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

Nata

LumCAT: 3-2547-M
Luminaire: 92.70.131.00
Report No: 200919-B041
Test No: 200919-C041
LampCAT: OSRAM OPTO SOLERIQ S13
Lamp flux(lm): 1409.3
Number of Lamps: 1
Length(feet)(ft.):0.000
Phm Type: C

Voltage(V): 230.7000
Current(A): 0.0840
Power (W): 18.6000
PF: 0.9500
Ballast type: AC
Width(feet)(ft.):0.000
Height(feet)(ft.):0.000

Photometric Results

Lumens(lm): 1339.08
Efficiency(%): 95.02%
Lumens(lm)/Power(W): 71.99
Central intensity(cd): 3774.563
Maximum intensity(cd): 3774.563
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=31.4
[C90/270]Total=31.4
Field angle(10%Imax): [C0/180]Total=64.9
[C90/270]Total=64.9
Maximum s/h(1/2): C0_180=0.52 C90_270=0.52
Maximum s/h(1/4): C0_180=0.52 C90_270=0.52
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 95.08%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.703%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3774.564	0.903	0.903	.064%	.067%
1.0	3764.993	7.206	8.109	.511%	.606%
2.0	3736.629	14.300	22.409	1.015%	1.673%
3.0	3686.688	21.159	43.568	1.501%	3.254%
4.0	3622.187	27.708	71.276	1.966%	5.323%
5.0	3541.561	33.849	105.125	2.402%	7.851%
6.0	3427.409	39.287	144.412	2.788%	10.784%
7.0	3307.398	44.201	188.613	3.136%	14.085%
8.0	3173.467	48.433	237.046	3.437%	17.702%
9.0	3021.786	51.838	288.884	3.678%	21.573%
10.0	2853.922	54.346	343.23	3.856%	25.632%
11.0	2704.503	56.590	399.819	4.015%	29.858%
12.0	2526.256	57.598	457.417	4.087%	34.159%
13.0	2353.520	58.057	515.475	4.120%	38.495%
14.0	2189.020	58.073	573.548	4.121%	42.832%
15.0	2014.485	57.176	630.724	4.057%	47.101%
16.0	1839.023	55.587	686.311	3.944%	51.253%
17.0	1675.161	53.709	740.02	3.811%	55.263%
18.0	1519.536	51.493	791.512	3.654%	59.109%
19.0	1289.056	46.022	837.534	3.266%	62.546%
20.0	1157.700	43.421	880.955	3.081%	65.788%
21.0	1051.680	41.330	922.285	2.933%	68.875%
22.0	907.673	37.287	959.572	2.646%	71.659%
23.0	824.866	35.344	994.916	2.508%	74.299%
24.0	733.492	32.716	1027.632	2.321%	76.742%
25.0	672.558	31.170	1058.802	2.212%	79.070%
26.0	623.203	29.959	1088.76	2.126%	81.307%
27.0	580.860	28.918	1117.678	2.052%	83.466%
28.0	547.739	28.199	1145.877	2.001%	85.572%
29.0	521.516	27.726	1173.604	1.967%	87.643%
30.0	484.961	26.591	1200.194	1.887%	89.629%
31.0	448.523	25.332	1225.527	1.798%	91.520%
32.0	404.689	23.517	1249.044	1.669%	93.277%
33.0	345.815	20.654	1269.698	1.466%	94.819%
34.0	286.900	17.593	1287.291	1.248%	96.133%
35.0	234.720	14.764	1302.054	1.048%	97.235%
36.0	168.067	10.833	1312.888	.769%	98.044%
37.0	111.733	7.374	1320.262	.523%	98.595%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	72.888	4.921	1325.182	.349%	98.962%
39.0	34.014	2.347	1327.53	.167%	99.138%
40.0	18.909	1.333	1328.863	.095%	99.237%
41.0	12.929	0.930	1329.793	.066%	99.307%
42.0	10.551	0.774	1330.567	.055%	99.365%
43.0	8.770	0.656	1331.223	.047%	99.414%
44.0	7.233	0.551	1331.774	.039%	99.455%
45.0	5.940	0.461	1332.235	.033%	99.489%
46.0	5.000	0.394	1332.629	.028%	99.519%
47.0	4.466	0.358	1332.987	.025%	99.545%
48.0	3.956	0.322	1333.31	.023%	99.569%
49.0	3.527	0.292	1333.601	.021%	99.591%
50.0	3.202	0.269	1333.87	.019%	99.611%
51.0	2.906	0.248	1334.118	.018%	99.630%
52.0	2.686	0.232	1334.35	.016%	99.647%
53.0	2.529	0.221	1334.572	.016%	99.664%
54.0	2.384	0.212	1334.783	.015%	99.679%
55.0	2.280	0.205	1334.988	.015%	99.695%
56.0	2.169	0.197	1335.185	.014%	99.709%
57.0	2.111	0.194	1335.379	.014%	99.724%
58.0	2.071	0.193	1335.572	.014%	99.738%
59.0	2.048	0.192	1335.764	.014%	99.753%
60.0	1.984	0.188	1335.953	.013%	99.767%
61.0	2.007	0.192	1336.145	.014%	99.781%
62.0	1.990	0.193	1336.338	.014%	99.796%
63.0	1.972	0.193	1336.531	.014%	99.810%
64.0	1.891	0.186	1336.717	.013%	99.824%
65.0	1.810	0.180	1336.897	.013%	99.837%
66.0	1.810	0.181	1337.078	.013%	99.851%
67.0	1.816	0.183	1337.261	.013%	99.864%
68.0	1.734	0.176	1337.438	.013%	99.878%
69.0	1.589	0.163	1337.6	.012%	99.890%
70.0	1.450	0.149	1337.75	.011%	99.901%
71.0	1.334	0.138	1337.888	.010%	99.911%
72.0	1.189	0.124	1338.012	.009%	99.921%
73.0	1.032	0.108	1338.12	.008%	99.929%
74.0	0.847	0.089	1338.21	.006%	99.935%
75.0	0.771	0.082	1338.291	.006%	99.941%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	0.661	0.070	1338.362	.005%	99.947%
77.0	0.580	0.062	1338.424	.004%	99.951%
78.0	0.557	0.060	1338.484	.004%	99.956%
79.0	0.539	0.058	1338.542	.004%	99.960%
80.0	0.499	0.054	1338.595	.004%	99.964%
81.0	0.505	0.055	1338.65	.004%	99.968%
82.0	0.470	0.051	1338.701	.004%	99.972%
83.0	0.447	0.049	1338.75	.003%	99.976%
84.0	0.447	0.049	1338.798	.003%	99.979%
85.0	0.435	0.048	1338.846	.003%	99.983%
86.0	0.458	0.050	1338.896	.004%	99.987%
87.0	0.493	0.054	1338.95	.004%	99.991%
88.0	0.441	0.048	1338.998	.003%	99.994%
89.0	0.487	0.053	1339.052	.004%	99.998%
90.0	0.441	0.024	1339.076	.002%	100.000%

Zonal flux distribution table

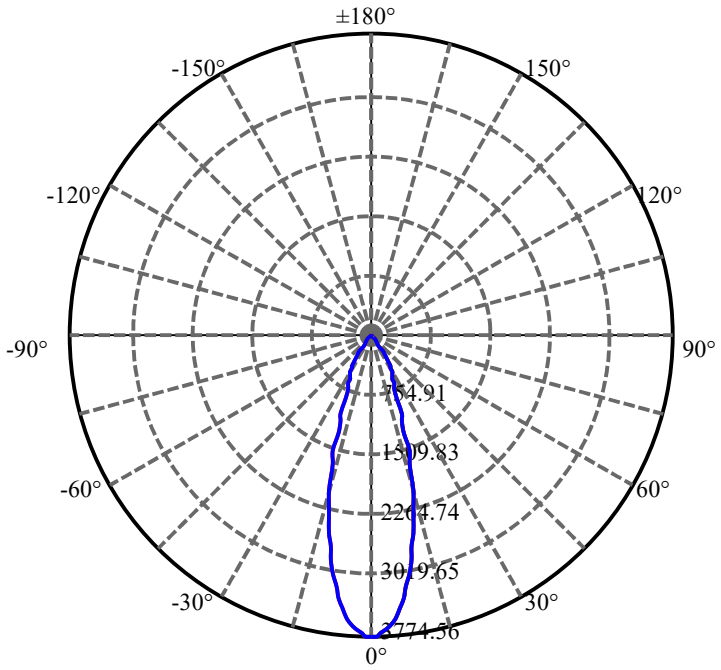
ZONAL LUMEN SUMMARY

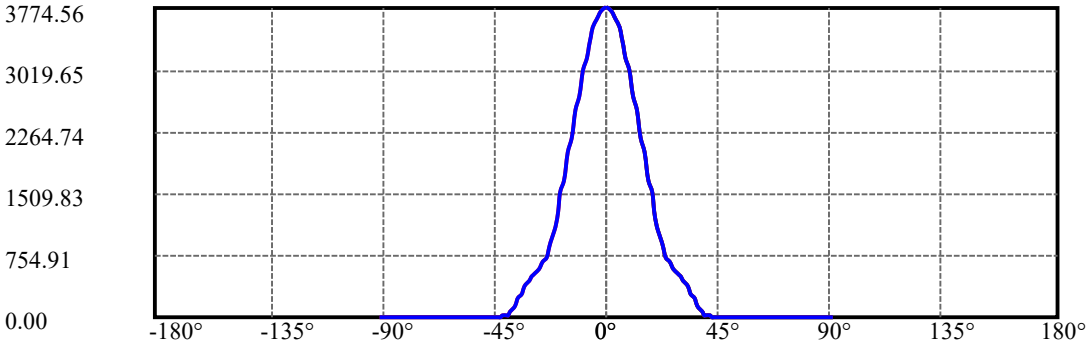
Zone	Lumens	%Lamp	%Fixt
0-30	1200.19	85.16%	89.63%
0-40	1328.86	94.29%	99.24%
0-60	1335.95	94.80%	99.77%
0-90	1339.05	95.02%	100.00%
0-120	1339.05	95.02%	100.00%
0-180	1339.08	95.02%	100.00%
60-90	3.29	0.23%	0.25%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-25.42	1071.26	76.01%	80.00%

ZONAL LUMEN SUMMARY

0-10	343.23
10-20	537.73
20-30	319.24
30-40	128.67
40-50	5.01
50-60	2.08
60-70	1.80
70-80	0.85
80-90	0.46
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):

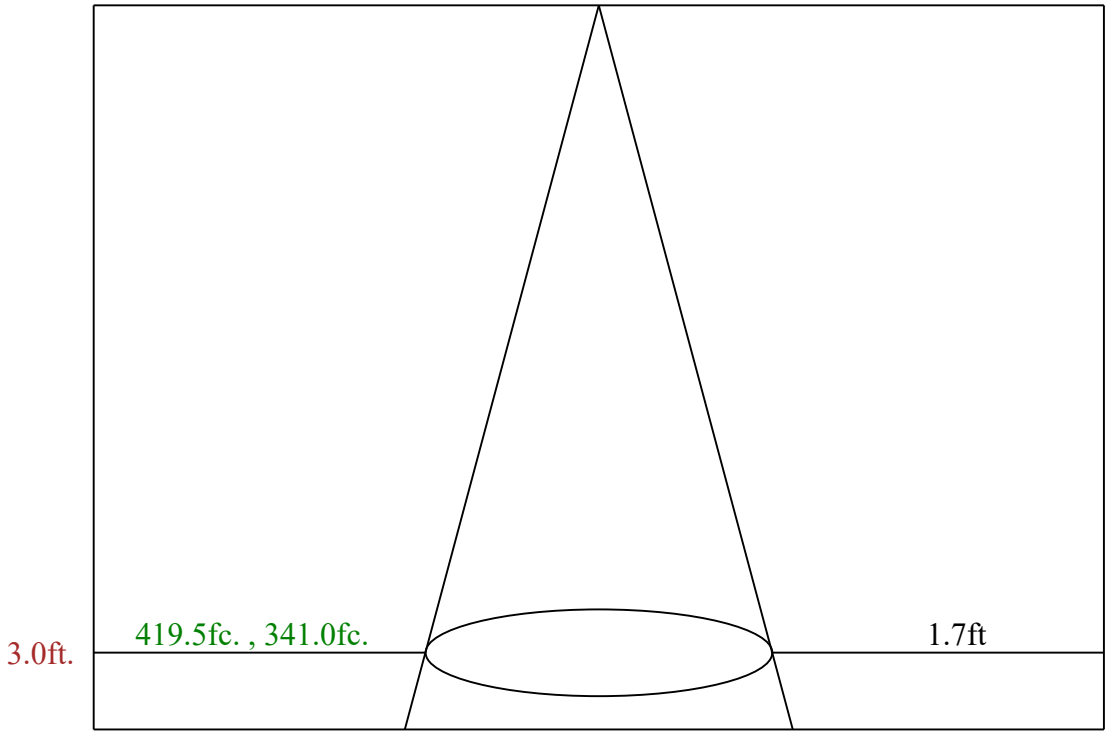
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:32.5 Right:32.5
:C90/270Left:32.5 Right:32.5

Beam Angle(50%Imax):C0/180Left:15.7 Right:15.7
:C90/270Left:15.7 Right:15.7

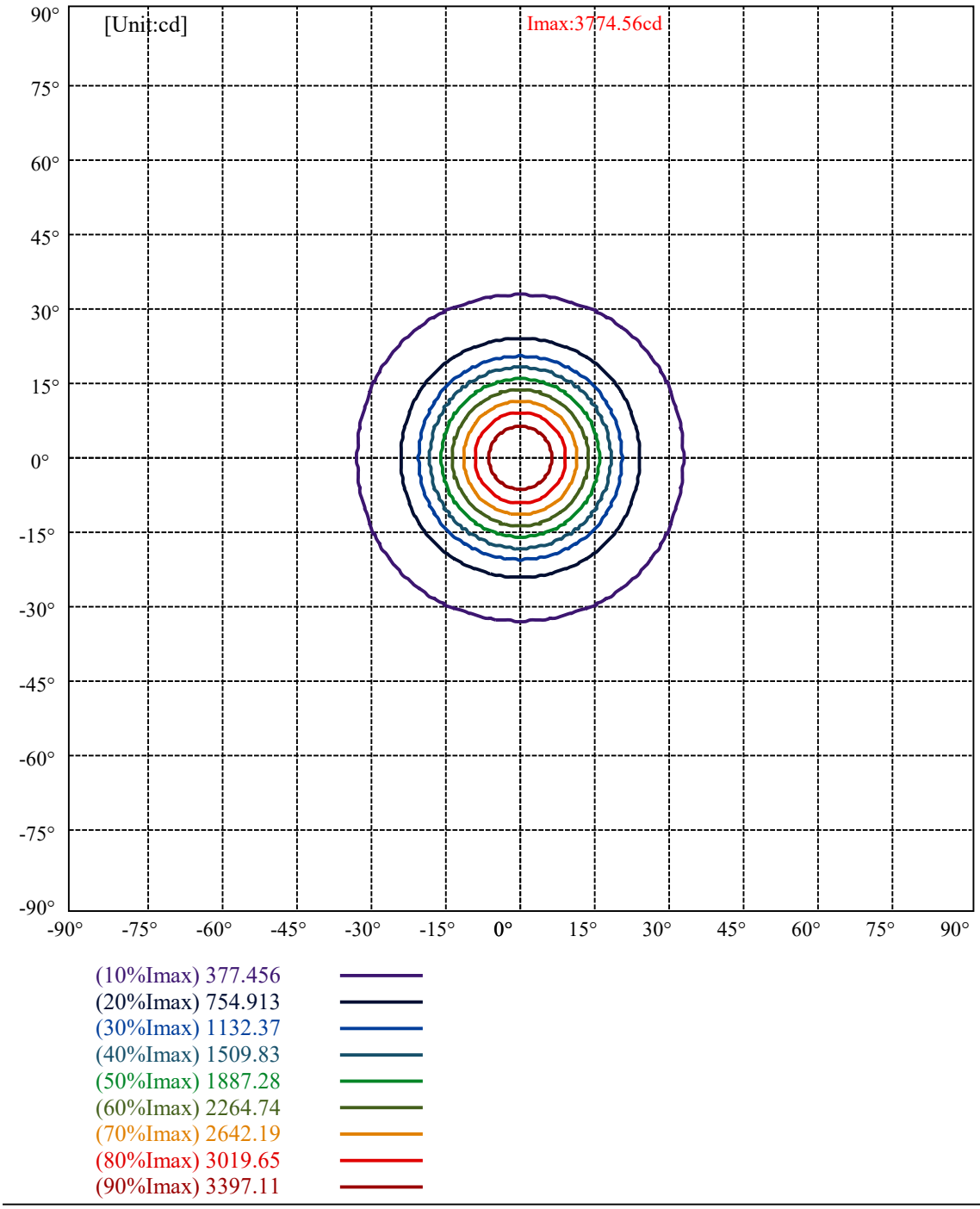
Lux distance Curve



Max , Ave

Beam angle of C0 plane 31.50

ISO-Intensity(V-H)

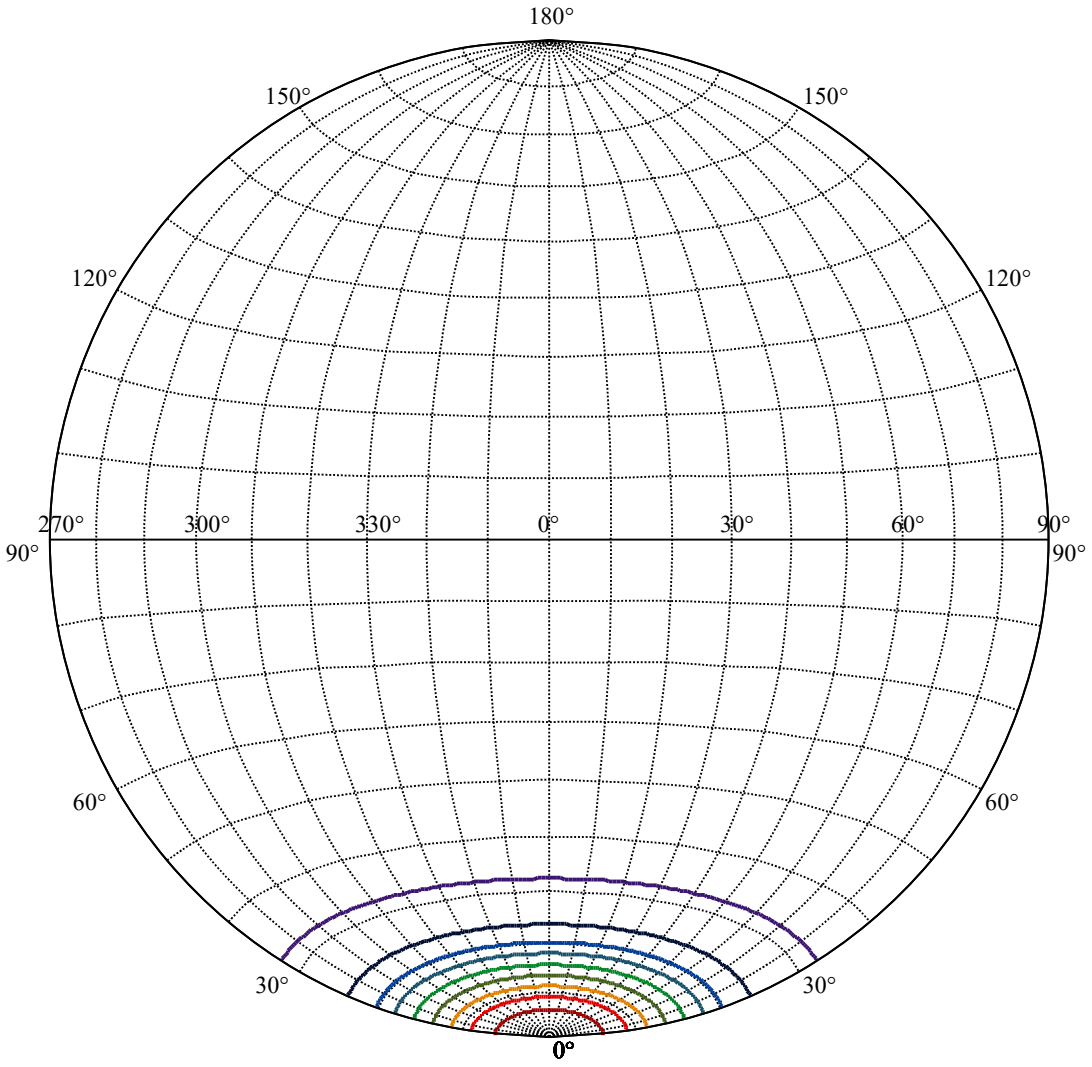


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/19
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:3774.56

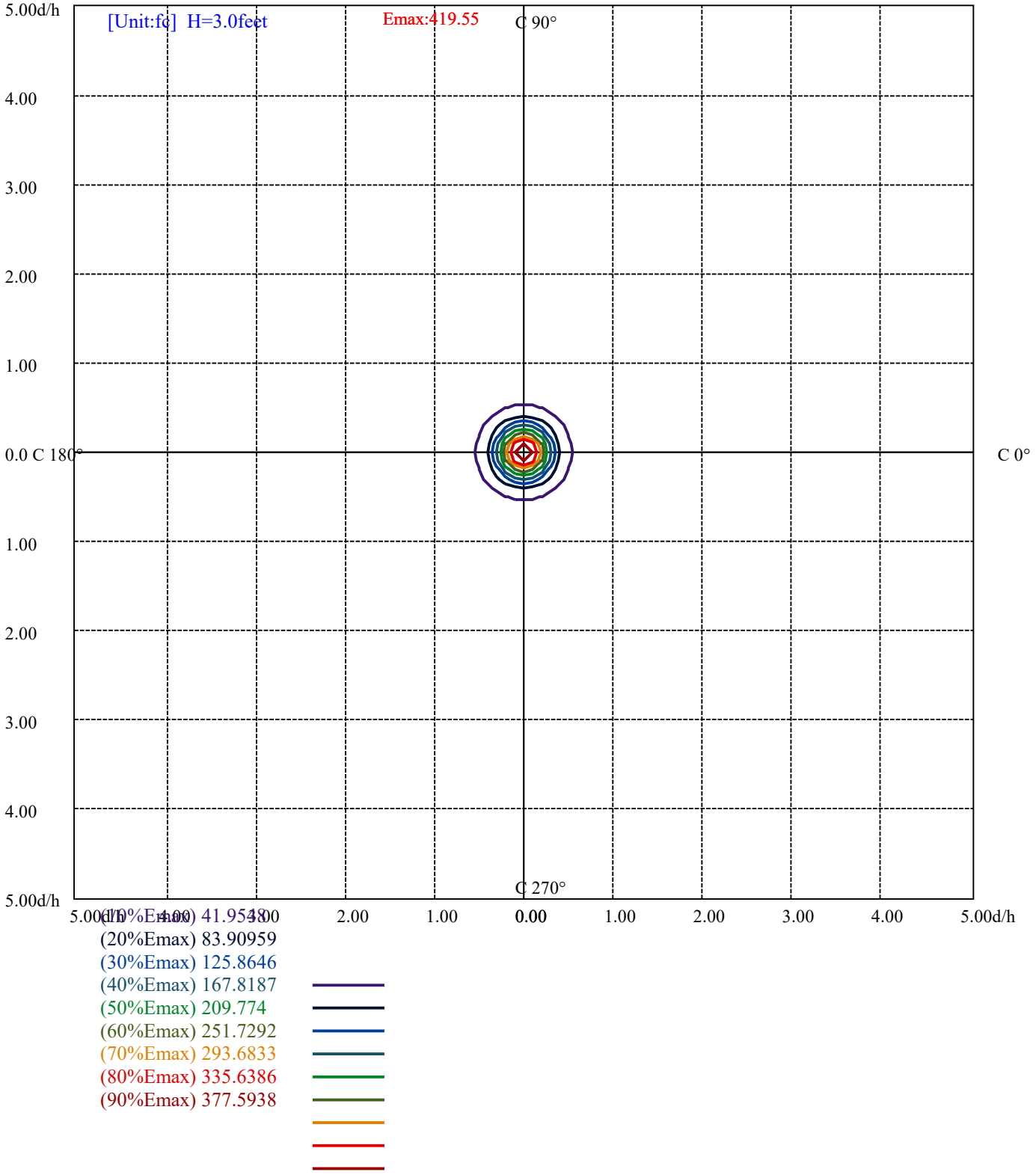
(10%Imax) 377.456
(20%Imax) 754.913
(30%Imax) 1132.37
(40%Imax) 1509.83
(50%Imax) 1887.28
(60%Imax) 2264.74
(70%Imax) 2642.19
(80%Imax) 3019.65
(90%Imax) 3397.11

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/19
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

ISO illuminance diagram

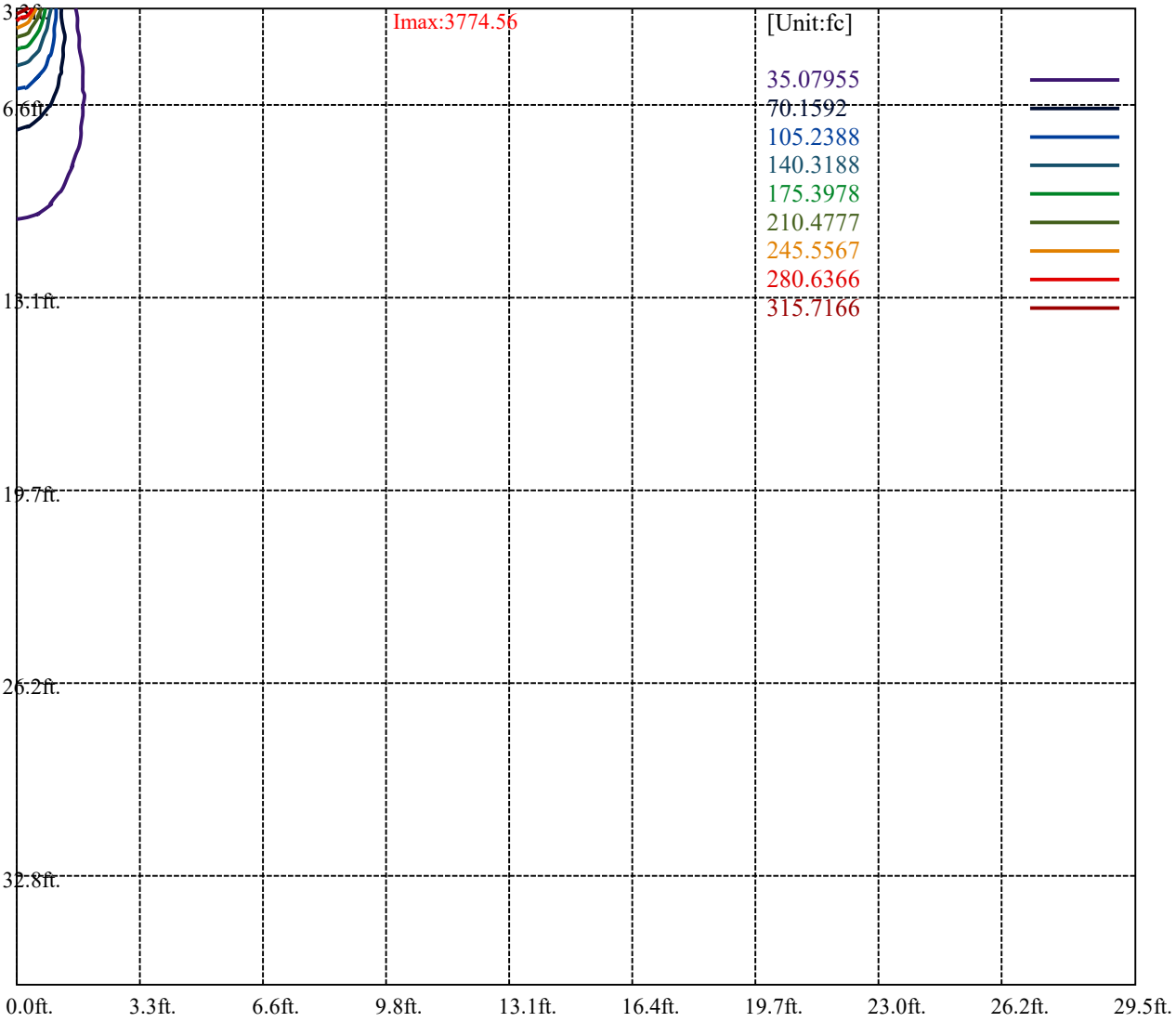


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/19
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/19
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Nata 3-2547-M

Luminance Limitting Curve(no luminous side)

Luminance Table

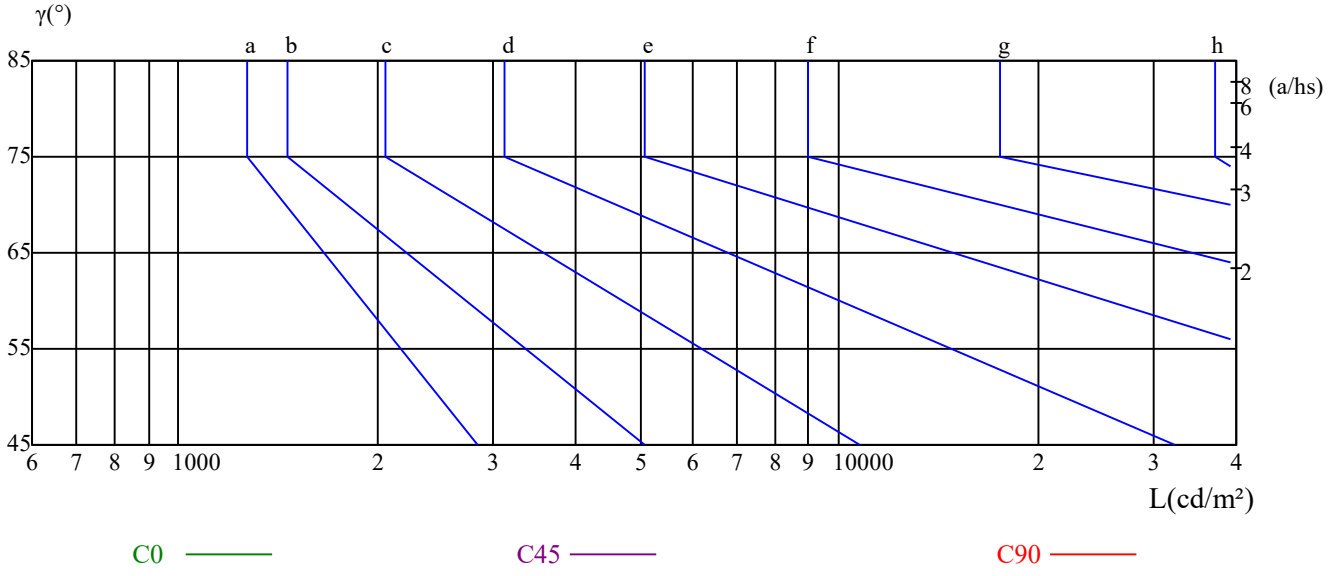
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

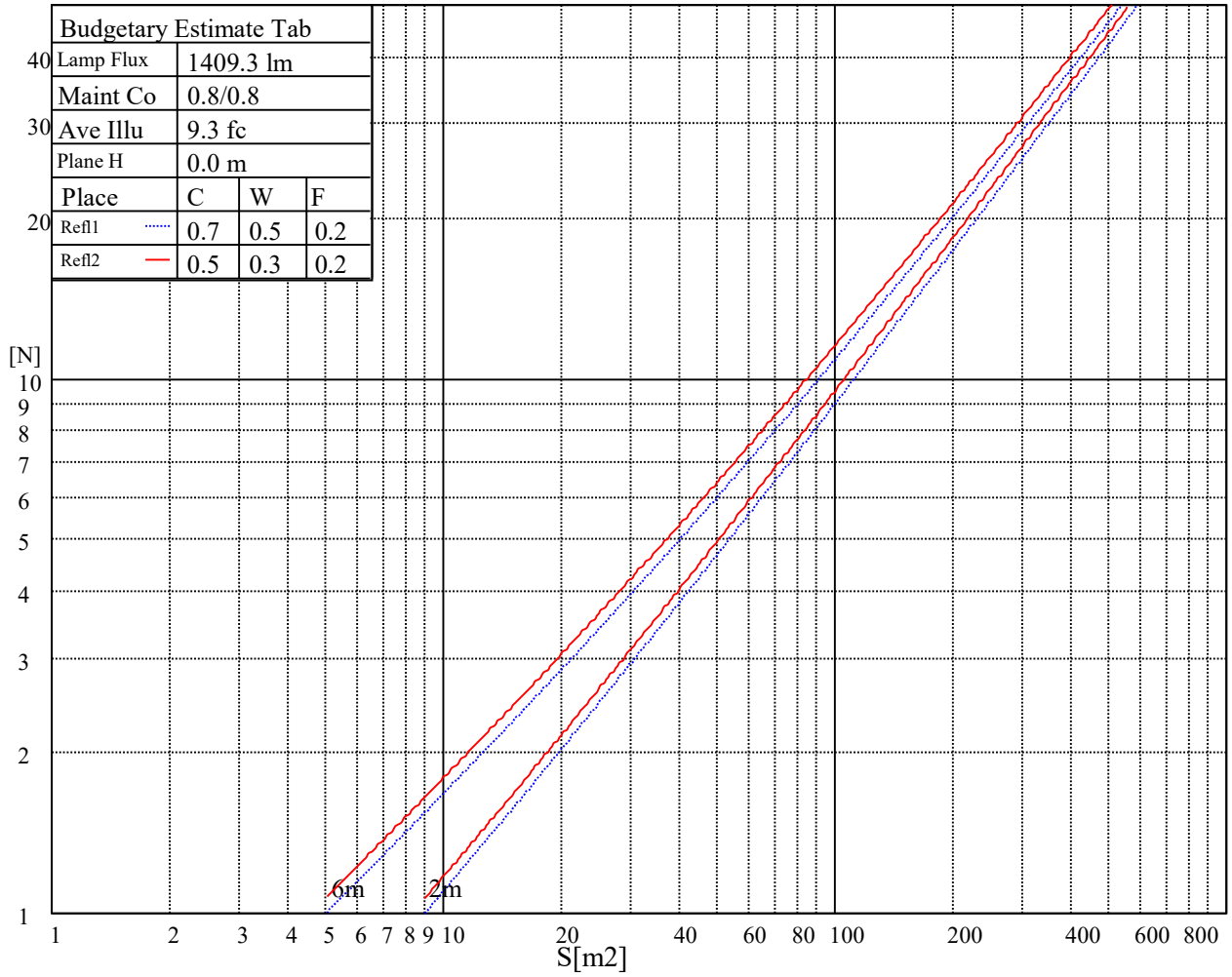


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/19
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Budgetary Estimate Table



Equipment: GMS 1800
Temperature(°C): 25.0

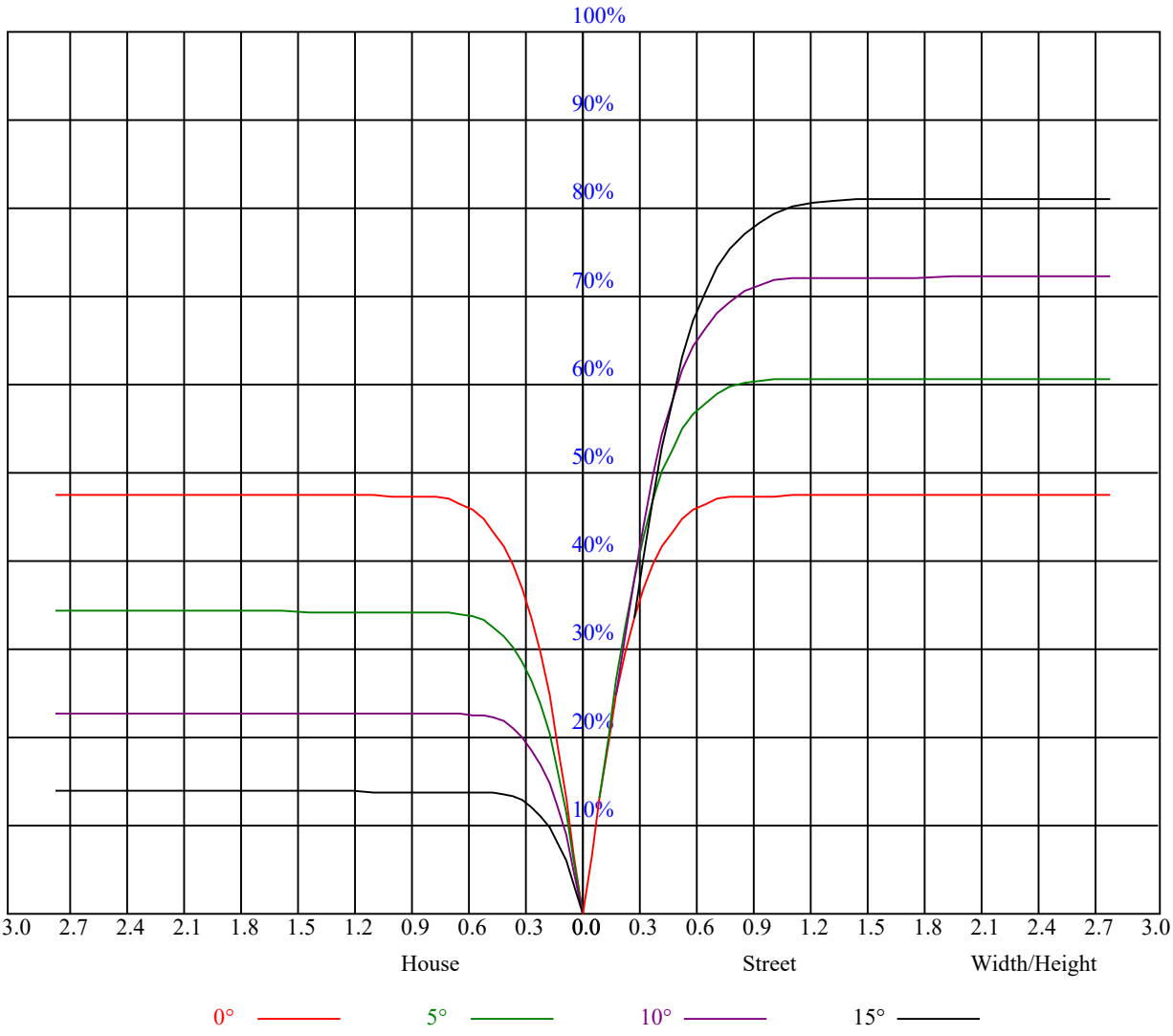
Date: 2020/9/19
Humidity(%): 60.0%

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	1.13	1.13	1.13	1.11	1.11	1.11	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.95
1	1.07	1.05	1.03	1.05	1.03	1.01	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91
2	1.01	0.98	0.95	0.99	0.97	0.94	0.96	0.94	0.92	0.94	0.92	0.90	0.91	0.90	0.88	0.87
3	0.96	0.92	0.89	0.95	0.91	0.88	0.92	0.89	0.87	0.90	0.88	0.86	0.88	0.86	0.84	0.83
4	0.91	0.87	0.84	0.90	0.87	0.84	0.89	0.85	0.83	0.87	0.84	0.82	0.85	0.83	0.81	0.80
5	0.87	0.83	0.80	0.87	0.82	0.79	0.85	0.81	0.79	0.84	0.80	0.78	0.82	0.80	0.77	0.76
6	0.84	0.79	0.76	0.83	0.79	0.76	0.82	0.78	0.75	0.80	0.77	0.75	0.79	0.77	0.74	0.73
7	0.80	0.76	0.73	0.80	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.70
8	0.77	0.73	0.70	0.77	0.72	0.70	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.69	0.68
9	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.72	0.69	0.66	0.65
10	0.72	0.67	0.64	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.63

Coefficient Utilization Curve



Equipment: GMS 1800	Date: 2020/9/19	Operator: NT0100
Temperature(°C): 25.0	Humidity(%): 60.0%	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	3777.00	3753.33	3710.64	3645.68	3561.69	3455.89	3328.74	3183.50	3020.16
45.0	3772.36	3785.35	3780.25	3745.91	3718.07	3654.96	3574.68	3476.77	3365.87
90.0	3784.89	3784.89	3766.79	3726.42	3665.63	3584.89	3484.20	3366.79	3235.94
135.0	3764.01	3777.00	3772.82	3752.87	3714.36	3683.27	3611.34	3475.84	3405.77
180.0	3777.00	3780.25	3765.86	3731.99	3674.91	3630.83	3494.87	3423.87	3290.69
225.0	3772.36	3739.88	3686.05	3611.34	3517.61	3408.56	3286.05	3154.27	3010.42
270.0	3784.89	3767.72	3729.67	3670.74	3609.95	3514.36	3376.54	3270.28	3122.25
315.0	3764.01	3731.52	3680.95	3608.56	3515.29	3399.74	3262.85	3107.86	2936.64
360.0	3777.00	3753.33	3710.64	3645.68	3561.69	3455.89	3328.74	3183.50	3020.16

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2848.01	2670.28	2485.60	2299.98	2113.44	1929.68	1821.56	1573.77	1470.29
45.0	3239.65	3098.58	2941.74	2774.22	2593.25	2403.00	2201.61	1992.33	1782.12
90.0	3092.55	2944.52	2792.79	2640.58	2484.20	2326.43	2162.63	1991.86	1818.78
135.0	3274.45	3065.17	2967.73	2804.85	2640.58	2478.17	2317.62	2157.52	2001.61
180.0	3140.81	2984.43	2826.66	2674.92	2527.82	2386.29	2248.01	2108.80	1966.81
225.0	2861.46	2708.33	2550.56	2387.68	2213.67	2027.59	1832.24	1635.02	1441.98
270.0	2962.16	2795.57	2620.63	2443.37	2257.29	2072.14	1887.46	1706.02	1530.15
315.0	2755.20	2564.48	2450.33	2184.44	1997.90	1888.85	1644.77	1546.86	1389.55
360.0	2848.01	2670.28	2485.60	2299.98	2113.44	1929.68	1821.56	1573.77	1470.29

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1302.31	898.42	898.42	853.22	759.53	691.18	638.09	596.24	560.65
45.0	1577.02	1380.73	1194.65	1022.50	869.83	790.48	648.02	607.19	558.00
90.0	1714.37	1541.75	1301.85	1199.29	900.13	900.13	784.40	700.13	638.65
135.0	1848.94	1699.52	1552.42	1407.18	1262.87	1122.26	996.05	887.46	806.26
180.0	1820.64	1670.75	1517.62	1361.71	1203.01	1049.88	916.70	811.36	747.33
225.0	1293.96	866.54	866.54	812.94	698.14	619.90	568.53	532.15	505.70
270.0	1361.24	1197.90	1042.45	905.10	789.09	704.17	642.92	613.68	573.31
315.0	1237.81	1056.84	887.65	851.50	778.79	720.92	673.22	632.25	595.73
360.0	1302.31	898.42	898.42	853.22	759.53	691.18	638.09	596.24	560.65

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	530.30	505.29	478.05	431.55	369.56	300.37	232.16	192.11	128.12
45.0	523.20	497.68	477.72	461.95	448.02	426.68	384.92	327.38	263.34
90.0	590.02	551.92	520.51	495.54	472.90	433.27	389.28	312.76	259.86
135.0	754.75	690.25	654.06	612.76	577.03	546.40	506.03	446.63	378.88
180.0	671.22	620.18	585.84	549.65	519.49	490.25	441.99	380.28	311.60
225.0	484.40	467.47	452.62	427.75	383.20	349.79	261.44	196.61	158.37
270.0	528.30	512.06	488.86	466.59	424.36	368.21	302.32	262.41	262.41
315.0	564.68	537.07	514.47	433.92	393.64	322.55	248.40	177.03	115.17
360.0	530.30	505.29	478.05	431.55	369.56	300.37	232.16	192.11	128.12

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	71.93	31.55	16.94	14.34	11.65	9.19	7.70	6.59	5.94
45.0	263.34	122.32	87.98	27.19	13.22	7.89	6.08	5.10	3.57
90.0	192.99	128.77	71.93	30.02	12.58	10.16	8.17	6.26	4.87
135.0	305.57	230.86	230.86	99.54	52.85	31.23	25.85	21.30	18.70
180.0	242.46	242.46	109.37	56.38	24.04	15.82	13.04	11.28	8.49
225.0	97.12	47.66	16.47	8.12	6.68	5.20	3.76	3.02	2.37
270.0	105.75	54.25	20.46	12.06	10.35	7.61	5.94	4.69	3.57
315.0	65.38	36.01	29.09	24.45	19.91	16.33	13.87	11.93	10.35
360.0	71.93	31.55	16.94	14.34	11.65	9.19	7.70	6.59	5.94

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	5.43	5.01	4.64	4.32	4.04	3.81	3.67	3.48	3.43
45.0	2.74	2.32	2.09	1.86	1.76	1.67	1.62	1.48	1.48
90.0	3.85	3.25	2.83	2.55	2.32	2.09	1.86	1.76	1.67
135.0	14.90	11.32	10.21	8.68	7.38	6.36	5.48	4.73	4.13
180.0	6.26	5.48	4.69	4.13	3.67	3.25	2.97	2.74	2.55
225.0	2.18	2.00	1.81	1.62	1.58	1.48	1.39	1.35	1.35
270.0	3.20	2.78	2.51	2.27	2.00	1.76	1.67	1.58	1.48
315.0	8.96	7.84	6.96	6.22	5.48	5.20	4.59	4.36	4.13
360.0	5.43	5.01	4.64	4.32	4.04	3.81	3.67	3.48	3.43

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.20	3.11	3.02	2.88	2.60	2.37	2.18	2.09	1.95
45.0	1.44	1.39	1.30	1.30	1.30	1.25	1.16	1.21	1.16
90.0	1.58	1.44	1.39	1.35	1.30	1.35	1.30	1.25	1.30
135.0	3.67	3.34	2.97	2.74	2.60	2.46	2.32	2.27	2.27
180.0	2.41	2.32	2.23	2.18	2.13	2.13	2.13	2.23	2.23
225.0	1.39	1.39	1.39	1.48	1.58	1.67	1.67	1.81	1.86
270.0	1.48	1.53	1.53	1.53	1.67	1.81	1.90	2.04	2.09
315.0	3.90	3.71	3.53	3.43	3.39	3.34	3.20	3.16	3.06
360.0	3.20	3.11	3.02	2.88	2.60	2.37	2.18	2.09	1.95

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.86	1.76	1.67	1.67	1.72	1.67	1.48	1.30	1.11
45.0	1.25	1.25	1.21	1.21	1.21	1.16	1.07	0.97	0.93
90.0	1.35	1.35	1.35	1.39	1.39	1.39	1.30	1.21	1.16
135.0	2.37	2.32	2.27	2.27	2.32	2.32	2.27	2.09	1.90
180.0	2.32	2.32	2.32	2.27	2.32	2.27	2.13	2.00	1.81
225.0	1.81	1.81	1.86	1.86	1.76	1.62	1.53	1.35	1.16
270.0	1.95	1.67	1.30	1.53	1.95	2.00	1.81	1.62	1.44
315.0	2.88	2.64	2.51	2.27	1.86	1.44	1.11	1.07	1.16
360.0	1.86	1.76	1.67	1.67	1.72	1.67	1.48	1.30	1.11

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	0.93	0.74	0.60	0.56	0.51	0.46	0.46	0.46	0.42
45.0	0.79	0.65	0.60	0.60	0.51	0.51	0.51	0.51	0.42
90.0	1.11	0.93	0.79	0.79	0.65	0.60	0.60	0.51	0.51
135.0	1.76	1.58	1.35	1.16	0.97	0.79	0.70	0.65	0.65
180.0	1.58	1.48	1.25	1.07	0.88	0.70	0.65	0.65	0.56
225.0	1.07	0.97	0.74	0.70	0.60	0.56	0.56	0.51	0.46
270.0	1.30	1.07	0.84	0.65	0.60	0.51	0.46	0.51	0.51
315.0	0.97	0.84	0.60	0.65	0.56	0.51	0.51	0.51	0.46
360.0	0.93	0.74	0.60	0.56	0.51	0.46	0.46	0.46	0.42

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	0.42	0.42	0.37	0.37	0.37	0.37	0.32	0.32	0.32
45.0	0.42	0.42	0.42	0.42	0.37	0.37	0.32	0.37	0.32
90.0	0.56	0.51	0.46	0.46	0.51	0.56	0.46	0.65	1.30
135.0	0.65	0.60	0.56	0.51	0.56	0.51	0.51	0.42	0.42
180.0	0.60	0.51	0.51	0.51	0.46	0.42	0.42	0.42	0.37
225.0	0.51	0.42	0.42	0.42	0.42	0.42	0.37	0.32	0.42
270.0	0.46	0.46	0.42	0.46	0.42	0.56	1.21	0.70	0.42
315.0	0.42	0.42	0.42	0.42	0.37	0.46	0.32	0.32	0.32
360.0	0.42	0.42	0.37	0.37	0.37	0.37	0.32	0.32	0.32

Intensity data(cd)

C/γ(°)	90.0
0.0	0.28
45.0	0.37
90.0	1.16
135.0	0.42
180.0	0.37
225.0	0.32
270.0	0.32
315.0	0.28
360.0	0.28