

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-8082M40

Representative (Tested) Model: LED-8082M40

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-T2
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	LIGHT EFFICIENT DESIGN		
Brand Name	N/A		
Model Number	LED-8082M40		
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	--	41.63	W
Input Current	--	0.3501	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9909	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	5010.1	lm
Initial Lumen Efficacy	--	120.35	lm/w
Correlated color temperature / CCT	3933	--	K
Color rendering index / CRI	83.8	--	
R9 Value	13	--	
Duv	0.0006	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	1549	cd
Beam angle (if applicable)		110.9	°
Zonal lumens in the 0°-60° zone		68.2	%
Zonal lumens in the 60°-90° zone		25.1	%
Zonal lumens in the 90°-120° zone		5.8	%
Zonal lumens in the 120°-180° zone		0.9	%

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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	<p>IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</p> <p>ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</p> <p>CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</p> <p>CIE 15-2004 Technical Report Colorimetry</p> <p>IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</p> <p>IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</p>
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.

1. Product Information:

Brand Name	N/A
Model Number	LED-8082M40
Luminaire Type	LED Lamp
Rated Voltage / Frequency	120~277 Vac, 50/60Hz
Nominal Power	45W
Rated Initial Lamp Lumen	--
Declared CCT	4000K
LED Manufacturer	N/A
LED Model	N/A
Sample Receipt Date	Apr.01,2016
Sample Number	GZE160347-T2(4000K)

Photo



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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-8082M40		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160347	120.0	60	0.3501	41.63	0.9909	5.75
-T2	277.0	60	0.1658	41.41	0.9017	14.24

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	83.8
R9	13
CCT (K)	3933
Chromaticity (x, y)	x=0.3839 y=0.3803
Chromaticity (u', v')	u'=0.2260 v'=0.5036
Duv	0.0006

Special Color Rendering Indices			
R1	82	R9	13
R2	91	R10	78
R3	96	R11	80
R4	81	R12	32
R5	82	R13	85
R6	87	R14	98
R7	86	R15	76
R8	65	--	--

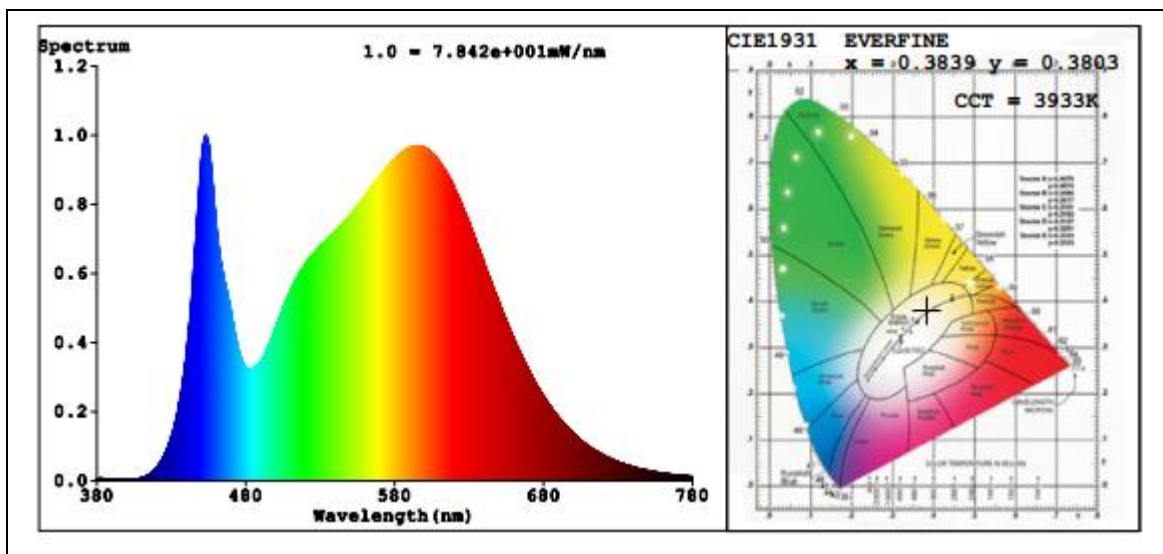
Goniophotometer Method :

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	5010.1
Luminous Efficacy (lm/W)	120.35
Beam Angle°	110.9
Center Beam Candle Power (cd)	1549

Goniophotometer Methodn :

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	4986.0
Luminous Efficacy (lm/W)	120.41

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,193.0	23.8%
0-40	1,943.4	38.8%
0-60	3,416.3	68.2%
60-90	1,259.4	25.1%
70-100	851.1	17%
90-120	289.1	5.8%
0-90	4,675.7	93.3%
90-180	334.1	6.7%
0-180	5,009.8	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	146.4	2.9%	90-100	161.6	3.2%
10-20	417.9	8.3%	100-110	86.1	1.7%
20-30	628.7	12.5%	110-120	41.4	0.8%
30-40	750.4	15.0%	120-130	20.1	0.4%
40-50	771.5	15.4%	130-140	12.0	0.2%
50-60	701.4	14.0%	140-150	7.5	0.1%
60-70	569.9	11.4%	150-160	3.8	0.1%
70-80	416.1	8.3%	160-170	1.3	0%
80-90	273.4	5.5%	170-180	0.3	0%

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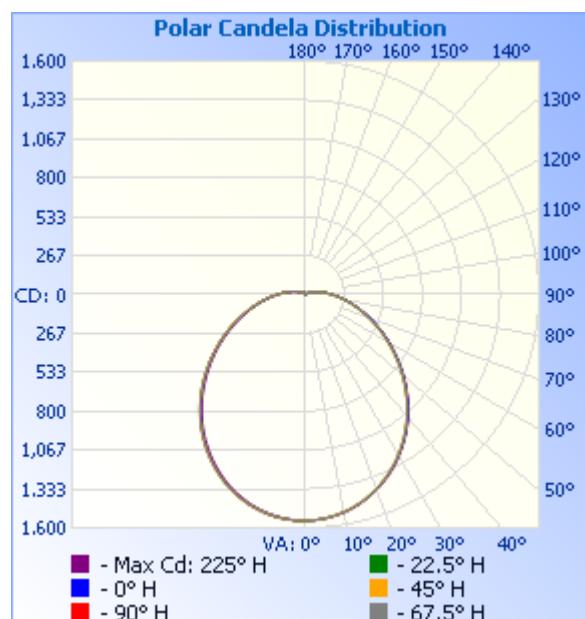
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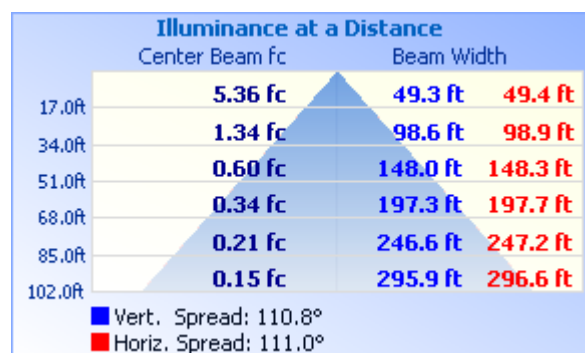
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Photometric Data



Illuminance Plots



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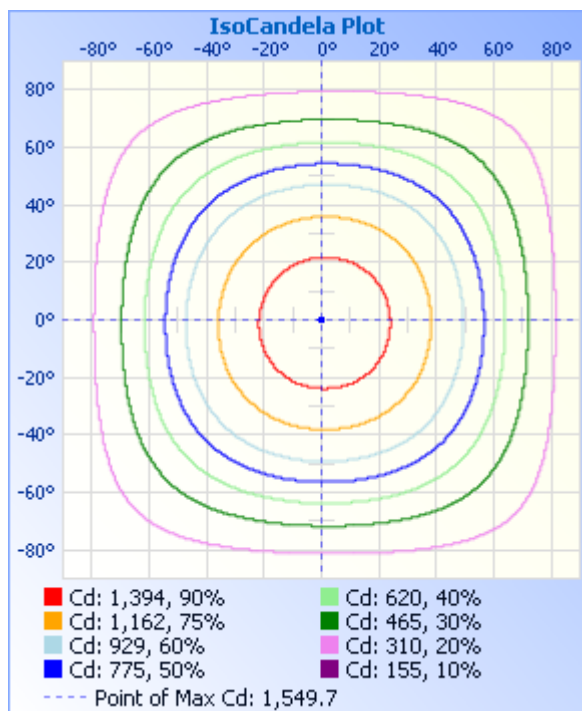
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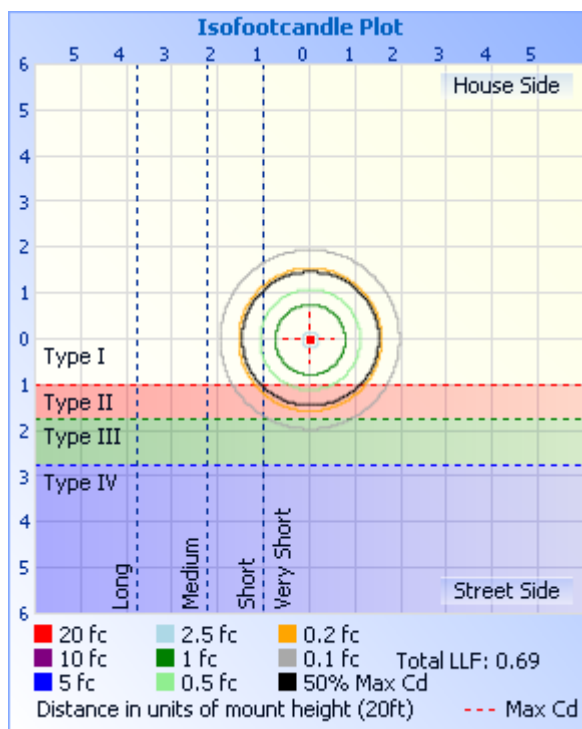
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ISOCANDELA DIAGRAM



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	1549	1549	1549	1549	1549	1549	1549	1549	1549	1549	1549	1549	1549	1549	1549	1549	1549
1	1549	1548	1548	1547	1549	1549	1549	1549	1549	1549	1550	1549	1550	1549	1549	1549	1549
2	1547	1546	1547	1546	1548	1548	1548	1548	1548	1549	1549	1549	1550	1549	1548	1548	1547
3	1545	1544	1544	1544	1546	1546	1546	1547	1547	1548	1548	1548	1548	1548	1547	1545	1545
4	1542	1541	1542	1541	1543	1544	1544	1545	1546	1546	1547	1547	1547	1546	1544	1543	1542
5	1539	1538	1538	1538	1540	1541	1542	1543	1544	1544	1545	1545	1545	1543	1542	1540	1539
6	1535	1534	1534	1534	1537	1538	1539	1540	1541	1541	1542	1542	1541	1540	1538	1536	1535
7	1530	1529	1529	1529	1532	1534	1535	1536	1538	1538	1539	1538	1538	1536	1534	1532	1530
8	1525	1524	1524	1524	1527	1529	1530	1532	1534	1535	1536	1534	1534	1532	1529	1527	1525
9	1519	1518	1518	1518	1521	1523	1525	1527	1529	1530	1531	1530	1529	1527	1524	1522	1519
10	1514	1512	1512	1512	1515	1517	1519	1522	1524	1525	1525	1525	1524	1521	1519	1516	1514
11	1507	1505	1505	1505	1508	1510	1513	1516	1518	1518	1520	1519	1518	1515	1512	1509	1507
12	1500	1497	1497	1498	1501	1503	1506	1509	1511	1512	1513	1512	1512	1509	1506	1502	1500
13	1492	1489	1489	1489	1494	1496	1499	1502	1504	1505	1507	1506	1505	1502	1498	1494	1492
14	1483	1481	1480	1481	1485	1488	1491	1494	1496	1497	1499	1498	1497	1494	1490	1486	1483
15	1474	1471	1471	1472	1476	1479	1482	1486	1488	1490	1491	1490	1489	1486	1482	1477	1474
16	1464	1461	1461	1462	1466	1470	1473	1477	1480	1481	1483	1481	1480	1476	1472	1468	1464
17	1454	1451	1450	1451	1456	1460	1463	1467	1470	1472	1473	1473	1470	1467	1463	1458	1454
18	1443	1440	1439	1440	1445	1449	1453	1457	1461	1462	1463	1463	1461	1457	1452	1447	1443
19	1432	1428	1427	1428	1434	1438	1442	1446	1450	1452	1453	1453	1450	1446	1441	1436	1432
20	1420	1417	1416	1417	1422	1427	1431	1435	1439	1441	1442	1441	1439	1435	1430	1424	1420
21	1408	1404	1403	1404	1410	1414	1419	1423	1427	1429	1430	1430	1427	1423	1418	1412	1408
22	1395	1391	1390	1392	1397	1402	1406	1411	1415	1417	1418	1418	1416	1411	1406	1400	1395
23	1382	1377	1376	1378	1384	1388	1393	1398	1402	1404	1406	1405	1403	1399	1393	1387	1382
24	1368	1363	1362	1363	1370	1375	1380	1385	1389	1392	1393	1392	1390	1386	1379	1373	1368
25	1353	1349	1348	1349	1356	1361	1366	1371	1376	1378	1379	1379	1376	1372	1365	1359	1353
26	1339	1334	1332	1333	1341	1347	1352	1357	1361	1364	1365	1365	1362	1357	1351	1344	1339
27	1323	1318	1316	1318	1326	1332	1337	1342	1347	1349	1351	1351	1347	1343	1336	1329	1323
28	1308	1302	1301	1302	1310	1316	1322	1327	1332	1334	1336	1336	1332	1327	1321	1313	1308

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29	1292	1286	1284	1286	1293	1300	1306	1311	1316	1319	1321	1320	1317	1311	1305	1298	1292
30	1275	1269	1267	1269	1277	1284	1290	1296	1300	1303	1305	1304	1301	1296	1289	1281	1275
31	1258	1252	1250	1252	1260	1267	1273	1279	1283	1287	1289	1288	1284	1279	1272	1264	1258
32	1240	1234	1232	1234	1242	1249	1256	1262	1267	1270	1272	1271	1267	1262	1255	1247	1240
33	1223	1216	1215	1216	1225	1231	1238	1244	1249	1252	1254	1253	1250	1244	1238	1230	1223
34	1205	1198	1196	1198	1206	1214	1220	1226	1231	1234	1237	1236	1233	1226	1220	1212	1205
35	1186	1180	1177	1179	1188	1195	1202	1208	1213	1216	1218	1218	1215	1209	1202	1194	1186
36	1168	1161	1158	1160	1169	1177	1183	1189	1195	1197	1200	1200	1196	1191	1183	1175	1168
37	1149	1141	1139	1141	1150	1158	1165	1171	1176	1179	1181	1181	1178	1172	1164	1156	1149
38	1129	1122	1119	1121	1130	1138	1145	1151	1156	1160	1162	1162	1159	1152	1145	1136	1129
39	1109	1102	1099	1101	1110	1119	1126	1132	1137	1141	1143	1142	1139	1133	1126	1117	1109
40	1089	1082	1079	1081	1090	1099	1106	1112	1117	1121	1123	1123	1119	1113	1106	1097	1089
41	1069	1061	1059	1060	1070	1078	1086	1092	1098	1101	1103	1103	1099	1093	1085	1077	1069
42	1048	1040	1038	1040	1049	1058	1065	1071	1077	1081	1083	1082	1079	1073	1065	1056	1048
43	1028	1019	1017	1018	1028	1036	1045	1051	1056	1060	1063	1062	1058	1053	1044	1035	1028
44	1006	999	996	998	1008	1015	1024	1030	1036	1039	1042	1041	1037	1031	1023	1015	1006
45	986	977	974	976	986	995	1002	1009	1014	1018	1021	1020	1017	1010	1002	993	986
46	964	956	953	955	965	974	981	988	994	997	999	999	995	989	981	972	964
47	943	935	931	934	943	952	960	966	972	976	978	978	974	968	960	951	943
48	921	913	910	912	922	931	938	945	950	954	957	957	952	947	938	929	921
49	900	892	888	890	900	909	917	923	929	933	936	935	931	925	917	908	900
50	878	870	867	868	878	887	895	902	907	911	914	913	909	904	895	886	878
51	856	848	844	847	856	865	873	880	886	889	892	891	888	882	873	865	856
52	835	826	823	824	834	843	851	858	863	867	870	870	866	860	852	843	835
53	813	805	801	803	813	822	830	836	841	845	848	848	844	838	830	821	813
54	791	783	779	781	791	800	808	814	819	824	827	826	822	816	808	799	791
55	770	762	758	760	769	778	786	792	798	802	804	804	800	794	786	777	770
56	748	740	736	738	748	756	764	771	776	780	782	782	779	773	765	756	748
57	727	719	715	717	726	735	743	749	754	759	761	761	757	751	743	735	727
58	706	698	694	695	705	713	721	727	733	737	739	739	736	730	722	713	706
59	685	677	672	674	683	692	700	706	711	715	718	718	715	709	700	692	685
60	664	656	652	653	662	671	678	685	690	694	697	695	693	688	679	671	664

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61	643	635	631	632	641	650	657	663	669	673	676	674	672	667	658	650	643
62	623	615	611	611	621	629	636	642	648	652	654	654	651	646	637	630	623
63	603	595	590	592	600	609	616	622	627	631	634	634	631	625	617	609	603
64	582	575	570	572	580	589	595	601	607	611	613	613	610	605	597	589	582
65	563	556	551	552	560	568	575	581	587	591	593	593	590	585	577	569	563
66	543	536	532	533	540	549	555	561	567	571	573	572	570	565	557	550	543
67	524	517	513	513	521	530	536	541	547	551	553	552	551	545	538	531	524
68	505	498	494	495	502	510	516	522	528	531	533	533	531	526	518	511	505
69	487	480	476	477	484	492	497	503	509	512	514	514	512	507	500	493	487
70	469	462	458	458	466	473	479	485	490	494	495	495	494	488	481	475	469
71	451	444	440	440	448	455	461	466	472	476	477	477	475	470	463	457	451
72	433	427	423	423	430	438	444	449	454	458	459	459	457	452	445	439	433
73	416	410	406	406	413	420	426	431	437	440	442	441	439	434	428	422	416
74	399	394	389	390	396	403	409	414	420	423	424	424	422	417	411	405	399
75	383	377	374	374	380	386	392	397	402	406	407	407	405	400	394	388	383
76	367	362	358	359	364	371	376	381	386	389	390	390	389	384	378	373	367
77	352	347	343	343	348	355	360	365	370	373	374	374	372	368	362	357	352
78	337	332	328	328	333	339	345	349	354	357	359	358	357	352	347	342	337
79	322	317	314	314	319	325	330	334	339	342	343	343	342	337	332	327	322
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81	294	289	286	286	290	296	301	305	309	313	314	313	313	308	303	298	294
82	280	276	273	273	277	283	287	291	296	299	300	299	298	294	289	285	280
83	268	263	260	260	264	269	274	278	282	285	286	286	285	281	276	272	268
84	255	251	248	248	252	257	261	265	269	272	273	273	271	268	263	259	255
85	242	239	236	236	240	245	249	253	256	259	260	260	259	255	250	246	242
86	231	227	224	224	228	233	237	241	244	247	248	248	246	243	238	234	231
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88	208	204	202	202	206	210	214	218	221	224	225	224	222	219	215	211	208
89	197	194	192	191	195	200	203	207	210	212	214	213	211	208	204	200	197
90	187	184	182	182	185	189	193	196	199	202	203	202	200	197	193	190	187
91	177	174	172	172	175	179	183	186	189	191	193	192	190	187	183	180	177
92	168	165	163	163	166	170	173	176	179	181	183	182	180	177	174	171	168

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93	159	156	154	154	157	161	164	167	170	172	173	172	170	167	164	161	159
94	150	147	146	146	149	152	155	158	161	163	164	163	161	158	155	153	150
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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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