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

NATA

LumCAT: CT01D03624AH
Luminaire:

Report No: NATA0100	Voltage(V): 37.4000
Test No: GC2018123007	Current(A): 0.3000
LampCAT: CITIZEN CLU028	Power (W): 11.2200
Lamp flux(lm): 1495.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 36	Width(mm): 36
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1239.34
Efficiency(%): 82.90%
Lumens(lm)/Power(W): 110.54
Central intensity(cd): 4278.375
Maximum intensity(cd): 4278.375
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=24.0
[C90/270]Total=24.0
Field angle(10%Imax): [C0/180]Total=44.0
[C90/270]Total=44.0
Maximum s/h(1/2): C0_180=0.41 C90_270=0.41
Maximum s/h(1/4): C0_180=0.39 C90_270=0.39
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.96%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 89.261%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4278.375	1.024	1.024	.068%	.083%
1.0	4263.891	8.160	9.184	.546%	.741%
2.0	4213.477	16.125	25.309	1.079%	2.042%
3.0	4127.344	23.688	48.997	1.584%	3.953%
4.0	4022.086	30.767	79.764	2.058%	6.436%
5.0	3884.695	37.128	116.893	2.483%	9.432%
6.0	3726.211	42.712	159.605	2.857%	12.878%
7.0	3519.422	47.035	206.64	3.146%	16.673%
8.0	3289.008	50.196	256.836	3.358%	20.724%
9.0	3024.352	51.882	308.718	3.470%	24.910%
10.0	2734.102	52.064	360.782	3.483%	29.111%
11.0	2433.375	50.917	411.698	3.406%	33.219%
12.0	2134.688	48.670	460.369	3.256%	37.146%
13.0	1829.039	45.119	505.488	3.018%	40.787%
14.0	1503.534	39.888	545.376	2.668%	44.005%
15.0	1273.296	36.139	581.515	2.417%	46.921%
16.0	1057.240	31.957	613.472	2.138%	49.500%
17.0	890.831	28.562	642.033	1.910%	51.805%
18.0	742.669	25.167	667.2	1.683%	53.835%
19.0	637.235	22.751	689.951	1.522%	55.671%
20.0	548.620	20.577	710.528	1.376%	57.331%
21.0	479.946	18.861	729.389	1.262%	58.853%
22.0	428.611	17.607	746.996	1.178%	60.274%
23.0	383.702	16.441	763.437	1.100%	61.600%
24.0	344.222	15.353	778.79	1.027%	62.839%
25.0	311.238	14.424	793.215	.965%	64.003%
26.0	285.089	13.705	806.919	.917%	65.109%
27.0	260.986	12.993	819.913	.869%	66.157%
28.0	242.037	12.461	832.373	.833%	67.163%
29.0	223.699	11.893	844.266	.796%	68.122%
30.0	209.257	11.474	855.74	.767%	69.048%
31.0	196.179	11.080	866.82	.741%	69.942%
32.0	184.163	10.702	877.522	.716%	70.806%
33.0	173.686	10.373	887.895	.694%	71.643%
34.0	164.018	10.058	897.953	.673%	72.454%
35.0	155.419	9.776	907.729	.654%	73.243%
36.0	147.741	9.523	917.252	.637%	74.012%
37.0	141.532	9.340	926.592	.625%	74.765%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	135.253	9.131	935.724	.611%	75.502%
39.0	129.980	8.970	944.694	.600%	76.226%
40.0	125.543	8.849	953.543	.592%	76.940%
41.0	121.352	8.731	962.274	.584%	77.644%
42.0	117.654	8.633	970.907	.577%	78.341%
43.0	114.525	8.565	979.472	.573%	79.032%
44.0	111.853	8.521	987.993	.570%	79.720%
45.0	109.181	8.466	996.459	.566%	80.403%
46.0	106.734	8.420	1004.879	.563%	81.082%
47.0	104.020	8.343	1013.221	.558%	81.755%
48.0	101.341	8.259	1021.48	.552%	82.422%
49.0	98.374	8.142	1029.621	.545%	83.078%
50.0	95.098	7.989	1037.61	.534%	83.723%
51.0	91.955	7.837	1045.447	.524%	84.355%
52.0	88.734	7.668	1053.115	.513%	84.974%
53.0	85.177	7.460	1060.574	.499%	85.576%
54.0	81.689	7.247	1067.822	.485%	86.161%
55.0	78.511	7.053	1074.874	.472%	86.730%
56.0	75.122	6.830	1081.704	.457%	87.281%
57.0	72.162	6.637	1088.34	.444%	87.816%
58.0	69.300	6.445	1094.785	.431%	88.336%
59.0	66.607	6.261	1101.046	.419%	88.842%
60.0	63.900	6.069	1107.114	.406%	89.331%
61.0	61.573	5.906	1113.02	.395%	89.808%
62.0	59.491	5.760	1118.78	.385%	90.273%
63.0	57.621	5.630	1124.41	.377%	90.727%
64.0	55.751	5.495	1129.905	.368%	91.170%
65.0	53.627	5.330	1135.235	.357%	91.600%
66.0	51.877	5.197	1140.432	.348%	92.020%
67.0	50.302	5.078	1145.51	.340%	92.429%
68.0	48.825	4.964	1150.474	.332%	92.830%
69.0	47.222	4.834	1155.308	.323%	93.220%
70.0	45.717	4.711	1160.02	.315%	93.600%
71.0	44.135	4.576	1164.596	.306%	93.969%
72.0	42.687	4.452	1169.048	.298%	94.329%
73.0	41.372	4.339	1173.386	.290%	94.679%
74.0	40.085	4.225	1177.612	.283%	95.020%
75.0	39.009	4.132	1181.744	.276%	95.353%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	38.580	4.105	1185.849	.275%	95.684%
77.0	38.707	4.136	1189.985	.277%	96.018%
78.0	38.841	4.166	1194.151	.279%	96.354%
79.0	38.981	4.196	1198.347	.281%	96.693%
80.0	39.080	4.220	1202.568	.282%	97.033%
81.0	39.016	4.226	1206.794	.283%	97.374%
82.0	38.925	4.227	1211.021	.283%	97.715%
83.0	38.595	4.201	1215.221	.281%	98.054%
84.0	37.948	4.139	1219.36	.277%	98.388%
85.0	36.921	4.033	1223.393	.270%	98.714%
86.0	35.508	3.884	1227.278	.260%	99.027%
87.0	33.947	3.718	1230.995	.249%	99.327%
88.0	32.646	3.578	1234.573	.239%	99.616%
89.0	29.876	3.276	1237.849	.219%	99.880%
90.0	27.127	1.487	1239.336	.099%	100.000%

Zonal flux distribution table

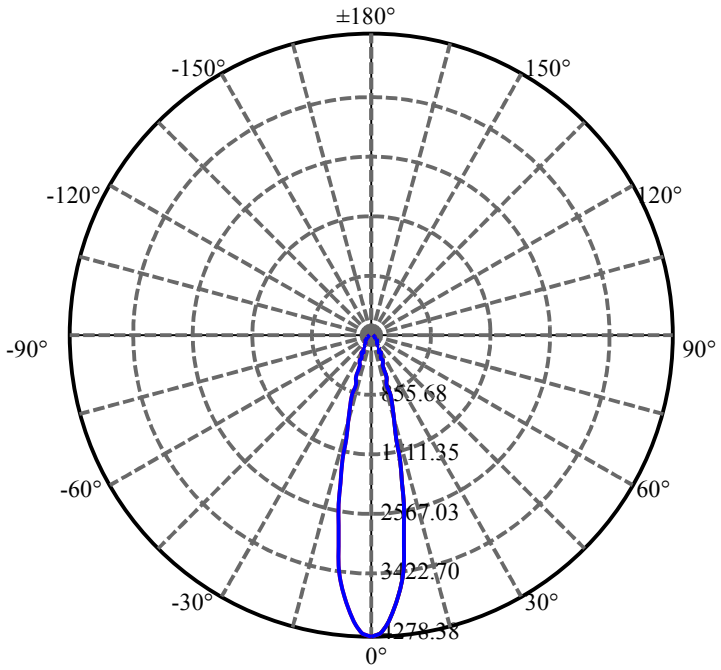
ZONAL LUMEN SUMMARY

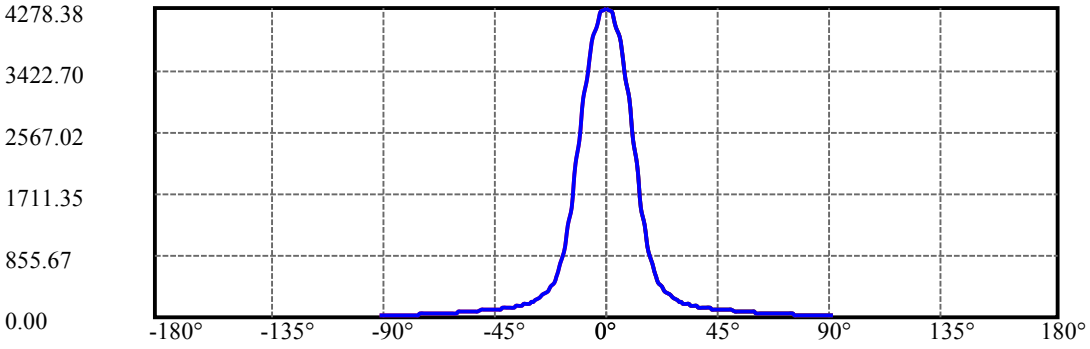
Zone	Lumens	%Lamp	%Fixt
0-30	855.74	57.24%	69.05%
0-40	953.54	63.78%	76.94%
0-60	1107.11	74.05%	89.33%
0-90	1237.85	82.80%	99.88%
0-120	1237.85	82.80%	99.88%
0-180	1239.34	82.90%	100.00%
60-90	136.80	9.15%	11.04%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-44.41	991.47	66.32%	80.00%

ZONAL LUMEN SUMMARY

0-10	360.78
10-20	349.75
20-30	145.21
30-40	97.80
40-50	84.07
50-60	69.50
60-70	52.91
70-80	42.55
80-90	35.28
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):

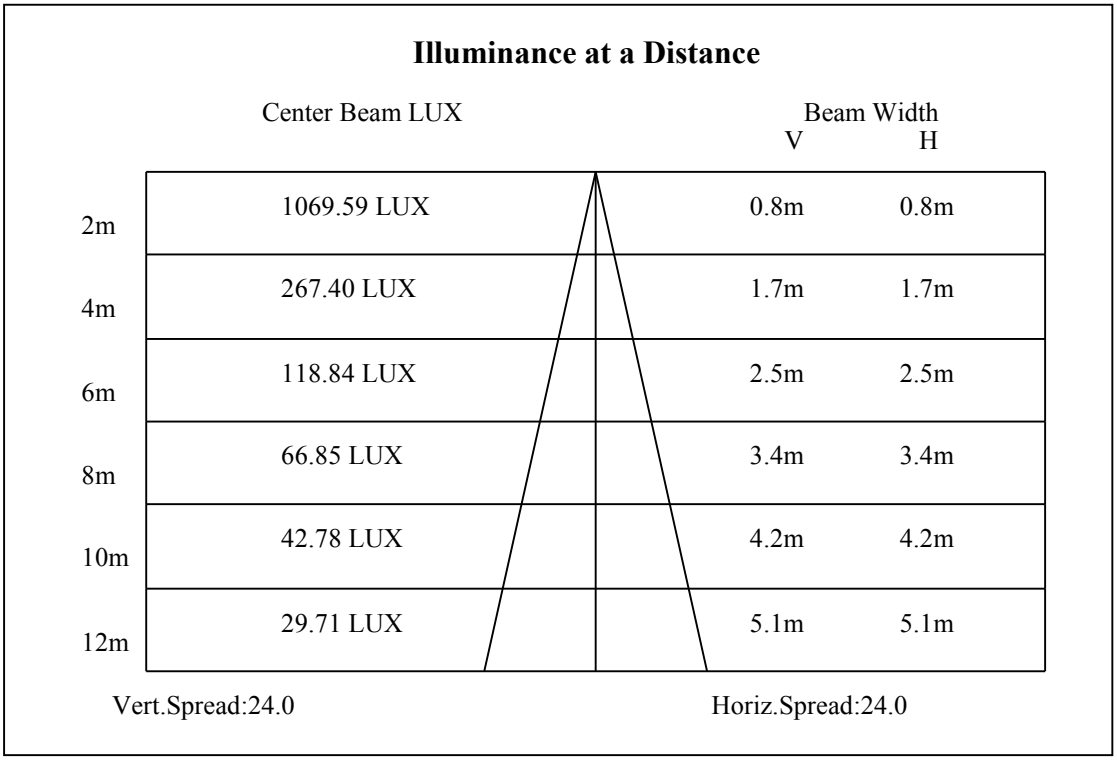
C0/C180:

C90/C270:

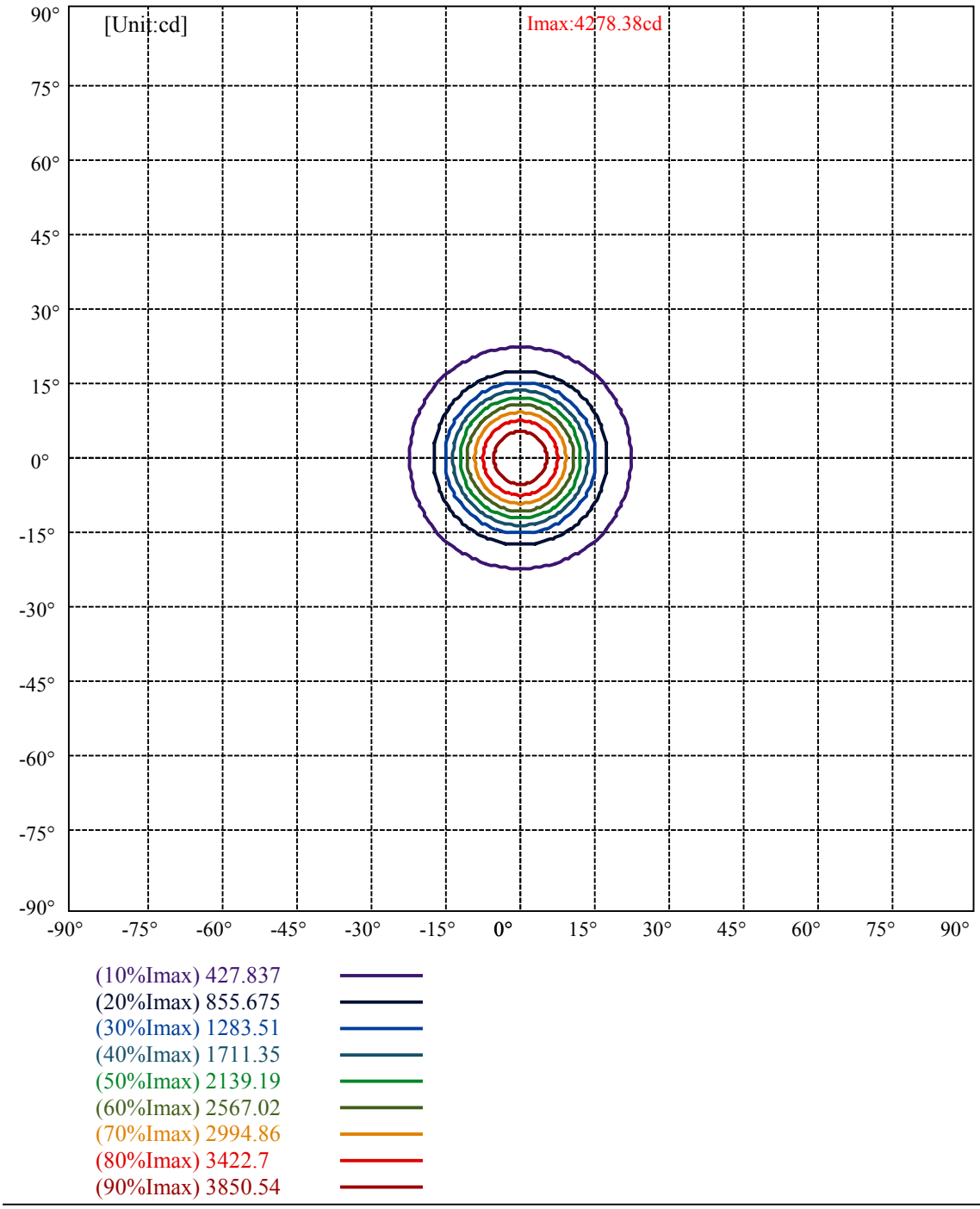
Field angle(10%Imax):C0/180Left:22.0 Right:22.0
:C90/270Left:22.0 Right:22.0

Beam Angle(50%Imax):C0/180Left:12.0 Right:12.0
:C90/270Left:12.0 Right:12.0

Lux distance Curve



ISO-Intensity(V-H)

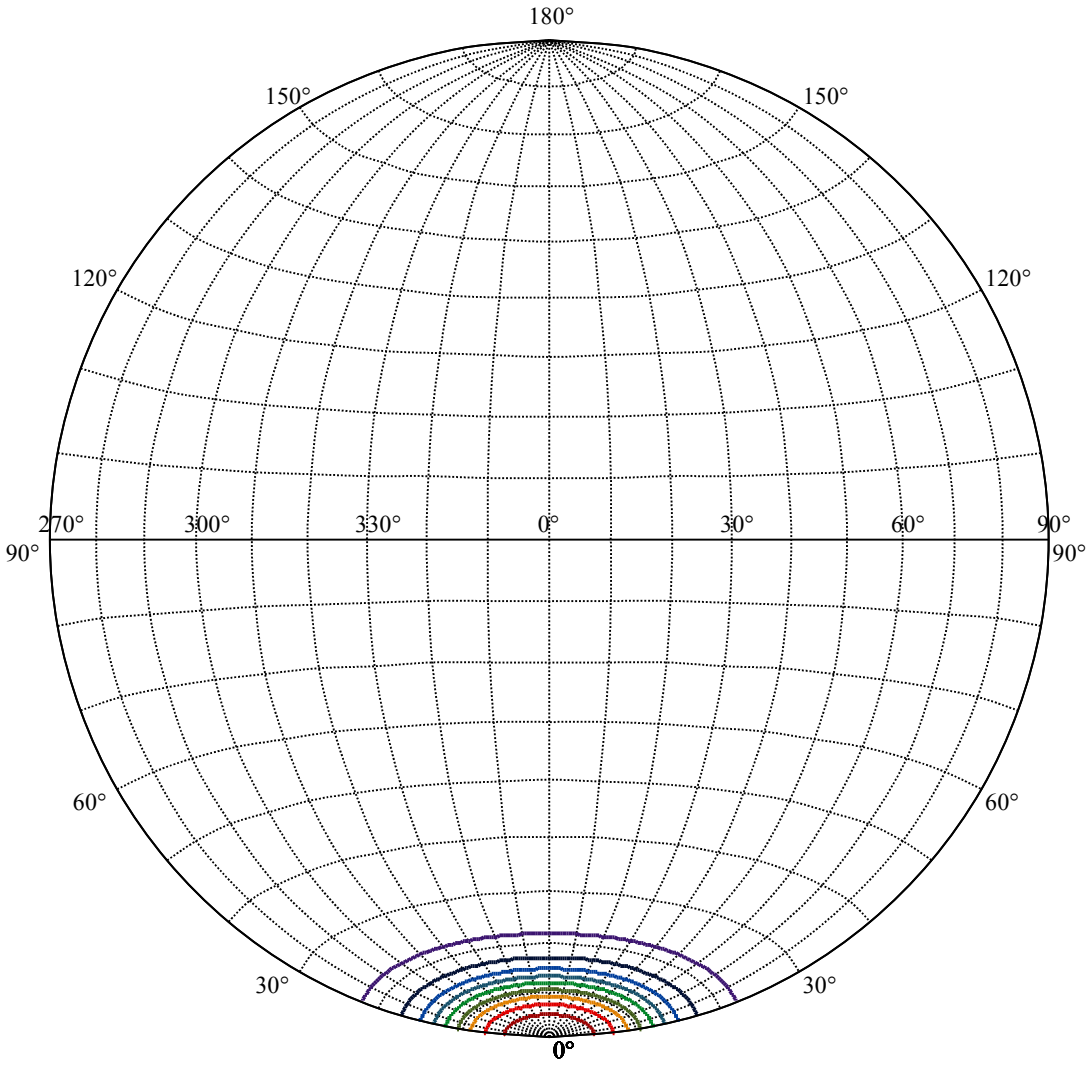


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:4278.38

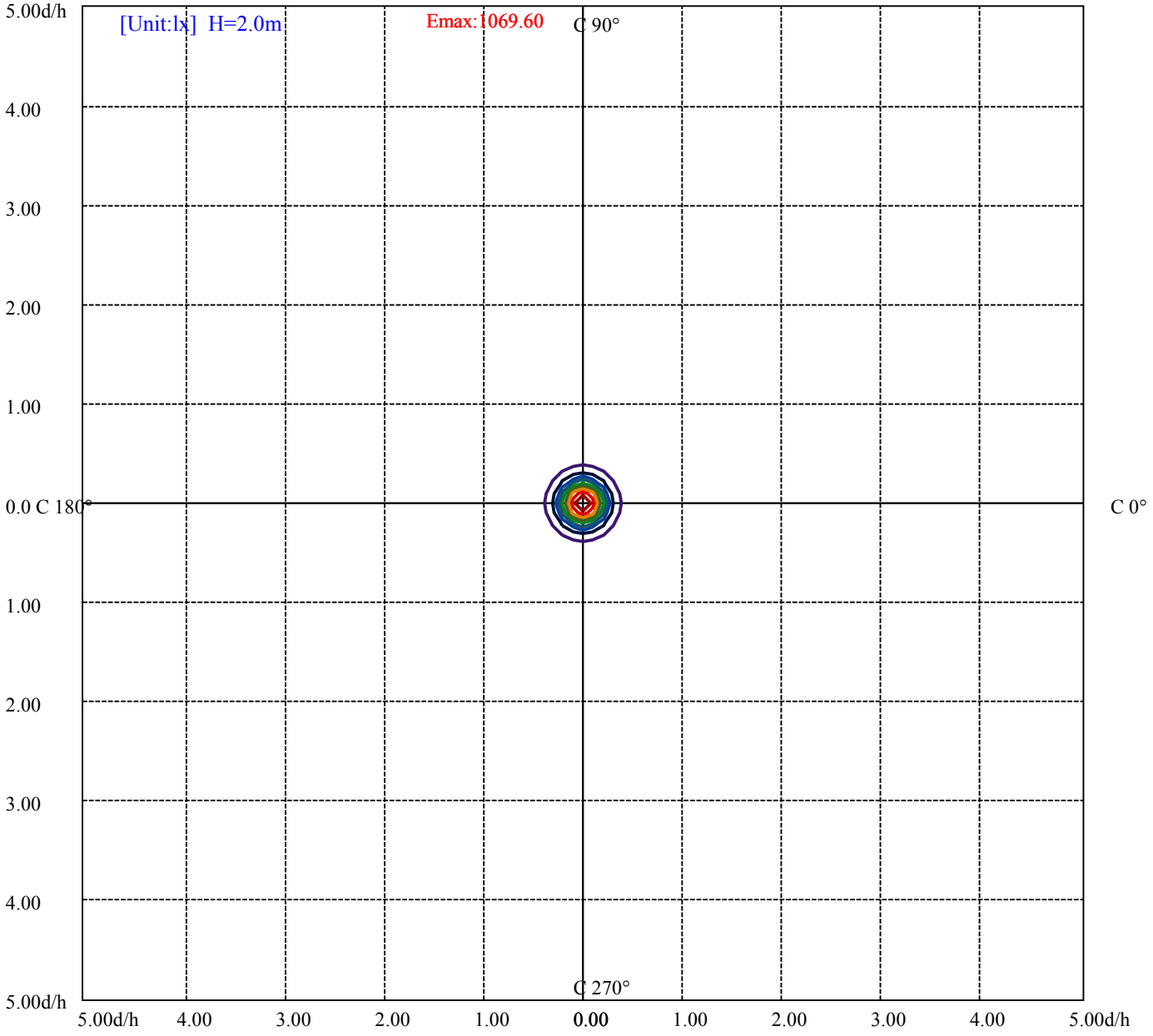
(10%Imax) 427.837
(20%Imax) 855.675
(30%Imax) 1283.51
(40%Imax) 1711.35
(50%Imax) 2139.19
(60%Imax) 2567.02
(70%Imax) 2994.86
(80%Imax) 3422.7
(90%Imax) 3850.54

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

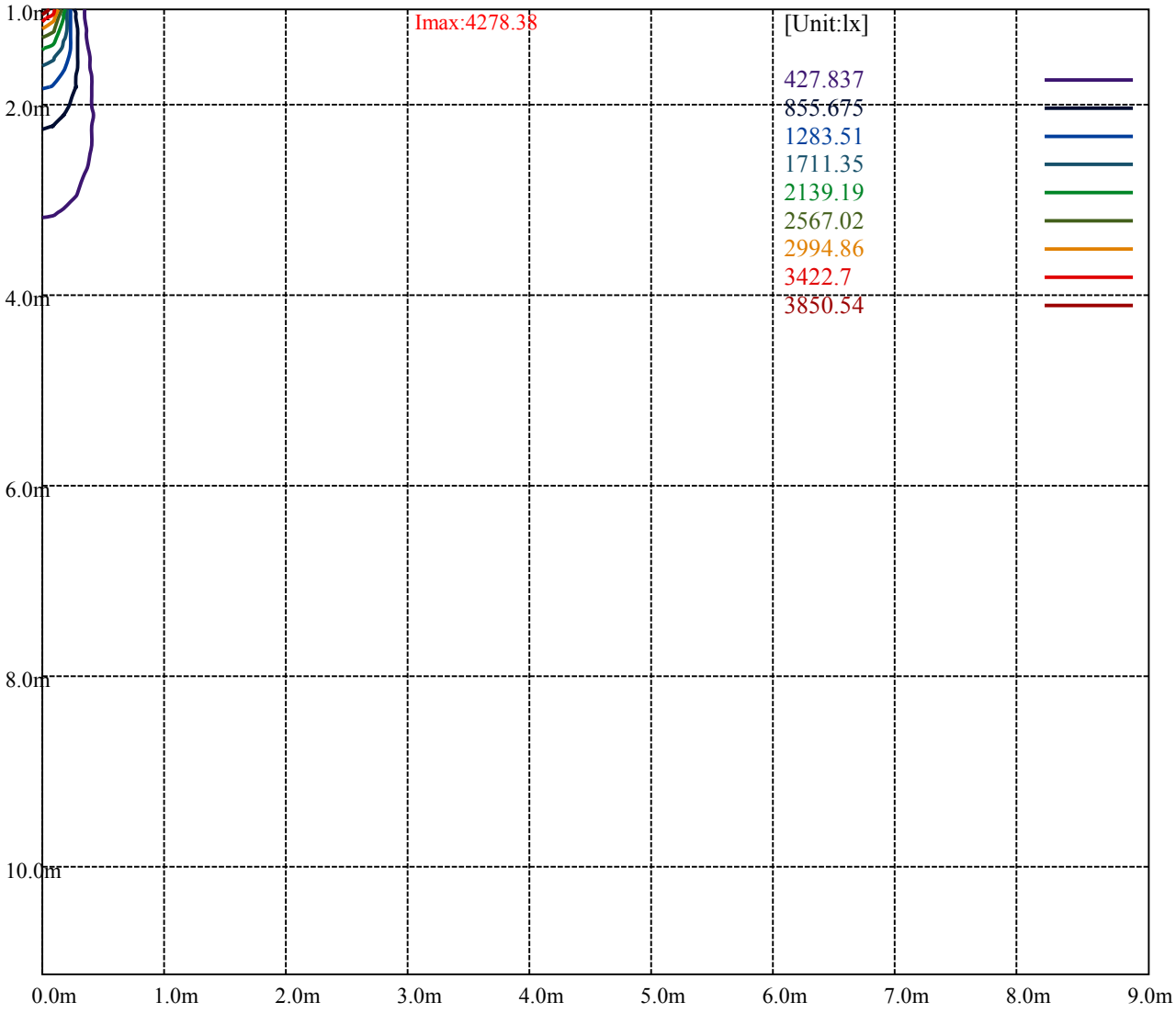
ISO illuminance diagram



(10%Emax) 106.9593
(20%Emax) 213.9187
(30%Emax) 320.8775
(40%Emax) 427.8375
(50%Emax) 534.7975
(60%Emax) 641.755
(70%Emax) 748.715
(80%Emax) 855.675
(90%Emax) 962.635

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2018/12/30
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

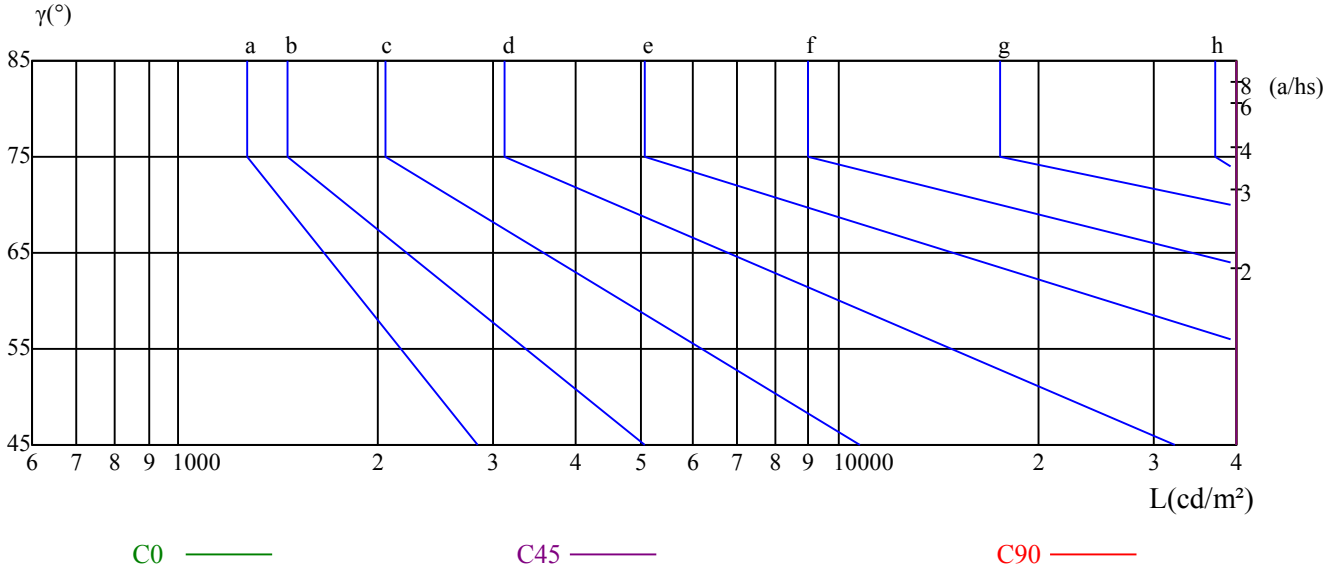
γ	45	50	55	60	65	70	75	80	85
C0	119140	114156	105617	98611	97911	103139	116297	173650	326869
C45	119140	114156	105617	98611	97911	103139	116297	173650	326869
C90	119140	114156	105617	98611	97911	103139	116297	173650	326869

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
97911	97911	97911	116297	116297	116297	326869	326869	326869

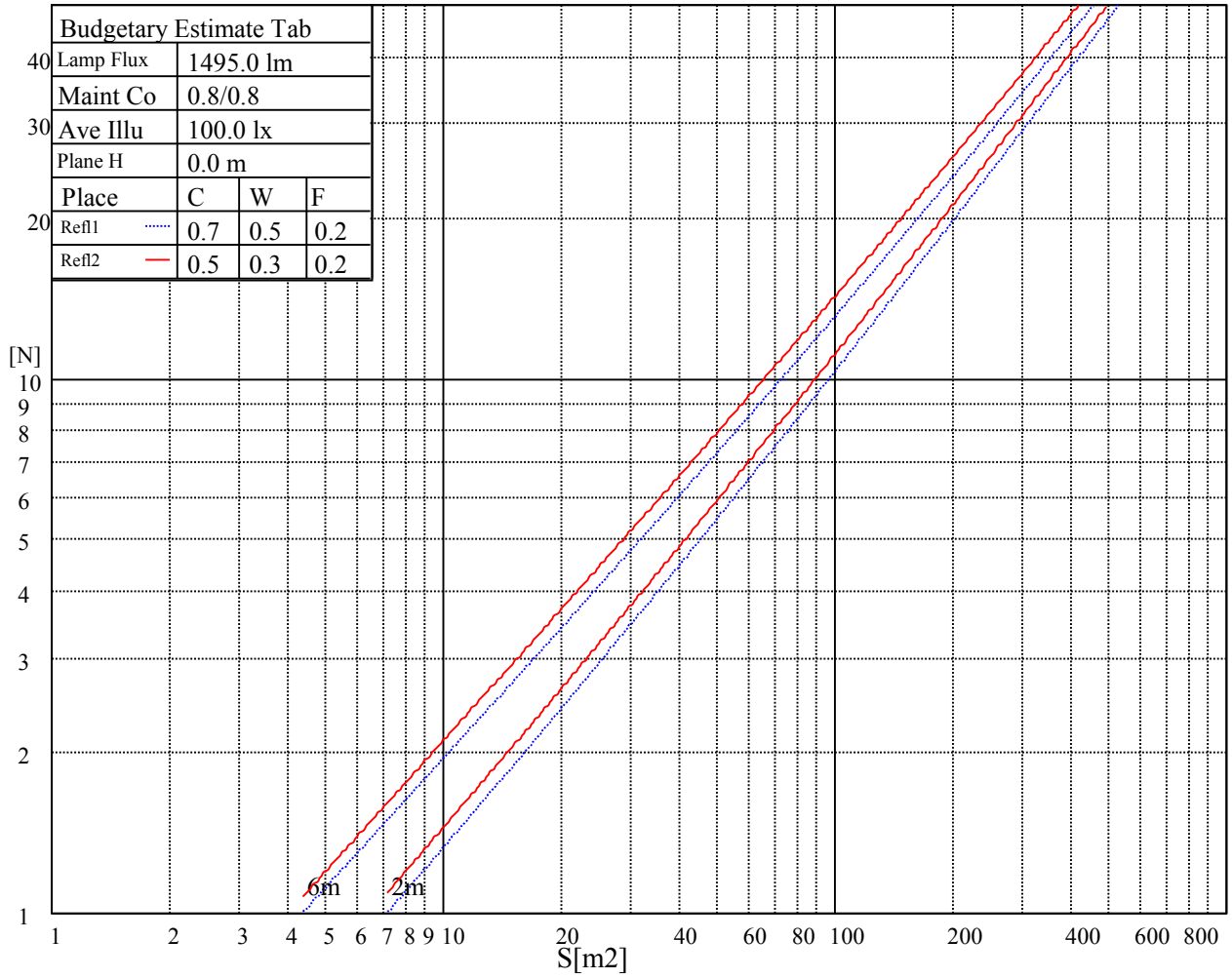
Glare Table

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

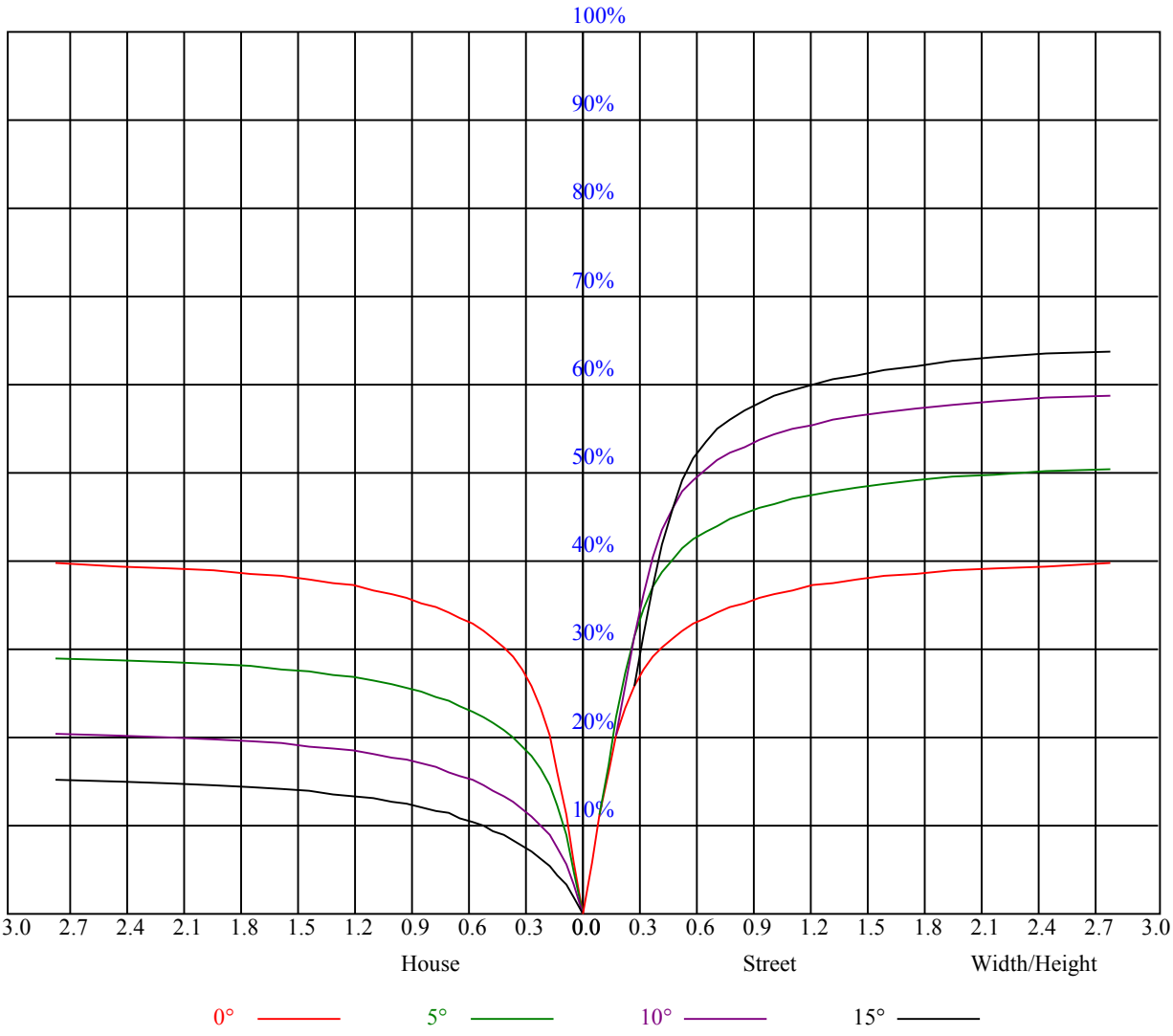


Equipment: GMS1980 Date: 2018/12/30 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.99	0.99	0.99	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85	0.83
1	0.90	0.87	0.85	0.88	0.86	0.84	0.85	0.83	0.81	0.81	0.80	0.78	0.79	0.77	0.76	0.75
2	0.83	0.79	0.76	0.82	0.78	0.75	0.79	0.76	0.73	0.76	0.74	0.72	0.74	0.72	0.70	0.69
3	0.78	0.73	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.72	0.69	0.67	0.70	0.68	0.66	0.64
4	0.73	0.68	0.64	0.72	0.67	0.64	0.70	0.66	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.60
5	0.69	0.64	0.60	0.68	0.64	0.60	0.67	0.63	0.60	0.65	0.62	0.59	0.64	0.61	0.59	0.57
6	0.66	0.61	0.57	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.56	0.61	0.58	0.56	0.55
7	0.63	0.58	0.54	0.62	0.58	0.54	0.61	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.53	0.52
8	0.60	0.55	0.52	0.60	0.55	0.52	0.59	0.55	0.52	0.58	0.54	0.52	0.57	0.54	0.51	0.50
9	0.58	0.53	0.50	0.57	0.53	0.50	0.57	0.53	0.50	0.56	0.52	0.50	0.55	0.52	0.50	0.49
10	0.56	0.51	0.48	0.55	0.51	0.48	0.55	0.51	0.48	0.54	0.51	0.48	0.54	0.50	0.48	0.47

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2018/12/30	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	4276.69	4287.94	4290.75	4251.38	4159.69	4057.31	3934.69	3758.63	3576.94
45.0	4273.88	4285.69	4272.75	4219.88	4138.31	4014.56	3890.25	3726.56	3501.00
90.0	4284.56	4260.94	4189.50	4088.25	3988.13	3863.25	3675.94	3449.25	3226.50
135.0	4278.38	4254.75	4182.19	4086.00	3961.13	3813.75	3652.88	3427.88	3202.88
180.0	4276.69	4228.88	4132.69	3990.38	3859.88	3693.94	3465.56	3204.56	2951.44
225.0	4273.88	4237.88	4131.56	4015.69	3894.19	3704.06	3538.13	3291.19	2979.00
270.0	4284.56	4277.25	4243.50	4177.13	4079.81	3936.94	3797.44	3627.56	3404.25
315.0	4278.38	4277.81	4264.88	4190.06	4095.56	3993.75	3854.81	3669.75	3470.06
360.0	4276.69	4287.94	4290.75	4251.38	4159.69	4057.31	3934.69	3758.63	3576.94

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3335.63	3071.81	2805.19	2517.75	2149.31	1856.81	1585.69	1279.69	1076.06
45.0	3246.19	2985.19	2672.44	2375.44	2043.56	1727.44	1469.25	1214.44	999.00
90.0	2943.56	2644.88	2361.38	2044.13	1768.50	1482.75	1121.91	1030.89	871.20
135.0	2922.19	2614.50	2319.19	2028.38	1679.06	1426.50	1200.94	973.69	827.44
180.0	2646.00	2319.19	2036.25	1734.19	1482.19	1106.94	1017.51	863.94	737.38
225.0	2745.56	2418.19	2047.50	1789.31	1517.63	1109.64	1014.02	846.28	711.28
270.0	3144.94	2890.69	2581.31	2285.44	1990.13	1638.56	1384.88	1136.25	929.81
315.0	3210.75	2928.38	2643.75	2302.88	2001.94	1679.63	1392.19	1112.74	974.48
360.0	3335.63	3071.81	2805.19	2517.75	2149.31	1856.81	1585.69	1279.69	1076.06

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	906.75	759.38	646.31	569.81	500.06	445.50	403.31	363.38	333.00
45.0	838.69	712.13	595.13	522.00	460.69	403.31	359.44	327.38	295.88
90.0	713.70	616.84	541.07	466.82	419.01	380.48	343.58	310.16	283.84
135.0	707.63	602.44	527.63	474.19	421.88	380.81	339.75	303.75	285.75
180.0	611.21	532.07	469.63	408.04	369.23	336.60	308.25	277.31	256.56
225.0	582.30	504.51	444.09	385.43	346.22	313.76	284.96	258.24	238.78
270.0	788.63	689.06	568.13	498.38	448.88	391.50	348.75	318.38	285.19
315.0	792.45	681.47	596.98	514.91	462.94	417.66	365.74	331.31	301.73
360.0	906.75	759.38	646.31	569.81	500.06	445.50	403.31	363.38	333.00

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	303.19	284.63	254.81	237.66	219.43	206.55	196.20	183.54	174.43
45.0	284.06	248.34	228.43	213.69	198.00	186.86	176.74	166.44	157.16
90.0	259.09	240.75	223.82	209.08	197.94	185.74	174.26	165.09	156.32
135.0	255.49	243.17	225.00	211.33	197.38	182.81	171.06	161.10	150.47
180.0	238.44	220.84	206.21	194.85	183.71	173.14	164.87	156.54	149.68
225.0	220.05	205.54	192.54	181.01	172.18	163.35	155.25	148.50	142.59
270.0	255.94	236.81	218.76	205.03	191.93	180.79	171.34	161.27	152.27
315.0	271.63	256.22	240.02	221.40	208.86	194.06	179.78	169.65	160.43
360.0	303.19	284.63	254.81	237.66	219.43	206.55	196.20	183.54	174.43

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	166.11	158.12	149.40	143.16	137.70	132.08	127.01	122.85	118.91
45.0	150.41	143.44	136.07	130.73	126.00	121.16	116.94	114.02	111.38
90.0	147.49	141.02	135.68	129.77	125.61	122.18	119.14	116.27	114.19
135.0	144.56	138.99	132.41	128.14	124.09	120.32	117.51	115.43	112.95
180.0	142.65	136.69	131.96	127.29	122.96	119.25	115.93	112.56	110.36
225.0	135.79	131.06	126.68	121.95	118.52	115.43	112.73	110.53	108.51
270.0	145.01	138.49	131.12	126.11	121.73	116.94	112.89	109.52	106.37
315.0	149.91	144.45	138.71	132.69	127.74	123.47	119.08	115.03	112.16
360.0	166.11	158.12	149.40	143.16	137.70	132.08	127.01	122.85	118.91

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	115.54	112.89	109.86	106.88	103.44	99.90	96.69	93.99	89.61
45.0	108.96	106.93	104.51	102.09	99.17	96.19	93.32	90.28	86.51
90.0	111.38	108.51	105.30	101.93	98.72	95.29	91.63	88.20	84.99
135.0	110.48	108.00	105.08	102.21	98.83	95.18	92.03	88.31	84.21
180.0	108.23	106.03	103.89	101.93	99.34	96.24	93.38	89.72	86.46
225.0	106.14	104.06	101.42	98.55	95.79	92.48	89.10	85.95	82.86
270.0	103.67	100.86	98.38	96.19	93.43	90.45	87.69	84.71	81.23
315.0	109.07	106.59	103.73	100.97	98.27	95.06	91.80	88.71	85.56
360.0	115.54	112.89	109.86	106.88	103.44	99.90	96.69	93.99	89.61

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	86.40	83.70	79.43	76.44	73.91	70.48	67.73	65.53	62.72
45.0	83.48	80.27	76.50	73.46	70.54	67.95	64.97	62.66	60.41
90.0	80.83	77.63	74.53	71.27	68.51	66.09	63.11	61.03	59.18
135.0	81.00	77.57	73.86	70.82	68.29	65.36	62.66	60.41	58.28
180.0	82.80	79.09	76.11	73.29	69.98	67.39	65.08	62.66	60.92
225.0	79.20	76.22	73.35	70.43	67.61	65.19	62.44	60.41	58.67
270.0	78.30	75.26	71.83	69.08	66.49	63.79	61.03	58.67	56.59
315.0	81.51	78.36	75.38	72.51	69.08	66.60	64.18	61.20	59.18
360.0	86.40	83.70	79.43	76.44	73.91	70.48	67.73	65.53	62.72

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	60.81	59.01	56.87	55.01	53.21	51.13	49.89	49.11	46.97
45.0	58.16	56.42	54.34	52.54	50.51	48.99	47.53	46.46	44.55
90.0	57.38	55.80	53.66	51.53	50.18	49.22	47.59	46.01	44.55
135.0	56.76	54.90	52.88	51.19	49.56	48.26	46.35	44.61	42.98
180.0	59.01	56.70	54.73	53.44	52.54	50.85	49.05	47.48	46.35
225.0	56.53	54.56	52.26	50.51	49.56	48.09	45.79	44.49	43.26
270.0	54.84	52.93	50.79	48.99	47.14	45.79	44.61	42.92	41.29
315.0	57.49	55.69	53.49	51.81	49.73	48.26	46.97	44.66	43.14
360.0	60.81	59.01	56.87	55.01	53.21	51.13	49.89	49.11	46.97

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	45.62	44.61	43.43	42.19	41.06	40.33	40.28	40.61	40.50
45.0	43.14	41.91	40.33	38.98	37.86	36.96	36.73	36.68	36.45
90.0	42.58	41.29	40.22	38.70	37.74	37.74	38.14	37.80	37.41
135.0	41.79	40.50	39.43	39.49	40.61	42.81	44.78	45.96	47.36
180.0	44.83	43.20	41.96	41.23	41.01	41.12	40.22	39.38	38.87
225.0	41.68	40.33	38.93	38.19	37.97	37.74	36.62	36.00	35.83
270.0	40.16	38.87	37.52	36.17	35.55	35.33	35.21	35.04	34.71
315.0	41.68	40.28	38.87	37.13	36.84	37.63	38.76	40.39	41.51
360.0	45.62	44.61	43.43	42.19	41.06	40.33	40.28	40.61	40.50

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	39.04	37.80	36.73	35.61	34.59	33.53	32.79	32.40	31.67
45.0	35.55	35.44	35.44	34.88	34.37	33.86	33.58	32.68	31.16
90.0	37.91	38.19	37.97	37.07	36.28	35.78	33.92	31.78	27.06
135.0	49.11	50.12	50.79	50.18	47.53	43.71	39.60	35.83	29.81
180.0	37.97	36.90	35.72	34.99	34.76	34.65	33.75	32.74	28.13
225.0	35.38	34.88	34.37	33.86	33.36	32.96	32.57	32.06	29.48
270.0	34.88	34.88	34.65	34.03	33.13	32.12	31.28	30.88	30.04
315.0	42.30	43.20	43.09	42.98	41.34	37.46	34.09	32.79	31.67
360.0	39.04	37.80	36.73	35.61	34.59	33.53	32.79	32.40	31.67

Intensity data(cd)

C/γ(°)	90.0
0.0	30.09
45.0	27.45
90.0	24.47
135.0	25.71
180.0	25.20
225.0	25.31
270.0	28.69
315.0	30.09
360.0	30.09