



UL Verification Services Inc.  
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## 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  
**Optolum**  
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United States

Catalog Number  
**13 B2-AL-L-358UOD-A072000**

Order Number  
**10520546**  
Test Number  
**785424**

Test Date  
**2014-10-17**

Prepared By

A handwritten signature in black ink that reads "Dane Hernandez-Adams".

Dane Hernandez-Adams, Technician

Approved By

A handwritten signature in black ink that reads "Zachary Mooney".

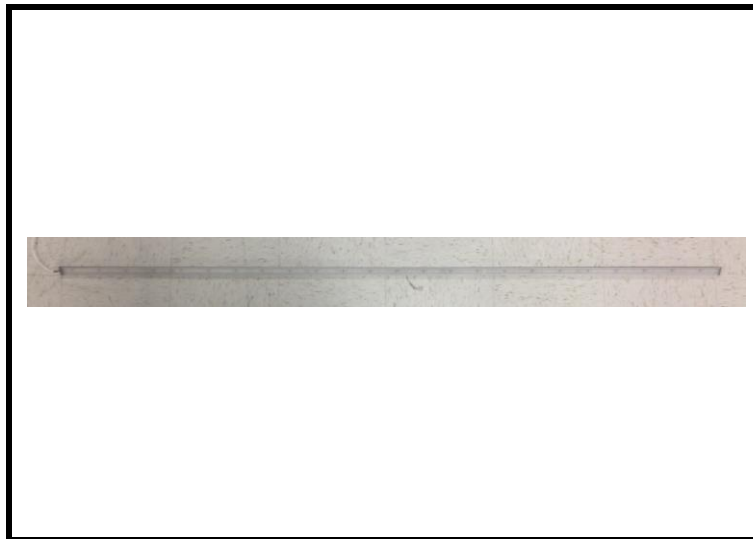
Zachary Mooney, Engineer Project Associate

The results contained in this report pertain only to the tested sample.  
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Luminaire Description: Grey aluminum housing, frosted plastic enclosure  
Catalog Number: 13 B2-AL-L-358UOD-A072000  
Lamp: 72 white LEDs  
Mounting: Surface  
Ballast/Driver: One High Perfection Tech. LP1090-24-GG-290

Luminaire



#### Summary of Results

Radiant Flux:	7692 mW
Luminous Flux:	2411 Lumens
Luminaire Efficacy:	53.7 Lumens/Watt
CCT:	3397 K
CRI (Ra):	83.2
Chromaticity (x):	0.4095
Chromaticity (y):	0.3895
Chromaticity (u):	0.2390
Chromaticity (v):	0.3409
Duv:	-0.0019

#### Test Conditions

Test Temperature:	24.7 °C
Voltage:	120.0 VAC
Current:	0.3809 A
Power:	44.87 W
Power Factor:	0.982
Frequency:	60 Hz
Current THD:	9.21 %

Testing was performed in a 3-meter integrating sphere using the 4 $\pi$  geometry method.

Absorption correction was employed for this measurement.

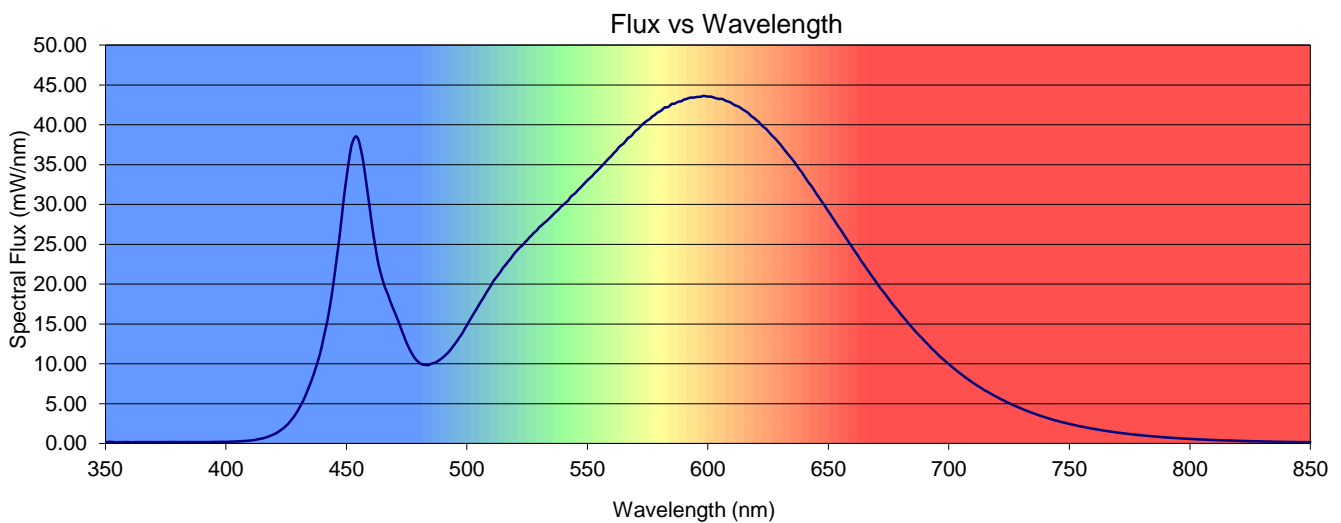
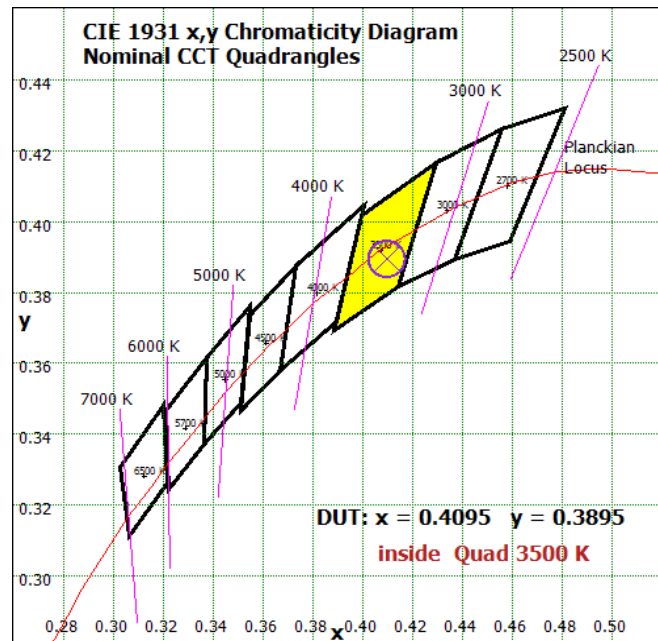
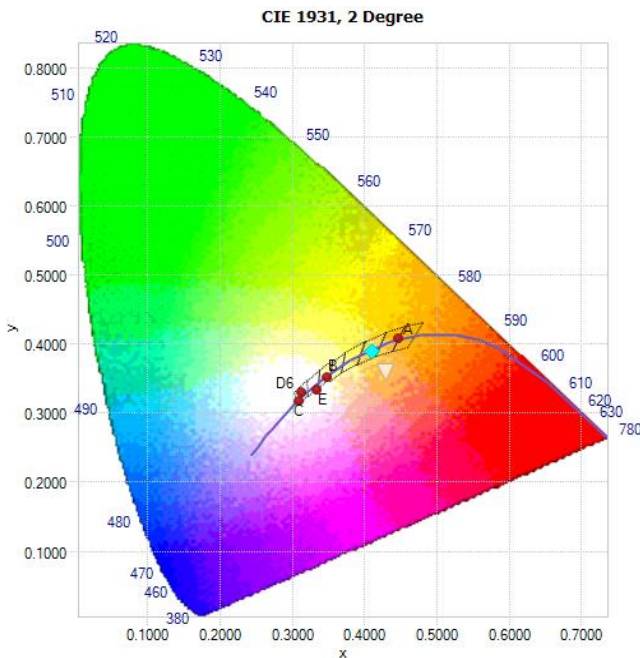


Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.4095	0.3895	0.2390	0.3409	0.2390	0.5114	-0.0019

Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
83.2	81.7	89.9	94.9	80.2	80.8	85.0	86.3	66.9	21.3	75.0	77.3	61.6	83.5	97.1





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	0.167	422	1.52	494	12.1	566	38.0	638	34.4	710	7.62	782	0.970
351	0.198	423	1.73	495	12.5	567	38.4	639	34.0	711	7.42	783	0.941
352	0.203	424	1.95	496	12.9	568	38.5	640	33.6	712	7.23	784	0.916
353	0.197	425	2.23	497	13.4	569	38.9	641	33.1	713	7.05	785	0.890
354	0.163	426	2.53	498	13.8	570	39.2	642	32.7	714	6.84	786	0.864
355	0.172	427	2.90	499	14.3	571	39.4	643	32.3	715	6.66	787	0.840
356	0.172	428	3.27	500	14.8	572	39.8	644	31.8	716	6.49	788	0.819
357	0.170	429	3.72	501	15.4	573	40.1	645	31.4	717	6.32	789	0.792
358	0.187	430	4.21	502	15.9	574	40.3	646	30.9	718	6.15	790	0.768
359	0.180	431	4.77	503	16.4	575	40.5	647	30.5	719	5.99	791	0.750
360	0.173	432	5.32	504	16.9	576	40.7	648	30.1	720	5.83	792	0.726
361	0.157	433	6.00	505	17.4	577	41.0	649	29.6	721	5.66	793	0.706
362	0.168	434	6.75	506	17.9	578	41.2	650	29.1	722	5.51	794	0.685
363	0.183	435	7.50	507	18.4	579	41.5	651	28.7	723	5.36	795	0.674
364	0.185	436	8.32	508	18.9	580	41.7	652	28.2	724	5.20	796	0.651
365	0.173	437	9.22	509	19.4	581	41.9	653	27.8	725	5.06	797	0.633
366	0.177	438	10.2	510	19.8	582	42.2	654	27.3	726	4.92	798	0.615
367	0.184	439	11.2	511	20.4	583	42.2	655	26.9	727	4.79	799	0.591
368	0.176	440	12.5	512	20.8	584	42.3	656	26.4	728	4.65	800	0.581
369	0.180	441	13.9	513	21.2	585	42.6	657	25.9	729	4.52	801	0.565
370	0.171	442	15.3	514	21.6	586	42.6	658	25.5	730	4.40	802	0.546
371	0.166	443	16.9	515	22.1	587	42.8	659	25.0	731	4.27	803	0.536
372	0.184	444	18.8	516	22.4	588	42.9	660	24.6	732	4.15	804	0.516
373	0.165	445	21.0	517	22.8	589	42.9	661	24.1	733	4.03	805	0.509
374	0.190	446	23.3	518	23.1	590	43.2	662	23.7	734	3.92	806	0.491
375	0.177	447	25.6	519	23.6	591	43.2	663	23.2	735	3.80	807	0.476
376	0.188	448	28.2	520	24.0	592	43.3	664	22.7	736	3.69	808	0.468
377	0.185	449	30.9	521	24.3	593	43.4	665	22.3	737	3.58	809	0.454
378	0.187	450	33.3	522	24.6	594	43.4	666	21.9	738	3.48	810	0.443
379	0.175	451	35.4	523	24.9	595	43.5	667	21.5	739	3.39	811	0.428
380	0.176	452	37.2	524	25.2	596	43.5	668	21.0	740	3.29	812	0.416
381	0.181	453	38.2	525	25.5	597	43.5	669	20.6	741	3.18	813	0.408
382	0.170	454	38.5	526	25.9	598	43.6	670	20.2	742	3.10	814	0.393
383	0.177	455	38.1	527	26.2	599	43.6	671	19.7	743	3.01	815	0.385
384	0.188	456	36.9	528	26.5	600	43.5	672	19.3	744	2.92	816	0.377
385	0.183	457	35.4	529	26.7	601	43.5	673	19.0	745	2.84	817	0.372
386	0.176	458	33.2	530	27.1	602	43.5	674	18.6	746	2.76	818	0.356
387	0.185	459	31.1	531	27.4	603	43.4	675	18.2	747	2.67	819	0.349
388	0.179	460	28.8	532	27.7	604	43.3	676	17.8	748	2.60	820	0.337
389	0.181	461	26.6	533	27.9	605	43.2	677	17.4	749	2.54	821	0.326
390	0.175	462	24.8	534	28.2	606	43.2	678	17.0	750	2.46	822	0.321
391	0.182	463	23.0	535	28.5	607	43.1	679	16.7	751	2.39	823	0.313
392	0.171	464	21.6	536	28.8	608	42.9	680	16.2	752	2.32	824	0.303
393	0.184	465	20.6	537	29.1	609	42.9	681	15.9	753	2.26	825	0.299
394	0.185	466	19.6	538	29.4	610	42.7	682	15.5	754	2.18	826	0.289
395	0.197	467	18.9	539	29.7	611	42.5	683	15.2	755	2.13	827	0.285
396	0.197	468	18.0	540	29.9	612	42.4	684	14.8	756	2.07	828	0.278
397	0.203	469	17.2	541	30.2	613	42.2	685	14.5	757	2.01	829	0.268
398	0.207	470	16.5	542	30.5	614	42.0	686	14.1	758	1.96	830	0.262
399	0.214	471	15.8	543	30.9	615	41.8	687	13.8	759	1.90	831	0.252
400	0.200	472	15.0	544	31.2	616	41.6	688	13.5	760	1.84	832	0.245
401	0.213	473	14.2	545	31.4	617	41.4	689	13.2	761	1.79	833	0.242
402	0.227	474	13.4	546	31.8	618	41.1	690	12.8	762	1.74	834	0.239
403	0.242	475	12.6	547	32.1	619	40.9	691	12.5	763	1.68	835	0.228
404	0.248	476	12.0	548	32.4	620	40.6	692	12.2	764	1.64	836	0.221
405	0.266	477	11.4	549	32.7	621	40.4	693	11.9	765	1.59	837	0.218
406	0.285	478	10.9	550	33.0	622	40.0	694	11.6	766	1.55	838	0.213
407	0.302	479	10.5	551	33.3	623	39.7	695	11.3	767	1.50	839	0.205
408	0.317	480	10.2	552	33.6	624	39.5	696	11.0	768	1.46	840	0.200
409	0.345	481	9.98	553	33.9	625	39.2	697	10.7	769	1.41	841	0.201
410	0.381	482	9.89	554	34.2	626	38.8	698	10.5	770	1.37	842	0.191
411	0.405	483	9.86	555	34.5	627	38.5	699	10.2	771	1.33	843	0.187
412	0.454	484	9.84	556	34.8	628	38.3	700	9.96	772	1.30	844	0.184
413	0.516	485	9.98	557	35.1	629	37.9	701	9.70	773	1.26	845	0.181
414	0.574	486	10.1	558	35.5	630	37.6	702	9.45	774	1.23	846	0.179
415	0.628	487	10.2	559	35.8	631	37.2	703	9.20	775	1.19	847	0.177
416	0.712	488	10.4	560	36.1	632	36.8	704	8.96	776	1.15	848	0.167
417	0.799	489	10.6	561	36.5	633	36.4	705	8.73	777	1.12	849	0.163
418	0.915	490	10.8	562	36.7	634	36.0	706	8.50	778	1.09	850	0.160
419	1.04	491	11.1	563	37.2	635	35.7	707	8.27	779	1.06		
420	1.17	492	11.3	564	37.4	636	35.3	708	8.05	780	1.03		
421	1.32	493	11.7	565	37.6	637	34.8	709	7.83	781	1.00		