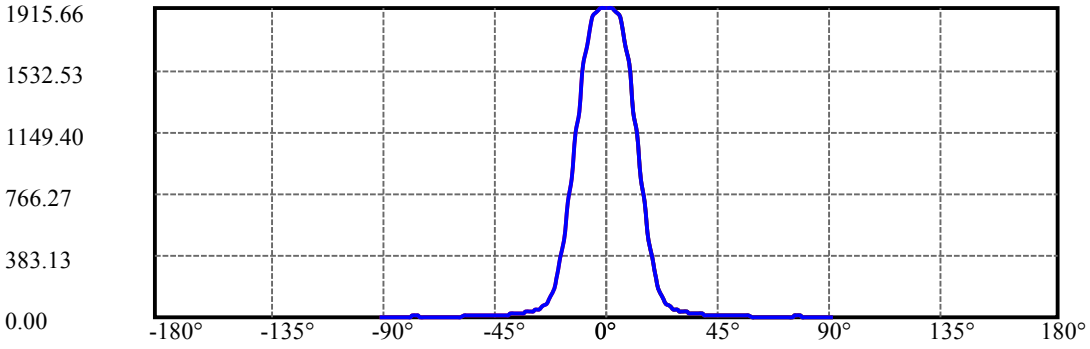
Zone	Lumens	%Lamp	%Fixt
0-30	399.96	79.04%	89.97%
0-40	415.36	82.09%	93.44%
0-60	430.64	85.11%	96.88%
0-90	444.28	87.80%	99.95%
0-120	444.28	87.80%	99.95%
0-180	444.53	87.85%	100.00%
60-90	14.18	2.80%	3.19%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-19.54	355.62	70.28%	80.00%

ZONAL LUMEN SUMMARY

0-10	164.92
10-20	195.19
20-30	39.85
30-40	15.39
40-50	9.27
50-60	6.01
60-70	4.75
70-80	5.83
80-90	3.07
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):

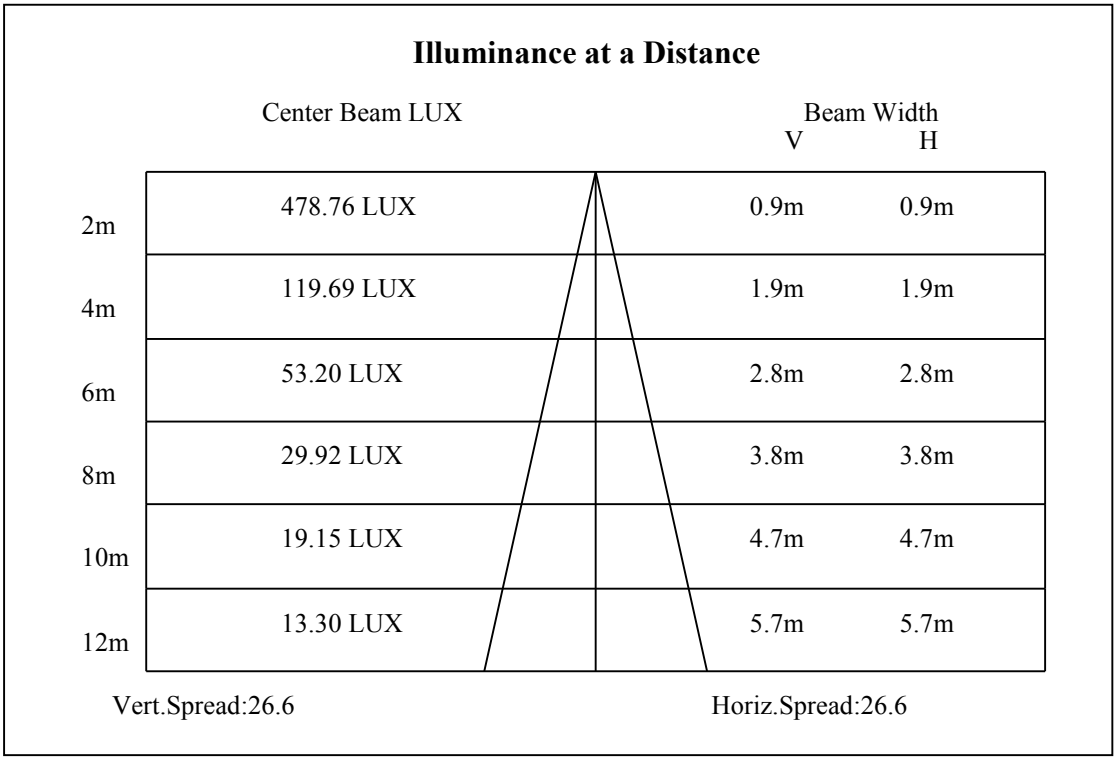
C0/C180:

C90/C270:

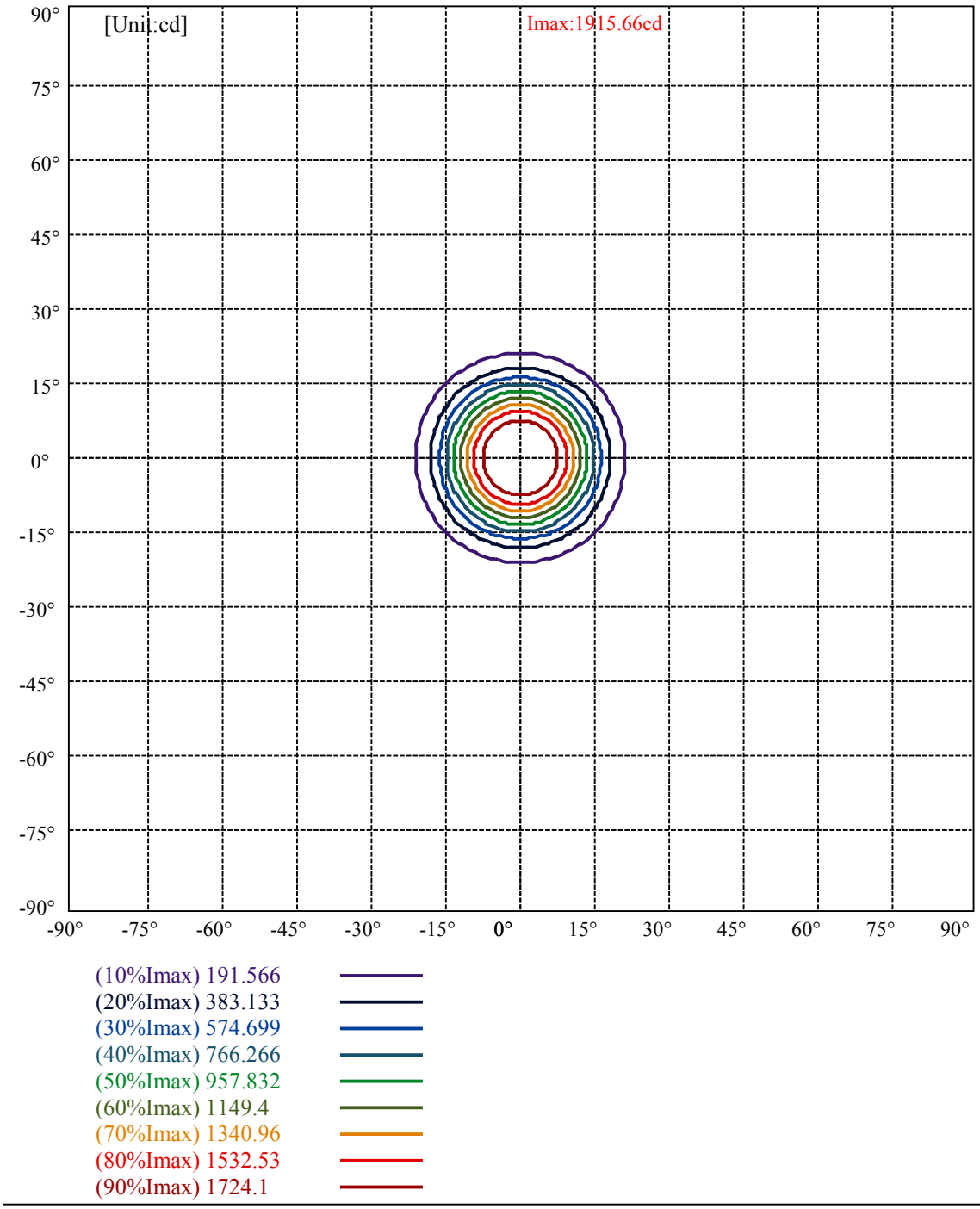
Field angle(10%Imax):C0/180Left:21.8 Right:19.8
:C90/270Left:21.8 Right:19.8

Beam Angle(50%Imax):C0/180Left:14.3 Right:12.3
:C90/270Left:14.3 Right:12.3

Lux distance Curve



ISO-Intensity(V-H)

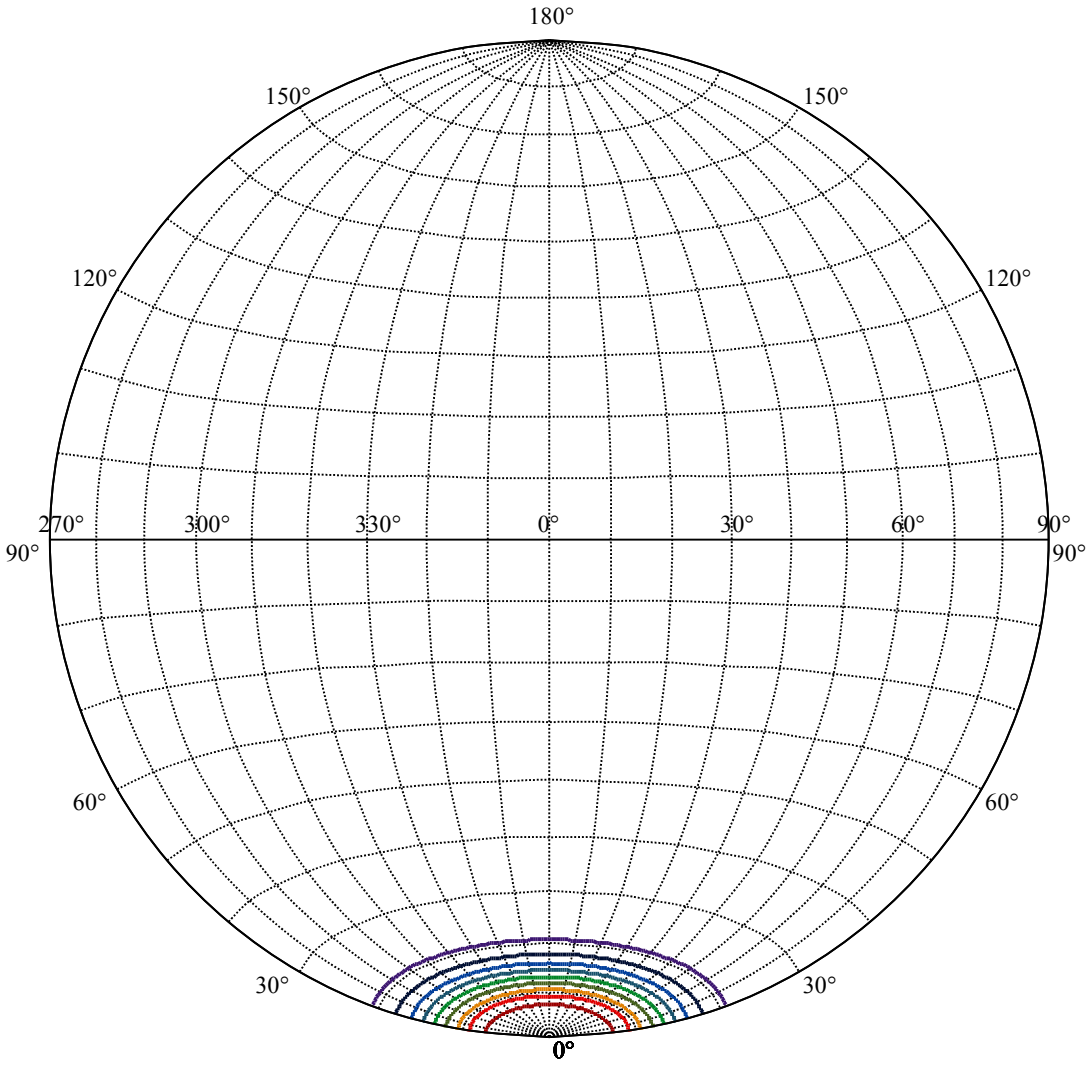


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:1915.66

(10%Imax) 191.566
(20%Imax) 383.133
(30%Imax) 574.699
(40%Imax) 766.266
(50%Imax) 957.832
(60%Imax) 1149.4
(70%Imax) 1340.96
(80%Imax) 1532.53
(90%Imax) 1724.1

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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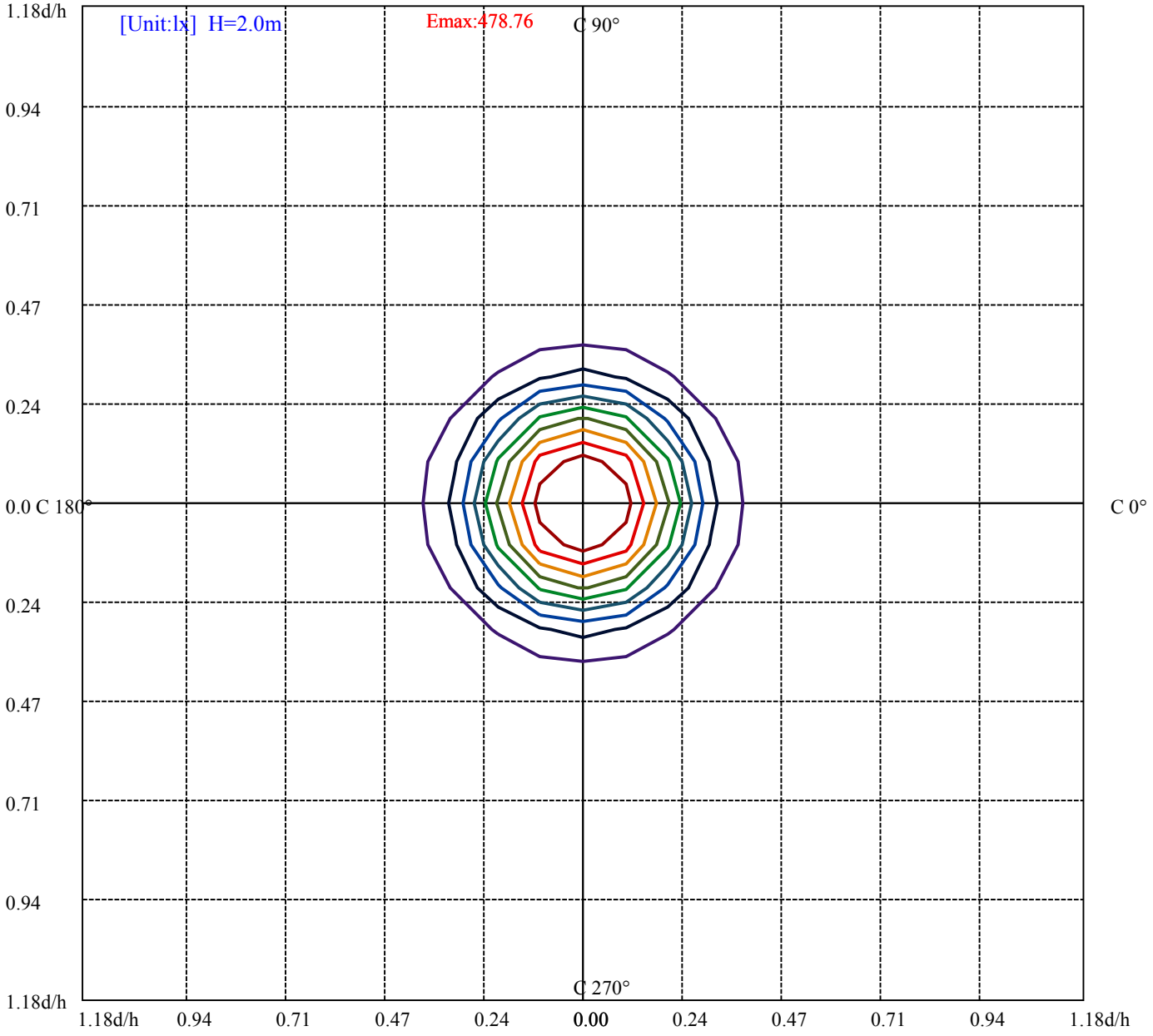
ISO illuminance diagram



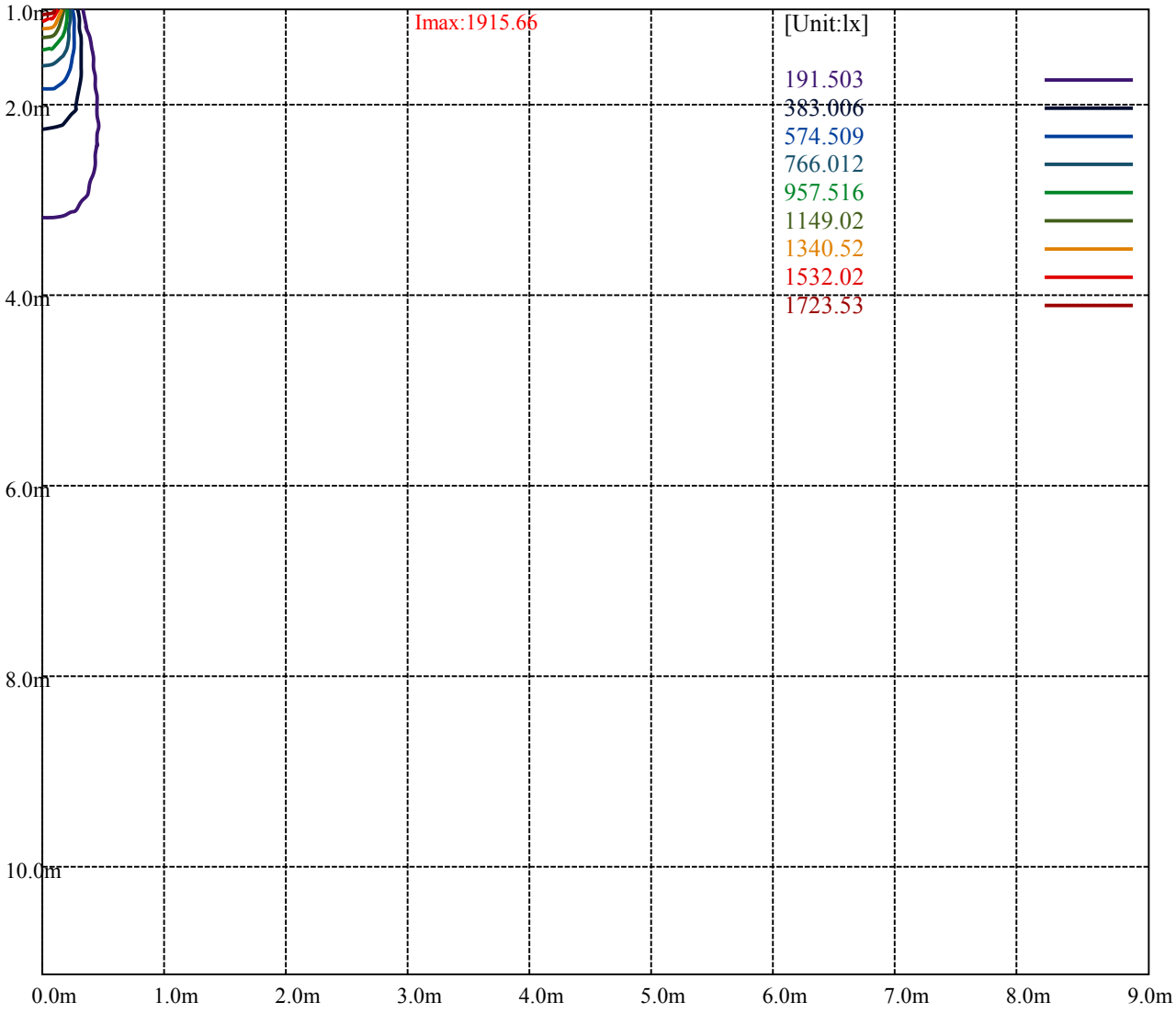
(10%Emax) 47.87575
(20%Emax) 95.7515
(30%Emax) 143.6272
(40%Emax) 191.5033
(50%Emax) 239.379
(60%Emax) 287.255
(70%Emax) 335.13
(80%Emax) 383.0075
(90%Emax) 430.8825

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

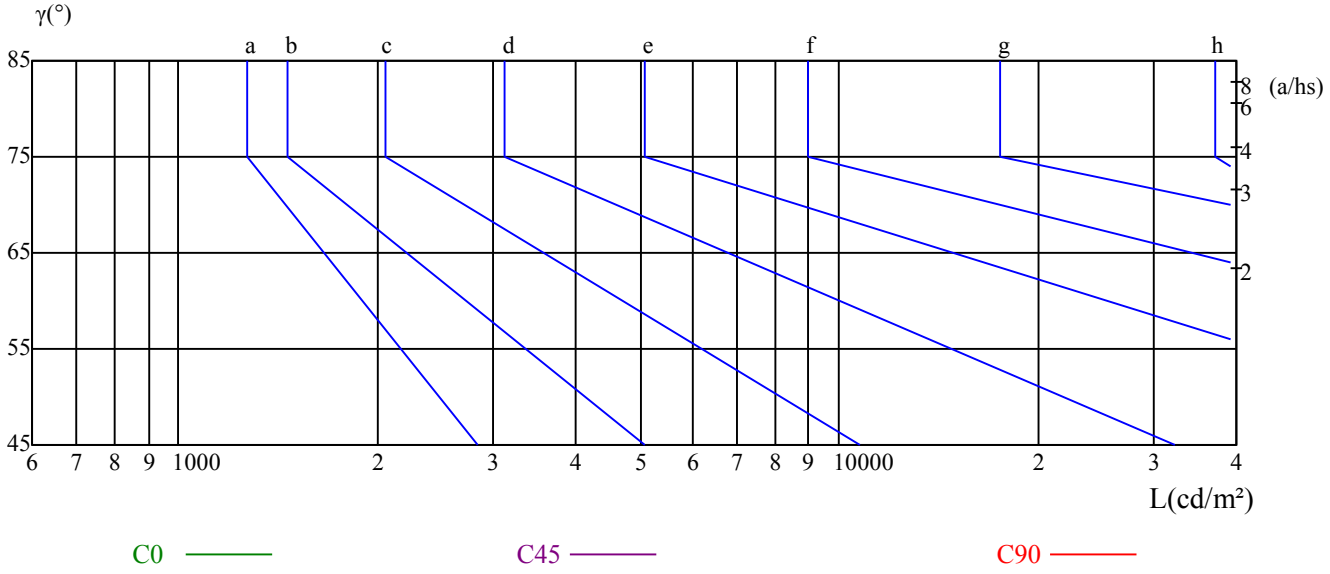
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

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

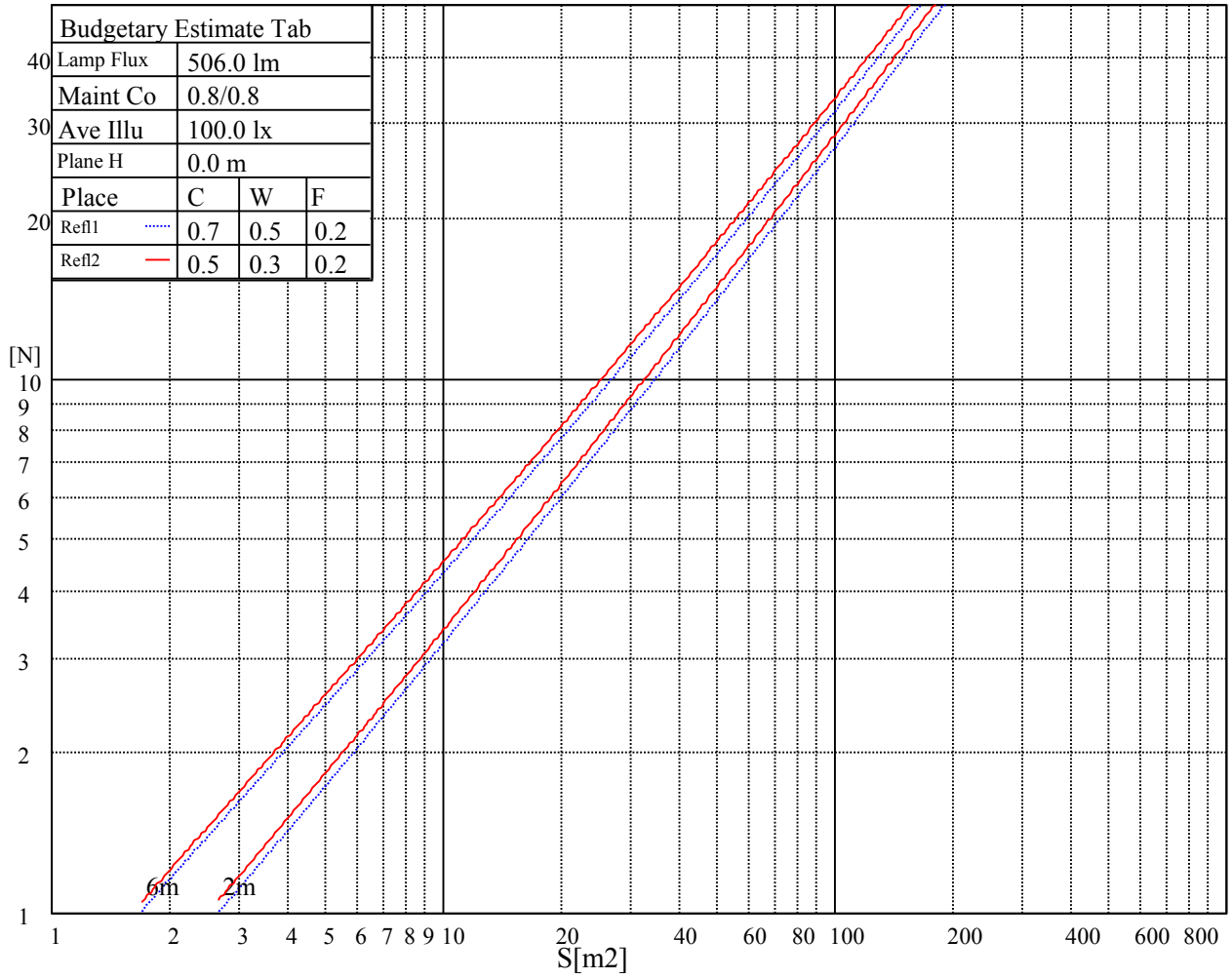


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Budgetary Estimate Table

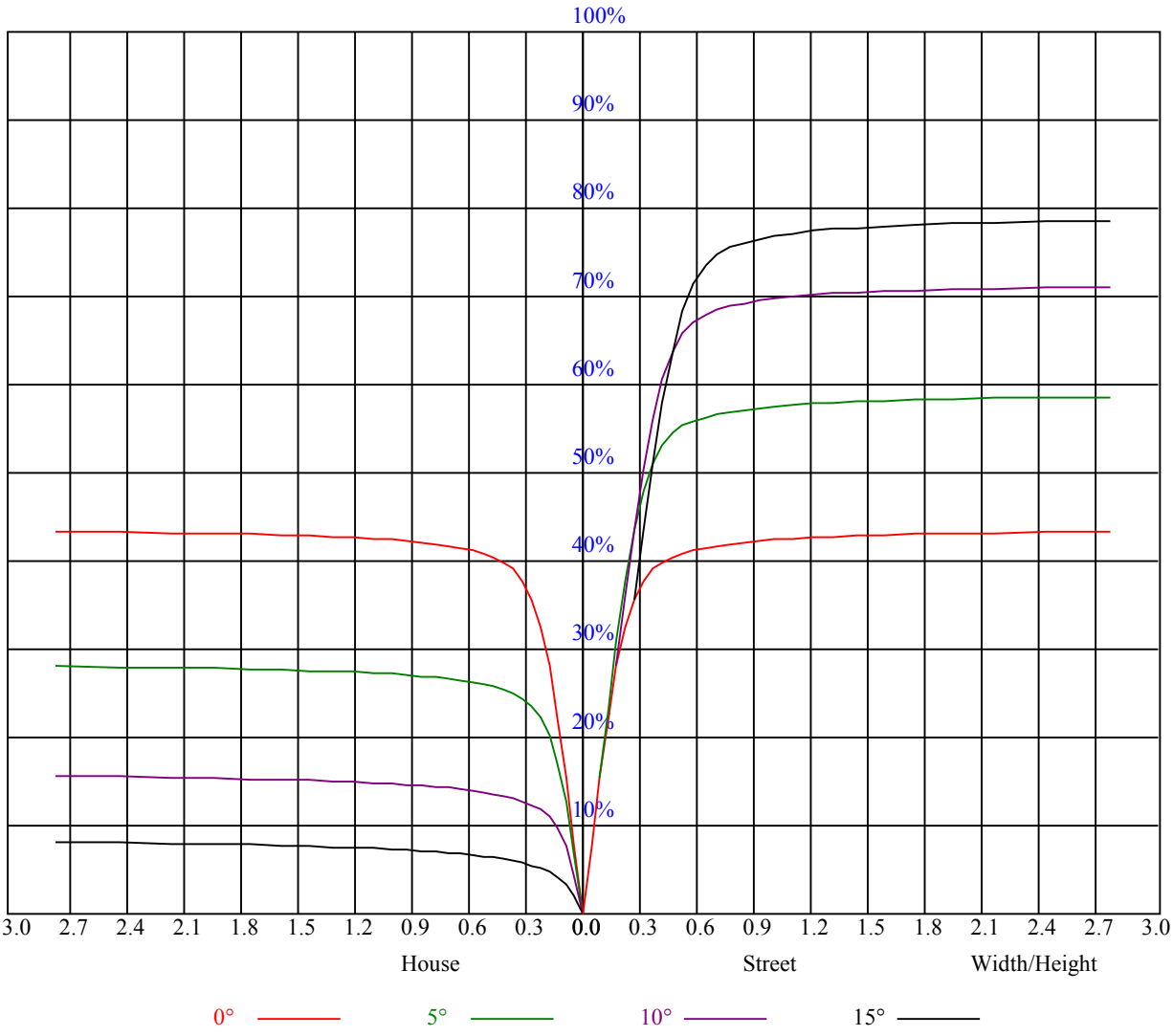


Equipment: GMS1980 Date: 2020/7/8 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.02	1.02	1.02	0.98	0.98	0.98	0.93	0.93	0.93	0.90	0.90	0.90	0.88
1	0.98	0.96	0.95	0.96	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.87	0.86	0.85	0.84
2	0.93	0.90	0.88	0.92	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.82	0.80
3	0.89	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.79	0.77
4	0.85	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.78	0.81	0.79	0.77	0.80	0.78	0.76	0.75
5	0.82	0.78	0.76	0.82	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.78	0.75	0.73	0.72
6	0.79	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
7	0.77	0.73	0.70	0.76	0.73	0.70	0.75	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	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.67
9	0.73	0.69	0.66	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
10	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/7/8	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	1921.50	1907.44	1891.13	1869.75	1846.13	1819.13	1778.06	1727.44	1669.50
45.0	1907.44	1922.06	1930.50	1937.81	1935.00	1924.31	1895.63	1837.69	1766.25
90.0	1922.63	1952.44	1976.63	1994.06	1996.31	1982.81	1940.63	1860.75	1765.13
135.0	1908.56	1940.63	1965.94	1982.81	1987.31	1977.19	1937.25	1875.94	1792.69
180.0	1921.50	1935.00	1938.38	1937.25	1917.00	1891.13	1843.31	1737.56	1652.63
225.0	1907.44	1896.19	1880.44	1861.31	1841.63	1806.75	1754.44	1678.50	1591.88
270.0	1922.63	1895.63	1863.00	1838.81	1802.81	1772.44	1737.56	1681.88	1618.88
315.0	1908.56	1875.94	1845.56	1815.19	1776.94	1735.31	1692.00	1630.13	1568.25
360.0	1921.50	1907.44	1891.13	1869.75	1846.13	1819.13	1778.06	1727.44	1669.50

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1571.63	1472.63	1362.38	1227.94	1080.56	945.56	797.63	651.38	539.44
45.0	1665.00	1534.50	1395.56	1230.19	1064.81	918.00	777.38	618.19	505.69
90.0	1647.00	1473.19	1320.75	1107.84	974.03	828.23	691.14	552.83	434.53
135.0	1656.00	1519.88	1371.94	1200.94	1026.56	876.94	720.00	580.50	469.69
180.0	1537.88	1348.31	1110.32	1074.54	928.97	752.68	626.51	513.90	404.66
225.0	1473.19	1343.25	1105.99	1055.42	919.07	768.83	628.82	514.41	416.25
270.0	1517.06	1418.06	1307.81	1169.44	1023.75	896.06	769.50	632.25	512.44
315.0	1487.25	1368.00	1252.13	1109.36	985.39	848.08	727.99	598.44	495.06
360.0	1571.63	1472.63	1362.38	1227.94	1080.56	945.56	797.63	651.38	539.44

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	431.44	349.88	289.13	208.69	165.09	130.22	97.59	79.37	66.09
45.0	406.69	315.56	289.69	188.94	148.28	110.59	88.99	71.33	61.09
90.0	345.94	264.04	207.34	158.29	122.34	99.11	80.04	66.43	57.60
135.0	365.06	288.00	217.86	169.59	128.64	100.91	82.18	67.89	58.73
180.0	314.27	248.51	189.00	142.26	112.11	87.75	72.34	60.36	52.14
225.0	316.69	252.79	200.48	158.40	118.18	94.50	75.38	62.44	54.34
270.0	406.13	326.25	291.38	197.55	152.44	121.67	95.74	77.06	64.97
315.0	393.36	299.42	245.53	189.73	146.36	116.38	93.71	74.08	62.66
360.0	431.44	349.88	289.13	208.69	165.09	130.22	97.59	79.37	66.09

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	54.39	48.15	43.48	39.43	35.89	32.85	29.93	27.17	24.98
45.0	52.43	46.29	42.08	38.48	34.59	31.84	29.31	26.49	24.47
90.0	51.02	44.33	40.11	36.56	33.08	30.04	27.68	25.31	23.40
135.0	51.02	44.89	40.78	37.52	33.13	30.38	28.29	25.31	23.46
180.0	46.74	42.41	38.03	34.88	32.01	28.91	26.66	24.64	22.67
225.0	48.38	43.20	39.09	36.00	32.74	29.81	27.51	25.03	23.12
270.0	55.91	47.76	42.86	39.04	35.04	32.18	29.64	26.94	24.58
315.0	54.28	47.31	42.19	38.53	34.82	31.67	29.08	26.38	24.30
360.0	54.39	48.15	43.48	39.43	35.89	32.85	29.93	27.17	24.98

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	22.89	21.21	19.63	18.17	17.04	16.09	14.85	14.01	13.16
45.0	22.78	21.26	19.58	18.39	17.16	16.14	15.08	14.12	13.28
90.0	21.71	20.08	18.79	17.44	16.26	15.19	14.29	13.22	12.43
135.0	21.99	20.19	18.79	17.72	16.37	15.41	14.46	13.39	12.60
180.0	21.04	19.69	18.34	17.16	16.20	15.13	14.23	13.33	12.43
225.0	21.26	19.63	18.39	17.10	15.98	15.02	14.18	13.11	12.38
270.0	22.67	20.81	19.24	17.78	16.48	15.41	14.40	13.44	12.66
315.0	22.22	20.42	18.96	17.55	16.14	15.30	14.34	13.16	12.49
360.0	22.89	21.21	19.63	18.17	17.04	16.09	14.85	14.01	13.16

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	12.26	11.59	10.86	10.13	9.45	8.89	8.33	7.88	7.37
45.0	12.43	11.59	10.97	10.35	9.62	9.06	8.55	8.04	7.59
90.0	11.64	10.80	10.13	9.56	8.89	8.33	7.88	7.43	7.09
135.0	11.81	10.91	10.24	9.62	8.94	8.38	7.93	7.54	7.09
180.0	11.70	11.03	10.24	9.68	9.06	8.44	7.99	7.54	7.20
225.0	11.64	10.86	10.13	9.56	8.94	8.38	7.93	7.43	7.09
270.0	11.93	11.03	10.35	9.79	9.06	8.55	7.99	7.54	7.09
315.0	11.70	10.86	10.18	9.56	8.89	8.33	7.82	7.31	6.98
360.0	12.26	11.59	10.86	10.13	9.45	8.89	8.33	7.88	7.37

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.03	6.69	6.41	6.13	5.96	5.74	5.57	5.40	5.23
45.0	7.26	6.98	6.64	6.41	6.24	6.02	5.85	5.68	5.46
90.0	6.75	6.47	6.24	6.08	5.85	5.74	5.51	5.34	5.18
135.0	6.81	6.53	6.30	6.08	5.91	5.74	5.57	5.40	5.23
180.0	6.86	6.64	6.30	6.13	5.91	5.68	5.51	5.34	5.18
225.0	6.75	6.47	6.24	6.08	5.85	5.63	5.46	5.29	5.12
270.0	6.81	6.47	6.24	6.02	5.79	5.63	5.46	5.23	5.12
315.0	6.64	6.30	6.08	5.85	5.63	5.46	5.34	5.12	5.01
360.0	7.03	6.69	6.41	6.13	5.96	5.74	5.57	5.40	5.23

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.06	4.89	4.78	4.67	4.50	4.39	4.28	4.16	4.05
45.0	5.29	5.06	4.95	4.78	4.67	4.56	4.39	4.28	4.16
90.0	5.06	4.89	4.78	4.67	4.50	4.39	4.28	4.16	4.05
135.0	5.12	4.95	4.78	4.67	4.50	4.44	4.33	4.28	4.89
180.0	5.01	4.84	4.73	4.56	4.44	4.28	4.16	4.05	3.94
225.0	5.01	4.84	4.73	4.56	4.44	4.33	4.22	4.11	3.99
270.0	4.95	4.84	4.73	4.61	4.50	4.39	4.28	4.16	4.11
315.0	4.89	4.78	4.61	4.56	4.44	4.33	4.33	5.06	6.69
360.0	5.06	4.89	4.78	4.67	4.50	4.39	4.28	4.16	4.05

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.99	3.83	3.77	3.66	3.49	3.43	3.32	3.21	3.15
45.0	4.05	3.94	3.77	3.66	3.54	3.43	3.32	3.26	3.09
90.0	3.94	3.83	3.77	3.71	3.71	3.77	3.83	3.83	3.71
135.0	6.30	8.38	10.41	11.70	12.66	12.77	12.26	11.42	10.35
180.0	3.83	3.71	3.60	3.49	3.43	3.32	3.21	3.09	2.98
225.0	3.88	3.77	3.66	3.54	3.43	3.38	3.26	3.15	3.04
270.0	3.99	3.88	3.88	3.94	4.05	4.16	4.16	4.16	4.11
315.0	8.89	11.03	12.83	14.06	14.91	14.79	14.18	13.39	11.81
360.0	3.99	3.83	3.77	3.66	3.49	3.43	3.32	3.21	3.15

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.04	2.87	2.76	2.64	2.53	2.36	2.25	2.14	2.03
45.0	2.98	2.87	2.76	2.70	2.53	2.42	2.25	2.19	2.08
90.0	3.38	2.98	2.81	2.70	2.59	2.42	2.19	2.08	1.97
135.0	8.66	6.64	5.06	3.32	2.87	2.70	2.42	2.19	1.97
180.0	2.87	2.76	2.64	2.48	2.36	2.25	2.14	2.03	1.97
225.0	2.93	2.81	2.70	2.59	2.48	2.36	2.25	2.14	2.08
270.0	3.77	3.21	2.87	2.76	2.64	2.48	2.36	2.19	2.08
315.0	10.18	8.10	5.68	3.60	2.87	2.76	2.53	2.36	2.03
360.0	3.04	2.87	2.76	2.64	2.53	2.36	2.25	2.14	2.03

Intensity data(cd)

C/γ(°)	90.0
0.0	1.97
45.0	2.08
90.0	1.97
135.0	1.97
180.0	1.97
225.0	2.03
270.0	1.97
315.0	5.23
360.0	1.97