



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-WW

Project Number
6012-000172
Test Number
28231

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'.

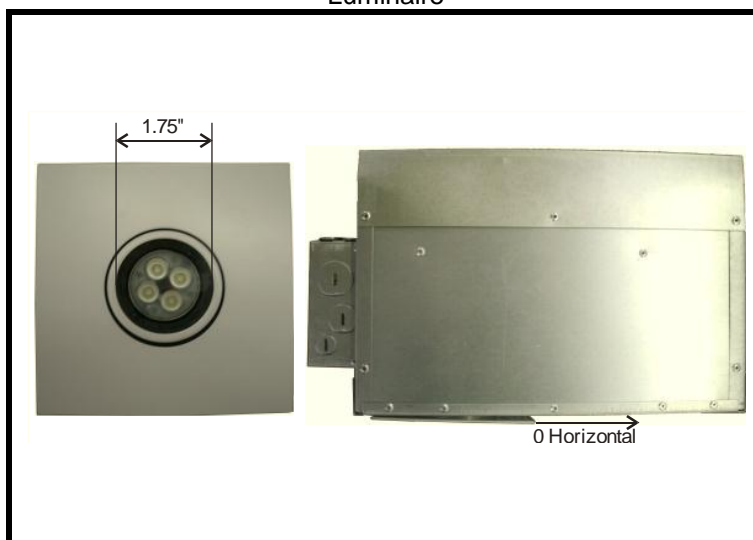
Zachary Mooney, Project Coordinator

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-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:	1520 mW
Luminous Flux:	473.8 Lumens
Luminaire Efficacy:	46.8 Lumens/Watt
CCT:	3886 K
CRI (Ra):	82.9
Chromaticity (x):	0.3846
Chromaticity (y):	0.3770
Chromaticity (u):	0.2278
Chromaticity (v):	0.3349
Duv:	-0.0012

Test Conditions

Test Temperature:	24.4 °C
Voltage:	120.0 VAC
Current:	0.08688 A
Power:	10.11 W
Power Factor:	0.970
Frequency:	60 Hz
Current THD:	17.1 %

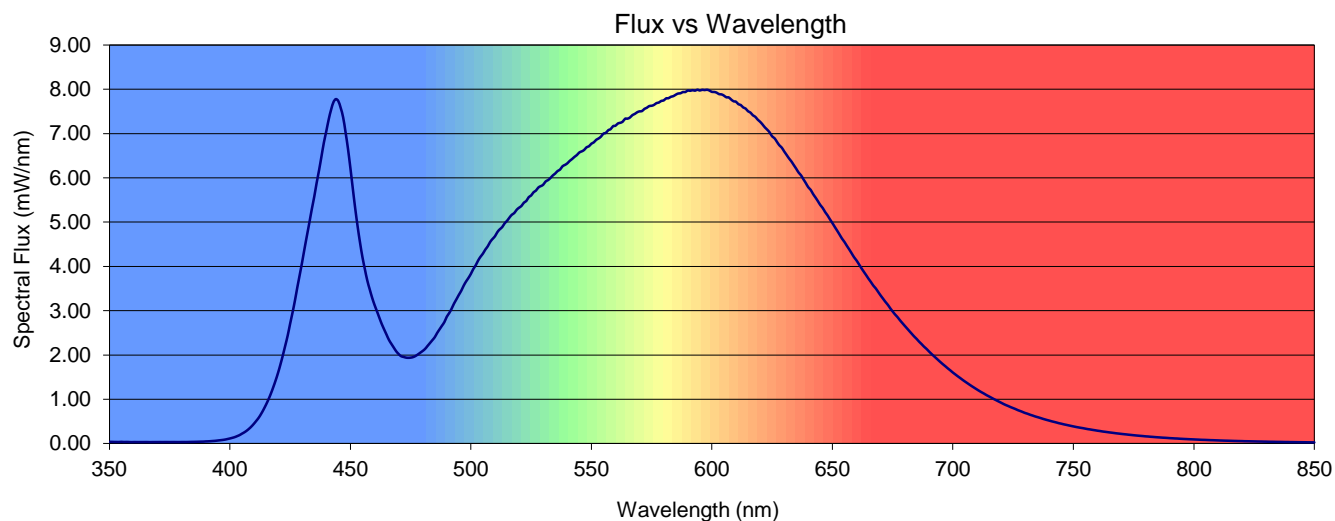
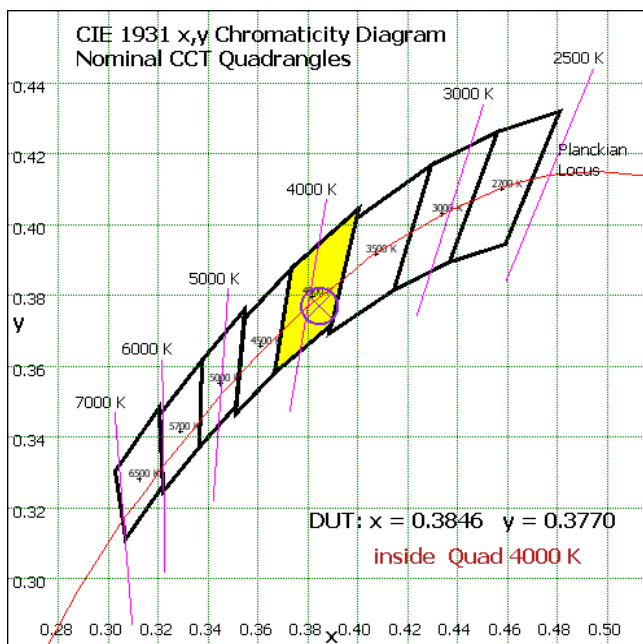
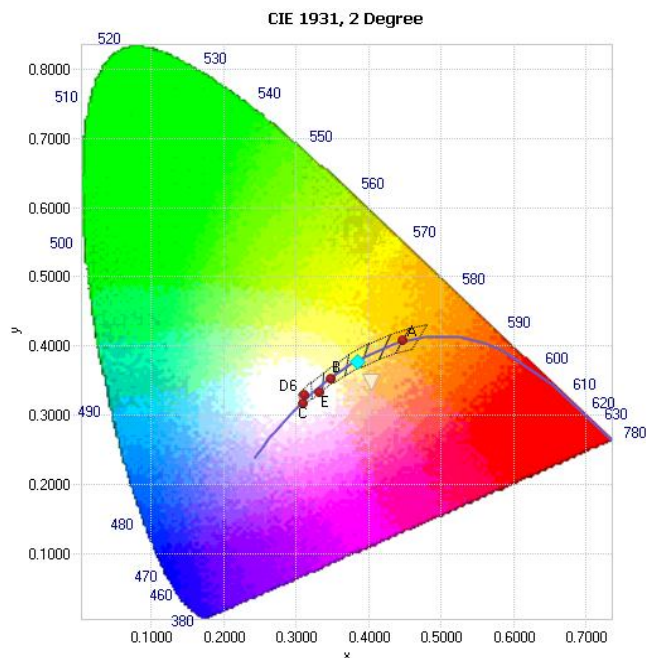


Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.3846	0.3770	0.2278	0.3349	0.2278	0.5023	-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	83.6	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	0.0380	422	2.00	494	3.26	566	7.36	638	5.97	710	1.22	782	0.153
351	0.0376	423	2.22	495	3.36	567	7.42	639	5.88	711	1.19	783	0.149
352	0.0358	424	2.44	496	3.45	568	7.44	640	5.79	712	1.15	784	0.145
353	0.0348	425	2.71	497	3.56	569	7.48	641	5.73	713	1.12	785	0.140
354	0.0345	426	2.96	498	3.66	570	7.50	642	5.63	714	1.09	786	0.137
355	0.0378	427	3.23	499	3.74	571	7.51	643	5.56	715	1.06	787	0.133
356	0.0341	428	3.53	500	3.83	572	7.56	644	5.47	716	1.03	788	0.130
357	0.0353	429	3.82	501	3.94	573	7.58	645	5.39	717	1.00	789	0.126
358	0.0343	430	4.10	502	4.03	574	7.62	646	5.32	718	0.977	790	0.121
359	0.0312	431	4.41	503	4.13	575	7.63	647	5.23	719	0.949	791	0.119
360	0.0327	432	4.71	504	4.22	576	7.65	648	5.15	720	0.922	792	0.115
361	0.0328	433	4.99	505	4.29	577	7.69	649	5.06	721	0.894	793	0.113
362	0.0322	434	5.30	506	4.38	578	7.70	650	4.98	722	0.869	794	0.109
363	0.0326	435	5.57	507	4.45	579	7.74	651	4.89	723	0.846	795	0.106
364	0.0327	436	5.88	508	4.55	580	7.75	652	4.81	724	0.821	796	0.103
365	0.0330	437	6.17	509	4.62	581	7.79	653	4.72	725	0.800	797	0.100
366	0.0325	438	6.48	510	4.68	582	7.80	654	4.63	726	0.778	798	0.0973
367	0.0310	439	6.79	511	4.78	583	7.83	655	4.55	727	0.753	799	0.0949
368	0.0324	440	7.05	512	4.84	584	7.85	656	4.47	728	0.733	800	0.0925
369	0.0322	441	7.32	513	4.89	585	7.88	657	4.38	729	0.712	801	0.0896
370	0.0327	442	7.54	514	4.97	586	7.90	658	4.30	730	0.689	802	0.0873
371	0.0330	443	7.71	515	5.03	587	7.91	659	4.21	731	0.672	803	0.0840
372	0.0326	444	7.78	516	5.10	588	7.94	660	4.14	732	0.651	804	0.0828
373	0.0333	445	7.73	517	5.17	589	7.94	661	4.05	733	0.633	805	0.0807
374	0.0334	446	7.58	518	5.21	590	7.97	662	3.97	734	0.614	806	0.0784
375	0.0326	447	7.37	519	5.28	591	7.97	663	3.88	735	0.598	807	0.0760
376	0.0330	448	7.03	520	5.33	592	7.98	664	3.80	736	0.582	808	0.0749
377	0.0330	449	6.66	521	5.37	593	7.97	665	3.72	737	0.564	809	0.0721
378	0.0323	450	6.22	522	5.44	594	7.99	666	3.65	738	0.547	810	0.0703
379	0.0326	451	5.76	523	5.48	595	7.97	667	3.57	739	0.532	811	0.0681
380	0.0335	452	5.31	524	5.56	596	7.99	668	3.50	740	0.518	812	0.0663
381	0.0334	453	4.90	525	5.60	597	7.98	669	3.42	741	0.502	813	0.0645
382	0.0334	454	4.54	526	5.68	598	7.99	670	3.35	742	0.488	814	0.0633
383	0.0347	455	4.21	527	5.71	599	7.97	671	3.27	743	0.475	815	0.0612
384	0.0365	456	3.94	528	5.78	600	7.94	672	3.20	744	0.459	816	0.0595
385	0.0374	457	3.69	529	5.81	601	7.94	673	3.13	745	0.447	817	0.0581
386	0.0388	458	3.49	530	5.84	602	7.92	674	3.06	746	0.434	818	0.0566
387	0.0404	459	3.30	531	5.92	603	7.89	675	2.98	747	0.422	819	0.0552
388	0.0420	460	3.13	532	5.95	604	7.89	676	2.92	748	0.410	820	0.0539
389	0.0433	461	2.99	533	6.00	605	7.86	677	2.86	749	0.398	821	0.0520
390	0.0473	462	2.84	534	6.05	606	7.82	678	2.79	750	0.387	822	0.0509
391	0.0491	463	2.70	535	6.10	607	7.82	679	2.72	751	0.375	823	0.0500
392	0.0529	464	2.58	536	6.16	608	7.77	680	2.66	752	0.365	824	0.0487
393	0.0572	465	2.46	537	6.19	609	7.73	681	2.60	753	0.355	825	0.0476
394	0.0613	466	2.34	538	6.26	610	7.72	682	2.54	754	0.346	826	0.0463
395	0.0681	467	2.25	539	6.29	611	7.66	683	2.48	755	0.336	827	0.0449
396	0.0741	468	2.17	540	6.33	612	7.64	684	2.41	756	0.325	828	0.0443
397	0.0810	469	2.08	541	6.38	613	7.59	685	2.36	757	0.317	829	0.0430
398	0.0891	470	2.02	542	6.43	614	7.56	686	2.30	758	0.308	830	0.0419
399	0.101	471	1.97	543	6.47	615	7.50	687	2.25	759	0.299	831	0.0404
400	0.114	472	1.96	544	6.52	616	7.48	688	2.19	760	0.290	832	0.0394
401	0.128	473	1.94	545	6.57	617	7.41	689	2.14	761	0.282	833	0.0386
402	0.144	474	1.94	546	6.60	618	7.38	690	2.08	762	0.273	834	0.0376
403	0.166	475	1.94	547	6.63	619	7.32	691	2.03	763	0.266	835	0.0367
404	0.190	476	1.95	548	6.69	620	7.27	692	1.98	764	0.258	836	0.0360
405	0.222	477	1.98	549	6.71	621	7.21	693	1.93	765	0.250	837	0.0350
406	0.253	478	2.01	550	6.77	622	7.14	694	1.88	766	0.244	838	0.0338
407	0.291	479	2.05	551	6.80	623	7.09	695	1.83	767	0.237	839	0.0335
408	0.336	480	2.09	552	6.86	624	7.03	696	1.78	768	0.229	840	0.0322
409	0.388	481	2.14	553	6.89	625	6.94	697	1.74	769	0.223	841	0.0317
410	0.449	482	2.20	554	6.93	626	6.89	698	1.69	770	0.217	842	0.0309
411	0.515	483	2.27	555	7.00	627	6.81	699	1.65	771	0.211	843	0.0302
412	0.585	484	2.33	556	7.02	628	6.74	700	1.60	772	0.205	844	0.0295
413	0.673	485	2.40	557	7.08	629	6.68	701	1.56	773	0.199	845	0.0288
414	0.770	486	2.50	558	7.10	630	6.60	702	1.52	774	0.193	846	0.0284
415	0.879	487	2.58	559	7.17	631	6.52	703	1.48	775	0.188	847	0.0272
416	0.996	488	2.66	560	7.18	632	6.44	704	1.44	776	0.182	848	0.0271
417	1.13	489	2.74	561	7.23	633	6.37	705	1.40	777	0.177	849	0.0262
418	1.27	490	2.86	562	7.24	634	6.29	706	1.36	778	0.172	850	0.0253
419	1.43	491	2.95	563	7.27	635	6.21	707	1.33	779	0.168		
420	1.60	492	3.04	564	7.34	636	6.12	708	1.29	780	0.162		
421	1.79	493	3.16	565	7.34	637	6.06	709	1.26	781	0.158		