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

Nata

LumCAT: 1-0941-N
Luminaire: 92.70.259.00
Report No: 200923-B037
Test No: 200923-C037
LampCAT: CITIZEN CLU700
Lamp flux(lm): 836.3
Number of Lamps: 1
Length(feet)(ft.):0.000
Phm Type: C

Voltage(V): 230.8000
Current(A): 0.0840
Power (W): 10.4900
PF: 0.5360
Ballast type: AC
Width(feet)(ft.):0.000
Height(feet)(ft.):0.000

Photometric Results

Lumens(lm): 650.21
Efficiency(%): 77.75%
Lumens(lm)/Power(W): 61.98
Central intensity(cd): 3082.922
Maximum intensity(cd): 3082.922
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=22.1
[C90/270]Total=22.1
Field angle(10%Imax): [C0/180]Total=48.9
[C90/270]Total=48.9
Maximum s/h(1/2): C0_180=0.38 C90_270=0.38
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(%): 77.83%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.341%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3082.922	0.738	0.738	.088%	.113%
1.0	3057.864	5.852	6.59	.700%	1.013%
2.0	2998.410	11.475	18.065	1.372%	2.778%
3.0	2913.666	16.722	34.787	1.999%	5.350%
4.0	2782.983	21.289	56.076	2.546%	8.624%
5.0	2651.893	25.346	81.421	3.031%	12.522%
6.0	2480.085	28.428	109.85	3.399%	16.894%
7.0	2313.323	30.916	140.766	3.697%	21.649%
8.0	2124.229	32.420	173.185	3.876%	26.635%
9.0	1932.583	33.153	206.338	3.964%	31.734%
10.0	1746.970	33.267	239.605	3.978%	36.850%
11.0	1556.310	32.565	272.17	3.894%	41.858%
12.0	1322.397	30.150	302.32	3.605%	46.495%
13.0	1178.912	29.082	331.402	3.477%	50.968%
14.0	1041.703	27.636	359.038	3.304%	55.218%
15.0	922.957	26.196	385.233	3.132%	59.247%
16.0	817.784	24.719	409.952	2.956%	63.049%
17.0	730.000	23.405	433.357	2.799%	66.648%
18.0	642.199	21.762	455.119	2.602%	69.995%
19.0	567.043	20.245	475.364	2.421%	73.109%
20.0	511.719	19.193	494.557	2.295%	76.061%
21.0	452.728	17.792	512.348	2.127%	78.797%
22.0	407.775	16.751	529.1	2.003%	81.373%
23.0	363.582	15.579	544.678	1.863%	83.769%
24.0	325.804	14.532	559.21	1.738%	86.004%
25.0	286.668	13.286	572.496	1.589%	88.047%
26.0	252.550	12.141	584.636	1.452%	89.914%
27.0	222.533	11.079	595.715	1.325%	91.618%
28.0	183.827	9.464	605.179	1.132%	93.074%
29.0	158.763	8.441	613.62	1.009%	94.372%
30.0	121.478	6.661	620.28	.796%	95.396%
31.0	86.217	4.870	625.15	.582%	96.145%
32.0	62.447	3.629	628.779	.434%	96.703%
33.0	44.338	2.648	631.427	.317%	97.111%
34.0	31.125	1.909	633.336	.228%	97.404%
35.0	23.643	1.487	634.823	.178%	97.633%
36.0	17.917	1.155	635.978	.138%	97.811%
37.0	15.383	1.015	636.993	.121%	97.967%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	13.445	0.908	637.901	.109%	98.106%
39.0	12.007	0.829	638.729	.099%	98.234%
40.0	10.644	0.750	639.479	.090%	98.349%
41.0	9.605	0.691	640.17	.083%	98.455%
42.0	8.625	0.633	640.803	.076%	98.553%
43.0	7.802	0.583	641.387	.070%	98.642%
44.0	7.077	0.539	641.926	.064%	98.725%
45.0	6.357	0.493	642.419	.059%	98.801%
46.0	5.812	0.458	642.877	.055%	98.872%
47.0	5.249	0.421	643.298	.050%	98.936%
48.0	4.716	0.384	643.683	.046%	98.996%
49.0	4.304	0.356	644.039	.043%	99.050%
50.0	3.915	0.329	644.368	.039%	99.101%
51.0	3.556	0.303	644.671	.036%	99.147%
52.0	3.242	0.280	644.951	.034%	99.191%
53.0	2.947	0.258	645.209	.031%	99.230%
54.0	2.720	0.241	645.45	.029%	99.267%
55.0	2.494	0.224	645.674	.027%	99.302%
56.0	2.326	0.211	645.886	.025%	99.334%
57.0	2.193	0.202	646.087	.024%	99.365%
58.0	2.053	0.191	646.278	.023%	99.395%
59.0	1.937	0.182	646.461	.022%	99.423%
60.0	1.856	0.176	646.637	.021%	99.450%
61.0	1.798	0.172	646.809	.021%	99.476%
62.0	1.734	0.168	646.977	.020%	99.502%
63.0	1.659	0.162	647.139	.019%	99.527%
64.0	1.584	0.156	647.295	.019%	99.551%
65.0	1.555	0.154	647.45	.018%	99.575%
66.0	1.502	0.151	647.6	.018%	99.598%
67.0	1.444	0.146	647.746	.017%	99.620%
68.0	1.375	0.140	647.886	.017%	99.642%
69.0	1.346	0.138	648.024	.016%	99.663%
70.0	1.305	0.134	648.158	.016%	99.684%
71.0	1.259	0.131	648.289	.016%	99.704%
72.0	1.195	0.125	648.413	.015%	99.723%
73.0	1.131	0.119	648.532	.014%	99.741%
74.0	1.102	0.116	648.648	.014%	99.759%
75.0	1.067	0.113	648.761	.014%	99.777%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.027	0.109	648.87	.013%	99.793%
77.0	0.998	0.107	648.977	.013%	99.810%
78.0	0.963	0.103	649.08	.012%	99.826%
79.0	0.934	0.101	649.181	.012%	99.841%
80.0	0.882	0.095	649.276	.011%	99.856%
81.0	0.893	0.097	649.373	.012%	99.871%
82.0	0.858	0.093	649.466	.011%	99.885%
83.0	0.940	0.102	649.568	.012%	99.901%
84.0	1.061	0.116	649.684	.014%	99.919%
85.0	1.114	0.122	649.806	.015%	99.937%
86.0	1.038	0.114	649.919	.014%	99.955%
87.0	0.916	0.100	650.02	.012%	99.970%
88.0	0.783	0.086	650.105	.010%	99.983%
89.0	0.690	0.076	650.181	.009%	99.995%
90.0	0.597	0.033	650.214	.004%	100.000%

Zonal flux distribution table

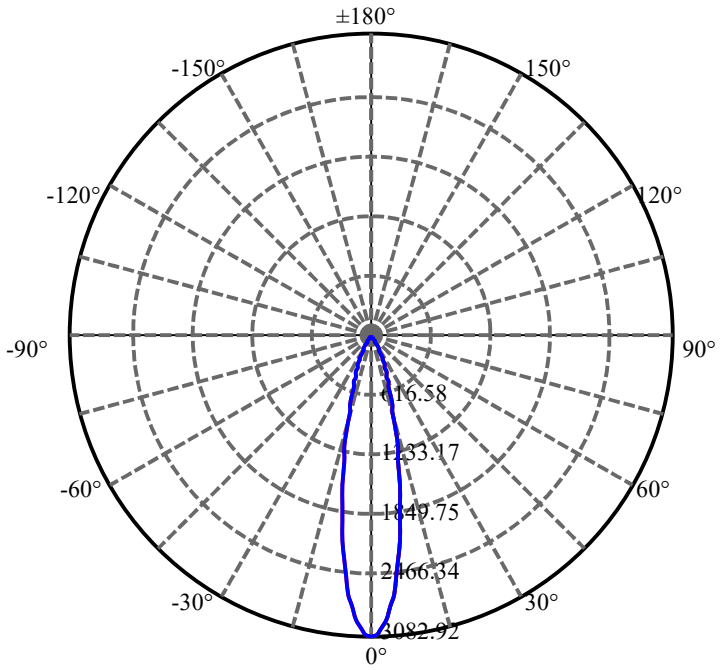
ZONAL LUMEN SUMMARY

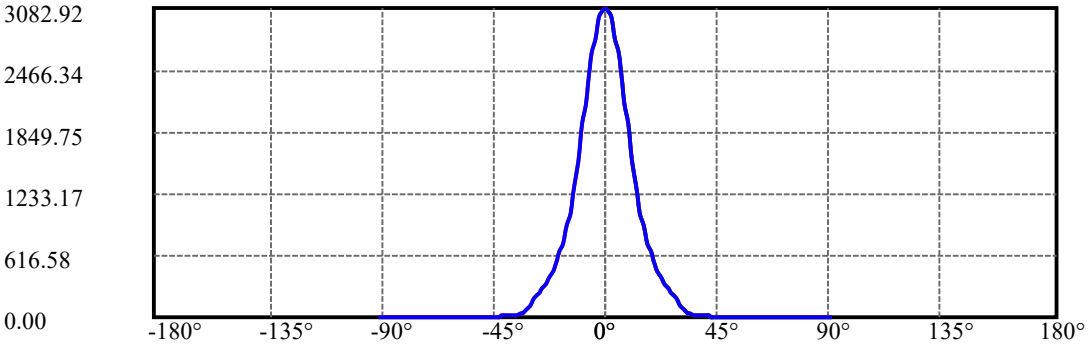
Zone	Lumens	%Lamp	%Fixt
0-30	620.28	74.17%	95.40%
0-40	639.48	76.46%	98.35%
0-60	646.64	77.32%	99.45%
0-90	650.18	77.74%	99.99%
0-120	650.18	77.74%	99.99%
0-180	650.21	77.75%	100.00%
60-90	3.72	0.44%	0.57%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-21.47	520.17	62.20%	80.00%

ZONAL LUMEN SUMMARY

0-10	239.60
10-20	254.95
20-30	125.72
30-40	19.20
40-50	4.89
50-60	2.27
60-70	1.52
70-80	1.12
80-90	0.91
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):

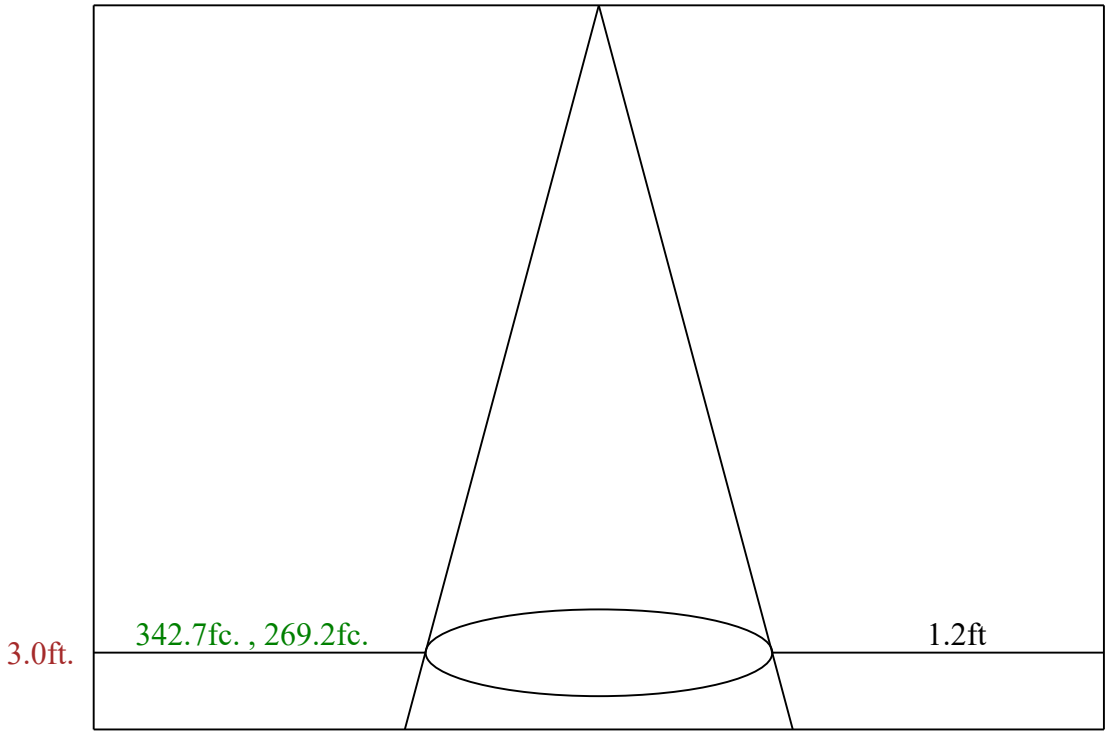
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:24.4 Right:24.4
:C90/270Left:24.4 Right:24.4

Beam Angle(50%Imax):C0/180Left:11.1 Right:11.1
:C90/270Left:11.1 Right:11.1

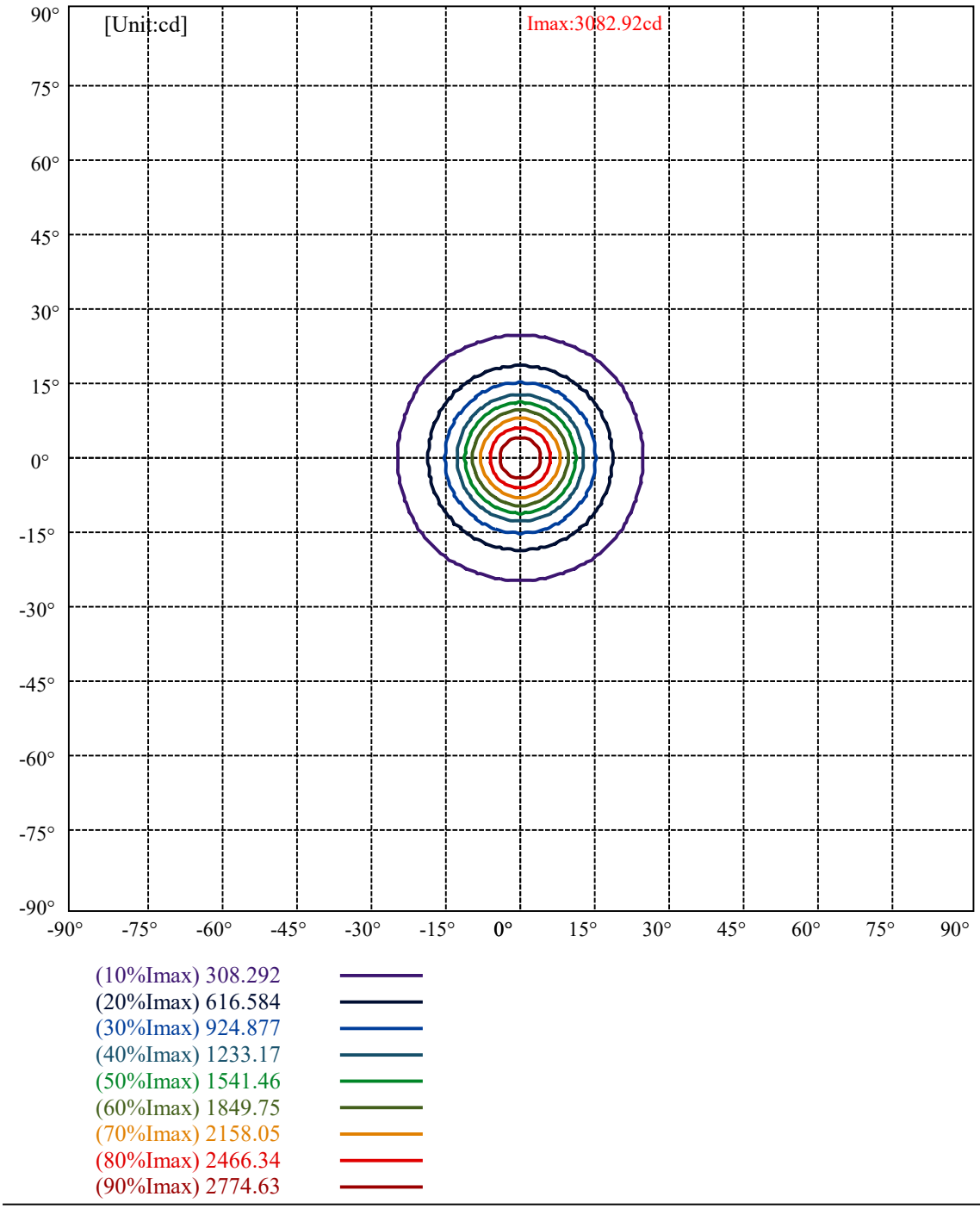
Lux distance Curve



Max , Ave

Beam angle of C0 plane 22.23

ISO-Intensity(V-H)

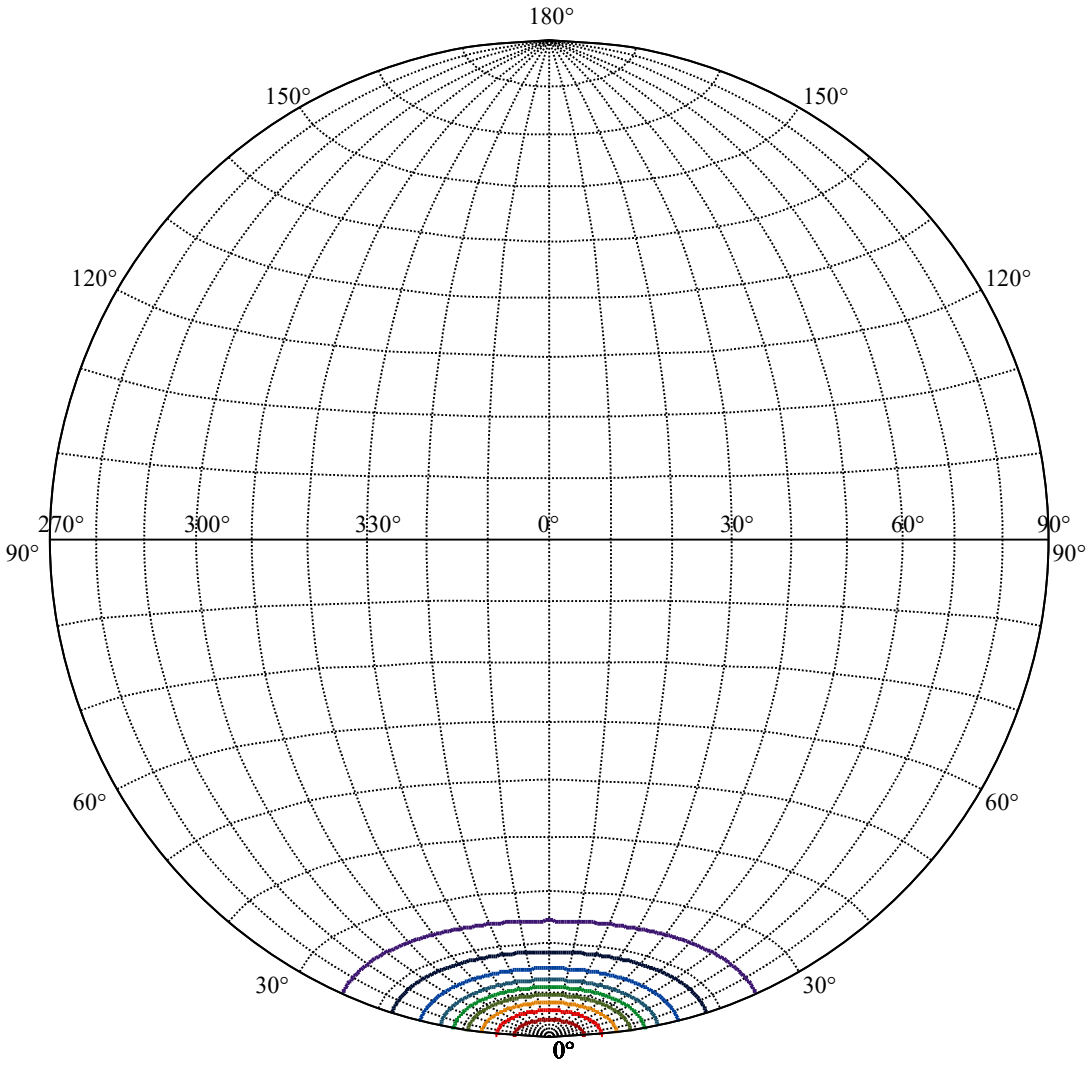


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/23
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:3082.92

(10%Imax) 308.292
(20%Imax) 616.584
(30%Imax) 924.877
(40%Imax) 1233.17
(50%Imax) 1541.46
(60%Imax) 1849.75
(70%Imax) 2158.05
(80%Imax) 2466.34
(90%Imax) 2774.63

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/23
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

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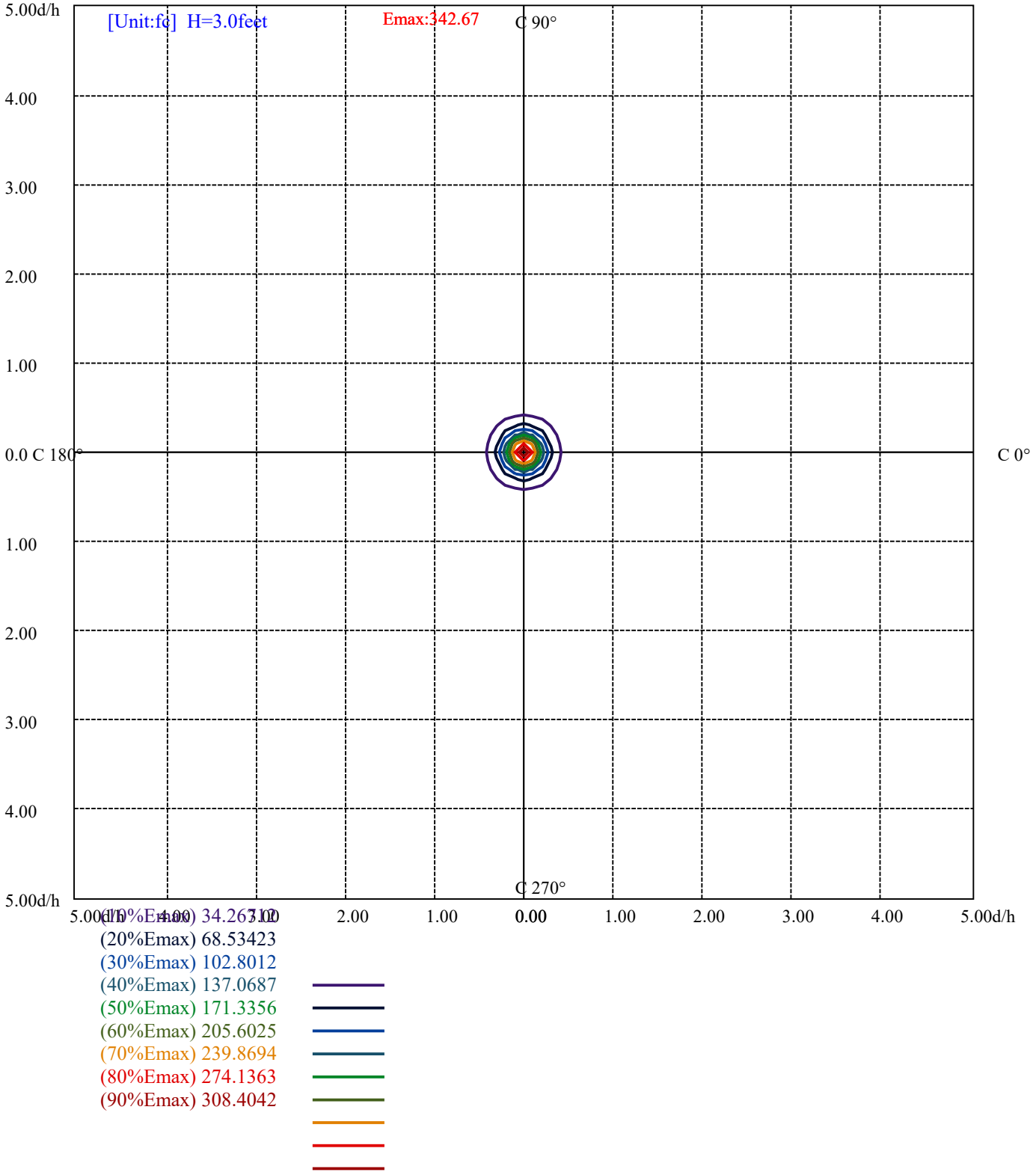
ISO illuminance diagram

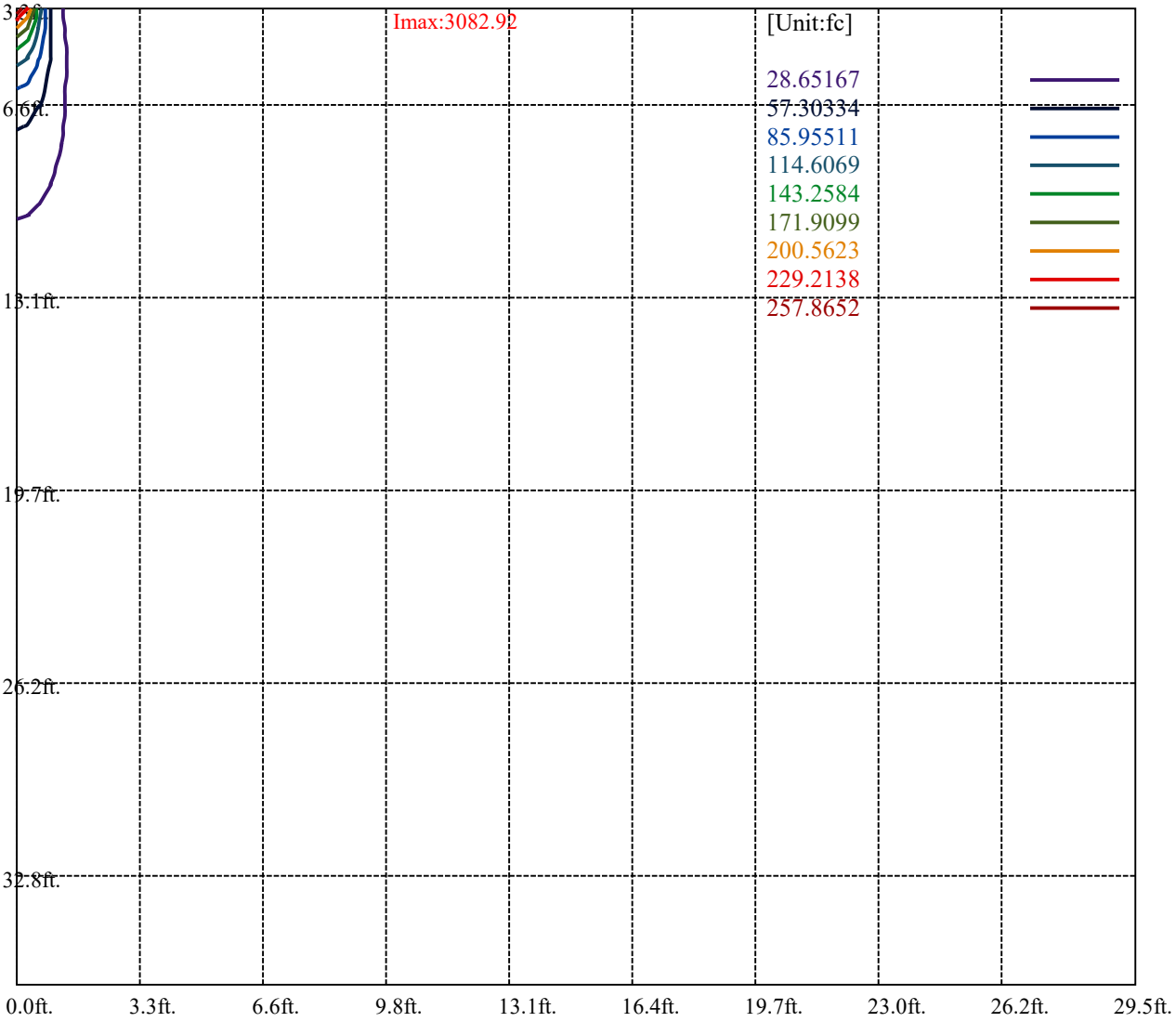


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/23
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/23
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

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Luminance Limitting Curve(no luminous side)

Luminance Table

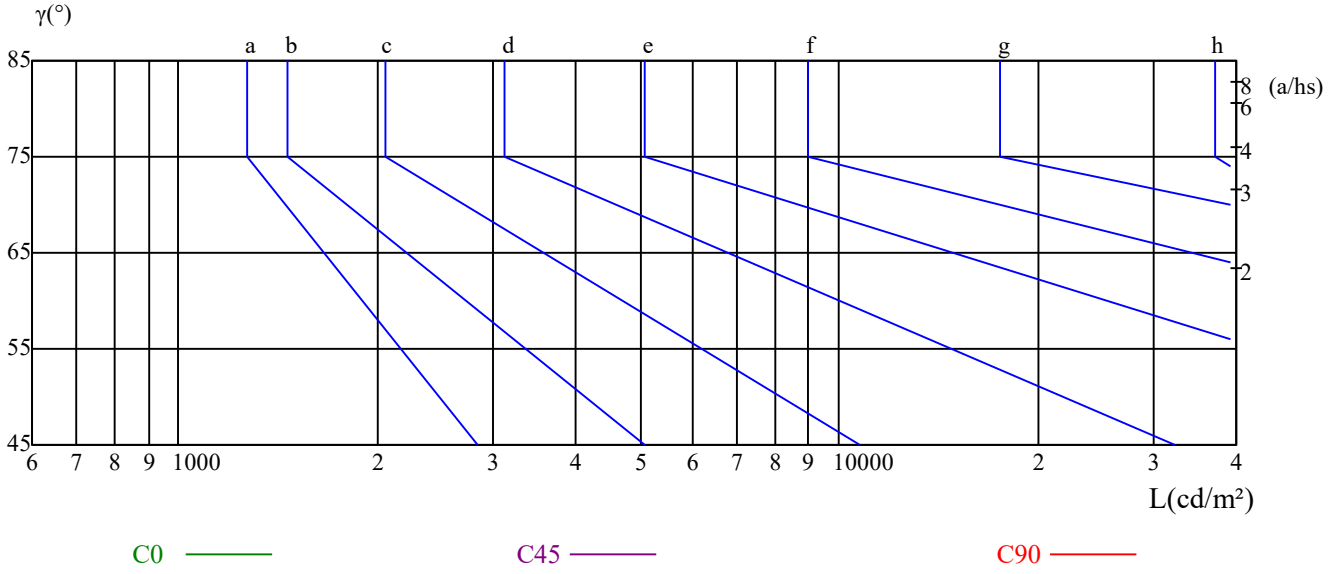
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

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

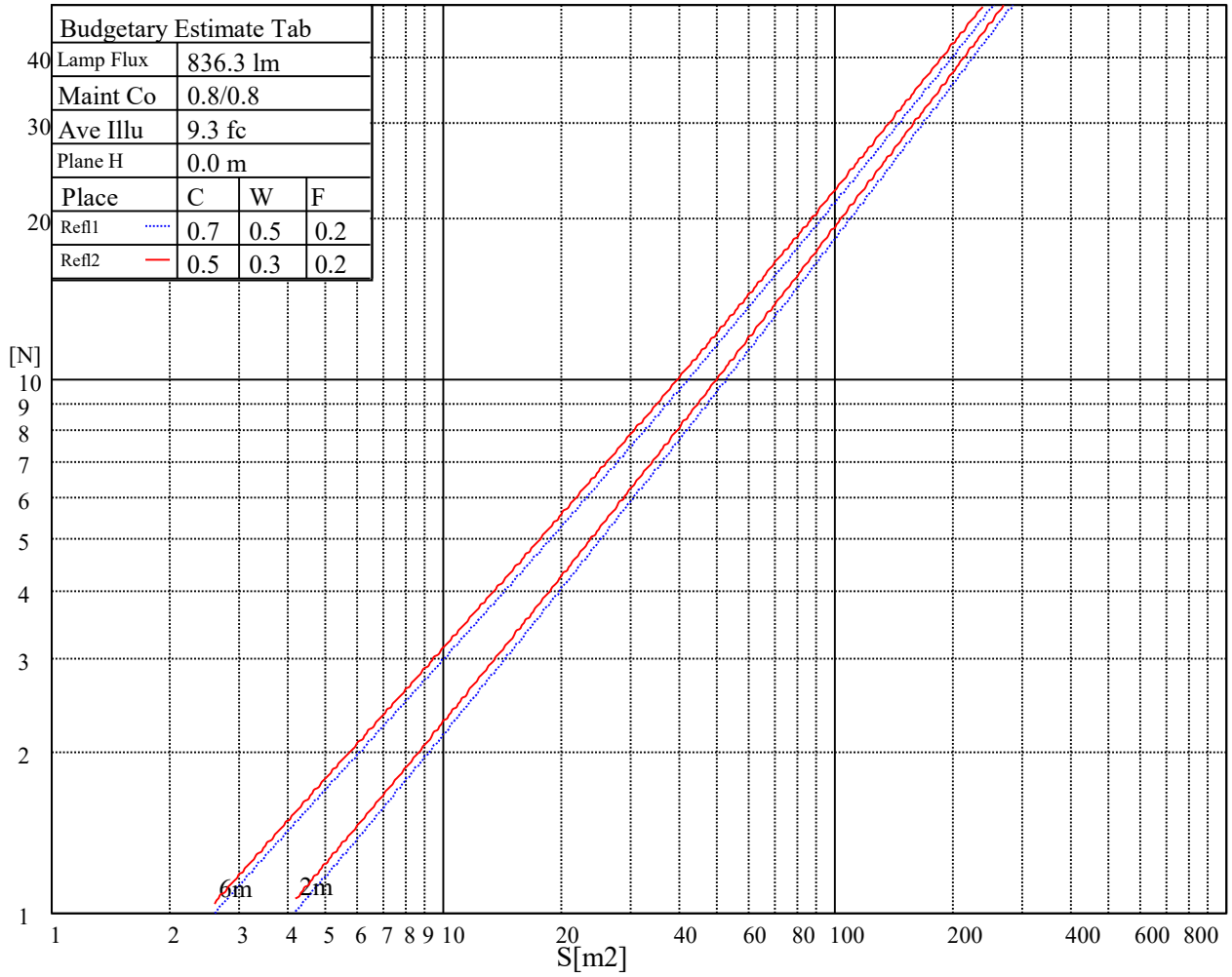


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/23
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Budgetary Estimate Table



Equipment: GMS 1800
Temperature(°C): 25.0

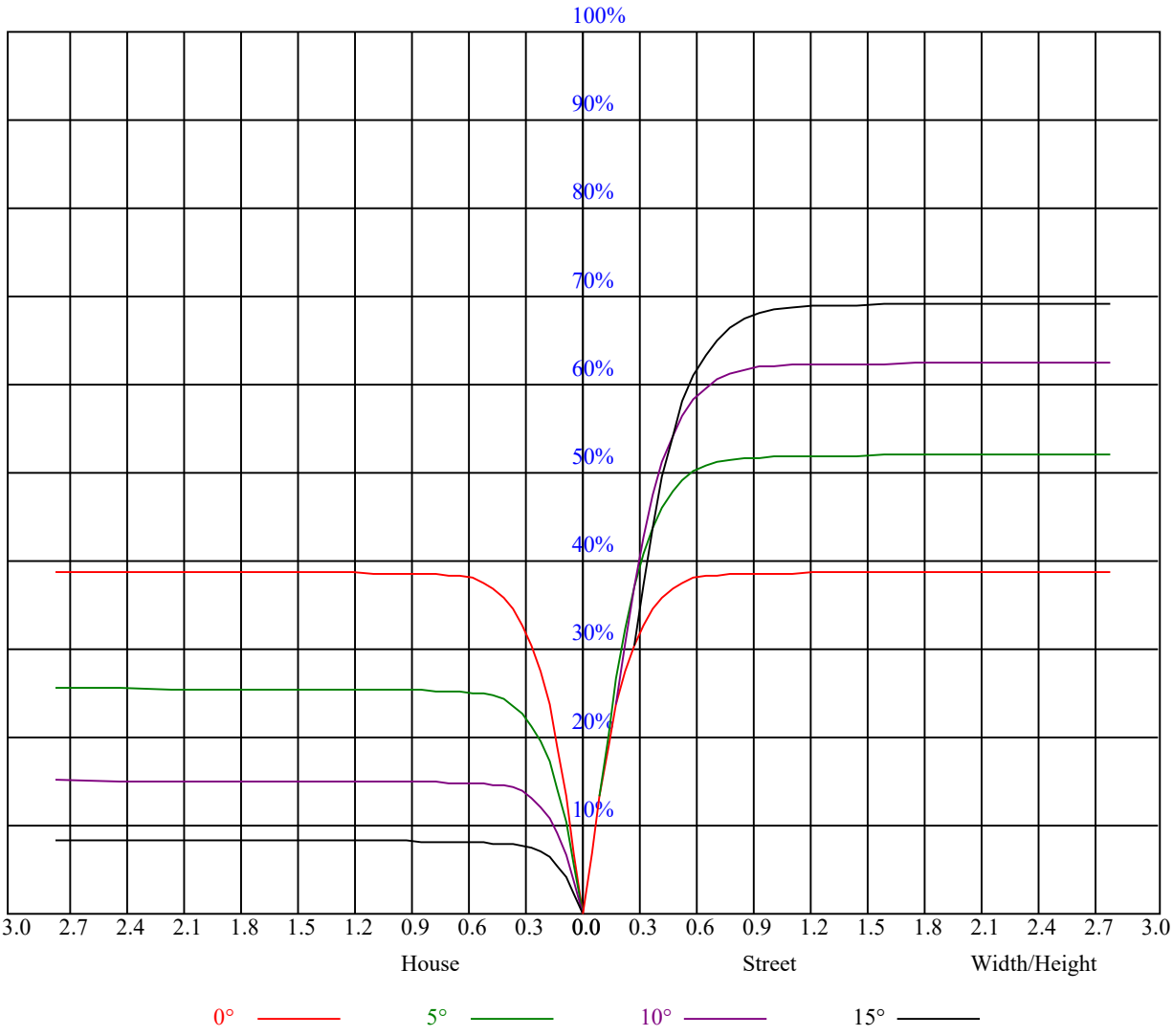
Date: 2020/9/23
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

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	0.93	0.93	0.93	0.91	0.91	0.91	0.86	0.86	0.86	0.83	0.83	0.83	0.79	0.79	0.79	0.78
1	0.88	0.86	0.85	0.86	0.85	0.83	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.76	0.75
2	0.83	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.78	0.76	0.75	0.75	0.74	0.73	0.72
3	0.80	0.77	0.75	0.79	0.76	0.74	0.77	0.75	0.73	0.75	0.73	0.72	0.74	0.72	0.71	0.70
4	0.77	0.74	0.71	0.76	0.73	0.71	0.74	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.68	0.68
5	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.65
6	0.71	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.65	0.68	0.66	0.64	0.63
7	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.63	0.66	0.64	0.62	0.62
8	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.61	0.60
9	0.65	0.62	0.60	0.65	0.62	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.61	0.59	0.58
10	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.62	0.59	0.58	0.61	0.59	0.57	0.57

Coefficient Utilization Curve



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/23
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

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	3041.51	2963.55	2845.69	2698.59	2539.89	2356.13	2160.77	1956.60	1753.81
45.0	3072.13	3084.20	3056.36	2986.29	2882.34	2748.70	2591.86	2417.38	2232.23
90.0	3123.64	3119.46	3069.81	2983.04	2866.57	2784.90	2565.41	2458.22	2264.25
135.0	3094.41	3126.89	3144.52	3115.75	3053.11	2954.73	2834.55	2685.13	2517.15
180.0	3041.51	3086.05	3081.41	3043.83	2966.33	2848.01	2708.80	2556.59	2449.86
225.0	3072.13	3015.99	2925.50	2809.95	2657.29	2493.48	2312.51	2162.63	1922.72
270.0	3123.64	3093.48	3021.55	2910.19	2777.47	2621.09	2450.33	2259.61	2053.58
315.0	3094.41	2973.29	2842.44	2761.70	2520.86	2408.10	2216.46	2010.42	1800.22
360.0	3041.51	2963.55	2845.69	2698.59	2539.89	2356.13	2160.77	1956.60	1753.81

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1556.14	1377.48	1273.54	876.28	876.28	832.75	730.62	644.96	574.29
45.0	2031.31	1911.59	1635.49	1446.16	1345.93	1118.09	1031.31	900.92	790.02
90.0	2062.40	1859.61	1663.79	1474.47	1295.81	1066.58	899.11	876.47	768.11
135.0	2332.00	2133.86	1928.75	1725.97	1532.01	1345.93	1180.27	1029.92	950.57
180.0	2273.07	2075.85	1879.57	1683.75	1492.56	1312.98	1150.57	1007.18	884.22
225.0	1762.63	1563.56	1383.52	1212.75	889.46	889.46	821.62	720.50	639.48
270.0	1847.09	1648.94	1457.76	1271.68	1111.13	968.21	870.29	744.54	656.84
315.0	1596.04	1404.86	1228.06	888.11	888.11	799.62	699.86	617.77	576.47
360.0	1556.14	1377.48	1273.54	876.28	876.28	832.75	730.62	644.96	574.29

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	514.15	460.41	411.32	367.93	326.96	293.73	260.04	224.64	187.89
45.0	694.89	615.54	548.26	489.79	439.21	394.20	351.51	312.53	278.19
90.0	677.30	598.93	535.96	478.98	435.96	379.49	343.48	303.80	269.09
135.0	792.34	696.75	646.17	551.04	516.24	461.02	409.51	361.25	324.13
180.0	777.02	682.83	608.58	542.69	487.93	437.35	386.31	338.98	303.71
225.0	572.52	511.41	457.49	401.20	354.38	318.98	300.74	267.10	230.07
270.0	595.12	531.09	475.40	423.43	376.10	334.34	299.07	264.73	242.46
315.0	514.24	439.39	410.58	366.77	325.43	289.56	255.78	220.32	184.87
360.0	514.15	460.41	411.32	367.93	326.96	293.73	260.04	224.64	187.89

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	151.51	116.19	97.40	59.58	47.24	32.11	23.80	19.40	17.22
45.0	244.78	231.32	197.82	142.13	107.24	72.67	54.34	36.61	26.03
90.0	234.71	199.07	164.18	130.30	99.26	72.25	49.88	33.09	22.46
135.0	290.72	255.91	240.60	200.93	139.58	107.33	77.31	51.74	40.00
180.0	272.16	237.82	237.82	197.03	133.78	101.11	72.71	49.05	32.81
225.0	193.83	156.98	122.27	88.44	57.26	36.15	24.13	19.81	17.54
270.0	242.46	156.75	123.25	92.25	64.41	50.77	32.67	22.69	18.28
315.0	150.11	116.57	86.77	61.16	40.97	27.19	19.86	16.61	14.80
360.0	151.51	116.19	97.40	59.58	47.24	32.11	23.80	19.40	17.22

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	15.27	13.55	12.11	10.90	9.79	8.82	7.93	7.15	6.50
45.0	20.14	17.26	15.36	13.50	12.11	10.95	9.84	8.77	7.89
90.0	16.98	14.29	12.62	11.23	10.12	9.14	8.21	7.70	6.77
135.0	22.64	19.40	15.92	14.15	12.44	11.00	9.88	8.82	7.98
180.0	23.67	19.07	16.66	14.52	12.67	11.28	10.02	8.96	8.49
225.0	15.50	13.60	11.88	10.67	9.51	8.63	7.75	7.05	6.36
270.0	16.06	14.25	12.48	11.18	10.02	9.00	8.07	7.33	6.64
315.0	13.09	11.65	10.53	9.88	8.49	8.03	7.29	6.64	5.99
360.0	15.27	13.55	12.11	10.90	9.79	8.82	7.93	7.15	6.50

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	5.85	5.24	4.73	4.32	3.90	3.71	3.25	3.02	2.83
45.0	7.19	6.45	5.85	5.24	4.78	4.32	4.04	3.71	3.20
90.0	6.17	5.80	5.24	4.69	4.27	3.90	3.53	3.20	2.88
135.0	7.15	6.50	5.85	5.24	4.78	4.36	3.90	3.53	3.25
180.0	7.42	6.91	6.31	5.48	5.15	4.69	4.32	3.85	3.53
225.0	5.75	5.34	4.73	4.36	3.94	3.57	3.25	2.97	2.74
270.0	5.94	5.34	4.83	4.41	3.94	3.48	3.20	2.92	2.64
315.0	5.38	4.92	4.45	3.99	3.67	3.29	2.97	2.74	2.51
360.0	5.85	5.24	4.73	4.32	3.90	3.71	3.25	3.02	2.83

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	2.60	2.41	2.27	2.18	2.09	1.90	1.86	1.81	1.72
45.0	3.02	2.74	2.55	2.37	2.13	2.04	1.95	1.90	1.81
90.0	2.64	2.46	2.27	2.09	1.95	1.90	1.81	1.72	1.62
135.0	2.97	2.64	2.55	2.27	2.13	2.04	1.90	1.81	1.76
180.0	3.25	3.02	2.74	2.55	2.41	2.27	2.18	2.09	2.04
225.0	2.51	2.32	2.13	2.09	1.95	1.86	1.81	1.76	1.67
270.0	2.46	2.18	2.09	2.04	1.90	1.76	1.67	1.67	1.62
315.0	2.32	2.18	2.00	1.95	1.86	1.72	1.67	1.62	1.62
360.0	2.60	2.41	2.27	2.18	2.09	1.90	1.86	1.81	1.72

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.62	1.58	1.58	1.48	1.39	1.39	1.35	1.25	1.21
45.0	1.67	1.67	1.62	1.58	1.48	1.44	1.44	1.35	1.30
90.0	1.62	1.53	1.53	1.44	1.44	1.35	1.35	1.30	1.30
135.0	1.72	1.62	1.53	1.48	1.48	1.39	1.35	1.30	1.25
180.0	1.95	1.81	1.76	1.76	1.67	1.58	1.53	1.48	1.44
225.0	1.58	1.58	1.53	1.48	1.48	1.39	1.30	1.35	1.30
270.0	1.58	1.44	1.44	1.44	1.35	1.25	1.25	1.25	1.21
315.0	1.53	1.44	1.44	1.35	1.25	1.21	1.21	1.16	1.07
360.0	1.62	1.58	1.58	1.48	1.39	1.39	1.35	1.25	1.21

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.16	1.11	1.07	1.02	0.97	0.97	0.93	0.84	0.79
45.0	1.30	1.21	1.16	1.16	1.16	1.07	1.02	1.02	1.02
90.0	1.16	1.11	1.11	1.11	0.97	0.97	0.93	0.93	0.88
135.0	1.25	1.11	1.07	1.02	1.02	1.02	0.88	0.88	0.79
180.0	1.30	1.25	1.21	1.21	1.11	1.07	1.07	1.02	0.93
225.0	1.21	1.16	1.16	1.11	1.11	1.02	1.11	1.11	1.07
270.0	1.16	1.07	1.07	0.97	0.97	0.97	0.93	0.93	0.88
315.0	1.02	1.02	0.97	0.93	0.88	0.88	0.84	0.74	0.70
360.0	1.16	1.11	1.07	1.02	0.97	0.97	0.93	0.84	0.79

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	0.84	0.70	0.65	0.60	0.56	0.51	0.46	0.37	0.28
45.0	1.02	0.93	0.97	0.97	1.02	1.07	1.02	0.84	0.84
90.0	0.84	0.84	0.79	0.79	0.74	0.74	0.74	0.70	0.65
135.0	0.84	0.74	0.70	0.65	0.60	0.65	0.60	0.56	0.51
180.0	0.88	0.88	0.79	0.79	0.74	0.70	0.65	0.60	0.60
225.0	1.11	1.21	2.13	3.34	3.90	3.34	2.69	2.09	1.62
270.0	0.88	0.88	0.88	0.84	0.84	0.84	0.74	0.74	0.65
315.0	0.74	0.70	0.60	0.51	0.51	0.46	0.42	0.37	0.37
360.0	0.84	0.70	0.65	0.60	0.56	0.51	0.46	0.37	0.28

Intensity data(cd)

C/γ(°)	90.0
0.0	0.23
45.0	0.74
90.0	0.60
135.0	0.46
180.0	0.46
225.0	1.39
270.0	0.51
315.0	0.37
360.0	0.23