

2.9 31629 MICROPHONES

1. Introduction

- 1.1 Pickup Patterns
- 1.2 Omnidirectional Microphones
- 1.3 Bidirectional Microphones
- 1.4 Unidirectional Microphones
- 1.5 Proximity Effects

2. Types of Transducers

- 2.1 Carbon Microphones
- 2.2 Crystal and Ceramic Microphones
- 2.3 Dynamic Microphones
- 2.4 Unidirectional Microphones
- 2.5 Capacitor Microphones
- 2.6 Voltage Divider Capacitor Microphone
- 2.7 Phantom Power for Capacitor Microphones
- 2.8 Capacitor Radio-Frequency, Frequency- Modulated Microphones
- 2.9 Electret Microphones.

3. Microphone Sensitivity

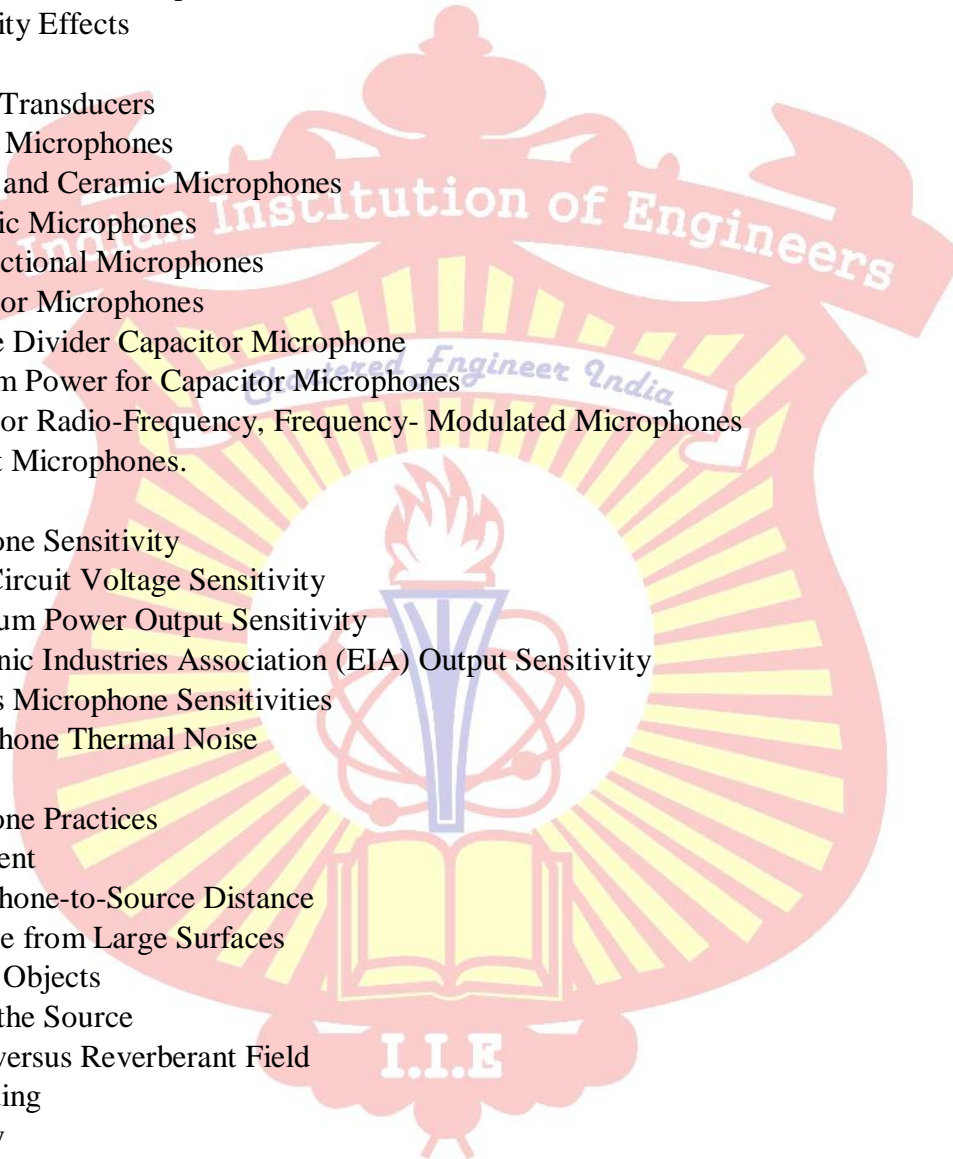
- 3.1 Open-Circuit Voltage Sensitivity
- 3.2 Maximum Power Output Sensitivity
- 3.3 Electronic Industries Association (EIA) Output Sensitivity
- 3.4 Various Microphone Sensitivities
- 3.5 Microphone Thermal Noise


4. Microphone Practices

- 4.1 Placement
- 4.2 Microphone-to-Source Distance
- 4.3 Distance from Large Surfaces
- 4.4 Behind Objects
- 4.5 Above the Source
- 4.6 Direct versus Reverberant Field
- 4.7 Grounding
- 4.8 Polarity
- 4.9 Balanced or Unbalanced
- 4.10 Impedance

5. Miscellaneous Microphones

- 5.1 Pressure Zone Microphones (PZM)
- 5.2 Phase Coherent Cardioid (PCC)
- 5.3 Directivity



- 
- 5.4 Lavalier Microphones
 - 5.5 Head-Worn Microphones
 - 5.6 Base Station Microphones
 - 5.7 Differential Noise-Canceling Microphones
 - 5.8 Controlled-Reluctance Microphones
 - 5.9 Handheld Entertainer Microphones
 - 5.10 Pressure-Gradient Condenser Microphones
 - 5.11 Interference Tube Microphone
 - 5.12 Rifle Microphones
 - 5.13 Parabolic Microphones
 - 5.14 Zoom Microphones
 - 5.15 Distance Factor
 - 5.16 Operation of Zoom Microphones
 - 5.17 Zoom Microphone Video Camera Linkage
 - 5.18 Automatic Microphone Systems
 - 5.19 PolarFlex[®] Microphone System
- 6. Stereo Microphones**
- 6.1 Coincident Microphones
 - 6.2 XY Stereo Technique
 - 6.3 The ORTF Technique
 - 6.4 The M/S Stereo Technique
 - 6.5 The Stereo Boom Microphone
 - 6.6 SASS Microphones
 - 6.7 Surround Sound Microphone System
 - 6.8 Schoeps 5.1 Surround System
 - 6.9 Holophone[®] H2-PRO Surround Sound System
 - 6.10 Holophone H4 Super MINI Surround Sound System
- 7. Microphones for Binaural Recording**
- 7.1 Artificial Head Systems
 - 7.2 In the Ear Recording Microphones¹⁸
- 8. USB Microphones**
- 9. Wireless Communication Systems**
- 9.1 Criteria for Selecting a Wireless Microphone
 - 9.2 Frequency Bands of Operation
 - 9.3 Adjustment of the System's Operating Frequency
 - 9.4 Capture Ratio and Muting
 - 9.5 RF Power Output and Receiver Sensitivity
 - 9.6 Frequency Response, Dynamic Range, and Distortion
 - 9.7 Receiving Antenna Systems

- 9.8 Antenna Placement
- 9.9 Companding
- 9.10 Waterproof Wireless Microphone Systems

10. Multichannel Wireless Microphone and Monitoring Systems

- 10.1 Frequencies
- 10.2 Spacing
- 10.3 Frequency Deviation
- 10.4 Frequency Coordination

11. Transmitter Considerations

- 11.1 Range and RF Power
- 11.2 Dc-to-Dc Converter
- 11.3 Audio Processing
- 11.4 Transmitter Antenna

12. Receiver Considerations

13. RF Signal Level

14. Antennas

- 14.1 Antenna Cables and Related Systems
- 14.2 Splitter Systems

15. Wireless Monitor Systems

- 15.1 System Planning for Multichannel Wireless Systems
- 15.2 Future Considerations: Digital Wireless Transmission
- 15.3 Starting with Sound and the Related Data Rate

16. Microphone Accessories

- 16.1 Inline Microphone Processors
- 16.2 Sabine Phantom Mic Rider Pro Series 3
- 16.3 Sabine Phantom Mic Rider Pro Series 2
- 16.4 Sabine Phantom Mic Rider Series 1
- 16.5 Lectrosonics UH400A Plug-On Transmitter
- 16.6 MXL Mic Mate™ USB Adapter
- 16.7 Windscreens and Pop Filters
- 16.8 Wind Noise Reduction Figures for Rycote Windshielding
- 16.9 Reflexion Filter
- 16.10 Shock Mounts
- 16.11 Stands and Booms
- 16.12 Attenuators and Equalizers
- 16.13 Microphone Techniques
- 16.14 Stereo mixing Techniques

- 16.15 Microphone Choice
- 16.16 Microphone Characteristics
- 16.17 Directional Pattern

17. Specific Mixing Techniques

- 17.1 Musicians
- 17.2 Drums
- 17.3 Piano
- 17.4 Vocals
- 17.5 Singers
- 17.6 Group Vocals
- 17.7 Lectern Microphones
- 17.8 Strings
- 17.9 Horns
- 17.10 Woodwinds
- 17.11 Electric Instruments
- 17.12 Percussion

Reference Books:

1. A.M. Wiggins, "Unidirectional Microphone Utilizing a Variable Distance between the Front and Back of the Diaphragm," ASA, Vol. 26, no. 5, September 1954. (Parts copied with permission.)
2. R. Schulein, Shure Incorporated, "Development Consideration of a Versatile Professional Unidirectional Microphone," Journal of the AES, Vol. 18, no. 1, p. 44, February 1970. (Parts copied with permission.)

