



UL LLC
1075 W Lambert Rd Suite B
Brea, CA 92821

Photometric Test Report

Relevant Standards
IES LM-79-2008, ANSI C82.77-10-2014, CIE 13.3-1995
CIE 15-2004, ANSI C78.377-2017, IES TM-30-2018

Prepared For
Express Imaging Systems LLC dba Evluma
3600 Lind Ave SW Suite 140
Renton, WA 98057
United States

Catalog Number
OM-40-5K-MO
Order Number
12914541
Test Number
12914541.02

Test Date

2019-06-19 - 2019-06-25

Prepared By

Austin Duff, Technician

Approved By

Eric Gaudreau, Engineering Leader

The results contained in this report pertain only to the tested sample.
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Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the 4π geometry method.
Absorption correction was employed for Sphere measurement



Luminaire Description: White plastic housing with diffuse lens
Lamp: 96 White LEDs
Mounting: VBD
Ballast/Driver: Integrated

Luminaire



Luminaire Characteristics

Luminous Diameter: 3.50 in.
Luminous Height: 1.500 in.

Summary of Results

Integrating Sphere

Luminous Flux: 5715 Lumens
Efficacy: 145.31 lm/w
CCT: 5263 K
CRI (Ra): 83.0

Distribution

Total Luminaire Output: 5746 Lumens
Luminaire Efficacy: 145.9 lm/w
Maximum Candela: 619 Candela

Electrical Data at 120 VAC

Test Temperature: 25.0 °C
Voltage: 120.0 VAC
Current: 0.3288 A
Power: 39.33 W
Power Factor: 0.996
Frequency: 60 Hz
Current THD: 7.09 %



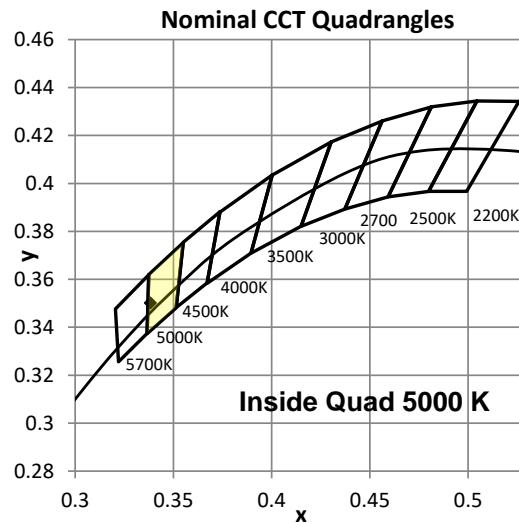
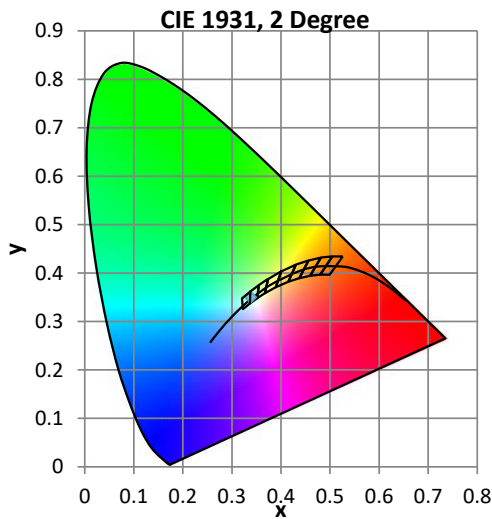
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.3288 A	39.33 W	0.996	60 Hz	7.09 %

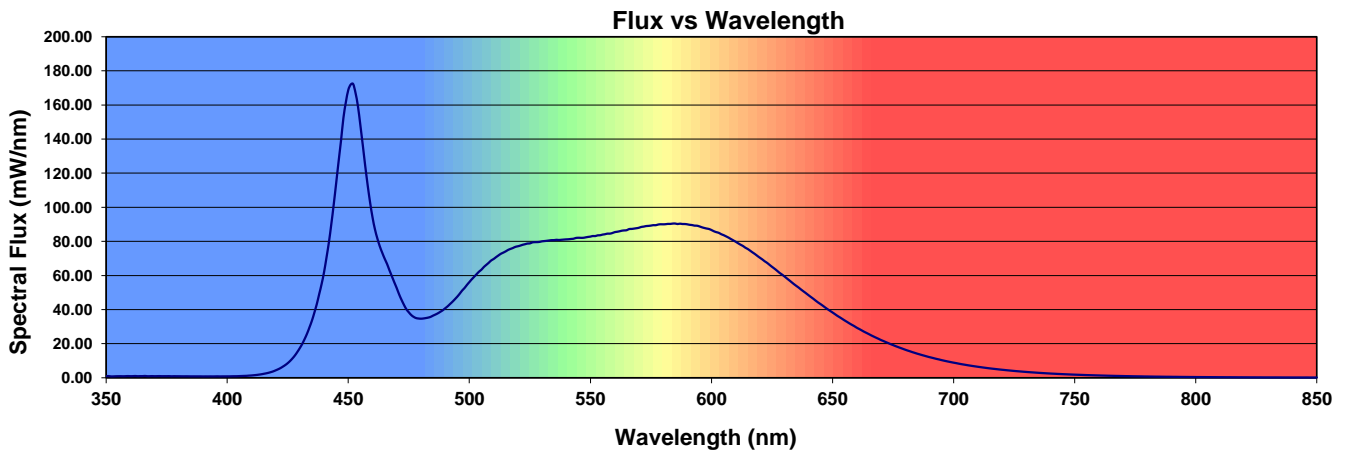
Summary of Results

Total Output:	5715 Lumens	Chromaticity (x):	0.3382
Efficacy:	145.3 lm/w	Chromaticity (y):	0.3501
CCT:	5263 K	Chromaticity (u'):	0.2074
CRI (Ra):	83.0	Chromaticity (v'):	0.4829
CRI (R9):	4.2	TM-30 Rf:	83.3
Peak Wavelength:	451 nm	TM-30 Rg:	95.7
Dominant Wavelength:	565 nm	Duv:	0.0017
S/P Ratio:	2.01		



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
83.0	81.5	88.2	92.5	83.3	82.3	83.2	86.6	66.6	4.2	71.8	83.2	59.9	83.4	96.2	75.3





Distribution - Goniophotometer

Distribution Test Conditions

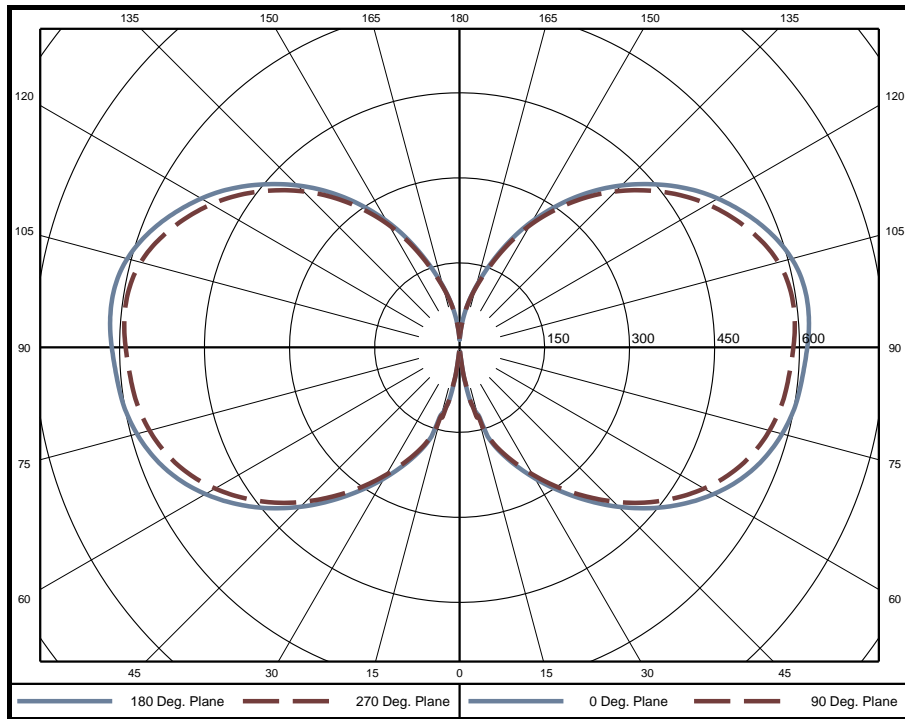
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.3 °C	120.1 VAC	0.3291 A	39.37 W	0.996	60 Hz	7.10 %

Summary of Results

Spacing Criteria
 0-180: 11.07
 90-270: 10.91

Total Lumen Output: 5746 Lumens
Luminaire Efficacy: 145.9 lm/w
Maximum Candela: 619 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	0.2	0.0%	60-65	254.0	4.4%	120-125	230.3	4.0%
5-10	3.0	0.1%	65-70	278.0	4.8%	125-130	200.0	3.5%
10-15	12.8	0.2%	70-75	297.5	5.2%	130-135	169.1	2.9%
15-20	26.3	0.5%	75-80	312.0	5.4%	135-140	138.8	2.4%
20-25	43.0	0.7%	80-85	321.4	5.6%	140-145	109.5	1.9%
25-30	61.6	1.1%	85-90	326.9	5.7%	145-150	82.4	1.4%
30-35	83.7	1.5%	90-95	330.2	5.7%	150-155	58.0	1.0%
35-40	108.8	1.9%	95-100	328.7	5.7%	155-160	37.3	0.6%
40-45	136.7	2.4%	100-105	320.8	5.6%	160-165	21.6	0.4%
45-50	166.6	2.9%	105-110	305.4	5.3%	165-170	10.9	0.2%
50-55	196.8	3.4%	110-115	283.8	4.9%	170-175	4.1	0.1%
55-60	226.3	3.9%	115-120	258.4	4.5%	175-180	0.7	0.0%

Zone	Lumens	% of Luminaire
0-40	339	5.9%
0-60	1066	18.5%
0-90	2856	49.7%
90-180	2890	50.3%



Candela Tabulation
Horizontal Angle (Degrees)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
5	7.1	6.9	6.9	7.0	7.1	7.0	6.9	6.9	7.1	6.9	6.9	7.0	7.1	7.0	6.9	6.9
10	77.2	81.9	77.7	76.3	71.6	76.3	77.7	81.9	77.2	81.9	77.7	76.3	71.6	76.3	77.7	81.9
15	121.7	129.6	126.6	125.8	124.6	125.8	126.6	129.6	121.7	129.6	126.6	125.8	124.6	125.8	126.6	129.6
20	187.5	184.8	184.6	184.0	183.6	184.0	184.6	184.8	187.5	184.8	184.6	184.0	183.6	184.0	184.6	184.8
25	226.6	225.4	223.3	221.1	220.6	221.1	223.3	225.4	226.6	225.4	223.3	221.1	220.6	221.1	223.3	225.4
30	267.0	265.8	262.8	260.0	259.3	260.0	262.8	265.8	267.0	265.8	262.8	260.0	259.3	260.0	262.8	265.8
35	308.9	308.1	304.5	301.0	300.2	301.0	304.5	308.1	308.9	308.1	304.5	301.0	300.2	301.0	304.5	308.1
40	352.8	351.0	346.7	342.7	341.8	342.7	346.7	351.0	352.8	351.0	346.7	342.7	341.8	342.7	346.7	351.0
45	397.6	395.0	390.3	385.8	384.4	385.8	390.3	395.0	397.6	395.0	390.3	385.8	384.4	385.8	390.3	395.0
50	441.0	437.9	432.4	427.4	425.9	427.4	432.4	437.9	441.0	437.9	432.4	427.4	425.9	427.4	432.4	437.9
55	481.1	477.0	470.7	465.3	463.5	465.3	470.7	477.0	481.1	477.0	470.7	465.3	463.5	465.3	470.7	477.0
60	517.4	512.8	506.2	500.1	497.9	500.1	506.2	512.8	517.4	512.8	506.2	500.1	497.9	500.1	506.2	512.8
65	548.2	543.4	536.2	529.8	527.2	529.8	536.2	543.4	548.2	543.4	536.2	529.8	527.2	529.8	536.2	543.4
70	571.9	566.9	559.8	553.1	550.1	553.1	559.8	566.9	571.9	566.9	559.8	553.1	550.1	553.1	559.8	566.9
75	589.1	583.8	576.7	569.5	566.5	569.5	576.7	583.8	589.1	583.8	576.7	569.5	566.5	569.5	576.7	583.8
80	601.1	595.2	587.9	580.8	577.6	580.8	587.9	595.2	601.1	595.2	587.9	580.8	577.6	580.8	587.9	595.2
85	607.1	601.3	593.6	586.5	583.5	586.5	593.6	601.3	607.1	601.3	593.6	586.5	583.5	586.5	593.6	601.3
90	613.5	607.4	599.5	592.4	589.3	592.4	599.5	607.4	613.5	607.4	599.5	592.4	589.3	592.4	599.5	607.4
95	618.8	612.3	604.1	596.8	593.7	596.8	604.1	612.3	618.8	612.3	604.1	596.8	593.7	596.8	604.1	612.3
100	617.6	611.3	602.9	595.6	592.5	595.6	602.9	611.3	617.6	611.3	602.9	595.6	592.5	595.6	602.9	611.3
105	606.7	600.9	592.7	585.3	582.4	585.3	592.7	600.9	606.7	600.9	592.7	585.3	582.4	585.3	592.7	600.9
110	586.0	580.7	572.7	565.6	562.5	565.6	572.7	580.7	586.0	580.7	572.7	565.6	562.5	565.6	572.7	580.7
115	558.2	553.5	545.9	539.5	536.1	539.5	545.9	553.5	558.2	553.5	545.9	539.5	536.1	539.5	545.9	553.5
120	526.5	521.9	515.0	508.6	505.8	508.6	515.0	521.9	526.5	521.9	515.0	508.6	505.8	508.6	515.0	521.9
125	490.0	485.9	479.3	473.2	470.6	473.2	479.3	485.9	490.0	485.9	479.3	473.2	470.6	473.2	479.3	485.9
130	448.8	444.9	439.0	433.2	431.1	433.2	439.0	444.9	448.8	444.9	439.0	433.2	431.1	433.2	439.0	444.9
135	405.3	402.1	396.9	391.3	389.5	391.3	396.9	402.1	405.3	402.1	396.9	391.3	389.5	391.3	396.9	402.1
140	358.8	356.5	351.7	346.6	345.2	346.6	351.7	356.5	358.8	356.5	351.7	346.6	345.2	346.6	351.7	356.5
145	309.6	308.0	304.0	298.9	298.1	298.9	304.0	308.0	309.6	308.0	304.0	298.9	298.1	298.9	304.0	308.0
150	258.9	257.7	254.7	250.0	249.7	250.0	254.7	257.7	258.9	257.7	254.7	250.0	249.7	250.0	254.7	257.7
155	206.2	204.9	203.0	199.2	198.4	199.2	203.0	204.9	206.2	204.9	203.0	199.2	198.4	199.2	203.0	204.9
160	155.2	154.4	152.5	149.9	148.8	149.9	152.5	154.4	155.2	154.4	152.5	149.9	148.8	149.9	152.5	154.4
165	111.3	110.4	109.8	108.7	108.2	108.7	109.8	110.4	111.3	110.4	109.8	108.7	108.2	108.7	109.8	110.4
170	73.9	73.4	73.1	72.6	72.4	72.6	73.1	73.4	73.9	73.4	73.1	72.6	72.4	72.6	73.1	73.4
175	38.1	38.1	37.9	37.7	37.9	37.7	37.9	38.1	38.1	38.1	37.9	37.7	37.9	37.7	37.9	38.1
180	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

	0	45	90
0	1090	1090	1090
45	88130	86500	85200
55	107900	105600	104000
65	128500	125700	123600
75	148400	145300	142700
85	169000	165200	162400

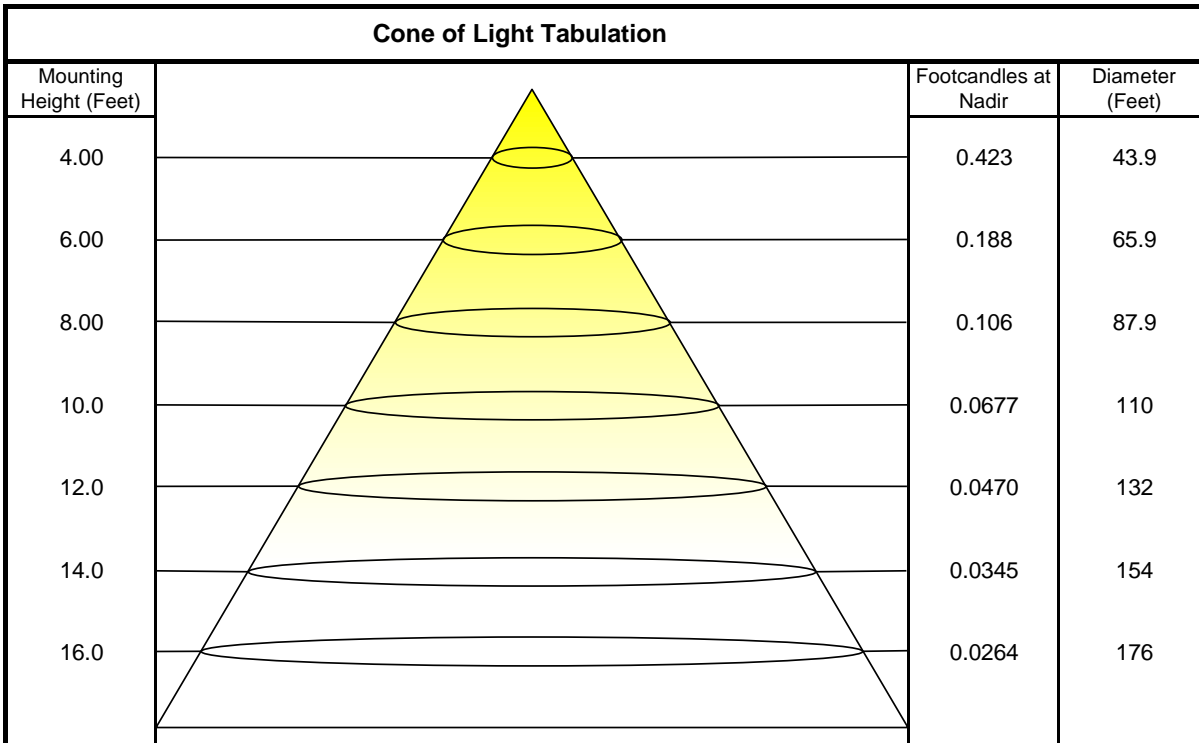


Coefficients of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%

Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as percent of total lumen output delivered to the task surface **																	
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	92	85	79	73	84	78	72	68	64	60	56	52	49	46	40	38	36	30
2	81	71	63	55	74	65	57	51	53	47	42	42	38	34	32	29	26	21
3	73	61	51	44	66	55	47	40	45	38	33	35	30	26	27	23	19	15
4	66	52	43	35	59	48	39	32	39	32	26	30	25	21	23	19	15	11
5	60	46	36	29	54	42	33	26	34	27	22	27	21	17	20	16	12	9
6	55	41	31	24	49	37	28	22	30	23	18	24	18	14	18	13	10	7
7	50	36	27	21	45	33	25	19	27	20	15	21	16	12	16	12	8	6
8	46	33	24	18	42	30	22	16	24	18	13	19	14	10	14	10	7	5
9	43	29	21	15	39	27	19	14	22	16	11	17	12	9	13	9	6	4
10	40	27	19	14	36	24	17	12	20	14	10	16	11	8	12	8	5	3

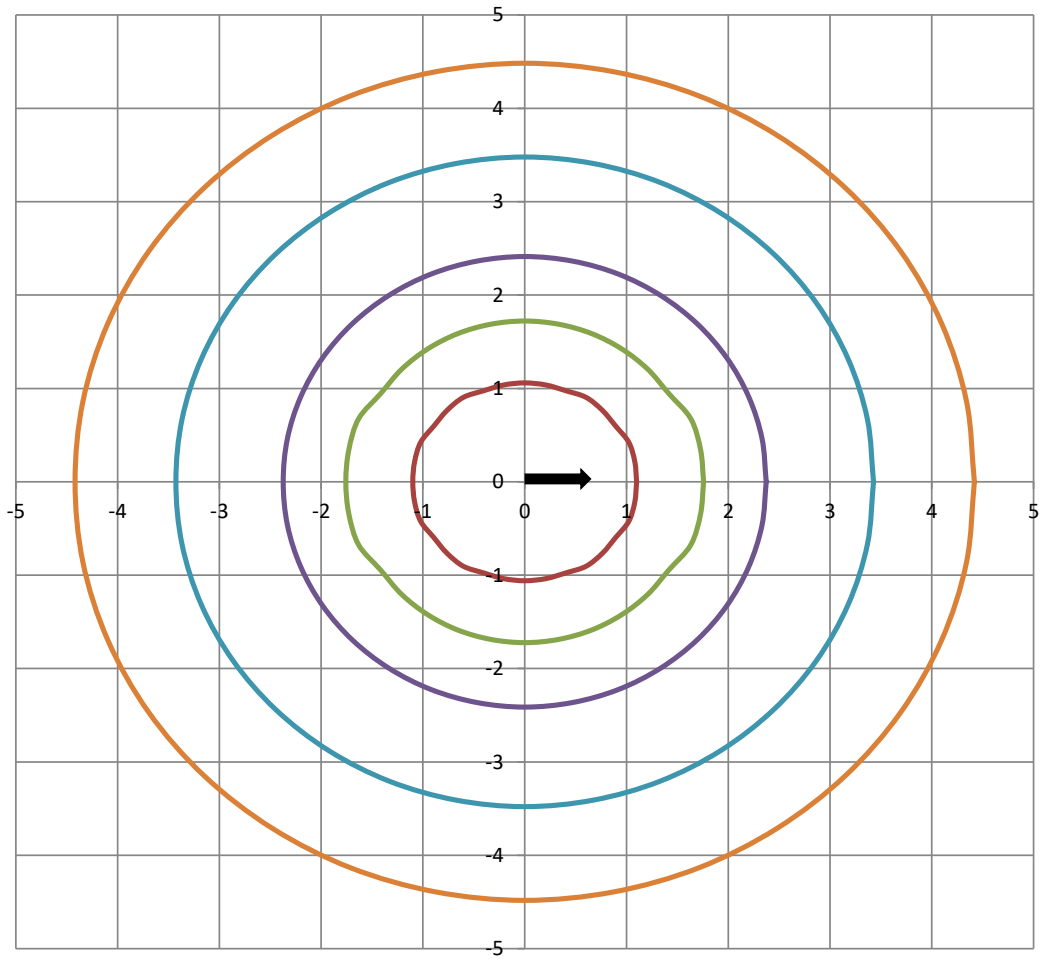
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	6.8 Candela
Central Cone Intensity:	N/A Candela
Beam Flux:	5745.8 Lumens
Beam Angle (0-180):	N/A Degrees
Beam Angle (90-270):	N/A Degrees
Field Angle (0-180):	N/A Degrees
Field Angle (90-270):	N/A Degrees





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

