



Report No.: GZE160347-O

NVLAP LAB CODE 201011-0

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-8090M40-A

Representative (Tested) Model: LED-8090M40-A

Model Different :N/A

Test & Report By:

Jack Luo

Engineer: Jack Luo

Date: Apr.28,2016

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

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<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	Apr.28,2016
Test Report No.	GZE160347-O
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	LIGHT EFFICIENT DESIGN		
Brand Name	N/A		
Model Number	LED-8090M40-A		
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	--	114.9	W
Input Current	--	0.9820	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9751	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	11605	lm
Initial Lumen Efficacy	--	101.00	lm/w
Correlated color temperature / CCT	3835	--	K
Color rendering index / CRI	73.4	--	
R9 Value	0	--	
Duv	0.0024	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		4101	cd
Beam angle (if applicable)		113.2	°
Zonal lumens in the 0°-60° zone		83.8	%
Zonal lumens in the 60°-90° zone	-----	16	%
Zonal lumens in the 90°-120° zone		0.1	%
Zonal lumens in the 120°-180° zone		0.1	%

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Test Specifications:	
Date of Receipt	: Apr.01,2016
Date of Test	: Apr.24,2016
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, 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	N/A
Model Number	LED-8090M40-A
Luminaire Type	LED Lamp
Rated Voltage / Frequency	120~277 Vac, 50/60Hz
Nominal Power	120W
Rated Initial Lamp Lumen	--
Declared CCT	4000K
LED Manufacturer	N/A
LED Model	N/A
Sample Receipt Date	Apr.01,2016
Sample Number	GZE160347-O1(4000K)

Photo



2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2016-04-24	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8090M40-A		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160347	120.0	60	0.9820	114.9	0.9751	12.45
-O1	277.0	60	0.4848	121.1	0.9017	17.08

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	73.4
R9	0
CCT (K)	3835
Chromaticity (x, y)	x=0.3900 y=0.3878
Chromaticity (u', v')	u'=0.2269 v'=0.5077
Duv	0.0024

Special Color Rendering Indices			
R1	72	R9	0
R2	78	R10	48
R3	84	R11	70
R4	74	R12	44
R5	71	R13	72
R6	70	R14	90
R7	82	R15	66
R8	57	--	--

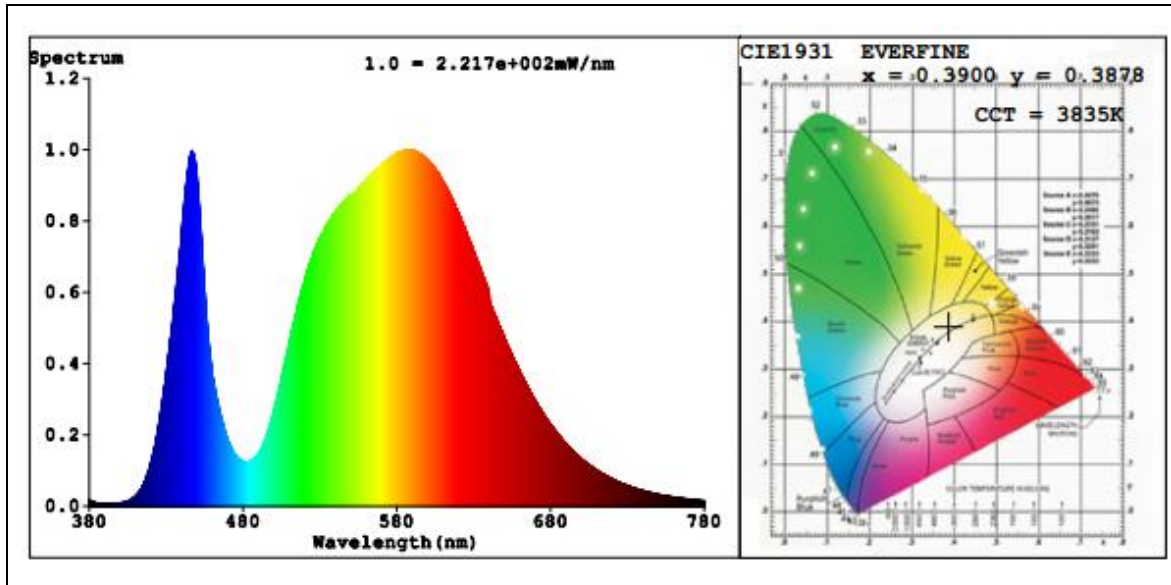
Goniophotometer Method :

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	11605
Luminous Efficacy (lm/W)	101.00
Beam Angle°	113.2
Center Beam Candle Power (cd)	4101

Goniophotometer Methodn :

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	12243
Luminous Efficacy (lm/W)	101.08

Spectral Power Distribution & Chromaticity Diagram



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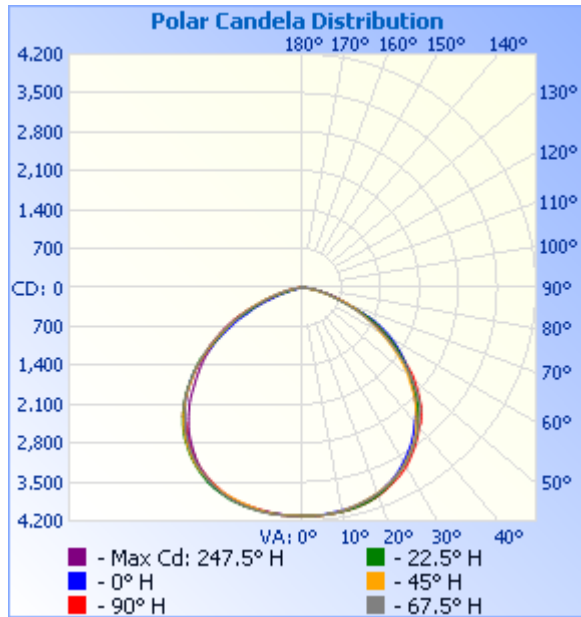
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Zonal Lumen Tabulation

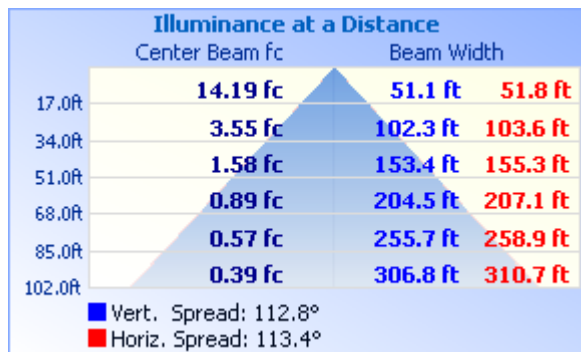
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	3,315.9	28.6%
0-40	5,508.7	47.5%
0-60	9,722.6	83.8%
60-90	1,855.7	16%
70-100	592.2	5.1%
90-120	6.1	0.1%
0-90	11,578.3	99.8%
90-180	25.8	0.2%
0-180	11,604.2	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	391.2	3.4%	90-100	1.0	0%
10-20	1,143.0	9.8%	100-110	2.1	0%
20-30	1,781.7	15.4%	110-120	3.0	0%
30-40	2,192.8	18.9%	120-130	4.3	0%
40-50	2,274.3	19.6%	130-140	4.7	0%
50-60	1,939.7	16.7%	140-150	4.5	0%
60-70	1,264.6	10.9%	150-160	3.4	0%
70-80	503.1	4.3%	160-170	2.1	0%
80-90	88.1	0.8%	170-180	0.8	0%

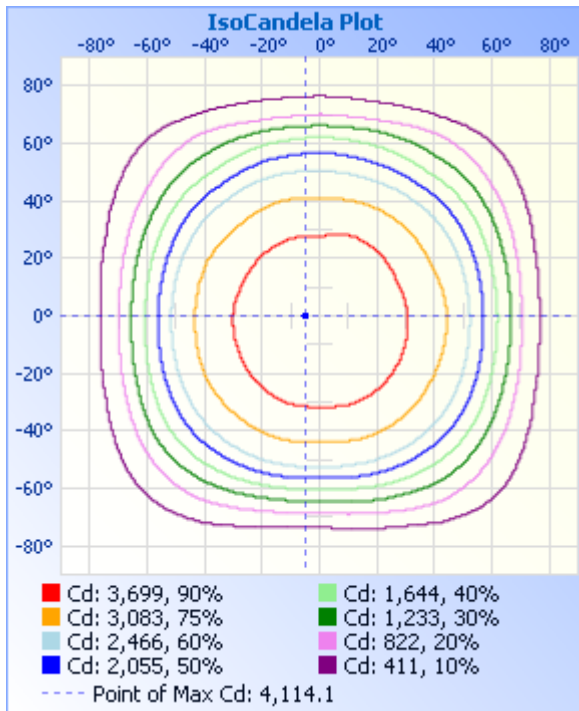
Photometric Data



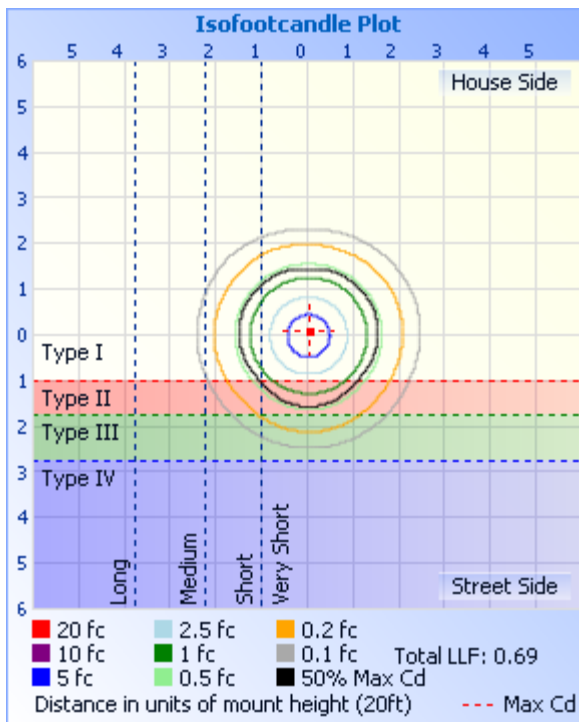
Illuminance Plots



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	4101	4101	4101	4101	4101	4101	4101	4101	4101	4101	4101	4101	4101	4101	4101	4101	4101
1	4107	4104	4104	4105	4102	4101	4099	4104	4101	4100	4102	4106	4103	4104	4102	4108	4107
2	4106	4105	4104	4107	4105	4103	4103	4101	4100	4099	4103	4108	4101	4106	4103	4110	4106
3	4108	4105	4104	4107	4109	4104	4104	4102	4099	4099	4104	4111	4104	4112	4105	4110	4108
4	4106	4108	4110	4108	4111	4100	4106	4107	4101	4101	4106	4114	4104	4112	4104	4110	4106
5	4103	4108	4108	4108	4110	4094	4107	4107	4100	4099	4109	4113	4100	4114	4103	4112	4103
6	4097	4104	4106	4107	4105	4088	4110	4109	4099	4103	4106	4110	4096	4109	4098	4107	4097
7	4090	4104	4102	4101	4103	4081	4108	4105	4096	4106	4105	4110	4090	4109	4092	4105	4090
8	4082	4099	4095	4097	4101	4076	4107	4103	4092	4101	4100	4111	4085	4102	4084	4102	4082
9	4074	4099	4087	4090	4097	4071	4102	4100	4086	4099	4093	4105	4080	4100	4078	4094	4074
10	4070	4094	4078	4085	4092	4060	4100	4092	4082	4095	4085	4100	4071	4090	4070	4089	4070
11	4061	4087	4067	4075	4089	4051	4090	4085	4077	4092	4074	4096	4064	4085	4065	4082	4061
12	4053	4084	4054	4063	4083	4044	4086	4077	4071	4085	4060	4088	4058	4075	4052	4074	4053
13	4041	4076	4042	4050	4073	4037	4077	4074	4066	4081	4056	4081	4048	4065	4047	4072	4041
14	4033	4070	4026	4037	4067	4026	4068	4064	4062	4073	4040	4075	4041	4055	4035	4063	4033
15	4019	4056	4014	4022	4056	4016	4059	4059	4054	4070	4031	4064	4034	4046	4023	4055	4019
16	4005	4046	3999	4005	4045	4005	4043	4048	4043	4059	4017	4053	4026	4032	4012	4046	4005
17	3990	4033	3983	3991	4033	3995	4037	4036	4036	4050	4005	4043	4014	4023	4000	4034	3990
18	3974	4017	3966	3976	4020	3983	4023	4028	4025	4040	3995	4030	3999	4008	3986	4022	3974
19	3957	3997	3950	3957	4003	3975	4016	4013	4014	4028	3982	4014	3987	3990	3973	4006	3957
20	3938	3977	3930	3939	3985	3958	4006	4001	4000	4013	3970	3998	3971	3969	3956	3991	3938
21	3916	3954	3909	3922	3967	3942	3991	3982	3985	3994	3954	3977	3952	3948	3935	3972	3916
22	3891	3932	3890	3900	3947	3924	3977	3970	3966	3978	3937	3956	3930	3922	3915	3949	3891
23	3864	3904	3870	3881	3920	3906	3957	3949	3946	3958	3920	3933	3904	3898	3894	3928	3864
24	3837	3874	3843	3856	3894	3887	3933	3931	3928	3941	3896	3908	3880	3869	3867	3901	3837
25	3810	3840	3821	3831	3869	3861	3912	3906	3896	3919	3874	3883	3855	3841	3846	3874	3810
26	3780	3806	3795	3800	3841	3838	3886	3884	3869	3896	3854	3853	3828	3806	3817	3842	3780
27	3743	3772	3768	3770	3818	3810	3858	3853	3845	3865	3828	3822	3803	3773	3789	3813	3743
28	3708	3739	3740	3739	3789	3781	3827	3820	3811	3833	3809	3795	3777	3736	3759	3784	3708

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29	3666	3705	3704	3708	3757	3751	3791	3790	3780	3802	3781	3764	3744	3705	3728	3748	3666
30	3625	3671	3669	3679	3724	3724	3753	3759	3746	3770	3752	3732	3713	3672	3690	3712	3625
31	3583	3633	3631	3646	3680	3693	3714	3731	3710	3736	3722	3701	3673	3638	3652	3668	3583
32	3544	3592	3592	3604	3640	3662	3674	3697	3669	3702	3688	3660	3632	3595	3611	3623	3544
33	3499	3554	3547	3564	3596	3625	3637	3662	3631	3666	3648	3619	3589	3552	3565	3574	3499
34	3456	3511	3505	3521	3554	3583	3591	3624	3589	3621	3606	3577	3550	3502	3522	3525	3456
35	3410	3469	3462	3478	3511	3539	3546	3588	3548	3579	3561	3529	3505	3453	3477	3473	3410
36	3360	3429	3418	3434	3466	3493	3502	3541	3503	3534	3519	3485	3462	3401	3425	3424	3360
37	3307	3384	3367	3392	3418	3446	3459	3496	3455	3490	3473	3437	3413	3353	3376	3373	3307
38	3253	3336	3312	3344	3367	3398	3414	3449	3401	3444	3424	3389	3364	3302	3323	3319	3253
39	3195	3283	3254	3298	3315	3348	3366	3399	3349	3393	3374	3336	3307	3245	3264	3261	3195
40	3144	3224	3187	3247	3260	3291	3317	3340	3292	3342	3319	3276	3253	3190	3202	3193	3144
41	3092	3158	3122	3189	3241	3237	3262	3284	3235	3286	3261	3216	3204	3130	3135	3130	3092
42	3040	3099	3054	3130	3186	3195	3206	3224	3171	3222	3196	3155	3188	3069	3073	3064	3040
43	2999	3037	2989	3096	3130	3153	3138	3159	3108	3159	3132	3094	3164	3012	3005	2996	2999
44	2936	2988	2923	3053	3074	3110	3069	3094	3045	3096	3067	3059	3095	2992	2934	2937	2936
45	2868	2920	2858	2982	3016	3038	3000	3029	2992	3029	2999	3022	3017	2972	2867	2863	2868
46	2801	2851	2786	2912	2937	2961	2929	2969	2923	2960	2931	2956	2944	2886	2794	2787	2801
47	2730	2774	2710	2835	2863	2887	2854	2904	2853	2889	2860	2885	2867	2806	2712	2705	2730
48	2668	2698	2630	2744	2788	2805	2777	2836	2784	2811	2783	2816	2794	2725	2628	2624	2668
49	2604	2626	2547	2651	2713	2720	2694	2762	2714	2729	2704	2729	2709	2633	2541	2551	2604
50	2535	2552	2497	2569	2638	2635	2611	2677	2645	2648	2617	2648	2627	2552	2458	2482	2535
51	2467	2479	2423	2485	2566	2560	2545	2599	2572	2572	2542	2561	2554	2469	2408	2410	2467
52	2401	2405	2329	2403	2480	2485	2495	2521	2494	2497	2469	2479	2464	2389	2323	2340	2401
53	2336	2327	2246	2320	2383	2412	2416	2441	2408	2417	2398	2402	2379	2305	2223	2266	2336
54	2276	2252	2159	2233	2280	2341	2311	2356	2288	2337	2301	2324	2284	2225	2130	2194	2276
55	2213	2174	2072	2130	2193	2247	2219	2264	2159	2252	2205	2234	2197	2138	2048	2121	2213
56	2147	2102	1983	2032	2106	2145	2121	2142	2022	2141	2106	2146	2111	2047	1963	2051	2147
57	2075	2030	1896	1946	2032	2054	2027	2011	1935	2016	2011	2058	2034	1956	1873	1980	2075
58	2002	1956	1806	1854	1947	1967	1933	1884	1847	1881	1921	1960	1956	1866	1782	1908	2002
59	1930	1875	1710	1770	1850	1895	1845	1790	1741	1783	1830	1876	1874	1785	1689	1831	1930
60	1859	1791	1629	1682	1756	1819	1753	1703	1621	1704	1741	1786	1787	1696	1607	1758	1859

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61	1787	1705	1548	1591	1667	1727	1660	1602	1518	1627	1651	1693	1701	1610	1526	1678	1787
62	1705	1624	1467	1501	1570	1631	1577	1489	1428	1551	1561	1594	1614	1524	1444	1598	1705
63	1620	1542	1391	1410	1484	1536	1488	1377	1347	1467	1470	1501	1526	1438	1365	1517	1620
64	1525	1460	1315	1315	1407	1441	1391	1280	1233	1383	1389	1404	1439	1341	1288	1436	1525
65	1431	1363	1239	1222	1330	1350	1287	1195	1106	1272	1308	1309	1357	1246	1211	1342	1431
66	1311	1264	1162	1137	1239	1266	1182	1113	1025	1128	1229	1215	1262	1158	1133	1247	1311
67	1179	1155	1094	1056	1138	1179	1084	1015	955	1025	1150	1128	1156	1067	1057	1146	1179
68	1041	1040	1022	959	1038	1078	1009	900	862	946	1067	1037	1043	967	989	1029	1041
69	947	921	953	867	932	973	934	808	763	871	982	942	927	860	918	912	947
70	865	813	881	770	849	869	857	736	648	796	897	853	837	751	844	800	865
71	790	729	805	687	784	758	782	657	556	729	817	760	761	668	771	709	790
72	724	652	724	627	713	678	711	552	494	655	737	685	689	607	690	633	724
73	662	586	635	571	645	618	636	483	418	562	656	616	617	550	589	563	662
74	605	534	539	524	594	556	560	423	322	459	572	556	555	496	482	502	605
75	534	483	467	493	544	500	482	371	268	361	490	509	505	456	408	441	534
76	452	432	412	450	456	450	422	326	229	291	424	488	412	398	359	392	452
77	400	368	353	381	378	390	377	289	162	250	380	403	336	327	315	344	400
78	350	314	306	339	347	322	322	257	126	227	336	337	306	277	286	302	350
79	307	270	255	325	342	289	274	221	75	195	300	309	297	259	214	262	307
80	253	223	198	294	292	282	236	169	49	160	254	297	256	237	167	209	253
81	217	187	176	215	204	242	216	127	26	136	189	267	181	159	158	174	217
82	171	150	147	162	149	176	193	100	15	111	168	183	147	123	120	144	171
83	139	115	99	127	135	137	158	78	9	90	161	156	138	107	81	110	139
84	109	88	69	94	102	124	103	64	4	71	123	137	97	77	57	83	109
85	89	68	48	74	81	98	78	49	2	49	96	98	77	63	36	63	89
86	72	52	31	49	64	85	66	38	1	35	82	81	56	35	23	49	72
87	60	41	19	26	44	58	43	24	1	22	46	53	34	18	15	39	60
88	48	33	14	7	9	12	16	10	0	6	13	9	4	4	11	31	48
89	37	25	10	3	0	0	1	1	0	0	0	0	1	2	8	23	37
90	24	13	6	2	0	0	0	0	0	0	0	0	0	1	3	9	24
91	1	1	2	1	0	0	0	0	0	0	0	0	0	0	1	0	1
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
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96	0	0	0	1	2	2	2	0	0	1	3	3	2	1	0	0	0
97	0	0	0	2	2	2	2	1	1	1	3	3	2	2	0	0	0
98	0	0	0	3	2	2	2	1	1	1	2	3	2	2	1	0	0
99	0	0	1	3	2	2	2	1	1	1	2	2	2	3	2	0	0
100	0	0	2	3	1	2	2	1	1	1	2	2	2	3	3	0	0
101	0	0	3	3	1	2	2	1	1	1	2	2	2	3	3	1	0
102	0	1	3	2	1	2	2	1	1	1	2	2	2	2	4	1	0
103	0	1	4	2	1	2	2	1	1	1	2	2	2	2	4	2	0
104	1	2	4	2	1	2	2	1	1	1	2	2	2	2	4	2	1
105	1	2	4	2	2	2	2	2	1	2	2	2	2	2	4	2	1
106	1	2	4	2	2	2	2	2	1	2	2	2	2	2	3	2	1
107	1	2	3	2	2	2	2	2	2	2	2	2	2	2	3	2	1
108	1	2	3	3	2	2	2	2	2	2	2	2	2	3	3	2	1
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111	2	2	3	3	2	3	2	2	2	2	2	3	3	3	3	2	2
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121	4	4	4	6	4	4	4	4	4	4	4	4	5	6	4	4	4
122	5	4	4	6	4	4	4	4	4	4	4	4	5	6	4	4	5
123	5	5	4	6	4	4	4	4	5	4	4	4	5	6	4	5	5
124	5	5	4	6	4	4	4	4	5	4	4	4	5	6	4	5	5

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125	5	5	5	7	4	4	4	4	5	4	4	4	5	7	4	5	5
126	6	5	5	7	4	4	4	4	5	4	4	4	5	7	4	5	6
127	6	6	5	7	5	4	4	4	5	5	4	4	6	7	4	5	6
128	6	6	5	7	5	5	4	4	5	5	4	4	6	7	5	6	6
129	6	6	7	7	5	5	4	5	5	5	4	4	6	7	6	6	6
130	6	6	8	7	5	5	4	5	5	5	4	5	6	7	7	6	6
131	6	6	8	7	5	5	4	5	5	5	5	5	6	7	8	6	6
132	6	6	8	7	6	5	4	5	5	5	5	5	6	7	8	6	6
133	6	6	8	7	5	5	4	5	5	5	5	5	6	7	8	6	6
134	6	6	8	7	6	5	5	5	5	5	5	5	6	7	8	6	6
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136	6	7	8	7	6	5	5	5	6	6	5	5	6	7	8	7	6
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138	7	7	8	7	6	5	5	5	6	6	5	5	6	7	8	7	7
139	8	7	8	7	6	6	5	5	6	6	5	6	6	7	8	7	8
140	7	10	8	7	6	6	5	5	6	6	5	6	6	7	8	10	7
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143	9	10	8	7	6	6	5	6	6	6	6	6	6	7	8	10	9
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145	9	11	8	7	7	6	5	6	6	7	6	6	6	7	8	10	9
146	9	11	8	7	7	6	5	6	6	7	6	6	6	7	8	10	9
147	9	11	8	7	7	6	6	6	7	7	7	6	6	7	7	11	9
148	10	11	8	7	7	7	6	6	7	7	7	6	6	7	7	10	10
149	10	11	7	7	7	7	6	6	7	7	7	6	6	7	7	10	10
150	10	11	7	7	7	7	6	6	7	7	7	6	7	7	8	10	10
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152	10	10	8	7	6	7	6	6	7	7	7	6	7	7	8	10	10
153	10	10	8	7	6	7	6	6	7	7	7	6	7	7	8	10	10
154	10	10	8	7	6	7	6	6	7	7	7	6	6	7	9	10	10
155	10	10	9	7	6	7	6	6	7	7	7	6	6	7	9	10	10
156	9	10	9	7	6	7	6	6	6	7	7	6	5	7	9	10	9

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157	9	10	9	7	6	7	6	6	6	7	7	6	5	7	9	10	9
158	9	10	9	7	6	7	6	6	6	7	7	6	5	7	9	10	9
159	9	10	9	7	6	6	6	6	6	7	7	6	5	7	9	10	9
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161	9	10	9	7	6	6	6	7	6	7	7	6	6	7	9	10	9
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163	9	9	9	7	6	6	6	7	6	7	7	6	6	7	9	9	9
164	8	9	8	7	6	6	6	7	6	7	7	6	6	7	9	9	8
165	8	9	8	7	6	6	7	7	6	7	7	6	6	7	9	9	8
166	8	9	8	7	6	7	7	7	6	7	7	7	6	7	8	9	8
167	8	9	8	7	7	7	7	7	7	7	7	7	7	7	8	9	8
168	8	9	9	7	7	7	7	8	8	8	8	8	7	7	9	9	8
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170	9	9	9	7	8	8	8	8	9	9	9	8	7	7	9	9	9
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172	9	9	9	7	8	8	8	9	9	9	9	9	7	7	9	9	9
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174	9	9	9	7	8	8	8	9	9	10	9	9	7	7	9	9	9
175	10	9	9	8	8	8	8	9	9	10	9	9	7	8	9	9	10
176	10	9	9	8	8	8	8	8	9	10	9	9	8	8	9	9	10
177	10	9	9	8	7	7	8	8	8	9	9	9	8	8	9	9	10
178	10	9	9	8	7	7	8	8	8	9	9	9	7	8	9	9	10
179	9	9	9	8	7	7	8	8	8	9	9	9	7	8	8	8	9
180	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

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 *******