

MICROPHONE DATA SHEET

DESCRIPTION

A two-unit cardioid microphone in which the low-frequency moving-coil unit is electrically coupled to the high-frequency moving-coil unit placed in front of it.

The microphone has an integral wind shield and a bass-cut control giving up to 20 dB cut at 50 Hz.

WEIGHT

320 g (11.5 oz)

IMPEDANCE

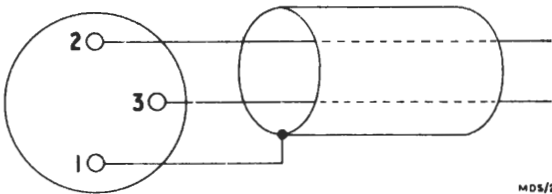
200 ohms

SENSITIVITY

-54 dB relative to 1 volt/N/m²
 (-74 dB relative to 1 volt/dyne/cm²)

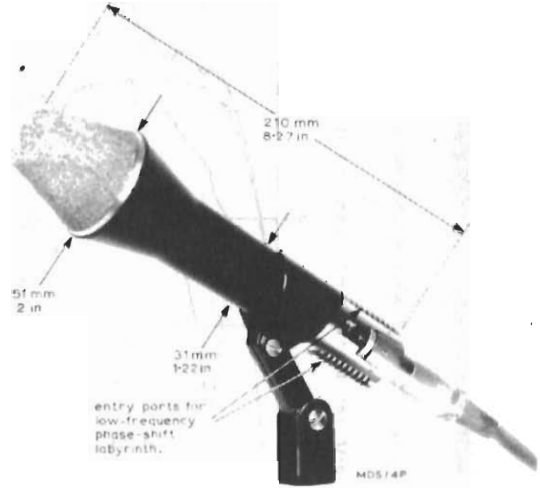
CONNECTIONS

(Model D202ES)



Cannon XLR-3-50

GENERAL APPEARANCE



ACCESSORIES

The D202 can be mounted on standard BBC stands by use of the Sa16 clip normally supplied with the microphone. It can be mounted on a boom by means of an H.4 suspension.

A windshield type W.10 should be used on the front end and a type W.10a on the rear.

HANDLING CHARACTERISTICS

Susceptibility to wind noises:
 low, very low with wind shields

Susceptibility to noise from sound conduction along body:
 moderate

Susceptibility to rumble:
 high

Robustness:
 moderate

REMARKS

The D202 has a reasonably-level frequency response which, with the cardioid polar diagram, makes it suitable for general use. At close working distances it gives less accentuation in bass than other cardioid microphones, and the built-in windshield gives good protection against blasting on explosive consonants. It is thus also suitable for close vocal work.

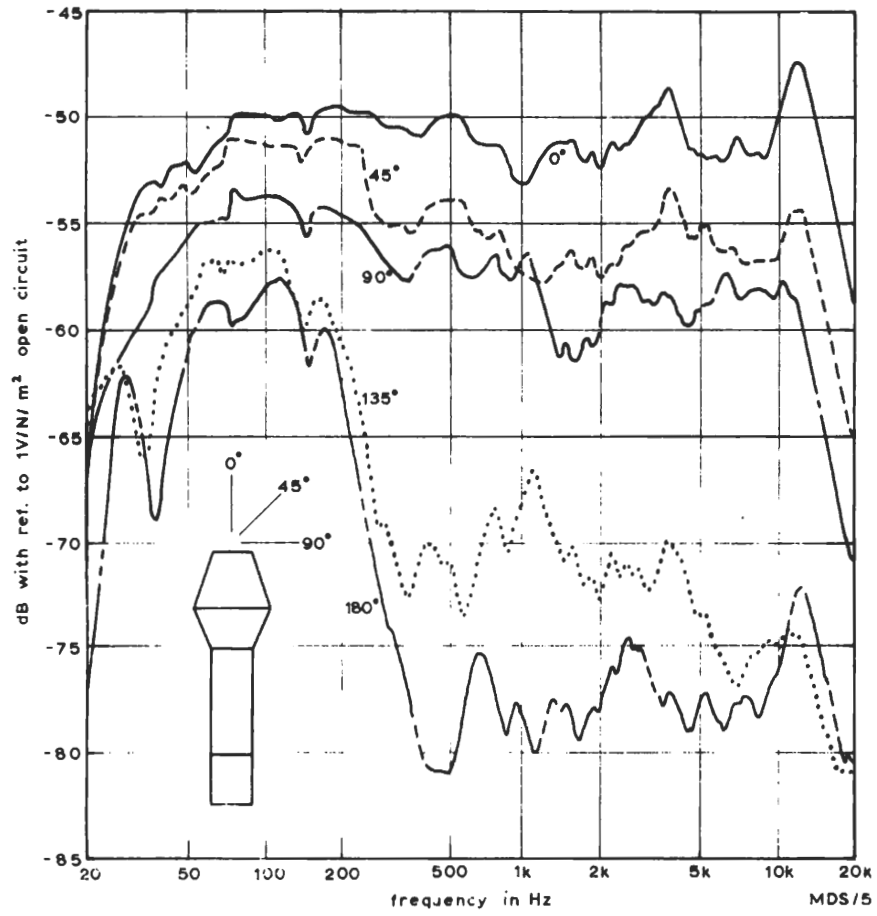
The good response off axis makes the microphone suitable for use on a boom: in this application windshields should be used on both ends.

Notes:

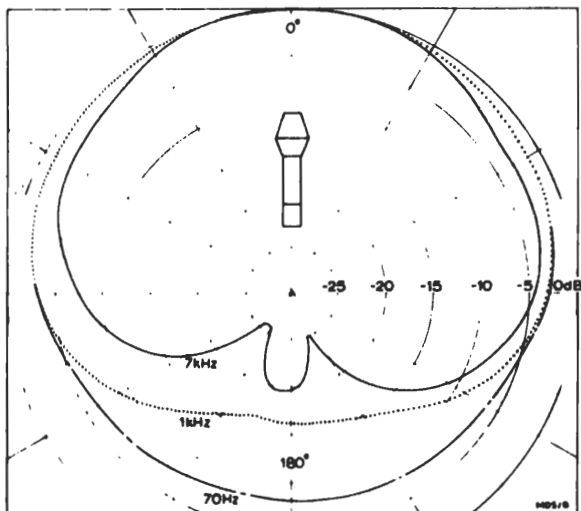
1. The rear entry ports of the D202 should not be covered except by a windshield.
2. It is necessary to use a windshield more on the rear than the front of the microphone.

AKG D202

FREQUENCY RESPONSE



POLAR RESPONSE



BRIEF DESCRIPTION

This is a small high-quality electrostatic microphone normally used with an endfire CK1 cardioid capsule. Other capsules are available, (see page 2).

The amplifier uses a field-effect transistor; the 9-volt supply is fed by a phantom on the programme wires to earth (cable screen). The 50-volt capsule polarizing voltage is produced by a transistor voltage convertor in the head.

The microphone is obtainable in two versions, coded according to the type of connector used on the microphone itself (see below under CONNECTIONS).

WEIGHT

C451E 120 gm (4 oz)

IMPEDANCE

Normally 200 ohms; the output is balanced but carries d.c. Supply units give an isolated transformer output.

Minimum load impedance 500 ohms.

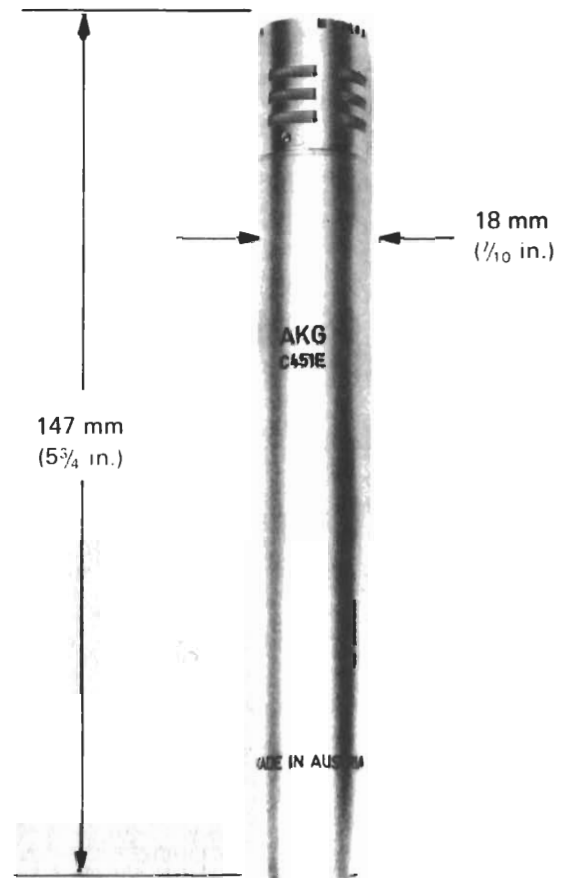
SENSITIVITY

-39 dB relative to 1 volt/N/m²
(-59 dB relative to 1 volt/dyne/cm²)
This is 15 dB greater than an S.T.C. 4038C

CONNECTIONS

The C451E has a 3-pin Cannon connector and the C451C has a 3-pin DIN connector.

The E and C suffixes are used also for the power supply units.

GENERAL APPEARANCE**ACCESSORIES***Capsules*

- CK1 Cardioid (normal)
- CK2 Omni-directional
- CK8 Hypercardioid
- CK9 'Gun' (pistol grip H7 and anti-vibration fitting SA70/3 available)
- CK22 Omni-directional with internal anti-pop shield

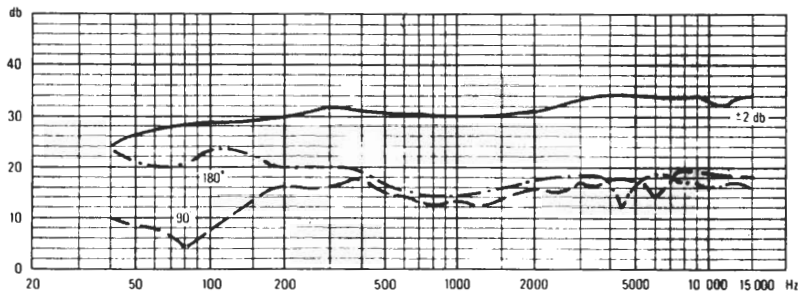
Capsule handling characteristics

<i>Capsule</i>	<i>Susceptibility to wind noise</i>	<i>Susceptibility to rumble</i>
CK1	poor without windshield	fair, good in bass-cut version
CK2	fair	good
CK5	good	good
CK8	poor without windshield	fair
CK9	poor without windshield	fair
CK22	good	good

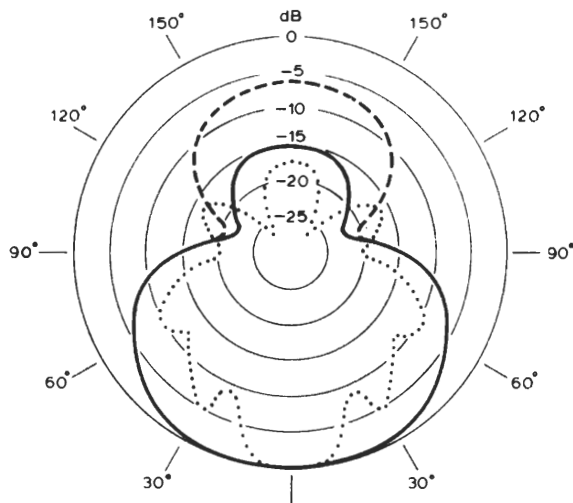
All capsules are reasonably immune to handling noise

AKG C451

CK8



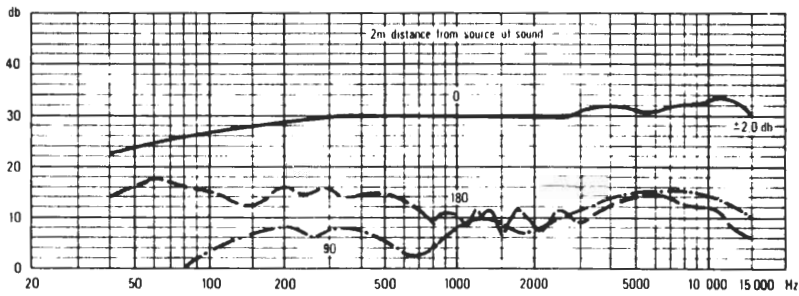
Frequency response curve



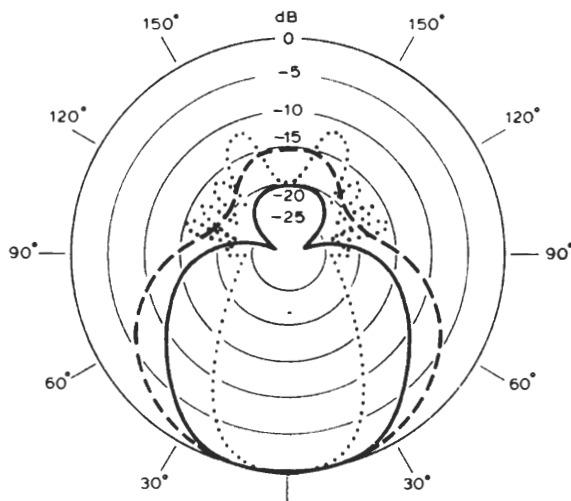
Polar diagram

— 125 Hz
- - - 1 kHz
..... 10 kHz

CK9



Frequency response curve



Polar diagram

— 125 Hz
- - - 1 kHz
..... 10 kHz

OTHER ACCESSORIES

Battery supply unit B46C or E - uses a PP3 dry battery (40 hours life) or a Mallory TR146X battery (220 hours life).

Mains supply unit N46C or E - this will supply two microphones. It incorporates individual bass-cut filters giving a roll-off of 7 dB at 50 Hz or a high-pass cut at 30 Hz.

Mains supply unit capable of supplying four microphones but not incorporating filters.

Capsule extension tubes - VR1 and VR2, see illustration

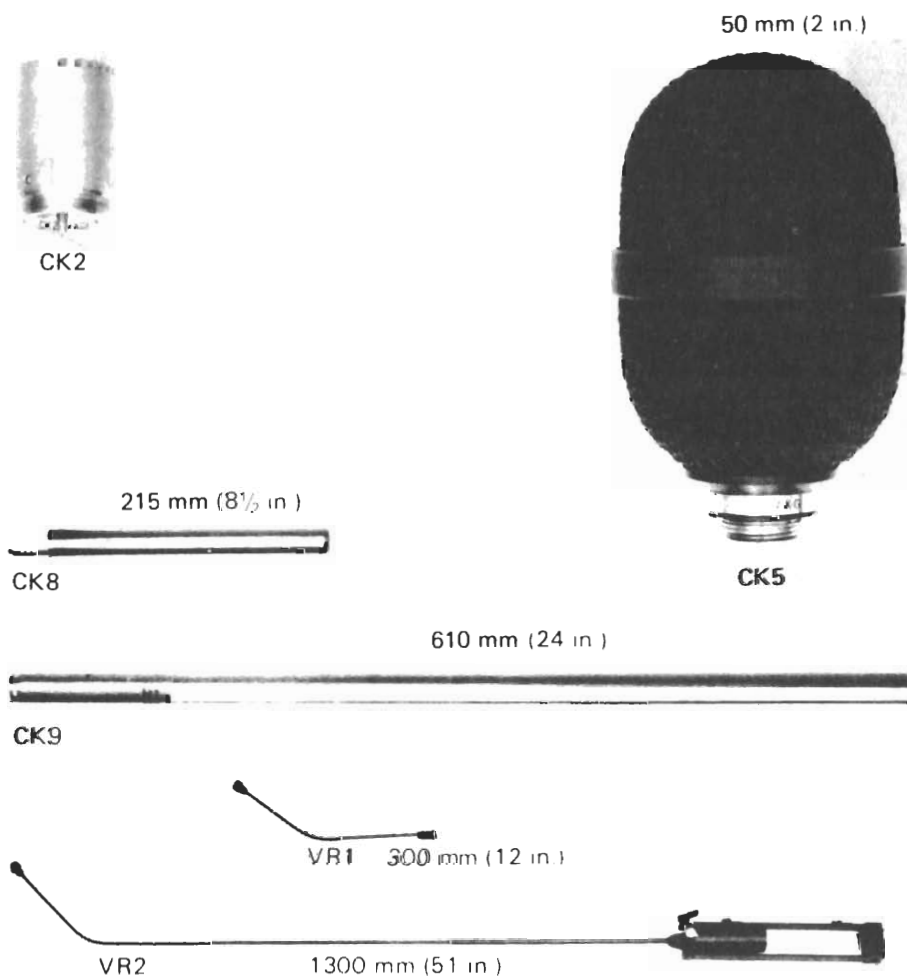
Mounting swivel bracket H60 (shock absorbing) or SA15

Swivel joint A51

Windshields W3 (foam) and W17A (metal mesh)

10 dB pad A50

H9 suspension collar

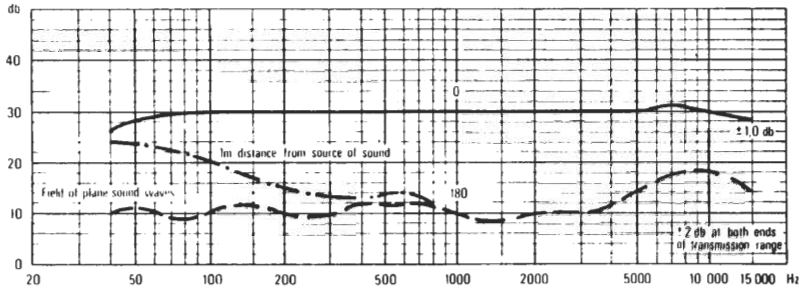


REMARKS

The power supply can be derived from any source of clean d.c. between 7.5 and 52 volts through suitable resistance networks which are specified in the maker's leaflet. The values of resistors in these networks should be within the recommended range for the particular supply voltage as there may be a risk of over-heating inside the microphone if the supply current is increased. Standard BBC installations (O.B. mixers etc.) incorporate suitable resistors; trouble may arise with non-standard installations.

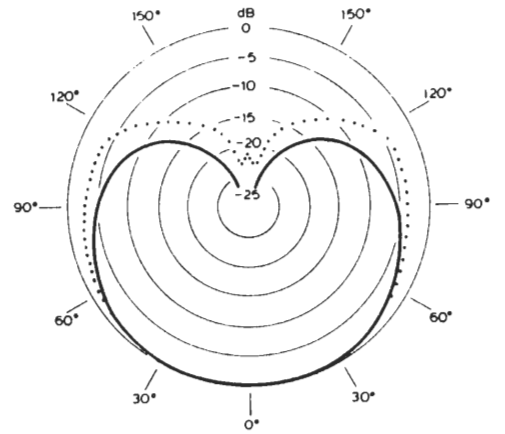
FREQUENCY AND POLAR RESPONSES (manufacturer's data)

Frequency response curve

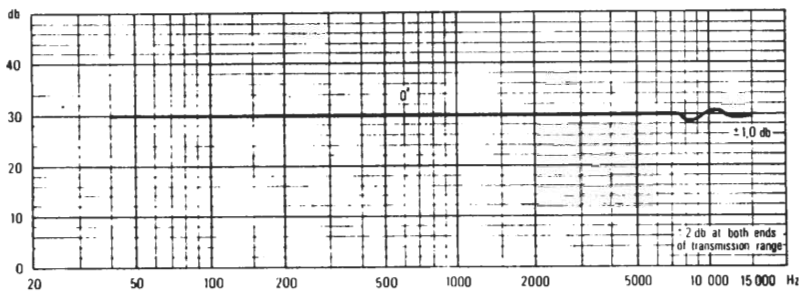


CK1

Polar diagram

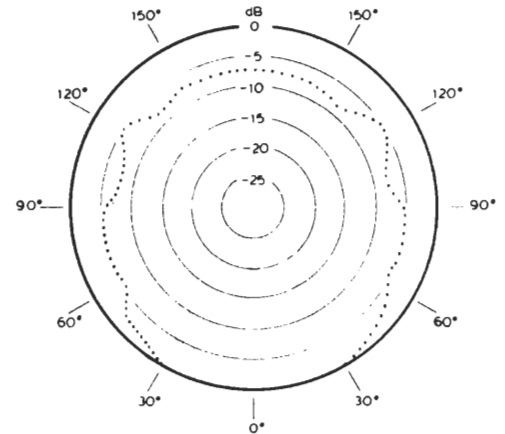


Frequency response curve

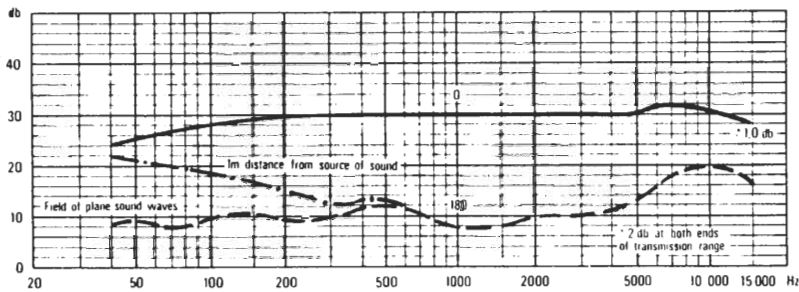


CK2

Polar diagram

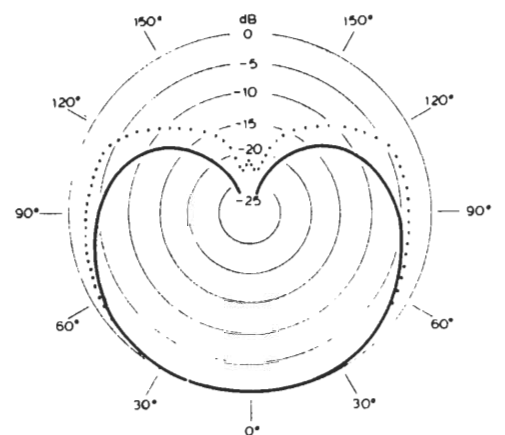


Frequency response curve



CK5

Polar diagram



— 125Hz
 - - - 1kHz
 10kHz

MICROPHONE DATA SHEET

DESCRIPTION

The C414EB is a high-quality phantom-powered condenser microphone developed from the C12A.

A four-position switch on the microphone body enables omni, figure-of-eight, cardioid or hyper-cardioid responses to be selected.

Two other switches on the body allow (a) 0, 10 and 20 dB internal attenuation to prevent overload and (b) a bass-cut of 12 dB/octave at 75 or 150 Hz.

WEIGHT

360 g (14 oz)

IMPEDANCE

150 ohms

Minimum load impedance 500 ohms

SENSITIVITY

-44 dB relative to 1 volt/N/m²

(-64 dB relative to 1 volt/dyne/cm²)

CONNECTION

XLR-3

HANDLING CHARACTERISTICS

The microphone is susceptible to wind noise unless used with a wind shield; it is prone also to rumble.

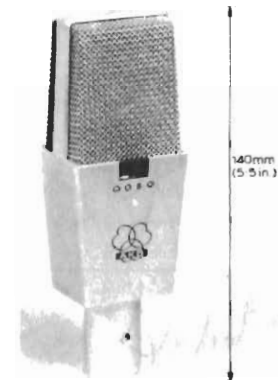
REMARKS

The C414EB can be used for all types of music balancing. As a cardioid microphone it has a subjectively better front-to-back ratio than the Neuman U87 and also a better h.f. response especially off-axis. With the internal bass-cut switch in the flat position the l.f. response is very extended and the microphone should be used on a resilient suspension and not on a rigid stand.

The earlier C414 model (not the C414EB) had, like the C12A, a six-pin connector and was prone to r.f. interference. The C414EB is satisfactory in this respect.

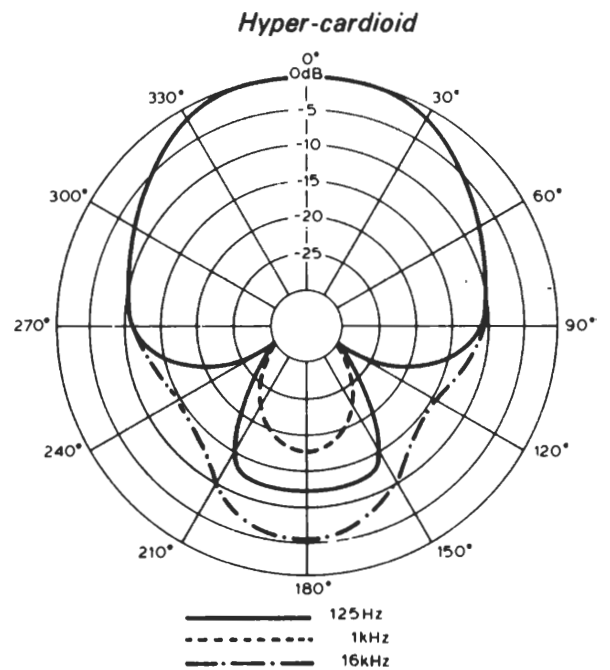
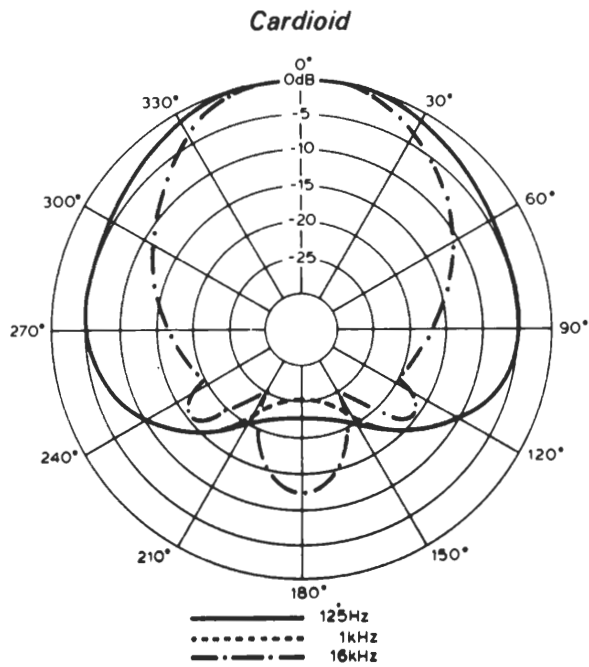
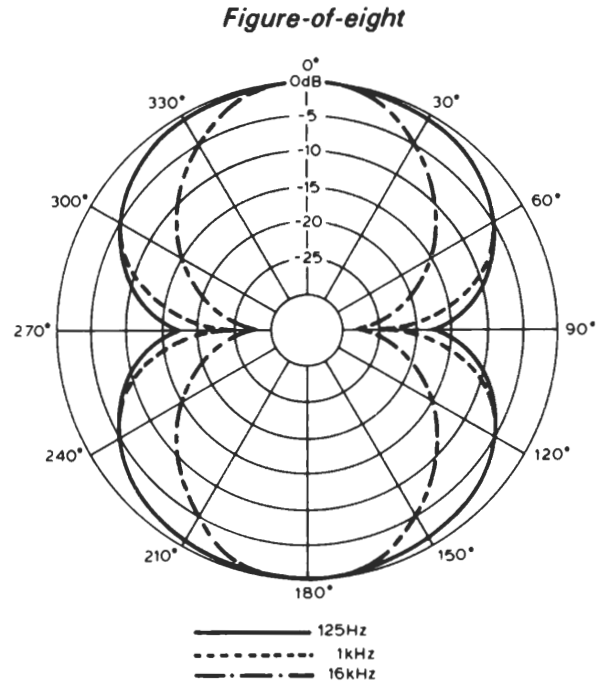
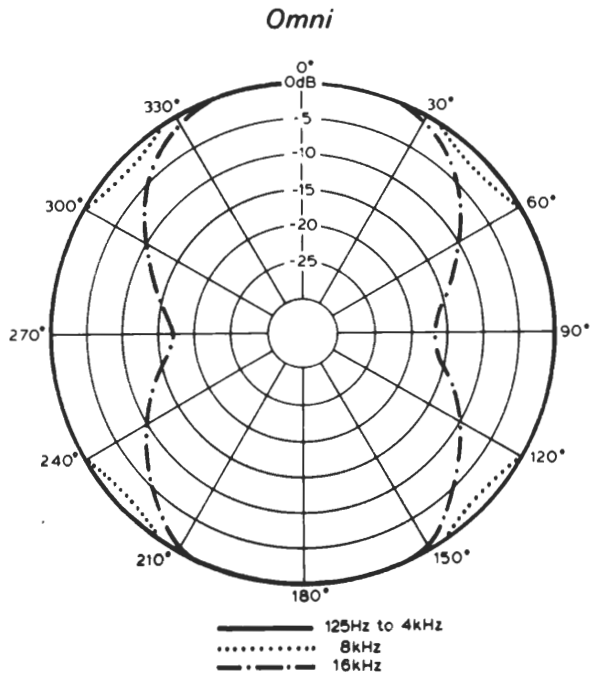
A different version, the C414E1, has a remotely controlled polar diagram. This version uses the normal three-pin phantom powering to the polar diagram selector box but uses a special cable with five-pin XLR connectors to the microphone body. The performance is otherwise identical to that of the C414EB. Like the C12 and C12A microphones nine polar responses can be selected.

GENERAL APPEARANCE



AKG C414EB

POLAR RESPONSES



MICROPHONE DATA SHEET

GENERAL APPEARANCE

DESCRIPTION

This is a high-grade electrostatic microphone normally fitted with a cardioid capsule. Two basic versions exist:

- (i) the 1000 series with fixed capsules,
- (ii) the 2000 and 2100 series which have detachable capsules.

See ACCESORIES.

WEIGHT

- 1000 series: 113 g (4 oz)
- 2000 series: 120 g (4.2 oz)
- 2100 series: 120 g (4.2 oz)

IMPEDANCE

100 ohms maximum, the output is balanced but carries d.c.

The 1000 and 2000 series require a minimum load impedance of 500 ohms; the 2100 series requires a minimum load of 1000 ohms.

SENSITIVITY

- 43 dB relative to 1 volt /N/m²
- (-63 dB relative to 1 volt/dyne/cm²)

CONNECTIONS

XLR-3

ACCESSORIES

For the 1000 series the only accessories, other than power suppliers, are windshields.

The 2000 and 2100 series differ in that the 2000 series requires a phantom supply of 45 to 55 volts, whereas the 2100 series can operate on any voltage from 7.5 to 50.

Capsules for 2000 and 2100 series:

- CC01 - omni with built-in windshield
- CC03 - omni without built-in windshield
- CC50 - cardioid
- CC51 - cardioid with bass roll-off and windshield
- CC56 - cardioid with bass roll-off and fixed wire-mesh windshield

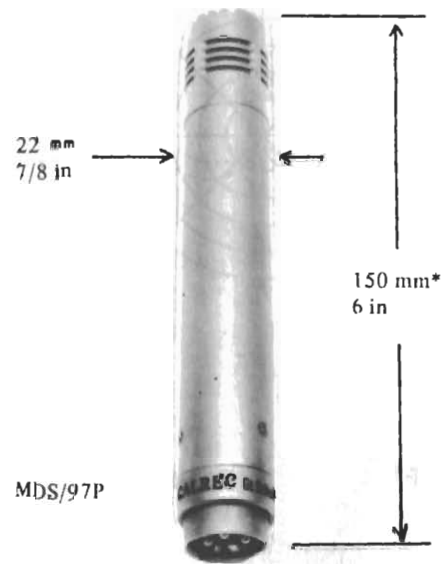
Windshield:

CW870 polyurethane foam.

Extension tubes:

- CE500 - 500 mm (19.7 in)
- CE700 - 700 mm (27.6 in)
- CE1000 - 1000 mm (39.4 in)

The extension tubes are supported by a CU1 clamp.



*Approximate: different versions vary from 140 mm to 170 mm

Attenuator:

XLR to open-end balanced lead with a built-in 15-dB loss-pad, CL1081

K10 - knuckle joint

HANDLING CHARACTERISTICS

Susceptibility to wind noise:

High without windshield

Susceptibility to rumble:

Moderate (omni capsule good)

Susceptibility to noise from sound conduction along body:

Fair

Robustness:

Fair

REMARKS

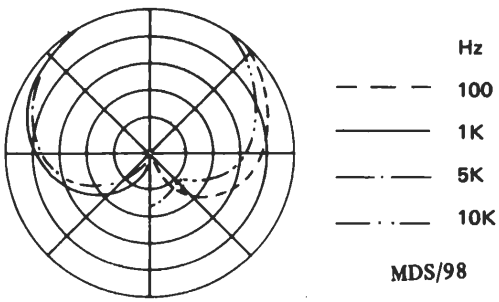
This microphone is very similar in performance to the AKG C451. It is considered to have a slightly smoother response in the middle to upper frequency range.

The extension tubes are stronger than the equivalent AKG tube and the capsule screw threads are particularly robust.

CALREC 1000 & 2000 Series

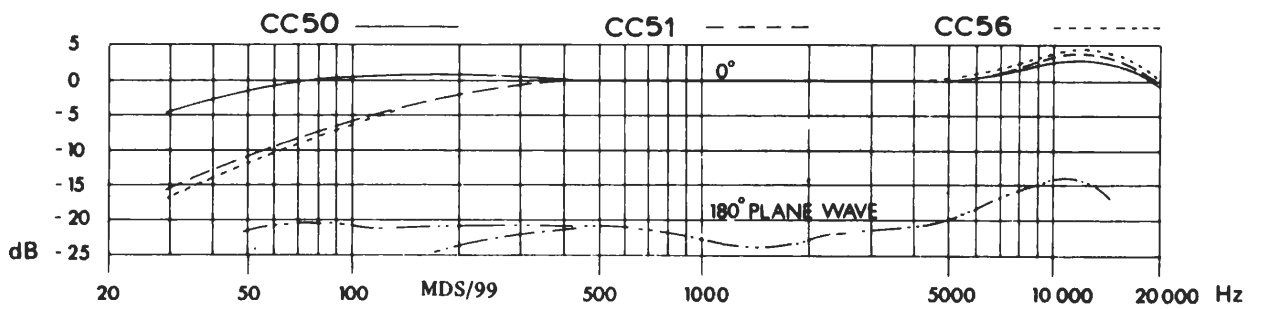
POLAR RESPONSE

Makers data for CC50, CC51 or CC56 capsule.



FREQUENCY RESPONSE

Maker's data



MICROPHONE DATA SHEET

DESCRIPTION

The KM84 is a small, high-quality, phantom-powered electrostatic microphone.

WEIGHT

80 g (3 oz)

IMPEDANCE

200 ohms

Minimum load impedance 1 kΩ

SENSITIVITY

-40 dB relative to 1 volt/N/m²

(-60 dB relative to 1 volt/dyne/cm²)

CONNECTIONS

KM84 3-pin DIN

KM84i XLR-3

ACCESSORIES

Capsules:

KK83 - omni, screw-in

KK85 - cardioid with bass roll-off, screw-in

Windshields:

WS21 - large foam

WNS21 - small foam

Extension tubes:

In three lengths, either straight or bent.

EA21 - shock isolating suspension

Note - the capsules and extension tubes can be damaged very easily when they are removed from the amplifier body. They should not be changed more often than is necessary.

GENERAL APPEARANCE



REMARKS

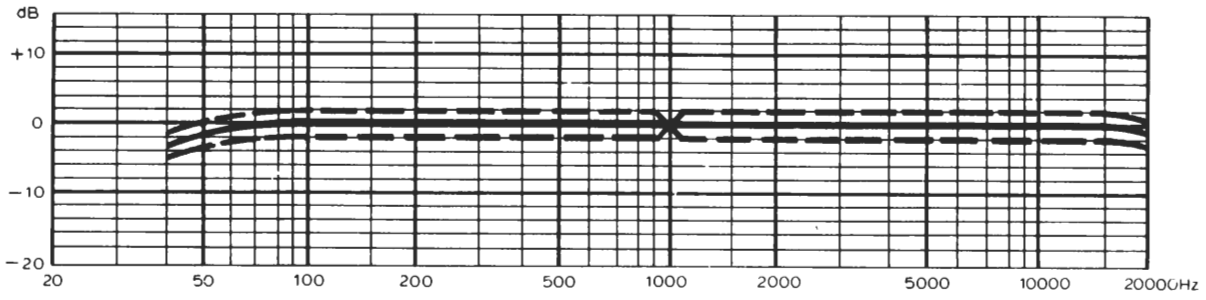
The KM83, 84, 85 range is similar to the AKG C451 and the Calrec 2000 series. Factors such as handling and wind noise are comparable. The small size of the KM84 can sometimes be an advantage.

The quality of the KM84, particularly with the singing voice and strings, is generally considered to be better than that of the AKG C451 or the Calrec 2050.

NEUMANN KM84

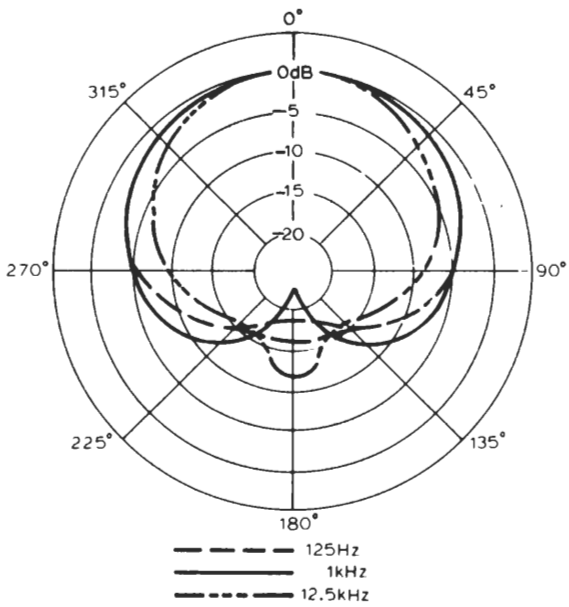
FREQUENCY RESPONSE

Maker's data



POLAR RESPONSE

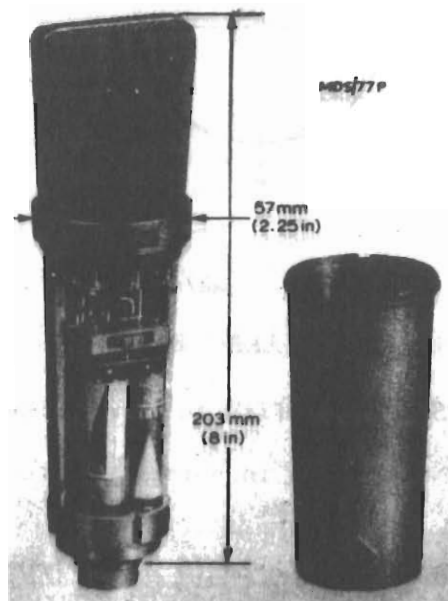
Maker's data



BRIEF DESCRIPTION

An electrostatic microphone with selection of cardioid, figure-of-eight and omnidirectional polar diagrams on the microphone itself. It may be powered using either 48 volts phantom-fed or a pair of 22.5-volt dry batteries. There is a switch for reducing the input by 10 dB for high-level close-sound sources, and another giving bass roll-off of 3 dB from 200 Hz.

GENERAL APPEARANCE



WEIGHT

550 gm (20 oz)

IMPEDANCE

Switchable 50/200 ohms. (200 ohms in BBC use.)

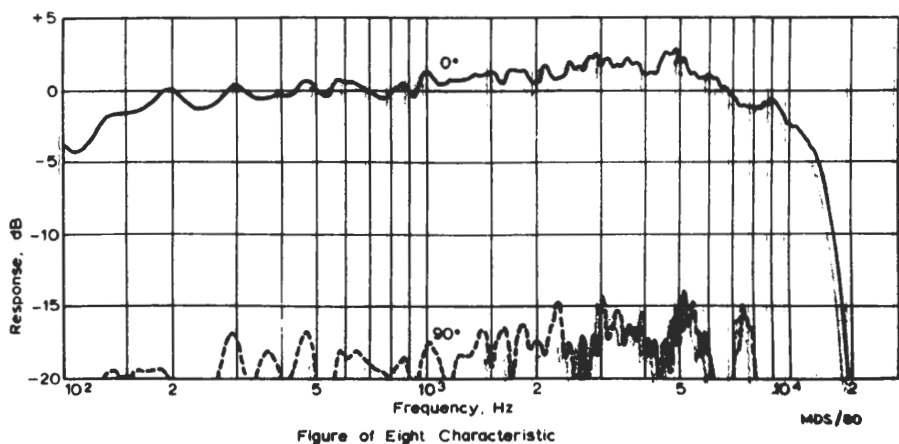
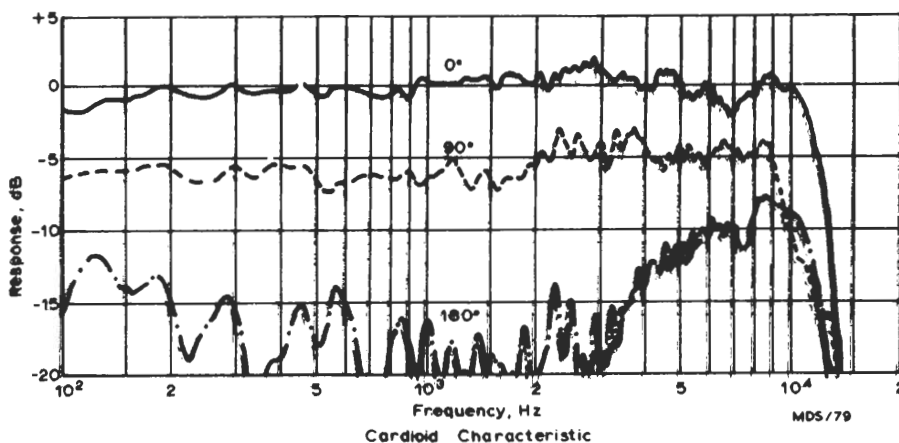
CONNECTIONS

Cannon 3 pin

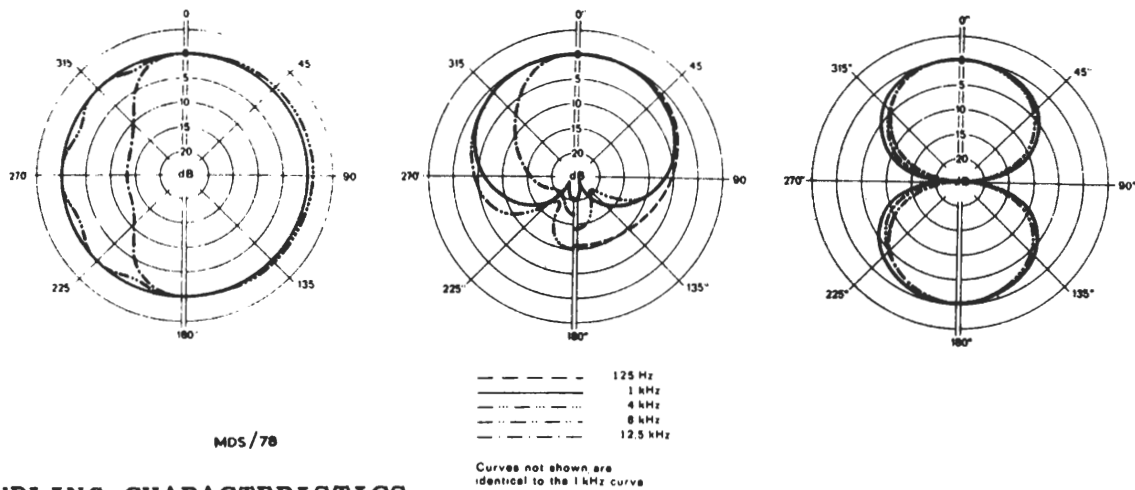
SENSITIVITY

-38 dB relative to 1 volt/N/m²
 (-58 dB relative to 1 volt/dyne/cm²)

FREQUENCY RESPONSE ON OPEN CIRCUIT (BBC MEASUREMENTS)



POLAR DIAGRAMS (MAKER'S MEASUREMENTS)



HANDLING CHARACTERISTICS

Susceptibility to wind noise:

Negligible in normal static studio usage

Susceptibility to noise from sound conduction along body

Negligible in stand use

Susceptibility to rumble:

Negligible in stand use on good floors

Robustness:

Unproved

POWER SUPPLY

Voltage required: 48 ±6 volts d.c.

The following a.c.-operated power supply units are available:-

N451i for one microphone,
 N452i for two microphones,
 N45k and NK48, each providing centralised power for up to 40 microphones.

Battery type: Ever Ready B155. Two batteries (each providing 22.5 volts) are required. These have a life of up to 150 hours.

ACCESSORIES

Foam windshield Type WS.67

10-metre cable with stand mount Type ic4

REMARKS

An excellent quality microphone particularly suitable for vocal or choral work. The front-to-back ratio at each end of the frequency spectrum is not as good as for the C.451. In balance conditions when good separation is imperative other microphones might be preferable. Under good studio conditions with cardioid response and on-axis operation the sound quality is outstanding.

The small screws on both the microphone and cable holding the Cannon connections tend to work loose and should be screwed in using Loctite.

Servicing support by Agents is good. Experience so far gained of this microphone is in the Television Music Studio supplying music recording for the Television Service.

SENNHEISER MKH 805, 815, 816

BRIEF DESCRIPTION

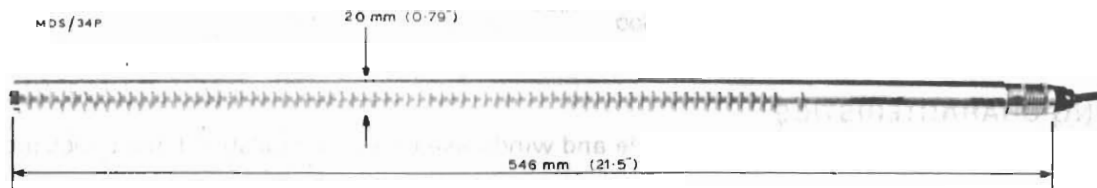
All are line-type low-noise r.f. capacitor microphones with a highly directional response which makes them suitable for outdoor work. The 815 is the successor to the 805 with basically similar features. The 816 is the successor to the 815.

The 815/816 and 805 have good directional characteristics that vary less with frequency than most microphones of this type. The 805T and 815T will work down to 5 volts d.c., the 816T down to 7 volts d.c., failing completely below this. (Noise may increase slightly below 8 volts d.c.)

The microphones are most useful out of doors where their directional properties allow unwanted noise sources to be reduced in level by 'favouring'. However, positioning is critical with a moving sound source. Their size can be awkward in crowds. They may be used indoors where directivity is essential.

The quality of the 815/816 and 805 is good enough for compatibility with other studio microphones to be easily achieved.

GENERAL APPEARANCE OF MKH 805 (MKH 815/816 are similar)



WEIGHT

- MKH 805: 350 gm (12.5 oz)
- MKH 815: 370 gm (13.2 oz)
- MKH 816: 370 gm (13.2 oz)

IMPEDANCE

- MKH 805: 10 ohms nominal.
200 ohms minimum load impedance.
- MKH 815: 20 ohms nominal.
200 ohms minimum load impedance.
- MKH 816: as 815

OPEN CIRCUIT SENSITIVITY

Without any pads in battery pack but not from mains power supply.
 -32 dB relative to 1 volt/N/m²
 (-52 dB relative to 1 volt/dyne/cm²)

MODEL VARIATIONS

- T = Tuchel 3-pin connector and 12V A-B powering
- TU = XLR-3 connector and 12V A-B powering
- 3 = Matt black finish, others are nickel finish
- P48 = 48V phantom powering

ACCESSORIES

The following are part of a normal MKH 805/815/816 kit:

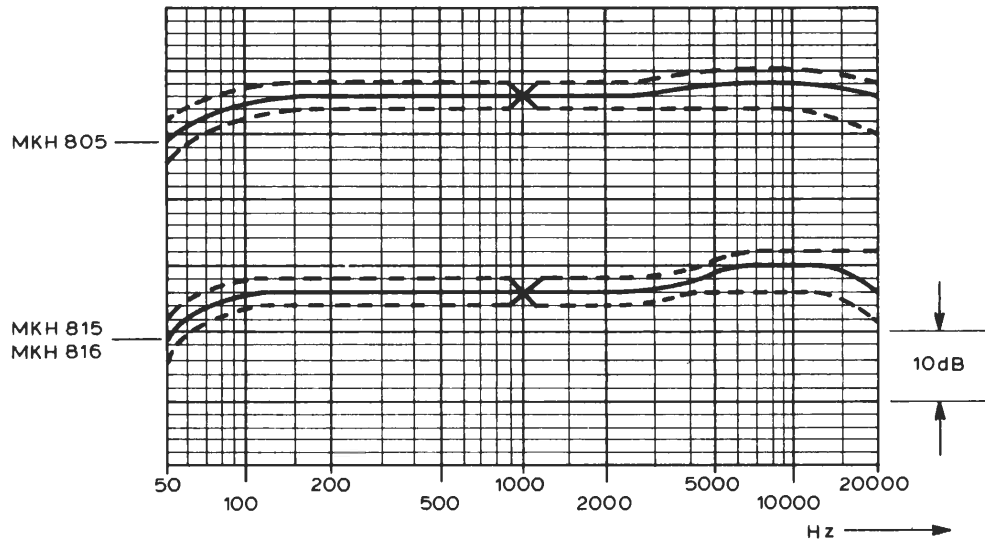
- 1. Pistol Grip
 - 2. Shock Mount
 - 3. Windshield
 - 4. Windsock
- } Made by Rycote
- 5. Sennheiser MZA-15 battery pack using 9 mallory RM625 cells and giving 50 hours use.
 - 6. BBC battery pack using 2 mallory MN1604s and giving 50 hours use. Bass cut and pads selectable.

POLAR RESPONSE

At 8 kHz the acceptance angle of the microphones is about 40 degrees, at progressively lower frequencies the angle widens (e.g., at 1 kHz it is about 80 degrees and at low frequencies the response is roughly cardioid).

SENNHEISER MKH 805, 815, 816

OPEN CIRCUIT FREQUENCY RESPONSE



HANDLING CHARACTERISTICS

These microphones are susceptible to rumble and windnoise unless a windshield and shock mount are used.

SONY ECM-50, 50PS, 50PB

BRIEF DESCRIPTION

A very small high-quality omnidirectional microphone for use on the person, with a selection of three clips. It operates on the electret condenser principle.

It is very suitable for in-shot television usage, where its small size makes it unobtrusive.

There is often a significant deterioration in quality with age.

A slight temporary bass loss may be observable if operating in humid conditions.

WEIGHT

Microphone
4.5 gm (0.16 oz)

Electronic Unit
100 gm (3.5 oz)

IMPEDANCE

50, 250 or 600 ohms.
BBC uses 250 ohms.

SENSITIVITY ON OPEN CIRCUIT

With transformer set for 250 ohms
-53 dB relative to 1 volt/N/m²
(-73 dB relative to 1 volt/dyne/cm²)

CONNECTIONS

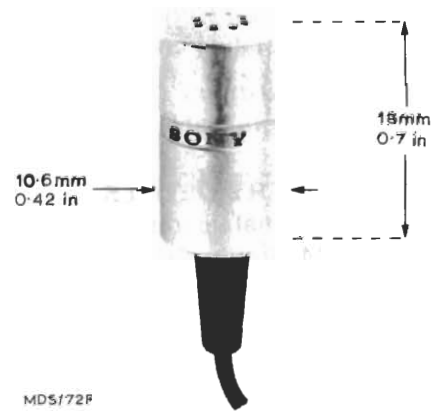
On permanently connected cable, 3 metres long, to an electronic and supply unit from which connection is via a Cannon XLR-3-12C output connector.

Impedance, shown by colour on electronic and supply unit: brown 50 ohms, green 250 ohms, blue 600 ohms.

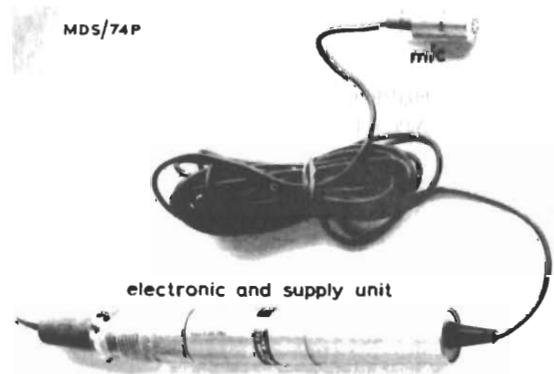
FREQUENCY RESPONSE ON OPEN CIRCUIT

Maker's characteristic

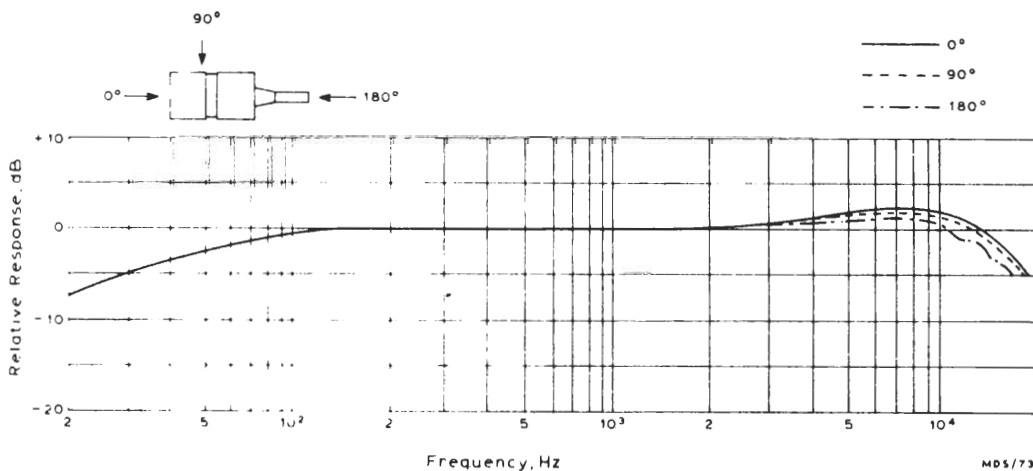
GENERAL APPEARANCE



(a) Microphone



(b) Assembly



SONY ECM-50, 50PS, 50PB

HANDLING CHARACTERISTICS

Susceptibility to wind noise:
comparable to MD211 and M100

Susceptibility to rumble: nil

Susceptibility to noise from sound conduction along body: Normally low but can be significant, depending on nature of artiste's clothes.

Robustness:

Integral cable may be a weakness; clips are fragile and difficult to replace.

BATTERY DETAILS

Normal operating voltage 1.5 volts

Minimum operating voltage 1.1 volts

Batteries:

Ever Ready E 304E or 904 (manganese): life 3,000 hours

Ever Ready E 90 (alkaline): life 4,000 hours

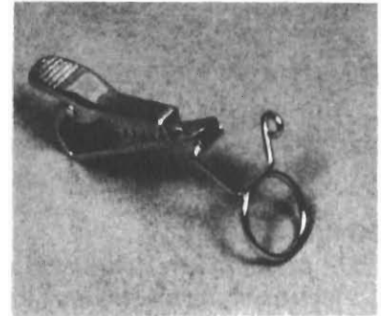
Ever Ready E 401 (mercury): life 6,000 hours

ACCESSORIES

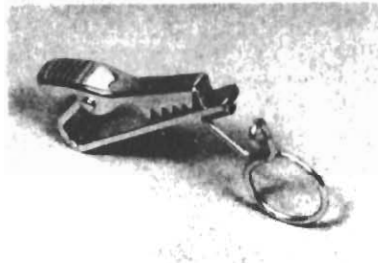
Holder Pin
AD-51



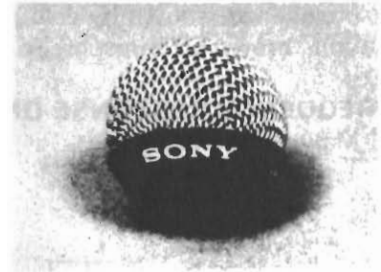
Vertical
Holder Clip
AD-52V



Horizontal
Holder Clip
AD-52H



Windshield
AD-38



MODEL VARIATIONS

The ECM-50 PS and ECM-50 PB microphones differ from the ECM-50 only in the method by which they may be powered.

The slightly larger electronic unit accepts the same 1.5V battery as that used on the ECM-50, but also allows the unit to be phantom powered from a 12-52V d.c. source.

The connections between the electronic unit and the capsule are via a 2-core screened cable. If an 8-pin Lemo connector is inserted in this lead, to allow direct connection and powering of the capsule from a Micron radio transmitter, the wiring is such that the capsule and transmitter cases are at opposite polarity.

The ECM-50 PS is silver, whereas the ECM-50 PB is black.