MICROPHONES

Much of the information here was obtained from the Sennheiser microphones 48070 and friendly assistance from one of their personnel at Sennheiser Electronic Corp., 10 West 37 Street, New York 10036, Tel. L10437.

The purpose of a DIRECTIONAL microphone is to suppress unwanted sounds. The Directivity is a measure of the relative sensitivity of a microphone for sound approaching it at varying angles. The response pattern varies with frequency. The directivity index is related to the acoustical power, and the acoustical power decreases as the square of the speaking distance.

A CONDENSER or CAPACITOR microphone has two main parts: (1) a capacitor element which receives sound waves and transmits to a coil, (2) oscillator circuit which produces high frequency. Audio is transformed to high frequency to amplifier then to another amplifier. Needs current and has a wide frequency range. It has a thin, tightly stretched diaphragm that moves outside the major part of the audio spectrum so that no major frequency is given a boost.

An OMIDIRECTIONAL microphone picks up sound from all directions. Uses: Conference, Record Music, Choir or Orchestra. However, it may pick up unwanted sounds in some locations.

The UNIDIRECTIONAL microphone is more sensitive to sound from certain directions. Uses: Public Address, Sight Sound. It can minimize the pickup of background noise and reinforce sound.

The CARDIOID microphone has the acceptance pattern of a kidney and picks up direct, not too distant, sounds. It has a maximum sensitivity in the forward direction with a minimum pick-up of random sounds reflected from the walls of a room. Uses: Pooping short distance, reduced sound diffusion.

HIGH FIDELITY results mainly from two factors. (1) Range of frequency response. Linearly should encompass the whole audio frequency band—at least 50 to 15,000 Hertz. (2) Smoothness with which the microphone reproduces the various tones.

The purpose of a WINDSCREEN is to lower the microphone’s wind susceptibility and, in some cases, its pop susceptibility. Wind blowing over a microphone may produce a brawling noise. A foam-rubber or foam-plastic windscreen will usually reduce this rumble considerably.

PROXIMITY EFFECT When the sound source is within two feet or two inches, the direct sound plus the reflected sound may be boosted to a depth effect. Unidirectional microphones often have that characteristic, while omnidirectional microphones do not.

CRISPNESS EFFECT A high frequency response that is undesirable for fidelity in recording music, but for speech it can be a virtue because much lack of speech intelligibility in noisy situations is due to relatively weak high frequency components in sidellites and other consonant sounds. Wind blowing over a microphone may produce a brawling sound that can be very undesirable, especially if you have an audio system that reproduces low bass well.

POP Certain consonant sounds such as "p," "ch" and "k," when spoken close to some microphones, produce a brawling sound. HUM can be produced by nearby power lines, by transformers and by some kinds of electronic equipment.

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Some of the most common sources and noise from the from of Sound and to beyond the threshold of sound.