



# UHF FM Wide-band Radio Link Equipment DQ 58C

Designed and manufactured by Canadian Marconi Company, Montreal, Canada

THE DQ 58C is intended to carry up to 600 telephone channels or one television channel (colour or monochrome, sound and vision) over long distances, providing high-quality circuits.

## Features

Single, duplicated or multipath systems, including repeaters, are available.

Automatic change-over and switching systems can be provided.

600 channels may be dropped or 48 inserted at repeaters.

Facilities for engineers' order wire and supervisory channels.

The use of travelling-wave tubes gives high gain in few stages and with low distortion.

## CIRCUIT

### TERMINAL

**Transmitter.** The service and baseband signals are applied to a frequency modulated oscillator giving an output at the 70 Mc/s IF. This oscillator is controlled by an AFC system which is referred to a crystal-controlled master oscillator shared with the receiver. The signals from the two oscillators are fed to a high-level frequency changer which utilizes a varactor parametric diode.

An output filter selects the desired transmit frequency in the 2000 Mc/s band, applying it to the travelling-wave tube power amplifier where the signal level is raised to 10 watts.

**Receiver.** The received signal is mixed in a low-noise frequency changer with a 'transfer' frequency, to give an IF output at 70 Mc/s.

The transfer frequency is derived by mixing the output of the common master oscillator with the shift frequency obtained from a crystal controlled oscillator.

The 70 Mc/s signal is amplified by a low noise IF amplifier and limited by diode

limiters. The discriminator is followed by a video frequency line amplifier.

**Repeater.** The repeater is essentially a receiver and a transmitter connected together at the intermediate frequency of 70 Mc/s, giving an output of 10 watts. One rack is required for each direction of transmission.

**Aerials.** Specially developed parabolic reflector aerial systems having suitable wide-band characteristics are available and may be used with passive reflectors if required.

## Data Summary

**Frequency range:** 1700 to 2300 Mc/s.

**Modulation:** Frequency modulation.

**Intermediate frequency:** 70 Mc/s.

**Transmitter output power:** 10 watts minimum.

**Receiver noise factor:** Better than 12 dB.

**Frequency stability:**  $\pm 0.01\%$ .

**Baseband (terminals):**

Order wire 0.3 to 3.5 kc/s  
 $\pm 1$  dB  
 Fault alarm 4 to 10 kc/s } when provided  
 $\pm 0.5$  dB

Traffic 12 to 2660 kc/s  $\pm 0.5$  dB.

Television: 10 c/s to 8 Mc/s.

**Baseband (repeaters):** Drop and insert facilities 12 to 204 kc/s  $\pm 1$  dB.

**Input levels:**

Order wire — 14 dBm min.  
 Fault alarm — 37 dBm min.  
 Traffic — 45 dBm min.  
 Television: 0.5 V p-p min.

**Output levels:**

Order wire +4 dBm max.  
 Fault alarm — 19 dBm max.  
 Traffic — 20 dBm max.  
 Television: 1V p-p min.

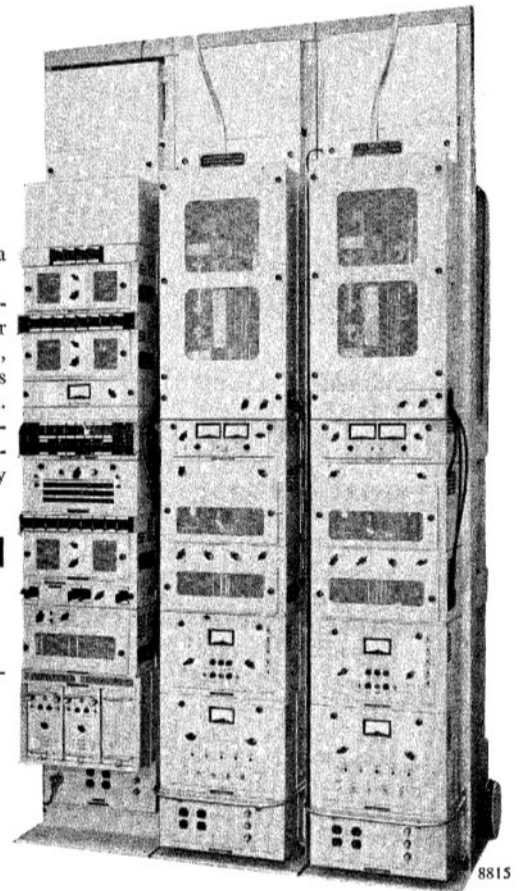
**Impedances:** RF 50  $\Omega$  unbalanced.

IF 75  $\Omega$  unbalanced.

Traffic and television 75  $\Omega$  unbalanced.

FA and EOW — 600  $\Omega$  balanced or unbalanced as required.

**Threshold:** — 107 dBW at receive filter input.



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**Power supplies:** 100–125 V or 200–250 V ( $\pm 5\%$ ), 45–65 c/s ( $\pm 5\%$ ) single-phase AC.

**Consumption:** Transmitter/receiver single terminal, 900 VA. Single repeater, 700 VA.

**Dimensions:** Transmitter/receiver, terminal or repeater.

Height	Width	Depth	Weight
8 ft	1 ft 8½ in.	1 ft 10 in.	550 lb
(244 cm)	(52 cm)	(56 cm)	(250 kg)

## Marconi

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