

LM-79-08 Test Report

For

CEA GROUP INTERNATIONAL CO.,LTD

(Brand Name: CEA)

Sanjiali Industrial Zone,Zhucheng Road,Panshi North Baixiang,
Yueqing,Zhejiang,China

Architectural Flood and Spot Luminaires

Model name(s): LFL1-200

Representative (Tested) Model: LFL1-200(3000K)
LFL1-200(5700K)

Model Difference: All construction and rating are the same, except CCT

Test & Report By:

Sean Zhuo

Engineer: Sean Zhuo

Date: Oct.09,2014

Review By:

Tommy Liang

Manager: Tommy Liang

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

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Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

U.S. Department of Energy

Lighting Facts™ Uniform LM-79 Reporting Template
Laboratory Information:

Name of Test Laboratory	Standard-Tech Co. Ltd
Date of Test Report	Oct.09,2014
Test Report No.	GZE140805-G
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	CEA GROUP INTERNATIONAL CO.,LTD	
Brand Name	CEA	
Model Number	LFL1-200(3000K)	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot Luminaires	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	

Integrating Sphere
Goniophotometer
Electrical Measurements:

	Output	Output	
Input Wattage	--	197.2	W
Input Current	--	1.670	A
Input Voltage (ac)	--	120.1	V
Power Factor	--	0.9834	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	14562	lm
Initial Lumen Efficacy	--	73.84	lm/w
Correlated color temperature / CCT	3129	--	K
Color rendering index / CRI	72.5	--	
R9 Value	0	--	
Duv	0.0024	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		5961	cd
Beam angle (if applicable)		106.0	°
Zonal lumens in the 0°-60° zone		86.6	%
Zonal lumens in the 60°-90° zone	-----	13.1	%
Zonal lumens in the 90°-120° zone		0.1	%
Zonal lumens in the 120°-180° zone		0.2	%

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Product Information:

Organization Name	CEA GROUP INTERNATIONAL CO.,LTD	
Brand Name	CEA	
Model Number	LFL1-200(5700K)	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot Luminaires	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	

Electrical Measurements:	Integrating Sphere	Goniophotometer	
	Output	Output	
Input Wattage	198.5	--	W
Input Current	1.663	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9948	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	15479	--	lm
Initial Lumen Efficacy	77.98	--	lm/w
Correlated color temperature / CCT	5937	--	K
Color rendering index / CRI	76.8	--	
R9 Value	0	--	
Duv	0.0012	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)			cd
Beam angle (if applicable)			°
Zonal lumens in the 0°-60° zone	-----	-----	%
Zonal lumens in the 60°-90° zone			%
Zonal lumens in the 90°-120° zone			%
Zonal lumens in the 120°-180° zone			%

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Test Specifications:	
Date of Receipt	: Sep.30,2014
Date of Test	: Oct.08,2014
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

Test Methods

1. Photometric and Electrical measurements – Light Distribution Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.

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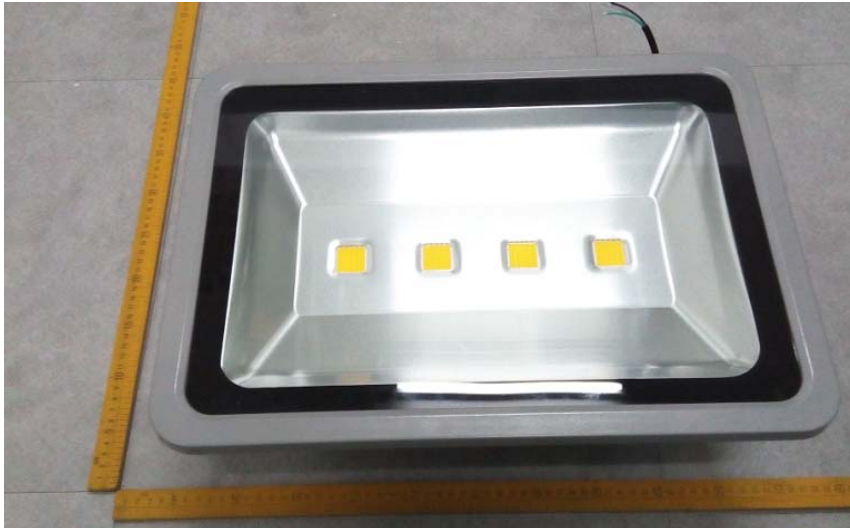
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1. Product Information:

Brand Name	CEA
Model Number	LFL1-200
Luminaire Type	Architectural Flood and Spot Luminaires
Rated Voltage / Frequency	100 ~ 277 Vac, 50/60 Hz
Nominal Power	200W
Rated Initial Lamp Lumen	--
Declared CCT	3000K,3500K,4000K,4500K,5000K,5700K
LED Manufacturer	ChuangTe LED
LED Model	CT-50W
Sample Receipt Date	Sep.30,2014
Sample Number	140805-13(3000K),-14(5700K)

Photo



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2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2014-10-08	Test Ambient:	25.0 °C
Test Orientation	Lighting Downward, light surface parallel to horizontal line	Stabilization Time (min)	90
Model Number	LFL1-200(3000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
140805-13	120.1	60	1.670	197.2	0.9834	8.84
	277.0	60	0.7761	198.5	0.9233	15.56

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	72.5
R9	0
CCT (K)	3129
Chromaticity (x, y)	x=0.4314 y=0.4081
Chromaticity (u', v')	u'=0.2453 v'=0.5221
Duv	0.0024

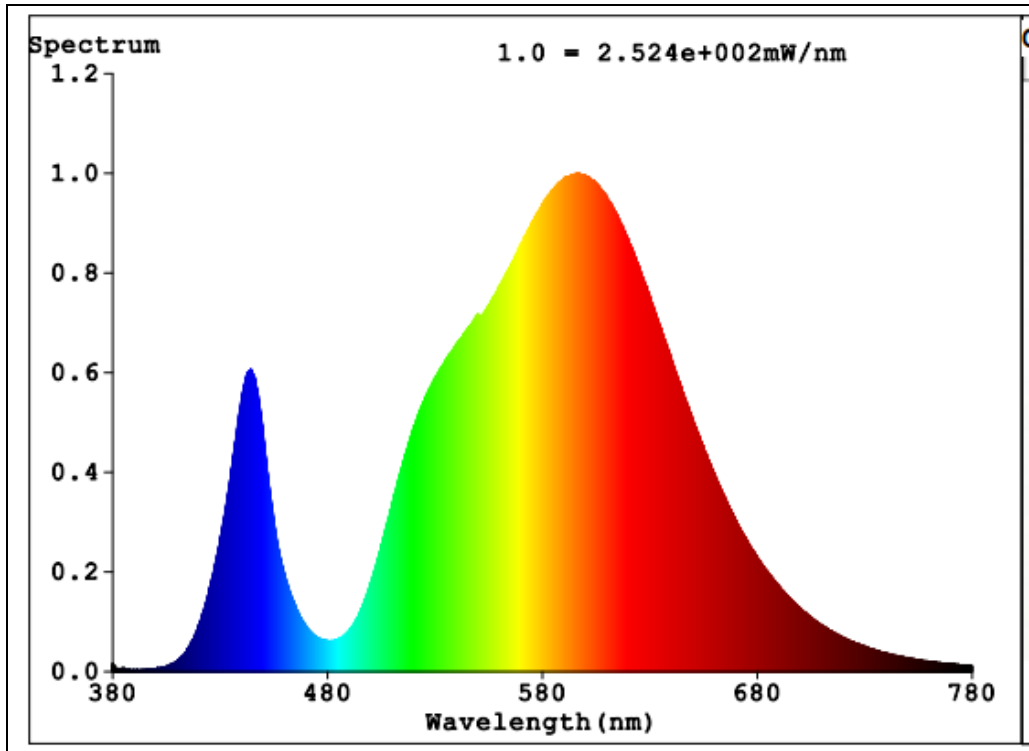
Special Color Rendering Indices			
R1	70	R9	0
R2	79	R10	51
R3	87	R11	68
R4	72	R12	44
R5	69	R13	71
R6	71	R14	92
R7	81	R15	63
R8	51	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	14562
Luminous Efficacy (lm/W)	73.84
Beam Angle°	106.0
NEMA Beam Classification	7X7
Center Beam Candle Power (cd)	5961
S/MH(C0/180)	1.29
S/MH(C90/270)	1.15

Spectral Power Distribution

Spectral Power Distribution:



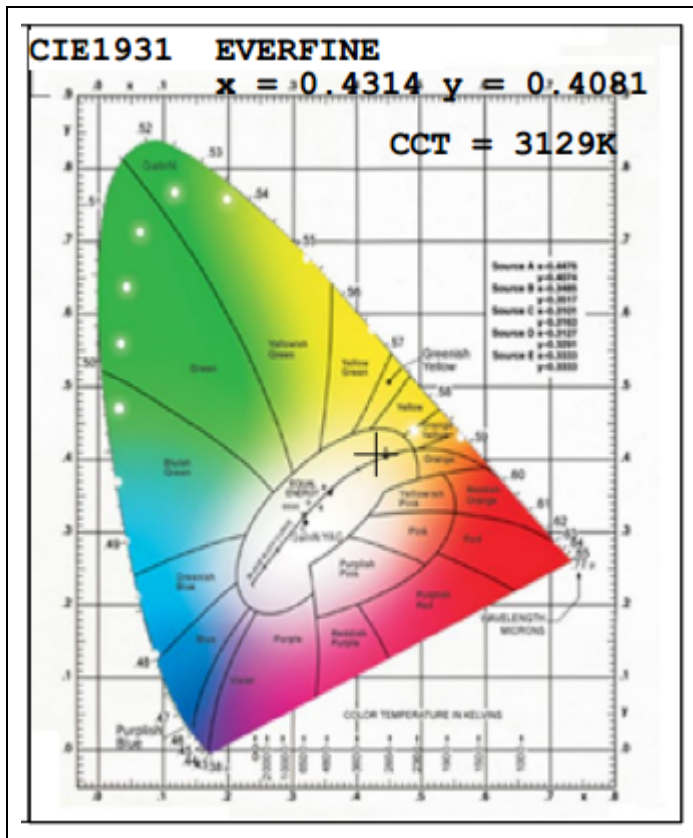
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Chromaticity Diagram



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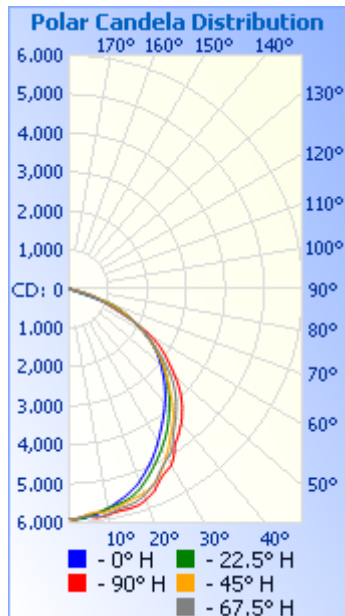
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Zonal Lumen Tabulation

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	4,569.7	31.4%	31.4%
0-40	7,375.8	50.7%	50.7%
0-60	12,615.4	86.6%	86.6%
60-90	1,905.9	13.1%	13.1%
70-100	366.9	2.5%	2.5%
90-120	9.6	0.1%	0.1%
0-90	14,521.3	99.7%	99.7%
90-180	38.1	0.3%	0.3%
0-180	14,559.4	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	558.0	3.8%	90-100	1.4	0%
10-20	1,607.2	11.0%	100-110	3.2	0%
20-30	2,404.4	16.5%	110-120	5.0	0%
30-40	2,806.1	19.3%	120-130	6.3	0%
40-50	2,824.3	19.4%	130-140	6.6	0%
50-60	2,415.3	16.6%	140-150	6.1	0%
60-70	1,540.4	10.6%	150-160	5.0	0%
70-80	352.4	2.4%	160-170	3.3	0%
80-90	13.0	0.1%	170-180	1.3	0%

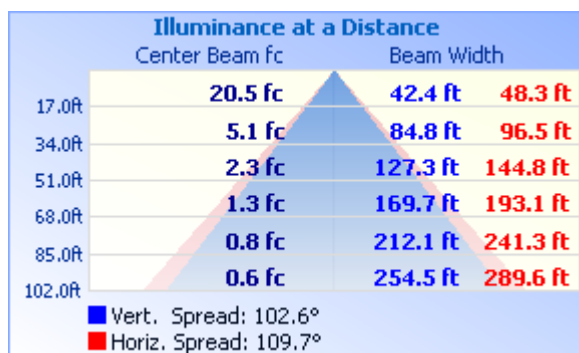
Photometric Data



Flood Summary

	Efficiency	Lumens	Horizontal Spread	Vertical Spread
Field (10%):	98.4%	14,335.7	146	141.7
Beam (50%):	74.4%	10,832.6	109.7	102.6
Total:	100%	14,556.4		

Illuminance Plots



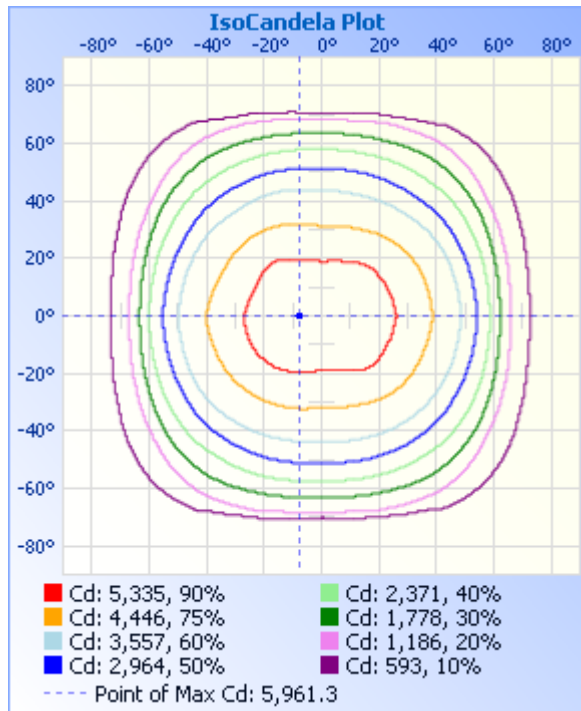
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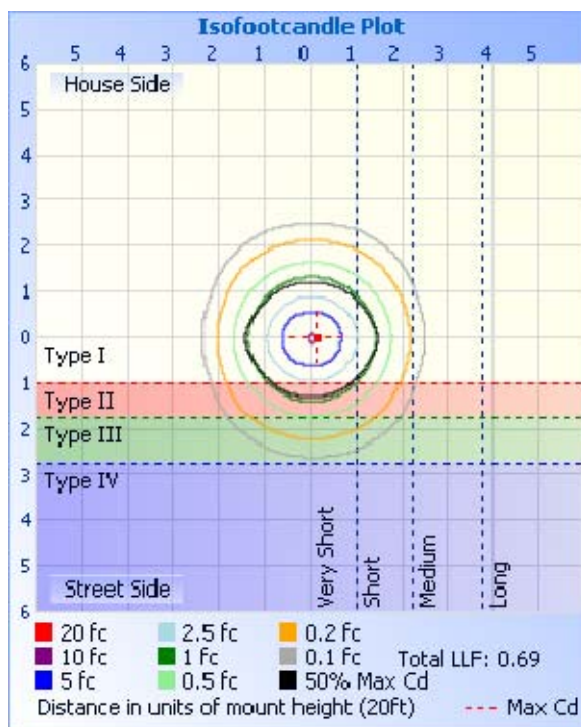
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ISOCANDELA DIAGRAM



ISOLUX DIAGRAM



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Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	5915	5915	5915	5915	5915	5915	5915	5915	5915	5915	5915	5915	5915	5915	5915	5915	5915
1	5918	5925	5939	5948	5961	5948	5944	5933	5915	5908	5907	5890	5893	5907	5905	5905	5918
2	5913	5934	5918	5925	5934	5923	5940	5943	5910	5903	5905	5873	5872	5893	5895	5890	5913
3	5909	5929	5880	5888	5888	5883	5907	5940	5904	5897	5894	5838	5860	5871	5871	5872	5909
4	5901	5905	5847	5865	5866	5855	5870	5918	5899	5882	5874	5838	5873	5881	5851	5852	5901
5	5887	5875	5814	5859	5875	5840	5845	5888	5886	5862	5878	5844	5871	5888	5849	5831	5887
6	5865	5840	5793	5887	5913	5864	5827	5857	5872	5838	5881	5826	5861	5877	5848	5809	5865
7	5845	5812	5788	5914	5929	5895	5832	5831	5850	5820	5872	5810	5853	5862	5827	5789	5845
8	5814	5785	5809	5918	5926	5897	5850	5804	5826	5803	5850	5792	5845	5841	5802	5774	5814
9	5780	5759	5815	5903	5920	5885	5855	5783	5793	5790	5823	5772	5837	5823	5768	5763	5780
10	5741	5732	5805	5883	5904	5877	5844	5767	5756	5776	5792	5762	5852	5816	5732	5756	5741
11	5700	5716	5785	5856	5881	5857	5822	5752	5714	5760	5760	5765	5866	5825	5696	5742	5700
12	5658	5701	5761	5826	5869	5840	5801	5740	5669	5733	5725	5775	5882	5841	5663	5716	5658
13	5615	5680	5736	5799	5863	5828	5777	5719	5618	5702	5694	5787	5898	5852	5642	5683	5615
14	5575	5664	5712	5788	5863	5824	5749	5688	5566	5658	5678	5791	5878	5860	5631	5650	5575
15	5536	5639	5687	5780	5869	5824	5722	5644	5511	5610	5671	5775	5847	5838	5625	5612	5536
16	5491	5611	5671	5770	5863	5816	5698	5590	5452	5553	5670	5744	5815	5798	5621	5576	5491
17	5444	5572	5650	5756	5853	5801	5676	5533	5391	5490	5664	5709	5779	5759	5613	5531	5444
18	5396	5532	5636	5729	5847	5772	5654	5471	5341	5423	5655	5676	5744	5715	5602	5486	5396
19	5345	5484	5620	5695	5809	5733	5622	5411	5284	5361	5633	5637	5692	5667	5582	5440	5345
20	5282	5427	5600	5657	5776	5694	5578	5350	5234	5295	5590	5589	5651	5604	5553	5382	5282
21	5213	5366	5570	5610	5734	5648	5520	5290	5177	5233	5536	5535	5568	5549	5508	5318	5213
22	5147	5297	5535	5555	5688	5599	5459	5235	5127	5176	5472	5500	5495	5506	5455	5249	5147
23	5077	5233	5491	5504	5642	5553	5393	5176	5066	5121	5400	5436	5441	5430	5393	5180	5077
24	5009	5166	5442	5454	5545	5504	5326	5120	5004	5064	5329	5355	5405	5361	5320	5113	5009
25	4939	5098	5385	5370	5478	5438	5261	5064	4934	5014	5256	5294	5360	5312	5248	5052	4939
26	4873	5030	5321	5283	5406	5358	5195	5002	4862	4958	5185	5237	5332	5266	5170	4988	4873
27	4796	4960	5248	5211	5356	5288	5124	4940	4786	4892	5110	5186	5311	5224	5098	4917	4796
28	4719	4894	5167	5146	5320	5229	5052	4874	4707	4820	5035	5141	5247	5186	5027	4838	4719
29	4644	4824	5086	5092	5283	5180	4985	4804	4625	4739	4955	5091	5162	5144	4946	4756	4644

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30	4565	4755	5001	5045	5251	5132	4915	4730	4547	4660	4876	5037	5071	5081	4869	4673	4565
31	4483	4684	4914	5005	5172	5082	4841	4651	4463	4576	4789	4957	4934	4993	4781	4590	4483
32	4407	4618	4825	4945	5083	5022	4763	4568	4386	4494	4704	4866	4863	4894	4700	4508	4407
33	4331	4550	4734	4870	4977	4936	4680	4484	4309	4411	4626	4754	4804	4781	4621	4428	4331
34	4258	4479	4648	4776	4860	4836	4594	4399	4234	4328	4550	4651	4737	4680	4547	4345	4258
35	4185	4407	4565	4673	4794	4727	4510	4315	4159	4252	4474	4564	4666	4602	4474	4269	4185
36	4114	4326	4490	4572	4744	4617	4428	4229	4087	4176	4403	4483	4600	4535	4401	4191	4114
37	4044	4247	4418	4493	4682	4528	4352	4140	4014	4100	4324	4404	4535	4463	4324	4112	4044
38	3977	4165	4341	4417	4615	4452	4276	4057	3942	4023	4242	4324	4473	4393	4239	4030	3977
39	3905	4087	4259	4348	4551	4383	4198	3974	3871	3943	4148	4234	4401	4314	4140	3948	3905
40	3836	4006	4170	4272	4493	4310	4114	3893	3798	3865	4048	4145	4318	4233	4032	3868	3836
41	3767	3926	4072	4197	4424	4235	4026	3814	3720	3788	3943	4061	4234	4143	3920	3787	3767
42	3694	3848	3969	4123	4346	4165	3931	3734	3651	3708	3842	3976	4155	4048	3814	3710	3694
43	3620	3771	3868	4047	4265	4088	3836	3657	3582	3634	3748	3886	4067	3954	3718	3630	3620
44	3548	3689	3759	3963	4189	4001	3740	3579	3510	3560	3659	3803	3982	3857	3627	3549	3548
45	3477	3611	3664	3881	4098	3916	3647	3502	3436	3485	3570	3713	3882	3758	3537	3472	3477
46	3403	3532	3572	3793	4009	3823	3558	3429	3363	3409	3479	3620	3785	3659	3444	3398	3403
47	3328	3449	3483	3700	3918	3725	3469	3352	3285	3331	3388	3525	3683	3556	3346	3323	3328
48	3249	3369	3390	3598	3812	3626	3378	3274	3207	3250	3296	3423	3583	3447	3251	3248	3249
49	3174	3287	3296	3495	3707	3522	3283	3198	3122	3162	3199	3324	3484	3337	3152	3168	3174
50	3099	3202	3205	3384	3594	3411	3193	3112	3036	3074	3101	3209	3378	3220	3055	3089	3099
51	3023	3113	3116	3272	3480	3288	3089	3027	2950	2985	3003	3094	3272	3108	2957	3013	3023
52	2946	3022	3022	3157	3371	3167	2984	2941	2862	2894	2900	2980	3167	2990	2859	2927	2946
53	2866	2927	2927	3031	3261	3045	2880	2855	2771	2801	2798	2873	3069	2876	2760	2837	2866
54	2788	2833	2832	2915	3153	2924	2777	2766	2679	2705	2695	2760	2956	2763	2669	2742	2788
55	2706	2739	2735	2799	3045	2810	2671	2672	2581	2609	2587	2652	2847	2652	2577	2651	2706
56	2623	2644	2640	2688	2938	2704	2568	2574	2477	2511	2483	2543	2725	2536	2484	2559	2623
57	2529	2549	2539	2582	2831	2595	2466	2469	2367	2406	2380	2443	2585	2427	2391	2466	2529
58	2421	2453	2435	2476	2719	2484	2366	2358	2262	2298	2279	2338	2440	2317	2294	2372	2421
59	2308	2352	2336	2378	2591	2374	2270	2244	2156	2188	2180	2236	2264	2213	2200	2272	2308
60	2205	2243	2232	2277	2454	2261	2173	2137	2053	2084	2082	2129	2087	2112	2102	2156	2205
61	2102	2124	2130	2171	2297	2146	2077	2026	1953	1981	1983	1985	1915	1962	1997	2043	2102

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62	2000	2014	2026	2058	2108	2034	1979	1922	1854	1876	1886	1814	1737	1804	1896	1938	2000
63	1894	1914	1920	1903	1913	1885	1882	1820	1757	1772	1782	1641	1560	1639	1798	1838	1894
64	1790	1816	1816	1735	1722	1720	1783	1715	1659	1668	1676	1465	1402	1477	1705	1739	1790
65	1685	1711	1710	1558	1543	1563	1680	1613	1565	1566	1569	1300	1244	1315	1604	1637	1685
66	1576	1607	1610	1392	1357	1396	1576	1509	1461	1461	1461	1151	1129	1152	1476	1532	1576
67	1471	1504	1504	1227	1220	1238	1469	1411	1352	1354	1333	1049	1034	1042	1348	1428	1471
68	1367	1401	1376	1078	1108	1098	1358	1314	1235	1255	1188	960	942	952	1220	1323	1367
69	1248	1298	1246	980	1018	1003	1207	1218	956	1147	1043	878	856	870	1067	1216	1248
70	940	1192	1117	900	934	923	1050	1101	566	952	901	797	769	791	919	1107	940
71	545	1061	968	829	852	845	905	774	217	571	763	713	692	709	784	859	545
72	189	717	829	751	775	764	767	404	77	234	664	637	620	627	683	487	189
73	58	351	701	671	696	676	648	118	46	70	587	568	513	552	598	162	58
74	40	103	614	591	614	590	569	46	41	42	487	484	377	477	521	49	40
75	36	40	542	513	472	510	474	39	37	38	264	356	302	359	367	36	36
76	32	33	405	403	336	388	259	35	33	34	83	272	258	277	157	32	32
77	28	30	188	283	272	271	80	31	29	30	32	227	206	231	42	29	28
78	25	27	49	227	229	216	31	28	26	27	28	174	138	178	26	25	25
79	22	23	26	186	184	177	27	24	22	23	25	113	82	124	23	22	22
80	19	20	22	142	113	139	24	21	19	20	21	59	67	64	20	19	19
81	16	17	20	74	66	65	21	18	16	17	18	38	20	40	17	16	16
82	13	15	17	51	59	49	18	15	13	14	16	15	14	15	14	13	13
83	11	12	14	21	17	18	15	12	10	11	13	13	11	12	12	11	11
84	8	10	12	12	14	13	12	9	8	8	10	10	9	9	9	8	8
85	6	7	9	10	11	11	10	7	5	6	7	8	6	7	7	6	6
86	4	5	7	8	8	8	7	4	3	3	5	6	4	5	4	3	4
87	2	3	5	6	6	6	5	2	2	2	2	4	2	3	2	2	2
88	1	1	3	4	4	4	2	1	1	1	1	1	1	1	1	1	1
89	1	1	1	2	3	2	1	1	1	1	1	1	1	1	1	1	1
90	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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2.2 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2014-10-08	Test Ambient:	25.0 ° C
Test Orientation	Lighting Downward, light surface parallel to horizontal line	Stabilization Time (min)	90
Model Number	LFL1-200(5700K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
140805-14	120.0	60	1.663	198.5	0.9948	16.38
	277.0	60	0.7802	199.1	0.9214	12.58

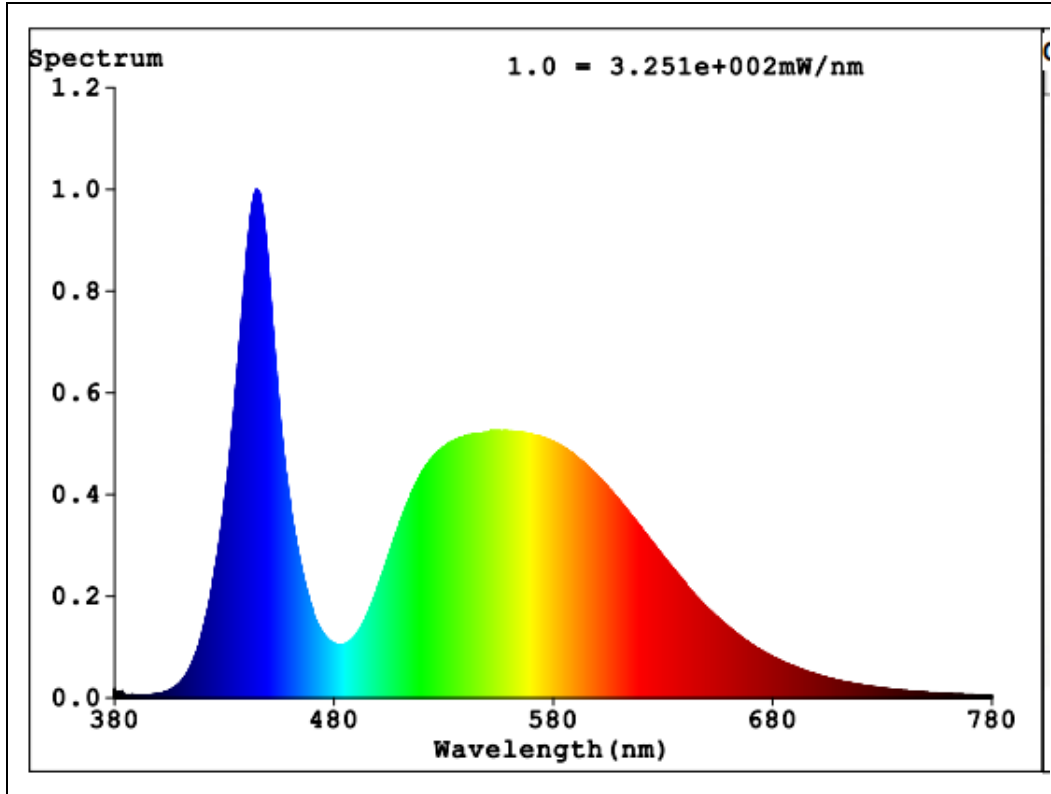
Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	72.7
R9	0
CCT (K)	5937
Chromaticity (x, y)	x=0.3232 y=0.3350
Chromaticity (u', v')	u'=0.2028 v'=0.4731
Duv	0.0012
Total Luminous (lm)	15479
Luminous Efficacy (lm/W)	77.98

Special Color Rendering Indices			
R1	72	R9	0
R2	75	R10	41
R3	77	R11	75
R4	75	R12	47
R5	74	R13	74
R6	68	R14	87
R7	79	R15	67
R8	62	--	--

Spectral Power Distribution

Spectral Power Distribution:



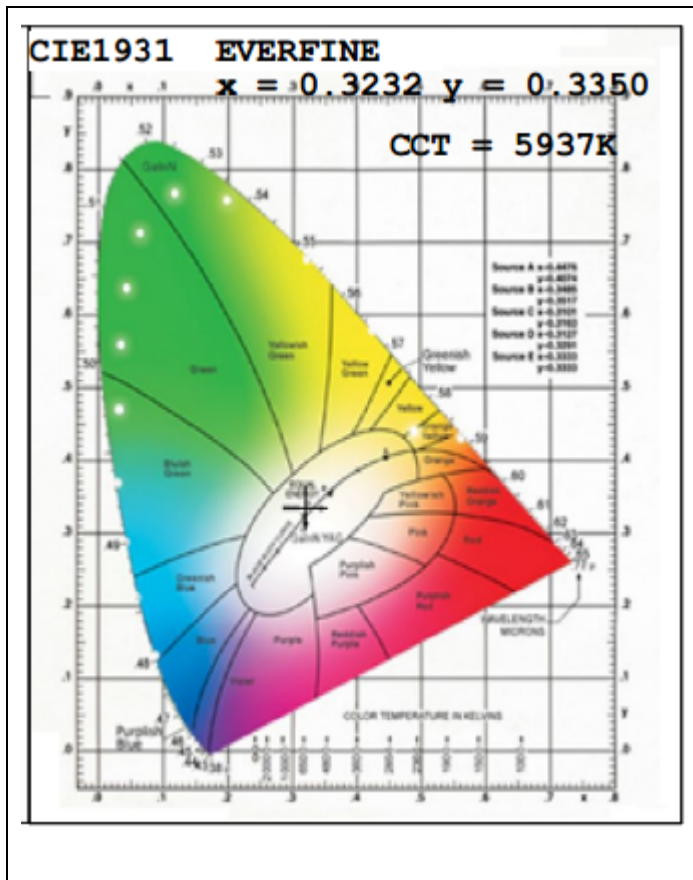
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Chromaticity Diagram



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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2014-07-01	2015-06-30
ST-R-331	Spectral analysis system HAAS-2000	2014-07-01	2015-06-30
D204	Standard Lamp	2014-07-01	2015-06-30
PF2010	Power Meter for Integrating Sphere	2014-07-01	2015-06-30
EE-09	Goniophotometer system	2014-07-01	2015-06-30
D908S	Standard Lamp	2014-07-01	2015-06-30
PF210	Power Meter for Goniophotometer	2014-07-01	2015-06-30
ST-R-181A	Temperature Tester	2014-07-01	2015-06-30

******* END OF DATASHEET PACKAGE *******