



Report No.:GZE160876-B

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

L-TECH CORPORTION

(Brand Name: L-TECH CORP)

SHAOGANGTOU DISTRICT.QIAOTOU TOWN.DONGGUAN
CITY.GUANGDONG PROVINCE,CHINA

LED Luminaires

Model name(s): LTSQ5540-4090

Representative (Tested) Model: LTSQ5540-4090

Model Different: N/A

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Sept.02,2016

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

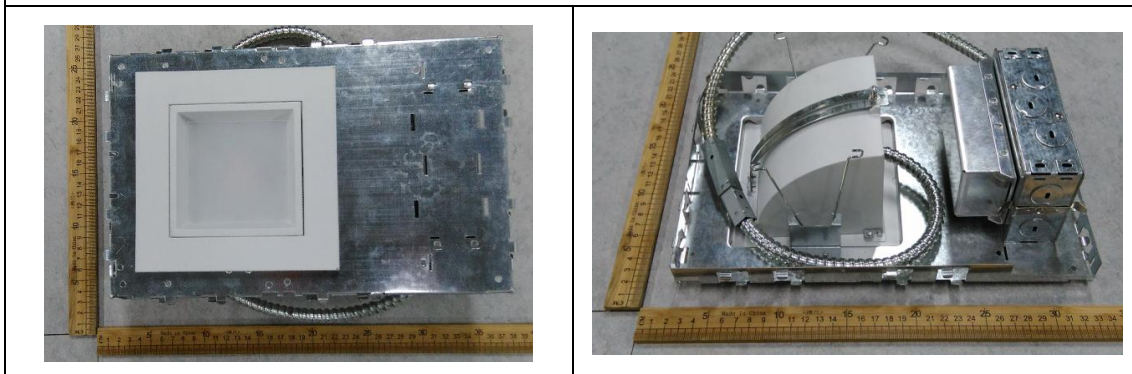
Report Format Number STD/QR4909-A/2

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>

1.1 Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	LTSQ5540-4090	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	120Vac, 50/60 Hz	
Nominal Power	30W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K	
LED Manufacturer	N/A	
LED Model	N/A	
Sample Number	GZE160876-B1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo


1.2 Test Specifications:

Date of Receipt	Aug 24,2016
Date of Test	Aug.25,2016
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

1.3 Test Methods

<p>1) Photometric and Light Distribution Measurement – Goniophotometer Method:</p> <p>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 or rated 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.</p>
<p>2) Chromaticity Measurement – Sphere-Spectroradiometer Method:</p> <p>Chromaticity 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 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.</p>
<p>3) Electrical Measurements:</p> <p>Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.</p>

2.1 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction QD25)

Test date	2016-08-26	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LTSQ5540-4090		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160876-B1	120	60	0.2525	30.06	0.9921	9.81

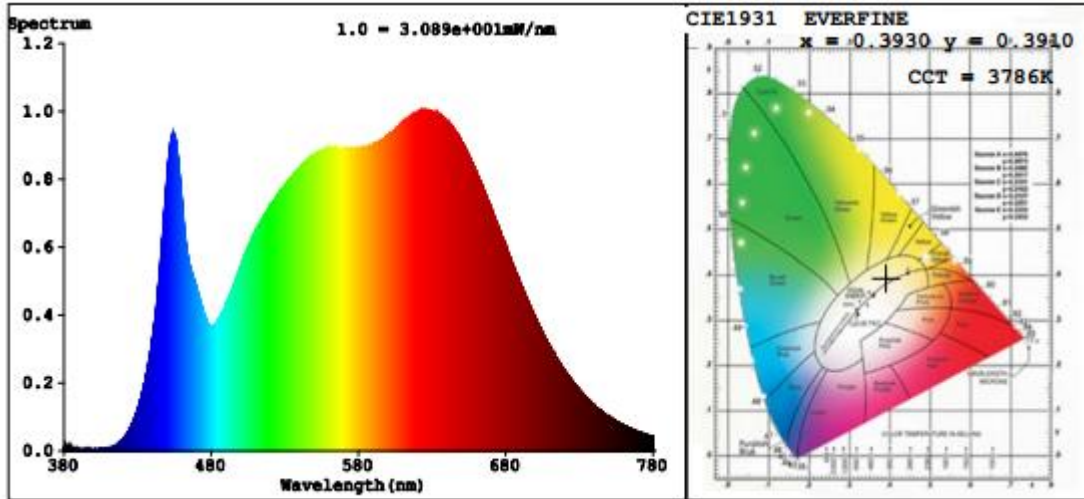
Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	94	R9	76
Frequency (Hz)	60	R2	95	R10	86
CCT (K)	3786	R3	94	R11	92
Duv	0.0031	R4	93	R12	70
Chromaticity (x, y)	x=0.3930 y=0.3910	R5	92	R13	94
Chromaticity (u', v')	u'=0.2276 v'=0.5096	R6	91	R14	96
Color Rendering Index (CRI)	93.5	R7	98	R15	92
R9	76	R8	91	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2174.6
Luminous Efficacy (lm/W)	72.34
Beam Angle (°)	94
Center Beam Candle Power (cd)	976

Spectral Power Distribution & Chromaticity Diagram

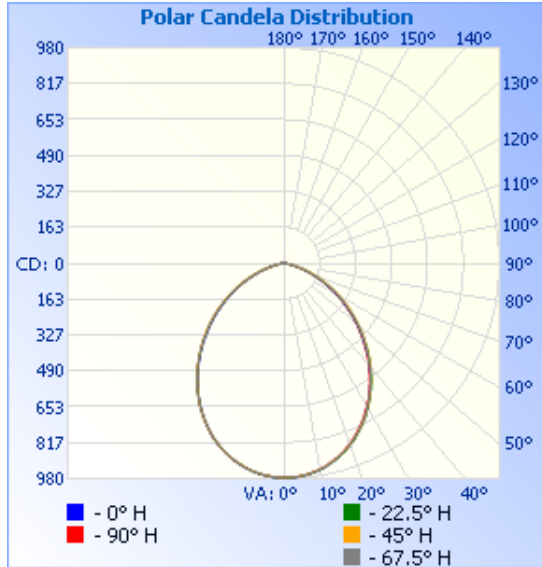


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	728.1	33.5%
0-40	1,156.0	53.2%
0-60	1,881.7	86.5%
60-90	289.6	13.3%
70-100	90.3	4.2%
90-120	1.3	0.1%
0-90	2,171.3	99.9%
90-180	3.2	0.1%
0-180	2,174.4	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	91.8	4.2%	90-100	0.5	0%
10-20	258.6	11.9%	100-110	0.4	0%
20-30	377.6	17.4%	110-120	0.4	0%
30-40	427.9	19.7%	120-130	0.4	0%
40-50	404.7	18.6%	130-140	0.4	0%
50-60	321.1	14.8%	140-150	0.4	0%
60-70	199.8	9.2%	150-160	0.4	0%
70-80	76.0	3.5%	160-170	0.2	0%
80-90	13.8	0.6%	170-180	0.1	0%

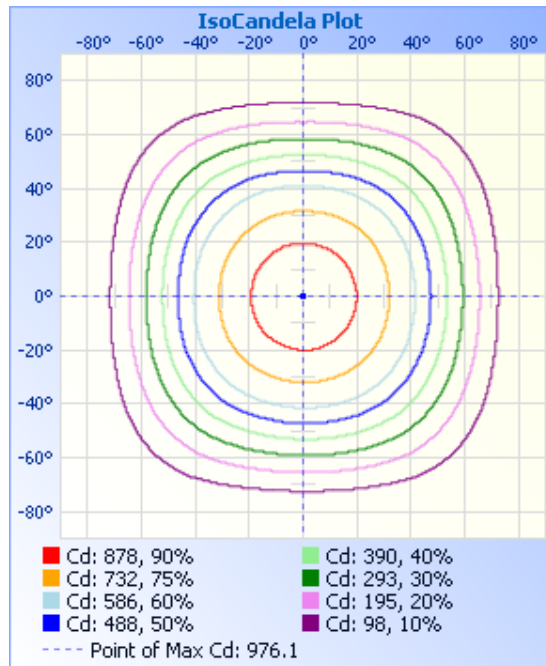
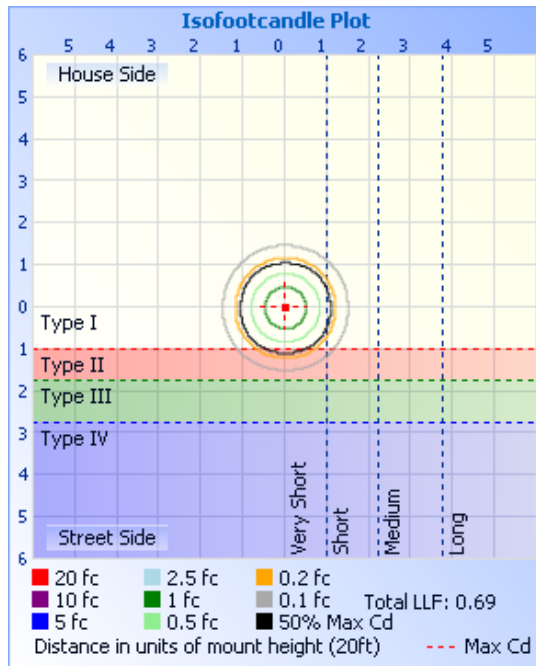
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	3.38 fc	36.4 ft	36.3 ft
34.0ft	0.84 fc	72.8 ft	72.7 ft
51.0ft	0.38 fc	109.2 ft	109.0 ft
68.0ft	0.21 fc	145.6 ft	145.4 ft
85.0ft	0.14 fc	181.9 ft	181.7 ft
102.0ft	0.09 fc	218.3 ft	218.0 ft

■ Vert. Spread: 93.9°
■ Horiz. Spread: 93.8°



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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	976	976	975	975	975	974	974	973	976	976	975	975	975	974	974	973	976
1	976	976	974	975	975	974	974	973	976	975	974	974	974	974	974	973	976
2	975	975	974	974	974	973	973	972	975	974	973	974	973	973	973	973	975
3	974	974	973	973	973	972	972	971	973	973	972	972	972	971	972	971	974
4	973	973	971	972	971	971	970	969	972	971	970	970	970	970	970	970	973
5	971	971	969	970	969	968	968	967	969	969	967	968	968	968	968	967	971
6	968	968	966	967	966	966	965	965	966	965	965	965	965	965	964	965	968
7	965	965	964	964	963	963	962	961	963	962	961	961	961	962	961	961	965
8	961	962	960	960	960	959	958	957	958	958	957	958	957	958	957	958	961
9	958	957	956	956	955	955	954	953	954	954	952	953	953	953	953	954	958
10	952	953	951	951	951	950	948	948	949	949	948	949	948	949	948	949	952
11	948	948	946	947	945	945	944	943	944	943	942	943	944	943	945	943	948
12	942	942	941	940	939	939	938	937	938	938	935	936	938	937	939	938	942
13	935	935	934	934	932	932	932	930	930	930	930	931	932	932	933	933	935
14	930	930	926	928	926	926	925	924	924	924	924	923	925	924	926	927	930
15	922	922	920	920	918	918	917	916	918	916	917	917	917	918	920	920	922
16	915	916	912	912	911	912	910	909	911	909	909	908	910	909	911	911	915
17	906	907	905	905	903	903	901	900	902	900	901	901	901	902	902	904	906
18	899	900	896	895	893	895	894	890	894	892	892	891	893	892	895	895	899
19	889	890	888	887	883	885	884	882	884	882	884	883	883	882	885	887	889
20	879	880	878	877	875	875	876	872	876	874	873	873	874	874	877	877	879
21	870	871	867	866	863	864	865	861	865	865	865	861	863	863	866	868	870
22	859	860	856	857	852	855	854	852	856	854	853	852	854	856	857	857	859
23	847	848	846	845	842	844	842	840	843	844	841	840	842	845	846	848	847
24	837	839	834	835	829	834	832	829	830	832	832	830	832	833	833	835	837
25	824	826	824	822	819	820	820	816	820	818	819	820	819	822	823	825	824
26	813	815	811	811	805	807	809	803	807	808	808	806	806	809	810	812	813
27	799	801	800	797	794	796	796	792	796	794	795	795	795	798	800	798	799
28	788	790	787	786	780	782	785	778	781	783	784	781	781	784	786	787	788

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29	773	776	775	772	765	770	771	766	770	768	770	770	769	772	775	773	773
30	761	761	760	757	753	756	756	751	755	756	758	755	754	758	763	761	761
31	746	749	745	742	738	740	743	739	743	741	743	740	742	743	748	746	746
32	731	734	733	730	726	728	728	724	727	726	727	728	727	731	735	734	731
33	718	721	717	714	710	713	715	711	711	713	714	713	711	715	720	718	718
34	702	705	704	701	697	700	699	695	698	697	698	700	698	703	704	706	702
35	685	693	688	685	680	684	686	679	681	684	685	684	685	686	691	690	685
36	671	676	674	672	666	670	669	665	668	668	668	670	668	673	674	673	671
37	654	662	658	655	649	654	656	648	651	654	655	654	655	656	661	659	654
38	640	645	641	641	632	640	639	634	637	637	638	640	637	643	644	642	640
39	622	627	627	623	618	623	622	617	619	623	625	623	620	626	631	628	622
40	607	613	610	606	600	608	609	603	601	605	608	605	606	612	614	610	607
41	589	596	596	592	585	591	591	585	587	588	591	591	588	594	596	596	589
42	575	581	579	574	567	573	578	567	569	573	577	573	574	576	582	578	575
43	556	562	565	559	549	558	560	553	554	555	559	559	556	562	565	564	556
44	538	548	547	541	534	540	542	535	536	541	545	541	541	544	551	546	538
45	523	530	528	527	516	526	527	520	521	523	527	527	523	530	532	527	523
46	504	511	514	509	501	508	509	502	503	508	512	509	508	512	518	513	504
47	489	496	496	494	483	493	495	483	484	490	494	490	490	497	500	494	489
48	470	478	481	476	468	475	476	469	469	471	476	476	472	479	485	480	470
49	456	461	463	461	450	460	462	450	451	457	462	458	457	461	467	461	456
50	437	446	449	442	435	442	444	435	436	438	444	443	439	446	449	446	437
51	422	427	430	428	416	427	429	417	418	424	429	425	424	428	435	428	422
52	404	413	416	409	402	409	411	403	403	406	411	410	406	413	417	410	404
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58	305	311	320	312	301	311	315	306	302	309	316	309	308	312	321	312	305
59	287	297	302	294	287	294	298	288	288	291	298	295	290	298	303	298	287

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60	274	280	285	280	269	280	284	274	271	277	285	277	276	281	290	281	274
61	256	266	271	263	255	263	267	257	257	260	268	263	259	267	273	264	256
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82	19	21	22	22	19	21	20	19	19	19	20	19	19	20	21	22	19
83	17	18	18	18	17	17	17	16	17	17	17	17	17	17	18	18	17
84	15	15	15	16	15	15	14	14	14	14	14	14	14	15	15	15	15
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86	10	10	10	11	10	10	9	9	9	9	9	9	9	9	10	10	10
87	7	8	8	8	7	7	7	6	7	6	6	6	6	7	7	8	7
88	5	6	5	5	5	5	4	4	4	4	3	4	4	4	5	5	5
89	3	3	2	3	2	2	2	2	2	2	2	2	2	2	2	3	3
90	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1

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91	0	1	0	0	0	0	0	0	1	1	1	1	1	1	1	0
92	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
93	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
94	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
95	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0
96	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0
97	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0
98	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
100	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
101	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
121	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0

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122	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0
123	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
124	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0
125	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	1	0
126	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0
127	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0
128	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	1	0
129	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0
130	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0
131	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	1
132	1	0	0	0	0	0	0	0	1	1	1	1	1	0	0	1	1
133	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0
134	1	1	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1
135	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	0
136	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0
137	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1
138	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1
139	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
140	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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142	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
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151	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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153	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
154	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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174	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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177	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
178	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
179	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-331	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-01	2017-06-30
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
EE-09	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-01	2017-06-30
PF210	Power Meter for Goniophotometer	2016-07-01	2017-06-30
ST-R-181A	Temperature Tester	2016-07-01	2017-06-30
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

******* END OF REPORT *******

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