



Report No.: GZE160347-S3

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-8081E57

Representative (Tested) Model: LED-8081E57

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.

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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<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	May.09,2016
Test Report No.	GZE160347-S3
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	LIGHT EFFICIENT DESIGN		
Brand Name	N/A		
Model Number	LED-8081E57		
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	--	31.33	W
Input Current	--	0.2651	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9849	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	3567.2	lm
Initial Lumen Efficacy	--	113.86	lm/w
Correlated color temperature / CCT	5794	--	K
Color rendering index / CRI	81.2	--	
R9 Value	1	--	
Duv	0.0023	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		1096	cd
Beam angle (if applicable)		111.3	°
Zonal lumens in the 0°-60° zone		67.9	%
Zonal lumens in the 60°-90° zone	-----	25.3	%
Zonal lumens in the 90°-120° zone		5.9	%
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.03,2016
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.

1. Product Information:

Brand Name	N/A
Model Number	LED-8081E57
Luminaire Type	LED Lamp
Rated Voltage / Frequency	120~277 Vac, 50/60Hz
Nominal Power	30W
Rated Initial Lamp Lumen	--
Declared CCT	5700K
LED Manufacturer	N/A
LED Model	N/A
Sample Receipt Date	Apr.01,2016
Sample Number	GZE160347-S3(5700K)

Photo



2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2016-05-03	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8081E57		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160347	120.0	60	0.2651	31.33	0.9849	7.18
-S3	277.0	60	0.1284	32.07	0.9015	9.70

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	81.2
R9	1
CCT (K)	5794
Chromaticity (x, y)	x=0.3260 y=0.3399
Chromaticity (u', v')	u'=0.2029 v'=0.4760
Duv	0.0023

Special Color Rendering Indices			
R1	79	R9	1
R2	86	R10	66
R3	90	R11	80
R4	81	R12	57
R5	80	R13	81
R6	80	R14	94
R7	87	R15	75
R8	67	--	--

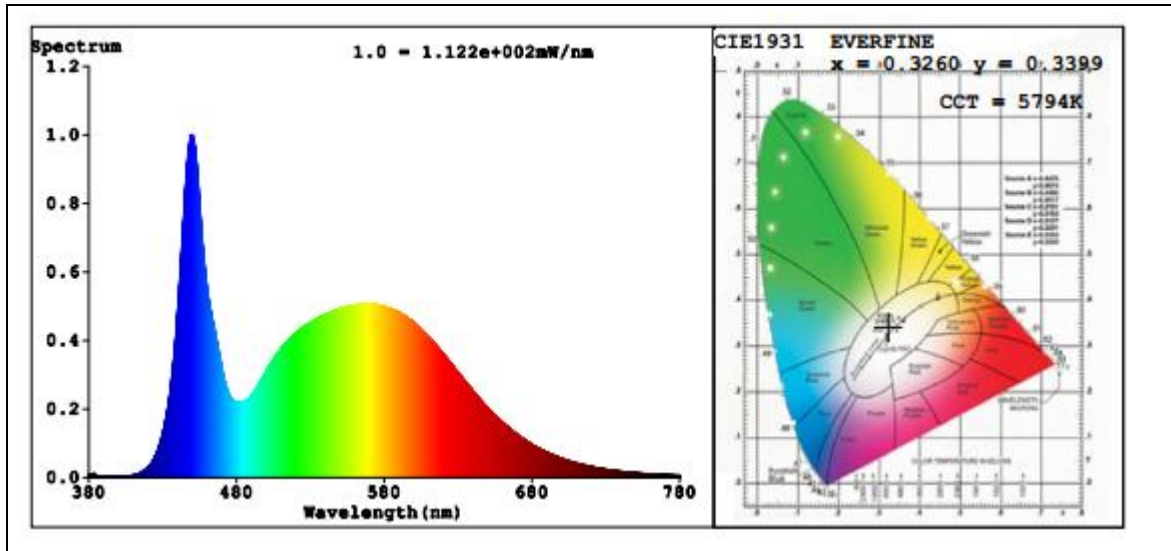
Goniophotometer Method :

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3567.2
Luminous Efficacy (lm/W)	113.86
Beam Angle°	111.3
Center Beam Candle Power (cd)	1096

Goniophotometer Methodn :

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3640.3
Luminous Efficacy (lm/W)	113.51

Spectral Power Distribution & Chromaticity Diagram



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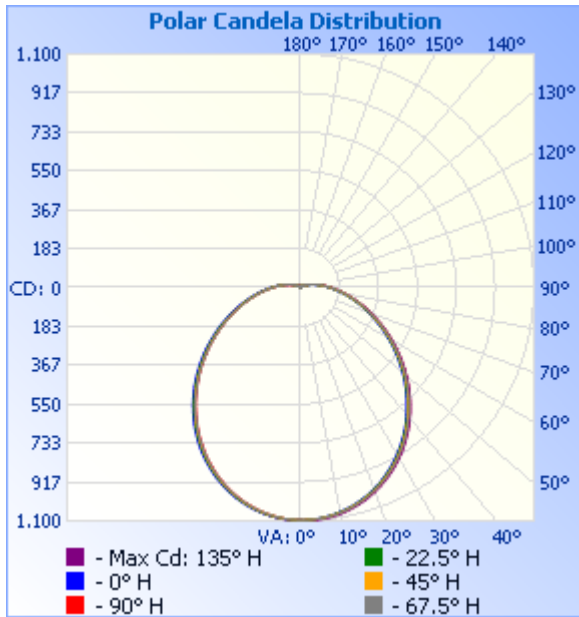
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Zonal Lumen Tabulation

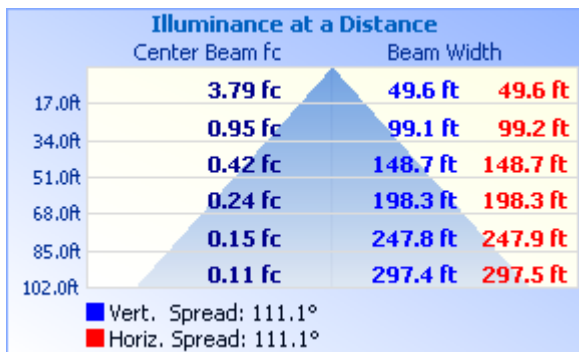
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	844.5	23.7%
0-40	1,376.4	38.6%
0-60	2,423.0	67.9%
60-90	902.1	25.3%
70-100	612.2	17.2%
90-120	209.6	5.9%
0-90	3,325.0	93.2%
90-180	242.0	6.8%
0-180	3,567.0	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	103.6	2.9%	90-100	117.0	3.3%
10-20	295.7	8.3%	100-110	62.5	1.8%
20-30	445.2	12.5%	110-120	30.1	0.8%
30-40	531.8	14.9%	120-130	14.5	0.4%
40-50	547.6	15.4%	130-140	8.6	0.2%
50-60	499.0	14.0%	140-150	5.4	0.2%
60-70	406.9	11.4%	150-160	2.7	0.1%
70-80	298.3	8.4%	160-170	0.9	0%
80-90	196.9	5.5%	170-180	0.2	0%

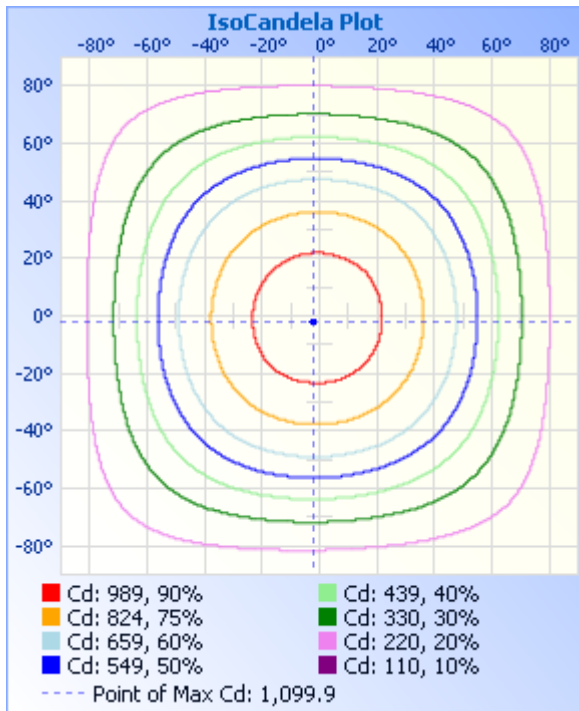
Photometric Data



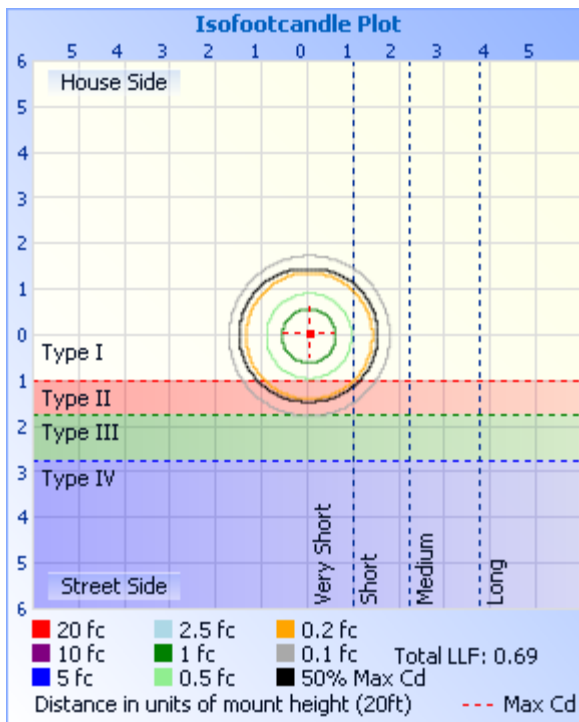
Illuminance Plots



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	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096
1	1095	1096	1095	1096	1095	1096	1100	1096	1096	1096	1095	1095	1095	1095	1099	1095	1095
2	1094	1095	1095	1095	1096	1096	1100	1095	1095	1095	1094	1094	1094	1094	1098	1094	1094
3	1093	1094	1094	1095	1095	1095	1099	1095	1094	1094	1093	1093	1092	1092	1096	1093	1093
4	1091	1092	1093	1093	1094	1094	1098	1094	1093	1092	1091	1091	1090	1090	1094	1091	1091
5	1090	1091	1091	1092	1093	1093	1097	1092	1091	1090	1089	1089	1088	1088	1092	1088	1090
6	1087	1088	1089	1090	1091	1091	1095	1090	1089	1088	1086	1086	1085	1085	1089	1086	1087
7	1084	1085	1086	1088	1088	1089	1093	1087	1086	1085	1083	1083	1082	1082	1086	1082	1084
8	1081	1082	1083	1085	1086	1086	1090	1085	1083	1082	1080	1079	1078	1078	1082	1079	1081
9	1077	1078	1080	1081	1083	1083	1087	1081	1080	1078	1076	1075	1074	1074	1078	1075	1077
10	1073	1074	1076	1078	1079	1080	1083	1078	1076	1074	1072	1071	1069	1069	1074	1071	1073
11	1068	1070	1072	1074	1076	1076	1079	1074	1072	1070	1067	1066	1064	1064	1069	1066	1068
12	1063	1065	1067	1069	1071	1072	1075	1069	1067	1065	1062	1060	1059	1059	1063	1061	1063
13	1058	1060	1062	1064	1066	1067	1070	1064	1062	1060	1056	1055	1053	1053	1058	1055	1058
14	1052	1054	1056	1059	1061	1061	1065	1059	1056	1054	1051	1049	1047	1047	1051	1049	1052
15	1046	1048	1050	1053	1055	1056	1059	1053	1051	1048	1045	1042	1040	1040	1045	1043	1046
16	1039	1042	1044	1047	1049	1050	1053	1047	1044	1041	1038	1036	1033	1033	1038	1036	1039
17	1032	1035	1037	1040	1043	1044	1047	1040	1038	1034	1030	1028	1027	1026	1031	1029	1032
18	1025	1027	1030	1034	1036	1037	1040	1033	1031	1027	1023	1021	1019	1018	1023	1021	1025
19	1017	1020	1023	1026	1029	1030	1033	1026	1023	1019	1015	1013	1010	1010	1015	1013	1017
20	1008	1012	1015	1019	1021	1022	1025	1019	1015	1011	1006	1004	1002	1002	1006	1005	1008
21	1000	1003	1006	1010	1013	1014	1017	1010	1007	1002	998	995	993	993	998	996	1000
22	991	994	998	1002	1005	1006	1008	1002	998	993	990	986	984	984	989	987	991
23	982	985	989	993	996	997	1000	993	989	984	980	977	975	974	979	978	982
24	972	976	980	984	987	988	991	984	980	975	970	967	965	965	969	968	972
25	962	966	970	974	978	979	981	974	970	965	960	957	955	954	959	958	962
26	952	956	960	964	968	969	971	964	960	954	950	947	944	944	949	947	952
27	941	945	950	954	958	959	961	954	950	944	939	936	933	933	938	937	941
28	930	934	939	943	947	948	951	944	939	933	928	925	922	922	927	926	930

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29	919	923	928	932	936	938	940	932	928	922	917	913	911	911	915	915	919
30	907	912	916	921	925	927	929	921	917	910	905	901	899	899	903	903	907
31	895	900	905	910	914	915	917	910	905	898	893	890	886	887	891	891	895
32	883	888	893	898	903	903	906	898	893	886	881	877	874	874	879	878	883
33	871	876	881	886	890	891	893	886	880	874	868	864	862	861	866	866	871
34	858	863	868	873	878	879	881	873	868	861	855	852	849	849	853	853	858
35	845	850	855	861	865	866	868	861	855	848	842	838	836	836	841	840	845
36	832	837	842	848	853	854	855	848	842	835	829	825	823	823	827	827	832
37	818	824	829	834	840	841	843	835	829	821	815	812	809	809	813	813	818
38	805	810	815	821	826	827	829	822	815	808	802	798	795	795	800	800	805
39	791	796	802	807	812	814	815	808	801	794	787	784	781	782	786	786	791
40	776	782	788	793	798	800	801	794	788	780	773	770	767	767	772	771	776
41	762	768	773	779	785	786	787	780	773	765	759	755	753	753	757	757	762
42	748	753	759	765	770	772	773	766	759	751	745	740	738	738	743	743	748
43	733	739	745	751	756	757	758	751	744	736	730	726	724	724	728	728	733
44	718	724	730	736	741	743	744	737	730	722	715	711	709	709	713	713	718
45	704	709	716	721	727	728	729	722	715	707	700	696	694	694	698	698	704
46	688	694	701	706	712	713	714	707	700	692	685	681	679	679	683	684	688
47	674	680	685	691	697	698	699	692	685	677	670	666	664	664	668	669	674
48	658	664	670	676	682	683	684	677	670	661	655	651	649	649	653	653	658
49	643	649	655	661	666	668	669	662	655	646	639	635	633	634	637	638	643
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51	613	619	625	630	636	637	638	631	624	615	608	605	603	603	607	608	613
52	597	603	609	615	621	622	623	616	609	600	593	589	588	588	591	593	597
53	582	588	594	600	605	606	607	601	594	585	578	574	573	573	576	577	582
54	567	573	579	584	590	591	592	585	578	570	562	559	557	558	561	562	567
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56	537	542	548	554	559	560	561	555	548	539	532	528	527	527	530	531	537
57	522	527	533	539	544	545	546	540	532	524	517	513	512	512	515	516	522
58	507	512	518	523	528	529	530	524	517	509	502	498	497	497	500	501	507
59	492	497	503	508	513	514	515	509	502	494	487	483	482	483	485	486	492
60	477	482	488	493	498	499	500	494	488	479	472	469	468	468	470	472	477

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61	462	468	473	478	483	484	485	479	473	464	457	454	453	453	456	457	462
62	448	453	458	463	468	469	470	464	458	449	443	440	439	439	441	442	448
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81	214	217	221	224	226	227	227	224	220	215	210	208	208	208	209	211	214
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83	195	198	201	204	206	207	207	204	201	196	191	189	189	189	190	192	195
84	186	189	192	195	197	197	197	195	192	187	182	180	180	180	181	183	186
85	177	180	183	185	187	188	188	186	183	178	174	172	172	172	172	174	177
86	168	171	174	177	179	179	180	177	174	169	166	164	163	163	164	166	168
87	160	163	165	168	170	171	171	169	166	161	157	156	155	155	156	157	160
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89	144	147	149	152	154	154	155	152	150	146	142	140	140	140	141	142	144
90	137	139	142	144	146	147	147	145	142	138	135	133	133	133	133	135	137
91	130	132	135	137	139	139	139	137	135	131	128	126	126	126	127	128	130
92	123	125	128	129	131	132	132	130	128	124	122	120	119	119	120	121	123

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93	116	118	121	123	124	125	125	123	121	118	115	113	112	113	113	114	116
94	110	112	114	116	118	119	119	117	115	112	111	107	106	106	107	108	110
95	104	106	108	110	112	112	112	111	109	106	103	102	100	100	101	102	104
96	98	100	102	104	106	106	106	105	103	100	97	96	95	95	96	96	98
97	92	94	96	98	100	101	100	99	97	94	92	91	89	89	90	91	92
98	87	89	91	92	94	95	95	94	92	89	87	85	84	84	85	86	87
99	82	84	86	87	89	89	90	88	86	84	82	80	79	79	80	81	82
100	77	79	81	82	84	84	84	83	81	79	77	76	75	75	75	76	77
101	73	74	76	77	79	79	79	78	77	75	72	71	70	70	71	72	73
102	68	70	72	73	75	75	75	74	72	70	68	67	66	66	66	67	68
103	64	66	67	68	70	71	70	69	68	66	64	63	62	62	63	63	64
104	60	62	63	64	66	66	66	65	64	62	60	59	58	58	59	59	60
105	57	58	59	60	62	62	62	61	60	58	57	55	55	54	55	56	57
106	53	54	55	56	58	58	58	57	56	54	53	52	51	51	51	52	53
107	50	51	52	53	54	55	55	54	53	51	50	49	48	47	48	49	50
108	46	47	49	50	51	51	51	50	49	48	46	46	45	44	45	46	46
109	43	44	45	46	48	48	48	47	46	45	43	42	42	42	42	43	43
110	41	41	42	43	45	45	45	44	43	42	41	40	39	39	39	40	41
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157	6	6	6	6	5	5	5	5	5	5	5	4	5	5	5	6	6
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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%			

******* END OF DATASHEET PACKAGE *******