

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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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.

1.1 Product Information:		
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)	465219	
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	STD171205NB-A1(4000K)	
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

1.2 Rated Values:	
Rated Voltage / Frequency	120-277 Vac, 50/60 Hz
Nominal Power	23W
Rated Initial Lamp Lumen	--
Declared CCT	4000K

1.3 Test Specifications:

Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
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° vertical intervals and 22.5° 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

Test date	2017-12-14	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	IQ-4455MB		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD171205 NB-A1	120.0	60	0.1915	22.42	0.9761	10.54

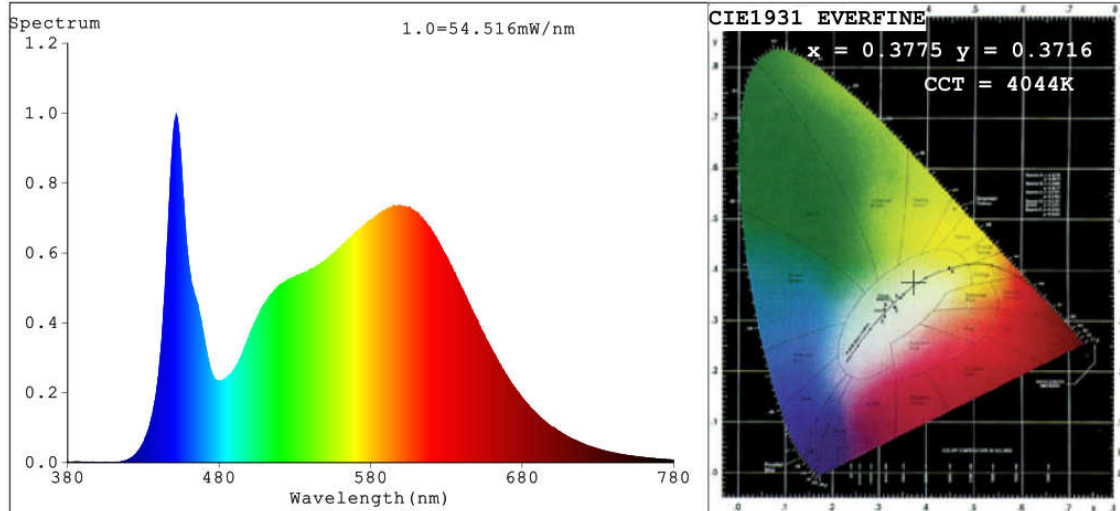
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	86	R9	26
Frequency (Hz)	60	R2	93	R10	82
CCT (K)	4044	R3	96	R11	86
Duv	-0.0016	R4	86	R12	64
Chromaticity (x, y)	x=0.3775 y=0.3716	R5	86	R13	88
Chromaticity (u', v')	u'=0.2252 v'=0.4988	R6	89	R14	98
Color Rendering Index (CRI)	86.7	R7	88	R15	81
R9	26	R8	70	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result	
Test Voltage (V)	120.0	--
Frequency (Hz)	60	--
Total Luminous (lm)	2438.3	--
Luminous Efficacy (lm/W)	108.77	--
Beam Angle (°)	110.0	--
Center Beam Candle Power (cd)	816	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	626.6	25.7%
0-40	1,019.8	41.8%
0-60	1,788.4	73.4%
60-90	589.7	24.2%
70-100	345.7	14.2%
90-120	57.5	2.4%
0-90	2,378.2	97.5%
90-180	60.0	2.5%
0-180	2,438.1	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	77.0	3.2%	90-100	43.4	1.8%
10-20	219.6	9.0%	100-110	11.0	0.5%
20-30	329.9	13.5%	110-120	3.1	0.1%
30-40	393.3	16.1%	120-130	1.0	0%
40-50	403.8	16.6%	130-140	0.4	0%
50-60	364.8	15.0%	140-150	0.4	0%
60-70	287.4	11.8%	150-160	0.3	0%
70-80	193.6	7.9%	160-170	0.3	0%
80-90	108.7	4.5%	170-180	0.1	0%

Photometric Data

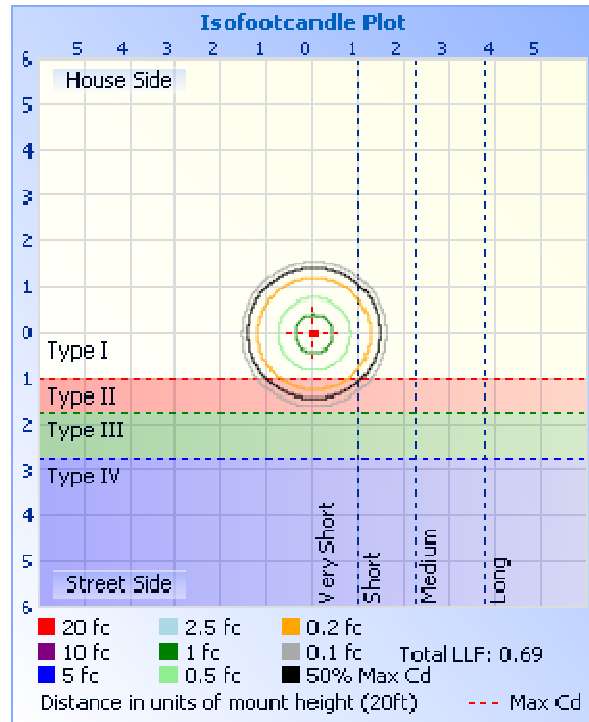
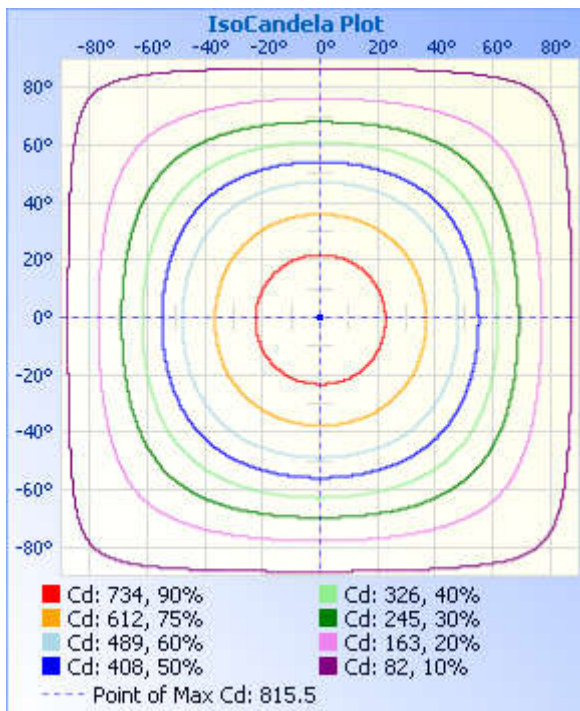
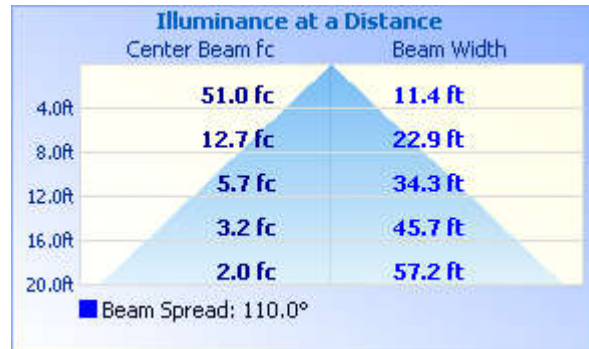
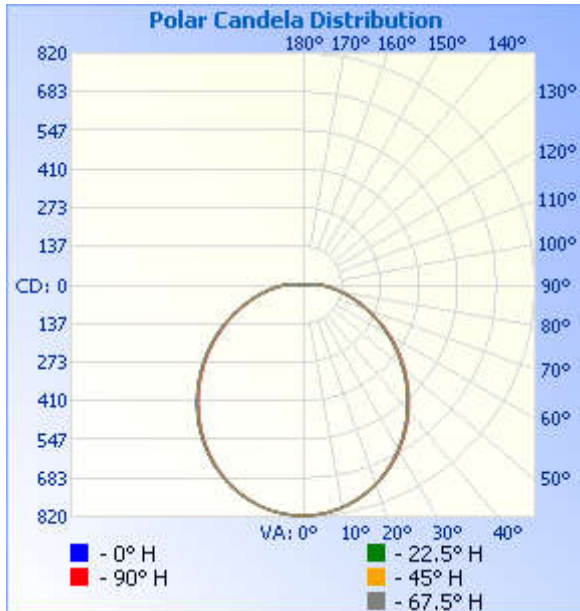


Table--1

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	816	816	816	816	816	816	816	816	816	816	816	816	816	816	816	816	
5	811	811	810	811	811	811	811	811	811	812	812	812	812	812	811	811	
10	798	798	797	798	797	798	799	799	800	800	800	801	800	800	799	799	
15	778	777	776	777	776	777	778	779	779	780	780	781	780	780	779	779	
20	750	749	748	748	748	749	750	751	752	753	753	754	753	753	752	750	
25	715	714	712	713	713	714	715	716	718	719	720	720	719	719	718	716	
30	674	672	671	671	671	673	673	675	677	679	679	679	679	678	677	675	
35	627	625	624	624	624	626	627	629	631	633	633	634	633	633	631	629	
40	575	574	573	573	573	574	576	578	580	582	583	583	583	582	580	578	
45	521	519	518	518	519	520	521	523	526	528	529	529	529	528	526	523	
50	463	462	461	461	462	463	464	466	470	471	472	472	472	471	469	466	
55	404	403	402	402	403	404	406	408	412	413	414	414	413	412	410	408	
60	344	344	343	343	344	345	347	349	353	354	354	354	354	352	350	348	
65	286	285	285	285	285	287	288	290	294	295	295	295	295	294	291	289	
70	229	229	229	229	229	231	232	234	238	239	239	239	238	237	235	233	
75	178	178	178	178	178	179	181	183	187	187	187	187	186	185	183	181	
80	133	133	133	133	133	134	136	137	141	141	141	141	140	140	138	136	
85	95.0	95.1	95.3	95.5	95.5	96.1	97.3	98.7	102	102	102	102	102	101	99.7	98.0	
90	64.6	64.5	64.6	64.8	64.9	65.4	66.2	67.3	69.8	70.0	70.0	69.8	69.5	69.2	68.2	67.0	
95	41.3	41.3	41.1	41.1	41.1	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	
100	24.5	23.2	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	
105	9.47	4.47	5.18	13.1	13.8	13.1	3.68	6.89	12.3	7.65	4.74	14.0	15.4	15.0	3.98	6.86	
110	0.14	0.76	6.14	7.54	7.98	7.24	5.86	0.70	0.24	0.97	6.71	7.67	8.91	8.25	5.05	0.32	
115	0.70	1.10	3.32	4.33	4.62	4.17	3.17	0.62	0.95	1.04	3.10	4.17	4.89	4.36	2.86	1.42	
120	2.57	2.06	1.69	2.27	1.92	2.11	1.63	1.87	2.83	2.02	1.56	2.10	2.72	2.15	1.62	2.40	
125	1.36	1.19	0.87	1.11	0.87	0.76	0.52	1.05	1.70	1.24	0.38	0.68	0.86	0.89	0.70	1.29	
130	0.81	0.73	0.59	0.62	0.65	0.41	0.32	0.54	0.76	0.70	0.35	0.38	0.76	0.65	0.59	0.78	
135	0.60	0.57	0.46	0.49	0.60	0.19	0.32	0.19	0.46	0.54	0.30	0.51	0.73	0.70	0.59	0.76	
140	0.57	0.54	0.43	0.49	0.57	0.32	0.32	0.14	0.65	0.84	0.30	0.51	0.73	0.84	0.73	0.84	
145	0.57	0.54	0.43	0.49	0.57	0.51	0.35	0.24	0.62	0.86	0.46	0.46	0.73	0.67	0.84	0.92	
150	0.57	0.54	0.54	0.49	0.81	0.73	0.24	0.51	0.51	0.78	0.49	0.79	0.57	0.59	1.14	0.97	
155	0.59	0.84	0.73	0.49	0.81	0.73	0.30	0.46	0.51	0.54	0.62	1.16	1.11	0.73	1.16	1.11	
160	1.03	0.84	0.78	0.38	0.43	0.51	0.67	0.57	0.73	0.73	1.03	1.22	1.22	1.06	0.92	1.22	
165	1.21	0.95	0.78	0.38	0.43	0.67	0.92	0.68	0.81	0.78	1.38	1.22	1.41	1.54	0.97	0.95	
170	0.97	0.95	0.81	0.78	1.07	0.70	0.70	0.49	0.78	0.78	0.81	0.89	1.62	1.51	1.30	0.92	
175	1.08	0.95	0.97	1.35	1.22	0.87	0.68	0.49	0.78	0.84	0.81	0.76	0.76	1.46	1.43	1.19	
180	1.24	1.22	1.05	0.93	0.78	0.84	1.39	1.35	1.27	1.24	1.21	1.05	0.87	0.78	0.81	1.11	

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 *******