NATA LIGHTING CO.,LTD.
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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 3-1548-A3
Luminaire: 92.76.365.00
Report No: NATA0100
Test No: GC2019111505
LampCAT: LUMENS EDC-47-10W
Lamp flux(lm): 691.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 218.0000
Current(A): 0.0440
Power (W): 9.5000
PF: 0.9940
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 620.83
Efficiency(%): 89.85%
Lumens(lm)/Power(W): 65.35
Central intensity(cd): 5308.875
Maximum intensity(cd): 5308.875
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=13.0
[C90/270]Total=13.0
Field angle(10%Imax): [C0/180]Total=28.8
[C90/270]Total=28.8
Maximum s/h(1/2): C0_180=0.22 C90_270=0.22
Maximum s/h(1/4): C0_180=0.23 C90_270=0.23
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.85%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.416%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5308.875	0.000	0	.000%	.000%
1.0	5203.195	5.030	5.03	.728%	.810%
2.0	4899.375	14.500	19.53	2.098%	3.146%
3.0	4458.727	22.382	41.912	3.239%	6.751%
4.0	3973.500	28.225	70.137	4.085%	11.297%
5.0	3453.328	31.950	102.087	4.624%	16.443%
6.0	2914.031	33.462	135.549	4.843%	21.833%
7.0	2376.914	32.841	168.39	4.753%	27.123%
8.0	1947.164	30.947	199.336	4.479%	32.108%
9.0	1489.549	27.853	227.189	4.031%	36.594%
10.0	1181.046	24.168	251.357	3.498%	40.487%
11.0	979.931	21.593	272.949	3.125%	43.965%
12.0	798.202	19.438	292.387	2.813%	47.096%
13.0	651.488	17.204	309.591	2.490%	49.867%
14.0	557.768	15.478	325.07	2.240%	52.360%
15.0	488.883	14.369	339.438	2.079%	54.675%
16.0	434.672	13.533	352.971	1.958%	56.854%
17.0	398.152	12.969	365.94	1.877%	58.943%
18.0	368.880	12.647	378.587	1.830%	60.980%
19.0	345.094	12.422	391.009	1.798%	62.981%
20.0	326.032	12.283	403.292	1.778%	64.960%
21.0	310.155	12.216	415.508	1.768%	66.928%
22.0	296.606	12.193	427.701	1.765%	68.892%
23.0	286.959	12.245	439.946	1.772%	70.864%
24.0	278.866	12.371	452.317	1.790%	72.856%
25.0	269.817	12.476	464.793	1.805%	74.866%
26.0	264.452	12.611	477.405	1.825%	76.897%
27.0	259.559	12.820	490.225	1.855%	78.962%
28.0	254.777	13.022	503.247	1.885%	81.060%
29.0	249.877	13.203	516.45	1.911%	83.187%
30.0	244.245	13.341	529.791	1.931%	85.335%
31.0	234.921	13.334	543.125	1.930%	87.483%
32.0	217.709	12.967	556.093	1.877%	89.572%
33.0	191.686	12.061	568.154	1.745%	91.515%
34.0	155.651	10.511	578.665	1.521%	93.208%
35.0	119.257	8.538	587.203	1.236%	94.583%
36.0	83.095	6.443	593.646	.932%	95.621%
37.0	50.892	4.370	598.015	.632%	96.325%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	27.056	2.602	600.617	.377%	96.744%
39.0	16.383	1.483	602.1	.215%	96.983%
40.0	12.389	1.003	603.103	.145%	97.144%
41.0	9.745	0.788	603.892	.114%	97.271%
42.0	7.995	0.645	604.536	.093%	97.375%
43.0	6.694	0.544	605.08	.079%	97.463%
44.0	5.808	0.472	605.552	.068%	97.539%
45.0	5.147	0.421	605.973	.061%	97.606%
46.0	4.577	0.380	606.353	.055%	97.668%
47.0	4.366	0.356	606.709	.051%	97.725%
48.0	4.233	0.348	607.057	.050%	97.781%
49.0	4.078	0.341	607.398	.049%	97.836%
50.0	3.973	0.336	607.734	.049%	97.890%
51.0	3.916	0.334	608.067	.048%	97.944%
52.0	3.818	0.332	608.399	.048%	97.997%
53.0	3.755	0.329	608.729	.048%	98.050%
54.0	3.684	0.328	609.057	.047%	98.103%
55.0	3.628	0.326	609.383	.047%	98.156%
56.0	3.551	0.324	609.707	.047%	98.208%
57.0	3.516	0.323	610.031	.047%	98.260%
58.0	3.459	0.323	610.353	.047%	98.312%
59.0	3.424	0.322	610.675	.047%	98.364%
60.0	3.389	0.322	610.997	.047%	98.416%
61.0	3.347	0.321	611.318	.047%	98.467%
62.0	3.319	0.321	611.639	.046%	98.519%
63.0	3.305	0.322	611.962	.047%	98.571%
64.0	3.270	0.323	612.284	.047%	98.623%
65.0	3.255	0.323	612.607	.047%	98.675%
66.0	3.234	0.324	612.931	.047%	98.727%
67.0	3.220	0.325	613.255	.047%	98.779%
68.0	3.199	0.325	613.581	.047%	98.832%
69.0	3.185	0.326	613.906	.047%	98.884%
70.0	3.171	0.326	614.233	.047%	98.937%
71.0	3.164	0.327	614.56	.047%	98.990%
72.0	3.143	0.328	614.888	.047%	99.042%
73.0	3.157	0.329	615.218	.048%	99.095%
74.0	3.150	0.332	615.549	.048%	99.149%
75.0	3.143	0.332	615.882	.048%	99.202%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.150	0.334	616.216	.048%	99.256%
77.0	3.136	0.335	616.551	.049%	99.310%
78.0	3.143	0.336	616.887	.049%	99.364%
79.0	3.143	0.338	617.225	.049%	99.419%
80.0	3.150	0.339	617.564	.049%	99.473%
81.0	3.150	0.341	617.905	.049%	99.528%
82.0	3.150	0.342	618.246	.049%	99.583%
83.0	3.143	0.342	618.588	.050%	99.638%
84.0	3.094	0.340	618.928	.049%	99.693%
85.0	3.059	0.336	619.264	.049%	99.747%
86.0	2.981	0.330	619.594	.048%	99.800%
87.0	2.855	0.319	619.914	.046%	99.852%
88.0	2.820	0.311	620.224	.045%	99.902%
89.0	2.770	0.306	620.531	.044%	99.951%
90.0	2.749	0.303	620.833	.044%	100.000%

Zonal flux distribution table

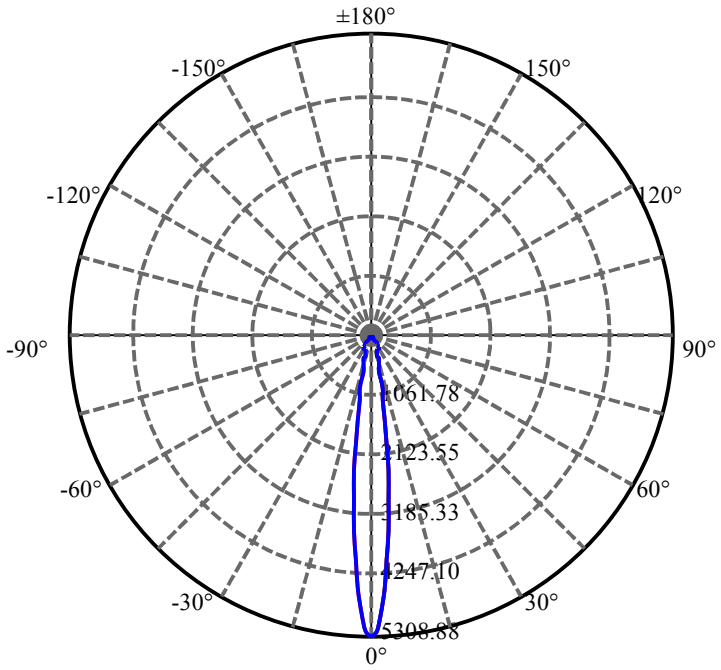
ZONAL LUMEN SUMMARY

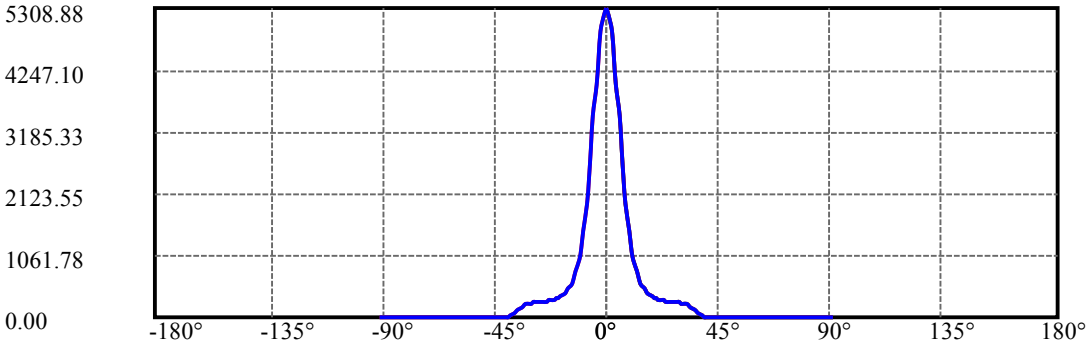
Zone	Lumens	%Lamp	%Fixt
0-30	529.79	76.67%	85.34%
0-40	603.10	87.28%	97.14%
0-60	611.00	88.42%	98.42%
0-90	620.53	89.80%	99.95%
0-120	620.53	89.80%	99.95%
0-180	620.83	89.85%	100.00%
60-90	9.86	1.43%	1.59%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.49	496.67	71.88%	80.00%

ZONAL LUMEN SUMMARY

0-10	251.36
10-20	151.94
20-30	126.50
30-40	73.31
40-50	4.63
50-60	3.26
60-70	3.24
70-80	3.33
80-90	2.97
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):

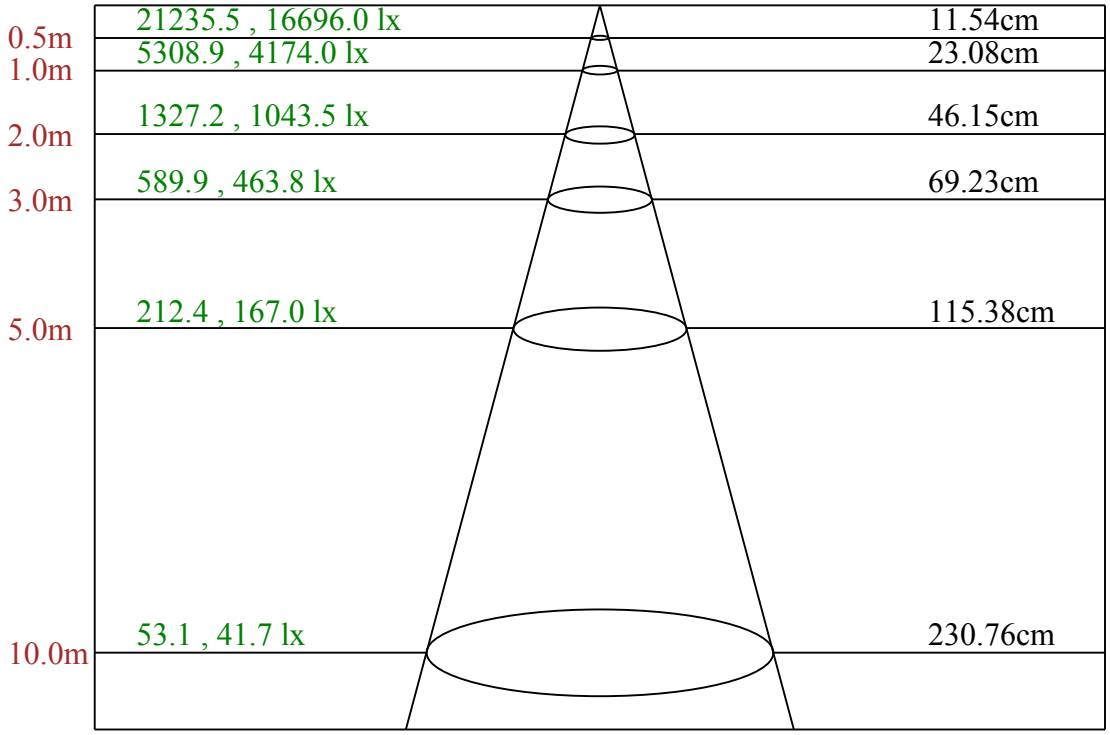
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:14.4 Right:14.4
:C90/270Left:14.4 Right:14.4

Beam Angle(50%Imax):C0/180Left:6.5 Right:6.5
:C90/270Left:6.5 Right:6.5

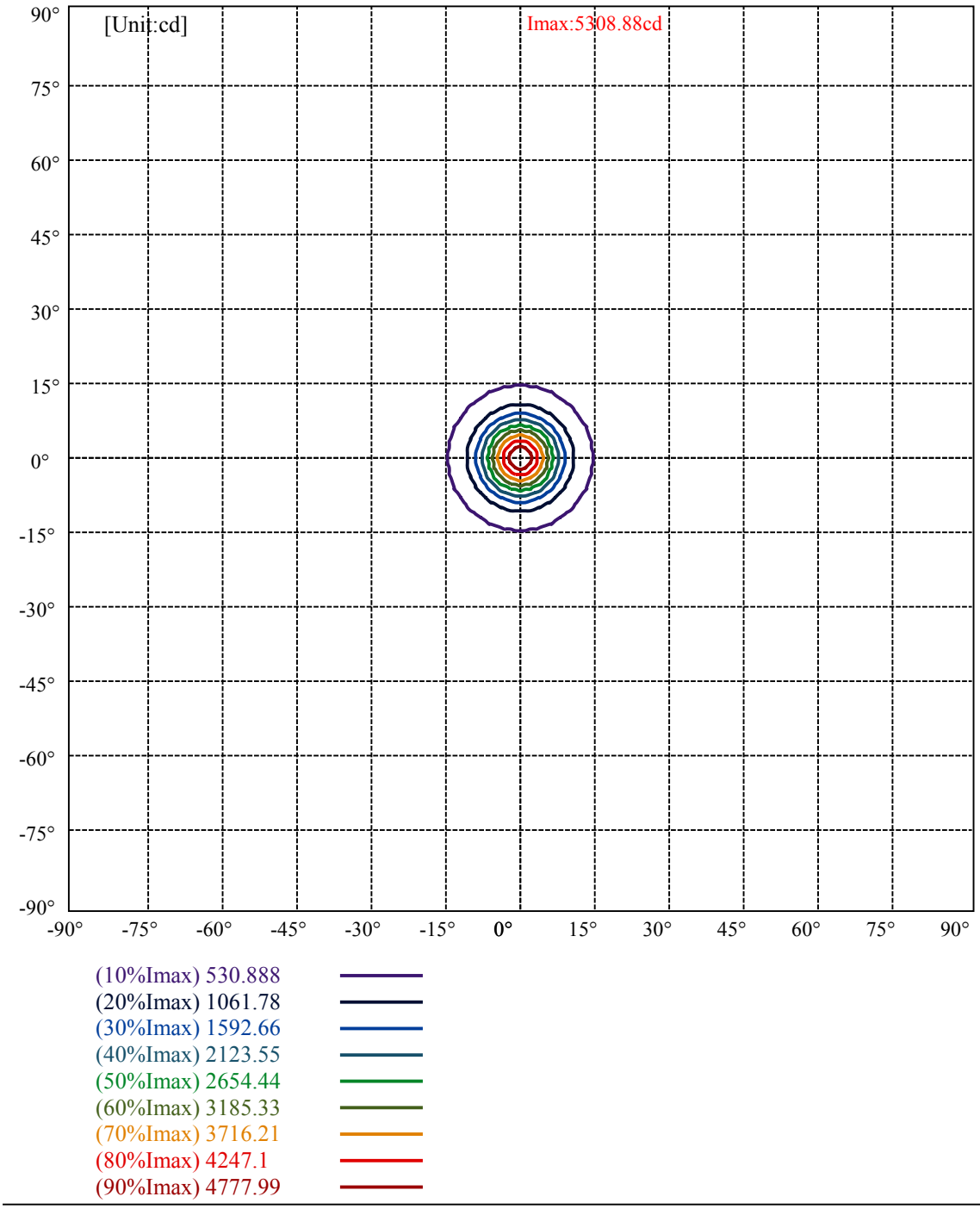
Lux distance Curve



Max , Ave

Beam angle of C0 plane 13.16

ISO-Intensity(V-H)

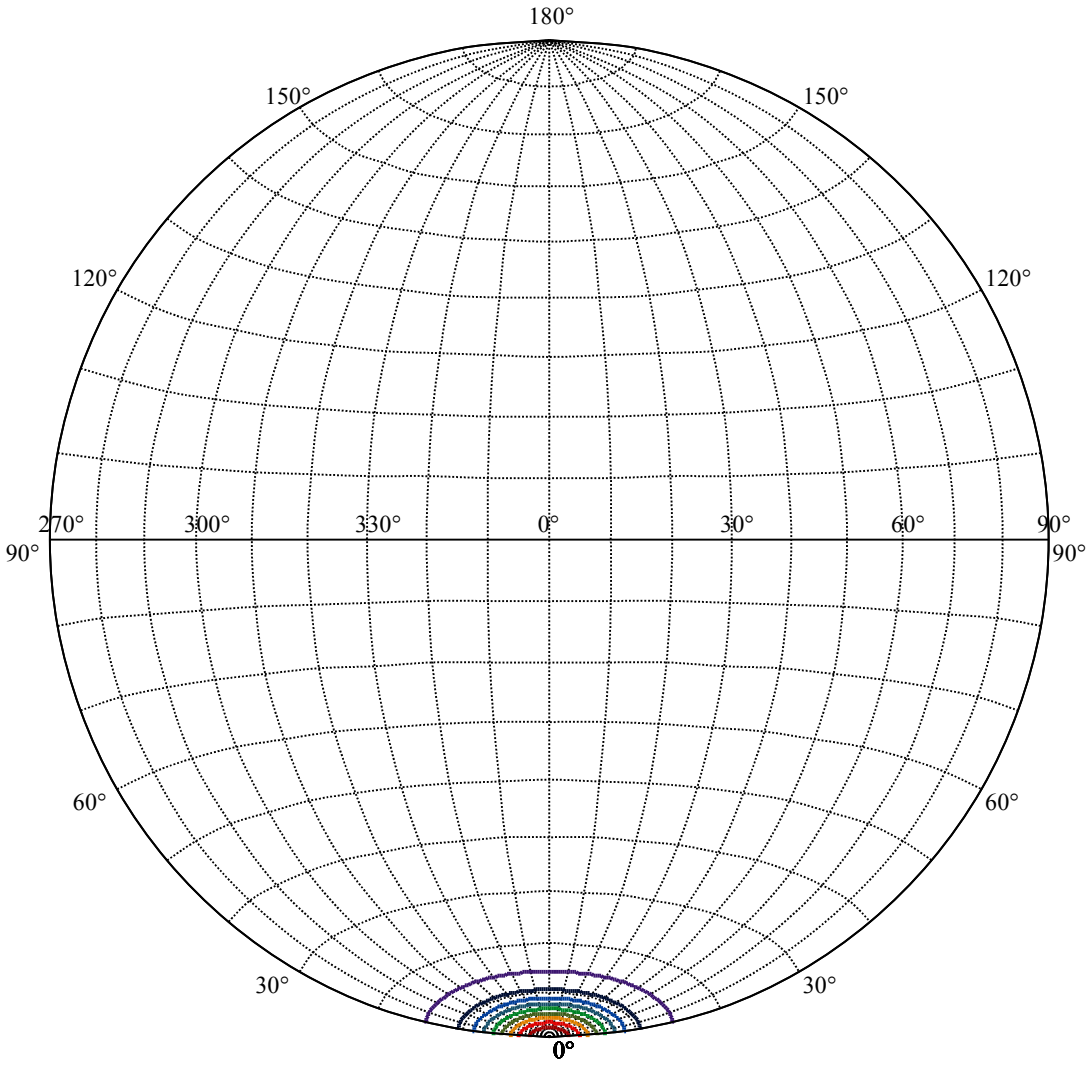


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/11/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:5308.88

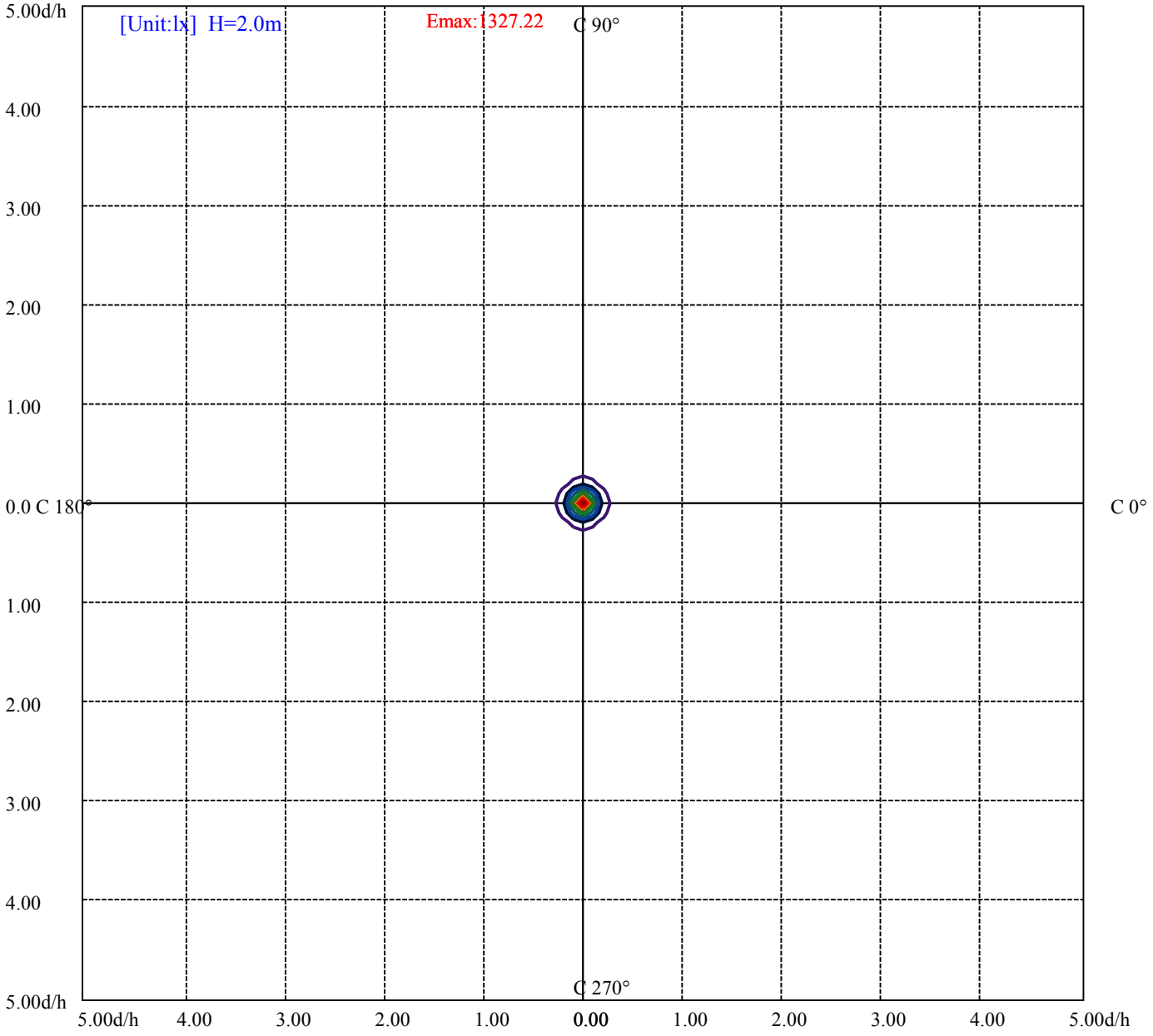
(10%Imax) 530.888
(20%Imax) 1061.78
(30%Imax) 1592.66
(40%Imax) 2123.55
(50%Imax) 2654.44
(60%Imax) 3185.33
(70%Imax) 3716.21
(80%Imax) 4247.1
(90%Imax) 4777.99

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/11/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

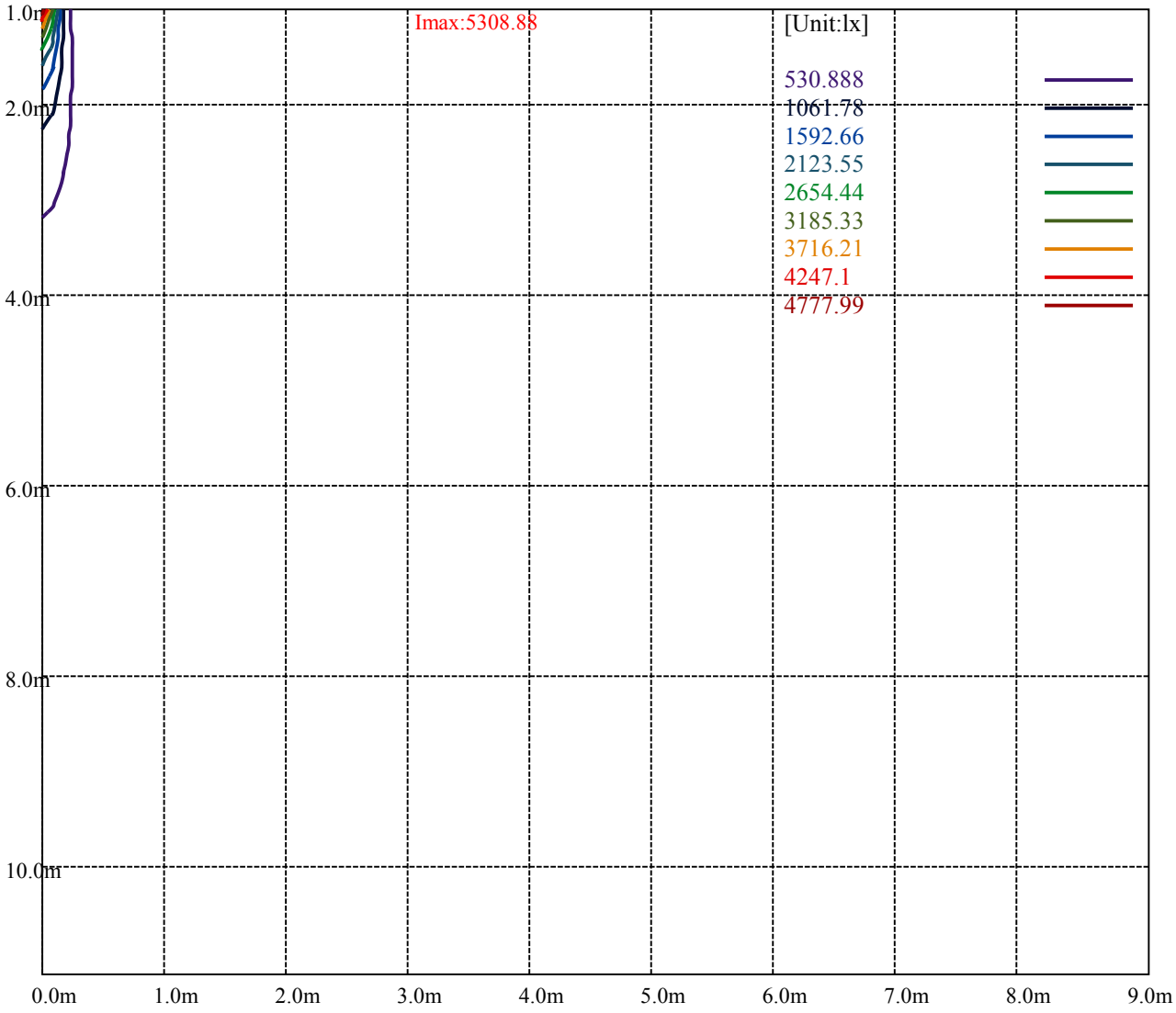
ISO illuminance diagram



(10%Emax) 132.7215
(20%Emax) 265.4425
(30%Emax) 398.165
(40%Emax) 530.885
(50%Emax) 663.6075
(60%Emax) 796.33
(70%Emax) 929.05
(80%Emax) 1061.772
(90%Emax) 1194.493

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2019/11/15
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/11/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

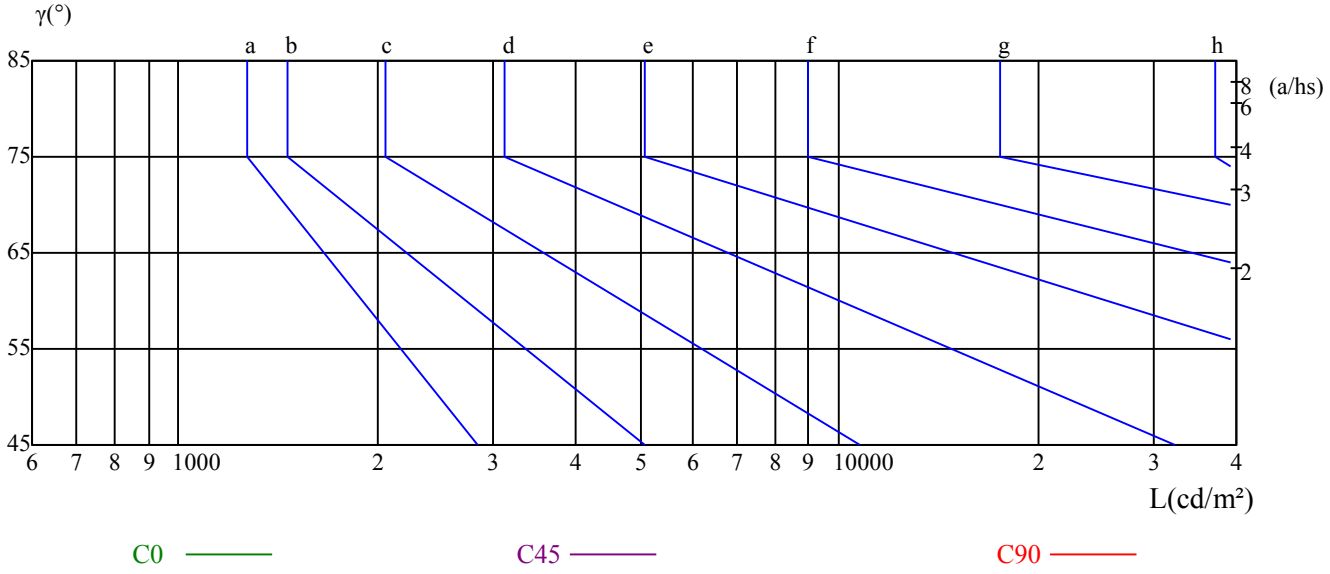
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

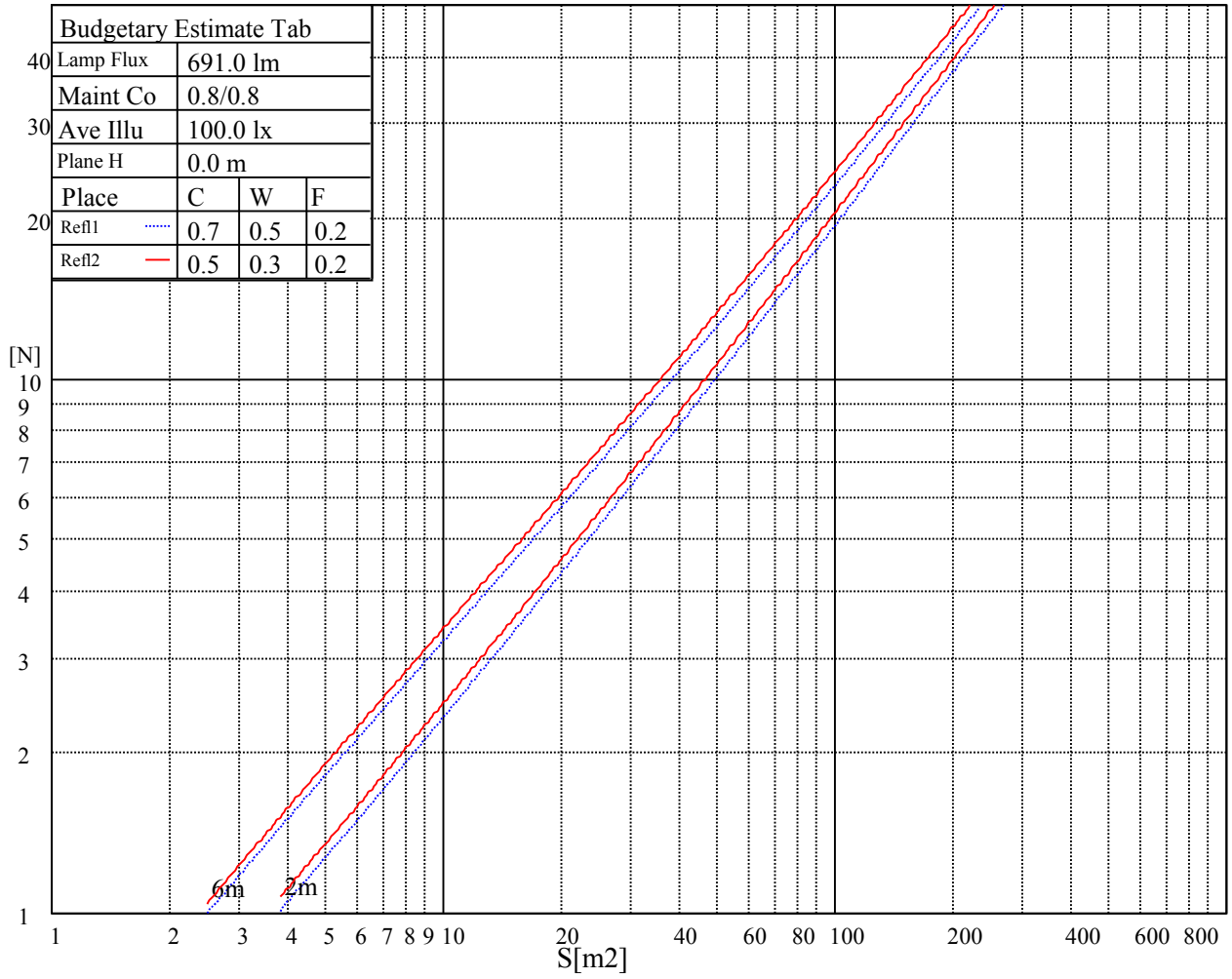
Glare Table

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



Budgetary Estimate Table

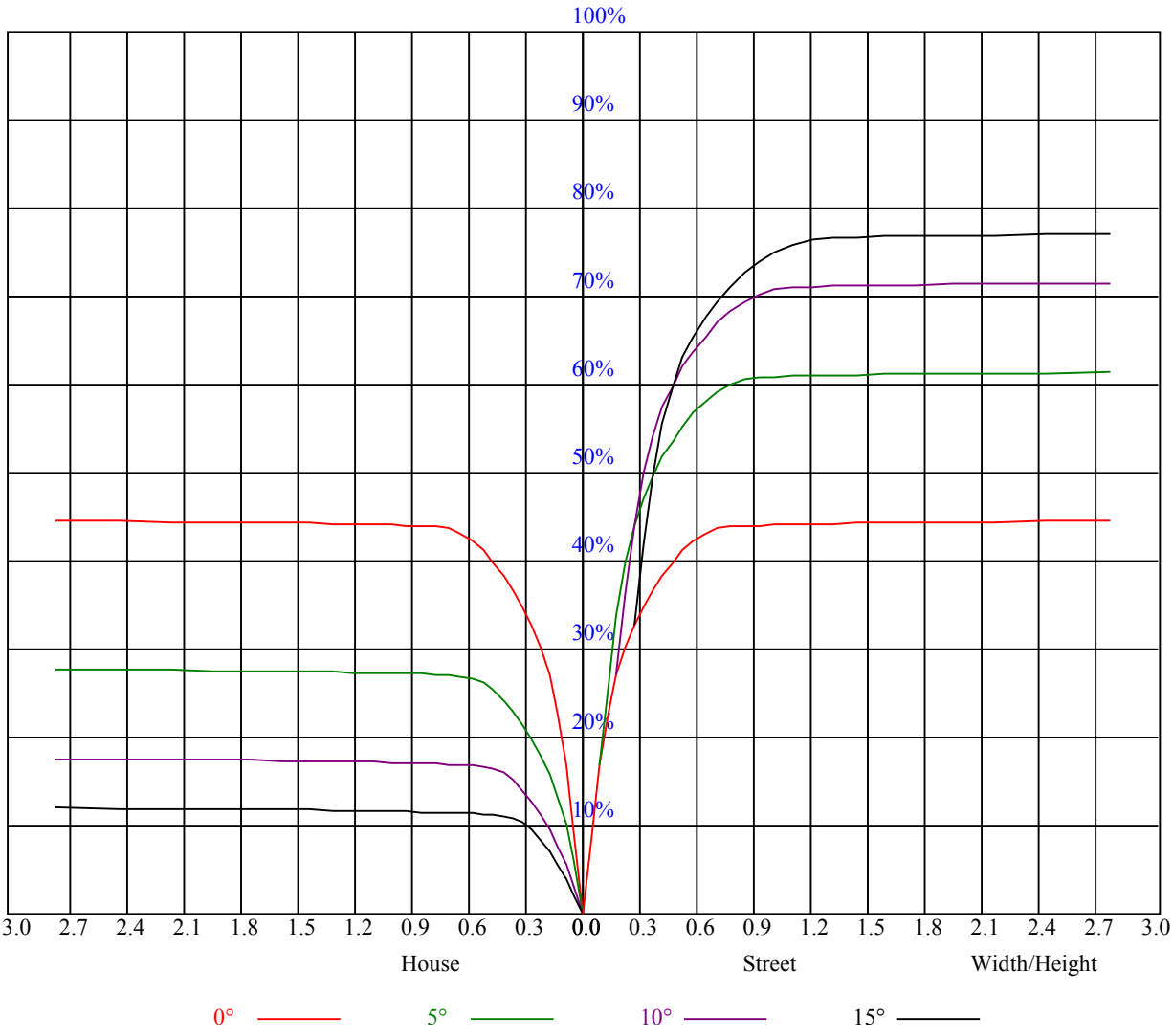


Equipment: GMS1980 Date: 2019/11/15 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.01	0.99	0.97	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.95	0.93	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.89	0.87	0.85	0.86	0.85	0.84	0.82
3	0.91	0.87	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.85	0.83	0.81	0.83	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.82	0.80	0.84	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.83	0.79	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.73
6	0.80	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.71
7	0.77	0.73	0.71	0.77	0.73	0.70	0.76	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	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
9	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.63

Coefficient Utilization Curve



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/11/15
Humidity(%): 65.0%

Operator: NT07
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	5302.69	5336.44	5124.38	4724.44	4287.38	3737.25	3162.94	2661.19	2189.81
45.0	5320.69	5249.81	4956.19	4579.31	4082.06	3596.06	3033.00	2487.94	2057.63
90.0	5259.38	5046.75	4689.56	4088.81	3664.13	3166.31	2612.25	2102.63	1710.56
135.0	5352.75	5193.00	4824.00	4356.00	3888.00	3323.81	2763.56	2286.56	1859.06
180.0	5302.69	5038.88	4676.63	4187.25	3643.88	3143.25	2644.31	2066.63	1669.50
225.0	5320.69	5166.00	4815.00	4358.25	3895.31	3387.94	2778.19	2318.63	1904.63
270.0	5259.38	5322.38	5109.19	4809.94	4276.69	3731.63	3292.31	2676.38	2214.56
315.0	5352.75	5272.31	5000.06	4565.81	4050.56	3540.38	3025.69	2415.38	1971.56
360.0	5302.69	5336.44	5124.38	4724.44	4287.38	3737.25	3162.94	2661.19	2189.81

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1684.13	1359.56	1099.13	872.44	706.50	597.94	511.31	449.44	410.63
45.0	1635.19	1276.31	1026.56	837.00	666.00	570.38	499.50	442.13	400.50
90.0	1114.31	1057.67	864.96	718.14	596.31	514.86	462.26	416.76	384.98
135.0	1461.38	1149.19	939.94	761.06	630.56	546.75	477.56	427.50	392.63
180.0	1114.14	1007.21	852.47	715.28	600.19	517.84	463.33	416.98	385.43
225.0	1509.19	1096.20	962.10	772.76	636.64	549.68	478.18	432.00	394.09
270.0	1808.44	1388.81	1122.19	910.69	717.75	608.06	528.19	456.75	417.38
315.0	1589.63	1113.41	972.11	798.24	657.96	556.65	490.73	435.83	399.60
360.0	1684.13	1359.56	1099.13	872.44	706.50	597.94	511.31	449.44	410.63

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	378.00	354.38	332.44	315.00	302.06	291.94	284.63	271.29	265.33
45.0	372.94	349.31	329.63	315.00	299.81	289.69	284.63	270.28	264.83
90.0	356.12	331.99	315.68	301.84	289.58	281.70	275.51	269.10	264.49
135.0	365.63	340.88	321.19	307.13	292.50	284.63	273.15	265.61	260.89
180.0	357.19	335.25	318.94	303.19	290.53	281.70	274.89	267.81	262.97
225.0	364.89	343.29	325.07	307.24	295.76	286.09	276.30	270.06	264.77
270.0	388.13	361.69	339.19	322.31	306.00	293.63	284.06	274.95	268.65
315.0	368.16	343.97	326.14	309.54	296.61	286.31	277.76	269.44	263.70
360.0	378.00	354.38	332.44	315.00	302.06	291.94	284.63	271.29	265.33

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	259.03	254.70	249.98	245.53	237.71	228.54	208.07	173.53	138.99
45.0	260.21	254.87	250.37	245.48	236.87	221.29	194.40	162.90	123.02
90.0	260.33	255.60	249.64	242.33	229.56	202.67	173.08	140.51	104.79
135.0	256.11	251.38	246.88	240.30	228.60	208.52	183.15	145.18	109.18
180.0	258.92	254.53	248.57	241.54	232.43	210.88	183.32	146.42	101.87
225.0	260.27	255.04	250.71	245.14	236.81	217.80	191.19	154.74	118.74
270.0	262.74	258.30	253.97	249.75	241.65	231.13	206.55	170.16	139.84
315.0	258.86	253.80	248.91	243.90	235.74	220.84	193.73	151.76	117.62
360.0	259.03	254.70	249.98	245.53	237.71	228.54	208.07	173.53	138.99

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	99.00	57.77	31.44	17.94	13.28	10.58	8.33	6.98	6.02
45.0	90.84	60.19	31.44	16.20	13.05	9.56	7.82	6.75	5.79
90.0	70.93	40.78	20.19	14.91	10.80	8.83	7.43	6.24	5.51
135.0	73.86	40.50	20.19	15.69	11.76	9.56	7.88	6.58	5.68
180.0	63.28	38.14	19.41	15.02	11.48	9.28	7.88	6.64	5.68
225.0	84.88	50.79	27.28	15.92	12.49	9.84	8.33	6.86	5.96
270.0	103.39	70.43	39.94	20.25	14.18	11.03	8.61	7.14	6.19
315.0	78.58	48.54	26.55	15.13	12.09	9.28	7.71	6.36	5.63
360.0	99.00	57.77	31.44	17.94	13.28	10.58	8.33	6.98	6.02

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	5.23	4.84	4.56	4.39	4.22	4.11	4.05	3.94	3.88
45.0	5.18	4.73	4.50	4.33	4.22	4.05	4.05	3.99	3.83
90.0	5.06	4.44	4.33	4.22	4.11	3.99	3.94	3.88	3.83
135.0	5.01	4.44	4.33	4.16	4.05	3.99	3.94	3.83	3.77
180.0	5.01	4.44	4.28	4.22	3.94	3.83	3.77	3.71	3.60
225.0	5.29	4.39	4.22	4.05	3.94	3.83	3.77	3.66	3.66
270.0	5.40	4.84	4.39	4.28	4.05	3.99	3.88	3.77	3.71
315.0	5.01	4.50	4.33	4.22	4.11	3.99	3.94	3.77	3.77
360.0	5.23	4.84	4.56	4.39	4.22	4.11	4.05	3.94	3.88

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.77	3.71	3.60	3.60	3.54	3.49	3.43	3.43	3.38
45.0	3.77	3.77	3.66	3.66	3.60	3.49	3.49	3.49	3.43
90.0	3.71	3.66	3.60	3.60	3.54	3.49	3.43	3.43	3.38
135.0	3.71	3.66	3.60	3.54	3.49	3.49	3.43	3.38	3.38
180.0	3.54	3.49	3.43	3.38	3.32	3.32	3.26	3.21	3.21
225.0	3.60	3.49	3.43	3.38	3.32	3.32	3.32	3.21	3.21
270.0	3.66	3.60	3.54	3.43	3.43	3.38	3.38	3.32	3.26
315.0	3.71	3.66	3.54	3.54	3.43	3.43	3.38	3.32	3.32
360.0	3.77	3.71	3.60	3.60	3.54	3.49	3.43	3.43	3.38

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.32	3.32	3.32	3.26	3.21	3.26	3.21	3.21	3.15
45.0	3.38	3.32	3.38	3.32	3.32	3.26	3.26	3.21	3.21
90.0	3.38	3.38	3.32	3.32	3.32	3.26	3.26	3.26	3.26
135.0	3.38	3.38	3.32	3.32	3.26	3.26	3.26	3.26	3.26
180.0	3.21	3.21	3.15	3.15	3.15	3.09	3.09	3.09	3.09
225.0	3.21	3.15	3.15	3.15	3.15	3.15	3.09	3.09	3.09
270.0	3.26	3.21	3.21	3.15	3.15	3.15	3.15	3.09	3.09
315.0	3.32	3.21	3.21	3.21	3.21	3.15	3.15	3.15	3.15
360.0	3.32	3.32	3.32	3.26	3.21	3.26	3.21	3.21	3.15

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.15	3.21	3.15	3.09	3.09	3.09	3.09	3.09	3.09
45.0	3.15	3.21	3.15	3.15	3.15	3.09	3.09	3.09	3.09
90.0	3.26	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21
135.0	3.26	3.26	3.32	3.32	3.38	3.38	3.43	3.49	3.54
180.0	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.04	3.04
225.0	3.09	3.09	3.09	3.09	3.09	3.15	3.15	3.15	3.15
270.0	3.04	3.09	3.09	3.09	3.09	3.04	3.04	3.04	3.04
315.0	3.09	3.09	3.09	3.09	3.09	3.04	3.04	3.04	3.04
360.0	3.15	3.21	3.15	3.09	3.09	3.09	3.09	3.09	3.09

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.04	3.04	3.04	2.98	2.98	2.98	2.93	2.87	2.81
45.0	3.15	3.09	3.09	3.09	3.09	3.04	2.93	2.87	2.76
90.0	3.15	3.15	3.15	3.15	3.09	3.04	2.87	2.81	2.76
135.0	3.54	3.60	3.54	3.43	3.32	3.09	2.87	2.81	2.76
180.0	3.04	3.04	3.04	2.98	2.93	2.87	2.76	2.76	2.76
225.0	3.21	3.21	3.21	3.15	3.09	2.93	2.81	2.76	2.76
270.0	3.04	3.04	3.04	2.98	2.98	2.93	2.81	2.81	2.76
315.0	3.04	3.04	3.04	2.98	2.98	2.98	2.87	2.87	2.81
360.0	3.04	3.04	3.04	2.98	2.98	2.98	2.93	2.87	2.81

Intensity data(cd)

C/γ(°)	90.0
0.0	2.76
45.0	2.76
90.0	2.76
135.0	2.76
180.0	2.70
225.0	2.76
270.0	2.76
315.0	2.76
360.0	2.76