

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN, LLC**(Brand Name: N/A)**

188 S.Northwest Highway, Cary, IL60013, USA

LED Luminaires

Model name(s): LED-8057M50-A

Representative (Tested) Model: LED-8057M50-A

Model Different: All construction and rating are the same, except CCT

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Mar.28,2018

Review By:

Univ Xie

Manager: Univ Xie

Note: 1.The results contained in this report pertain only to the tested samples.

2.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

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

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN, LLC	
Brand Name	N/A	
Model Number	LED-8057M50-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	75W	
Rated Initial Lamp Lumen	--	
Declared CCT	5000K	
LED Manufacturer	SAMSUNG ELECTRONICS CO., LTD	
LED Model	SPMWH1228FD5WAR0SE	
Sample Number	GZE1801030-H-F1	
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	Mar.16,2018
Date of Test	Mar.17,2018
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**1) Photometric and Light Distribution Measurement – Goniophotometer Method:**

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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 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.

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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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 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.

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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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.

2.1 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction QD25)

Test date	2018-03-17	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8057M50-A		

Electrical Measurement:

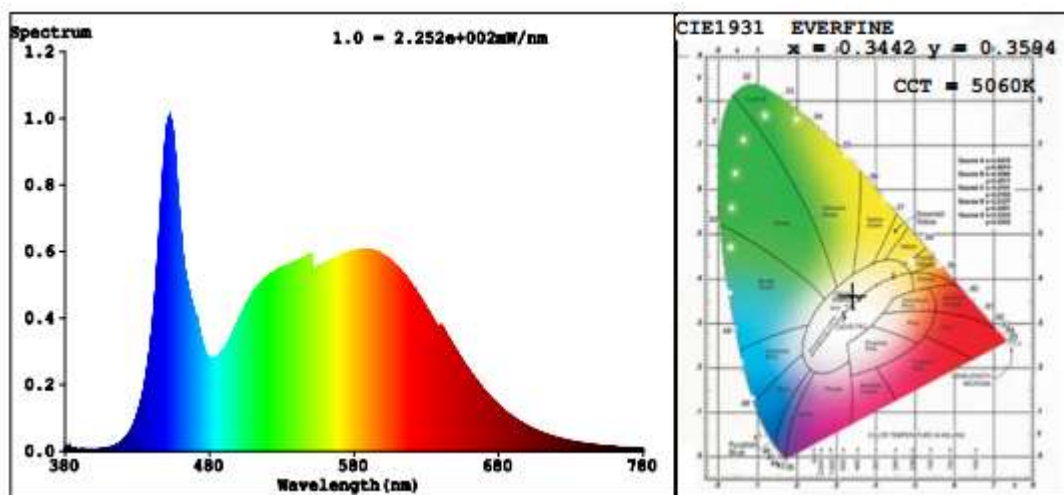
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE180103	120.0	60	0.6499	76.87	0.9856	12.88
0-H-F1	277.0	60	0.2968	76.68	0.9326	18.02

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	15
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	5060	R3	94	R11	84
Duv	0.0042	R4	85	R12	63
Chromaticity (x, y)	x=0.3442 y=0.3594	R5	84	R13	85
Chromaticity (u', v')	u'=0.2078 v'=0.4883	R6	86	R14	97
Color Rendering Index (CRI)	85.0	R7	88	R15	78
R9	15	R8	69	--	--

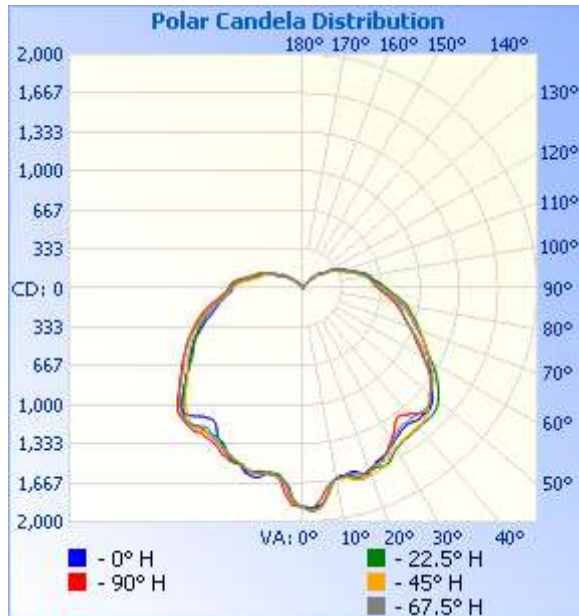
Photometric Measurement – Goniophotometer Method:

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	9134.4	9235.7
Luminous Efficacy (lm/W)	118.83	120.44
Most worst Luminous/Highest Watts	118.83	
Beam Angle (°)	143.8	--
Center Beam Candle Power (cd)	1875	--

Spectral Power Distribution & Chromaticity Diagram

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,362.5	14.9%
0-40	2,295.2	25.1%
0-60	4,581.6	50.2%
60-90	2,809.2	30.8%
70-100	2,372.7	26%
90-120	1,435.2	15.7%
0-90	7,390.8	80.9%
90-180	1,743.7	19.1%
0-180	9,134.6	100%

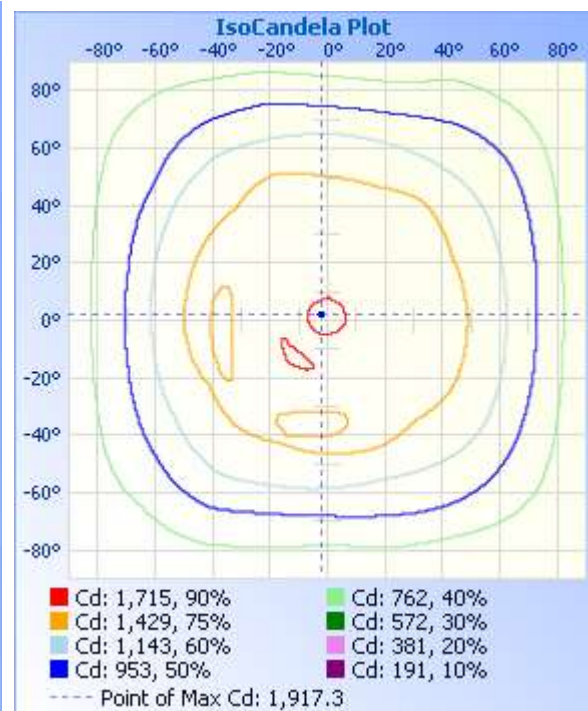
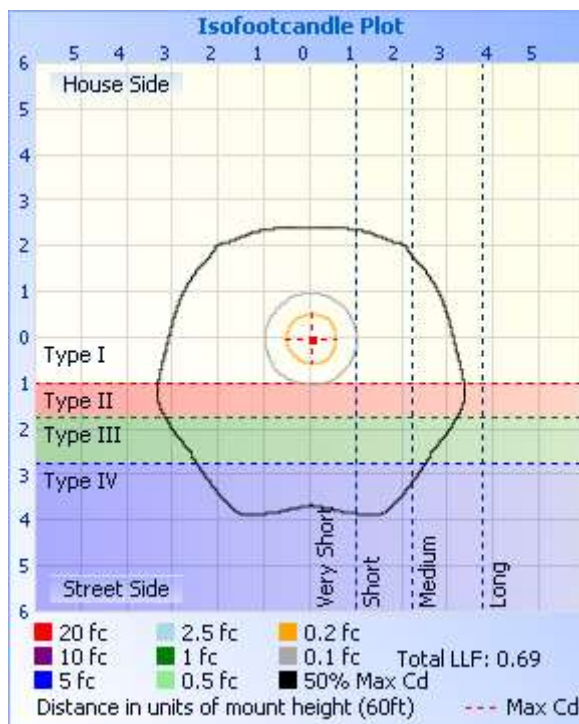
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	163.8	1.8%	90-100	637.9	7%
10-20	467.1	5.1%	100-110	474.5	5.2%
20-30	731.6	8.0%	110-120	322.8	3.5%
30-40	932.7	10.2%	120-130	187.5	2.1%
40-50	1,135.4	12.4%	130-140	85.3	0.9%
50-60	1,151.0	12.6%	140-150	27.4	0.3%
60-70	1,074.5	11.8%	150-160	6.8	0.1%
70-80	951.2	10.4%	160-170	1.2	0%
80-90	783.6	8.6%	170-180	0.3	0%

Photometric Data


Illuminance at a Distance

	Center Beam fc	Beam Width	
10.0ft	18.7 fc	59.7 ft	60.7 ft
20.0ft	4.69 fc	119.4 ft	121.4 ft
30.0ft	2.08 fc	179.1 ft	182.2 ft
40.0ft	1.17 fc	238.8 ft	242.9 ft
50.0ft	0.75 fc	298.5 ft	303.6 ft
60.0ft	0.52 fc	358.1 ft	364.3 ft

■ Vert. Spread: 143.0°
■ Horiz. Spread: 143.5°



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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	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875
1	1874	1876	1895	1897	1896	1876	1863	1860	1859	1860	1862	1861	1868	1872	1877	1876	1874
2	1887	1878	1904	1905	1898	1870	1843	1841	1841	1835	1844	1852	1861	1860	1878	1882	1887
3	1877	1883	1917	1909	1877	1849	1810	1795	1797	1791	1807	1829	1859	1854	1866	1859	1877
4	1865	1885	1894	1885	1839	1816	1756	1741	1714	1733	1740	1771	1810	1820	1849	1864	1865
5	1858	1867	1881	1865	1807	1767	1710	1704	1672	1684	1687	1705	1768	1786	1812	1845	1858
6	1819	1829	1830	1811	1753	1712	1670	1681	1651	1647	1654	1656	1705	1718	1759	1800	1819
7	1776	1776	1781	1752	1713	1674	1667	1650	1641	1612	1640	1637	1640	1667	1713	1744	1776
8	1716	1718	1714	1693	1689	1664	1675	1641	1629	1600	1639	1620	1623	1630	1661	1680	1716
9	1674	1669	1673	1665	1673	1668	1688	1649	1613	1607	1617	1600	1622	1618	1614	1641	1674
10	1649	1653	1655	1657	1658	1681	1678	1673	1608	1613	1600	1595	1616	1611	1596	1610	1649
11	1637	1654	1655	1654	1649	1681	1665	1687	1616	1619	1609	1597	1611	1612	1584	1592	1637
12	1644	1656	1664	1650	1638	1669	1674	1683	1633	1615	1624	1615	1606	1601	1567	1590	1644
13	1638	1647	1663	1639	1638	1667	1691	1691	1657	1616	1635	1625	1607	1600	1558	1582	1638
14	1627	1649	1680	1636	1663	1669	1702	1697	1669	1619	1640	1631	1613	1611	1562	1586	1627
15	1622	1666	1692	1643	1698	1693	1730	1708	1669	1623	1635	1638	1626	1612	1582	1597	1622
16	1632	1689	1701	1653	1691	1719	1745	1724	1666	1627	1628	1636	1636	1606	1589	1616	1632
17	1652	1712	1708	1661	1685	1720	1746	1729	1655	1629	1622	1623	1655	1600	1585	1639	1652
18	1671	1710	1707	1666	1673	1712	1735	1723	1638	1613	1615	1616	1642	1615	1586	1635	1671
19	1675	1693	1704	1667	1663	1701	1724	1699	1618	1595	1608	1613	1615	1614	1587	1624	1675
20	1669	1673	1701	1663	1650	1691	1712	1680	1600	1596	1594	1592	1604	1612	1575	1595	1669
21	1649	1660	1697	1642	1641	1677	1708	1668	1590	1602	1583	1584	1602	1615	1559	1580	1649
22	1632	1656	1692	1630	1632	1663	1706	1653	1580	1603	1577	1584	1603	1613	1560	1570	1632
23	1611	1657	1682	1634	1618	1651	1696	1637	1570	1586	1559	1568	1605	1602	1563	1551	1611
24	1608	1669	1675	1633	1608	1636	1662	1625	1572	1559	1550	1565	1598	1593	1559	1541	1608
25	1607	1677	1673	1630	1593	1626	1642	1616	1563	1537	1548	1557	1586	1572	1551	1540	1607
26	1593	1669	1646	1591	1590	1615	1632	1588	1539	1518	1535	1551	1582	1529	1531	1537	1593
27	1574	1648	1613	1572	1584	1591	1614	1561	1510	1496	1523	1536	1566	1516	1513	1524	1574
28	1560	1627	1599	1564	1549	1570	1602	1530	1491	1482	1513	1518	1548	1514	1498	1512	1560

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29	1551	1607	1593	1547	1525	1545	1600	1507	1480	1477	1506	1504	1537	1508	1471	1495	1551
30	1536	1592	1579	1535	1511	1522	1576	1488	1465	1471	1501	1503	1532	1508	1470	1477	1536
31	1521	1580	1572	1503	1485	1507	1546	1470	1432	1471	1491	1485	1522	1513	1467	1468	1521
32	1509	1575	1560	1485	1461	1496	1532	1448	1399	1480	1492	1471	1519	1507	1473	1467	1509
33	1499	1564	1554	1478	1442	1481	1532	1437	1377	1487	1490	1462	1525	1511	1474	1462	1499
34	1486	1554	1554	1465	1403	1464	1526	1424	1370	1481	1488	1449	1520	1517	1485	1455	1486
35	1479	1562	1546	1448	1384	1447	1501	1412	1367	1477	1499	1453	1514	1528	1491	1454	1479
36	1471	1556	1546	1442	1371	1434	1479	1405	1376	1481	1511	1462	1522	1546	1513	1450	1471
37	1469	1546	1547	1449	1371	1429	1465	1405	1383	1483	1514	1478	1538	1560	1543	1451	1469
38	1472	1548	1540	1452	1376	1415	1462	1406	1393	1490	1516	1497	1539	1575	1566	1460	1472
39	1475	1550	1538	1447	1394	1415	1464	1413	1410	1499	1514	1506	1530	1586	1579	1479	1475
40	1486	1545	1544	1444	1407	1420	1464	1422	1430	1510	1501	1512	1534	1578	1585	1492	1486
41	1494	1545	1543	1449	1420	1428	1463	1425	1448	1514	1487	1515	1529	1568	1584	1497	1494
42	1497	1547	1535	1458	1444	1439	1463	1428	1465	1507	1469	1512	1526	1551	1582	1504	1497
43	1493	1549	1524	1461	1468	1445	1466	1435	1475	1495	1453	1504	1523	1533	1581	1508	1493
44	1495	1552	1515	1465	1487	1445	1463	1437	1472	1484	1434	1495	1517	1510	1578	1506	1495
45	1502	1551	1502	1471	1489	1443	1455	1428	1460	1466	1419	1480	1509	1486	1561	1491	1502
46	1499	1549	1489	1470	1488	1431	1442	1412	1437	1441	1400	1461	1494	1469	1548	1479	1499
47	1489	1541	1467	1469	1482	1416	1432	1399	1412	1413	1378	1444	1471	1445	1535	1465	1489
48	1479	1534	1449	1461	1473	1411	1418	1383	1384	1386	1351	1428	1442	1417	1520	1453	1479
49	1462	1522	1429	1446	1457	1405	1400	1369	1357	1362	1331	1403	1420	1386	1491	1433	1462
50	1436	1505	1413	1422	1439	1387	1383	1350	1326	1331	1303	1378	1390	1365	1464	1418	1436
51	1416	1491	1406	1409	1417	1367	1362	1324	1297	1303	1280	1351	1361	1342	1434	1397	1416
52	1394	1469	1397	1393	1392	1349	1343	1295	1272	1273	1256	1330	1338	1322	1407	1373	1394
53	1380	1450	1388	1374	1372	1322	1316	1273	1253	1246	1237	1305	1321	1306	1381	1355	1380
54	1362	1424	1373	1350	1348	1295	1293	1249	1225	1216	1218	1281	1297	1283	1346	1331	1362
55	1345	1405	1360	1328	1330	1268	1274	1226	1197	1194	1201	1257	1273	1265	1320	1311	1345
56	1323	1379	1337	1302	1304	1247	1261	1209	1175	1168	1186	1238	1254	1245	1291	1283	1323
57	1303	1358	1318	1279	1278	1222	1247	1190	1161	1144	1175	1218	1236	1232	1269	1261	1303
58	1275	1329	1294	1245	1243	1195	1227	1166	1144	1122	1162	1201	1219	1216	1240	1237	1275
59	1257	1304	1273	1220	1219	1167	1204	1142	1126	1101	1146	1187	1199	1202	1220	1219	1257
60	1240	1273	1248	1193	1189	1148	1185	1122	1105	1087	1130	1173	1181	1184	1200	1197	1240

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61	1227	1242	1230	1179	1166	1126	1161	1096	1089	1074	1112	1156	1158	1169	1182	1183	1227
62	1206	1219	1209	1164	1139	1105	1135	1071	1071	1061	1098	1137	1140	1153	1160	1169	1206
63	1184	1192	1192	1144	1116	1089	1109	1053	1054	1045	1083	1123	1122	1143	1142	1159	1184
64	1169	1173	1169	1122	1087	1065	1090	1032	1039	1032	1069	1109	1107	1128	1117	1146	1169
65	1151	1150	1148	1093	1068	1044	1064	1010	1020	1017	1051	1094	1088	1112	1101	1127	1151
66	1133	1132	1130	1070	1049	1023	1040	989	995	1000	1036	1075	1068	1099	1085	1108	1133
67	1109	1114	1110	1041	1034	1006	1023	974	968	983	1022	1056	1050	1084	1065	1084	1109
68	1091	1097	1094	1018	1013	987	1008	956	947	970	1004	1031	1036	1070	1051	1064	1091
69	1067	1077	1073	991	992	971	990	938	927	956	985	1008	1016	1053	1034	1041	1067
70	1047	1062	1056	971	974	954	972	922	907	938	965	985	995	1039	1022	1024	1047
71	1023	1044	1032	951	948	940	958	912	890	921	948	965	980	1018	1005	1004	1023
72	1006	1031	1012	936	930	923	944	898	865	899	929	942	962	1002	991	988	1006
73	986	1014	989	919	912	902	926	885	840	877	907	920	943	984	979	967	986
74	971	998	974	907	899	886	911	870	823	862	888	903	927	970	966	950	971
75	952	979	954	890	884	867	890	850	803	845	865	879	906	950	952	927	952
76	939	967	938	878	870	844	869	830	785	827	841	855	887	934	941	909	939
77	920	949	917	866	857	819	847	808	771	808	815	837	866	916	930	889	920
78	904	936	903	858	839	799	828	789	755	794	792	815	848	892	915	871	904
79	890	922	889	845	826	772	802	770	739	773	765	793	826	873	902	854	890
80	870	906	878	831	810	749	779	751	726	752	739	769	803	846	884	830	870
81	853	894	864	817	796	730	761	737	711	736	721	752	783	822	867	813	853
82	831	874	843	799	776	705	743	721	694	716	702	732	757	793	843	794	831
83	814	856	824	783	757	682	723	704	676	699	686	712	734	768	822	778	814
84	791	832	797	761	736	666	709	691	662	688	672	697	719	741	795	757	791
85	772	812	778	745	722	646	692	676	648	675	656	681	697	721	777	740	772
86	750	786	753	722	700	631	676	658	634	664	644	666	679	698	755	720	750
87	732	766	734	705	686	620	662	643	622	656	634	656	663	683	737	706	732
88	713	743	714	685	667	607	642	633	615	647	627	645	652	666	716	688	713
89	702	728	699	669	654	593	627	625	609	638	617	636	645	653	701	673	702
90	691	709	683	651	641	575	614	617	606	629	606	631	637	641	690	661	691
91	676	696	669	640	628	562	605	612	602	619	597	627	633	630	678	647	676
92	665	684	654	629	620	550	596	603	593	606	585	619	628	621	669	638	665

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93	654	671	633	622	611	538	588	591	580	591	573	607	620	609	659	630	654
94	644	657	619	615	604	530	583	578	569	578	561	598	611	598	649	627	644
95	628	636	600	605	594	519	574	560	552	561	543	582	599	586	637	619	628
96	615	621	586	597	589	506	559	541	530	542	521	563	587	578	626	610	615
97	601	606	575	585	586	495	543	525	515	527	502	549	569	565	612	599	601
98	591	596	570	577	583	483	520	505	496	506	478	531	550	555	599	587	591
99	582	588	565	564	578	470	500	483	475	488	455	514	526	548	587	575	582
100	570	579	559	553	566	458	481	466	459	474	440	498	507	533	576	563	570
101	563	572	550	541	554	441	460	448	442	458	421	477	485	520	567	552	563
102	549	561	534	526	539	421	441	433	432	442	406	458	469	503	554	537	549
103	536	549	519	514	526	405	425	421	425	429	397	445	456	488	541	526	536
104	519	530	495	500	512	384	409	409	414	414	386	432	442	467	524	514	519
105	505	513	479	489	494	370	392	399	403	404	375	422	430	454	502	497	505
106	490	496	463	476	480	354	381	390	393	403	368	415	421	441	487	484	490
107	470	475	445	464	460	340	370	376	381	402	363	407	412	425	468	466	470
108	454	458	433	449	445	331	360	366	370	395	359	400	398	413	452	452	454
109	436	436	420	430	429	318	353	355	364	389	354	384	384	401	435	436	436
110	421	420	407	416	413	310	345	346	356	376	344	372	366	390	422	425	421
111	408	403	389	403	404	307	341	340	344	358	332	361	351	379	410	412	408
112	402	391	375	394	391	308	336	329	323	335	313	350	345	373	401	400	402
113	398	381	362	384	378	306	329	312	301	316	296	334	337	365	396	395	398
114	390	368	350	370	364	297	318	297	282	301	288	321	328	356	387	383	390
115	376	357	342	360	356	282	301	276	262	283	274	301	312	350	377	376	376
116	356	345	334	349	348	268	282	255	245	266	257	283	293	348	368	368	356
117	344	340	328	338	339	252	264	238	235	254	249	263	275	346	361	355	344
118	337	337	321	330	330	234	239	223	230	245	245	245	251	339	355	345	337
119	334	334	314	319	318	217	221	213	227	236	239	235	234	324	347	335	334
120	328	328	305	309	310	199	209	210	222	228	228	231	222	305	335	327	328
121	321	311	287	300	301	187	206	209	211	221	218	221	215	284	318	313	321
122	302	291	272	289	283	181	202	206	201	218	211	214	211	263	294	285	302
123	282	272	256	273	263	174	197	195	193	219	203	204	205	250	278	269	282
124	255	255	239	249	238	171	185	177	180	210	196	198	197	240	262	251	255

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125	235	240	227	232	223	174	175	165	166	187	186	191	187	234	256	242	235
126	223	220	209	213	211	172	160	148	149	157	164	178	174	223	245	230	223
127	209	209	194	202	204	159	148	138	135	144	147	167	160	218	235	218	209
128	201	202	184	195	200	139	136	133	125	134	132	150	145	212	223	214	201
129	201	194	178	190	193	125	120	124	114	129	124	136	131	205	209	206	201
130	200	188	175	184	186	113	108	110	108	129	119	127	123	199	208	193	200
131	195	184	173	178	180	107	100	100	104	116	118	113	117	186	206	179	195
132	181	180	170	175	173	102	95	95	92	105	109	109	110	176	198	172	181
133	164	170	157	164	157	94	89	92	82	89	94	98	99	161	179	161	164
134	153	158	141	146	141	84	80	82	74	83	84	96	91	144	158	151	153
135	137	145	123	129	127	81	72	76	69	76	78	84	87	133	141	141	137
136	128	129	113	120	115	70	63	65	61	68	68	73	79	120	133	129	128
137	126	118	104	108	104	63	56	58	54	60	61	66	71	114	132	119	126
138	114	106	97	99	100	55	49	55	47	50	51	62	62	111	129	107	114
139	104	100	94	95	91	48	46	49	42	46	46	57	56	101	121	103	104
140	95	95	83	87	81	43	42	44	39	41	41	49	51	89	100	96	95
141	87	91	77	78	73	40	39	40	35	36	39	44	45	77	91	88	87
142	81	84	70	72	65	37	36	36	32	34	35	40	43	70	81	78	81
143	75	75	63	66	60	33	33	33	30	31	32	37	39	62	74	70	75
144	68	66	58	58	57	31	31	31	26	28	30	34	36	57	68	63	68
145	60	57	50	53	48	28	27	27	24	25	26	30	32	51	59	57	60
146	55	52	45	47	41	26	25	24	21	22	24	28	29	45	50	53	55
147	46	48	42	41	37	22	22	21	19	20	21	24	26	42	45	45	46
148	41	46	39	38	34	20	20	19	16	18	19	22	23	40	41	41	41
149	39	41	36	34	30	18	17	17	15	15	16	19	20	35	36	38	39
150	36	38	33	32	28	15	14	14	13	13	14	17	18	32	34	34	36
151	33	35	30	29	25	13	12	13	11	11	12	14	16	30	33	32	33
152	30	32	27	26	23	12	10	11	9	10	10	12	14	27	28	29	30
153	27	29	25	23	21	9	9	9	8	8	9	10	12	25	26	26	27
154	25	26	23	21	18	8	7	8	7	7	7	8	10	22	23	23	25
155	23	23	21	19	16	7	6	7	6	6	6	7	8	20	21	21	23
156	20	20	18	16	14	5	5	5	5	5	5	6	7	17	18	19	20

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157	18	18	16	14	12	5	5	5	4	4	5	5	6	15	16	17	18
158	15	15	14	12	10	4	4	4	4	4	4	5	5	13	14	15	15
159	13	14	12	11	9	4	4	4	4	4	4	4	5	11	12	13	13
160	12	12	10	9	7	3	3	3	3	3	3	4	4	9	10	11	12
161	10	10	9	7	6	3	3	3	3	3	3	3	4	8	9	9	10
162	8	8	7	6	5	3	3	3	3	3	3	3	3	7	8	8	8
163	7	7	6	5	4	3	3	3	3	3	3	3	3	6	6	7	7
164	6	6	5	5	4	3	3	3	3	3	3	3	3	5	5	6	6
165	5	5	5	4	3	3	3	3	3	3	3	3	3	4	5	5	5
166	5	4	4	4	3	2	3	3	3	3	3	3	3	4	4	4	5
167	4	4	4	3	3	3	3	3	3	3	3	3	3	3	4	4	4
168	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4
169	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
170	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3
171	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3
172	3	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3	3
173	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
174	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3
175	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3
176	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
177	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3
178	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
179	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
180	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-327	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-12	2018-07-11
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
GO-R5000	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-12	2018-07-11
PF210	Power Meter for Goniophotometer	2017-07-07	2018-07-06
Expand Uncertainty: Photometric Measurement (Sphere):2.04%, k=2 Chromaticity Measurement(Sphere):28.8K, k=2 Photometric Measurement(Goniophotometer):2.36%, k=2			

******* END OF REPORT *******