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

Nata

LumCAT: 2-2264-M
Luminaire: 92.70.131.00
Report No: 200919-B045
Test No: 200919-C045
LampCAT: OSRAM OPTO SOLERIQ S13
Lamp flux(lm): 1409.3
Number of Lamps: 1
Length(feet)(ft.):0.000
Phm Type: C

Voltage(V): 230.8000
Current(A): 0.0840
Power (W): 18.5800
PF: 0.9500
Ballast type: AC
Width(feet)(ft.):0.000
Height(feet)(ft.):0.000

Photometric Results

Lumens(lm): 1339.74
Efficiency(%): 95.06%
Lumens(lm)/Power(W): 72.11
Central intensity(cd): 3215.403
Maximum intensity(cd): 3215.403
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=34.6
[C90/270]Total=34.6
Field angle(10%Imax): [C0/180]Total=68.1
[C90/270]Total=68.1
Maximum s/h(1/2): C0_180=0.57 C90_270=0.57
Maximum s/h(1/4): C0_180=0.56 C90_270=0.56
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 95.12%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.740%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3215.404	0.769	0.769	.055%	.057%
1.0	3210.125	6.144	6.913	.436%	.516%
2.0	3194.638	12.226	19.139	.868%	1.429%
3.0	3166.448	18.173	37.312	1.289%	2.785%
4.0	3126.715	23.918	61.23	1.697%	4.570%
5.0	3081.008	29.447	90.677	2.089%	6.768%
6.0	3012.041	34.526	125.203	2.450%	9.345%
7.0	2937.854	39.262	164.465	2.786%	12.276%
8.0	2848.353	43.471	207.937	3.085%	15.521%
9.0	2738.725	46.982	254.919	3.334%	19.027%
10.0	2626.603	50.017	304.936	3.549%	22.761%
11.0	2505.027	52.416	357.351	3.719%	26.673%
12.0	2359.842	53.804	411.155	3.818%	30.689%
13.0	2224.634	54.878	466.033	3.894%	34.785%
14.0	2077.710	55.120	521.154	3.911%	38.900%
15.0	1939.312	55.042	576.196	3.906%	43.008%
16.0	1782.294	53.873	630.069	3.823%	47.029%
17.0	1650.161	52.907	682.976	3.754%	50.978%
18.0	1510.139	51.174	734.15	3.631%	54.798%
19.0	1348.249	48.135	782.285	3.416%	58.391%
20.0	1220.309	45.769	828.054	3.248%	61.807%
21.0	1075.989	42.285	870.34	3.000%	64.963%
22.0	964.581	39.625	909.964	2.812%	67.921%
23.0	878.862	37.657	947.622	2.672%	70.732%
24.0	802.905	35.812	983.434	2.541%	73.405%
25.0	735.197	34.072	1017.506	2.418%	75.948%
26.0	682.837	32.825	1050.332	2.329%	78.398%
27.0	633.197	31.524	1081.855	2.237%	80.751%
28.0	594.027	30.582	1112.437	2.170%	83.034%
29.0	562.032	29.880	1142.318	2.120%	85.264%
30.0	527.368	28.916	1171.233	2.052%	87.422%
31.0	485.953	27.446	1198.68	1.948%	89.471%
32.0	442.467	25.712	1224.392	1.824%	91.390%
33.0	387.538	23.146	1247.538	1.642%	93.118%
34.0	325.392	19.954	1267.492	1.416%	94.607%
35.0	273.681	17.214	1284.706	1.221%	95.892%
36.0	221.019	14.246	1298.952	1.011%	96.956%
37.0	164.627	10.865	1309.817	.771%	97.766%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	122.157	8.247	1318.064	.585%	98.382%
39.0	64.506	4.452	1322.516	.316%	98.714%
40.0	39.019	2.750	1325.266	.195%	98.920%
41.0	24.530	1.765	1327.031	.125%	99.051%
42.0	17.337	1.272	1328.303	.090%	99.146%
43.0	14.832	1.109	1329.413	.079%	99.229%
44.0	12.390	0.944	1330.356	.067%	99.300%
45.0	10.348	0.802	1331.159	.057%	99.359%
46.0	8.759	0.691	1331.85	.049%	99.411%
47.0	7.575	0.608	1332.457	.043%	99.456%
48.0	6.647	0.542	1332.999	.038%	99.497%
49.0	5.940	0.492	1333.49	.035%	99.534%
50.0	5.331	0.448	1333.938	.032%	99.567%
51.0	4.791	0.408	1334.347	.029%	99.597%
52.0	4.339	0.375	1334.722	.027%	99.625%
53.0	3.979	0.348	1335.07	.025%	99.651%
54.0	3.648	0.324	1335.394	.023%	99.676%
55.0	3.364	0.302	1335.696	.021%	99.698%
56.0	3.173	0.288	1335.984	.020%	99.720%
57.0	2.941	0.270	1336.255	.019%	99.740%
58.0	2.744	0.255	1336.51	.018%	99.759%
59.0	2.529	0.238	1336.748	.017%	99.777%
60.0	2.372	0.225	1336.973	.016%	99.793%
61.0	2.222	0.213	1337.186	.015%	99.809%
62.0	2.088	0.202	1337.388	.014%	99.824%
63.0	1.949	0.190	1337.579	.014%	99.839%
64.0	1.856	0.183	1337.762	.013%	99.852%
65.0	1.717	0.171	1337.932	.012%	99.865%
66.0	1.572	0.157	1338.09	.011%	99.877%
67.0	1.450	0.146	1338.236	.010%	99.888%
68.0	1.375	0.140	1338.376	.010%	99.898%
69.0	1.253	0.128	1338.504	.009%	99.908%
70.0	1.143	0.118	1338.622	.008%	99.917%
71.0	1.073	0.111	1338.733	.008%	99.925%
72.0	0.951	0.099	1338.832	.007%	99.932%
73.0	0.818	0.086	1338.918	.006%	99.939%
74.0	0.708	0.075	1338.993	.005%	99.944%
75.0	0.644	0.068	1339.061	.005%	99.949%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	0.592	0.063	1339.124	.004%	99.954%
77.0	0.539	0.058	1339.182	.004%	99.958%
78.0	0.505	0.054	1339.236	.004%	99.962%
79.0	0.458	0.049	1339.285	.004%	99.966%
80.0	0.435	0.047	1339.332	.003%	99.970%
81.0	0.423	0.046	1339.378	.003%	99.973%
82.0	0.394	0.043	1339.421	.003%	99.976%
83.0	0.377	0.041	1339.462	.003%	99.979%
84.0	0.360	0.039	1339.501	.003%	99.982%
85.0	0.360	0.039	1339.54	.003%	99.985%
86.0	0.383	0.042	1339.582	.003%	99.988%
87.0	0.470	0.051	1339.634	.004%	99.992%
88.0	0.354	0.039	1339.672	.003%	99.995%
89.0	0.400	0.044	1339.716	.003%	99.998%
90.0	0.435	0.024	1339.74	.002%	100.000%

Zonal flux distribution table

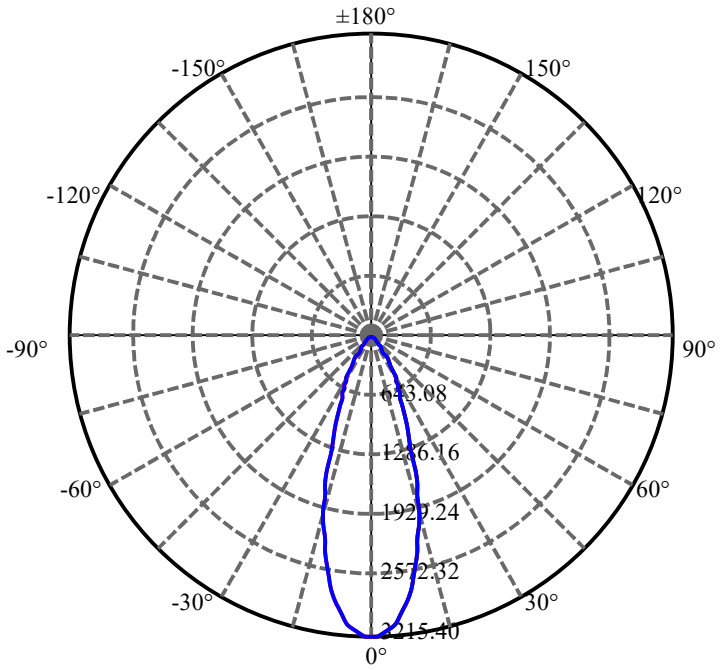
ZONAL LUMEN SUMMARY

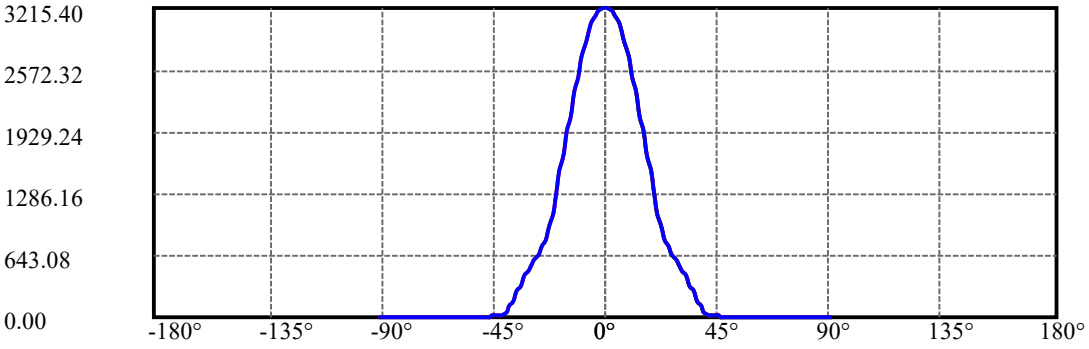
Zone	Lumens	%Lamp	%Fixt
0-30	1171.23	83.11%	87.42%
0-40	1325.27	94.04%	98.92%
0-60	1336.97	94.87%	99.79%
0-90	1339.72	95.06%	100.00%
0-120	1339.72	95.06%	100.00%
0-180	1339.74	95.06%	100.00%
60-90	2.97	0.21%	0.22%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.68	1071.79	76.05%	80.00%

ZONAL LUMEN SUMMARY

0-10	304.94
10-20	523.12
20-30	343.18
30-40	154.03
40-50	8.67
50-60	3.03
60-70	1.65
70-80	0.71
80-90	0.38
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:34.1 Right:34.1
:C90/270Left:34.1 Right:34.1

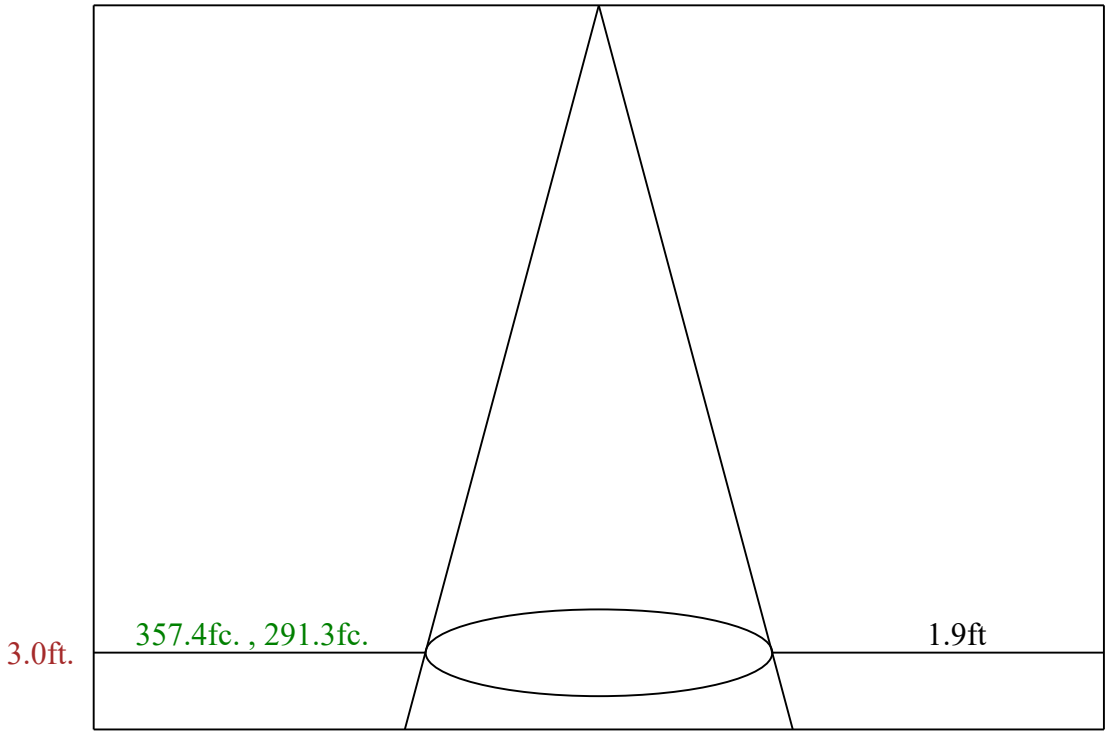
Beam Angle(50%Imax):C0/180Left:17.3 Right:17.3
:C90/270Left:17.3 Right:17.3

Equipment: GMS 1800
Temperature(°C): 25.0

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

Operator: NT0100
Distance(feet): 22.35

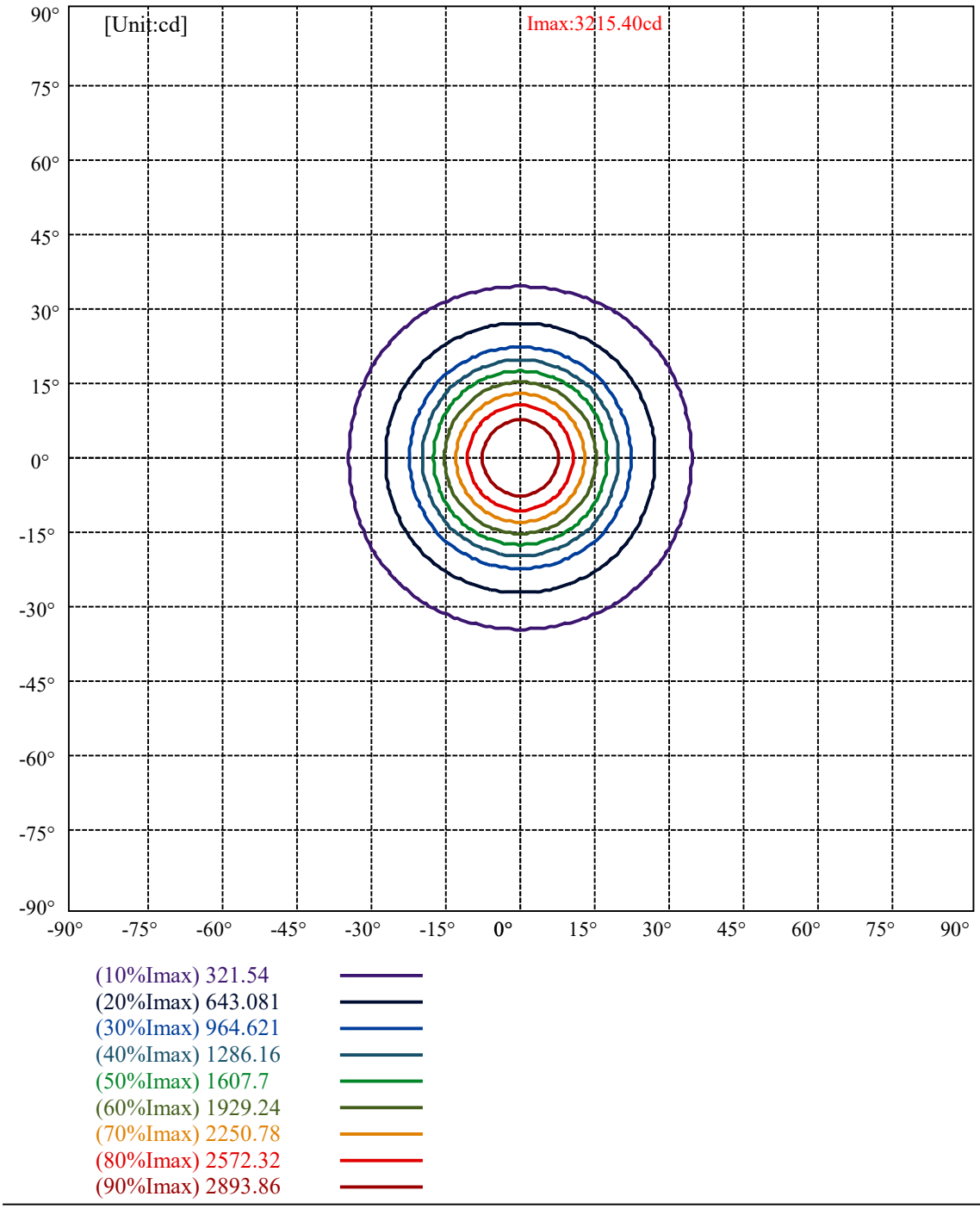
Lux distance Curve



Max , Ave

Beam angle of C0 plane 34.64

ISO-Intensity(V-H)

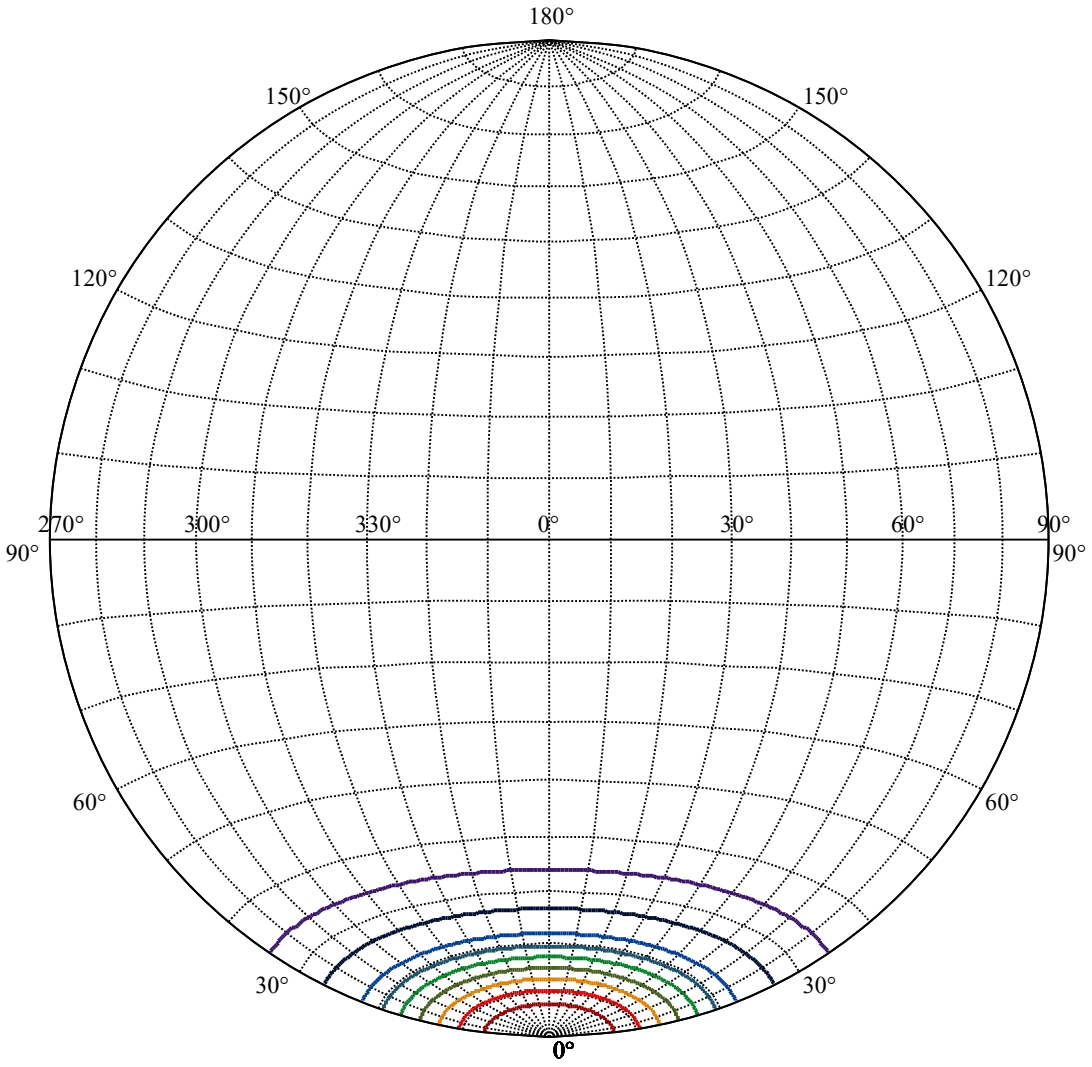


Equipment: GMS 1800
Temperature(°C): 25.0

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

Operator: NT0100
Distance(feet): 22.35

ISO candela diagram on circular web

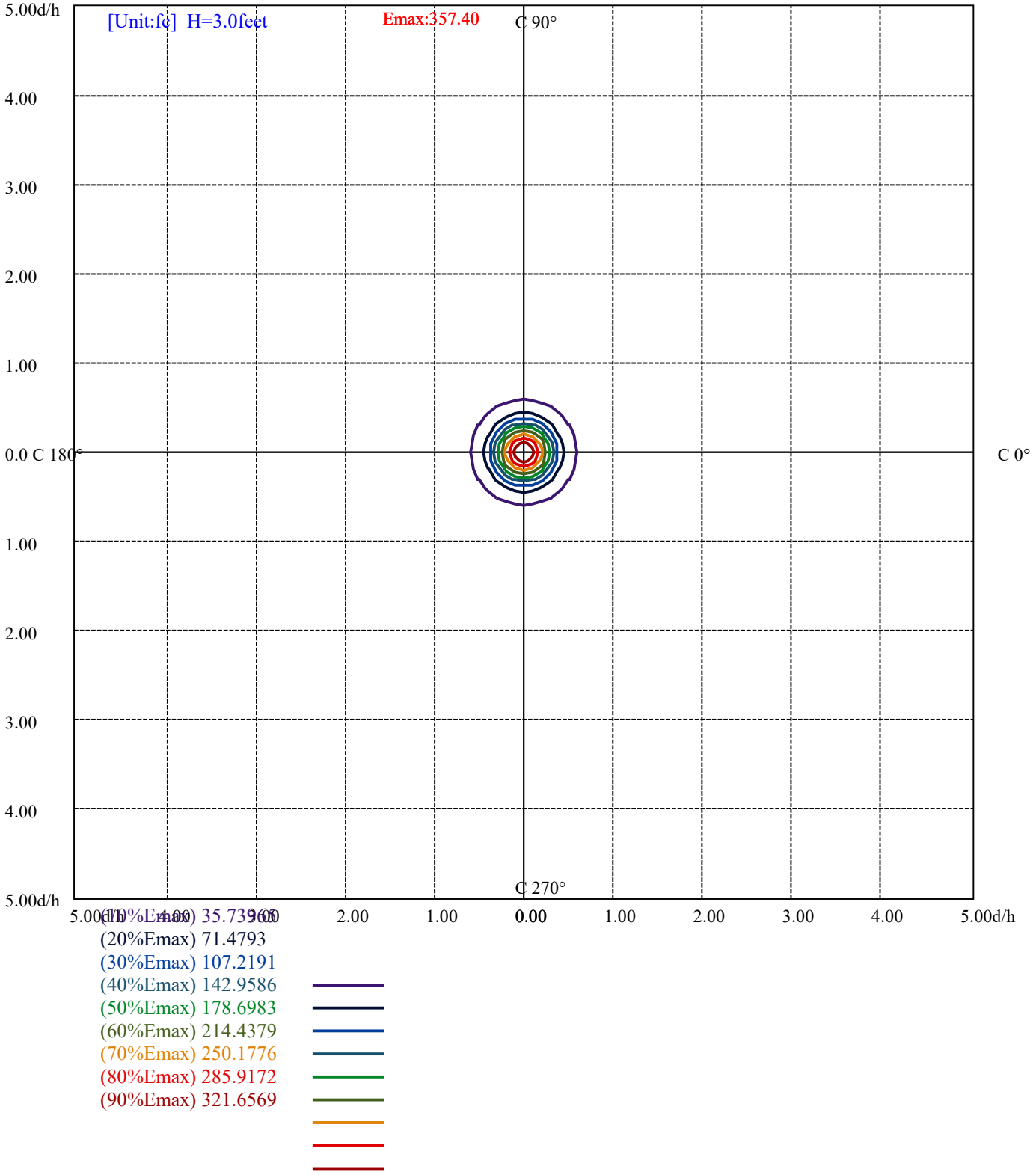


House [Unit:cd] Road

Imax:3215.40

(10%Imax) 321.54
(20%Imax) 643.081
(30%Imax) 964.621
(40%Imax) 1286.16
(50%Imax) 1607.7
(60%Imax) 1929.24
(70%Imax) 2250.78
(80%Imax) 2572.32
(90%Imax) 2893.86

ISO illuminance diagram

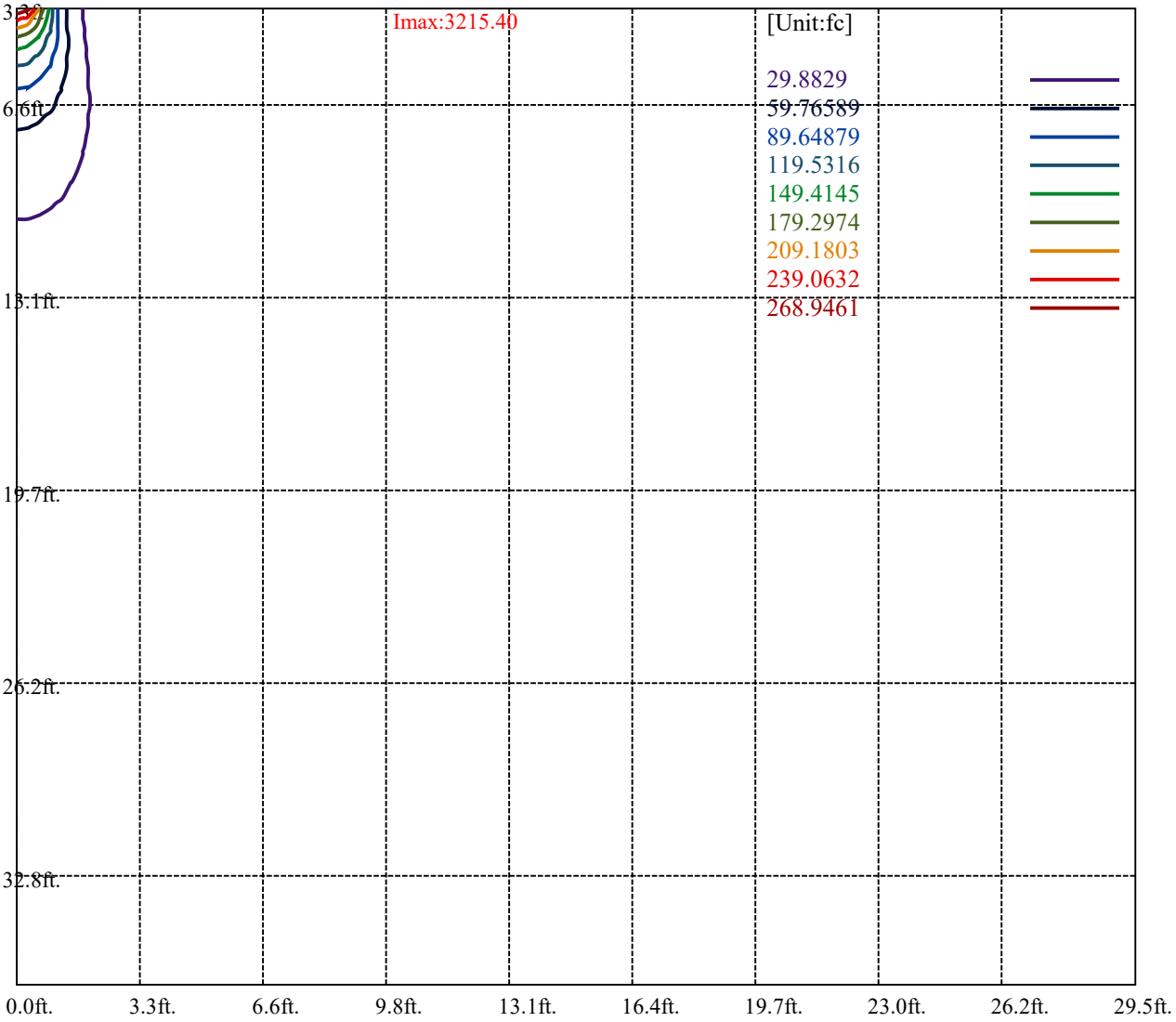


Equipment: GMS 1800
Temperature(°C): 25.0

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 2-2264-M

Luminance Limitting Curve(no luminous side)

Luminance Table

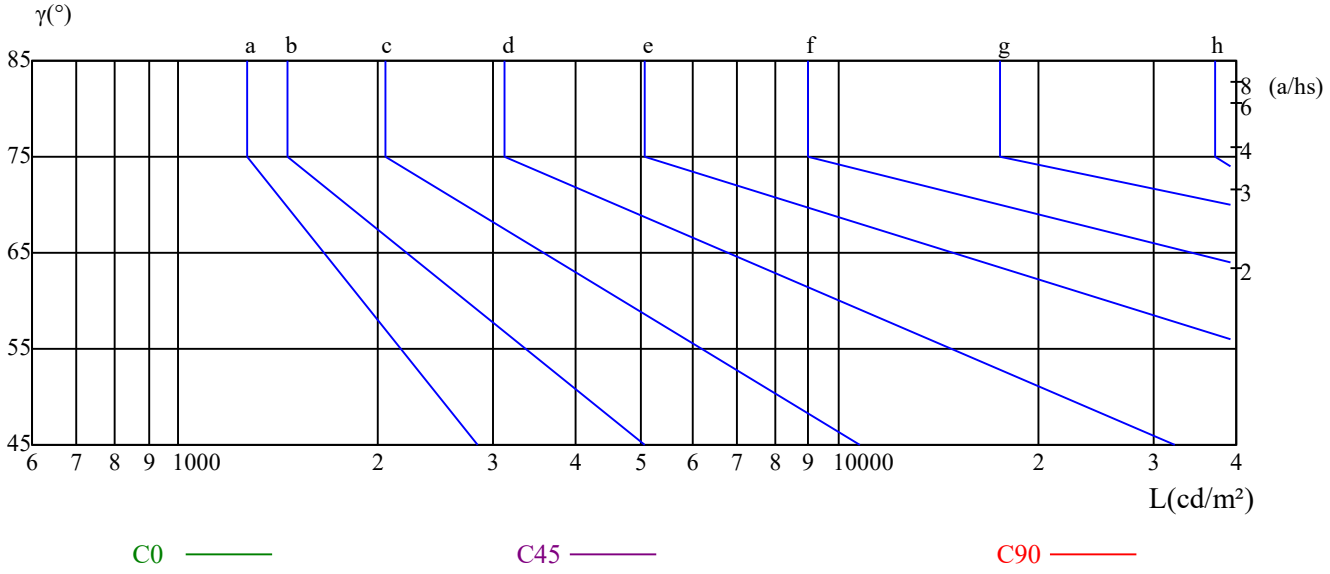
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

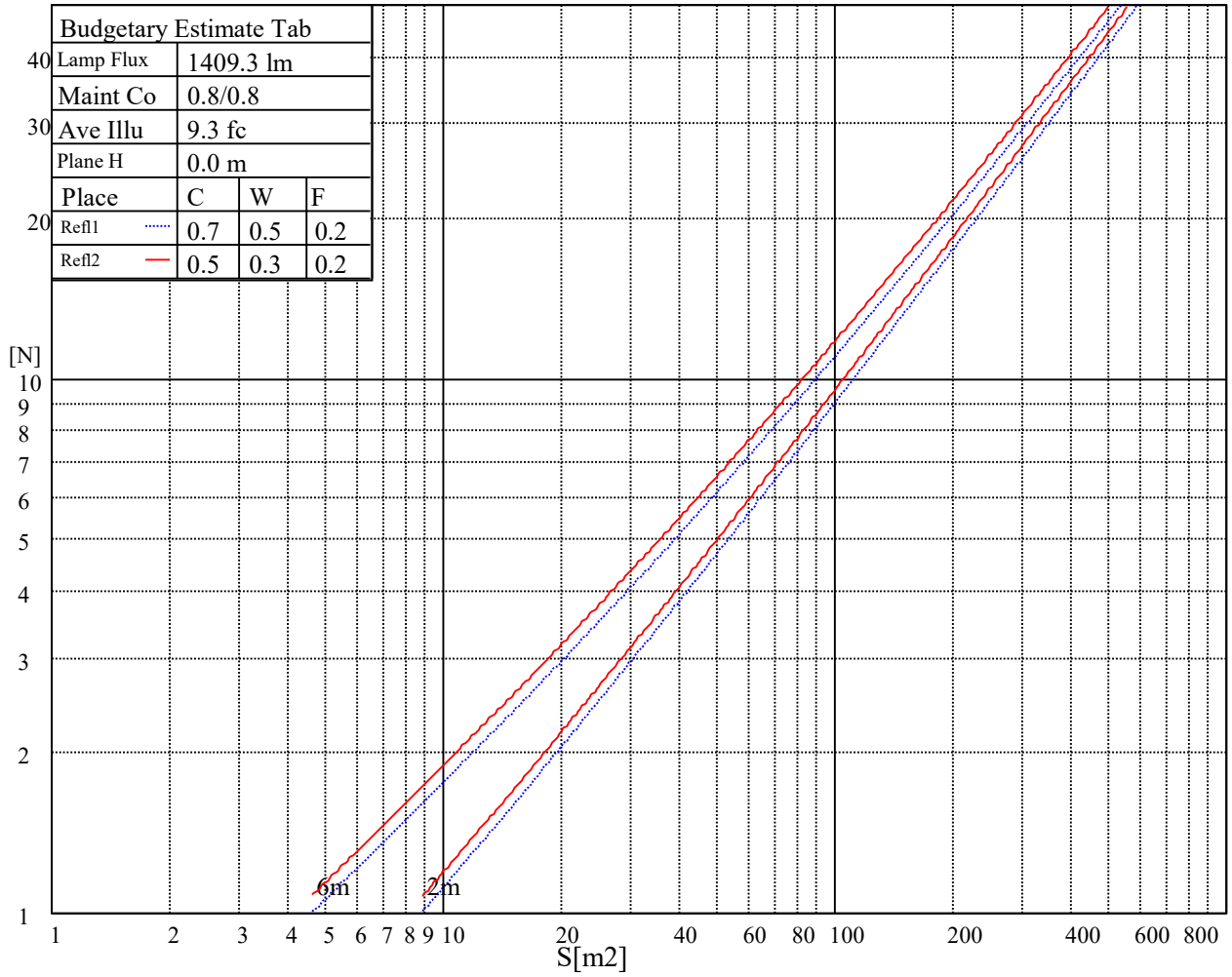


Equipment: GMS 1800
Temperature(°C): 25.0

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

Operator: NT0100
Distance(feet): 22.35

Budgetary Estimate Table



Equipment: GMS 1800
Temperature(°C): 25.0

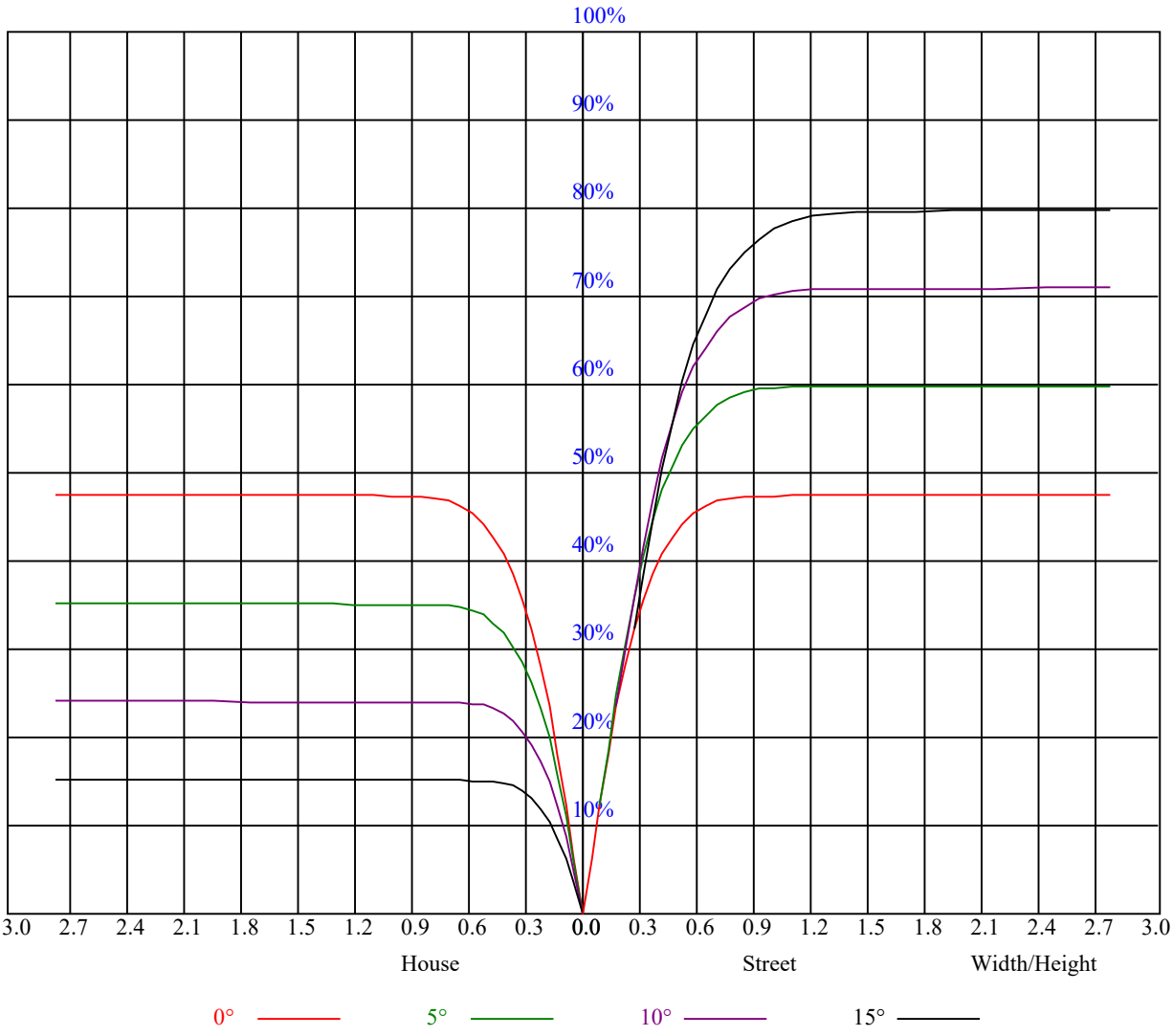
Date: 2020/9/19
Humidity(%): 60.0%

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	1.04	1.03	1.04	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	0.97	0.95	0.99	0.96	0.94	0.96	0.94	0.92	0.93	0.91	0.90	0.91	0.89	0.88	0.86
3	0.95	0.91	0.88	0.94	0.90	0.88	0.92	0.89	0.86	0.89	0.87	0.85	0.87	0.85	0.84	0.82
4	0.91	0.86	0.83	0.90	0.86	0.83	0.88	0.84	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.78
5	0.86	0.82	0.78	0.86	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.75
6	0.83	0.78	0.75	0.82	0.77	0.74	0.80	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.72
7	0.79	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.69
8	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.67	0.73	0.70	0.67	0.73	0.69	0.67	0.66
9	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.63
10	0.70	0.65	0.62	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.61

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	3210.88	3190.46	3158.44	3114.82	3058.68	2989.54	2906.47	2809.49	2697.66
45.0	3215.52	3216.45	3211.81	3185.36	3152.41	3126.43	3074.45	3008.56	2931.07
90.0	3220.16	3217.38	3204.85	3181.65	3148.23	3103.69	3046.15	2976.54	2894.41
135.0	3215.06	3218.77	3213.20	3198.35	3172.83	3137.10	3089.77	3031.30	2961.23
180.0	3210.88	3219.70	3217.84	3205.78	3179.79	3151.02	3090.69	3026.19	2964.48
225.0	3215.52	3204.38	3180.72	3143.13	3093.01	3026.66	2947.31	2851.25	2741.74
270.0	3220.16	3212.74	3194.64	3163.55	3118.54	3086.05	2989.54	2939.42	2842.90
315.0	3215.06	3201.13	3175.61	3138.95	3090.23	3027.59	2951.95	2860.07	2753.34
360.0	3210.88	3190.46	3158.44	3114.82	3058.68	2989.54	2906.47	2809.49	2697.66

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2574.23	2441.05	2301.37	2158.92	2015.53	1873.54	1788.62	1594.65	1510.66
45.0	2841.51	2738.03	2622.02	2497.66	2366.80	2230.38	2091.63	1950.56	1814.14
90.0	2799.75	2691.63	2571.91	2441.98	2306.01	2164.95	2049.87	1876.32	1731.54
135.0	2895.34	2800.67	2690.23	2567.73	2435.02	2292.56	2142.21	1984.44	1826.20
180.0	2873.06	2769.58	2653.58	2523.65	2385.83	2241.98	2094.41	1947.32	1801.61
225.0	2616.92	2480.49	2338.03	2191.40	2042.91	1895.81	1809.03	1615.53	1534.79
270.0	2680.95	2603.92	2465.18	2317.62	2162.16	2004.39	1849.41	1696.74	1547.32
315.0	2628.05	2487.45	2397.89	2179.80	2082.81	1918.08	1689.31	1592.79	1435.02
360.0	2574.23	2441.05	2301.37	2158.92	2015.53	1873.54	1788.62	1594.65	1510.66

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1372.38	1181.66	1105.10	891.78	891.78	810.25	742.59	685.52	636.84
45.0	1680.50	1549.64	1421.10	1293.49	1172.38	1061.48	966.35	887.93	833.17
90.0	1617.85	1477.71	1338.97	1200.69	915.82	896.65	860.04	779.58	713.36
135.0	1666.58	1508.34	1349.18	1190.48	1039.20	903.71	790.48	706.03	640.60
180.0	1659.62	1522.26	1387.23	1254.05	1127.37	1011.36	910.20	827.60	758.93
225.0	1404.40	1226.67	1154.28	920.04	920.04	861.48	798.37	744.26	697.16
270.0	1401.15	1257.76	1120.87	995.12	886.54	798.37	726.91	668.90	638.28
315.0	1278.64	1061.94	885.75	862.27	763.52	687.60	628.30	581.76	544.36
360.0	1372.38	1181.66	1105.10	891.78	891.78	810.25	742.59	685.52	636.84

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	594.94	558.65	525.38	482.59	427.42	378.60	302.83	241.39	194.20
45.0	773.78	712.99	676.33	634.10	596.51	554.75	500.46	437.35	369.60
90.0	657.12	609.93	569.55	536.52	505.15	480.09	428.49	347.75	311.69
135.0	590.48	549.65	517.17	500.92	469.83	438.28	411.37	363.11	308.35
180.0	700.92	651.27	624.36	585.38	552.43	518.56	470.76	413.69	351.51
225.0	654.75	617.54	583.24	538.00	481.57	417.31	350.21	283.99	245.15
270.0	579.35	557.54	526.91	498.60	458.23	406.73	347.79	287.93	239.21
315.0	514.24	494.66	473.31	442.83	396.47	345.43	288.40	227.93	169.74
360.0	594.94	558.65	525.38	482.59	427.42	378.60	302.83	241.39	194.20

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	136.66	84.92	44.87	23.11	18.05	15.03	12.02	9.47	7.98
45.0	301.85	237.35	237.35	117.77	72.16	51.83	32.16	29.14	24.55
90.0	250.62	192.02	135.22	84.69	45.01	20.65	14.48	12.16	9.98
135.0	250.81	250.81	134.38	86.91	46.50	18.98	11.09	9.65	7.98
180.0	289.32	251.27	251.27	111.83	65.89	34.66	22.78	19.54	17.12
225.0	182.74	126.59	81.16	50.49	38.05	32.95	28.31	23.99	20.46
270.0	239.21	103.02	58.56	27.01	15.73	13.22	10.95	9.47	6.68
315.0	116.94	71.04	34.43	14.25	10.77	8.91	6.91	5.24	4.36
360.0	136.66	84.92	44.87	23.11	18.05	15.03	12.02	9.47	7.98

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	6.87	5.94	5.29	4.78	4.36	3.94	3.53	3.25	3.06
45.0	20.23	16.61	14.01	11.93	10.26	8.91	7.70	6.64	5.75
90.0	8.03	6.64	5.48	4.83	4.32	3.90	3.57	3.20	2.92
135.0	6.13	4.92	4.32	3.85	3.43	3.25	3.06	2.92	2.69
180.0	13.78	11.83	10.07	8.68	7.98	7.19	6.54	5.99	5.52
225.0	17.87	15.55	13.74	12.11	10.81	9.65	8.68	7.80	7.15
270.0	6.08	5.15	4.50	3.99	3.57	3.11	2.74	2.51	2.37
315.0	3.81	3.43	3.20	3.02	2.78	2.69	2.51	2.41	2.37
360.0	6.87	5.94	5.29	4.78	4.36	3.94	3.53	3.25	3.06

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	2.74	2.51	2.41	2.27	2.18	2.04	1.90	1.76	1.76
45.0	5.06	4.50	3.99	3.53	3.25	2.92	2.64	2.41	2.27
90.0	2.78	2.64	2.51	2.37	2.23	2.13	2.04	1.90	1.76
135.0	2.51	2.37	2.32	2.18	2.09	2.00	1.95	1.81	1.67
180.0	5.06	4.69	4.41	4.08	3.81	3.57	3.34	3.20	2.97
225.0	6.54	5.94	5.66	5.15	4.69	4.27	3.90	3.53	3.20
270.0	2.18	2.04	1.95	1.86	1.72	1.53	1.58	1.67	1.67
315.0	2.32	2.23	2.13	2.09	2.00	1.76	1.62	1.48	1.39
360.0	2.74	2.51	2.41	2.27	2.18	2.04	1.90	1.76	1.76

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.76	1.67	1.53	1.44	1.35	1.25	1.16	1.07	0.97
45.0	2.09	2.00	1.86	1.72	1.62	1.48	1.35	1.30	1.25
90.0	1.67	1.62	1.53	1.39	1.30	1.25	1.16	1.07	1.02
135.0	1.62	1.58	1.44	1.44	1.25	1.25	1.16	1.11	1.07
180.0	2.74	2.55	2.46	2.18	2.04	1.86	1.62	1.44	1.39
225.0	2.88	2.64	2.32	2.04	1.81	1.72	1.53	1.30	1.11
270.0	1.53	1.53	1.35	1.21	1.16	1.16	1.07	0.97	0.93
315.0	1.30	1.25	1.25	1.16	1.07	1.02	0.97	0.88	0.84
360.0	1.76	1.67	1.53	1.44	1.35	1.25	1.16	1.07	0.97

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	0.84	0.65	0.60	0.56	0.56	0.51	0.42	0.42	0.37
45.0	1.11	0.97	0.88	0.74	0.65	0.56	0.60	0.51	0.46
90.0	0.97	0.84	0.70	0.70	0.60	0.60	0.56	0.42	0.46
135.0	0.97	0.88	0.84	0.74	0.65	0.56	0.56	0.56	0.46
180.0	1.25	1.02	0.88	0.79	0.65	0.56	0.51	0.51	0.51
225.0	0.93	0.79	0.65	0.56	0.56	0.56	0.51	0.42	0.37
270.0	0.88	0.74	0.56	0.56	0.56	0.51	0.46	0.42	0.42
315.0	0.65	0.65	0.56	0.51	0.51	0.46	0.42	0.42	0.42
360.0	0.84	0.65	0.60	0.56	0.56	0.51	0.42	0.42	0.37

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	0.37	0.32	0.37	0.32	0.37	0.32	0.32	0.32	0.32
45.0	0.42	0.46	0.37	0.37	0.37	0.32	0.37	0.32	0.32
90.0	0.46	0.46	0.42	0.42	0.37	0.37	0.42	0.42	1.02
135.0	0.42	0.46	0.42	0.42	0.42	0.37	0.42	0.42	0.37
180.0	0.46	0.37	0.37	0.37	0.32	0.37	0.32	0.32	0.28
225.0	0.42	0.32	0.32	0.32	0.32	0.28	0.32	0.28	0.32
270.0	0.42	0.37	0.37	0.32	0.37	0.70	1.25	0.46	0.28
315.0	0.42	0.37	0.37	0.32	0.32	0.32	0.32	0.28	0.28
360.0	0.37	0.32	0.37	0.32	0.37	0.32	0.32	0.32	0.32

Intensity data(cd)

C/γ(°)	90.0
0.0	0.28
45.0	0.32
90.0	1.25
135.0	0.32
180.0	0.28
225.0	0.32
270.0	0.42
315.0	0.28
360.0	0.28