

Output is provided at the intermediate frequency of 1.4MHz for connection to ancillary equipment. Audio outputs are available for loudspeaker, headphones and lines, the line output being fed from an independent low-level amplifier with an adjustable pre-set gain control and a remotely controllable line attenuator. A monitor speaker is fitted and provision for connection to an external speaker provided. Aerial muting relay and input attenuator are also incorporated.

The receiver is provided with serial inputs and outputs to enable remote control in accordance with specification IT4659.

The 1763 RIA unit is employed to enable remote control of IF gain and audio line attenuator, and provide meter revertive data (see 1763 handbook). This unit also determines whether the receiver is set for local or remote control (local/remote switching not being provided on the receiver front panel).

#### GENERAL SPECIFICATION

##### Frequency Coverage

10kHz-30MHz (General specification only applies over 400kHz to 4MHz as required by IT4659)

Bandpass input tuned circuits 150kHz-30MHz  
with low pass filter from 10kHz-150kHz, is available as an optional extra.

##### Intermediate Frequencies

46.205MHz 1st IF  
1.4MHz 2nd IF

##### Aerial Impedance

50 ohm nominal (unbalanced)

##### Reception Modes

1650/7 AM, CW, USB, MCW

### Reception Bandwidths

Narrow	:	400Hz
Intermediate	:	2.25kHz
Wide	:	7kHz
USB	:	2.4kHz

NOTE Very Narrow and LSB are not available. Also note that Sweep, Standby and Front Panel Local/Remote Switching facilities are not available.

### Stability and Tuning

Tunable with 3Hz resolution with all frequencies derived from standard oscillator.

Better than 1 ppm over 10°C to 30°C. (30 day period)

Display: Eight digit displayed to 5Hz.

Can be locked to external master if required for higher order of stability.

### BFO

100Hz steps over  $\pm 3.9$ kHz, derived from master oscillator.

### Muting

Internal reed relay controlled from associated transmitter interrupts aerial feeder and grounds input circuit during transmission.

IF and AF desensitising is also provided.

### Power Supply

100V/130V and 200V/260V (40Hz-60Hz) single phase AC. Consumption approximately 70VA maximum.

Operation from 24V DC negative ground automatically selected in the absence of AC mains supply. Operation from 12V DC using external inverter unit.

## Mounting Styles

Rack mounting: Including handles and cabling at rear  
Height 133mm (5.25 inches)  
Depth 550mm (21.75 inches)  
Width 483mm (19 inches)  
Weight Approximately 19Kg (42 lbs)

Bench mounting: Including feed.  
Height 164mm (6.5 inches)  
Depth 560mm (22.5 inches)  
Width 502mm (19.75 inches)  
Weight Approximately 23Kg (51 lbs)

## Environmental

Operational temperature : -15°C to +55°C  
Storage temperature : -40°C to +70°C  
Relative humidity : 95% at +40°C  
Bump and vibration : Meets requirements of MPT1204 and CEPT requirements.

## Stored Channels

Maximum of ninety-nine channels can be stored with sensitivity, AGC, detector, selectivity and BFO offset settings. Channels can be interrogated and changed without interruption of the signal received. Any number of these channels can be automatically scanned at a rate adjustable from the front panel.

Internal Battery back up is provided to prevent loss of information in the event of a power failure.

## TYPICAL PERFORMANCE

The performance meets 'Specification IT4659', a summary of the major points is given below.

NOTE: All input levels are given in EMF.

### Sensitivity

16dB S/N on USB for 2uV input with 2.4kHz bandwidth over 400kHz to 4MHz.

### Selectivity

	<u>-6dB</u>	<u>-60dB</u>
Narrow	300Hz to 500Hz	<2.5kHz
Intermediate	2kHz to 2.5kHz	<8kHz
Wide	6kHz to 8kHz	<18kHz

<u>USB</u>	<u>Frequency Relative to Carrier</u>	<u>Attenuation</u>
	+350Hz to 2700Hz	Not more than 3dB
	-100Hz to 3100Hz	Not less than 35dB
	-400Hz and below	Not less than 60dB
	+3400Hz and above	Not less than 60dB

### Image Rejection

74dB (typically 90dB)

### IF Rejection

74dB (typically 90dB)

### Frequency Stability

Better than 1ppm in any 30 day period with ambient temperature range of +10°C to +30°C.

### Cross Modulation

With AGC on and a wanted signal of +60dBuV (modulated 30% at 1kHz) providing standard output, an interfering signal of +100dBuV at 20kHz off-tune (also modulated 30% at 1kHz) will produce an output at least 30dB below standard output (with modulation of wanted signal removed).

### Intermodulation (In-Band)

With AGC on and two signals, each of +80dBuV, producing tones in the audio passband, each in-band intermodulation product will be at least 35dB (typically 40dB) below the level of either tone.

### Intermodulation (Out-of-Band)

With AGC inoperative and a wanted signal of +6dBuV providing standard output, two interfering signals, adjusted to produce an intermodulation product at the wanted frequency, will each be of level greater than +90dBuV to provide standard output (with wanted signal removed). The interfering signals should be adjusted so that neither is closer than 20kHz to the wanted signal or is capable of producing an appreciable output when applied alone.

### Blocking

With AGC on and a wanted signal of +60dBuV, output will be reduced by less than 3dB with an interfering signal of +100dBuV (typically 110dBuV) at 20kHz off-tune.

### Reciprocal Mixing

With AGC inoperative, USB mode, and a wanted signal of +10dBuV providing standard output, an interfering signal of +90dBuV (typically +95dBuV) at 20kHz off-tune will produce a noise output at least 10dB below standard output (with wanted signal removed).

### AGC Characteristics

Output is maintained within 6dB (typically 3dB) for an input signal range of +6dBuV to +100dBuV.

### Time Constants (for 20dB steps inside AGC range)

	ATTACK	DECAY
Audio AGC	<20mS	2 sec. pedestal
Fast AGC	<40mS	250mS
Slow AGC	<40mS	1 sec.

### Audio Output

Line:- 600 ohm, 20dB return loss 300Hz - 2700Hz, +6dBm maximum (typically > +10dBm maximum). Adjustable locally or remotely down to -10dBm. Total distortion <2%.

Loudspeaker:- 500mW maximum (typically 1W maximum).

Headphones:- 10mW maximum, low/medium impedance.

Radiation: The power of any discrete component in a 50 ohm artificial antenna does not exceed 1nW in the range 10kHz to 1GHz (typically voltage levels < 10uV).