



Report No.:GZE151143-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 Lamp

Model name(s): LRJT643/644-3090

Model differences: N/A

Test & Report By:

Review By:

Engineer: Johnson Sun

Manager: Tommy Liang

Date:Nov.19, 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

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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	Nov.19, 2015
Test Report No.	GZE151143-B
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LRJT643/644-3090		
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	--	15.93	W
Input Current	--	0.1334	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9954	
Off-State Power	--	0	W

Photometric Characteristics			
Total Initial Lumen Output	--	1207.8	lm
Initial Lumen Efficacy	--	75.82	lm/w
Correlated color temperature / CCT	3135	--	K
Color rendering index / CRI	90.6	--	
R9 Value	50	--	
Duv	-0.0024	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	--	508	cd
Beam angle (if applicable)	--	100.1	°
Zonal lumens in the 0°-60° zone	--	86.7	%
Zonal lumens in the 60°-90° zone	--	13.3	%
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 ° vertical intervals and 22.5 ° horizontal intervals.

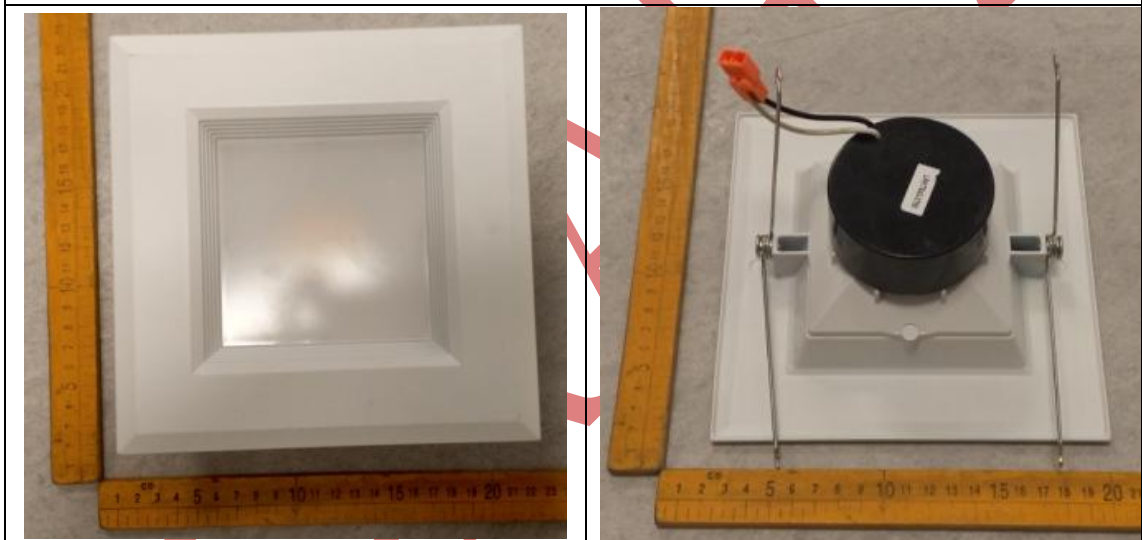
2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. 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	LRJT643/644-3090
Luminaire Type	LED Lamp
Rated Voltage / Frequency	120Vac, 60Hz
Nominal Power	17W
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-B1

Photo



2.1 Electrical, Photometric and Chromaticity Measurements <i>(Refer to Work Instruction QD25)</i>	IES LM-79 2008
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Test date	2015-11-18	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LRJT643/644-3090		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE151143 -B1	120.0	60	0.1334	15.93	0.9954

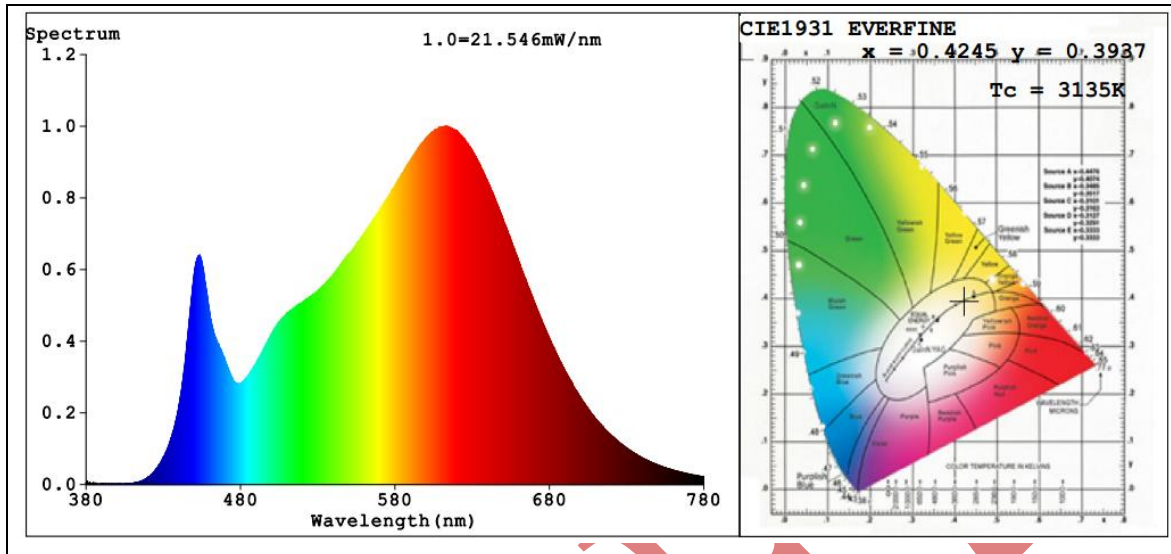
Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	91	R9	50
Frequency (Hz)	60	R2	97	R10	93
Color Rendering Index (CRI)	90.6	R3	96	R11	91
R9	50	R4	90	R12	82
CCT (K)	3135	R5	92	R13	93
Chromaticity (x, y)	x=0.4245 y=0.3937	R6	96	R14	99
Chromaticity (u', v')	u'=0.2470 v'=0.5154	R7	88	R15	86
Duv	-0.0024	R8	75	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1207.8
Luminous Efficacy (lm/W)	75.82
Beam Angle °	100.1
Center Beam Candle Power (cd)	508

Spectral Power Distribution & Chromaticity Diagram



DRAFT

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Zonal Lumen Tabulation:

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	387.6	32.1%
0-40	624.0	51.7%
0-60	1,047.5	86.7%
60-90	160.0	13.3%
70-100	42.8	3.5%
90-120	0.0	0%
0-90	1,207.6	100%
90-180	0.0	0%
0-180	1,207.6	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	48.0	4.0%	90-100	0.0	0%
10-20	136.4	11.3%	100-110	0.0	0%
20-30	203.2	16.8%	110-120	0.0	0%
30-40	236.5	19.6%	120-130	0.0	0%
40-50	232.2	19.2%	130-140	0.0	0%
50-60	191.3	15.8%	140-150	0.0	0%
60-70	117.2	9.7%	150-160	0.0	0%
70-80	37.4	3.1%	160-170	0.0	0%
80-90	5.5	0.5%	170-180	0.0	0%

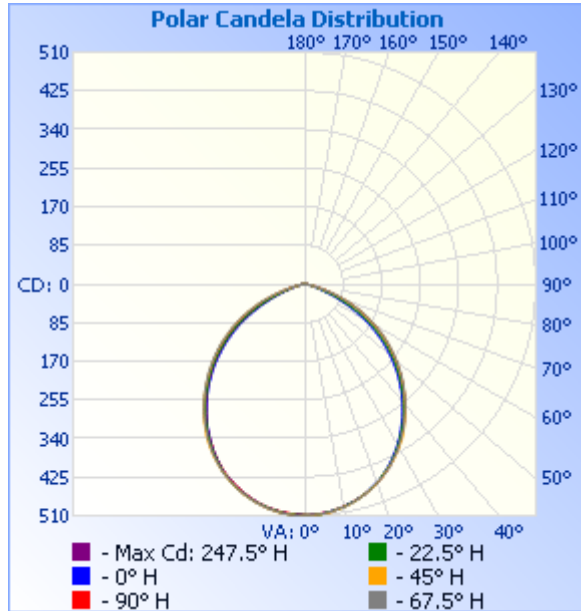
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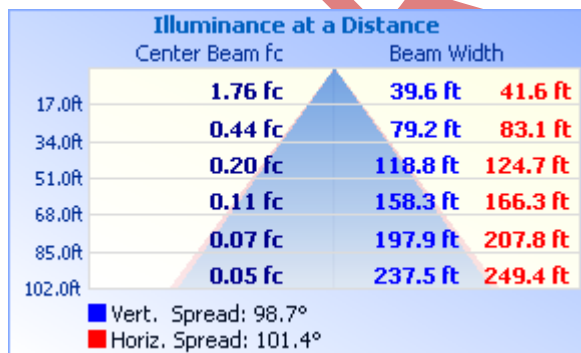
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Photometric Data



Illuminance Plots

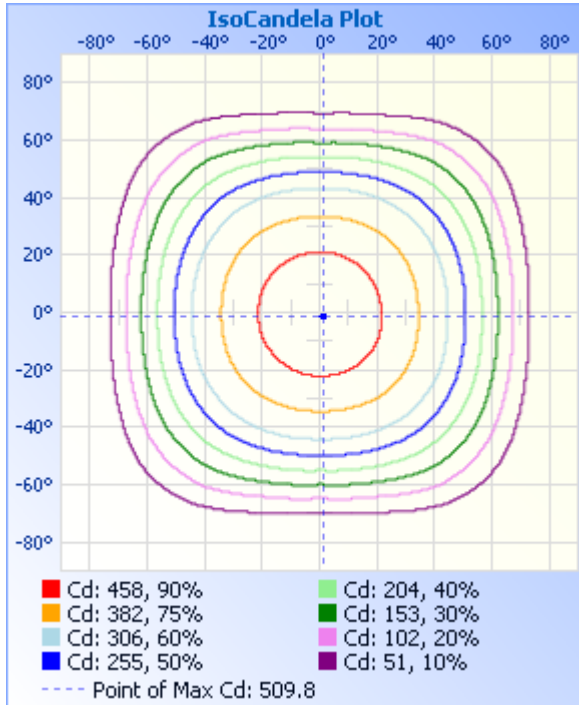


Illuminance at a Distance

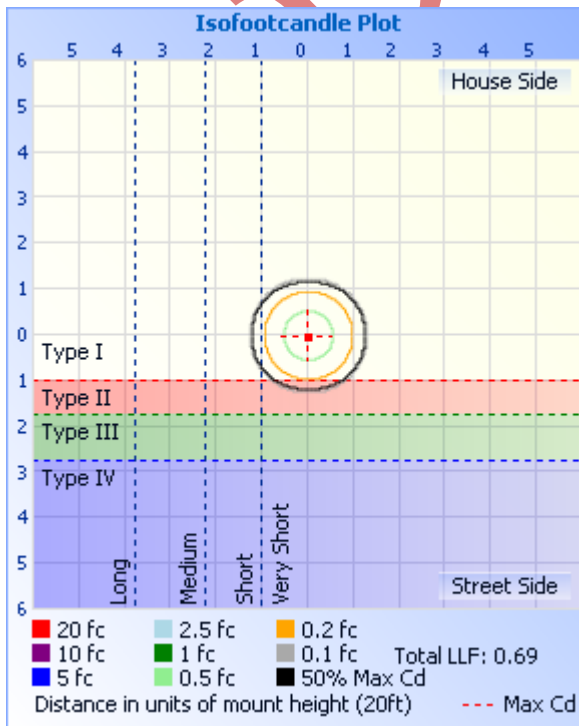
	Center Beam fc	Beam Width	
17.0ft	1.76 fc	39.6 ft	41.6 ft
34.0ft	0.44 fc	79.2 ft	83.1 ft
51.0ft	0.20 fc	118.8 ft	124.7 ft
68.0ft	0.11 fc	158.3 ft	166.3 ft
85.0ft	0.07 fc	197.9 ft	207.8 ft
102.0ft	0.05 fc	237.5 ft	249.4 ft

■ Vert. Spread: 98.7°
■ Horiz. Spread: 101.4°

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	508	508	508	508	508	508	508	508	508	508	508	508	508	508	508	508	508
1	508	509	508	509	508	508	507	509	508	508	510	509	506	508	508	508	508
2	508	509	510	508	507	508	508	507	508	508	509	510	507	508	506	508	508
3	508	508	508	508	507	507	508	508	508	506	508	508	507	507	506	508	508
4	507	508	508	507	506	507	507	507	507	507	508	507	505	506	506	506	507
5	505	506	507	506	505	506	506	506	506	506	507	507	504	505	505	506	505
6	505	504	506	505	504	504	505	506	504	505	506	506	503	504	503	504	505
7	503	503	505	503	503	503	502	504	503	503	505	503	502	501	503	503	503
8	501	500	502	502	500	501	502	502	501	501	502	502	500	500	500	500	501
9	499	500	500	499	499	499	499	500	500	500	501	501	498	499	498	499	499
10	497	498	498	499	497	498	497	499	498	497	499	498	496	497	495	497	497
11	494	495	496	496	494	496	495	496	496	495	497	496	494	493	494	494	494
12	492	492	494	494	493	492	493	494	493	493	493	494	492	492	491	492	492
13	490	491	490	490	489	490	490	491	491	490	492	491	489	489	489	488	490
14	487	487	488	488	486	488	488	488	486	488	487	488	486	486	486	486	487
15	483	484	484	484	484	485	483	485	484	484	486	485	482	483	482	483	483
16	481	480	481	481	480	481	481	482	481	481	482	481	479	480	479	480	481
17	477	477	478	477	477	477	477	478	478	477	479	478	475	477	475	476	477
18	472	473	474	474	474	472	473	475	474	474	475	475	471	471	472	472	472
19	468	469	471	470	469	471	469	471	471	471	471	470	467	468	467	468	468
20	464	465	465	465	466	466	466	467	466	466	466	466	463	463	463	464	464
21	461	461	461	462	461	461	461	461	461	462	463	462	459	460	459	460	461
22	456	455	458	457	457	458	456	457	457	457	458	457	455	455	456	455	456
23	450	450	452	453	453	452	451	453	453	453	452	454	450	450	450	451	450
24	445	446	447	448	448	448	448	447	447	448	449	448	445	445	446	446	445
25	440	441	442	444	442	443	441	442	441	442	444	443	439	440	441	441	440
26	434	436	438	437	437	438	436	437	435	436	438	438	435	435	436	434	434
27	427	429	433	431	431	432	432	430	429	430	433	432	428	429	430	429	427
28	421	424	427	426	424	426	427	424	423	425	428	426	422	423	425	423	421

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29	415	417	421	420	419	420	421	417	416	419	422	421	416	416	420	417	415
30	409	411	416	413	413	414	415	411	411	412	416	414	409	410	413	410	409
31	402	404	409	408	406	407	410	405	403	405	410	408	403	404	407	403	402
32	395	397	404	401	401	402	403	399	396	399	404	401	396	398	400	396	395
33	388	391	397	393	393	395	396	392	389	392	397	394	390	391	393	390	388
34	380	384	390	388	386	388	390	384	382	385	390	387	383	385	386	383	380
35	373	377	382	382	380	382	382	377	375	378	383	381	375	377	378	376	373
36	366	370	374	374	373	375	374	370	367	370	376	374	369	370	372	368	366
37	358	362	368	366	364	368	368	362	360	363	368	367	361	364	364	361	358
38	350	354	361	359	358	360	359	354	352	355	361	360	354	356	357	353	350
39	343	346	352	352	351	353	351	347	344	348	353	353	346	349	349	346	343
40	335	338	344	345	343	345	344	340	335	340	346	345	339	341	342	338	335
41	326	332	336	337	335	337	336	331	328	333	338	338	331	334	334	330	326
42	319	323	329	330	328	330	329	323	319	325	330	330	323	327	326	322	319
43	310	315	321	322	320	323	322	316	311	316	322	322	315	318	318	313	310
44	301	307	313	314	313	315	313	307	303	307	314	314	307	311	309	306	301
45	293	299	305	306	304	307	304	298	294	299	305	306	299	303	301	298	293
46	284	290	297	299	296	299	296	290	285	291	297	298	291	295	293	288	284
47	275	282	288	290	288	291	288	281	276	282	289	291	283	287	285	280	275
48	266	273	280	282	279	283	280	273	267	274	280	283	275	279	277	272	266
49	257	264	272	274	272	274	272	264	258	265	272	274	266	271	269	263	257
50	248	256	264	266	263	267	263	255	249	256	264	265	258	262	261	254	248
51	238	246	255	257	255	257	254	246	238	247	255	257	250	254	252	245	238
52	229	237	246	248	246	249	246	237	229	238	246	248	241	245	243	236	229
53	219	228	238	240	237	240	237	228	220	228	238	240	232	237	235	226	219
54	209	219	229	232	229	232	228	218	210	218	229	231	223	228	226	217	209
55	199	209	220	223	220	223	220	209	200	209	220	222	214	219	217	207	199
56	189	199	212	214	212	214	211	199	190	199	212	213	205	210	208	197	189
57	179	190	203	205	202	206	203	189	179	189	203	204	197	202	200	188	179
58	168	180	194	196	194	197	194	179	169	179	194	195	188	193	191	177	168
59	158	169	185	187	185	188	185	169	158	170	185	187	178	184	182	167	158

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60	147	159	176	178	176	179	176	159	147	159	176	178	169	174	172	157	147
61	136	149	168	169	167	170	167	148	137	149	167	168	160	165	164	146	136
62	125	139	158	160	157	161	158	138	126	138	158	159	150	156	154	136	125
63	115	128	149	151	147	152	148	127	115	127	148	150	140	146	145	125	115
64	104	117	139	141	138	143	139	116	104	117	139	140	131	137	136	115	104
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66	84	96	120	122	119	123	120	95	84	96	119	120	111	118	116	94	84
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68	66	77	101	103	99	104	100	75	65	75	99	101	92	99	97	75	66
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81	10	10	11	12	12	12	11	10	10	10	10	11	10	11	10	10	10
82	8	9	9	10	10	10	9	9	8	9	9	9	9	9	9	8	8
83	7	7	8	8	9	8	8	7	7	7	7	8	8	8	7	7	7
84	5	6	6	7	7	7	6	5	5	5	6	6	6	6	6	5	5
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86	3	3	3	4	5	4	3	2	2	2	3	4	4	3	3	3	3
87	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2
88	1	1	1	1	2	1	1	1	0	1	1	1	1	1	1	1	1
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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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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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