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

Integrating Sphere Test Report

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

Prepared For

Elemental LED Inc, DBA Diode LED
Wes Buck
Suite 211,1195 Park Ave.
Emeryville, CA 94608
United States

Catalog Number

FLUID VIEW™ 12v LED Tape Light DI-12V-FV38-80XX

Order Number

10460077

Test Number

758907

Test Date

2014-09-23

Prepared By	Approved By
Javier Caban	Eric M. Gaudreau
Javier Caban, Technician	Eric Gaudreau, Engineering Project Handler

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Luminaire Description:	LED strip
Catalog Number:	FLUID VIEW™ 12v LED Tape Light DI-12V-FV38-80XX
Lamp:	18 white LEDs
Mounting:	Surface
Ballast/Driver:	One Meanwell LPV-60-12

Luminaire

Summary of Results

Radiant Flux:	455.7	mW
Luminous Flux:	144.6	Lumens
Luminaire Efficacy:	63.4	Lumens/Watt
CCT:	3802	K
CRI (Ra):	82.3	
Chromaticity (x):	0.3905	
Chromaticity (y):	0.3857	
Chromaticity (u):	0.2281	
Chromaticity (v):	0.3380	
Duv:	0.0010	

Test Conditions

Test Temperature:	25.5	°C
Voltage:	120.0	VAC
Current:	0.05284	A
Power:	2.280	W
Power Factor:	0.359	
Frequency:	60	Hz
Current THD:	168	%

Testing was performed in a 1-meter integrating sphere using the 4π geometry method.

Absorption correction was employed for this measurement.

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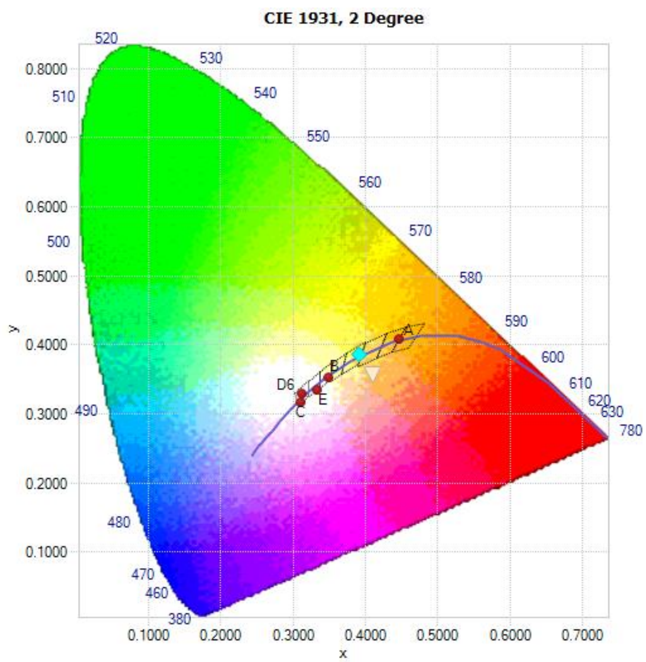
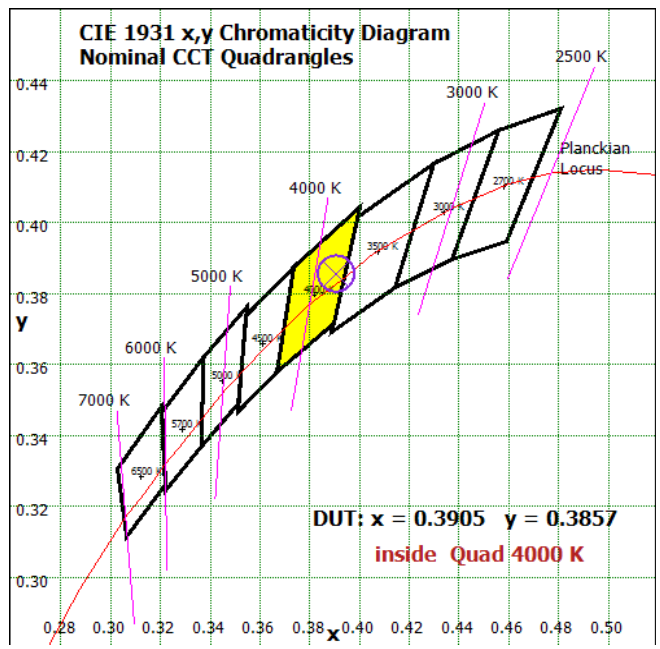
Chromaticity Coordinates

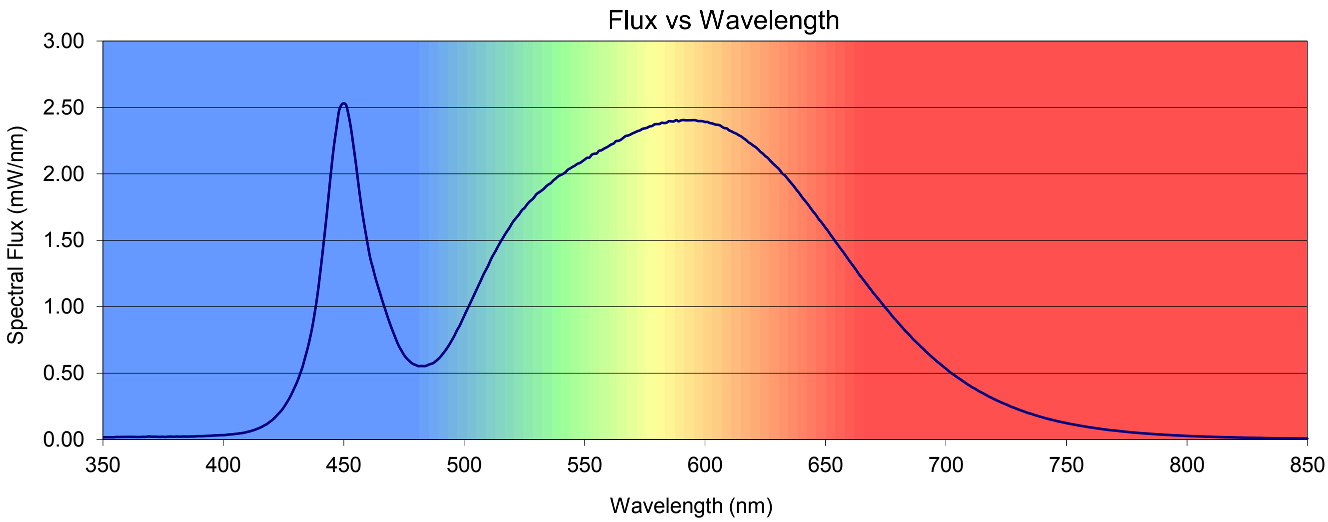
x	y	u	v	u'	v'	Duv
0.3905	0.3857	0.2281	0.3380	0.2281	0.5069	0.0010

Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
82.3	81.0	86.4	89.7	82.0	79.9	80.2	88.5	70.5	22.3	66.8	79.3	55.8	81.9	93.9







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Spectral Power Distribution

λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm
350	0.0157	422	0.177	494	0.720	566	2.27	638	1.88	710	0.404	782	0.0467
351	0.0174	423	0.196	495	0.752	567	2.28	639	1.86	711	0.392	783	0.0451
352	0.0171	424	0.215	496	0.784	568	2.29	640	1.83	712	0.383	784	0.0440
353	0.0176	425	0.240	497	0.822	569	2.30	641	1.81	713	0.371	785	0.0426
354	0.0166	426	0.268	498	0.853	570	2.31	642	1.79	714	0.361	786	0.0414
355	0.0178	427	0.297	499	0.892	571	2.31	643	1.76	715	0.352	787	0.0402
356	0.0194	428	0.330	500	0.931	572	2.32	644	1.74	716	0.342	788	0.0388
357	0.0185	429	0.368	501	0.970	573	2.33	645	1.71	717	0.332	789	0.0379
358	0.0198	430	0.408	502	1.01	574	2.34	646	1.69	718	0.322	790	0.0368
359	0.0192	431	0.450	503	1.05	575	2.34	647	1.66	719	0.313	791	0.0353
360	0.0197	432	0.500	504	1.08	576	2.35	648	1.64	720	0.304	792	0.0347
361	0.0197	433	0.553	505	1.12	577	2.36	649	1.62	721	0.295	793	0.0337
362	0.0197	434	0.620	506	1.16	578	2.36	650	1.59	722	0.287	794	0.0324
363	0.0195	435	0.686	507	1.20	579	2.37	651	1.57	723	0.279	795	0.0314
364	0.0191	436	0.764	508	1.24	580	2.37	652	1.54	724	0.271	796	0.0308
365	0.0187	437	0.852	509	1.28	581	2.38	653	1.52	725	0.264	797	0.0300
366	0.0197	438	0.959	510	1.31	582	2.38	654	1.49	726	0.256	798	0.0290
367	0.0200	439	1.08	511	1.35	583	2.38	655	1.47	727	0.247	799	0.0281
368	0.0200	440	1.22	512	1.39	584	2.39	656	1.44	728	0.241	800	0.0270
369	0.0233	441	1.37	513	1.42	585	2.40	657	1.42	729	0.234	801	0.0263
370	0.0208	442	1.54	514	1.45	586	2.40	658	1.39	730	0.226	802	0.0253
371	0.0211	443	1.70	515	1.49	587	2.39	659	1.37	731	0.220	803	0.0250
372	0.0210	444	1.89	516	1.52	588	2.40	660	1.34	732	0.213	804	0.0244
373	0.0200	445	2.06	517	1.55	589	2.40	661	1.32	733	0.207	805	0.0236
374	0.0201	446	2.22	518	1.57	590	2.40	662	1.29	734	0.200	806	0.0233
375	0.0205	447	2.35	519	1.60	591	2.41	663	1.27	735	0.195	807	0.0224
376	0.0195	448	2.47	520	1.63	592	2.40	664	1.24	736	0.190	808	0.0213
377	0.0213	449	2.52	521	1.66	593	2.40	665	1.22	737	0.183	809	0.0210
378	0.0223	450	2.53	522	1.68	594	2.40	666	1.19	738	0.178	810	0.0205
379	0.0212	451	2.52	523	1.70	595	2.40	667	1.17	739	0.172	811	0.0197
380	0.0213	452	2.44	524	1.73	596	2.40	668	1.15	740	0.168	812	0.0191
381	0.0226	453	2.34	525	1.74	597	2.40	669	1.12	741	0.162	813	0.0189
382	0.0211	454	2.21	526	1.77	598	2.40	670	1.10	742	0.157	814	0.0181
383	0.0224	455	2.08	527	1.79	599	2.40	671	1.08	743	0.153	815	0.0177
384	0.0223	456	1.94	528	1.80	600	2.39	672	1.06	744	0.148	816	0.0173
385	0.0223	457	1.80	529	1.82	601	2.39	673	1.03	745	0.144	817	0.0170
386	0.0222	458	1.67	530	1.85	602	2.38	674	1.01	746	0.139	818	0.0164
387	0.0230	459	1.57	531	1.86	603	2.38	675	0.989	747	0.135	819	0.0164
388	0.0227	460	1.46	532	1.87	604	2.37	676	0.968	748	0.131	820	0.0157
389	0.0251	461	1.37	533	1.89	605	2.37	677	0.945	749	0.128	821	0.0151
390	0.0254	462	1.30	534	1.91	606	2.37	678	0.922	750	0.123	822	0.0146
391	0.0253	463	1.23	535	1.92	607	2.35	679	0.903	751	0.120	823	0.0142
392	0.0259	464	1.16	536	1.93	608	2.34	680	0.882	752	0.116	824	0.0135
393	0.0272	465	1.11	537	1.95	609	2.34	681	0.861	753	0.113	825	0.0134
394	0.0277	466	1.05	538	1.96	610	2.33	682	0.841	754	0.110	826	0.0131
395	0.0287	467	0.991	539	1.98	611	2.32	683	0.820	755	0.106	827	0.0128
396	0.0303	468	0.935	540	1.99	612	2.31	684	0.802	756	0.103	828	0.0125
397	0.0309	469	0.881	541	2.00	613	2.30	685	0.783	757	0.100	829	0.0120
398	0.0318	470	0.832	542	2.01	614	2.29	686	0.762	758	0.0969	830	0.0121
399	0.0331	471	0.786	543	2.03	615	2.28	687	0.744	759	0.0936	831	0.0118
400	0.0329	472	0.740	544	2.04	616	2.27	688	0.727	760	0.0911	832	0.0113
401	0.0342	473	0.700	545	2.05	617	2.25	689	0.709	761	0.0887	833	0.0106
402	0.0369	474	0.669	546	2.06	618	2.24	690	0.692	762	0.0857	834	0.0104
403	0.0384	475	0.637	547	2.08	619	2.23	691	0.675	763	0.0831	835	0.0101
404	0.0400	476	0.614	548	2.08	620	2.21	692	0.656	764	0.0808	836	0.0100
405	0.0422	477	0.596	549	2.09	621	2.20	693	0.641	765	0.0779	837	0.00941
406	0.0441	478	0.578	550	2.11	622	2.18	694	0.624	766	0.0758	838	0.00935
407	0.0467	479	0.567	551	2.12	623	2.17	695	0.608	767	0.0732	839	0.00945
408	0.0492	480	0.560	552	2.12	624	2.15	696	0.592	768	0.0709	840	0.00900
409	0.0526	481	0.552	553	2.14	625	2.13	697	0.577	769	0.0693	841	0.00911
410	0.0576	482	0.554	554	2.15	626	2.12	698	0.563	770	0.0677	842	0.00847
411	0.0614	483	0.553	555	2.15	627	2.10	699	0.547	771	0.0657	843	0.00835
412	0.0670	484	0.554	556	2.17	628	2.08	700	0.533	772	0.0632	844	0.00835
413	0.0730	485	0.561	557	2.18	629	2.06	701	0.517	773	0.0615	845	0.00794
414	0.0798	486	0.568	558	2.19	630	2.05	702	0.503	774	0.0599	846	0.00779
415	0.0871	487	0.574	559	2.20	631	2.03	703	0.490	775	0.0577	847	0.00712
416	0.0957	488	0.587	560	2.21	632	2.00	704	0.477	776	0.0559	848	0.00722
417	0.106	489	0.602	561	2.22	633	1.99	705	0.464	777	0.0541	849	0.00732
418	0.116	490	0.620	562	2.23	634	1.97	706	0.453	778	0.0523	850	0.00703
419	0.129	491	0.643	563	2.25	635	1.95	707	0.439	779	0.0509		
420	0.142	492	0.665	564	2.25	636	1.92	708	0.428	780	0.0494		
421	0.158	493	0.691	565	2.26	637	1.90	709	0.414	781	0.0481		

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Photometric Indoor Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002

Prepared For
Elemental LED Inc, DBA Diode LED
Wes Buck
Suite 211,1195 Park Ave.
Emeryville, CA 94608
United States

Catalog Number
FLUID VIEW™ 12v LED Tape Light DI-12V-FV38-80XX
Project Number
10460077
Test Number
758906

Test Date

2014-09-22

Prepared By	Approved By
Javier Caban	Eric M. Gaudreau
Javier Caban, Technician	Eric Gaudreau, Engineering Project Handler

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Luminaire Description:	LED strip
Catalog Number:	FLUID VIEW™ 12v LED Tape Light DI-12V-FV38-80XX
Lamp:	18 white LEDs
Mounting:	Surface
Ballast/Driver:	One Meanwell LPV-60-12

Luminaire

Test Conditions

Test Temperature:	24.8	°C
Voltage:	120.0	VAC
Current:	0.05010	A
Power:	2.319	W
Power Factor:	0.386	
Frequency:	60	Hz
Current THD:	163	%

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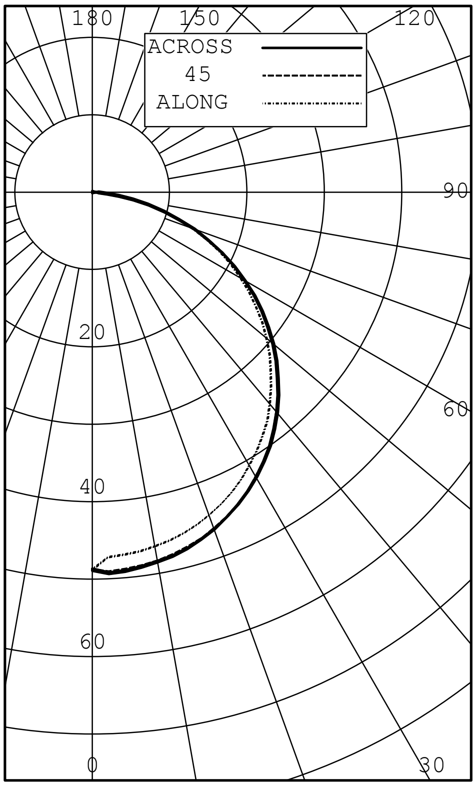

INTENSITY(CANDLEPOWER) SUMMARY

ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	49	49	49	49	49	
5	47	49	49	49	49	5
10	47	48	48	48	49	
15	46	47	47	48	48	13
20	44	46	46	46	46	
25	43	44	44	44	45	20
30	41	42	42	42	42	
35	38	40	40	40	40	25
40	36	37	37	37	37	
45	33	34	34	34	34	26
50	29	31	31	30	31	
55	26	27	27	27	27	24
60	22	23	23	23	23	
65	18	19	19	19	19	18
70	14	14	14	14	14	
75	9	10	10	10	10	10
80	5	6	6	6	5	
85	2	2	2	2	2	3
90	0	0	0	0	0	

ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	38	26.63
0-40	63	43.86
0-60	113	78.41
0-90	144	100.00
40-90	81	56.14
60-90	31	21.59
90-180	0	0.00
0-180	144	100.00

EFFICACY (LUMENS PER WATT): 62.6

*** THIS IS AN ABSOLUTE TEST ***

LUMINOUS LENGTH: 12.000 INS
WIDTH: 0.375 INS

LUMINANCE SUMMARY CD./SQ.M.

S/MH: 1.3
SC(ALONG): 1.2, SC(ACROSS): 1.3

ANGLE	ALONG	45	ACROSS
45	15880	16551	16576
55	15523	16125	16155
65	14711	15212	15176
75	12576	12924	12891
85	8497	8717	7934

TESTED IN ACCORDANCE WITH IES PROCEDURES.

UL Verification Services Inc.
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INTENSITY(CANDLEPOWER) DATA
IN 2.5 DEGREE STEPS

ANGLE	PLANE ALONG	22.5	45	67.5	ACROSS	AVERAGE	OUTPUT LUMENS
0.0	49	49	49	49	49	49	
2.5	47	49	49	49	49	49	
5.0	47	49	49	49	49	49	5
7.5	47	48	49	49	49	48	
10.0	47	48	48	48	49	48	
12.5	46	48	48	48	48	48	
15.0	46	47	47	48	48	47	13
17.5	45	47	47	47	47	47	
20.0	44	46	46	46	46	46	
22.5	44	45	45	45	45	45	
25.0	43	44	44	44	45	44	20
27.5	42	43	44	43	44	43	
30.0	41	42	42	42	42	42	
32.5	40	41	41	41	41	41	
35.0	38	40	40	40	40	40	25
37.5	37	39	39	39	39	38	
40.0	36	37	37	37	37	37	
42.5	34	35	36	35	36	35	
45.0	33	34	34	34	34	34	26
47.5	31	32	32	32	32	32	
50.0	29	31	31	30	31	30	
52.5	28	29	29	29	29	29	
55.0	26	27	27	27	27	27	24
57.5	24	25	25	25	25	25	
60.0	22	23	23	23	23	23	
62.5	20	21	21	21	21	21	
65.0	18	19	19	19	19	19	18
67.5	16	16	16	16	16	16	
70.0	14	14	14	14	14	14	
72.5	12	12	12	12	12	12	
75.0	9	10	10	10	10	10	10
77.5	7	8	8	8	7	8	
80.0	5	6	6	6	5	6	
82.5	4	4	4	4	4	4	
85.0	2	2	2	2	2	2	3
87.5	1	1	1	1	1	1	
90.0	0	0	0	0	0	0	

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COEFFICIENTS OF UTILIZATION

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = .20

CC	90				80				70				50			30			10			0
WALL	70	50	30	10	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																						
0	1.22	1.22	1.22	1.22	1.19	1.19	1.19	1.19	1.16	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1	1.12	1.07	1.03	0.99	1.09	1.05	1.01	0.97	1.07	1.03	0.99	0.95	0.98	0.95	0.93	0.94	0.92	0.90	0.91	0.89	0.87	0.85
2	1.02	0.95	0.88	0.82	1.00	0.93	0.86	0.81	0.98	0.91	0.85	0.80	0.87	0.82	0.78	0.84	0.80	0.76	0.81	0.77	0.74	0.72
3	0.94	0.83	0.75	0.68	0.92	0.82	0.74	0.68	0.89	0.80	0.73	0.67	0.77	0.71	0.66	0.74	0.69	0.65	0.72	0.68	0.64	0.62
4	0.87	0.74	0.65	0.59	0.84	0.73	0.65	0.58	0.82	0.72	0.64	0.58	0.69	0.62	0.57	0.67	0.61	0.56	0.65	0.60	0.56	0.53
5	0.80	0.66	0.57	0.50	0.78	0.65	0.56	0.50	0.75	0.64	0.56	0.50	0.62	0.55	0.49	0.60	0.54	0.49	0.58	0.53	0.48	0.46
6	0.73	0.59	0.50	0.44	0.71	0.58	0.50	0.43	0.69	0.57	0.49	0.43	0.55	0.48	0.43	0.54	0.47	0.42	0.52	0.46	0.42	0.40
7	0.67	0.53	0.44	0.38	0.65	0.52	0.43	0.38	0.64	0.51	0.43	0.37	0.50	0.42	0.37	0.48	0.41	0.36	0.47	0.41	0.36	0.34
8	0.62	0.48	0.39	0.33	0.61	0.47	0.39	0.33	0.59	0.46	0.38	0.33	0.45	0.38	0.33	0.44	0.37	0.32	0.43	0.37	0.32	0.30
9	0.58	0.44	0.35	0.29	0.56	0.43	0.35	0.29	0.55	0.42	0.34	0.29	0.41	0.34	0.29	0.40	0.33	0.28	0.39	0.33	0.28	0.26
10	0.53	0.40	0.31	0.26	0.52	0.39	0.31	0.26	0.51	0.38	0.31	0.26	0.37	0.30	0.25	0.36	0.30	0.25	0.36	0.29	0.25	0.23

THE ABOVE COEFFICIENTS HAVE BEEN CALCULATED BASED ON LUMINAIRE LUMENS BECAUSE IN AN ABSOLUTE TEST THE BARE LAMP LUMENS ARE UNKNOWN. LIGHTING DESIGN CALCULATIONS MADE USING THESE COEFFICIENTS SHOULD THEREFORE USE THE LUMINAIRE LUMENS IN THE CALCULATION FORMULA

LABORATORY RESULTS MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE. BALLAST AND FIELD FACTORS HAVE NOT BEEN APPLIED.

TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST LUMINOUS OPENING OF LUMINAIRE.

UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
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Cone of Light

Cone Of Light Tabulation

Mounting Height (Feet)	Footcandles at Nadir	Diameter (Feet)
4.00	3.06	5.12
6.00	1.36	7.68
8.00	0.765	10.2
10.0	0.489	12.8
12.0	0.340	15.4
14.0	0.250	17.9
16.0	0.191	20.5

Cone of Light Plot