



SOUND REPRODUCTION EQUIPMENT



4106

CARDIOID MICROPHONE

Principal Features

- ★ Studio grade instrument for broadcasting and recording.
- ★ Uniform directional response over the frequency range, 30-12000 c/s.
- ★ New plastic diaphragm highly resistant to damage.
- ★ Unobtrusive appearance and light in weight.



Standard Telephones and Cables Limited

DESCRIPTION

THE 4106 MICROPHONE

The 4106 microphone (patent applied for) is a moving coil, wide range cardioid microphone similar in performance to the STC type 4033A. Frequency response, front to back discrimination, and sensitivity are approximately the same but the constancy of frequency-response with angle of incidence, in the front hemisphere, is substantially improved. The 4106 is also notably smaller than the 4033A in size and weight.

Cardioid directional properties of the single moving-coil unit have been achieved by the use of acoustic phase-shift networks behind the diaphragm, which operate as follows. At low frequencies a mass-resistance phase shift network is dominant, at middle frequencies a resistant-compliance network, while at high frequencies the obstacle effect of the microphone case provides the phase shift. All these phase-shift devices combine to give uniform directional properties over the whole frequency range.

Level forward response and excellent front to back discrimination over the full frequency range make this microphone particularly suitable for film and television studio use, and as a broadcast pick-up in stage footlights.

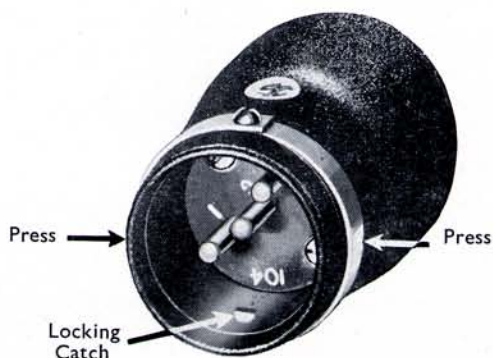
The moving coil unit is a development of the well-known STC moving coil studio microphones, and it incorporates a new plastic diaphragm with a high surround compliance. The plastic material chosen is such that the high temperatures which may be experienced near studio lighting, footlights, etc., will have no effect on the performance. The plastic material is inert and highly resistant to mechanical damage.

This microphone is virtually distortionless at all levels encountered in normal sound fields. The total harmonic content is of the order of $\frac{1}{2}$ to 1% at sound intensity levels approaching the threshold of pain.

The electrical impedance rises from about 25 ohms at the mid-frequencies to approximately 35 ohms at 70 to 100 c/s, and it is advisable to work the microphone into an impedance higher than 200 ohms in order to avoid bass attenuation.

Protection against external magnetic fields is provided.

The outlet of the microphone is a shrouded three-pin connector. A 4069A Jack is required for connection. The two outer pins connect to the coil and the centre pin to the body of the microphone. The microphone incorporates a locking device to prevent it from becoming accidentally detached from the jack (see illustration on right).



WARNING

A simple electrical equaliser is internally connected across the output terminals and because this uses a polarised tantalum electrolytic capacitor, a d.c. ohm-meter **must not** be used to check the instrument

SPECIFICATION

4106-A (Typical Values)

MEAN SENSITIVITY

Open circuit voltage per dyne/cm ² (micro-bar)	0.06 mV
Open circuit voltage level per micro-bar, ref. 1 volt.. .. .	-85 db
Power delivered into 30 ohms for 1 micro-bar, ref. 1 mW	-75 db
American ASA rating, ref. 1 mW	-151 db

ELECTRICAL IMPEDANCE

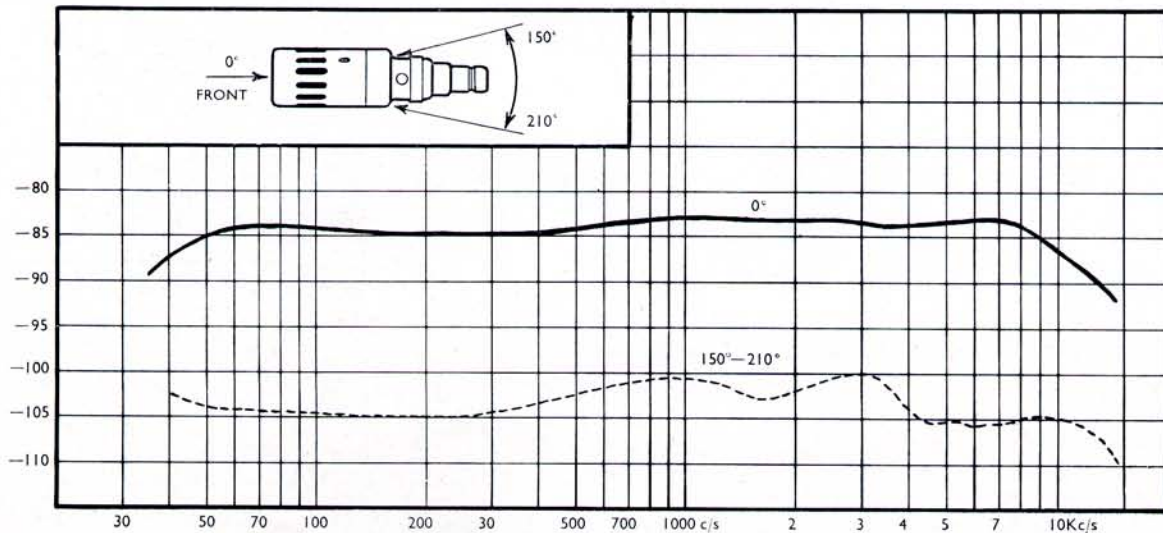
Rated impedance at 1000 c/s	30 ohms
-------------------------------------	---------

D.C. resistance **must not** be measured.

NOTE: The microphone is normally operated into an impedance which is high compared with 30 ohms. It may, however, be terminated by an impedance as low as 200 ohms without appreciably impairing the frequency response, though there will be some loss of sensitivity and a reduction of the signal-to-noise ratio. The input transformer, used to step up the signal to the grid of a valve, should preferably present a high impedance to the microphone to meet the above condition, but must be designed to face a source impedance of 20 to 50 ohms.

FREQUENCY RESPONSE

Figure 1: Representative free field response curve
(0 db=1 volt/dyne/cm²—open circuit).



DIRECTIONAL DISCRIMINATION

Between front (0 degree) response and rear response (averaged over 150-210 degrees solid angle) discrimination is approximately 20 db.

DISTORTION

Less than 0.5% for a sound intensity level of 125 db above 0.0002 dyne/cm² (20 micro-Newtons per square metre) at 500 c/s.

DIMENSIONS

4.6 in (11.7 cm) long x 1.625 in (4.1 cm) diameter.

WEIGHT

8.5 oz (240 grammes).

FINISH

Normally supplied with a black shrivel finish.

ACCESSORIES

4069A Jack.

PAS 45/58 Transit Case.

LCR.1113 Screened Twin Cable (order in yards as required).

A range of input transformers is available.

For other accessories, stands, etc., refer to STC publication C/PA26.

© 1960 Standard Telephones and Cables Limited



Standard Telephones and Cables Limited

PUBLIC ADDRESS DEPARTMENT

ESTERBROOKE STREET

LONDON S.W.1

Telephone: *VIctoria 7741*

Telegrams: *Relay, London W.C.2*

Enquiries concerning Public Address equipment may be made at any of the following Branch Offices of the Private Communication Equipment Division

BRANCH OFFICES

BIRMINGHAM

DEVONSHIRE HOUSE, GREAT CHARLES STREET,
BIRMINGHAM 3. Telephone: *Central 3042*

MANCHESTER

CORONATION HOUSE, 69-71 MARKET STREET,
MANCHESTER 1. Telephone: *Deansgate 3245*

LEEDS

NORWICH UNION BUILDINGS, CITY SQUARE,
LEEDS 1. Telephone: *Leeds 27227*

BRISTOL

51 BROAD STREET, BRISTOL 1.
Telephone: *Bristol 20613*

GLASGOW

49 QUEEN STREET, GLASGOW C.1.
Telephone: *Glasgow Central 6193*

BELFAST

14 ADELAIDE STREET, BELFAST 2.
Telephone: *Belfast 24900*

PRIVATE COMMUNICATION EQUIPMENT DIVISION

FOOTSCRAY · SIDCUP · KENT

Telephone: *FOOTscray 3333*