



Report No.: GZE140319-B2

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

PREMIUM QUALITY LIGHTING

(Brand Name: SUPERIOR LIFE®)

2285 Ward Avenue
Simi Valley, CA 93065

**Retrofit Kits for Outdoor Pole/Arm-Mounted Area and Roadway
Luminaires**

Model name(s): 83390

Model Different: N/A

Test & Report By:

Sean Zhuo

Engineer: Sean Zhuo

Date: April 14, 2014

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: 8th floor, Block B, No. 11 Caipin Road, Guangzhou Science City, Tianhe, 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	April 14, 2014
Test Report No.	GZE140319-B2
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	PREMIUM QUALITY LIGHTING	
Brand Name	SUPERIOR LIFE®	
Model Number	83390	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Retrofit Kits for Outdoor Pole/Arm-Mounted Area and Roadway Luminaires	
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

	Integrating Sphere	Goniophotometer	
Input Wattage	--	71.54	W
Input Current	--	0.6064	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9863	
Off-State Power	--	0	W

Photometric Characteristics

	Integrating Sphere	Goniophotometer	
Total Initial Lumen Output	--	5530.7	lm
Initial Lumen Efficacy	--	77.31	lm/w
Correlated color temperature / CCT	4136	--	K
Color rendering index / CRI	74.6	--	
R9 Value	0	--	
Duv	-0.0013	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	1994	cd
Beam angle (if applicable)		113.3	°
Zonal lumens in the 0°-60° zone		81.3	%
Zonal lumens in the 60°-90° zone		18.5	%
Zonal lumens in the 90°-120° zone		0.0	%
Zonal lumens in the 120°-180° zone		0.2	%

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Test Specifications:	
Date of Receipt	: April 10. 2014
Date of Test	: April 14.2014
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 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. 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	SUPERIOR LIFE®
Model Number	83390
Luminaire Type	Retrofit Kits for Outdoor Pole/Arm-Mounted Area and Roadway Luminaires
Rated Voltage / Frequency	100 ~ 277 Vac, 50/60 Hz
Nominal Power	75W
Rated Initial Lamp Lumen	--
Declared CCT	4100K
LED Manufacturer	CREE
LED Model	XB-D
Sample Receipt Date	April 10.2014
Sample Number	140319-3

Photo



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2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
--	-----------------------

Test date	2014-04-14	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	83390		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
140319-3	120.0	60	0.6046	71.54	0.9863	6.3
	277.0	60	0.2719	70.13	0.9313	6.9

Sphere-Spectroradiometer Method in GE M250R2 Roadway Lamp:

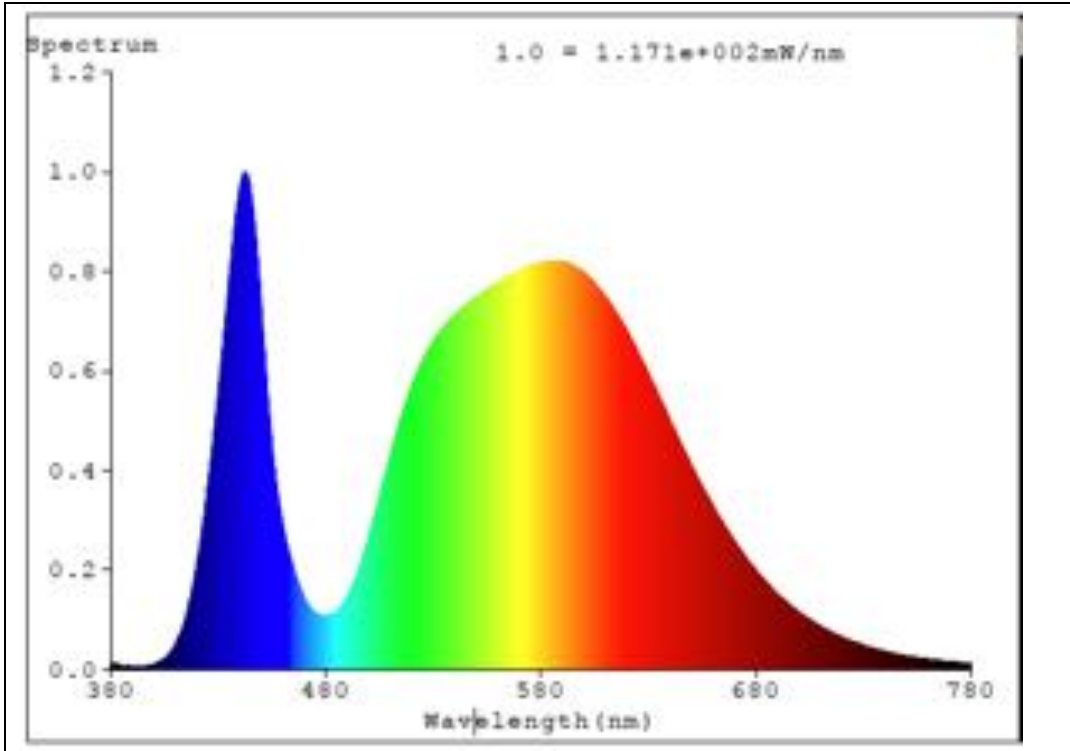
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	74	R9	0
Frequency (Hz)	60	R2	78	R10	48
Color Rendering Index (CRI)	74.6	R3	81	R11	75
R9	0	R4	76	R12	50
CCT (K)	4136	R5	74	R13	74
Chromaticity (x, y)	x=0.3738 y=0.3698	R6	70	R14	89
Chromaticity (u', v')	u'=0.2235 v'=0.4975	R7	81	R15	70
Duv	-0.0013	R8	62	--	--

Goniophotometer Method in GE M250R2 Roadway Lamp:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	5530.7
Luminous Efficacy (lm/W)	77.31
Beam Angle°	113.3
Center Beam Candle Power (cd)	1994
S/MH(C0/180)	1.27
S/MH(C90/270)	1.27

Spectral Power Distribution

Spectral Power Distribution:



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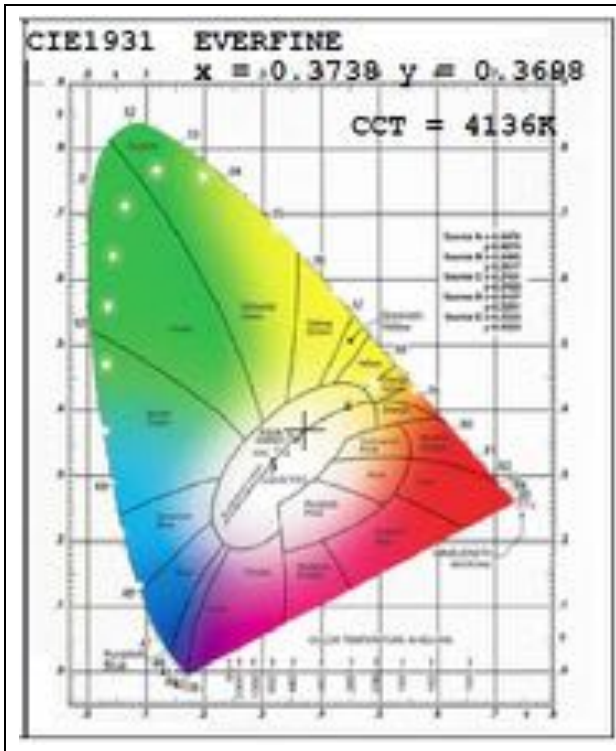
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Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	1,550.9	28%	28%
0-40	2,538.6	45.9%	45.9%
0-60	4,498.0	81.3%	81.3%
60-90	1,023.8	18.5%	18.5%
70-100	273.4	4.9%	4.9%
90-120	1.5	0%	0%
0-90	5,521.8	99.8%	99.8%
90-180	8.4	0.2%	0.2%
0-180	5,530.1	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	188.6	3.4%	90-100	0.1	0%
10-20	541.3	9.8%	100-110	0.4	0%
20-30	821.1	14.8%	110-120	0.9	0%
30-40	987.6	17.9%	120-130	1.3	0%
40-50	1,021.3	18.5%	130-140	1.4	0%
50-60	938.1	17.0%	140-150	1.5	0%
60-70	750.5	13.6%	150-160	1.3	0%
70-80	257.9	4.7%	160-170	0.9	0%
80-90	15.4	0.3%	170-180	0.4	0%

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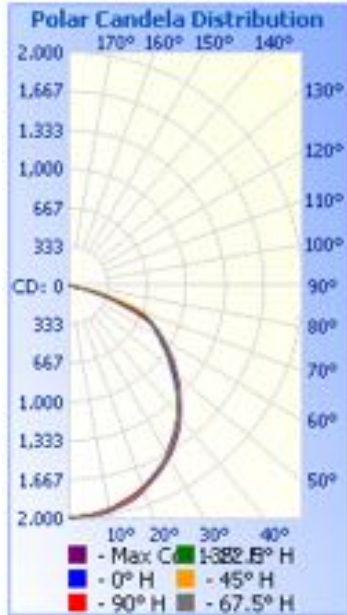
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Photometric Data



Illuminance Plots



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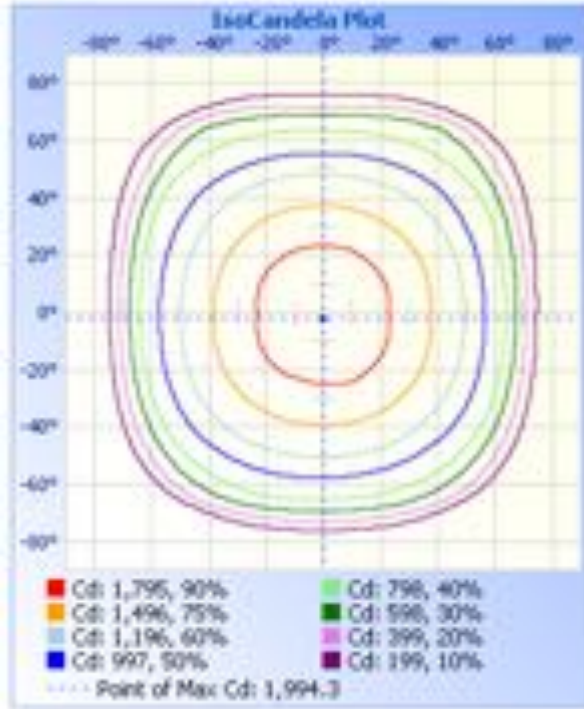
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ISOCANDELA DIAGRAM



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	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
1	1992	1993	1993	1992	1992	1993	1993	1993	1994	1992	1993	1993	1993	1991	1991	1991	1992
2	1990	1992	1991	1991	1990	1993	1994	1993	1994	1991	1991	1992	1993	1990	1990	1988	1990
3	1987	1991	1989	1988	1988	1991	1994	1991	1993	1990	1988	1991	1991	1988	1987	1984	1987
4	1984	1989	1987	1986	1985	1990	1994	1988	1992	1987	1986	1989	1988	1985	1984	1980	1984
5	1981	1987	1983	1984	1981	1987	1993	1985	1990	1984	1982	1986	1985	1982	1981	1976	1981
6	1978	1983	1978	1981	1978	1984	1990	1981	1987	1981	1977	1982	1980	1977	1976	1971	1978
7	1974	1980	1973	1977	1972	1981	1988	1977	1984	1977	1972	1978	1974	1972	1971	1967	1974
8	1968	1975	1968	1973	1966	1976	1985	1972	1980	1971	1966	1973	1967	1966	1966	1963	1968
9	1963	1969	1964	1967	1959	1972	1981	1967	1976	1965	1960	1967	1958	1960	1960	1958	1963
10	1956	1962	1959	1961	1952	1966	1976	1961	1971	1959	1954	1960	1950	1952	1954	1955	1956
11	1950	1953	1954	1953	1943	1960	1968	1954	1966	1951	1947	1952	1941	1944	1947	1949	1950
12	1943	1945	1948	1946	1934	1954	1961	1947	1958	1944	1940	1945	1932	1935	1939	1943	1943
13	1934	1935	1941	1937	1924	1947	1953	1939	1949	1935	1934	1937	1922	1926	1931	1935	1934
14	1925	1925	1932	1927	1914	1941	1945	1930	1940	1928	1926	1928	1912	1916	1922	1927	1925
15	1915	1915	1923	1918	1904	1932	1939	1920	1929	1919	1917	1919	1901	1908	1912	1917	1915

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16	1904	1905	1912	1908	1893	1922	1931	1910	1917	1909	1907	1909	1890	1898	1902	1907	1904
17	1893	1894	1901	1898	1881	1912	1921	1897	1905	1900	1896	1899	1877	1889	1889	1897	1893
18	1881	1883	1888	1888	1870	1900	1909	1884	1892	1891	1885	1886	1863	1878	1876	1886	1881
19	1869	1872	1877	1876	1858	1887	1894	1870	1878	1881	1873	1871	1849	1867	1862	1875	1869
20	1856	1859	1863	1864	1845	1872	1878	1857	1865	1871	1860	1856	1835	1853	1848	1862	1856
21	1839	1846	1849	1851	1830	1856	1861	1844	1852	1861	1848	1840	1819	1839	1833	1846	1839
22	1823	1831	1834	1837	1816	1840	1845	1831	1838	1849	1833	1825	1804	1823	1817	1829	1823
23	1805	1815	1817	1822	1801	1825	1829	1816	1823	1838	1821	1810	1788	1807	1802	1812	1805
24	1787	1799	1800	1807	1785	1809	1815	1800	1807	1823	1806	1794	1773	1789	1785	1793	1787
25	1771	1780	1783	1791	1772	1793	1799	1784	1790	1805	1789	1778	1758	1772	1769	1775	1771
26	1754	1762	1766	1774	1758	1778	1782	1768	1771	1786	1772	1760	1744	1755	1752	1755	1754
27	1738	1743	1747	1757	1743	1761	1766	1751	1754	1766	1754	1742	1726	1737	1734	1734	1738
28	1719	1724	1725	1738	1727	1743	1748	1733	1735	1747	1734	1722	1705	1718	1715	1714	1719
29	1698	1705	1705	1719	1710	1725	1729	1715	1717	1728	1716	1705	1684	1698	1694	1694	1698
30	1675	1684	1684	1701	1693	1706	1712	1697	1698	1706	1697	1686	1664	1678	1673	1672	1675
31	1651	1664	1664	1682	1677	1686	1695	1678	1679	1680	1676	1665	1643	1657	1653	1650	1651
32	1628	1643	1643	1660	1660	1666	1673	1658	1658	1656	1654	1643	1620	1635	1631	1627	1628
33	1608	1622	1623	1635	1638	1645	1650	1637	1636	1633	1634	1620	1597	1612	1608	1604	1608
34	1586	1602	1601	1612	1615	1625	1630	1616	1614	1611	1611	1597	1573	1589	1585	1581	1586
35	1562	1580	1577	1589	1589	1605	1610	1595	1589	1590	1585	1573	1548	1566	1562	1558	1562
36	1540	1556	1552	1566	1562	1580	1586	1574	1565	1569	1561	1549	1523	1542	1537	1534	1540
37	1518	1530	1529	1543	1536	1555	1560	1550	1539	1546	1539	1528	1498	1516	1512	1507	1518
38	1496	1501	1507	1518	1513	1532	1533	1524	1513	1519	1513	1505	1473	1489	1486	1481	1496
39	1473	1476	1485	1492	1491	1508	1506	1501	1490	1491	1487	1481	1448	1462	1459	1454	1473
40	1448	1450	1461	1465	1467	1484	1481	1477	1468	1466	1461	1456	1424	1436	1433	1429	1448
41	1418	1424	1434	1440	1440	1460	1456	1450	1443	1439	1436	1428	1398	1409	1408	1403	1418
42	1390	1398	1408	1415	1415	1439	1429	1424	1415	1412	1409	1399	1373	1383	1383	1378	1390
43	1363	1373	1382	1389	1390	1414	1400	1399	1387	1386	1383	1373	1348	1356	1357	1351	1363
44	1337	1345	1354	1360	1360	1386	1372	1372	1364	1361	1356	1345	1320	1329	1329	1322	1337
45	1310	1318	1328	1331	1330	1355	1344	1344	1342	1335	1329	1316	1293	1300	1301	1294	1310
46	1280	1290	1303	1304	1303	1325	1319	1318	1317	1307	1300	1289	1267	1273	1274	1267	1280
47	1249	1263	1278	1278	1279	1297	1294	1289	1291	1278	1269	1263	1241	1247	1245	1239	1249

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48	1218	1237	1251	1251	1256	1271	1270	1262	1260	1250	1242	1234	1214	1220	1219	1213	1218
49	1188	1212	1224	1224	1230	1245	1241	1237	1231	1223	1213	1206	1184	1195	1191	1186	1188
50	1159	1184	1194	1199	1205	1219	1211	1210	1206	1195	1185	1181	1157	1170	1165	1160	1159
51	1132	1157	1165	1171	1177	1193	1184	1182	1178	1168	1156	1154	1132	1142	1138	1132	1132
52	1106	1130	1138	1143	1151	1165	1158	1154	1146	1140	1127	1124	1106	1113	1108	1107	1106
53	1080	1101	1110	1114	1126	1134	1132	1125	1113	1110	1094	1097	1076	1081	1082	1081	1080
54	1052	1070	1082	1087	1102	1104	1103	1099	1084	1079	1066	1070	1047	1051	1055	1055	1052
55	1024	1040	1053	1060	1072	1076	1072	1069	1057	1051	1038	1042	1020	1020	1028	1028	1024
56	995	1010	1025	1035	1045	1048	1045	1042	1029	1023	1008	1016	993	992	1003	1000	995
57	966	982	999	1009	1016	1022	1016	1013	1002	996	982	989	966	967	974	971	966
58	939	958	974	983	988	997	984	987	975	971	958	962	940	943	947	943	939
59	916	934	948	958	964	970	959	960	946	948	934	937	915	919	918	919	916
60	893	910	924	932	937	944	933	932	920	922	905	911	892	896	892	894	893
61	870	887	897	907	911	915	904	907	897	895	880	884	868	872	865	869	870
62	846	863	873	881	886	886	879	881	871	868	855	858	846	846	838	846	846
63	822	837	849	854	863	846	854	856	845	841	830	811	819	818	813	822	822
64	798	811	824	830	825	803	826	833	820	816	793	763	763	794	790	800	798
65	774	790	801	807	777	750	784	808	796	794	753	721	727	771	766	779	774
66	752	771	777	783	738	708	729	784	771	770	693	674	658	749	745	757	752
67	731	750	754	754	654	661	692	748	738	724	651	600	575	681	725	737	731
68	692	727	734	667	605	590	651	698	665	679	599	535	519	615	702	714	692
69	610	702	711	633	523	546	598	632	587	598	563	490	456	556	679	692	610
70	559	635	676	525	480	488	562	552	503	539	523	446	418	484	626	638	559
71	464	569	624	490	427	441	519	476	429	463	485	375	369	419	599	562	464
72	400	478	582	412	379	363	456	425	403	414	389	322	334	388	532	477	400
73	378	408	497	383	335	297	335	385	367	375	281	228	287	342	461	409	378
74	330	380	440	353	277	211	221	330	311	312	182	171	209	290	396	372	330
75	282	333	359	296	211	159	148	244	259	221	140	120	134	246	326	332	282
76	246	281	251	233	120	111	141	172	184	149	121	71	62	167	222	282	246
77	160	239	171	133	56	57	98	98	63	86	63	29	31	72	143	234	160
78	54	134	128	37	34	30	32	29	19	23	23	28	29	27	118	121	54
79	45	41	98	28	33	29	23	20	19	20	22	28	29	25	71	37	45

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80	45	34	35	27	32	28	22	19	18	19	22	27	28	25	22	33	45
81	45	32	20	26	31	27	21	19	18	18	20	26	27	25	19	31	45
82	45	30	19	25	29	25	20	17	17	17	19	24	26	23	18	29	45
83	41	26	17	23	26	22	17	15	15	15	16	21	23	21	16	25	41
84	34	22	15	21	23	20	15	13	12	12	14	18	21	19	15	22	34
85	24	17	13	18	20	17	12	10	9	9	10	15	18	16	12	17	24
86	14	12	11	15	18	14	8	6	6	5	7	12	15	14	10	11	14
87	10	8	8	12	15	10	5	3	2	2	4	7	11	10	8	7	10
88	6	6	6	8	10	5	1	0	0	0	0	3	5	6	5	6	6
89	4	4	3	3	4	1	0	0	0	0	0	0	0	1	2	3	4
90	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	2013-07-08	2014-07-07
ST-R-331	Spectral analysis system HAAS-2000	2013-06-21	2014-06-20
D204	Standard Lamp	2013-06-28	2014-06-27
PF2010	Power Meter for Integrating Sphere	2013-06-20	2014-06-19
EE-09	Goniophotometer system	2013-06-21	2014-06-20
D908S	Standard Lamp	2013-07-05	2014-07-04
PF210	Power Meter for Goniophotometer	2013-06-20	2014-06-19
ST-R-181A	Temperature Tester	2013-08-14	2014-08-13

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