



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 4000K GT4-RE-ES-S

Project Number
6012-000172
Test Number
28233

Test Date

2012-02-01

Prepared By

A handwritten signature in black ink, appearing to read 'Kyle Spaziani'.

Kyle Spaziani, Technician

Approved By

A handwritten signature in black ink, appearing to read 'Zachary Mooney'.

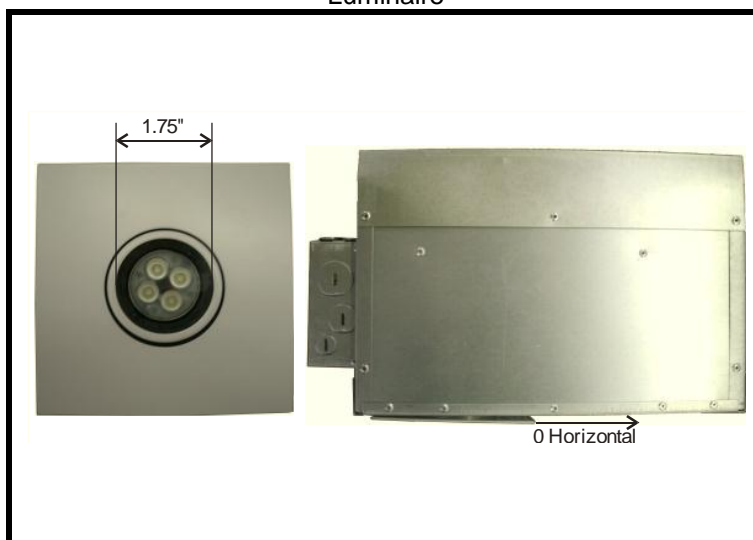
Zachary Mooney, Project Coordinator

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 4000K GT4-RE-ES-S
Lamp: Four white LEDs with frosted plastic optics
Mounting: Recessed
Ballast/Driver: One Lightech LED 36CC 700 PU

Luminaire



Summary of Results

Radiant Flux:	1411 mW
Luminous Flux:	439.8 Lumens
Luminaire Efficacy:	43.5 Lumens/Watt
CCT:	3882 K
CRI (Ra):	82.9
Chromaticity (x):	0.3849
Chromaticity (y):	0.3773
Chromaticity (u):	0.2278
Chromaticity (v):	0.3350
Duv:	-0.0012

Test Conditions

Test Temperature:	24.1 °C
Voltage:	120.0 VAC
Current:	0.08689 A
Power:	10.12 W
Power Factor:	0.970
Frequency:	60 Hz
Current THD:	17.1 %

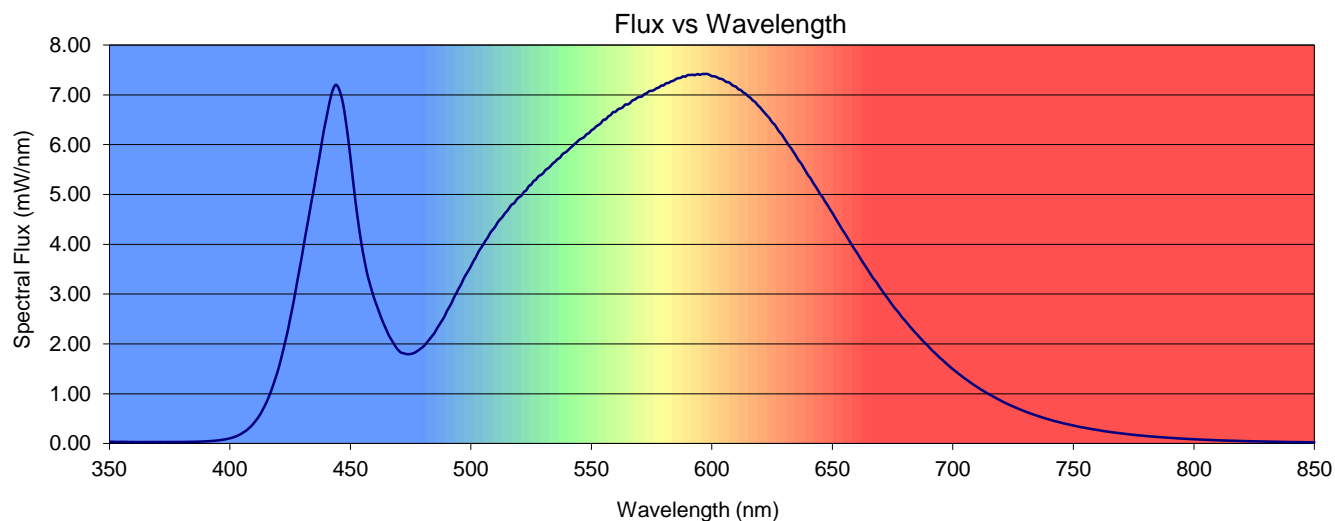
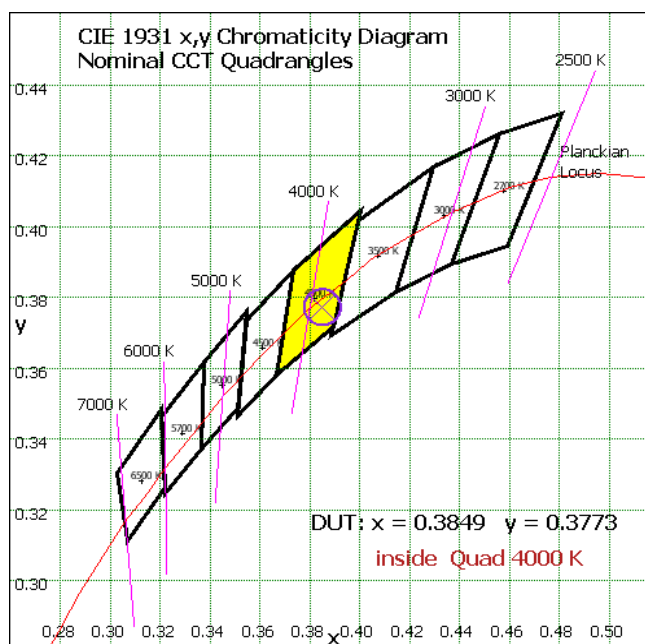
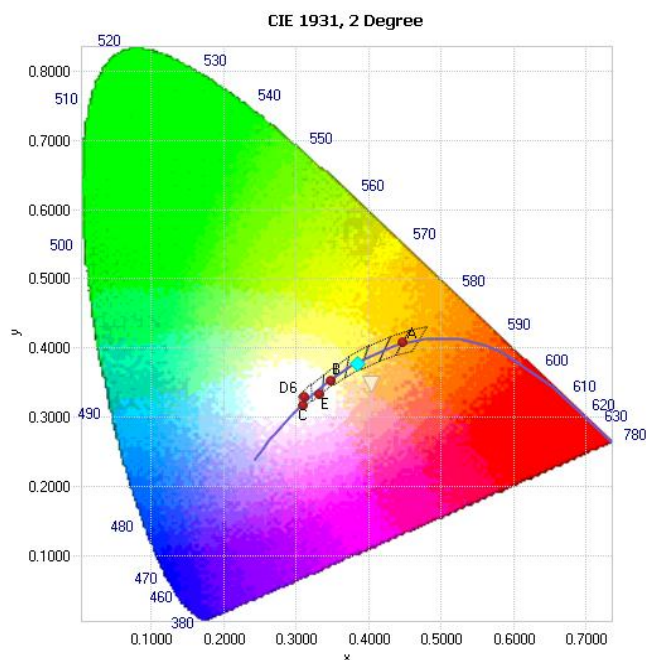


Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.3849	0.3773	0.2278	0.3350	0.2278	0.5025	-0.0012

Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
82.9	82.0	86.7	90.3	83.7	82.2	82.1	86.5	70.1	21.4	68.6	83.1	69.2	82.5	94.3





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	0.0337	422	1.85	494	3.02	566	6.83	638	5.54	710	1.14	782	0.143
351	0.0365	423	2.06	495	3.12	567	6.89	639	5.46	711	1.10	783	0.139
352	0.0333	424	2.26	496	3.20	568	6.90	640	5.38	712	1.08	784	0.135
353	0.0323	425	2.50	497	3.31	569	6.94	641	5.32	713	1.05	785	0.132
354	0.0322	426	2.74	498	3.39	570	6.96	642	5.23	714	1.02	786	0.128
355	0.0335	427	2.99	499	3.47	571	6.97	643	5.16	715	0.990	787	0.124
356	0.0325	428	3.27	500	3.56	572	7.01	644	5.09	716	0.964	788	0.121
357	0.0321	429	3.53	501	3.66	573	7.03	645	5.00	717	0.936	789	0.117
358	0.0297	430	3.80	502	3.73	574	7.07	646	4.94	718	0.910	790	0.115
359	0.0314	431	4.09	503	3.84	575	7.08	647	4.86	719	0.884	791	0.111
360	0.0303	432	4.35	504	3.91	576	7.10	648	4.79	720	0.859	792	0.108
361	0.0294	433	4.62	505	3.98	577	7.13	649	4.70	721	0.833	793	0.104
362	0.0294	434	4.90	506	4.07	578	7.15	650	4.63	722	0.810	794	0.101
363	0.0288	435	5.16	507	4.13	579	7.18	651	4.55	723	0.787	795	0.0988
364	0.0301	436	5.44	508	4.23	580	7.19	652	4.46	724	0.765	796	0.0963
365	0.0301	437	5.71	509	4.29	581	7.23	653	4.39	725	0.744	797	0.0937
366	0.0296	438	6.00	510	4.35	582	7.24	654	4.30	726	0.723	798	0.0912
367	0.0294	439	6.29	511	4.43	583	7.27	655	4.23	727	0.702	799	0.0880
368	0.0306	440	6.53	512	4.49	584	7.28	656	4.15	728	0.681	800	0.0859
369	0.0292	441	6.77	513	4.54	585	7.31	657	4.07	729	0.663	801	0.0825
370	0.0303	442	6.98	514	4.62	586	7.33	658	3.99	730	0.643	802	0.0816
371	0.0313	443	7.14	515	4.66	587	7.34	659	3.91	731	0.625	803	0.0791
372	0.0288	444	7.20	516	4.74	588	7.37	660	3.84	732	0.607	804	0.0770
373	0.0301	445	7.15	517	4.80	589	7.37	661	3.77	733	0.590	805	0.0750
374	0.0307	446	7.01	518	4.83	590	7.40	662	3.69	734	0.573	806	0.0735
375	0.0297	447	6.81	519	4.90	591	7.40	663	3.61	735	0.556	807	0.0708
376	0.0307	448	6.50	520	4.95	592	7.40	664	3.54	736	0.541	808	0.0694
377	0.0309	449	6.15	521	4.98	593	7.40	665	3.46	737	0.526	809	0.0669
378	0.0308	450	5.75	522	5.05	594	7.42	666	3.39	738	0.510	810	0.0653
379	0.0308	451	5.32	523	5.08	595	7.40	667	3.32	739	0.495	811	0.0634
380	0.0309	452	4.91	524	5.17	596	7.42	668	3.26	740	0.482	812	0.0615
381	0.0306	453	4.53	525	5.20	597	7.42	669	3.18	741	0.467	813	0.0601
382	0.0324	454	4.20	526	5.27	598	7.42	670	3.11	742	0.454	814	0.0591
383	0.0339	455	3.89	527	5.30	599	7.40	671	3.04	743	0.441	815	0.0570
384	0.0334	456	3.64	528	5.36	600	7.37	672	2.97	744	0.429	816	0.0559
385	0.0352	457	3.40	529	5.39	601	7.37	673	2.91	745	0.416	817	0.0546
386	0.0355	458	3.22	530	5.43	602	7.36	674	2.84	746	0.404	818	0.0528
387	0.0372	459	3.05	531	5.49	603	7.33	675	2.78	747	0.394	819	0.0514
388	0.0387	460	2.90	532	5.52	604	7.32	676	2.71	748	0.383	820	0.0501
389	0.0405	461	2.76	533	5.57	605	7.30	677	2.66	749	0.372	821	0.0494
390	0.0429	462	2.63	534	5.62	606	7.26	678	2.59	750	0.362	822	0.0477
391	0.0460	463	2.50	535	5.66	607	7.25	679	2.53	751	0.350	823	0.0468
392	0.0486	464	2.38	536	5.71	608	7.21	680	2.48	752	0.340	824	0.0452
393	0.0523	465	2.28	537	5.74	609	7.18	681	2.42	753	0.330	825	0.0444
394	0.0574	466	2.17	538	5.81	610	7.16	682	2.36	754	0.322	826	0.0433
395	0.0627	467	2.09	539	5.84	611	7.11	683	2.30	755	0.313	827	0.0421
396	0.0682	468	2.00	540	5.87	612	7.10	684	2.25	756	0.304	828	0.0412
397	0.0753	469	1.93	541	5.92	613	7.05	685	2.20	757	0.295	829	0.0396
398	0.0825	470	1.87	542	5.96	614	7.02	686	2.14	758	0.287	830	0.0390
399	0.0932	471	1.83	543	6.01	615	6.97	687	2.09	759	0.279	831	0.0379
400	0.105	472	1.81	544	6.05	616	6.94	688	2.04	760	0.271	832	0.0365
401	0.118	473	1.80	545	6.10	617	6.89	689	1.99	761	0.263	833	0.0357
402	0.134	474	1.79	546	6.12	618	6.85	690	1.94	762	0.255	834	0.0354
403	0.153	475	1.80	547	6.15	619	6.79	691	1.89	763	0.247	835	0.0342
404	0.176	476	1.81	548	6.21	620	6.75	692	1.84	764	0.241	836	0.0330
405	0.205	477	1.83	549	6.23	621	6.69	693	1.80	765	0.234	837	0.0327
406	0.234	478	1.86	550	6.29	622	6.63	694	1.75	766	0.227	838	0.0318
407	0.269	479	1.90	551	6.32	623	6.58	695	1.70	767	0.220	839	0.0307
408	0.311	480	1.94	552	6.37	624	6.53	696	1.66	768	0.214	840	0.0302
409	0.356	481	1.98	553	6.40	625	6.45	697	1.62	769	0.208	841	0.0296
410	0.414	482	2.04	554	6.43	626	6.41	698	1.58	770	0.203	842	0.0290
411	0.475	483	2.10	555	6.50	627	6.33	699	1.53	771	0.197	843	0.0284
412	0.541	484	2.16	556	6.51	628	6.26	700	1.49	772	0.190	844	0.0277
413	0.622	485	2.23	557	6.57	629	6.21	701	1.45	773	0.185	845	0.0269
414	0.712	486	2.31	558	6.59	630	6.13	702	1.41	774	0.179	846	0.0264
415	0.810	487	2.39	559	6.65	631	6.05	703	1.38	775	0.175	847	0.0258
416	0.920	488	2.47	560	6.66	632	5.98	704	1.34	776	0.170	848	0.0256
417	1.04	489	2.54	561	6.71	633	5.92	705	1.30	777	0.165	849	0.0245
418	1.18	490	2.65	562	6.73	634	5.84	706	1.27	778	0.161	850	0.0236
419	1.32	491	2.74	563	6.75	635	5.77	707	1.24	779	0.156		
420	1.48	492	2.82	564	6.80	636	5.68	708	1.20	780	0.151		
421	1.66	493	2.93	565	6.81	637	5.63	709	1.17	781	0.147		