



Report No.:GZE151143-I

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 Lamp

Model name(s): LRKT543/544-3090

Model differences: N/A

Test & Report By:

Review By:

Engineer: Johnson Sun

Manager: Tommy Liang

Date:Nov.24, 2015

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: 8th floor, Block B, No. 11 Caipin Road, Guangzhou Science City, Tianhe, 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	Nov.24, 2015
Test Report No.	GZE151143-I
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LRKT543/544-3090		
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	

Electrical Measurements:	Integrating Sphere	Goniophotometer	
	Output	Output	
Input Wattage	--	15.75	W
Input Current	--	0.1316	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9972	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	1135.6	lm
Initial Lumen Efficacy	--	72.10	lm/w
Correlated color temperature / CCT	2965	--	K
Color rendering index / CRI	91.0	--	
R9 Value	50	--	
Duv	0.0001	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)	--	488	cd
Beam angle (if applicable)	--	97.2	°
Zonal lumens in the 0°-60° zone	--	85.9	%
Zonal lumens in the 60°-90° zone	--	14.1	%
Zonal lumens in the 90°-120° zone	--	0	%
Zonal lumens in the 120°-180° zone	--	0	%

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Test Specifications:	
Date of Receipt	: Nov.10,2015
Date of Test	: Nov.18,2015
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  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ , 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  $1\text{ }^{\circ}$  vertical intervals and  $22.5\text{ }^{\circ}$  horizontal intervals.

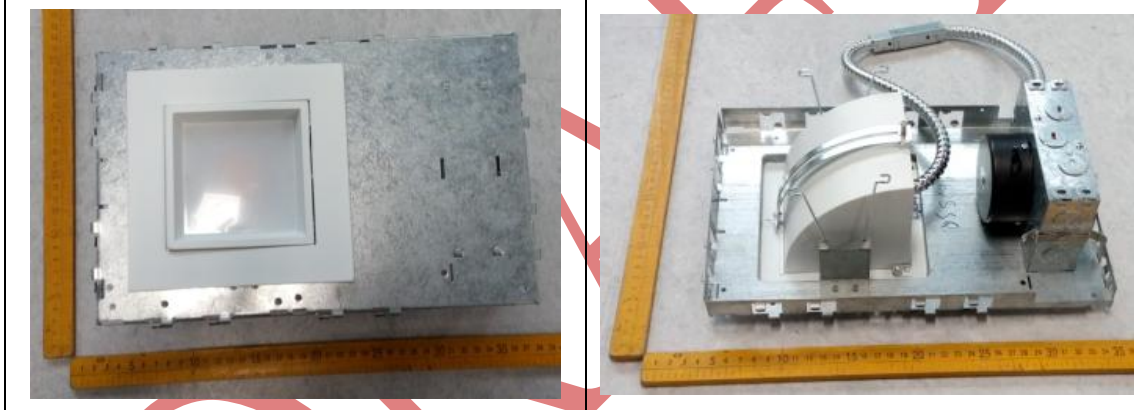
#### 2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ . 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.

**1. Product Information:**

Brand Name	L-TECH CORP
Model Number	LRKT543/544-3090
Luminaire Type	LED Lamp
Rated Voltage / Frequency	120Vac, 60Hz
Nominal Power	16W
Rated Initial Lamp Lumen	N/A
Declared CCT	3000K
LED Manufacturer	N/A
LED Model	N/A
Power Supply:	N/A
Sample Receipt Date	Nov.10,2015
Sample Number	GZE151143-II

**Photo**



<b>2.1 Electrical, Photometric and Chromaticity Measurements</b> <i>(Refer to Work Instruction QD25)</i>	<b>IES LM-79 2008</b>
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<b>Test date</b>	2015-11-18	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LRKT543/544-3090		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE151143 -I1	120.0	60	0.1316	15.75	0.9972

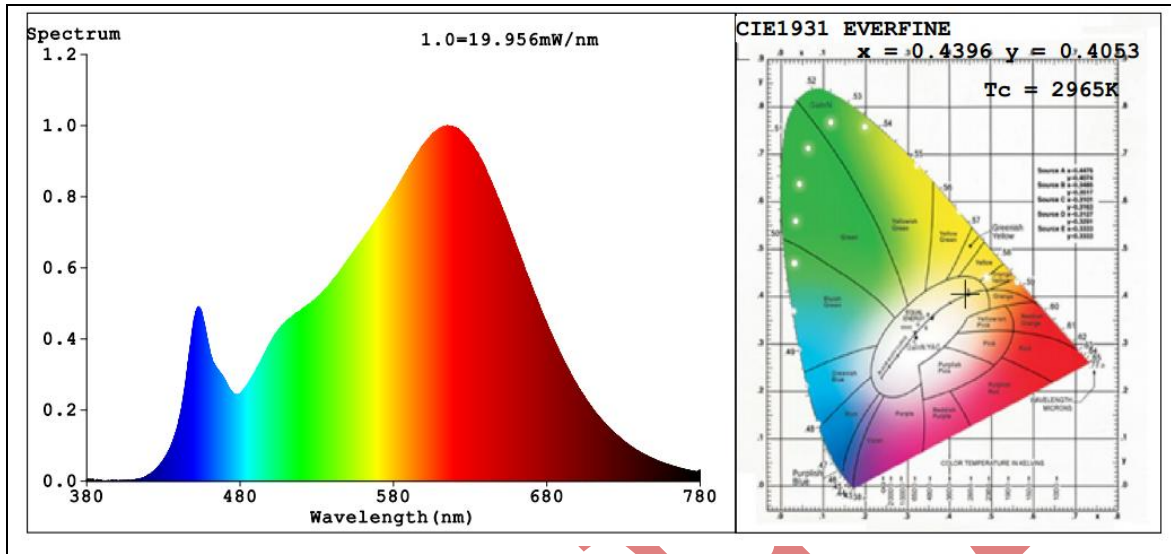
**Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	91	R9	50
Frequency (Hz)	60	R2	97	R10	92
Color Rendering Index (CRI)	91.0	R3	97	R11	91
R9	50	R4	90	R12	82
CCT (K)	2965	R5	91	R13	93
Chromaticity (x, y)	x=0.4396 y=0.4053	R6	96	R14	99
Chromaticity (u', v')	u'=0.2518 v'=0.5223	R7	89	R15	86
Duv	0.0001	R8	76	--	--

**Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1135.6
Luminous Efficacy (lm/W)	72.10
Beam Angle °	97.2
Center Beam Candle Power (cd)	488

**Spectral Power Distribution & Chromaticity Diagram**



DRAFT

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**Zonal Lumen Tabulation:**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	368.5	32.5%
0-40	589.5	51.9%
0-60	975.6	85.9%
60-90	159.8	14.1%
70-100	49.6	4.4%
90-120	0.0	0%
0-90	1,135.5	100%
90-180	0.0	0%
0-180	1,135.5	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	46.1	4.1%	90-100	0.0	0%
10-20	130.3	11.5%	100-110	0.0	0%
20-30	192.1	16.9%	110-120	0.0	0%
30-40	221.0	19.5%	120-130	0.0	0%
40-50	213.2	18.8%	130-140	0.0	0%
50-60	173.0	15.2%	140-150	0.0	0%
60-70	110.2	9.7%	150-160	0.0	0%
70-80	42.6	3.8%	160-170	0.0	0%
80-90	7.0	0.6%	170-180	0.0	0%

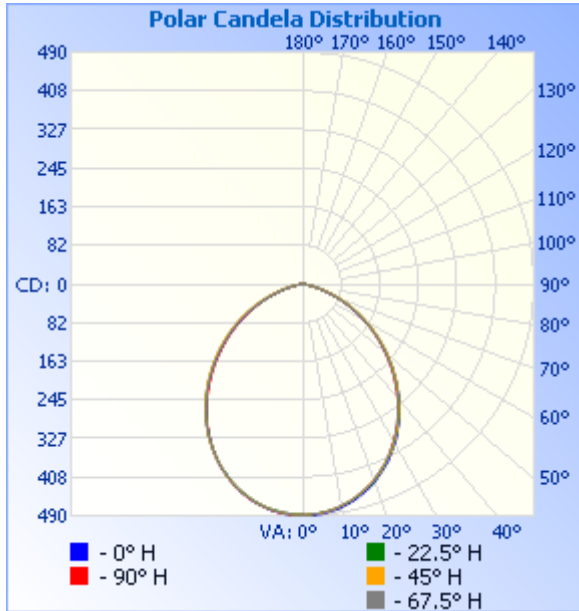
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### Photometric Data



### Illuminance Plots

	Center Beam fc	Beam Width	
17.0ft	1.69 fc	38.9 ft	38.3 ft
34.0ft	0.42 fc	77.8 ft	76.5 ft
51.0ft	0.19 fc	116.7 ft	114.8 ft
68.0ft	0.11 fc	155.6 ft	153.1 ft
85.0ft	0.07 fc	194.5 ft	191.4 ft
102.0ft	0.05 fc	233.4 ft	229.6 ft

■ Vert. Spread: 97.7°  
■ Horiz. Spread: 96.8°

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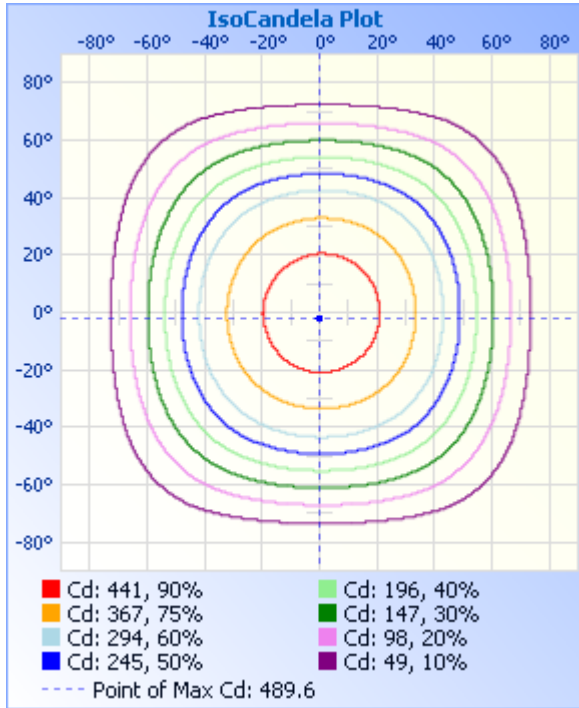
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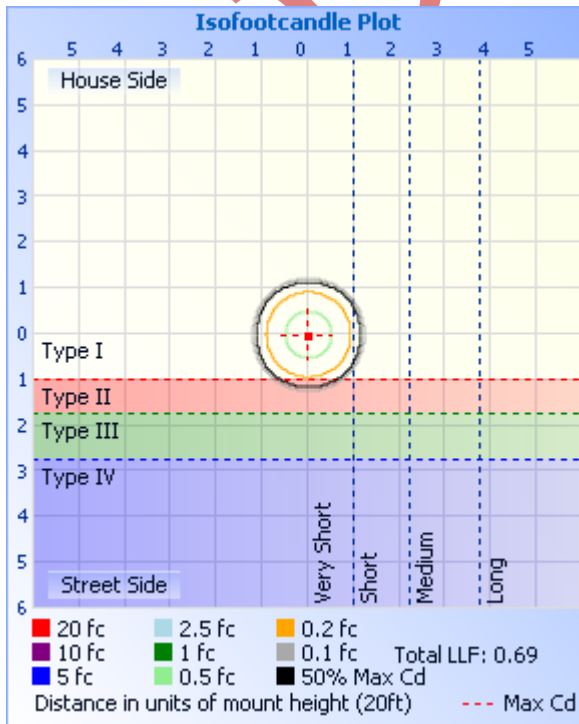
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**ISOCANDELA DIAGRAM**



**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	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488
1	489	488	488	489	489	488	487	489	489	487	488	489	489	488	488	488	489
2	489	487	488	487	489	488	488	488	490	487	489	488	488	488	488	488	489
3	488	487	486	486	487	487	487	487	488	486	488	487	488	488	488	488	488
4	487	486	486	486	486	486	487	486	487	485	486	485	487	487	487	486	487
5	487	484	485	485	486	485	485	485	487	485	485	485	485	486	485	487	487
6	485	484	484	483	484	483	484	484	485	483	484	484	486	485	484	484	485
7	484	481	482	482	482	482	482	483	483	481	483	483	484	483	484	483	484
8	483	481	481	480	481	480	480	481	482	480	481	481	482	482	482	482	483
9	482	479	478	478	479	478	478	479	480	479	479	480	480	480	480	480	482
10	479	476	475	475	476	476	475	476	477	476	477	477	477	478	478	478	479
11	476	473	474	472	474	474	474	474	475	474	475	474	476	475	475	475	476
12	473	472	469	470	472	471	471	471	473	471	472	472	472	473	473	473	473
13	471	468	468	467	468	467	468	467	470	468	469	469	470	470	470	471	471
14	468	465	464	464	465	464	465	465	466	465	466	466	467	467	467	467	468
15	464	462	461	460	461	461	461	463	463	461	463	463	464	464	464	464	464
16	461	458	458	456	458	457	458	458	460	458	460	460	460	460	460	460	461
17	457	454	454	452	454	453	453	454	456	454	455	455	456	457	457	457	457
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23	430	428	427	425	427	426	426	428	429	428	428	429	428	430	430	431	430
24	425	422	421	420	421	421	422	422	424	423	424	424	424	425	426	425	425
25	420	417	416	416	416	415	416	417	418	418	418	418	418	419	420	420	420
26	414	410	410	410	410	410	410	412	413	412	413	413	412	414	414	414	414
27	407	406	406	404	404	404	404	405	407	406	407	408	407	408	409	408	407
28	402	401	400	397	398	398	399	400	401	400	401	401	401	402	403	403	402

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29	395	394	393	391	391	392	393	394	395	395	395	394	394	396	398	396	395
30	390	387	387	385	385	385	386	387	388	388	390	388	388	390	390	390	390
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41	310	308	308	305	304	306	309	309	309	311	311	309	307	310	313	311	310
42	300	302	301	298	297	299	300	301	301	303	303	301	298	302	304	304	300
43	293	292	293	290	288	290	293	293	294	295	296	293	290	293	297	295	293
44	285	285	285	281	280	283	285	285	285	286	289	285	281	285	289	287	285
45	277	277	277	273	272	274	278	278	277	279	280	277	274	277	281	280	277
46	268	268	269	264	265	267	270	269	269	271	272	269	265	269	273	271	268
47	260	261	261	257	256	258	262	261	261	262	263	260	257	261	265	262	260
48	252	252	252	249	247	250	253	253	252	254	256	252	249	252	256	254	252
49	243	244	244	240	239	242	246	244	244	246	248	244	240	244	248	246	243
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51	226	227	227	224	223	225	229	228	227	229	231	227	223	227	231	229	226
52	218	219	219	215	214	217	221	220	219	221	223	219	214	218	223	220	218
53	209	210	211	207	206	208	212	211	210	212	215	211	206	210	214	212	209
54	200	201	203	198	197	200	204	203	202	204	206	202	198	201	206	203	200
55	192	193	194	190	189	192	196	195	193	195	198	194	189	193	198	195	192
56	182	184	186	182	181	184	188	187	185	187	190	186	181	185	189	186	182
57	175	176	178	174	173	176	180	178	177	179	182	178	172	176	181	178	175
58	166	168	170	166	165	168	172	170	168	171	174	169	164	168	173	169	166
59	157	159	162	157	156	159	164	162	160	163	165	161	156	159	164	161	157

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60	149	151	153	149	149	151	156	153	152	155	157	153	147	151	156	152	149
61	141	143	145	141	140	143	147	145	143	146	149	144	139	143	148	144	141
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66	99	101	105	101	100	103	107	104	102	105	109	104	99	102	107	102	99
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83	8	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	8
84	7	7	7	7	7	8	8	8	8	8	7	8	7	7	7	7	7
85	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
86	4	4	4	5	5	5	5	5	5	5	5	5	5	5	4	4	4
87	3	3	3	3	3	4	3	4	4	4	3	4	3	3	3	3	3
88	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
89	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	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	0	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	0	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	0	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	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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 NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

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122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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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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