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

NATA

Client:
LumCAT: 3-2033-M
Luminaire: 92.70.135.00

Report No: NT2018010514	Voltage(V): 220.3000
Test No: GC2018010514	Current(A): 0.0950
LampCAT: BXRV-DR-1830-H-3000-A-13	Power (W): 19.2700
Lamp flux(lm): 1355.0	PF: 0.9190
Number of Lamps: 1	Ballast type: AC
Length(mm): 78	Width(mm): 78
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1215.13, Efficiency(%): 89.68% , Luminous Efficacy(lm/W): 63.06
Central intensity(cd): 8821.785, Maximum intensity(cd): 8821.785
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=15.0
[C90/270]Total=15.0
Field angle(10%Imax): [C0/180]Total=32.0
[C90/270]Total=32.0
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.26 C90_270=0.26
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.83%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.401%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8821.786	2.111	2.111	.156%	.174%
1.0	8721.613	16.692	18.802	1.232%	1.547%
2.0	8421.209	32.229	51.031	2.379%	4.200%
3.0	7931.074	45.518	96.549	3.359%	7.946%
4.0	7307.819	55.902	152.451	4.126%	12.546%
5.0	6502.489	62.148	214.599	4.587%	17.661%
6.0	5654.758	64.819	279.418	4.784%	22.995%
7.0	4822.920	64.455	343.873	4.757%	28.299%
8.0	4028.959	61.489	405.362	4.538%	33.360%
9.0	3260.229	55.928	461.29	4.128%	37.962%
10.0	2612.613	49.750	511.041	3.672%	42.057%
11.0	2114.821	44.251	555.292	3.266%	45.698%
12.0	1691.100	38.557	593.849	2.846%	48.871%
13.0	1345.830	33.199	627.048	2.450%	51.604%
14.0	1142.526	30.310	657.358	2.237%	54.098%
15.0	973.304	27.625	684.983	2.039%	56.371%
16.0	881.275	26.638	711.621	1.966%	58.564%
17.0	786.629	25.221	736.842	1.861%	60.639%
18.0	718.718	24.355	761.197	1.797%	62.643%
19.0	658.585	23.513	784.71	1.735%	64.578%
20.0	610.314	22.891	807.601	1.689%	66.462%
21.0	574.520	22.578	830.179	1.666%	68.320%
22.0	546.927	22.468	852.646	1.658%	70.169%
23.0	521.980	22.366	875.012	1.651%	72.010%
24.0	503.273	22.448	897.459	1.657%	73.857%
25.0	488.726	22.650	920.109	1.672%	75.721%
26.0	476.481	22.905	943.015	1.690%	77.606%
27.0	465.286	23.164	966.179	1.710%	79.513%
28.0	455.977	23.475	989.654	1.732%	81.445%
29.0	447.792	23.807	1013.461	1.757%	83.404%
30.0	439.086	24.075	1037.536	1.777%	85.385%
31.0	426.534	24.090	1061.626	1.778%	87.368%
32.0	408.703	23.750	1085.377	1.753%	89.322%
33.0	380.252	22.711	1108.087	1.676%	91.191%
34.0	343.309	21.052	1129.14	1.554%	92.924%
35.0	294.876	18.547	1147.687	1.369%	94.450%
36.0	254.749	16.420	1164.107	1.212%	95.801%
37.0	217.376	14.346	1178.453	1.059%	96.982%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	145.648	9.833	1188.287	.726%	97.791%
39.0	101.873	7.030	1195.317	.519%	98.370%
40.0	56.252	3.965	1199.282	.293%	98.696%
41.0	31.079	2.236	1201.518	.165%	98.880%
42.0	17.117	1.256	1202.774	.093%	98.983%
43.0	11.299	0.845	1203.619	.062%	99.053%
44.0	8.492	0.647	1204.266	.048%	99.106%
45.0	7.030	0.545	1204.811	.040%	99.151%
46.0	6.044	0.477	1205.288	.035%	99.190%
47.0	5.394	0.433	1205.721	.032%	99.226%
48.0	5.029	0.410	1206.13	.030%	99.260%
49.0	4.727	0.391	1206.522	.029%	99.292%
50.0	4.455	0.374	1206.896	.028%	99.323%
51.0	4.246	0.362	1207.258	.027%	99.352%
52.0	3.973	0.343	1207.601	.025%	99.381%
53.0	3.799	0.333	1207.934	.025%	99.408%
54.0	3.590	0.319	1208.252	.024%	99.434%
55.0	3.382	0.304	1208.556	.022%	99.459%
56.0	3.167	0.288	1208.844	.021%	99.483%
57.0	3.034	0.279	1209.123	.021%	99.506%
58.0	2.912	0.271	1209.394	.020%	99.528%
59.0	2.726	0.256	1209.65	.019%	99.549%
60.0	2.628	0.250	1209.9	.018%	99.570%
61.0	2.512	0.241	1210.141	.018%	99.590%
62.0	2.425	0.235	1210.375	.017%	99.609%
63.0	2.309	0.226	1210.601	.017%	99.628%
64.0	2.198	0.217	1210.818	.016%	99.645%
65.0	2.123	0.211	1211.029	.016%	99.663%
66.0	2.048	0.205	1211.234	.015%	99.680%
67.0	1.972	0.199	1211.433	.015%	99.696%
68.0	1.903	0.193	1211.626	.014%	99.712%
69.0	1.862	0.191	1211.817	.014%	99.728%
70.0	1.804	0.186	1212.003	.014%	99.743%
71.0	1.758	0.182	1212.185	.013%	99.758%
72.0	1.700	0.177	1212.362	.013%	99.773%
73.0	1.653	0.173	1212.536	.013%	99.787%
74.0	1.642	0.173	1212.709	.013%	99.801%
75.0	1.607	0.170	1212.879	.013%	99.815%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.560	0.166	1213.045	.012%	99.829%
77.0	1.526	0.163	1213.208	.012%	99.842%
78.0	1.520	0.163	1213.371	.012%	99.856%
79.0	1.514	0.163	1213.534	.012%	99.869%
80.0	1.462	0.158	1213.692	.012%	99.882%
81.0	1.439	0.156	1213.847	.011%	99.895%
82.0	1.433	0.156	1214.003	.011%	99.908%
83.0	1.410	0.153	1214.156	.011%	99.920%
84.0	1.398	0.152	1214.309	.011%	99.933%
85.0	1.386	0.151	1214.46	.011%	99.945%
86.0	1.375	0.150	1214.611	.011%	99.958%
87.0	1.351	0.148	1214.759	.011%	99.970%
88.0	1.346	0.147	1214.906	.011%	99.982%
89.0	1.334	0.146	1215.052	.011%	99.994%
90.0	1.351	0.074	1215.127	.005%	100.000%

Zonal flux distribution table

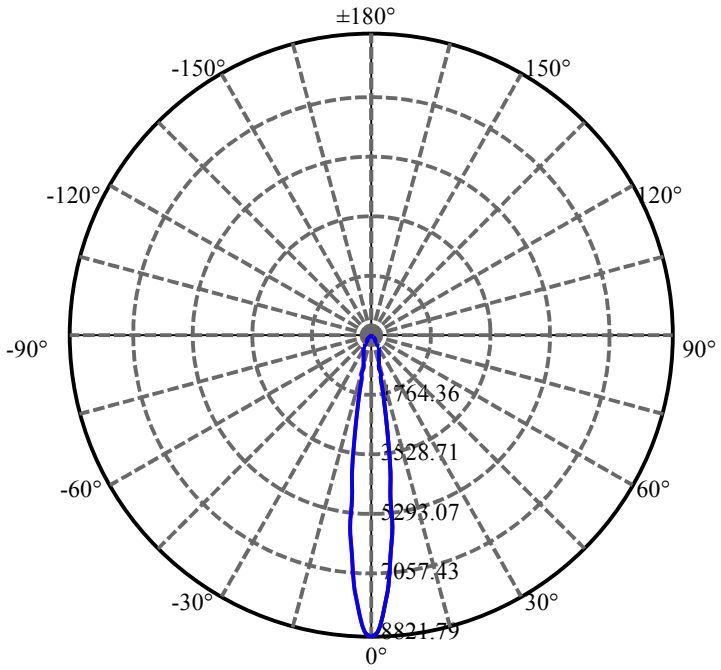
ZONAL LUMEN SUMMARY

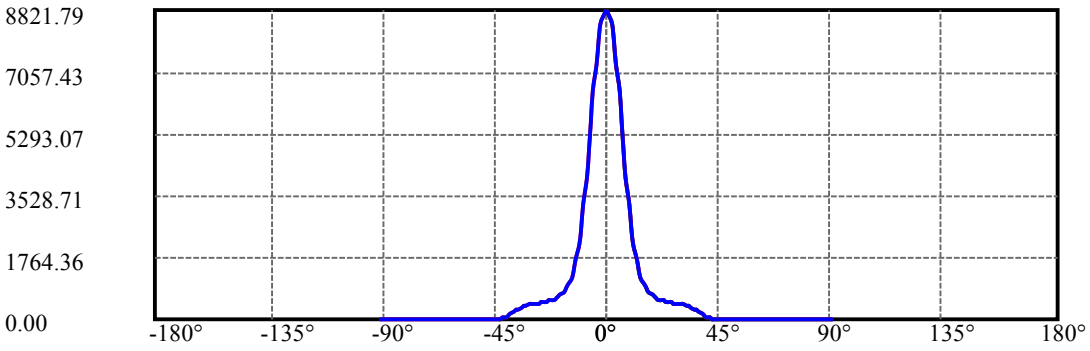
Zone	Lumens	%Lamp	%Fixt
0-30	1037.54	76.57%	85.39%
0-40	1199.28	88.51%	98.70%
0-60	1209.90	89.29%	99.57%
0-90	1215.05	89.67%	99.99%
0-120	1215.05	89.67%	99.99%
0-180	1215.13	89.68%	100.00%
60-90	5.40	0.40%	0.44%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.25	972.10	71.74%	80.00%

ZONAL LUMEN SUMMARY

0-10	511.04
10-20	296.56
20-30	229.94
30-40	161.75
40-50	7.61
50-60	3.00
60-70	2.10
70-80	1.69
80-90	1.36
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):

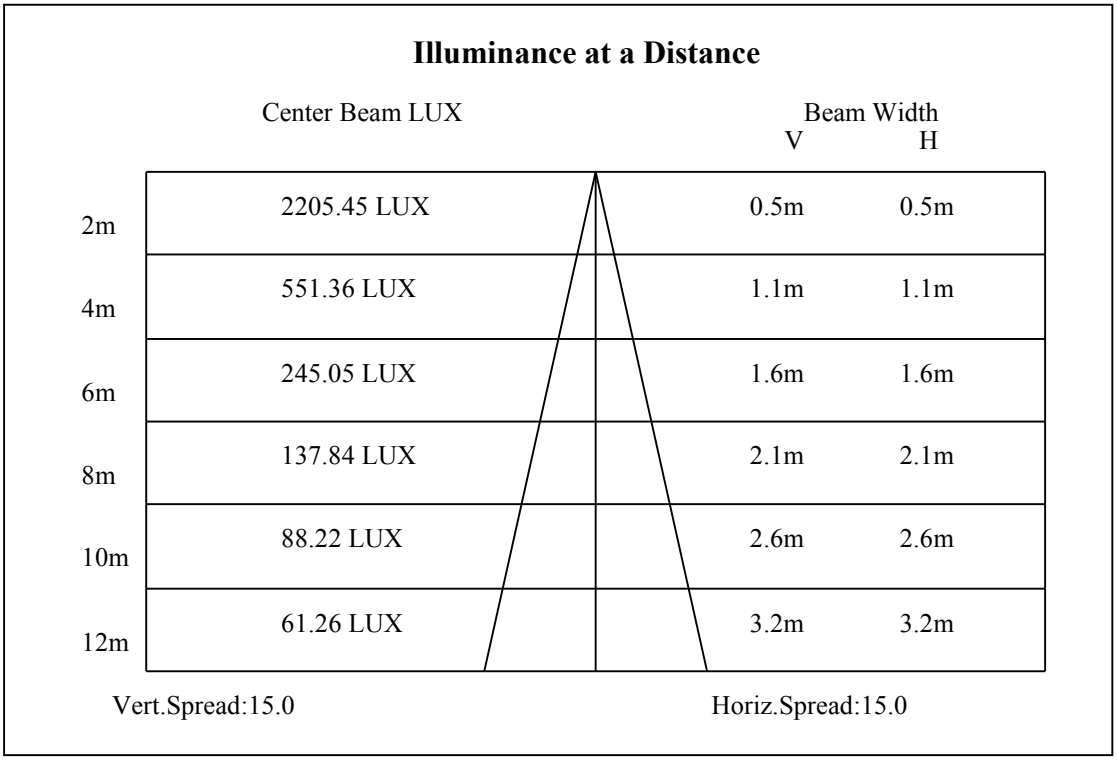
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:16.0 Right:16.0
:C90/270Left:16.0 Right:16.0

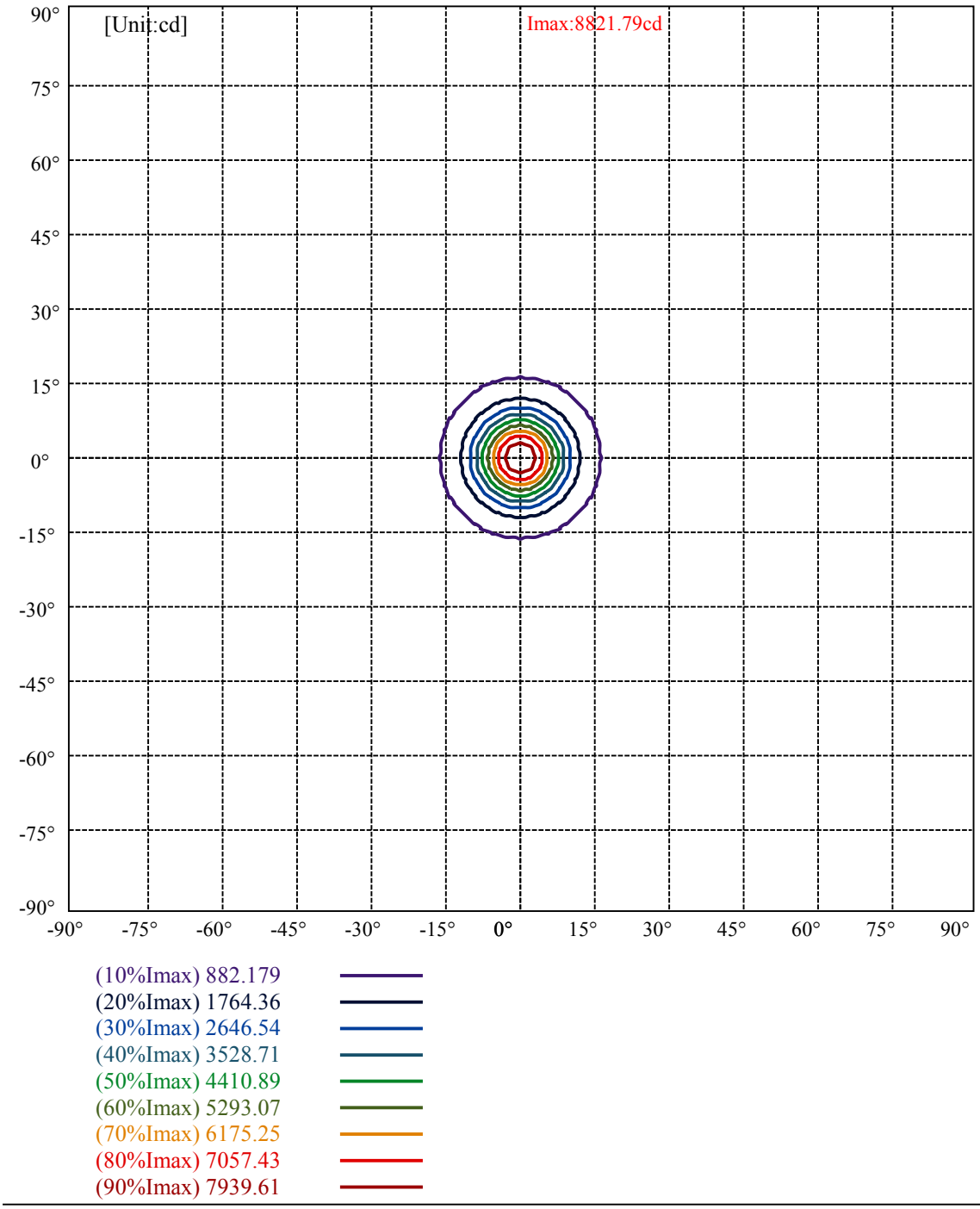
Beam Angle(50%Imax):C0/180Left:7.5 Right:7.5
:C90/270Left:7.5 Right:7.5

Lux distance Curve



Equipment: GMS 1800 Date: 2018/1/2 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 6.81

ISO-Intensity(V-H)

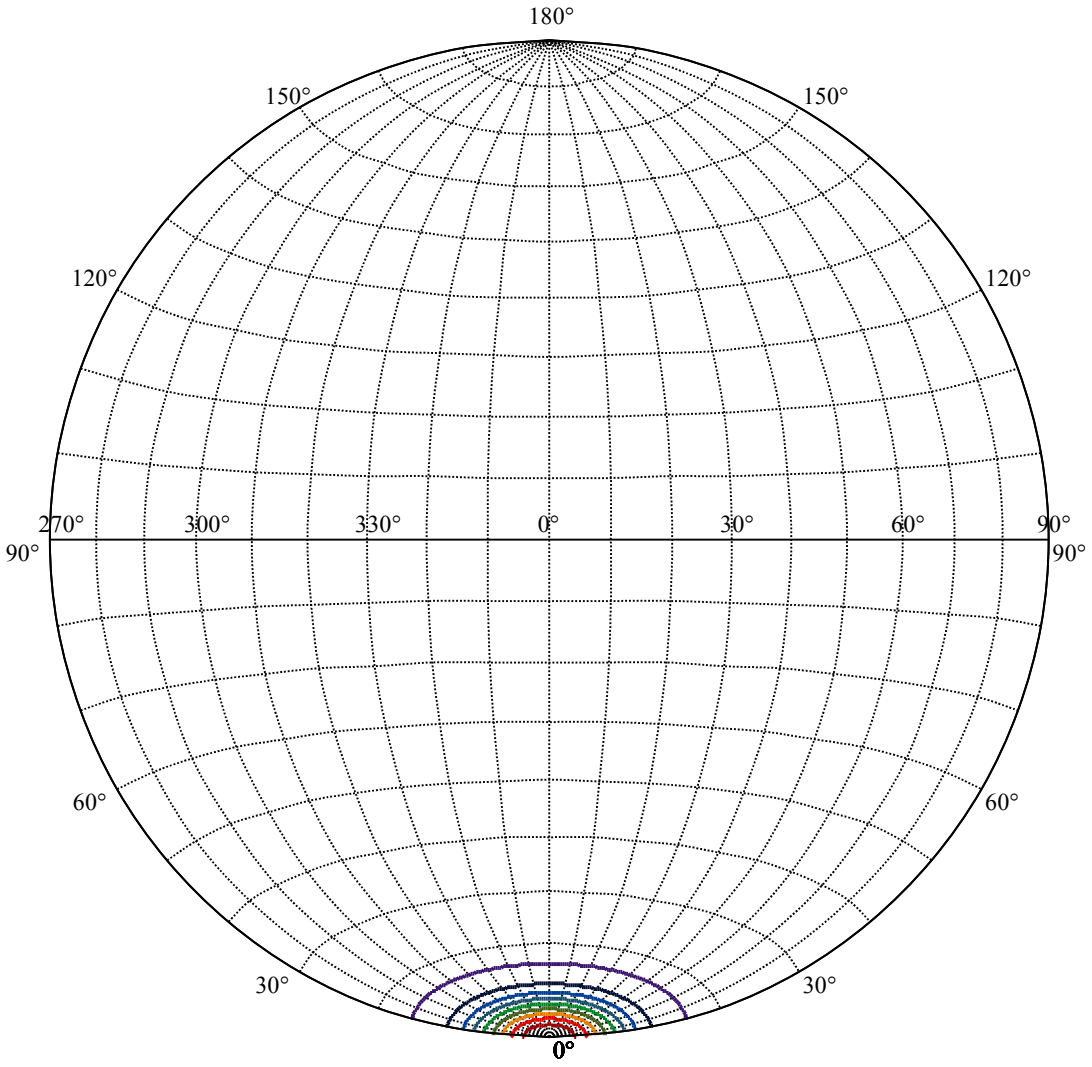


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2018/1/2
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:8821.79

(10%Imax) 882.179
(20%Imax) 1764.36
(30%Imax) 2646.54
(40%Imax) 3528.71
(50%Imax) 4410.89
(60%Imax) 5293.07
(70%Imax) 6175.25
(80%Imax) 7057.43
(90%Imax) 7939.61

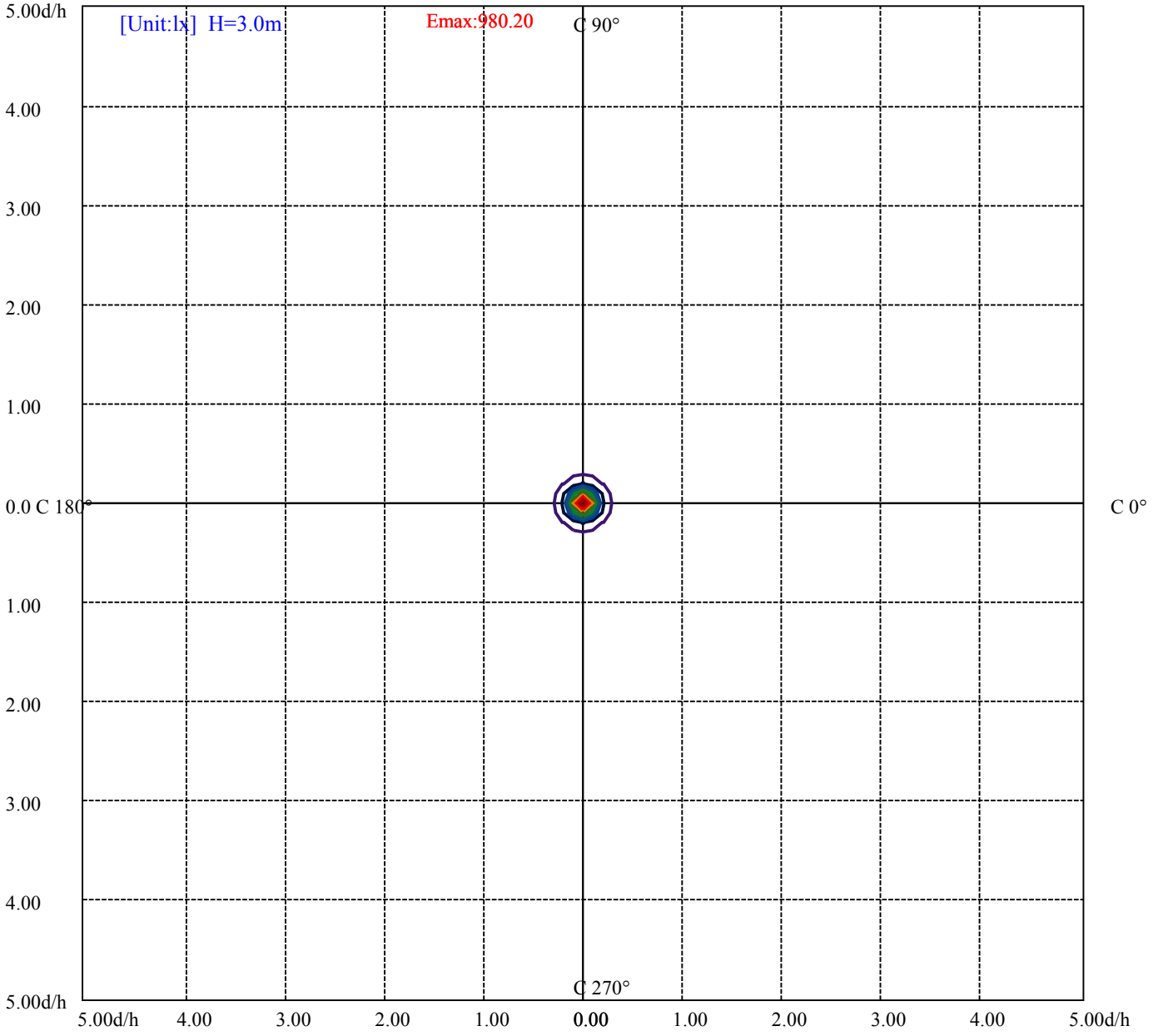
Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2018/1/2
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

NATA 3-2033-M

ISO illuminance diagram

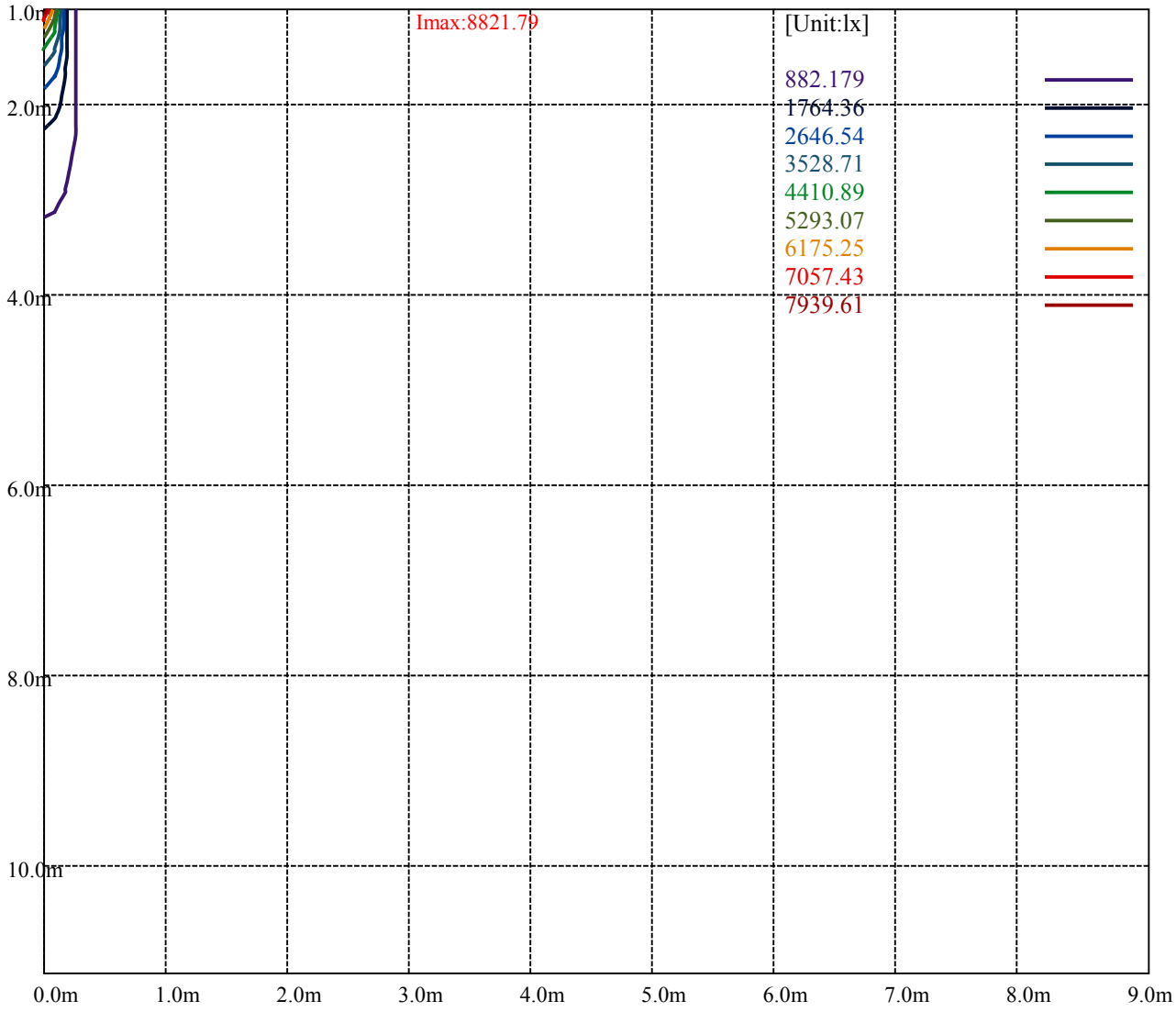


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2018/1/2
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2018/1/2
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Luminance Limitting Curve(no luminous side)

Luminance Table

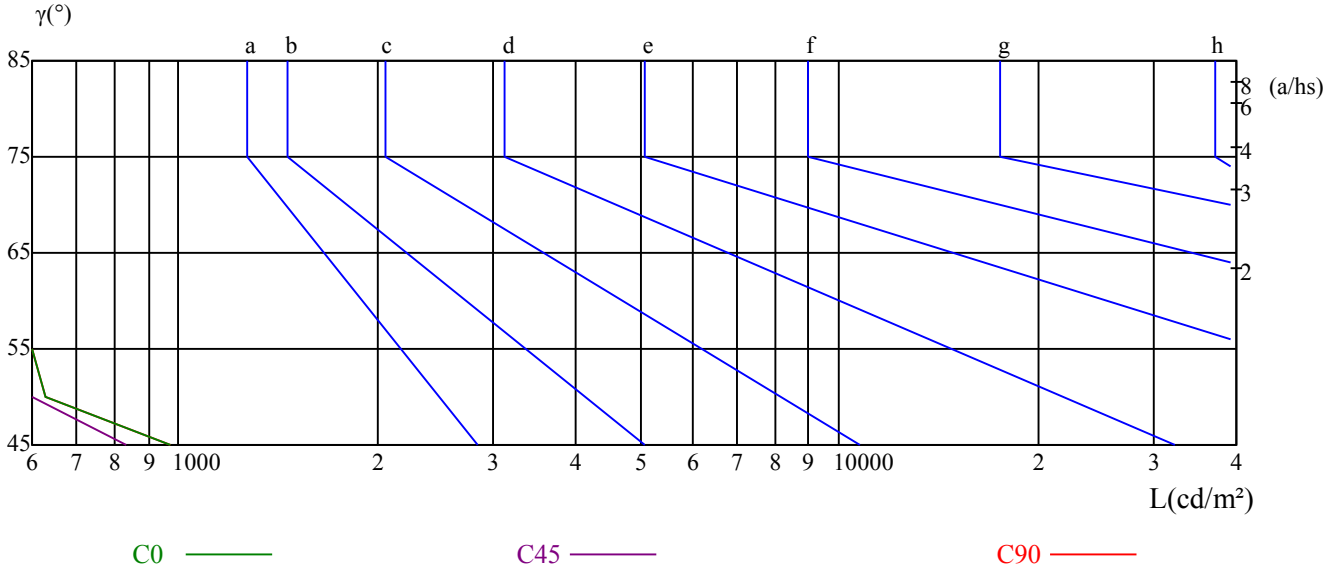
γ	45	50	55	60	65	70	75	80	85
C0	973	629	492	397	336	302	289	285	298
C45	833	531	408	324	270	238	222	215	218
C90	973	629	492	397	336	302	289	285	298

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
826	826	826	1020	1020	1020	2614	2614	2614

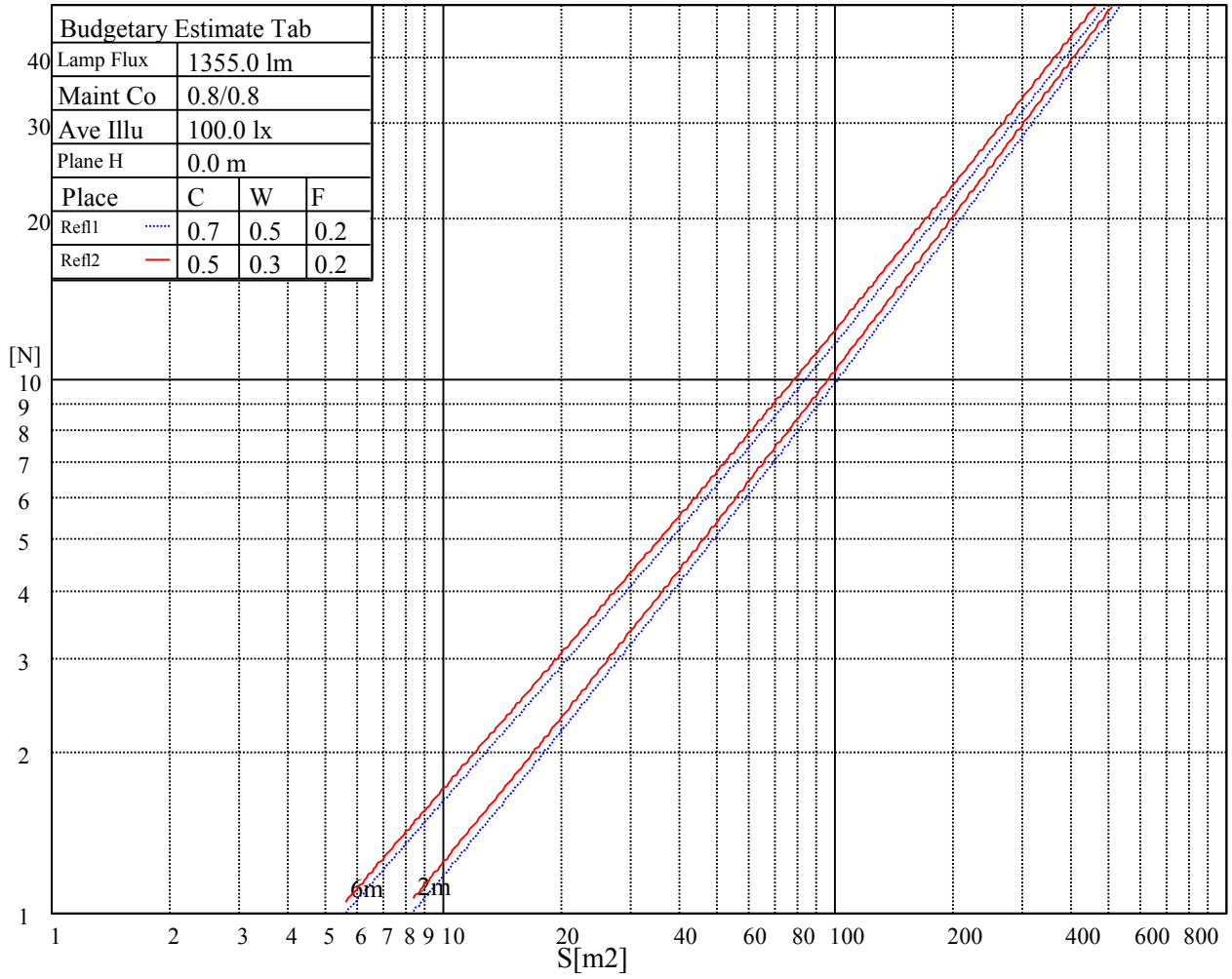
Glare Table

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

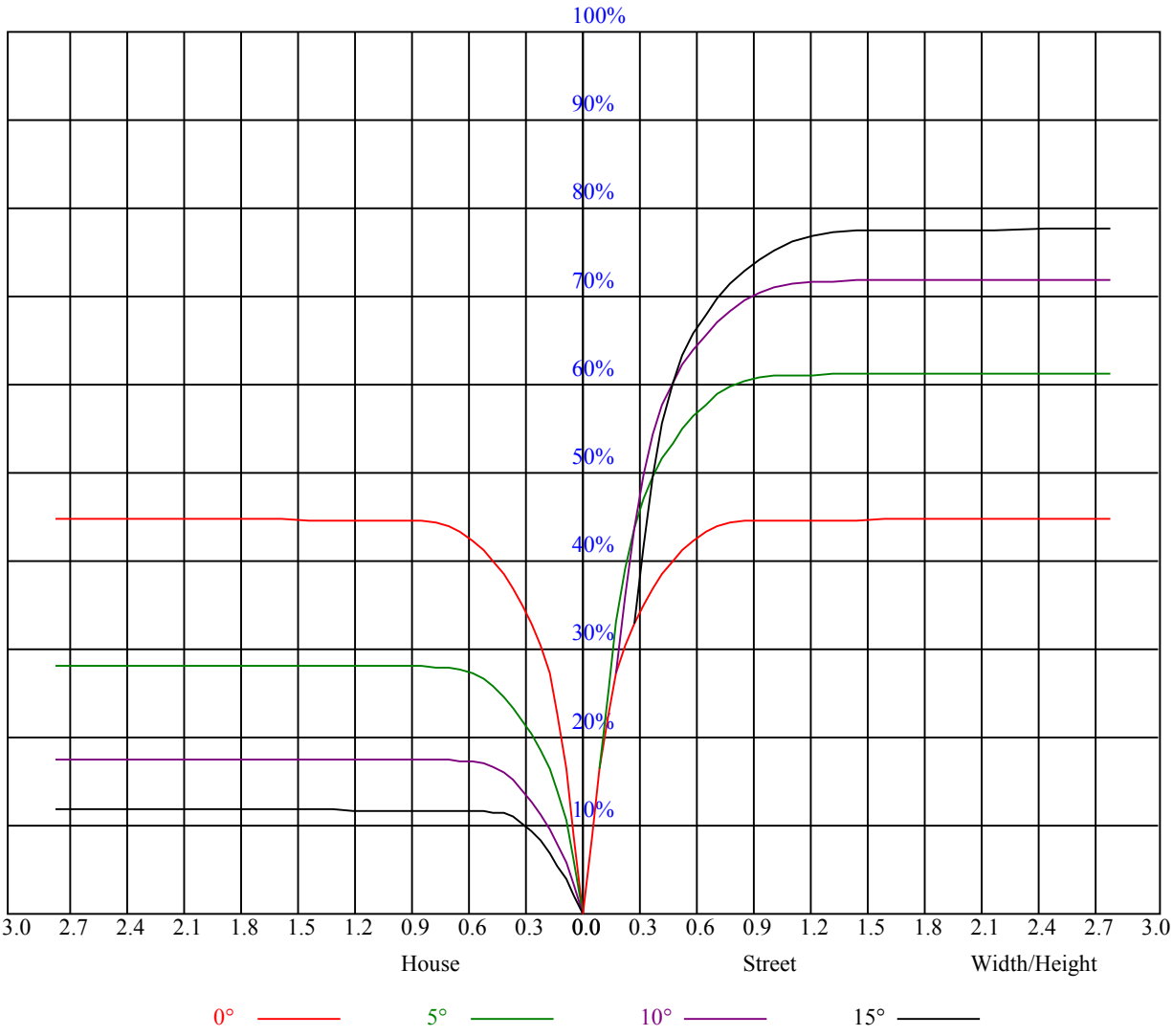


Equipment: GMS 1800 Date: 2018/1/2 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 6.81

Utilization factor table for indoor luminaire

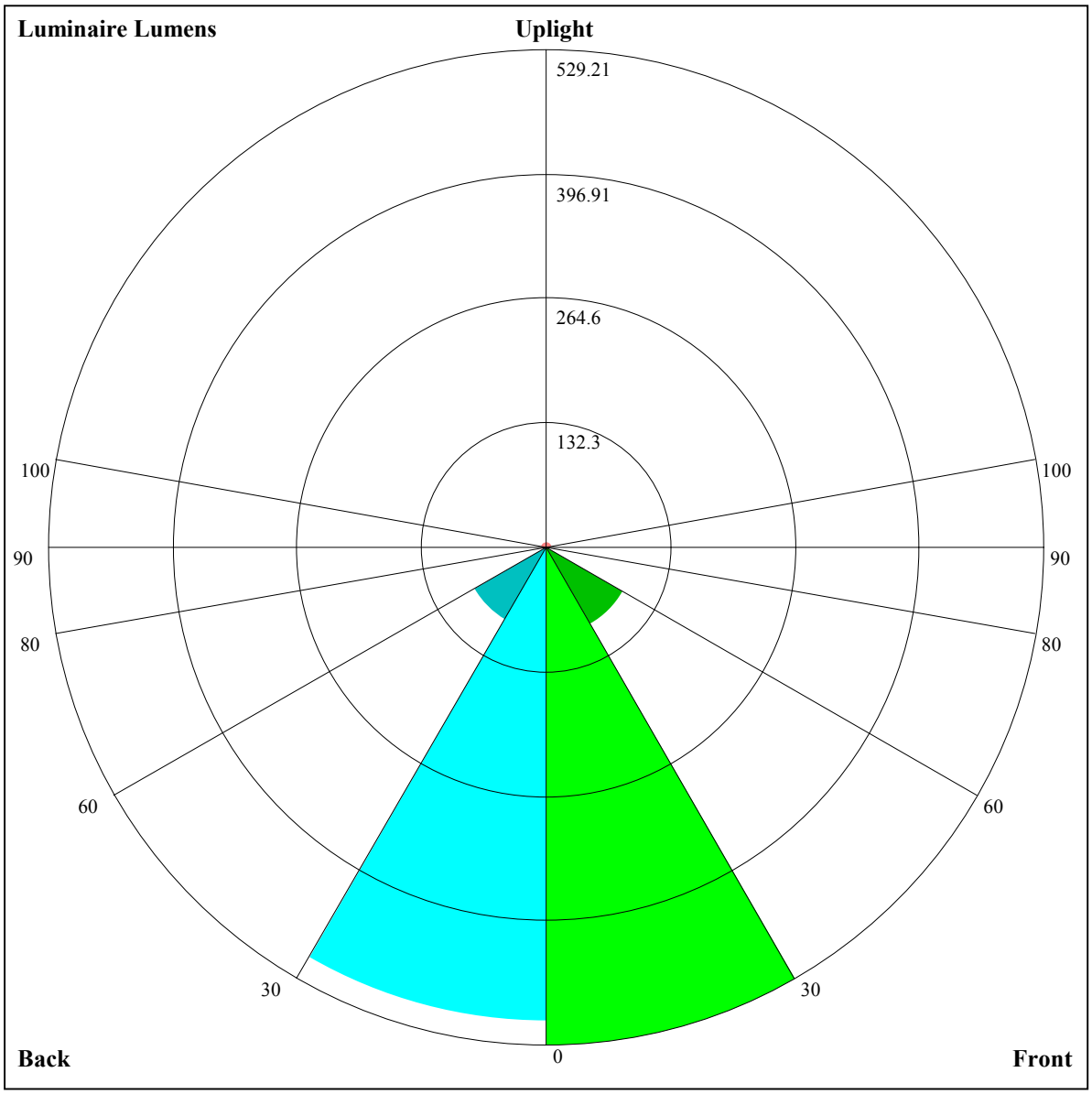
RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.01	0.99	0.97	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	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	0.80	0.85	0.82	0.79	0.83	0.81	0.79	0.82	0.79	0.78	0.77
5	0.84	0.80	0.77	0.83	0.80	0.77	0.82	0.79	0.76	0.80	0.78	0.76	0.79	0.77	0.75	0.74
6	0.81	0.77	0.74	0.80	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
8	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.73	0.70	0.68	0.67
9	0.73	0.69	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
10	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63

Coefficient Utilization Curve



Equipment: GMS 1800	Date: 2018/1/2	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 6.81

LCS Graph



Luminaire Lumens:

FL=529.21,FM=94.62,FH=1.95,FVH=0.76

BL=503.38,BM=89.04,BH=1.89,BVH=0.75

UL=1.47,UH=7.02

BUG Rating:B2-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	8798.58	8795.80	8568.89	8114.60	7462.17	6653.82	5772.62	4886.78	4051.06
45.0	8744.29	8743.36	8539.65	8122.49	7512.75	6735.03	5841.30	4933.65	4086.79
90.0	8667.26	8199.05	7559.62	6773.54	5883.99	5143.86	4093.75	3316.96	2770.79
135.0	9077.00	8871.90	8463.55	7888.15	7172.15	6360.09	5457.54	4556.39	3729.02
180.0	8798.58	8595.80	8203.23	7645.93	6954.52	6151.27	5277.03	4417.64	3773.57
225.0	8744.29	8546.61	8154.04	7578.64	6846.86	5987.01	5095.13	4573.56	3764.75
270.0	8667.26	8946.15	9025.03	8907.63	8576.31	8024.58	7273.31	6389.79	5454.76
315.0	9077.00	9074.22	8855.66	8417.61	8053.81	6964.26	6427.37	5508.59	4600.94
360.0	8798.58	8795.80	8568.89	8114.60	7462.17	6653.82	5772.62	4886.78	4051.06

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3301.18	2651.07	2310.93	1829.73	1363.84	1226.95	914.15	914.15	812.38
45.0	3334.59	2682.62	2135.06	1708.62	1409.78	1193.08	1088.67	948.07	841.34
90.0	2195.85	1745.74	1424.17	1202.36	870.81	870.81	815.07	734.80	669.97
135.0	2995.38	2368.01	1854.79	1477.99	1222.31	1039.02	906.77	806.07	727.65
180.0	2912.32	2309.08	1910.01	1530.43	1263.15	1072.43	934.15	828.35	745.28
225.0	3045.03	2432.05	1940.17	1571.26	1310.94	1040.41	886.21	846.49	760.04
270.0	4545.25	3712.78	2982.85	2365.69	1868.25	1502.59	1341.57	1072.43	931.36
315.0	3752.22	2999.56	2360.58	1842.72	1457.58	1194.93	899.85	899.85	805.01
360.0	3301.18	2651.07	2310.93	1829.73	1363.84	1226.95	914.15	914.15	812.38

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	732.52	668.81	619.11	580.27	549.23	524.40	504.45	488.72	478.42
45.0	755.49	686.82	632.06	588.90	554.57	528.58	508.16	491.92	479.39
90.0	618.60	578.23	547.42	522.87	510.85	494.57	477.40	470.53	461.34
135.0	665.93	627.42	582.41	558.28	534.15	514.20	498.42	485.43	473.36
180.0	679.39	628.81	589.37	558.28	533.68	514.20	498.42	486.35	474.29
225.0	689.51	634.38	590.99	557.54	541.06	510.81	500.78	487.37	475.68
270.0	863.15	774.05	701.66	643.20	599.11	563.85	535.54	513.27	495.63
315.0	745.14	670.16	619.48	586.82	552.76	525.24	503.01	486.21	473.73
360.0	732.52	668.81	619.11	580.27	549.23	524.40	504.45	488.72	478.42

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	463.94	453.78	444.87	438.23	429.83	420.37	400.32	367.10	322.27
45.0	466.86	457.58	448.30	439.95	431.13	420.46	393.08	355.96	311.88
90.0	453.18	445.10	436.66	423.80	395.26	354.66	308.07	258.23	206.63
135.0	464.08	455.73	447.84	439.95	425.57	400.51	366.63	322.55	266.87
180.0	465.01	456.66	452.01	443.66	428.81	415.82	385.66	343.90	293.32
225.0	465.10	455.87	447.65	439.30	429.93	406.08	368.81	324.13	277.03
270.0	481.71	469.65	459.44	450.16	442.27	433.92	424.64	413.04	364.31
315.0	462.41	453.45	445.56	437.63	429.46	417.82	394.80	361.57	316.70
360.0	463.94	453.78	444.87	438.23	429.83	420.37	400.32	367.10	322.27

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	270.21	213.87	157.21	104.18	61.62	31.88	15.92	12.06	9.33
45.0	273.83	244.59	244.59	128.12	84.04	45.71	19.63	12.85	9.88
90.0	155.27	106.45	63.25	29.56	14.11	10.95	8.45	6.77	5.99
135.0	254.34	254.34	79.44	57.22	30.21	14.85	10.77	8.77	7.01
180.0	260.37	260.37	120.28	70.35	36.98	17.59	10.95	9.00	7.19
225.0	228.68	180.69	132.30	87.28	48.54	21.21	11.65	10.39	7.24
270.0	337.86	290.07	240.42	240.42	126.96	81.90	43.20	18.65	11.97
315.0	257.45	188.63	127.70	97.86	47.56	24.55	16.38	11.88	9.33
360.0	270.21	213.87	157.21	104.18	61.62	31.88	15.92	12.06	9.33

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	7.52	6.54	5.71	5.43	5.10	4.73	4.64	4.32	4.13
45.0	7.61	6.40	5.48	5.20	4.92	4.55	4.45	4.08	3.90
90.0	5.48	5.15	4.78	4.55	4.32	4.08	3.85	3.62	3.43
135.0	6.08	5.29	4.97	4.69	4.36	4.18	3.94	3.71	3.48
180.0	6.13	5.43	5.01	4.78	4.55	4.27	3.99	3.81	3.67
225.0	6.40	5.48	5.15	4.78	4.55	4.32	4.08	3.81	3.67
270.0	9.42	7.29	6.40	5.57	5.06	4.78	4.55	4.27	4.13
315.0	7.61	6.77	5.66	5.24	4.97	4.73	4.45	4.18	3.99
360.0	7.52	6.54	5.71	5.43	5.10	4.73	4.64	4.32	4.13

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.94	3.62	3.39	3.25	3.16	2.92	2.78	2.64	2.60
45.0	3.76	3.57	3.29	3.11	3.02	2.83	2.69	2.60	2.55
90.0	3.25	3.06	2.88	2.74	2.69	2.55	2.37	2.32	2.23
135.0	3.39	3.16	2.92	2.83	2.74	2.60	2.55	2.37	2.32
180.0	3.34	3.20	3.06	2.92	2.78	2.64	2.55	2.51	2.32
225.0	3.48	3.29	3.06	2.97	2.83	2.64	2.51	2.41	2.37
270.0	3.76	3.62	3.43	3.29	3.11	2.88	2.78	2.69	2.55
315.0	3.81	3.53	3.29	3.16	2.97	2.74	2.78	2.55	2.46
360.0	3.94	3.62	3.39	3.25	3.16	2.92	2.78	2.64	2.60

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.41	2.27	2.23	2.18	2.04	1.95	1.95	1.90	1.86
45.0	2.41	2.27	2.18	2.13	2.00	1.95	1.90	1.86	1.76
90.0	2.13	2.00	1.90	1.90	1.86	1.81	1.76	1.67	1.62
135.0	2.27	2.13	2.04	2.00	1.95	1.86	1.81	1.76	1.72
180.0	2.23	2.13	2.13	1.95	1.86	1.86	1.86	1.76	1.76
225.0	2.18	2.13	2.09	2.00	1.95	1.81	1.81	1.81	1.72
270.0	2.41	2.32	2.27	2.13	2.04	2.04	1.95	1.86	1.76
315.0	2.41	2.32	2.13	2.09	2.09	1.95	1.86	1.81	1.86
360.0	2.41	2.27	2.23	2.18	2.04	1.95	1.95	1.90	1.86

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.81	1.72	1.67	1.67	1.67	1.53	1.53	1.58	1.53
45.0	1.72	1.67	1.67	1.67	1.58	1.53	1.53	1.58	1.48
90.0	1.62	1.58	1.58	1.48	1.53	1.48	1.48	1.44	1.39
135.0	1.62	1.67	1.67	1.58	1.53	1.53	1.53	1.48	1.48
180.0	1.67	1.62	1.62	1.53	1.48	1.53	1.53	1.48	1.39
225.0	1.67	1.58	1.62	1.62	1.53	1.48	1.48	1.48	1.44
270.0	1.76	1.72	1.67	1.62	1.58	1.58	1.58	1.53	1.48
315.0	1.72	1.67	1.62	1.67	1.58	1.53	1.48	1.53	1.48
360.0	1.81	1.72	1.67	1.67	1.67	1.53	1.53	1.58	1.53

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.44	1.48	1.39	1.39	1.39	1.39	1.39	1.39	1.35
45.0	1.44	1.44	1.44	1.44	1.44	1.44	1.39	1.39	1.35
90.0	1.44	1.39	1.44	1.35	1.35	1.39	1.35	1.39	1.39
135.0	1.44	1.44	1.39	1.44	1.39	1.35	1.44	1.39	1.35
180.0	1.44	1.44	1.39	1.39	1.39	1.39	1.30	1.30	1.30
225.0	1.39	1.44	1.39	1.39	1.39	1.35	1.30	1.25	1.30
270.0	1.48	1.39	1.44	1.39	1.35	1.35	1.30	1.30	1.30
315.0	1.44	1.44	1.39	1.39	1.39	1.35	1.35	1.35	1.35
360.0	1.44	1.48	1.39	1.39	1.39	1.39	1.39	1.39	1.35

Intensity data(cd)

C/γ(°)	90.0
0.0	1.39
45.0	1.35
90.0	1.58
135.0	1.35
180.0	1.30
225.0	1.25
270.0	1.30
315.0	1.30
360.0	1.39