

1.2 Specifications

1.2.1 Introduction

The performance figures given are minimum figures, unless otherwise indicated, for equipment tuned with the maximum switching range and operating at standard room temperature (+22°C to +28°C) and standard test voltage (13.8V DC).

Where applicable, the test methods used to obtain the following performance figures are those described in the EIA and ETS specifications. However, there are several parameters for which performance according to the CEPT specification is given. Refer to Section 1.2.6 for details of test standards.

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

The terms "wide bandwidth", "mid bandwidth" and "narrow bandwidth" used in this and following sections are defined in the following table.

	Channel Spacing	Modulation 100% Deviation	Receiver IF Bandwidth
Wide Bandwidth	25kHz	±5.0kHz	15.0kHz
Mid Bandwidth	20kHz	±4.0kHz	12.0kHz
Narrow Bandwidth	12.5kHz	±2.5kHz	7.5kHz

Sensitivity and distortion figures are stated for standard operating conditions which includes audio de-emphasis. Note that the sensitivity and distortion figures will be degraded when flat audio is selected.

	Link PL210 ^a	Link PL220 ^a
De-emphasised Audio	1-2 (A-B)	2-3 (E-F)
Flat Audio	2-3 (B-C)	1-2 (D-E)

- a. The letters in this column refer to the identification letters screen printed onto the PCB beside each set of links.

1.2.2 General

Number Of Channels	.. 128 (standard) ¹
Supply Voltage:	
Operating Voltage	.. 10.8 to 16V DC
Standard Test Voltage	.. 13.8V DC
Polarity	.. negative earth only
Polarity Protection	.. diode
Supply Current:	
Standby	.. 350mA
Full Audio	.. 750mA
Operating Temperature Range	.. -20°C to +60°C
Dimensions:	
Height	.. 191mm
Width	.. 60mm
Length	.. 324mm
Weight	.. 2.13kg

1.2.3 RF Section

Frequency Range	.. 400-530MHz
Type	.. dual conversion superheterodyne
Frequency Increment	.. 5 or 6.25kHz
Switching Range	.. 5MHz (i.e. ± 2.5 MHz from the centre frequency)
Input Impedance	.. 50 ohms
Frequency Stability (see also Section 1.4)	.. ± 1 ppm, -20°C to +60°C
Signal Strength Indicator (RSSI optional)	.. -115dBm to -70dBm, 0 to 5V at approx. 10dB/V

1. Additional channels may be factory programmed. Contact your nearest Tait Dealer or Customer Service Organisation.

IF Amplifiers:

Frequencies	..	45MHz and 455kHz
Bandwidths-		
Narrow Bandwidth (NB)	..	7.5kHz
Mid Bandwidth (MB)	..	12kHz
Wide Bandwidth (WB)	..	15kHz

Sensitivity (De-emphasised Response):

Single Channel	..	-117dBm
Bandsread (12dB Sinad)	..	-115dBm (across switching range)

Sensitivity (Flat Response):

Single Channel	..	-111dBm
Bandsread (12dB Sinad)	..	-109dBm

Signal+Noise To Noise Ratio (Typical):

		<u>De-emphasised</u>	<u>Flat</u>
RF Level -107dBm	..	30dB (WB) 25dB (NB)	20dB (WB) 15dB (NB)
RF Level -83dBm (CEPT)	..	54dB (MB) 50dB (NB)	49dB (MB) 45dB (NB)
RF Level -57dBm (EIA)	..	55dB (WB)	55dB (WB)

Selectivity:

Narrow Bandwidth (± 12.5 kHz)	..	83dB minimum, 85dB typical (CEPT)
Mid Bandwidth (± 20 kHz)	..	87dB minimum, 90dB typical (CEPT)
Wide Bandwidth (± 25 kHz)	..	87dB minimum, 90dB typical (CEPT)

Offset Selectivity (Canada only) .. 20dB

Spurious Response Attenuation .. 100dB

Intermodulation Response Attenuation:

Narrow Bandwidth	..	80dB CEPT (typical)
Mid Bandwidth	..	75dB CEPT
Wide Bandwidth	..	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

1.2.4.1 General

Outputs Available	..	line and monitor
Frequency Response	..	flat or de-emphasised (750µs) (link selectable)
Flat Response:		
Bandwidth	..	67 to 3400Hz
Response	..	within +1, -2dB of output level at 1kHz
De-emphasised Response:		
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):		
		<u>De-emphasised</u> <u>Flat</u>
Wide Bandwidth	..	≤2% ≤2%
Mid & Narrow Bandwidth	..	≤2% ≤4%

1.2.4.2 CTCSS

Linkable High Pass Filter:

Bandwidth	..	350 to 3400Hz
Response	..	within +1, -3dB of level at 1kHz
Hum And Noise (1kHz at 60% system deviation CTCSS at 10% system deviation)	..	30dB min. at 250.3Hz 35dB typical (67 to 240Hz)

Tone Detect:

Tone Squelch Opening	..	better than 6dB sinad 3dB sinad at 250.3Hz (typical) 4dB sinad at 100Hz (typical)
Tone Detect Bandwidth	..	±2.1Hz accept (typical) ±3.0Hz reject (typical)
Response Time	..	150ms open and close (typical)

1.2.4.3 Mute Operation

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

Note: The opening and closing times given above are for the standard setup (SL210 linked and SL220 not linked - refer to Section 3.8).

1.2.5 Microprocessor Controller

Auxiliary Ports:

Open Drain Type	.. capable of sinking 2.25mA via 2k2Ω
V _{ds} max.	.. 5V

1.2.6 Test Standards

Where applicable, this equipment is tested in accordance with the following standards.

1.2.6.1 European Telecommunication Standard

ETS 300 086 January 1991

Radio equipment and systems; land mobile service; technical characteristics and test conditions for radio equipment with an internal or external RF connector intended primarily for analogue speech.

ETS 300 113 March 1996

Radio equipment and systems; land mobile service; technical characteristics and test conditions for radio equipment intended for the transmission of data (and speech) and having an antenna connector.

ETS 300 219 October 1993

Radio equipment and systems; land mobile service; technical characteristics and test conditions for radio equipment transmitting signals to initiate a specific response in the receiver.

ETS 300 279 February 1996

Radio equipment and systems; electromagnetic compatibility (EMC) standard for private land mobile radio (PMR) and ancillary equipment (speech and/or non-speech).

1.2.6.2 DTI CEPT Recommendation T/R-24-01**Annex I: 1988**

Technical characteristics and test conditions for radio equipment in the land mobile service intended primarily for analogue speech.

Annex II: 1988

Technical characteristics of radio equipment in the land mobile service with regard to quality and stability of transmission.

1.2.6.3 Telecommunications Industry Association**ANSI/TIA/EIA-603-1992**

Land mobile FM or PM communications equipment measurement and performance standards.