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Nata

LumCAT: 3-1546-A3
Luminaire: 92.76.365.00

Report No: NATA0100	Voltage(V): 218.0000
Test No: GC2019111509	Current(A): 0.0440
LampCAT: LUMENS EDC-47-10W	Power (W): 9.6000
Lamp flux(lm): 691.0	PF: 0.9940
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 621.30
Efficiency(%): 89.91%
Lumens(lm)/Power(W): 64.72
Central intensity(cd): 3069.563
Maximum intensity(cd): 3069.563
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=19.2
[C90/270]Total=19.2
Field angle(10%Imax): [C0/180]Total=44.5
[C90/270]Total=44.5
Maximum s/h(1/2): C0_180=0.33 C90_270=0.33
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.91%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.404%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3069.563	0.000	0	.000%	.000%
1.0	3045.445	2.926	2.926	.423%	.471%
2.0	2968.594	8.632	11.558	1.249%	1.860%
3.0	2859.680	13.939	25.497	2.017%	4.104%
4.0	2719.055	18.674	44.171	2.702%	7.109%
5.0	2527.242	22.569	66.74	3.266%	10.742%
6.0	2329.031	25.521	92.261	3.693%	14.850%
7.0	2114.508	27.581	119.842	3.991%	19.289%
8.0	1887.469	28.641	148.484	4.145%	23.899%
9.0	1666.125	28.800	177.284	4.168%	28.534%
10.0	1446.680	28.170	205.453	4.077%	33.068%
11.0	1204.059	26.486	231.94	3.833%	37.331%
12.0	1082.032	24.990	256.93	3.617%	41.354%
13.0	929.433	23.871	280.801	3.455%	45.196%
14.0	798.349	22.115	302.916	3.201%	48.755%
15.0	701.501	20.591	323.507	2.980%	52.070%
16.0	617.077	19.321	342.828	2.796%	55.179%
17.0	535.092	17.942	360.77	2.597%	58.067%
18.0	468.886	16.553	377.324	2.396%	60.732%
19.0	415.336	15.384	392.707	2.226%	63.208%
20.0	366.342	14.307	407.014	2.070%	65.510%
21.0	333.098	13.431	420.445	1.944%	67.672%
22.0	311.210	12.948	433.392	1.874%	69.756%
23.0	293.337	12.685	446.078	1.836%	71.798%
24.0	282.073	12.581	458.658	1.821%	73.823%
25.0	274.120	12.647	471.305	1.830%	75.858%
26.0	264.544	12.715	484.02	1.840%	77.905%
27.0	258.630	12.800	496.819	1.852%	79.965%
28.0	253.772	12.973	509.792	1.877%	82.053%
29.0	248.597	13.143	522.936	1.902%	84.168%
30.0	242.592	13.262	536.198	1.919%	86.303%
31.0	233.852	13.259	549.457	1.919%	88.437%
32.0	212.456	12.786	562.243	1.850%	90.495%
33.0	182.067	11.623	573.866	1.682%	92.366%
34.0	145.378	9.909	583.775	1.434%	93.961%
35.0	104.660	7.765	591.54	1.124%	95.210%
36.0	65.946	5.432	596.972	.786%	96.085%
37.0	37.484	3.373	600.346	.488%	96.628%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	19.005	1.886	602.231	.273%	96.931%
39.0	13.563	1.112	603.343	.161%	97.110%
40.0	10.322	0.833	604.176	.121%	97.244%
41.0	8.283	0.663	604.838	.096%	97.351%
42.0	6.806	0.548	605.387	.079%	97.439%
43.0	5.801	0.467	605.854	.068%	97.514%
44.0	5.055	0.410	606.263	.059%	97.580%
45.0	4.324	0.360	606.624	.052%	97.638%
46.0	4.120	0.330	606.954	.048%	97.691%
47.0	4.001	0.323	607.277	.047%	97.743%
48.0	3.902	0.319	607.597	.046%	97.795%
49.0	3.818	0.317	607.914	.046%	97.846%
50.0	3.741	0.315	608.229	.046%	97.897%
51.0	3.677	0.314	608.543	.045%	97.947%
52.0	3.635	0.314	608.856	.045%	97.998%
53.0	3.586	0.314	609.171	.045%	98.048%
54.0	3.530	0.314	609.484	.045%	98.099%
55.0	3.509	0.314	609.798	.045%	98.149%
56.0	3.452	0.315	610.113	.046%	98.200%
57.0	3.424	0.314	610.427	.046%	98.250%
58.0	3.417	0.316	610.744	.046%	98.301%
59.0	3.382	0.318	611.062	.046%	98.352%
60.0	3.347	0.318	611.379	.046%	98.404%
61.0	3.333	0.319	611.698	.046%	98.455%
62.0	3.305	0.320	612.018	.046%	98.506%
63.0	3.298	0.321	612.339	.046%	98.558%
64.0	3.270	0.322	612.661	.047%	98.610%
65.0	3.241	0.322	612.984	.047%	98.662%
66.0	3.241	0.323	613.307	.047%	98.714%
67.0	3.220	0.325	613.632	.047%	98.766%
68.0	3.199	0.325	613.957	.047%	98.819%
69.0	3.213	0.327	614.284	.047%	98.871%
70.0	3.185	0.329	614.613	.048%	98.924%
71.0	3.178	0.329	614.942	.048%	98.977%
72.0	3.178	0.331	615.272	.048%	99.030%
73.0	3.185	0.333	615.605	.048%	99.084%
74.0	3.192	0.335	615.94	.049%	99.138%
75.0	3.185	0.337	616.277	.049%	99.192%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.185	0.338	616.615	.049%	99.246%
77.0	3.185	0.340	616.955	.049%	99.301%
78.0	3.185	0.341	617.296	.049%	99.356%
79.0	3.192	0.343	617.639	.050%	99.411%
80.0	3.199	0.345	617.983	.050%	99.467%
81.0	3.192	0.346	618.329	.050%	99.522%
82.0	3.164	0.345	618.674	.050%	99.578%
83.0	3.171	0.344	619.018	.050%	99.633%
84.0	3.143	0.344	619.362	.050%	99.688%
85.0	3.115	0.342	619.704	.049%	99.743%
86.0	3.009	0.335	620.038	.048%	99.797%
87.0	2.911	0.324	620.362	.047%	99.849%
88.0	2.862	0.316	620.679	.046%	99.900%
89.0	2.820	0.311	620.99	.045%	99.950%
90.0	2.791	0.308	621.298	.045%	100.000%

Zonal flux distribution table

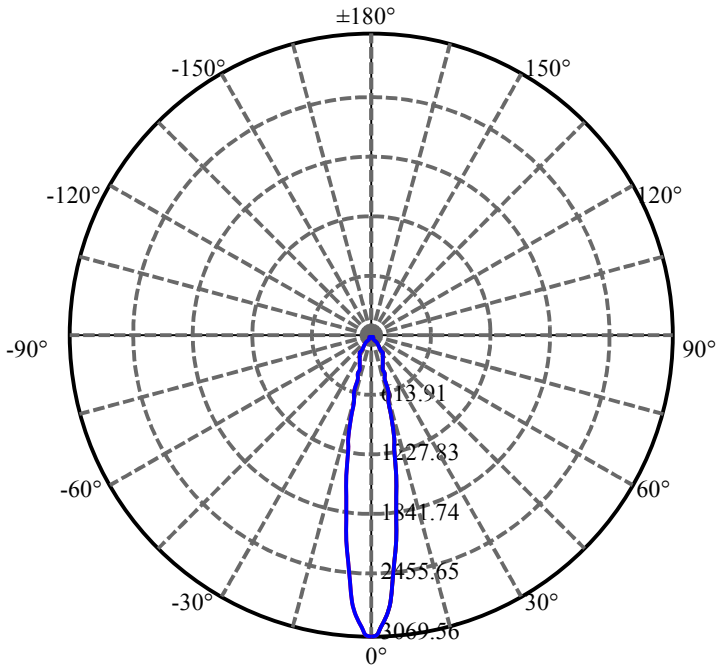
ZONAL LUMEN SUMMARY

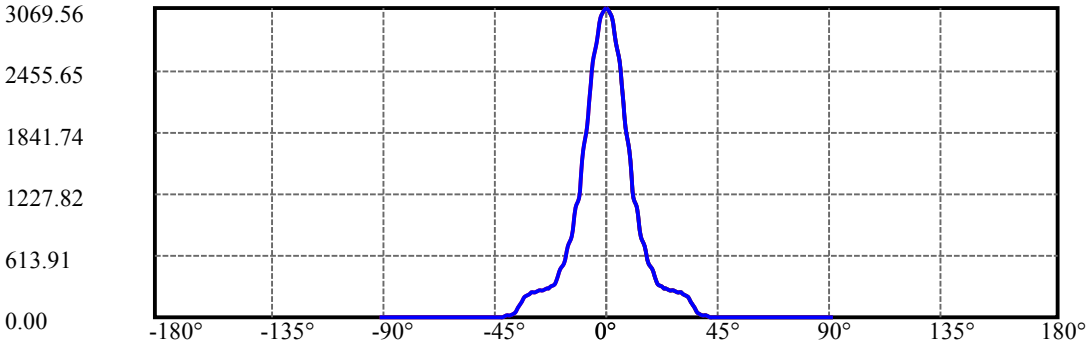
Zone	Lumens	%Lamp	%Fixt
0-30	536.20	77.60%	86.30%
0-40	604.18	87.44%	97.24%
0-60	611.38	88.48%	98.40%
0-90	620.99	89.87%	99.95%
0-120	620.99	89.87%	99.95%
0-180	621.30	89.91%	100.00%
60-90	9.93	1.44%	1.60%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.02	497.04	71.93%	80.00%

ZONAL LUMEN SUMMARY

0-10	205.45
10-20	201.56
20-30	129.18
30-40	67.98
40-50	4.05
50-60	3.15
60-70	3.23
70-80	3.37
80-90	3.01
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:22.2 Right:22.2
:C90/270Left:22.2 Right:22.2

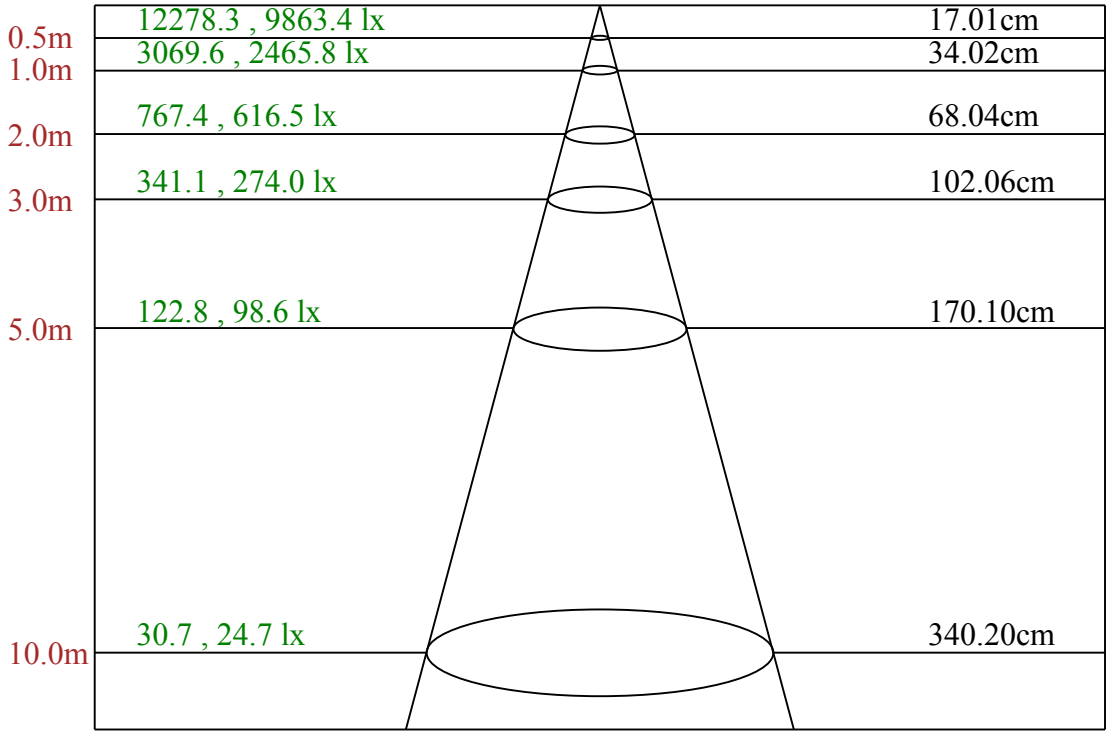
Beam Angle(50%Imax):C0/180Left:9.6 Right:9.6
:C90/270Left:9.6 Right:9.6

Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

Lux distance Curve



Max , Ave

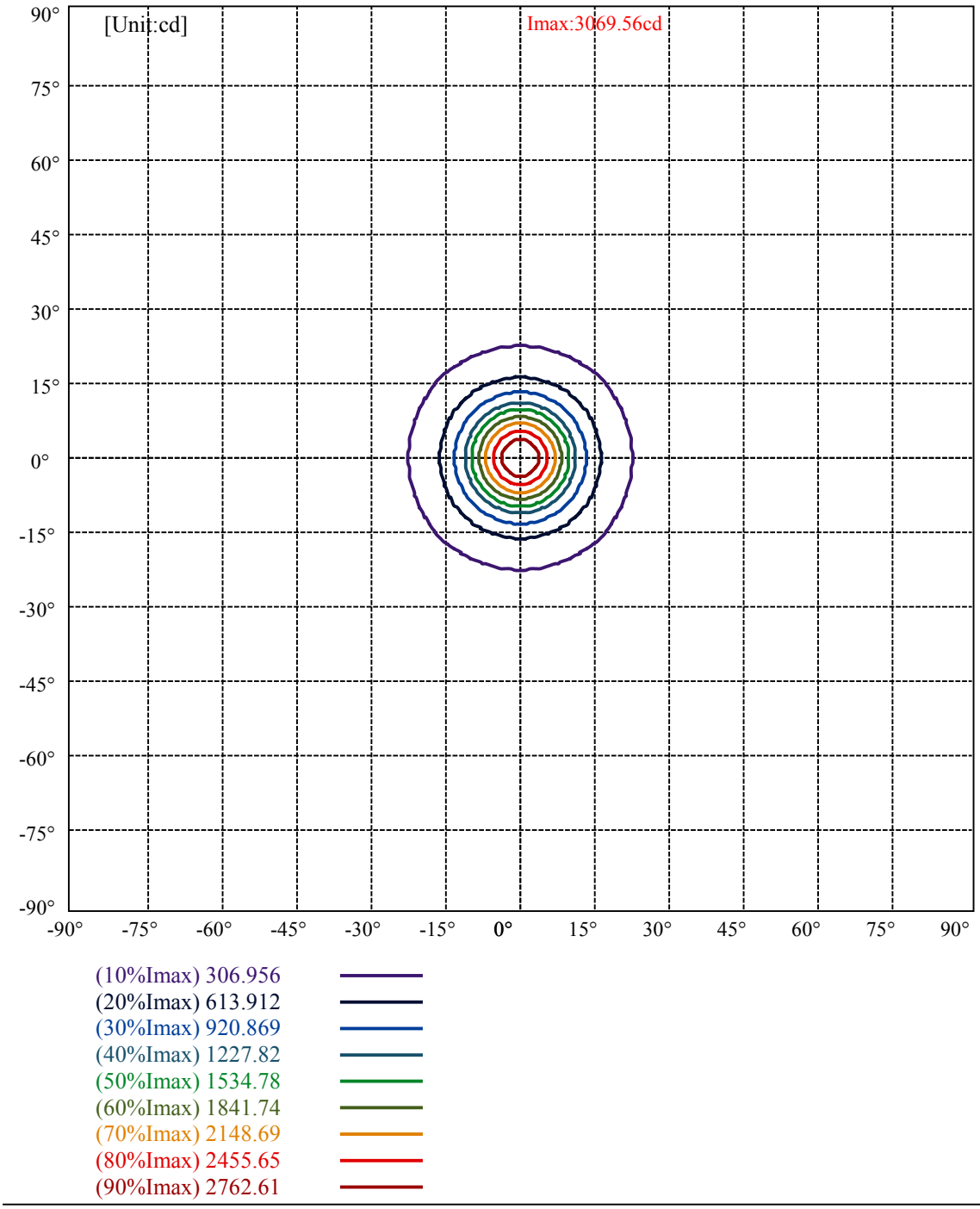
Beam angle of C0 plane 19.31

Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

ISO-Intensity(V-H)

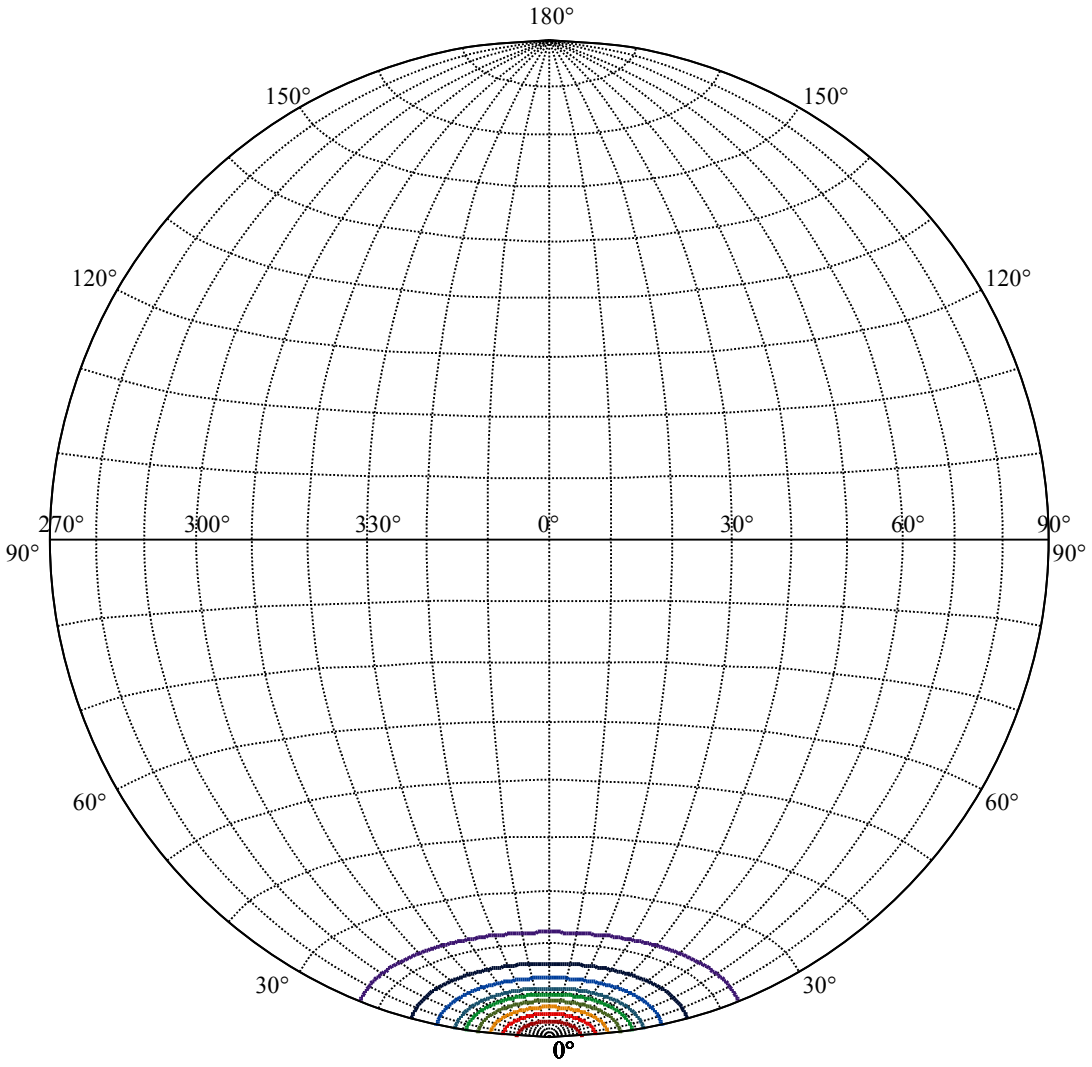


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



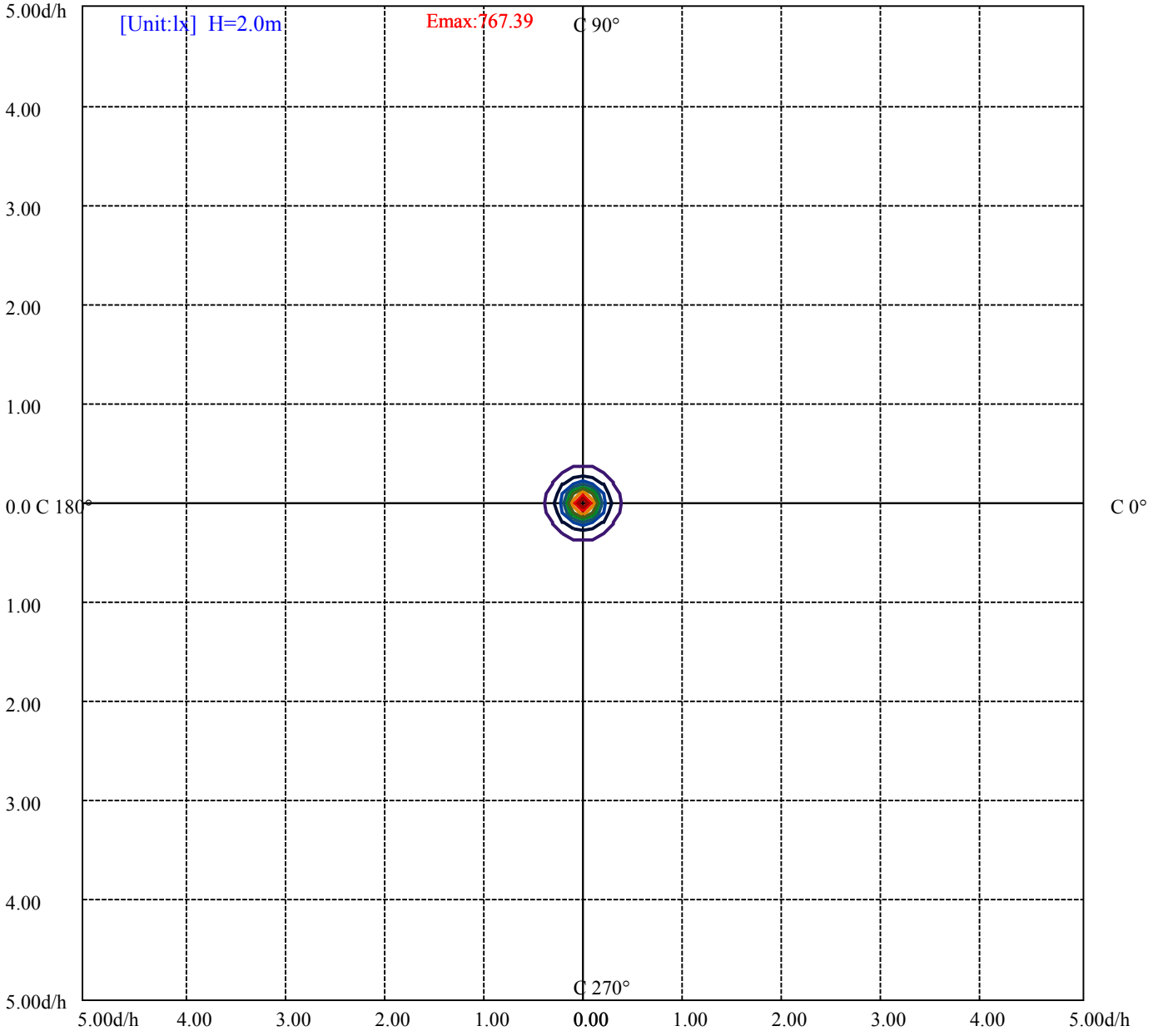
House [Unit:cd] Road

Imax:3069.56

(10%Imax) 306.956
(20%Imax) 613.912
(30%Imax) 920.869
(40%Imax) 1227.82
(50%Imax) 1534.78
(60%Imax) 1841.74
(70%Imax) 2148.69
(80%Imax) 2455.65
(90%Imax) 2762.61

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

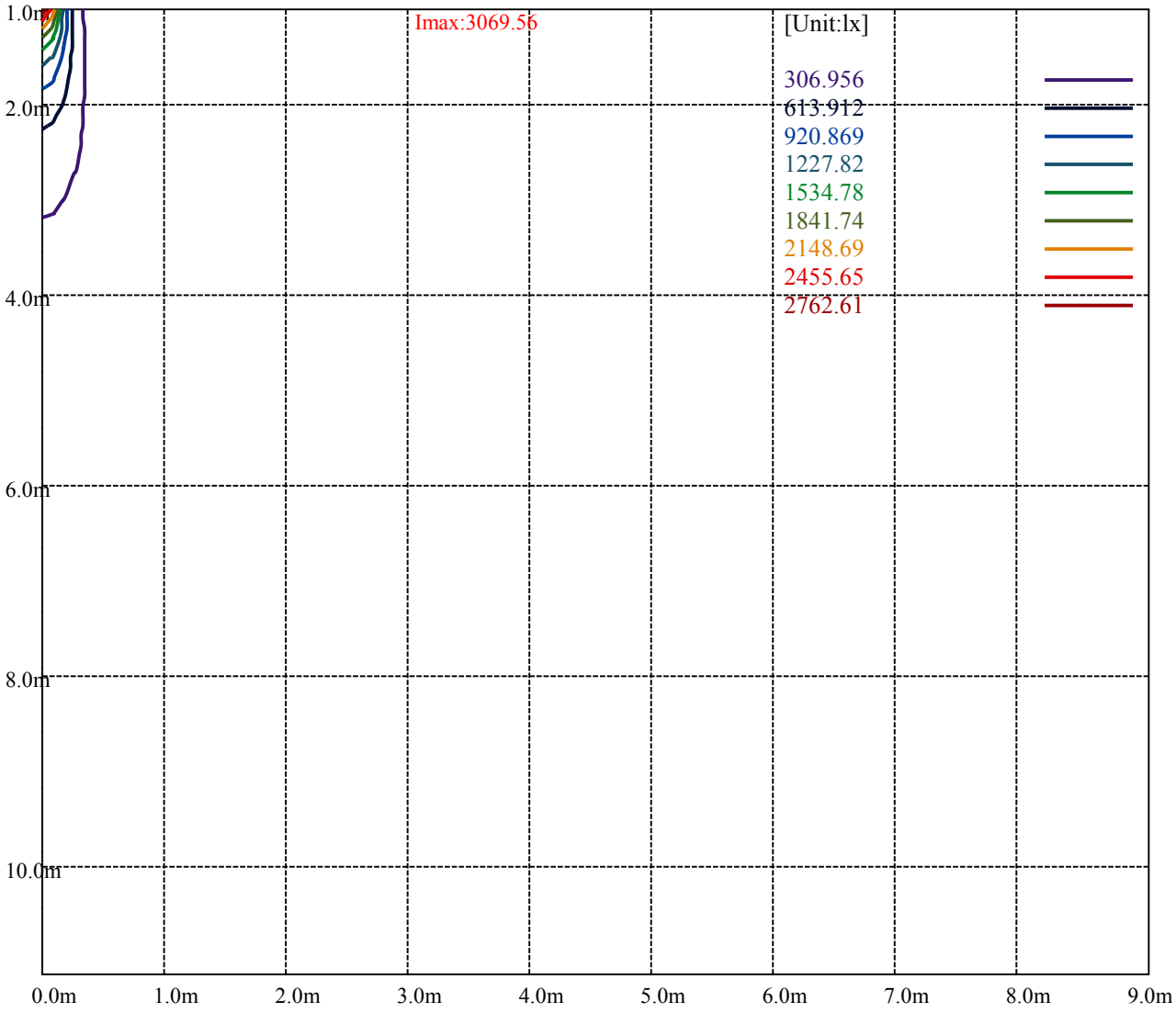
ISO illuminance diagram



(10%Emax) 76.739
(20%Emax) 153.478
(30%Emax) 230.217
(40%Emax) 306.955
(50%Emax) 383.695
(60%Emax) 460.435
(70%Emax) 537.1725
(80%Emax) 613.9125
(90%Emax) 690.65

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

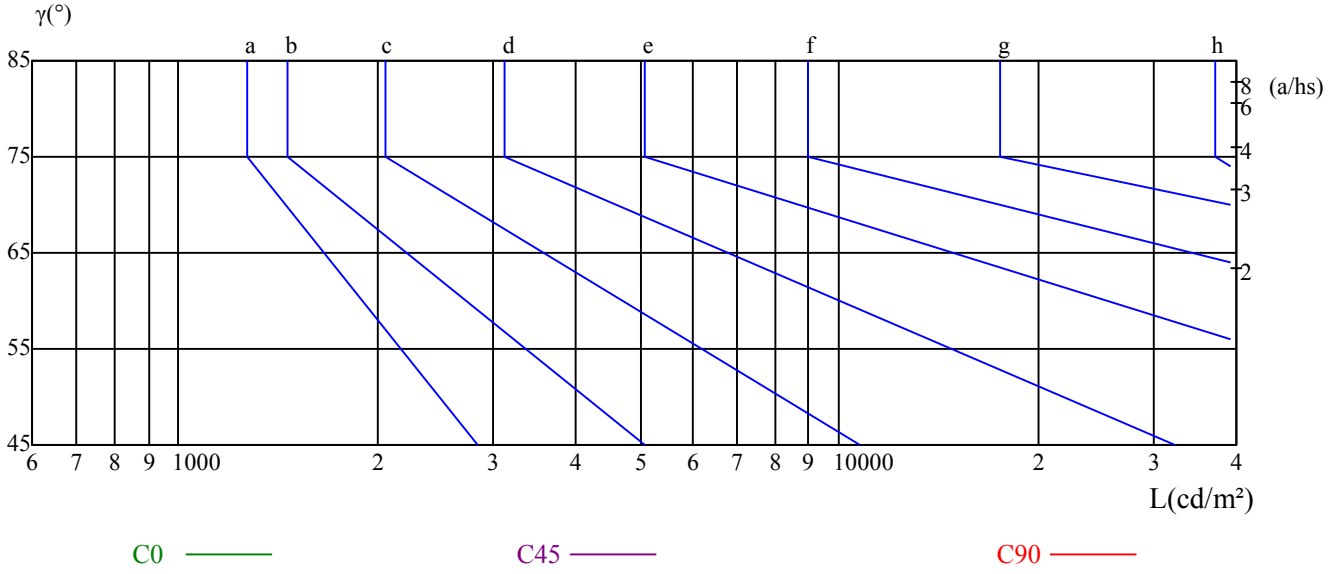
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

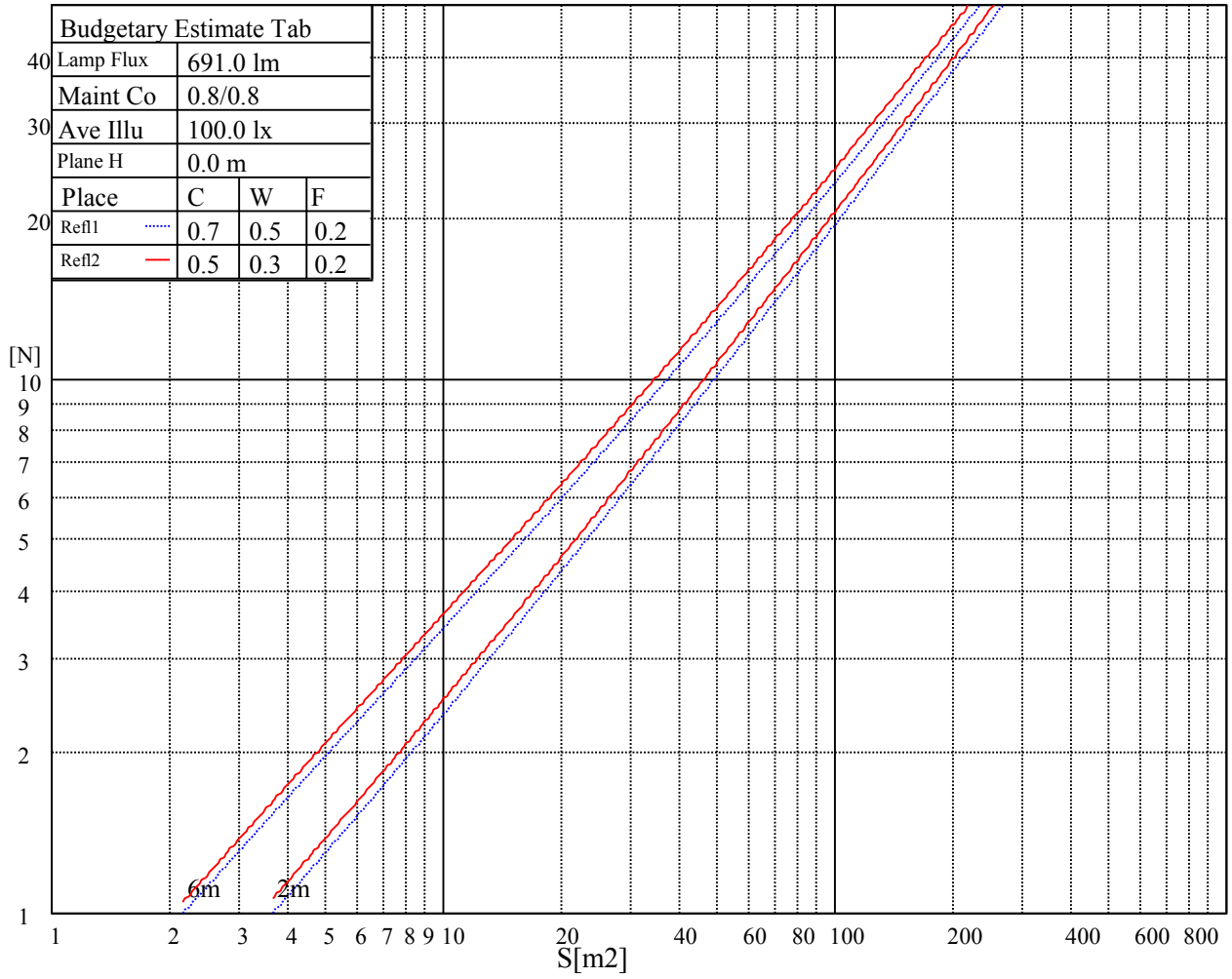
Glare Table

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

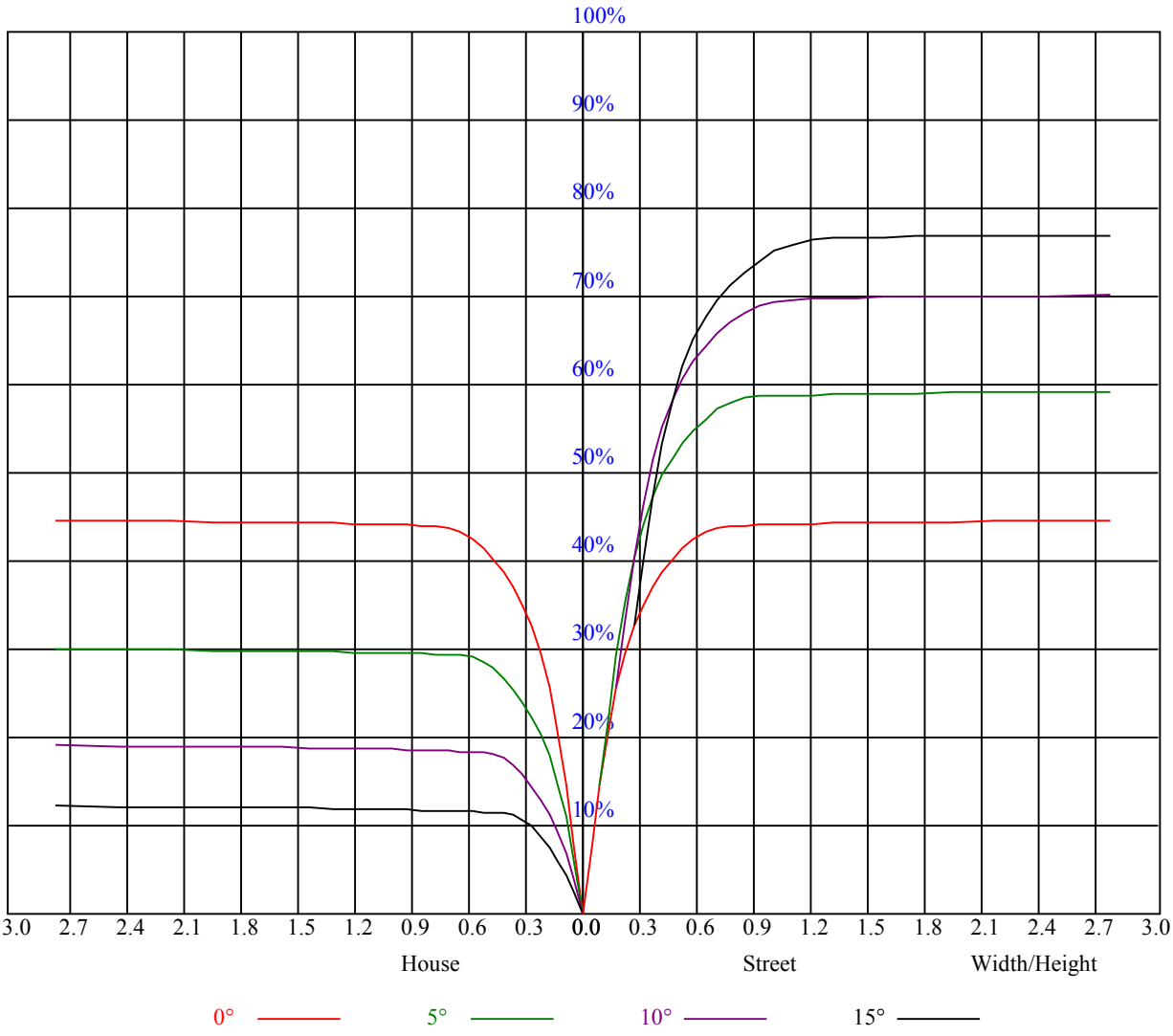


Equipment: GMS1980 Date: 2019/11/15 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.05	1.05	1.05	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	0.95	0.95	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.95	0.92	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.88	0.86	0.85	0.86	0.84	0.83	0.82
3	0.91	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.83	0.81	0.83	0.81	0.80	0.78
4	0.86	0.82	0.79	0.85	0.82	0.79	0.84	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.79	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	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.70
7	0.76	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
8	0.74	0.69	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
9	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/11/15	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	3071.81	3063.38	2993.06	2898.56	2778.19	2575.13	2385.56	2180.25	1936.13
45.0	3068.44	3047.06	2972.25	2860.31	2730.38	2568.38	2335.50	2140.31	1940.63
90.0	3062.81	3017.25	2925.56	2791.13	2633.63	2431.13	2221.31	2023.88	1793.81
135.0	3075.19	3060.56	2984.06	2885.63	2754.56	2545.31	2358.56	2160.00	1923.19
180.0	3071.81	3038.63	2943.56	2833.31	2683.69	2456.44	2283.75	2048.63	1782.00
225.0	3068.44	3031.31	2970.00	2859.19	2687.63	2534.63	2343.38	2072.25	1891.69
270.0	3062.81	3061.13	2999.25	2909.81	2787.19	2607.19	2398.50	2208.94	1984.50
315.0	3075.19	3044.25	2961.00	2839.50	2697.19	2499.75	2305.69	2081.81	1847.81
360.0	3071.81	3063.38	2993.06	2898.56	2778.19	2575.13	2385.56	2180.25	1936.13

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1697.63	1492.88	1288.13	1127.25	969.75	836.44	736.88	640.69	558.56
45.0	1678.50	1467.56	1279.13	1090.69	929.25	810.00	699.19	608.06	538.31
90.0	1594.13	1383.19	1118.14	1021.16	865.63	746.04	659.76	587.08	504.90
135.0	1683.56	1474.31	1262.25	1095.19	935.44	807.75	713.81	623.25	542.25
180.0	1599.19	1380.38	1119.77	1028.14	895.61	773.55	674.89	596.70	516.04
225.0	1677.94	1401.75	1110.94	1071.28	926.27	779.23	686.42	605.98	526.39
270.0	1755.56	1552.50	1339.31	1165.50	990.00	843.75	739.69	653.63	561.94
315.0	1642.50	1420.88	1114.82	1057.05	923.51	790.03	701.38	621.23	532.35
360.0	1697.63	1492.88	1288.13	1127.25	969.75	836.44	736.88	640.69	558.56

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	493.31	435.94	378.56	343.69	318.38	296.44	284.06	281.93	264.43
45.0	466.31	411.75	365.06	330.19	311.63	296.44	284.06	273.49	267.69
90.0	445.22	395.49	353.53	323.94	305.16	290.64	280.91	273.71	266.63
135.0	474.75	419.06	365.06	333.00	311.63	290.81	284.06	270.17	263.08
180.0	446.18	395.38	356.68	321.98	303.02	289.63	278.44	270.00	263.53
225.0	456.81	405.96	361.97	328.44	306.90	290.14	279.00	269.04	262.07
270.0	497.81	441.56	384.75	349.88	322.88	303.19	286.31	285.19	267.64
315.0	470.70	417.54	365.12	333.68	310.11	289.41	279.73	269.44	261.28
360.0	493.31	435.94	378.56	343.69	318.38	296.44	284.06	281.93	264.43

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	257.63	253.24	248.63	244.13	236.48	221.63	195.81	158.51	113.34
45.0	261.34	256.73	251.72	245.76	237.32	217.91	183.71	144.23	110.31
90.0	261.56	256.50	250.48	243.11	231.64	200.70	169.31	136.35	92.59
135.0	256.33	251.89	247.16	240.58	231.13	213.13	183.38	147.21	109.07
180.0	257.12	252.34	247.22	238.84	229.89	210.32	177.24	137.03	95.68
225.0	256.73	251.61	246.94	240.98	232.99	208.29	178.37	143.44	104.46
270.0	261.28	255.38	250.82	246.21	237.83	223.14	192.60	158.74	119.36
315.0	257.06	252.51	245.81	241.14	233.55	204.53	176.12	137.53	92.48
360.0	257.63	253.24	248.63	244.13	236.48	221.63	195.81	158.51	113.34

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	72.23	41.01	19.91	14.40	11.36	8.78	7.20	6.13	5.18
45.0	72.39	42.24	20.25	14.96	11.25	9.06	7.26	6.24	5.46
90.0	59.18	33.53	17.83	13.61	10.35	8.33	7.03	5.96	5.18
135.0	68.01	37.35	18.96	14.85	11.36	9.56	7.59	6.47	5.74
180.0	53.04	28.29	16.20	11.93	9.06	7.48	6.24	5.34	4.73
225.0	65.14	35.83	16.31	12.43	9.23	7.37	6.24	5.29	4.56
270.0	80.72	49.84	26.49	13.95	10.63	8.21	6.58	5.63	4.89
315.0	56.87	31.78	16.09	12.38	9.34	7.48	6.30	5.34	4.73
360.0	72.23	41.01	19.91	14.40	11.36	8.78	7.20	6.13	5.18

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	4.50	4.16	3.99	3.94	3.88	3.77	3.71	3.66	3.60
45.0	4.44	4.22	4.11	3.99	3.88	3.83	3.77	3.71	3.71
90.0	4.44	4.28	4.16	4.11	3.99	3.88	3.83	3.77	3.71
135.0	4.50	4.28	4.16	4.11	3.99	3.88	3.83	3.77	3.71
180.0	4.16	4.05	3.94	3.83	3.71	3.66	3.60	3.60	3.54
225.0	4.05	3.94	3.83	3.71	3.66	3.60	3.54	3.49	3.43
270.0	4.39	4.05	3.94	3.77	3.71	3.66	3.54	3.54	3.49
315.0	4.11	3.99	3.88	3.77	3.71	3.66	3.60	3.54	3.49
360.0	4.50	4.16	3.99	3.94	3.88	3.77	3.71	3.66	3.60

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

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.32	3.26	3.26	3.26	3.26	3.21	3.21	3.21	3.15
45.0	3.38	3.32	3.26	3.32	3.26	3.26	3.26	3.21	3.26
90.0	3.38	3.38	3.38	3.32	3.32	3.26	3.32	3.26	3.26
135.0	3.38	3.38	3.32	3.32	3.32	3.26	3.32	3.26	3.32
180.0	3.26	3.21	3.21	3.15	3.15	3.15	3.15	3.15	3.15
225.0	3.21	3.21	3.15	3.15	3.15	3.15	3.15	3.15	3.09
270.0	3.21	3.21	3.15	3.21	3.15	3.15	3.15	3.09	3.09
315.0	3.26	3.21	3.21	3.21	3.15	3.15	3.15	3.15	3.09
360.0	3.32	3.26	3.26	3.26	3.26	3.21	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	3.21	3.15	3.15	3.21	3.15	3.15	3.15	3.15	3.15
45.0	3.26	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21
90.0	3.26	3.26	3.26	3.21	3.21	3.21	3.21	3.21	3.21
135.0	3.32	3.32	3.38	3.38	3.43	3.43	3.49	3.49	3.54
180.0	3.09	3.09	3.15	3.09	3.09	3.09	3.09	3.09	3.09
225.0	3.09	3.15	3.15	3.15	3.15	3.15	3.21	3.21	3.21
270.0	3.09	3.15	3.09	3.09	3.09	3.09	3.04	3.09	3.09
315.0	3.09	3.15	3.15	3.15	3.15	3.15	3.09	3.09	3.09
360.0	3.21	3.15	3.15	3.21	3.15	3.15	3.15	3.15	3.15

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.15	3.09	3.09	3.09	3.09	3.04	2.98	2.93	2.87
45.0	3.15	3.15	3.15	3.15	3.15	3.09	2.98	2.93	2.87
90.0	3.21	3.15	3.21	3.15	3.15	3.04	2.93	2.87	2.81
135.0	3.60	3.54	3.54	3.43	3.32	3.09	2.87	2.81	2.81
180.0	3.04	3.04	3.04	3.04	2.98	2.87	2.81	2.81	2.76
225.0	3.26	3.21	3.26	3.21	3.15	2.98	2.87	2.81	2.81
270.0	3.04	3.04	3.04	3.04	3.04	2.98	2.93	2.87	2.81
315.0	3.09	3.09	3.04	3.04	3.04	2.98	2.93	2.87	2.81
360.0	3.15	3.09	3.09	3.09	3.09	3.04	2.98	2.93	2.87

Intensity data(cd)

C/γ(°)	90.0
0.0	2.81
45.0	2.81
90.0	2.76
135.0	2.81
180.0	2.76
225.0	2.76
270.0	2.81
315.0	2.81
360.0	2.81