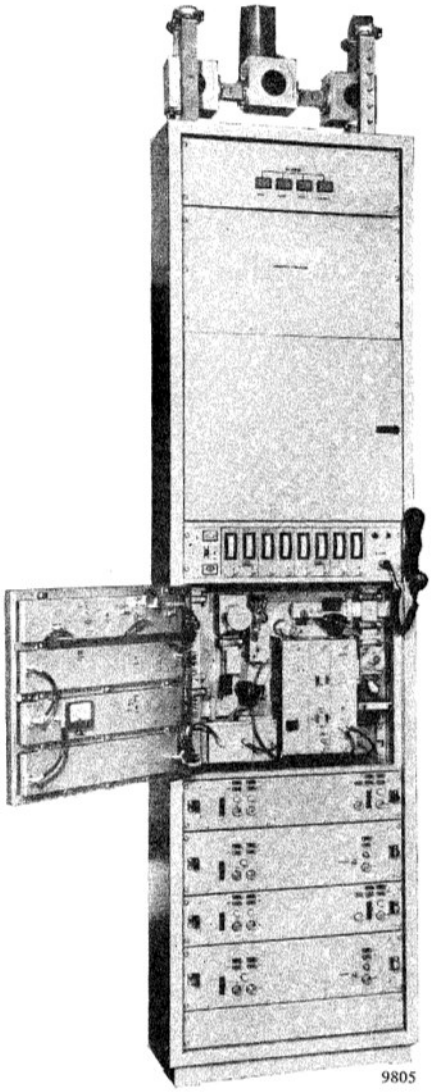
S.H.F 300 or 600-Channel or Television Radio Link Equipment Type MH 141



9805

THIS equipment provides an economical medium-capacity short-haul communications system meeting C.C.I.R and C.C.I.T.T specifications.

It can carry up to 300 telephone channels on medium-distance routes or 600 channels over short routes. The same basic equipment may alternatively be used for a monochrome television signal with a sound channel, a colour television signal or for data transmission.

(Another version with improved performance is being developed to carry 600 channels over medium distances.)

Extensive use has been made of solid-state techniques and the equipment is therefore extremely compact. Two complete terminals (together with service channel and automatic change-over facilities as necessary) can be housed in a single 7 ft. 6 in. (2·3 m) rack.

Extended links can be built up using the standard terminals as demodulating repeaters.

Its low power consumption makes the running of repeater stations from solid state convertors practical.

Features

Fully transistorized except for the transmitter and receiver klystrons.

Reliable in service, due to transistorization and robust construction.

Very little maintenance required.

Compact design.

No tuned circuits in the i.f. stages.

Very good frequency stability.

Installation is simple and inexpensive.

EQUIPMENT

The rack occupies a very small amount of floor area and requires only front access for normal maintenance. Accommodation space requirement is therefore very small.

The terminal equipment itself is accommodated in one panel enclosed by a hinged cover. The s.h.f equipment is inside the rack and the transistorized circuits are accommodated on the rear of the hinged cover.

The receiver incorporates an r.f amplifier, an i.f pre-amplifier, three stages of i.f amplification and a base-band amplifier.

Full monitoring facilities are included.

Repeater stations are formed by using two terminal equipment back-to-back.

Data Summary

Frequency range:
Civil: 5925 to 7750 Mc/s.
Military: 7750 to 8500 Mc/s.
Frequency stability: ±0·03% (±0·01% to order).
Ambient temperature range: 0 to 50°C.
Power output: 1 W (nominal).
Receiver noise factor: 12 dB.
Threshold: −108 dBW.
Intermediate frequency: 70 Mc/s.
I.F selectivity: 25 dB at ±20 Mc/s.
60 dB at ±25 Mc/s.
A.F.C range: ±10 Mc/s.
Power supplies: 110 to 240 V regulated to ±2%, 50 or 60 c/s, single-phase a.c.
Power consumption (approx.): 500 VA per rack.
Dimensions:

Height	Width	Depth
7 ft. 6 in. (2·28 m)	1 ft. 10 in. (60 cm)	9½ in. (26 cm)

Telephony
Capacity: 300 or 600 channels.
Baseband: 60–1300 kc/s for 300 channels. 60–2540 kc/s for 600 channels.
Frequency deviation: 200 kc/s r.m.s per channel.
Baseband impedance: 75 Ω unbalanced.
Baseband input level: −45 dBm adjustable.
Baseband output level: −15 dBm adjustable.
Automatic change-over time: 5 milliseconds.
Television
Baseband: 20 c/s to 5 Mc/s.
Frequency deviation: 8 Mc/s p–p.
Sound sub-carrier frequency: 7·5 Mc/s.
Baseband input and output level: 1 V p.e.p.
Frequency response: ±1 dB, 100 kc/s–6 Mc/s.
Transient response: Rise time less than 0·1 μs.
Periodic noise levels: Within C.C.I.R. limits.

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