

OMNIDIRECTIONAL DYNAMIC ANALYZER MICROPHONE FOR SOUND SYSTEM EQUALIZATION

GENERAL

The Shure Model ES615 Omnidirectional Dynamic Analyzer Microphone is specifically designed for equalization applications in conjunction with devices such as the Shure Model M615 Equalization Analyzer. The ES615 is a probe-configuration microphone, offering extremely broad, flat frequency response with a controlled low-frequency rolloff characteristic. Its response is characterized specifically for use in pink-noise-excited octave and one-third octave analyzer systems. When used with the M615 or other equalization analyzers, the ES615 provides the microphone characteristics necessary for room or system equalization.

The ES615 is designed for low-impedance operation (25 to 200 ohms). This is recommended for instrumentation applications where long cable lengths are required, to avoid excessive high-frequency loss and hum pickup. The ES615 may be converted to high impedance using a Shure A95 Series Line Matching Transformer.

The ES615 has a satin-chrome steel case and stainless steel grille. It is equipped with a male three-pin professional connector, and provided with a microphone swivel adapter, and 15m (50 ft) microphone cable.

Model ES615 Features:

- Broad, flat frequency response with controlled low-frequency rolloff for use in equalization analyzer systems (see Figure 1)
- Specified one-third octave pink noise frequency response envelope (see Figure 2)
- Omnidirectional polar pattern with controlled diffuse-field frequency response required for proper equalization
- Slender, lightweight probe configuration for minimum sound field disturbance
- Rugged — will withstand years of normal handling without deviating from original standards
- Dependable — no need for special handling often required for delicate instrumentation microphones

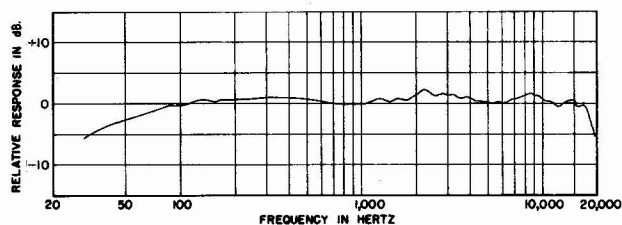
SPECIFICATIONS

Type

Dynamic

Sine-Wave Frequency Response

30 to 20,000 Hz (see Figure 1)



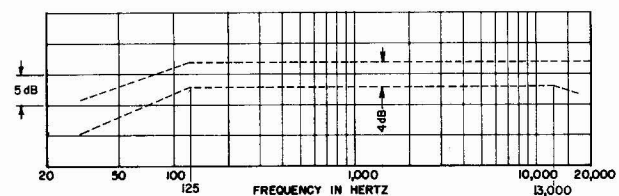
TYPICAL SINE-WAVE FREQUENCY RESPONSE

FIGURE 1



Pink Noise Frequency Response Envelope

Characterized from 30 to 20,000 Hz (one-third octave bandwidth) (see Figure 2)

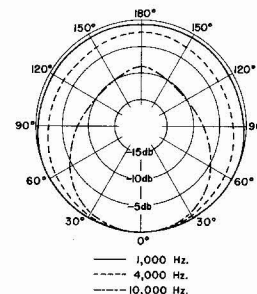


ONE-THIRD OCTAVE PINK NOISE
FREQUENCY RESPONSE ENVELOPE

FIGURE 2

Polar Pattern

Omnidirectional, with controlled diffuse-field response (see Figure 3)



POLAR PATTERN

FIGURE 3

Impedance

Microphone rating impedance is 38 ohms (50 ohms actual) for connection to microphone inputs rated at 25 to 200 ohms

Output Level (at 1,000 Hz)

Open Circuit Voltage

(at 74 dB SPL) -88.0 dB (0.040 mV)

(0 dB = 1 volt per microbar)

Power Level -61.0 dB

(0 dB = 1 milliwatt with 10 microbars)

Hum Sensitivity

35 dB equivalent SPL in a 1 millioersted field

Phasing

Positive pressure on diaphragm produces positive voltage on pin 2 of plug element

Cable

15m (50 ft) two-conductor shielded, detachable with male and female three-pin professional audio connectors.*

Swivel Adapter

Positive action, adjustable through 90° from vertical to horizontal, permits easy removal for hand-held use, suitable for mounting on stand with 5/8"-27 thread

Operating Temperature Range

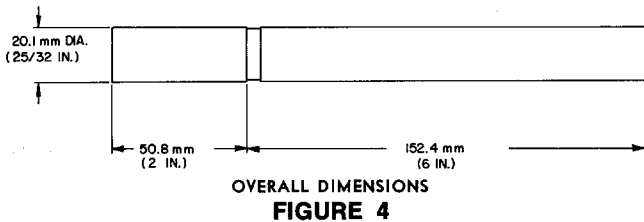
-29° to 74°C (-20° to 165°F)

Case

Satin-chrome steel with stainless steel grille

Dimensions

See Figure 4



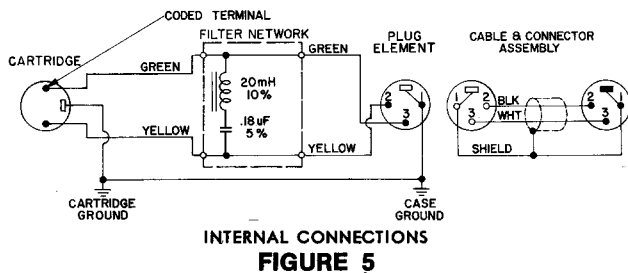
Weight

Net: 218 grams (8 oz)

Combined Net: 764 grams (1 lb, 11 oz)

Packaged: 984 grams (2 lb, 3 oz)

* Designed to mate with Cannon XL series, Switchcraft A3 (Q.G.) series or equivalent connector

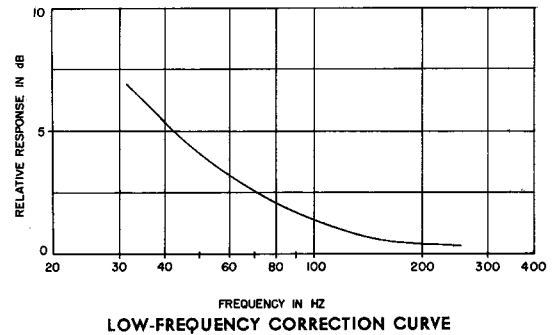


USE WITH OTHER ANALYZERS

The ES615 Analyzer Microphone may be used with virtually any equalization analyzer. It is important to note, however, that compensation must be made for the ES615's controlled low-frequency rolloff. Figure 6 and the following table indicate the dB correction to be added to a measured response curve (provision for this compensation is included in the Shure M615 Equalization Analyzer).

Correction (dB):	7	5.5	4	3	2	1.5	1	0.5
Frequency (Hz):	32	40	50	63	80	100	125	160

Compensation is not required for frequencies above 160 Hz; the remainder of the frequency response curve is essentially flat.



Certain other specific corrections may be made for ES615 operation with other analyzers. The White Model 140 Sound Analyzer is factory-calibrated for a microphone with a sensitivity of 0.13 mV/μb. The ES615 is approximately 10 dB less sensitive; therefore, 10 dB should be subtracted from the Model 140 dB SPL readings.

When using the ES615 with the Dukane Model 99A600 Audio Spectrum Analyzer, Communications Company ARA-412 Acoustic Response Analyzer, or Altec (H-P) Model 8050A Real Time Audio Analyzer, it is recommended that a Shure M67 Microphone Mixer or equivalent device be used as a preamplifier between the ES615 and the analyzer due to the low input sensitivity of these units. NOTE: The Altec 8050A microphone input is at a 130-volt potential for powering a condenser microphone; using this input it is possible to permanently damage the ES615. Connect the M67 output to the Altec 8050A direct input through an appropriate adapter.

ARCHITECTS' SPECIFICATIONS

The microphone shall be the Shure Model ES615 or equivalent. The microphone shall be a moving coil (dynamic) type with a frequency response of 30 to 20,000 Hz. The microphone response shall be characterized specifically for use in pink-noise-excited analyzer systems. The unit shall have an omnidirectional polar characteristic. The microphone shall have a rated impedance of 38 ohms for connection to microphone inputs rated at 25 to 200 ohms. The microphone output shall be -61.0 dB where 0 dB = 1 milliwatt with 10 microbars.

The microphone shall be provided with a swivel adapter adjustable through 90° from vertical to horizontal and a 15m (50 ft) two-conductor shielded cable equipped with male and female three-pin professional audio connectors designed to mate with Cannon XL series, Switchcraft A3 (Q.G.) series, or equivalent connectors. The microphone swivel adapter shall mount on a stand having a 5/8"-27 thread.

The overall dimensions shall be 203 mm (8 in.) in length and 20.1 mm (25/32 in.) in diameter.

FURNISHED ACCESSORY

Swivel AdapterA57D

OPTIONAL ACCESSORIES

WindscreenA2WS
Line Matching TransformerA95 Series

REPLACEMENT PARTS

Cartridge Assembly90C994*
Case Assembly90A2675
CableC52CN
Plug ElementRK152P

* Includes Screen and Grille Assembly

GUARANTEE

This Shure product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from the date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor.

SHIPPING INSTRUCTIONS

Carefully repack the unit and return it prepaid to the factory. If outside the United States, return the unit to your dealer or Authorized Shure Service Center for repair. The unit will be returned to you prepaid.