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

NATA

LumCAT: 4-2273-M
Luminaire: 92.70.131.00
Report No: NATA0100
Test No: GC2019123018
LampCAT: LUMINUS CXM-14-AC40
Lamp flux(lm): 2608.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 34.3600
Current(A): 0.6000
Power (W): 20.6000
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 2301.68
Efficiency(%): 88.25%
Lumens(lm)/Power(W): 111.73
Central intensity(cd): 25055.860
Maximum intensity(cd): 25055.860
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=11.8
[C90/270]Total=11.8
Field angle(10%Imax): [C0/180]Total=24.3
[C90/270]Total=24.3
Maximum s/h(1/2): C0_180=0.20 C90_270=0.20
Maximum s/h(1/4): C0_180=0.21 C90_270=0.21
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.25%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.540%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	25055.859	0.000	0	.000%	.000%
1.0	24556.641	23.739	23.739	.910%	1.031%
2.0	23193.984	68.536	92.275	2.628%	4.009%
3.0	20972.813	105.632	197.907	4.050%	8.598%
4.0	18067.289	130.680	328.587	5.011%	14.276%
5.0	15281.789	143.466	472.053	5.501%	20.509%
6.0	12180.375	144.321	616.374	5.534%	26.779%
7.0	9363.094	133.720	750.094	5.127%	32.589%
8.0	7302.234	119.271	869.365	4.573%	37.771%
9.0	5573.180	104.348	973.713	4.001%	42.304%
10.0	4183.242	88.292	1062.005	3.385%	46.140%
11.0	3243.727	74.211	1136.216	2.846%	49.365%
12.0	2589.398	63.764	1199.98	2.445%	52.135%
13.0	1970.297	54.112	1254.092	2.075%	54.486%
14.0	1596.586	45.656	1299.748	1.751%	56.469%
15.0	1372.127	40.756	1340.504	1.563%	58.240%
16.0	1208.489	37.813	1378.317	1.450%	59.883%
17.0	1103.681	36.007	1414.324	1.381%	61.447%
18.0	1046.313	35.449	1449.772	1.359%	62.987%
19.0	1004.449	35.679	1485.451	1.368%	64.538%
20.0	972.900	36.191	1521.642	1.388%	66.110%
21.0	948.523	36.895	1558.538	1.415%	67.713%
22.0	925.748	37.664	1596.202	1.444%	69.349%
23.0	907.819	38.473	1634.675	1.475%	71.021%
24.0	891.274	39.335	1674.01	1.508%	72.730%
25.0	875.271	40.167	1714.177	1.540%	74.475%
26.0	862.495	41.020	1755.197	1.573%	76.257%
27.0	849.565	41.886	1797.083	1.606%	78.077%
28.0	836.304	42.683	1839.766	1.637%	79.931%
29.0	824.477	43.451	1883.217	1.666%	81.819%
30.0	813.206	44.217	1927.434	1.695%	83.740%
31.0	797.611	44.827	1972.26	1.719%	85.688%
32.0	769.163	44.886	2017.147	1.721%	87.638%
33.0	723.930	43.987	2061.134	1.687%	89.549%
34.0	648.520	41.534	2102.668	1.593%	91.354%
35.0	556.024	37.409	2140.077	1.434%	92.979%
36.0	455.808	32.217	2172.294	1.235%	94.378%
37.0	347.822	26.210	2198.504	1.005%	95.517%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	235.202	19.461	2217.964	.746%	96.363%
39.0	146.208	13.019	2230.983	.499%	96.928%
40.0	89.648	8.226	2239.209	.315%	97.286%
41.0	44.873	4.790	2243.999	.184%	97.494%
42.0	26.655	2.599	2246.598	.100%	97.607%
43.0	21.213	1.773	2248.371	.068%	97.684%
44.0	18.091	1.483	2249.854	.057%	97.748%
45.0	16.699	1.337	2251.191	.051%	97.806%
46.0	14.794	1.232	2252.423	.047%	97.860%
47.0	14.407	1.161	2253.584	.045%	97.910%
48.0	14.105	1.153	2254.737	.044%	97.960%
49.0	13.767	1.145	2255.881	.044%	98.010%
50.0	13.451	1.135	2257.016	.044%	98.059%
51.0	13.191	1.127	2258.143	.043%	98.108%
52.0	12.916	1.120	2259.264	.043%	98.157%
53.0	12.663	1.113	2260.376	.043%	98.205%
54.0	12.466	1.108	2261.484	.042%	98.253%
55.0	12.255	1.104	2262.588	.042%	98.301%
56.0	12.094	1.100	2263.688	.042%	98.349%
57.0	11.932	1.099	2264.786	.042%	98.397%
58.0	11.770	1.096	2265.882	.042%	98.445%
59.0	11.644	1.095	2266.977	.042%	98.492%
60.0	11.517	1.094	2268.071	.042%	98.540%
61.0	11.398	1.094	2269.165	.042%	98.587%
62.0	11.320	1.095	2270.259	.042%	98.635%
63.0	11.208	1.096	2271.355	.042%	98.682%
64.0	11.130	1.096	2272.451	.042%	98.730%
65.0	11.053	1.098	2273.549	.042%	98.778%
66.0	10.983	1.099	2274.649	.042%	98.825%
67.0	10.898	1.100	2275.749	.042%	98.873%
68.0	10.856	1.102	2276.851	.042%	98.921%
69.0	10.807	1.105	2277.956	.042%	98.969%
70.0	10.737	1.106	2279.062	.042%	99.017%
71.0	10.716	1.109	2280.171	.043%	99.065%
72.0	10.673	1.112	2281.283	.043%	99.114%
73.0	10.631	1.114	2282.397	.043%	99.162%
74.0	10.610	1.117	2283.514	.043%	99.211%
75.0	10.582	1.120	2284.634	.043%	99.259%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.561	1.122	2285.756	.043%	99.308%
77.0	10.575	1.127	2286.883	.043%	99.357%
78.0	10.582	1.133	2288.016	.043%	99.406%
79.0	10.582	1.137	2289.153	.044%	99.456%
80.0	10.575	1.141	2290.293	.044%	99.505%
81.0	10.568	1.143	2291.437	.044%	99.555%
82.0	10.547	1.145	2292.582	.044%	99.605%
83.0	10.498	1.144	2293.726	.044%	99.654%
84.0	10.477	1.143	2294.868	.044%	99.704%
85.0	10.441	1.142	2296.01	.044%	99.754%
86.0	10.399	1.139	2297.149	.044%	99.803%
87.0	10.371	1.137	2298.286	.044%	99.852%
88.0	10.329	1.134	2299.42	.043%	99.902%
89.0	10.322	1.132	2300.552	.043%	99.951%
90.0	10.308	1.131	2301.683	.043%	100.000%

Zonal flux distribution table

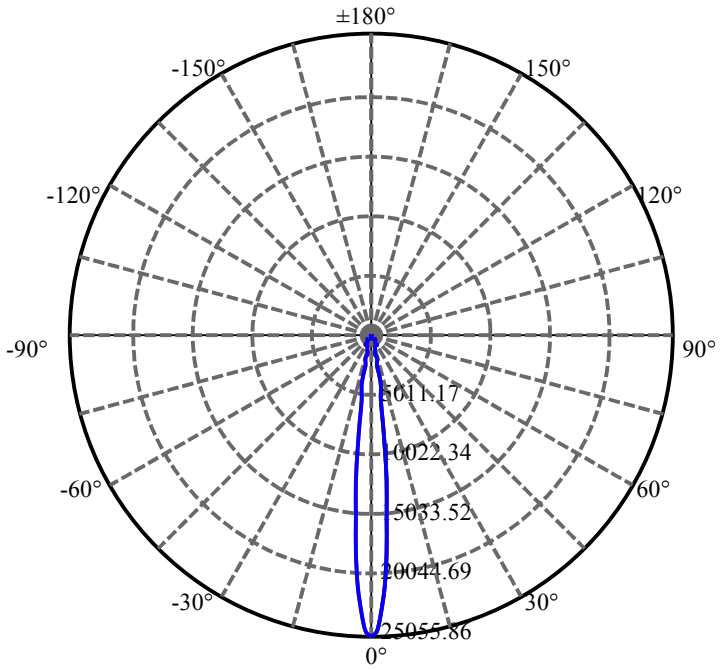
ZONAL LUMEN SUMMARY

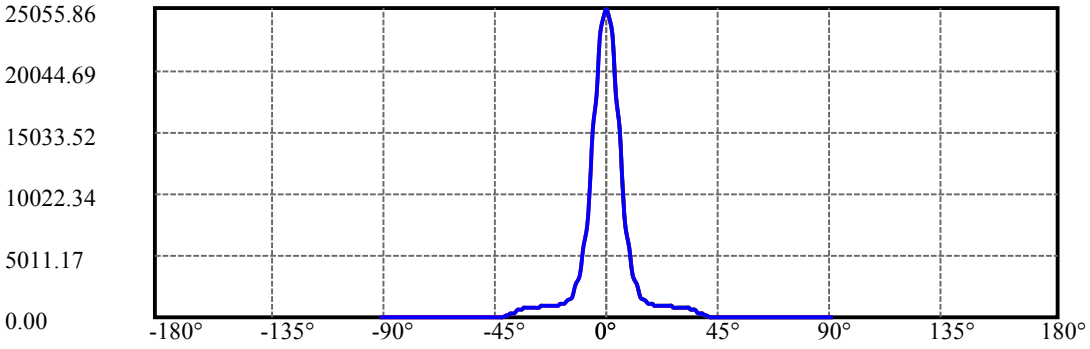
Zone	Lumens	%Lamp	%Fixt
0-30	1927.43	73.90%	83.74%
0-40	2239.21	85.86%	97.29%
0-60	2268.07	86.97%	98.54%
0-90	2300.55	88.21%	99.95%
0-120	2300.55	88.21%	99.95%
0-180	2301.68	88.25%	100.00%
60-90	33.57	1.29%	1.46%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.04	1841.35	70.60%	80.00%

ZONAL LUMEN SUMMARY

0-10	1062.00
10-20	459.64
20-30	405.79
30-40	311.77
40-50	17.81
50-60	11.05
60-70	10.99
70-80	11.23
80-90	10.26
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):

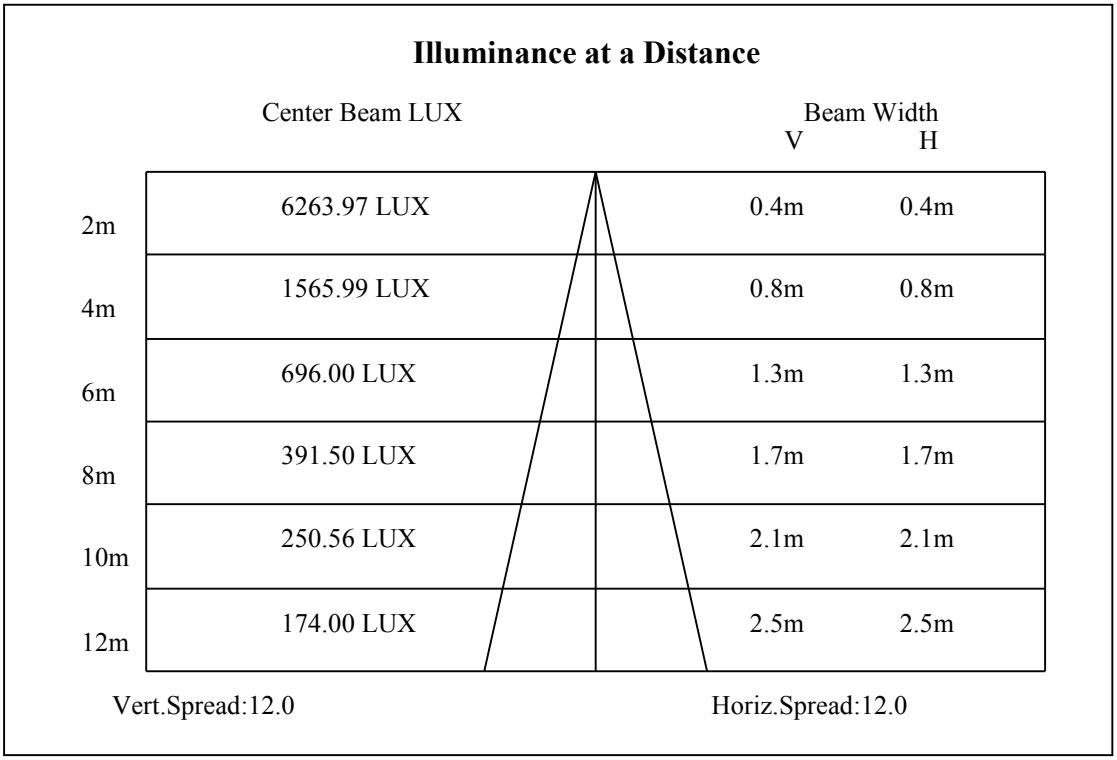
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:12.1 Right:12.1
:C90/270Left:12.1 Right:12.1

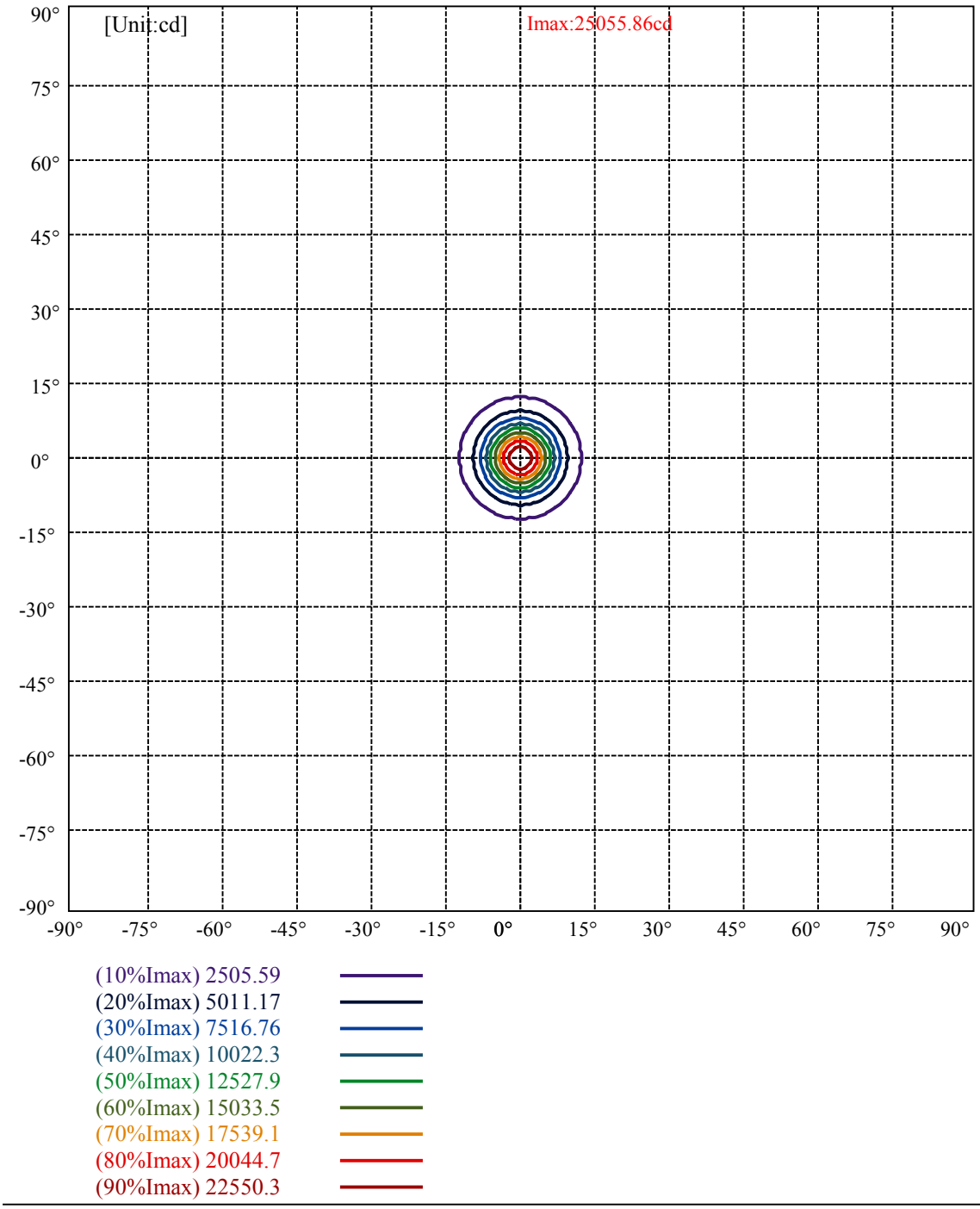
Beam Angle(50%Imax):C0/180Left:5.9 Right:5.9
:C90/270Left:5.9 Right:5.9

Lux distance Curve



Equipment: GMS1980 Date: 2019/12/30 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

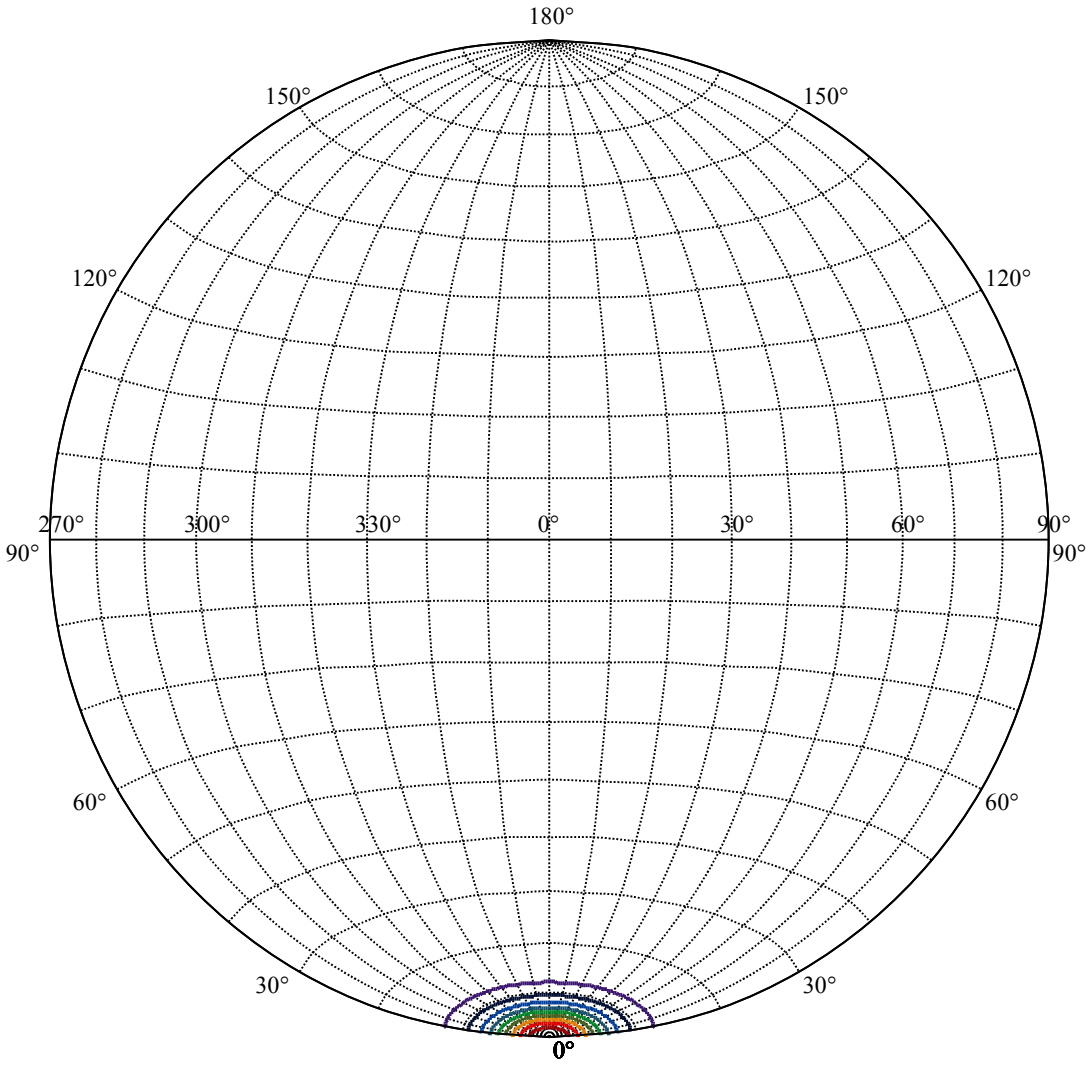


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:25055.86

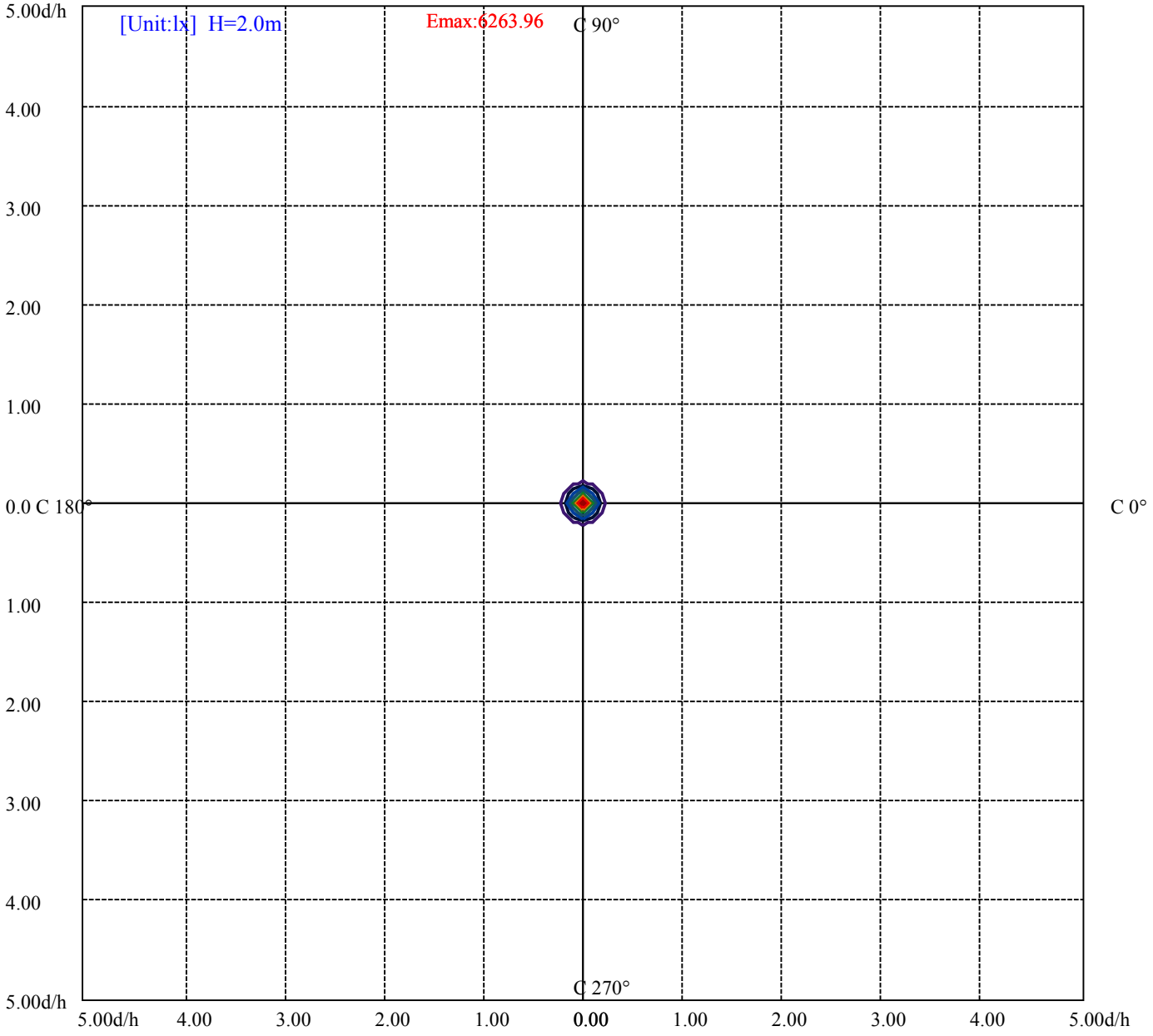
(10%Imax) 2505.59
(20%Imax) 5011.17
(30%Imax) 7516.76
(40%Imax) 10022.3
(50%Imax) 12527.9
(60%Imax) 15033.5
(70%Imax) 17539.1
(80%Imax) 20044.7
(90%Imax) 22550.3

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

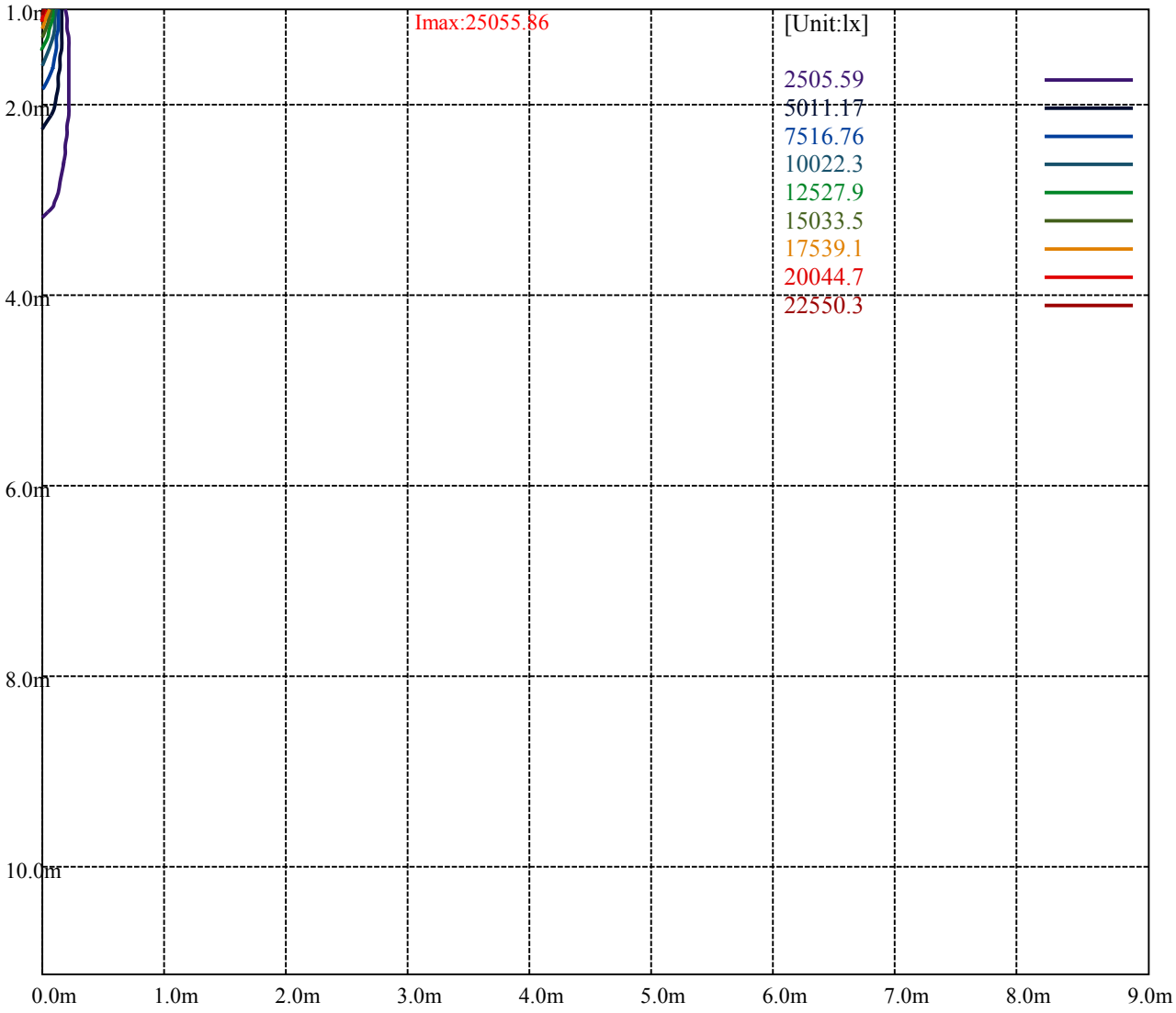
ISO illuminance diagram



(10%Emax) 626.395
(20%Emax) 1252.79
(30%Emax) 1879.182
(40%Emax) 2505.575
(50%Emax) 3131.975
(60%Emax) 3758.375
(70%Emax) 4384.75
(80%Emax) 5011.15
(90%Emax) 5637.55

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2019/12/30
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

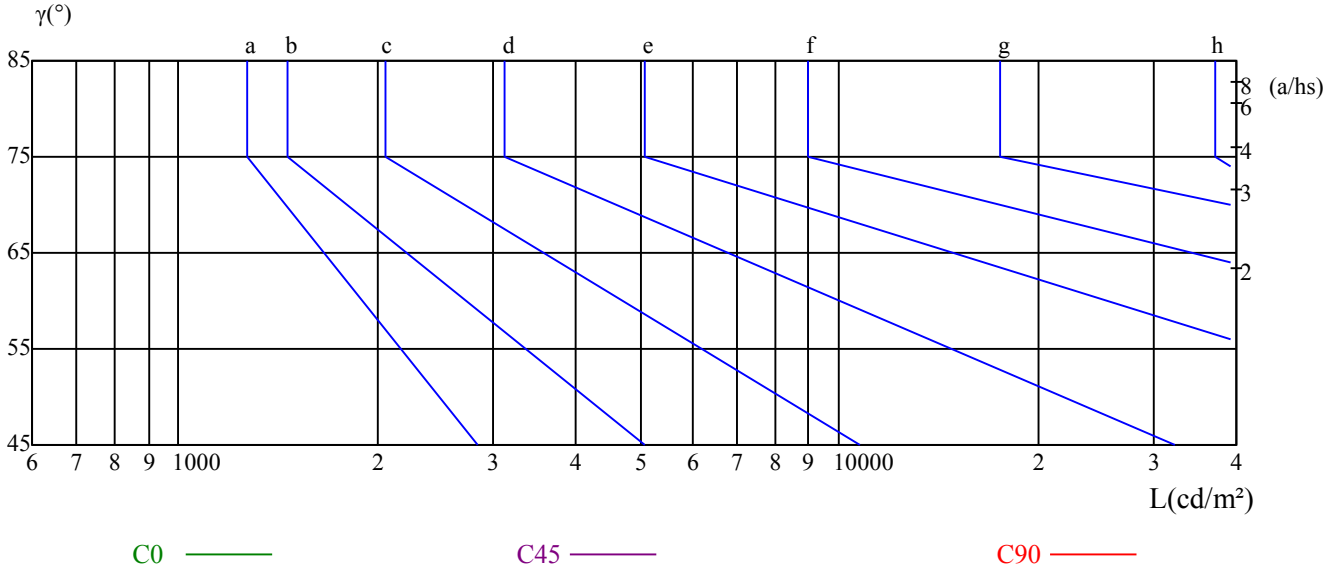
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

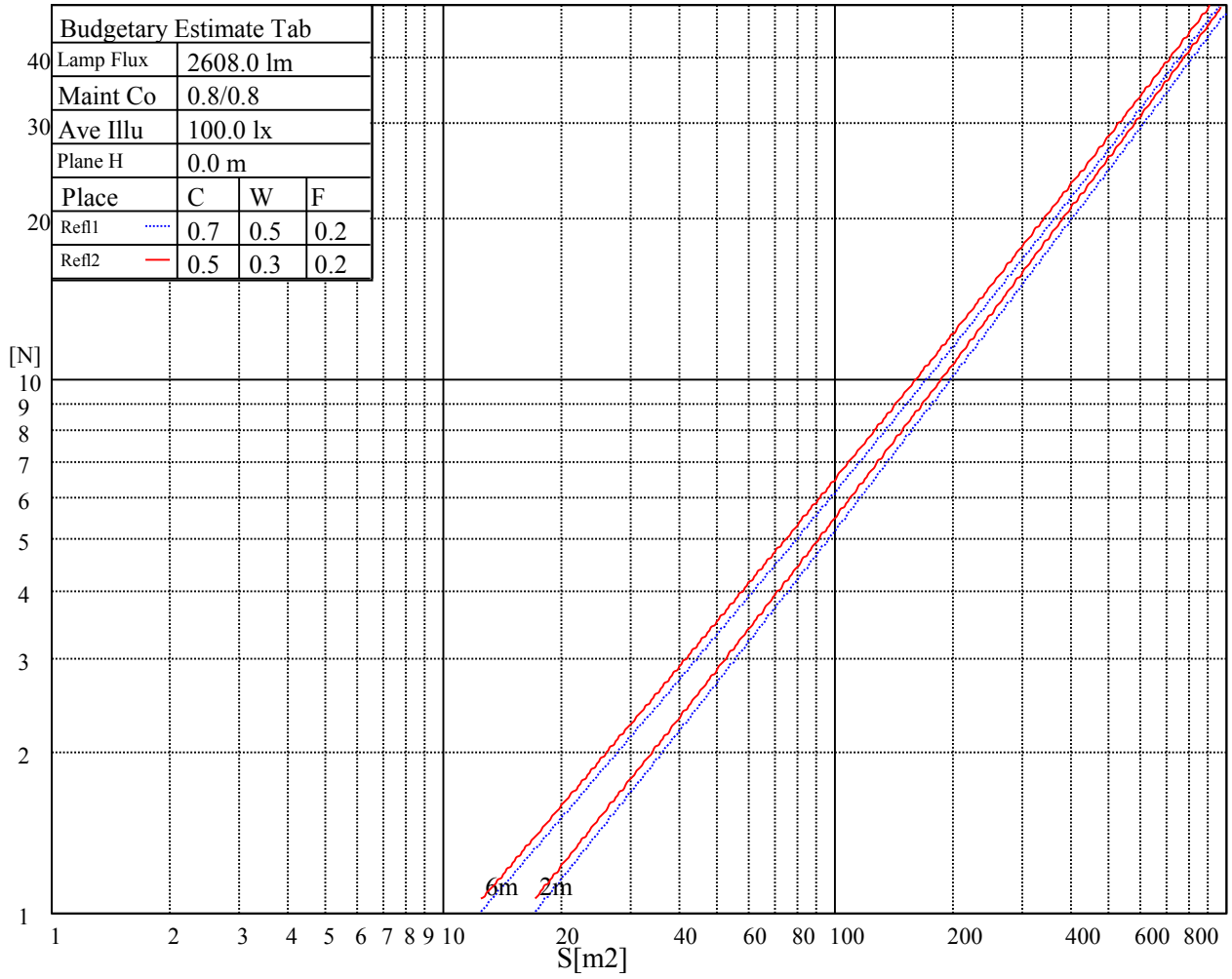
Glare Table

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

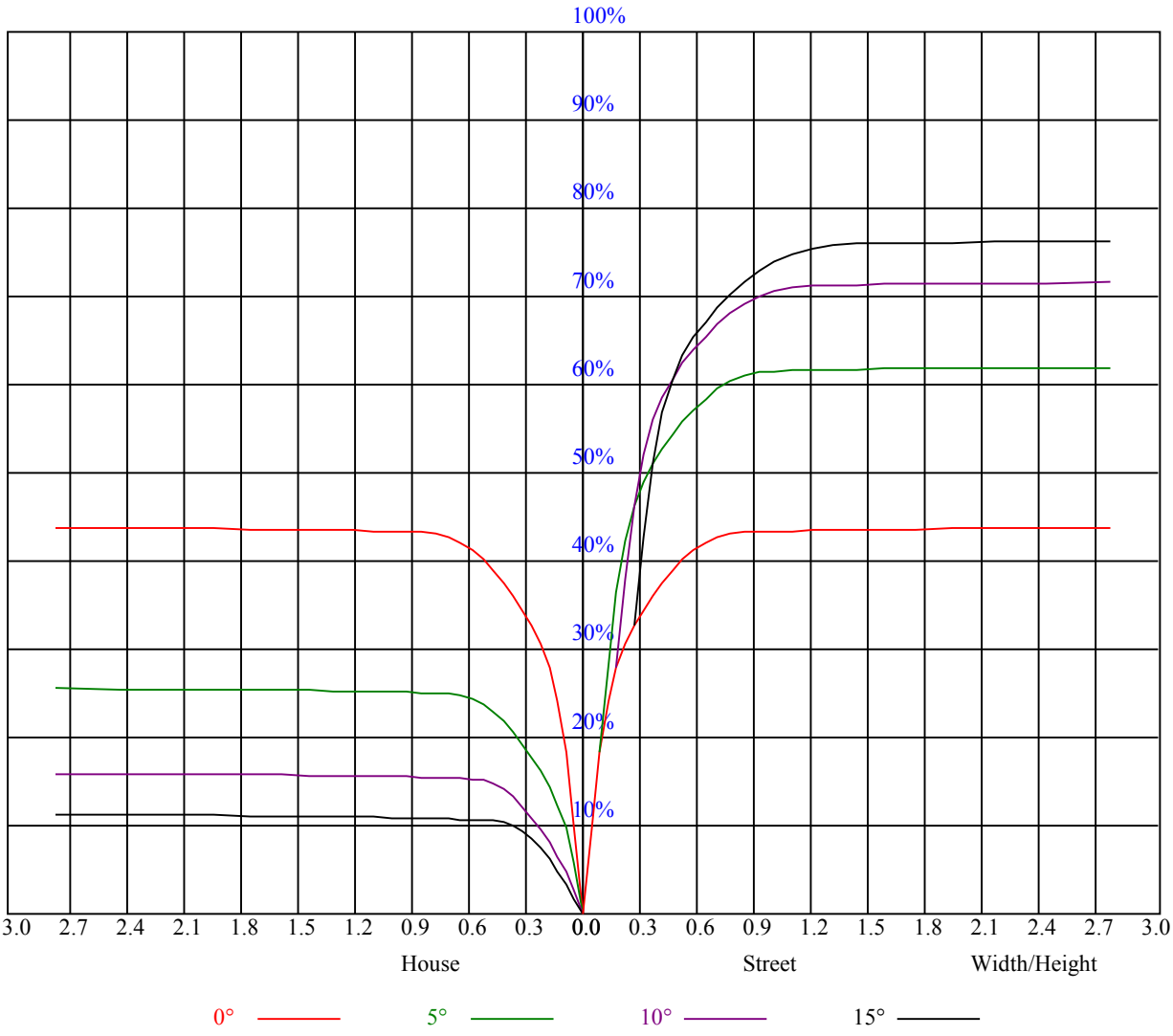


Equipment: GMS1980	Date: 2019/12/30	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.99	0.97	0.96	0.97	0.96	0.94	0.94	0.92	0.91	0.90	0.89	0.89	0.87	0.87	0.86	0.84
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.84	0.89	0.86	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.82	0.81	0.79	0.78
4	0.86	0.82	0.79	0.85	0.82	0.79	0.83	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	0.76	0.80	0.77	0.75	0.79	0.76	0.74	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
7	0.77	0.73	0.70	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	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
9	0.72	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.66	0.65
10	0.70	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.63

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/12/30	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	25554.38	23236.88	20154.38	16858.13	13038.75	9765.00	7515.00	5608.13	4348.13
45.0	25194.38	23788.13	21375.00	18140.63	14889.38	11441.25	8623.13	6620.63	5113.13
90.0	24991.88	24536.25	23231.25	20885.63	17724.38	14574.38	11053.69	8240.63	6379.31
135.0	24592.50	25875.00	26280.00	25818.75	24108.75	21352.50	18292.50	14433.75	11233.13
180.0	25554.38	26572.50	26791.88	26195.63	24626.25	22145.63	18292.50	14833.13	11147.63
225.0	25194.38	25728.75	25278.75	23754.38	21414.38	18641.25	15120.00	10998.00	9152.44
270.0	24991.88	24480.00	22910.63	20520.00	17763.75	14653.13	11041.88	8696.25	6795.00
315.0	24373.13	22235.63	19530.00	15609.38	10972.69	9681.19	7504.31	5474.25	4249.13
360.0	25554.38	23236.88	20154.38	16858.13	13038.75	9765.00	7515.00	5608.13	4348.13

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3279.38	2891.25	1993.50	1634.06	1386.56	1237.50	1135.69	1049.63	1009.69
45.0	3723.75	2891.25	2496.38	1746.56	1449.56	1272.94	1145.81	1069.31	1023.19
90.0	4919.63	3548.81	2743.31	2133.56	1635.19	1387.69	1231.31	1107.68	1047.15
135.0	8398.13	6283.13	4820.63	3830.63	2863.13	2076.19	1671.19	1368.56	1221.19
180.0	8853.19	6390.56	4921.88	3796.88	2838.38	2126.81	1713.94	1418.63	1252.13
225.0	7101.00	5124.94	3947.06	3045.94	2291.63	1824.75	1548.56	1351.13	1121.79
270.0	5006.25	3898.13	3048.75	2868.75	1888.88	1599.19	1414.69	1236.94	1134.00
315.0	3304.13	2437.88	1978.31	1658.81	1409.06	1247.63	1115.83	1066.05	1020.32
360.0	3279.38	2891.25	1993.50	1634.06	1386.56	1237.50	1135.69	1049.63	1009.69

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	982.69	959.06	938.81	920.81	902.25	887.63	871.88	858.38	846.00
45.0	987.19	966.94	946.13	920.25	900.00	883.13	865.69	853.31	842.63
90.0	1004.85	978.36	954.23	935.33	913.95	896.29	880.14	865.41	853.48
135.0	1118.81	1051.88	1007.44	981.56	956.25	936.00	915.75	898.31	884.81
180.0	1113.81	1059.69	1017.62	985.39	956.81	934.48	915.58	895.44	881.21
225.0	1103.01	1043.10	1000.69	971.33	949.44	928.86	912.32	894.99	879.53
270.0	1074.94	1020.94	985.50	960.75	931.50	914.06	899.44	882.56	870.19
315.0	985.22	955.63	932.79	912.77	895.78	882.11	869.40	853.76	842.12
360.0	982.69	959.06	938.81	920.81	902.25	887.63	871.88	858.38	846.00

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	831.38	817.31	806.63	794.81	775.69	713.81	621.56	487.13	377.44
45.0	830.25	818.44	807.19	797.06	780.19	743.06	664.88	538.31	428.63
90.0	842.74	830.64	818.10	807.47	795.32	779.96	735.47	644.29	530.27
135.0	870.19	856.69	845.44	834.75	818.44	807.19	795.38	775.69	716.63
180.0	868.16	853.99	843.08	832.33	816.92	803.98	792.39	776.98	734.01
225.0	866.93	853.71	841.33	827.78	816.24	803.36	790.88	769.11	680.63
270.0	857.81	844.31	830.81	819.56	806.63	794.25	774.56	700.88	596.25
315.0	829.07	815.34	803.25	791.89	771.47	707.68	616.33	495.79	384.36
360.0	831.38	817.31	806.63	794.81	775.69	713.81	621.56	487.13	377.44

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	295.31	160.82	62.27	31.44	26.89	22.56	17.49	15.19	14.68
45.0	320.06	293.63	99.62	44.44	31.95	27.62	23.23	15.24	14.85
90.0	424.18	303.58	199.74	101.81	39.94	31.22	26.66	21.83	15.36
135.0	632.25	519.75	396.00	286.88	222.98	84.77	32.34	27.56	23.85
180.0	642.94	516.21	422.83	298.80	180.56	91.24	36.96	26.38	23.63
225.0	581.29	473.40	334.80	225.51	130.33	45.73	29.48	24.81	19.86
270.0	488.25	363.94	293.06	149.18	57.94	33.02	27.84	23.18	17.38
315.0	262.18	151.26	73.29	31.61	26.61	22.84	19.24	15.53	15.13
360.0	295.31	160.82	62.27	31.44	26.89	22.56	17.49	15.19	14.68

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	14.29	13.89	13.61	13.39	13.05	12.83	12.60	12.43	12.15
45.0	14.46	14.06	13.84	13.56	13.22	12.99	12.77	12.54	12.32
90.0	14.91	14.51	14.18	13.84	13.61	13.28	13.05	12.77	12.54
135.0	21.49	15.53	15.08	14.74	14.34	14.01	13.73	13.44	13.11
180.0	21.21	15.47	15.02	14.68	14.29	13.95	13.67	13.33	13.11
225.0	16.82	15.36	14.79	14.51	14.12	13.73	13.44	13.16	12.88
270.0	15.69	15.19	14.79	14.46	14.12	13.78	13.44	13.11	12.83
315.0	14.74	14.34	13.95	13.67	13.39	13.05	12.83	12.54	12.38
360.0	14.29	13.89	13.61	13.39	13.05	12.83	12.60	12.43	12.15

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.98	11.81	11.70	11.59	11.48	11.36	11.31	11.19	11.08
45.0	12.21	11.98	11.87	11.76	11.64	11.48	11.36	11.31	11.25
90.0	12.32	12.15	11.98	11.81	11.70	11.59	11.48	11.36	11.25
135.0	12.88	12.60	12.38	12.21	11.98	11.87	11.70	11.59	11.48
180.0	12.88	12.60	12.43	12.21	11.98	11.87	11.70	11.53	11.48
225.0	12.66	12.49	12.26	12.04	11.87	11.76	11.59	11.48	11.42
270.0	12.66	12.43	12.26	12.09	11.93	11.76	11.64	11.48	11.42
315.0	12.15	11.98	11.87	11.76	11.59	11.48	11.36	11.25	11.19
360.0	11.98	11.81	11.70	11.59	11.48	11.36	11.31	11.19	11.08

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.03	10.97	10.91	10.86	10.74	10.74	10.63	10.63	10.63
45.0	11.14	11.08	11.03	10.97	10.86	10.86	10.80	10.74	10.69
90.0	11.19	11.08	11.03	10.97	10.91	10.86	10.80	10.74	10.74
135.0	11.31	11.25	11.19	11.08	10.97	10.91	10.91	10.86	10.80
180.0	11.31	11.19	11.08	11.03	10.97	10.86	10.86	10.74	10.69
225.0	11.25	11.19	11.14	11.03	10.97	10.91	10.86	10.74	10.74
270.0	11.31	11.19	11.08	11.03	10.91	10.91	10.86	10.74	10.74
315.0	11.14	11.08	10.97	10.91	10.86	10.80	10.74	10.69	10.69
360.0	11.03	10.97	10.91	10.86	10.74	10.74	10.63	10.63	10.63

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.58	10.52	10.52	10.46	10.41	10.46	10.41	10.46	10.41
45.0	10.69	10.63	10.63	10.63	10.69	10.69	10.74	10.69	10.63
90.0	10.69	10.63	10.63	10.63	10.58	10.58	10.52	10.52	10.52
135.0	10.74	10.69	10.69	10.63	10.58	10.63	10.58	10.52	10.52
180.0	10.63	10.63	10.58	10.52	10.52	10.52	10.52	10.46	10.46
225.0	10.69	10.63	10.63	10.58	10.58	10.52	10.52	10.52	10.46
270.0	10.74	10.69	10.63	10.63	10.58	10.58	10.69	10.86	11.03
315.0	10.63	10.63	10.58	10.58	10.58	10.63	10.69	10.63	10.58
360.0	10.58	10.52	10.52	10.46	10.41	10.46	10.41	10.46	10.41

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.35	10.35	10.35	10.35	10.35	10.29	10.29	10.24	10.29
45.0	10.58	10.52	10.46	10.46	10.41	10.35	10.35	10.35	10.35
90.0	10.52	10.58	10.52	10.46	10.41	10.46	10.35	10.29	10.35
135.0	10.52	10.46	10.46	10.46	10.41	10.41	10.35	10.35	10.29
180.0	10.46	10.46	10.41	10.41	10.41	10.41	10.41	10.35	10.29
225.0	10.46	10.46	10.46	10.46	10.46	10.41	10.41	10.41	10.35
270.0	11.14	10.97	10.80	10.69	10.63	10.58	10.52	10.35	10.35
315.0	10.52	10.58	10.52	10.52	10.46	10.29	10.29	10.29	10.29
360.0	10.35	10.35	10.35	10.35	10.35	10.29	10.29	10.24	10.29

Intensity data(cd)

C/γ(°)	90.0
0.0	10.24
45.0	10.35
90.0	10.29
135.0	10.29
180.0	10.29
225.0	10.35
270.0	10.35
315.0	10.29
360.0	10.24