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Nata

LumCAT: CR01D06324BG
Luminaire: 92.70.184.00

Report No: NATA0100	Voltage(V): 32.4800
Test No: GC20190411	Current(A): 0.2970
LampCAT: XICATO XOB LES 9.8MM	Power (W): 9.6500
Lamp flux(lm): 1022.4	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 63	Width(mm): 63
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 831.91
Efficiency(%): 81.37%
Lumens(lm)/Power(W): 86.21
Central intensity(cd): 2779.875
Maximum intensity(cd): 2779.875
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=23.5
[C90/270]Total=23.5
Field angle(10%Imax): [C0/180]Total=54.0
[C90/270]Total=54.0
Maximum s/h(1/2): C0_180=0.39 C90_270=0.39
Maximum s/h(1/4): C0_180=0.44 C90_270=0.44
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 81.37%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 93.746%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2779.875	0.000	0	.000%	.000%
1.0	2766.516	2.654	2.654	.260%	.319%
2.0	2720.813	7.876	10.53	.770%	1.266%
3.0	2643.680	12.830	23.36	1.255%	2.808%
4.0	2547.563	17.377	40.737	1.700%	4.897%
5.0	2415.797	21.352	62.089	2.088%	7.463%
6.0	2284.313	24.700	86.789	2.416%	10.433%
7.0	2129.203	27.395	114.184	2.679%	13.726%
8.0	1972.898	29.358	143.542	2.871%	17.255%
9.0	1811.391	30.670	174.211	3.000%	20.941%
10.0	1647.000	31.297	205.508	3.061%	24.703%
11.0	1493.648	31.382	236.89	3.069%	28.476%
12.0	1352.953	31.117	268.007	3.044%	32.216%
13.0	1181.777	30.081	298.088	2.942%	35.832%
14.0	1091.855	29.102	327.191	2.846%	39.330%
15.0	989.937	28.580	355.77	2.795%	42.766%
16.0	896.871	27.647	383.417	2.704%	46.089%
17.0	812.243	26.615	410.033	2.603%	49.288%
18.0	733.634	25.488	435.521	2.493%	52.352%
19.0	667.941	24.385	459.905	2.385%	55.283%
20.0	600.602	23.218	483.123	2.271%	58.074%
21.0	541.153	21.924	505.047	2.144%	60.710%
22.0	489.431	20.710	525.757	2.026%	63.199%
23.0	437.583	19.451	545.209	1.902%	65.537%
24.0	390.987	18.116	563.324	1.772%	67.715%
25.0	348.286	16.809	580.134	1.644%	69.735%
26.0	310.268	15.545	595.679	1.520%	71.604%
27.0	278.205	14.397	610.076	1.408%	73.335%
28.0	243.408	13.206	623.282	1.292%	74.922%
29.0	214.313	11.975	635.257	1.171%	76.362%
30.0	191.271	10.951	646.208	1.071%	77.678%
31.0	170.803	10.076	656.284	.986%	78.889%
32.0	152.198	9.254	665.538	.905%	80.002%
33.0	137.053	8.521	674.059	.833%	81.026%
34.0	123.666	7.890	681.949	.772%	81.974%
35.0	112.050	7.320	689.27	.716%	82.854%
36.0	100.849	6.779	696.048	.663%	83.669%
37.0	92.173	6.295	702.344	.616%	84.426%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	83.327	5.858	708.202	.573%	85.130%
39.0	75.642	5.426	713.628	.531%	85.782%
40.0	69.223	5.052	718.68	.494%	86.390%
41.0	63.169	4.714	723.395	.461%	86.956%
42.0	57.389	4.380	727.775	.428%	87.483%
43.0	52.664	4.077	731.851	.399%	87.973%
44.0	48.579	3.821	735.672	.374%	88.432%
45.0	44.845	3.590	739.263	.351%	88.864%
46.0	41.998	3.396	742.659	.332%	89.272%
47.0	39.284	3.233	745.892	.316%	89.661%
48.0	37.020	3.085	748.976	.302%	90.031%
49.0	35.023	2.958	751.935	.289%	90.387%
50.0	33.286	2.848	754.783	.279%	90.729%
51.0	31.809	2.754	757.537	.269%	91.060%
52.0	30.621	2.679	760.216	.262%	91.382%
53.0	29.517	2.616	762.832	.256%	91.697%
54.0	28.575	2.560	765.392	.250%	92.005%
55.0	27.766	2.515	767.907	.246%	92.307%
56.0	26.965	2.473	770.381	.242%	92.604%
57.0	26.227	2.432	772.813	.238%	92.897%
58.0	25.516	2.393	775.205	.234%	93.184%
59.0	24.863	2.355	777.561	.230%	93.467%
60.0	24.230	2.319	779.88	.227%	93.746%
61.0	23.667	2.286	782.166	.224%	94.021%
62.0	23.105	2.254	784.419	.220%	94.292%
63.0	22.514	2.219	786.638	.217%	94.559%
64.0	21.902	2.179	788.818	.213%	94.821%
65.0	21.263	2.136	790.954	.209%	95.077%
66.0	20.630	2.090	793.044	.204%	95.329%
67.0	19.990	2.042	795.086	.200%	95.574%
68.0	19.420	1.996	797.083	.195%	95.814%
69.0	18.816	1.951	799.033	.191%	96.049%
70.0	18.316	1.907	800.94	.187%	96.278%
71.0	17.754	1.864	802.805	.182%	96.502%
72.0	17.177	1.816	804.621	.178%	96.720%
73.0	16.664	1.770	806.391	.173%	96.933%
74.0	16.193	1.727	808.118	.169%	97.141%
75.0	15.722	1.686	809.804	.165%	97.343%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	15.363	1.650	811.454	.161%	97.542%
77.0	15.237	1.631	813.086	.160%	97.738%
78.0	14.984	1.618	814.704	.158%	97.932%
79.0	14.639	1.592	816.295	.156%	98.124%
80.0	14.288	1.559	817.855	.153%	98.311%
81.0	14.266	1.544	819.399	.151%	98.497%
82.0	13.943	1.530	820.929	.150%	98.680%
83.0	13.655	1.500	822.429	.147%	98.861%
84.0	13.493	1.479	823.908	.145%	99.039%
85.0	13.380	1.467	825.375	.143%	99.215%
86.0	13.148	1.450	826.825	.142%	99.389%
87.0	12.459	1.401	828.226	.137%	99.558%
88.0	11.580	1.317	829.543	.129%	99.716%
89.0	10.709	1.222	830.765	.119%	99.863%
90.0	10.104	1.141	831.906	.112%	100.000%

Zonal flux distribution table

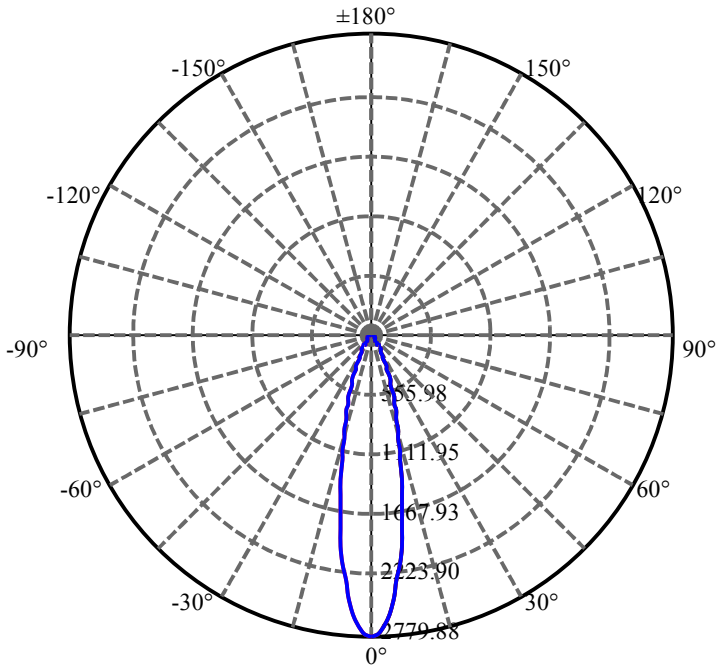
ZONAL LUMEN SUMMARY

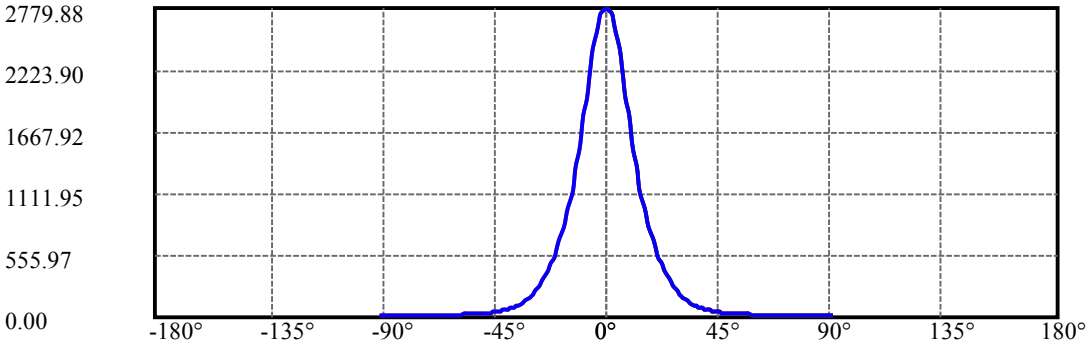
Zone	Lumens	%Lamp	%Fixt
0-30	646.21	63.20%	77.68%
0-40	718.68	70.29%	86.39%
0-60	779.88	76.28%	93.75%
0-90	830.76	81.25%	99.86%
0-120	830.76	81.25%	99.86%
0-180	831.91	81.37%	100.00%
60-90	53.20	5.20%	6.40%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-32.00	665.52	65.09%	80.00%

ZONAL LUMEN SUMMARY

0-10	205.51
10-20	277.61
20-30	163.08
30-40	72.47
40-50	36.10
50-60	25.10
60-70	21.06
70-80	16.91
80-90	12.91
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:27.0 Right:27.0
:C90/270Left:27.0 Right:27.0

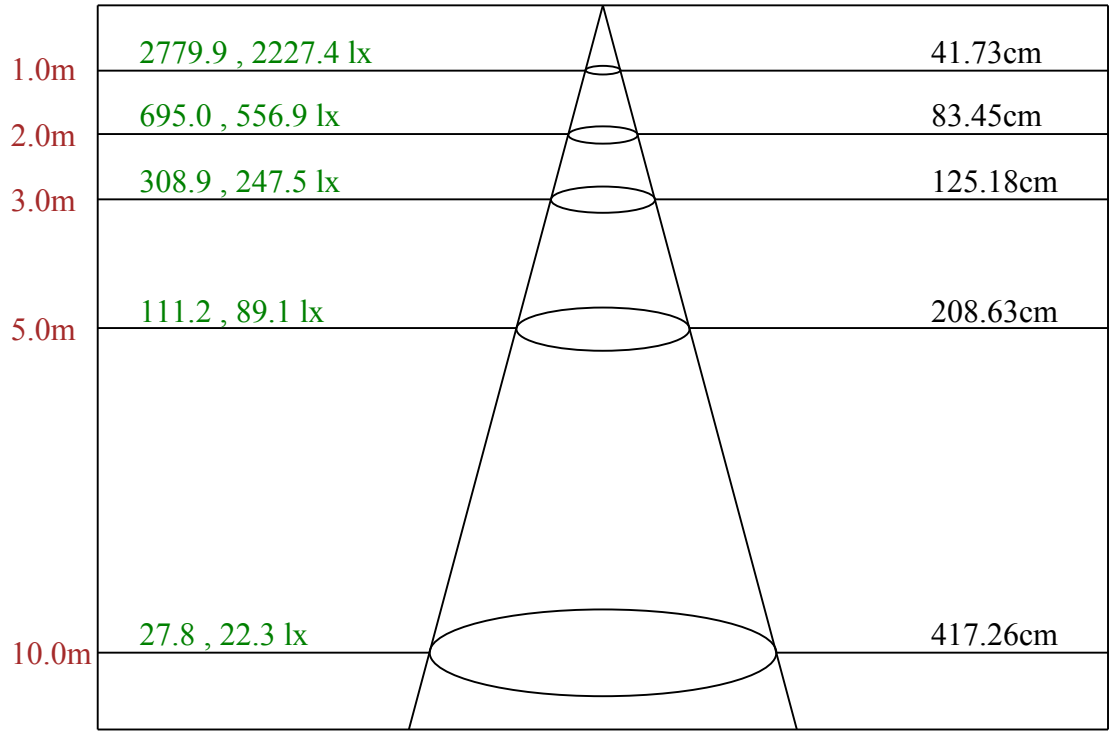
Beam Angle(50%Imax):C0/180Left:11.7 Right:11.7
:C90/270Left:11.7 Right:11.7

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/4
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

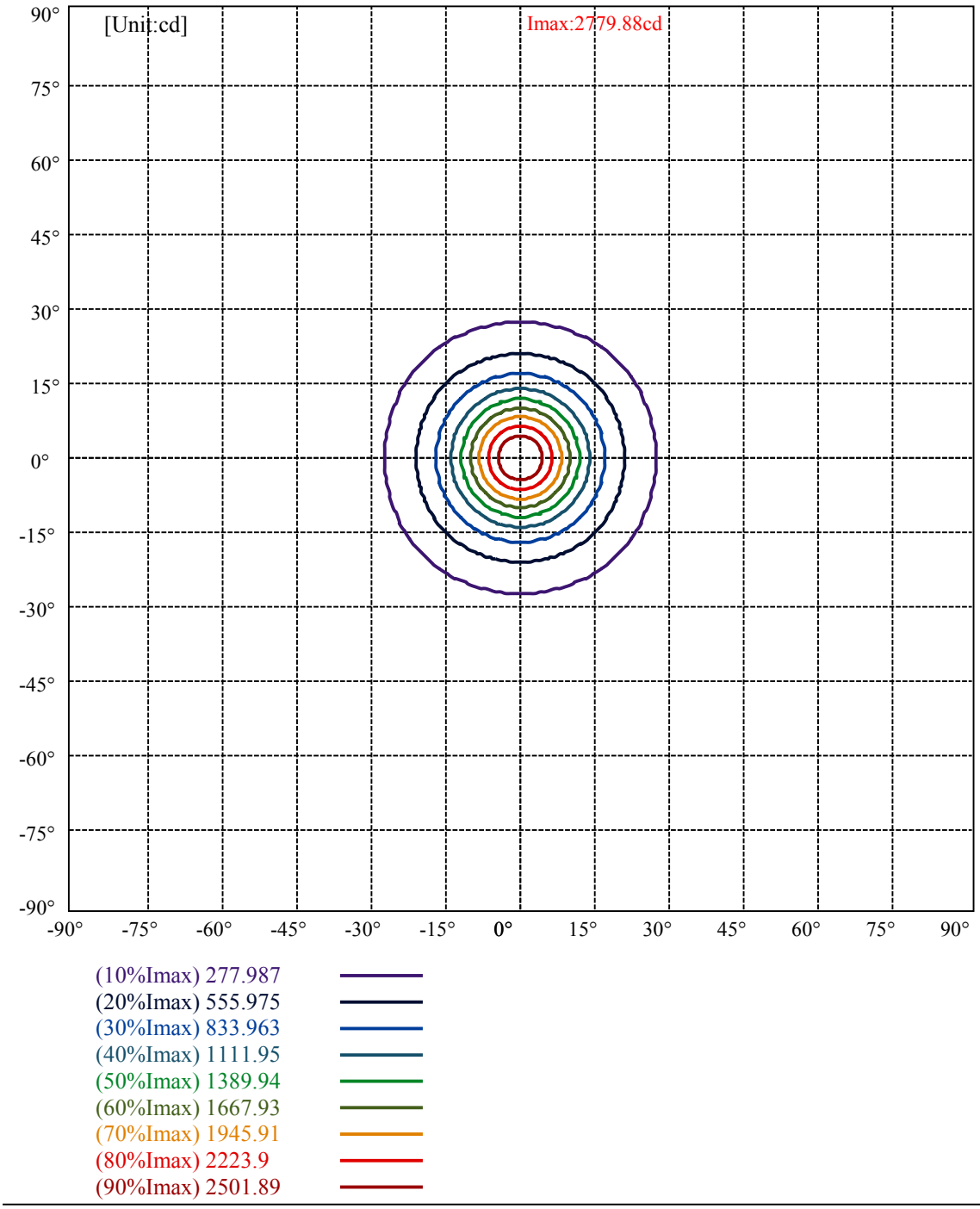
Lux distance Curve



Max , Ave

Beam angle of C0 plane 23.57

ISO-Intensity(V-H)

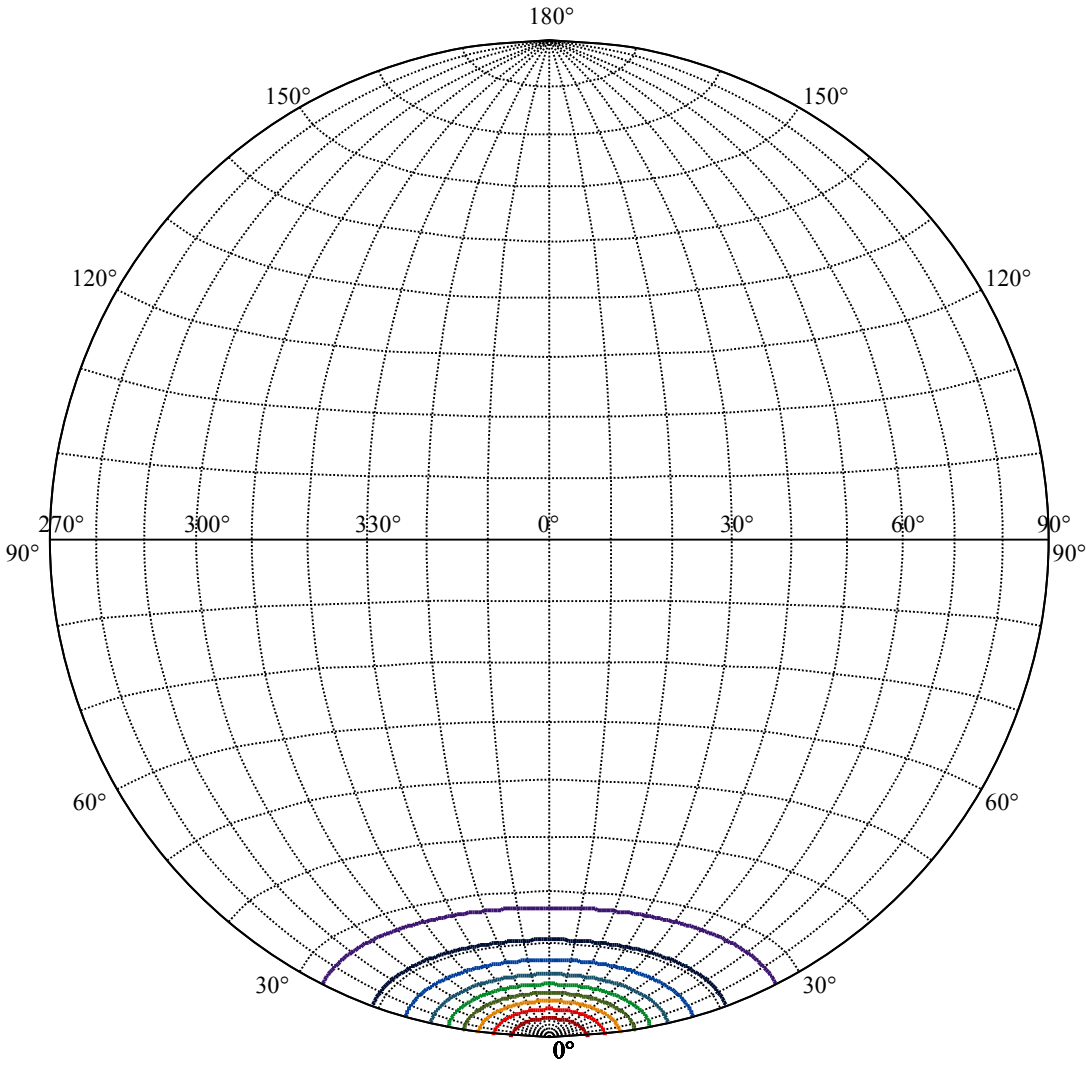


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/4
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



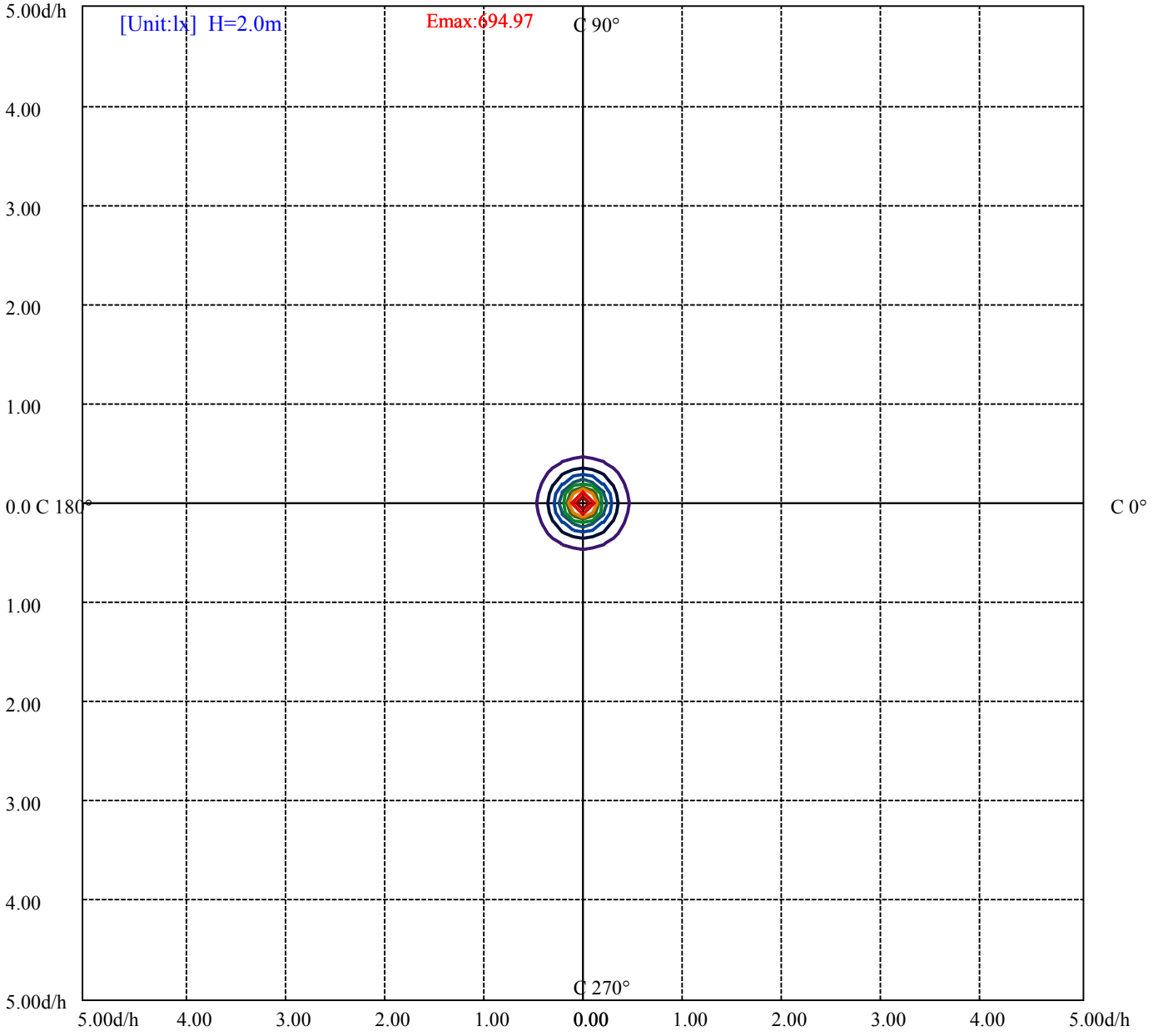
House [Unit:cd] Road

Imax:2779.88

(10%Imax) 277.987
(20%Imax) 555.975
(30%Imax) 833.963
(40%Imax) 1111.95
(50%Imax) 1389.94
(60%Imax) 1667.93
(70%Imax) 1945.91
(80%Imax) 2223.9
(90%Imax) 2501.89

Equipment: GMS1980 Date: 2019/9/4 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

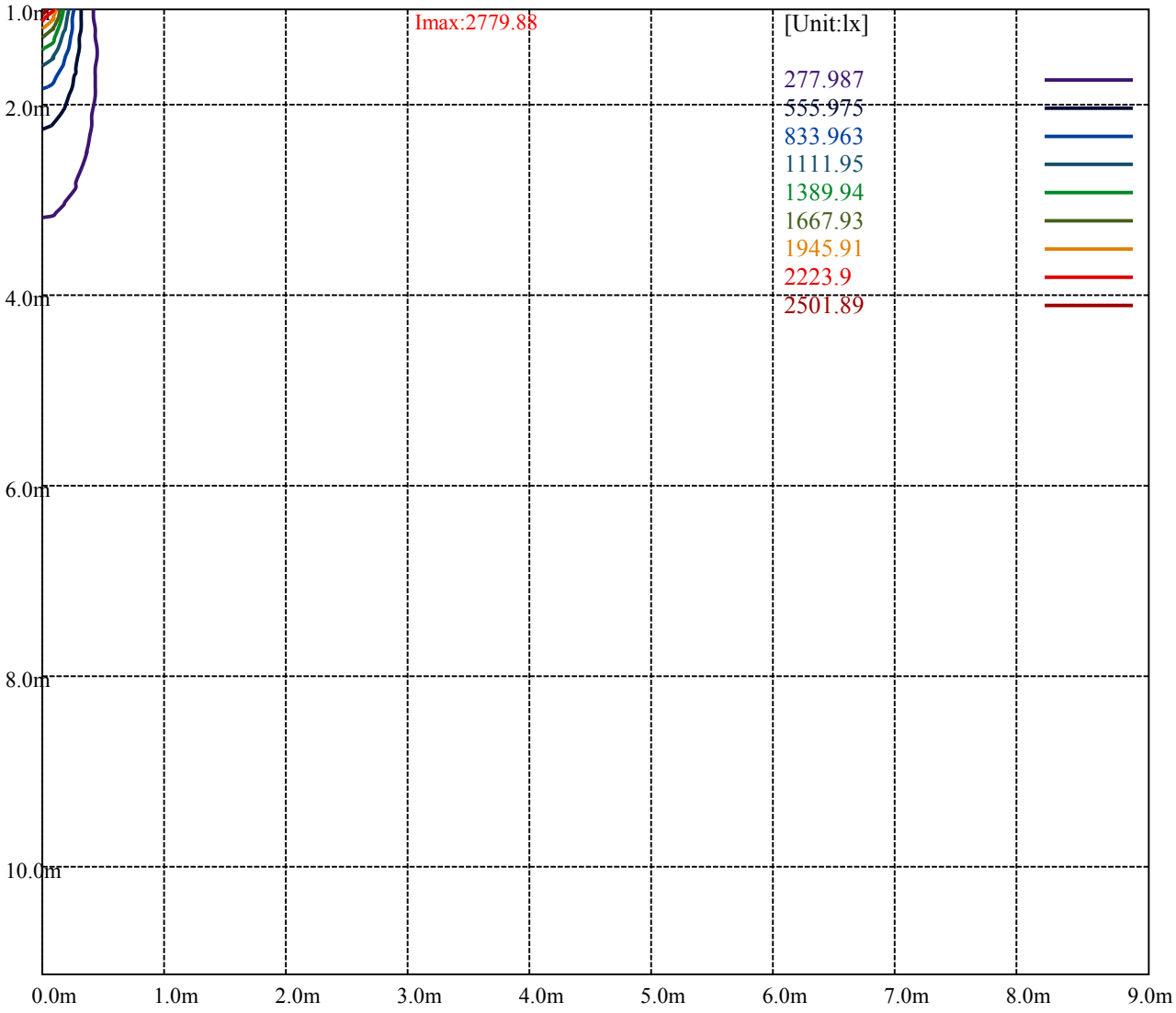
ISO illuminance diagram



(10%Emax) 69.49675
(20%Emax) 138.9937
(30%Emax) 208.4905
(40%Emax) 277.9875
(50%Emax) 347.485
(60%Emax) 416.98
(70%Emax) 486.4775
(80%Emax) 555.975
(90%Emax) 625.4725

Equipment: GMS1980	Date: 2019/9/4	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/4
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

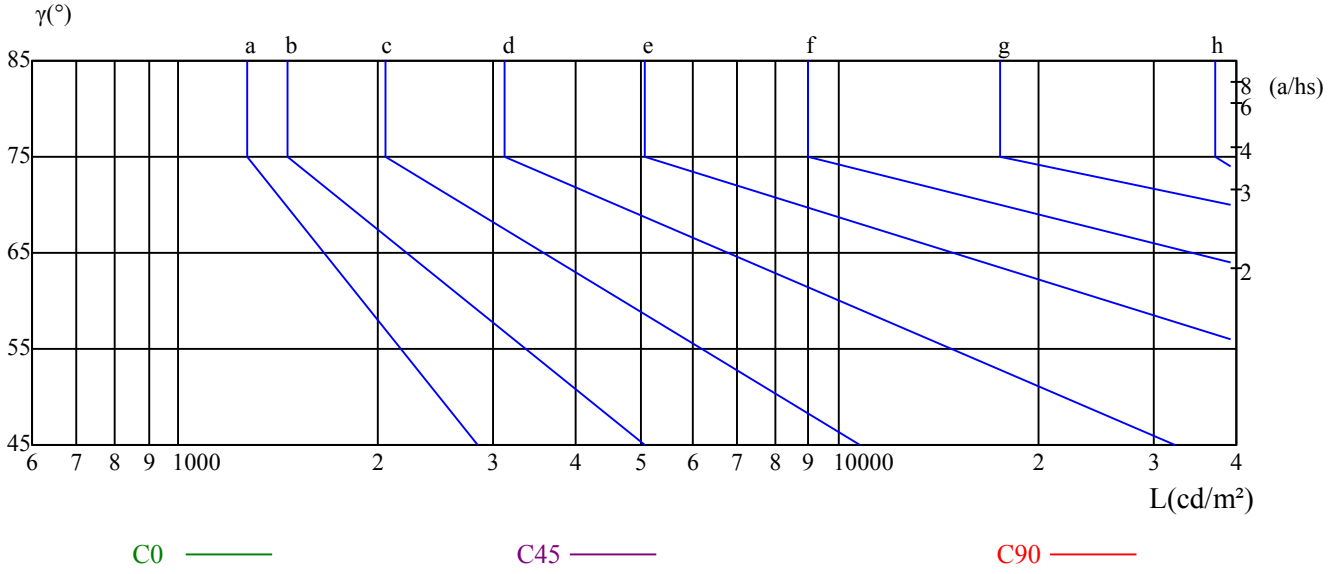
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

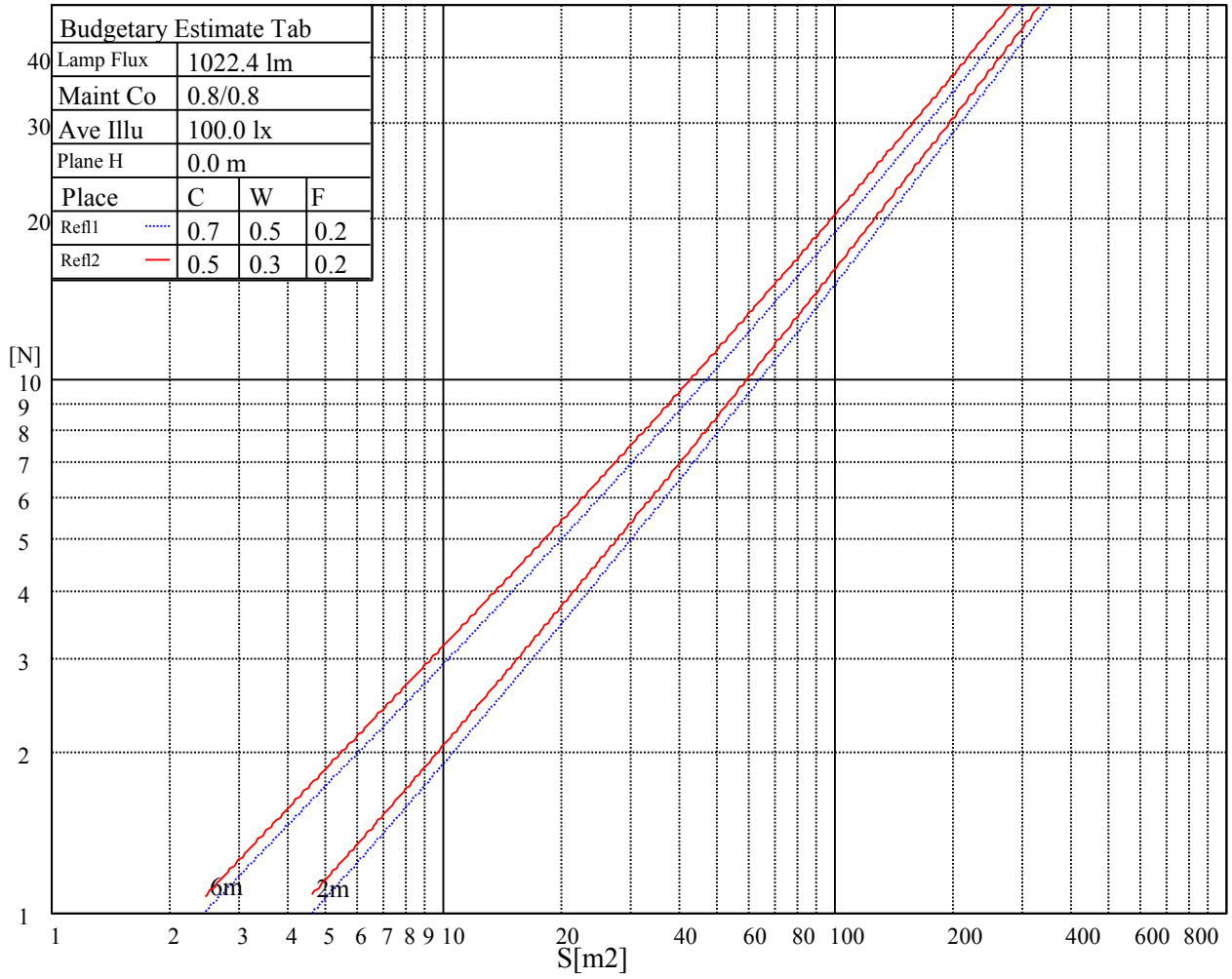
Glare Table

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

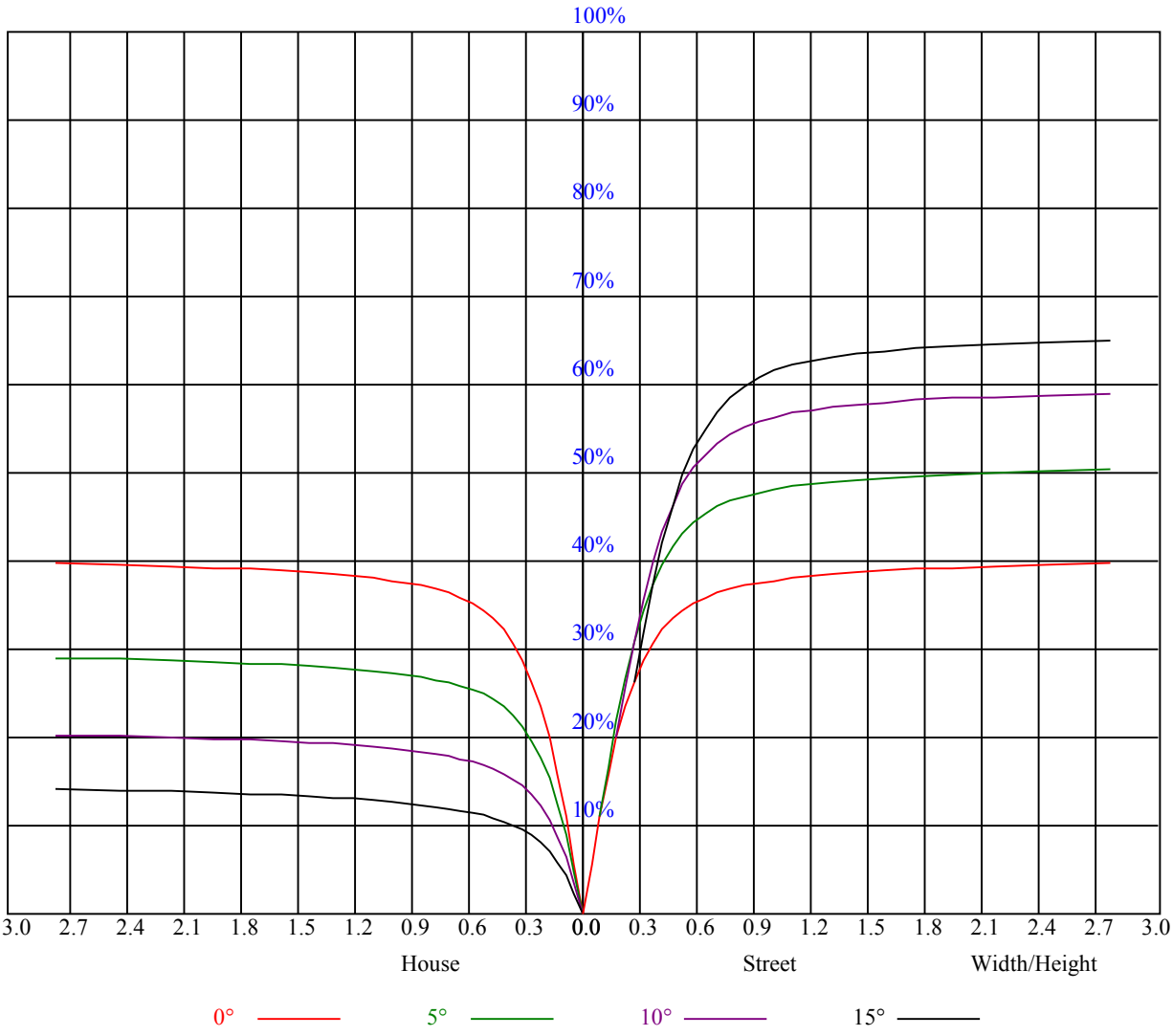


Equipment: GMS1980 Date: 2019/9/4 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.97	0.97	0.97	0.95	0.95	0.95	0.90	0.90	0.90	0.87	0.87	0.87	0.83	0.83	0.83	0.81
1	0.89	0.87	0.85	0.88	0.86	0.84	0.84	0.83	0.81	0.81	0.80	0.79	0.78	0.78	0.77	0.75
2	0.83	0.80	0.77	0.82	0.79	0.76	0.79	0.77	0.75	0.77	0.75	0.73	0.75	0.73	0.72	0.70
3	0.78	0.74	0.71	0.77	0.74	0.71	0.75	0.72	0.69	0.73	0.71	0.68	0.71	0.69	0.67	0.66
4	0.74	0.70	0.66	0.73	0.69	0.66	0.71	0.68	0.65	0.70	0.67	0.64	0.68	0.66	0.64	0.63
5	0.70	0.66	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.65	0.63	0.61	0.59
6	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.57
7	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.59	0.56	0.61	0.58	0.56	0.61	0.58	0.55	0.54
8	0.61	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.53	0.59	0.56	0.53	0.58	0.55	0.53	0.52
9	0.59	0.54	0.52	0.58	0.54	0.51	0.58	0.54	0.51	0.57	0.54	0.51	0.56	0.53	0.51	0.50
10	0.57	0.52	0.50	0.56	0.52	0.50	0.56	0.52	0.49	0.55	0.52	0.49	0.54	0.51	0.49	0.48

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/9/4	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	2782.69	2774.25	2732.06	2659.50	2562.75	2423.81	2292.19	2153.25	1993.50
45.0	2778.19	2768.63	2727.00	2651.63	2558.25	2435.63	2289.94	2145.94	1999.13
90.0	2778.75	2760.75	2714.06	2636.44	2541.38	2404.69	2275.88	2093.63	1945.69
135.0	2779.88	2778.19	2746.13	2683.69	2599.88	2467.69	2337.75	2199.38	2033.44
180.0	2782.69	2765.81	2704.50	2624.63	2524.50	2375.44	2255.63	2084.63	1894.50
225.0	2778.19	2758.50	2715.19	2629.13	2523.94	2404.69	2274.19	2093.06	1944.00
270.0	2778.75	2770.88	2733.19	2662.88	2571.75	2449.13	2310.75	2179.13	2054.25
315.0	2779.88	2755.13	2694.38	2601.56	2498.06	2365.31	2238.19	2084.63	1918.69
360.0	2782.69	2774.25	2732.06	2659.50	2562.75	2423.81	2292.19	2153.25	1993.50

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1830.94	1685.81	1522.13	1387.13	1250.44	1125.00	1026.56	927.56	837.56
45.0	1814.06	1659.38	1510.31	1351.13	1207.69	1093.50	979.31	878.06	799.31
90.0	1794.94	1608.19	1468.69	1335.38	1113.02	1074.04	978.58	891.34	803.42
135.0	1866.38	1713.38	1543.50	1403.44	1254.38	1119.94	1018.69	916.31	823.50
180.0	1758.94	1585.13	1402.88	1282.50	1110.15	1019.59	926.04	840.77	763.71
225.0	1791.00	1595.81	1449.56	1308.94	1117.74	1037.98	941.01	853.43	767.59
270.0	1853.44	1709.44	1586.25	1419.19	1279.13	1179.56	1055.25	955.13	884.81
315.0	1781.44	1618.88	1465.88	1335.94	1121.68	1085.23	994.05	912.38	818.04
360.0	1830.94	1685.81	1522.13	1387.13	1250.44	1125.00	1026.56	927.56	837.56

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	765.56	700.88	624.94	568.69	514.69	457.31	403.31	358.88	313.88
45.0	716.63	650.25	579.38	519.75	468.56	420.75	367.88	329.63	295.31
90.0	723.83	658.24	592.59	532.63	483.75	432.00	389.42	344.42	303.24
135.0	750.38	682.88	601.31	549.56	495.00	432.56	388.13	347.63	311.06
180.0	676.91	614.19	558.06	491.96	442.91	397.58	351.79	310.16	277.59
225.0	690.75	621.45	566.33	508.39	454.89	410.96	370.74	325.35	292.16
270.0	794.81	729.00	669.38	599.63	549.56	502.31	447.75	406.69	367.31
315.0	750.21	686.64	612.84	558.62	506.08	447.19	408.88	363.54	321.58
360.0	765.56	700.88	624.94	568.69	514.69	457.31	403.31	358.88	313.88

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	286.88	242.72	214.03	192.09	170.44	151.03	135.73	120.04	106.54
45.0	267.86	228.77	205.31	182.14	162.06	146.76	132.19	120.21	109.24
90.0	270.34	241.14	208.41	186.19	167.12	147.04	133.31	121.28	109.63
135.0	286.31	240.30	215.49	190.80	169.31	154.74	137.48	123.47	114.30
180.0	246.43	222.92	199.35	178.93	162.73	146.59	132.41	121.05	110.93
225.0	262.01	231.24	204.41	183.94	165.71	146.19	132.13	119.98	108.06
270.0	318.94	288.00	248.68	217.46	191.08	171.17	152.21	136.01	123.41
315.0	286.88	252.17	218.81	198.62	177.98	154.07	140.96	127.29	114.30
360.0	286.88	242.72	214.03	192.09	170.44	151.03	135.73	120.04	106.54

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	95.63	86.06	75.66	68.74	62.61	57.43	52.09	48.43	44.89
45.0	99.06	91.01	82.52	75.94	68.96	63.23	56.76	52.26	48.54
90.0	99.28	90.84	82.24	74.42	68.01	60.58	55.80	50.57	46.13
135.0	101.81	93.43	85.78	77.23	70.82	65.03	57.99	53.33	49.33
180.0	99.51	91.35	83.81	75.32	69.08	63.39	57.77	52.99	49.22
225.0	97.48	89.49	80.38	73.91	68.23	62.44	57.83	53.16	49.05
270.0	111.21	101.42	91.41	82.86	75.88	69.53	62.33	57.15	52.54
315.0	102.83	93.77	84.83	76.73	70.20	63.73	58.56	53.44	48.94
360.0	95.63	86.06	75.66	68.74	62.61	57.43	52.09	48.43	44.89

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	41.96	39.88	38.14	36.17	34.48	33.08	31.84	30.94	29.87
45.0	44.89	41.63	38.98	36.62	34.09	32.40	30.88	29.36	28.29
90.0	42.86	40.16	37.29	35.21	33.47	31.67	30.09	28.97	27.73
135.0	44.83	41.96	39.26	36.79	34.65	33.08	31.50	30.32	29.08
180.0	45.45	42.58	39.71	37.35	35.49	33.75	32.23	31.05	30.04
225.0	45.84	42.92	39.88	37.86	36.11	34.20	32.96	31.89	30.83
270.0	47.42	44.16	41.46	38.76	36.45	34.71	33.02	31.67	30.49
315.0	45.51	42.69	39.54	37.41	35.44	33.41	31.95	30.77	29.81
360.0	41.96	39.88	38.14	36.17	34.48	33.08	31.84	30.94	29.87

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	29.19	28.52	27.73	27.11	26.49	25.76	25.03	24.53	24.02
45.0	27.39	26.38	25.43	24.69	23.85	23.06	22.33	21.77	21.09
90.0	26.89	26.04	25.20	24.58	23.85	23.23	22.67	22.11	21.54
135.0	28.07	27.28	26.55	25.82	25.14	24.53	23.96	23.40	22.95
180.0	28.97	28.18	27.39	26.55	25.82	25.20	24.53	23.91	23.29
225.0	29.87	29.03	28.24	27.51	26.89	26.16	25.71	25.14	24.47
270.0	29.48	28.69	27.90	27.11	26.44	25.88	25.14	24.58	24.08
315.0	28.74	28.01	27.28	26.44	25.65	25.09	24.47	23.91	23.40
360.0	29.19	28.52	27.73	27.11	26.49	25.76	25.03	24.53	24.02

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	23.51	23.01	22.56	21.99	21.49	21.04	20.48	20.03	19.41
45.0	20.42	19.80	19.18	18.73	17.89	17.38	16.93	16.37	15.86
90.0	20.98	20.42	19.80	19.18	18.62	18.00	17.55	17.10	16.54
135.0	22.44	21.83	21.15	20.42	19.69	19.13	18.45	17.94	17.38
180.0	22.73	22.22	21.66	21.09	20.59	20.03	19.41	18.90	18.34
225.0	23.74	23.01	22.16	21.54	20.93	20.31	19.63	19.18	18.62
270.0	23.46	22.78	22.22	21.49	20.76	20.14	19.46	18.90	18.28
315.0	22.84	22.16	21.38	20.59	19.97	19.35	18.62	18.11	17.61
360.0	23.51	23.01	22.56	21.99	21.49	21.04	20.48	20.03	19.41

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	18.84	18.23	17.78	16.99	16.31	15.75	15.19	14.85	14.51
45.0	15.41	14.96	14.63	14.23	13.78	13.50	13.22	12.99	12.83
90.0	16.09	15.69	15.24	15.24	15.47	15.75	15.36	14.63	14.29
135.0	16.82	16.31	15.86	15.36	14.96	14.63	14.29	14.06	13.84
180.0	17.66	17.10	16.59	16.09	15.64	15.24	14.91	14.63	14.40
225.0	18.00	17.55	17.04	16.54	16.09	15.75	15.47	15.19	14.85
270.0	17.61	16.99	16.43	15.81	15.58	16.54	16.99	16.48	15.24
315.0	16.99	16.48	15.98	15.53	15.08	14.74	14.46	14.29	14.34
360.0	18.84	18.23	17.78	16.99	16.31	15.75	15.19	14.85	14.51

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	14.85	14.34	13.84	13.78	13.73	14.01	14.34	14.23	12.21
45.0	12.71	12.49	12.38	12.38	12.26	12.26	12.15	11.36	10.58
90.0	14.23	13.95	13.67	13.33	12.99	12.71	12.04	11.08	10.41
135.0	13.67	13.44	13.33	13.28	13.28	13.44	11.81	10.91	10.29
180.0	14.06	13.84	13.73	13.73	13.95	12.54	11.36	10.52	9.96
225.0	14.68	14.46	14.18	14.01	13.95	13.84	11.98	11.14	10.52
270.0	14.79	14.63	14.40	13.89	13.50	13.16	12.88	11.48	10.74
315.0	15.13	14.40	13.73	13.56	13.39	13.22	13.11	11.93	10.97
360.0	14.85	14.34	13.84	13.78	13.73	14.01	14.34	14.23	12.21

Intensity data(cd)

C/γ(°)	90.0
0.0	11.14
45.0	10.01
90.0	10.13
135.0	9.90
180.0	9.62
225.0	9.73
270.0	10.07
315.0	10.24
360.0	11.14