



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-FV24-80XX

Order Number
10460077
Test Number
758899

Test Date
2014-09-23

Prepared By

Javier Caban

Javier Caban, Technician

Approved By

Eric M. Gaudreau

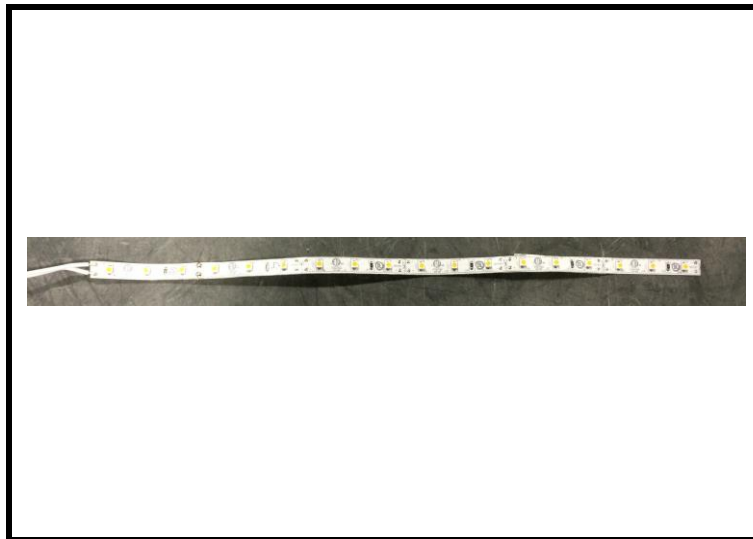
Eric Gaudreau, Engineering Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: LED strip
Catalog Number: FLUID VIEW™ 12v LED Tape Light DI-12V-FV24-80XX
Lamp: 18 white LEDs
Mounting: Surface
Ballast/Driver: One Meanwell LPV-60-12

Luminaire



Summary of Results

Radiant Flux:	351.9 mW
Luminous Flux:	105.9 Lumens
Luminaire Efficacy:	54.9 Lumens/Watt
CCT:	2350 K
CRI (Ra):	81.1
Chromaticity (x):	0.4899
Chromaticity (y):	0.4138
Chromaticity (u):	0.2805
Chromaticity (v):	0.3554
Duv:	0.0004

Test Conditions

Test Temperature:	24.8 °C
Voltage:	120.0 VAC
Current:	0.04623 A
Power:	1.930 W
Power Factor:	0.345
Frequency:	60 Hz
Current THD:	157 %

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

Absorption correction was employed for this measurement.

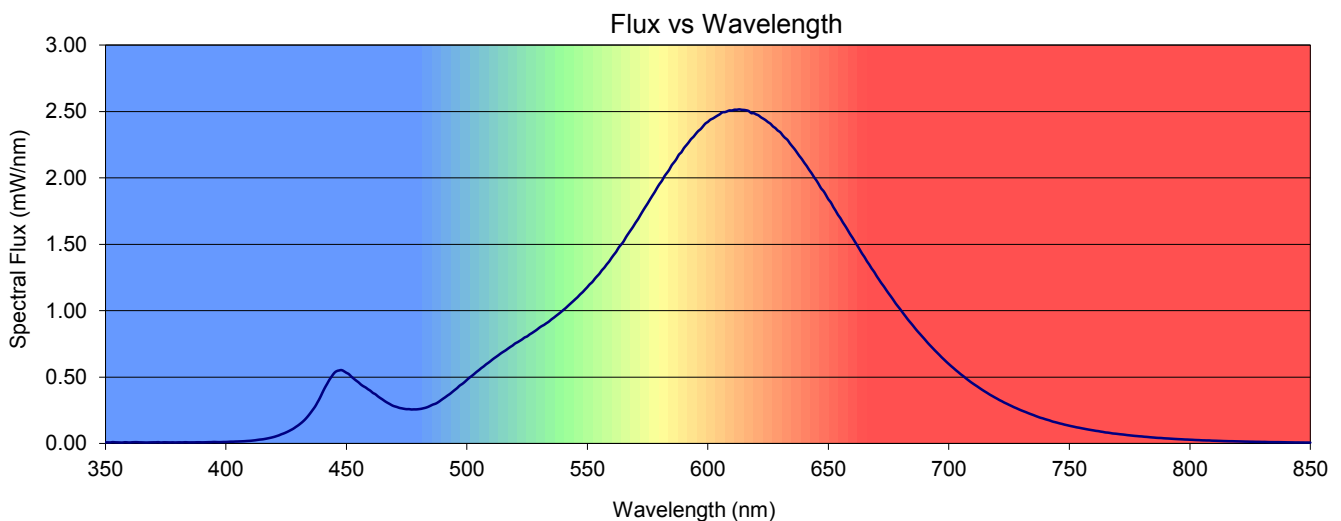
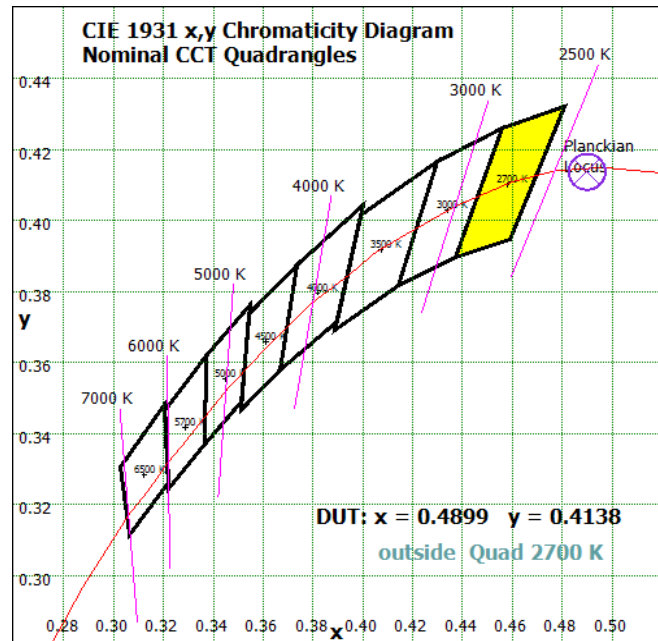
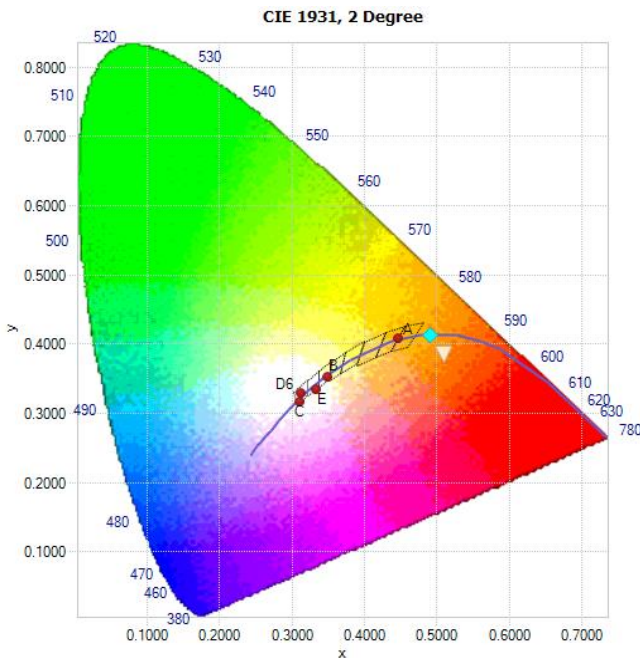


Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.4899	0.4138	0.2805	0.3554	0.2805	0.5331	0.0004

Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
81.1	79.2	90.7	95.8	77.5	78.9	89.5	80.8	56.5	10.7	79.6	76.0	76.6	81.5	98.5





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	0.00820	422	0.0615	494	0.389	566	1.55	638	2.16	710	0.451	782	0.0499
351	0.00858	423	0.0695	495	0.404	567	1.58	639	2.14	711	0.439	783	0.0482
352	0.00784	424	0.0759	496	0.418	568	1.61	640	2.11	712	0.427	784	0.0463
353	0.0104	425	0.0836	497	0.436	569	1.63	641	2.09	713	0.414	785	0.0449
354	0.00903	426	0.0924	498	0.447	570	1.66	642	2.06	714	0.402	786	0.0432
355	0.00858	427	0.102	499	0.462	571	1.69	643	2.04	715	0.391	787	0.0421
356	0.00788	428	0.112	500	0.479	572	1.72	644	2.01	716	0.380	788	0.0416
357	0.00715	429	0.125	501	0.495	573	1.75	645	1.98	717	0.368	789	0.0398
358	0.00952	430	0.137	502	0.508	574	1.78	646	1.95	718	0.358	790	0.0386
359	0.00880	431	0.151	503	0.523	575	1.81	647	1.92	719	0.347	791	0.0377
360	0.00760	432	0.166	504	0.539	576	1.84	648	1.90	720	0.338	792	0.0366
361	0.00910	433	0.184	505	0.553	577	1.87	649	1.87	721	0.327	793	0.0352
362	0.00985	434	0.205	506	0.568	578	1.89	650	1.84	722	0.318	794	0.0342
363	0.0101	435	0.228	507	0.581	579	1.93	651	1.82	723	0.308	795	0.0332
364	0.00893	436	0.252	508	0.597	580	1.96	652	1.78	724	0.300	796	0.0323
365	0.00861	437	0.278	509	0.609	581	1.98	653	1.75	725	0.291	797	0.0314
366	0.00795	438	0.309	510	0.623	582	2.01	654	1.72	726	0.283	798	0.0300
367	0.00748	439	0.342	511	0.638	583	2.04	655	1.70	727	0.273	799	0.0298
368	0.00809	440	0.381	512	0.651	584	2.06	656	1.67	728	0.266	800	0.0287
369	0.00860	441	0.417	513	0.664	585	2.10	657	1.64	729	0.258	801	0.0279
370	0.00895	442	0.449	514	0.677	586	2.12	658	1.61	730	0.250	802	0.0267
371	0.00904	443	0.481	515	0.689	587	2.14	659	1.58	731	0.243	803	0.0259
372	0.0100	444	0.507	516	0.700	588	2.18	660	1.55	732	0.236	804	0.0253
373	0.00763	445	0.532	517	0.714	589	2.19	661	1.52	733	0.228	805	0.0240
374	0.00899	446	0.545	518	0.727	590	2.22	662	1.49	734	0.221	806	0.0236
375	0.00898	447	0.550	519	0.738	591	2.24	663	1.46	735	0.215	807	0.0230
376	0.00862	448	0.553	520	0.753	592	2.27	664	1.43	736	0.207	808	0.0230
377	0.00822	449	0.544	521	0.762	593	2.29	665	1.40	737	0.200	809	0.0218
378	0.00875	450	0.532	522	0.773	594	2.31	666	1.37	738	0.194	810	0.0211
379	0.00776	451	0.523	523	0.785	595	2.33	667	1.35	739	0.189	811	0.0206
380	0.00873	452	0.505	524	0.799	596	2.35	668	1.32	740	0.183	812	0.0199
381	0.00876	453	0.489	525	0.806	597	2.37	669	1.29	741	0.178	813	0.0194
382	0.00834	454	0.475	526	0.821	598	2.39	670	1.26	742	0.173	814	0.0185
383	0.00964	455	0.461	527	0.832	599	2.41	671	1.23	743	0.166	815	0.0180
384	0.00898	456	0.445	528	0.844	600	2.42	672	1.21	744	0.161	816	0.0175
385	0.00844	457	0.432	529	0.856	601	2.44	673	1.18	745	0.157	817	0.0173
386	0.00862	458	0.422	530	0.871	602	2.45	674	1.16	746	0.151	818	0.0171
387	0.00865	459	0.408	531	0.883	603	2.46	675	1.13	747	0.147	819	0.0164
388	0.00934	460	0.397	532	0.893	604	2.47	676	1.11	748	0.142	820	0.0160
389	0.00935	461	0.381	533	0.906	605	2.48	677	1.08	749	0.138	821	0.0156
390	0.00889	462	0.372	534	0.918	606	2.49	678	1.05	750	0.134	822	0.0151
391	0.00894	463	0.356	535	0.933	607	2.49	679	1.03	751	0.130	823	0.0145
392	0.00971	464	0.343	536	0.946	608	2.50	680	1.01	752	0.126	824	0.0142
393	0.0102	465	0.331	537	0.961	609	2.51	681	0.982	753	0.122	825	0.0137
394	0.0104	466	0.318	538	0.975	610	2.51	682	0.958	754	0.119	826	0.0134
395	0.0116	467	0.307	539	0.989	611	2.51	683	0.934	755	0.115	827	0.0128
396	0.0110	468	0.298	540	1.01	612	2.51	684	0.912	756	0.112	828	0.0126
397	0.0104	469	0.287	541	1.02	613	2.52	685	0.890	757	0.108	829	0.0124
398	0.0107	470	0.280	542	1.04	614	2.51	686	0.867	758	0.105	830	0.0117
399	0.0116	471	0.275	543	1.05	615	2.51	687	0.845	759	0.102	831	0.0119
400	0.0116	472	0.268	544	1.07	616	2.51	688	0.825	760	0.0987	832	0.0113
401	0.0126	473	0.265	545	1.09	617	2.50	689	0.805	761	0.0954	833	0.0107
402	0.0139	474	0.261	546	1.10	618	2.49	690	0.784	762	0.0933	834	0.0105
403	0.0139	475	0.259	547	1.12	619	2.49	691	0.763	763	0.0898	835	0.0103
404	0.0149	476	0.259	548	1.14	620	2.48	692	0.743	764	0.0870	836	0.0102
405	0.0153	477	0.256	549	1.16	621	2.47	693	0.724	765	0.0833	837	0.0103
406	0.0160	478	0.257	550	1.18	622	2.46	694	0.705	766	0.0819	838	0.00979
407	0.0168	479	0.257	551	1.20	623	2.45	695	0.686	767	0.0791	839	0.00952
408	0.0178	480	0.259	552	1.21	624	2.43	696	0.668	768	0.0757	840	0.00898
409	0.0193	481	0.261	553	1.24	625	2.42	697	0.649	769	0.0743	841	0.00874
410	0.0202	482	0.265	554	1.26	626	2.41	698	0.632	770	0.0724	842	0.00849
411	0.0222	483	0.270	555	1.28	627	2.39	699	0.615	771	0.0698	843	0.00823
412	0.0241	484	0.277	556	1.30	628	2.37	700	0.598	772	0.0683	844	0.00785
413	0.0268	485	0.286	557	1.32	629	2.36	701	0.582	773	0.0660	845	0.00800
414	0.0294	486	0.294	558	1.35	630	2.34	702	0.567	774	0.0635	846	0.00749
415	0.0311	487	0.300	559	1.37	631	2.32	703	0.551	775	0.0615	847	0.00757
416	0.0340	488	0.310	560	1.40	632	2.30	704	0.536	776	0.0596	848	0.00709
417	0.0373	489	0.323	561	1.42	633	2.29	705	0.521	777	0.0577	849	0.00730
418	0.0411	490	0.336	562	1.44	634	2.26	706	0.507	778	0.0562	850	0.00681
419	0.0452	491	0.348	563	1.48	635	2.24	707	0.492	779	0.0545		
420	0.0498	492	0.362	564	1.50	636	2.22	708	0.478	780	0.0533		
421	0.0556	493	0.374	565	1.52	637	2.19	709	0.464	781	0.0512		



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Photometric Indoor Test Report

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

Prepared For
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Wes Buck
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Project Number
10460077
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Test Date

2014-09-22

Prepared By

Handwritten signature of Javier Caban in black ink.

Javier Caban, Technician

Approved By

Handwritten signature of Eric M. Gaudreau in black ink.

Eric Gaudreau, Engineering Project Handler

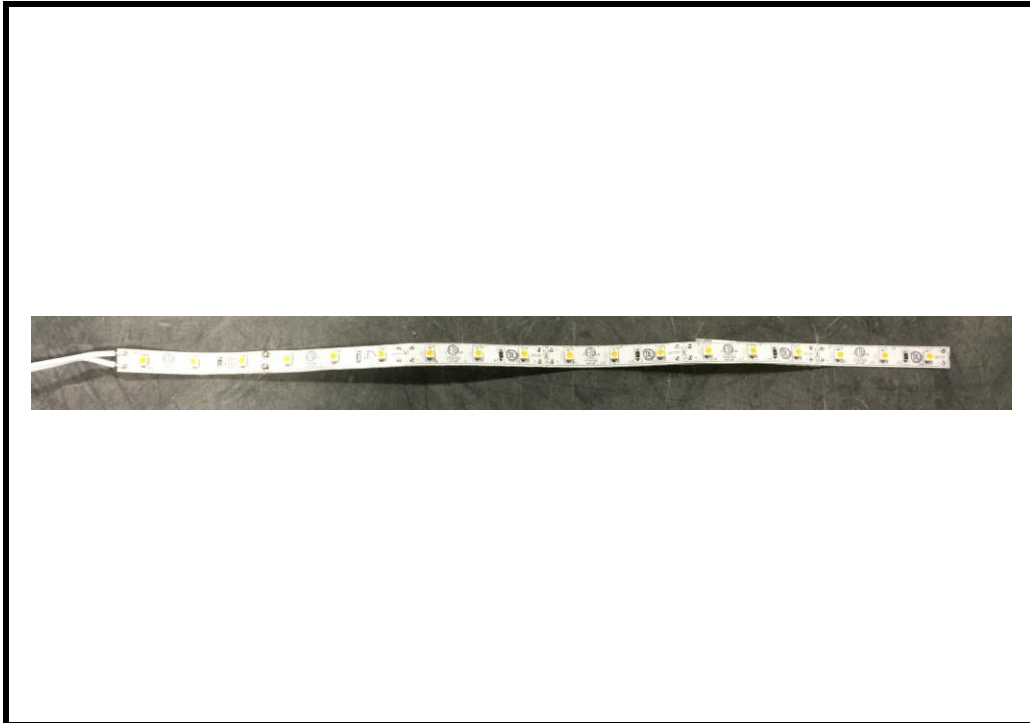
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Luminaire Description: LED strip
Catalog Number: FLUID VIEW™ 12v LED Tape Light DI-12V-FV24-80XX
Lamp: 18 white LEDs
Mounting: Surface
Ballast/Driver: One Meanwell LPV-60-12

Luminaire

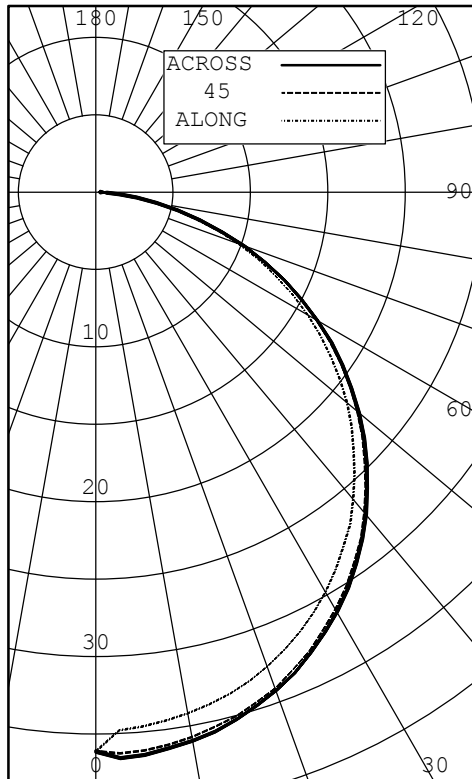


Test Conditions

Test Temperature:	24.7 °C
Voltage:	120.0 VAC
Current:	0.04394 A
Power:	1.951 W
Power Factor:	0.369
Frequency:	60 Hz
Current THD:	153 %



INTENSITY (CANDLEPOWER) SUMMARY OUTPUT LUMENS



ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	36	36	36	36	36	
5	35	36	36	36	37	3
10	34	36	36	36	36	
15	34	35	35	35	35	10
20	33	34	34	34	34	
25	31	32	33	33	33	15
30	30	31	31	31	31	
35	28	29	29	29	29	18
40	26	27	27	27	27	
45	24	25	25	25	25	19
50	21	22	22	22	22	
55	19	19	19	19	19	17
60	16	16	16	16	17	
65	13	13	13	13	13	13
70	10	10	10	10	10	
75	7	7	7	7	7	7
80	4	4	4	4	4	
85	1	2	2	2	2	2
90	0	0	0	0	0	

ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	28	26.93
0-40	46	44.22
0-60	82	78.59
0-90	105	100.00
40-90	59	55.78
60-90	22	21.41
90-180	0	0.00
0-180	105	100.00

EFFICACY (LUMENS PER WATT): 52.4

*** 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	11471	12004	12102
55	11139	11664	11724
65	10473	10959	11003
75	8983	9393	9351
85	5533	6141	6149

TESTED IN ACCORDANCE WITH IES PROCEDURES.



INTENSITY (CANDLEPOWER) DATA
 IN 2.5 DEGREE STEPS

ANGLE	PLANE						OUTPUT LUMENS
	ALONG	22.5	45	67.5	ACROSS	AVERAGE	
0.0	36	36	36	36	36	36	
2.5	35	36	36	37	37	36	
5.0	35	36	36	36	37	36	3
7.5	34	36	36	36	36	36	
10.0	34	36	36	36	36	36	
12.5	34	35	35	36	36	35	
15.0	34	35	35	35	35	35	10
17.5	33	34	35	35	35	34	
20.0	33	34	34	34	34	34	
22.5	32	33	33	33	34	33	
25.0	31	32	33	33	33	32	15
27.5	31	32	32	32	32	32	
30.0	30	31	31	31	31	31	
32.5	29	30	30	30	30	30	
35.0	28	29	29	29	29	29	18
37.5	27	28	28	28	28	28	
40.0	26	27	27	27	27	27	
42.5	25	26	26	26	26	26	
45.0	24	25	25	25	25	24	19
47.5	22	23	23	23	24	23	
50.0	21	22	22	22	22	22	
52.5	20	21	21	21	21	21	
55.0	19	19	19	19	19	19	17
57.5	17	18	18	18	18	18	
60.0	16	16	16	16	17	16	
62.5	14	15	15	15	15	15	
65.0	13	13	13	13	13	13	13
67.5	11	12	12	12	12	12	
70.0	10	10	10	10	10	10	
72.5	8	9	9	9	9	9	
75.0	7	7	7	7	7	7	7
77.5	5	6	5	5	5	5	
80.0	4	4	4	4	4	4	
82.5	3	3	3	3	3	3	
85.0	1	2	2	2	2	2	2
87.5	1	1	1	1	1	1	
90.0	0	0	0	0	0	0	



COEFFICIENTS OF UTILIZATION

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = .20

CC WALL	90				80				70				50				30				10				0	
	70	50	30	10	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR	0	1.221	.221	.221	.22	1.191	.191	.191	.19	1.161	.161	.161	.16	1.111	.111	.111	.11	1.061	.061	.061	.06	1.021	.021	.021	.02	1.00
	1	1.121	.071	.071	.020	1.091	.041	.041	.000	1.061	.020	.980	.95	0.980	.950	.92	0.940	.920	.89	0.910	.880	.86	0.84			
	2	1.020	.940	.880	.81	1.000	.920	.860	.80	0.980	.900	.840	.79	0.870	.820	.78	0.840	.800	.76	0.810	.770	.74	0.72			
	3	0.940	.830	.750	.68	0.910	.810	.740	.68	0.890	.800	.730	.67	0.770	.710	.66	0.740	.690	.65	0.720	.670	.64	0.61			
	4	0.870	.740	.650	.59	0.840	.730	.650	.58	0.820	.720	.640	.58	0.690	.620	.57	0.670	.610	.56	0.650	.600	.55	0.53			
	5	0.800	.660	.570	.50	0.780	.650	.560	.50	0.750	.640	.560	.50	0.620	.550	.49	0.600	.540	.49	0.580	.530	.48	0.46			
	6	0.730	.590	.500	.44	0.710	.580	.500	.43	0.690	.570	.490	.43	0.550	.480	.43	0.540	.470	.42	0.520	.460	.42	0.40			
	7	0.670	.530	.440	.38	0.650	.520	.430	.38	0.640	.510	.430	.37	0.500	.420	.37	0.480	.420	.36	0.470	.410	.36	0.34			
	8	0.620	.480	.390	.33	0.610	.470	.390	.33	0.590	.460	.380	.33	0.450	.380	.33	0.440	.370	.32	0.430	.370	.32	0.30			
	9	0.580	.440	.350	.29	0.560	.430	.350	.29	0.550	.420	.340	.29	0.410	.340	.29	0.400	.330	.28	0.390	.330	.28	0.26			
	10	0.530	.400	.310	.26	0.520	.390	.310	.26	0.510	.380	.310	.26	0.370	.300	.25	0.360	.300	.25	0.360	.290	.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.



Cone of Light

Cone Of Light Tabulation

Mounting Height (Feet)	Footcandles at Nadir	Diameter (Feet)
4.00	2.26	5.07
6.00	1.00	7.61
8.00	0.565	10.1
10.0	0.362	12.7
12.0	0.251	15.2
14.0	0.185	17.7
16.0	0.141	20.3

Cone of Light Plot

