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Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002, UL 1598-2008
UL1598-2008



Prepared For
AVID Labs Alexander Tollington
4121 Fourier Drive
Fort Wayne, IN 46818 United States

Product Name: AVID RAIL System - 98 CRI - Full Spectrum

Catalog Number
LGT-RAI-CRIH04 Order Number
11291854

Test Number
1249881

Test Date
2016-05-24 - 2016-05-25

Prepared By

Derek Smarr, Technician

Approved By

Jeffrey Lockner, Project Engineer

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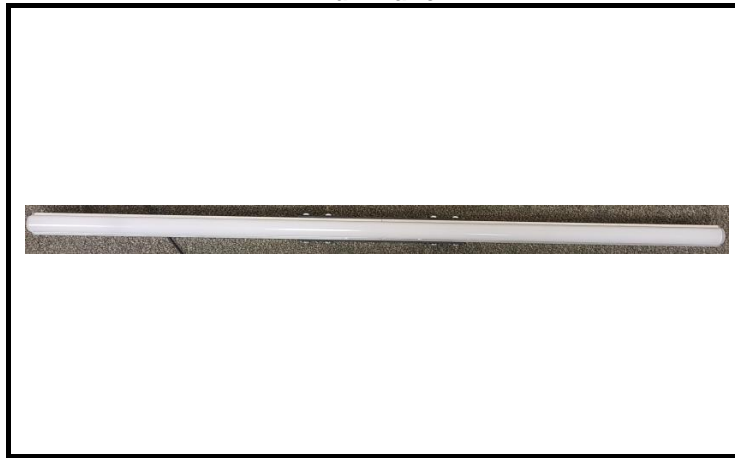
Laboratory results may not be representative of field performance
Ballast factors have not been applied

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



Luminaire Description: Aluminum housing, plastic frosted enclosure
Lamp: 144 white LEDs (36 LEDs per board, 4 boards)
Mounting: Surface
Ballast/Driver: One Mean Well HLG-60H-42B

Luminaire



Luminaire Characteristics

Luminous Length: 48.00 in.
Luminous Width: 0.7500 in.
Luminous Height: 1.00 in.

Summary of Results

Integrating Sphere

Luminous Flux: 2890 Lumens
Efficacy: 42.9 lm/w
CCT: 5411 K
CRI (Ra): 96.2

Distribution

Total Luminaire Output: 2802 Lumens
Luminaire Efficacy: 41.6 lm/w
Maximum Candela: 714 Candela

Electrical Data at 120 VAC

Test Temperature: 24.9 °C
Voltage: 120.0 VAC
Current: 0.5629 A
Power: 67.38 W
Power Factor: 0.998
Frequency: 60 Hz
Current THD: 4.43 %

In-Situ

LED Temperature: 62.2 °C
Driver Temperature: 35.5 °C
Measured LED Current: 0.1244 A

Temperature is offset to an ambient temperature of 25°C as described in UL1598-2008.



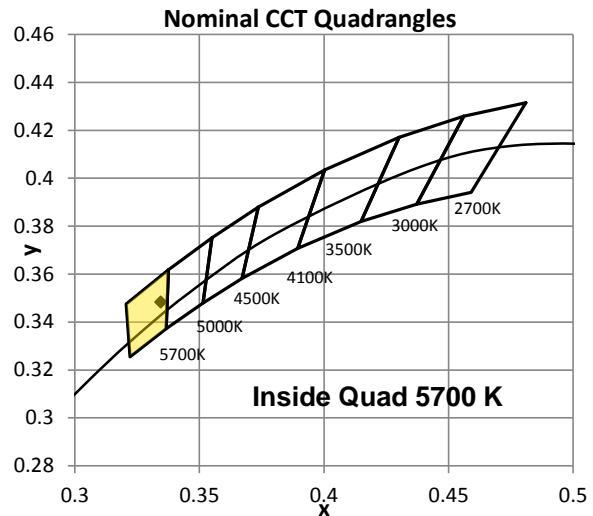
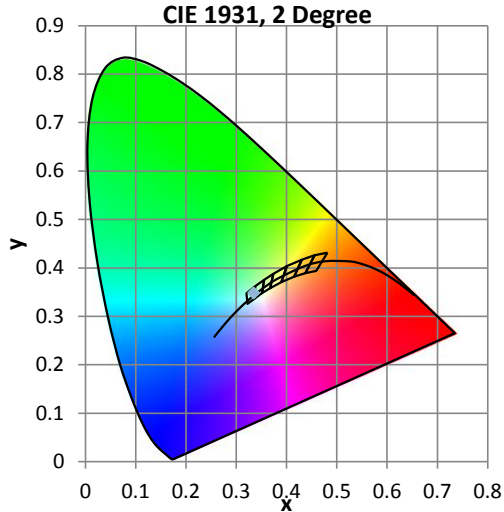
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.5629 A	67.38 W	0.998	60 Hz	4.43 %

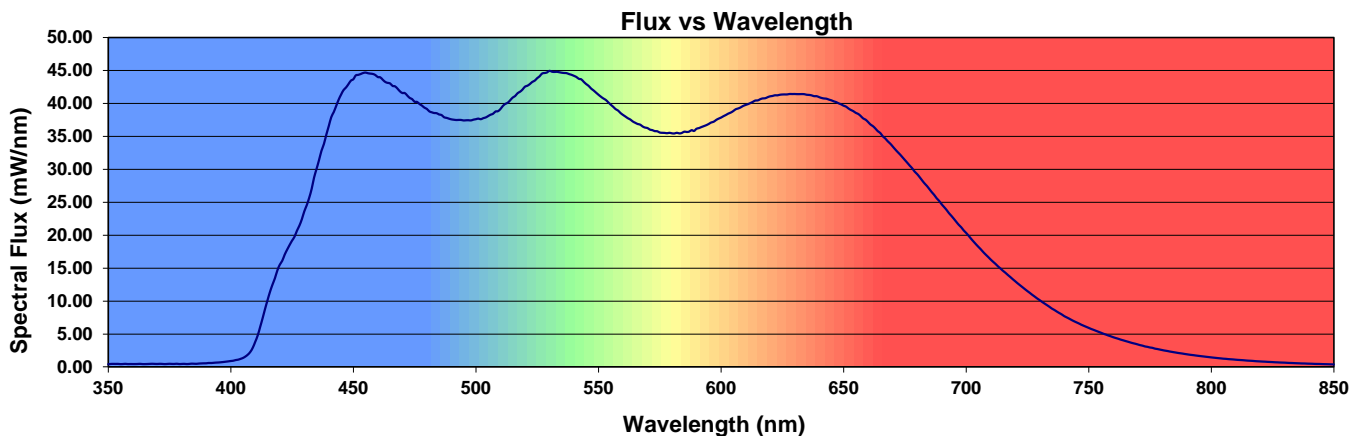
Summary of Results

Total Output:	2890 Lumens	Chromaticity (x):	0.3345
Efficacy:	42.9 lm/w	Chromaticity (y):	0.3483
CCT:	5411 K	Chromaticity (u'):	0.2055
CRI (Ra):	96.2	Chromaticity (v'):	0.4815
CRI (R9):	82.0	TM-30 R_f:	95.5
Peak Wavelength:	530.5 nm	TM-30 R_g:	101.3
Dominant Wavelength:	557.9 nm	Duv:	0.0026
S/P Ratio:	2.272		



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
96.2	94.7	97.9	96.6	95.6	96.3	98.0	97.4	93.1	82.0	97.2	94.3	93.3	95.1	97.4





Distribution - Goniophotometer

Distribution Test Conditions

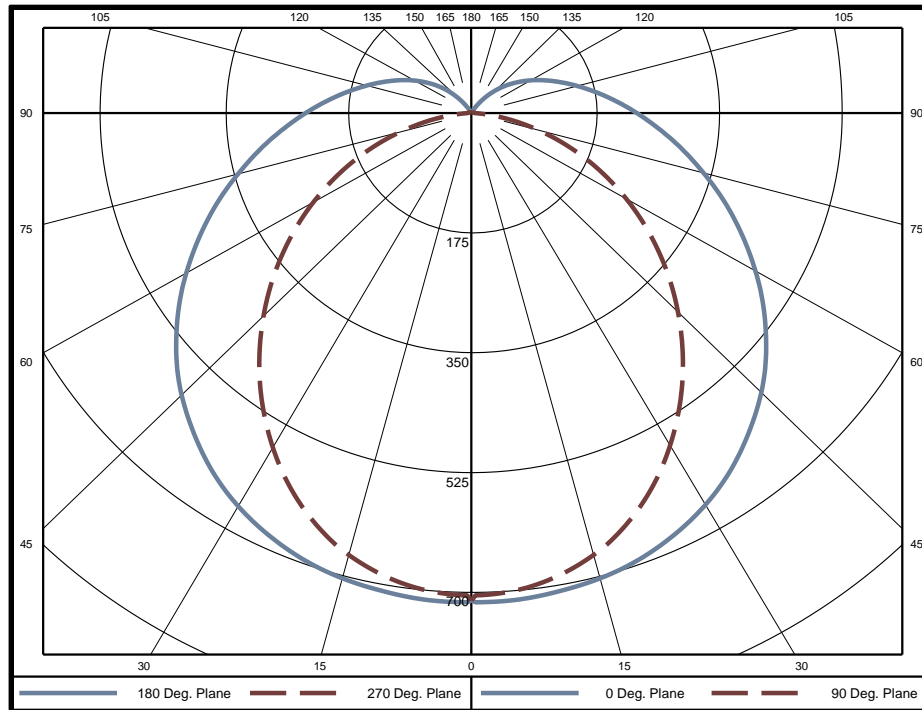
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.3 °C	120.0 VAC	0.5625 A	67.32 W	0.998	60 Hz	4.37 %

Summary of Results

Spacing Criteria
 0-180: 1.38
 90-270: 1.38

Total Lumen Output: 2802 Lumens
Luminaire Efficacy: 41.6 lm/w
Maximum Candela: 714 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	17.0	0.6%	60-65	170.3	6.1%	120-125	20.1	0.7%
5-10	50.4	1.8%	65-70	155.2	5.5%	125-130	14.3	0.5%
10-15	82.4	2.9%	70-75	138.1	4.9%	130-135	9.3	0.3%
15-20	111.9	4.0%	75-80	120.1	4.3%	135-140	5.3	0.2%
20-25	137.9	4.9%	80-85	102.6	3.7%	140-145	2.4	0.1%
25-30	159.5	5.7%	85-90	86.7	3.1%	145-150	0.7	0.0%
30-35	176.3	6.3%	90-95	73.4	2.6%	150-155	0.1	0.0%
35-40	187.8	6.7%	95-100	61.9	2.2%	155-160	0	0.0%
40-45	194.0	6.9%	100-105	51.8	1.8%	160-165	0	0.0%
45-50	195.0	7.0%	105-110	42.7	1.5%	165-170	0	0.0%
50-55	191.1	6.8%	110-115	34.4	1.2%	170-175	0	0.0%
55-60	182.5	6.5%	115-120	26.8	1.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	923	32.9%
0-60	1686	60.2%
0-90	2459	87.8%
90-180	343	12.2%



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	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7	711.7
5	713.8	711.1	708.7	709.3	700.3	709.3	708.7	711.1	713.8	711.1	708.7	709.3	700.3	709.3	708.7	711.1
10	709.4	706.0	700.8	698.3	688.0	698.3	700.8	706.0	709.4	706.0	700.8	698.3	688.0	698.3	700.8	706.0
15	703.6	698.0	687.4	680.4	668.4	680.4	687.4	698.0	703.6	698.0	687.4	680.4	668.4	680.4	687.4	698.0
20	694.0	685.8	668.9	655.3	640.5	655.3	668.9	685.8	694.0	685.8	668.9	655.3	640.5	655.3	668.9	685.8
25	679.7	669.2	645.7	622.8	605.0	622.8	645.7	669.2	679.7	669.2	645.7	622.8	605.0	622.8	645.7	669.2
30	661.7	648.3	616.4	585.3	562.9	585.3	616.4	648.3	661.7	648.3	616.4	585.3	562.9	585.3	616.4	648.3
35	638.8	622.6	583.1	543.5	516.6	543.5	583.1	622.6	638.8	622.6	583.1	543.5	516.6	543.5	583.1	622.6
40	610.8	592.4	546.5	498.1	467.1	498.1	546.5	592.4	610.8	592.4	546.5	498.1	467.1	498.1	546.5	592.4
45	580.3	559.2	507.1	451.1	415.6	451.1	507.1	559.2	580.3	559.2	507.1	451.1	415.6	451.1	507.1	559.2
50	545.2	522.9	466.1	402.9	363.4	402.9	466.1	522.9	545.2	522.9	466.1	402.9	363.4	402.9	466.1	522.9
55	506.4	484.0	423.4	354.1	310.2	354.1	423.4	484.0	506.4	484.0	423.4	354.1	310.2	354.1	423.4	484.0
60	465.6	443.5	380.4	305.8	256.9	305.8	380.4	443.5	465.6	443.5	380.4	305.8	256.9	305.8	380.4	443.5
65	423.7	402.3	339.1	258.4	204.0	258.4	339.1	402.3	423.7	402.3	339.1	258.4	204.0	258.4	339.1	402.3
70	382.5	361.7	298.5	213.4	151.9	213.4	298.5	361.7	382.5	361.7	298.5	213.4	151.9	213.4	298.5	361.7
75	341.4	321.9	259.7	171.5	101.9	171.5	259.7	321.9	341.4	321.9	259.7	171.5	101.9	171.5	259.7	321.9
80	303.2	284.2	224.5	134.8	57.2	134.8	224.5	284.2	303.2	284.2	224.5	134.8	57.2	134.8	224.5	284.2
85	267.2	249.4	192.4	103.8	21.7	103.8	192.4	249.4	267.2	249.4	192.4	103.8	21.7	103.8	192.4	249.4
90	234.7	217.7	163.8	79.4	5.5	79.4	163.8	217.7	234.7	217.7	163.8	79.4	5.5	79.4	163.8	217.7
95	204.9	189.1	138.7	61.0	4.5	61.0	138.7	189.1	204.9	189.1	138.7	61.0	4.5	61.0	138.7	189.1
100	178.3	163.9	117.1	48.0	3.9	48.0	117.1	163.9	178.3	163.9	117.1	48.0	3.9	48.0	117.1	163.9
105	154.3	141.0	98.6	37.3	3.4	37.3	98.6	141.0	154.3	141.0	98.6	37.3	3.4	37.3	98.6	141.0
110	132.9	120.7	82.8	26.6	2.9	26.6	82.8	120.7	132.9	120.7	82.8	26.6	2.9	26.6	82.8	120.7
115	113.5	102.5	68.3	16.5	2.6	16.5	68.3	102.5	113.5	102.5	68.3	16.5	2.6	16.5	68.3	102.5
120	95.5	85.4	53.8	8.4	2.2	8.4	53.8	85.4	95.5	85.4	53.8	8.4	2.2	8.4	53.8	85.4
125	78.1	69.0	39.5	3.2	1.8	3.2	39.5	69.0	78.1	69.0	39.5	3.2	1.8	3.2	39.5	69.0
130	61.4	52.7	25.9	1.1	1.5	1.1	25.9	52.7	61.4	52.7	25.9	1.1	1.5	1.1	25.9	52.7
135	44.6	36.6	13.2	0.9	1.2	0.9	13.2	36.6	44.6	36.6	13.2	0.9	1.2	0.9	13.2	36.6
140	28.1	21.4	5.0	0.6	0.9	0.6	5.0	21.4	28.1	21.4	5.0	0.6	0.9	0.6	5.0	21.4
145	13.4	9.3	0.3	0.4	0.7	0.4	0.3	9.3	13.4	9.3	0.3	0.4	0.7	0.4	0.3	9.3
150	3.5	1.2	0.0	0.3	0.5	0.3	0.0	1.2	3.5	1.2	0.0	0.3	0.5	0.3	0.0	1.2
155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

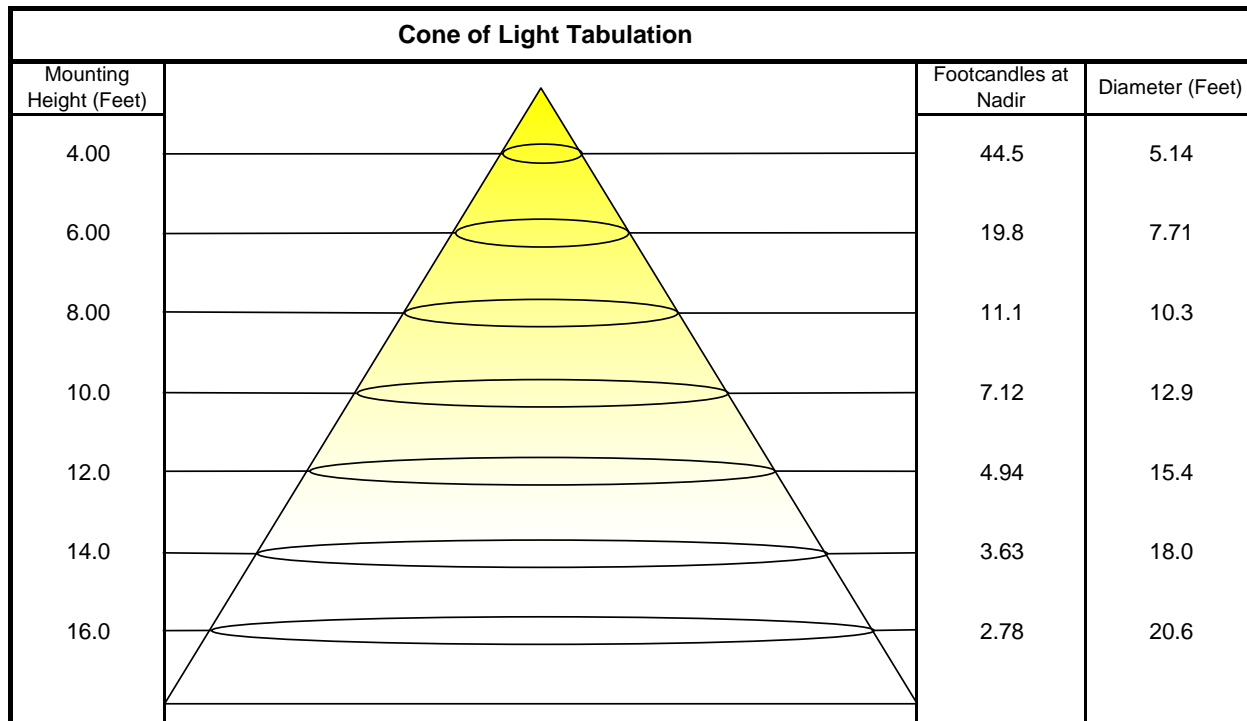
	0	45	90
0	30640	30640	30640
45	34610	15770	10850
55	36920	13420	8019
65	41320	11310	5385
75	52700	9444	2837
85	106600	7959	661



Utilization of Lumens - 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 Lumens delivered to the task surface **																	
0	3254	3254	3254	3254	3138	3138	3138	3138	2923	2923	2923	2725	2725	2725	2544	2544	2544	2459
1	2897	2734	2588	2456	2782	2635	2503	2383	2450	2343	2244	2281	2194	2114	2124	2056	1992	1906
2	2608	2347	2130	1948	2499	2263	2066	1898	2105	1942	1801	1960	1826	1709	1826	1717	1620	1537
3	2364	2041	1792	1593	2262	1970	1740	1556	1835	1642	1484	1710	1550	1414	1595	1462	1347	1268
4	2156	1797	1534	1333	2062	1736	1492	1305	1620	1413	1249	1513	1337	1195	1413	1265	1143	1067
5	1977	1597	1332	1136	1891	1545	1298	1114	1445	1233	1070	1353	1170	1027	1266	1110	985	914
6	1822	1433	1171	984	1744	1387	1143	966	1301	1088	930	1220	1036	895	1145	985	860	793
7	1686	1295	1041	863	1615	1255	1017	848	1180	970	818	1110	926	789	1044	883	760	697
8	1567	1178	933	765	1503	1143	913	752	1077	873	727	1016	834	702	957	797	678	618
9	1462	1078	843	684	1404	1048	825	673	990	791	652	935	758	631	884	726	610	554
10	1369	993	767	617	1316	966	752	608	914	722	589	866	693	571	820	665	553	500

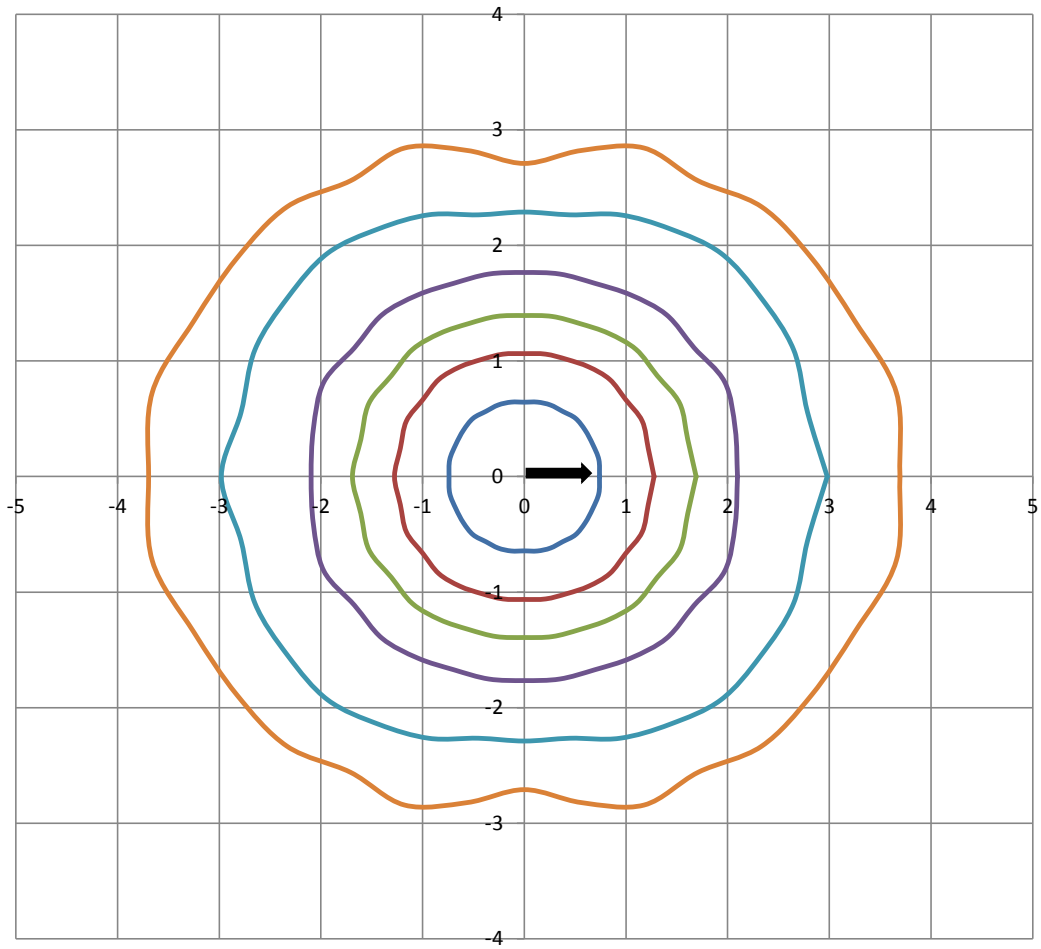
Beam and Field Information	
CIE Type:	Semi-Direct
Center Beam Intensity:	711.7 Candela
Central Cone Intensity:	711 Candela
Beam Flux:	1815.5 Lumens
Beam Angle (0-180):	146.5 Degrees
Beam Angle (90-270):	101.4 Degrees
Field Angle (0-180):	254.2 Degrees
Field Angle (90-270):	156.7 Degrees





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height





In-Situ Test

In-Situ Test Conditions

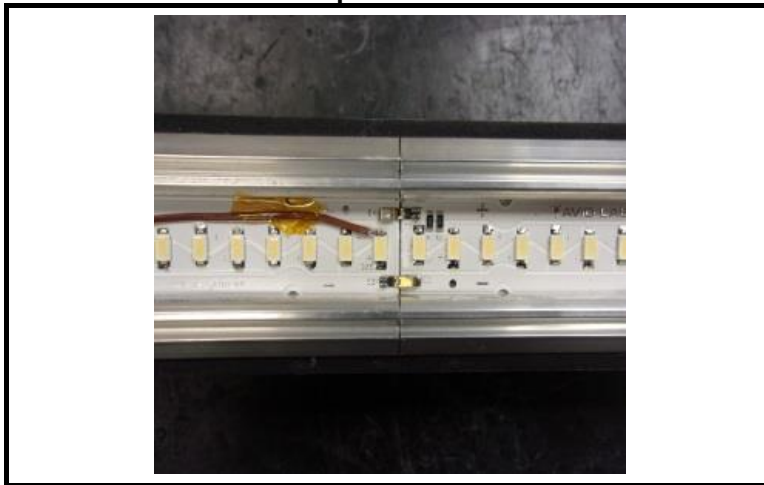
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.0 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

LED Temperature: 62.2 °C
Driver Temperature: 35.5 °C
Measured LED Current: 0.1244 A

Temperatures are offset to an ambient temperature of 25°C as described in UL1598-2008

LED Temperature Location



Driver Temperature Location

