

## **LM-79-08 Test Report**

For

### **Atlantic LED Solutions, LLC**

**(Brand Name: N/A)**

16 REYNOLDS RD PEQUANNOCK, NJ 07440 USA

**Model name(s): IQ-4455MB  
IQ-4455M  
IQ-4455S**

**Report Type:** Testing and Report According to IES LM-79-2008

**Type of  
Luminaire:** LED Luminaire

**Report Date:** 2017-12-15

Ningbo TengLi Testing Co., Ltd

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Test & Report By:

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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.

<b>1.1 Product Information:</b>		
Model Number	IQ-4455MB, IQ-4455M, IQ-4455S	
Remark	N/A	
Representative (Tested) Model	IQ-4455MB	
Model Difference	IQ-4455MB is the Luminaire with battery and Microwave Sensor; IQ-4455M is the Luminaire with Microwave Sensor , without battery; IQ-4455S is the Luminaire without battery and Microwave Sensor	
SKU (if available)	465216	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaire	
LED Manufacturer	Shenzhen TongYiFang Optoelectronic Technology CO.,LTD	
LED Model	3030 1W White LED	
Dimming	--	
Sample Number	STD171238NB-A1(3000K)	
Date of Receipt	Dec.13, 2017	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

<b>1.2 Rated Values:</b>	
Rated Voltage / Frequency	120-277 Vac, 50/60 Hz
Nominal Power	23W
Rated Initial Lamp Lumen	--
Declared CCT	3000K

### 1.3 Test Specifications:

Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>
Reference Work Instruction	QD25

### 1.4 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  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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

<b>Test date</b>	2017-12-15	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	IQ-4455MB		

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD171238	120.0	60	0.1910	22.38	0.9763	9.51
NB-A1	277.0	60	0.0846	22.40	0.9556	11.23

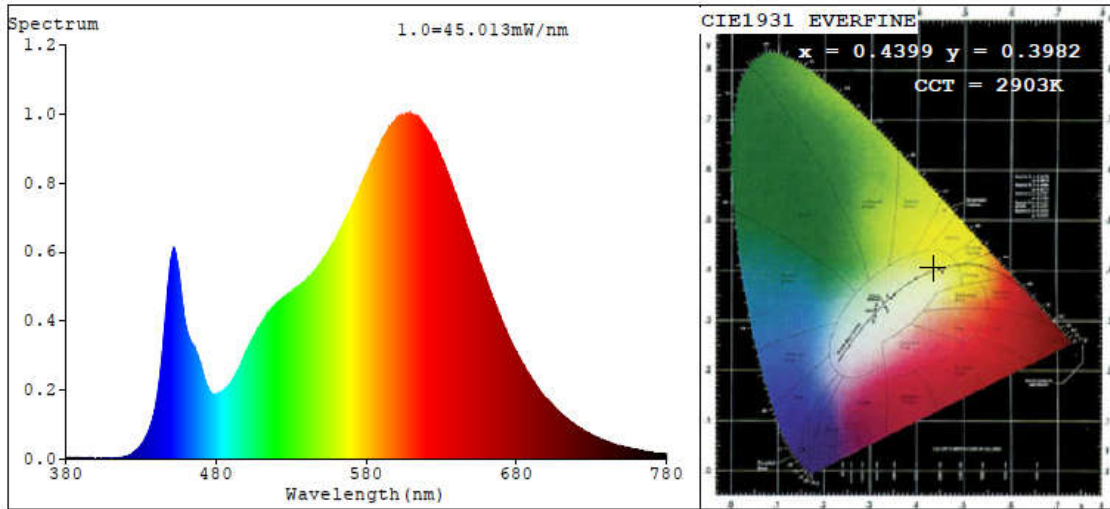
### Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	85	R9	21
Frequency (Hz)	60	R2	94	R10	87
CCT (K)	2903	R3	95	R11	84
Duv	-0.0027	R4	84	R12	77
Chromaticity (x, y)	x=0.4399 y=0.3982	R5	86	R13	88
Chromaticity (u', v')	u'=0.2551 v'=0.5195	R6	93	R14	98
Color Rendering Index (CRI)	85.5	R7	83	R15	79
R9	21	R8	64	--	--

### Photometric Measurement – Goniophotometer Method:

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	2284.0	2276.9
Luminous Efficacy (lm/W)	102.06	101.65
Beam Angle (°)	109.6	--
Center Beam Candle Power (cd)	764	--

**Spectral Power Distribution & Chromaticity Diagram**



**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	586.2	25.7%
0-40	953.5	41.7%
0-60	1,669.5	73.1%
60-90	547.1	24%
70-100	324.8	14.2%
90-120	64.4	2.8%
0-90	2,216.6	97.1%
90-180	67.2	2.9%
0-180	2,283.8	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	72.2	3.2%	90-100	44.8	2%
10-20	205.6	9.0%	100-110	15.2	0.7%
20-30	308.5	13.5%	110-120	4.4	0.2%
30-40	367.2	16.1%	120-130	1.1	0%
40-50	376.6	16.5%	130-140	0.5	0%
50-60	339.5	14.9%	140-150	0.4	0%
60-70	267.1	11.7%	150-160	0.4	0%
70-80	179.4	7.9%	160-170	0.3	0%
80-90	100.6	4.4%	170-180	0.1	0%

**Photometric Data**

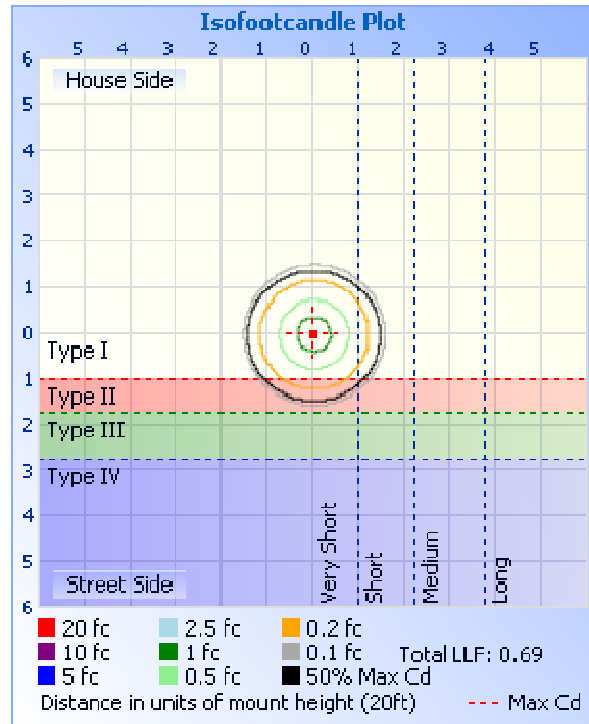
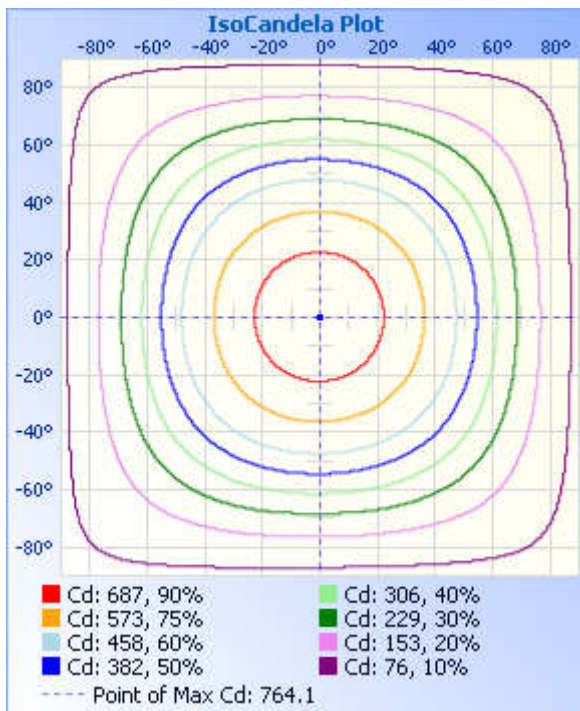
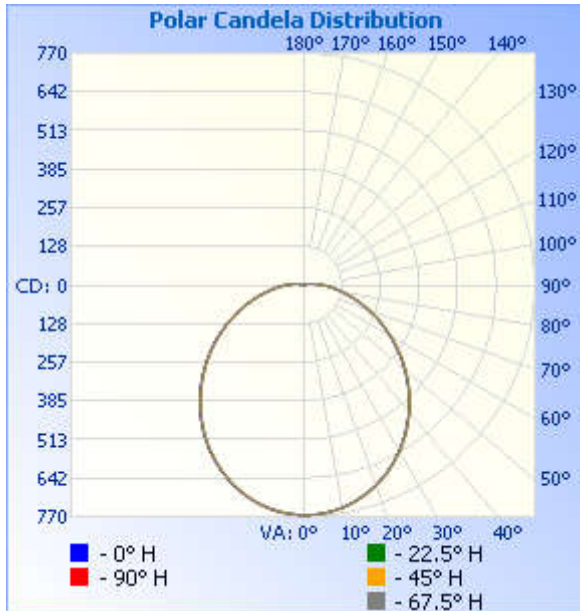




Table--1

UNIT: cd

C (DEG) γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
0	764	764	764	764	764	764	764	764	764	764	764	764	764	764	764	764	
5	759	759	760	761	761	761	762	761	761	760	760	759	759	758	758	758	
10	746	747	748	750	751	751	751	751	750	749	748	747	746	745	745	745	
15	726	727	729	731	732	733	733	733	732	730	729	727	725	724	724	725	
20	699	700	703	705	707	708	708	708	707	705	703	701	699	697	697	697	
25	665	667	670	672	675	676	677	676	675	673	670	667	665	663	663	663	
30	625	628	631	634	637	638	638	638	637	634	631	628	625	623	623	624	
35	581	584	587	590	593	595	596	595	594	591	588	584	581	579	579	579	
40	532	536	539	543	546	548	549	548	547	544	540	536	533	530	530	531	
45	481	484	488	492	495	497	498	497	496	493	488	485	481	479	478	480	
50	427	430	435	438	442	444	445	444	443	439	435	431	427	425	425	426	
55	372	376	380	384	387	389	390	389	388	384	380	375	372	370	370	371	
60	317	320	324	328	332	334	334	333	332	328	324	319	316	314	314	315	
65	262	266	270	274	277	279	279	278	277	273	269	265	261	260	260	261	
70	210	213	217	221	224	226	226	225	224	221	217	213	209	208	208	210	
75	163	165	169	173	176	177	177	176	176	172	169	165	162	161	161	163	
80	121	124	127	130	133	134	134	132	132	130	126	123	121	119	120	121	
85	86.7	88.5	91.0	93.9	96.1	96.9	96.6	95.4	95.7	93.6	91.1	88.2	86.1	85.3	85.7	86.9	
90	58.7	60.1	62.2	64.4	66.0	66.7	66.4	65.4	65.8	64.1	62.1	60.0	58.3	57.7	57.9	58.8	
95	37.3	38.4	39.9	41.6	42.8	43.2	43.0	42.3	42.7	41.4	40.0	38.5	37.3	36.8	37.0	37.6	
100	22.2	22.9	23.8	24.9	25.6	25.9	25.8	25.4	25.9	25.0	24.1	23.1	22.3	22.0	22.2	22.6	
105	12.6	12.9	13.5	14.1	14.6	14.6	14.6	14.4	14.8	14.3	13.7	13.1	11.6	12.5	12.5	12.9	
110	7.12	7.24	7.53	7.87	8.46	8.17	8.07	8.01	8.37	8.16	7.82	7.42	5.78	7.20	7.19	7.34	
115	4.14	4.18	4.24	4.49	4.88	4.63	4.52	4.54	4.77	4.67	4.44	4.19	3.32	3.37	3.40	4.17	
120	2.24	2.27	2.21	2.36	2.02	2.41	2.32	2.28	2.65	2.62	2.43	2.26	1.74	1.50	1.61	2.27	
125	1.26	1.15	1.04	1.15	0.98	1.12	1.09	1.18	1.36	1.47	1.28	1.06	0.63	0.68	0.85	1.39	
130	0.85	0.66	0.55	0.57	0.49	0.49	0.49	0.74	0.82	0.93	0.87	0.68	0.52	0.79	0.85	0.79	
135	0.74	0.52	0.33	0.36	0.33	0.35	0.35	0.55	0.85	0.93	0.90	0.66	0.71	0.93	0.90	0.79	
140	0.68	0.49	0.33	0.30	0.27	0.27	0.35	0.52	0.96	1.01	0.90	0.66	0.90	1.06	1.04	0.85	
145	0.68	0.49	0.33	0.36	0.33	0.27	0.35	0.52	1.17	1.15	0.90	0.74	1.04	1.20	1.09	0.87	
150	0.68	0.49	0.33	0.44	0.33	0.27	0.41	0.60	1.26	1.15	0.82	0.82	1.15	1.23	1.09	0.93	
155	0.74	0.60	0.60	0.68	0.36	0.27	0.44	0.74	1.23	1.15	0.71	0.96	1.15	1.23	1.15	1.07	
160	0.79	0.79	0.79	0.74	0.36	0.35	0.44	0.74	1.23	1.17	1.04	1.04	1.23	1.06	1.15	1.07	
165	1.20	0.98	1.12	0.82	0.38	0.38	0.44	0.71	1.20	1.17	1.18	1.15	1.23	1.06	1.15	1.20	
170	1.39	1.42	1.09	0.82	0.74	0.74	0.74	0.74	1.20	1.07	1.20	1.23	1.28	1.15	1.31	1.34	
175	1.61	1.26	1.09	0.96	0.82	0.82	0.74	1.04	1.15	1.07	1.20	1.39	1.45	1.34	1.39	1.34	
180	1.09	1.20	1.28	1.55	1.31	1.26	1.20	1.23	0.98	1.07	1.12	1.34	1.45	1.31	1.28	1.17	

### 3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-702	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-701	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
D204	Standard Lamp	2017-02-09	2018-02-08
ST-R-704	Power Meter for Integrating Sphere	2017-01-08	2018-01-07
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
D908S	Standard Lamp	2017-02-14	2018-02-13
ST-R-711	Power Meter for Goniophotometer	2017-01-08	2018-01-07
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			



**4. Product Photo**



**\*\*\*\*\* END OF REPORT \*\*\*\*\***