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

Nata

LumCAT: 3-2545-M
Luminaire: 92.70.135.00
Report No: 200919-B035
Test No: 200919-C035
LampCAT: NICHIA NFCWJ108B-V3
Lamp flux(lm): 1962.3
Number of Lamps: 1
Length(feet)(ft.):0.000
Phm Type: C

Voltage(V): 230.4000
Current(A): 0.0860
Power (W): 19.0200
PF: 0.9510
Ballast type: AC
Width(feet)(ft.):0.000
Height(feet)(ft.):0.000

Photometric Results

Lumens(lm): 1912.80
Efficiency(%): 97.48%
Lumens(lm)/Power(W): 100.57
Central intensity(cd): 14162.760
Maximum intensity(cd): 14162.760
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=15.8
[C90/270]Total=15.8
Field angle(10%Imax): [C0/180]Total=34.2
[C90/270]Total=34.2
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
Maximum s/h(1/4): C0_180=0.27 C90_270=0.27
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 97.65%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.649%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	14162.765	3.388	3.388	.173%	.177%
1.0	14011.954	26.817	30.205	1.367%	1.579%
2.0	13539.220	51.816	82.021	2.641%	4.288%
3.0	12814.747	73.546	155.568	3.748%	8.133%
4.0	11705.128	89.539	245.107	4.563%	12.814%
5.0	10124.688	96.767	341.874	4.931%	17.873%
6.0	9440.006	108.208	450.082	5.514%	23.530%
7.0	8254.401	110.314	560.396	5.622%	29.297%
8.0	6933.762	105.822	666.218	5.393%	34.829%
9.0	5681.045	97.457	763.675	4.966%	39.924%
10.0	4639.696	88.351	852.026	4.502%	44.543%
11.0	3697.418	77.366	929.392	3.943%	48.588%
12.0	3040.289	69.318	998.71	3.532%	52.212%
13.0	2551.778	62.948	1061.658	3.208%	55.503%
14.0	2202.941	58.443	1120.101	2.978%	58.558%
15.0	2078.232	58.985	1179.086	3.006%	61.642%
16.0	1628.293	49.218	1228.303	2.508%	64.215%
17.0	1432.007	45.913	1274.216	2.340%	66.615%
18.0	1275.048	43.208	1317.424	2.202%	68.874%
19.0	1133.866	40.481	1357.905	2.063%	70.990%
20.0	996.616	37.379	1395.284	1.905%	72.945%
21.0	951.025	37.374	1432.659	1.905%	74.898%
22.0	879.459	36.128	1468.787	1.841%	76.787%
23.0	819.860	35.129	1503.916	1.790%	78.624%
24.0	775.997	34.612	1538.528	1.764%	80.433%
25.0	737.715	34.189	1572.717	1.742%	82.221%
26.0	706.590	33.967	1606.684	1.731%	83.996%
27.0	682.135	33.960	1640.644	1.731%	85.772%
28.0	659.798	33.968	1674.612	1.731%	87.548%
29.0	638.945	33.969	1708.582	1.731%	89.324%
30.0	604.589	33.150	1741.732	1.689%	91.057%
31.0	556.324	31.421	1773.153	1.601%	92.699%
32.0	498.465	28.966	1802.119	1.476%	94.214%
33.0	431.661	25.781	1827.9	1.314%	95.561%
34.0	350.247	21.478	1849.378	1.095%	96.684%
35.0	279.180	17.560	1866.938	.895%	97.602%
36.0	206.443	13.307	1880.245	.678%	98.298%
37.0	164.436	10.852	1891.097	.553%	98.865%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	100.428	6.780	1897.877	.346%	99.220%
39.0	40.313	2.782	1900.659	.142%	99.365%
40.0	17.645	1.244	1901.903	.063%	99.430%
41.0	10.568	0.760	1902.663	.039%	99.470%
42.0	8.341	0.612	1903.275	.031%	99.502%
43.0	6.491	0.485	1903.761	.025%	99.527%
44.0	5.853	0.446	1904.207	.023%	99.551%
45.0	5.499	0.426	1904.633	.022%	99.573%
46.0	5.128	0.404	1905.037	.021%	99.594%
47.0	4.768	0.382	1905.42	.019%	99.614%
48.0	4.449	0.363	1905.782	.018%	99.633%
49.0	4.217	0.349	1906.131	.018%	99.651%
50.0	4.054	0.341	1906.472	.017%	99.669%
51.0	3.956	0.337	1906.809	.017%	99.687%
52.0	3.799	0.328	1907.137	.017%	99.704%
53.0	3.608	0.316	1907.453	.016%	99.720%
54.0	3.364	0.298	1907.752	.015%	99.736%
55.0	3.132	0.281	1908.033	.014%	99.751%
56.0	3.022	0.275	1908.308	.014%	99.765%
57.0	2.970	0.273	1908.581	.014%	99.779%
58.0	2.947	0.274	1908.855	.014%	99.794%
59.0	2.918	0.274	1909.129	.014%	99.808%
60.0	2.825	0.268	1909.398	.014%	99.822%
61.0	2.680	0.257	1909.655	.013%	99.836%
62.0	2.488	0.241	1909.896	.012%	99.848%
63.0	2.303	0.225	1910.121	.011%	99.860%
64.0	2.123	0.209	1910.33	.011%	99.871%
65.0	2.024	0.201	1910.531	.010%	99.881%
66.0	1.978	0.198	1910.729	.010%	99.892%
67.0	1.920	0.194	1910.923	.010%	99.902%
68.0	1.868	0.190	1911.113	.010%	99.912%
69.0	1.752	0.179	1911.292	.009%	99.921%
70.0	1.595	0.164	1911.457	.008%	99.930%
71.0	1.363	0.141	1911.598	.007%	99.937%
72.0	1.096	0.114	1911.712	.006%	99.943%
73.0	0.905	0.095	1911.807	.005%	99.948%
74.0	0.713	0.075	1911.882	.004%	99.952%
75.0	0.626	0.066	1911.949	.003%	99.955%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	0.673	0.072	1912.02	.004%	99.959%
77.0	0.858	0.092	1912.112	.005%	99.964%
78.0	0.876	0.094	1912.206	.005%	99.969%
79.0	0.673	0.072	1912.278	.004%	99.973%
80.0	0.568	0.061	1912.34	.003%	99.976%
81.0	0.487	0.053	1912.393	.003%	99.979%
82.0	0.487	0.053	1912.446	.003%	99.981%
83.0	0.458	0.050	1912.495	.003%	99.984%
84.0	0.447	0.049	1912.544	.002%	99.987%
85.0	0.412	0.045	1912.589	.002%	99.989%
86.0	0.429	0.047	1912.636	.002%	99.991%
87.0	0.447	0.049	1912.685	.002%	99.994%
88.0	0.423	0.046	1912.731	.002%	99.996%
89.0	0.423	0.046	1912.778	.002%	99.999%
90.0	0.418	0.023	1912.801	.001%	100.000%

Zonal flux distribution table

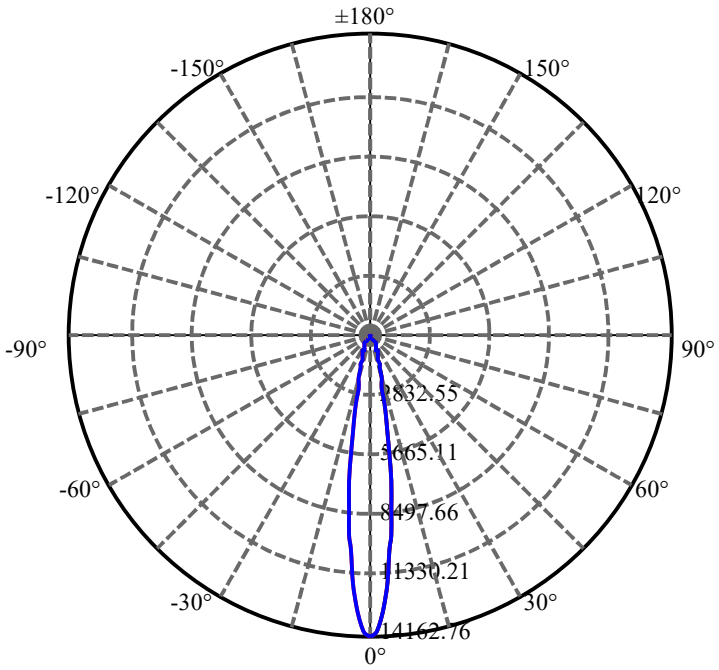
ZONAL LUMEN SUMMARY

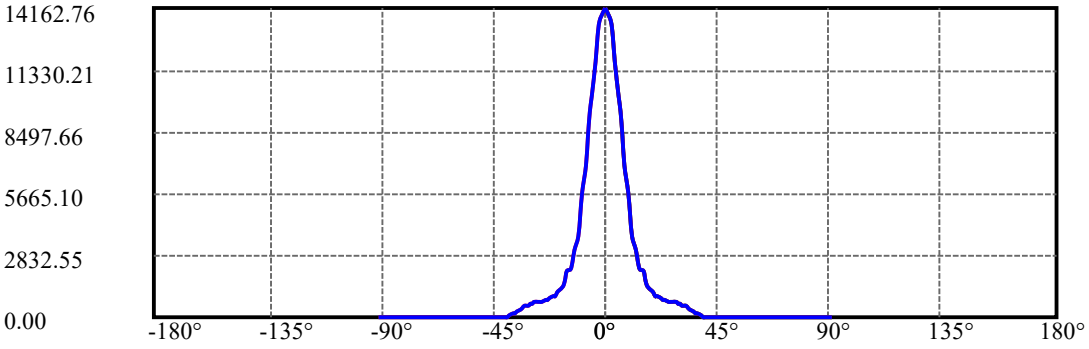
Zone	Lumens	%Lamp	%Fixt
0-30	1741.73	88.76%	91.06%
0-40	1901.90	96.92%	99.43%
0-60	1909.40	97.30%	99.82%
0-90	1912.78	97.48%	100.00%
0-120	1912.78	97.48%	100.00%
0-180	1912.80	97.48%	100.00%
60-90	3.65	0.19%	0.19%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-23.76	1530.24	77.98%	80.00%

ZONAL LUMEN SUMMARY

0-10	852.03
10-20	543.26
20-30	346.45
30-40	160.17
40-50	4.57
50-60	2.93
60-70	2.06
70-80	0.88
80-90	0.44
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):

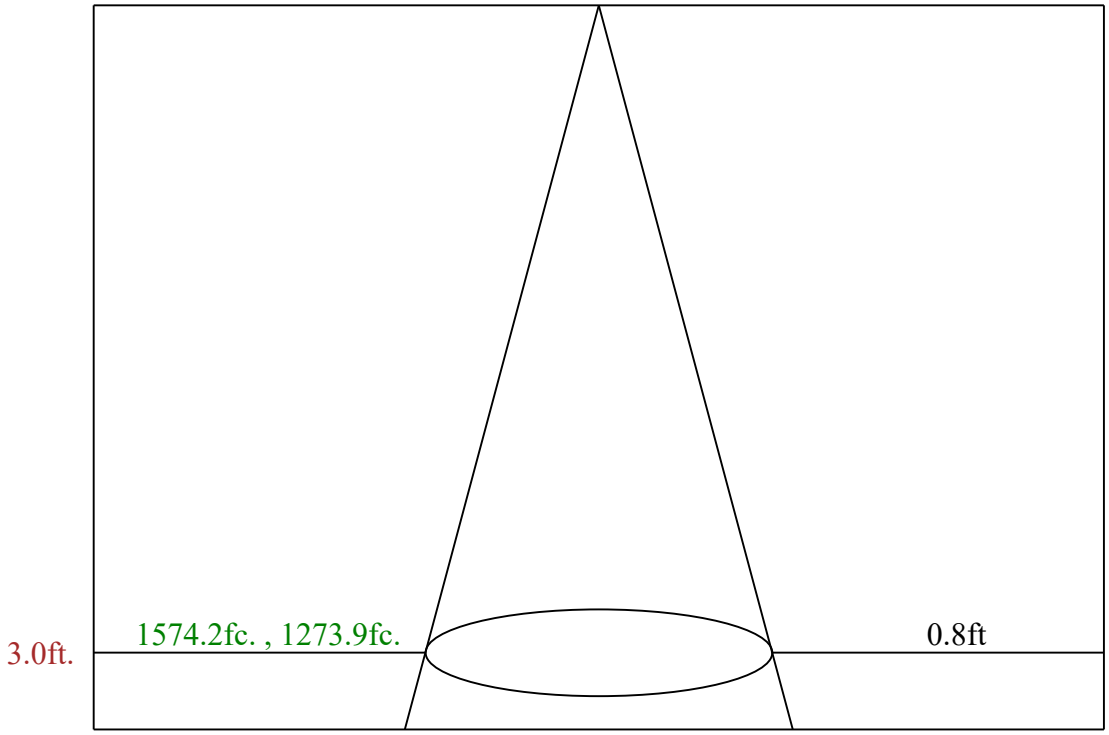
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:17.1 Right:17.1
:C90/270Left:17.1 Right:17.1

Beam Angle(50%Imax):C0/180Left:7.9 Right:7.9
:C90/270Left:7.9 Right:7.9

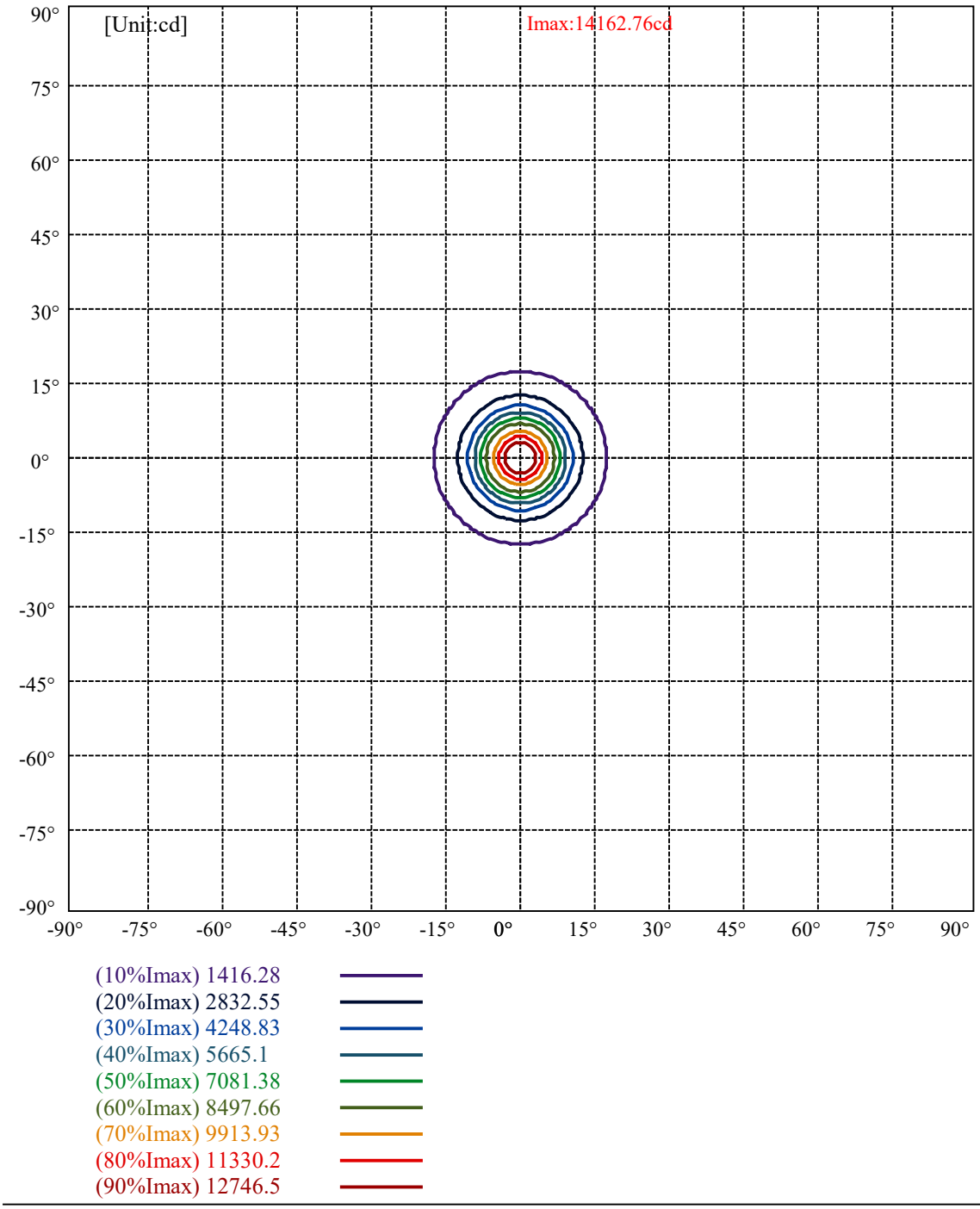
Lux distance Curve



Max , Ave

Beam angle of C0 plane 15.89

ISO-Intensity(V-H)

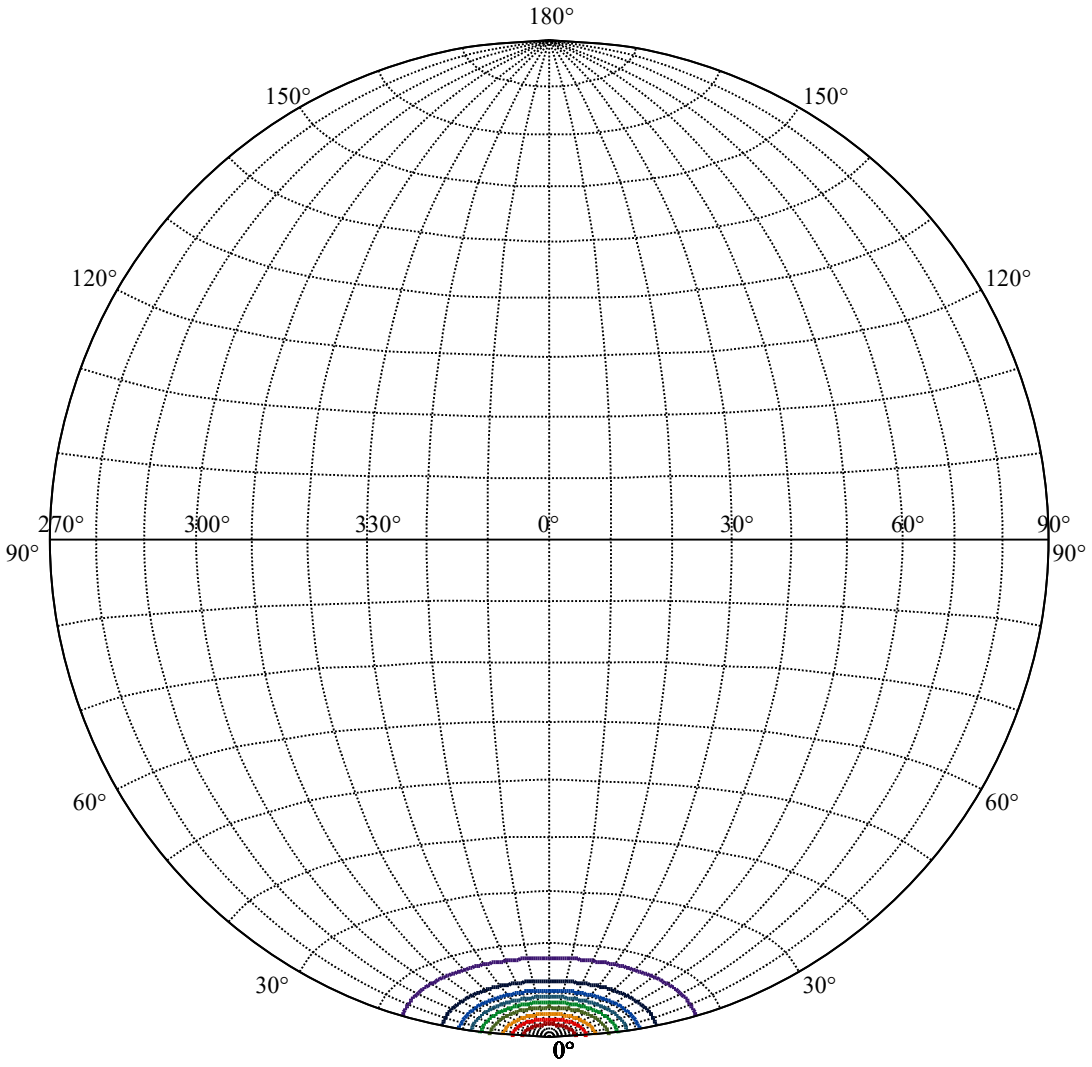


Equipment: GMS 1800
Temperature(°C): 25.0

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

Operator: NT0100
Distance(feet): 22.35

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:14162.76

(10%Imax) 1416.28
(20%Imax) 2832.55
(30%Imax) 4248.83
(40%Imax) 5665.1
(50%Imax) 7081.38
(60%Imax) 8497.66
(70%Imax) 9913.93
(80%Imax) 11330.2
(90%Imax) 12746.5

Equipment: GMS 1800
Temperature(°C): 25.0

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

Operator: NT0100
Distance(feet): 22.35

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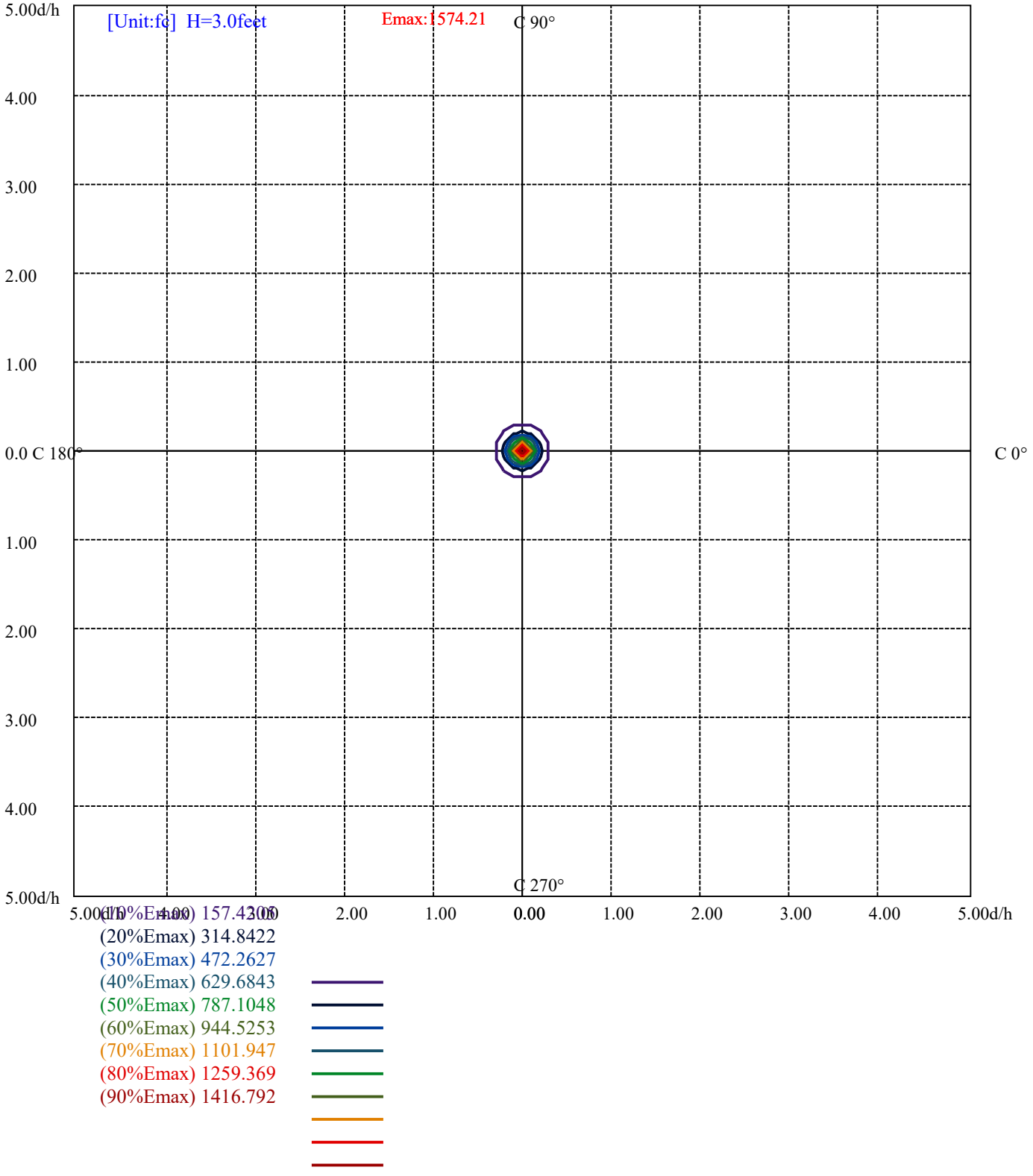
ISO illuminance diagram

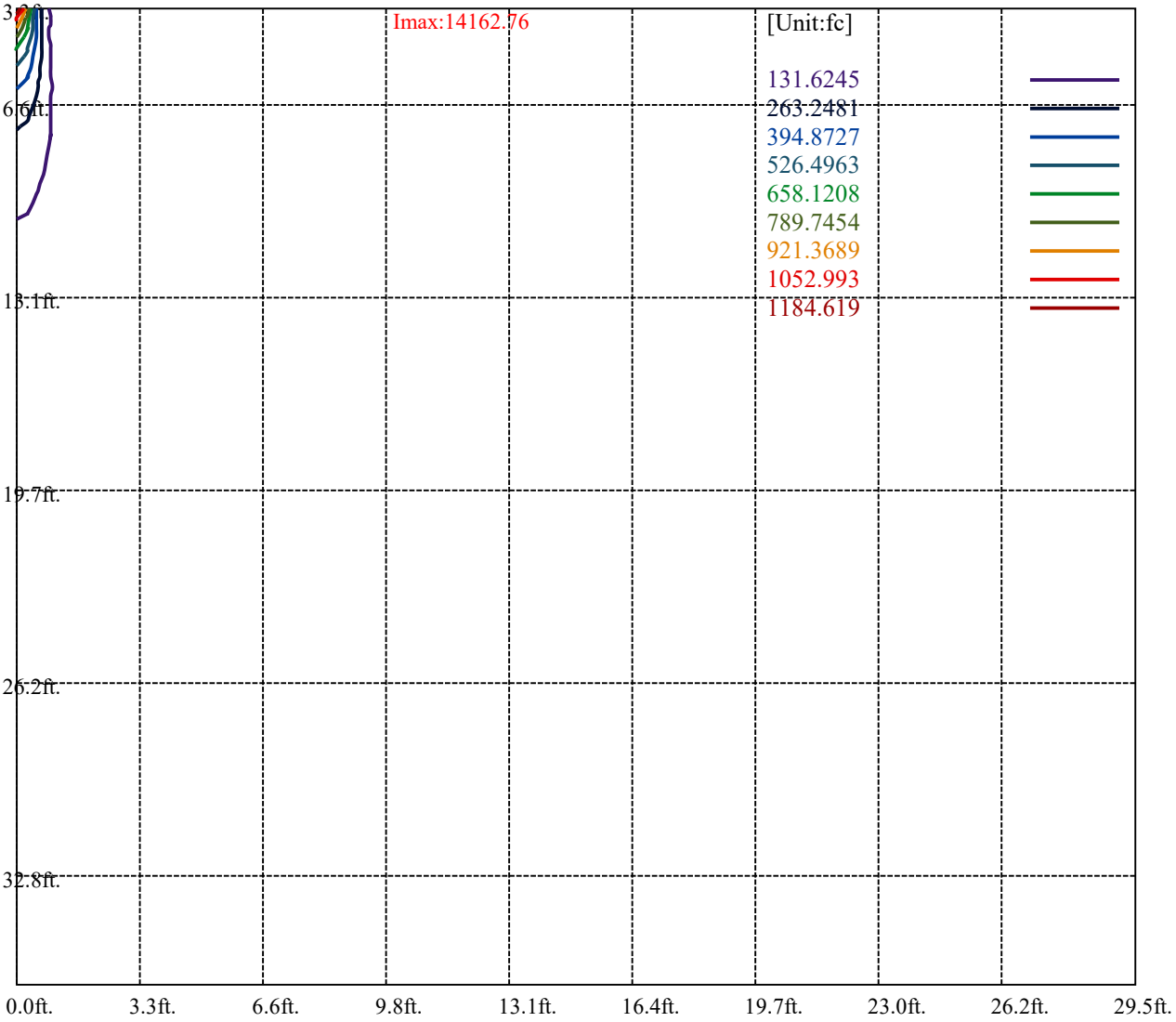


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/19
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

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Luminance Limitting Curve(no luminous side)

Luminance Table

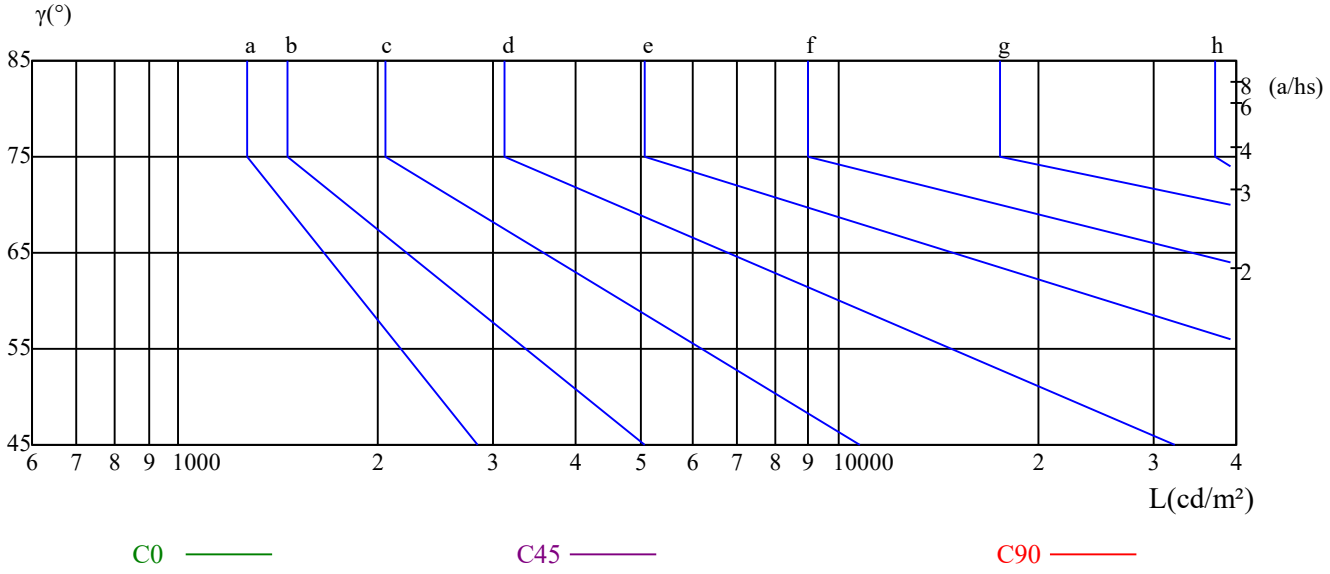
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

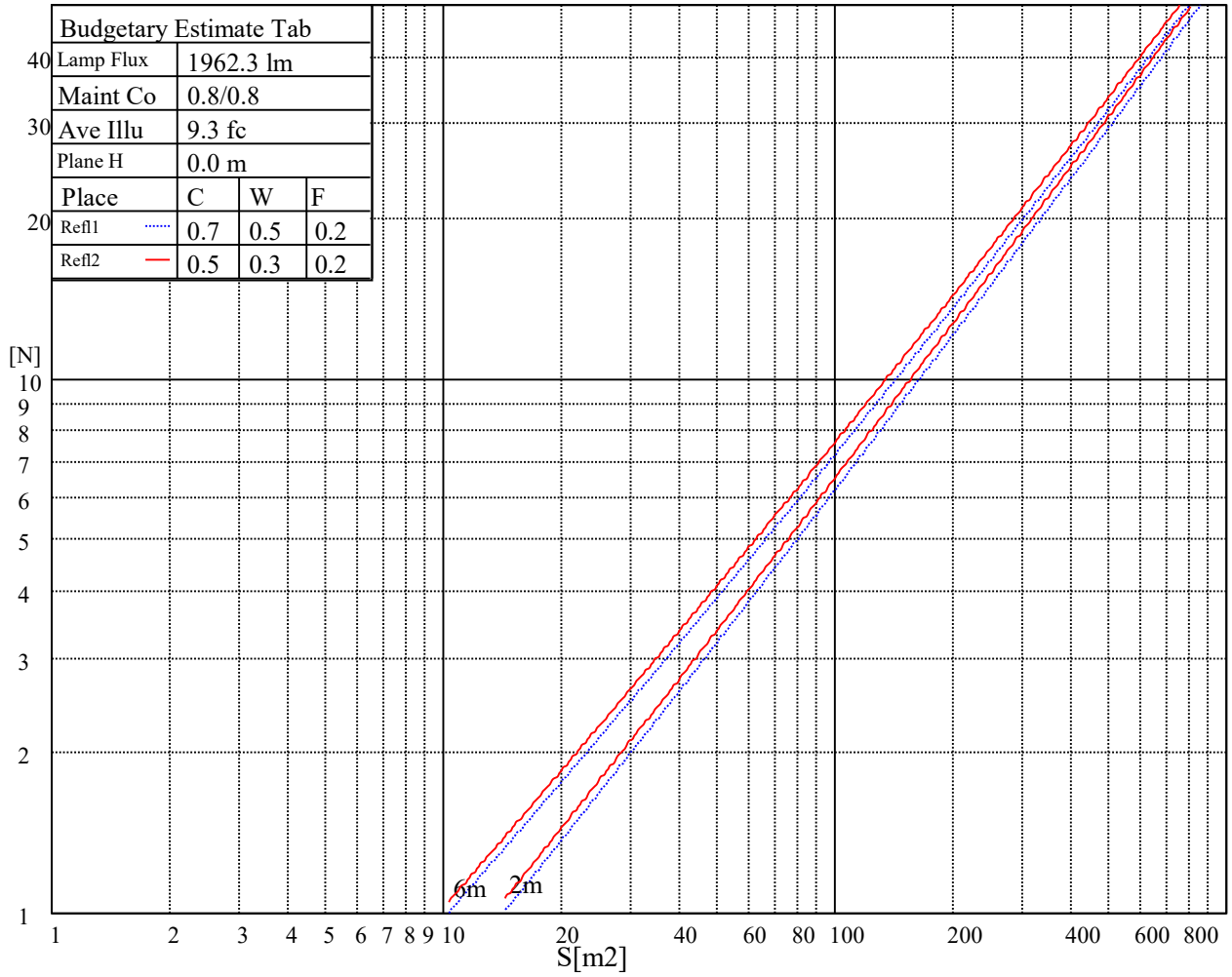


Equipment: GMS 1800
Temperature(°C): 25.0

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

Operator: NT0100
Distance(feet): 22.35

Budgetary Estimate Table



Equipment: GMS 1800
Temperature(°C): 25.0

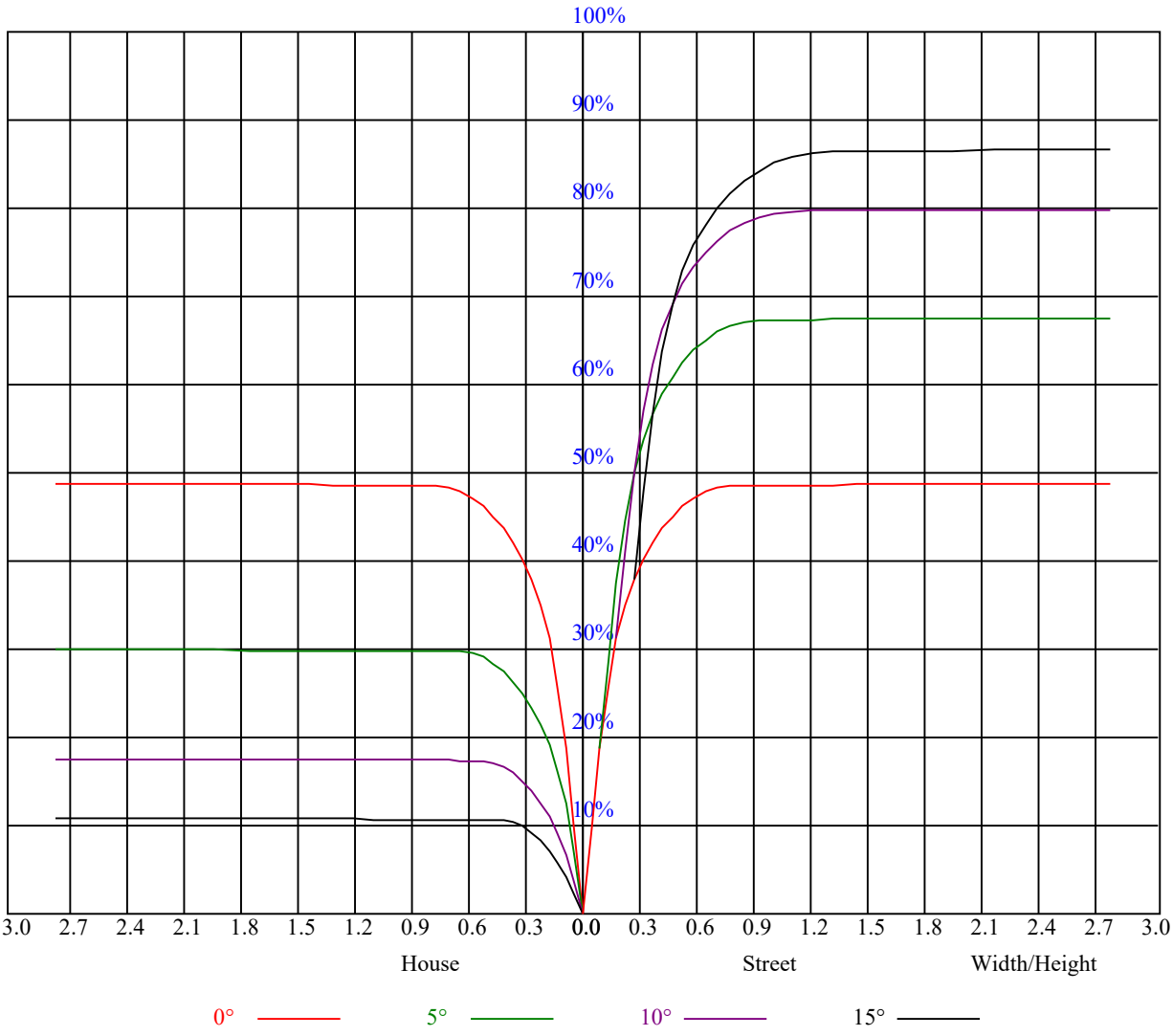
Date: 2020/9/19
Humidity(%): 60.0%

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	1.16	1.16	1.16	1.14	1.14	1.14	1.08	1.08	1.08	1.04	1.04	1.04	1.00	1.00	1.00	0.98
1	1.10	1.08	1.06	1.08	1.06	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.97	0.96	0.96	0.94
2	1.05	1.02	1.00	1.03	1.01	0.98	1.00	0.98	0.96	0.97	0.96	0.94	0.95	0.94	0.92	0.91
3	1.01	0.97	0.94	0.99	0.96	0.93	0.97	0.94	0.92	0.95	0.92	0.91	0.93	0.91	0.89	0.88
4	0.97	0.93	0.90	0.96	0.92	0.89	0.94	0.91	0.88	0.92	0.89	0.87	0.90	0.88	0.86	0.85
5	0.93	0.89	0.86	0.92	0.89	0.86	0.91	0.88	0.85	0.89	0.87	0.84	0.88	0.86	0.84	0.83
6	0.90	0.86	0.83	0.89	0.86	0.83	0.88	0.85	0.82	0.87	0.84	0.82	0.86	0.83	0.81	0.80
7	0.87	0.83	0.80	0.87	0.83	0.80	0.86	0.82	0.80	0.85	0.82	0.79	0.84	0.81	0.79	0.78
8	0.85	0.81	0.78	0.84	0.80	0.78	0.83	0.80	0.77	0.82	0.79	0.77	0.82	0.79	0.77	0.76
9	0.82	0.78	0.76	0.82	0.78	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.80	0.77	0.75	0.74
10	0.80	0.76	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.78	0.75	0.73	0.72

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	14257.89	13965.55	13343.75	12434.24	10777.64	8939.84	8939.84	7554.23	6217.35
45.0	14132.60	14220.77	13993.39	13422.63	12540.97	11436.57	10197.60	8861.18	7506.20
90.0	14146.52	13844.90	13199.90	12285.75	10694.11	8841.46	8575.11	7206.67	5934.29
135.0	14114.04	14100.12	13784.58	13162.77	12276.47	11204.55	9984.14	8684.85	7353.07
180.0	14257.89	14239.33	13905.23	13283.42	12424.96	11413.37	10267.20	9005.03	7673.26
225.0	14132.60	13714.97	13018.92	12146.54	10670.91	8917.10	8397.38	7612.70	6312.01
270.0	14146.52	14179.01	13826.34	13204.54	12717.30	11775.31	10689.47	9455.15	8141.93
315.0	14114.04	13830.98	13241.66	12578.09	11538.66	8469.31	8469.31	7655.39	6331.97
360.0	14257.89	13965.55	13343.75	12434.24	10777.64	8939.84	8939.84	7554.23	6217.35

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5020.61	4015.05	3236.40	2673.53	2253.58	1931.54	1675.86	1466.58	1298.13
45.0	6192.99	5455.18	3993.47	3232.46	2875.15	2406.48	2406.48	1760.77	1534.33
90.0	4783.49	3863.77	3149.16	2712.51	2217.85	1907.87	1705.09	1459.15	1325.05
135.0	6063.06	4898.34	3947.07	3223.18	2680.26	2420.40	2420.40	1785.37	1557.06
180.0	6355.40	5144.27	4137.32	3367.03	2786.98	2513.21	2513.21	1790.94	1558.92
225.0	5108.78	4102.75	3341.74	2778.40	2345.46	2001.14	1726.90	1507.88	1330.62
270.0	6805.51	5543.34	4462.15	3603.68	2958.68	2480.72	2480.72	1771.91	1539.89
315.0	5118.52	4094.86	3312.04	2731.53	2296.27	1962.17	1697.20	1483.75	1312.05
360.0	5020.61	4015.05	3236.40	2673.53	2253.58	1931.54	1675.86	1466.58	1298.13

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1161.24	1010.43	901.15	901.15	839.44	787.56	746.72	715.59	689.83
45.0	1351.50	1202.08	1080.04	977.02	896.74	832.71	781.20	738.97	706.95
90.0	1185.37	1070.76	904.96	904.96	842.17	792.38	750.85	716.89	689.04
135.0	1373.77	1223.42	1100.46	999.30	919.48	855.45	803.01	760.32	724.59
180.0	1368.67	1216.00	1091.64	990.94	910.20	846.16	796.51	754.75	720.41
225.0	1183.52	1068.44	902.82	902.82	843.38	804.08	762.27	726.72	699.02
270.0	1352.43	1257.30	1081.89	1022.03	936.19	843.38	812.29	767.28	729.23
315.0	1223.89	1022.50	909.97	909.97	848.07	797.16	755.12	721.20	693.64
360.0	1161.24	1010.43	901.15	901.15	839.44	787.56	746.72	715.59	689.83

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	668.21	648.95	621.20	573.41	509.97	436.75	390.67	280.88	205.80
45.0	687.47	662.87	648.95	629.93	587.70	526.45	458.23	386.31	311.60
90.0	665.89	645.38	630.11	566.17	501.39	459.25	385.33	306.91	230.44
135.0	696.28	671.22	649.41	627.14	599.30	532.94	464.73	404.87	308.35
180.0	693.03	670.76	649.88	629.00	592.34	559.86	496.28	391.88	345.47
225.0	675.82	654.33	632.62	590.71	530.44	462.92	391.13	315.64	241.16
270.0	700.46	676.33	654.52	635.03	603.94	554.29	489.32	419.25	342.69
315.0	669.93	648.53	624.87	585.33	525.52	455.26	377.58	296.24	247.93
360.0	668.21	648.95	621.20	573.41	509.97	436.75	390.67	280.88	205.80

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	162.92	77.73	48.72	20.19	12.53	10.49	8.26	7.33	6.91
45.0	238.28	238.28	103.62	51.00	18.89	10.86	9.65	6.40	5.61
90.0	159.49	95.78	46.26	17.54	10.53	8.17	5.71	4.78	4.45
135.0	243.85	243.85	100.28	48.63	20.28	12.67	10.35	8.21	7.29
180.0	266.12	235.96	166.17	62.37	25.15	12.16	9.42	6.87	6.08
225.0	171.55	106.68	51.88	28.54	10.53	7.24	5.71	4.55	4.32
270.0	264.27	234.10	234.10	73.13	31.51	13.46	10.35	7.56	6.40
315.0	145.06	83.11	52.39	21.11	11.74	9.51	7.29	6.22	5.75
360.0	162.92	77.73	48.72	20.19	12.53	10.49	8.26	7.33	6.91

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	6.59	6.08	5.57	5.24	5.06	4.87	4.73	4.45	4.13
45.0	5.24	4.64	4.32	3.90	3.62	3.43	3.39	3.34	3.29
90.0	4.41	4.32	4.08	3.94	3.94	3.90	3.85	3.62	3.39
135.0	6.82	6.50	6.13	5.89	5.52	5.24	5.20	5.01	4.83
180.0	5.38	5.15	4.92	4.50	4.18	3.99	3.94	3.94	3.85
225.0	4.22	3.85	3.34	3.02	2.92	2.83	2.69	2.60	2.41
270.0	5.85	5.38	5.06	4.64	4.22	3.99	3.85	3.71	3.48
315.0	5.48	5.10	4.73	4.45	4.27	4.18	3.99	3.71	3.48
360.0	6.59	6.08	5.57	5.24	5.06	4.87	4.73	4.45	4.13

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.76	3.67	3.57	3.53	3.43	3.43	3.25	2.97	2.74
45.0	3.11	2.78	2.64	2.64	2.69	2.69	2.64	2.64	2.51
90.0	3.20	2.97	2.92	2.88	2.97	2.88	2.69	2.51	2.32
135.0	4.50	4.22	3.99	3.81	3.76	3.71	3.71	3.53	3.29
180.0	3.62	3.29	3.16	3.06	2.97	2.97	2.92	2.78	2.55
225.0	2.23	2.04	2.00	2.04	2.09	2.04	2.00	1.86	1.72
270.0	3.16	2.88	2.78	2.69	2.60	2.60	2.51	2.41	2.27
315.0	3.34	3.20	3.11	3.11	3.06	3.02	2.88	2.74	2.51
360.0	3.76	3.67	3.57	3.53	3.43	3.43	3.25	2.97	2.74

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.51	2.27	2.18	2.18	2.09	2.00	1.81	1.58	1.30
45.0	2.37	2.09	2.00	1.95	1.95	1.90	1.86	1.81	1.62
90.0	2.13	1.95	1.95	1.95	1.86	1.76	1.67	1.44	1.16
135.0	3.02	2.78	2.60	2.46	2.37	2.37	2.23	2.04	1.72
180.0	2.37	2.18	2.00	1.90	1.86	1.81	1.72	1.58	1.44
225.0	1.58	1.58	1.48	1.48	1.48	1.48	1.39	1.25	1.07
270.0	2.13	1.90	1.76	1.72	1.72	1.67	1.53	1.48	1.39
315.0	2.32	2.23	2.23	2.18	2.04	1.95	1.81	1.58	1.21
360.0	2.51	2.27	2.18	2.18	2.09	2.00	1.81	1.58	1.30

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	0.65	0.65	1.02	1.95	1.95	0.97	0.56
45.0	1.35	1.11	0.88	0.74	0.70	0.88	1.25	1.16	0.84
90.0	0.88	0.79	0.65	0.65	0.60	0.56	0.56	0.56	0.51
135.0	1.48	1.21	0.88	0.70	0.65	0.65	0.65	0.60	0.60
180.0	1.16	1.02	0.74	0.56	0.56	0.60	0.51	0.51	0.51
225.0	0.88	0.70	0.56	0.51	0.60	0.56	0.51	0.46	0.51
270.0	1.16	0.93	0.70	0.60	0.60	0.56	0.60	0.46	0.46
315.0	0.93	0.74	0.65	0.60	0.65	1.11	0.97	0.65	0.56
360.0	0.93	0.74	0.65	0.65	1.02	1.95	1.95	0.97	0.56

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	0.46	0.51	0.51	0.46	0.42	0.42	0.56	0.46	0.46
45.0	0.60	0.60	0.51	0.46	0.51	0.51	0.56	0.51	0.51
90.0	0.46	0.51	0.46	0.46	0.42	0.42	0.37	0.37	0.42
135.0	0.56	0.56	0.46	0.46	0.46	0.46	0.46	0.46	0.42
180.0	0.46	0.42	0.42	0.42	0.37	0.37	0.37	0.28	0.32
225.0	0.46	0.42	0.42	0.46	0.37	0.42	0.42	0.42	0.46
270.0	0.46	0.42	0.42	0.42	0.37	0.42	0.42	0.42	0.37
315.0	0.42	0.46	0.46	0.42	0.37	0.42	0.42	0.46	0.42
360.0	0.46	0.51	0.51	0.46	0.42	0.42	0.56	0.46	0.46

Intensity data(cd)

C/γ(°)	90.0
0.0	0.51
45.0	0.56
90.0	0.42
135.0	0.42
180.0	0.28
225.0	0.42
270.0	0.42
315.0	0.32
360.0	0.51