



Modem Racks

Types HM 40 and HM 60

THE MODEM (modulator/demodulator) racks Types HM 40 and HM 60 are normally used with the HM 200 series of wideband radio equipment.

The Type HM 40 rack is used for multi-channel telephone service, versions being available for up to 600 channels. The Type HM 60 is suitable for television service and also suitable for use in other wideband systems.

In addition to containing the modulator and demodulator units, the racks incorporate monitoring, supervisory and other facilities. The Type HM 40 rack can also contain the automatic changeover equipment for twin path working, if required.

FACILITIES

HM 40 series

Test points for monitoring and facilities for adjusting the traffic input and output levels.

Engineers' order wire party line speech channel to all stations.

Lamp indications for ringing and alarm tones.

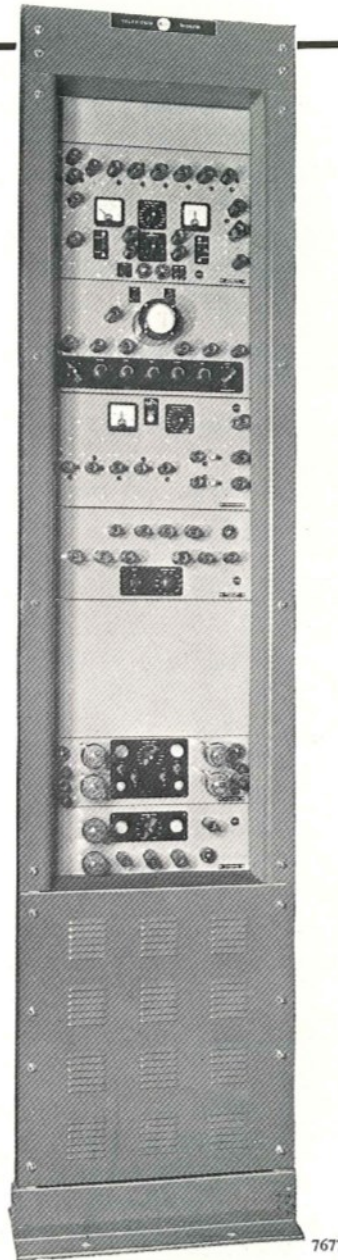
Control of repeater loop-round tones for system testing.

Local oscillator and frequency changing equipment to permit the transmitter and receiver to be tested locally.

Automatic changeover facilities for use in a twin path system.

HM 60 series

Adjustment of input and output signal level in $1\frac{1}{2}$ dB steps.



Modern Rack, Type HM 60

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Monitoring panel, allowing the visual examination of the composite waveform of both the transmitted and received signal, plus an indication of deviation.

Clamp and AFC switching.

Provision for the use of an external picture monitor.

Simultaneous transmission of both sound and vision.

GENERAL

The multi-channel telephone traffic or television signals are amplified by the line amplifiers and applied to the modulator units.

In the Type HM 40, signals in the frequency range of 60 kc/s to 2540 kc/s are accepted and in the Type HM 60, signals in the range 25 c/s to 5 Mc/s.

The units produce a 70 Mc/s modulated carrier, the centre frequency of which is stabilised by automatic control. At the terminal receiver, the 70 Mc/s signal from the IF amplifiers is taken to a demodulator unit. The demodulated signal is amplified by a line amplifier and applied to multi-channel carrier telephone or television equipment.

For twin path telephone working, automatic changeover facilities are included in the Type HM 40 rack. In conjunction with the alarm control equipment of the rack, which is always present, provision is made for the installation of automatic changeover equipment. This equipment enables traffic to be changed to an alternative set of racks, forming a second path, should the signal fail or degenerate to a predetermined level.

DATA SUMMARY

Multi-channel telephone services, Rack Type HM 40

Channel deviation: ± 200 kc/s RMS.

Modulation frequency range:

300 c/s–3.4 kc/s for EOW and supervisory.

60–1052 kc/s for 240 channels.

60–2540 kc/s for 600 channels.

Modem impedances (baseband): 75 Ω unbalanced, return loss better than 20 dB.

Channel test tone levels:

Input: –52 dBm to 0 dBm.

Output: –45 dBm to –10 dBm.

Demodulator input level: 300 mV in 75 Ω , unbalanced.

Modulator output at 70 Mc/s: 500 mV in 75 Ω , unbalanced.

Monochrome television services, Rack Type HM 60

Deviation: Peak-to-peak 8 Mc/s.

Modem levels:

Input: +6 to –3 dB ref. 1 V DAP.

Output: +5 to –5 dB ref. 1 V DAP.

(DAP=double amplitude peak)

Modulation frequency range: Suitable for 625-line monochrome.

Overall frequency response:

Low frequency: departure less than $\pm 4\%$ from ideal square wave at field frequency, excluding initial overshoot and distortion in the line period.

Medium frequency: departure of full white line from ideal, less than $\pm 2\%$ excluding overshoot.

High frequency: line frequency flat to within ± 1 dB up to 5 Mc/s.

Music circuit

Music circuit performance: Transmission response 30 c/s to 15 kc/s within 1 dB.

Input and output levels: –3 dBm to +10 dBm.

Input and output impedances: 600 Ω balanced.

Dimensions:

Height	Width	Depth	Weight
7 ft 6 in.	21 in.	18 in.	300 lb
(228 cm)	(53 cm)	(46 cm)	(136 kg)
			approx.

Marconi

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