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

Nata

LumCAT: 2-2263-M
Luminaire: 92.70.135.00
Report No: 200917-B033
Test No: 200917-C033
LampCAT: NICHIA NFCWJ108B-V3
Lamp flux(lm): 1962.3
Number of Lamps: 1
Length(feet)(ft.):0.000
Phm Type: C

Voltage(V): 230.8000
Current(A): 0.0850
Power (W): 18.8400
PF: 0.9510
Ballast type: AC
Width(feet)(ft.):0.000
Height(feet)(ft.):0.000

Photometric Results

Lumens(lm): 1847.36
Efficiency(%): 94.14%
Lumens(lm)/Power(W): 98.06
Central intensity(cd): 6986.719
Maximum intensity(cd): 6986.719
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=25.7
[C90/270]Total=25.7
Field angle(10%Imax): [C0/180]Total=53.5
[C90/270]Total=53.5
Maximum s/h(1/2): C0_180=0.44 C90_270=0.44
Maximum s/h(1/4): C0_180=0.43 C90_270=0.43
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 94.22%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.691%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6986.719	1.672	1.672	.085%	.090%
1.0	6968.622	13.337	15.008	.680%	.812%
2.0	6908.356	26.439	41.447	1.347%	2.244%
3.0	6800.874	39.032	80.479	1.989%	4.356%
4.0	6649.077	50.862	131.342	2.592%	7.110%
5.0	6449.775	61.644	192.986	3.141%	10.447%
6.0	6178.489	70.822	263.808	3.609%	14.280%
7.0	5879.826	78.580	342.388	4.004%	18.534%
8.0	5559.585	84.850	427.237	4.324%	23.127%
9.0	5094.565	87.396	514.633	4.454%	27.858%
10.0	4737.665	90.217	604.85	4.597%	32.741%
11.0	4302.112	90.019	694.868	4.587%	37.614%
12.0	3881.582	88.499	783.367	4.510%	42.405%
13.0	3425.785	84.508	867.876	4.307%	46.979%
14.0	3023.410	80.209	948.085	4.088%	51.321%
15.0	2609.608	74.067	1022.152	3.774%	55.330%
16.0	2236.757	67.610	1089.761	3.445%	58.990%
17.0	1907.931	61.172	1150.933	3.117%	62.302%
18.0	1610.080	54.561	1205.494	2.780%	65.255%
19.0	1376.938	49.160	1254.653	2.505%	67.916%
20.0	1208.900	45.341	1299.995	2.311%	70.370%
21.0	1061.291	41.708	1341.702	2.125%	72.628%
22.0	942.788	38.729	1380.432	1.974%	74.725%
23.0	887.087	38.010	1418.442	1.937%	76.782%
24.0	824.170	36.761	1455.202	1.873%	78.772%
25.0	773.857	35.864	1491.066	1.828%	80.713%
26.0	728.341	35.013	1526.079	1.784%	82.609%
27.0	687.663	34.235	1560.315	1.745%	84.462%
28.0	655.697	33.757	1594.072	1.720%	86.289%
29.0	625.772	33.269	1627.34	1.695%	88.090%
30.0	583.302	31.983	1659.323	1.630%	89.821%
31.0	539.949	30.496	1689.819	1.554%	91.472%
32.0	485.849	28.233	1718.053	1.439%	93.000%
33.0	429.991	25.681	1743.734	1.309%	94.391%
34.0	365.641	22.422	1766.156	1.143%	95.604%
35.0	300.183	18.881	1785.037	.962%	96.626%
36.0	251.251	16.195	1801.232	.825%	97.503%
37.0	205.294	13.549	1814.78	.690%	98.236%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	124.837	8.428	1823.209	.430%	98.693%
39.0	86.844	5.993	1829.202	.305%	99.017%
40.0	44.176	3.114	1832.316	.159%	99.186%
41.0	23.614	1.699	1834.015	.087%	99.278%
42.0	14.327	1.051	1835.066	.054%	99.335%
43.0	9.814	0.734	1835.8	.037%	99.374%
44.0	7.773	0.592	1836.392	.030%	99.406%
45.0	6.844	0.531	1836.923	.027%	99.435%
46.0	6.212	0.490	1837.413	.025%	99.462%
47.0	5.928	0.475	1837.888	.024%	99.487%
48.0	5.690	0.464	1838.352	.024%	99.512%
49.0	5.528	0.457	1838.809	.023%	99.537%
50.0	5.331	0.448	1839.257	.023%	99.561%
51.0	5.139	0.438	1839.695	.022%	99.585%
52.0	4.971	0.430	1840.125	.022%	99.608%
53.0	4.814	0.422	1840.546	.021%	99.631%
54.0	4.664	0.414	1840.96	.021%	99.654%
55.0	4.536	0.407	1841.368	.021%	99.676%
56.0	4.403	0.400	1841.768	.020%	99.697%
57.0	4.246	0.390	1842.158	.020%	99.718%
58.0	4.043	0.376	1842.534	.019%	99.739%
59.0	3.851	0.362	1842.896	.018%	99.758%
60.0	3.614	0.343	1843.239	.017%	99.777%
61.0	3.358	0.322	1843.562	.016%	99.794%
62.0	3.132	0.303	1843.865	.015%	99.811%
63.0	2.987	0.292	1844.157	.015%	99.827%
64.0	2.842	0.280	1844.437	.014%	99.842%
65.0	2.686	0.267	1844.704	.014%	99.856%
66.0	2.517	0.252	1844.956	.013%	99.870%
67.0	2.361	0.238	1845.194	.012%	99.883%
68.0	2.169	0.221	1845.415	.011%	99.895%
69.0	1.868	0.191	1845.606	.010%	99.905%
70.0	1.665	0.172	1845.778	.009%	99.914%
71.0	1.462	0.152	1845.929	.008%	99.923%
72.0	1.305	0.136	1846.065	.007%	99.930%
73.0	1.137	0.119	1846.184	.006%	99.936%
74.0	0.998	0.105	1846.29	.005%	99.942%
75.0	0.893	0.095	1846.384	.005%	99.947%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	0.835	0.089	1846.473	.005%	99.952%
77.0	0.777	0.083	1846.556	.004%	99.957%
78.0	0.783	0.084	1846.64	.004%	99.961%
79.0	0.754	0.081	1846.721	.004%	99.966%
80.0	0.690	0.075	1846.796	.004%	99.970%
81.0	0.638	0.069	1846.865	.004%	99.973%
82.0	0.597	0.065	1846.93	.003%	99.977%
83.0	0.580	0.063	1846.993	.003%	99.980%
84.0	0.574	0.063	1847.056	.003%	99.984%
85.0	0.539	0.059	1847.115	.003%	99.987%
86.0	0.510	0.056	1847.17	.003%	99.990%
87.0	0.510	0.056	1847.226	.003%	99.993%
88.0	0.493	0.054	1847.28	.003%	99.996%
89.0	0.476	0.052	1847.332	.003%	99.999%
90.0	0.476	0.026	1847.359	.001%	100.000%

Zonal flux distribution table

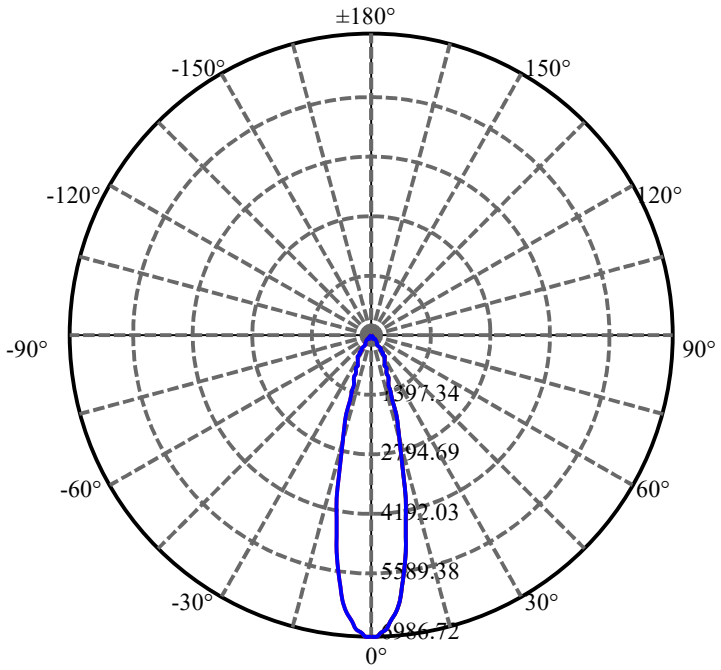
ZONAL LUMEN SUMMARY

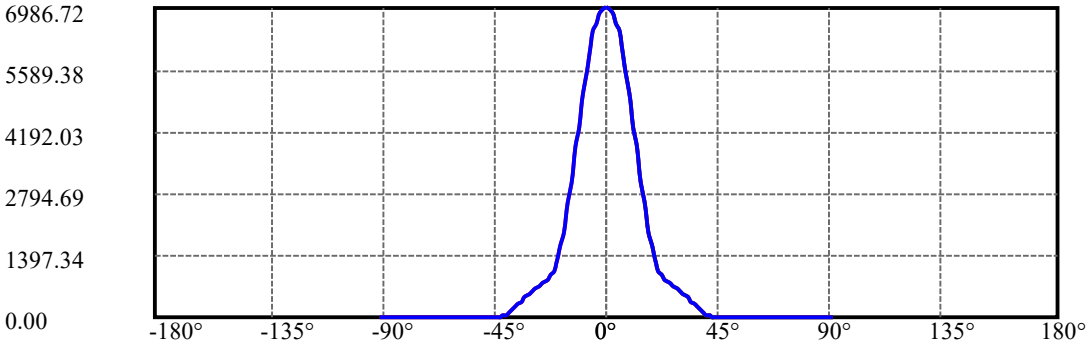
Zone	Lumens	%Lamp	%Fixt
0-30	1659.32	84.56%	89.82%
0-40	1832.32	93.38%	99.19%
0-60	1843.24	93.93%	99.78%
0-90	1847.33	94.14%	100.00%
0-120	1847.33	94.14%	100.00%
0-180	1847.36	94.14%	100.00%
60-90	4.44	0.23%	0.24%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.63	1477.89	75.31%	80.00%

ZONAL LUMEN SUMMARY

0-10	604.85
10-20	695.15
20-30	359.33
30-40	172.99
40-50	6.94
50-60	3.98
60-70	2.54
70-80	1.02
80-90	0.54
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):

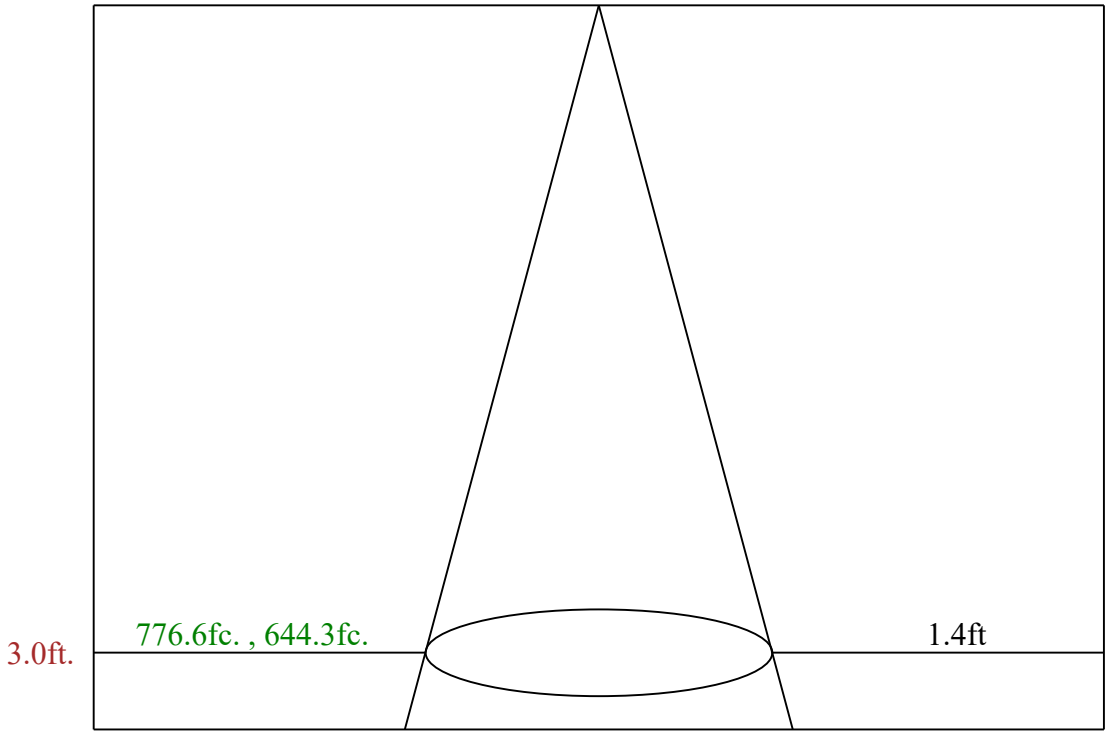
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:26.7 Right:26.7
:C90/270Left:26.7 Right:26.7

Beam Angle(50%Imax):C0/180Left:12.9 Right:12.9
:C90/270Left:12.9 Right:12.9

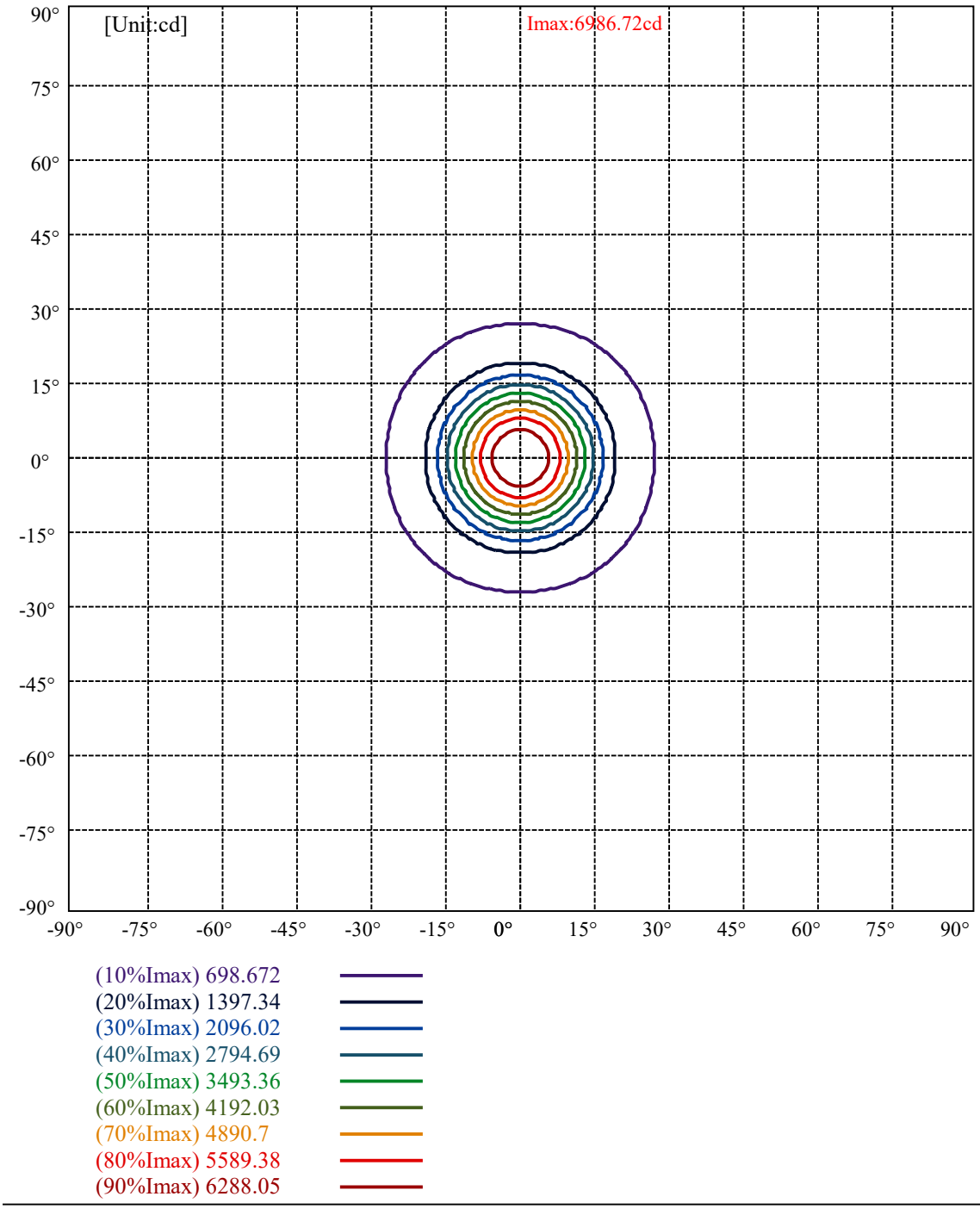
Lux distance Curve



Max , Ave

Beam angle of C0 plane 25.74

ISO-Intensity(V-H)

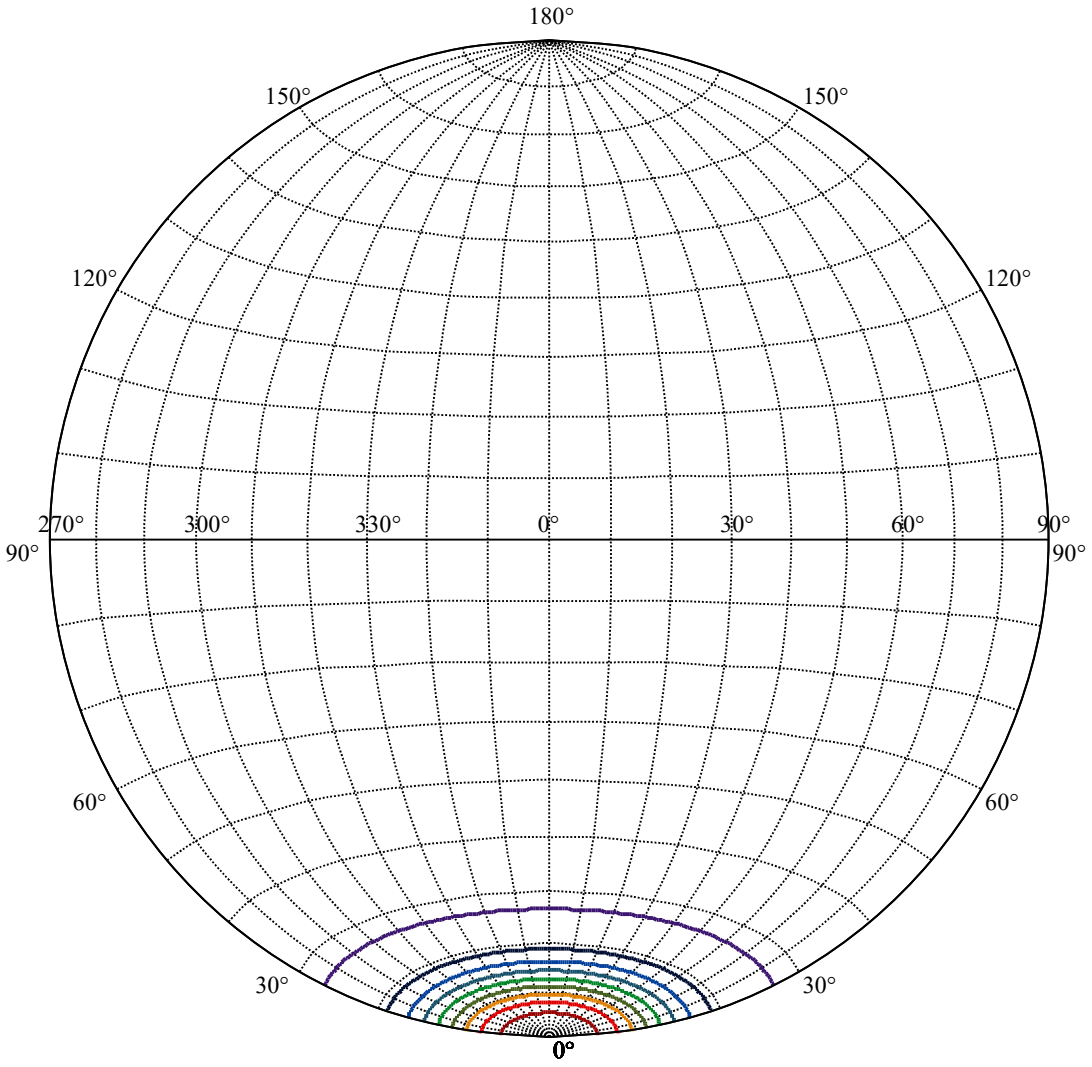


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/17
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:6986.72

(10%Imax) 698.672
(20%Imax) 1397.34
(30%Imax) 2096.02
(40%Imax) 2794.69
(50%Imax) 3493.36
(60%Imax) 4192.03
(70%Imax) 4890.7
(80%Imax) 5589.38
(90%Imax) 6288.05

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/17
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

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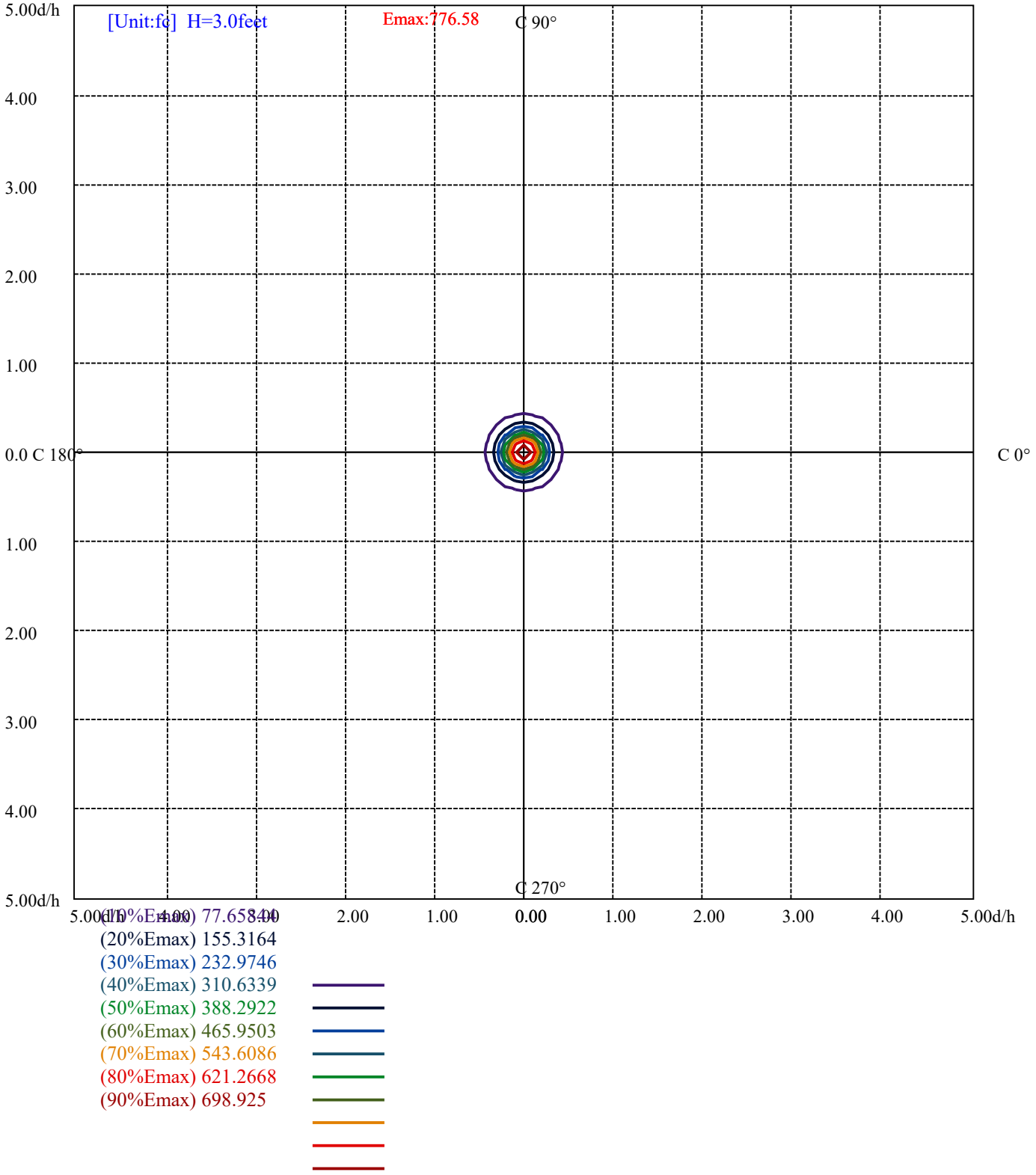
ISO illuminance diagram

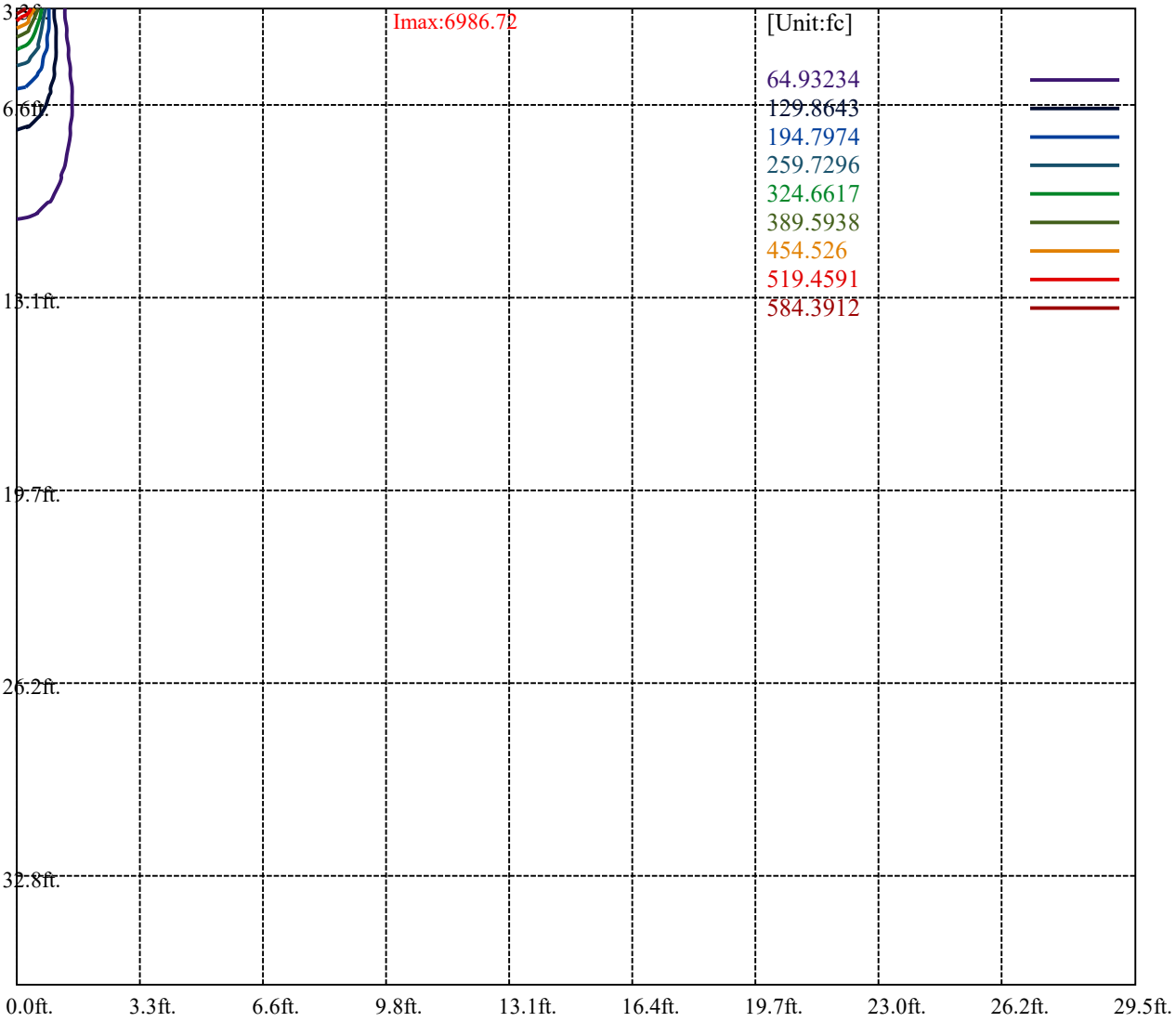


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/17
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/17
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Nata 2-2263-M

Luminance Limitting Curve(no luminous side)

Luminance Table

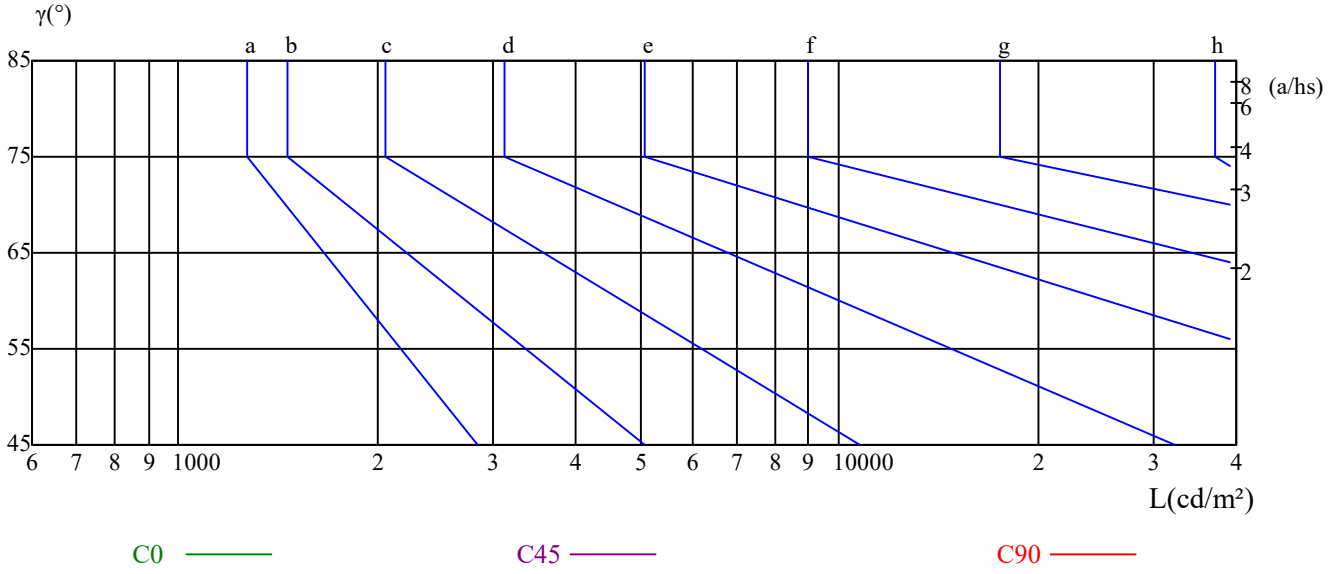
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

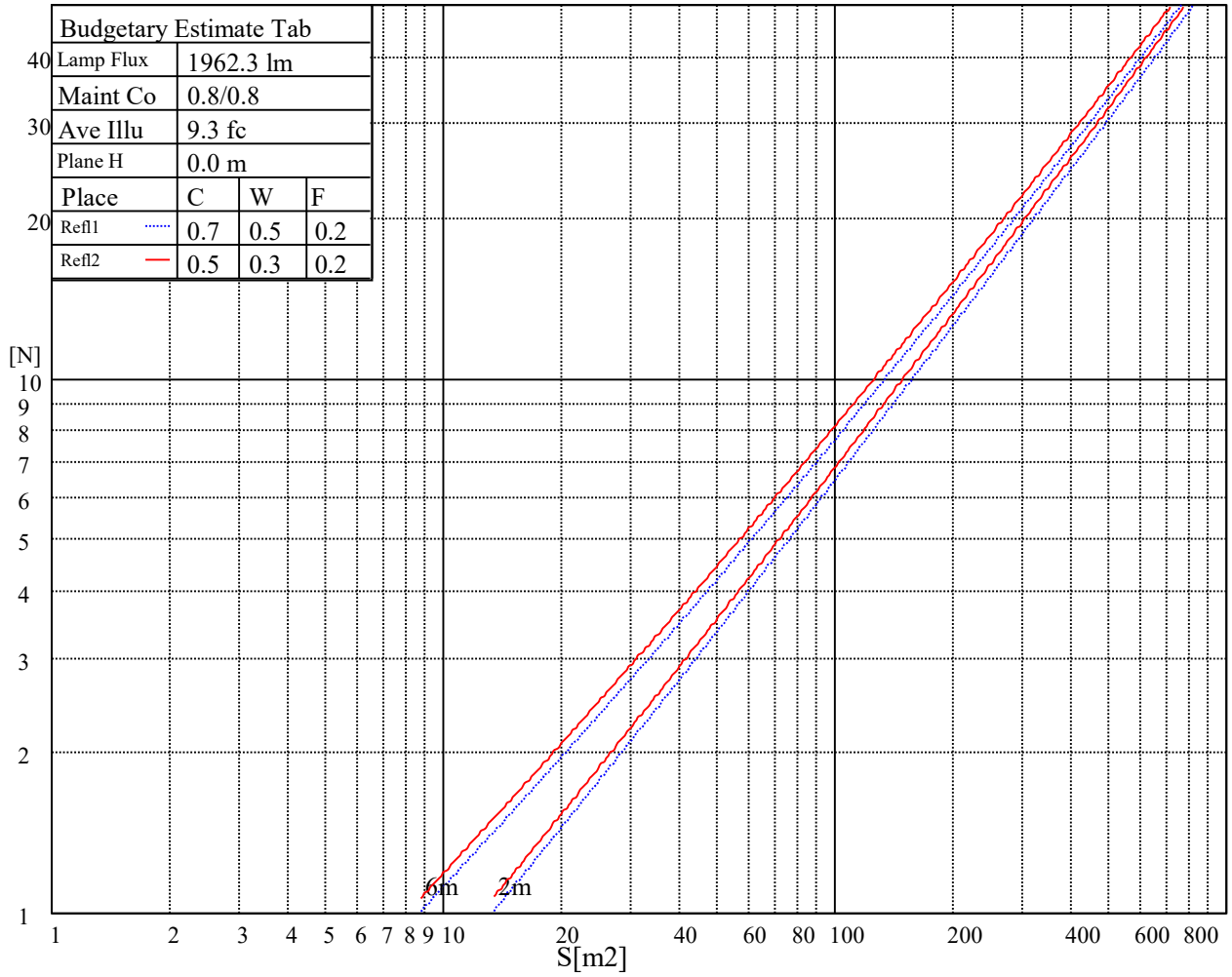


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/17
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Budgetary Estimate Table



Equipment: GMS 1800
Temperature(°C): 25.0

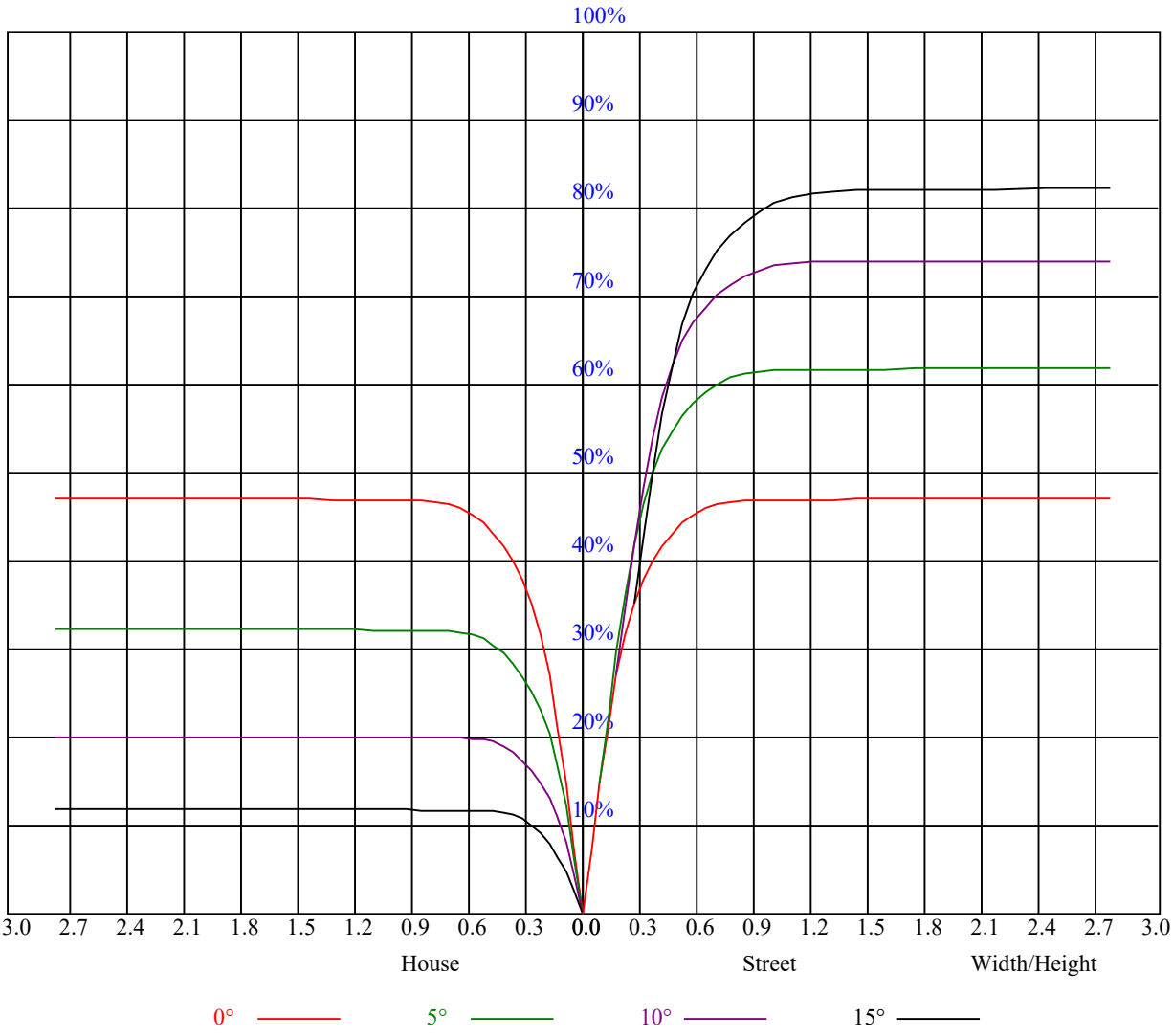
Date: 2020/9/17
Humidity(%): 60.0%

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	1.12	1.12	1.12	1.10	1.10	1.10	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.94
1	1.06	1.04	1.02	1.04	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.90
2	1.01	0.98	0.95	0.99	0.96	0.94	0.96	0.94	0.92	0.93	0.92	0.90	0.91	0.89	0.88	0.87
3	0.96	0.92	0.89	0.95	0.91	0.89	0.92	0.90	0.87	0.90	0.88	0.86	0.88	0.86	0.85	0.83
4	0.92	0.88	0.85	0.91	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.83	0.81	0.80
5	0.88	0.84	0.81	0.87	0.83	0.80	0.86	0.82	0.80	0.84	0.81	0.79	0.83	0.80	0.78	0.77
6	0.85	0.80	0.77	0.84	0.80	0.77	0.83	0.79	0.77	0.81	0.78	0.76	0.80	0.78	0.76	0.75
7	0.82	0.77	0.74	0.81	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.72
8	0.79	0.74	0.72	0.78	0.74	0.71	0.77	0.74	0.71	0.76	0.73	0.71	0.76	0.73	0.71	0.70
9	0.76	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.69	0.74	0.71	0.68	0.67
10	0.74	0.70	0.67	0.73	0.69	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65

Coefficient Utilization Curve



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/17
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	7016.42	7019.67	6984.86	6914.33	6811.78	6665.14	6464.22	6203.90	5883.25
45.0	6955.63	7008.99	7030.80	7019.67	6980.22	6906.44	6790.90	6619.67	6400.18
90.0	6996.00	6977.90	6925.93	6832.66	6689.74	6495.31	6239.63	5921.76	5701.81
135.0	6978.83	6974.65	6924.54	6820.60	6666.07	6454.94	6182.55	5852.16	5472.58
180.0	7016.42	6983.94	6902.27	6757.49	6560.27	6412.25	5968.17	5746.36	5338.47
225.0	6955.63	6853.54	6691.59	6472.57	6181.16	5825.24	5428.96	4994.16	4724.56
270.0	6996.00	6979.29	6925.93	6820.13	6661.90	6449.83	6175.13	5839.16	5454.95
315.0	6978.83	6950.99	6880.92	6769.55	6641.48	6389.04	6178.37	5861.44	5500.88
360.0	7016.42	7019.67	6984.86	6914.33	6811.78	6665.14	6464.22	6203.90	5883.25

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5525.94	5134.30	4700.89	4340.80	3801.13	3444.75	3009.95	2503.23	2182.58
45.0	6115.26	5763.53	5375.60	5035.46	4587.20	4141.73	3690.69	3235.94	2795.11
90.0	5130.59	4871.66	4435.46	3989.99	3535.24	3086.05	2654.04	2254.97	1898.59
135.0	5049.84	4609.48	4162.61	3715.75	3275.38	2840.58	2427.13	2197.89	1860.54
180.0	4708.78	4441.50	3995.56	3547.30	3104.15	2675.85	2274.46	1920.40	1632.70
225.0	4094.86	3823.40	3376.08	2760.77	2510.19	2110.66	1768.66	1501.38	1293.03
270.0	5033.60	4593.24	4147.76	3880.48	3253.11	2987.22	2568.19	2176.55	1828.99
315.0	5097.64	4664.23	4222.94	3782.10	3339.88	2900.44	2483.74	2103.70	1771.91
360.0	5525.94	5134.30	4700.89	4340.80	3801.13	3444.75	3009.95	2503.23	2182.58

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1822.96	1527.83	1302.77	1132.47	888.07	888.07	842.50	784.12	739.16
45.0	2375.16	1989.54	1658.69	1397.90	1207.65	1072.61	972.38	891.18	824.82
90.0	1601.61	1371.45	1198.37	1071.22	882.31	882.31	819.44	787.56	741.48
135.0	1491.64	1367.27	1201.61	1073.54	973.77	890.25	822.50	770.53	727.84
180.0	1404.40	1229.92	1100.46	998.83	913.45	840.60	783.98	737.58	696.75
225.0	1138.97	909.09	909.09	864.59	815.31	755.03	714.05	682.92	647.05
270.0	1542.22	1321.34	1158.92	1043.84	953.82	874.47	811.36	762.17	719.48
315.0	1503.70	1299.06	1141.29	907.93	907.93	893.36	827.14	774.80	730.16
360.0	1822.96	1527.83	1302.77	1132.47	888.07	888.07	842.50	784.12	739.16

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	700.92	669.23	655.31	613.87	564.68	531.55	474.06	413.04	350.35
45.0	769.60	727.37	688.39	656.84	639.67	585.84	557.54	503.71	419.25
90.0	686.91	667.60	638.70	606.45	562.55	509.42	448.30	382.69	315.13
135.0	688.39	656.84	629.00	593.73	546.40	492.57	431.78	367.28	300.93
180.0	662.87	634.10	611.36	544.54	512.06	453.59	391.88	330.16	267.98
225.0	621.71	580.00	531.13	473.17	412.34	347.93	282.78	218.56	158.65
270.0	679.58	650.81	620.18	583.99	535.26	476.79	427.14	348.26	293.97
315.0	691.32	659.62	632.11	593.82	546.63	489.09	426.45	361.44	295.22
360.0	700.92	669.23	655.31	613.87	564.68	531.55	474.06	413.04	350.35

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	287.84	226.87	168.30	114.15	65.94	29.93	12.76	9.88	7.75
45.0	380.74	315.77	250.81	250.81	129.88	78.98	40.83	18.33	12.58
90.0	247.75	182.64	123.62	73.09	35.17	16.29	11.55	9.93	8.07
135.0	261.02	261.02	125.57	75.68	36.33	16.10	11.51	9.28	7.29
180.0	243.85	175.13	84.27	41.95	16.94	10.90	8.45	6.17	5.38
225.0	104.04	58.10	26.82	14.48	12.62	10.21	8.72	8.49	8.21
270.0	253.59	253.59	105.61	58.42	26.31	12.90	10.35	8.26	6.40
315.0	231.18	169.23	113.69	66.17	30.21	13.60	10.44	8.17	6.50
360.0	287.84	226.87	168.30	114.15	65.94	29.93	12.76	9.88	7.75

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	5.57	4.45	3.99	3.39	3.20	3.06	3.02	2.92	2.97
45.0	11.09	8.86	7.42	7.10	6.96	6.77	6.59	6.36	6.13
90.0	7.05	6.77	6.82	6.77	6.73	6.50	6.26	6.08	5.94
135.0	6.59	6.31	6.17	6.03	5.75	5.57	5.38	5.20	4.92
180.0	5.29	5.29	5.29	5.01	4.87	4.69	4.55	4.36	4.18
225.0	8.07	7.89	7.75	7.42	7.24	6.96	6.64	6.45	6.26
270.0	5.75	5.34	5.24	5.06	4.83	4.64	4.32	4.08	3.94
315.0	5.34	4.78	4.73	4.73	4.64	4.45	4.36	4.32	4.18
360.0	5.57	4.45	3.99	3.39	3.20	3.06	3.02	2.92	2.97

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.06	3.11	3.16	3.25	3.34	3.39	3.29	3.16	2.97
45.0	5.89	5.66	5.52	5.38	5.15	5.01	4.78	4.45	4.08
90.0	5.66	5.48	5.29	5.06	4.73	4.45	4.13	3.71	3.39
135.0	4.78	4.64	4.50	4.41	4.18	3.90	3.71	3.43	3.20
180.0	4.08	4.04	3.85	3.67	3.53	3.25	2.92	2.74	2.64
225.0	5.99	5.71	5.43	5.10	4.69	4.36	4.13	3.90	3.62
270.0	3.76	3.62	3.48	3.25	3.06	2.88	2.64	2.41	2.27
315.0	4.08	4.04	3.99	3.85	3.67	3.57	3.29	3.06	2.88
360.0	3.06	3.11	3.16	3.25	3.34	3.39	3.29	3.16	2.97

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.78	2.64	2.55	2.46	2.27	2.13	1.95	1.72	1.48
45.0	3.85	3.62	3.34	3.16	3.02	2.88	2.60	2.32	2.04
90.0	3.25	3.11	2.97	2.74	2.60	2.41	2.00	1.76	1.58
135.0	3.06	2.97	2.88	2.64	2.51	2.32	2.00	1.72	1.53
180.0	2.55	2.41	2.41	2.27	2.13	1.95	1.58	1.44	1.30
225.0	3.43	3.20	2.83	2.46	2.23	1.90	1.48	1.35	1.11
270.0	2.23	2.09	2.00	1.95	1.86	1.67	1.48	1.39	1.25
315.0	2.74	2.69	2.51	2.46	2.27	2.09	1.86	1.62	1.39
360.0	2.78	2.64	2.55	2.46	2.27	2.13	1.95	1.72	1.48

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.35	1.25	1.16	1.07	0.93	0.88	1.02	0.97	0.84
45.0	1.81	1.62	1.39	1.11	1.02	0.93	0.84	0.74	0.79
90.0	1.44	1.21	1.02	0.93	0.88	0.79	0.79	0.74	0.70
135.0	1.39	1.11	0.97	0.88	0.84	0.79	0.79	0.70	0.70
180.0	1.16	0.97	0.88	0.84	0.79	0.74	0.79	0.74	0.65
225.0	0.93	0.79	0.70	0.65	0.65	0.60	0.56	0.51	0.51
270.0	1.11	1.02	0.93	0.88	0.79	0.74	0.74	0.74	0.65
315.0	1.25	1.11	0.93	0.79	0.79	0.74	0.74	0.88	0.70
360.0	1.35	1.25	1.16	1.07	0.93	0.88	1.02	0.97	0.84

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	0.74	0.70	0.70	0.70	0.70	0.65	0.65	0.60	0.56
45.0	0.74	0.65	0.65	0.60	0.56	0.51	0.56	0.56	0.56
90.0	0.60	0.60	0.60	0.60	0.56	0.51	0.51	0.51	0.46
135.0	0.65	0.60	0.60	0.56	0.51	0.46	0.46	0.46	0.46
180.0	0.60	0.65	0.56	0.56	0.56	0.51	0.51	0.42	0.42
225.0	0.51	0.42	0.46	0.46	0.37	0.37	0.37	0.42	0.42
270.0	0.60	0.60	0.51	0.56	0.56	0.56	0.51	0.46	0.46
315.0	0.65	0.56	0.56	0.56	0.51	0.51	0.51	0.51	0.46
360.0	0.74	0.70	0.70	0.70	0.70	0.65	0.65	0.60	0.56

Intensity data(cd)

C/γ(°)	90.0
0.0	0.56
45.0	0.46
90.0	0.51
135.0	0.46
180.0	0.42
225.0	0.42
270.0	0.46
315.0	0.51
360.0	0.56