



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
K-RANGE 24™ 24V Tunable White LED Tape Light DI-24-KRNG-70XX (WW)

Order Number
10460077
Test Number
758947

Test Date

2014-09-25

Prepared By

Javier Caban

Javier Caban, Technician

Approved By

Eric M. Gaudreau

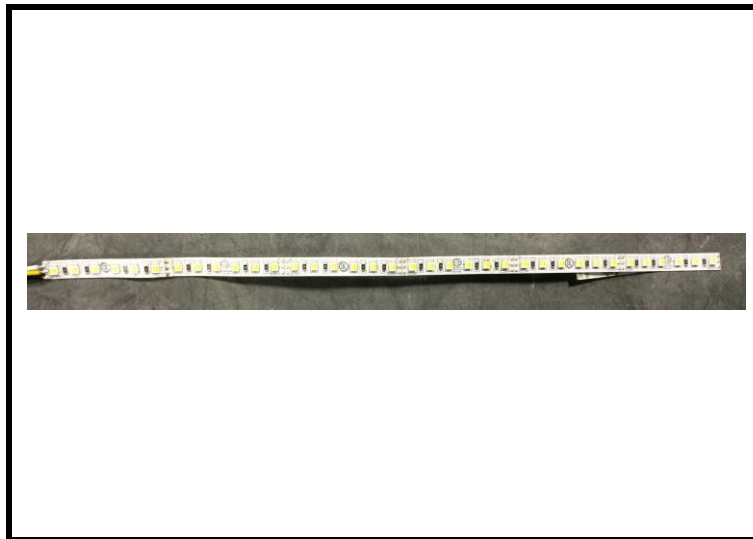
Eric Gaudreau, Engineering Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: LED strip
Catalog Number: K-RANGE 24™ 24V Tunable White LED Tape Light DI-24-KRNG-70XX (WW)
Lamp: 36 white LEDs
Mounting: Surface
Ballast/Driver: One Meanwell LPV-60-24

Luminaire



Summary of Results

Radiant Flux:	751.3 mW
Luminous Flux:	280.9 Lumens
Luminaire Efficacy:	69.5 Lumens/Watt
CCT:	3193 K
CRI (Ra):	62.8
Chromaticity (x):	0.4312
Chromaticity (y):	0.4162
Chromaticity (u):	0.2418
Chromaticity (v):	0.3501
Duv:	0.0054

Test Conditions

Test Temperature:	24.6 °C
Voltage:	120.0 VAC
Current:	0.08401 A
Power:	4.040 W
Power Factor:	0.400
Frequency:	60 Hz
Current THD:	191 %

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

Absorption correction was employed for this measurement.

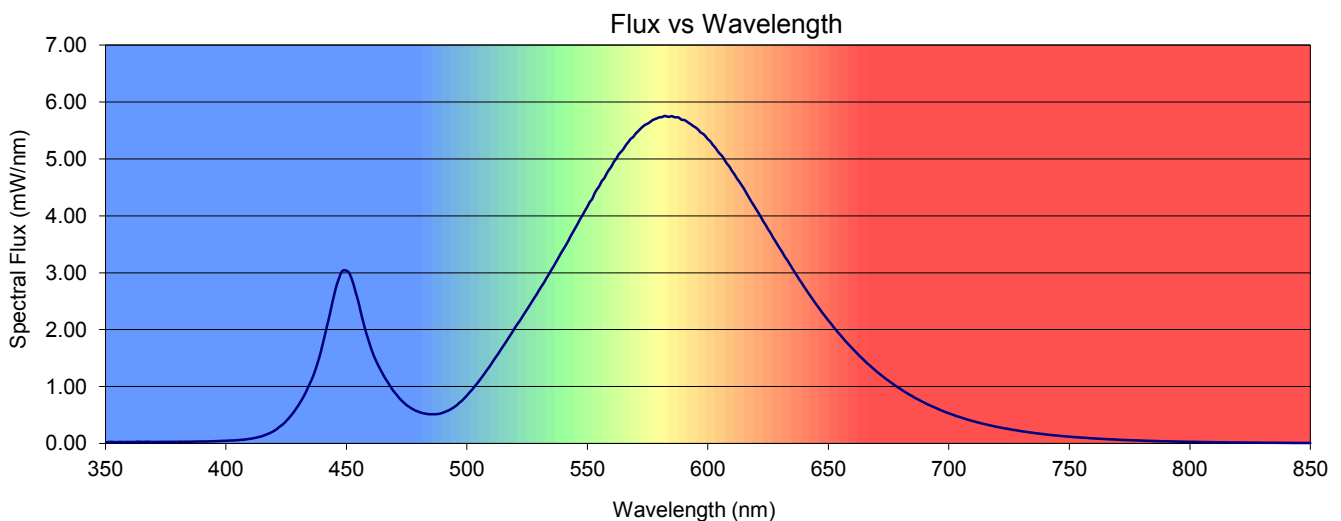
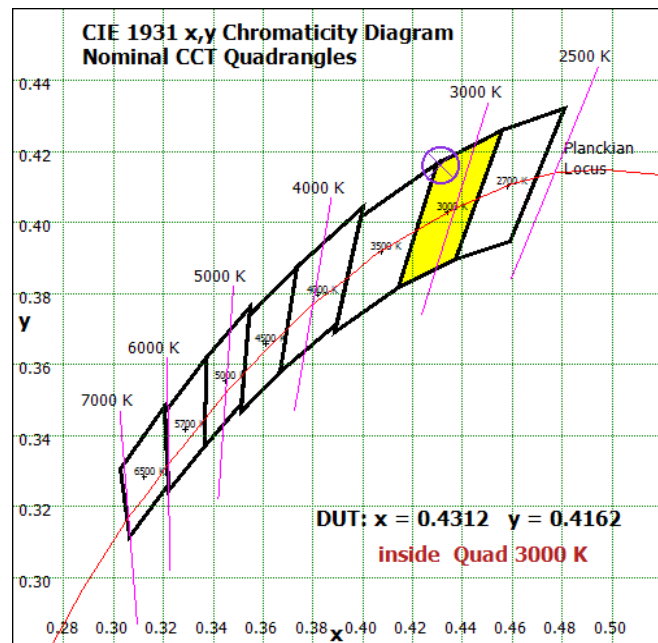
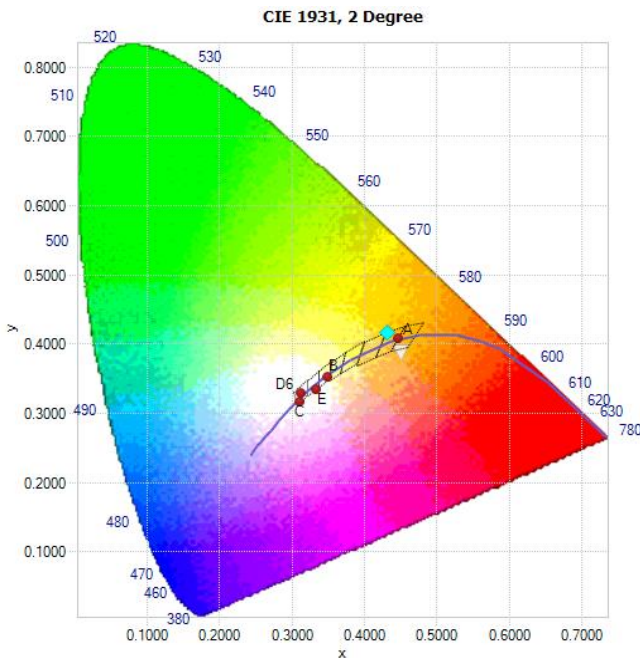


Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.4312	0.4162	0.2418	0.3501	0.2418	0.5252	0.0054

Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
62.8	56.5	74.1	89.4	56.3	54.9	61.5	76.0	34.1	-64.4	40.1	45.2	27.1	59.1	93.9





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	0.0198	422	0.285	494	0.620	566	5.24	638	2.88	710	0.393	782	0.0482
351	0.0251	423	0.317	495	0.648	567	5.30	639	2.82	711	0.382	783	0.0468
352	0.0283	424	0.350	496	0.681	568	5.35	640	2.75	712	0.370	784	0.0457
353	0.0282	425	0.395	497	0.720	569	5.38	641	2.69	713	0.360	785	0.0447
354	0.0241	426	0.440	498	0.754	570	5.44	642	2.62	714	0.349	786	0.0428
355	0.0255	427	0.490	499	0.797	571	5.48	643	2.56	715	0.339	787	0.0419
356	0.0277	428	0.543	500	0.843	572	5.53	644	2.50	716	0.330	788	0.0411
357	0.0254	429	0.605	501	0.893	573	5.57	645	2.44	717	0.319	789	0.0395
358	0.0258	430	0.666	502	0.938	574	5.60	646	2.39	718	0.310	790	0.0396
359	0.0277	431	0.734	503	0.990	575	5.62	647	2.33	719	0.300	791	0.0381
360	0.0264	432	0.806	504	1.04	576	5.65	648	2.27	720	0.292	792	0.0369
361	0.0264	433	0.885	505	1.10	577	5.68	649	2.22	721	0.284	793	0.0359
362	0.0267	434	0.979	506	1.15	578	5.70	650	2.16	722	0.275	794	0.0347
363	0.0301	435	1.07	507	1.21	579	5.71	651	2.11	723	0.268	795	0.0333
364	0.0317	436	1.16	508	1.27	580	5.73	652	2.06	724	0.261	796	0.0330
365	0.0278	437	1.28	509	1.33	581	5.73	653	2.00	725	0.253	797	0.0319
366	0.0284	438	1.41	510	1.39	582	5.75	654	1.95	726	0.245	798	0.0306
367	0.0307	439	1.55	511	1.46	583	5.74	655	1.90	727	0.238	799	0.0303
368	0.0309	440	1.72	512	1.52	584	5.74	656	1.85	728	0.232	800	0.0294
369	0.0276	441	1.89	513	1.58	585	5.75	657	1.80	729	0.224	801	0.0291
370	0.0266	442	2.07	514	1.64	586	5.73	658	1.76	730	0.217	802	0.0291
371	0.0288	443	2.25	515	1.71	587	5.73	659	1.71	731	0.210	803	0.0277
372	0.0276	444	2.44	516	1.77	588	5.72	660	1.67	732	0.205	804	0.0268
373	0.0290	445	2.62	517	1.84	589	5.69	661	1.62	733	0.198	805	0.0260
374	0.0298	446	2.79	518	1.90	590	5.68	662	1.58	734	0.193	806	0.0251
375	0.0285	447	2.91	519	1.97	591	5.66	663	1.54	735	0.187	807	0.0250
376	0.0288	448	3.01	520	2.04	592	5.63	664	1.50	736	0.182	808	0.0244
377	0.0294	449	3.04	521	2.10	593	5.61	665	1.46	737	0.176	809	0.0236
378	0.0299	450	3.04	522	2.16	594	5.57	666	1.41	738	0.171	810	0.0229
379	0.0288	451	3.01	523	2.23	595	5.55	667	1.38	739	0.166	811	0.0223
380	0.0291	452	2.91	524	2.29	596	5.51	668	1.34	740	0.161	812	0.0223
381	0.0314	453	2.79	525	2.36	597	5.46	669	1.30	741	0.155	813	0.0222
382	0.0301	454	2.63	526	2.42	598	5.44	670	1.27	742	0.151	814	0.0211
383	0.0305	455	2.49	527	2.49	599	5.40	671	1.23	743	0.147	815	0.0205
384	0.0310	456	2.30	528	2.56	600	5.35	672	1.20	744	0.142	816	0.0193
385	0.0315	457	2.14	529	2.62	601	5.31	673	1.17	745	0.139	817	0.0187
386	0.0325	458	1.97	530	2.70	602	5.25	674	1.13	746	0.134	818	0.0183
387	0.0339	459	1.84	531	2.76	603	5.20	675	1.10	747	0.131	819	0.0185
388	0.0337	460	1.71	532	2.83	604	5.14	676	1.07	748	0.127	820	0.0176
389	0.0360	461	1.58	533	2.90	605	5.09	677	1.04	749	0.123	821	0.0174
390	0.0363	462	1.48	534	2.97	606	5.05	678	1.01	750	0.120	822	0.0175
391	0.0356	463	1.39	535	3.05	607	4.98	679	0.982	751	0.117	823	0.0167
392	0.0357	464	1.31	536	3.11	608	4.91	680	0.956	752	0.113	824	0.0165
393	0.0373	465	1.23	537	3.19	609	4.86	681	0.927	753	0.111	825	0.0162
394	0.0390	466	1.15	538	3.26	610	4.79	682	0.901	754	0.107	826	0.0152
395	0.0404	467	1.09	539	3.34	611	4.73	683	0.875	755	0.104	827	0.0149
396	0.0418	468	1.02	540	3.41	612	4.66	684	0.850	756	0.101	828	0.0153
397	0.0434	469	0.954	541	3.48	613	4.60	685	0.827	757	0.0986	829	0.0143
398	0.0457	470	0.899	542	3.55	614	4.54	686	0.800	758	0.0960	830	0.0132
399	0.0467	471	0.848	543	3.64	615	4.47	687	0.779	759	0.0927	831	0.0136
400	0.0480	472	0.795	544	3.71	616	4.40	688	0.756	760	0.0901	832	0.0132
401	0.0497	473	0.751	545	3.79	617	4.33	689	0.735	761	0.0882	833	0.0136
402	0.0537	474	0.713	546	3.86	618	4.25	690	0.713	762	0.0848	834	0.0128
403	0.0532	475	0.674	547	3.94	619	4.19	691	0.692	763	0.0820	835	0.0134
404	0.0563	476	0.646	548	4.01	620	4.12	692	0.673	764	0.0805	836	0.0126
405	0.0598	477	0.617	549	4.09	621	4.05	693	0.654	765	0.0787	837	0.0121
406	0.0636	478	0.593	550	4.16	622	3.98	694	0.636	766	0.0759	838	0.0117
407	0.0670	479	0.573	551	4.24	623	3.90	695	0.616	767	0.0739	839	0.0109
408	0.0709	480	0.557	552	4.30	624	3.84	696	0.597	768	0.0730	840	0.0109
409	0.0775	481	0.540	553	4.40	625	3.76	697	0.579	769	0.0700	841	0.0114
410	0.0835	482	0.531	554	4.47	626	3.70	698	0.563	770	0.0679	842	0.00996
411	0.0893	483	0.524	555	4.53	627	3.62	699	0.545	771	0.0660	843	0.00997
412	0.0979	484	0.515	556	4.61	628	3.56	700	0.531	772	0.0633	844	0.00991
413	0.107	485	0.515	557	4.66	629	3.48	701	0.516	773	0.0617	845	0.00961
414	0.118	486	0.515	558	4.74	630	3.42	702	0.501	774	0.0602	846	0.00976
415	0.128	487	0.515	559	4.81	631	3.35	703	0.483	775	0.0591	847	0.00939
416	0.145	488	0.518	560	4.87	632	3.28	704	0.471	776	0.0571	848	0.00927
417	0.162	489	0.528	561	4.95	633	3.22	705	0.457	777	0.0555	849	0.00879
418	0.179	490	0.539	562	5.00	634	3.15	706	0.444	778	0.0546	850	0.00863
419	0.198	491	0.558	563	5.08	635	3.08	707	0.430	779	0.0529		
420	0.222	492	0.574	564	5.13	636	3.01	708	0.418	780	0.0509		
421	0.249	493	0.595	565	5.18	637	2.95	709	0.405	781	0.0498		



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Catalog Number
K-RANGE 24™ 24V Tunable White LED Tape Light DI-24-KRNG-70XX (CW)

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Prepared By

Javier Caban

Javier Caban, Technician

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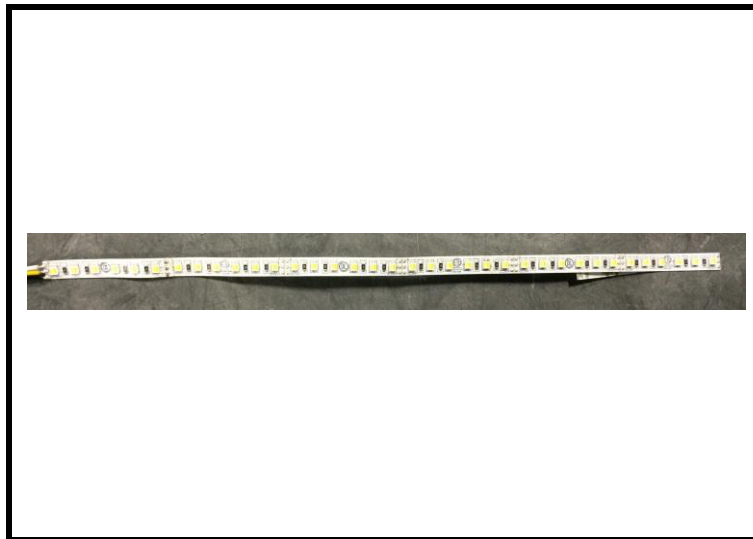
Eric Gaudreau, Engineering Project Handler

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Luminaire Description: LED strip
Catalog Number: K-RANGE 24™ 24V Tunable White LED Tape Light DI-24-KRNG-70XX (CW)
Lamp: 36 white LEDs
Mounting: Surface
Ballast/Driver: One Meanwell LPV-60-24

Luminaire



Summary of Results

Radiant Flux:	832.1 mW
Luminous Flux:	266.8 Lumens
Luminaire Efficacy:	66.0 Lumens/Watt
CCT:	6582 K
CRI (Ra):	72.9
Chromaticity (x):	0.3106
Chromaticity (y):	0.3333
Chromaticity (u):	0.1948
Chromaticity (v):	0.3135
Duv:	0.0064

Test Conditions

Test Temperature:	24.6 °C
Voltage:	120.0 VAC
Current:	0.08373 A
Power:	4.040 W
Power Factor:	0.401
Frequency:	60 Hz
Current THD:	191 %

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

Absorption correction was employed for this measurement.

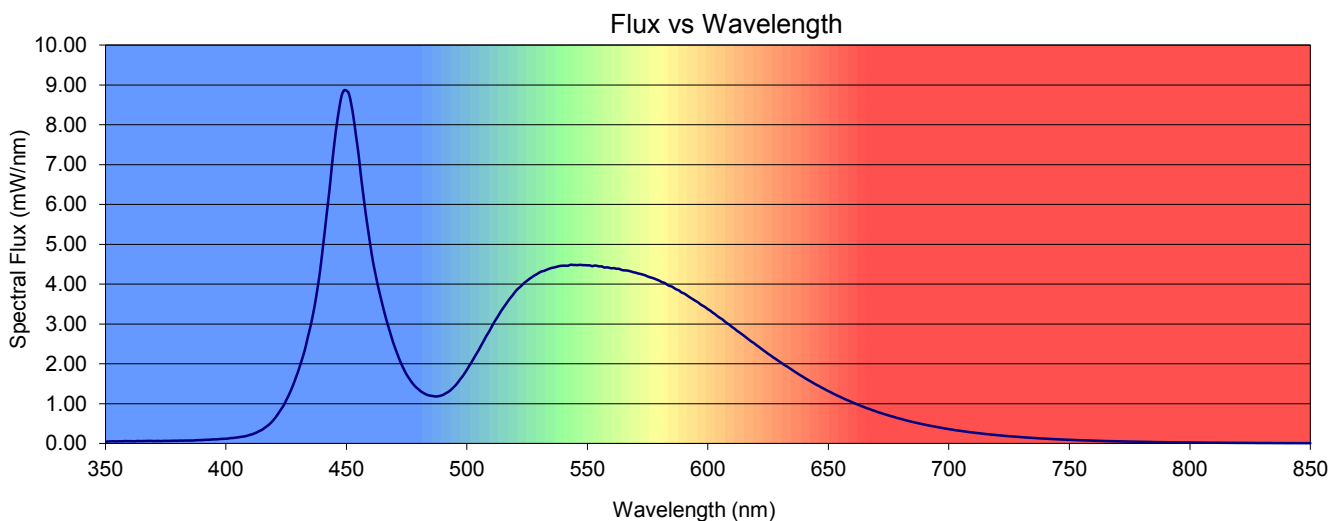
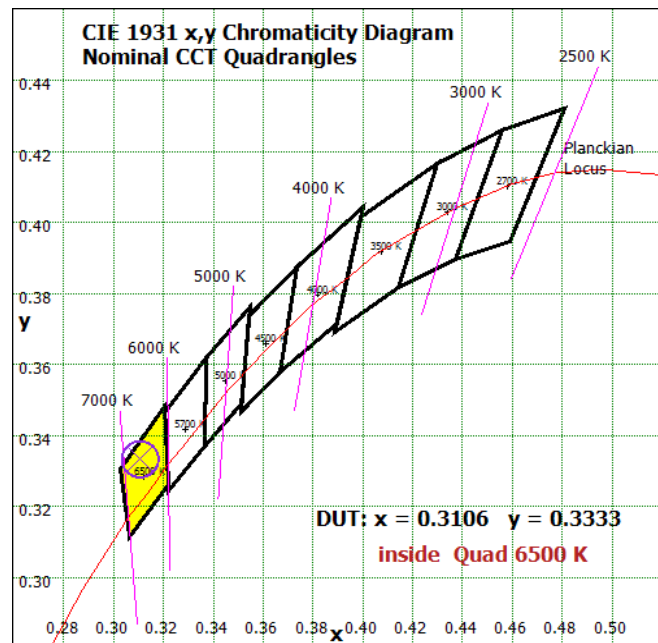
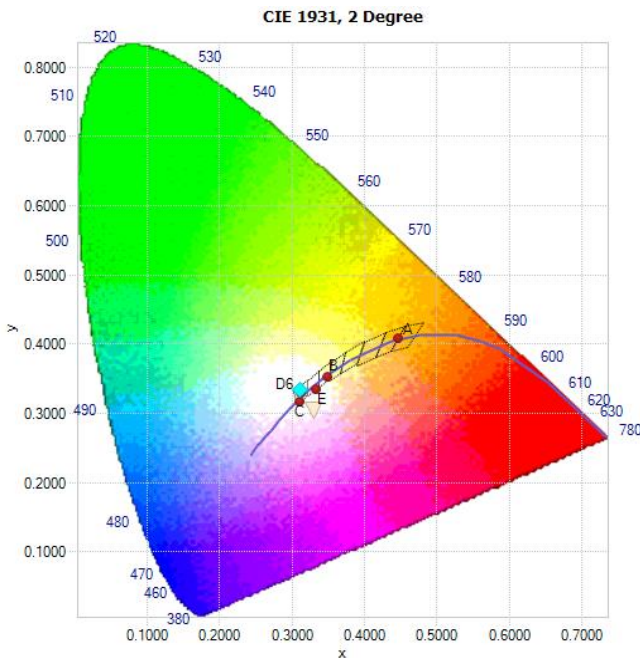


Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.3106	0.3333	0.1948	0.3135	0.1948	0.4703	0.0064

Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
72.9	69.7	76.7	80.3	73.2	71.0	68.3	83.1	60.6	-30.7	43.4	69.8	41.4	70.9	89.0





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	λ(nm)	mW/nm
350	0.0438	422	0.777	494	1.38	566	4.34	638	1.73	710	0.276	782	0.0405		
351	0.0512	423	0.869	495	1.44	567	4.33	639	1.69	711	0.268	783	0.0393		
352	0.0525	424	0.960	496	1.51	568	4.32	640	1.65	712	0.260	784	0.0379		
353	0.0557	425	1.08	497	1.59	569	4.30	641	1.62	713	0.254	785	0.0370		
354	0.0538	426	1.20	498	1.67	570	4.29	642	1.58	714	0.247	786	0.0357		
355	0.0541	427	1.34	499	1.76	571	4.27	643	1.55	715	0.240	787	0.0353		
356	0.0571	428	1.48	500	1.85	572	4.26	644	1.51	716	0.235	788	0.0342		
357	0.0546	429	1.65	501	1.95	573	4.24	645	1.48	717	0.228	789	0.0335		
358	0.0609	430	1.81	502	2.05	574	4.22	646	1.45	718	0.221	790	0.0326		
359	0.0593	431	2.00	503	2.15	575	4.19	647	1.41	719	0.216	791	0.0319		
360	0.0580	432	2.19	504	2.26	576	4.17	648	1.38	720	0.210	792	0.0314		
361	0.0586	433	2.41	505	2.36	577	4.15	649	1.35	721	0.205	793	0.0305		
362	0.0545	434	2.67	506	2.47	578	4.13	650	1.32	722	0.199	794	0.0294		
363	0.0621	435	2.91	507	2.58	579	4.11	651	1.29	723	0.194	795	0.0283		
364	0.0615	436	3.19	508	2.69	580	4.08	652	1.25	724	0.189	796	0.0279		
365	0.0597	437	3.52	509	2.79	581	4.05	653	1.22	725	0.184	797	0.0272		
366	0.0628	438	3.89	510	2.90	582	4.03	654	1.19	726	0.179	798	0.0264		
367	0.0636	439	4.29	511	3.01	583	3.99	655	1.17	727	0.174	799	0.0259		
368	0.0659	440	4.80	512	3.11	584	3.96	656	1.14	728	0.169	800	0.0258		
369	0.0652	441	5.31	513	3.20	585	3.94	657	1.11	729	0.165	801	0.0250		
370	0.0611	442	5.85	514	3.30	586	3.90	658	1.08	730	0.160	802	0.0244		
371	0.0630	443	6.37	515	3.39	587	3.87	659	1.06	731	0.156	803	0.0238		
372	0.0642	444	6.98	516	3.48	588	3.84	660	1.03	732	0.151	804	0.0233		
373	0.0609	445	7.53	517	3.57	589	3.79	661	1.01	733	0.147	805	0.0224		
374	0.0661	446	8.01	518	3.65	590	3.77	662	0.984	734	0.143	806	0.0220		
375	0.0662	447	8.40	519	3.72	591	3.73	663	0.958	735	0.140	807	0.0214		
376	0.0663	448	8.72	520	3.80	592	3.69	664	0.933	736	0.136	808	0.0204		
377	0.0665	449	8.86	521	3.87	593	3.65	665	0.910	737	0.132	809	0.0206		
378	0.0703	450	8.85	522	3.93	594	3.61	666	0.885	738	0.128	810	0.0200		
379	0.0694	451	8.79	523	3.98	595	3.57	667	0.866	739	0.125	811	0.0197		
380	0.0696	452	8.52	524	4.04	596	3.54	668	0.843	740	0.121	812	0.0193		
381	0.0726	453	8.16	525	4.09	597	3.49	669	0.823	741	0.118	813	0.0189		
382	0.0715	454	7.72	526	4.13	598	3.45	670	0.801	742	0.115	814	0.0182		
383	0.0739	455	7.28	527	4.17	599	3.42	671	0.780	743	0.112	815	0.0180		
384	0.0737	456	6.74	528	4.22	600	3.37	672	0.761	744	0.109	816	0.0176		
385	0.0744	457	6.25	529	4.25	601	3.33	673	0.742	745	0.106	817	0.0168		
386	0.0751	458	5.78	530	4.29	602	3.29	674	0.723	746	0.103	818	0.0164		
387	0.0795	459	5.36	531	4.32	603	3.25	675	0.704	747	0.100	819	0.0158		
388	0.0837	460	4.95	532	4.33	604	3.20	676	0.686	748	0.0978	820	0.0151		
389	0.0854	461	4.58	533	4.36	605	3.15	677	0.671	749	0.0947	821	0.0157		
390	0.0873	462	4.27	534	4.38	606	3.12	678	0.651	750	0.0930	822	0.0154		
391	0.0908	463	3.98	535	4.40	607	3.06	679	0.635	751	0.0903	823	0.0154		
392	0.0942	464	3.72	536	4.42	608	3.02	680	0.618	752	0.0883	824	0.0145		
393	0.0952	465	3.48	537	4.43	609	2.98	681	0.602	753	0.0858	825	0.0141		
394	0.0997	466	3.24	538	4.45	610	2.93	682	0.585	754	0.0830	826	0.0146		
395	0.103	467	3.02	539	4.46	611	2.89	683	0.570	755	0.0808	827	0.0131		
396	0.104	468	2.82	540	4.46	612	2.83	684	0.555	756	0.0796	828	0.0128		
397	0.110	469	2.61	541	4.46	613	2.79	685	0.542	757	0.0772	829	0.0129		
398	0.115	470	2.43	542	4.46	614	2.75	686	0.526	758	0.0749	830	0.0124		
399	0.118	471	2.27	543	4.49	615	2.70	687	0.513	759	0.0734	831	0.0122		
400	0.120	472	2.11	544	4.48	616	2.66	688	0.500	760	0.0713	832	0.0119		
401	0.126	473	1.97	545	4.48	617	2.61	689	0.487	761	0.0696	833	0.0117		
402	0.136	474	1.85	546	4.48	618	2.56	690	0.474	762	0.0678	834	0.0119		
403	0.139	475	1.73	547	4.48	619	2.52	691	0.461	763	0.0660	835	0.0110		
404	0.147	476	1.64	548	4.48	620	2.48	692	0.449	764	0.0644	836	0.0112		
405	0.155	477	1.55	549	4.48	621	2.43	693	0.437	765	0.0621	837	0.0108		
406	0.164	478	1.47	550	4.47	622	2.39	694	0.426	766	0.0612	838	0.0109		
407	0.172	479	1.41	551	4.47	623	2.34	695	0.414	767	0.0593	839	0.0103		
408	0.183	480	1.36	552	4.45	624	2.30	696	0.403	768	0.0581	840	0.00975		
409	0.198	481	1.30	553	4.47	625	2.25	697	0.392	769	0.0567	841	0.00957		
410	0.218	482	1.27	554	4.46	626	2.21	698	0.381	770	0.0553	842	0.00916		
411	0.233	483	1.24	555	4.44	627	2.17	699	0.371	771	0.0541	843	0.00969		
412	0.257	484	1.21	556	4.45	628	2.13	700	0.361	772	0.0521	844	0.00959		
413	0.284	485	1.20	557	4.42	629	2.09	701	0.352	773	0.0510	845	0.00906		
414	0.316	486	1.19	558	4.42	630	2.05	702	0.342	774	0.0494	846	0.00919		
415	0.344	487	1.18	559	4.41	631	2.00	703	0.332	775	0.0478	847	0.00927		
416	0.389	488	1.18	560	4.40	632	1.96	704	0.324	776	0.0471	848	0.00868		
417	0.433	489	1.20	561	4.40	633	1.93	705	0.316	777	0.0458	849	0.00858		
418	0.480	490	1.22	562	4.39	634	1.89	706	0.307	778	0.0445	850	0.00785		
419	0.541	491	1.25	563	4.39	635	1.85	707	0.299	779	0.0432				
420	0.609	492	1.29	564	4.36	636	1.81	708	0.291	780	0.0424				
421	0.688	493	1.33	565	4.35	637	1.77	709	0.283	781	0.0412				



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

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
K-RANGE 24™ 24V Tunable White LED Tape Light DI-24-KRNG-70XX (CW & WW)
Project Number
10460077
Test Number
758948

Test Date

2014-09-23

Prepared By

A handwritten signature in black ink, appearing to read 'Barry Mello Jr.', written over a white background.

Barry Mello Jr., Technician

Approved By

A handwritten signature in black ink, appearing to read 'Eric M. Gaudreau', written over a white background.

Eric Gaudreau, Engineering Project Handler

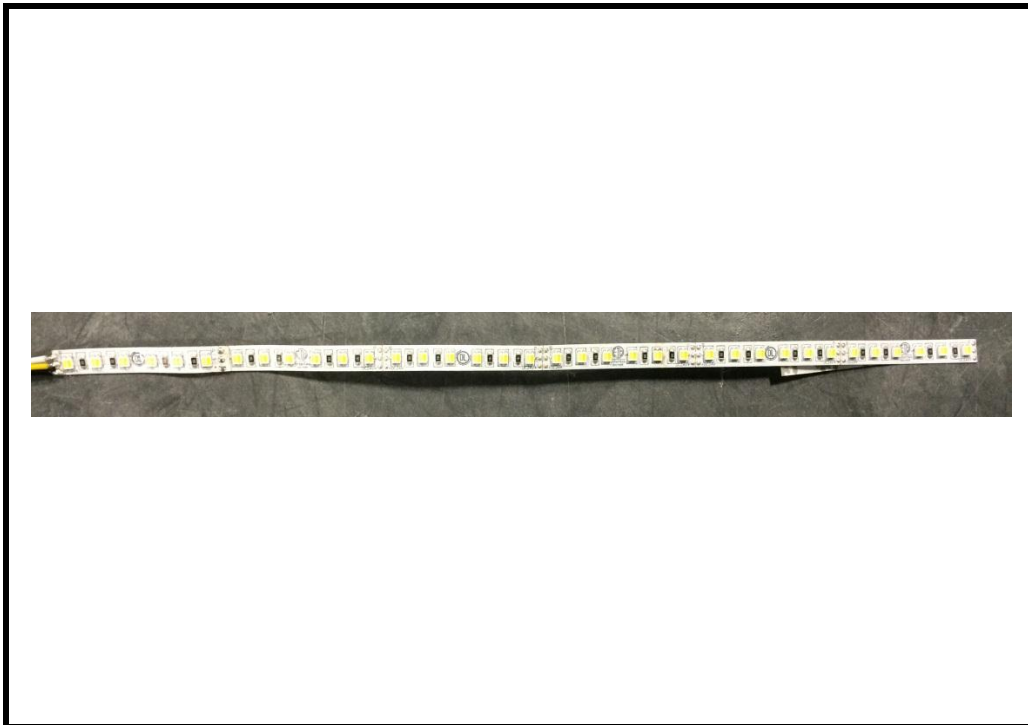
The results contained in this report pertain only to the tested sample.
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UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
610-774-1300

Luminaire Description: LED strip
Catalog Number: K-RANGE 24™ 24V Tunable White LED Tape Light DI-24-KRNG-70XX (CW & WW)
Lamp: 72 white LEDs
Mounting: Surface
Ballast/Driver: One Meanwell LPV-60-24

Luminaire

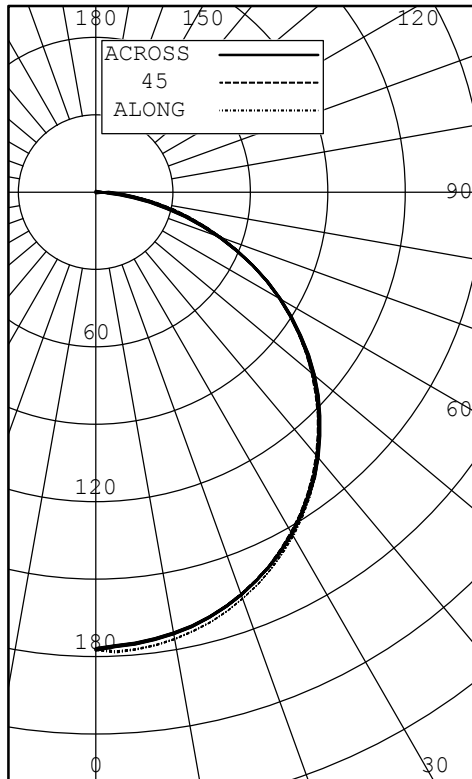


Test Conditions

Test Temperature:	25.3 °C
Voltage:	120.0 VAC
Current:	0.1357 A
Power:	7.426 W
Power Factor:	0.456
Frequency:	60 Hz
Current THD:	183 %



INTENSITY (CANDLEPOWER) SUMMARY OUTPUT LUMENS



ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	177	177	177	177	177	
5	178	178	176	175	176	17
10	176	176	174	173	174	
15	172	172	170	170	171	48
20	167	167	165	165	166	
25	161	161	159	159	160	74
30	153	153	152	152	152	
35	144	145	143	143	144	90
40	134	134	133	133	134	
45	122	123	122	122	123	94
50	110	110	109	110	110	
55	96	97	96	96	97	86
60	82	83	82	82	82	
65	67	68	67	67	67	67
70	52	53	52	51	51	
75	37	39	38	37	36	39
80	23	25	24	22	21	
85	10	12	11	10	10	12
90	0	0	0	0	0	

ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	139	26.35
0-40	229	43.38
0-60	409	77.56
0-90	527	100.00
40-90	298	56.62
60-90	118	22.44
90-180	0	0.00
0-180	527	100.00

EFFICACY (LUMENS PER WATT): 71.2

*** THIS IS AN ABSOLUTE TEST ***

LUMINOUS LENGTH: 12.000 INS
 WIDTH: 0.375 INS

LUMINANCE SUMMARY CD./SQ.M.

S/MH: 1.3
 SC: 1.3

ANGLE	ALONG	45	ACROSS
45	59550	59557	59899
55	57710	57990	58322
65	54566	55126	54938
75	49640	50366	47826
85	39917	45368	37689

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	177	177	177	177	177	177	
2.5	178	178	176	176	176	177	
5.0	178	178	176	175	176	176	17
7.5	177	177	175	174	175	176	
10.0	176	176	174	173	174	174	
12.5	174	174	172	172	172	173	
15.0	172	172	170	170	171	171	48
17.5	170	170	168	168	168	169	
20.0	167	167	165	165	166	166	
22.5	164	164	163	162	163	163	
25.0	161	161	159	159	160	160	74
27.5	157	157	156	156	156	156	
30.0	153	153	152	152	152	152	
32.5	149	149	148	148	148	148	
35.0	144	145	143	143	144	144	90
37.5	139	140	138	138	139	139	
40.0	134	134	133	133	134	134	
42.5	128	129	128	128	128	128	
45.0	122	123	122	122	123	122	94
47.5	116	117	116	116	117	116	
50.0	110	110	109	110	110	110	
52.5	103	104	103	103	104	103	
55.0	96	97	96	96	97	96	86
57.5	89	90	89	89	90	90	
60.0	82	83	82	82	82	82	
62.5	74	75	75	75	75	75	
65.0	67	68	67	67	67	67	67
67.5	59	61	60	59	59	60	
70.0	52	53	52	51	51	52	
72.5	45	46	45	44	43	45	
75.0	37	39	38	37	36	37	39
77.5	30	31	31	29	28	30	
80.0	23	25	24	22	21	23	
82.5	17	18	17	16	15	17	
85.0	10	12	11	10	10	11	12
87.5	4	6	6	6	5	6	
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	.020	.98	1.091	.051	.000	.97	1.071	.030	.990	.95	0.980	.950	.92	0.940	.920	.89	0.910	.890	.87	0.85			
	2	1.020	.940	.870	.81	1.000	.920	.860	.80	0.980	.900	.840	.79	0.870	.820	.77	0.840	.790	.76	0.810	.770	.74	0.72			
	3	0.940	.830	.740	.68	0.910	.810	.730	.67	0.890	.800	.720	.67	0.770	.710	.65	0.740	.690	.64	0.720	.670	.63	0.61			
	4	0.860	.740	.650	.58	0.840	.730	.640	.58	0.820	.710	.640	.57	0.690	.620	.57	0.670	.610	.56	0.640	.590	.55	0.53			
	5	0.800	.660	.570	.50	0.770	.650	.560	.50	0.750	.640	.550	.49	0.620	.540	.49	0.600	.530	.48	0.580	.520	.48	0.46			
	6	0.730	.590	.500	.43	0.710	.580	.490	.43	0.690	.570	.490	.43	0.550	.480	.42	0.540	.470	.42	0.520	.460	.41	0.40			
	7	0.670	.530	.440	.38	0.650	.520	.430	.37	0.640	.510	.430	.37	0.490	.420	.37	0.480	.410	.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	.32	0.440	.370	.32	0.420	.360	.32	0.30			
	9	0.580	.440	.350	.29	0.560	.430	.340	.29	0.550	.420	.340	.29	0.410	.340	.28	0.400	.330	.28	0.390	.330	.28	0.26			
	10	0.530	.400	.310	.26	0.520	.390	.310	.25	0.510	.380	.310	.25	0.370	.300	.25	0.360	.300	.25	0.350	.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	11.1	5.12
6.00	4.93	7.68
8.00	2.77	10.2
10.0	1.77	12.8
12.0	1.23	15.4
14.0	0.905	17.9
16.0	0.693	20.5

Cone of Light Plot

