

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-8057M30-A

Representative (Tested) Model: LED-8057M30-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

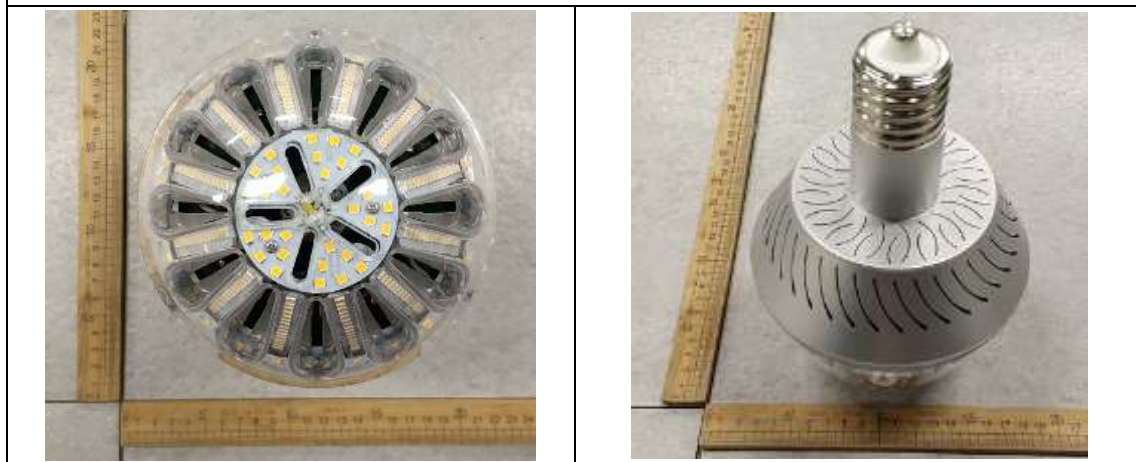
Tel: 8620-3229 0320

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1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN, LLC	
Brand Name	N/A	
Model Number	LED-8057M30-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	3000K	
LED Manufacturer	SAMSUNG ELECTRONICS CO., LTD	
LED Model	SPMWH1228FD5WAV0SE	
Sample Number	GZE1801030-H-D1	
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-8057M30-A		

Electrical Measurement:

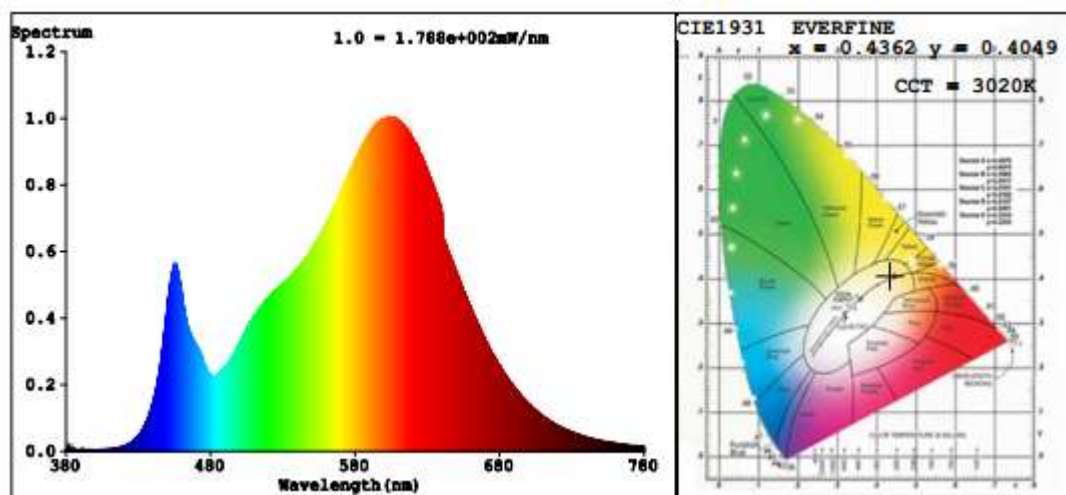
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE180103	120.0	60	0.6397	75.60	0.9848	13.74
0-H-D1	277.0	60	0.2924	75.39	0.9308	18.01

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	6
Frequency (Hz)	60	R2	92	R10	83
CCT (K)	3020	R3	95	R11	79
Duv	0.0004	R4	80	R12	71
Chromaticity (x, y)	x=0.4362 y=0.4049	R5	82	R13	84
Chromaticity (u', v')	u'=0.2497 v'=0.5216	R6	91	R14	98
Color Rendering Index (CRI)	82.6	R7	82	R15	74
R9	6	R8	58	--	--

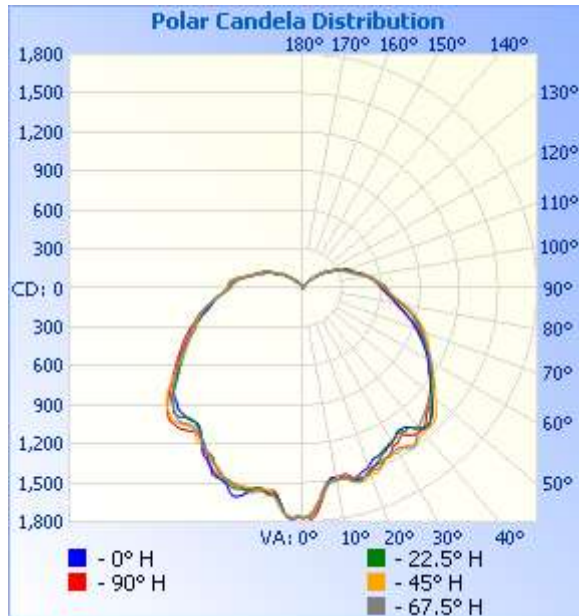
Photometric Measurement – Goniophotometer Method:

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	8595.1	8670.1
Luminous Efficacy (lm/W)	113.69	115.00
Most worst Luminous/Highest Watts	113.69	
Beam Angle (°)	143.6	--
Center Beam Candle Power (cd)	1771	--

Spectral Power Distribution & Chromaticity Diagram

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,288.1	15%
0-40	2,172.7	25.3%
0-60	4,321.8	50.3%
60-90	2,630.5	30.6%
70-100	2,226.0	25.9%
90-120	1,353.9	15.8%
0-90	6,952.3	80.9%
90-180	1,642.9	19.1%
0-180	8,595.2	100%

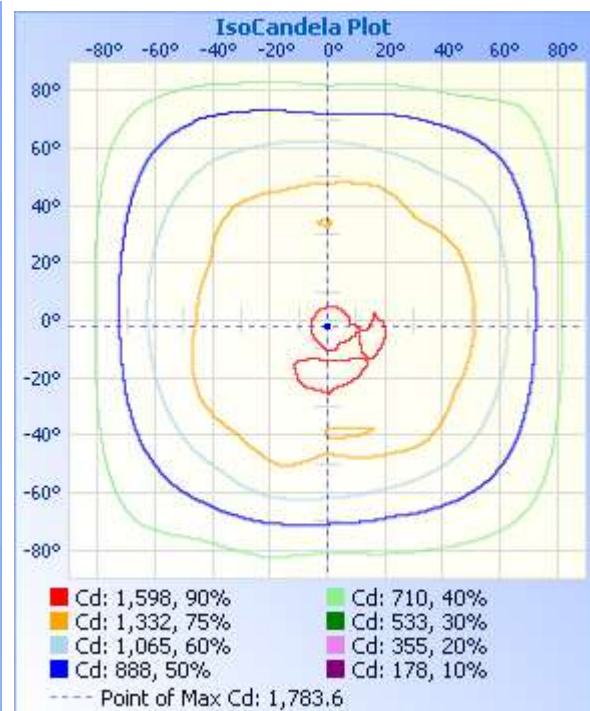
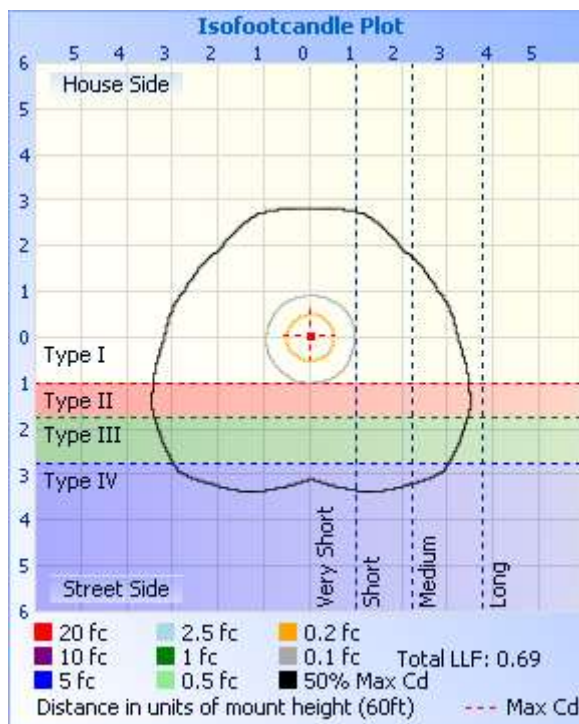
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	153.9	1.8%	90-100	602.8	7%
10-20	440.8	5.1%	100-110	441.4	5.1%
20-30	693.5	8.1%	110-120	309.7	3.6%
30-40	884.5	10.3%	120-130	177.0	2.1%
40-50	1,067.7	12.4%	130-140	79.1	0.9%
50-60	1,081.4	12.6%	140-150	25.1	0.3%
60-70	1,007.3	11.7%	150-160	6.5	0.1%
70-80	895.7	10.4%	160-170	1.2	0%
80-90	727.4	8.5%	170-180	0.2	0%

Photometric Data


Illuminance at a Distance

	Center Beam fc	Beam Width	
10.0ft	17.7 fc	59.5 ft	63.1 ft
20.0ft	4.43 fc	119.0 ft	126.2 ft
30.0ft	1.97 fc	178.5 ft	189.3 ft
40.0ft	1.11 fc	238.0 ft	252.4 ft
50.0ft	0.71 fc	297.5 ft	315.5 ft
60.0ft	0.49 fc	356.9 ft	378.5 ft

■ Vert. Spread: 142.8°
■ Horiz. Spread: 144.8°



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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	1771	1771	1771	1771	1771	1771	1771	1771	1771	1771	1771	1771	1771	1771	1771	1771	1771
1	1758	1753	1756	1767	1767	1759	1760	1761	1758	1758	1760	1764	1765	1760	1755	1759	1758
2	1756	1741	1746	1762	1784	1773	1779	1773	1768	1762	1766	1774	1773	1767	1755	1759	1756
3	1714	1704	1716	1724	1756	1762	1777	1767	1783	1772	1772	1770	1767	1775	1761	1742	1714
4	1675	1653	1672	1680	1705	1731	1736	1750	1760	1755	1748	1761	1766	1731	1727	1703	1675
5	1597	1612	1595	1626	1644	1681	1701	1710	1725	1728	1731	1739	1723	1667	1665	1632	1597
6	1547	1560	1553	1550	1575	1632	1655	1680	1669	1671	1706	1682	1675	1607	1610	1581	1547
7	1513	1536	1524	1511	1526	1558	1610	1630	1620	1629	1658	1642	1610	1582	1566	1544	1513
8	1483	1501	1509	1507	1489	1512	1575	1599	1597	1602	1616	1615	1576	1563	1544	1506	1483
9	1475	1489	1495	1513	1477	1495	1563	1587	1601	1596	1591	1618	1577	1564	1536	1499	1475
10	1480	1492	1485	1507	1477	1491	1550	1589	1601	1599	1581	1615	1591	1554	1526	1487	1480
11	1482	1491	1476	1489	1478	1500	1541	1591	1585	1593	1575	1599	1579	1545	1516	1486	1482
12	1485	1498	1490	1488	1469	1487	1530	1593	1575	1582	1576	1594	1569	1546	1515	1490	1485
13	1499	1510	1513	1496	1469	1487	1538	1596	1577	1582	1590	1608	1577	1554	1518	1504	1499
14	1517	1518	1529	1523	1493	1498	1558	1600	1600	1588	1587	1622	1588	1574	1518	1498	1517
15	1530	1520	1537	1547	1522	1526	1561	1609	1625	1602	1590	1624	1596	1586	1520	1480	1530
16	1519	1525	1549	1555	1529	1528	1574	1623	1653	1614	1592	1626	1606	1595	1518	1475	1519
17	1496	1537	1558	1552	1533	1522	1579	1638	1674	1621	1591	1617	1604	1585	1530	1494	1496
18	1483	1526	1555	1526	1527	1524	1583	1647	1688	1621	1597	1613	1598	1570	1527	1493	1483
19	1477	1516	1540	1518	1518	1521	1582	1633	1684	1629	1608	1610	1597	1557	1520	1489	1477
20	1464	1510	1530	1514	1494	1511	1585	1621	1664	1625	1594	1602	1595	1547	1512	1493	1464
21	1445	1487	1532	1500	1475	1504	1583	1614	1628	1612	1581	1594	1585	1544	1508	1495	1445
22	1425	1477	1531	1505	1473	1507	1569	1610	1612	1598	1579	1584	1590	1544	1501	1481	1425
23	1418	1457	1516	1506	1471	1514	1556	1614	1605	1585	1584	1573	1591	1550	1497	1463	1418
24	1416	1444	1497	1491	1469	1521	1553	1601	1600	1575	1575	1553	1583	1545	1483	1459	1416
25	1407	1427	1478	1464	1461	1506	1517	1580	1599	1545	1560	1534	1581	1523	1447	1453	1407
26	1408	1396	1466	1452	1457	1485	1486	1568	1594	1532	1533	1524	1568	1525	1431	1441	1408
27	1402	1384	1462	1444	1458	1468	1483	1547	1561	1508	1522	1513	1552	1519	1425	1413	1402
28	1382	1386	1460	1436	1442	1447	1470	1525	1539	1477	1499	1494	1533	1500	1416	1402	1382

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29	1369	1385	1456	1443	1412	1426	1443	1506	1516	1466	1475	1479	1507	1490	1410	1408	1369
30	1364	1373	1468	1433	1396	1419	1434	1490	1506	1460	1461	1464	1478	1483	1412	1407	1364
31	1356	1358	1457	1434	1400	1394	1427	1464	1493	1450	1448	1458	1469	1468	1413	1405	1356
32	1345	1346	1446	1451	1386	1395	1419	1448	1463	1429	1434	1441	1447	1453	1411	1408	1345
33	1325	1338	1448	1466	1372	1382	1400	1438	1427	1408	1433	1428	1428	1454	1411	1410	1325
34	1320	1338	1457	1487	1359	1366	1390	1423	1400	1392	1441	1402	1404	1444	1421	1425	1320
35	1323	1350	1473	1488	1378	1367	1380	1404	1373	1367	1429	1375	1389	1436	1445	1445	1323
36	1325	1352	1481	1476	1393	1378	1357	1398	1347	1353	1403	1370	1384	1438	1461	1482	1325
37	1342	1347	1470	1452	1413	1391	1338	1394	1331	1347	1380	1367	1388	1450	1476	1500	1342
38	1363	1358	1460	1429	1426	1399	1340	1381	1323	1333	1372	1366	1397	1459	1483	1508	1363
39	1391	1385	1453	1409	1427	1409	1353	1362	1325	1326	1373	1362	1412	1444	1478	1515	1391
40	1410	1415	1453	1389	1425	1424	1360	1344	1331	1326	1382	1369	1424	1441	1464	1513	1410
41	1427	1431	1452	1375	1418	1440	1366	1338	1338	1329	1394	1380	1435	1430	1440	1507	1427
42	1431	1436	1451	1365	1407	1443	1374	1342	1342	1341	1405	1393	1444	1423	1412	1500	1431
43	1423	1429	1450	1354	1387	1438	1383	1351	1339	1358	1418	1400	1443	1422	1392	1484	1423
44	1411	1415	1444	1341	1367	1434	1390	1357	1339	1374	1425	1395	1444	1426	1367	1458	1411
45	1397	1394	1434	1333	1350	1433	1387	1363	1341	1384	1424	1387	1445	1425	1347	1443	1397
46	1381	1371	1422	1324	1336	1423	1378	1367	1337	1380	1420	1372	1438	1414	1325	1427	1381
47	1362	1347	1397	1309	1317	1411	1361	1373	1322	1364	1411	1358	1423	1402	1298	1399	1362
48	1340	1330	1377	1302	1304	1391	1342	1378	1311	1346	1399	1343	1406	1384	1281	1373	1340
49	1311	1313	1351	1295	1288	1370	1326	1373	1306	1335	1387	1331	1382	1362	1260	1346	1311
50	1291	1295	1330	1287	1274	1345	1313	1365	1295	1318	1371	1314	1357	1341	1243	1324	1291
51	1268	1274	1306	1281	1261	1323	1293	1353	1282	1293	1351	1296	1330	1316	1221	1289	1268
52	1250	1250	1287	1266	1242	1296	1271	1336	1263	1260	1325	1274	1304	1293	1202	1265	1250
53	1230	1231	1272	1254	1229	1267	1243	1314	1242	1232	1301	1250	1284	1264	1178	1238	1230
54	1214	1212	1247	1236	1211	1237	1221	1292	1214	1202	1265	1220	1254	1244	1155	1208	1214
55	1193	1201	1228	1220	1196	1213	1189	1264	1187	1178	1225	1198	1228	1223	1141	1185	1193
56	1173	1188	1206	1201	1177	1186	1158	1235	1162	1158	1197	1180	1207	1206	1120	1160	1173
57	1159	1176	1191	1185	1164	1161	1131	1213	1147	1139	1166	1158	1184	1183	1105	1144	1159
58	1143	1160	1173	1164	1149	1141	1116	1187	1131	1112	1134	1139	1160	1164	1091	1126	1143
59	1128	1150	1157	1148	1137	1115	1097	1161	1115	1089	1104	1121	1138	1150	1084	1108	1128
60	1109	1130	1140	1128	1125	1088	1076	1132	1099	1071	1080	1105	1123	1132	1075	1087	1109

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61	1097	1115	1127	1115	1102	1066	1057	1111	1081	1049	1053	1079	1101	1116	1062	1070	1097
62	1078	1097	1109	1100	1085	1049	1042	1088	1054	1030	1028	1051	1078	1097	1046	1049	1078
63	1062	1077	1089	1081	1065	1024	1022	1069	1028	1011	1007	1027	1057	1084	1037	1035	1062
64	1039	1063	1076	1066	1052	1004	1003	1046	1011	996	994	1006	1042	1070	1025	1017	1039
65	1024	1042	1063	1049	1038	990	988	1026	991	976	976	982	1023	1059	1015	1002	1024
66	1003	1028	1054	1035	1022	973	967	1001	973	957	956	964	1004	1040	1004	986	1003
67	986	1011	1042	1019	998	958	946	979	952	938	941	952	988	1022	994	974	986
68	965	1000	1031	1006	980	940	929	961	939	915	923	937	967	999	977	958	965
69	948	985	1012	990	960	928	910	938	920	897	907	923	946	982	962	946	948
70	929	970	997	978	944	912	895	918	900	882	893	908	926	964	944	933	929
71	911	950	981	964	924	895	884	897	883	872	881	896	910	949	929	921	911
72	891	936	965	952	908	882	874	884	863	857	865	882	890	928	909	907	891
73	874	920	945	935	886	865	861	868	843	840	852	866	869	910	895	895	874
74	851	905	928	918	864	849	845	855	822	826	843	853	854	886	879	881	851
75	834	886	911	896	835	837	829	844	803	808	827	838	835	870	867	870	834
76	813	868	898	877	812	821	813	829	782	792	811	821	816	852	851	852	813
77	796	851	879	851	793	804	792	814	760	777	798	806	800	838	835	835	796
78	777	829	859	832	769	787	770	795	744	765	785	784	780	818	810	812	777
79	763	810	837	814	749	773	740	778	729	750	763	763	756	802	793	792	763
80	745	786	811	792	730	753	711	756	716	736	738	741	734	782	765	769	745
81	730	768	791	772	718	731	682	737	702	722	720	723	719	767	740	753	730
82	713	746	763	745	703	714	664	722	691	704	696	700	699	750	714	730	713
83	701	728	741	726	690	691	645	703	680	686	676	679	678	732	686	713	701
84	684	706	719	704	677	671	629	684	665	663	661	661	663	715	665	694	684
85	670	691	702	689	664	651	616	666	649	647	644	640	646	692	644	675	670
86	653	674	681	673	649	637	602	647	630	624	628	623	629	672	629	656	653
87	641	662	672	663	637	621	585	631	615	605	612	609	615	650	614	646	641
88	630	655	666	650	623	609	571	620	605	593	602	595	602	636	602	640	630
89	621	651	656	641	613	603	561	608	592	579	594	582	591	623	589	635	621
90	616	646	644	627	602	597	547	592	583	568	587	571	583	618	581	630	616
91	610	638	628	615	594	589	535	577	578	561	583	563	578	609	572	623	610
92	604	627	615	603	585	583	528	563	575	553	579	555	572	601	564	616	604

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93	592	609	602	587	574	574	520	555	573	545	575	548	564	593	554	604	592
94	581	593	591	574	567	563	513	552	571	539	571	540	559	583	544	593	581
95	567	577	581	561	558	556	505	550	567	530	562	529	553	576	534	580	567
96	556	566	572	554	551	545	491	547	557	520	551	519	543	568	522	570	556
97	546	552	561	546	542	532	476	537	540	510	540	509	532	564	511	560	546
98	531	541	549	540	535	522	465	523	524	497	523	493	517	556	495	548	531
99	521	527	534	530	521	507	451	508	503	480	505	476	499	546	479	536	521
100	506	511	514	513	510	493	436	492	481	462	489	462	483	530	457	520	506
101	493	495	498	498	499	479	423	478	463	448	469	445	464	516	439	507	493
102	476	475	476	476	488	460	405	456	442	434	450	430	443	502	423	491	476
103	464	458	460	459	480	443	387	434	424	425	435	417	424	481	412	477	464
104	450	440	440	442	465	433	374	417	409	416	415	400	407	463	400	463	450
105	436	425	424	429	451	423	355	401	392	403	395	387	392	442	385	445	436
106	426	414	408	417	434	409	337	389	382	391	381	378	383	429	374	431	426
107	415	405	389	406	418	396	329	377	375	373	367	365	373	418	361	415	415
108	407	399	377	399	404	382	319	364	365	357	358	350	362	405	352	404	407
109	398	394	366	387	391	373	311	359	353	349	358	340	351	393	346	394	398
110	390	391	359	374	383	365	304	355	336	345	357	333	334	380	340	382	390
111	385	386	354	357	375	353	296	350	326	343	347	330	322	371	335	374	385
112	375	376	347	347	371	342	290	342	319	336	336	328	310	363	330	365	375
113	364	367	344	339	366	335	287	327	312	323	324	325	306	356	324	359	364
114	351	352	340	332	358	325	287	314	308	311	318	313	305	348	320	354	351
115	339	343	334	328	351	316	285	302	298	292	311	294	300	338	312	346	339
116	326	336	327	322	340	302	276	286	280	273	303	280	286	330	306	338	326
117	310	321	316	315	330	286	262	273	262	263	292	270	260	316	298	325	310
118	301	304	302	304	319	271	249	259	238	246	271	251	233	304	288	313	301
119	288	283	276	283	302	251	235	238	217	227	251	233	218	290	273	289	288
120	263	264	256	262	287	229	220	221	205	214	238	215	203	273	251	271	263
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122	234	230	230	230	253	205	194	208	191	197	212	205	190	245	237	249	234
123	228	221	223	222	235	205	183	204	190	194	198	203	185	232	236	241	228
124	221	219	215	211	218	202	176	195	191	185	186	188	183	225	226	230	221

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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125	212	207	205	200	209	192	176	192	185	175	190	175	181	217	210	221	212
126	210	204	191	185	202	183	179	181	168	171	201	173	171	209	201	218	210
127	202	207	184	182	199	174	169	168	150	161	196	173	160	196	195	216	202
128	193	201	182	187	193	162	152	156	138	149	167	154	139	192	194	214	193
129	176	182	179	186	189	144	136	144	126	133	139	135	121	185	187	202	176
130	162	164	172	175	182	131	123	134	122	115	125	120	114	178	178	188	162
131	149	146	159	155	169	122	112	113	114	103	114	104	106	163	164	166	149
132	140	135	144	137	156	112	110	102	101	96	117	97	101	149	147	150	140
133	129	126	127	119	135	105	102	95	94	95	112	94	93	139	135	140	129
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138	94	87	101	84	96	62	60	60	61	57	64	56	59	93	93	100	94
139	84	82	95	78	87	53	51	51	56	52	54	52	56	90	85	90	84
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143	54	52	60	51	61	33	35	35	37	32	32	32	37	58	57	57	54
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148	35	35	39	34	34	21	22	22	23	20	21	21	24	36	34	34	35
149	31	31	36	31	31	20	20	21	21	18	18	18	21	33	32	31	31
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151	25	26	29	26	25	15	16	16	16	13	14	14	16	28	26	26	25
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155	17	17	18	17	17	9	9	9	9	8	8	8	9	18	17	17	17
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Laboratory: Standard-Tech Co., Ltd Testing Center

NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

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157	13	13	14	13	13	6	6	6	7	6	6	6	7	14	13	13	13
158	11	11	12	11	11	6	5	6	6	5	5	5	6	12	11	11	11
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172	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3
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174	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3	3	3
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179	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
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Laboratory: Standard-Tech Co., Ltd Testing Center

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Report Format Number STD/QR4909-A/2

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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 *******