

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN

(Brand Name:N/A)

188 S. Northwest Highway Cary, IL60013

LED Luminaires

Model name(s): LED-8033E57-A
LED-8033-DL-E27-A

Remark: The two models are the same product with two model names

Representative (Tested) Model: LED-8033E57-A

Model Different: N/A

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Feb.08,2017

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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<http://www.standard-tech.com>

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN	
Brand Name	N/A	
Model Number	LED-8033E57-A, LED-8033-DL-E27-A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	35W	
Rated Initial Lamp Lumen	--	
Declared CCT	5700K	
LED Manufacturer	Samsung	
LED Model	LM561B	
Sample Number	GZE161214-C1	
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	Jan 16,2017
Date of Test	Jan 17,2017
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: Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° 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: Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° 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: Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25° C ± 1° 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	2017-01-17	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8033E57-A		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161214-	120.0	60	0.3233	37.53	0.9673
C1	277.0	60	0.1446	36.69	0.9160

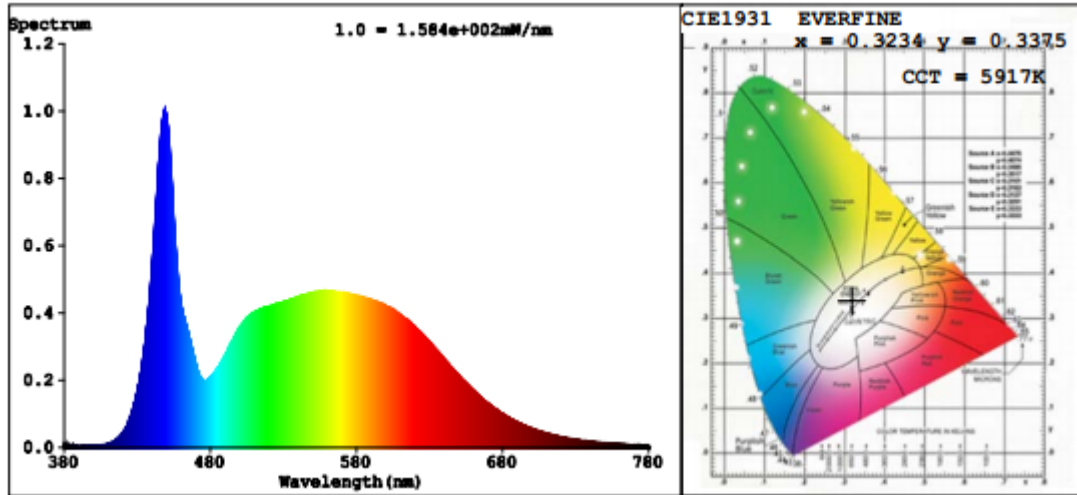
Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
		R1	R2	R3	R4
Test Voltage (V)	120.0	84	88	90	86
Frequency (Hz)	60	R9	R10	R11	R12
CCT (K)	5917	21	71	86	65
Duv	0.0023	R4	R5	R6	R7
Chromaticity (x, y)	x=0.3234 y=0.3375	84	85	83	89
Chromaticity (u', v')	u'=0.2021 v'=0.4744	R5	R6	R7	R8
Color Rendering Index (CRI)	84.8	83	89	80	--
R9	21	--	--	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	5616.5	5554.0
Luminous Efficacy (lm/W)	149.65	151.38
Beam Angle (°)	278.3	--
Center Beam Candle Power (cd)	225	--

Spectral Power Distribution & Chromaticity Diagram

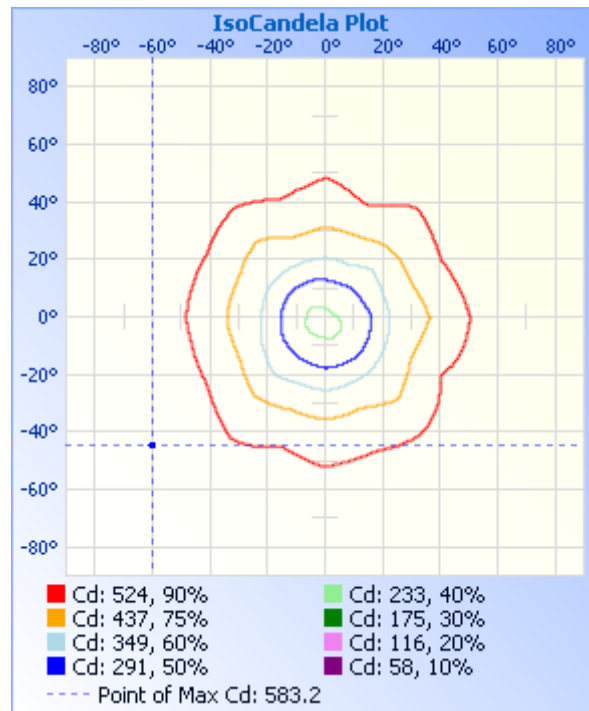
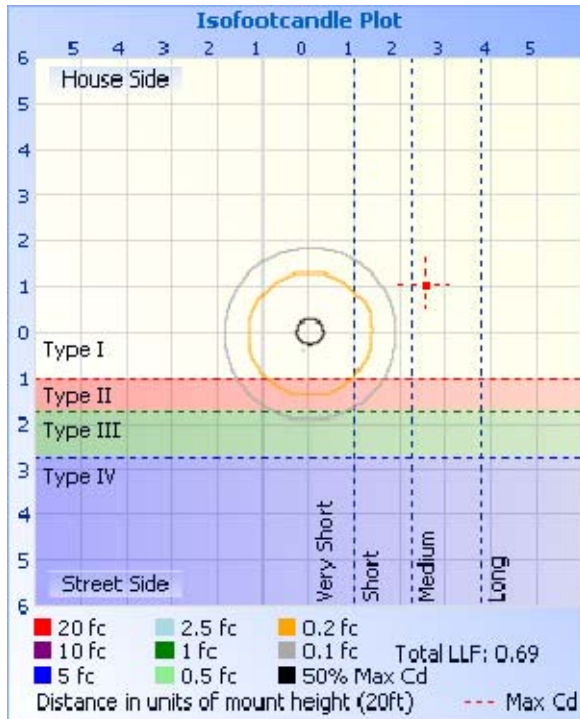
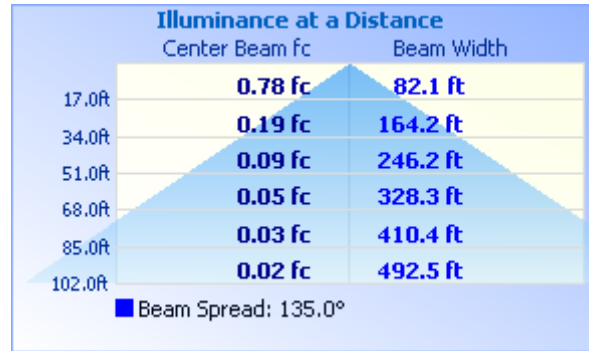
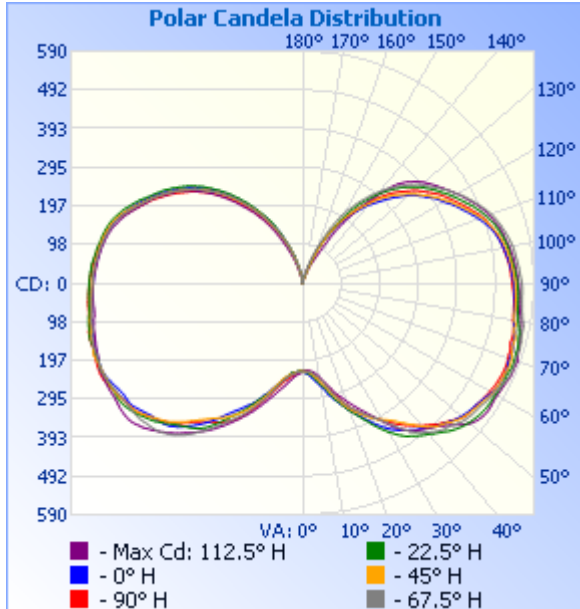


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	277.2	4.9%
0-40	559.6	10%
0-60	1,447.6	25.8%
60-90	1,744.5	31.1%
70-100	1,770.0	31.5%
90-120	1,590.3	28.3%
0-90	3,192.1	56.8%
90-180	2,424.8	43.2%
0-180	5,616.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	22.8	0.4%	90-100	583.6	10.4%
10-20	83.0	1.5%	100-110	543.3	9.7%
20-30	171.4	3.1%	110-120	463.4	8.2%
30-40	282.4	5.0%	120-130	364.4	6.5%
40-50	396.4	7.1%	130-140	256.4	4.6%
50-60	491.7	8.8%	140-150	145.2	2.6%
60-70	558.1	9.9%	150-160	57.2	1%
70-80	590.9	10.5%	160-170	10.9	0.2%
80-90	595.5	10.6%	170-180	0.5	0%

Photometric Data



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	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
1	227	226	225	224	223	224	223	224	224	224	224	225	226	228	228	229	227
2	229	228	226	225	224	223	223	225	224	224	224	226	228	230	231	231	229
3	231	229	227	226	224	224	223	225	226	225	225	227	229	232	234	234	231
4	234	231	228	226	225	225	224	226	227	227	227	229	231	236	237	238	234
5	239	234	231	227	226	226	225	227	227	228	230	230	234	239	242	242	239
6	244	238	233	230	228	226	228	229	228	228	231	233	237	244	247	248	244
7	249	242	238	233	233	228	231	232	231	231	233	235	241	249	252	253	249
8	255	249	243	237	237	232	236	237	236	234	236	239	245	254	256	257	255
9	259	253	247	241	243	237	240	243	241	239	239	242	248	259	262	263	259
10	267	261	255	247	247	242	244	248	245	245	243	246	252	266	266	268	267
11	273	268	261	252	253	249	250	253	250	249	246	252	258	271	273	276	273
12	280	274	267	260	259	256	256	257	254	255	252	258	264	278	278	285	280
13	290	282	276	268	267	262	262	264	261	263	259	266	270	284	287	292	290
14	297	290	285	276	275	271	269	272	266	268	266	273	277	292	293	301	297
15	305	301	293	287	284	278	280	278	273	276	274	281	285	299	299	308	305
16	311	311	302	295	294	287	288	285	281	285	281	291	294	306	307	317	311
17	319	317	310	305	301	295	296	294	288	291	291	300	301	314	313	326	319
18	326	326	321	313	311	302	303	301	297	300	301	309	311	321	320	335	326
19	334	334	329	323	320	308	310	309	302	306	310	317	322	331	325	343	334
20	343	344	338	331	331	317	318	316	311	314	320	326	330	339	331	350	343
21	350	351	345	339	339	325	322	323	320	321	328	334	340	348	337	358	350
22	359	360	352	346	348	332	327	329	327	330	338	345	349	356	343	365	359
23	366	368	358	353	354	342	331	337	335	338	345	355	359	365	348	373	366
24	374	378	365	359	362	349	336	345	340	348	355	364	368	372	356	380	374
25	384	387	371	366	368	358	340	354	348	358	361	373	377	381	364	389	384
26	391	398	378	374	376	366	348	363	354	366	369	380	385	388	372	396	391
27	401	407	385	380	382	376	354	370	362	375	376	390	391	398	383	407	401
28	409	419	390	388	389	385	364	380	369	384	382	397	398	405	392	415	409

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29	418	427	396	395	395	396	375	388	378	395	389	407	403	415	404	426	418
30	425	437	401	404	403	405	385	399	386	403	394	414	409	422	413	435	425
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32	439	455	411	424	418	429	404	419	407	424	405	435	417	439	433	453	439
33	446	462	416	434	425	438	414	430	416	434	411	444	421	448	442	462	446
34	451	470	424	447	433	449	421	438	426	444	416	454	425	454	449	469	451
35	457	475	433	456	440	456	429	446	435	451	422	462	430	462	457	476	457
36	462	481	440	466	447	465	435	452	444	458	429	473	435	469	463	483	462
37	467	486	450	475	453	470	441	459	452	462	435	481	442	477	469	491	467
38	473	492	457	484	461	476	447	464	461	467	444	490	448	484	474	498	473
39	477	497	467	489	467	480	452	471	469	471	451	497	457	492	480	507	477
40	483	502	476	496	474	484	457	477	477	475	460	504	464	499	486	514	483
41	489	508	485	502	479	489	461	485	485	479	467	511	473	506	492	523	489
42	494	513	492	508	486	493	468	492	491	485	476	515	479	513	496	531	494
43	498	519	499	513	491	499	473	498	497	489	482	521	487	518	500	536	498
44	503	525	503	518	499	505	481	505	501	496	490	525	493	525	504	541	503
45	506	532	507	520	504	513	487	512	504	503	497	529	497	531	510	544	506
46	511	536	512	523	509	520	495	520	507	508	501	531	504	537	514	546	511
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54	538	563	543	549	539	572	536	543	534	546	539	543	538	564	546	562	538
55	541	565	545	550	541	573	538	546	536	549	542	543	541	564	546	566	541
56	543	566	547	553	543	574	540	548	537	552	545	544	542	564	545	567	543
57	546	567	550	556	545	573	541	551	537	554	547	545	544	562	545	570	546
58	549	567	554	558	547	572	542	554	537	555	550	546	547	562	544	572	549
59	553	567	556	560	549	572	542	557	539	554	552	547	549	561	545	573	553
60	557	568	559	562	551	572	543	560	541	554	553	549	552	561	545	574	557

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61	560	569	561	565	553	573	545	562	544	555	555	550	555	562	546	575	560
62	563	570	562	568	555	575	547	565	547	556	555	553	558	562	547	575	563
63	564	571	563	571	557	576	549	566	550	556	556	555	561	562	549	575	564
64	565	571	564	574	557	577	550	567	553	556	556	557	563	562	552	575	565
65	566	571	564	577	559	579	552	567	555	557	557	558	565	562	553	574	566
66	566	571	565	579	560	581	553	566	557	559	557	559	565	561	554	573	566
67	566	572	566	579	560	581	554	564	558	560	558	560	565	561	554	572	566
68	563	575	568	579	560	581	554	565	558	559	559	558	565	561	553	571	563
69	562	575	568	579	559	582	553	567	557	557	560	557	563	558	553	569	562
70	562	574	566	578	557	583	553	567	556	558	562	557	562	555	553	568	562
71	562	573	564	577	556	580	553	567	555	559	563	556	561	553	553	568	562
72	563	573	562	577	556	577	553	567	553	560	561	556	560	553	551	569	563
73	560	573	559	579	554	576	554	566	553	559	557	557	559	551	548	568	560
74	558	572	559	577	551	576	553	566	553	559	556	557	561	549	548	563	558
75	558	570	560	577	552	574	552	566	550	561	557	555	560	548	546	563	558
76	557	568	559	574	553	571	552	563	550	561	556	553	560	546	545	562	557
77	555	567	554	574	551	572	549	562	550	557	554	549	560	546	543	560	555
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79	549	561	553	574	548	566	546	560	547	556	551	547	555	542	541	557	549
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82	545	554	546	566	543	560	542	558	544	550	546	543	551	537	539	552	545
83	545	553	546	563	542	558	540	556	542	548	544	541	550	536	539	552	545
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86	542	551	545	561	540	554	537	550	538	547	541	539	548	536	537	549	542
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89	539	549	542	560	536	551	535	548	535	545	538	537	545	534	535	546	539
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91	537	546	541	557	533	549	534	546	534	544	536	535	543	533	533	544	537
92	535	544	539	555	532	548	533	545	533	542	535	534	541	532	532	542	535

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93	534	543	538	554	531	546	532	544	532	542	534	534	540	530	531	541	534
94	532	541	536	553	530	545	531	542	531	541	533	533	539	529	530	539	532
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96	529	537	533	549	527	542	528	539	528	538	531	530	535	526	527	536	529
97	527	535	532	548	525	541	527	537	527	536	530	528	533	525	525	535	527
98	524	534	530	547	523	539	525	536	525	534	528	526	532	524	523	533	524
99	522	532	528	546	521	537	524	535	524	532	527	525	530	522	521	531	522
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101	517	529	524	541	517	532	520	532	521	528	524	521	526	518	516	526	517
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106	501	515	505	527	504	521	508	520	510	519	514	510	513	506	501	512	501
107	496	512	500	523	501	517	504	517	507	516	511	507	509	501	496	508	496
108	490	508	496	520	497	514	501	514	504	513	507	502	504	497	492	504	490
109	485	503	491	517	494	510	497	511	500	508	504	499	499	493	486	499	485
110	478	499	486	512	488	506	494	507	496	504	498	493	493	488	481	494	478
111	473	494	479	508	484	503	489	503	492	499	494	489	488	483	474	488	473
112	466	489	473	502	478	498	484	499	487	495	487	482	481	477	469	482	466
113	460	483	465	496	471	494	478	495	482	489	481	476	473	472	462	477	460
114	453	478	458	491	466	488	473	489	476	483	475	470	467	466	454	471	453
115	446	472	453	485	460	483	466	483	471	478	467	465	460	460	448	465	446
116	442	465	447	480	454	476	460	478	465	471	462	458	455	455	441	459	442
117	435	459	440	474	447	471	453	471	459	466	455	453	448	449	436	452	435
118	429	453	435	468	443	465	446	465	453	458	449	447	443	445	430	447	429
119	421	448	427	462	436	461	442	458	448	452	443	443	438	439	423	441	421
120	414	442	421	454	431	455	435	453	442	445	437	437	431	434	418	435	414
121	410	437	414	449	427	448	431	447	436	441	430	432	424	428	411	429	410
122	405	431	409	442	420	443	425	442	430	435	424	425	418	420	404	423	405
123	398	424	402	437	415	437	420	435	423	430	418	418	411	414	398	418	398
124	390	419	394	429	407	432	413	431	417	424	413	411	405	408	392	412	390

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125	383	413	388	423	401	426	408	422	410	417	406	405	398	402	384	408	383
126	377	406	380	416	393	422	401	416	404	411	399	400	391	396	378	401	377
127	370	401	374	408	387	416	396	410	396	403	392	391	384	389	370	394	370
128	364	394	368	402	382	411	389	405	390	398	386	385	376	382	363	388	364
129	355	388	360	395	374	405	383	397	383	391	380	377	370	374	355	380	355
130	348	381	353	389	367	400	375	389	377	384	371	371	362	367	345	373	348
131	338	373	344	382	358	393	367	383	369	376	365	363	355	358	338	365	338
132	328	367	337	373	349	387	362	375	363	369	357	356	346	349	328	356	328
133	321	358	329	366	342	377	354	368	354	361	349	346	339	340	318	349	321
134	311	351	322	357	333	371	348	359	347	354	340	339	330	330	310	340	311
135	303	341	313	350	325	361	338	352	338	344	333	330	323	321	301	332	303
136	292	333	304	341	315	351	330	343	331	336	323	324	313	311	293	322	292
137	283	323	296	331	303	338	316	336	322	326	315	315	305	301	283	314	283
138	275	313	286	323	295	319	307	327	312	318	305	306	295	292	275	303	275
139	266	304	277	313	284	306	291	319	304	308	296	298	286	280	264	291	266
140	258	292	266	304	272	286	283	308	294	300	286	289	276	271	254	281	258
141	249	283	255	294	262	271	267	300	285	290	276	280	267	260	246	270	249
142	238	272	247	285	250	252	258	290	275	279	268	269	257	249	235	260	238
143	230	260	237	273	240	239	243	278	266	270	258	260	248	240	227	248	230
144	219	250	228	262	229	219	233	268	256	259	250	248	237	230	217	236	219
145	208	238	217	252	218	204	219	256	247	251	240	239	226	222	207	226	208
146	199	226	206	241	207	185	205	247	236	240	231	229	217	212	199	213	199
147	187	212	198	229	195	171	195	236	227	231	221	218	206	201	188	204	187
148	178	198	187	220	186	152	184	227	216	220	212	209	198	192	177	192	178
149	166	186	175	208	173	133	170	216	208	212	202	199	187	180	167	181	166
150	156	168	161	198	164	115	158	208	197	201	192	190	177	169	156	171	156
151	147	152	151	184	152	98	150	197	189	193	181	180	169	159	147	160	147
152	136	143	141	169	139	85	138	189	178	183	169	171	159	147	137	149	136
153	126	130	126	157	130	72	129	177	167	175	160	159	150	137	126	139	126
154	118	120	112	142	118	66	120	168	159	163	149	150	139	125	118	126	118
155	108	107	102	127	107	59	110	155	148	150	140	139	130	113	107	113	108
156	98	96	88	116	96	53	100	140	139	140	130	128	120	105	96	104	98

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

Report Format Number STD/QR4909-A/2

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157	86	82	77	102	84	46	91	129	128	127	122	119	109	95	88	92	86
158	74	66	61	92	74	39	81	117	118	118	112	108	100	87	78	84	74
159	66	54	48	80	63	32	70	108	108	107	104	99	90	77	71	74	66
160	55	46	39	70	52	26	64	98	99	99	95	88	82	69	63	65	55
161	46	38	28	59	43	22	59	90	90	89	84	80	73	61	55	58	46
162	36	30	16	46	34	19	56	81	79	81	76	70	64	52	48	50	36
163	28	23	10	38	26	16	52	73	73	73	67	62	57	45	40	42	28
164	23	20	8	29	18	13	43	60	63	61	59	54	48	38	33	35	23
165	19	18	9	21	11	11	37	50	55	54	50	46	42	31	29	29	19
166	16	17	9	15	9	9	32	45	48	46	46	41	35	25	22	25	16
167	15	15	9	10	7	7	29	38	42	41	37	33	28	21	19	19	15
168	13	11	6	6	6	6	24	31	35	34	30	26	23	15	14	14	13
169	11	8	4	3	4	5	21	24	29	26	25	22	19	12	10	12	11
170	7	5	2	2	2	5	16	19	24	22	21	17	14	8	8	8	7
171	5	4	2	1	2	5	13	16	18	17	15	14	11	6	6	6	5
172	4	3	2	1	2	4	11	11	14	14	12	10	7	3	4	4	4
173	3	2	2	1	2	3	8	9	11	10	9	8	4	2	3	2	3
174	2	2	2	1	2	3	6	6	8	7	6	5	3	2	2	2	2
175	1	2	1	1	1	2	3	4	6	5	4	3	2	1	1	1	1
176	1	1	1	1	1	2	3	3	4	3	3	2	1	1	1	1	1
177	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1
178	1	1	1	1	1	1	2	2	2	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	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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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