



## 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  
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Catalog Number  
LUXEON ES 3000K 2 BIN GT4-RE-ES-WW

Project Number  
6012-000172  
Test Number  
28227

Test Date

2012-02-01

Prepared By

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Approved By

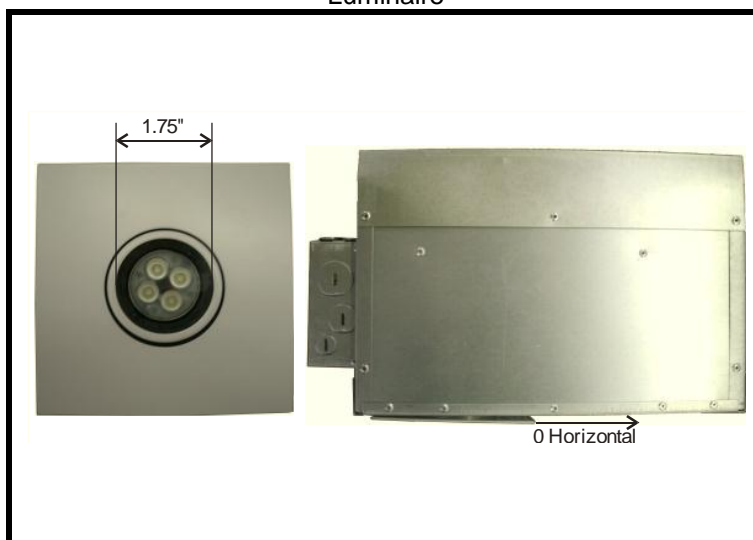
Zachary Mooney, Project Coordinator

The results contained in this report pertain only to the tested sample.  
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Luminaire Description: Formed steel housing, cast aluminum heatsink with black aluminum reflector, clear glass enclosure with white enamel steel trim  
Catalog Number: LUXEON ES 3000K 2 BIN GT4-RE-ES-WW  
Lamp: Four white LEDs with frosted plastic optics  
Mounting: Recessed  
Ballast/Driver: One Lightech LED 36CC 700 PU

Luminaire



## Summary of Results

Radiant Flux:	1573 mW
Luminous Flux:	503.2 Lumens
Luminaire Efficacy:	47.3 Lumens/Watt
CCT:	3159 K
CRI (Ra):	84.1
Chromaticity (x):	0.4298
Chromaticity (y):	0.4088
Chromaticity (u):	0.2440
Chromaticity (v):	0.3481
Duv:	0.0026

## Test Conditions

Test Temperature:	25.0 °C
Voltage:	120.0 VAC
Current:	0.09117 A
Power:	10.65 W
Power Factor:	0.973
Frequency:	60 Hz
Current THD:	16.6 %

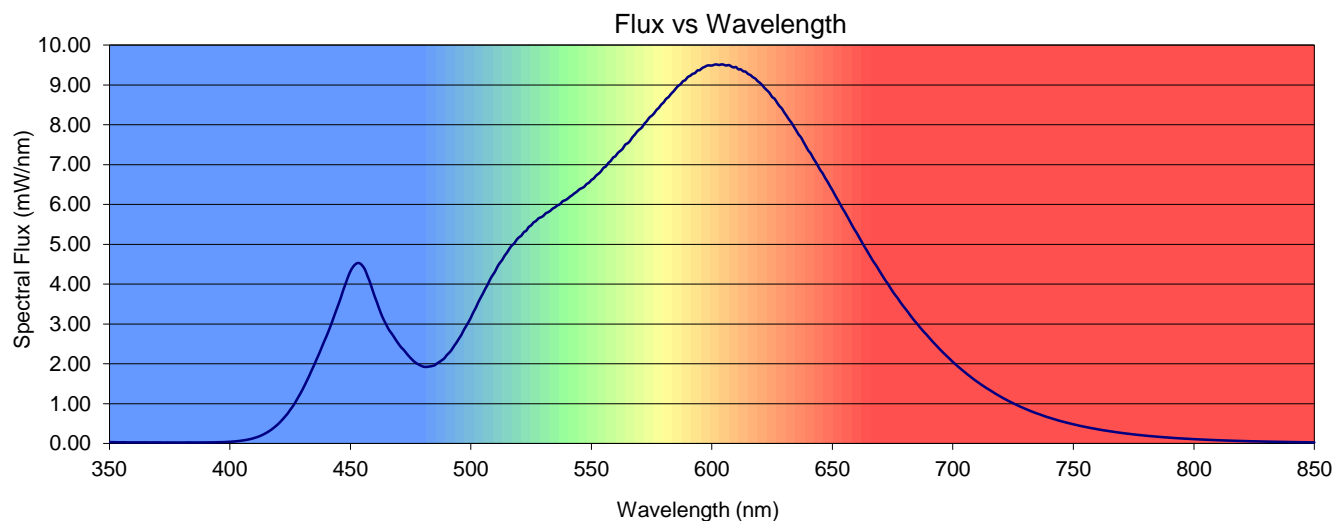
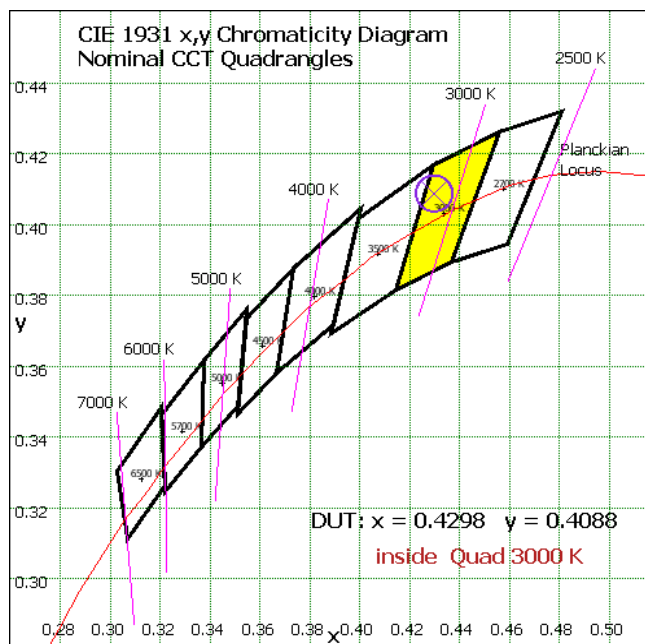
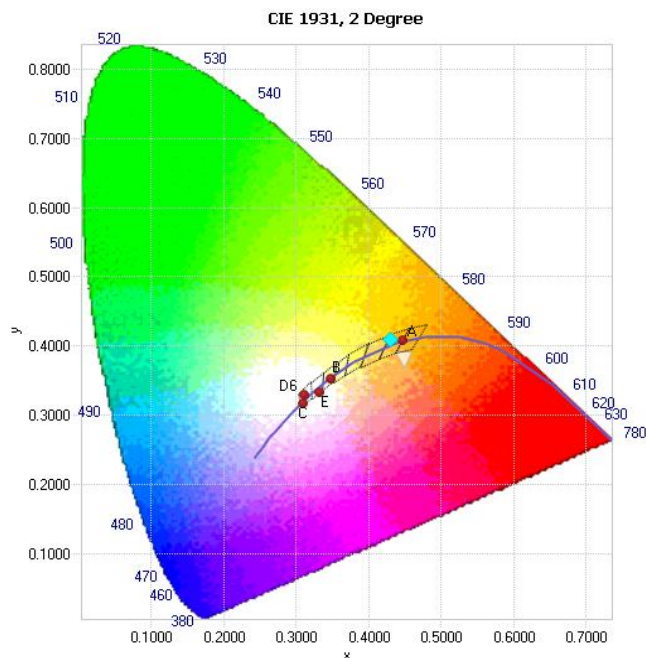


### Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.4298	0.4088	0.2440	0.3481	0.2440	0.5222	0.0026

### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
84.1	82.3	89.3	95.9	83.4	81.7	86.3	87.4	66.2	19.0	75.0	82.2	67.6	83.6	97.4





## 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	0.0330	422	0.614	494	2.53	566	7.59	638	7.57	710	1.55	782	0.185
351	0.0346	423	0.684	495	2.63	567	7.68	639	7.46	711	1.51	783	0.181
352	0.0323	424	0.755	496	2.72	568	7.75	640	7.35	712	1.47	784	0.175
353	0.0319	425	0.842	497	2.84	569	7.83	641	7.28	713	1.43	785	0.170
354	0.0301	426	0.926	498	2.94	570	7.88	642	7.17	714	1.39	786	0.165
355	0.0307	427	1.02	499	3.05	571	7.93	643	7.07	715	1.35	787	0.160
356	0.0308	428	1.12	500	3.16	572	8.03	644	6.97	716	1.32	788	0.156
357	0.0293	429	1.23	501	3.29	573	8.09	645	6.86	717	1.28	789	0.152
358	0.0286	430	1.34	502	3.40	574	8.18	646	6.78	718	1.24	790	0.147
359	0.0280	431	1.46	503	3.54	575	8.22	647	6.66	719	1.21	791	0.142
360	0.0280	432	1.58	504	3.65	576	8.28	648	6.57	720	1.17	792	0.138
361	0.0287	433	1.71	505	3.76	577	8.37	649	6.46	721	1.14	793	0.135
362	0.0286	434	1.85	506	3.88	578	8.42	650	6.36	722	1.10	794	0.130
363	0.0279	435	1.97	507	3.99	579	8.51	651	6.25	723	1.07	795	0.127
364	0.0290	436	2.12	508	4.12	580	8.56	652	6.14	724	1.04	796	0.123
365	0.0290	437	2.25	509	4.22	581	8.65	653	6.03	725	1.01	797	0.120
366	0.0274	438	2.40	510	4.31	582	8.69	654	5.92	726	0.982	798	0.117
367	0.0277	439	2.54	511	4.43	583	8.77	655	5.82	727	0.953	799	0.113
368	0.0275	440	2.68	512	4.53	584	8.83	656	5.72	728	0.925	800	0.110
369	0.0278	441	2.83	513	4.61	585	8.91	657	5.61	729	0.899	801	0.107
370	0.0279	442	2.99	514	4.71	586	8.97	658	5.50	730	0.871	802	0.103
371	0.0276	443	3.15	515	4.79	587	9.02	659	5.39	731	0.847	803	0.101
372	0.0256	444	3.32	516	4.89	588	9.09	660	5.29	732	0.821	804	0.0979
373	0.0262	445	3.48	517	4.97	589	9.12	661	5.19	733	0.797	805	0.0952
374	0.0271	446	3.65	518	5.02	590	9.20	662	5.08	734	0.774	806	0.0927
375	0.0251	447	3.84	519	5.11	591	9.23	663	4.97	735	0.752	807	0.0899
376	0.0259	448	4.01	520	5.18	592	9.28	664	4.87	736	0.732	808	0.0874
377	0.0261	449	4.18	521	5.22	593	9.30	665	4.77	737	0.710	809	0.0847
378	0.0251	450	4.32	522	5.30	594	9.36	666	4.67	738	0.688	810	0.0831
379	0.0255	451	4.42	523	5.34	595	9.37	667	4.57	739	0.667	811	0.0805
380	0.0255	452	4.49	524	5.43	596	9.42	668	4.48	740	0.649	812	0.0783
381	0.0258	453	4.53	525	5.47	597	9.45	669	4.39	741	0.630	813	0.0764
382	0.0262	454	4.52	526	5.55	598	9.48	670	4.29	742	0.612	814	0.0745
383	0.0287	455	4.46	527	5.58	599	9.49	671	4.19	743	0.594	815	0.0721
384	0.0263	456	4.37	528	5.65	600	9.48	672	4.09	744	0.575	816	0.0701
385	0.0267	457	4.22	529	5.68	601	9.51	673	4.01	745	0.558	817	0.0682
386	0.0265	458	4.07	530	5.71	602	9.51	674	3.91	746	0.543	818	0.0663
387	0.0262	459	3.89	531	5.77	603	9.50	675	3.82	747	0.527	819	0.0645
388	0.0266	460	3.71	532	5.80	604	9.51	676	3.73	748	0.512	820	0.0631
389	0.0266	461	3.54	533	5.84	605	9.50	677	3.66	749	0.497	821	0.0614
390	0.0273	462	3.38	534	5.90	606	9.49	678	3.57	750	0.483	822	0.0598
391	0.0278	463	3.22	535	5.93	607	9.50	679	3.48	751	0.468	823	0.0577
392	0.0287	464	3.09	536	5.98	608	9.47	680	3.40	752	0.455	824	0.0564
393	0.0298	465	2.97	537	6.01	609	9.44	681	3.33	753	0.441	825	0.0549
394	0.0296	466	2.85	538	6.08	610	9.45	682	3.24	754	0.428	826	0.0539
395	0.0324	467	2.77	539	6.10	611	9.39	683	3.16	755	0.416	827	0.0525
396	0.0337	468	2.68	540	6.14	612	9.39	684	3.09	756	0.404	828	0.0511
397	0.0350	469	2.59	541	6.19	613	9.34	685	3.02	757	0.392	829	0.0494
398	0.0370	470	2.50	542	6.23	614	9.33	686	2.94	758	0.381	830	0.0484
399	0.0409	471	2.42	543	6.28	615	9.27	687	2.87	759	0.370	831	0.0470
400	0.0436	472	2.36	544	6.32	616	9.25	688	2.80	760	0.358	832	0.0454
401	0.0477	473	2.28	545	6.38	617	9.19	689	2.74	761	0.348	833	0.0448
402	0.0524	474	2.21	546	6.41	618	9.16	690	2.67	762	0.337	834	0.0435
403	0.0586	475	2.14	547	6.44	619	9.09	691	2.60	763	0.328	835	0.0425
404	0.0648	476	2.08	548	6.51	620	9.05	692	2.53	764	0.318	836	0.0414
405	0.0745	477	2.03	549	6.54	621	8.99	693	2.47	765	0.309	837	0.0406
406	0.0824	478	1.99	550	6.61	622	8.91	694	2.40	766	0.300	838	0.0392
407	0.0929	479	1.96	551	6.65	623	8.86	695	2.34	767	0.291	839	0.0384
408	0.106	480	1.93	552	6.73	624	8.79	696	2.28	768	0.282	840	0.0373
409	0.119	481	1.92	553	6.77	625	8.70	697	2.22	769	0.274	841	0.0364
410	0.137	482	1.93	554	6.83	626	8.65	698	2.16	770	0.266	842	0.0353
411	0.155	483	1.93	555	6.92	627	8.56	699	2.11	771	0.258	843	0.0344
412	0.177	484	1.95	556	6.95	628	8.47	700	2.05	772	0.250	844	0.0335
413	0.202	485	1.96	557	7.04	629	8.41	701	1.99	773	0.243	845	0.0326
414	0.231	486	2.01	558	7.09	630	8.31	702	1.94	774	0.236	846	0.0322
415	0.264	487	2.05	559	7.17	631	8.22	703	1.89	775	0.229	847	0.0315
416	0.300	488	2.09	560	7.21	632	8.13	704	1.84	776	0.222	848	0.0302
417	0.339	489	2.14	561	7.29	633	8.05	705	1.79	777	0.215	849	0.0297
418	0.385	490	2.22	562	7.34	634	7.95	706	1.74	778	0.210	850	0.0286
419	0.435	491	2.28	563	7.40	635	7.86	707	1.69	779	0.203		
420	0.487	492	2.35	564	7.50	636	7.75	708	1.64	780	0.197		
421	0.549	493	2.45	565	7.53	637	7.68	709	1.60	781	0.191		