



# 1/2" Random Incidence, High Frequency, High Amplitude, Prepolarized Microphone

Model 377A21 is a prepolarized microphone for diffuse field applications to measure beyond the human hearing range and where a wide range of frequencies or higher amplitudes are required



Model 377A21



Microphone & preamplifier system (Model 378A21)

## Applications

- Cabin noise (automobile and aircraft)
- Environmental noise
- White goods testing
- Room acoustics
- General, mid to high, amplitude noise measurements
- General, mid to high, frequency measurements

## Highlights

- Measures beyond the full human hearing range. (industry exclusive)
- High frequency capability to 25 kHz (+/- 2 dB)
- High amplitude 3% distortion rating of 160dB
- ICP® sensor design for ease of use
- Uses low cost standard coaxial cables
- Can be used simultaneously with ICP® accelerometer set-ups and tests
- A2LA / ILAC – MRA accredited

## Use of model 377A21 random incidence microphone

The 377A21 is an industry exclusive 1/2" random incidence response microphone designed to measure beyond 20kHz, the maximum frequency of the human hearing range. The 377A21 has a flat response in diffuse field applications where high frequencies need to be measured very accurately in the presence of acoustic reflections. It avoids overload seen when a standard high sensitivity (50 mV/Pa) microphone measures over 136 dB. The 377A21 has the ability to measure to 25 kHz (±2 dB) and to 160 dB in a cost effective 1/2" package, while maintaining a 19 dBA noise floor.

Acoustic pressure waves may be altered by objects in the sound field including the microphone used to measure it. To correct for this effect, the 377A21 random incidence microphone is calibrated to compensate for its presence. This provides more accurate measurements within a diffuse field.

## ICP® (0V Polarization)

PCB® is the inventor of ICP® sensor power technology. Model 377A21 operates on this same ICP® sensor power or 2-20 mA constant current supply. Prepolarized microphones use standard coaxial cables and are ICP® compliant, allowing power supplies to be shared with other ICP® compliant products such as accelerometers, pressure sensors, etc. This interchangeability can result in a significant per-channel cost savings as well as reduce test set-up time.

## PCB® Quality Commitment

PCB Piezotronics acoustic products are used by some of the world's largest automotive, aerospace & defense, electronic, and consumer goods manufacturers. PCB® uses only the highest quality material and components for its microphones. While other manufacturers outsource their manufacturing, PCB® has invested heavily in on-going employee training and a state of the art, in-house CNC machining facility. This allows us to control factors that affect quality and delivery. PCB® has also invested in a clean room, anechoic room, and environmental test chambers to test and provide quality products. Our rigorous environmental testing and aging process ensures that our products will survive in demanding temperature or humidity conditions.

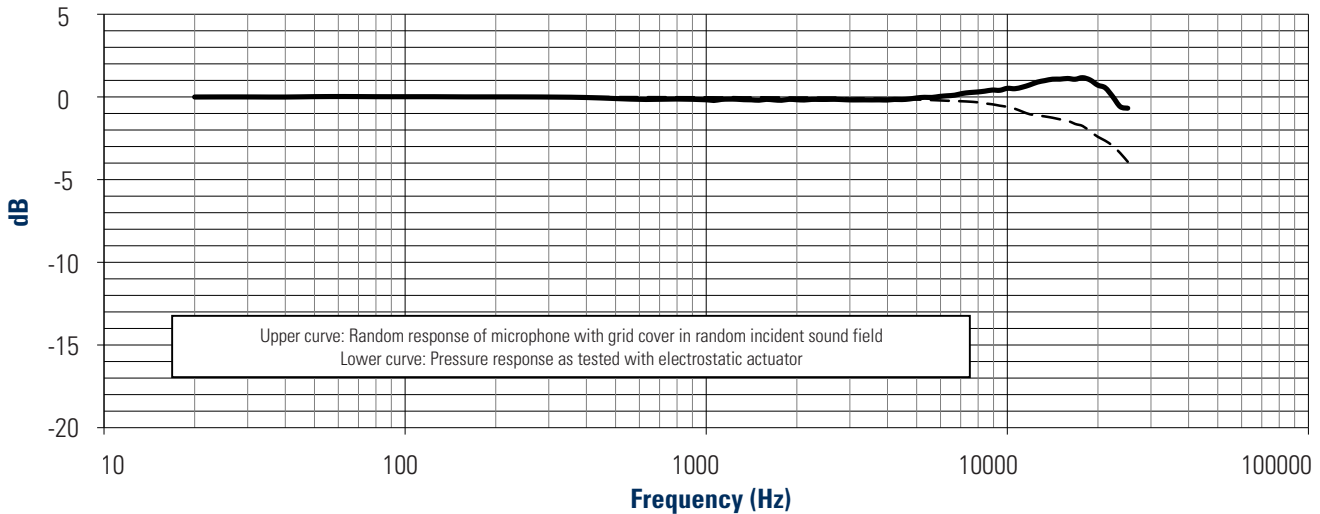
Model 377A21 microphone is backed by a best in class 5-year warranty and our "Total Customer Satisfaction" (TCS) policy. Application support is available through our 24-Hour SensorLine<sup>SM</sup> at 716-684-0001.



MTS SYSTEMS CORPORATION



Frequency Response (0 dB @ 251.2 Hz)



Specifications - 1/2" Random Incidence Microphone Model 377A21	
<b>Acoustic</b>	
Nominal Microphone Diameter	1/2" (12mm)
Response Field Type	Diffuse Field
Polarization Voltage	0V (prepolarized)
Open Circuit Sensitivity (at 250 Hz)	12.6 mV/Pa
Frequency Range ( $\pm 2$ dB)	4 to 25,000 Hz
Distortion Limit (3% distortion)	160 dB
Distortion Limit with 426E01 Preamp (typical)	147 dB
Cartridge Thermal Noise	19 dB(A)
Inherent Noise with 426E01 Preamp	22 dB(A)
<b>Environmental</b>	
Operating Temperature Range	-40 to 248 °F (-40 to 120 °C)
Operating Temp with 426E01 Preamp	-40 to 176 °F (-40 to 80 °C)
Operating Temp with HT426E01 Preamp	-40 to 248 °F (-40 to 120 °C)
<b>Physical</b>	
Size (Diameter x Height (with grid))	0.52" x 0.50" (13.2 x 12.7mm)

**TEDS Microphone & Preamp Combinations:**

- **378A21** and **HT378A21** – TEDS programmed to the IEEE 1451.4 standard for SMART transducers, V 1.0 format

- Optional accessories:**
- 426A13 – low profile short preamplifier
  - 079A06 – 1/2" microphone windscreen
  - 079A11 – 1/2" microphone holder
  - 079A15 – tripod microphone stand with boom arm
  - 079A16 – miniature microphone stand
  - 079A18 – clamp on flexible extension arm
  - 079B21 – 1/2" nose cone for wind tunnel testing
  - 079B23 – microphone holder with swivel mount
  - 079A42 – 1/2" right angle adapter
  - 079A44 – extension arm for flexible clamp
  - CAL200 – handheld calibrator
  - CAL250 – handheld calibrator
  - ACS-20 – microphone calibration
  - ACS-42 – microphone and preamplifier system calibration



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**PCB Piezotronics, Inc.** is a global manufacturer of vibration, pressure, force, torque, load, strain sensors and microphones, as well as the pioneer of ICP<sup>®</sup> technology. This instrumentation is used for test, measurement, monitoring, and control requirements in automotive, aerospace, industrial, R&D, military, educational, commercial, OEM applications, and more. With a customer support team of more than 30 Customer Service Representatives and Application Engineers, PCB proudly stands behind their products with the services you value most, including 24-hour technical support, a global distribution network, a best in class warranty and **Total Customer Satisfaction**. Our Platinum Products program is one way PCB ensures fast delivery with over 10000 sensors in stock and covered by a Lifetime Warranty. Visit us at [www.pcb.com](http://www.pcb.com) for more details, including our Terms and Conditions.

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