The D-222EB is a refined, physically scaled-down version of the classic D-202E, and succeeds it as the most versatile member of AKG's unique family of two-way cardioid dynamic microphones. A superb speech, instrumental, choral, orchestral or flat (non-bass-boost) vocal mic, the D-222EB couples extended range and low distortion with an almost theoretically perfect cardioid pattern and no proximity effect. The microphone also features switchable bass rolloff, internal shock suspension and easy-to-service modular construction. These combined traits make the D-222EB equally at home in the best or worst acoustic environments likely to be encountered in recording, broadcasting, sound reinforcement and film/video tape production - either indoors or outdoors, whether hand-held or stand/boom/lectern-mounted.

The microphone is the product of an intensive AKG research program that has succeeded in finding a way to transcend the performance limitations of conventional cardioid designs. It employs two, coaxially mounted, dynamic transducers: one designed for optimum performance at high frequencies, placed closest to the front grille and facing forward; the other designed for optimum performance at low frequencies, placed behind the first and facing rearward. The low-frequency transducer incorporates a hum-bucking winding to cancel the effects of stray magnetic fields. Both transducers are coupled to a 500-Hz inductive-capacitive-resistive crossover network that is electroacoustically phase corrected and factory-preset for most linear off-axis response. (This is essentially the same design technique used in a modern two-way speaker system, but applied in reverse.)

As a result, the D-222EB exhibits several outstanding characteristics that make it vastly superior to conventional cardioid dynamic microphones for its intended applications: (1) an exceptionally smooth and wide-range on-axis frequency response - resembling that of a condenser microphone at frequencies up to 14 kHz; (2) a predominantly frequency-independent directional pattern - producing more linear frequency response at the sides of the microphone and far more constant discrimination at the rear of the microphone; (3) a total absence of proximity effect at working distances down to 15 cm (~6 in.); (4) extremely low harmonic distortion at high sound-pressure levels.

In all applications - recording, broadcasting and sound reinforcement - these qualities also permit greater freedom in microphone and speaker placement, more effective and predictable suppression of acoustic feedback and higher overall system gain.

The D-222EB is a low-impedance balanced-output unit fitted with a standard 3-pin XLR-type connector. Each microphone is supplied complete with individual proof-of-performance curves (showing measured frequency response on axis and discrimination vs. frequency at 180 degrees off axis), an SA 12/1 Black stand adapter and a foam-lined vinyl protective slide-in module that can be reached simply by unscrewing the microphone's distinctively shaped windscreen/pop filter. Both transducers are electrically suspended within the module, making the D-222EB relatively immune to handling noise, mechanical shocks and spurious vibrations. The sintered bronze windscreen and impact-resistant case are finished in black for minimum reflectivity, and encapsulate all internal parts against metal particles, dust and moisture spray.

To simplify field service, the transducers and crossover network are housed in a replaceable slide-in module that can be reached simply by unscrewing the microphone's distinctively shaped windscreen/pop filter. Both transducers are electrically suspended within the module, making the D-222EB relatively immune to handling noise, mechanical shocks and spurious vibrations. The sintered bronze windscreen and impact-resistant case are finished in black for minimum reflectivity, and encapsulate all internal parts against metal particles, dust and moisture spray.

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The microphone shall have a dynamic pressure-gradient type incorporating a two-way electroacoustical system. The two-way system shall consist of two coaxially mounted transducers and an inductive-capacitive resistive crossover network.

One transducer shall be designed for optimum pickup and reproduction of high frequencies, shall be positioned closest to the front part of the microphone, and shall face forward. The second transducer shall be designed for optimum pickup and reproduction of low frequencies, shall be positioned behind the first (high-frequency) transducer, and shall face rearward. The second (low-frequency) transducer shall incorporate a hum-buckling winding to cancel the effects of stray magnetic fields. The two transducers shall be connected to the crossover network electrically out of phase but, because of their opposed facing, shall operate electroacoustically in phase.

The crossover network shall have an electrical crossover frequency of 500 Hz, shall be electroacoustically phase corrected in the crossover-frequency region, and shall consist of a capacitive high-pass filter plus an inductive-capacitive-lowpass "T" filter having an adjustable resistor in series with its shunt capacitor. The resistor shall be factory-preset to produce a linear off-axis frequency response specified in a subsequent paragraph.

The microphone shall have a normal frequency range of 20-16,000 Hz, and shall not exhibit proximity effect at any working distance down to 10 cm (=6 in.). The microphone shall incorporate facilities for adjusting its low-frequency response characteristics. These facilities shall consist of a tapped inductance and a low-noise SPDT selector switch, and shall affect bass rolloff as follows: (1) typical off-axis frequency response shall not vary more than 2.3 dB from 125-8000 Hz at a sound-incidence angle of 90 degrees; (2) front-to-rear discrimination shall exceed 19 dB at 1000 Hz at a sound-incidence angle of 180 degrees, and shall not vary more than 7 dB from 125-8000 Hz.

The microphone shall have a nominal impedance of 200 ohms. The output level shall be -55.5 dBm (re: 1 mW/10 dynes/cm^2), and the microphone shall be capable of handling a maximum sound-pressure level of 130 dBA (124 dB SPL) at 1000 Hz with distortion not exceeding 0.5%. The EIA sensitivity rating I(im) shall be -148 dBm.

An integral sintered-bronze windscreen and pop filter, commensurate with the acoustical properties of the unit, shall protect the microphone system from metal particles, dust, and moisture spray. To facilitate field service, the windscreen shall be screw-threaded and removable, while the transducers and crossover network shall be packaged in a replaceable slide-in module having electrical contacts to mate with contacts in a receptacle within the microphone housing. The transducers shall be electrically suspended within the replaceable module to isolate them from the effects of handling noise, mechanical shocks, and spurious vibrations. The diaphragm material of each transducer shall be nonmetallic MAKROFOL.

The microphone shall incorporate a 3-pin male audio connector designed to mate with Cannon XLRF, Switchcraft A3, or equivalent connectors. A set of individual proof-of-performance curves (showing frequency response on axis and discrimination vs. frequency at 180 degrees off axis), on AKG model SA-26/1-Blk or equivalent stand adapter with standard 5/8-in. -27 thread, and a foam-lined vinyl carrying case shall also be provided. The finish of the microphone shall be matte black and shall not create specular light reflections.

The microphone shall be 205 mm (7-7/8 -1/16 in.) long by 45 mm (=1-3/4 in.) in windscreen diameter, and the net weight shall not exceed 250 g (=9 oz). The microphone herein specified shall be the AKG D-222EB.
Positive pressure at front of microphone produces positive voltage on pin 2 from both transducers. (Though connected out of phase, they face in opposite directions, thus operating in phase.)

OPTIONAL AKG HEAVY-DUTY SHIELDED CABLE ASSEMBLIES FOR THIS MICROPHONE

NOTE: All cable assemblies except the MCH-50 are 6.1 m (20 ft) long. All are available in black. Model numbers with an asterisk (*) are also available in red, green, and blue - please specify cable color choice in such cases.

- MCH-20: Low-impedance cable assembly w/o switch (female XLR-type connector to male XLR-type connector)
- MCH-20F: Low-impedance cable assembly w/o switch (female XLR-type connector to stripped and tinned ends)
- MCH-20P: Low-impedance cable assembly w/o switch (female XLR-type connector to phone plug)
- MCH-20S: Low-impedance cable assembly w/o switch (female XLR-type connector to male XLR-type connector)
- MCH-20T: High-impedance cable assembly w/ switch (female XLR-type connector to transformer w/ phone plug)
- MCH-20TS: High-impedance cable assembly w/ switch (female XLR-type connector to transformer w/ phone plug)
- MCH-50: Low-impedance 15.2 m (50 ft) cable assembly (female XLR-type connector to male XLR-type connector)