

## LM-79-08 Test Report

For

### LIGHT EFFICIENT DESIGN

(Brand Name:N/A)

188 S. Northwest Highway Cary, IL 60013

### LED Lamp

Model name(s): LED-8032M40C-A

Representative (Tested) Model: LED-8032M40C-A

Model Different :N/A

Test & Report By:

*Jack Luo*

Engineer: Jack Luo

Date: Apr.28,2016

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

Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

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	Apr.28,2016
Test Report No.	GZE160347-J
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	LIGHT EFFICIENT DESIGN		
Brand Name	N/A		
Model Number	LED-8032M40C-A		
SKU (if available)	N/A		
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Lamp		
Luminaire Aperture (for downlights)	--	in.	
Luminaire Length	--	mm	
Luminaires Width	--	mm	
Number of Units (modular products)	N/A	s	

**Integrating Sphere**
**Goniophotometer**
**Electrical Measurements:**
**Output**
**Output**

Input Wattage	--	141.3	W
Input Current	--	0.6612	A
Input Voltage (ac)	--	220.0	V
Power Factor	--	0.9714	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	16668	lm
Initial Lumen Efficacy	--	117.96	lm/w
Correlated color temperature / CCT	4092	--	K
Color rendering index / CRI	84.8	--	
R9 Value	16	--	
Duv	0.0003	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)	-----	5963	cd
Beam angle (if applicable)		105.9	°
Zonal lumens in the 0°-60° zone		78.5	%
Zonal lumens in the 60°-90° zone		48.1	%
Zonal lumens in the 90°-120° zone		2.5	%
Zonal lumens in the 120°-180° zone		1	%

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Test Specifications:	
Date of Receipt	: Apr.01,2016
Date of Test	: Apr.24,2016
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	<p>IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</p> <p>ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</p> <p>CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</p> <p>CIE 15-2004 Technical Report Colorimetry</p> <p>IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</p> <p>IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</p>
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 220 Volts, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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 220 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.

# 1. Product Information:

Brand Name	N/A
Model Number	LED-8032M40C-A
Luminaire Type	LED Lamp
Rated Voltage / Frequency	220~347 Vac, 50/60Hz
Nominal Power	140W
Rated Initial Lamp Lumen	--
Declared CCT	4000K
LED Manufacturer	N/A
LED Model	N/A
Sample Receipt Date	Apr.01,2016
Sample Number	GZE160347-J1(4000K)

## Photo



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<b>2.1 Electrical, Photometric and Chromaticity Measurements</b> (Refer to Work Instruction QD25)	<b>IES LM-79 2008</b>
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<b>Test date</b>	2016-04-24	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LED-8032M40C-A		

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160347	220.0	60	0.6612	141.3	0.9714	15.29
-J1	347.0	60	0.4380	140.8	0.9263	18.03

### Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	220.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.8
R9	16
CCT (K)	4092
Chromaticity (x, y)	x=0.3767 y=0.3750
Chromaticity (u', v')	u'=0.2233 v'=0.5002
Duv	0.0003

Special Color Rendering Indices			
R1	84	R9	16
R2	92	R10	80
R3	96	R11	82
R4	83	R12	63
R5	83	R13	86
R6	88	R14	98
R7	86	R15	78
R8	67	--	--

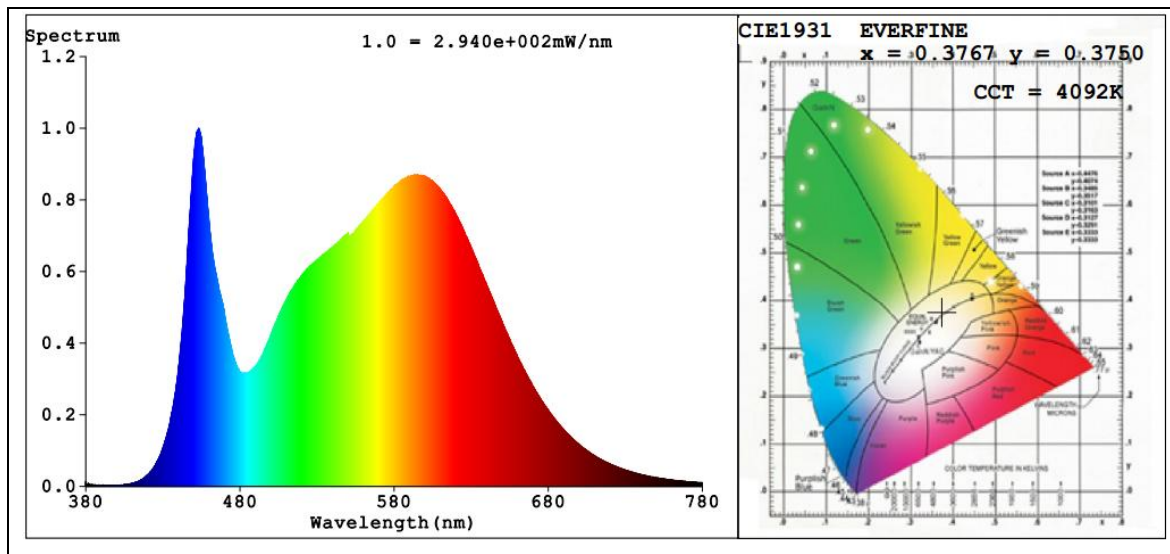
### Goniophotometer Method :

Parameter	Result
Test Voltage (V)	220.0
Frequency (Hz)	60
Total Luminous (lm)	16668
Luminous Efficacy (lm/W)	117.96
Beam Angle°	105.9
Center Beam Candle Power (cd)	5963

### Goniophotometer Methodn :

Parameter	Result
Test Voltage (V)	347.0
Frequency (Hz)	60
Total Luminous (lm)	16674
Luminous Efficacy (lm/W)	118.39

**Spectral Power Distribution & Chromaticity Diagram**



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## Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	4,648.1	27.9%
0-40	7,548.5	45.3%
0-60	13,075.8	78.5%
60-90	3,009.1	18.1%
70-100	1,418.6	8.5%
90-120	415.9	2.5%
0-90	16,084.9	96.5%
90-180	581.1	3.5%
0-180	16,665.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	556.4	3.3%	90-100	143.4	0.9%
10-20	1,640.3	9.8%	100-110	156.7	0.9%
20-30	2,451.4	14.7%	110-120	115.9	0.7%
30-40	2,900.4	17.4%	120-130	77.6	0.5%
40-50	3,003.3	18.0%	130-140	46.8	0.3%
50-60	2,524.0	15.1%	140-150	24.0	0.1%
60-70	1,733.9	10.4%	150-160	10.5	0.1%
70-80	934.3	5.6%	160-170	4.5	0%
80-90	340.9	2.0%	170-180	1.8	0%

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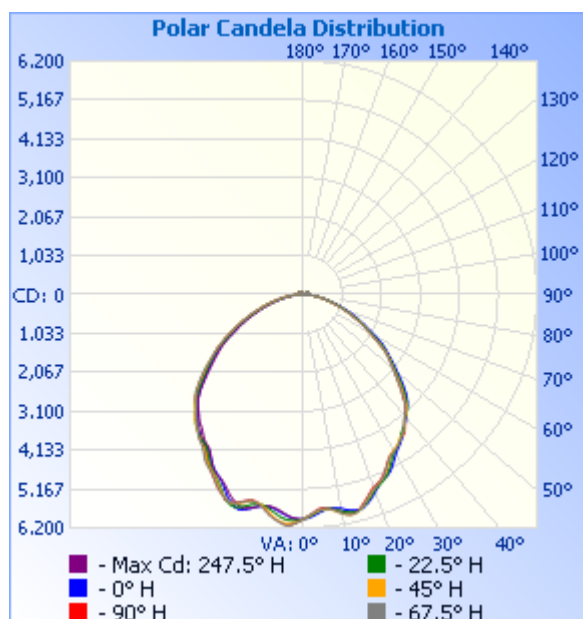
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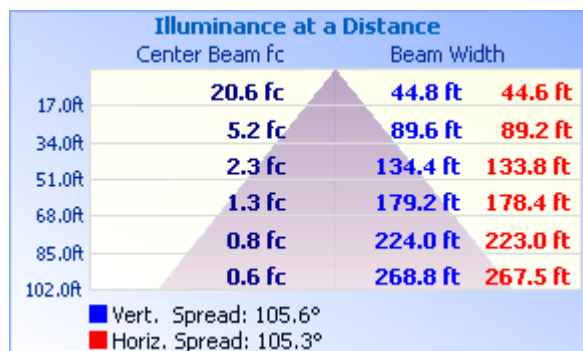
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## Photometric Data



## Illuminance Plots



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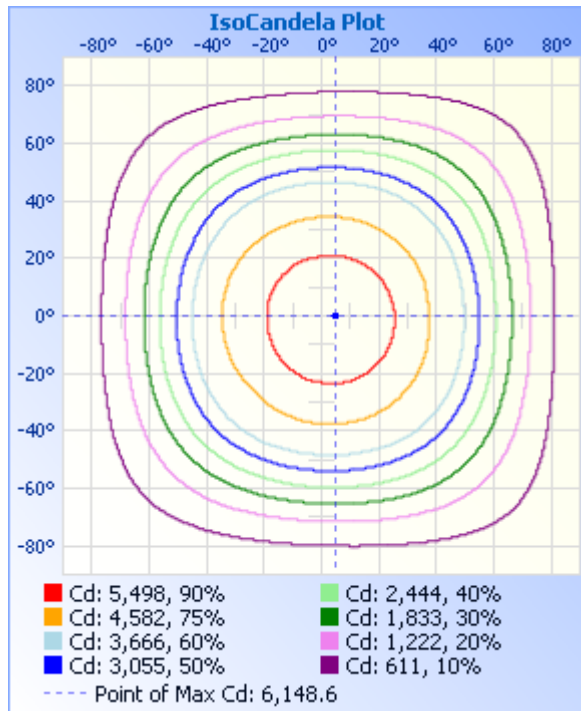
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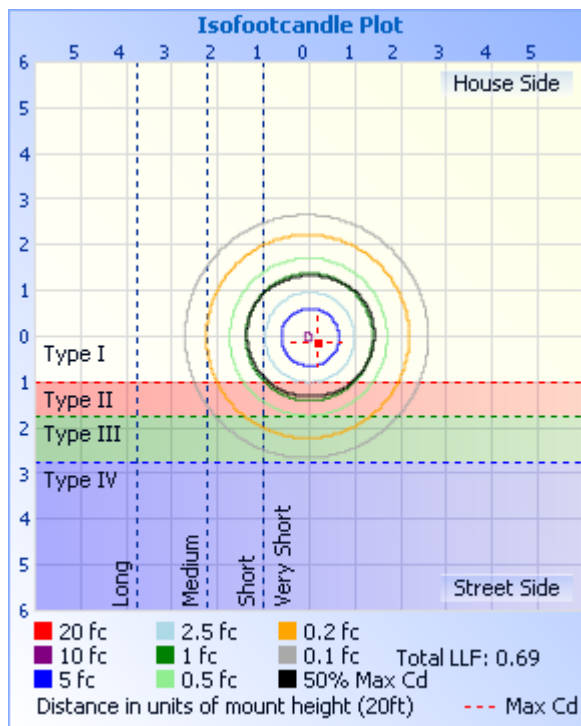
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## ISOCANDELA DIAGRAM



## 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	5963	5963	5963	5963	5963	5963	5963	5963	5963	5963	5963	5963	5963	5963	5963	5963	5963
1	5938	5921	5908	5894	5896	5908	5930	5950	5975	5995	6012	6020	6018	6006	5986	5963	5938
2	5902	5869	5847	5830	5828	5841	5877	5926	5966	6009	6048	6076	6067	6039	5998	5953	5902
3	5857	5813	5795	5773	5764	5773	5820	5877	5945	6008	6078	6126	6115	6057	5991	5926	5857
4	5809	5768	5753	5727	5709	5717	5760	5823	5904	6000	6097	6149	6130	6047	5967	5885	5809
5	5766	5738	5731	5708	5682	5680	5716	5779	5859	5976	6088	6134	6109	6027	5921	5835	5766
6	5738	5726	5730	5710	5685	5671	5690	5736	5814	5933	6063	6084	6067	5988	5861	5785	5738
7	5725	5733	5744	5730	5706	5690	5689	5708	5772	5878	6011	6036	6017	5925	5798	5740	5725
8	5727	5759	5789	5776	5752	5728	5706	5696	5735	5822	5937	5986	5955	5853	5741	5709	5727
9	5736	5799	5844	5841	5811	5785	5743	5712	5712	5766	5851	5918	5888	5780	5689	5697	5736
10	5769	5843	5903	5901	5861	5846	5799	5744	5705	5721	5774	5833	5806	5715	5659	5697	5769
11	5812	5881	5950	5944	5904	5896	5857	5793	5715	5693	5707	5754	5729	5675	5652	5710	5812
12	5851	5915	5974	5973	5939	5934	5910	5843	5748	5693	5673	5696	5671	5648	5660	5745	5851
13	5876	5938	5981	5977	5942	5946	5946	5887	5799	5710	5657	5655	5637	5649	5696	5795	5876
14	5896	5936	5955	5941	5910	5912	5949	5923	5854	5748	5660	5647	5635	5676	5747	5837	5896
15	5896	5900	5897	5877	5852	5864	5920	5935	5902	5805	5689	5667	5657	5727	5794	5875	5896
16	5859	5833	5808	5794	5766	5800	5867	5912	5942	5857	5743	5717	5703	5785	5842	5897	5859
17	5802	5767	5722	5704	5679	5718	5795	5860	5957	5897	5795	5774	5757	5836	5880	5876	5802
18	5736	5688	5639	5616	5589	5629	5711	5798	5927	5925	5832	5820	5814	5870	5884	5819	5736
19	5660	5607	5553	5538	5507	5544	5621	5721	5864	5924	5856	5849	5853	5891	5843	5755	5660
20	5567	5531	5486	5476	5441	5468	5536	5631	5785	5876	5841	5852	5858	5872	5779	5687	5567
21	5485	5477	5438	5421	5395	5408	5458	5538	5694	5805	5788	5810	5823	5804	5701	5606	5485
22	5414	5432	5389	5380	5351	5368	5400	5460	5585	5718	5719	5751	5751	5717	5613	5512	5414
23	5357	5386	5333	5326	5301	5329	5359	5401	5482	5610	5646	5685	5681	5627	5525	5432	5357
24	5319	5337	5269	5247	5226	5291	5321	5358	5397	5509	5557	5604	5603	5532	5441	5373	5319
25	5289	5263	5187	5148	5137	5229	5282	5319	5328	5423	5468	5522	5518	5442	5380	5326	5289
26	5234	5171	5086	5052	5036	5138	5204	5264	5271	5351	5378	5431	5432	5375	5336	5295	5234
27	5158	5076	4978	4955	4941	5040	5108	5192	5214	5290	5305	5347	5352	5315	5285	5240	5158
28	5067	4978	4884	4880	4870	4959	5014	5097	5137	5228	5253	5283	5279	5251	5215	5152	5067

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29	4980	4889	4812	4832	4824	4895	4930	5000	5049	5145	5195	5235	5202	5180	5123	5051	4980
30	4897	4824	4773	4804	4796	4850	4864	4918	4948	5042	5126	5180	5120	5080	5009	4941	4897
31	4824	4779	4741	4772	4771	4799	4811	4855	4857	4939	5037	5100	5032	4955	4896	4843	4824
32	4764	4728	4701	4727	4732	4752	4759	4813	4799	4842	4947	5000	4920	4824	4791	4769	4764
33	4710	4671	4644	4677	4680	4682	4692	4773	4772	4768	4865	4902	4817	4733	4716	4732	4710
34	4641	4594	4582	4619	4627	4616	4621	4722	4754	4735	4807	4829	4744	4666	4661	4690	4641
35	4573	4512	4549	4579	4589	4561	4557	4653	4727	4708	4771	4778	4692	4638	4628	4630	4573
36	4493	4460	4518	4516	4544	4510	4498	4574	4673	4673	4717	4722	4644	4620	4594	4554	4493
37	4420	4419	4445	4425	4471	4443	4449	4509	4598	4623	4648	4655	4589	4596	4537	4480	4420
38	4361	4356	4344	4326	4372	4363	4385	4462	4526	4578	4576	4570	4528	4547	4487	4425	4361
39	4297	4273	4258	4241	4275	4288	4315	4391	4466	4525	4515	4490	4461	4505	4441	4385	4297
40	4220	4210	4206	4178	4203	4229	4253	4297	4381	4457	4452	4399	4405	4468	4382	4318	4220
41	4153	4165	4162	4125	4142	4183	4203	4218	4286	4372	4396	4335	4350	4399	4298	4241	4153
42	4095	4108	4101	4048	4046	4102	4139	4161	4190	4276	4306	4271	4273	4301	4206	4174	4095
43	4034	4039	4003	3942	3953	4007	4043	4098	4122	4195	4211	4187	4177	4208	4137	4120	4034
44	3972	3931	3874	3823	3814	3889	3963	4019	4057	4133	4143	4100	4100	4135	4097	4044	3972
45	3878	3824	3755	3710	3704	3765	3843	3936	3987	4060	4077	4044	4050	4084	4047	3981	3878
46	3781	3703	3644	3573	3594	3661	3744	3824	3899	3966	3995	3997	3990	4029	3954	3866	3781
47	3661	3574	3513	3458	3448	3536	3624	3712	3779	3871	3923	3933	3908	3943	3843	3763	3661
48	3543	3455	3389	3346	3339	3421	3504	3582	3669	3759	3841	3854	3819	3821	3719	3638	3543
49	3411	3332	3274	3234	3238	3296	3392	3468	3541	3630	3724	3735	3707	3694	3593	3506	3411
50	3287	3215	3156	3118	3136	3188	3285	3356	3427	3520	3610	3625	3587	3538	3460	3386	3287
51	3167	3093	3049	3018	3035	3081	3173	3247	3314	3391	3484	3519	3468	3414	3324	3259	3167
52	3049	2990	2944	2924	2940	2974	3061	3139	3211	3284	3372	3404	3333	3294	3206	3137	3049
53	2945	2889	2856	2833	2847	2877	2948	3030	3108	3177	3257	3283	3215	3166	3093	3033	2945
54	2840	2790	2770	2747	2753	2772	2836	2935	3005	3070	3143	3161	3108	3046	2989	2929	2840
55	2748	2698	2667	2648	2649	2676	2730	2837	2906	2964	3028	3039	3001	2946	2905	2828	2748
56	2656	2594	2546	2513	2526	2565	2623	2729	2808	2875	2918	2931	2897	2849	2814	2733	2656
57	2566	2483	2425	2383	2396	2445	2521	2610	2709	2783	2812	2826	2800	2757	2732	2635	2566
58	2459	2359	2293	2252	2270	2317	2402	2486	2598	2681	2708	2718	2704	2678	2638	2534	2459
59	2335	2228	2164	2140	2152	2194	2285	2364	2482	2553	2600	2605	2602	2590	2527	2423	2335
60	2206	2104	2045	2037	2044	2085	2168	2252	2359	2422	2491	2495	2485	2484	2397	2300	2206

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61	2085	1995	1947	1935	1944	1980	2061	2137	2231	2294	2373	2386	2373	2363	2266	2175	2085
62	1978	1886	1851	1842	1850	1878	1958	2035	2117	2193	2259	2282	2253	2232	2136	2058	1978
63	1876	1786	1762	1753	1766	1781	1854	1933	2020	2088	2143	2165	2139	2094	2024	1958	1876
64	1774	1706	1666	1647	1667	1690	1751	1834	1927	1996	2037	2051	2034	1971	1919	1858	1774
65	1673	1610	1569	1545	1560	1600	1658	1729	1815	1893	1940	1944	1930	1869	1829	1761	1673
66	1585	1515	1472	1443	1455	1499	1569	1632	1716	1791	1839	1836	1827	1771	1747	1657	1585
67	1486	1419	1375	1356	1368	1391	1468	1539	1619	1690	1733	1735	1726	1688	1653	1562	1486
68	1395	1325	1282	1277	1280	1300	1367	1440	1516	1586	1634	1637	1633	1593	1542	1467	1395
69	1305	1241	1202	1189	1195	1219	1272	1344	1421	1486	1536	1554	1539	1497	1432	1373	1305
70	1214	1158	1126	1103	1113	1144	1192	1256	1315	1393	1441	1466	1446	1402	1336	1278	1214
71	1134	1080	1043	1025	1031	1062	1118	1178	1226	1302	1340	1364	1346	1307	1261	1196	1134
72	1055	996	962	950	956	983	1034	1099	1155	1212	1243	1259	1254	1231	1181	1119	1055
73	973	920	888	865	881	910	953	1019	1077	1128	1169	1174	1168	1147	1094	1031	973
74	898	847	811	796	803	828	882	937	994	1056	1098	1100	1097	1061	1014	951	898
75	823	772	744	729	738	760	801	854	922	969	1019	1033	1018	983	937	876	823
76	750	708	683	667	666	692	736	783	848	897	938	947	936	909	858	799	750
77	690	645	619	607	606	629	665	717	770	815	869	870	869	834	781	736	690
78	624	583	560	550	549	571	603	653	702	752	787	797	788	761	718	668	624
79	568	529	505	495	498	514	547	592	634	686	719	730	725	695	654	607	568
80	511	477	454	446	448	464	493	533	574	622	651	668	661	632	594	549	511
81	458	427	407	401	405	418	442	478	520	560	589	607	602	573	534	495	458
82	408	383	364	357	360	377	399	430	468	505	534	550	542	517	480	443	408
83	364	341	324	314	319	334	358	387	420	456	481	496	489	464	430	396	364
84	322	299	283	273	278	294	320	348	378	411	433	446	439	415	384	354	322
85	282	257	238	223	228	248	278	308	339	370	388	401	392	370	343	313	282
86	243	208	182	162	169	194	228	268	301	330	348	359	349	331	306	276	243
87	196	151	120	108	112	131	167	215	257	288	308	316	307	290	265	236	196
88	130	102	89	89	87	90	112	153	200	241	265	272	265	251	225	182	130
89	95	92	95	98	97	93	88	104	141	182	213	224	220	201	163	120	95
90	93	102	102	102	102	102	99	92	98	127	153	167	161	141	115	95	93
91	104	104	102	103	103	104	104	101	95	93	108	118	115	104	93	96	104
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93	108	119	124	129	130	128	120	113	106	103	100	98	100	101	103	104	108
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98	158	158	157	158	155	163	164	164	163	159	152	146	146	149	151	158	158
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101	151	154	155	154	153	157	158	162	160	164	161	158	158	159	154	159	151
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106	142	142	141	140	140	143	146	146	149	152	154	152	151	151	145	144	142
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125	87	83	81	82	79	80	82	84	88	89	91	91	93	92	91	88	87
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### 3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2015-07-01	2016-06-30
ST-R-331	Spectral analysis system HAAS-2000	2015-07-01	2016-06-30
D204	Standard Lamp	2015-07-01	2016-06-30
PF2010	Power Meter for Integrating Sphere	2015-07-01	2016-06-30
EE-09	Goniophotometer system	2015-07-01	2016-06-30
D908S	Standard Lamp	2015-07-01	2016-06-30
PF210	Power Meter for Goniophotometer	2015-07-01	2016-06-30
ST-R-181A	Temperature Tester	2015-07-01	2016-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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

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