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Nata

LumCAT: LN01D02824DA-N
Luminaire: 92.70.307.00
Report No: 211111-B010
Test No: 211111-C010
LampCAT: CITIZEN CLU702-1002C9303H5.3
Lamp flux(lm): 1012.5
Number of Lamps: 1
Length(mm): 111
Phm Type: C

Voltage(V): 35.7500
Current(A): 0.2510
Power (W): 8.7930
PF: 0.0000
Ballast type: DC
Width(mm): 111
Height(mm): 0

Photometric Results

Lumens(lm): 637.94
Efficiency(%): 63.01%
Lumens(lm)/Power(W): 72.55
Central intensity(cd): 1617.511
Maximum intensity(cd): 1617.511
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=29.6
[C90/270]Total=29.6
Field angle(10%Imax): [C0/180]Total=59.9
[C90/270]Total=59.9
Maximum s/h(1/2): C0_180=0.49 C90_270=0.49
Maximum s/h(1/4): C0_180=0.51 C90_270=0.51
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 63.01%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 94.569%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1617.511	0.000	0	.000%	.000%
1.0	1613.030	1.546	1.546	.153%	.242%
2.0	1598.017	4.609	6.155	.455%	.965%
3.0	1573.443	7.585	13.74	.749%	2.154%
4.0	1542.297	10.429	24.169	1.030%	3.789%
5.0	1498.229	13.080	37.249	1.292%	5.839%
6.0	1448.709	15.487	52.736	1.530%	8.267%
7.0	1391.645	17.630	70.366	1.741%	11.030%
8.0	1317.925	19.392	89.758	1.915%	14.070%
9.0	1257.179	20.870	110.628	2.061%	17.341%
10.0	1178.133	22.039	132.667	2.177%	20.796%
11.0	1103.419	22.797	155.464	2.252%	24.369%
12.0	1029.393	23.315	178.779	2.303%	28.024%
13.0	950.870	23.501	202.279	2.321%	31.708%
14.0	865.745	23.253	225.532	2.297%	35.353%
15.0	792.361	22.763	248.295	2.248%	38.921%
16.0	721.800	22.187	270.482	2.191%	42.399%
17.0	647.789	21.328	291.81	2.107%	45.742%
18.0	582.060	20.278	312.088	2.003%	48.921%
19.0	526.737	19.291	331.378	1.905%	51.945%
20.0	468.926	18.223	349.602	1.800%	54.801%
21.0	418.330	17.037	366.639	1.683%	57.472%
22.0	377.347	15.989	382.628	1.579%	59.978%
23.0	335.692	14.961	397.59	1.478%	62.324%
24.0	303.455	13.974	411.564	1.380%	64.514%
25.0	270.748	13.056	424.62	1.290%	66.561%
26.0	245.816	12.194	436.813	1.204%	68.472%
27.0	217.628	11.338	448.152	1.120%	70.249%
28.0	197.005	10.498	458.649	1.037%	71.895%
29.0	177.302	9.793	468.442	.967%	73.430%
30.0	160.638	9.124	477.567	.901%	74.860%
31.0	145.879	8.530	486.097	.842%	76.197%
32.0	132.106	7.964	494.06	.787%	77.446%
33.0	120.574	7.444	501.505	.735%	78.613%
34.0	110.349	6.988	508.493	.690%	79.708%
35.0	100.833	6.559	515.051	.648%	80.736%
36.0	92.311	6.150	521.201	.607%	81.700%
37.0	85.320	5.793	526.995	.572%	82.608%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	78.358	5.463	532.458	.540%	83.465%
39.0	72.055	5.134	537.592	.507%	84.269%
40.0	66.961	4.848	542.44	.479%	85.029%
41.0	62.180	4.599	547.039	.454%	85.750%
42.0	57.624	4.353	551.392	.430%	86.432%
43.0	53.755	4.126	555.517	.407%	87.079%
44.0	50.304	3.928	559.445	.388%	87.695%
45.0	46.906	3.736	563.181	.369%	88.280%
46.0	44.128	3.560	566.741	.352%	88.839%
47.0	41.364	3.400	570.141	.336%	89.372%
48.0	38.907	3.245	573.386	.320%	89.880%
49.0	36.741	3.106	576.493	.307%	90.367%
50.0	34.552	2.972	579.465	.294%	90.833%
51.0	32.610	2.842	582.307	.281%	91.279%
52.0	30.959	2.728	585.034	.269%	91.706%
53.0	29.242	2.619	587.653	.259%	92.117%
54.0	27.673	2.509	590.162	.248%	92.510%
55.0	26.351	2.412	592.573	.238%	92.888%
56.0	25.014	2.321	594.894	.229%	93.252%
57.0	23.722	2.228	597.123	.220%	93.601%
58.0	22.557	2.140	599.263	.211%	93.936%
59.0	21.489	2.059	601.322	.203%	94.259%
60.0	20.353	1.977	603.299	.195%	94.569%
61.0	19.338	1.894	605.193	.187%	94.866%
62.0	18.404	1.819	607.011	.180%	95.151%
63.0	17.493	1.746	608.757	.172%	95.425%
64.0	16.626	1.674	610.431	.165%	95.687%
65.0	15.805	1.605	612.036	.159%	95.939%
66.0	15.065	1.540	613.577	.152%	96.180%
67.0	14.371	1.480	615.057	.146%	96.412%
68.0	13.683	1.421	616.478	.140%	96.635%
69.0	13.049	1.364	617.842	.135%	96.849%
70.0	12.638	1.319	619.161	.130%	97.056%
71.0	12.272	1.287	620.448	.127%	97.257%
72.0	12.063	1.265	621.714	.125%	97.456%
73.0	11.913	1.254	622.967	.124%	97.652%
74.0	11.839	1.249	624.216	.123%	97.848%
75.0	11.958	1.257	625.473	.124%	98.045%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.966	1.270	626.743	.125%	98.244%
77.0	12.137	1.285	628.028	.127%	98.446%
78.0	12.137	1.299	629.328	.128%	98.649%
79.0	11.913	1.292	630.62	.128%	98.852%
80.0	11.144	1.243	631.863	.123%	99.047%
81.0	10.024	1.145	633.008	.113%	99.226%
82.0	8.784	1.020	634.028	.101%	99.386%
83.0	7.245	0.871	634.899	.086%	99.523%
84.0	6.028	0.723	635.622	.071%	99.636%
85.0	4.930	0.598	636.22	.059%	99.730%
86.0	3.503	0.461	636.681	.046%	99.802%
87.0	3.040	0.358	637.039	.035%	99.858%
88.0	2.801	0.320	637.359	.032%	99.908%
89.0	2.622	0.297	637.656	.029%	99.955%
90.0	2.644	0.289	637.945	.029%	100.000%

Zonal flux distribution table

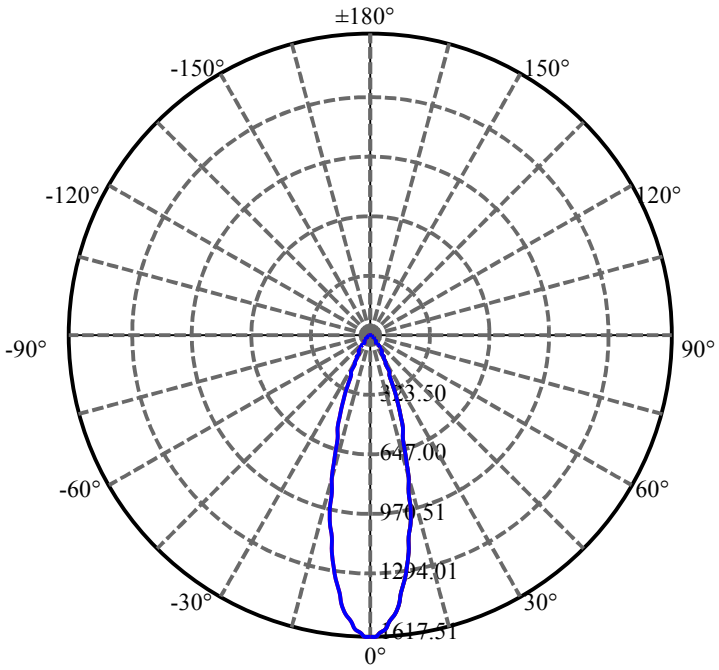
ZONAL LUMEN SUMMARY

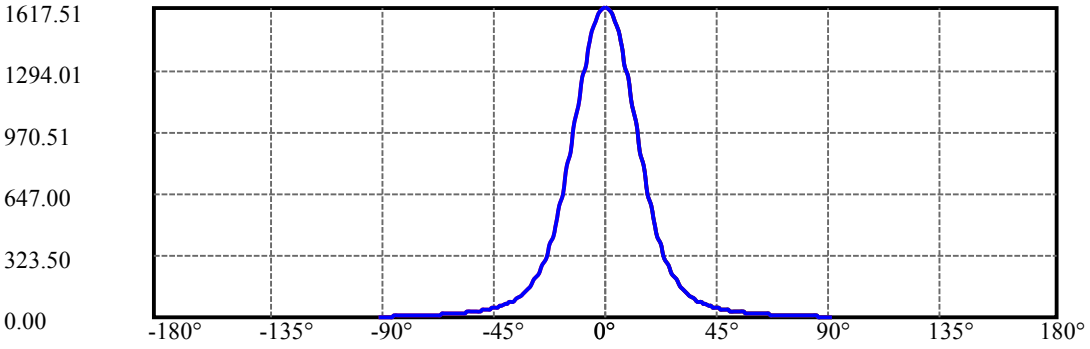
Zone	Lumens	%Lamp	%Fixt
0-30	477.57	47.17%	74.86%
0-40	542.44	53.58%	85.03%
0-60	603.30	59.59%	94.57%
0-90	637.66	62.98%	99.95%
0-120	637.66	62.98%	99.95%
0-180	637.94	63.01%	100.00%
60-90	36.33	3.59%	5.70%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-34.28	510.36	50.41%	80.00%

ZONAL LUMEN SUMMARY

0-10	132.67
10-20	216.94
20-30	127.96
30-40	64.87
40-50	37.02
50-60	23.83
60-70	15.86
70-80	12.70
80-90	5.79
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):

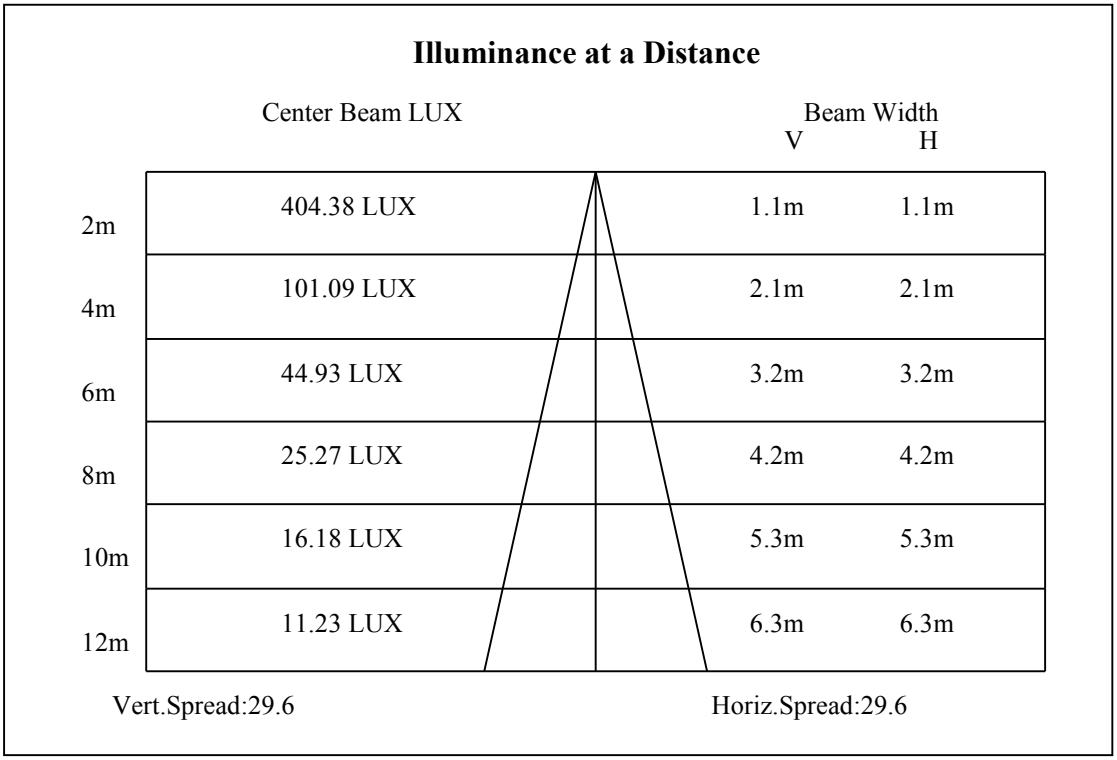
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:29.9 Right:29.9
:C90/270Left:29.9 Right:29.9

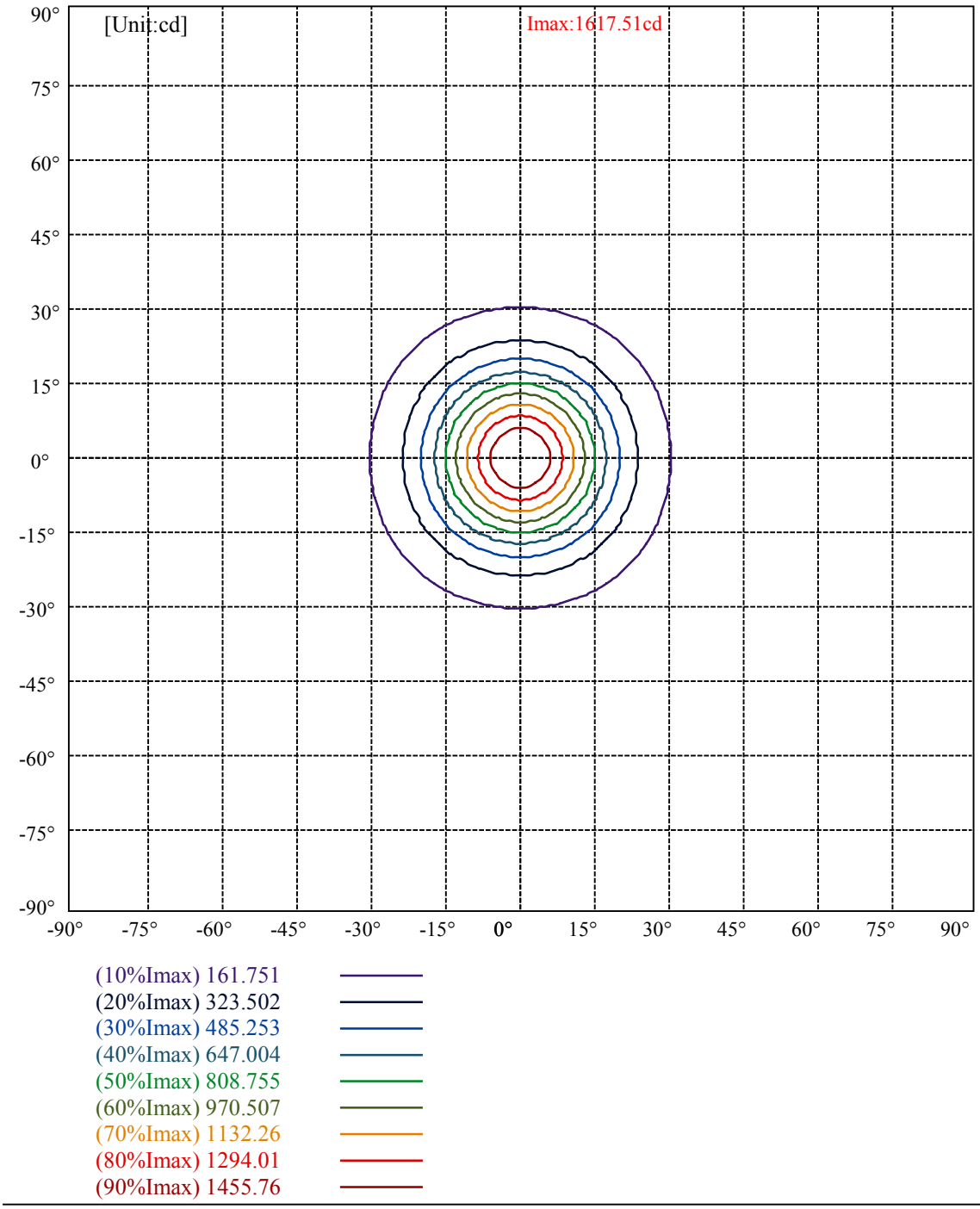
Beam Angle(50%Imax):C0/180Left:14.8 Right:14.8
:C90/270Left:14.8 Right:14.8

Lux distance Curve



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

ISO-Intensity(V-H)

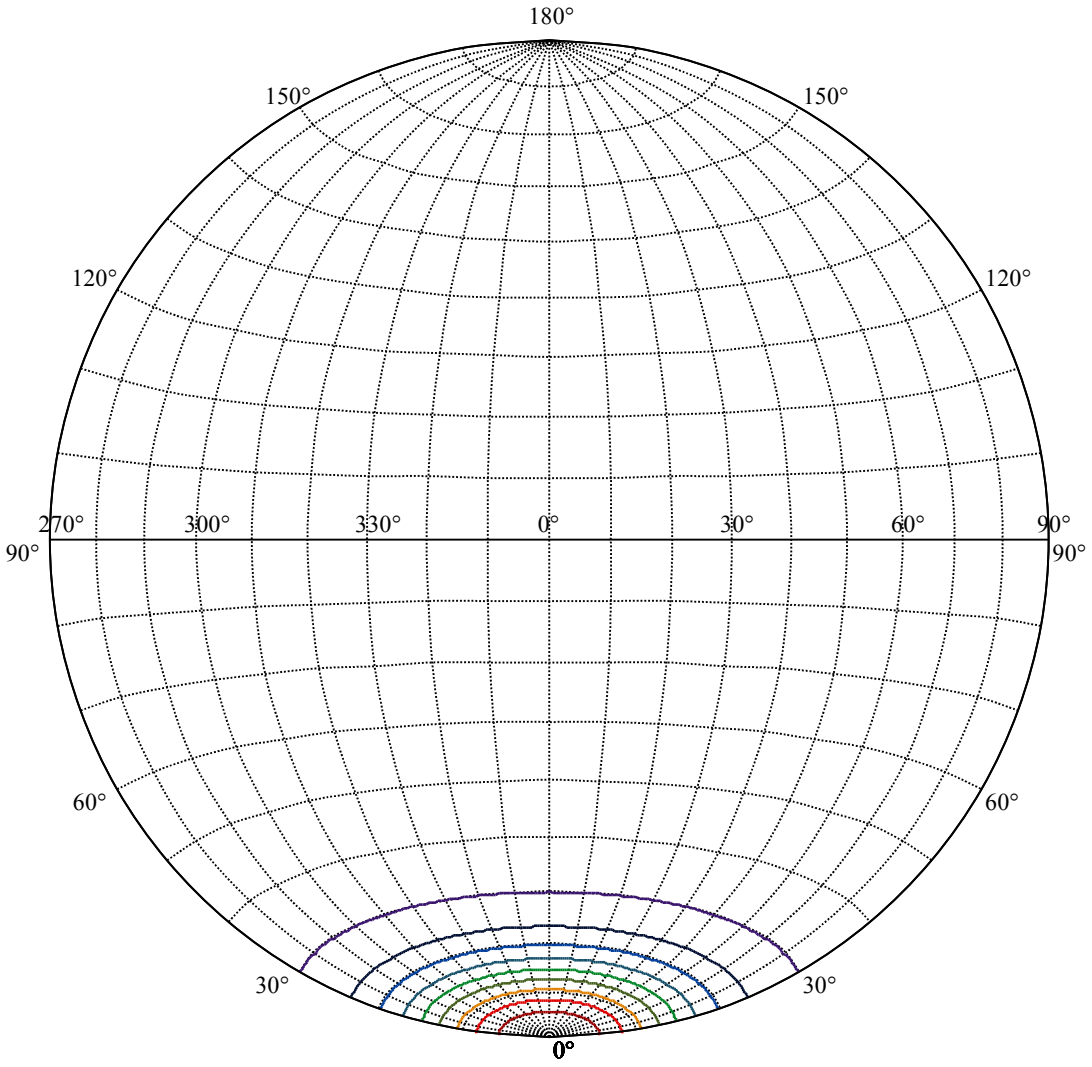


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:1617.51

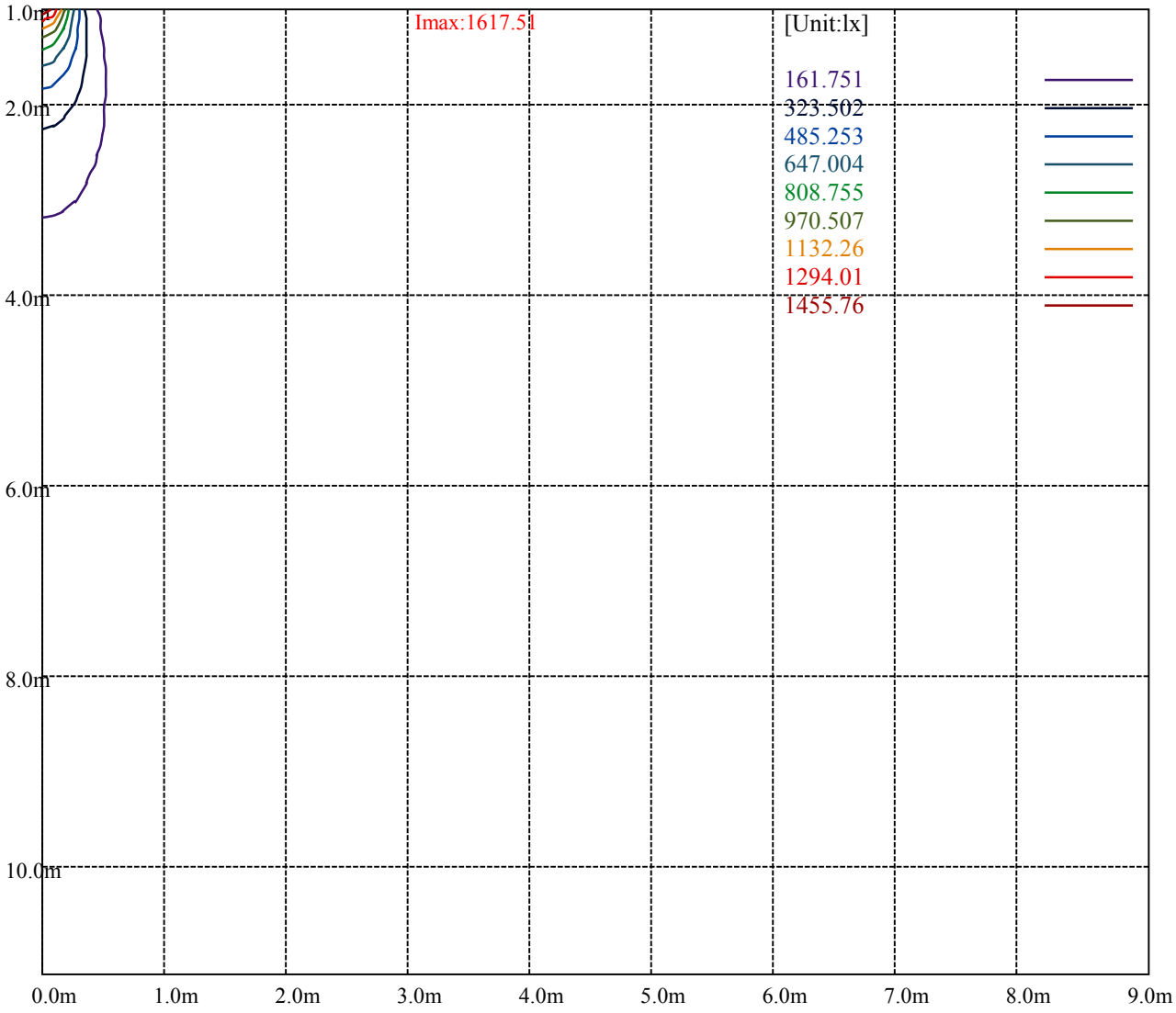
(10%Imax) 161.751
(20%Imax) 323.502
(30%Imax) 485.253
(40%Imax) 647.004
(50%Imax) 808.755
(60%Imax) 970.507
(70%Imax) 1132.26
(80%Imax) 1294.01
(90%Imax) 1455.76

Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.73

Nata LN01D02824DA-N

Luminance Limitting Curve(no luminous side)

Luminance Table

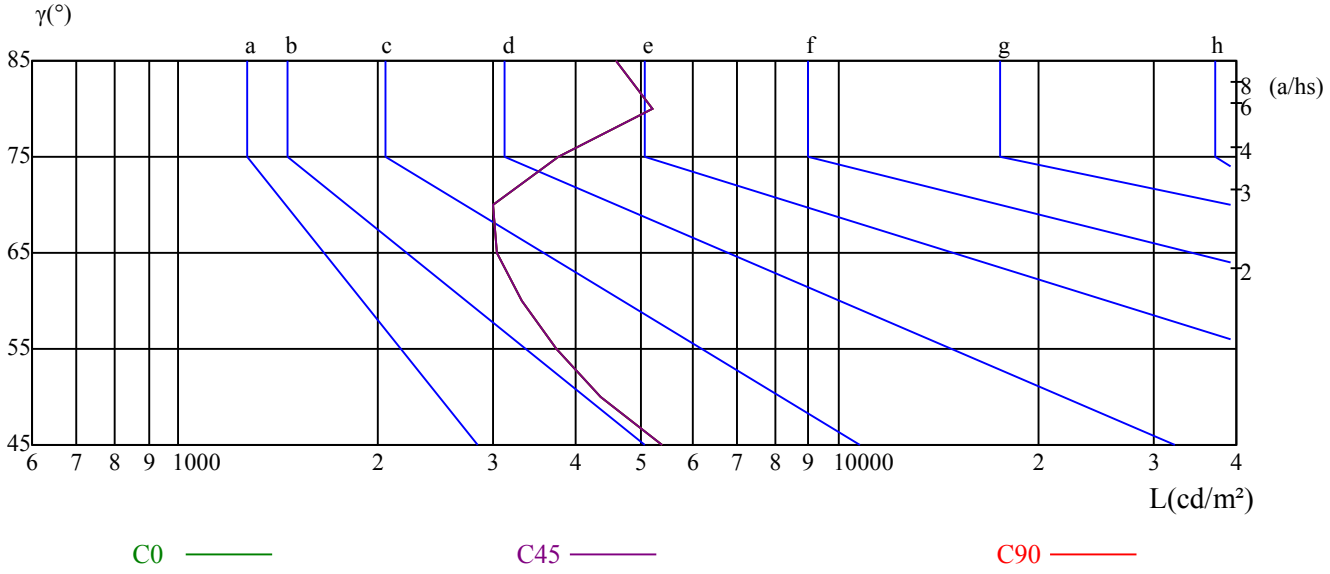
γ	45	50	55	60	65	70	75	80	85
C0	5384	4363	3729	3304	3035	2999	3750	5209	4591
C45	5384	4363	3729	3304	3035	2999	3750	5209	4591
C90	5384	4363	3729	3304	3035	2999	3750	5209	4591

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3035	3035	3035	3750	3750	3750	4591	4591	4591

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

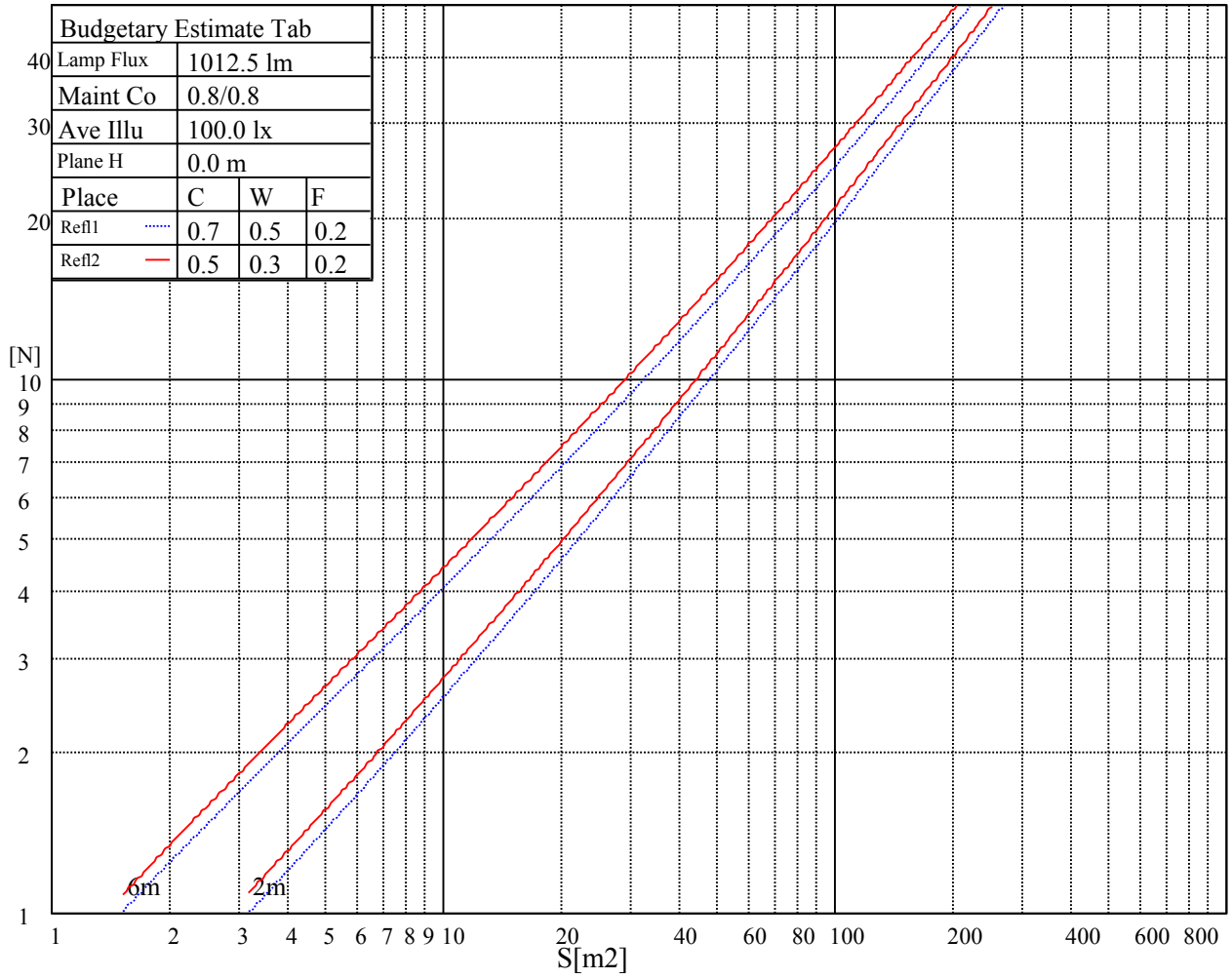


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.73

Budgetary Estimate Table

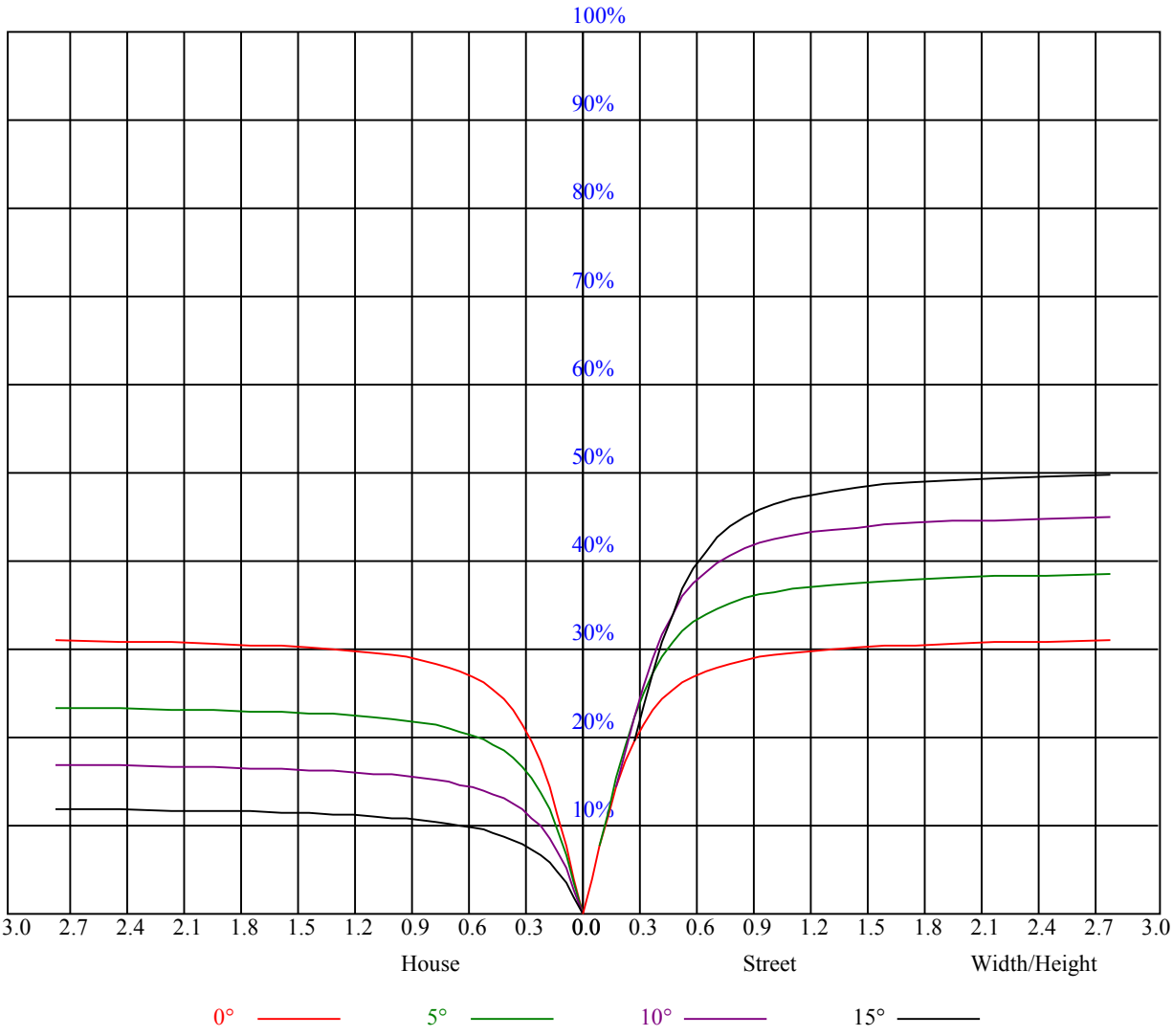


Equipment: GMS1980 Date: 2021/11/11 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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	0.75	0.75	0.75	0.73	0.73	0.73	0.70	0.70	0.70	0.67	0.67	0.67	0.64	0.64	0.64	0.63
1	0.69	0.68	0.66	0.68	0.66	0.65	0.65	0.64	0.63	0.63	0.62	0.61	0.61	0.60	0.59	0.58
2	0.64	0.62	0.60	0.63	0.61	0.59	0.61	0.59	0.58	0.59	0.58	0.56	0.58	0.56	0.55	0.54
3	0.60	0.57	0.55	0.59	0.57	0.54	0.58	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	0.47	0.53	0.50	0.47	0.52	0.49	0.47	0.51	0.48	0.46	0.50	0.48	0.46	0.45
6	0.51	0.47	0.45	0.50	0.47	0.45	0.49	0.46	0.44	0.49	0.46	0.44	0.48	0.45	0.44	0.43
7	0.48	0.45	0.42	0.48	0.45	0.42	0.47	0.44	0.42	0.46	0.44	0.42	0.46	0.43	0.42	0.41
8	0.46	0.43	0.40	0.46	0.42	0.40	0.45	0.42	0.40	0.45	0.42	0.40	0.44	0.41	0.40	0.39
9	0.44	0.41	0.38	0.44	0.41	0.38	0.43	0.40	0.38	0.43	0.40	0.38	0.42	0.40	0.38	0.37
10	0.42	0.39	0.37	0.42	0.39	0.37	0.42	0.39	0.37	0.41	0.38	0.37	0.41	0.38	0.36	0.36

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2021/11/11	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	1617.51	1627.07	1628.86	1619.30	1604.37	1566.72	1529.67	1490.83	1427.50
45.0	1618.71	1609.74	1593.01	1560.15	1525.49	1483.66	1420.33	1362.96	1300.82
90.0	1613.93	1596.00	1566.12	1526.69	1484.26	1428.69	1371.33	1300.82	1185.98
135.0	1619.90	1604.96	1573.89	1541.03	1500.99	1441.24	1385.67	1324.12	1251.23
180.0	1617.51	1598.39	1567.92	1528.48	1485.46	1428.69	1371.33	1300.82	1185.02
225.0	1618.71	1617.51	1607.35	1588.83	1554.77	1523.70	1474.70	1412.56	1362.96
270.0	1613.93	1623.49	1623.49	1613.33	1594.80	1559.55	1522.50	1478.88	1428.09
315.0	1619.90	1627.07	1623.49	1609.74	1588.23	1553.58	1514.14	1462.15	1401.80
360.0	1617.51	1627.07	1628.86	1619.30	1604.37	1566.72	1529.67	1490.83	1427.50

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1362.37	1306.80	1220.75	1149.05	1073.16	976.36	899.28	823.99	731.97
45.0	1218.36	1146.06	1071.37	986.52	902.87	828.77	749.30	682.38	611.27
90.0	1150.30	1068.68	985.80	912.79	840.84	753.54	687.10	624.54	558.75
135.0	1175.34	1102.44	1018.79	944.69	862.83	783.36	715.84	644.73	576.62
180.0	1149.41	1067.66	985.15	912.43	840.78	762.39	687.70	625.31	566.52
225.0	1302.61	1188.54	1144.51	1072.21	988.85	905.79	834.39	764.78	680.59
270.0	1357.59	1294.85	1227.32	1148.45	1064.80	988.31	902.87	819.21	746.91
315.0	1341.45	1250.03	1173.67	1109.01	1032.83	927.42	862.41	789.46	709.69
360.0	1362.37	1306.80	1220.75	1149.05	1073.16	976.36	899.28	823.99	731.97

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	663.26	601.11	529.41	476.83	429.03	376.44	338.80	305.34	269.13
45.0	547.34	494.16	440.98	392.58	353.74	317.29	302.35	252.81	228.26
90.0	497.98	449.40	400.46	357.26	322.96	288.97	262.08	235.19	211.23
135.0	524.03	474.44	415.28	374.05	338.80	302.35	268.35	244.27	221.74
180.0	498.46	449.64	405.60	356.84	322.25	291.53	260.82	233.75	212.24
225.0	618.56	561.26	502.04	447.91	404.29	360.25	321.11	290.16	259.45
270.0	671.03	608.28	544.35	484.60	436.79	383.61	345.37	311.91	303.54
315.0	635.83	575.60	513.28	456.57	410.92	365.09	328.76	292.55	260.94
360.0	663.26	601.11	529.41	476.83	429.03	376.44	338.80	305.34	269.13

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	239.85	216.96	194.44	177.05	159.84	144.60	132.53	120.52	109.77
45.0	205.07	184.64	168.26	151.47	136.95	125.54	114.31	105.17	96.08
90.0	192.40	175.49	156.49	143.05	130.98	117.83	108.51	100.09	91.60
135.0	196.29	178.78	162.89	146.75	132.59	121.60	110.60	100.74	92.98
180.0	190.79	173.76	156.49	141.20	129.19	117.41	106.90	98.65	91.18
225.0	235.31	210.81	189.36	172.51	157.39	140.66	128.77	118.07	106.18
270.0	245.05	221.74	201.07	180.75	163.01	148.96	134.80	122.19	112.34
315.0	236.26	213.86	189.42	172.33	157.09	140.24	128.17	117.35	106.54
360.0	239.85	216.96	194.44	177.05	159.84	144.60	132.53	120.52	109.77

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	101.28	93.51	84.85	78.63	73.20	67.82	62.92	59.16	55.21
45.0	88.02	81.56	75.65	69.13	64.17	59.75	54.85	51.21	48.16
90.0	84.07	77.92	71.70	66.03	61.43	56.88	53.12	49.24	45.83
135.0	85.21	78.93	72.60	66.86	62.26	58.14	53.54	50.13	47.09
180.0	82.94	77.02	71.76	66.39	61.66	57.84	53.90	50.43	47.62
225.0	97.70	90.11	82.52	75.71	70.33	64.83	60.47	56.05	52.04
270.0	102.30	94.17	86.04	78.75	73.08	67.94	62.14	58.14	54.32
315.0	96.98	89.33	81.74	74.93	69.55	64.23	60.05	55.69	52.16
360.0	101.28	93.51	84.85	78.63	73.20	67.82	62.92	59.16	55.21

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	51.69	48.88	46.01	43.68	41.29	39.02	37.17	35.49	33.64
45.0	44.75	41.71	39.26	36.75	34.72	32.51	30.53	28.80	27.13
90.0	43.08	40.51	37.58	35.43	33.46	31.19	29.46	27.84	25.99
135.0	43.62	41.17	38.84	36.51	34.36	32.74	30.65	29.10	27.43
180.0	44.81	42.48	40.09	37.88	36.09	34.18	32.51	31.13	29.88
225.0	48.70	45.71	42.36	39.86	37.64	35.02	33.10	31.37	29.52
270.0	50.07	46.97	44.16	41.23	38.60	36.33	34.06	32.27	30.29
315.0	48.52	45.59	42.60	39.91	37.76	35.43	33.40	31.67	30.06
360.0	51.69	48.88	46.01	43.68	41.29	39.02	37.17	35.49	33.64

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	32.21	30.95	29.58	28.44	27.37	26.23	25.16	24.14	23.12
45.0	25.51	24.20	22.95	21.51	20.44	19.48	18.28	17.39	16.43
90.0	24.68	23.36	21.93	20.97	19.78	18.52	17.75	16.73	15.77
135.0	25.99	24.68	23.48	22.11	21.03	20.20	18.88	17.99	17.27
180.0	28.38	27.25	26.17	25.10	24.08	23.12	22.17	21.15	20.32
225.0	27.79	26.35	24.86	23.42	22.17	20.97	19.84	18.70	17.63
270.0	28.56	27.13	25.57	24.08	22.83	21.69	20.26	19.18	18.22
315.0	28.26	26.89	25.57	24.14	22.77	21.69	20.50	19.42	18.46
360.0	32.21	30.95	29.58	28.44	27.37	26.23	25.16	24.14	23.12

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	22.23	21.27	20.26	19.48	18.58	17.75	17.09	16.37	15.60
45.0	15.60	14.70	14.04	13.32	12.67	11.95	11.29	10.76	10.16
90.0	15.00	14.28	13.32	12.73	12.13	11.47	10.76	10.28	9.68
135.0	16.25	15.42	14.82	14.04	13.38	12.79	12.19	11.65	11.11
180.0	19.36	18.58	17.81	17.09	16.49	15.95	15.66	16.43	17.87
225.0	16.79	15.83	14.94	14.22	13.56	12.67	12.01	11.41	10.76
270.0	17.21	16.25	15.42	14.58	13.74	13.09	12.37	11.71	11.05
315.0	17.51	16.67	15.83	15.06	14.40	13.80	13.03	12.49	11.95
360.0	22.23	21.27	20.26	19.48	18.58	17.75	17.09	16.37	15.60

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	15.06	15.54	17.15	19.54	20.26	20.08	20.73	22.11	23.00
45.0	9.56	9.08	8.54	8.01	7.53	8.54	9.02	8.25	6.51
90.0	9.08	8.54	7.95	7.47	6.87	6.33	5.86	5.44	4.96
135.0	10.58	10.04	9.56	9.02	8.84	9.08	9.62	9.56	8.48
180.0	20.32	21.87	22.89	24.80	26.89	28.26	27.96	26.65	24.50
225.0	10.16	9.62	9.02	8.48	8.01	8.48	8.72	8.78	7.77
270.0	10.40	9.80	9.26	8.54	8.07	7.59	6.93	6.51	6.04
315.0	11.35	10.82	10.34	9.80	9.26	8.72	8.25	8.01	7.89
360.0	15.06	15.54	17.15	19.54	20.26	20.08	20.73	22.11	23.00

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	22.59	20.44	17.93	15.30	11.35	5.56	4.18	3.59	2.87
45.0	5.14	4.72	4.36	4.00	3.11	2.87	2.63	2.57	2.57
90.0	4.60	4.18	3.76	3.35	2.93	2.63	2.57	2.57	2.57
135.0	7.17	6.51	6.04	5.56	3.88	3.17	2.75	2.63	2.57
180.0	21.51	17.15	9.80	4.96	3.76	3.11	2.75	2.69	2.63
225.0	6.21	5.38	4.96	4.60	4.30	3.23	2.93	2.69	2.57
270.0	5.56	5.14	4.72	4.30	3.94	3.35	2.99	2.75	2.57
315.0	7.41	6.75	6.39	6.15	6.15	4.12	3.53	2.93	2.63
360.0	22.59	20.44	17.93	15.30	11.35	5.56	4.18	3.59	2.87

Intensity data(cd)

C/γ(°)	90.0
0.0	2.75
45.0	2.57
90.0	2.57
135.0	2.57
180.0	2.99
225.0	2.57
270.0	2.57
315.0	2.57
360.0	2.75