

LM-79-08 Test Report

For

ELEC-TECH INTERNATIONAL CO LTD

No. 1 Jinfeng Road, Tangjiawan Town, Xiangzhou District, Zhuhai City, Guangdong Province, P.R. China, 519085

Wall Pack Light

Model Name(s):

533073##

Representative (Tested) Model:

53307361

Model Difference: ## can be 61-70 intends CCT is 5000K

Prepare by:

Derek Lai

Engineer: Derek Lai

Date: 2018-08-02

Review by:

Vincent Yuan

Technical Lead: Vincent Yuan

Issue Date: 2018-09-07

Revised Date: N/A

Note:

1. The results contained in this report pertain only to the tested samples.
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3. This report does not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

Laboratory: Dongguan New Testing Centre Co., Ltd

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Tel: 86-769-89874553

Website: <http://www.ntc-cert.com>

Product Information:

Client Name:	ELEC-TECH INTERNATIONAL CO LTD
Brand Name:	ETI
Model Number:	533073##(##=61-70)
Product Type:	Outdoor Full-Cutoff Wall-mounted Area Luminaires
Rating Input:	120-277Vac, 50/60Hz, 20W
Declared CCT:	5000K
Declared Light Output:	2600lm
LED Manufacturer:	Samsung
LED Model:	SPMWH1228XXXXXXXXXX
LED Quantity:	90 PCS
Driver Manufacturer:	Shenzhen City SOSEN Electronics Limited
Driver Model:	SS-20R-36

Test Information:

Standard Lamp:	Total Spectral Radiant Flux Standard Lamp, trace to NIST. 1. D908S for Gonio 2. D215S for Integrating Sphere
Date of Receipt Samples:	2018-07-23
Quantity of Receipt Samples:	2 pcs
Sample Number:	S18072303-S1

Laboratory Information:

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1 st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	Neil_ntc@163.com

Report Information:

Issued Date of Test Report:	2018-09-07
Revised Date of Test Report:	N/A
Test Report No.:	NTCR18080007
Remark (If applicable):	N/A

Test Specification:	
Date of Test	2018-08-01
Test Item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. THD and PF
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Color Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry

Test Methods:
<p>1. Photometric and Electrical Measurements – Light Distribution Method:</p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, 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 required Voltage and Frequency. It was stabilized before measurement was made. Luminous Flux, Luminaire Efficacy and Zonal Lumen were calculated from the software taken at 1° vertical intervals and 15° horizontal intervals.</p>
<p>2. Photometric and Electrical Measurements – Integrating Sphere Method:</p> <p>Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. 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 require Voltage and Frequency. 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 1 nm intervals over the rage of 380 to 780 nm.</p>
<p>3. THD and PF Measurements:</p> <p>The sample was tested according to the ANSI C82.77-2002, the sample was operated at requirement Voltage and Frequency, and was stabilized before measurement. The Total Harmonic Distortion was calculated from the Digital Power Meter.</p>

Integrating Sphere Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.5	40.3	Face Down	90	10

Electrical Data:

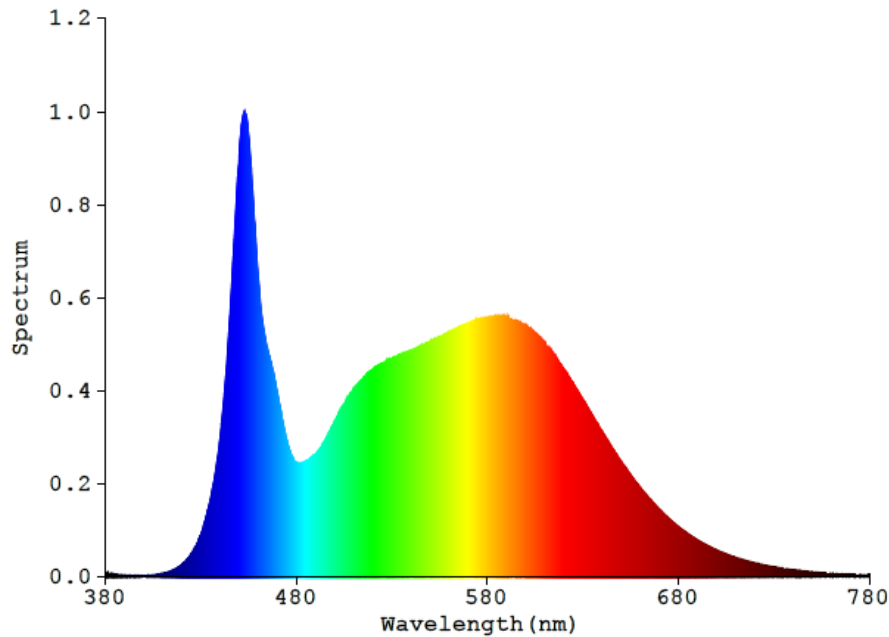
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.1722	20.39	0.9836

Color Data:

Parameter	Result
CCT(K)	5091
Color Rendering Index (CRI)	83.9
R9	8
Chromaticity, x	0.3427
Chromaticity, y	0.3516
Chromaticity, u'	0.2098
Chromaticity, v'	0.4848
Duv	0.00096

Special Color Rendering			
R1	82	R9	8
R2	90	R10	76
R3	94	R11	82
R4	83	R12	62
R5	83	R13	85
R6	86	R14	97
R7	86	R15	77
R8	67	-	-

Spectrum Diagram:



Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.5	40.3	Face Down	90	25

Electrical Data:

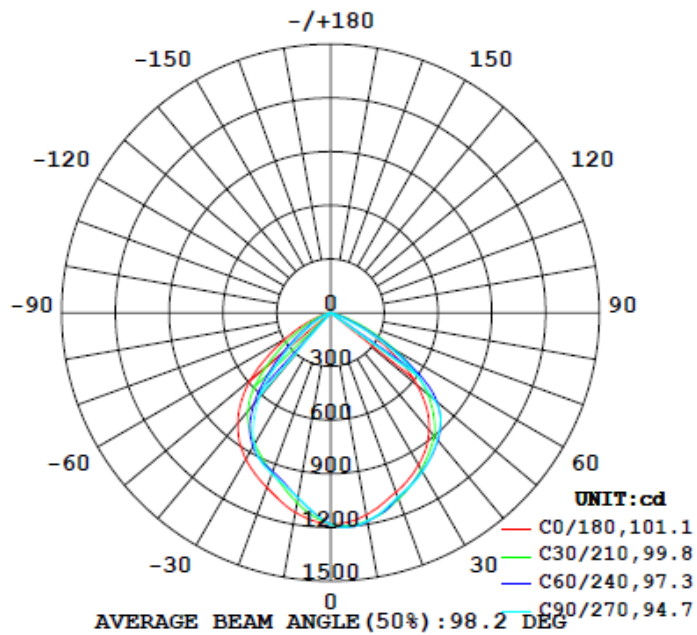
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.1722	20.39	0.9836

Goniophotometer Data:

Parameter	Results
Total Luminous (lm)	2505.64
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	122.91
Zonal Lumens Distribution (0-90°)	100%
Beam Angle (°)	98.2

Luminous Intensity Distribution Diagram:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

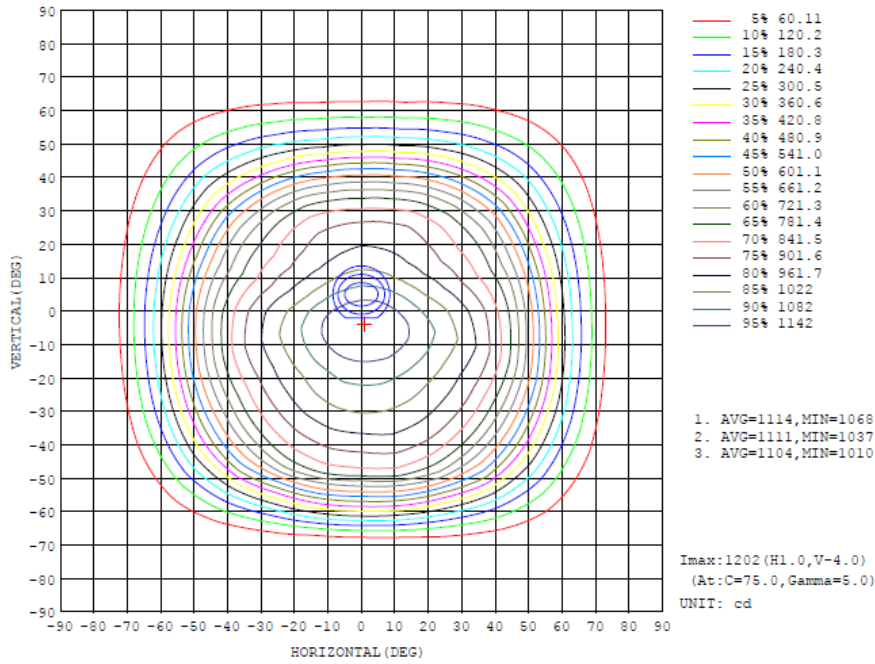


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	Flum, lamp
10	1147	1198	1182	1176	1123	1060	1050	1074	0- 10	109.8	109.8	4.38,4.38
20	1067	1109	1096	1083	1040	941.0	958.3	961.2	10- 20	304.1	413.9	16.5,16.5
30	982.0	1013	1026	983.5	945.4	856.4	851.5	885.6	20- 30	455.9	869.8	24.7,24.7
40	854.3	913.9	926.3	875.5	805.1	697.3	619.6	742.6	30- 40	549.4	1419	56.6,56.6
50	691.6	737.3	752.6	690.2	583.7	402.2	293.4	451.1	40- 50	585.9	1955	78.78
60	315.8	440.6	352.4	372.5	289.4	165.1	89.73	178.2	50- 60	375.3	2330	93.93
70	100.5	97.89	12.76	68.29	90.14	29.55	15.01	39.34	60- 70	150.4	2481	99.99
80	6.129	2.429	1.630	2.404	4.914	2.494	4.199	3.551	70- 80	23.46	2504	99.9,99.9
90	0	0	0	0	0	0	0	0	80- 90	1.319	2506	100,100
100	0	0	0	0	0	0	0	0	90-100	0	2506	100,100
110	0	0	0	0	0	0	0	0	100-110	0	2506	100,100
120	0	0	0	0	0	0	0	0	110-120	0	2506	100,100
130	0	0	0	0	0	0	0	0	120-130	0	2506	100,100
140	0	0	0	0	0	0	0	0	130-140	0	2506	100,100
150	0	0	0	0	0	0	0	0	140-150	0	2506	100,100
160	0	0	0	0	0	0	0	0	150-160	0	2506	100,100
170	0	0	0	0	0	0	0	0	160-170	0	2506	100,100
180	0	0	0	0	0	0	0	0	170-180	0	2506	100,100
DEG	LUMINOUS INTENSITY:cd Less than 95% Percent = 6.7 %									UNIT:lm		

Isocandela Diagram:



Luminous Distribution Intensity Data:

Table--1 UNIT: cd

r (DEG)	C (DEG)																			
	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	
0	1180	1179	1181	1179	1180	1180	1182	1180	1181	1181	1182	1182	1180	1179	1181	1179	1180	1180	1182	
5	1174	1185	1196	1200	1202	1202	1200	1198	1196	1193	1186	1176	1165	1149	1139	1126	1120	1116	1117	
10	1147	1169	1180	1188	1184	1183	1182	1179	1176	1176	1166	1155	1133	1103	1079	1060	1050	1045	1050	
15	1108	1138	1153	1151	1151	1146	1143	1141	1139	1135	1129	1116	1087	1043	1011	992	988	990	997	
20	1067	1102	1108	1109	1100	1102	1096	1096	1086	1083	1076	1070	1040	985	953	941	945	950	958	
25	1028	1065	1063	1057	1062	1063	1063	1059	1044	1029	1027	1026	996	933	899	900	913	915	918	
30	982	1021	1012	1013	1022	1026	1026	1019	1005	983	971	973	945	874	847	856	865	856	852	
35	928	970	958	967	980	987	978	973	958	934	916	918	886	810	790	791	785	759	750	
40	854	901	900	914	931	940	926	921	904	876	846	842	805	734	719	697	664	627	620	
45	760	810	815	842	869	882	867	864	840	795	756	741	707	641	613	557	506	460	453	
50	632	687	707	737	775	789	753	764	742	690	647	622	584	511	470	402	346	300	293	
55	471	542	575	609	608	590	557	568	550	558	516	478	432	370	333	270	218	181	173	
60	316	379	417	441	391	375	352	351	348	373	362	325	289	245	213	165	123	96.9	89.7	
65	192	235	256	242	196	163	142	147	162	196	212	196	175	145	121	88.7	61.7	43.0	39.0	
70	100	124	125	97.9	59.0	31.4	13.8	24.7	34.3	68.3	90.5	97.1	90.1	75.0	59.3	39.6	23.9	16.0	15.0	
75	38.3	47.1	37.8	22.9	7.33	5.71	5.35	5.29	5.70	9.20	21.2	29.6	34.1	28.9	23.3	10.2	6.89	6.15	6.01	
80	6.14	7.00	5.90	3.44	2.80	2.27	1.63	1.76	1.95	2.40	2.71	3.56	4.91	6.27	3.46	3.49	3.84	4.05	4.20	
85	0.95	0.53	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.18	0.53	1.04	1.33	1.47	1.72	2.05	2.39	2.65	
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Table--2 UNIT: cd

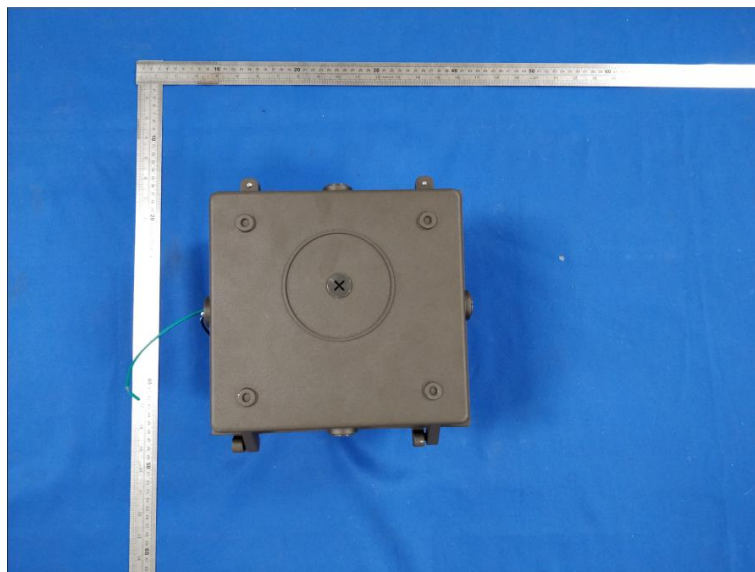
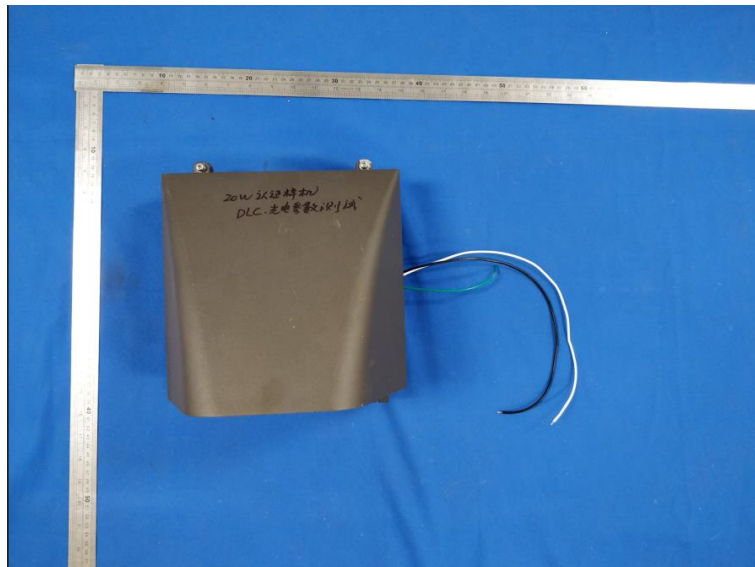
r (DEG)	C (DEG)																			
	285	300	315	330	345															
0	1180	1181	1181	1182	1182															
5	1118	1127	1135	1149	1162															
10	1050	1061	1074	1097	1121															
15	997	1002	1009	1034	1069															
20	958	961	961	977	1014															
25	926	928	922	930	966															
30	864	887	886	881	912															
35	771	809	830	830	853															
40	641	696	743	769	785															
45	479	545	615	674	697															
50	314	378	451	529	571															
55	187	236	302	369	412															
60	99.0	132	178	235	273															
65	43.8	64.3	91.8	130	163															
70	15.9	24.6	39.3	61.7	84.0															
75	6.33	7.24	11.1	23.8	32.0															
80	4.12	3.92	3.59	4.19	6.54															
85	2.49	2.18	1.86	1.65	1.42															
90	0.00	0.00	0.00	0.00	0.00															
95	0.00	0.00	0.00	0.00	0.00															
100	0.00	0.00	0.00	0.00	0.00															
105	0.00	0.00	0.00	0.00	0.00															
110	0.00	0.00	0.00	0.00	0.00															
115	0.00	0.00	0.00	0.00	0.00															
120	0.00	0.00	0.00	0.00	0.00															
125	0.00	0.00	0.00	0.00	0.00															
130	0.00	0.00	0.00	0.00	0.00															
135	0.00	0.00	0.00	0.00	0.00															
140	0.00	0.00	0.00	0.00	0.00															
145	0.00	0.00	0.00	0.00	0.00															
150	0.00	0.00	0.00	0.00	0.00															
155	0.00	0.00	0.00	0.00	0.00															
160	0.00	0.00	0.00	0.00	0.00															
165	0.00	0.00	0.00	0.00	0.00															
170	0.00	0.00	0.00	0.00	0.00															
175	0.00	0.00	0.00	0.00	0.00															
180	0.00	0.00	0.00	0.00	0.00															

THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
277.0	60	0.0861	21.19	0.8879	24.40

Photo of Sample:



Laboratory: Dongguan New Testing Centre Co., Ltd

Address: 3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China

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Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2017-11-18	2018-11-17
NTC-F01-006	2.0 meter Integrating Sphere	2017-11-18	2018-11-17
NTC-F01-012	Standard Lamp	2017-11-18	2018-11-17
NTC-F01-013	Standard Lamp	2017-11-18	2018-11-17
NTC-F01-031	Digital Power Meter	2017-11-18	2018-11-17
NTC-F01-019	Temperature & Humidity Meter	2017-11-23	2018-11-22