



Microwave Television Link Equipment *Type BD 401*

THE MICROWAVE LINK Type BD 401 is suitable for both temporary and permanent installations and forms the most satisfactory and economical system for connecting a remote studio or outside broadcast source with the main transmitter or studio centre. Although it may be possible to do this over distances up to four or five miles by balanced lines or coaxial cable, to use coaxial cable over greater distances is expensive, while to lay down a network of cables to likely outside broadcast sites means a large capital outlay which is only justifiable where an extensive television service is contemplated. In addition,

considerable difficulty is experienced in making cables capable of passing the bandwidth required in high definition systems.

The microwave link, on the other hand, has several advantages over both coaxial lines and other radio links. By operating on a wavelength of less than 5 cm it is able to use an antenna with a high gain and small size. For example the 4 ft parabolic reflector has a gain of about 5000. This means a relatively high 'equivalent power' with a very low transmitter power, and since the transmitted power is concentrated in a narrow beam and the receiver has a narrow angle of pick-up, an exceedingly selective path is provided. This has the effect of eliminating extraneous reflections, whether from fixed or moving objects, and provides an almost noise-free transmission over line-of-sight paths of up to 25 miles. Satisfactory operation has been obtained over distances as great as 40 miles, however. If a larger range is required, two or more equipments may be placed in tandem with little degradation of picture quality.



5574

The receiving end of a microwave link showing the receiver control and power units and the parabolic reflector.

FEATURES

Portability. The transmitter and receiver control units and the receiver power unit are housed in suitcase units. The transmitter and receiver are contained in cylindrical weatherproof housings and are easily detached from the back of the parabolic reflector.

Wideband frequency modulation is used and a DC restorer circuit in the video amplifier ensures that the frequency deviation of the transmitter takes place from a fixed frequency equivalent to the tips of the synchronising signal.

Sturdy construction to withstand continual outdoor use.

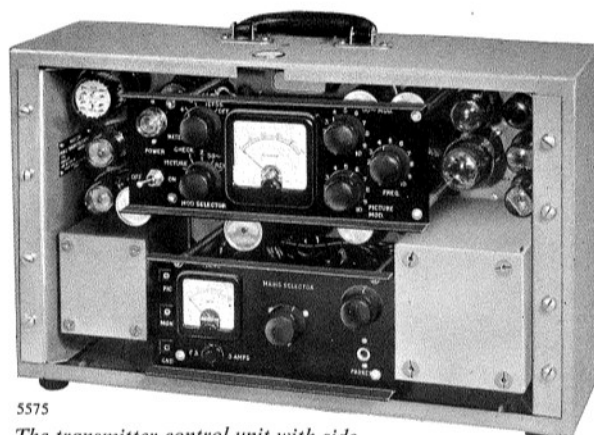
Reflex klystron oscillators are used in both the transmitter and the receiver.

Telephone intercommunication and test jacks are provided on each unit.

Automatic frequency control. An AFC range of about 20 Mc/s is obtained, but the captive range is about 10 Mc/s.

Inner cavity wavemeter incorporated in the transmitter is used for setting up frequency.

Specially designed tripod head permits accurate sighting of target.



5575

The transmitter control unit with side cover removed showing how all components are built on to the main chassis. This feature is common to all three units making them suitable for rack mounting.

DATA SUMMARY

Type of transmission: FM.

Frequency range: 6500–7050 Mc/s.

Overall frequency response: Substantially flat within $\pm \frac{1}{2}$ db from 50 c/s to 3 Mc/s rising to 1 db at 6 Mc/s.

Power supplies: 115 or 230 V, 40–60 c/s, single-phase AC mains.

TRANSMITTER

Power output: 100 mW nominal (directed by parabolic reflector with gain of 5000).

Carrier stability: Better than 200 kc/s per degree centigrade.

Modulation capability: 6–14 Mc/s deviation peak.

Input level: 1–2 V peak-to-peak, ± 3 db into 75 Ω .

Power consumption: 170 W.

RECEIVER

Linearity departure: Less than 5%.

Output level: 1–2 V peak-to-peak, ± 3 db.

Power consumption: 250 W.

Dimensions and weights:

	Height	Width	Depth	Weight
Transmitter control unit	13 in.	20 in.	9 in.	38 lb
	(33.02 cm)	(50.8 cm)	(22.86 cm)	(17.25 kg)
Transmitter with housing	14½ in.	17¼ in.	14 in.	40 lb
	(36.83 cm)	(43.8 cm)	(35.56 cm)	(18.16 kg)
Receiver control unit	13 in.	20 in.	9½ in.	26 lb
	(33.02 cm)	(50.8 cm)	(24.1 cm)	(11.8 kg)
Receiver power supply unit	13 in.	24 in.	15 in.	70 lb
	(33.02 cm)	(60.96 cm)	(38.1 cm)	(31.78 kg)
Receiver with housing	14½ in.	17¼ in.	14 in.	38 lb
	(36.83 cm)	(43.8 cm)	(35.56 cm)	(17.25 kg)
Reflector with base mounting	48½ in.	48½ in.	14½ in.	47 lb
	(123.2 cm)	(123.2 cm)	(36.83 cm)	(21.3 kg)
Tripod assembly	48 in.	16 in.	16 in.	40 lb
	(121.92 cm)	(40.64 cm)	(40.64 cm)	(18.16 kg)
Tripod head	6 in.	10 in.	10 in.	40 lb
	(15.24 cm)	(25.4 cm)	(25.4 cm)	(18.16 kg)

Marconi

MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

Head Office: Marconi House, Chelmsford

Telephone: Chelmsford 3221. Telegraphic Address: Expanse, Chelmsford



5778

Marconi Microwave Link Type BD 401 in use by the BBC. This was one of three installations used for relaying one programme