



**UL Verification Services**

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## Integrating Sphere Test Report

Relevant Standards

IES LM-79-2008

ANSI C78.377-2008, ANSI C82.77

CIE 13.3-1995, CIE 15-2004

Prepared For

TC Millwork

Leo Couchara

3433 Marshall LN

PO Box 826

Bensalem, PA 19020

Catalog Number

LED Strip

Project Number

10011087

Test Number

182668

Test Date

2013-05-07

Prepared By

Kyle Spaziani, Project Coordinator

Approved By

Zachary Mooney, Project Coordinator

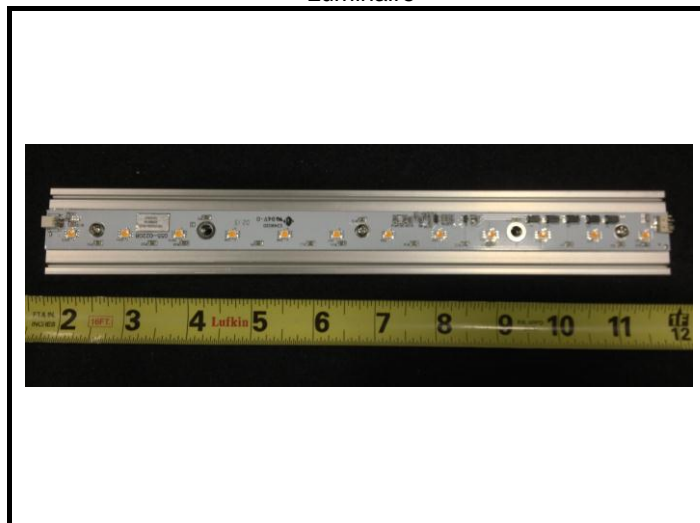
The results contained in this report pertain only to the tested sample.

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Luminaire Description: Formed aluminum heatsink with LED strip  
Catalog Number: LED Strip  
Lamp: 12 white LEDs  
Mounting: Surface

Luminaire



#### Summary of Results

Radiant Flux:	1046 mW
Luminous Flux:	304.9 Lumens
Luminaire Efficacy:	73.3 Lumens/Watt
CCT:	3487 K
CRI (Ra):	93.5
Chromaticity (x):	0.4029
Chromaticity (y):	0.3829
Chromaticity (u):	0.2374
Chromaticity (v):	0.3384
Duv:	-0.0032

#### Test Conditions

Test Temperature:	24.4 °C
Voltage:	24.00 VDC
Current:	0.1735 A
Power:	4.161 W

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

Absorption correction was employed for this measurement.

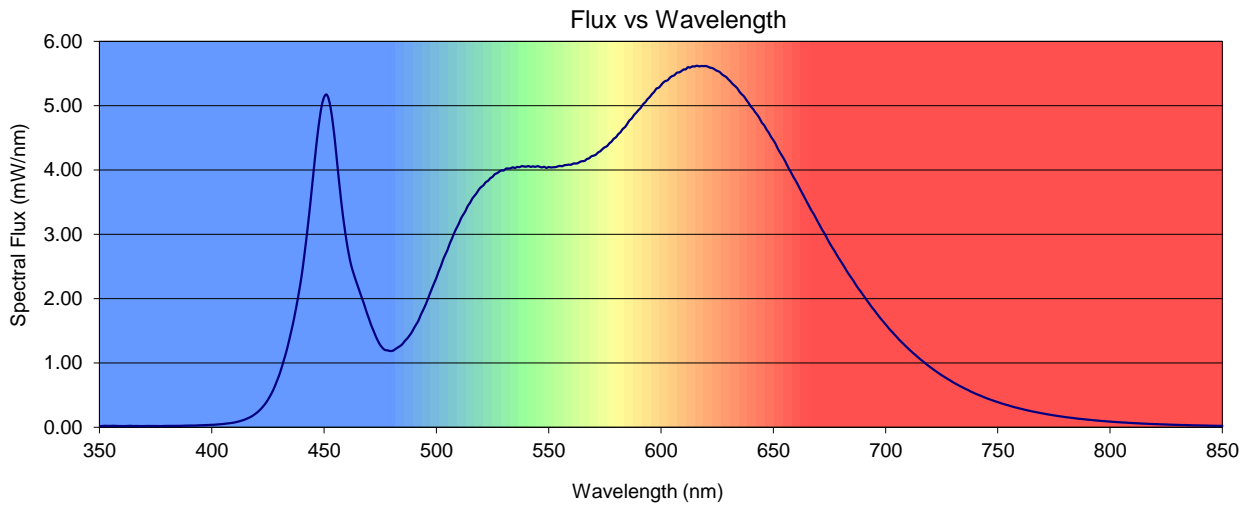
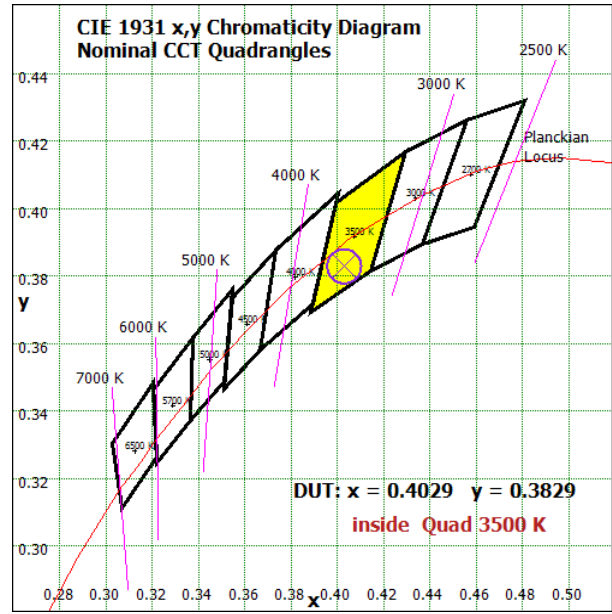
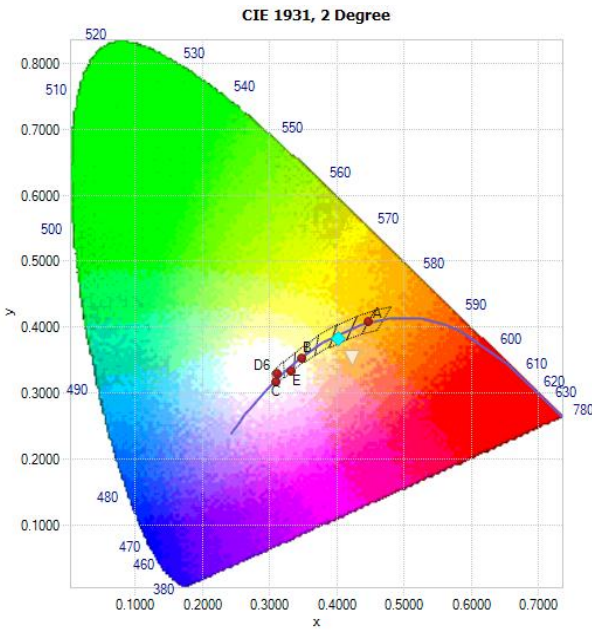


**Chromaticity Coordinates**

x	y	u	v	u'	v'	Duv
0.4029	0.3829	0.2374	0.3384	0.2374	0.5076	-0.0032

**Color Rendering Index Detail**

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
93.5	96.2	95.3	92.7	93.9	95.2	93.3	93.6	87.7	68.5	87.5	93.1	77.0	96.2	95.1





Spectral Power Distribution

$\lambda$ (nm)	mW/nm	$\lambda$ (nm)	mW/nm	$\lambda$ (nm)	mW/nm	$\lambda$ (nm)	mW/nm	$\lambda$ (nm)	mW/nm	$\lambda$ (nm)	mW/nm	$\lambda$ (nm)	mW/nm
350	0.0206	422	0.293	494	1.82	566	4.14	638	5.09	710	1.23	782	0.153
351	0.0213	423	0.334	495	1.89	567	4.17	639	5.04	711	1.20	783	0.148
352	0.0250	424	0.378	496	1.98	568	4.18	640	4.99	712	1.16	784	0.144
353	0.0245	425	0.431	497	2.07	569	4.21	641	4.95	713	1.13	785	0.139
354	0.0233	426	0.491	498	2.16	570	4.22	642	4.90	714	1.10	786	0.135
355	0.0240	427	0.557	499	2.24	571	4.24	643	4.85	715	1.07	787	0.131
356	0.0251	428	0.634	500	2.32	572	4.27	644	4.80	716	1.04	788	0.128
357	0.0244	429	0.723	501	2.42	573	4.29	645	4.73	717	1.02	789	0.125
358	0.0223	430	0.812	502	2.51	574	4.33	646	4.69	718	0.988	790	0.121
359	0.0217	431	0.919	503	2.61	575	4.35	647	4.63	719	0.961	791	0.118
360	0.0218	432	1.04	504	2.69	576	4.37	648	4.58	720	0.934	792	0.114
361	0.0209	433	1.15	505	2.76	577	4.41	649	4.52	721	0.909	793	0.111
362	0.0222	434	1.29	506	2.86	578	4.44	650	4.47	722	0.883	794	0.107
363	0.0241	435	1.44	507	2.94	579	4.49	651	4.41	723	0.859	795	0.104
364	0.0253	436	1.59	508	3.03	580	4.51	652	4.33	724	0.835	796	0.101
365	0.0209	437	1.76	509	3.10	581	4.56	653	4.27	725	0.811	797	0.0986
366	0.0228	438	1.94	510	3.17	582	4.59	654	4.22	726	0.789	798	0.0959
367	0.0222	439	2.14	511	3.25	583	4.64	655	4.16	727	0.767	799	0.0928
368	0.0215	440	2.36	512	3.31	584	4.67	656	4.09	728	0.746	800	0.0906
369	0.0207	441	2.62	513	3.37	585	4.72	657	4.02	729	0.726	801	0.0880
370	0.0216	442	2.90	514	3.44	586	4.77	658	3.96	730	0.703	802	0.0852
371	0.0227	443	3.20	515	3.49	587	4.80	659	3.89	731	0.683	803	0.0830
372	0.0227	444	3.53	516	3.56	588	4.85	660	3.83	732	0.664	804	0.0807
373	0.0225	445	3.87	517	3.60	589	4.89	661	3.77	733	0.645	805	0.0784
374	0.0220	446	4.21	518	3.65	590	4.93	662	3.70	734	0.628	806	0.0766
375	0.0219	447	4.53	519	3.70	591	4.97	663	3.63	735	0.609	807	0.0745
376	0.0218	448	4.80	520	3.74	592	5.02	664	3.57	736	0.592	808	0.0721
377	0.0205	449	5.01	521	3.76	593	5.05	665	3.50	737	0.576	809	0.0702
378	0.0215	450	5.13	522	3.81	594	5.10	666	3.44	738	0.557	810	0.0682
379	0.0230	451	5.17	523	3.83	595	5.13	667	3.37	739	0.542	811	0.0660
380	0.0237	452	5.11	524	3.87	596	5.18	668	3.32	740	0.526	812	0.0646
381	0.0240	453	4.94	525	3.89	597	5.22	669	3.25	741	0.511	813	0.0625
382	0.0243	454	4.70	526	3.93	598	5.27	670	3.19	742	0.497	814	0.0605
383	0.0237	455	4.39	527	3.95	599	5.28	671	3.12	743	0.483	815	0.0589
384	0.0241	456	4.05	528	3.97	600	5.32	672	3.06	744	0.468	816	0.0580
385	0.0246	457	3.71	529	3.99	601	5.36	673	3.00	745	0.454	817	0.0560
386	0.0246	458	3.40	530	3.99	602	5.38	674	2.93	746	0.441	818	0.0547
387	0.0257	459	3.13	531	4.02	603	5.40	675	2.87	747	0.428	819	0.0531
388	0.0272	460	2.89	532	4.02	604	5.44	676	2.81	748	0.416	820	0.0515
389	0.0276	461	2.69	533	4.03	605	5.46	677	2.76	749	0.404	821	0.0509
390	0.0288	462	2.53	534	4.04	606	5.47	678	2.70	750	0.393	822	0.0489
391	0.0288	463	2.41	535	4.03	607	5.51	679	2.64	751	0.381	823	0.0477
392	0.0293	464	2.30	536	4.05	608	5.52	680	2.59	752	0.370	824	0.0466
393	0.0298	465	2.20	537	4.04	609	5.53	681	2.53	753	0.359	825	0.0457
394	0.0320	466	2.10	538	4.06	610	5.56	682	2.48	754	0.349	826	0.0439
395	0.0336	467	1.99	539	4.06	611	5.56	683	2.41	755	0.340	827	0.0424
396	0.0339	468	1.90	540	4.05	612	5.60	684	2.36	756	0.328	828	0.0416
397	0.0361	469	1.78	541	4.06	613	5.59	685	2.31	757	0.319	829	0.0405
398	0.0369	470	1.69	542	4.05	614	5.61	686	2.26	758	0.309	830	0.0395
399	0.0390	471	1.59	543	4.06	615	5.61	687	2.20	759	0.301	831	0.0385
400	0.0406	472	1.50	544	4.05	616	5.62	688	2.15	760	0.292	832	0.0372
401	0.0418	473	1.42	545	4.06	617	5.61	689	2.11	761	0.284	833	0.0373
402	0.0445	474	1.34	546	4.05	618	5.62	690	2.06	762	0.275	834	0.0361
403	0.0475	475	1.28	547	4.04	619	5.61	691	2.01	763	0.267	835	0.0346
404	0.0497	476	1.24	548	4.05	620	5.62	692	1.96	764	0.259	836	0.0336
405	0.0534	477	1.21	549	4.03	621	5.60	693	1.91	765	0.252	837	0.0324
406	0.0576	478	1.20	550	4.05	622	5.59	694	1.86	766	0.244	838	0.0317
407	0.0619	479	1.19	551	4.04	623	5.58	695	1.82	767	0.238	839	0.0318
408	0.0659	480	1.19	552	4.04	624	5.56	696	1.77	768	0.231	840	0.0306
409	0.0712	481	1.20	553	4.04	625	5.54	697	1.73	769	0.224	841	0.0299
410	0.0766	482	1.22	554	4.06	626	5.53	698	1.68	770	0.217	842	0.0292
411	0.0839	483	1.25	555	4.06	627	5.49	699	1.64	771	0.211	843	0.0286
412	0.0933	484	1.27	556	4.06	628	5.47	700	1.60	772	0.204	844	0.0271
413	0.103	485	1.30	557	4.08	629	5.45	701	1.56	773	0.199	845	0.0270
414	0.114	486	1.35	558	4.08	630	5.41	702	1.52	774	0.193	846	0.0258
415	0.127	487	1.38	559	4.08	631	5.37	703	1.48	775	0.187	847	0.0255
416	0.142	488	1.43	560	4.08	632	5.33	704	1.44	776	0.182	848	0.0250
417	0.158	489	1.48	561	4.10	633	5.30	705	1.41	777	0.177	849	0.0242
418	0.177	490	1.54	562	4.10	634	5.27	706	1.37	778	0.171	850	0.0240
419	0.202	491	1.60	563	4.11	635	5.22	707	1.33	779	0.166		
420	0.227	492	1.66	564	4.13	636	5.18	708	1.30	780	0.161		
421	0.258	493	1.74	565	4.14	637	5.14	709	1.26	781	0.157		