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

NATA

LumCAT: 1-0870-A
Luminaire: 92.70.043.00
Report No:
Test No: GC2018120601
LampCAT: CITIZEN CLU7A2
Lamp flux(lm): 612.0
Number of Lamps: 1
Length(mm): 35
Phm Type: C

Voltage(V): 36.3000
Current(A): 0.1500
Power (W): 5.4450
PF: 0.0000
Ballast type: DC
Width(mm): 35
Height(mm): 0

Photometric Results

Lumens(lm): 549.88
Efficiency(%): 89.85%
Lumens(lm)/Power(W): 100.99
Central intensity(cd): 6646.219
Maximum intensity(cd): 6646.219
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=11.0
[C90/270]Total=11.0
Field angle(10%Imax): [C0/180]Total=21.9
[C90/270]Total=21.9
Maximum s/h(1/2): C0_180=0.19 C90_270=0.19
Maximum s/h(1/4): C0_180=0.19 C90_270=0.19
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.85%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.372%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6646.219	0.000	0	.000%	.000%
1.0	6527.109	6.303	6.303	1.030%	1.146%
2.0	6161.063	18.211	24.514	2.976%	4.458%
3.0	5492.391	27.871	52.386	4.554%	9.527%
4.0	4668.609	34.012	86.398	5.558%	15.712%
5.0	3785.484	36.369	122.767	5.943%	22.326%
6.0	2884.711	35.054	157.821	5.728%	28.701%
7.0	2115.816	31.038	188.859	5.072%	34.345%
8.0	1557.654	26.290	215.149	4.296%	39.126%
9.0	1115.128	21.661	236.81	3.539%	43.066%
10.0	835.214	17.650	254.46	2.884%	46.275%
11.0	657.211	14.912	269.373	2.437%	48.987%
12.0	530.838	12.987	282.36	2.122%	51.349%
13.0	438.588	11.505	293.864	1.880%	53.441%
14.0	388.596	10.588	304.452	1.730%	55.367%
15.0	353.813	10.192	314.644	1.665%	57.220%
16.0	326.777	9.973	324.617	1.630%	59.034%
17.0	309.403	9.907	334.524	1.619%	60.835%
18.0	295.798	9.978	344.503	1.630%	62.650%
19.0	283.514	10.079	354.581	1.647%	64.483%
20.0	274.366	10.211	364.792	1.668%	66.340%
21.0	264.530	10.348	375.14	1.691%	68.222%
22.0	255.347	10.447	385.587	1.707%	70.122%
23.0	248.344	10.569	396.156	1.727%	72.044%
24.0	241.516	10.710	406.866	1.750%	73.991%
25.0	235.695	10.851	417.717	1.773%	75.965%
26.0	231.272	11.023	428.74	1.801%	77.969%
27.0	226.322	11.195	439.935	1.829%	80.005%
28.0	220.521	11.313	451.248	1.849%	82.062%
29.0	214.699	11.387	462.634	1.861%	84.133%
30.0	206.677	11.377	474.011	1.859%	86.202%
31.0	192.136	11.098	485.11	1.813%	88.220%
32.0	173.468	10.474	495.584	1.711%	90.125%
33.0	152.627	9.607	505.191	1.570%	91.872%
34.0	122.140	8.315	513.506	1.359%	93.385%
35.0	93.473	6.696	520.202	1.094%	94.602%
36.0	66.642	5.098	525.3	.833%	95.529%
37.0	41.899	3.540	528.84	.578%	96.173%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	24.377	2.212	531.053	.361%	96.575%
39.0	14.238	1.318	532.371	.215%	96.815%
40.0	8.107	0.779	533.15	.127%	96.957%
41.0	6.082	0.505	533.655	.083%	97.049%
42.0	5.161	0.408	534.064	.067%	97.123%
43.0	4.697	0.365	534.429	.060%	97.189%
44.0	4.500	0.347	534.776	.057%	97.253%
45.0	4.416	0.343	535.119	.056%	97.315%
46.0	4.409	0.345	535.464	.056%	97.378%
47.0	4.380	0.350	535.813	.057%	97.441%
48.0	4.345	0.353	536.166	.058%	97.505%
49.0	4.254	0.353	536.519	.058%	97.570%
50.0	4.212	0.353	536.872	.058%	97.634%
51.0	4.184	0.355	537.227	.058%	97.698%
52.0	4.226	0.361	537.588	.059%	97.764%
53.0	4.317	0.372	537.96	.061%	97.832%
54.0	4.437	0.386	538.346	.063%	97.902%
55.0	4.570	0.402	538.748	.066%	97.975%
56.0	4.725	0.420	539.168	.069%	98.051%
57.0	4.830	0.437	539.605	.071%	98.131%
58.0	4.852	0.448	540.052	.073%	98.212%
59.0	4.704	0.447	540.499	.073%	98.293%
60.0	4.458	0.433	540.932	.071%	98.372%
61.0	4.155	0.411	541.343	.067%	98.447%
62.0	3.952	0.391	541.734	.064%	98.518%
63.0	3.825	0.378	542.112	.062%	98.587%
64.0	3.825	0.375	542.487	.061%	98.655%
65.0	3.818	0.378	542.865	.062%	98.724%
66.0	3.635	0.372	543.237	.061%	98.791%
67.0	3.270	0.347	543.585	.057%	98.854%
68.0	2.904	0.313	543.897	.051%	98.911%
69.0	2.749	0.288	544.186	.047%	98.964%
70.0	2.756	0.283	544.468	.046%	99.015%
71.0	2.834	0.289	544.757	.047%	99.068%
72.0	2.791	0.292	545.05	.048%	99.121%
73.0	2.749	0.290	545.34	.047%	99.174%
74.0	2.735	0.288	545.628	.047%	99.226%
75.0	2.728	0.289	545.917	.047%	99.279%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.714	0.289	546.205	.047%	99.331%
77.0	2.616	0.284	546.49	.046%	99.383%
78.0	2.524	0.275	546.765	.045%	99.433%
79.0	2.496	0.270	547.034	.044%	99.482%
80.0	2.482	0.268	547.303	.044%	99.531%
81.0	2.447	0.267	547.569	.044%	99.579%
82.0	2.419	0.264	547.833	.043%	99.627%
83.0	2.405	0.262	548.095	.043%	99.675%
84.0	2.370	0.260	548.356	.042%	99.722%
85.0	2.363	0.258	548.614	.042%	99.769%
86.0	2.341	0.257	548.871	.042%	99.816%
87.0	2.320	0.255	549.126	.042%	99.862%
88.0	2.320	0.254	549.38	.042%	99.908%
89.0	2.292	0.253	549.633	.041%	99.954%
90.0	2.278	0.251	549.884	.041%	100.000%

Zonal flux distribution table

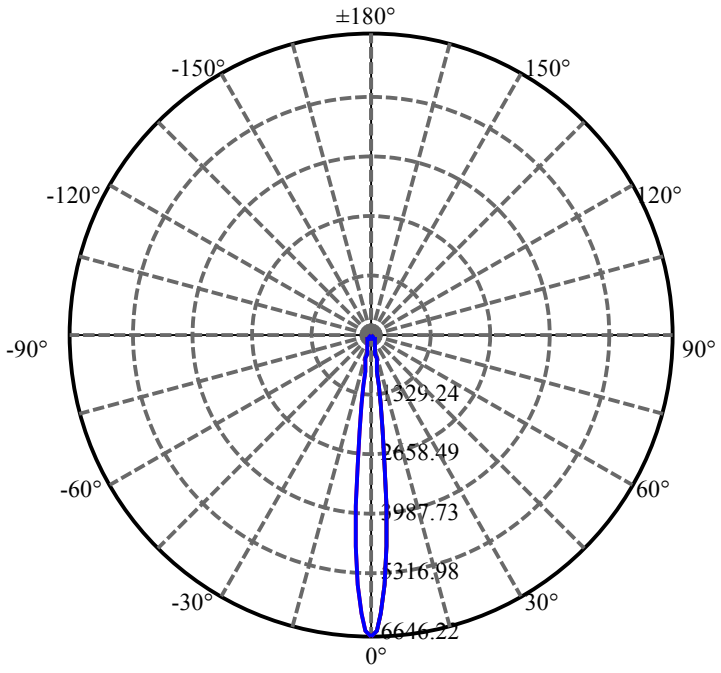
ZONAL LUMEN SUMMARY

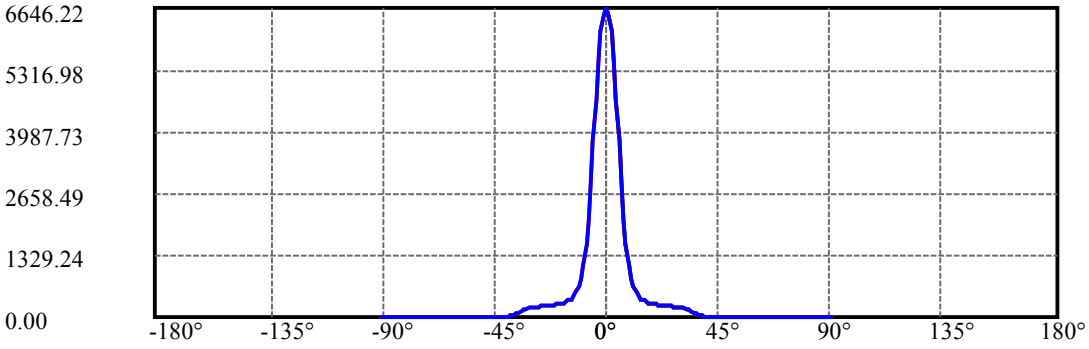
Zone	Lumens	%Lamp	%Fixt
0-30	474.01	77.45%	86.20%
0-40	533.15	87.12%	96.96%
0-60	540.93	88.39%	98.37%
0-90	549.63	89.81%	99.95%
0-120	549.63	89.81%	99.95%
0-180	549.88	89.85%	100.00%
60-90	9.13	1.49%	1.66%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.00	439.91	71.88%	80.00%

ZONAL LUMEN SUMMARY

0-10	254.46
10-20	110.33
20-30	109.22
30-40	59.14
40-50	3.72
50-60	4.06
60-70	3.54
70-80	2.83
80-90	2.33
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:

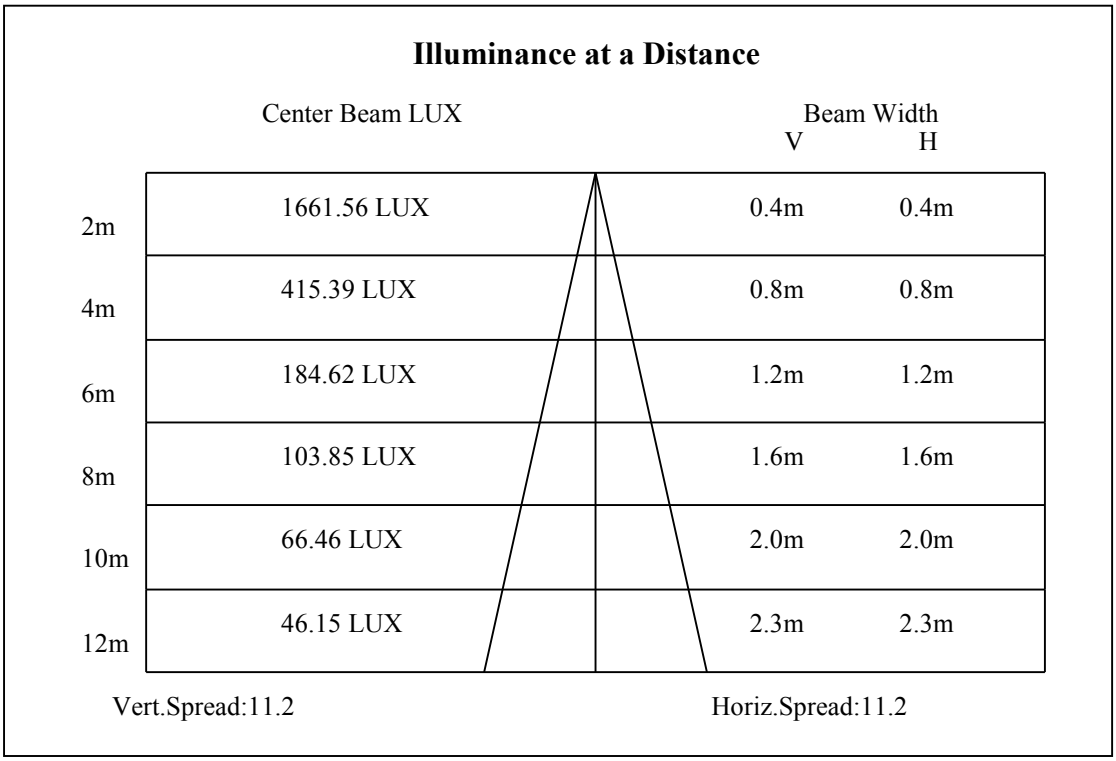
C90/C270:

Field angle(10%Imax):C0/180Left:11.0 Right:11.0
:C90/270Left:11.0 Right:11.0

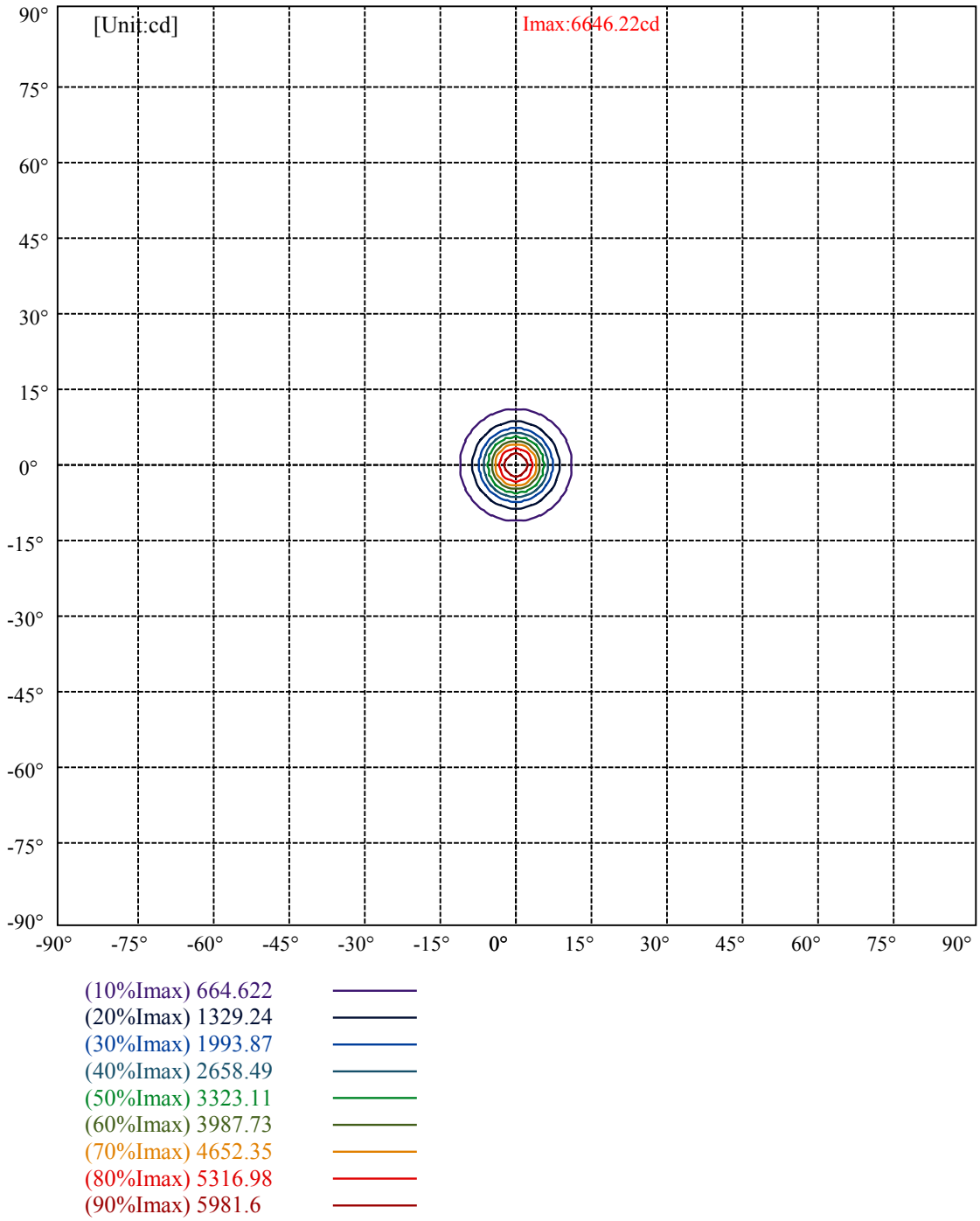
Beam Angle(50%Imax):C0/180Left:5.5 Right:5.5
:C90/270Left:5.5 Right:5.5

Equipment: GMS1980 Date: 2018/12/6 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

Lux distance Curve



ISO-Intensity(V-H)

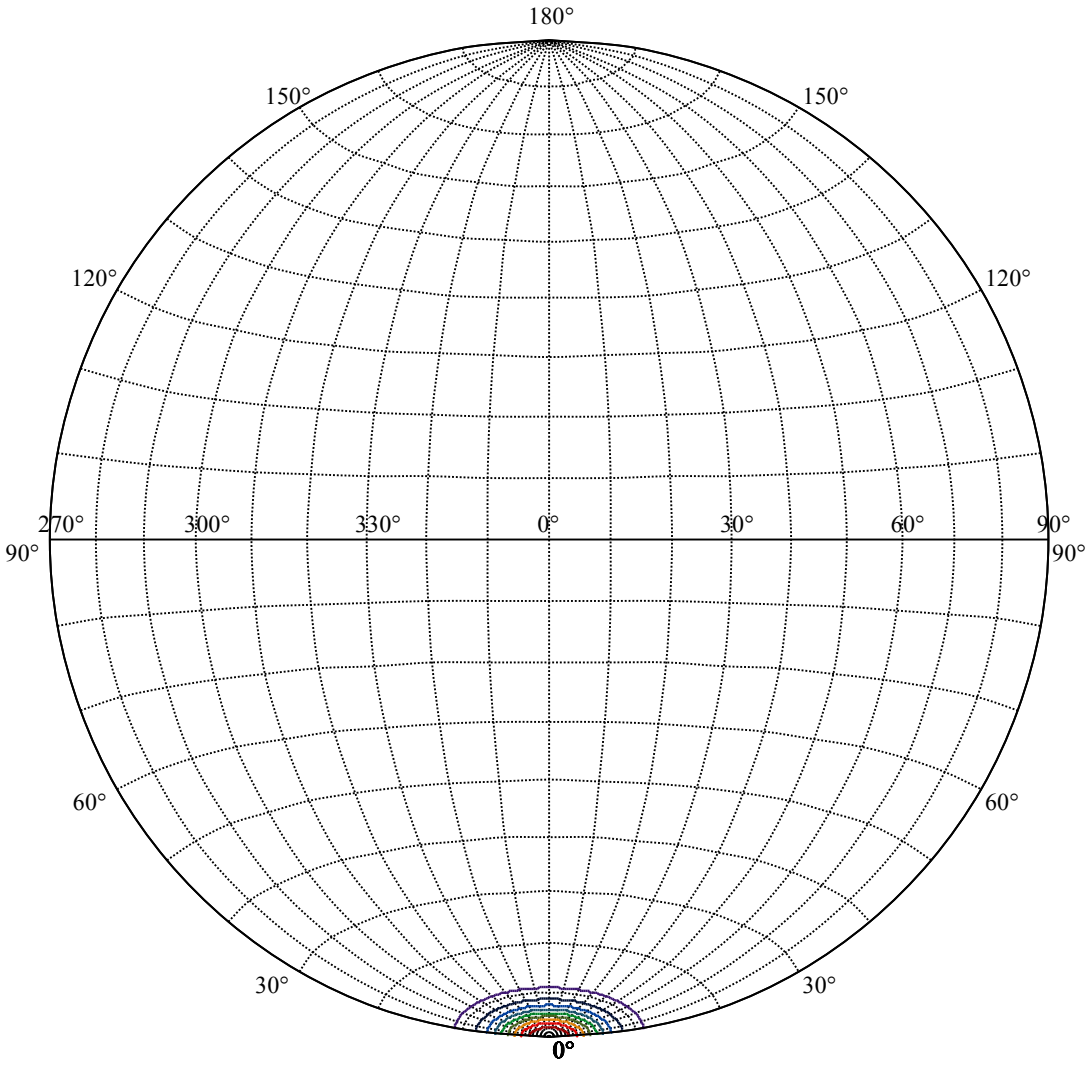


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



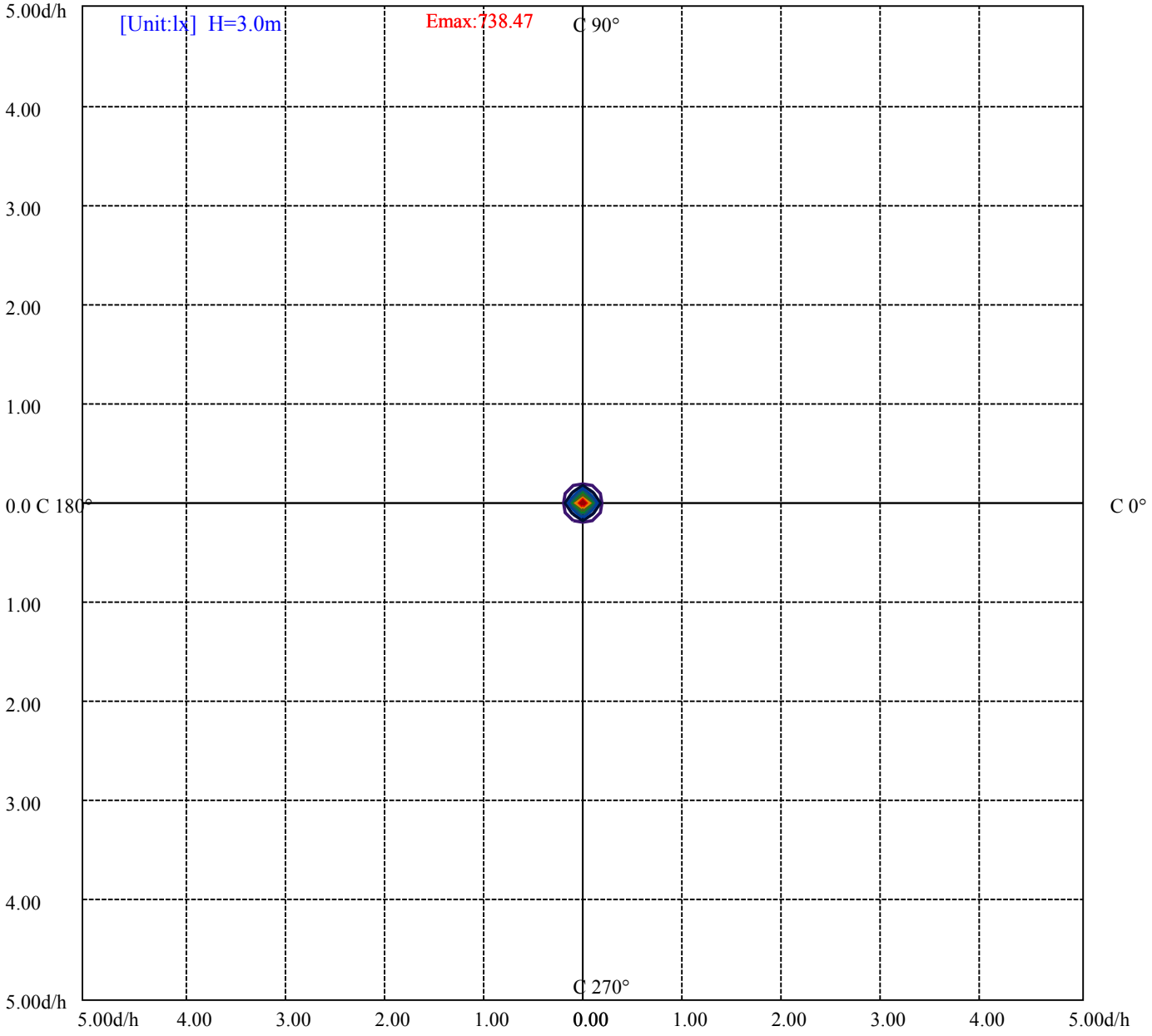
House [Unit:cd] Road

Imax:6646.22

(10%Imax) 664.622
(20%Imax) 1329.24
(30%Imax) 1993.87
(40%Imax) 2658.49
(50%Imax) 3323.11
(60%Imax) 3987.73
(70%Imax) 4652.35
(80%Imax) 5316.98
(90%Imax) 5981.6

Equipment: GMS1980 Date: 2018/12/6 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

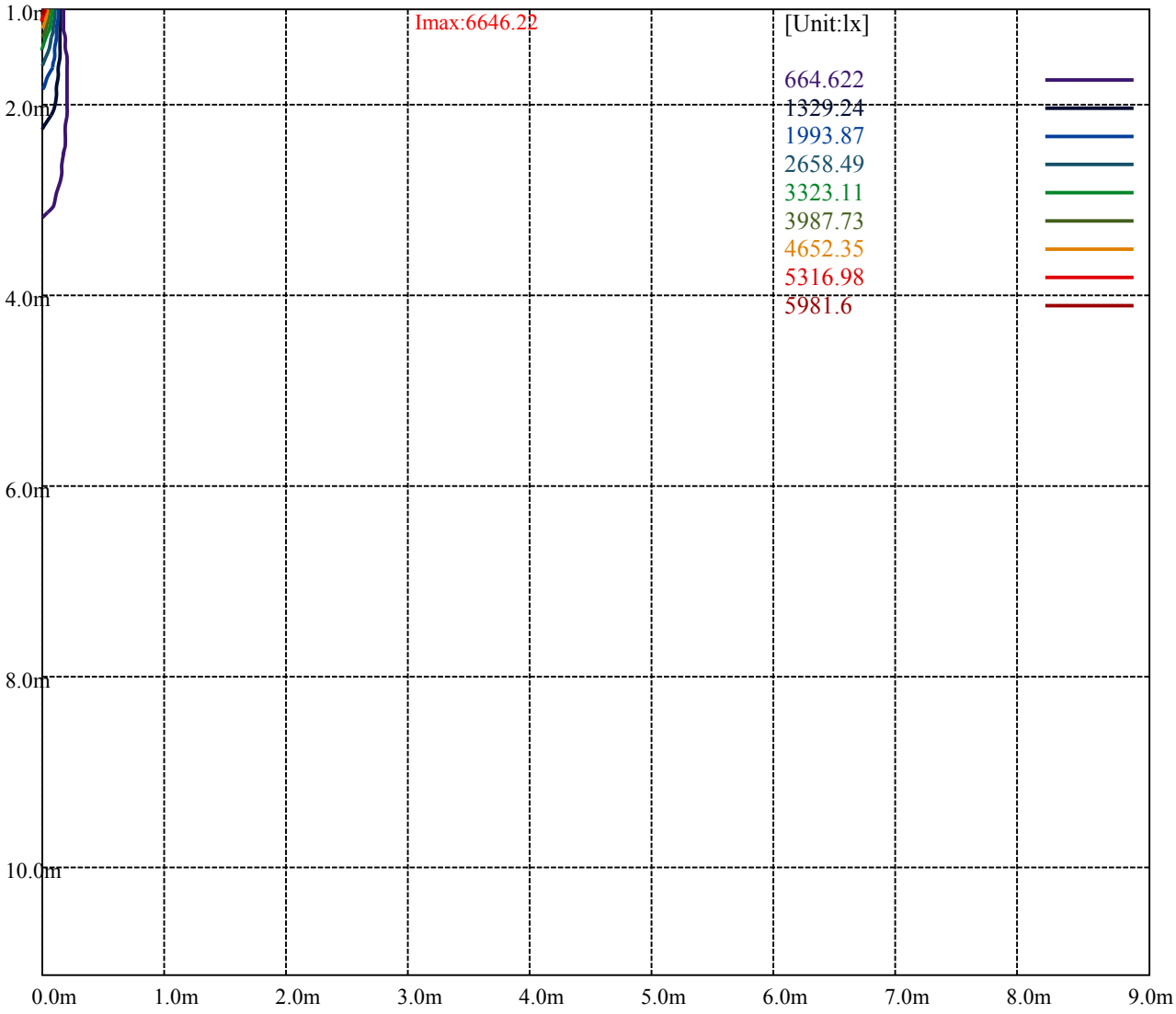
ISO illuminance diagram



(10%Emax) 73.84666
(20%Emax) 147.6933
(30%Emax) 221.54
(40%Emax) 295.3867
(50%Emax) 369.2333
(60%Emax) 443.08
(70%Emax) 516.9266
(80%Emax) 590.7733
(90%Emax) 664.62

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2018/12/6
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

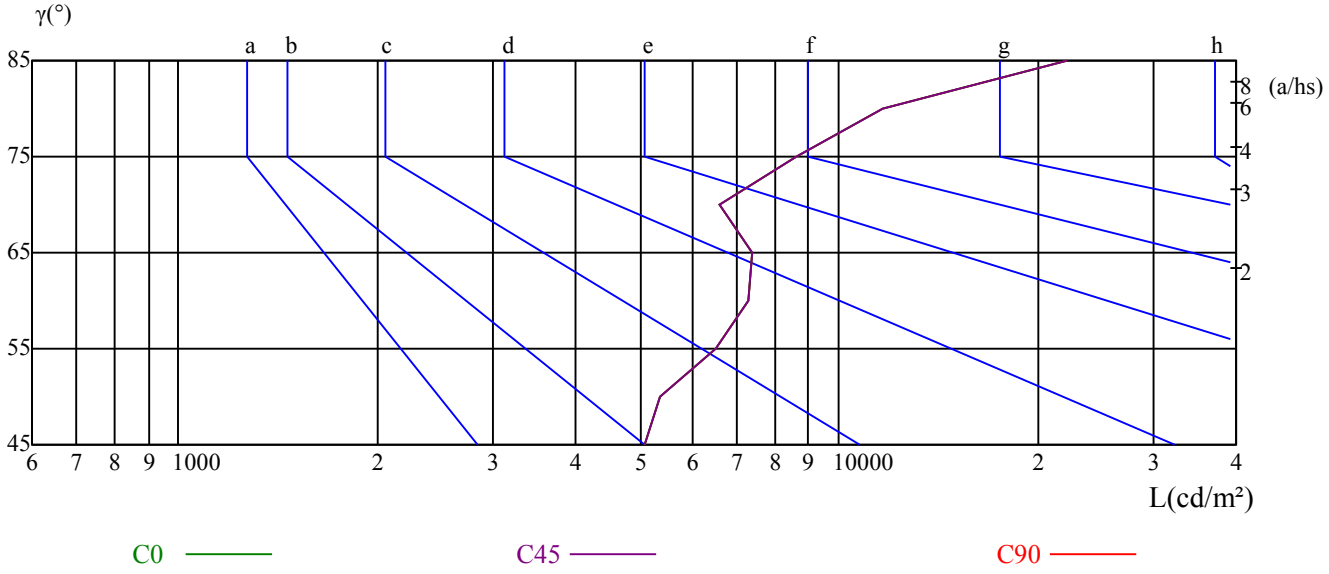
γ	45	50	55	60	65	70	75	80	85
C0	5098	5349	6505	7278	7375	6579	8605	11668	22128
C45	5098	5349	6505	7278	7375	6579	8605	11668	22128
C90	5098	5349	6505	7278	7375	6579	8605	11668	22128

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7375	7375	7375	8605	8605	8605	22128	22128	22128

Glare Table

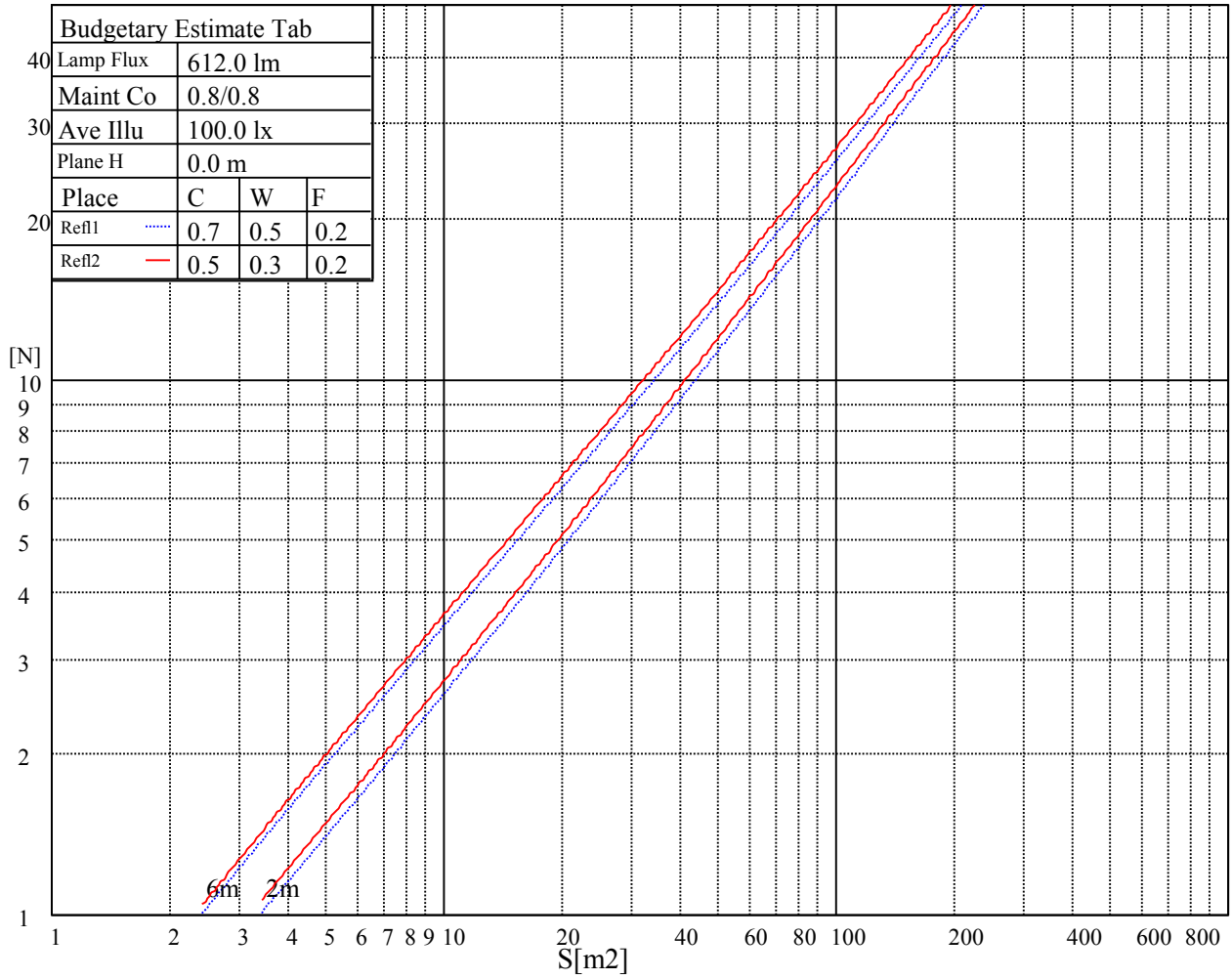
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve



Equipment: GMS1980 Date: 2018/12/6 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

Budgetary Estimate Table

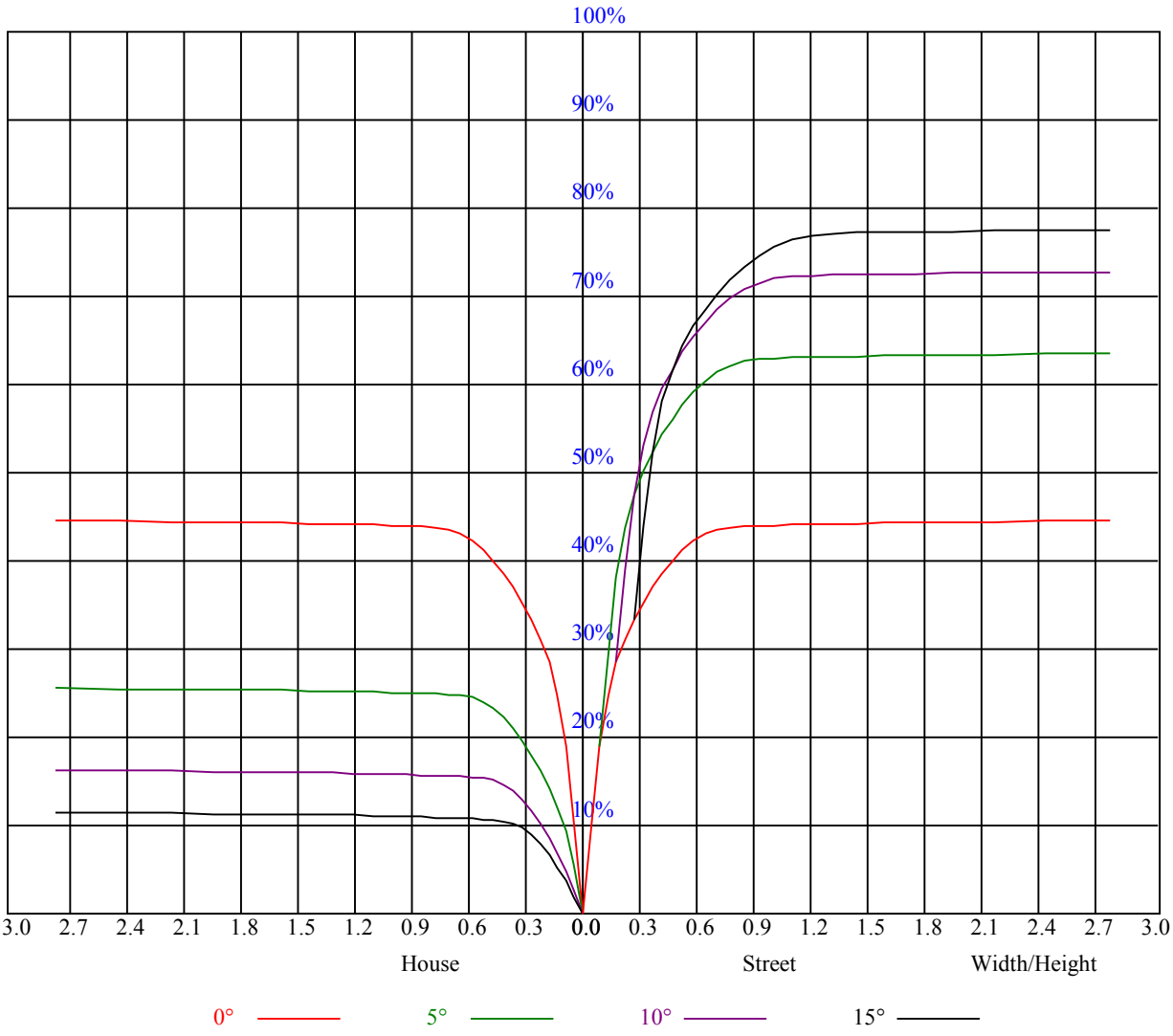


Equipment: GMS1980 Date: 2018/12/6 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.04	1.04	1.04	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	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.86
2	0.96	0.93	0.91	0.94	0.92	0.90	0.92	0.89	0.88	0.89	0.87	0.86	0.87	0.85	0.84	0.83
3	0.91	0.88	0.85	0.90	0.87	0.85	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.81	0.80
4	0.88	0.84	0.81	0.87	0.83	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.82	0.80	0.78	0.77
5	0.84	0.80	0.78	0.84	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.74
6	0.81	0.77	0.75	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.76	0.73	0.77	0.75	0.73	0.72
7	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.73	0.71	0.70
8	0.76	0.72	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.68
9	0.74	0.70	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.66
10	0.72	0.68	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.65

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2018/12/6	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	6536.81	6756.75	6766.31	6564.38	6131.25	5335.31	4326.75	3436.88	2642.06
45.0	6669.56	6845.06	6778.69	6537.94	6019.31	5243.06	4387.50	3399.75	2616.19
90.0	6715.13	6637.50	6374.81	5670.56	5020.31	4174.31	2992.50	2334.94	1730.25
135.0	6663.38	6499.69	6041.81	5290.31	4439.81	3443.63	2520.00	1845.56	1338.75
180.0	6536.81	6003.56	5239.69	4186.69	3143.25	2324.25	1662.75	1076.23	793.18
225.0	6669.56	6280.31	5571.00	4385.25	3396.94	2502.00	1709.44	1106.04	837.68
270.0	6715.13	6571.69	6144.19	5533.88	4360.50	3373.31	2499.75	1658.81	1177.88
315.0	6663.38	6622.31	6372.00	5770.13	4837.50	3888.00	2979.00	2068.31	1325.25
360.0	6536.81	6756.75	6766.31	6564.38	6131.25	5335.31	4326.75	3436.88	2642.06

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1838.81	1357.88	1014.19	748.69	582.19	492.19	426.38	388.13	363.94
45.0	1893.94	1342.69	1001.81	761.06	571.50	479.25	416.81	365.06	336.38
90.0	1062.62	893.87	694.80	561.88	454.39	397.01	356.91	325.01	302.91
135.0	915.75	704.25	573.75	477.56	408.38	362.81	333.00	306.00	291.94
180.0	627.08	493.09	419.06	365.29	318.88	297.73	285.02	275.01	268.59
225.0	630.00	506.14	432.34	371.42	335.87	313.03	295.37	279.17	265.67
270.0	860.63	627.19	522.56	455.06	396.56	363.94	341.44	325.13	312.75
315.0	1092.21	756.62	599.18	505.74	440.94	402.81	375.58	350.72	333.06
360.0	1838.81	1357.88	1014.19	748.69	582.19	492.19	426.38	388.13	363.94

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	342.00	329.06	316.69	304.88	294.19	284.63	272.76	265.05	258.13
45.0	315.56	301.50	290.25	284.63	272.81	266.34	259.88	254.42	249.36
90.0	289.74	277.88	269.89	259.76	252.17	244.80	237.83	230.74	224.94
135.0	285.19	268.26	258.64	250.99	243.28	237.60	233.21	230.23	228.09
180.0	259.37	249.53	242.27	231.36	219.77	212.74	206.94	202.50	203.46
225.0	252.39	244.24	237.43	231.13	227.19	223.14	218.98	214.82	209.93
270.0	302.06	290.81	284.06	269.27	259.82	251.78	244.13	238.22	233.61
315.0	320.06	306.84	295.71	284.23	273.54	265.73	258.41	249.58	242.66
360.0	342.00	329.06	316.69	304.88	294.19	284.63	272.76	265.05	258.13

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	249.86	243.28	236.76	231.41	219.94	212.63	206.16	182.36	156.54
45.0	243.39	237.66	232.71	226.63	216.23	208.63	202.84	179.89	153.68
90.0	219.83	213.08	207.11	199.41	192.77	184.28	166.61	138.94	107.83
135.0	225.28	221.46	216.00	210.43	200.19	180.34	158.34	119.76	87.69
180.0	203.96	202.16	201.88	192.09	167.18	132.24	99.00	65.76	40.89
225.0	204.13	196.26	188.66	175.28	150.69	120.60	92.87	59.40	38.25
270.0	228.15	221.06	212.51	205.20	185.01	161.72	133.43	103.39	66.43
315.0	235.97	229.22	221.96	212.96	205.09	187.31	161.78	127.63	96.47
360.0	249.86	243.28	236.76	231.41	219.94	212.63	206.16	182.36	156.54

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	129.71	88.76	54.34	31.89	11.48	7.99	6.02	4.50	3.83
45.0	123.19	91.80	54.45	30.32	15.30	8.83	6.58	5.29	4.67
90.0	79.14	49.61	27.23	11.98	7.09	5.79	5.01	4.73	4.73
135.0	58.28	30.49	13.33	7.99	5.85	5.12	5.01	5.01	4.95
180.0	19.69	10.24	7.99	6.30	5.63	5.34	5.18	5.18	5.18
225.0	19.69	11.36	9.68	7.48	5.85	5.18	5.01	5.06	5.18
270.0	41.06	19.63	11.81	9.62	7.54	5.40	4.56	4.16	3.99
315.0	62.38	33.30	16.20	8.33	6.13	5.01	3.94	3.66	3.49
360.0	129.71	88.76	54.34	31.89	11.48	7.99	6.02	4.50	3.83

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	3.60	3.43	3.38	3.26	3.09	2.98	2.87	2.81	2.81
45.0	4.33	4.16	3.94	3.83	3.66	3.60	3.49	3.38	3.26
90.0	4.84	5.12	5.40	5.63	5.57	5.29	5.06	5.01	5.06
135.0	4.95	5.06	5.12	5.18	5.23	5.34	5.57	5.85	6.24
180.0	5.18	5.29	5.23	5.29	5.34	5.63	5.85	6.19	6.53
225.0	5.29	5.40	5.40	5.23	5.06	4.95	4.84	4.84	4.95
270.0	3.77	3.54	3.43	3.26	3.15	3.04	2.98	2.93	2.93
315.0	3.38	3.26	3.15	3.09	2.93	2.87	2.81	2.81	2.76
360.0	3.60	3.43	3.38	3.26	3.09	2.98	2.87	2.81	2.81

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	2.76	2.76	2.70	2.64	2.70	2.70	2.64	2.64	2.64
45.0	3.21	3.04	2.98	2.93	2.93	2.93	2.93	3.04	3.60
90.0	5.34	5.68	6.19	6.86	7.54	8.04	8.21	7.93	7.31
135.0	6.58	6.98	7.31	7.43	7.09	6.24	5.06	3.94	3.26
180.0	6.86	7.14	7.37	7.26	6.75	5.79	4.84	3.99	3.54
225.0	5.12	5.46	5.74	6.02	6.30	6.41	6.47	6.24	5.74
270.0	2.93	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.93
315.0	2.70	2.64	2.64	2.64	2.64	2.64	2.64	2.59	2.59
360.0	2.76	2.76	2.70	2.64	2.70	2.70	2.64	2.64	2.64

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.64	2.64	2.59	2.64	2.64	2.64	2.64	2.70	3.09
45.0	4.39	5.46	6.41	6.19	5.18	3.88	3.26	2.93	2.76
90.0	6.47	5.85	5.23	4.56	3.54	2.81	2.64	2.59	2.59
135.0	2.93	2.81	2.76	2.70	2.70	2.64	2.64	2.59	2.53
180.0	3.54	3.77	4.05	3.88	3.38	2.87	2.64	2.59	2.59
225.0	5.01	4.11	3.38	2.98	2.76	2.70	2.64	2.87	2.93
270.0	3.04	3.32	3.43	3.43	3.21	2.93	2.76	2.70	3.04
315.0	2.59	2.64	2.70	2.70	2.76	2.76	2.76	3.09	3.15
360.0	2.64	2.64	2.59	2.64	2.64	2.64	2.64	2.70	3.09

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.04	3.04	2.98	3.09	3.09	2.98	2.70	2.70	2.64
45.0	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.64	2.64
90.0	2.59	2.48	2.48	2.42	2.42	2.42	2.42	2.31	2.36
135.0	2.53	2.53	2.53	2.48	2.48	2.48	2.42	2.42	2.42
180.0	2.53	2.53	2.53	2.48	2.48	2.42	2.42	2.42	2.42
225.0	2.87	2.81	2.81	2.76	2.70	2.48	2.42	2.36	2.31
270.0	3.04	2.93	2.87	2.93	2.98	2.87	2.59	2.59	2.59
315.0	3.04	2.98	2.98	2.98	2.87	2.59	2.53	2.53	2.48
360.0	3.04	3.04	2.98	3.09	3.09	2.98	2.70	2.70	2.64

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.59	2.53	2.53	2.48	2.48	2.48	2.42	2.42	2.36
45.0	2.64	2.64	2.59	2.59	2.53	2.48	2.42	2.42	2.42
90.0	2.31	2.31	2.31	2.25	2.31	2.25	2.25	2.25	2.19
135.0	2.36	2.36	2.36	2.31	2.31	2.31	2.31	2.31	2.31
180.0	2.42	2.36	2.31	2.31	2.31	2.31	2.31	2.31	2.31
225.0	2.31	2.31	2.31	2.25	2.25	2.25	2.25	2.25	2.19
270.0	2.53	2.42	2.42	2.36	2.36	2.31	2.31	2.31	2.25
315.0	2.42	2.42	2.42	2.42	2.36	2.36	2.31	2.31	2.31
360.0	2.59	2.53	2.53	2.48	2.48	2.48	2.42	2.42	2.36

Intensity data(cd)

C/γ(°)	90.0
0.0	2.36
45.0	2.42
90.0	2.19
135.0	2.25
180.0	2.31
225.0	2.19
270.0	2.19
315.0	2.31
360.0	2.36