



## 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  
PAR20

Project Number  
6012-000184  
Test Number  
28448

Test Date

2012-02-20

Prepared By

Handwritten signature of Kyle Spaziani in black ink.

Kyle Spaziani, Technician

Approved By

Handwritten signature of Eric M. Gaudreau in black ink.

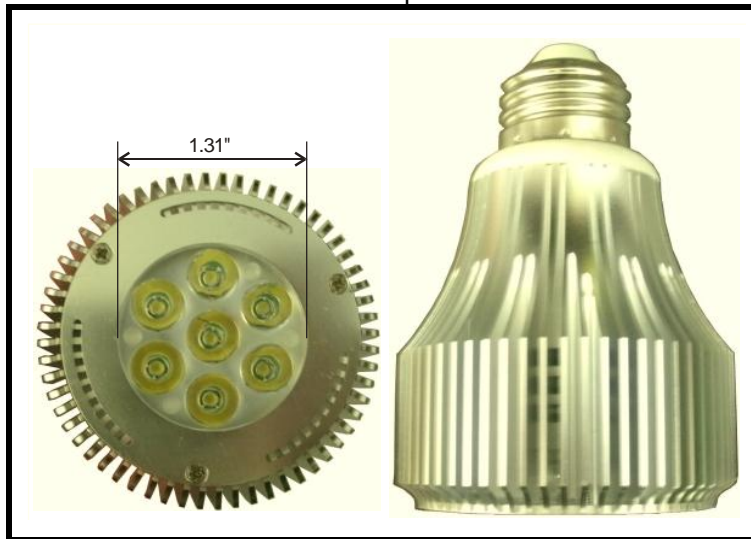
Eric Gaudreau, Technician

The results contained in this report pertain only to the tested sample.  
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Lamp Description: Machined aluminum heatsink housing, frosted plastic enclosure with clear section below LEDs  
Catalog Number: PAR20  
Lamp: One 8.5 watt PAR20 LED replacement lamp with seven white LEDs  
Mounting: VBU

Lamp



Summary of Results

Radiant Flux: 1908 mW  
Luminous Flux: 609.4 Lumens  
Lamp Efficacy: 80.4 Lumens/Watt  
CCT: 3925 K  
CRI (Ra): 80.4  
Chromaticity (x): 0.3820  
Chromaticity (y): 0.3728  
Chromaticity (u): 0.2277  
Chromaticity (v): 0.3334  
Duv: -0.0024

Test Conditions

Test Temperature: 24.8 °C  
Voltage: 120.0 VAC  
Current: 0.06489 A  
Power: 7.576 W  
Power Factor: 0.973  
Frequency: 60 Hz  
Current THD: 15.8 %

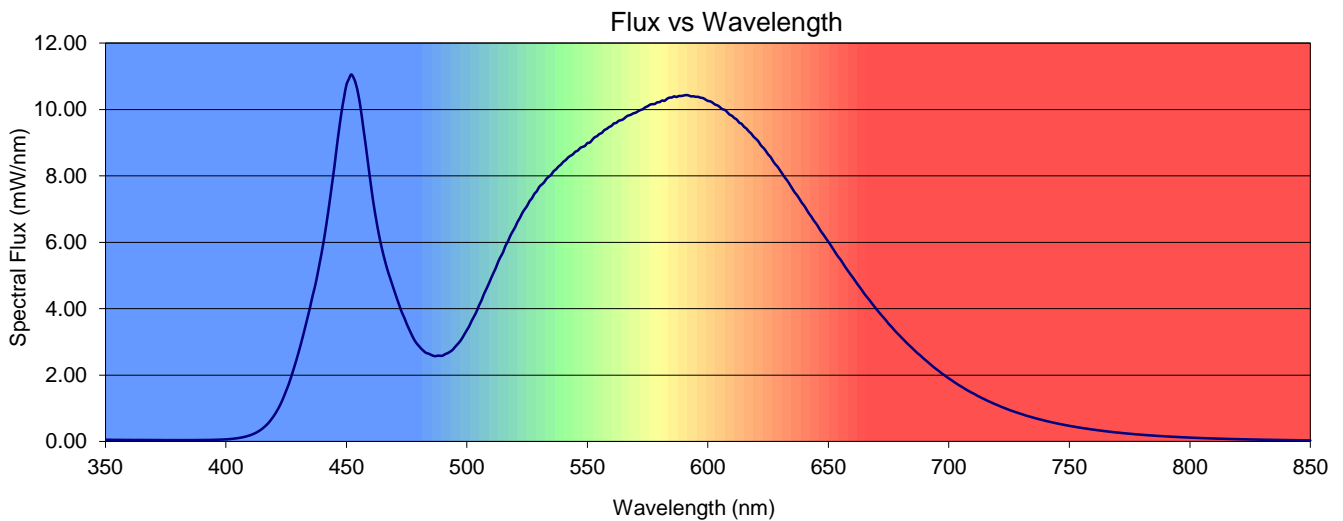
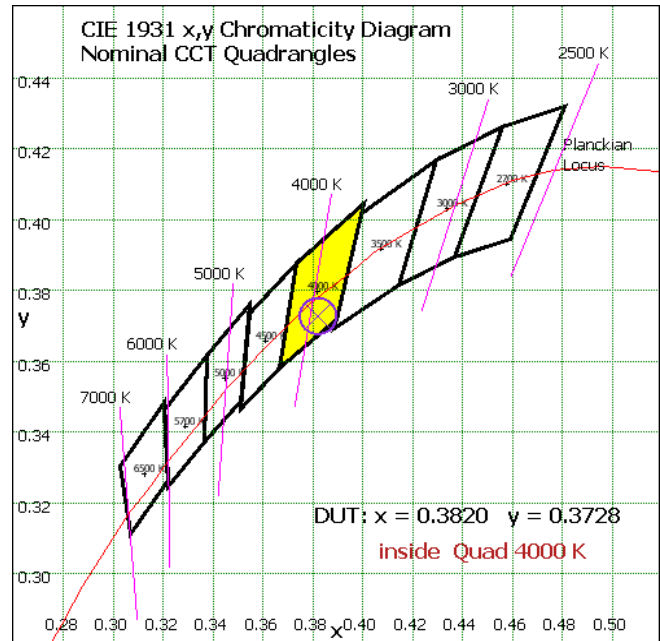
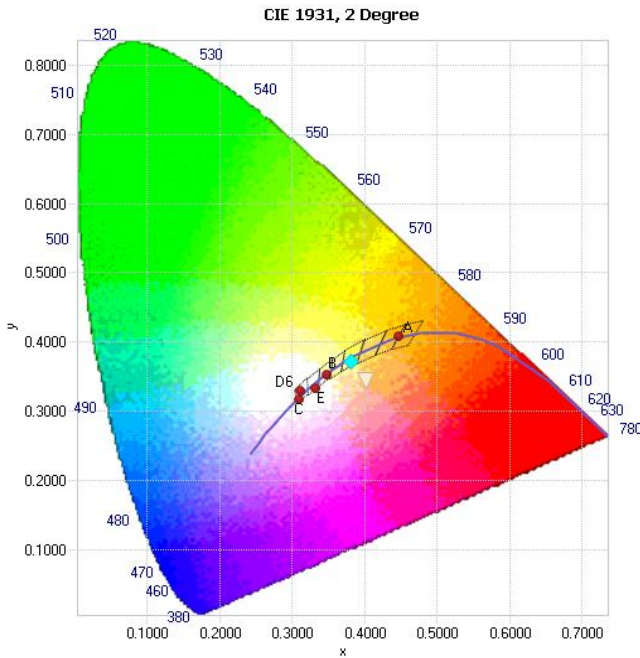


Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.3820	0.3728	0.2277	0.3334	0.2277	0.5001	-0.0024

Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
80.4	79.2	86.3	89.6	78.7	78.1	79.1	86.2	66.3	12.1	65.0	74.4	55.1	80.6	93.7





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	0.0514	422	1.03	494	2.76	566	9.78	638	7.31	710	1.45	782	0.193
351	0.0530	423	1.18	495	2.84	567	9.82	639	7.19	711	1.41	783	0.187
352	0.0534	424	1.34	496	2.92	568	9.84	640	7.10	712	1.37	784	0.183
353	0.0496	425	1.53	497	3.00	569	9.88	641	6.98	713	1.34	785	0.178
354	0.0493	426	1.71	498	3.11	570	9.90	642	6.86	714	1.30	786	0.173
355	0.0493	427	1.93	499	3.23	571	9.94	643	6.77	715	1.26	787	0.168
356	0.0490	428	2.16	500	3.35	572	9.98	644	6.65	716	1.23	788	0.164
357	0.0481	429	2.39	501	3.48	573	10.0	645	6.56	717	1.20	789	0.159
358	0.0470	430	2.64	502	3.64	574	10.1	646	6.44	718	1.16	790	0.155
359	0.0464	431	2.91	503	3.77	575	10.1	647	6.32	719	1.13	791	0.151
360	0.0471	432	3.18	504	3.91	576	10.1	648	6.23	720	1.10	792	0.147
361	0.0463	433	3.47	505	4.09	577	10.2	649	6.12	721	1.07	793	0.142
362	0.0455	434	3.77	506	4.24	578	10.2	650	6.02	722	1.04	794	0.139
363	0.0456	435	4.07	507	4.43	579	10.2	651	5.91	723	1.01	795	0.135
364	0.0462	436	4.39	508	4.58	580	10.2	652	5.80	724	0.983	796	0.131
365	0.0463	437	4.68	509	4.74	581	10.3	653	5.68	725	0.953	797	0.128
366	0.0467	438	5.03	510	4.91	582	10.3	654	5.57	726	0.927	798	0.125
367	0.0446	439	5.41	511	5.07	583	10.3	655	5.48	727	0.902	799	0.121
368	0.0452	440	5.79	512	5.23	584	10.4	656	5.37	728	0.877	800	0.118
369	0.0452	441	6.22	513	5.41	585	10.4	657	5.26	729	0.853	801	0.115
370	0.0433	442	6.69	514	5.56	586	10.4	658	5.15	730	0.830	802	0.112
371	0.0452	443	7.20	515	5.70	587	10.4	659	5.05	731	0.806	803	0.109
372	0.0439	444	7.73	516	5.89	588	10.4	660	4.95	732	0.782	804	0.106
373	0.0430	445	8.27	517	6.02	589	10.4	661	4.85	733	0.761	805	0.104
374	0.0427	446	8.86	518	6.19	590	10.4	662	4.75	734	0.741	806	0.101
375	0.0413	447	9.42	519	6.33	591	10.4	663	4.65	735	0.720	807	0.0980
376	0.0421	448	9.93	520	6.45	592	10.4	664	4.55	736	0.700	808	0.0955
377	0.0426	449	10.3	521	6.61	593	10.4	665	4.44	737	0.681	809	0.0934
378	0.0418	450	10.7	522	6.73	594	10.4	666	4.35	738	0.662	810	0.0906
379	0.0426	451	10.9	523	6.88	595	10.4	667	4.26	739	0.644	811	0.0882
380	0.0414	452	11.1	524	7.00	596	10.4	668	4.17	740	0.625	812	0.0857
381	0.0418	453	11.0	525	7.10	597	10.4	669	4.07	741	0.608	813	0.0837
382	0.0429	454	10.8	526	7.24	598	10.3	670	3.98	742	0.591	814	0.0820
383	0.0427	455	10.4	527	7.32	599	10.3	671	3.89	743	0.575	815	0.0804
384	0.0429	456	9.99	528	7.46	600	10.3	672	3.81	744	0.559	816	0.0780
385	0.0425	457	9.46	529	7.53	601	10.2	673	3.73	745	0.543	817	0.0759
386	0.0429	458	8.93	530	7.67	602	10.2	674	3.64	746	0.529	818	0.0743
387	0.0428	459	8.37	531	7.74	603	10.1	675	3.54	747	0.514	819	0.0720
388	0.0436	460	7.82	532	7.80	604	10.1	676	3.47	748	0.500	820	0.0705
389	0.0444	461	7.29	533	7.91	605	10.1	677	3.39	749	0.485	821	0.0684
390	0.0447	462	6.84	534	7.98	606	10.0	678	3.31	750	0.472	822	0.0670
391	0.0463	463	6.42	535	8.04	607	9.99	679	3.23	751	0.460	823	0.0657
392	0.0466	464	6.05	536	8.14	608	9.92	680	3.16	752	0.447	824	0.0638
393	0.0472	465	5.73	537	8.20	609	9.84	681	3.08	753	0.433	825	0.0622
394	0.0484	466	5.44	538	8.28	610	9.81	682	3.01	754	0.422	826	0.0607
395	0.0503	467	5.18	539	8.34	611	9.74	683	2.93	755	0.410	827	0.0590
396	0.0529	468	4.95	540	8.42	612	9.69	684	2.87	756	0.400	828	0.0579
397	0.0560	469	4.73	541	8.48	613	9.60	685	2.80	757	0.389	829	0.0561
398	0.0578	470	4.51	542	8.55	614	9.57	686	2.73	758	0.378	830	0.0546
399	0.0615	471	4.30	543	8.60	615	9.48	687	2.66	759	0.367	831	0.0535
400	0.0650	472	4.09	544	8.65	616	9.42	688	2.60	760	0.358	832	0.0523
401	0.0697	473	3.89	545	8.73	617	9.34	689	2.53	761	0.347	833	0.0515
402	0.0762	474	3.74	546	8.76	618	9.27	690	2.47	762	0.338	834	0.0498
403	0.0837	475	3.55	547	8.84	619	9.18	691	2.41	763	0.328	835	0.0488
404	0.0927	476	3.39	548	8.87	620	9.11	692	2.35	764	0.319	836	0.0477
405	0.102	477	3.23	549	8.90	621	9.03	693	2.28	765	0.310	837	0.0464
406	0.115	478	3.09	550	8.99	622	8.92	694	2.22	766	0.302	838	0.0454
407	0.129	479	2.97	551	9.00	623	8.85	695	2.17	767	0.292	839	0.0439
408	0.145	480	2.88	552	9.08	624	8.76	696	2.11	768	0.285	840	0.0433
409	0.166	481	2.80	553	9.16	625	8.65	697	2.05	769	0.276	841	0.0424
410	0.188	482	2.73	554	9.19	626	8.57	698	2.00	770	0.269	842	0.0412
411	0.215	483	2.67	555	9.26	627	8.45	699	1.95	771	0.263	843	0.0406
412	0.247	484	2.65	556	9.29	628	8.35	700	1.90	772	0.255	844	0.0396
413	0.285	485	2.61	557	9.38	629	8.27	701	1.85	773	0.247	845	0.0389
414	0.329	486	2.58	558	9.41	630	8.16	702	1.80	774	0.241	846	0.0376
415	0.381	487	2.57	559	9.47	631	8.05	703	1.75	775	0.234	847	0.0370
416	0.442	488	2.59	560	9.50	632	7.94	704	1.71	776	0.229	848	0.0358
417	0.508	489	2.58	561	9.58	633	7.85	705	1.66	777	0.222	849	0.0350
418	0.588	490	2.59	562	9.60	634	7.74	706	1.62	778	0.216	850	0.0341
419	0.682	491	2.63	563	9.66	635	7.62	707	1.57	779	0.210		
420	0.783	492	2.66	564	9.68	636	7.51	708	1.53	780	0.204		
421	0.901	493	2.70	565	9.71	637	7.42	709	1.49	781	0.198		