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Nata

LumCAT: LN01D02817DA-N
Luminaire: 92.70.307.00
Report No: 211113-B008
Test No: 211113-C008
LampCAT: CREE CXA1310
Lamp flux(lm): 987.9
Number of Lamps: 1
Length(mm): 111
Phm Type: C

Voltage(V): 33.4500
Current(A): 0.2500
Power (W): 8.3620
PF: 0.0000
Ballast type: DC
Width(mm): 111
Height(mm): 0

Photometric Results

Lumens(lm): 615.14
Efficiency(%): 62.27%
Lumens(lm)/Power(W): 73.56
Central intensity(cd): 1905.894
Maximum intensity(cd): 1905.894
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=25.5
[C90/270]Total=25.5
Field angle(10%Imax): [C0/180]Total=54.3
[C90/270]Total=54.3
Maximum s/h(1/2): C0_180=0.43 C90_270=0.43
Maximum s/h(1/4): C0_180=0.46 C90_270=0.46
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 62.27%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 94.396%

Nata LN01D02817DA-N

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1905.893	0.000	0	.000%	.000%
1.0	1897.453	1.820	1.82	.184%	.296%
2.0	1872.507	5.411	7.231	.548%	1.175%
3.0	1831.128	8.858	16.089	.897%	2.615%
4.0	1775.259	12.072	28.16	1.222%	4.578%
5.0	1709.755	14.992	43.153	1.518%	7.015%
6.0	1621.544	17.507	60.66	1.772%	9.861%
7.0	1530.048	19.562	80.222	1.980%	13.041%
8.0	1440.269	21.258	101.48	2.152%	16.497%
9.0	1328.763	22.441	123.921	2.272%	20.145%
10.0	1219.728	23.063	146.984	2.335%	23.894%
11.0	1122.944	23.408	170.392	2.370%	27.700%
12.0	1035.047	23.590	193.982	2.388%	31.535%
13.0	926.924	23.284	217.266	2.357%	35.320%
14.0	842.822	22.653	239.918	2.293%	39.002%
15.0	763.112	22.047	261.965	2.232%	42.586%
16.0	680.234	21.149	283.114	2.141%	46.024%
17.0	608.486	20.069	303.183	2.032%	49.287%
18.0	545.492	19.027	322.21	1.926%	52.380%
19.0	484.917	17.927	340.137	1.815%	55.294%
20.0	433.126	16.803	356.939	1.701%	58.026%
21.0	385.309	15.716	372.655	1.591%	60.581%
22.0	343.034	14.636	387.291	1.482%	62.960%
23.0	306.532	13.630	400.921	1.380%	65.176%
24.0	274.721	12.708	413.629	1.286%	67.242%
25.0	241.469	11.737	425.366	1.188%	69.150%
26.0	215.738	10.792	436.159	1.093%	70.904%
27.0	193.928	10.023	446.181	1.015%	72.533%
28.0	170.968	9.238	455.42	.935%	74.035%
29.0	154.177	8.507	463.927	.861%	75.418%
30.0	139.568	7.931	471.858	.803%	76.707%
31.0	124.331	7.344	479.201	.743%	77.901%
32.0	112.813	6.794	485.995	.688%	79.006%
33.0	103.007	6.358	492.354	.644%	80.039%
34.0	93.110	5.935	498.289	.601%	81.004%
35.0	84.752	5.524	503.812	.559%	81.902%
36.0	77.895	5.179	508.991	.524%	82.744%
37.0	71.106	4.860	513.851	.492%	83.534%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	65.676	4.566	518.416	.462%	84.276%
39.0	60.440	4.305	522.721	.436%	84.976%
40.0	55.667	4.049	526.77	.410%	85.634%
41.0	51.955	3.832	530.603	.388%	86.257%
42.0	48.467	3.649	534.251	.369%	86.850%
43.0	45.106	3.466	537.717	.351%	87.414%
44.0	42.611	3.311	541.028	.335%	87.952%
45.0	40.161	3.181	544.209	.322%	88.469%
46.0	37.540	3.039	547.248	.308%	88.963%
47.0	35.650	2.911	550.159	.295%	89.436%
48.0	33.962	2.814	552.973	.285%	89.894%
49.0	32.229	2.718	555.691	.275%	90.336%
50.0	30.601	2.620	558.311	.265%	90.762%
51.0	29.316	2.535	560.846	.257%	91.174%
52.0	28.002	2.460	563.305	.249%	91.574%
53.0	26.814	2.384	565.69	.241%	91.961%
54.0	25.776	2.318	568.008	.235%	92.338%
55.0	24.745	2.255	570.263	.228%	92.705%
56.0	23.886	2.198	572.46	.222%	93.062%
57.0	22.953	2.142	574.602	.217%	93.410%
58.0	22.041	2.081	576.683	.211%	93.748%
59.0	21.227	2.023	578.706	.205%	94.077%
60.0	20.353	1.964	580.67	.199%	94.396%
61.0	19.263	1.891	582.561	.191%	94.704%
62.0	18.337	1.812	584.372	.183%	94.998%
63.0	17.500	1.743	586.115	.176%	95.282%
64.0	16.552	1.671	587.786	.169%	95.553%
65.0	15.693	1.596	589.382	.162%	95.813%
66.0	14.938	1.528	590.91	.155%	96.061%
67.0	14.072	1.459	592.369	.148%	96.298%
68.0	13.258	1.384	593.753	.140%	96.523%
69.0	12.518	1.315	595.068	.133%	96.737%
70.0	11.794	1.249	596.317	.126%	96.940%
71.0	11.136	1.185	597.502	.120%	97.133%
72.0	10.823	1.142	598.644	.116%	97.318%
73.0	10.853	1.133	599.777	.115%	97.503%
74.0	11.092	1.154	600.931	.117%	97.690%
75.0	11.293	1.183	602.114	.120%	97.882%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.809	1.226	603.34	.124%	98.082%
77.0	12.421	1.292	604.632	.131%	98.292%
78.0	12.757	1.348	605.98	.136%	98.511%
79.0	12.974	1.383	607.362	.140%	98.736%
80.0	12.638	1.381	608.743	.140%	98.960%
81.0	11.487	1.305	610.048	.132%	99.172%
82.0	10.046	1.168	611.215	.118%	99.362%
83.0	7.962	0.979	612.194	.099%	99.521%
84.0	5.385	0.727	612.921	.074%	99.639%
85.0	4.422	0.535	613.457	.054%	99.726%
86.0	3.525	0.434	613.891	.044%	99.797%
87.0	3.010	0.358	614.249	.036%	99.855%
88.0	2.764	0.316	614.565	.032%	99.907%
89.0	2.554	0.291	614.856	.030%	99.954%
90.0	2.614	0.283	615.14	.029%	100.000%

Zonal flux distribution table

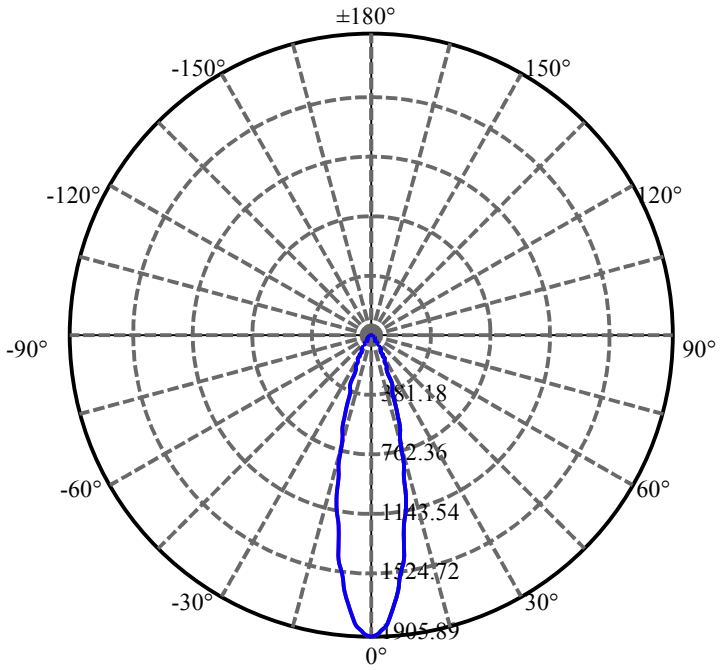
ZONAL LUMEN SUMMARY

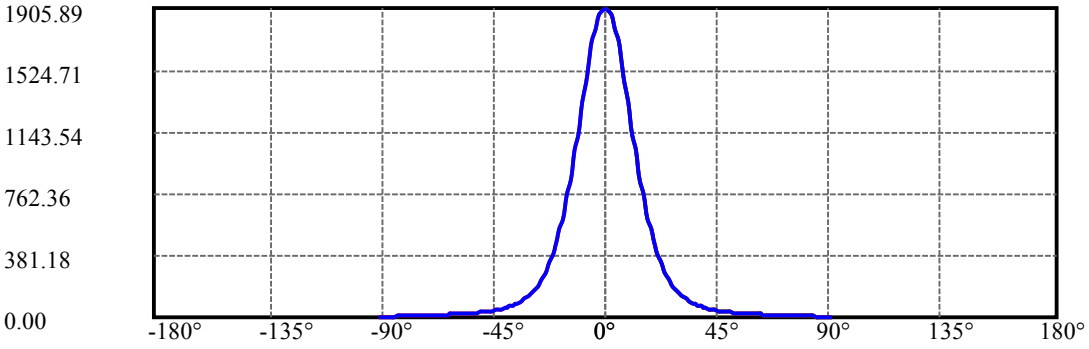
Zone	Lumens	%Lamp	%Fixt
0-30	471.86	47.77%	76.71%
0-40	526.77	53.32%	85.63%
0-60	580.67	58.78%	94.40%
0-90	614.86	62.24%	99.95%
0-120	614.86	62.24%	99.95%
0-180	615.14	62.27%	100.00%
60-90	36.15	3.66%	5.88%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-32.96	492.11	49.82%	80.00%

ZONAL LUMEN SUMMARY

0-10	146.98
10-20	209.96
20-30	114.92
30-40	54.91
40-50	31.54
50-60	22.36
60-70	15.65
70-80	12.43
80-90	6.11
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):

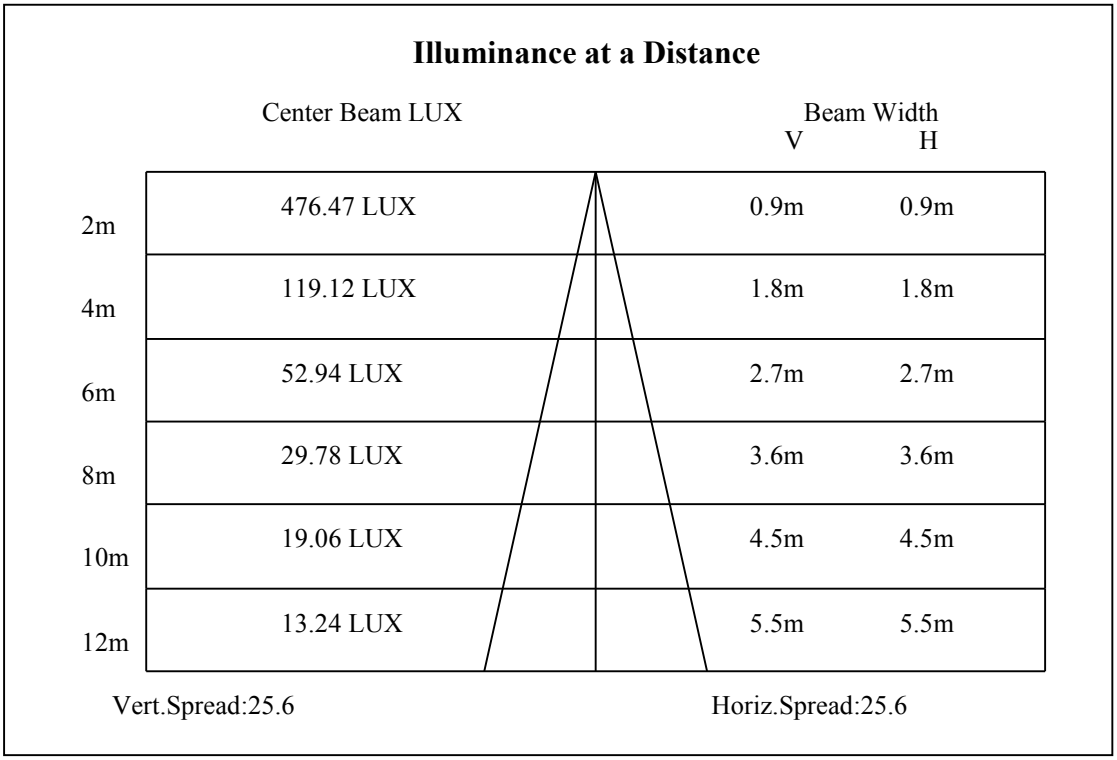
C0/C180:

C90/C270:

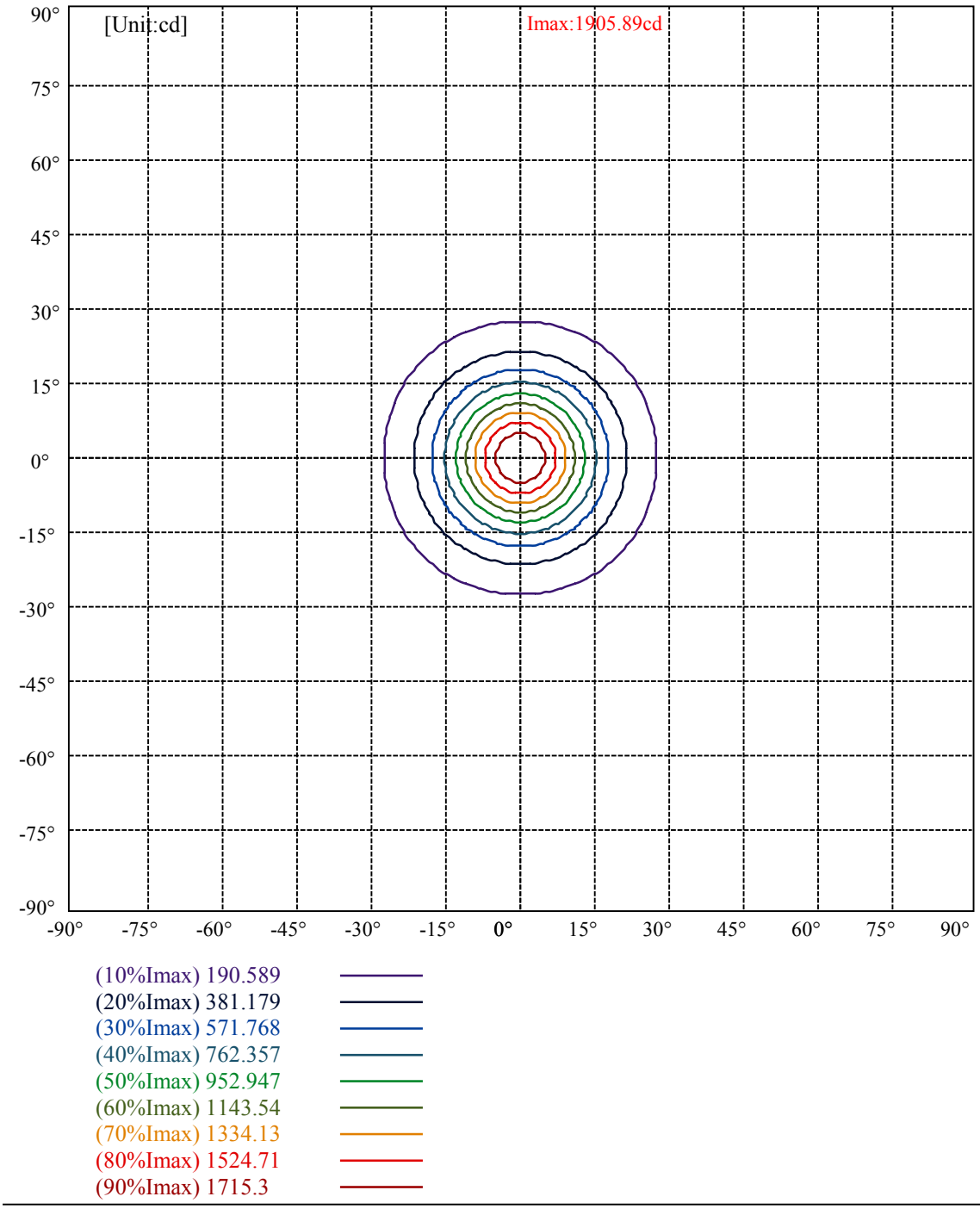
Field angle(10%Imax):C0/180Left:27.1 Right:27.1
:C90/270Left:27.1 Right:27.1

Beam Angle(50%Imax):C0/180Left:12.8 Right:12.8
:C90/270Left:12.8 Right:12.8

Lux distance Curve



ISO-Intensity(V-H)



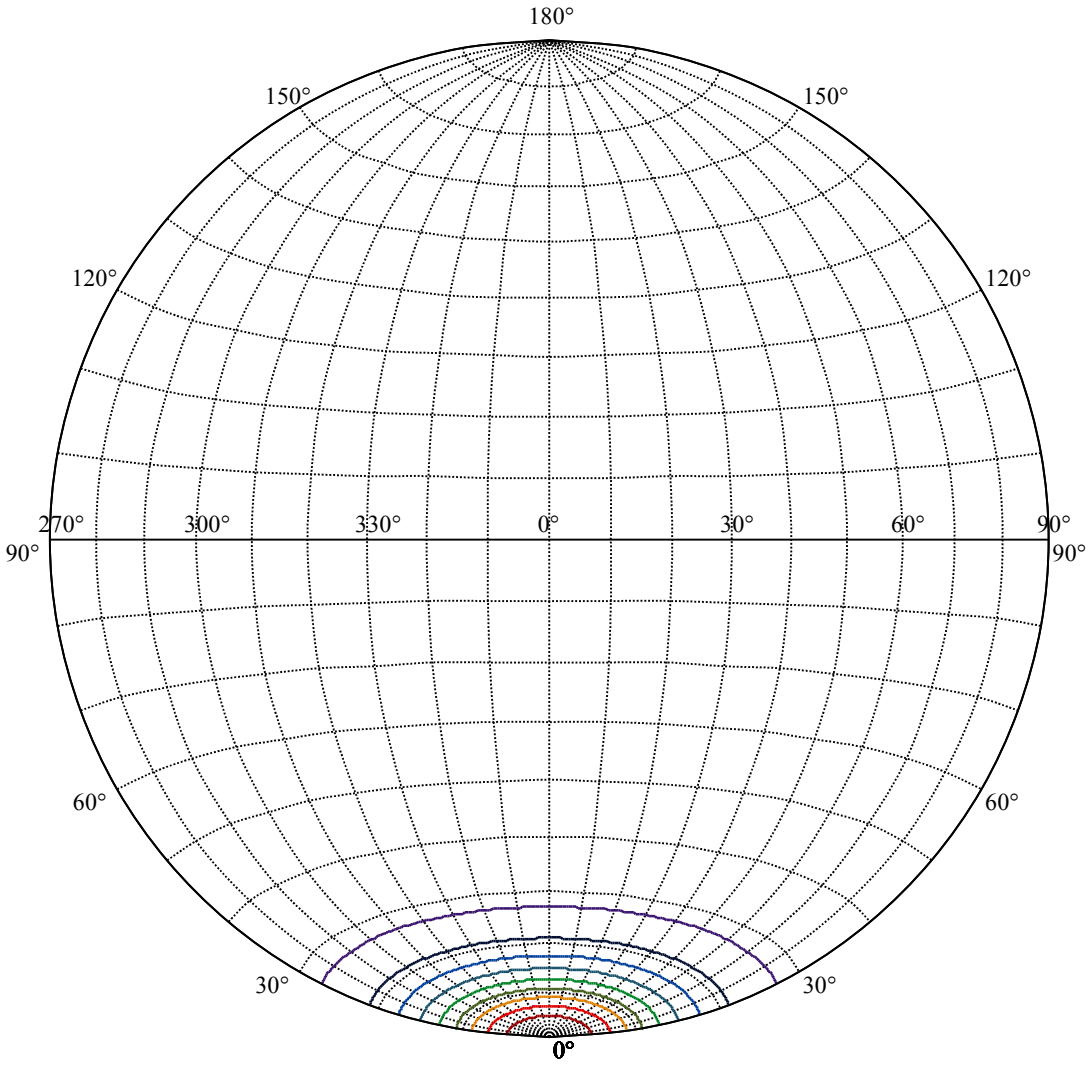
(10%Imax) 190.589
(20%Imax) 381.179
(30%Imax) 571.768
(40%Imax) 762.357
(50%Imax) 952.947
(60%Imax) 1143.54
(70%Imax) 1334.13
(80%Imax) 1524.71
(90%Imax) 1715.3

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/11/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:1905.89

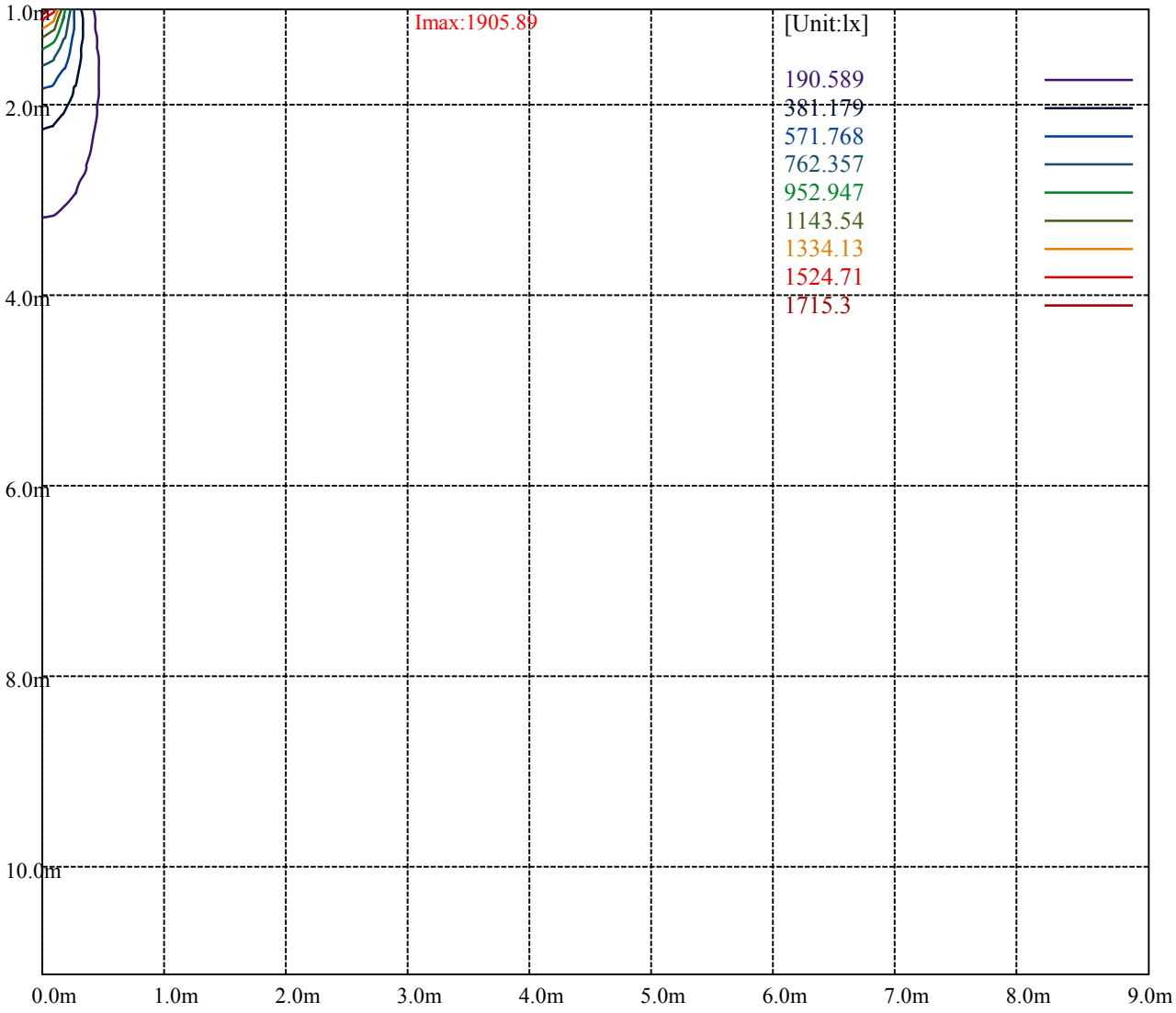
(10%Imax) 190.589
(20%Imax) 381.179
(30%Imax) 571.768
(40%Imax) 762.357
(50%Imax) 952.947
(60%Imax) 1143.54
(70%Imax) 1334.13
(80%Imax) 1524.71
(90%Imax) 1715.3

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/11/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/11/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Nata LN01D02817DA-N

Luminance Limitting Curve(no luminous side)

Luminance Table

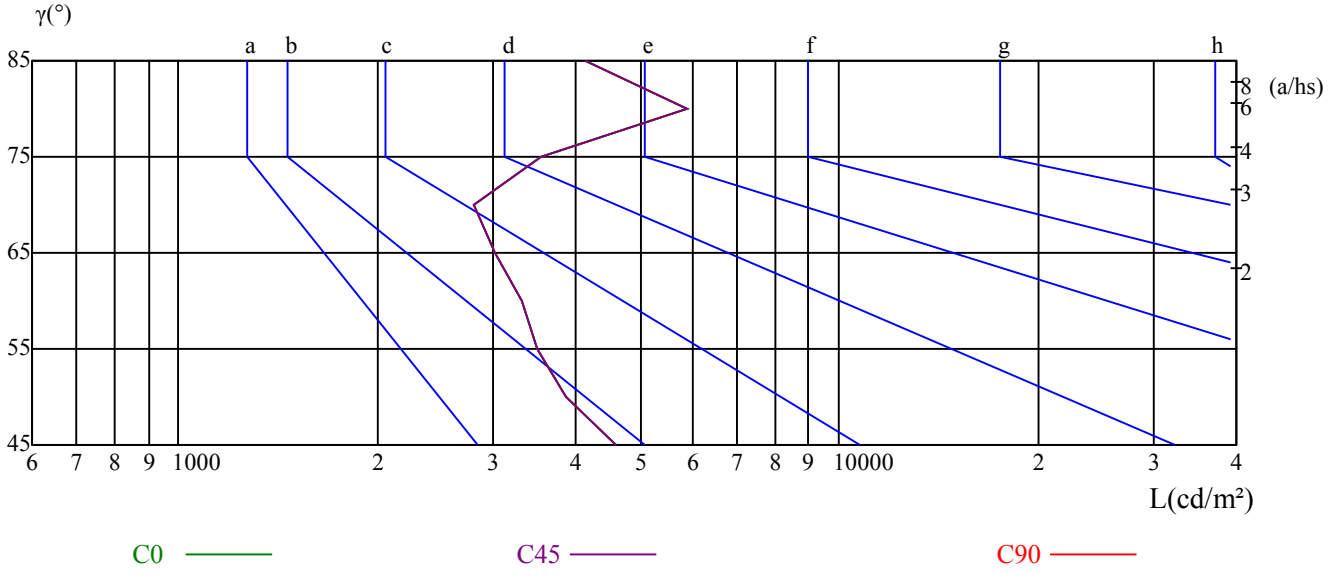
γ	45	50	55	60	65	70	75	80	85
C0	4610	3864	3501	3304	3014	2799	3541	5907	4118
C45	4610	3864	3501	3304	3014	2799	3541	5907	4118
C90	4610	3864	3501	3304	3014	2799	3541	5907	4118

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3014	3014	3014	3541	3541	3541	4118	4118	4118

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

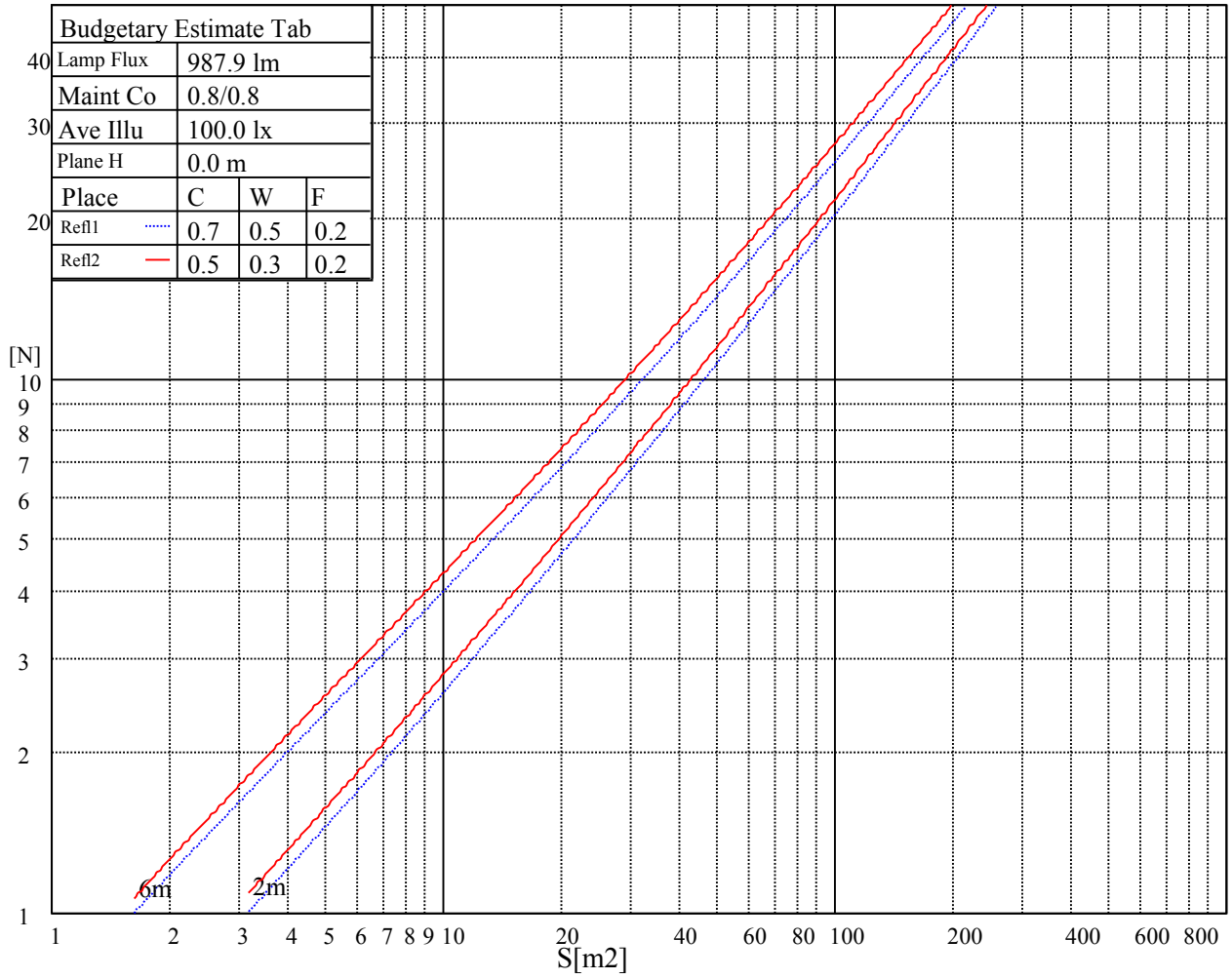


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/11/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Budgetary Estimate Table

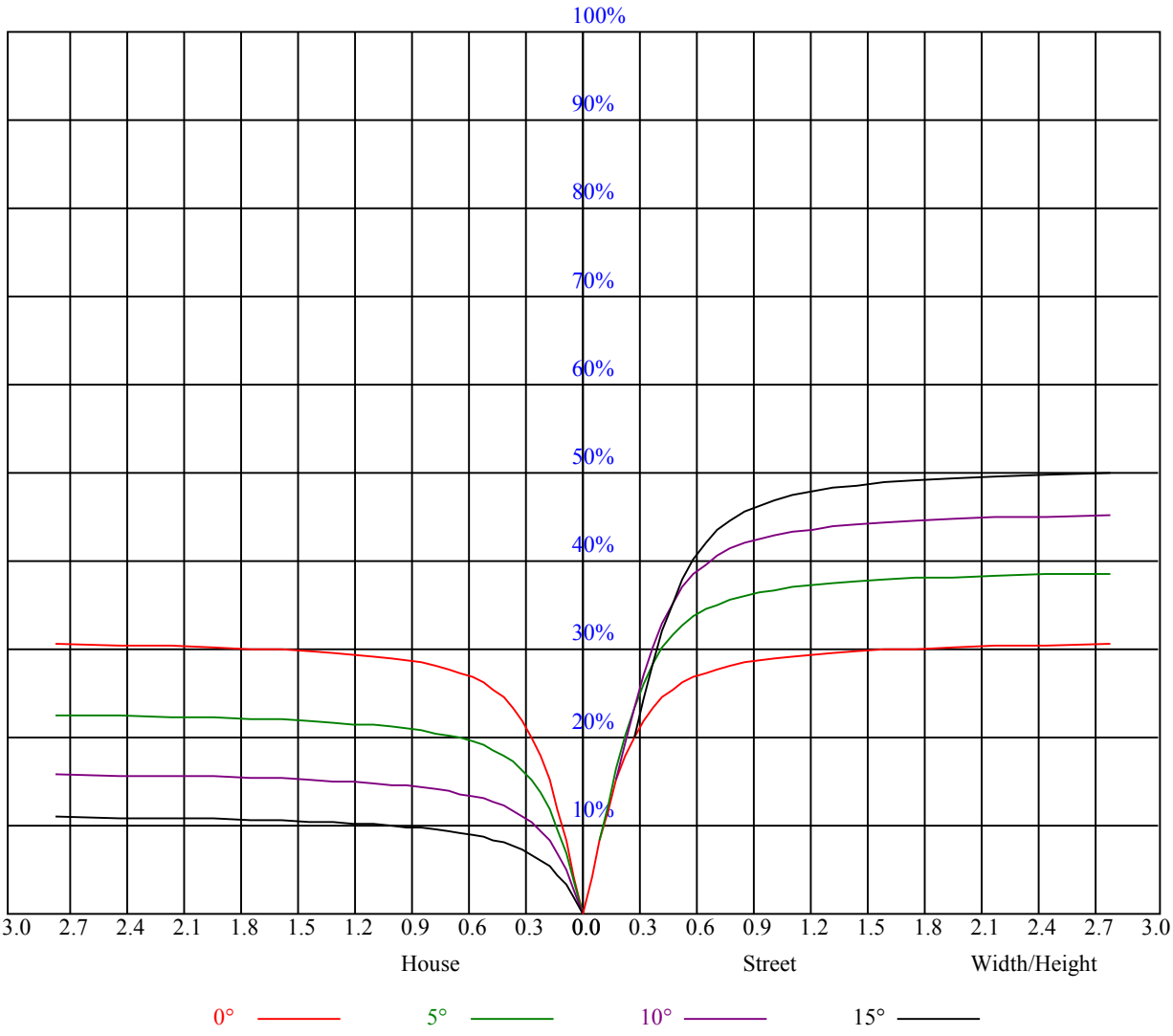


Equipment: GMS1980	Date: 2021/11/13	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.73

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	0.74	0.74	0.74	0.72	0.72	0.72	0.69	0.69	0.69	0.66	0.66	0.66	0.64	0.64	0.64	0.62
1	0.69	0.67	0.65	0.67	0.66	0.64	0.65	0.64	0.62	0.62	0.61	0.61	0.60	0.60	0.59	0.58
2	0.64	0.61	0.59	0.63	0.61	0.59	0.61	0.59	0.57	0.59	0.57	0.56	0.57	0.56	0.55	0.54
3	0.60	0.57	0.54	0.59	0.56	0.54	0.57	0.55	0.53	0.56	0.54	0.52	0.55	0.53	0.52	0.51
4	0.57	0.53	0.51	0.56	0.53	0.50	0.55	0.52	0.50	0.53	0.51	0.49	0.52	0.50	0.49	0.48
5	0.54	0.50	0.48	0.53	0.50	0.47	0.52	0.49	0.47	0.51	0.49	0.47	0.50	0.48	0.46	0.45
6	0.51	0.48	0.45	0.51	0.47	0.45	0.50	0.47	0.45	0.49	0.46	0.44	0.48	0.46	0.44	0.43
7	0.49	0.45	0.43	0.48	0.45	0.43	0.48	0.45	0.42	0.47	0.44	0.42	0.46	0.44	0.42	0.41
8	0.47	0.43	0.41	0.46	0.43	0.41	0.46	0.43	0.41	0.45	0.42	0.40	0.44	0.42	0.40	0.40
9	0.45	0.41	0.39	0.44	0.41	0.39	0.44	0.41	0.39	0.43	0.41	0.39	0.43	0.40	0.39	0.38
10	0.43	0.40	0.38	0.43	0.40	0.38	0.42	0.39	0.37	0.42	0.39	0.37	0.41	0.39	0.37	0.37

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2021/11/13	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.73

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	1917.47	1910.90	1886.40	1843.38	1791.99	1717.90	1631.25	1545.81	1456.18
45.0	1893.57	1864.29	1818.28	1762.71	1688.62	1612.13	1515.33	1411.36	1316.95
90.0	1900.14	1875.05	1838.00	1781.23	1708.93	1633.05	1525.49	1432.87	1337.27
135.0	1913.29	1908.51	1885.80	1844.57	1795.57	1733.43	1639.02	1553.58	1463.95
180.0	1917.47	1907.31	1882.81	1838.60	1778.84	1711.92	1633.64	1523.70	1429.89
225.0	1893.57	1904.92	1900.14	1874.45	1838.60	1789.60	1709.53	1635.44	1553.58
270.0	1898.35	1907.91	1898.35	1874.45	1830.83	1778.25	1704.15	1618.71	1535.65
315.0	1913.29	1900.74	1870.27	1829.63	1768.69	1701.76	1613.93	1518.92	1428.69
360.0	1917.47	1910.90	1886.40	1843.38	1791.99	1717.90	1631.25	1545.81	1456.18

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1339.06	1242.26	1147.26	1041.49	939.32	852.67	761.25	677.60	608.88
45.0	1211.19	1103.04	1009.23	920.19	816.22	739.14	666.84	592.75	529.41
90.0	1188.54	1117.50	1025.78	938.00	834.75	757.67	685.78	611.81	544.05
135.0	1346.23	1247.64	1151.44	1045.08	944.10	859.25	770.81	698.51	623.82
180.0	1333.09	1183.23	1112.24	1020.46	911.35	829.07	752.17	663.91	606.67
225.0	1441.84	1347.43	1187.17	1139.73	1034.38	944.33	860.26	771.41	687.88
270.0	1435.86	1330.70	1235.69	1153.83	1025.96	935.73	861.04	760.65	677.60
315.0	1334.28	1186.04	1114.75	1021.60	909.32	824.71	746.73	665.23	589.58
360.0	1339.06	1242.26	1147.26	1041.49	939.32	852.67	761.25	677.60	608.88

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	539.57	484.60	429.62	380.03	340.59	305.34	264.29	237.22	212.78
45.0	473.24	418.87	371.66	331.63	304.14	261.72	232.20	205.31	184.99
90.0	488.72	433.15	388.99	344.83	305.70	274.98	244.27	217.26	195.81
135.0	555.10	500.13	443.96	391.98	352.54	316.69	303.54	246.18	221.62
180.0	538.55	477.78	429.32	380.63	337.25	303.07	272.41	238.47	214.39
225.0	620.77	552.59	497.74	441.57	391.14	351.05	310.83	275.28	247.56
270.0	618.44	543.15	482.80	439.78	384.21	344.77	309.52	281.02	240.68
315.0	529.53	469.06	420.90	372.02	328.70	294.64	260.70	231.00	208.06
360.0	539.57	484.60	429.62	380.03	340.59	305.34	264.29	237.22	212.78

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	188.58	167.61	151.35	137.13	121.72	111.02	101.40	90.94	83.59
45.0	166.77	147.35	133.43	121.06	107.79	98.71	90.59	82.52	75.41
90.0	176.87	155.84	140.96	127.87	115.08	103.91	95.19	86.52	78.81
135.0	199.63	175.49	158.35	142.99	126.44	115.20	104.99	94.77	85.86
180.0	192.88	171.49	152.43	137.55	122.91	110.42	100.68	91.06	83.47
225.0	223.00	195.57	176.57	159.72	143.11	128.53	117.00	105.40	95.25
270.0	216.01	189.18	170.71	154.40	136.71	124.35	113.35	102.30	92.62
315.0	187.68	165.22	149.62	135.82	120.88	110.36	100.86	91.36	83.00
360.0	188.58	167.61	151.35	137.13	121.72	111.02	101.40	90.94	83.59

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	77.08	70.51	64.83	60.41	56.41	53.42	50.91	49.06	47.98
45.0	69.73	64.35	59.57	54.85	50.55	47.03	43.38	40.15	37.58
90.0	72.84	66.62	61.72	56.77	52.16	48.52	45.11	41.41	38.72
135.0	78.87	72.24	66.33	60.65	55.57	51.45	47.26	43.56	40.69
180.0	76.13	69.61	64.47	60.17	55.57	52.58	50.19	47.98	46.37
225.0	87.18	79.17	72.90	66.50	60.95	56.59	52.52	47.98	44.75
270.0	84.97	77.26	71.11	64.95	59.63	55.39	51.09	47.32	44.22
315.0	76.36	69.07	64.47	59.22	54.49	50.67	47.26	43.38	40.57
360.0	77.08	70.51	64.83	60.41	56.41	53.42	50.91	49.06	47.98

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	46.01	44.40	43.20	42.25	41.05	40.27	39.68	38.90	38.30
45.0	35.19	32.57	30.65	28.92	27.25	25.39	24.08	22.83	21.39
90.0	36.27	33.52	31.55	29.70	27.84	26.05	24.56	23.06	21.81
135.0	38.12	35.25	33.16	31.31	29.34	27.55	26.11	24.56	23.18
180.0	44.52	43.02	41.53	40.51	39.56	38.60	37.88	37.29	36.75
225.0	41.77	38.48	36.09	33.94	31.73	29.70	28.08	26.41	25.04
270.0	41.41	38.24	35.97	33.88	31.73	29.70	28.02	26.29	24.74
315.0	38.00	34.84	33.04	31.19	29.34	27.55	26.11	24.68	23.30
360.0	46.01	44.40	43.20	42.25	41.05	40.27	39.68	38.90	38.30

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	37.94	37.52	37.11	36.69	35.85	35.07	34.18	32.63	31.37
45.0	20.32	19.36	18.28	17.27	16.49	15.66	14.88	14.16	13.38
90.0	20.50	19.24	18.28	17.21	16.25	15.42	14.58	13.68	12.97
135.0	21.99	20.79	19.84	18.82	17.93	17.09	16.25	15.36	14.64
180.0	36.27	35.91	35.43	34.96	34.36	33.70	32.74	30.95	29.28
225.0	23.60	22.23	21.21	19.96	18.88	17.99	17.09	16.07	15.30
270.0	23.42	22.05	20.91	19.72	18.52	17.63	16.61	15.66	14.82
315.0	22.17	20.85	20.02	19.00	18.05	17.27	16.49	15.60	14.94
360.0	37.94	37.52	37.11	36.69	35.85	35.07	34.18	32.63	31.37

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	30.12	28.50	27.07	25.57	23.66	22.05	20.50	18.82	17.45
45.0	12.79	12.07	11.53	11.05	10.58	9.98	9.56	9.20	8.66
90.0	12.31	11.53	10.93	10.46	9.80	9.32	8.84	8.31	7.95
135.0	14.04	13.27	12.67	12.13	11.53	11.05	10.58	10.10	9.62
180.0	27.84	26.47	24.74	23.42	21.99	20.44	18.94	17.75	16.61
225.0	14.58	13.86	13.15	12.55	11.89	11.29	10.82	10.22	9.80
270.0	14.04	13.21	12.49	11.89	11.23	10.64	10.10	9.56	9.02
315.0	14.28	13.50	12.97	12.43	11.89	11.29	10.82	10.40	9.98
360.0	30.12	28.50	27.07	25.57	23.66	22.05	20.50	18.82	17.45

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	17.03	18.52	20.55	22.23	24.32	25.99	27.61	28.74	28.92
45.0	8.31	7.95	7.53	7.11	7.83	9.92	10.16	9.98	8.66
90.0	7.53	6.99	6.69	6.21	5.74	5.44	5.08	4.60	4.36
135.0	9.26	8.78	8.43	8.01	7.53	7.17	6.87	6.39	6.09
180.0	17.03	18.52	20.73	23.24	26.71	29.64	31.79	32.86	31.97
225.0	9.26	8.84	8.43	8.01	7.59	7.23	7.29	8.90	9.50
270.0	8.60	8.13	7.71	7.29	6.87	6.51	6.15	5.68	5.26
315.0	9.56	9.08	8.66	8.25	7.89	7.47	7.11	6.63	6.33
360.0	17.03	18.52	20.55	22.23	24.32	25.99	27.61	28.74	28.92

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	27.07	22.47	17.27	11.11	7.71	5.80	4.36	3.53	2.75
45.0	5.50	4.66	4.30	4.06	2.99	2.75	2.63	2.51	2.51
90.0	4.06	3.76	3.47	3.17	2.81	2.63	2.51	2.51	2.51
135.0	5.68	5.44	5.14	4.48	3.41	3.11	2.75	2.57	2.51
180.0	28.92	24.50	18.05	6.27	4.18	3.47	2.87	2.69	2.51
225.0	9.74	9.26	5.92	4.84	4.60	3.59	3.11	2.87	2.57
270.0	4.96	4.60	4.24	3.94	3.64	3.29	2.87	2.63	2.51
315.0	5.98	5.68	5.32	5.20	6.04	3.59	2.99	2.81	2.57
360.0	27.07	22.47	17.27	11.11	7.71	5.80	4.36	3.53	2.75

Intensity data(cd)

C/γ(°)	90.0
0.0	2.63
45.0	2.51
90.0	2.51
135.0	2.57
180.0	3.05
225.0	2.57
270.0	2.51
315.0	2.57
360.0	2.63