NATA LIGHTING CO.,LTD.
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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

Client:
LumCAT: LM01D03024AE
Luminaire:

Report No: GC2019091909	Voltage(V): 220.5000
Test No: NATA07	Current(A): 0.0440
LampCAT: BRIDGELUX V4-HD	Power (W): 8.9000
Lamp flux(lm): 656.0	PF: 0.9060
Number of Lamps: 1	Ballast type: AC
Length(mm): 30	Width(mm): 30
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 588.82, Efficiency(%): 89.76% , Luminous Efficacy(lm/W): 66.16
Central intensity(cd): 3428.209, Maximum intensity(cd): 3428.209
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=18.4
[C90/270]Total=18.4
Field angle(10%Imax): [C0/180]Total=39.0
[C90/270]Total=39.0
Maximum s/h(1/2): C0_180=0.32 C90_270=0.32
Maximum s/h(1/4): C0_180=0.33 C90_270=0.33
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.76%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 95.548%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3428.209	0.000	0	.000%	.000%
1.0	3403.384	3.269	3.269	.498%	.555%
2.0	3332.097	9.667	12.936	1.474%	2.197%
3.0	3208.896	15.644	28.58	2.385%	4.854%
4.0	3042.250	20.925	49.505	3.190%	8.407%
5.0	2857.564	25.381	74.885	3.869%	12.718%
6.0	2608.494	28.726	103.611	4.379%	17.596%
7.0	2349.796	30.776	134.387	4.691%	22.823%
8.0	2081.410	31.713	166.1	4.834%	28.209%
9.0	1767.538	31.194	197.294	4.755%	33.507%
10.0	1519.594	29.747	227.041	4.535%	38.559%
11.0	1295.204	28.126	255.167	4.287%	43.335%
12.0	1115.629	26.354	281.521	4.017%	47.811%
13.0	958.235	24.612	306.132	3.752%	51.991%
14.0	793.874	22.427	328.559	3.419%	55.800%
15.0	686.381	20.322	348.881	3.098%	59.251%
16.0	584.601	18.623	367.504	2.839%	62.414%
17.0	497.223	16.847	384.351	2.568%	65.275%
18.0	425.832	15.219	399.57	2.320%	67.860%
19.0	367.520	13.803	413.373	2.104%	70.204%
20.0	321.836	12.617	425.99	1.923%	72.347%
21.0	273.438	11.430	437.42	1.742%	74.288%
22.0	241.779	10.353	447.774	1.578%	76.046%
23.0	209.401	9.467	457.241	1.443%	77.654%
24.0	179.871	8.511	465.752	1.297%	79.099%
25.0	156.524	7.649	473.401	1.166%	80.398%
26.0	144.338	7.102	480.503	1.083%	81.605%
27.0	125.973	6.613	487.116	1.008%	82.728%
28.0	105.927	5.871	492.987	.895%	83.725%
29.0	92.354	5.188	498.175	.791%	84.606%
30.0	80.945	4.679	502.854	.713%	85.400%
31.0	71.020	4.229	507.083	.645%	86.119%
32.0	63.497	3.854	510.936	.587%	86.773%
33.0	55.562	3.508	514.444	.535%	87.369%
34.0	49.362	3.175	517.619	.484%	87.908%
35.0	44.663	2.920	520.539	.445%	88.404%
36.0	40.237	2.703	523.243	.412%	88.863%
37.0	36.612	2.506	525.749	.382%	89.289%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	33.660	2.346	528.095	.358%	89.687%
39.0	31.241	2.215	530.31	.338%	90.063%
40.0	28.973	2.100	532.41	.320%	90.420%
41.0	27.163	1.999	534.409	.305%	90.760%
42.0	25.435	1.911	536.32	.291%	91.084%
43.0	24.153	1.837	538.157	.280%	91.396%
44.0	22.825	1.773	539.93	.270%	91.697%
45.0	21.711	1.712	541.641	.261%	91.988%
46.0	20.765	1.661	543.303	.253%	92.270%
47.0	19.890	1.617	544.919	.246%	92.545%
48.0	19.089	1.576	546.495	.240%	92.812%
49.0	18.289	1.535	548.03	.234%	93.073%
50.0	17.540	1.494	549.524	.228%	93.327%
51.0	16.891	1.457	550.981	.222%	93.574%
52.0	16.241	1.422	552.402	.217%	93.815%
53.0	15.702	1.390	553.792	.212%	94.051%
54.0	15.087	1.357	555.149	.207%	94.282%
55.0	14.495	1.320	556.469	.201%	94.506%
56.0	14.020	1.289	557.758	.196%	94.725%
57.0	13.469	1.257	559.015	.192%	94.938%
58.0	12.987	1.223	560.238	.186%	95.146%
59.0	12.570	1.195	561.433	.182%	95.349%
60.0	12.169	1.169	562.602	.178%	95.548%
61.0	11.781	1.143	563.745	.174%	95.742%
62.0	11.421	1.118	564.863	.170%	95.932%
63.0	10.969	1.089	565.952	.166%	96.117%
64.0	10.592	1.058	567.01	.161%	96.296%
65.0	10.290	1.033	568.043	.158%	96.472%
66.0	9.942	1.009	569.052	.154%	96.643%
67.0	9.646	0.985	570.037	.150%	96.810%
68.0	9.310	0.960	570.998	.146%	96.973%
69.0	9.014	0.935	571.932	.142%	97.132%
70.0	8.718	0.911	572.843	.139%	97.287%
71.0	8.405	0.885	573.728	.135%	97.437%
72.0	8.115	0.859	574.587	.131%	97.583%
73.0	7.848	0.835	575.422	.127%	97.725%
74.0	7.604	0.812	576.234	.124%	97.863%
75.0	7.506	0.798	577.032	.122%	97.998%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.587	0.801	577.834	.122%	98.134%
77.0	7.552	0.807	578.641	.123%	98.272%
78.0	7.599	0.811	579.452	.124%	98.409%
79.0	7.645	0.819	580.271	.125%	98.548%
80.0	7.686	0.827	581.097	.126%	98.689%
81.0	7.442	0.818	581.915	.125%	98.828%
82.0	7.593	0.815	582.731	.124%	98.966%
83.0	7.570	0.824	583.555	.126%	99.106%
84.0	7.558	0.824	584.379	.126%	99.246%
85.0	7.343	0.813	585.192	.124%	99.384%
86.0	6.966	0.782	585.975	.119%	99.517%
87.0	6.537	0.739	586.714	.113%	99.643%
88.0	6.357	0.706	587.42	.108%	99.762%
89.0	6.375	0.698	588.118	.106%	99.881%
90.0	6.404	0.701	588.818	.107%	100.000%

Zonal flux distribution table

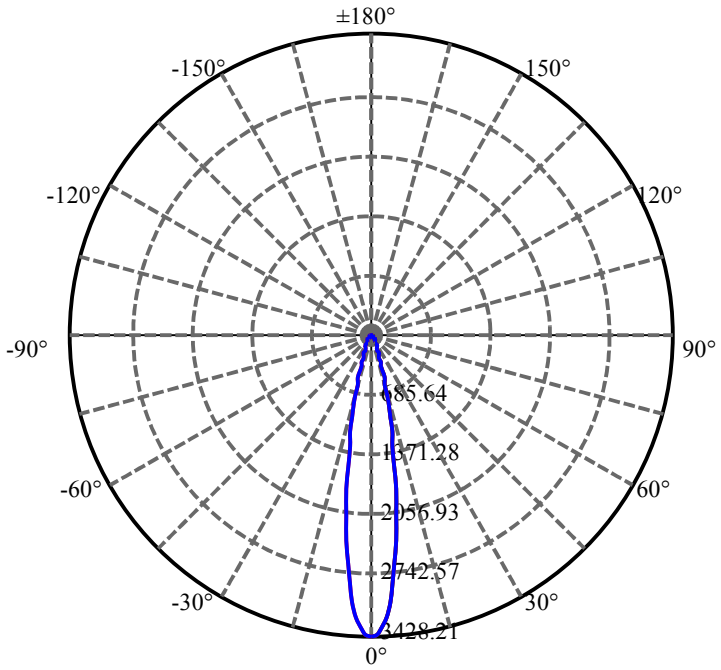
ZONAL LUMEN SUMMARY

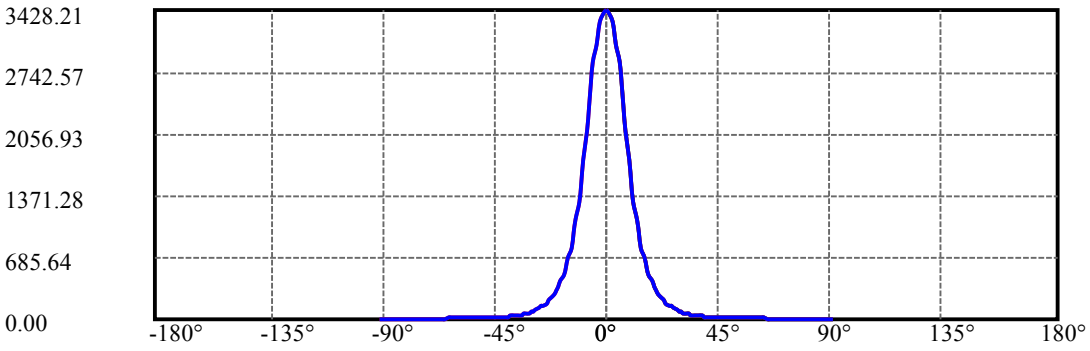
Zone	Lumens	%Lamp	%Fixt
0-30	502.85	76.65%	85.40%
0-40	532.41	81.16%	90.42%
0-60	562.60	85.76%	95.55%
0-90	588.12	89.65%	99.88%
0-120	588.12	89.65%	99.88%
0-180	588.82	89.76%	100.00%
60-90	26.68	4.07%	4.53%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.69	471.05	71.81%	80.00%

ZONAL LUMEN SUMMARY

0-10	227.04
10-20	198.95
20-30	76.86
30-40	29.56
40-50	17.11
50-60	13.08
60-70	10.24
70-80	8.25
80-90	7.02
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):

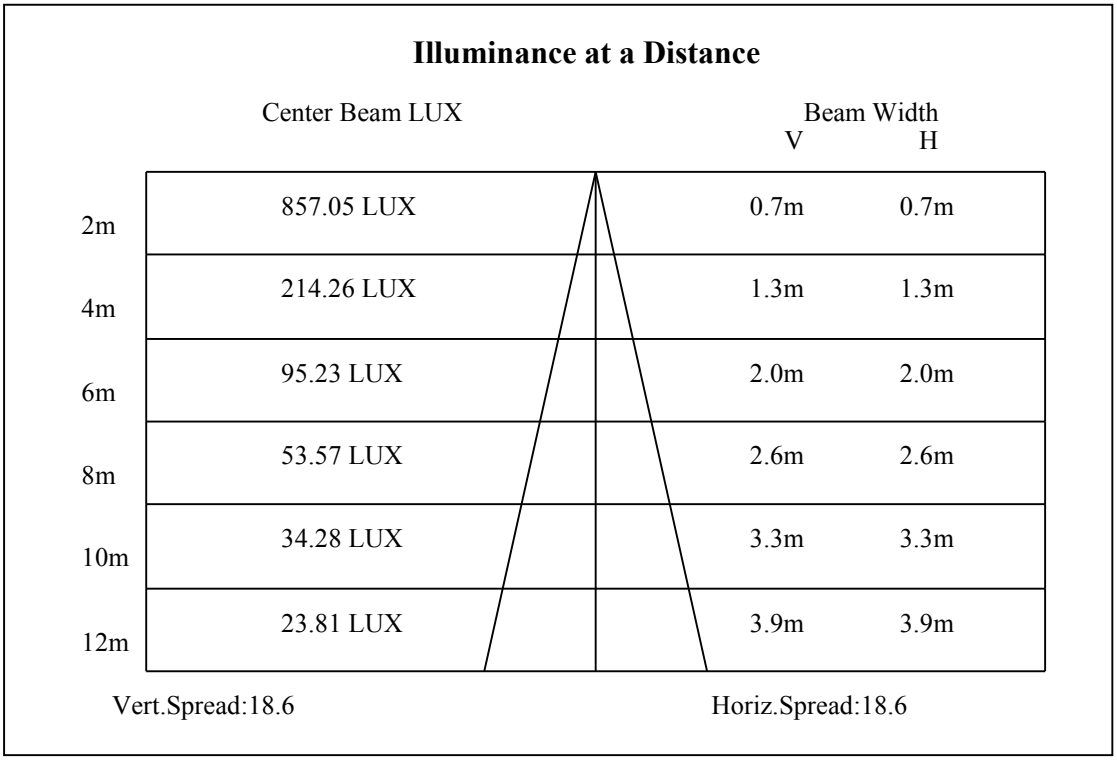
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:19.5 Right:19.5
:C90/270Left:19.5 Right:19.5

Beam Angle(50%Imax):C0/180Left:9.2 Right:9.2
:C90/270Left:9.2 Right:9.2

Lux distance Curve

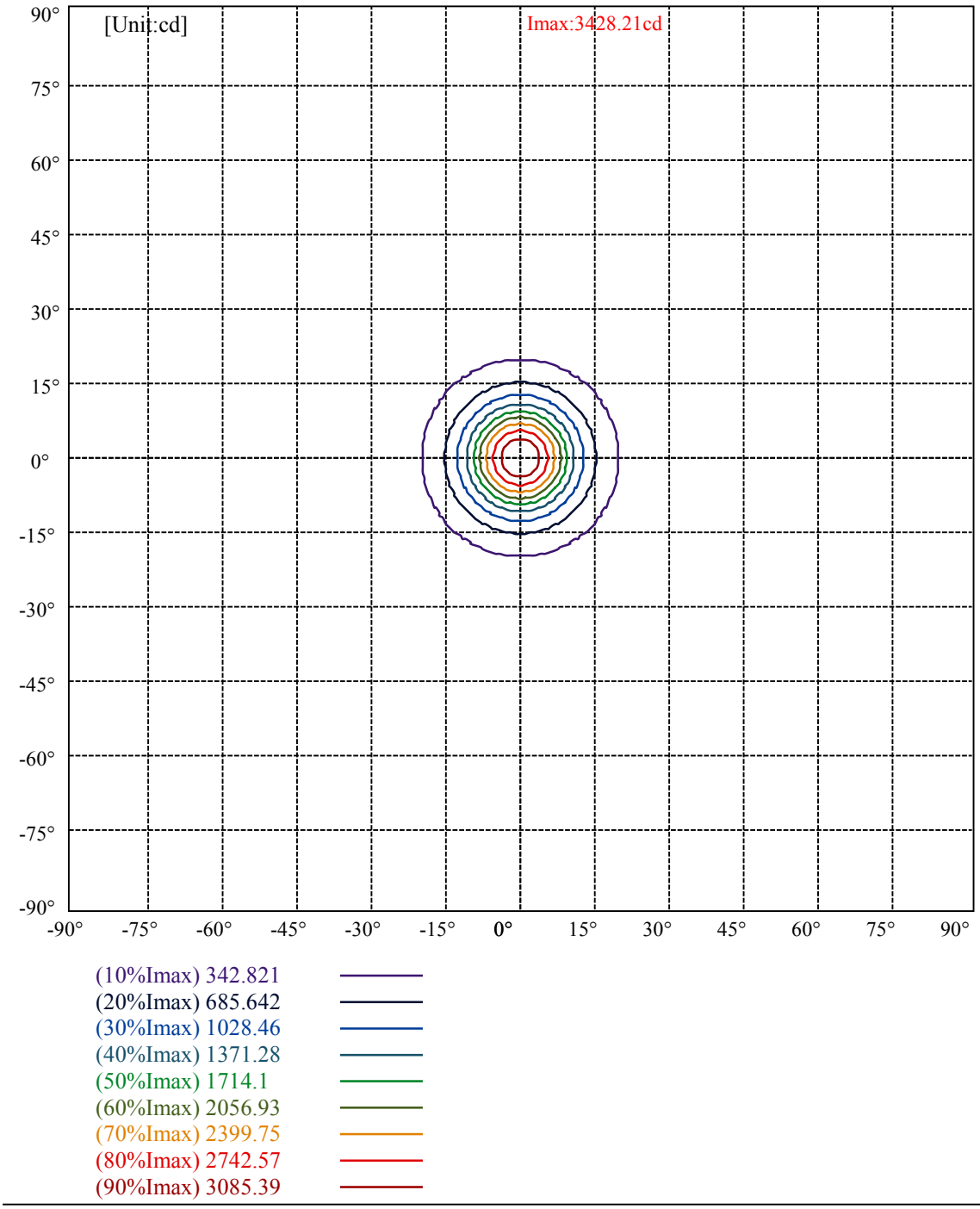


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/27
Humidity(%): 60.0%

Operator: GC2019092702
Distance(m): 6.81

ISO-Intensity(V-H)

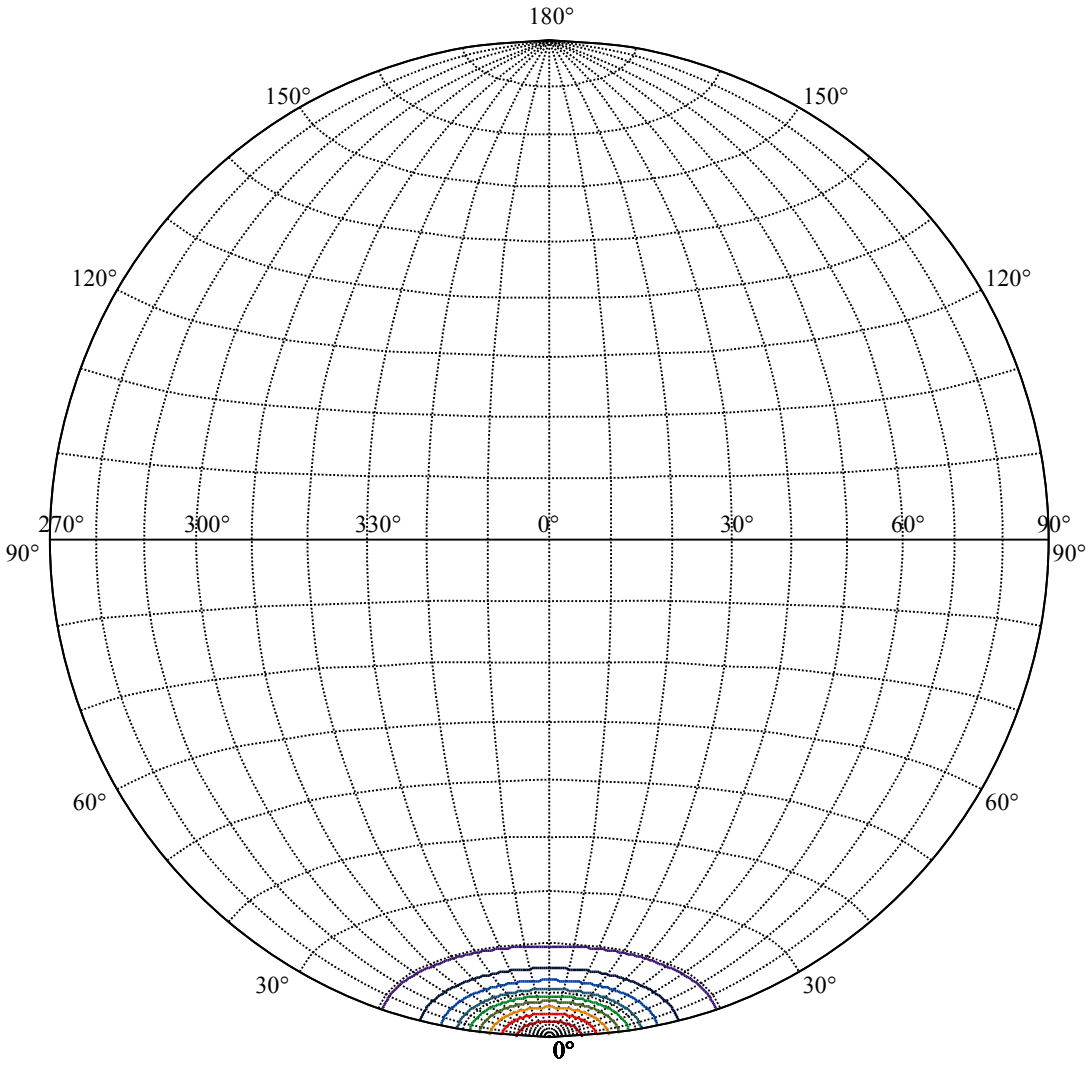


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/27
Humidity(%): 60.0%

Operator: GC2019092702
Distance(m): 6.81

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:3428.21

(10%Imax) 342.821
(20%Imax) 685.642
(30%Imax) 1028.46
(40%Imax) 1371.28
(50%Imax) 1714.1
(60%Imax) 2056.93
(70%Imax) 2399.75
(80%Imax) 2742.57
(90%Imax) 3085.39

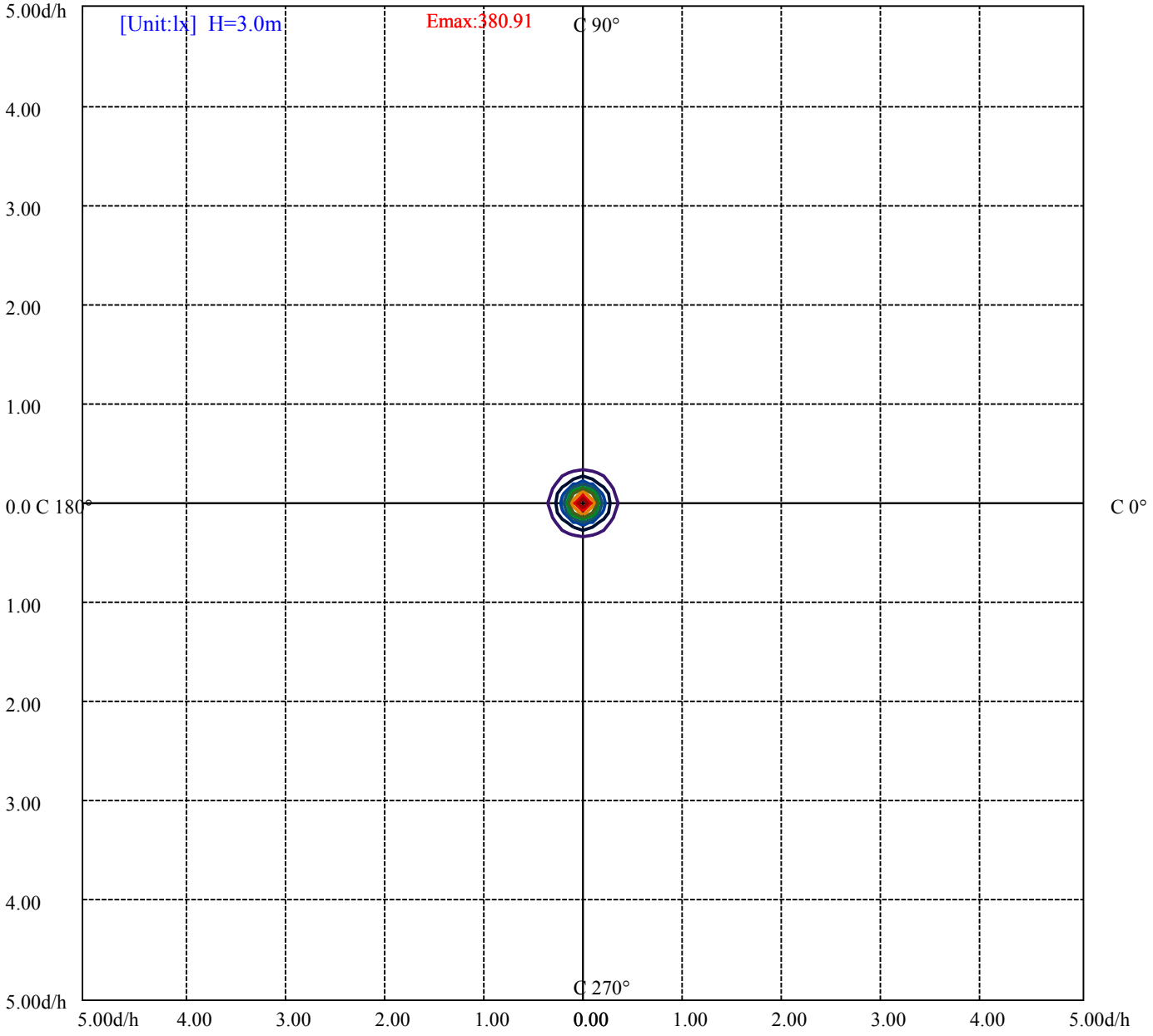
Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/27
Humidity(%): 60.0%

Operator: GC2019092702
Distance(m): 6.81

Nata LM01D03024AE

ISO illuminance diagram

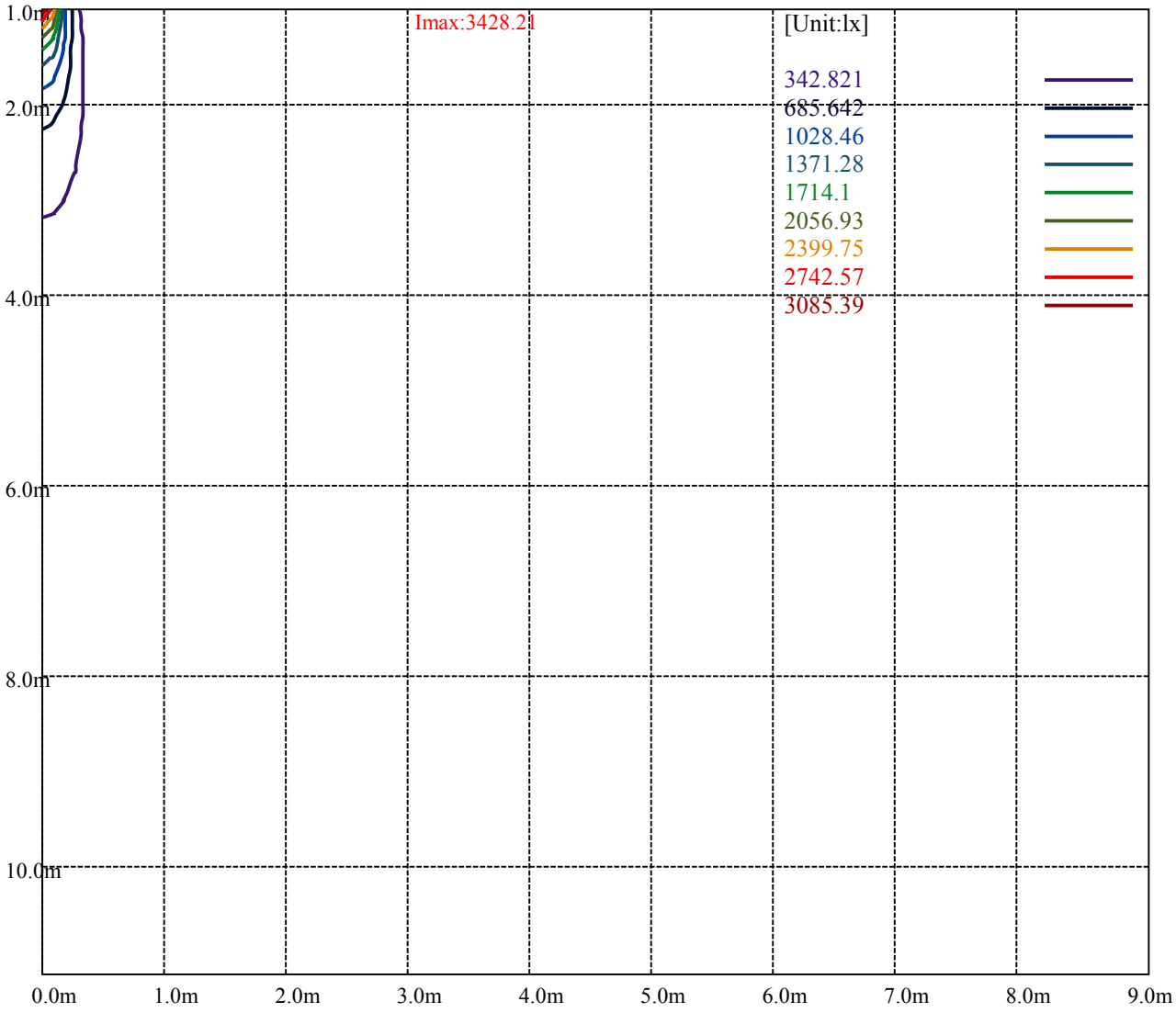


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/27
Humidity(%): 60.0%

Operator: GC2019092702
Distance(m): 6.81

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/27
Humidity(%): 60.0%

Operator: GC2019092702
Distance(m): 6.81

Nata LM01D03024AE

Luminance Limitting Curve(no luminous side)

Luminance Table

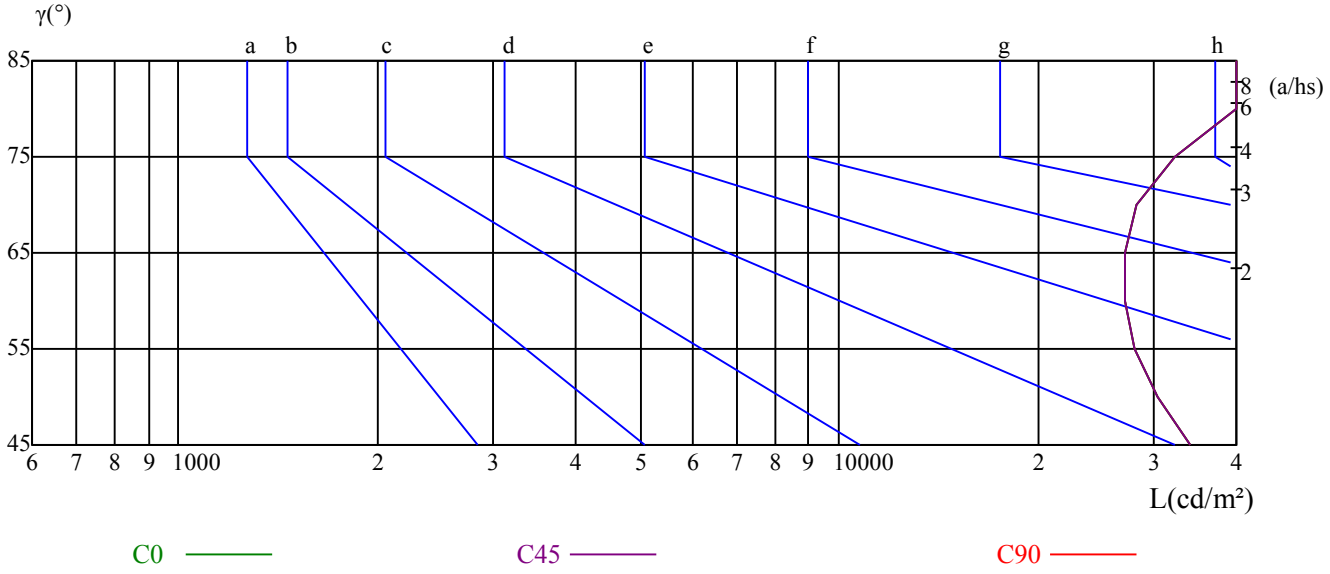
γ	45	50	55	60	65	70	75	80	85
C0	34115	30320	28080	27043	27053	28322	32222	49177	93617
C45	34115	30320	28080	27043	27053	28322	32222	49177	93617
C90	34115	30320	28080	27043	27053	28322	32222	49177	93617

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
27053	27053	27053	32222	32222	32222	93617	93617	93617

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

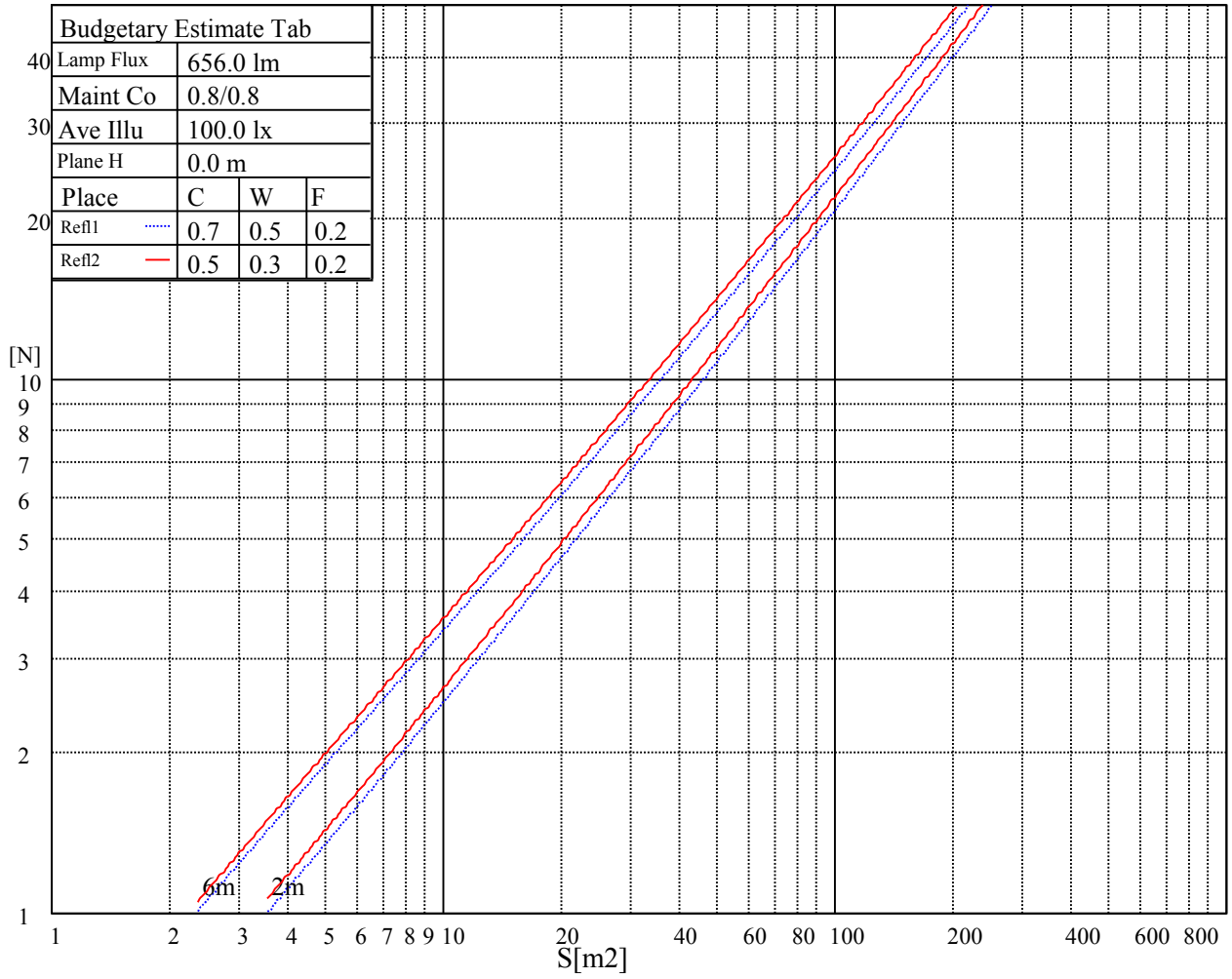


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/27
Humidity(%): 60.0%

Operator: GC2019092702
Distance(m): 6.81

Budgetary Estimate Table



Equipment: GMS 1800
Temperature(°C): 25.0

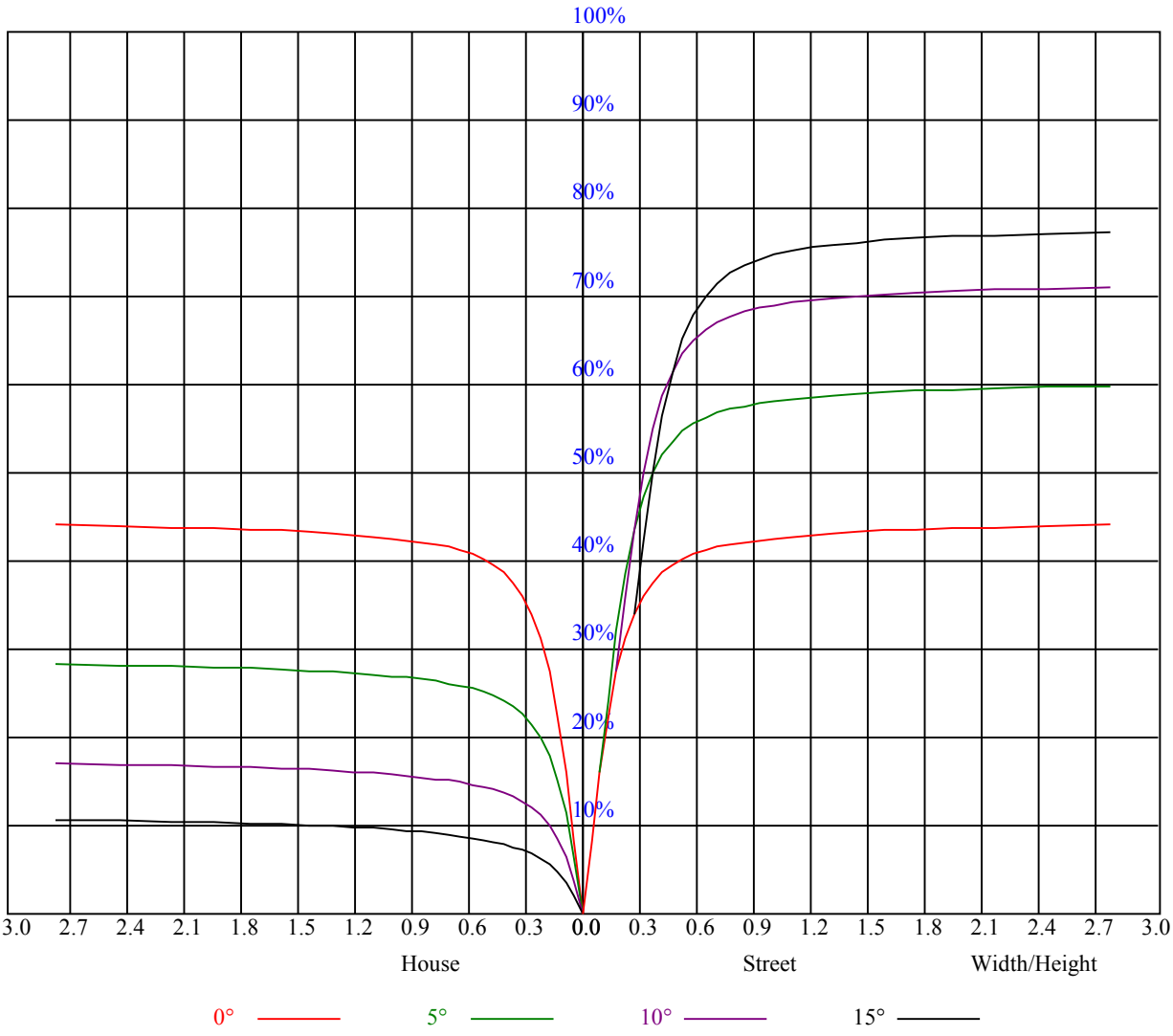
Date: 2019/9/27
Humidity(%): 60.0%

Operator: GC2019092702
Distance(m): 6.81

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	0.95	0.95	0.95	0.92	0.92	0.92	0.90
1	1.00	0.98	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.88	0.93	0.90	0.87	0.90	0.88	0.86	0.87	0.85	0.84	0.85	0.83	0.82	0.81
3	0.90	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.78	0.77
4	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.80	0.77	0.75	0.74
5	0.82	0.78	0.75	0.81	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.73	0.77	0.75	0.73	0.72
6	0.79	0.75	0.72	0.79	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
7	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.67
8	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
9	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.64
10	0.70	0.66	0.64	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62

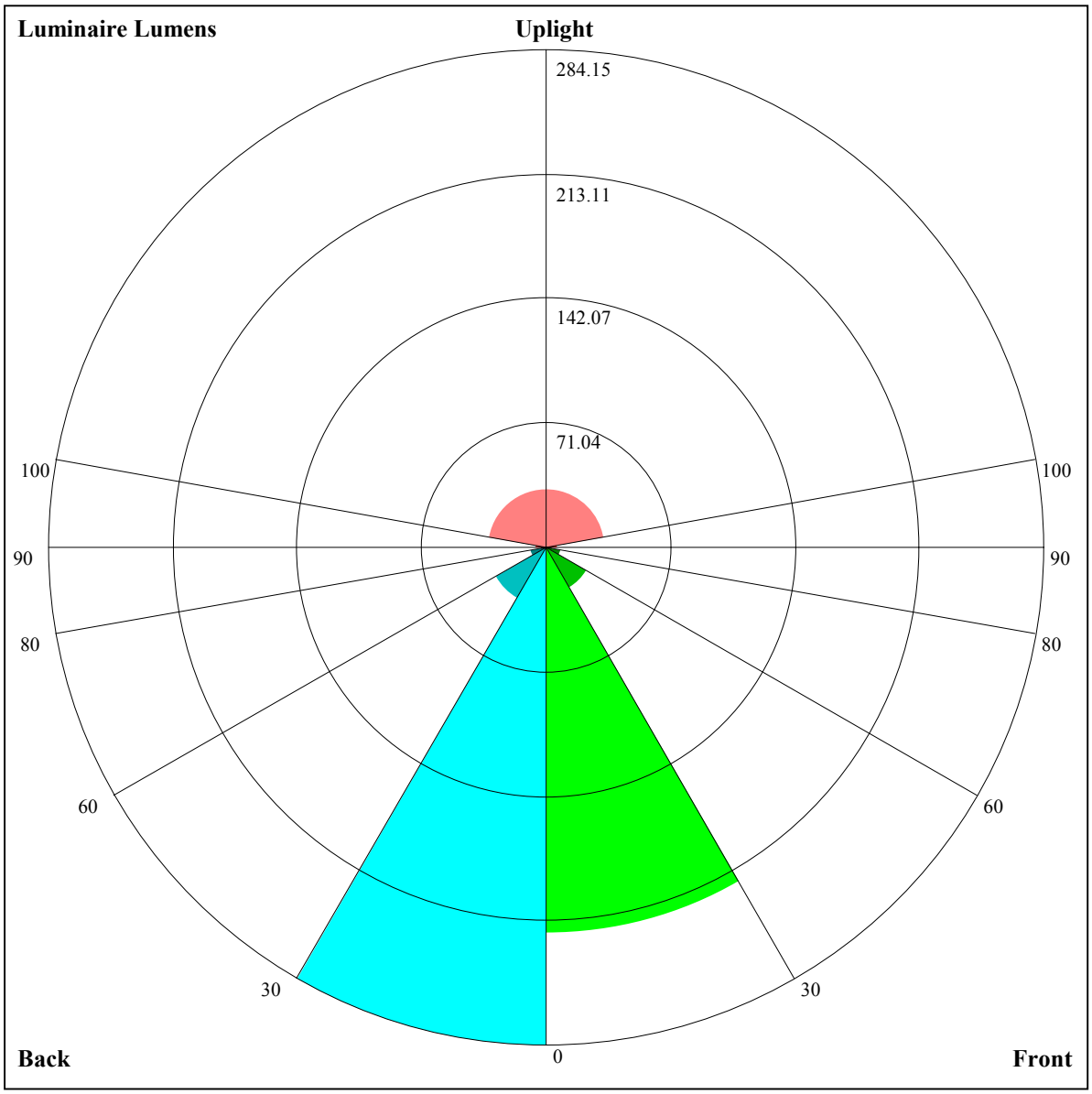
Coefficient Utilization Curve



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/27
Humidity(%): 60.0%

Operator: GC2019092702
Distance(m): 6.81



Luminaire Lumens:
FL=220.54,FM=26.56,FH=8.93,FVH=3.94
BL=284.15,BM=33.94,BH=9.5,BVH=3.94
UL=6.99,UH=33.25

BUG Rating:B1-U2-G0

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	3377.75	3245.96	3064.52	2840.86	2581.46	2292.84	1992.14	1697.02	1425.56
45.0	3480.76	3388.88	3247.82	3064.99	2836.68	2681.70	2397.24	2096.55	1797.71
90.0	3413.01	3305.36	3155.94	2950.37	2710.93	2436.69	2141.10	1836.69	1540.17
135.0	3441.32	3443.17	3392.59	3285.40	3133.66	2942.02	2699.79	2416.27	2123.00
180.0	3377.75	3462.20	3498.86	3478.91	3406.05	3313.25	3160.11	2916.96	2725.31
225.0	3480.76	3524.38	3517.88	3455.24	3347.58	3192.60	2993.99	2757.33	2497.47
270.0	3413.01	3466.84	3476.58	3437.61	3355.01	3272.87	3023.22	2903.04	2651.53
315.0	3441.32	3390.27	3302.57	3157.79	2966.61	2728.56	2460.35	2174.51	1890.52
360.0	3377.75	3245.96	3064.52	2840.86	2581.46	2292.84	1992.14	1697.02	1425.56

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	919.20	885.33	885.33	679.99	608.95	508.44	426.54	358.23	302.22
45.0	1511.87	1252.47	1026.02	842.27	693.31	572.20	473.36	390.76	325.33
90.0	1279.85	841.99	841.99	749.04	572.06	510.72	422.83	351.78	292.94
135.0	1880.77	1597.71	1294.70	1124.86	942.50	788.44	659.90	553.64	465.94
180.0	2455.71	2173.12	1895.62	1633.44	1390.75	1176.37	999.11	848.30	724.40
225.0	2221.84	1946.67	1686.81	1448.76	1240.41	916.05	916.05	813.96	703.80
270.0	2257.57	2087.73	1817.20	1563.38	1334.61	1135.07	967.09	828.35	710.48
315.0	1613.49	1371.73	913.96	883.29	883.29	743.71	626.17	531.78	452.66
360.0	919.20	885.33	885.33	679.99	608.95	508.44	426.54	358.23	302.22

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	257.12	219.81	188.68	162.13	137.73	117.45	101.02	87.28	76.19
45.0	271.97	237.17	237.17	158.51	143.29	121.90	98.00	89.60	78.19
90.0	245.29	206.87	174.94	149.65	128.63	111.37	97.54	85.80	75.73
135.0	396.33	337.86	288.21	246.45	239.49	203.94	165.61	133.97	122.69
180.0	621.85	537.40	466.86	406.54	354.57	308.16	267.33	231.60	231.60
225.0	613.13	536.47	468.91	411.69	364.03	319.58	280.37	246.87	216.98
270.0	613.03	530.44	462.22	403.76	351.32	307.24	269.65	236.24	236.24
315.0	387.93	334.15	287.70	248.77	215.17	185.57	159.44	140.83	117.08
360.0	257.12	219.81	188.68	162.13	137.73	117.45	101.02	87.28	76.19

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	66.68	58.10	52.06	44.78	39.58	36.06	32.02	29.93	27.70
45.0	69.23	61.90	55.36	49.56	44.22	39.72	36.15	33.13	30.49
90.0	67.15	59.95	53.46	48.17	43.85	41.58	38.65	34.76	33.46
135.0	105.80	91.32	79.67	69.33	61.35	54.43	48.54	43.43	38.93
180.0	204.27	159.53	138.19	119.40	103.25	89.14	77.54	67.38	58.84
225.0	189.88	166.08	144.82	126.82	110.90	102.09	84.59	74.38	68.91
270.0	203.99	160.74	139.67	121.76	106.08	92.99	81.16	71.04	62.41
315.0	100.79	89.79	75.59	67.75	58.93	51.97	45.85	40.83	36.57
360.0	66.68	58.10	52.06	44.78	39.58	36.06	32.02	29.93	27.70

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	25.61	24.36	23.06	21.95	20.79	19.91	19.16	18.38	17.54
45.0	28.21	25.80	24.27	23.02	21.76	21.07	19.26	18.61	17.77
90.0	31.51	29.65	27.93	26.68	25.38	24.08	22.92	21.72	20.60
135.0	35.31	32.44	30.21	28.54	26.54	24.83	23.34	22.32	21.44
180.0	51.79	46.17	41.53	37.96	34.62	32.16	30.02	28.26	26.87
225.0	61.07	54.62	49.28	44.55	40.32	37.03	34.20	31.74	29.61
270.0	55.08	49.19	44.45	40.51	37.22	34.25	31.51	30.07	27.42
315.0	33.32	30.67	28.54	26.73	25.15	23.99	23.06	22.13	21.35
360.0	25.61	24.36	23.06	21.95	20.79	19.91	19.16	18.38	17.54

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	17.03	16.47	15.96	15.45	14.99	14.62	14.20	13.69	13.46
45.0	17.03	16.19	15.78	15.17	14.66	14.06	13.50	12.99	12.62
90.0	19.40	18.14	17.03	16.01	14.76	14.06	13.55	13.04	12.62
135.0	20.56	19.86	19.40	19.12	18.56	18.00	17.45	17.03	16.61
180.0	25.34	24.69	23.80	22.92	22.18	21.39	20.60	19.77	18.89
225.0	27.80	25.99	24.41	23.02	21.76	20.65	19.54	18.42	17.68
270.0	25.99	24.96	23.62	22.41	21.11	20.00	19.03	18.19	17.40
315.0	20.56	19.81	19.12	18.61	18.28	17.54	17.26	16.80	16.33
360.0	17.03	16.47	15.96	15.45	14.99	14.62	14.20	13.69	13.46

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.81	12.39	12.11	11.83	11.42	11.14	10.77	10.53	10.21
45.0	12.25	11.69	11.18	10.53	10.53	10.26	10.07	9.88	9.47
90.0	12.16	11.74	11.46	11.14	10.77	10.49	10.26	9.98	9.70
135.0	16.06	15.55	15.08	14.43	13.97	13.60	13.22	12.76	12.39
180.0	18.19	17.49	16.75	16.01	15.31	14.71	14.15	13.60	13.32
225.0	16.84	16.01	15.55	14.94	14.20	13.60	12.99	12.58	12.34
270.0	16.66	16.01	15.41	14.71	14.11	13.64	13.13	12.53	12.02
315.0	15.73	15.08	14.62	14.15	13.60	13.13	12.76	12.39	11.93
360.0	12.81	12.39	12.11	11.83	11.42	11.14	10.77	10.53	10.21

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	9.88	9.61	9.33	9.10	8.86	8.54	8.35	8.17	7.98
45.0	9.00	8.82	8.54	8.31	8.12	7.80	7.66	7.47	7.29
90.0	9.42	9.14	8.91	8.68	8.40	8.17	7.84	7.61	7.38
135.0	11.97	11.51	11.23	10.81	10.44	10.02	9.84	9.47	9.05
180.0	12.67	12.16	11.97	11.37	11.14	10.81	10.35	9.88	9.61
225.0	11.79	11.09	10.77	10.35	9.98	9.51	9.10	8.72	8.31
270.0	11.55	11.28	10.77	10.49	10.16	9.84	9.51	9.19	8.77
315.0	11.46	11.14	10.81	10.44	10.07	9.79	9.47	9.23	8.86
360.0	9.88	9.61	9.33	9.10	8.86	8.54	8.35	8.17	7.98

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	7.70	7.56	7.47	7.42	7.38	7.42	7.66	7.75	7.89
45.0	7.01	6.77	6.73	6.87	7.19	7.47	8.21	8.54	8.91
90.0	7.15	6.91	6.82	7.10	8.58	8.86	9.00	9.14	9.10
135.0	8.82	8.49	8.07	7.75	7.56	7.42	7.24	7.15	7.24
180.0	9.33	9.00	8.63	8.45	8.12	7.84	7.56	7.47	7.33
225.0	7.89	7.52	7.29	7.05	6.82	6.64	6.54	6.59	6.45
270.0	8.45	8.12	7.80	7.56	7.29	7.19	7.05	7.01	7.01
315.0	8.58	8.40	8.03	7.84	7.75	7.56	7.52	7.52	7.56
360.0	7.70	7.56	7.47	7.42	7.38	7.42	7.66	7.75	7.89

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.75	7.70	7.61	7.56	7.52	7.19	7.29	7.42	7.61
45.0	7.33	8.21	6.91	6.17	5.66	5.57	5.48	5.48	5.61
90.0	8.96	8.54	7.70	6.45	6.17	6.17	6.26	6.45	6.59
135.0	7.33	7.33	7.33	7.19	6.91	6.73	6.64	6.64	6.59
180.0	7.19	7.19	7.19	7.29	7.19	7.10	7.10	7.05	7.10
225.0	6.36	6.50	6.96	7.70	7.66	7.47	6.22	5.66	5.48
270.0	7.05	7.89	9.65	11.14	11.00	9.14	7.29	6.31	6.13
315.0	7.56	7.38	7.19	6.96	6.64	6.36	6.03	5.85	5.89
360.0	7.75	7.70	7.61	7.56	7.52	7.19	7.29	7.42	7.61

Intensity data(cd)

C/γ(°)	90.0
0.0	7.70
45.0	5.66
90.0	6.82
135.0	6.59
180.0	7.10
225.0	5.34
270.0	6.08
315.0	5.94
360.0	7.70