

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-8082M57

Representative (Tested) Model: LED-8082M57

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.

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-T3
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	LIGHT EFFICIENT DESIGN		
Brand Name	N/A		
Model Number	LED-8082M57		
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	--	42.79	W
Input Current	--	0.3608	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9883	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	5229.6	lm
Initial Lumen Efficacy	--	122.22	lm/w
Correlated color temperature / CCT	5775	--	K
Color rendering index / CRI	81.2	--	
R9 Value	1	--	
Duv	0.0023	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	1617	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-8082M57
Luminaire Type	LED Lamp
Rated Voltage / Frequency	120~277 Vac, 50/60Hz
Nominal Power	45W
Rated Initial Lamp Lumen	--
Declared CCT	5700K
LED Manufacturer	N/A
LED Model	N/A
Sample Receipt Date	Apr.01,2016
Sample Number	GZE160347-T3(5700K)

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-8082M57		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160347	120.0	60	0.3608	42.79	0.9883	5.64
-T3	277.0	60	0.1687	42.16	0.9021	15.07

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	81.2
R9	1
CCT (K)	5775
Chromaticity (x, y)	x=0.3264 y=0.3402
Chromaticity (u', v')	u'=0.2030 v'=0.4762
Duv	0.0023

Special Color Rendering Indices			
R1	79	R9	1
R2	86	R10	66
R3	90	R11	79
R4	81	R12	57
R5	80	R13	81
R6	80	R14	95
R7	87	R15	75
R8	67	--	--

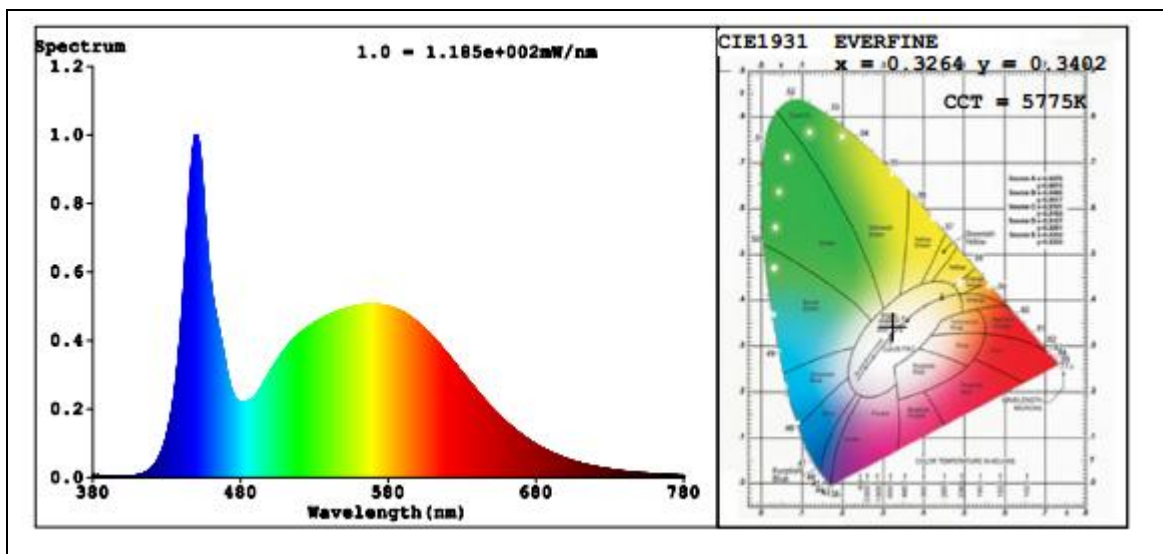
Goniophotometer Method :

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	5229.6
Luminous Efficacy (lm/W)	122.22
Beam Angle°	110.9
Center Beam Candle Power (cd)	1617

Goniophotometer Methodn :

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	5197.2
Luminous Efficacy (lm/W)	123.27

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,245.3	23.8%
0-40	2,028.5	38.8%
0-60	3,566.0	68.2%
60-90	1,314.6	25.1%
70-100	888.4	17%
90-120	301.7	5.8%
0-90	4,880.6	93.3%
90-180	348.7	6.7%
0-180	5,229.3	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	152.8	2.9%	90-100	168.7	3.2%
10-20	436.2	8.3%	100-110	89.8	1.7%
20-30	656.3	12.5%	110-120	43.2	0.8%
30-40	783.3	15.0%	120-130	20.9	0.4%
40-50	805.3	15.4%	130-140	12.5	0.2%
50-60	732.1	14.0%	140-150	7.8	0.1%
60-70	594.9	11.4%	150-160	4.0	0.1%
70-80	434.3	8.3%	160-170	1.4	0%
80-90	285.4	5.5%	170-180	0.4	0%

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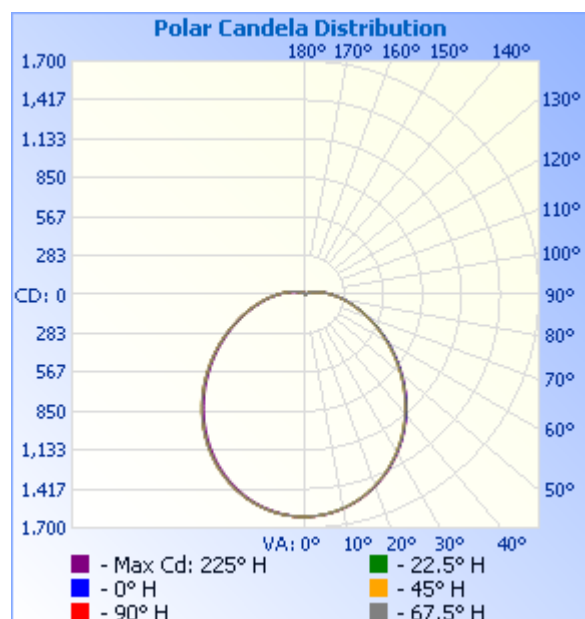
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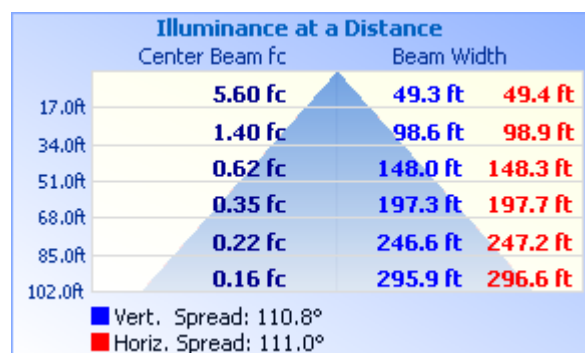
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Photometric Data



Illuminance Plots



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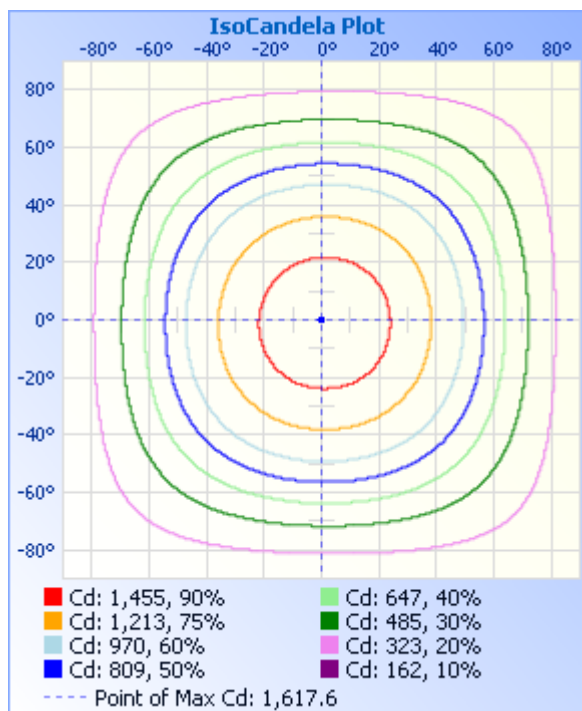
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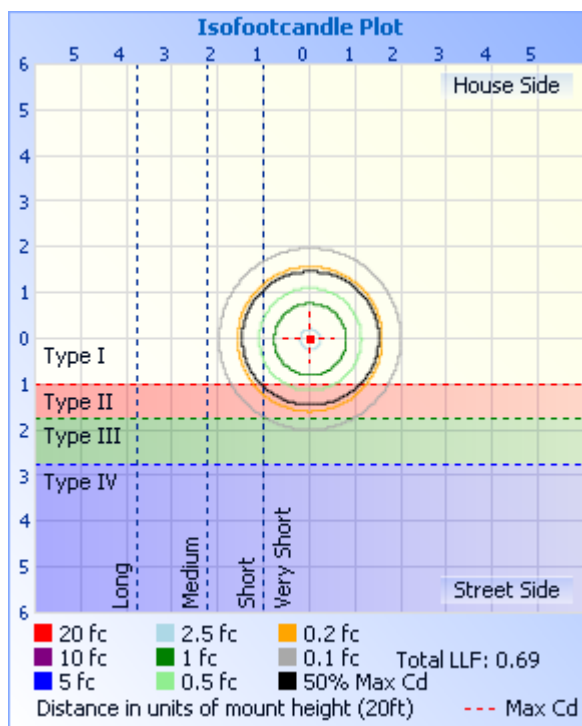
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ISOCANDELA DIAGRAM



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	1617	1617	1617	1617	1617	1617	1617	1617	1617	1617	1617	1617	1617	1617	1617	1617	1617
1	1617	1616	1616	1615	1617	1617	1617	1617	1617	1617	1618	1617	1618	1617	1617	1617	1617
2	1615	1614	1615	1614	1615	1616	1616	1616	1616	1616	1617	1617	1617	1617	1616	1615	1615
3	1612	1611	1612	1612	1614	1614	1614	1615	1615	1616	1616	1616	1616	1616	1615	1613	1612
4	1609	1609	1609	1609	1611	1611	1612	1613	1614	1614	1615	1614	1615	1613	1612	1611	1609
5	1606	1605	1605	1605	1608	1609	1609	1611	1612	1612	1613	1612	1612	1611	1609	1608	1606
6	1602	1601	1601	1601	1604	1605	1606	1608	1609	1609	1610	1609	1609	1608	1605	1603	1602
7	1597	1596	1596	1596	1599	1601	1602	1604	1605	1606	1607	1606	1605	1604	1601	1599	1597
8	1592	1590	1590	1591	1594	1596	1597	1599	1601	1602	1603	1602	1602	1599	1596	1594	1592
9	1586	1585	1585	1585	1588	1590	1592	1594	1596	1597	1598	1597	1596	1594	1591	1588	1586
10	1580	1578	1578	1578	1581	1583	1586	1589	1590	1591	1592	1592	1590	1588	1585	1582	1580
11	1573	1571	1571	1571	1574	1577	1579	1582	1584	1585	1586	1586	1584	1582	1579	1575	1573
12	1565	1563	1563	1563	1567	1569	1572	1576	1577	1579	1579	1579	1578	1575	1572	1568	1565
13	1557	1555	1554	1555	1559	1561	1564	1568	1570	1571	1573	1572	1571	1567	1564	1560	1557
14	1548	1545	1545	1546	1550	1553	1556	1560	1562	1563	1565	1564	1563	1560	1555	1551	1548
15	1538	1536	1535	1536	1540	1544	1547	1551	1554	1555	1557	1556	1554	1551	1546	1542	1538
16	1528	1525	1525	1526	1530	1534	1537	1541	1545	1546	1548	1546	1545	1541	1537	1532	1528
17	1518	1515	1514	1514	1520	1524	1527	1532	1535	1536	1538	1537	1535	1531	1527	1522	1518
18	1506	1503	1502	1503	1508	1513	1517	1521	1524	1526	1527	1527	1525	1521	1516	1511	1506
19	1495	1491	1490	1491	1497	1502	1506	1510	1514	1515	1517	1516	1514	1509	1504	1499	1495
20	1482	1479	1478	1479	1484	1489	1493	1498	1502	1504	1506	1504	1502	1498	1493	1487	1482
21	1470	1466	1464	1466	1471	1476	1481	1486	1490	1491	1493	1493	1490	1486	1480	1474	1470
22	1456	1452	1451	1453	1458	1463	1468	1473	1477	1479	1480	1480	1478	1473	1468	1461	1456
23	1442	1438	1437	1438	1444	1449	1454	1460	1464	1466	1468	1467	1465	1460	1454	1448	1442
24	1428	1423	1422	1423	1430	1435	1440	1446	1450	1453	1454	1453	1451	1446	1440	1433	1428
25	1413	1408	1407	1408	1415	1421	1426	1431	1436	1438	1440	1439	1437	1432	1425	1419	1413
26	1397	1392	1390	1392	1400	1406	1411	1417	1421	1424	1425	1425	1422	1417	1410	1403	1397
27	1381	1376	1374	1376	1384	1390	1396	1401	1406	1408	1410	1410	1407	1402	1394	1387	1381
28	1365	1359	1358	1359	1367	1373	1380	1385	1390	1393	1395	1394	1391	1386	1379	1371	1365

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29	1348	1342	1340	1342	1350	1357	1363	1369	1374	1376	1378	1378	1374	1369	1362	1354	1348
30	1330	1325	1323	1324	1333	1340	1346	1352	1357	1360	1362	1361	1358	1352	1345	1337	1330
31	1313	1307	1305	1307	1315	1322	1329	1335	1340	1343	1345	1345	1340	1335	1328	1320	1313
32	1294	1288	1286	1288	1297	1304	1311	1317	1322	1325	1328	1327	1323	1317	1310	1302	1294
33	1276	1270	1268	1269	1278	1285	1292	1299	1304	1307	1309	1308	1305	1299	1292	1283	1276
34	1258	1251	1249	1251	1259	1267	1274	1280	1285	1288	1291	1290	1287	1280	1273	1265	1258
35	1238	1231	1229	1231	1240	1248	1255	1261	1266	1270	1272	1271	1268	1262	1255	1246	1238
36	1219	1212	1209	1211	1220	1229	1235	1242	1247	1250	1253	1252	1249	1243	1235	1227	1219
37	1199	1191	1189	1190	1200	1208	1216	1222	1227	1231	1233	1233	1229	1223	1215	1206	1199
38	1178	1171	1168	1170	1180	1188	1195	1202	1207	1211	1213	1213	1209	1203	1195	1186	1178
39	1158	1150	1148	1149	1159	1168	1175	1181	1187	1191	1193	1192	1189	1183	1175	1166	1158
40	1137	1129	1126	1128	1138	1147	1154	1161	1166	1170	1172	1172	1168	1162	1154	1145	1137
41	1116	1108	1105	1107	1117	1126	1133	1140	1146	1149	1152	1151	1147	1141	1133	1124	1116
42	1094	1086	1083	1085	1095	1104	1112	1118	1124	1128	1130	1130	1126	1120	1111	1102	1094
43	1073	1064	1062	1063	1073	1081	1090	1097	1102	1107	1109	1109	1104	1099	1090	1081	1073
44	1051	1042	1039	1042	1052	1060	1069	1075	1081	1085	1088	1087	1083	1077	1068	1059	1051
45	1029	1020	1017	1019	1029	1038	1046	1053	1059	1063	1066	1065	1061	1055	1046	1037	1029
46	1006	998	995	997	1007	1016	1024	1031	1037	1041	1043	1043	1039	1033	1024	1015	1006
47	984	976	972	975	985	994	1002	1009	1015	1018	1021	1021	1017	1010	1002	993	984
48	962	953	950	952	962	971	979	986	992	996	999	998	994	988	980	970	962
49	939	931	927	929	940	948	957	964	970	973	977	976	972	966	957	948	939
50	917	908	904	906	917	926	934	941	947	951	954	953	949	943	935	925	917
51	894	885	881	884	894	903	911	918	924	928	931	930	926	921	912	903	894
52	871	863	859	860	871	880	888	895	901	905	908	908	904	898	889	879	871
53	849	840	836	838	848	858	866	873	878	882	885	885	881	875	866	857	849
54	826	817	813	815	826	835	843	850	855	860	863	862	859	852	843	834	826
55	803	795	791	793	803	812	820	827	833	837	840	839	835	829	821	812	803
56	781	772	768	770	780	789	797	804	810	814	817	817	813	807	798	789	781
57	759	751	746	748	758	767	775	781	787	792	794	794	790	784	776	767	759
58	737	728	724	726	736	745	753	759	765	769	772	772	768	762	753	744	737
59	715	707	702	704	713	722	730	736	742	747	749	749	746	740	731	722	715
60	693	685	680	682	691	701	708	715	720	725	727	726	724	718	709	701	693

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61	671	663	659	660	669	679	686	692	698	703	705	704	702	696	687	678	671
62	650	642	637	638	648	657	664	670	676	681	683	683	680	674	665	657	650
63	629	621	616	618	626	636	643	649	655	659	661	661	658	652	644	636	629
64	608	600	595	597	605	614	621	627	633	638	640	640	637	631	623	615	608
65	587	580	575	576	585	593	600	606	612	617	619	619	616	610	602	594	587
66	567	560	555	556	564	573	580	585	592	596	598	597	595	589	582	574	567
67	547	540	535	536	544	553	559	565	571	575	577	577	575	569	561	554	547
68	527	520	516	517	524	533	539	545	551	555	557	556	554	549	541	534	527
69	508	501	497	498	505	513	519	525	531	535	536	536	535	529	522	515	508
70	489	483	478	479	486	494	500	506	512	515	517	517	515	510	503	495	489
71	471	464	459	460	468	475	481	487	493	496	498	498	496	491	484	477	471
72	452	445	441	442	449	457	463	468	474	478	479	479	477	472	465	458	452
73	434	428	424	424	431	439	445	450	456	459	461	460	459	453	446	440	434
74	417	411	406	407	414	421	427	432	438	441	443	442	440	435	429	422	417
75	400	394	390	391	397	403	409	415	420	423	425	424	423	418	411	405	400
76	384	378	374	374	380	387	392	397	403	406	407	407	406	401	395	389	384
77	367	362	358	358	364	370	376	381	386	389	390	390	389	384	378	372	367
78	352	346	342	343	348	354	360	365	370	373	374	373	372	368	362	357	352
79	336	331	327	328	333	339	344	349	354	357	358	358	357	352	346	341	336
80	321	317	313	313	318	324	329	334	338	341	342	342	341	337	331	326	321
81	307	302	299	299	303	309	314	319	323	326	327	327	326	322	316	311	307
82	293	288	285	285	289	295	300	304	308	312	313	312	311	307	302	297	293
83	279	275	272	272	276	281	286	290	294	297	298	298	297	293	288	284	279
84	266	262	259	259	263	268	272	277	281	283	285	285	283	280	275	270	266
85	253	249	246	246	250	255	260	264	267	270	271	271	270	266	261	257	253
86	241	237	234	234	238	243	247	251	255	258	259	259	257	253	249	245	241
87	228	225	222	222	227	231	235	239	243	245	246	246	244	241	236	232	228
88	217	213	211	211	215	220	224	227	231	233	234	234	232	228	224	221	217
89	206	202	200	200	204	208	212	216	219	222	223	223	220	217	213	209	206
90	195	192	190	190	193	198	201	205	208	211	211	211	209	206	202	198	195
91	185	182	180	180	183	187	191	194	198	200	201	200	198	195	191	188	185
92	175	172	170	170	174	177	181	184	187	189	191	190	187	184	181	178	175

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93	166	163	161	161	164	168	171	174	177	179	180	180	178	174	171	169	166
94	156	154	152	152	155	158	162	165	168	170	171	170	168	165	162	160	156
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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%			

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