

# Measurement Microphones

By George Petersen

These days, room measurement tools are easier to use and affordable — even built into digital consoles and smart phones, making what was once drudgery into a convenient and straightforward operation. While the software may be built into or included in your tools at hand (or readily available software packages), all you may need is a USB preamp/interface, a laptop and/or that iPad you've been using for wireless mix control and you're ready to go. Well, almost — as an uncolored omnidirectional microphone with a flat frequency response is a must for any serious analysis work. With that in mind, we checked out a few of the offerings and found a wide selection to suit any application or budget.

## iSEMcon



### EMX 7150 Measurement Mic

This 1/4" measurement microphone features a very accurate frequency response combined with the ability to measure sound pressure levels of up to 146 dB. It operates at standard 12 to 52 VDC phantom power available on most professional computer interfaces and mic preamplifiers. Powered from just 12 Volts (5 mA), the power-saving EMX-7150 is ideal for use with wireless transmitters, yet still provides a wide 135 dB SPL range.



The EMX-7150's mechanically robust design (with its stainless steel body and state of the art watertight Neutrik XLR connector) is well-suited for harsh environments, such as open-air sound reinforcement measurements. Each microphone comes with individual calibration data as proof of its superb performance.

#### FEATURES

- Frequency Range:** 10 Hz to 20k Hz
- Sensitivity:** > 6mV/Pa typ.
- Dynamic Range:** ~30 to >140 dB SPL
- Max SPL:** 146 dB typ. (@ 3% distortion with 48V of phantom power)
- Acoustic Port Diameter:** 1/4" (7mm)
- Dimensions:** 0.75" (19mm) diameter; 6" (152mm) length
- Weight:** 3 ounces (75 grams)
- Extras:** Calibration chart and calibration data files included; IEC 61672 Class 1 frequency response (note — not a Class 1 microphone)

#### TYPICAL APPLICATIONS

- Sound Power and Soundfield Analysis
- Industrial Acoustics
- Room Acoustics Analysis
- Sound Reinforcement
- Real Time Analyzing

**For more information, contact [www.isemcon.com](http://www.isemcon.com) or 1.877.309.1002**

### AudioControl CM-10

- Pattern:** Omnidirectional
- Frequency Response:** 20 Hz - 20 kHz ( $\pm 3$ dB)
- Max SPL:** 136 dB
- Sensitivity:** Not stated
- Self-Noise:** Not stated
- Powering:** 12 VDC phantom
- Termination:** XLR-M
- Notes:** Calibrated internal preamp
- Street Price:** \$121



[audiocontrol.com](http://audiocontrol.com)

### Audix TM-1

- Pattern:** Omnidirectional
- Frequency Response:** 20 Hz - 25 kHz ( $\pm 2$ dB)
- Max SPL:** 140 dB
- Sensitivity:** 6.5 mV/Pa
- Self-Noise:** 28 dBA
- Powering:** 18 - 52 VDC phantom
- Termination:** XLR-M
- Notes:** \$399 TM-1+ kit has windscreen, clip, calibration CD
- Street Price:** \$299



[audix-usa.com](http://audix-usa.com)

### beyerdynamic mm-1

- Pattern:** Omnidirectional
- Frequency Response:** 20 Hz - 20 kHz
- Max SPL:** 122 dB
- Sensitivity:** 15 mV/Pa
- Self-Noise:** 26 dBA
- Powering:** 12 - 48 VDC phantom
- Termination:** XLR-M
- Notes:** Includes individually measured frequency response curve
- Street Price:** \$199



[north-america.beyerdynamic.com](http://north-america.beyerdynamic.com)

### dbx RTA-M

- Pattern:** Omnidirectional
- Frequency Response:** 20 Hz - 20 kHz
- Max SPL:** 120 dB
- Sensitivity:** 0.7 mV/Pa
- Self-Noise:** Not stated
- Powering:** 9-52 VDC phantom
- Termination:** XLR-M
- Notes:** Designed for use with dbx DriveRacks
- Street Price:** \$99



[dbxpro.com](http://dbxpro.com)

### Earthworks M23

- Pattern:** Omnidirectional
- Frequency Response:** 9 Hz - 23 kHz ( $+1/-3$  dB)
- Max SPL:** 142 dB
- Sensitivity:** 34 mV/Pa
- Self-Noise:** 20 dBA
- Powering:** 48 VDC phantom
- Termination:** XLR-M
- Notes:** Includes printed frequency response chart
- Street Price:** \$499



[earthworksaudio.com](http://earthworksaudio.com)

### Goldline TEF04

- Pattern:** Omnidirectional
- Frequency Response:** 20 Hz - 20 kHz ( $\pm 1$ dB)
- Max SPL:** 123 dB
- Sensitivity:** 9.1 mV/Pa
- Self-Noise:** not stated
- Powering:** 12 - 48 VDC phantom
- Termination:** XLR-M
- Notes:** Designed for use with TEF systems
- Street Price:** \$386



[gold-line.com](http://gold-line.com)

Josephson C550H

**Pattern:** Omnidirectional  
**Frequency Response:** 20 Hz - 20 kHz ( $\pm 2$ dB)  
**Max SPL:** 135 dB  
**Sensitivity:** 10 mV/Pa  
**Self-Noise:** 30 dBA  
**Powering:** 15 - 48 VDC phantom (24-48 VDC preferred)  
**Termination:** XLR-M  
**Notes:** Higher-spec Model C617 also offered  
**Street Price:** \$440



josephson.com

MicW M416

**Pattern:** Omnidirectional  
**Frequency Response:** 20 Hz - 20 kHz ( $\pm 3$ dB)  
**Max SPL:** 130 dB  
**Sensitivity:** 30 mV/Pa  
**Self-Noise:** 30 dBA  
**Powering:** 48 VDC phantom  
**Termination:** XLR-M  
**Notes:** 1/4" capsule  
**Street Price:** \$239



mic-w.com

NTI Audio M4261

**Pattern:** Omnidirectional  
**Frequency Response:** 5 Hz - 20 kHz  
**Max SPL:** 142 dB  
**Sensitivity:** 16 mV/Pa  
**Self-Noise:** 27 dBA  
**Powering:** 48 VDC phantom  
**Termination:** XLR-M  
**Notes:** 1/4" capsule  
**Street Price:** \$510



nti-audio.com

PCB 376A31

**Pattern:** Omnidirectional  
**Frequency Response:** 5 Hz - 80 kHz ( $\pm 2$ dB)  
**Max SPL:** 165 dB  
**Sensitivity:** 2.0 mV/Pa  
**Self-Noise:** 40 dBA  
**Powering:** 48 VDC phantom  
**Termination:** XLR-M  
**Notes:** Stainless steel alloy body  
**Street Price:** \$1,290



pcb.com

Peavey PVR 2

**Pattern:** Omnidirectional  
**Frequency Response:** 20 Hz - 20 kHz ( $\pm 3$ dB)  
**Max SPL:** 132 dB  
**Sensitivity:** 14 mV/Pa  
**Self-Noise:** Not stated  
**Powering:** 9 - 52 VDC phantom  
**Termination:** XLR-M  
**Notes:** 1/4" capsule  
**Street Price:** \$149



peavey.com

PreSonus PRM1

**Pattern:** Omnidirectional  
**Frequency Response:** 20 Hz - 20 kHz  
**Max SPL:** 132 dB  
**Sensitivity:** 14 mV/Pa  
**Self-Noise:** 26 dBA  
**Powering:** 9 - 52 VDC phantom  
**Termination:** XLR-M  
**Notes:** Recommended for use with PreSonus StudioLive mixers  
**Street Price:** \$99



presonus.com

Sonarworks XREF20

**Pattern:** Omnidirectional  
**Frequency Response:** 20 Hz - 20 kHz  
**Max SPL:** 132 dB  
**Sensitivity:** 14 mV/Pa  
**Self-Noise:** 24 dBA  
**Powering:** 48 VDC phantom  
**Termination:** XLR-M  
**Notes:** Includes calibration curves  
**Street Price:** \$69



sonarworks.com

Studio Six Digital iTestMic 2

**Pattern:** Omnidirectional  
**Frequency Response:** 20 Hz - 20 kHz ( $\pm 3$ dB)  
**Max SPL:** Switchable 26-96 and 48-120 dBA  
**Sensitivity:** n/a  
**Self-Noise:** Not stated  
**Powering:** Via iOS device  
**Termination:** Apple iOS Lightning port  
**Notes:** Designed to interface with Apple iPad/iPhone models  
**Street Price:** \$199



studiosixdigital.com

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Column Arrays

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