



NVLAP LAB CODE 201011-0

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-8083E40
LED-8083M40

Remark : The suffix of the model name“E” stand for E26;
“M” stand for E39.

Representative (Tested) Model: LED-8083E40

Model Different :N/A

Test & Report By:

Jack Luo

Engineer: Jack Luo

Date: May.09,2016

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	May.09,2016
Test Report No.	GZE160347-U2
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	LIGHT EFFICIENT DESIGN		
Brand Name	N/A		
Model Number	LED-8083E40		
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	--	30.66	W
Input Current	--	0.2590	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9864	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	3919.8	lm
Initial Lumen Efficacy	--	127.85	lm/w
Correlated color temperature / CCT	4041	--	K
Color rendering index / CRI	83.8	--	
R9 Value	12	--	
Duv	0.0005	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		28	cd
Beam angle (if applicable)		291.6	°
Zonal lumens in the 0°-60° zone		19.1	%
Zonal lumens in the 60°-90° zone	-----	31.6	%
Zonal lumens in the 90°-120° zone		31.3	%
Zonal lumens in the 120°-180° zone		17.9	%

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Test Specifications:	
Date of Receipt	: Apr.01,2016
Date of Test	: May.05,2016
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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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 Volts, 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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 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.

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1. Product Information:

Brand Name	N/A
Model Number	LED-8083E40, LED-8083M40
Luminaire Type	LED Lamp
Rated Voltage / Frequency	120~277 Vac, 50/60Hz
Nominal Power	30W
Rated Initial Lamp Lumen	--
Declared CCT	4000K
LED Manufacturer	N/A
LED Model	N/A
Sample Receipt Date	Apr.01,2016
Sample Number	GZE160347-U2(4000K)

Photo



LED-8080E30



LED-8080M30

2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2016-05-05	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8083E40		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160347	120.0	60	0.2590	30.66	0.9864	7.49
-U2	277.0	60	0.1215	30.35	0.9018	18.15

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	82.8
R9	12
CCT (K)	4041
Chromaticity (x, y)	x=0.3790 y=0.3768
Chromaticity (u', v')	u'=0.2241 v'=0.5014
Duv	0.0005

Special Color Rendering Indices			
R1	82	R9	12
R2	90	R10	77
R3	96	R11	80
R4	82	R12	62
R5	82	R13	84
R6	86	R14	98
R7	86	R15	76
R8	66	--	--

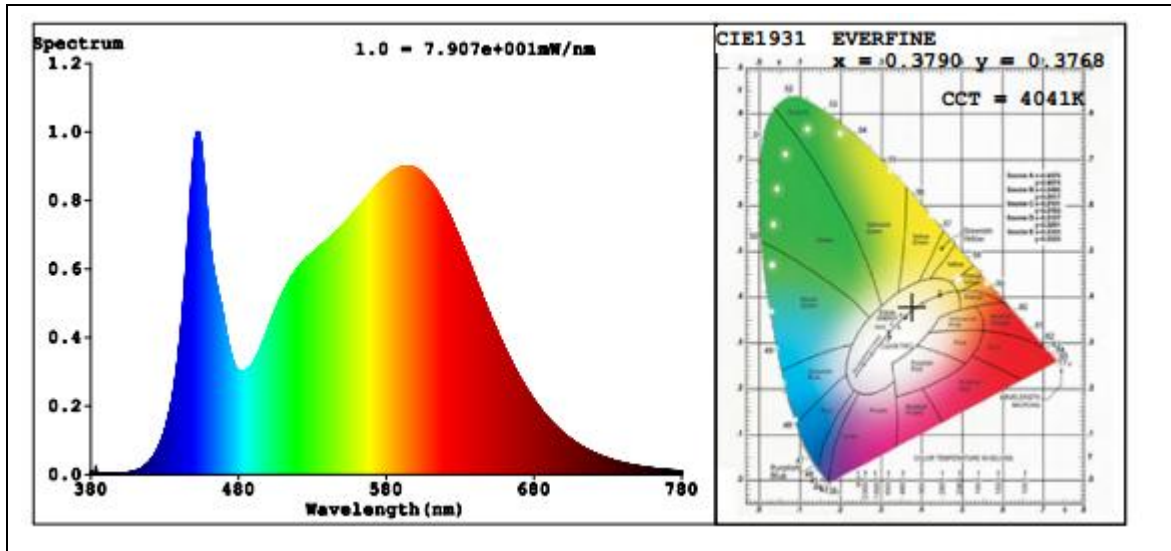
Goniophotometer Method :

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3919.8
Luminous Efficacy (lm/W)	127.85
Beam Angle°	291.6
Center Beam Candle Power (cd)	28

Goniophotometer Methodn :

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3843.7
Luminous Efficacy (lm/W)	126.65

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	98.9	2.5%
0-40	236.2	6%
0-60	750.5	19.1%
60-90	1,240.1	31.6%
70-100	1,318.5	33.6%
90-120	1,226.6	31.3%
0-90	1,990.7	50.8%
90-180	1,929.9	49.2%
0-180	3,920.6	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	3.6	0.1%	90-100	447.3	11.4%
10-20	24.7	0.6%	100-110	416.9	10.6%
20-30	70.6	1.8%	110-120	362.4	9.2%
30-40	137.2	3.5%	120-130	289.2	7.4%
40-50	216.5	5.5%	130-140	206.1	5.3%
50-60	297.8	7.6%	140-150	126.7	3.2%
60-70	368.9	9.4%	150-160	60.2	1.5%
70-80	421.4	10.7%	160-170	19.2	0.5%
80-90	449.8	11.5%	170-180	2.0	0.1%

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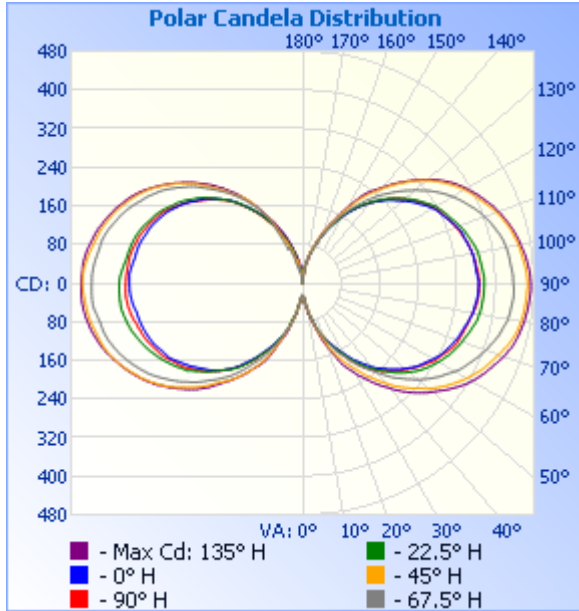
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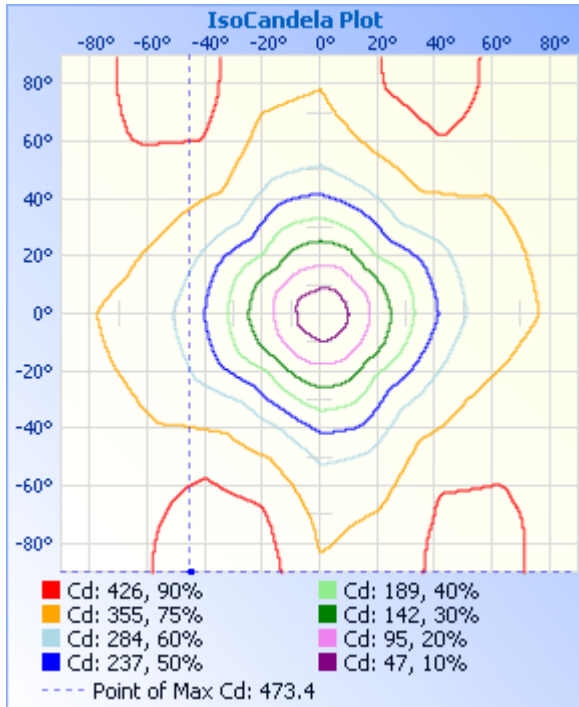
Photometric Data



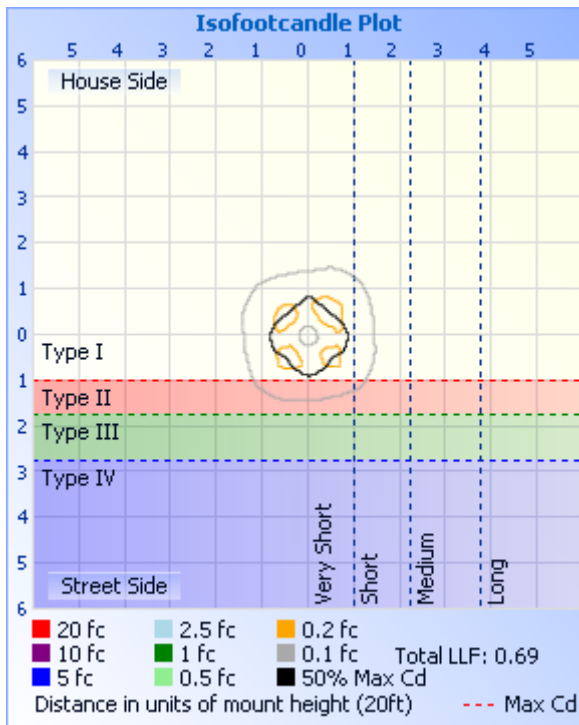
Illuminance Plots

Illuminance at a Distance		
	Center Beam fc	Beam Width
17.0ft	0.10 fc	
34.0ft	0.02 fc	
51.0ft	0.01 fc	
68.0ft	0.01 fc	
85.0ft	0.00 fc	
102.0ft	0.00 fc	

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	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
1	28	27	27	27	27	27	27	27	27	27	27	27	28	28	28	28	28
2	27	26	26	26	26	27	27	26	26	26	26	27	28	28	28	27	27
3	26	26	26	26	26	27	27	27	26	26	26	26	27	27	27	27	26
4	26	26	26	28	30	31	27	27	25	25	26	26	27	27	27	26	26
5	31	30	29	31	33	35	33	29	29	29	26	28	29	27	27	27	31
6	36	33	35	33	38	39	35	32	32	33	32	30	34	32	29	31	36
7	41	41	38	38	43	45	42	37	39	37	34	34	36	36	33	35	41
8	45	48	41	41	44	44	49	48	44	44	39	36	42	42	39	41	45
9	45	48	47	44	50	46	53	51	45	44	48	45	47	50	41	45	45
10	50	49	56	50	58	54	56	53	50	46	54	54	48	51	47	47	50
11	61	57	58	61	65	64	63	59	59	53	58	56	54	52	58	53	61
12	68	68	61	68	67	66	70	70	67	64	63	61	65	58	67	62	68
13	69	74	66	70	71	69	77	81	69	69	70	69	74	71	69	71	69
14	72	76	74	74	76	75	84	86	71	72	76	80	76	79	74	76	72
15	78	80	84	80	85	83	90	88	77	76	83	87	79	80	80	78	78
16	88	88	92	86	94	93	95	90	86	81	89	92	85	85	90	83	88
17	97	96	100	94	101	102	103	95	93	90	95	96	94	91	101	90	97
18	104	105	106	101	106	107	113	102	100	99	101	99	102	100	110	99	104
19	110	111	112	105	111	113	122	112	106	107	109	104	111	110	116	108	110
20	115	117	120	109	117	118	131	121	111	113	119	112	118	117	122	115	115
21	120	122	130	115	122	125	138	129	116	118	128	119	124	125	129	121	120
22	125	127	139	121	127	131	145	137	121	123	137	126	130	132	139	124	125
23	129	133	150	129	131	138	155	142	126	128	145	134	135	138	150	129	129
24	134	138	158	137	135	144	165	148	133	135	154	141	139	143	161	135	134
25	139	143	165	146	141	149	176	155	139	143	164	148	144	149	172	141	139
26	144	148	171	153	148	154	186	163	145	148	174	157	149	154	180	150	144
27	149	154	177	159	153	159	194	171	150	155	183	165	154	158	187	158	149
28	155	159	185	166	160	166	200	178	155	160	190	172	160	162	193	167	155
29	161	164	192	170	167	173	207	186	161	164	196	178	164	169	198	176	161

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30	167	171	198	174	174	180	214	193	168	170	203	186	171	174	204	184	167
31	173	177	204	184	182	187	222	201	174	177	212	191	178	180	212	190	173
32	180	184	211	190	188	195	228	209	181	184	219	198	186	187	220	195	180
33	187	190	219	197	194	202	234	217	187	191	225	206	192	193	227	201	187
34	192	197	227	204	201	209	242	225	193	197	231	214	197	200	233	208	192
35	198	203	235	210	207	215	250	234	199	204	239	222	203	208	240	214	198
36	203	209	241	217	214	221	257	243	205	211	245	230	209	215	246	221	203
37	209	216	249	222	220	227	264	250	214	217	251	237	214	221	253	228	209
38	214	222	256	229	225	233	271	258	220	223	257	244	220	228	259	235	214
39	221	227	264	235	230	239	277	266	225	228	263	250	226	235	266	241	221
40	227	233	271	242	235	244	285	273	231	233	268	256	232	240	274	247	227
41	233	238	279	250	240	249	293	280	237	237	275	262	237	245	281	253	233
42	237	243	287	257	245	254	300	288	241	241	282	269	243	250	290	260	237
43	241	249	293	265	249	260	307	294	247	247	290	274	247	255	296	267	241
44	246	255	300	272	252	265	314	301	252	252	297	280	252	259	303	273	246
45	252	261	306	279	257	270	320	308	256	257	304	287	256	265	311	279	252
46	257	267	313	284	261	275	327	315	260	263	310	294	262	270	317	285	257
47	262	272	320	291	266	280	333	321	264	268	317	300	267	276	323	291	262
48	266	278	326	297	270	285	340	327	267	274	323	306	272	281	328	298	266
49	271	282	332	304	274	290	345	334	271	278	328	312	277	286	333	304	271
50	275	287	339	310	277	295	351	341	274	284	336	318	280	290	339	310	275
51	280	291	346	317	282	300	356	347	279	289	342	324	285	295	345	316	280
52	284	296	351	323	285	306	362	354	282	294	348	330	289	300	351	322	284
53	289	301	357	329	291	311	368	359	287	301	354	335	293	305	356	328	289
54	293	305	363	334	295	316	374	364	291	303	359	341	298	310	360	333	293
55	296	309	368	339	298	321	379	370	294	307	365	346	302	315	367	338	296
56	300	312	373	345	302	325	385	375	298	311	370	351	305	319	373	343	300
57	303	315	379	349	306	330	391	381	302	315	375	357	308	322	377	348	303
58	306	319	384	354	310	334	396	386	305	319	380	362	311	327	382	353	306
59	309	322	389	360	314	338	401	392	310	322	385	367	314	330	387	358	309
60	313	326	394	365	319	341	406	397	314	326	390	372	317	335	391	362	313
61	317	329	398	371	321	345	410	402	317	330	393	376	321	338	395	367	317

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62	320	332	402	375	324	348	414	405	319	333	398	380	325	342	399	371	320
63	324	335	406	379	326	352	418	409	321	337	402	384	328	345	404	375	324
64	326	338	411	382	329	355	422	413	323	339	406	388	330	348	407	378	326
65	329	341	415	386	333	358	425	416	326	343	410	392	332	351	411	382	329
66	330	343	418	390	336	361	429	420	328	346	414	396	335	353	415	386	330
67	333	346	422	394	339	363	433	423	331	349	418	400	337	355	418	388	333
68	335	349	425	398	341	366	436	427	333	352	420	403	340	357	422	393	335
69	337	351	429	401	343	368	440	430	335	355	424	407	343	360	425	396	337
70	340	352	433	405	344	371	444	433	337	357	427	410	344	362	429	399	340
71	342	354	436	408	345	373	447	436	339	359	430	413	346	365	433	403	342
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75	348	363	450	421	351	381	458	448	345	369	438	423	353	373	443	415	348
76	351	365	453	423	352	383	460	450	346	371	439	425	355	376	446	418	351
77	352	368	455	425	354	385	462	452	347	372	441	426	356	377	448	420	352
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83	361	374	463	435	364	393	469	461	355	380	451	436	366	386	458	428	361
84	362	375	464	436	364	394	471	462	356	380	452	438	366	387	459	429	362
85	363	375	464	437	365	395	471	464	357	381	453	438	368	387	459	429	363
86	364	376	465	438	366	395	472	465	358	381	454	438	368	387	460	430	364
87	365	376	465	438	366	395	473	466	359	381	455	438	368	388	460	431	365
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89	365	377	467	438	366	394	473	468	359	381	456	438	367	387	459	430	365
90	365	377	467	437	367	394	473	468	359	381	456	438	367	388	459	430	365
91	365	377	466	437	367	394	473	468	359	380	456	437	367	387	459	430	365
92	363	377	465	436	366	392	472	467	360	379	456	437	366	387	458	429	363
93	363	376	465	436	365	391	471	467	360	378	455	437	366	386	458	428	363

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94	361	374	463	435	364	391	470	465	359	376	455	436	365	385	457	426	361
95	360	373	462	433	363	390	468	464	357	374	453	435	365	385	457	424	360
96	360	372	460	432	362	389	467	462	356	372	451	433	364	385	456	423	360
97	359	371	459	432	361	388	465	460	354	371	449	432	364	384	455	421	359
98	359	371	457	431	360	386	463	457	353	369	447	430	363	384	453	420	359
99	359	370	456	430	359	385	461	455	352	368	444	429	363	382	452	419	359
100	358	369	455	429	357	383	459	454	351	367	442	427	362	380	449	418	358
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103	353	363	449	423	354	379	453	447	349	364	436	424	356	375	443	412	353
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108	346	352	435	409	343	369	439	435	340	354	424	410	348	363	429	399	346
109	344	350	432	405	341	366	436	433	338	352	421	407	346	360	426	396	344
110	341	347	428	402	339	364	432	429	336	350	418	404	343	357	423	393	341
111	338	344	424	399	337	361	430	425	334	347	415	400	341	354	419	390	338
112	335	341	420	394	334	358	426	421	332	344	412	397	338	351	416	386	335
113	332	338	416	390	332	354	421	417	329	341	408	394	335	348	412	381	332
114	329	335	412	386	329	351	417	413	327	339	404	389	332	346	409	378	329
115	325	333	407	381	326	348	413	409	324	336	400	385	330	344	405	373	325
116	323	330	403	377	324	345	409	404	322	333	396	381	327	340	401	369	323
117	320	327	399	373	322	341	405	401	319	329	393	376	324	337	397	365	320
118	317	324	396	368	320	338	400	396	316	326	388	373	321	334	392	361	317
119	315	321	392	363	317	334	396	392	313	322	384	369	317	329	388	356	315
120	311	318	387	359	313	329	392	386	309	317	379	364	312	325	383	351	311
121	307	314	383	354	310	325	387	382	305	314	374	359	308	320	377	346	307
122	303	309	378	348	305	320	383	377	302	310	370	355	303	315	372	341	303
123	298	304	372	343	302	316	378	372	299	307	364	351	300	311	366	335	298
124	293	300	367	337	298	311	373	366	295	303	358	346	295	307	360	330	293
125	289	296	362	331	294	307	367	360	291	298	352	340	292	303	354	325	289

Laboratory: Standard-Tech Co. Ltd Testing Center

NVLAP CODE: 201011-0

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126	285	292	356	325	290	302	361	353	287	294	347	334	287	298	348	319	285
127	280	287	350	318	286	296	354	346	282	289	341	328	281	294	342	314	280
128	275	283	344	312	281	290	348	339	278	284	335	322	277	289	336	309	275
129	270	278	338	306	275	285	341	332	274	280	328	316	272	284	330	303	270
130	265	273	331	299	271	281	334	325	270	275	322	311	268	279	324	297	265
131	261	267	324	293	267	275	327	319	267	270	315	305	263	275	318	292	261
132	257	262	317	286	263	270	320	312	262	264	308	299	258	270	311	285	257
133	252	257	309	280	257	265	312	305	257	258	301	291	254	265	305	278	252
134	247	252	302	273	251	259	304	298	252	253	294	284	249	259	298	272	247
135	243	247	294	266	246	253	297	292	247	247	286	277	244	254	291	265	243
136	237	241	286	259	240	247	290	284	242	242	278	271	240	248	284	259	237
137	233	236	279	253	234	241	282	276	237	237	270	264	235	243	278	253	233
138	228	230	271	247	228	235	275	267	232	231	263	258	230	237	271	247	228
139	222	224	263	240	222	229	267	260	227	225	256	251	224	231	263	241	222
140	217	219	255	233	217	223	259	253	221	220	250	245	218	226	256	234	217
141	211	213	247	225	211	216	252	246	214	214	241	239	211	220	248	227	211
142	205	207	240	219	206	210	245	240	207	207	234	232	205	215	241	221	205
143	199	202	232	212	200	204	239	233	201	201	228	225	199	209	234	215	199
144	193	196	224	204	195	197	232	225	195	194	222	217	193	202	226	209	193
145	187	190	216	197	189	191	225	217	189	188	217	211	187	196	218	202	187
146	181	185	209	190	183	185	216	208	183	182	210	204	180	190	210	195	181
147	174	179	199	183	177	177	205	199	177	176	203	195	174	184	202	188	174
148	168	171	190	175	169	170	196	191	171	170	195	188	167	177	194	181	168
149	162	164	180	168	162	164	187	183	166	163	183	180	161	169	185	174	162
150	155	156	171	161	156	158	177	176	159	157	173	172	154	162	175	167	155
151	149	148	163	153	150	151	167	169	153	149	164	164	147	155	167	160	149
152	142	142	154	146	144	145	158	163	147	143	155	156	140	147	159	153	142
153	135	136	146	138	138	138	148	158	140	137	147	142	134	140	151	146	135
154	128	130	138	131	131	131	141	153	134	131	138	120	129	135	145	139	128
155	122	124	133	124	125	124	134	148	127	123	128	106	121	128	138	132	122
156	116	118	126	118	118	117	127	143	122	117	114	90	114	121	131	125	116
157	110	111	117	112	111	109	120	136	117	111	104	75	107	115	124	118	110

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158	104	105	111	105	105	103	114	129	114	105	98	78	101	108	117	110	104
159	98	99	104	99	98	97	107	120	109	99	94	79	95	102	110	104	98
160	92	94	98	92	92	91	100	111	103	92	88	73	88	96	103	98	92
161	87	88	91	86	85	85	94	102	95	87	78	66	80	90	97	92	87
162	82	82	85	81	80	80	87	94	89	82	76	60	74	84	90	85	82
163	78	77	80	73	76	75	79	88	81	78	69	41	68	79	83	80	78
164	72	72	74	67	70	69	74	83	74	71	51	36	63	73	77	74	72
165	66	66	69	63	63	63	69	77	67	63	42	25	59	66	72	67	66
166	61	61	63	60	58	58	63	72	60	47	49	25	54	60	67	62	61
167	56	57	58	57	51	51	57	66	55	36	48	36	48	55	62	57	56
168	50	52	53	53	47	47	52	59	50	32	48	35	43	50	56	54	50
169	46	48	47	47	43	42	48	52	47	32	44	24	37	46	51	53	46
170	44	43	39	39	39	38	43	47	43	32	34	12	32	42	48	50	44
171	39	39	34	26	34	34	40	42	40	30	24	10	25	35	45	46	39
172	35	34	30	16	22	24	35	37	35	30	20	8	17	31	41	40	35
173	32	31	25	9	17	18	28	29	30	27	19	4	14	24	35	33	32
174	28	24	15	6	10	11	17	19	22	26	20	3	10	22	21	22	28
175	16	13	6	4	4	5	9	8	12	15	11	2	7	13	8	12	16
176	4	4	2	1	1	1	3	3	4	5	3	0	2	4	2	3	4
177	1	1	1	0	0	0	1	1	1	1	0	0	0	0	1	1	1
178	0	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	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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 *******