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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 3-1916-E
Luminaire: 92.76.323.00
Report No: NATA0100
Test No: GC2019111514
LampCAT: LUMENS EDC-57-20W
Lamp flux(lm): 1515.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 218.0000
Current(A): 0.0810
Power (W): 17.6000
PF: 0.9940
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1313.86
Efficiency(%): 86.72%
Lumens(lm)/Power(W): 74.65
Central intensity(cd): 4939.313
Maximum intensity(cd): 4939.313
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=23.4
[C90/270]Total=23.4
Field angle(10%Imax): [C0/180]Total=61.0
[C90/270]Total=61.0
Maximum s/h(1/2): C0_180=0.40 C90_270=0.40
Maximum s/h(1/4): C0_180=0.40 C90_270=0.40
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 86.72%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.362%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4939.313	0.000	0	.000%	.000%
1.0	4925.391	4.720	4.72	.312%	.359%
2.0	4878.352	14.071	18.791	.929%	1.430%
3.0	4777.734	23.094	41.886	1.524%	3.188%
4.0	4631.273	31.495	73.38	2.079%	5.585%
5.0	4440.094	39.025	112.405	2.576%	8.555%
6.0	4203.773	45.426	157.831	2.998%	12.013%
7.0	3923.648	50.447	208.278	3.330%	15.852%
8.0	3652.383	54.220	262.498	3.579%	19.979%
9.0	3337.594	56.650	319.148	3.739%	24.291%
10.0	2989.688	57.260	376.407	3.780%	28.649%
11.0	2686.219	56.714	433.121	3.743%	32.965%
12.0	2375.789	55.335	488.456	3.652%	37.177%
13.0	2050.242	52.526	540.982	3.467%	41.175%
14.0	1784.531	49.085	590.067	3.240%	44.911%
15.0	1555.805	45.858	635.925	3.027%	48.401%
16.0	1326.916	42.240	678.164	2.788%	51.616%
17.0	1169.634	38.878	717.042	2.566%	54.575%
18.0	1054.202	36.666	753.709	2.420%	57.366%
19.0	952.833	34.918	788.627	2.305%	60.023%
20.0	873.281	33.423	822.05	2.206%	62.567%
21.0	803.609	32.200	854.25	2.125%	65.018%
22.0	746.290	31.146	885.396	2.056%	67.389%
23.0	697.985	30.305	915.7	2.000%	69.695%
24.0	651.621	29.507	945.208	1.948%	71.941%
25.0	610.516	28.698	973.906	1.894%	74.125%
26.0	582.694	28.166	1002.072	1.859%	76.269%
27.0	558.028	27.908	1029.98	1.842%	78.393%
28.0	535.303	27.681	1057.661	1.827%	80.500%
29.0	518.477	27.570	1085.23	1.820%	82.598%
30.0	503.888	27.604	1112.834	1.822%	84.699%
31.0	484.270	27.499	1140.333	1.815%	86.792%
32.0	450.626	26.784	1167.117	1.768%	88.831%
33.0	401.576	25.106	1192.223	1.657%	90.742%
34.0	334.273	22.269	1214.492	1.470%	92.437%
35.0	274.184	18.896	1233.388	1.247%	93.875%
36.0	213.525	15.529	1248.917	1.025%	95.057%
37.0	135.506	11.383	1260.3	.751%	95.923%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	80.318	7.204	1267.504	.476%	96.471%
39.0	42.265	4.184	1271.688	.276%	96.790%
40.0	28.111	2.454	1274.143	.162%	96.977%
41.0	25.066	1.894	1276.037	.125%	97.121%
42.0	22.296	1.721	1277.757	.114%	97.252%
43.0	18.541	1.513	1279.27	.100%	97.367%
44.0	15.356	1.279	1280.549	.084%	97.464%
45.0	12.340	1.064	1281.614	.070%	97.545%
46.0	10.266	0.884	1282.498	.058%	97.613%
47.0	9.401	0.782	1283.28	.052%	97.672%
48.0	8.986	0.743	1284.023	.049%	97.729%
49.0	8.712	0.727	1284.75	.048%	97.784%
50.0	8.452	0.716	1285.466	.047%	97.839%
51.0	8.241	0.706	1286.172	.047%	97.892%
52.0	8.065	0.700	1286.872	.046%	97.946%
53.0	7.875	0.693	1287.565	.046%	97.998%
54.0	7.741	0.688	1288.253	.045%	98.051%
55.0	7.608	0.685	1288.938	.045%	98.103%
56.0	7.481	0.682	1289.62	.045%	98.155%
57.0	7.397	0.680	1290.301	.045%	98.207%
58.0	7.313	0.680	1290.981	.045%	98.258%
59.0	7.249	0.681	1291.662	.045%	98.310%
60.0	7.165	0.681	1292.342	.045%	98.362%
61.0	7.137	0.682	1293.025	.045%	98.414%
62.0	7.080	0.685	1293.71	.045%	98.466%
63.0	7.059	0.688	1294.398	.045%	98.518%
64.0	6.996	0.690	1295.087	.046%	98.571%
65.0	6.961	0.691	1295.778	.046%	98.623%
66.0	6.933	0.693	1296.471	.046%	98.676%
67.0	6.933	0.697	1297.169	.046%	98.729%
68.0	7.017	0.707	1297.875	.047%	98.783%
69.0	7.088	0.720	1298.595	.047%	98.838%
70.0	7.242	0.736	1299.331	.049%	98.894%
71.0	7.488	0.761	1300.092	.050%	98.952%
72.0	7.931	0.802	1300.894	.053%	99.013%
73.0	8.416	0.855	1301.749	.056%	99.078%
74.0	8.698	0.900	1302.648	.059%	99.146%
75.0	8.501	0.909	1303.557	.060%	99.216%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.411	0.845	1304.402	.056%	99.280%
77.0	6.785	0.757	1305.159	.050%	99.337%
78.0	6.581	0.716	1305.874	.047%	99.392%
79.0	6.413	0.698	1306.572	.046%	99.445%
80.0	6.265	0.683	1307.256	.045%	99.497%
81.0	6.223	0.675	1307.931	.045%	99.548%
82.0	6.159	0.671	1308.603	.044%	99.600%
83.0	6.117	0.667	1309.27	.044%	99.650%
84.0	6.089	0.665	1309.935	.044%	99.701%
85.0	6.054	0.663	1310.598	.044%	99.751%
86.0	6.019	0.660	1311.258	.044%	99.802%
87.0	5.998	0.658	1311.915	.043%	99.852%
88.0	5.955	0.655	1312.57	.043%	99.901%
89.0	5.892	0.649	1313.219	.043%	99.951%
90.0	5.871	0.645	1313.864	.043%	100.000%

Zonal flux distribution table

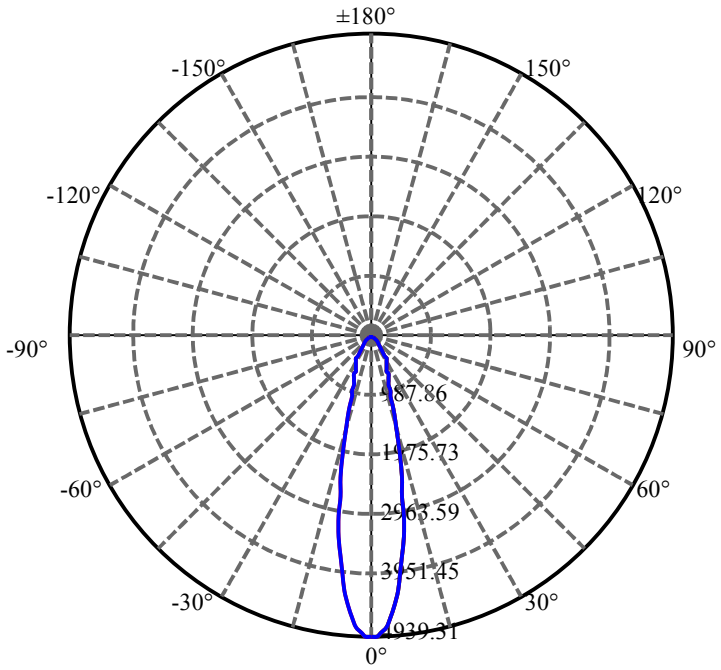
ZONAL LUMEN SUMMARY

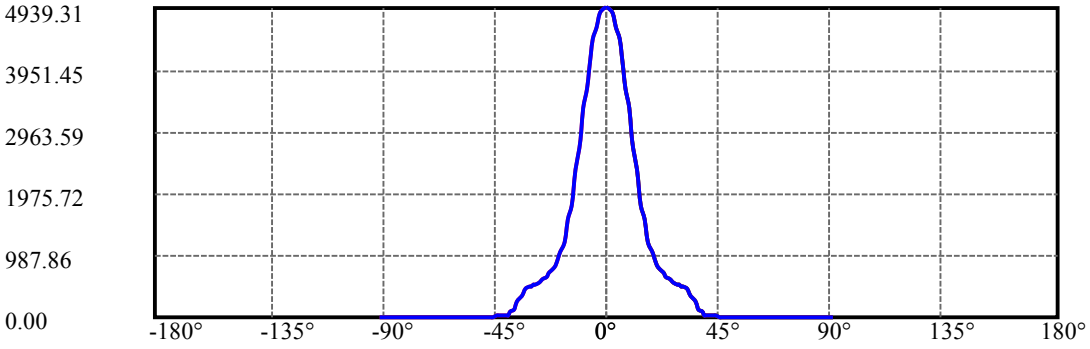
Zone	Lumens	%Lamp	%Fixt
0-30	1112.83	73.45%	84.70%
0-40	1274.14	84.10%	96.98%
0-60	1292.34	85.30%	98.36%
0-90	1313.22	86.68%	99.95%
0-120	1313.22	86.68%	99.95%
0-180	1313.86	86.72%	100.00%
60-90	21.56	1.42%	1.64%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.76	1051.09	69.38%	80.00%

ZONAL LUMEN SUMMARY

0-10	376.41
10-20	445.64
20-30	290.78
30-40	161.31
40-50	11.32
50-60	6.88
60-70	6.99
70-80	7.93
80-90	5.96
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):

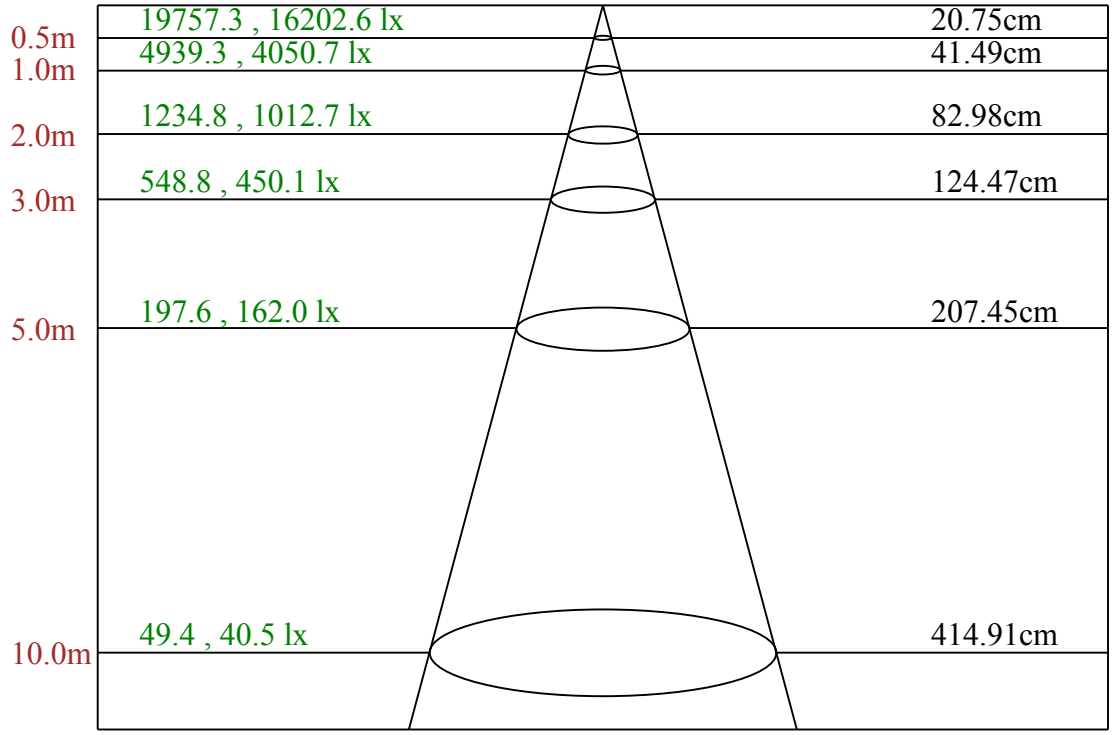
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:30.5 Right:30.5
:C90/270Left:30.5 Right:30.5

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

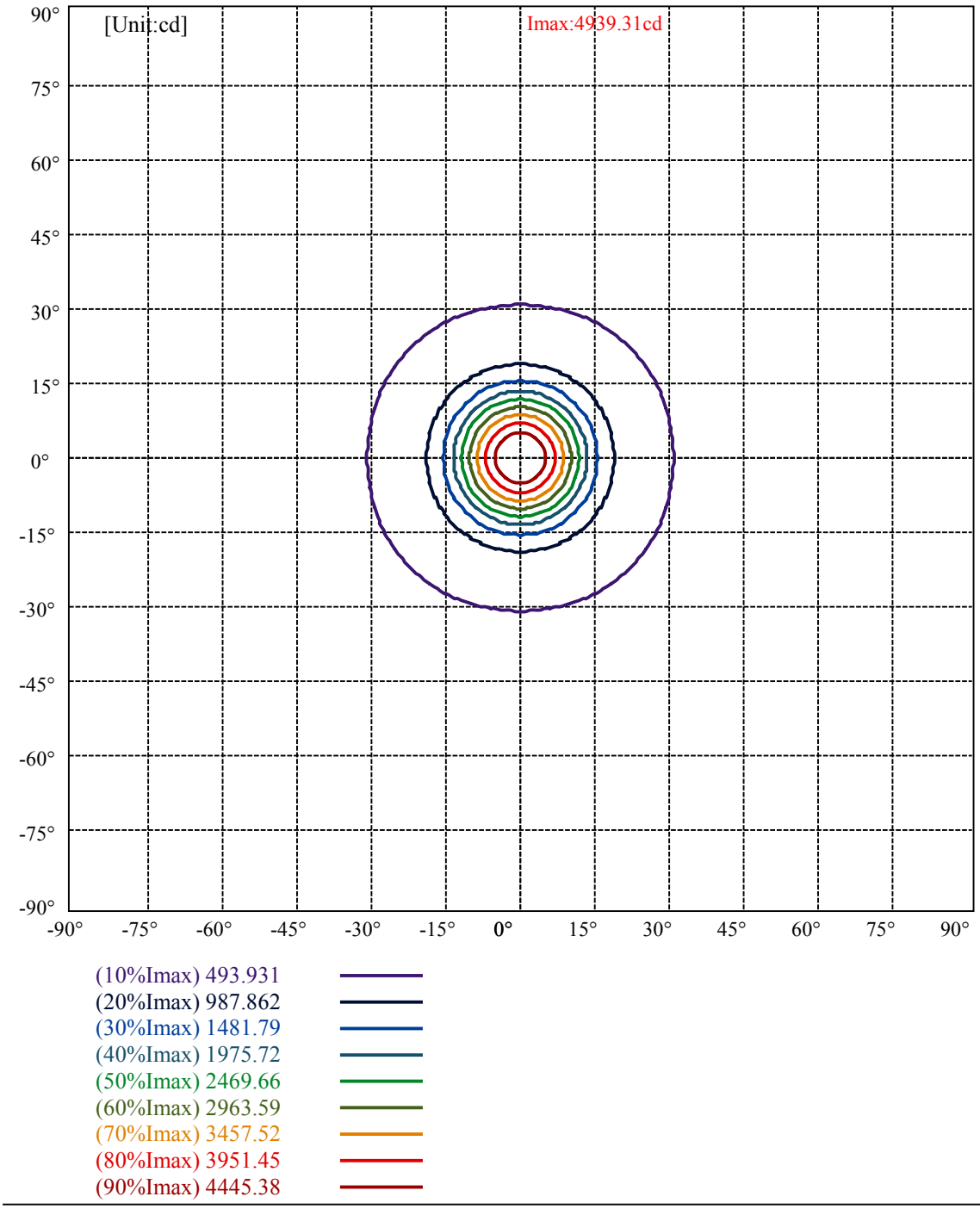
Lux distance Curve



Max , Ave

Beam angle of C0 plane 23.44

ISO-Intensity(V-H)

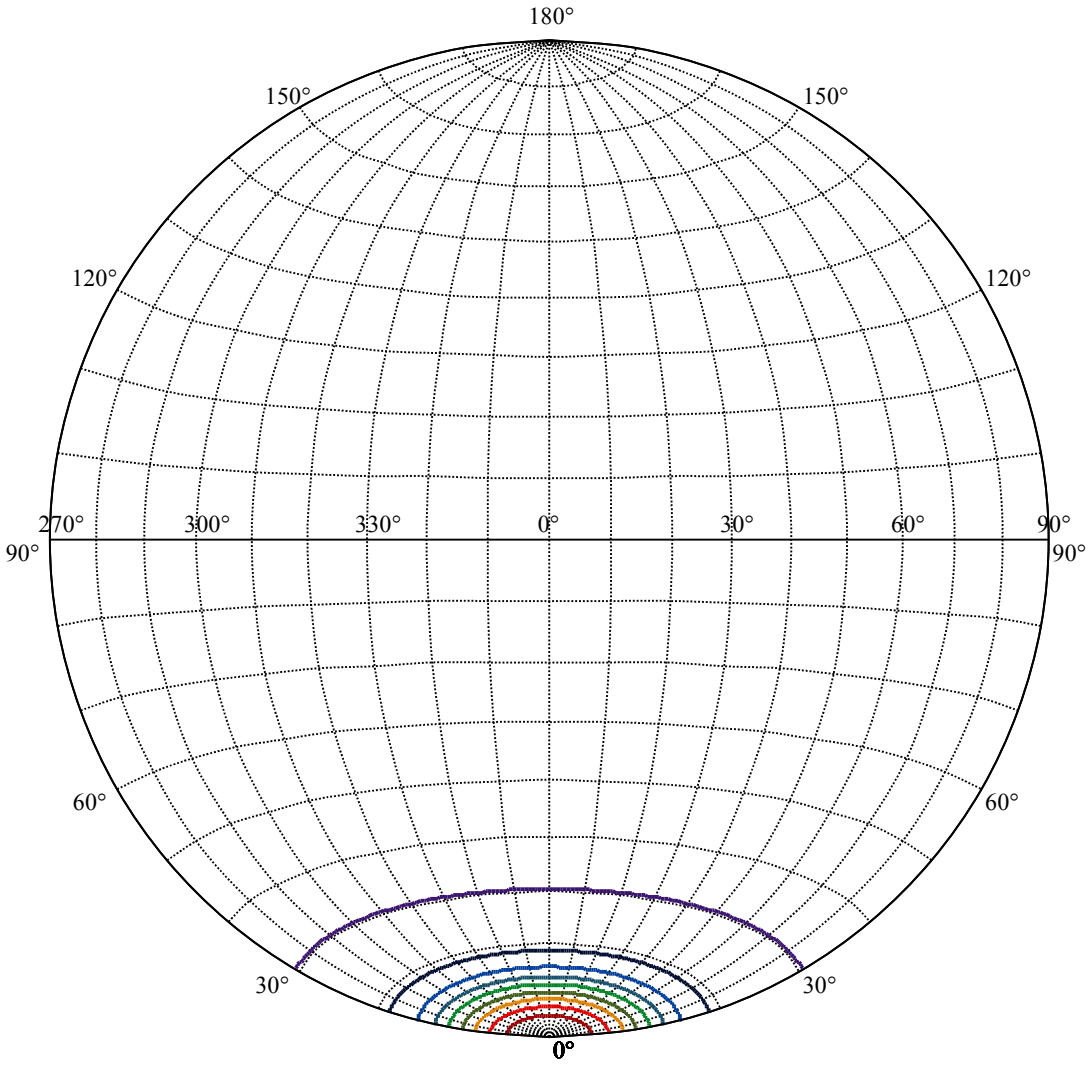


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



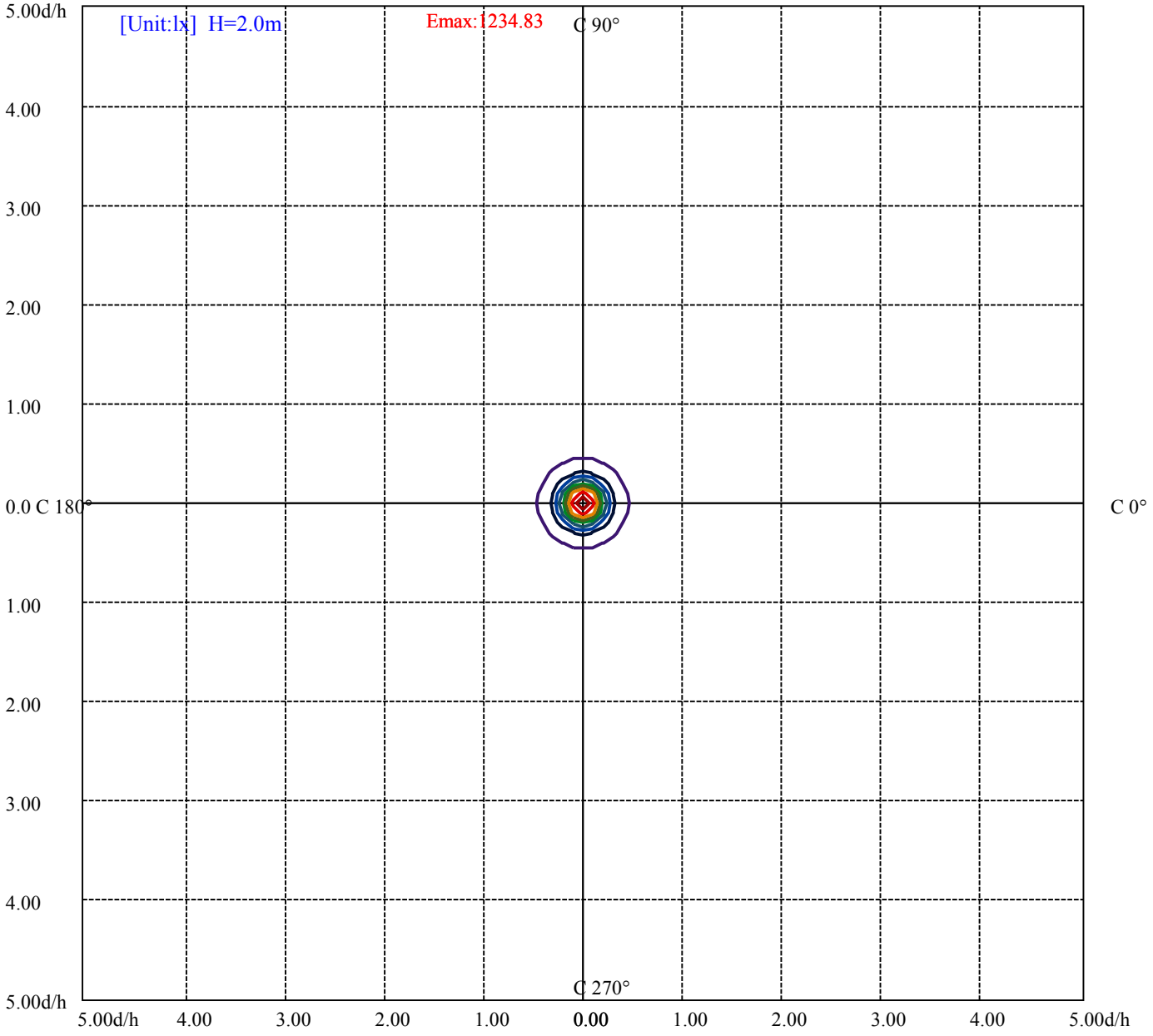
House [Unit:cd] Road

Imax:4939.31

(10%Imax) 493.931
(20%Imax) 987.862
(30%Imax) 1481.79
(40%Imax) 1975.72
(50%Imax) 2469.66
(60%Imax) 2963.59
(70%Imax) 3457.52
(80%Imax) 3951.45
(90%Imax) 4445.38

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

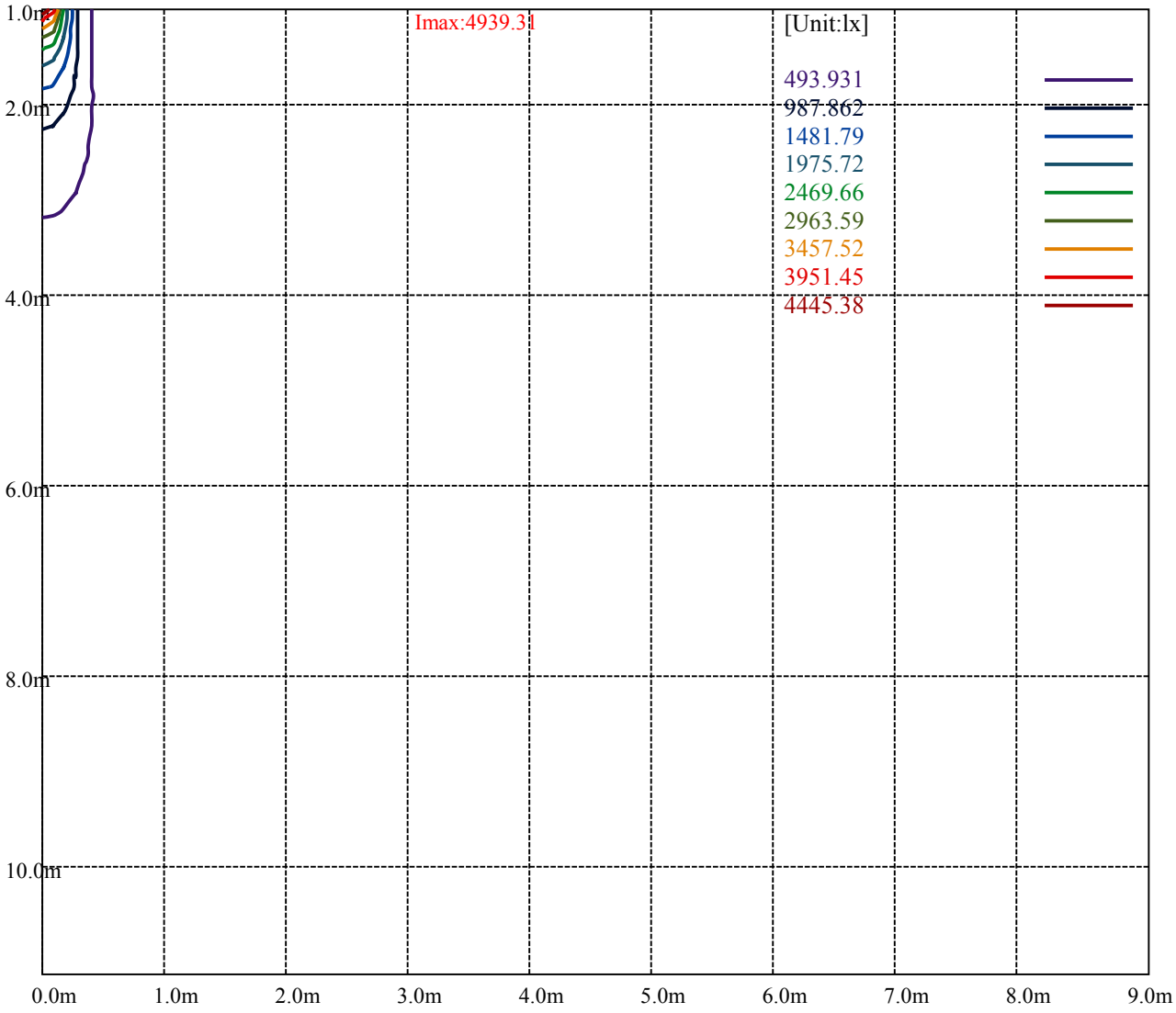
ISO illuminance diagram



(10%Emax) 123.4827
(20%Emax) 246.9655
(30%Emax) 370.4475
(40%Emax) 493.93
(50%Emax) 617.415
(60%Emax) 740.8975
(70%Emax) 864.38
(80%Emax) 987.8625
(90%Emax) 1111.345

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

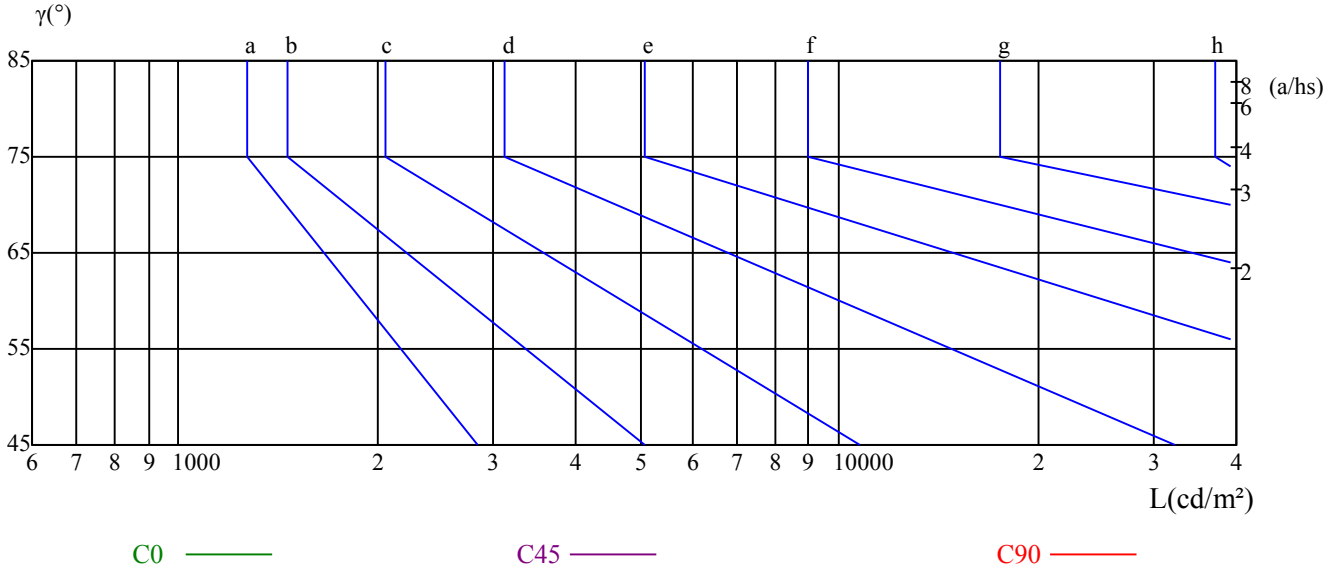
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

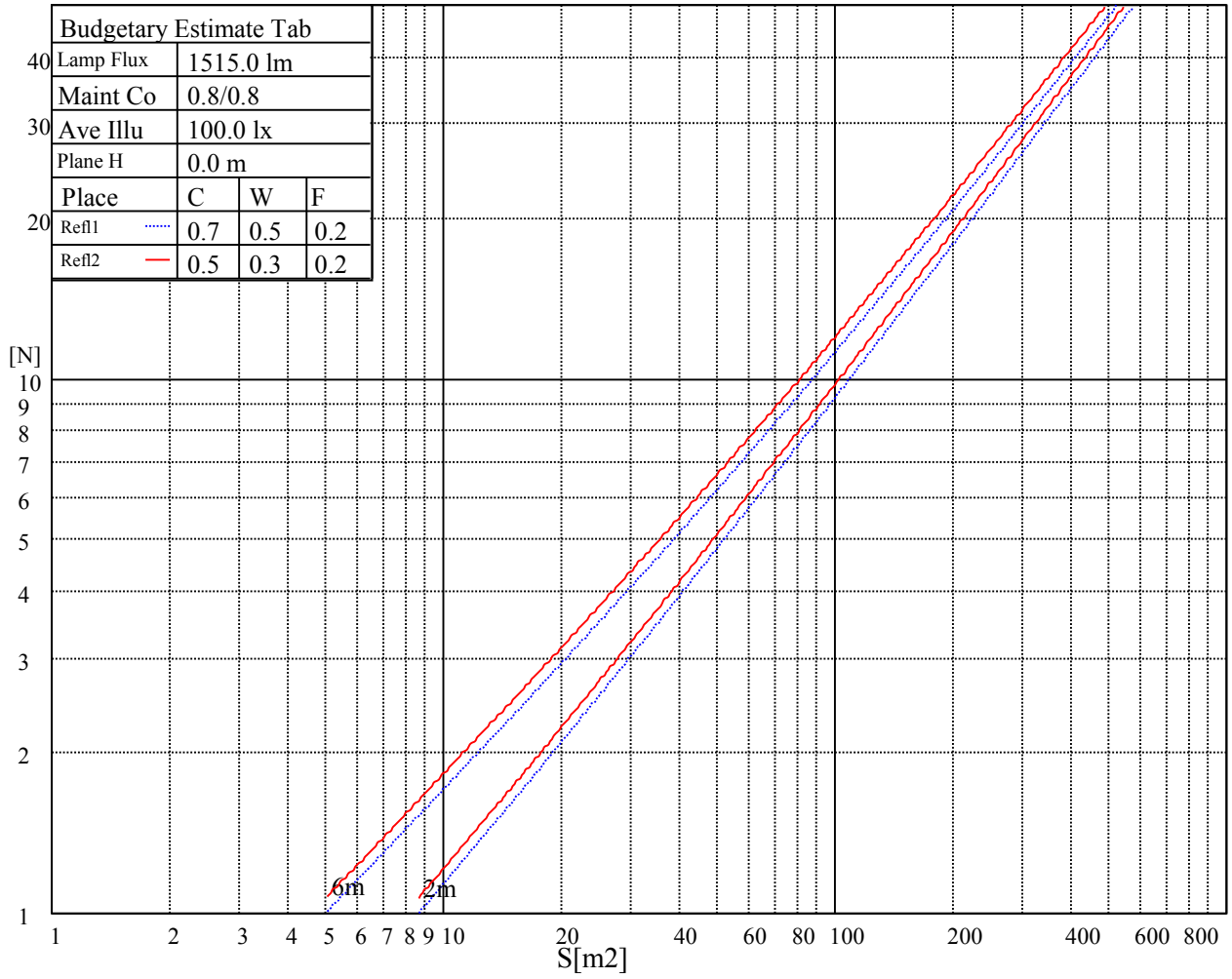
Glare Table

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

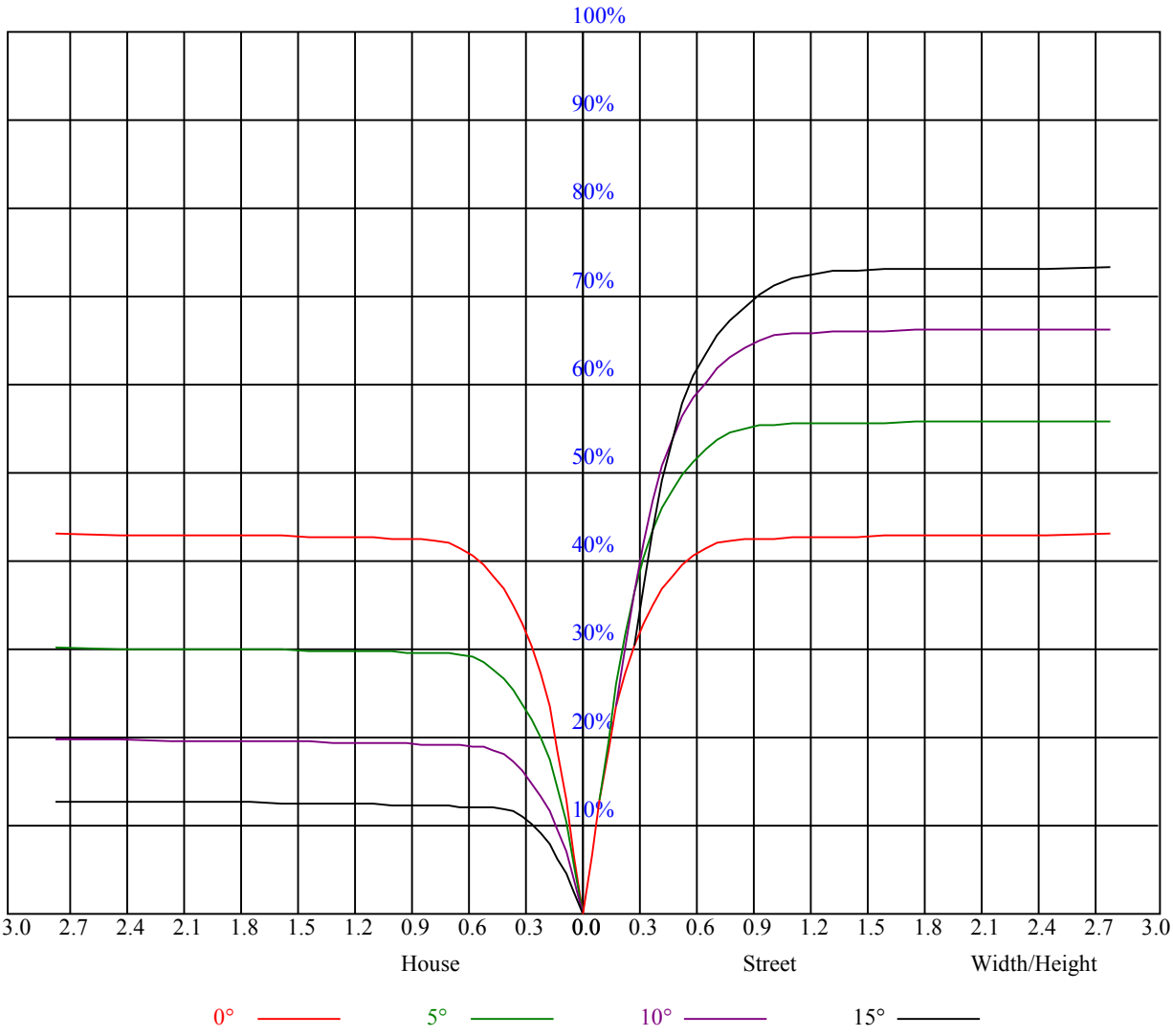


Equipment: GMS1980 Date: 2019/11/15 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.03	1.03	1.03	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.87
1	0.97	0.95	0.93	0.95	0.93	0.92	0.92	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.82
2	0.91	0.88	0.86	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.81	0.82	0.81	0.80	0.78
3	0.87	0.83	0.80	0.86	0.82	0.80	0.83	0.81	0.78	0.81	0.79	0.77	0.79	0.78	0.76	0.75
4	0.83	0.79	0.76	0.82	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.73	0.77	0.74	0.73	0.71
5	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.74	0.71	0.69	0.68
6	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.67	0.72	0.69	0.67	0.71	0.69	0.67	0.66
7	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
8	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61
9	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.59	0.58
10	0.65	0.61	0.58	0.64	0.60	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.62	0.59	0.57	0.56

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	4923.56	4938.75	4920.19	4849.31	4733.44	4548.38	4318.31	4084.88	3829.50
45.0	4940.44	4945.50	4914.00	4839.19	4700.81	4507.31	4294.13	4018.50	3754.69
90.0	4943.81	4922.44	4866.75	4738.50	4584.94	4388.63	4095.00	3827.81	3538.69
135.0	4949.44	4926.38	4871.81	4781.25	4624.31	4413.38	4189.50	3904.88	3632.63
180.0	4923.56	4874.63	4798.69	4671.56	4487.06	4282.88	4047.19	3718.69	3435.19
225.0	4940.44	4906.69	4841.44	4707.56	4556.25	4361.06	4108.50	3827.81	3552.75
270.0	4943.81	4942.69	4905.00	4833.00	4699.13	4534.88	4307.63	4041.00	3777.75
315.0	4949.44	4946.06	4908.94	4801.50	4664.25	4484.25	4269.94	3965.63	3697.88
360.0	4923.56	4938.75	4920.19	4849.31	4733.44	4548.38	4318.31	4084.88	3829.50

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3486.38	3193.31	2892.38	2592.00	2230.31	1959.19	1715.06	1451.25	1279.69
45.0	3437.44	3098.25	2791.13	2485.13	2120.63	1855.13	1621.13	1377.56	1220.06
90.0	3194.44	2842.88	2537.44	2175.75	1906.88	1670.06	1442.81	1275.75	1120.11
135.0	3346.31	2969.44	2663.44	2364.19	2009.25	1751.63	1528.88	1298.81	1152.00
180.0	3137.63	2760.75	2466.56	2184.19	1884.94	1622.25	1423.13	1118.64	1106.16
225.0	3224.81	2889.00	2585.25	2255.06	1980.00	1706.63	1469.25	1295.44	1121.96
270.0	3460.50	3125.25	2821.50	2520.56	2163.38	1897.31	1659.38	1427.63	1242.00
315.0	3413.25	3038.63	2732.06	2429.44	2106.56	1814.06	1586.81	1370.25	1115.10
360.0	3486.38	3193.31	2892.38	2592.00	2230.31	1959.19	1715.06	1451.25	1279.69

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1141.88	1019.81	925.31	848.25	790.88	738.56	685.69	640.13	606.94
45.0	1089.56	977.06	889.88	822.94	763.31	711.56	664.88	622.69	592.88
90.0	995.68	910.07	839.70	773.49	714.83	670.28	627.58	591.30	566.94
135.0	1030.50	926.44	844.88	779.63	721.69	675.56	628.31	591.75	567.56
180.0	985.44	895.56	828.45	762.08	708.02	663.75	624.77	585.00	561.15
225.0	1003.73	931.73	861.58	781.03	735.86	687.71	639.68	600.75	574.14
270.0	1112.06	996.19	906.75	841.50	778.50	729.00	678.38	633.38	600.75
315.0	1074.77	965.81	889.71	819.96	757.24	707.46	663.69	619.14	591.19
360.0	1141.88	1019.81	925.31	848.25	790.88	738.56	685.69	640.13	606.94

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	575.44	553.50	536.06	520.88	504.56	482.06	444.38	382.50	321.19
45.0	567.00	541.13	523.13	506.81	488.25	461.81	414.00	341.44	288.56
90.0	545.34	522.23	506.31	492.81	472.28	429.92	381.43	314.78	238.11
135.0	543.94	522.00	505.13	491.63	474.75	446.63	395.44	323.44	286.31
180.0	540.06	519.13	504.23	490.73	458.49	414.06	360.96	284.68	228.32
225.0	549.06	531.51	514.86	499.67	480.66	437.40	374.12	311.57	248.85
270.0	574.88	547.88	531.56	516.94	500.06	471.94	430.88	371.81	300.38
315.0	568.52	545.06	526.56	511.65	495.11	461.19	411.41	343.97	281.76
360.0	575.44	553.50	536.06	520.88	504.56	482.06	444.38	382.50	321.19

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	288.00	178.26	112.61	66.71	33.53	27.84	24.75	21.32	17.72
45.0	217.29	164.36	86.12	45.62	29.59	25.88	23.23	20.76	16.93
90.0	170.61	107.27	64.58	33.69	27.34	24.98	22.50	18.34	15.08
135.0	198.51	134.66	75.71	39.21	27.23	24.75	22.05	18.62	15.69
180.0	158.18	91.07	56.53	31.22	25.31	23.12	20.36	15.81	13.44
225.0	172.52	114.41	64.58	30.49	26.38	23.68	20.70	15.98	12.94
270.0	291.38	150.47	95.57	50.68	28.18	25.54	22.67	19.41	16.14
315.0	211.73	143.55	86.85	40.50	27.34	24.75	22.11	18.11	14.91
360.0	288.00	178.26	112.61	66.71	33.53	27.84	24.75	21.32	17.72

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	14.57	11.76	10.52	9.68	9.23	9.00	8.72	8.49	8.21
45.0	12.77	10.41	9.73	9.34	9.06	8.72	8.49	8.33	8.10
90.0	11.70	10.01	9.23	8.94	8.66	8.44	8.21	7.99	7.88
135.0	11.59	9.68	9.17	8.83	8.61	8.38	8.21	8.04	7.82
180.0	10.13	9.39	8.83	8.61	8.38	8.16	7.99	7.88	7.71
225.0	11.42	10.29	8.94	8.61	8.38	8.10	7.93	7.82	7.65
270.0	13.89	9.90	9.28	8.83	8.61	8.33	8.10	7.93	7.71
315.0	12.66	10.69	9.51	9.06	8.78	8.49	8.27	8.04	7.93
360.0	14.57	11.76	10.52	9.68	9.23	9.00	8.72	8.49	8.21

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.10	7.88	7.76	7.54	7.48	7.37	7.26	7.26	7.20
45.0	7.99	7.82	7.59	7.48	7.37	7.37	7.20	7.20	7.14
90.0	7.76	7.65	7.59	7.54	7.43	7.37	7.37	7.26	7.14
135.0	7.71	7.54	7.43	7.31	7.20	7.09	7.03	6.98	6.92
180.0	7.54	7.48	7.43	7.37	7.31	7.20	7.14	7.09	7.09
225.0	7.48	7.43	7.26	7.26	7.20	7.20	7.14	7.14	7.09
270.0	7.59	7.43	7.26	7.20	7.09	7.03	6.86	6.86	6.81
315.0	7.76	7.65	7.54	7.48	7.43	7.37	7.31	7.31	7.26
360.0	8.10	7.88	7.76	7.54	7.48	7.37	7.26	7.26	7.20

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.20	7.09	7.03	7.03	6.92	6.92	6.92	6.86	6.81
45.0	7.09	7.03	6.98	6.92	6.86	6.81	6.75	6.69	6.81
90.0	7.09	7.03	6.98	6.98	7.37	8.10	8.94	10.13	11.14
135.0	6.86	6.81	6.81	6.75	6.69	6.75	6.69	6.69	6.64
180.0	7.09	7.03	6.98	6.98	6.92	6.86	6.81	6.81	7.09
225.0	7.09	7.03	6.98	6.92	6.92	6.92	6.86	7.09	7.59
270.0	6.81	6.81	6.81	6.86	6.81	6.81	6.86	6.86	6.92
315.0	7.26	7.14	7.14	7.03	6.98	6.98	6.86	6.81	6.92
360.0	7.20	7.09	7.03	7.03	6.92	6.92	6.92	6.86	6.81

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.69	6.81	6.86	6.98	6.98	6.86	6.64	6.41	6.36
45.0	6.86	6.92	7.09	7.09	6.75	6.41	6.36	6.30	6.24
90.0	12.43	13.73	13.67	10.63	7.31	6.41	6.36	6.30	6.19
135.0	6.64	6.58	6.58	6.53	6.47	6.41	6.41	6.36	6.24
180.0	7.71	8.27	8.83	9.11	8.38	7.82	7.59	6.98	6.30
225.0	8.49	9.23	9.90	10.46	9.45	7.26	6.36	6.24	6.24
270.0	6.86	6.86	6.86	6.75	6.69	6.64	6.58	6.47	6.36
315.0	7.76	8.94	9.79	10.46	7.26	6.47	6.36	6.24	6.19
360.0	6.69	6.81	6.86	6.98	6.98	6.86	6.64	6.41	6.36

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.30	6.19	6.13	6.13	6.08	6.02	6.02	5.96	5.91
45.0	6.19	6.13	6.13	6.08	6.02	5.96	5.96	5.91	5.85
90.0	6.19	6.19	6.13	6.13	6.02	6.02	5.96	5.91	5.85
135.0	6.24	6.13	6.13	6.08	6.02	6.02	5.96	5.96	5.85
180.0	6.24	6.19	6.13	6.13	6.08	6.02	6.02	6.02	5.91
225.0	6.19	6.13	6.02	6.02	6.08	6.02	6.02	5.96	5.96
270.0	6.24	6.19	6.13	6.08	6.08	6.02	5.96	6.02	5.91
315.0	6.19	6.13	6.13	6.08	6.08	6.08	6.08	5.91	5.91
360.0	6.30	6.19	6.13	6.13	6.08	6.02	6.02	5.96	5.91

Intensity data(cd)

C/γ(°)	90.0
0.0	5.91
45.0	5.85
90.0	5.85
135.0	5.91
180.0	5.85
225.0	5.85
270.0	5.85
315.0	5.91
360.0	5.91