



UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
610-774-1300



Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C78.377-2011, ANSI C82.77-2002
CIE 13.3-1995, CIE 15-2004, IES TM-30-15, UL 1598-2008

Prepared For
RLE Industries
Damian Sookram
35 Kulik Rd
Fairfield, NJ 07004-3307
United States

Catalog Number
RD2-2 3000K
Order Number
11524480
Test Number
11524880.01

Test Date

2017-01-13 - 2017-01-26

Prepared By

Vita Mazzola, Administrative Assistant

Approved By

Tiffany Hamm, Project Handler

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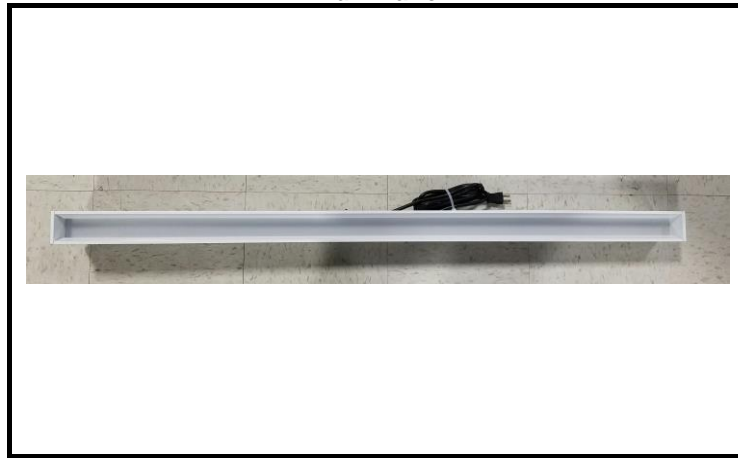
Laboratory results may not be representative of field performance
Ballast factors have not been applied

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



Luminaire Description: White aluminum housing, frosted plastic lens enclosure
Lamp: 96 white LEDs, two boards with 48 LEDs each
Mounting: Pendant
Ballast/Driver: One Philips Advance Xitanium XI054C150V054BST1

Luminaire



Luminaire Characteristics

Luminous Length: 47.50 in.
Luminous Width: 2.000 in.

Summary of Results

Integrating Sphere

Luminous Flux: 1957 Lumens
Efficacy: 61.0 lm/w
CCT: 3161 K
CRI (Ra): 84.8

Distribution

Total Luminaire Output: 2012 Lumens
Luminaire Efficacy: 62.8 lm/w
Maximum Candela: 980 Candela

Electrical Data at 277 VAC

Test Temperature: 24.3 °C
Voltage: 277.0 VAC
Current: 0.1230 A
Power: 32.66 W
Power Factor: 0.951
Frequency: 60 Hz
Current THD: 13.0 %

In-Situ

LED Temperature: 60.6 °C
Driver Temperature: 55.9 °C
Measured LED Current: 0.09990 A

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



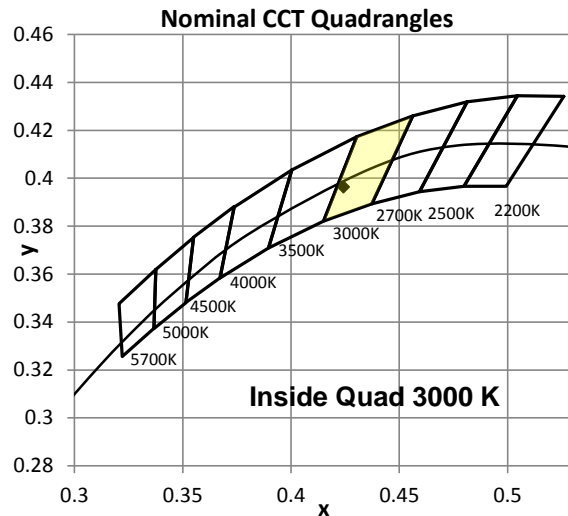
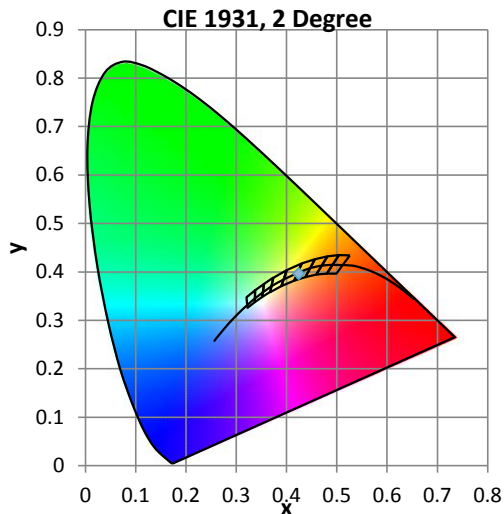
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.2693 A	32.10 W	0.993	60 Hz	9.98 %

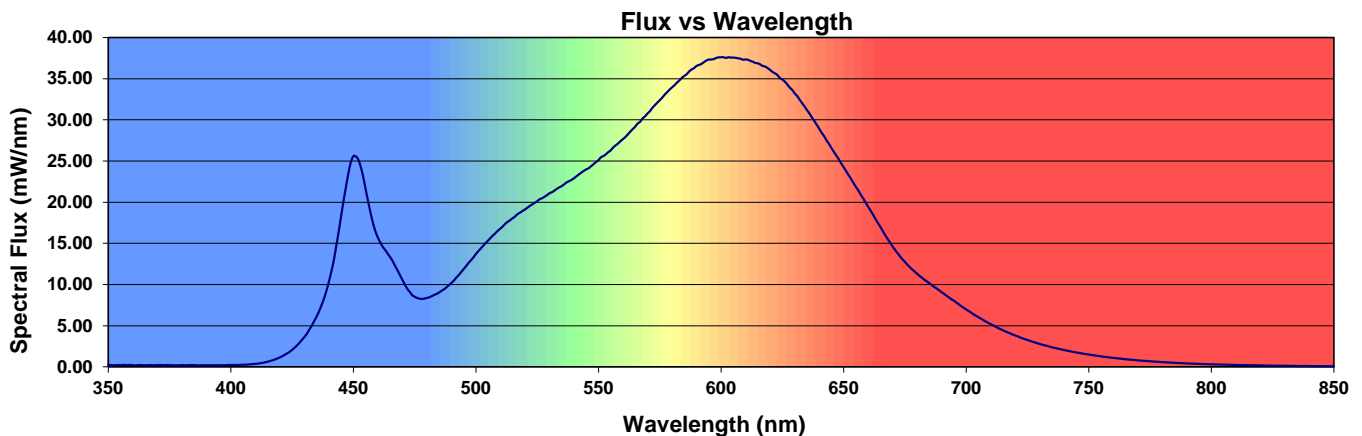
Summary of Results

Total Output:	1957 Lumens	Chromaticity (x):	0.4242
Efficacy:	61.0 lm/w	Chromaticity (y):	0.3963
CCT:	3161 K	Chromaticity (u'):	0.2456
CRI (Ra):	84.8	Chromaticity (v'):	0.5164
CRI (R9):	20.3	TM-30 R_f:	84.2
Peak Wavelength:	601.8 nm	TM-30 R_g:	97.4
Dominant Wavelength:	582.6 nm	Duv:	-0.0015
S/P Ratio:	1.425		



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
84.8	83.6	91.9	96.7	83.0	83.6	89.5	85.1	65.2	20.3	81.0	82.3	72.2	85.6	98.7





Distribution - Goniophotometer

Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.7 °C	120.0 VAC	0.2689 A	32.05 W	0.993	60 Hz	9.97 %

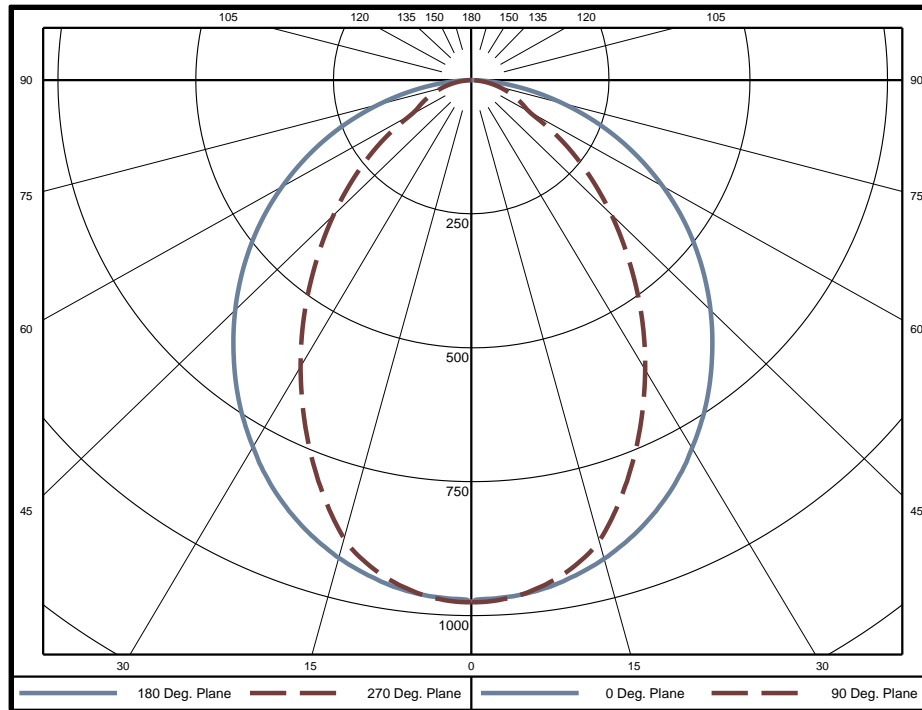
Summary of Results

Spacing Criteria
 0-180: 1.22
 90-270: 1.22

Total Lumen Output: 2012 Lumens
Luminaire Efficacy: 62.8 lm/w
Maximum Candela: 980 Candela

2012 Lumens
 62.8 lm/w
 980 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	23.2	1.2%	60-65	97.2	4.8%	120-125	0	0.0%
5-10	68.5	3.4%	65-70	72.9	3.6%	125-130	0	0.0%
10-15	110.2	5.5%	70-75	51.8	2.6%	130-135	0	0.0%
15-20	145.5	7.2%	75-80	32.1	1.6%	135-140	0	0.0%
20-25	171.9	8.5%	80-85	16.7	0.8%	140-145	0	0.0%
25-30	189.0	9.4%	85-90	3.7	0.2%	145-150	0	0.0%
30-35	197.1	9.8%	90-95	0	0.0%	150-155	0	0.0%
35-40	196.2	9.8%	95-100	0	0.0%	155-160	0	0.0%
40-45	187.4	9.3%	100-105	0	0.0%	160-165	0	0.0%
45-50	172.3	8.6%	105-110	0	0.0%	165-170	0	0.0%
50-55	151.4	7.5%	110-115	0	0.0%	170-175	0	0.0%
55-60	125.2	6.2%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	1102	54.8%
0-60	1738	86.4%
0-90	2012	100.0%
90-180	0	0.0%



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	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1	975.1
5	965.9	974.1	966.6	966.3	966.5	966.3	966.6	974.1	965.9	974.1	966.6	966.3	966.5	966.3	966.6	974.1
10	950.9	957.0	945.8	941.1	938.7	941.1	945.8	957.0	950.9	957.0	945.8	941.1	938.7	941.1	945.8	957.0
15	925.5	928.4	909.0	897.5	890.2	897.5	909.0	928.4	925.5	928.4	909.0	897.5	890.2	897.5	909.0	928.4
20	891.4	888.7	857.1	822.3	807.6	822.3	857.1	888.7	891.4	888.7	857.1	822.3	807.6	822.3	857.1	888.7
25	848.2	838.9	784.1	735.5	717.7	735.5	784.1	838.9	848.2	838.9	784.1	735.5	717.7	735.5	784.1	838.9
30	795.3	780.5	702.4	645.5	625.1	645.5	702.4	780.5	795.3	780.5	702.4	645.5	625.1	645.5	702.4	780.5
35	738.5	713.0	617.3	554.1	532.8	554.1	617.3	713.0	738.5	713.0	617.3	554.1	532.8	554.1	617.3	713.0
40	675.6	635.3	531.2	464.6	441.7	464.6	531.2	635.3	675.6	635.3	531.2	464.6	441.7	464.6	531.2	635.3
45	610.7	556.0	447.2	378.7	356.7	378.7	447.2	556.0	610.7	556.0	447.2	378.7	356.7	378.7	447.2	556.0
50	543.3	476.9	365.5	297.4	276.6	297.4	365.5	476.9	543.3	476.9	365.5	297.4	276.6	297.4	365.5	476.9
55	473.4	397.2	283.6	221.0	200.9	221.0	283.6	397.2	473.4	397.2	283.6	221.0	200.9	221.0	283.6	397.2
60	400.3	318.0	207.1	144.3	123.7	144.3	207.1	318.0	400.3	318.0	207.1	144.3	123.7	144.3	207.1	318.0
65	325.7	238.9	133.9	99.1	97.9	99.1	133.9	238.9	325.7	238.9	133.9	99.1	97.9	99.1	133.9	238.9
70	250.1	160.0	80.2	77.2	76.2	77.2	80.2	160.0	250.1	160.0	80.2	77.2	76.2	77.2	80.2	160.0
75	174.5	87.6	57.3	55.3	54.6	55.3	57.3	87.6	174.5	87.6	57.3	55.3	54.6	55.3	57.3	87.6
80	104.1	38.5	35.1	34.1	33.7	34.1	35.1	38.5	104.1	38.5	35.1	34.1	33.7	34.1	35.1	38.5
85	42.1	15.1	14.3	13.9	13.8	13.9	14.3	15.1	42.1	15.1	14.3	13.9	13.8	13.9	14.3	15.1
90	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
95	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
100	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
105	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
110	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
115	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
120	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
125	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
130	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
135	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
140	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
145	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
150	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
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)

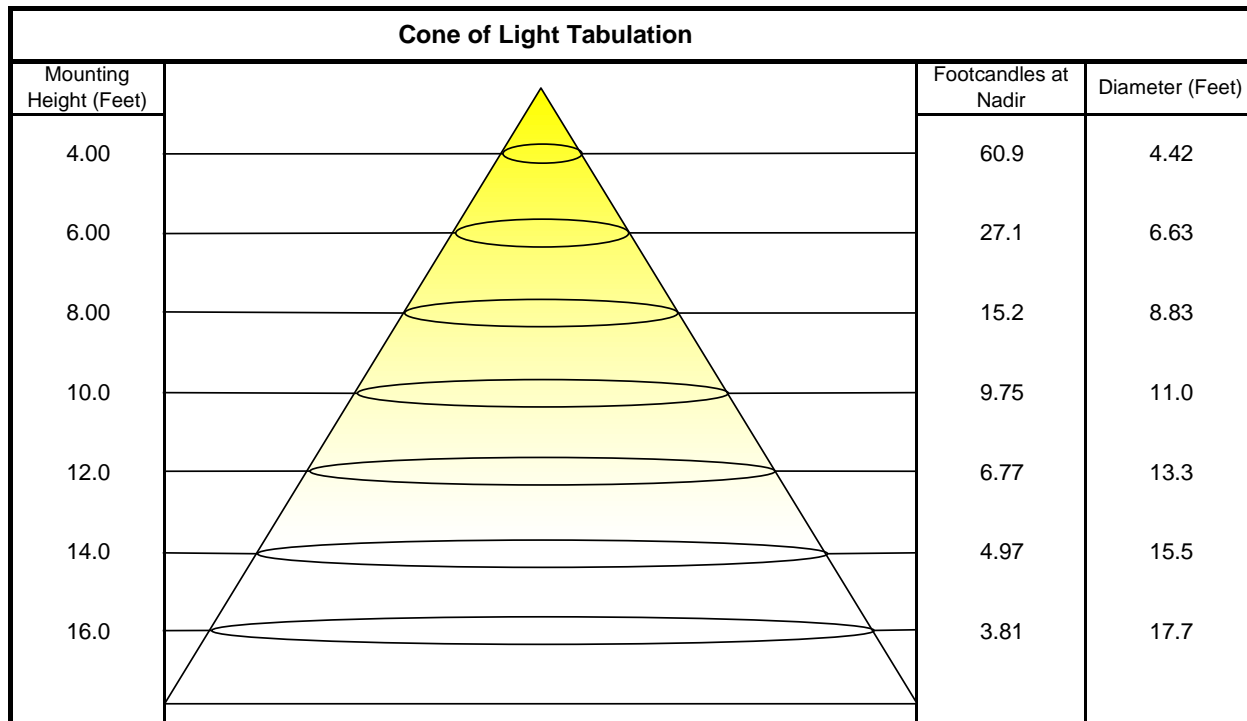
	0	45	90
0	15910	15910	15910
45	14090	10320	8231
55	13470	8068	5715
65	12570	5169	3779
75	11000	3615	3441
85	7880	2678	2578



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	2396	2396	2396	2396	2340	2340	2340	2340	2236	2236	2236	2141	2141	2141	2053	2053	2053	2012
1	2217	2133	2057	1989	2163	2087	2019	1957	2003	1947	1895	1925	1880	1838	1854	1818	1784	1743
2	2039	1891	1769	1666	1988	1854	1741	1646	1784	1690	1608	1720	1641	1572	1660	1596	1538	1497
3	1877	1685	1537	1418	1829	1654	1517	1406	1596	1478	1382	1542	1442	1358	1492	1408	1336	1295
4	1732	1511	1350	1226	1688	1485	1335	1218	1436	1305	1202	1391	1278	1186	1349	1251	1171	1130
5	1603	1364	1197	1074	1562	1342	1186	1069	1301	1163	1057	1262	1141	1046	1227	1121	1036	996
6	1488	1239	1072	952	1451	1220	1062	948	1185	1045	940	1152	1027	932	1122	1011	924	885
7	1386	1132	967	851	1353	1116	959	848	1086	945	842	1058	931	836	1031	918	831	793
8	1295	1039	878	767	1265	1026	872	765	1000	860	761	976	849	757	953	838	752	716
9	1214	959	803	697	1187	947	798	695	925	788	692	904	779	689	884	770	686	651
10	1142	889	738	637	1117	879	734	636	860	726	634	841	718	631	824	710	628	595

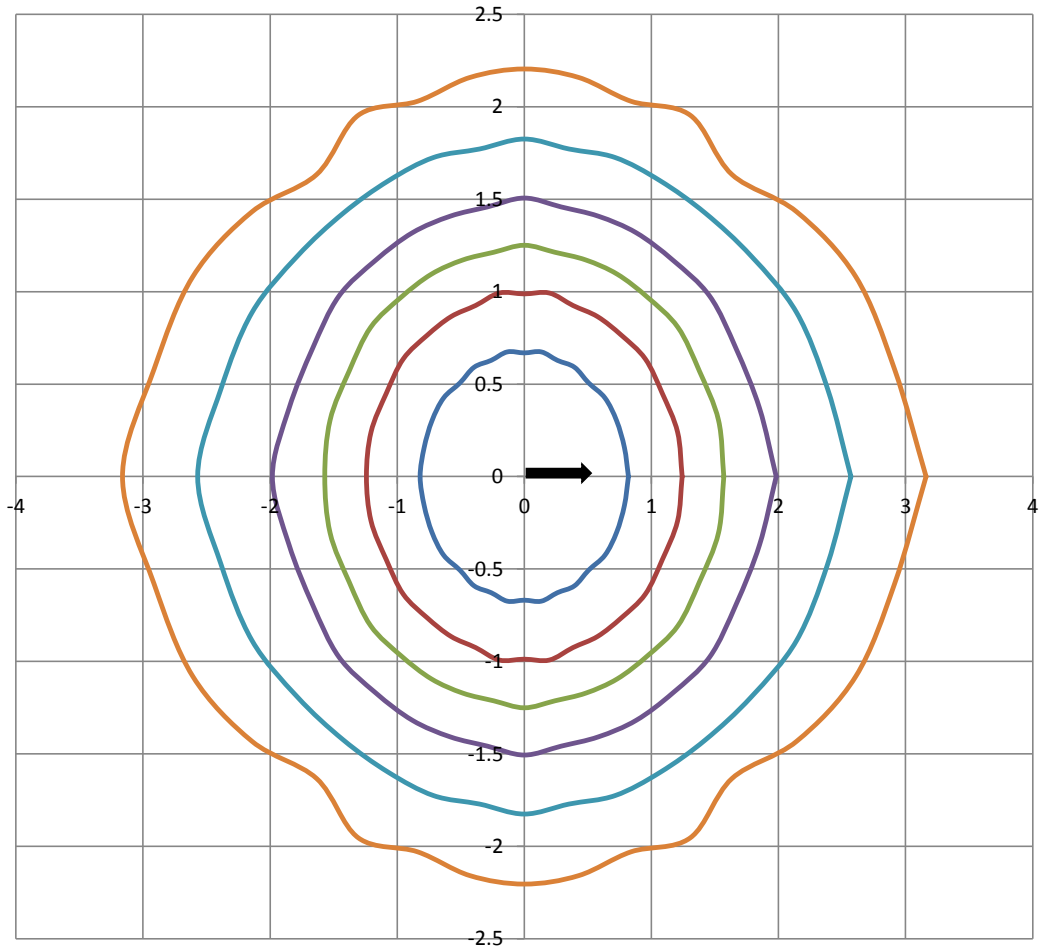
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	975.1 Candela
Central Cone Intensity:	973 Candela
Beam Flux:	1286.8 Lumens
Beam Angle (0-180):	108.0 Degrees
Beam Angle (90-270):	74.9 Degrees
Field Angle (0-180):	161.0 Degrees
Field Angle (90-270):	130.2 Degrees





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
24.3 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

LED Temperature: 60.6 °C
Driver Temperature: 55.9 °C
Measured LED Current: 0.09990 A

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

LED Temperature Location



Driver Temperature Location

