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

Nata

Client:
LumCAT: 1653-S
Luminaire: 92.70.064.00

Report No: GC2019091909	Voltage(V): 220.5000
Test No: NATA07	Current(A): 0.0410
LampCAT: TRIDONIC SLE G7 9MM	Power (W): 8.2800
Lamp flux(lm): 1011.0	PF: 0.8970
Number of Lamps: 1	Ballast type: AC
Length(mm): 32	Width(mm): 32
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 873.92, Efficiency(%): 86.44% , Luminous Efficacy(lm/W): 105.55
Central intensity(cd): 3408.024, Maximum intensity(cd): 3408.024
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=56.6
[C90/270]Total=56.6
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(%): 86.44%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.474%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3408.024	0.000	0	.000%	.000%
1.0	3400.889	3.258	3.258	.322%	.373%
2.0	3367.769	9.715	12.973	.961%	1.484%
3.0	3315.565	15.984	28.957	1.581%	3.313%
4.0	3230.415	21.911	50.869	2.167%	5.821%
5.0	3129.952	27.362	78.231	2.706%	8.952%
6.0	2961.218	32.011	110.241	3.166%	12.615%
7.0	2772.530	35.589	145.831	3.520%	16.687%
8.0	2587.439	38.360	184.191	3.794%	21.076%
9.0	2316.443	39.743	223.934	3.931%	25.624%
10.0	2093.243	39.906	263.84	3.947%	30.190%
11.0	1858.906	39.490	303.33	3.906%	34.709%
12.0	1636.634	38.211	341.542	3.780%	39.081%
13.0	1393.887	35.965	377.506	3.557%	43.197%
14.0	1202.711	33.236	410.743	3.287%	47.000%
15.0	1092.660	31.512	442.254	3.117%	50.606%
16.0	939.656	29.779	472.034	2.946%	54.013%
17.0	850.260	27.874	499.907	2.757%	57.203%
18.0	762.616	26.593	526.5	2.630%	60.246%
19.0	689.130	25.257	551.758	2.498%	63.136%
20.0	627.379	24.096	575.853	2.383%	65.893%
21.0	570.065	22.993	598.847	2.274%	68.524%
22.0	527.925	22.065	620.911	2.182%	71.049%
23.0	488.175	21.321	642.232	2.109%	73.488%
24.0	456.197	20.647	662.879	2.042%	75.851%
25.0	429.521	20.139	683.018	1.992%	78.155%
26.0	401.888	19.625	702.644	1.941%	80.401%
27.0	375.484	19.019	721.662	1.881%	82.577%
28.0	348.489	18.329	739.992	1.813%	84.675%
29.0	321.842	17.538	757.53	1.735%	86.682%
30.0	287.382	16.449	773.979	1.627%	88.564%
31.0	259.702	15.225	789.203	1.506%	90.306%
32.0	231.582	14.075	803.278	1.392%	91.916%
33.0	196.965	12.625	815.903	1.249%	93.361%
34.0	176.118	11.291	827.194	1.117%	94.653%
35.0	145.712	9.995	837.188	.989%	95.797%
36.0	109.320	8.120	845.309	.803%	96.726%
37.0	84.326	6.316	851.624	.625%	97.448%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	60.580	4.837	856.461	.478%	98.002%
39.0	41.937	3.499	859.96	.346%	98.402%
40.0	27.291	2.414	862.375	.239%	98.679%
41.0	17.059	1.579	863.954	.156%	98.859%
42.0	10.818	1.013	864.967	.100%	98.975%
43.0	7.227	0.668	865.635	.066%	99.052%
44.0	5.586	0.484	866.119	.048%	99.107%
45.0	4.310	0.380	866.499	.038%	99.151%
46.0	3.393	0.301	866.8	.030%	99.185%
47.0	2.773	0.245	867.046	.024%	99.213%
48.0	2.494	0.213	867.259	.021%	99.237%
49.0	2.372	0.200	867.458	.020%	99.260%
50.0	2.251	0.193	867.651	.019%	99.282%
51.0	2.146	0.186	867.837	.018%	99.304%
52.0	2.059	0.180	868.018	.018%	99.324%
53.0	1.978	0.176	868.193	.017%	99.344%
54.0	1.897	0.171	868.364	.017%	99.364%
55.0	1.839	0.167	868.531	.016%	99.383%
56.0	1.792	0.164	868.695	.016%	99.402%
57.0	1.734	0.161	868.856	.016%	99.420%
58.0	1.688	0.158	869.014	.016%	99.438%
59.0	1.665	0.157	869.171	.016%	99.456%
60.0	1.636	0.156	869.327	.015%	99.474%
61.0	1.589	0.154	869.481	.015%	99.492%
62.0	1.566	0.152	869.633	.015%	99.509%
63.0	1.537	0.151	869.784	.015%	99.526%
64.0	1.514	0.150	869.934	.015%	99.544%
65.0	1.497	0.149	870.083	.015%	99.561%
66.0	1.485	0.149	870.231	.015%	99.578%
67.0	1.485	0.149	870.381	.015%	99.595%
68.0	1.444	0.148	870.529	.015%	99.612%
69.0	1.444	0.147	870.676	.015%	99.629%
70.0	1.433	0.148	870.824	.015%	99.645%
71.0	1.439	0.148	870.973	.015%	99.662%
72.0	1.433	0.149	871.122	.015%	99.680%
73.0	1.404	0.148	871.27	.015%	99.696%
74.0	1.427	0.149	871.419	.015%	99.714%
75.0	1.415	0.150	871.569	.015%	99.731%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.415	0.150	871.719	.015%	99.748%
77.0	1.398	0.150	871.869	.015%	99.765%
78.0	1.392	0.149	872.019	.015%	99.782%
79.0	1.386	0.149	872.168	.015%	99.799%
80.0	1.386	0.149	872.318	.015%	99.816%
81.0	1.380	0.150	872.467	.015%	99.833%
82.0	1.357	0.148	872.616	.015%	99.850%
83.0	1.433	0.152	872.767	.015%	99.868%
84.0	1.456	0.157	872.925	.016%	99.886%
85.0	1.485	0.161	873.085	.016%	99.904%
86.0	1.572	0.167	873.252	.017%	99.923%
87.0	1.578	0.172	873.425	.017%	99.943%
88.0	1.543	0.171	873.596	.017%	99.963%
89.0	1.502	0.167	873.763	.017%	99.982%
90.0	1.421	0.160	873.923	.016%	100.000%

Zonal flux distribution table

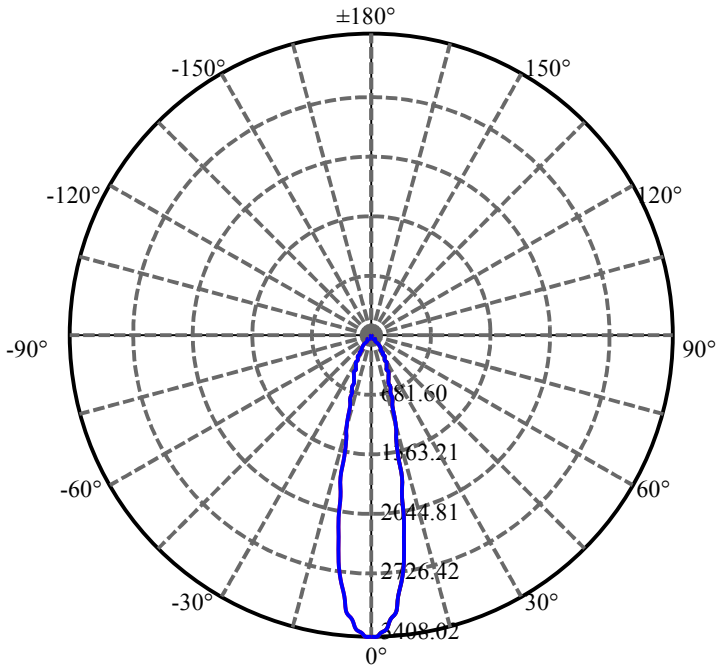
ZONAL LUMEN SUMMARY

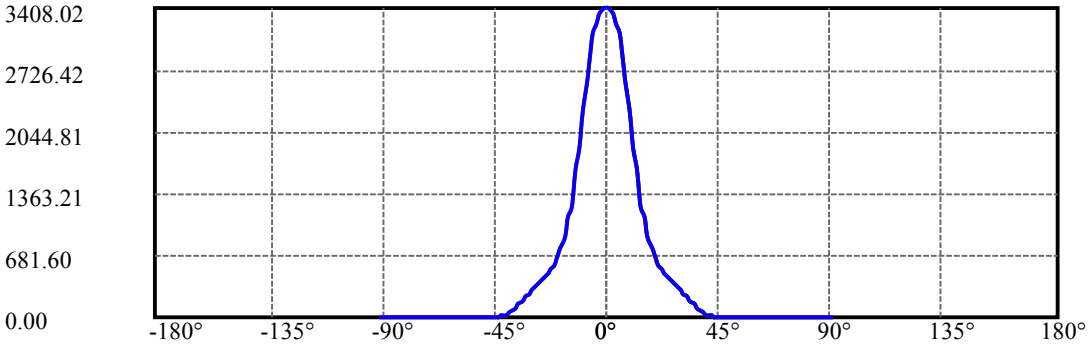
Zone	Lumens	%Lamp	%Fixt
0-30	773.98	76.56%	88.56%
0-40	862.37	85.30%	98.68%
0-60	869.33	85.99%	99.47%
0-90	873.76	86.43%	99.98%
0-120	873.76	86.43%	99.98%
0-180	873.92	86.44%	100.00%
60-90	4.59	0.45%	0.53%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-25.82	699.14	69.15%	80.00%

ZONAL LUMEN SUMMARY

0-10	263.84
10-20	312.01
20-30	198.13
30-40	88.40
40-50	5.28
50-60	1.68
60-70	1.50
70-80	1.49
80-90	1.44
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):

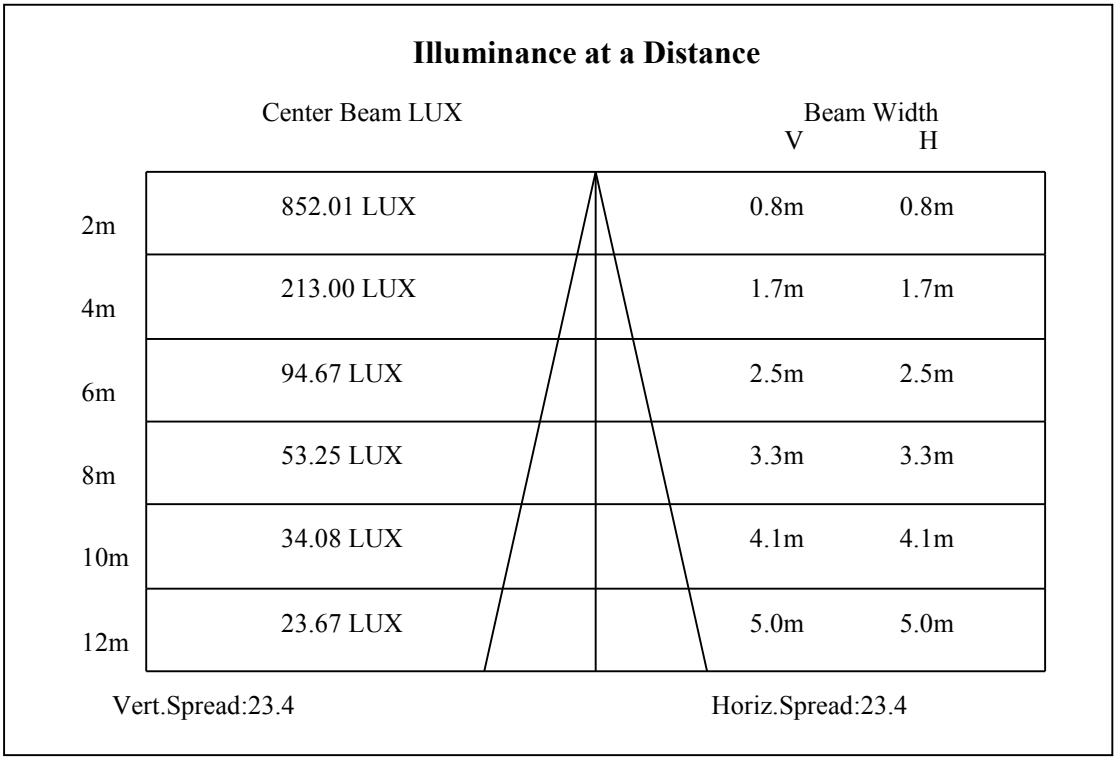
C0/C180:

C90/C270:

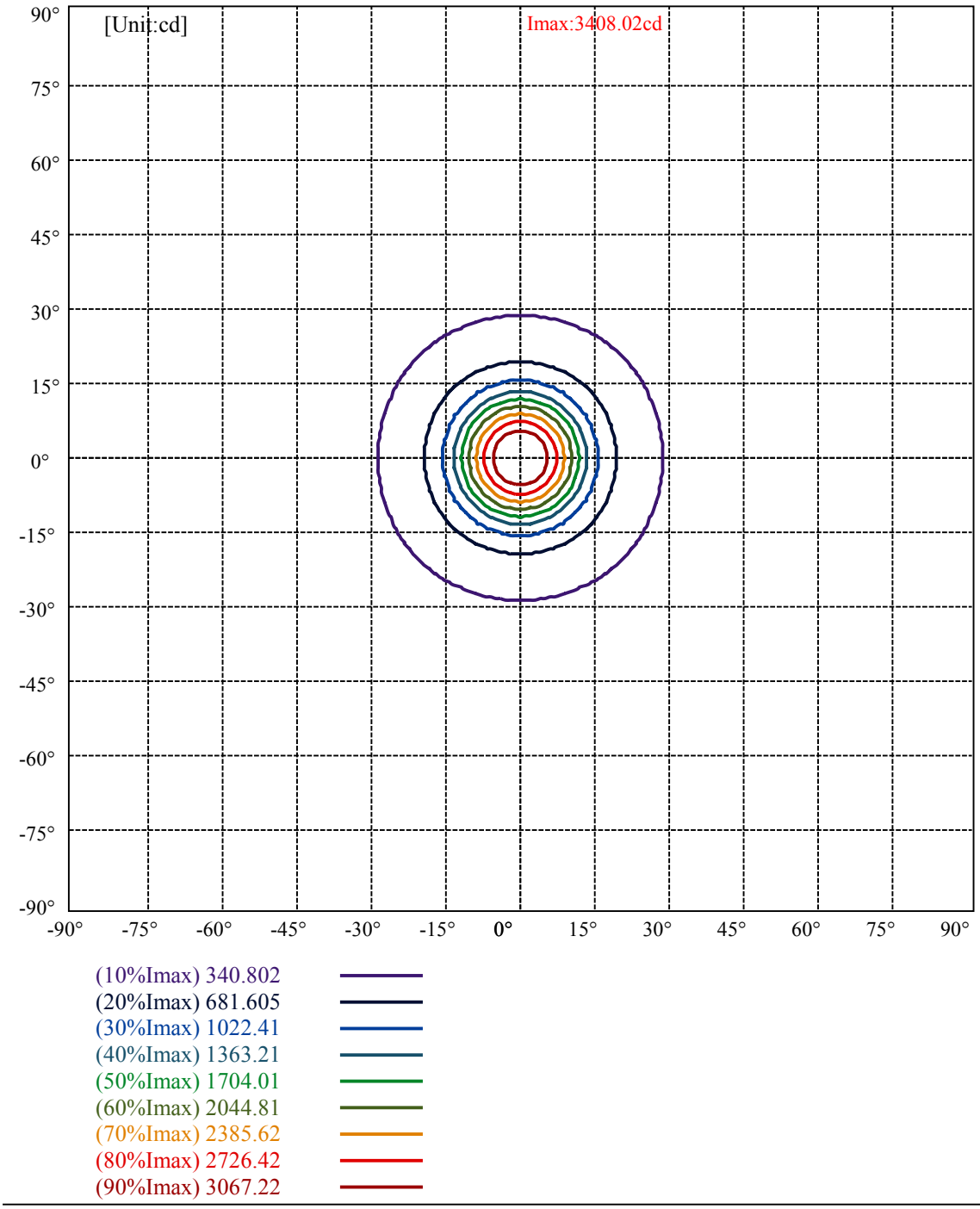
Field angle(10%Imax):C0/180Left:28.3 Right:28.3
:C90/270Left:28.3 Right:28.3

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

Lux distance Curve



ISO-Intensity(V-H)



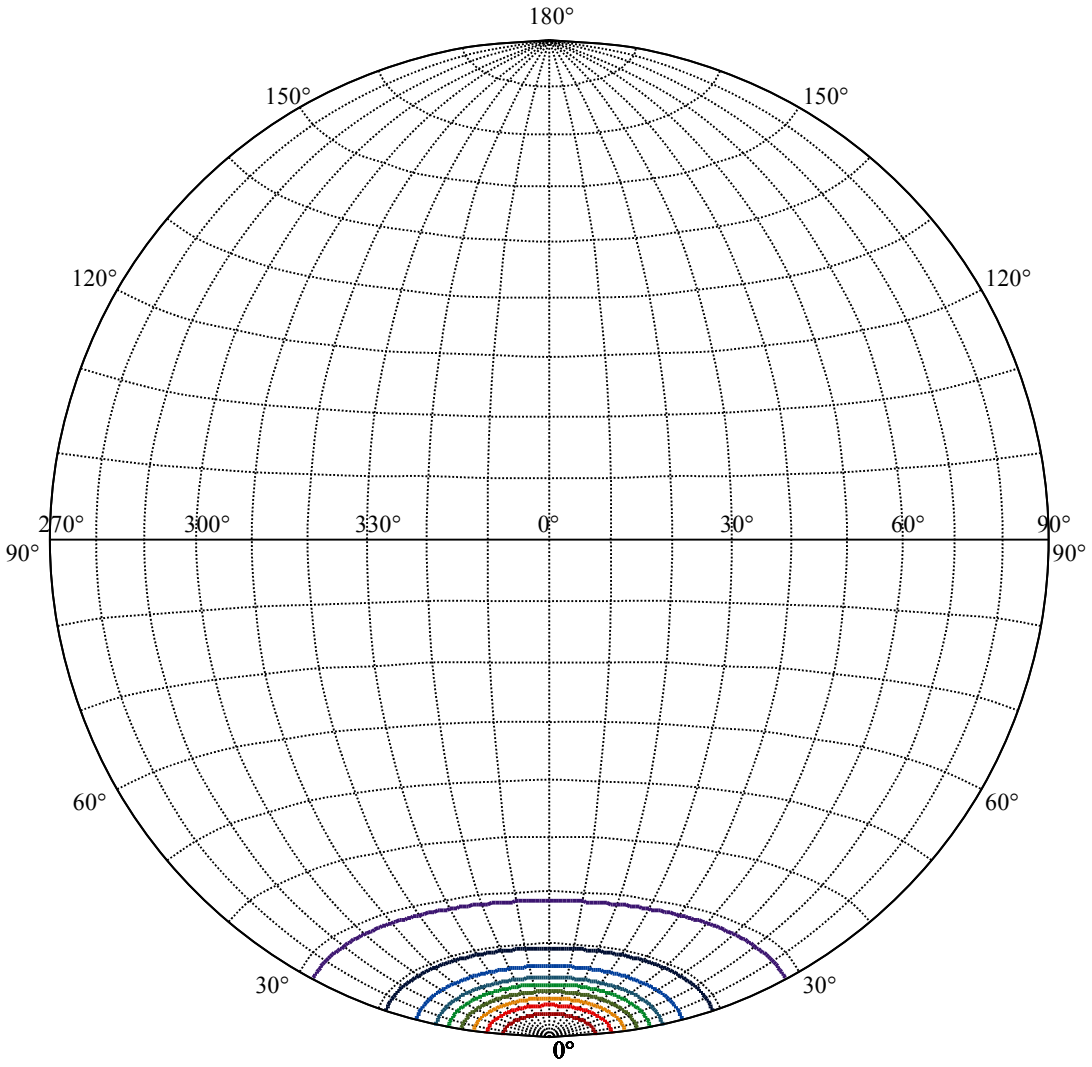
(10%Imax) 340.802
(20%Imax) 681.605
(30%Imax) 1022.41
(40%Imax) 1363.21
(50%Imax) 1704.01
(60%Imax) 2044.81
(70%Imax) 2385.62
(80%Imax) 2726.42
(90%Imax) 3067.22

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/24
Humidity(%): 60.0%

Operator: GC2019092410
Distance(m): 6.81

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:3408.02

(10%Imax) 340.802
(20%Imax) 681.605
(30%Imax) 1022.41
(40%Imax) 1363.21
(50%Imax) 1704.01
(60%Imax) 2044.81
(70%Imax) 2385.62
(80%Imax) 2726.42
(90%Imax) 3067.22

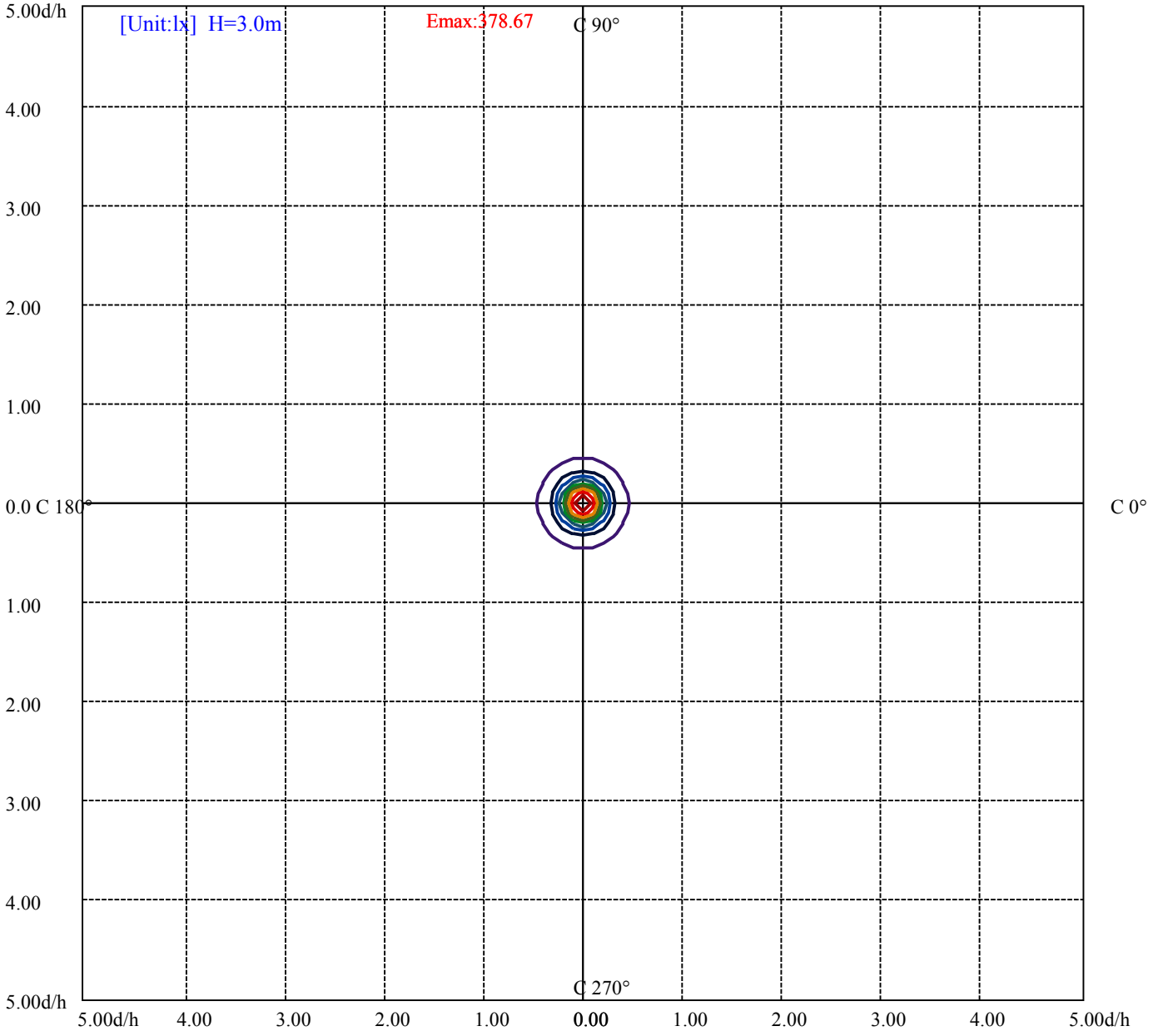
Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/24
Humidity(%): 60.0%

Operator: GC2019092410
Distance(m): 6.81

Nata 1653-S

ISO illuminance diagram

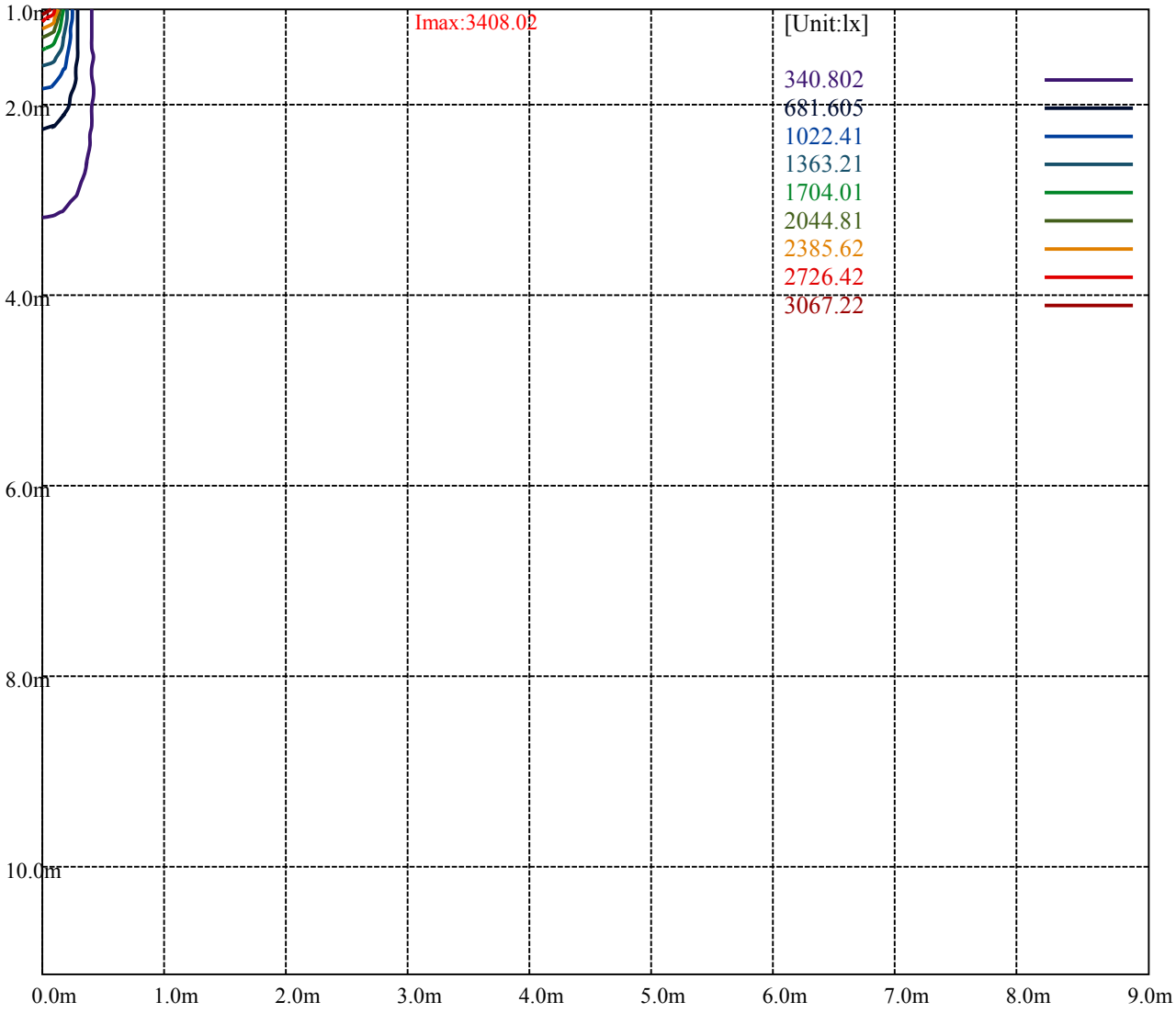


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/24
Humidity(%): 60.0%

Operator: GC2019092410
Distance(m): 6.81

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/24
Humidity(%): 60.0%

Operator: GC2019092410
Distance(m): 6.81

Luminance Limitting Curve(no luminous side)

Luminance Table

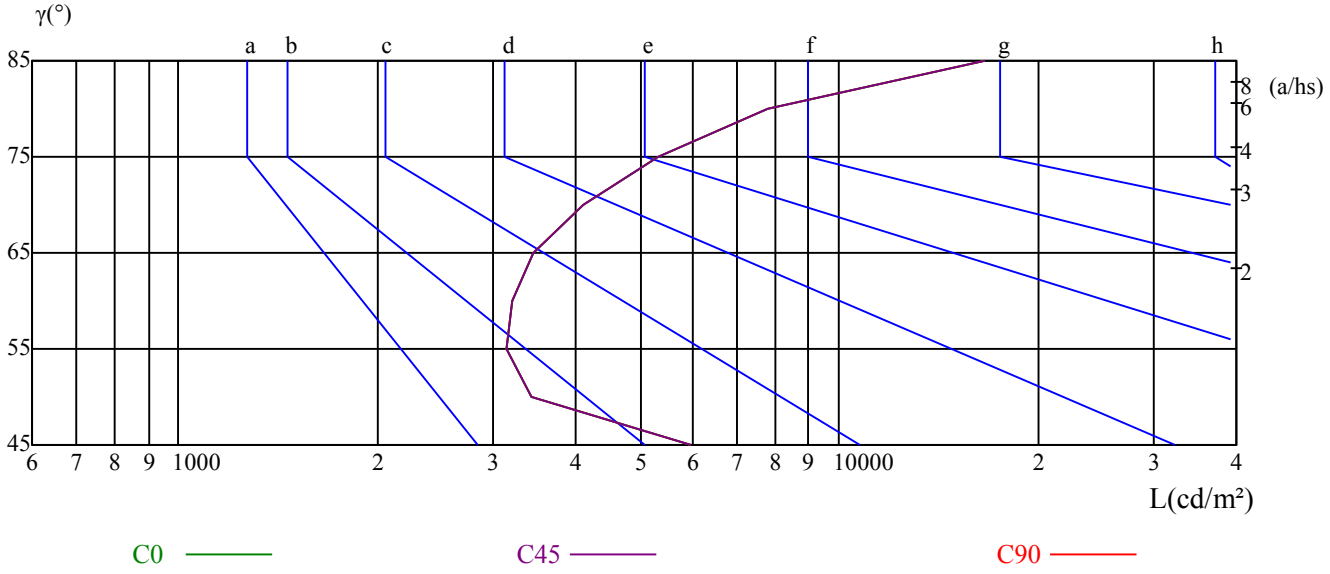
γ	45	50	55	60	65	70	75	80	85
C0	5952	3419	3131	3195	3458	4091	5340	7796	16638
C45	5952	3419	3131	3195	3458	4091	5340	7796	16638
C90	5952	3419	3131	3195	3458	4091	5340	7796	16638

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3458	3458	3458	5340	5340	5340	16638	16638	16638

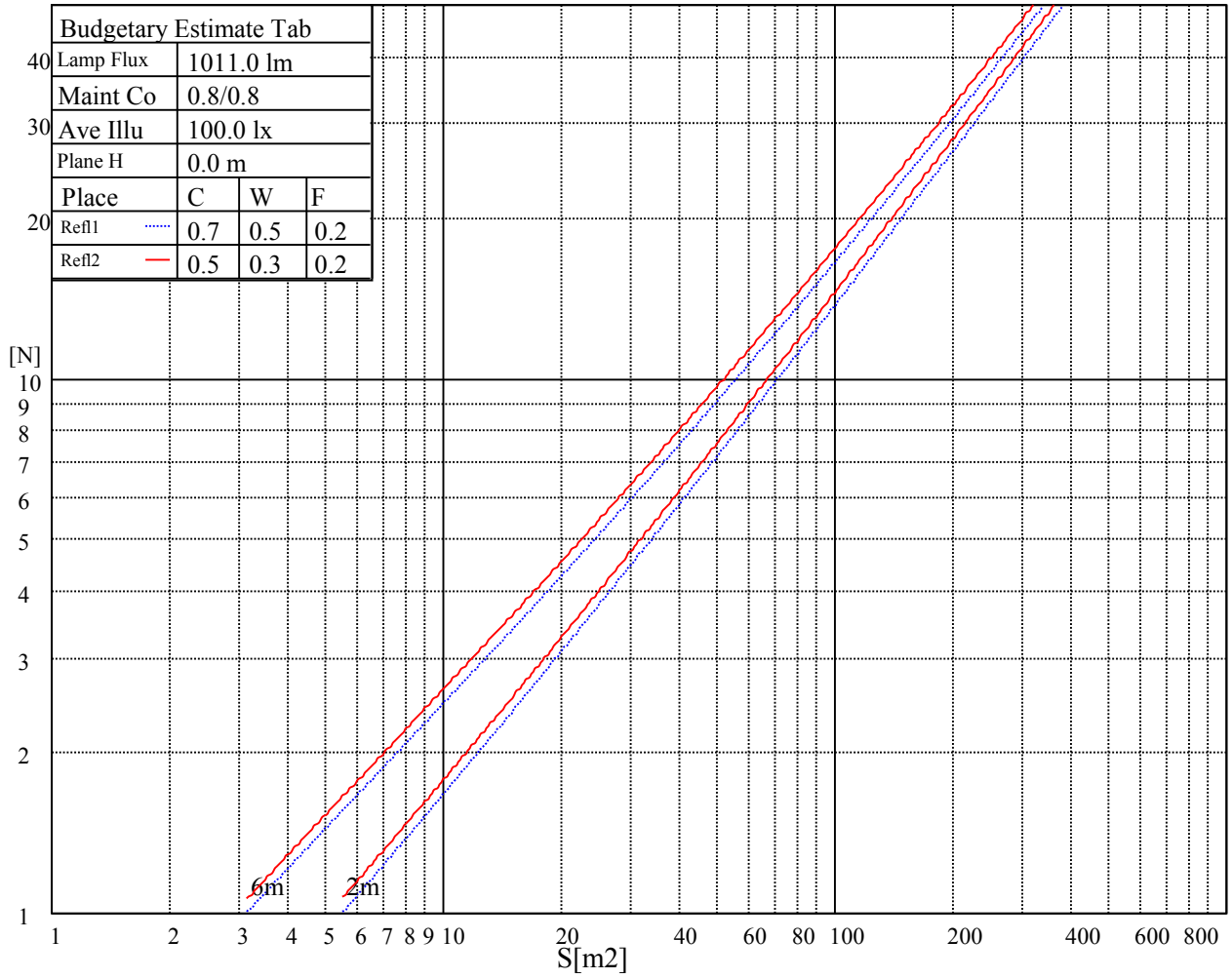
Glare Table

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: GMS 1800
Temperature(°C): 25.0

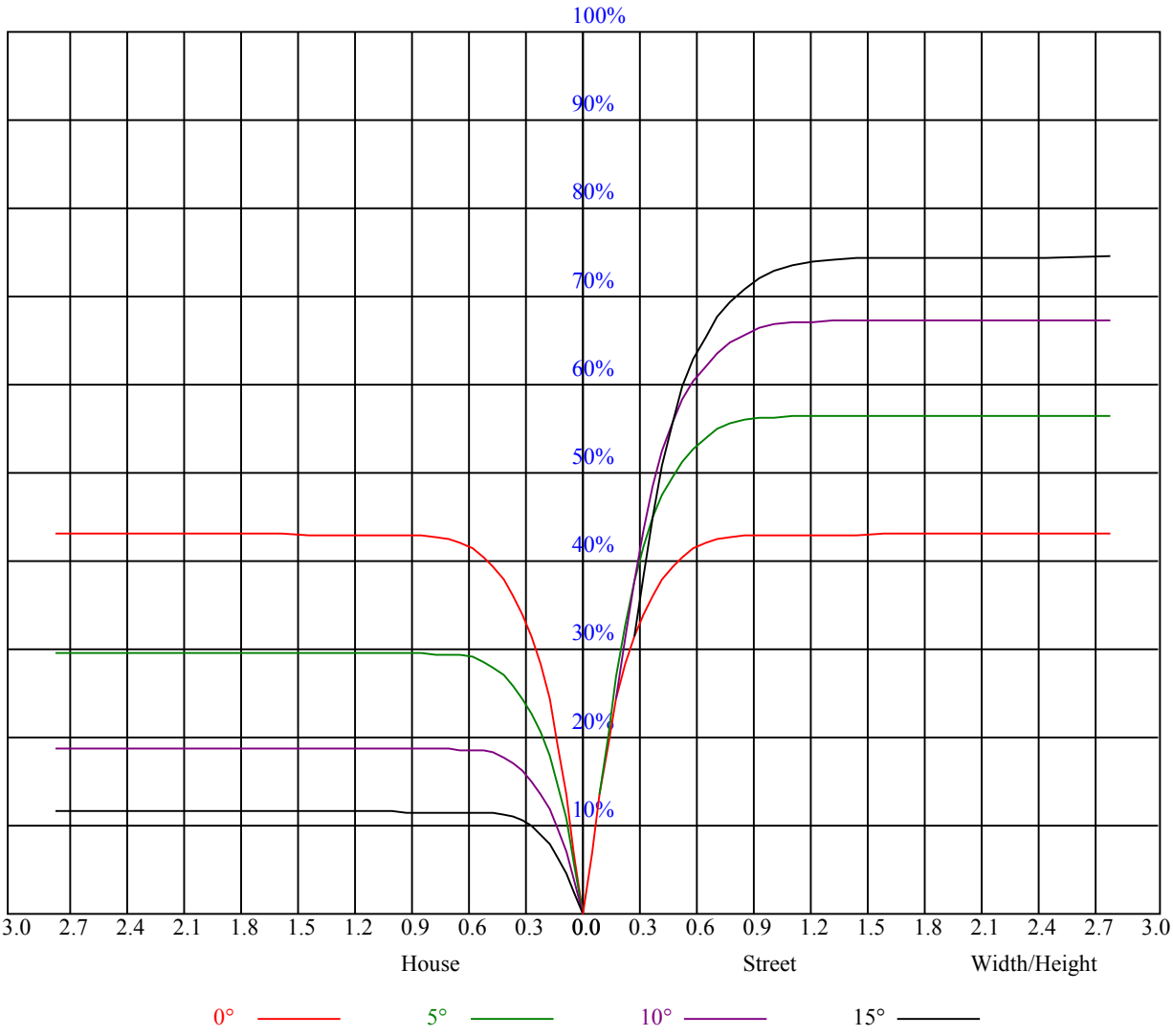
Date: 2019/9/24
Humidity(%): 60.0%

Operator: GC2019092410
Distance(m): 6.81

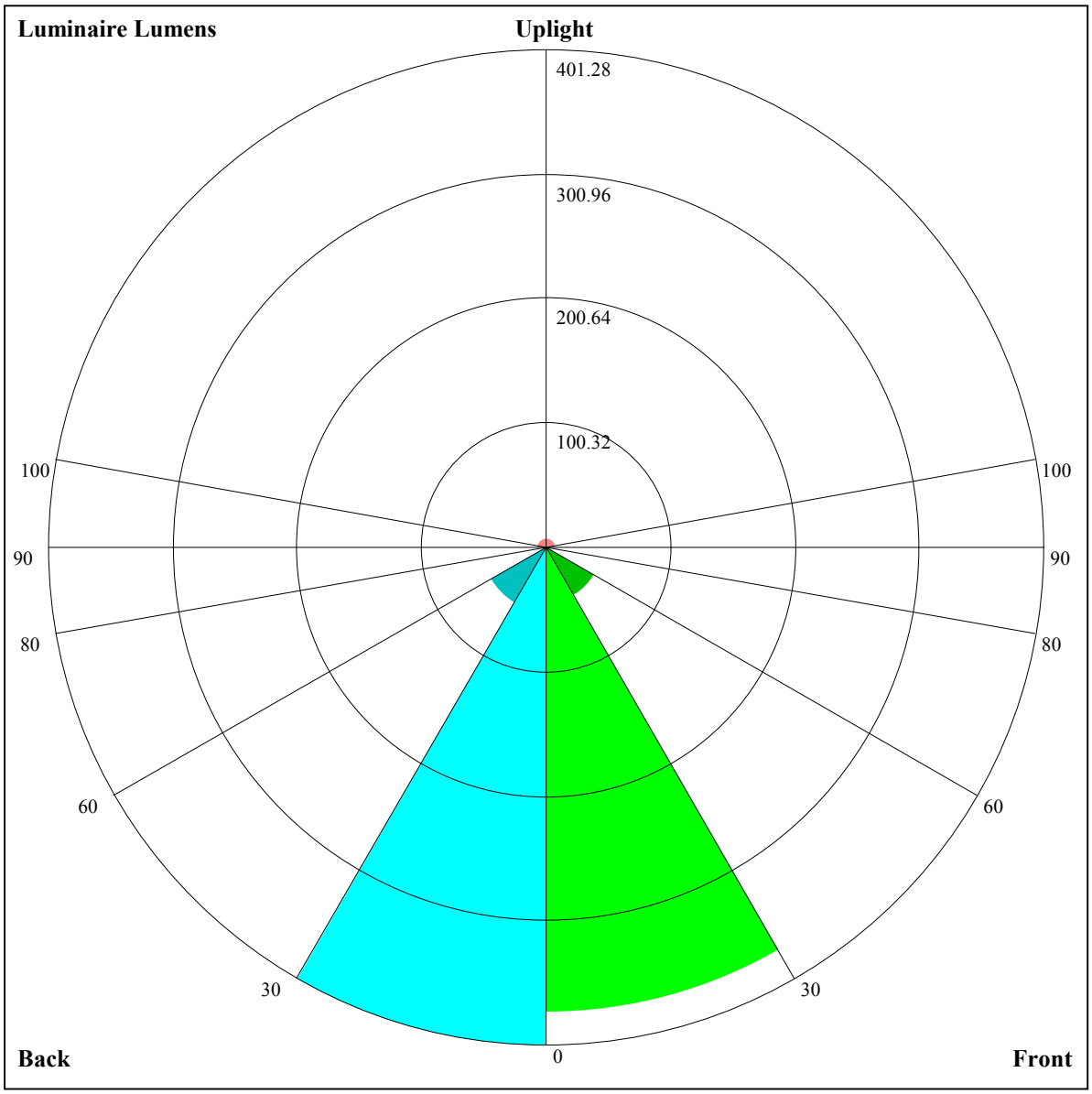
Utilization factor table for indoor luminaire

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	1.03	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	0.86
1	0.97	0.95	0.94	0.95	0.94	0.92	0.92	0.90	0.89	0.89	0.88	0.87	0.86	0.85	0.84	0.83
2	0.92	0.89	0.87	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.82	0.83	0.82	0.80	0.79
3	0.87	0.84	0.81	0.86	0.83	0.81	0.84	0.82	0.79	0.82	0.80	0.78	0.80	0.79	0.77	0.76
4	0.83	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.76	0.79	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.76	0.74	0.71	0.75	0.73	0.71	0.70
6	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.67
7	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
8	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.62
9	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.58

Coefficient Utilization Curve



Equipment: GMS 1800	Date: 2019/9/24	Operator: GC2019092410
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 6.81



Luminaire Lumens:
FL=375.69,FM=45.15,FH=1.51,FVH=0.84
BL=401.28,BM=51.15,BH=1.49,BVH=0.77
UL=1.55,UH=7.38

BUG Rating:B1-U1-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	3410.69	3380.07	3325.31	3238.54	3127.17	2981.00	2790.28	2561.05	2301.65
45.0	3400.48	3419.97	3416.72	3390.27	3348.05	3271.02	3157.33	3011.16	2828.79
90.0	3428.79	3437.14	3406.98	3369.39	3303.50	3249.21	3061.28	2894.69	2778.21
135.0	3392.13	3421.36	3432.04	3416.26	3373.57	3330.88	3247.35	3127.63	2978.68
180.0	3410.69	3417.65	3403.27	3381.92	3331.34	3251.53	3137.38	2982.39	2876.59
225.0	3400.48	3363.82	3309.53	3231.58	3105.82	3010.23	2742.95	2513.25	2362.44
270.0	3428.79	3404.66	3374.03	3310.00	3213.94	3083.55	2905.82	2695.62	2448.29
315.0	3392.13	3362.43	3274.27	3186.56	3039.93	2862.20	2647.36	2394.46	2124.86
360.0	3410.69	3380.07	3325.31	3238.54	3127.17	2981.00	2790.28	2561.05	2301.65

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2034.37	1779.61	1548.53	1382.87	1172.66	896.28	896.28	837.81	751.64
45.0	2613.48	2367.08	2101.65	1894.23	1604.67	1396.32	1250.15	1096.09	965.70
90.0	2464.06	2308.61	2049.22	1789.82	1556.88	1352.70	1178.69	900.41	900.41
135.0	2797.24	2583.32	2337.85	2072.42	1814.88	1574.05	1364.30	1187.04	1039.48
180.0	2587.96	2344.81	2183.79	1914.65	1661.75	1439.48	1251.08	1090.06	953.64
225.0	1987.97	1829.73	1584.72	1296.56	1190.76	916.37	916.37	810.71	724.87
270.0	2189.36	1920.68	1669.17	1530.43	1252.01	1148.99	1006.53	845.05	788.90
315.0	1857.11	1612.10	1396.32	1212.10	897.49	897.49	877.86	750.06	677.44
360.0	2034.37	1779.61	1548.53	1382.87	1172.66	896.28	896.28	837.81	751.64

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	679.16	617.54	564.73	519.30	479.67	448.16	422.50	400.60	375.68
45.0	860.36	773.13	700.74	636.70	582.87	537.40	498.42	466.40	438.09
90.0	803.75	724.08	657.58	600.83	552.80	511.23	474.66	456.56	429.09
135.0	916.98	852.48	761.06	661.29	624.17	572.20	527.19	489.14	457.58
180.0	839.48	745.28	669.18	607.47	556.42	511.88	475.68	443.20	417.68
225.0	653.96	594.75	545.70	502.64	471.78	434.34	414.10	390.81	359.81
270.0	709.09	640.88	583.34	536.47	493.78	456.19	426.96	403.29	380.09
315.0	638.14	564.91	536.70	495.82	461.90	434.01	410.07	386.17	357.07
360.0	679.16	617.54	564.73	519.30	479.67	448.16	422.50	400.60	375.68

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	345.61	313.73	295.64	249.84	230.21	197.68	167.56	137.12	110.44
45.0	413.50	389.83	362.46	331.37	298.42	265.94	233.46	233.46	203.71
90.0	405.61	382.50	354.80	323.66	291.92	259.21	225.89	194.75	162.88
135.0	431.60	409.32	383.34	354.10	322.55	291.46	258.05	239.02	239.02
180.0	394.47	370.81	354.10	310.48	292.85	262.23	235.78	235.78	163.20
225.0	336.52	306.68	274.94	243.48	212.43	180.37	149.70	119.72	93.09
270.0	353.18	323.48	291.00	259.91	233.92	233.92	171.41	142.41	113.73
315.0	323.38	291.55	258.47	226.22	195.31	161.85	133.87	106.68	79.63
360.0	345.61	313.73	295.64	249.84	230.21	197.68	167.56	137.12	110.44

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	84.36	59.12	39.03	22.00	13.04	8.07	6.64	4.92	3.20
45.0	149.60	119.58	92.81	67.66	45.52	27.52	16.29	9.28	7.38
90.0	134.20	104.83	78.56	54.62	34.71	20.23	11.83	8.49	6.82
135.0	160.79	138.89	105.80	83.11	59.63	38.05	21.44	12.20	9.10
180.0	133.55	106.22	79.12	55.36	34.25	19.16	10.90	8.68	7.84
225.0	68.54	46.45	27.66	15.45	9.37	8.03	6.50	4.55	3.25
270.0	86.87	62.37	40.88	24.13	13.78	8.77	7.52	5.94	4.18
315.0	56.66	37.17	20.79	13.18	8.03	6.64	5.43	3.76	2.92
360.0	84.36	59.12	39.03	22.00	13.04	8.07	6.64	4.92	3.20

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	2.74	2.55	2.46	2.37	2.18	2.13	2.00	1.95	1.90
45.0	5.75	3.81	2.88	2.60	2.46	2.32	2.23	2.13	2.04
90.0	4.78	3.67	2.97	2.51	2.46	2.32	2.23	2.13	2.04
135.0	7.42	5.24	3.48	2.92	2.60	2.46	2.37	2.27	2.18
180.0	5.15	3.94	3.06	2.69	2.64	2.41	2.32	2.27	2.13
225.0	2.83	2.69	2.46	2.32	2.27	2.18	2.00	1.95	1.90
270.0	3.25	2.78	2.55	2.37	2.32	2.18	2.09	1.95	1.90
315.0	2.55	2.46	2.32	2.18	2.04	2.00	1.95	1.81	1.72
360.0	2.74	2.55	2.46	2.37	2.18	2.13	2.00	1.95	1.90

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	1.76	1.72	1.72	1.67	1.62	1.58	1.58	1.58	1.53
45.0	2.00	1.90	1.81	1.81	1.76	1.72	1.67	1.62	1.67
90.0	1.95	1.86	1.86	1.81	1.72	1.67	1.72	1.67	1.58
135.0	2.04	2.00	1.95	1.86	1.86	1.76	1.72	1.67	1.67
180.0	2.00	1.95	1.90	1.81	1.76	1.76	1.72	1.62	1.58
225.0	1.86	1.76	1.72	1.72	1.62	1.58	1.58	1.53	1.53
270.0	1.86	1.81	1.76	1.67	1.62	1.67	1.62	1.53	1.53
315.0	1.72	1.72	1.62	1.53	1.53	1.58	1.48	1.48	1.44
360.0	1.76	1.72	1.72	1.67	1.62	1.58	1.58	1.58	1.53

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.48	1.53	1.48	1.44	1.44	1.44	1.44	1.39	1.48
45.0	1.62	1.53	1.58	1.58	1.58	1.48	1.48	1.53	1.48
90.0	1.53	1.58	1.58	1.53	1.58	1.48	1.53	1.48	1.48
135.0	1.58	1.53	1.53	1.53	1.48	1.44	1.39	1.44	1.44
180.0	1.62	1.53	1.48	1.48	1.44	1.44	1.39	1.39	1.35
225.0	1.48	1.48	1.44	1.44	1.48	1.44	1.48	1.39	1.44
270.0	1.53	1.48	1.44	1.44	1.48	1.44	1.39	1.44	1.48
315.0	1.44	1.44	1.44	1.44	1.39	1.39	1.44	1.39	1.35
360.0	1.48	1.53	1.48	1.44	1.44	1.44	1.44	1.39	1.48

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.48	1.44	1.48	1.44	1.48	1.44	1.48	1.44	1.39
45.0	1.53	1.53	1.53	1.44	1.48	1.48	1.44	1.44	1.44
90.0	1.44	1.39	1.48	1.48	1.39	1.39	1.44	1.44	1.39
135.0	1.39	1.35	1.39	1.39	1.44	1.35	1.39	1.30	1.35
180.0	1.39	1.39	1.35	1.35	1.35	1.35	1.30	1.30	1.35
225.0	1.39	1.35	1.39	1.44	1.39	1.35	1.35	1.39	1.35
270.0	1.44	1.39	1.39	1.44	1.39	1.39	1.39	1.44	1.44
315.0	1.39	1.39	1.39	1.35	1.39	1.44	1.35	1.35	1.39
360.0	1.48	1.44	1.48	1.44	1.48	1.44	1.48	1.44	1.39

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.48	1.39	1.48	1.53	1.67	1.81	1.90	1.72	1.35
45.0	1.48	1.39	1.67	1.62	1.53	1.62	1.81	2.00	2.09
90.0	1.39	1.39	1.44	1.44	1.44	1.62	1.72	1.86	1.95
135.0	1.35	1.35	1.39	1.35	1.30	1.30	1.39	1.53	1.62
180.0	1.30	1.25	1.30	1.35	1.25	1.30	1.30	1.30	1.35
225.0	1.30	1.35	1.30	1.39	1.44	1.48	1.16	1.16	1.16
270.0	1.35	1.39	1.39	1.48	1.62	1.72	1.76	1.48	1.25
315.0	1.39	1.35	1.48	1.48	1.62	1.72	1.58	1.30	1.25
360.0	1.48	1.39	1.48	1.53	1.67	1.81	1.90	1.72	1.35

Intensity data(cd)

C/γ(°)	90.0
0.0	1.35
45.0	1.90
90.0	1.86
135.0	1.53
180.0	1.21
225.0	1.11
270.0	1.25
315.0	1.16
360.0	1.35