1 T835 General Information

This section provides a brief description of the T835 receiver, along with detailed specifications and a list of variants available.

The following topics are covered in this section.

1.1 Introduction

The T835 is a high performance FM base station receiver designed for single or multichannel operation in the 136 to 174MHz frequency range.

The receiver is a dual conversion superhet with a synthesised local oscillator. The first IF is 21.4MHz, allowing exceptionally high spurious signal rejection to be achieved in the receiver front end. The second IF section (455kHz) combines amplitude limiting, detection and RSSI within a single integrated circuit. It also drives a noise level detector for gating the audio output. RSSI is also used to drive a carrier mute for audio output gating.

The audio section output can be adjusted to deliver >+10dBm to a 600 ohm balanced output, and 1W to a local monitor speaker. A flat or de-emphasised audio response is link selectable.

The synthesiser frequency is programmed via an EPROM which is attached to a separate plug-in memory board. A DIP switch on the memory PCB allows fast single channel selection from a multichannel programmed EPROM, but for true multichannel capability the EPROM must be addressed separately via an additional D-range plug at the rear of the set.

All components except those on the VCO and memory boards are mounted on a single PCB. This is secured to a die-cast chassis which is divided into compartments to individually shield each section of circuitry. Access to both sides of the main PCB is obtained by removing each of the two chassis lids. There is provision within the chassis to mount small option PCBs.

The front panel controls include gate sensitivity, line level, monitor volume and a mute disable switch. This switch disables the mute (squelch) signal to the monitor amplifier as an aid to servicing.

1.2 Specifications

1.2.1 Introduction

The performance figures given are minimum figures, unless otherwise indicated, for equipment tuned with the maximum switching band and operating at standard room temperature (+22°C to +28°C).

Where applicable, the test methods used to obtain the following performance figures are those described in the EIA specification. However, there are several parameters for which performance according to the CEPT specification is given.

Details of test methods and the conditions which apply for Type Approval testing in all countries can be obtained from Tait Electronics Ltd.

1.2.2 General

Frequency Range	.. 136-174MHz
Type	.. dual conversion superheterodyne
Frequency Increment	.. 5 or 6.25kHz
Switching Range	.. 3MHz
Number Of Channels:	
Standard	.. 1
Optional .	.. 8
Internally Selectable	.. 128
Supply Voltage:	
Operating Voltage	.. 10.8 to 16V DC
Standard Test Voltage	.. 13.8V DC
Polarity	.. negative earth only
Polarity Protection	.. crowbar diode
Supply Current:	
Standby	.. 350mA
Full Audio	.. 750mA
Input Impedance	.. 50 ohms
Operating Temperature Range	.. -30°C to +60°C
Frequency Stability (see also Section 1.3)	.. ±2.5ppm, -30°C to +60°C

Signal Strength Indicator	.. -115dBm to -70dBm, 3.5 to 6.5V at approx. 15dB/V

Dimensions:

Height	.. 191mm
Width	.. 60mm
Length	.. 324mm

Weight	.. 2.13kg

1.2.3 RF Section

IF Amplifiers:

Frequencies	.. 21.4MHz and 455kHz
Bandwidths-	
Narrow Band (NB)	.. 7.5kHz
Wide Band (WB)	.. 15kHz

Sensitivity:

Single Channel	.. -117dBm
Bandspread (12dB Sinad)	.. -115dBm

Signal+Noise To Noise Ratio:

RF Level -107dBm	.. 30dB
RF Level -83dBm (NB)	.. 50dB CEPT (typical)
RF Level -57dBm (WB)	.. 55dB EIA (typical)

Selectivity:

Narrow Band (±12.5kHz)	.. 88dB CEPT (typical)
Wide Band (±25kHz)	.. 95dB

Offset Selectivity (Canada only)	.. 20dB
Spurious Response Attenuation	.. 100dB

Intermodulation Response Attenuation:

Narrow Band	.. 80dB CEPT (typical)
Wide Band	.. 85dB EIA

Blocking	.. 100dB
Co-channel Rejection	.. 6dB
Amplitude Characteristic	.. 3dB

Spurious Emissions:

Conducted	.. -90dBm to 4GHz
Radiated	.. -57dBm to 1GHz -47dBm to 4GHz

1.2.4 Audio Section

Outputs Available .. line and monitor

Frequency Response .. flat or de-emphasised (link selectable)

Flat Response:

Bandwidth .. 67 to 3400Hz
Response .. within +1, -2dB of output level at 1kHz

De-emphasised Response:

CTCSS Band-
Bandwidth .. 67 to 260Hz
Response .. within +1, -2dB of output level at 100Hz

Speech Band-
Bandwidth .. 300 to 3400Hz
Response .. within +1, -3dB of a 6dB/octave de-emphasis characteristic (ref. 1kHz)

Line Output:

Power .. adjustable to >+10dBm
Load Impedance .. 600 ohms
Distortion -
(@ -70dBm signal level, links set to de-emphasis)
Narrow Band .. 4%
Wide Band .. 2%

Monitor Output:

Power .. 1W
Speaker Impedance .. 3.5 ohms
Distortion .. 3%
(@ -70dBm signal level, links set to de-emphasis)

Mute Operation (Gate)

Systems Available .. noise mute and carrier mute

Noise Mute:

Operating Range .. 6-20dB sinad
Hysteresis .. 1.5 to 6dB
Threshold .. adjustable to -105dBm
Opening Time .. 20ms
Closing Time .. 50ms

Carrier Mute (Optional):

Operating Range .. -115 to -80dBm
Hysteresis .. 2 to 10dB
Opening Time .. 5ms
Closing Time .. 50ms

1.3 Versions

Description	Version			
	10	15	20	25
136-156MHz	●	●		
148-174MHz			●	●
7.5kHz IF Bandwidth		●		●
15kHz IF Bandwidth	●		●	
±2.5ppm TCXO (-30°C to +60°C)	●	●	●	●

Note: A TCXO with a stability of ±1ppm (0°C to +60°C) is available to suit specific requirements. Contact your nearest authorised Tait Dealer or Service Centre for further details.