TB7100 base station

Installation Guide

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To Our European Customers

Tait Electronics Limited is an environmentally responsible company which supports waste minimization and material recovery. The European Union's Waste Electrical and Electronic Equipment Directive requires that this product be disposed of separately from the general waste stream when its service life is over. Please be environmentally responsible and dispose through the original supplier, your local municipal waste "separate collection" service, or contact Tait Electronics Limited.

Contents

Associated Documentation

- MBB-00001-**xx** TB7100 Installation and Operation Manual
- MBB-00002-**xx** TB7100 Specifications Manual
- MBB-00006-**xx** TB7100 Installation Guide (French)
- MBB-00007-**xx** TB7100 Installation Guide (Spanish)
- MBB-00008-**xx** TB7100 Installation Guide (Chinese)
- MBB-00005-**xx** TB7100 Service Manual
- MBA-00013-**xx** TBA0STU/TBA0STP Calibration and Test Unit Operation Manual

The characters **xx** represent the issue number of the documentation.

All available documentation is provided on the Product CD supplied with the base station. Updates may also be published on the Tait support website. Consult your nearest Tait Dealer or Customer Service Organisation for more information

Tuning and Configuration

If your base station has not been tuned to your requirements at the factory, you will need to tune the base station before operating it. To do this you will need to use the Calibration Application software included on the Product CD, plus the TBA0STU calibration test unit which includes the TB7100 adapter. (Customers using the TBA0ST1 calibration and test unit should use the TBB0STU-TBB adapter.) The base station has been programmed with a default software configuration and default passwords at the factory. You will need to use the Program Application software to configure your base station to suit the requirements of your radio system. Refer to the Calibration Application and Program Application documentation for full details on these procedures. If a duplexer has been ordered, it will be tuned at the factory.

1 Installation

This section describes how to install the base station in a standard 19-inch rack or cabinet. It also provides some general information on safety precautions and site requirements. We recommend that you read the entire section before beginning the installation.

1.1 Personal Safety

1.1.1 Lethal Voltages

The base station may be fitted with an internal AC power supply unit. If an internal AC power supply unit is fitted, a standard ICE AC power connector is fitted in the rear panel of the base station (refer to "AC Power Connection" on page 18).

Warning!! **The internal AC power supply unit contains voltages that may be lethal. Refer to the ratings label on the rear of the base station. The internal AC power supply contains no user–serviceable parts.**

Important Before connecting to the AC power connector, refer to the ratings label on the rear of the base station for its configured mains voltage.

The base station must be installed so that the rear of the base station is located in a service access area. The plug of the AC power supply cord is intended as the disconnect device. Therefore, the socket-outlet must be installed near the equipment and must be readily accessible.

Ensure that all power sources (AC <u>and</u> DC) are disconnected before opening the base station.

1.1.2 Explosive Environments

Warning!! **Do not operate base station equipment near electrical blasting caps or in an explosive atmosphere. Operating the equipment in these environments is a definite safety hazard.**

1.1.3 Proximity to RF Transmissions

Do not operate the transmitter when someone is standing within 90 cm (3 ft) of the antenna. Do not operate the transmitter unless you have checked that all RF connectors are secure.

1.1.4 High Temperatures

Take care when handling a base station which has been operating recently. Under extreme operating conditions (+60°C [+140°F] ambient air temperature) or high duty cycles the external surfaces of the base station can reach temperatures of up to +80°C (+176°F).

1.1.5 LED Safety (EN 60825-1)

This equipment contains LEDs which are considered a

CLASS 1 LED PRODUCT.

1.2 Equipment Safety

1.2.1 ESD Precautions

Important This equipment contains devices which are susceptible to damage from static charges. You must handle these devices carefully and according to the procedures described in the manufacturers' data books.

We recommend you purchase an antistatic bench kit from a reputable manufacturer and install and test it according to the manufacturer's instructions. Figure 1.1 shows a typical antistatic bench set-up.

You can obtain further information on antistatic precautions and the dangers of electrostatic discharge (ESD) from standards such as ANSI/ESD S20.20-1999 or BS EN 100015-4 1994.

Figure 1.1   Typical antistatic bench set-up
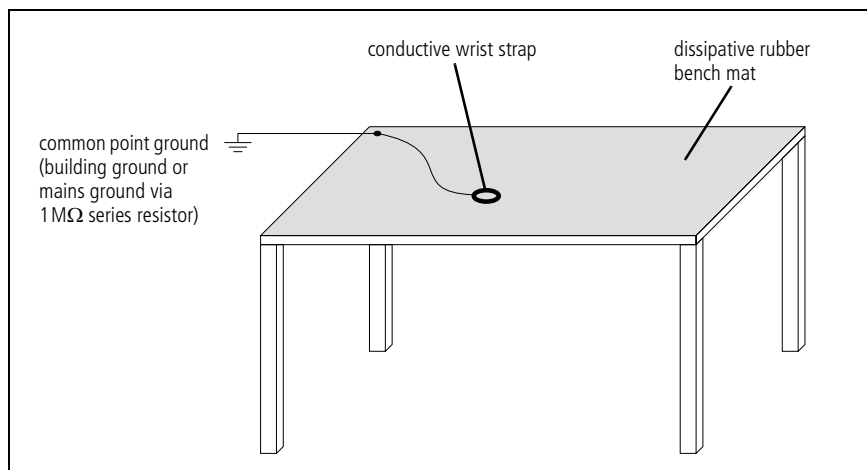
1.2.2   Antenna Load

The base station has been designed to operate safely under a wide range of antenna loading conditions. However, we strongly recommend that the transmitter should always be operated with a suitable load to prevent damage to the transmitter output power stage.

1.2.3   Equipment Grounding

To ensure safe operation, the base station must be correctly grounded as described in these installation instructions.

1.2.4   Installation and Servicing Personnel

The base station should be installed and serviced only by qualified personnel.

1.3   Regulatory Information

1.3.1   Distress Frequencies

The 406 to 406.1 MHz frequency range is reserved worldwide for use by Distress Beacons. Do **not** program transmitters to operate in this frequency range.

1.3.2 FCC Compliance[1]

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

1.3.3 Unauthorised Modifications

Any modifications you make to this equipment which are not authorised by Tait Electronics Ltd. may invalidate your compliance authority's approval to operate the equipment.

1.3.4 Health, Safety and Electromagnetic Compatibility in Europe

In the European Community, radio and telecommunications equipment is regulated by Directive 1999/5/EC, also known as the Radio and Telecommunications Terminal Equipment (R&TTE) directive.
The requirements of this directive include protection of health and safety of users, as well as electromagnetic compatibility.

Intended Purpose of Product This product is an FM radio transceiver. Its intended purpose is for radio communication in Private Mobile Radio (PMR) services or Public Access Mobile Radio (PAMR) services.

Important This product can be programmed for frequencies or emissions that may make its use illegal. A license must be obtained before this product is used. All license requirements must be observed. Limitations may apply to transmitter power, operating frequency, channel spacing, and emission.

Declaration of Conformity Brief Declarations of Conformity appear on page 28. You can download the formal Declaration of Conformity from http://eudocs.taitworld.com/. You can also obtain a signed and dated paper copy of the Declaration of Conformity from Tait Europe Ltd.

For Customers in Luxembourg This equipment must not be operated as a data repeater in Luxembourg unless it is used in conjunction with an approved Channel Access Controller that meets the requirements of ETSI standard EN 300 471.

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1. Refer to the specifications manual for more information on the compliance standards to which the base station has been tested and approved.

1.4 Environmental Conditions

1.4.1 Operating Temperature Range

The operating temperature range is $-30\,°C$ to $+60\,°C$ ($-22\,°F$ to $+140\,°F$) ambient temperature for the 25 W base station and $-30\,°C$ to $+50\,°C$ ($-22\,°F$ to $+122\,°F$) ambient temperature for the 50 W and 40 W base stations. Ambient temperature is defined as the temperature of the air at the intake to the cooling fans.

1.4.2 Humidity

The humidity should not exceed 95% relative humidity through the specified operating temperature range.

1.4.3 Dust and Dirt

For uncontrolled environments, the level of airborne particulates must not exceed $100\,\mu g/m^3$.

1.5 Grounding and Lightning Protection

1.5.1 Electrical Ground

A threaded grounding connector is provided on the rear of the tray for connection to the site ground point (for more details refer to).

1.5.2 Lightning Ground

It is extremely important for the security of the site and its equipment that you take adequate precautions against lightning strike. Because it is outside the scope of this manual to provide comprehensive information on this subject, we recommend that you conform to your country's standards organisation or regulatory body.

1.6 Recommended Tools

It is beyond the scope of this manual to list every tool that an installation technician should carry. However, the following tools are specifically required for installing the base station:

■ Philips #2 tip screwdriver used to connect the DC power cables to the DC power terminals

■ Pozidriv PZ3 screwdriver for the M6 screws used to secure the tray to the cabinet in Tait factory-assembled systems

■ Torx T10 screwdriver for the M3 pan head screws with captured shake-proof washer and flat washer used to secure the modules in the tray

■ Torx T10 screwdriver for the M3 countersunk screws used to secure the cover and the heatsink channels to the tray

■ Pozidriv PZ1 screwdriver for the M3 pan head self-tapping screws used to secure the fans.

You can also obtain the TBA0ST2 tool kit from your nearest Tait dealer or Customer Service Organisation. It contains the basic tools needed to install, tune and service the base station.

1.7 Ventilation

Always ensure there is adequate ventilation around the base station. **Do not** operate at high duty cycles in a sealed cabinet. You **must** keep the ambient temperature within the specified range, and we **strongly** recommend you ensure that the cooling airflow is not restricted.

Important   The cooling fans are mounted behind the front panel. To ensure adequate airflow through the base station, do not operate it for more than a few minutes with the fans disconnected (e.g. for servicing purposes).

Cabinet and Rack Ventilation

Refer to Figure 1.2 on page 11.

Adequate cooling airflow is critical to the performance of the base station. The cooling airflow for the base station enters through the front panel and exits at the rear of the tray. For optimum thermal performance, the heated air that has passed through a base station must not be allowed to re-enter the air intakes on the front panel.

Each base station requires an unobstructed airflow of $18\,\text{m}^3/\text{h}$ (11 cfm).

To allow enough cooling airflow through a cabinet mounted base station we recommend the following:

Figure 1.2   Typical cabinet ventilation requirements

① ventilation slots   ③ airflow entry

② blanking panels   ④ airflow exit
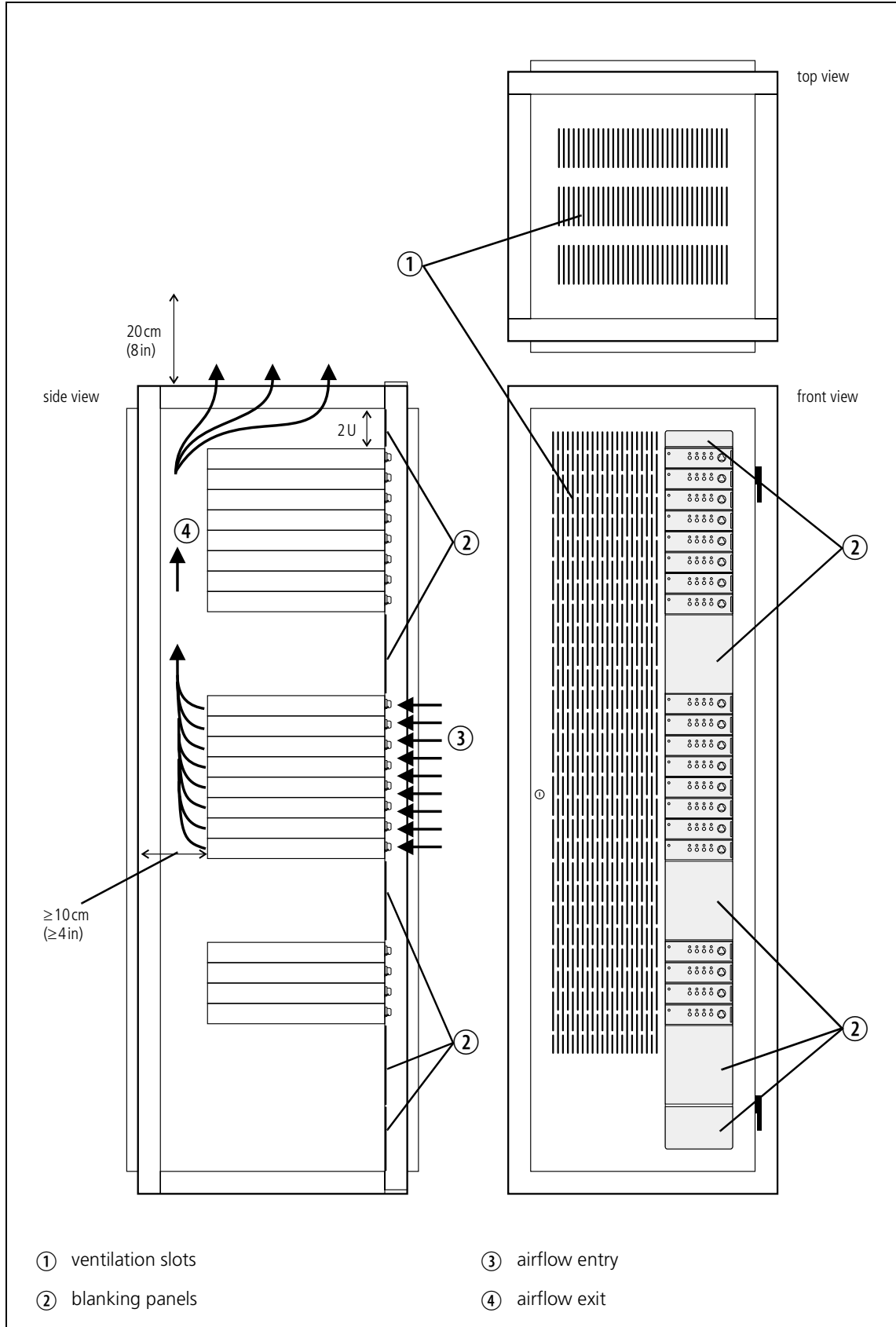
- a distance of 5 cm minimum clearance to any obstruction to the front of the tray.
- an open area of at least $50\,cm^2$ (8 sq. in.) per tray of ventilation slots or louvres in front of the air intakes for the fans for each tray; for example ten 6×85 mm (0.25×3.3 in.) slots will allow the recommended airflow.
- a distance of 10 cm minimum clearance to any obstruction to the rear of the tray.
- an open area of at least $50\,cm^2$ (8 sq. in.) per tray of ventilation slots or louvres in the top of the cabinet, or to the rear of each tray.
- a 2U gap at the top of the cabinet.

Note   The ventilation opening must be unrestricted. If the slots or holes are covered with a filter, mesh or grille, the open area must be increased to allow the same airflow as an unrestricted opening.

The maximum ambient temperature entering the cabinet must not exceed the maximum temperature specified for the base station.

If the base station is installed in a rack or cabinet with other equipment with different ventilation requirements, we recommend that the base station be positioned below this equipment.

Auxiliary Extractor Fans   If multiple base stations are fitted in a cabinet, auxiliary extractor fans may be required to ensure adequate cooling. If fitted they should be capable of extracting $18\,m^3$/h (11 cfm) per base station in the cabinet.

If you have any other configuration, the performance of your system will depend on how closely you comply with the base station airflow requirements described above.

1.8   Installing the Base Station

1.8.1   Unpacking the Equipment

Unpacking the Base Station   The base station is packed in a strong corrugated cardboard carton with top and bottom foam cushions.

1.   Cut the tape securing the flaps at the top of the carton and fold them flat against the sides.

2.   Rotate the carton carefully onto its side and then onto its top, ensuring that none of the flaps is trapped underneath.

3.   Slide the carton upwards over the foam cushions and lift it away. Remove the cushion from the bottom of the base station.

4.   Lift the base station clear of the remaining cushion.

Disposal of Packaging

If you do not need to keep the packaging, we recommend that you recycle it according to your local recycling methods. The foam cushions are CFC- and HCFC-free and may be burnt in a suitable waste-to-energy combustion facility, or compacted in landfill.

1.8.2 Power Supply Options

The base station is available with or without an internal AC power supply unit.

All base stations have an external DC input power connector which is used as main power supply when no internal AC power supply unit is fitted.

When the internal AC power supply unit is fitted, the DC input can be used as a DC backup power option. In case of AC mains failure the base station will automatically and seamlessly switch to DC power input.

If no internal AC power supply unit is fitted, an external Tait T809-10-87xx power supply can be used to supply the DC voltage required.

1.8.3 Mounting the Base Station

1. Fit the base station into the cabinet or rack and secure it firmly with an M6 (or 0.25in if you are using imperial fittings) screw, flat and spring washer in each of the four main mounting holes ①, as shown in .

2. The base station can be wall–mounted by rotating the front mounting brackets and fitting the optional rear brackets (TBBA03-01). When the base station is wall-mounted ensure the airflow is from bottom to top (front panel mounted down) or side to side.

3. For transport or in installations subject to vibration, the base station should be supported at the rear using a transit bracket (Tait recommends to use the TB7100 transit bracket, Tait part number TBBA03-04).

Figure 1.3   Base station mounting points (configuration with AC power supply unit shown)

①	main mounting holes	④	DC power connector
②	base station	⑤	AC power connector
③	ground point	⑥	rack frame
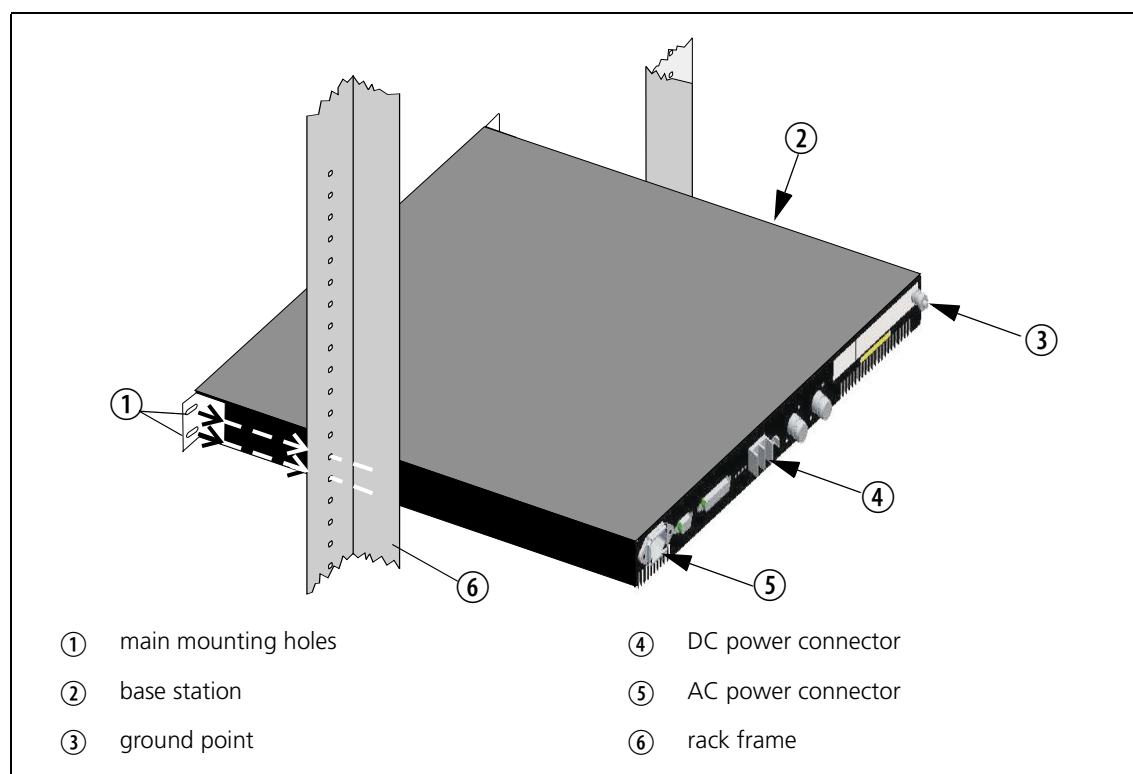
1.8.4 Cabling

We recommend that you route all cables to and from the base station along the side of the cabinet so the cooling airflow is not restricted.

Cables should be well supported so that the connectors or terminals on the base station and on the ends of the cables do not have to support the full weight of the cables.

Cables must be routed so that they do not restrict the air outlets at the rear of the base station.

1.8.5 Accessories

The base station can use the following accessories:

- 219-03012-00 cable assembly to connect TB7100 to CMM card
- T809-10-87xx power supply
- TBBA03-01 wall mounting kit
- TBBA03-02 duplexer kit
  (mechanical configuration without provision for internal AC power supply unit)
- TBBA03-03 duplexer kit
  (mechanical configuration with provision for internal AC power supply unit)
- TBBA03-04 TB7100 transit bracket kit
- TMAA02-01 fist microphone

2 Connections

Overview
This section gives an overview of looms and cables, and describes the specifications and pinouts of the external and internal connectors.

Figure 2.1 provides an overview of the connections.
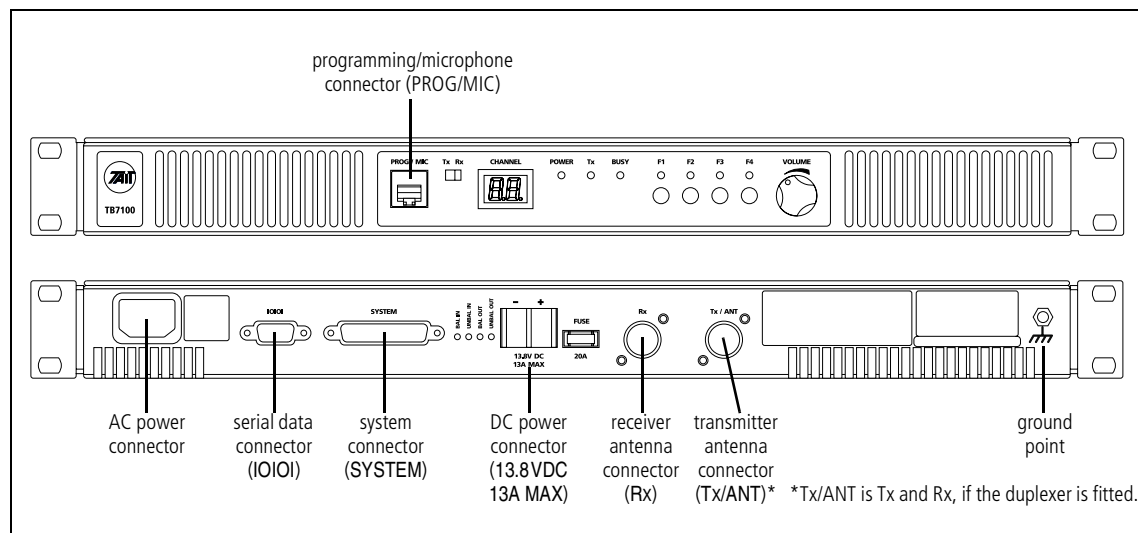
Figure 2.1 Connectors, looms and cables
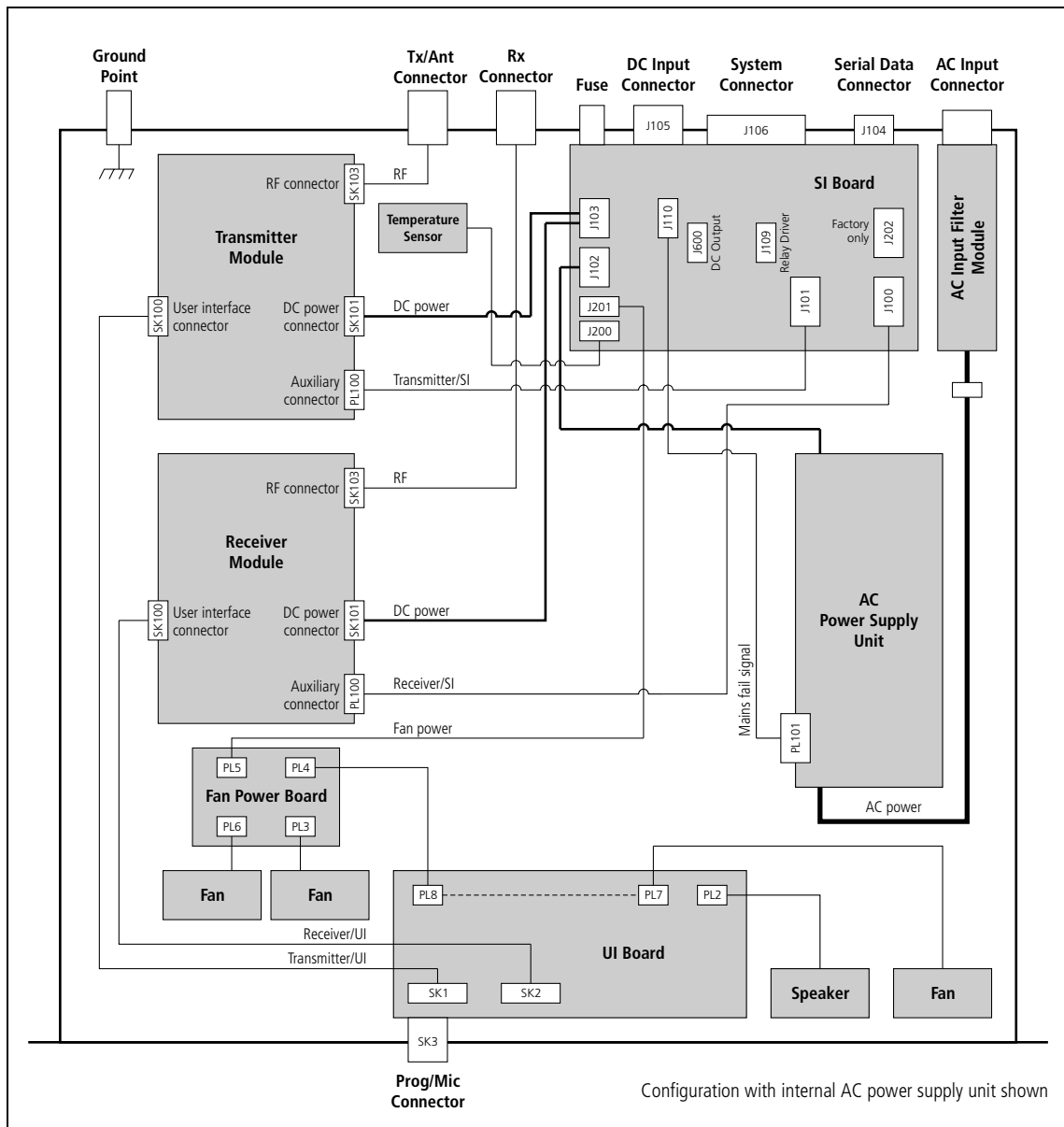
For information on the factory connector and the internal options connector of the transmitter and receiver, refer to the PCB information.

2.1 External Connectors

Figure 2.2 shows the external connectors:

Figure 2.2   External connectors (configuration with internal AC Power supply unit shown)

AC Power Connection

If an internal AC power supply unit is fitted, the AC power supply will accept mains input voltages of either 195VAC to 264VAC or 99VAC to 135VAC. Refer to the ratings label on the rear of the base station.

The AC power connector at the rear of the base station is a standard 3-way AC pin connector.

⚠ *Warning!!*   **The internal AC power supply unit contains voltages that may be lethal. Refer to the ratings label on the rear of the base station. The internal AC power supply contains no user–serviceable parts.**

✋ *Important*   Before connecting to the AC power connector, refer to the ratings label on the rear of the base station for its configured mains voltage.

The base station must be installed so that the rear of the base station is located in a service access area. The plug of the AC power supply cord is intended as the disconnect device. Therefore, the socket–outlet must be installed near the equipment and must be readily accessible.

Ensure that all power sources (AC <u>and</u> DC) are disconnected before opening the base station.

DC Power Connection

The base station is designed to accept a nominal 13.8 V DC, with negative ground.

Note The base station will not charge the battery via the DC power connector when an internal AC power supply unit is fitted.

The DC power connector (J105) at the rear of the base station is a heavy-duty M4 screw terminal connector suitable for many forms of connection.

|	Pin	Signal Name	Signal Type	Notes
	1	13.8VDC	input	
	2	ground	input	

external view

You must connect the DC supply from the battery to the base station via a readily accessible disconnect device such as a fuse or DC-rated circuit breaker with the appropriate rating, as shown in the table below. The DC input leads should be of a suitable gauge to ensure less than 0.2 V drop at maximum load over the required length of lead.

Nominal Supply Voltage	Input Voltage Range	Circuit Breaker/Fuse Rating	Recommended Wire Gauge[a]
13.8VDC	10VDC to 16VDC	20A	8AWG / 8.35mm^2

a. For a length of 1.5m to 2m (5ft to 6.5ft) (typical).

Terminate the DC input leads with a suitable crimp connector for attaching to the J105 M4 screws.

Figure 2.3   Recommended DC power connection
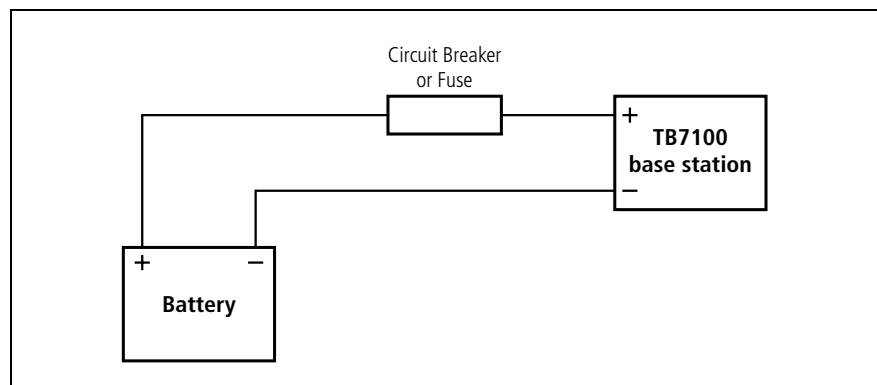
Ground Point

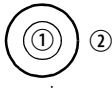The ground point is a terminal for grounding the tray to the mounting rack.

RF Connections (Rx and Tx/ANT)

The RF input to the base station is via the Rx connector (N-type) on the rear panel of the base station. The RF output is via the Tx/ANT connector (N-type) on the rear panel of the base station.

The RF connector is an N-type connector with an impedance of 50Ω.

Important The maximum RF input level is +27 dBm. Higher levels may damage the radio.

	Pin	Signal Name	Signal Type	Notes
① ② rear view	1	RF	RF analog	
	2	GND	RF ground	

System Connector (SYSTEM)

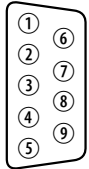The system connector (J106) at the rear of the base station is a 25-way standard-density D-range socket.

external view

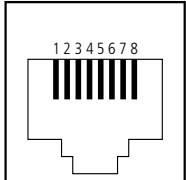| Pin	Signal Name	Signal Type	Notes
1	Rx line output +	audio output	transformer isolated line <6dBm
2	Tx/Rx digital input 1 (AUX_GPI1)	input	high ≥1.7 V, low ≤0.7 V
3	Tx/Rx digital input 2 (AUX_GPI2)		
4	Rx line output −	audio output	transformer isolated line
5	Tx line input +	audio input	transformer isolated line
6	Tx/Rx digital input 3 (AUX_GPI3)	input	high ≥1.7 V, low ≤0.7 V
7	Tx/Rx digital input 4 (AUX_GPIO4)	input	output: high ≥3.1 V (no load), low <0.6 V (10mA sink) input: high ≥1.7 V, low ≤0.7 V
8	Tx line input −	audio input	transformer isolated line
9	RSSI	output	DC signal, 0.6 to 2.5V
10	Tx digital in/out 1 (TX_AUX_GPIO5)	input/output	output: high ≥3.1 V (no load), low <0.6 V (10mA sink) input: high ≥1.7 V, low ≤0.7 V
11	Tx audio input	audio input	
12	Tx digital in/out 2 (TX_AUX_GPIO6)	input/output	output: high ≥3.1 V (no load), low <0.6 V (10mA sink) input: high ≥1.7 V, low ≤0.7 V
13	ground	ground	
14	Rx gate	output	open collector
15	Tx key	input	active low
16	Rx relay (comm)	output	opto-isolated
17	Rx relay (NO or NC)	output	
18	Rx Inhibit	input	0 to 3.3V, active low
19	Rx digital in/out 1 (RX_AUX_GPIO5)	input/output	output: high ≥3.1 V (no load), low <0.6 V (10mA sink) input: high ≥1.7 V, low ≤0.7 V
20	Tx Opto input +	input	input voltage range 10VDC to 60VDC
21	Tx Opto input −	input	
22	Rx digital in/out 2 (RX_AUX_GPIO6)	input/output	output: high ≥3.1 V (no load), low <0.6 V (10mA sink) input: high ≥1.7 V, low ≤0.7 V
23	Digital output/Tx relay	output	active low, sinks up to 250mA
24	Rx audio output	output	<4.4V_{pp}
25	13.8 volt output	power output	resetable SMD fuse 1.5A
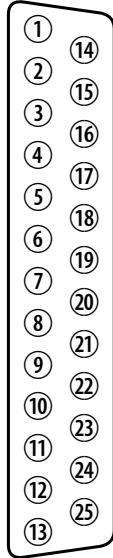
Serial Data Connector (IOIOI)

The serial data connector (J1054) labelled IOIOI is a 9-way female D-range connector, which provides a data connection to the base station.

Pin	Signal Name	Signal Type	Notes
1	not connected	not used	
2	receive data	output	data transmitted by TB7100
3	transmit data	input	data received by TB7100
4	not connected	not used	
5	ground	ground	
6	not connected	not used	
7	ready to transmit	output	request to send
8	clear to send	input	clear to send
9	not connected	not used	

external view

Programming/Microphone Connector (PROG/MIC)

The PC running the programming and calibration application is connected to the base station via the programming/microphone connector (SK3) of the UI board. The programming/microphone connector is an 8-way RJ45 socket.

Use the TPA-SV-006 or the T2000-A19 programming lead and a TMAA20-04 adapter to connect the PC to the base station. It is possible to plug the RJ11 directly into the RJ45 socket without the use of the adapter, but this is not recommended. A microphone can also be connected to the base station via this connector.

Pin	Signal Name	Signal Type	Notes
1	not connected		not connected
2	+13V8_SW	output	+13.8V, 250mA
3	TXD	input	transmit data
4	PTT	input	PTT
5	MIC_AUD_IN	input	voice band (microphone) input
6	GND	ground	
7	RXD	output	receive data
8	not connected		not connected

external view

2.2   Internal Connectors

2.2.1   Transmitter and Receiver Connectors

The internal connectors of the transmitter and receiver are the same for both modules.
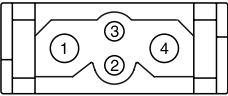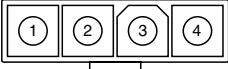
Note   Whilst the internal connectors may be physically similar, the signals on the user interface connectors are different for the transmitter and the receiver.

RF Connectors   The RF connectors of the transmitter and the receiver are N–type connectors with an impedance of $50\,\Omega$.

DC Power Connectors   The DC power connectors of the transmitter and the receiver are the interface for the primary 13.8V power source. There are different DC power connectors for the 50W/40W and 25W versions.

	Pin	Signal name	Signal type	Notes
50W/40W external view **25W** external view	1	AGND	ground	
	2	SPK–	analog output	not connected
	3	SPK+	analog output	not connected
	4	13.8VDC	DC power input	

Auxiliary Connectors

The auxiliary connectors of the transmitter and receiver are 15-way standard-density D-range sockets.

external view

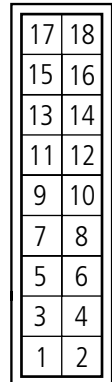| Pin	Signal Name	Signal Type	Notes
1	AUX GPIO7	bidirectional	Rx = Gate / Tx = Key
2	AUX GPIO4	bidirectional	BCD 3 (default)
3	AUX RXD	input	
4	AUX GPI3	input	BCD 2 (default)
5	AUX GPI2	input	BCD 1 (default)
6	RSSI	output	
7	AUX TAP IN	input	
8	13.8VDC SW	output	
9	AUX GPIO6	bidirectional	
10	AUX GPIO4	bidirectional	
11	AUX TXD	output	
12	AUX GPI1	input	BCD 0 (default)
13	AUD TAP OUT	output	
14	AUX MIC AUD	input	
15	AGND	ground	
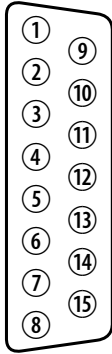
User Interface Connector

The user interface connectors (SK100) of the transmitter and the receiver is a 15-way moulded plastic connector.

external view
pin 1 closest to PCB

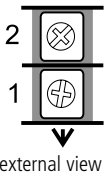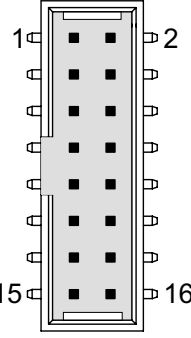| Pin	Signal Name	Signal Type Transmitter	Signal Type Receiver	Notes
1	RX AUD	no connection	no connection	no connection
2	13.8VDC	no connection	output	+13V8DC for UI board
3	CH TXD	input	input	programming data
4	CH PTT	input	no connection	microphone PTT
5	CH MIC AUD	input	output	audio from microphone
6	AGND	ground	ground	analog ground
7	CH RXD	output	output	programming data
8	DGND	ground	ground	digital ground
9	CH ON OFF	output	output	digital ground
10	VOL WIP DC	input	input	volume control
11	CH SPI D0	output	output	
12	CH LE	output	output	
13	CH GPIO1	output	output	digital ground
14	3.3VDC	no connection	output	+3V3DC for UI board
15	CH SPI D1	input	input	
16	CH SPI CLK	output	output	
17	SPK-	no connection	output	speaker audio
18	SPK+	no connection	output	speaker audio

2.2.2 SI Board Connectors

DC Power Connectors

The two DC power connectors (J102 and J103) on the SI board are heavy–duty M4 screw terminals. J102 (if fitted) accepts power from the internal AC power supply unit. J103 distributes the DC power to the transmitter and the receiver.

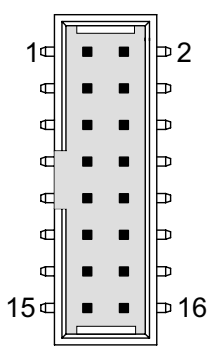| Pin	Signal Name	Signal Type	Notes
1	Tx and Rx 13.8VDC	J102 :input J103: output	
2	Tx and Rx ground	J102 :input J103: output	

external view

System Interface Connector to Transmitter

The system interface connector (J101) to the transmitter is a 16–way surface-mounted connector.

Pin	Signal Name	Signal Type	Notes
1	TX_AUX_GPIO7	output	Tx key signal
2	TX_AUX_GPIO6	bidirectional	digital input/output
3	TX_AUX_GPIO5	bidirectional	digital input/output
4	TX_AUX_GPIO4	bidirectional	digital input/output
5	TX_AUX_RXD	input	data
6	TX_AUX_TXD	output	data
7	TX_AUX_GPI3	input	digital input
8	TX_AUX_GPI1	input	digital input
9	TX_AUX_GPI2	input	digital input
10	TX_AUD_TAP_OUT	no connection	
11	TX_RSSI	no connection	
12	TX_MIC_AUD	output	
13	TX_AUD_TAP_IN	output	Tx audio
14	TX_GND	ground	ground
15	TX_13V8	no connection	
16	N/C	no connection	

external view

System Interface Connector to Receiver

The system interface connector (J100) to the receiver is a 16-way surface-mounted connector.

external view

Pin	Signal Name	Signal Type	Notes
1	RX_AUX_GPIO7	input	gate signal
2	RX_AUX_GPIO6	bidirectional	digital input/output
3	RX_AUX_GPIO5	bidirectional	digital input/output
4	RX_AUX_GPIO4	bidirectional	digital input/output
5	RX_AUX_RXD	input	data
6	RX_AUX_TXD	output	data
7	RX_AUX_GPI3	input	digital input
8	RX_AUX_GPI1	input	digital input
9	RX_AUX_GPI2	input	digital input
10	RX_AUD_TAP_OUT	input	receive audio
11	RX_RSSI	input	RSSI
12	RX_MIC_AUD	no connection	
13	RX_AUD_TAP_IN	no connection	
14	RX_GND	ground	ground
15	RX_13V8	no connection	
16	N/C	no connection	

2.2.3   UI Board Connectors

User Interface Connector to Transmitter

The user interface connector (SK1) to the transmitter is a 16–way MicroMaTch connector.

Pin	Signal Name	Signal Type	Notes
1	TX_RX_AUD	no connection	no connection
2	TX_+13V8_SW	no connection	no connection
3	TX_CH_TXD	output	programming data
4	TX_CH_PTT	output	microphone PTT
5	TX_MIC_AUD_OUT	output	audio from microphone
6	TX_AGND	ground	analogue ground
7	TX_CH_RXD	input	programming data
8	TX_DGND	ground	digital ground
9	TX_CH_ON_OFF	input	digital ground
10	TX_VOL_WIP_DC	output	no connection
11	TX_CH_SPI_D0	input	
12	TX_CH_LE	input	
13	TX_CH_SPIO1	input	digital ground
14	TX_+3V3	no connection	no connection
15	TX_CH_SPI_DI	output	
16	TX_CH_SPI_CLK	input	
17	TX_CH_SPK-	no connection	no connection
18	TX_CH_SPK+	no connection	no connection

external view
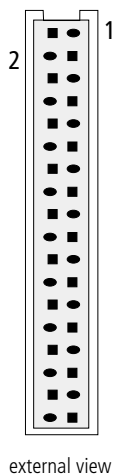
User Interface Connector to Receiver

The user interface connector (SK2) to the receiver is a 16–way MicroMaTch connector.

Pin	Signal Name	Signal Type	Notes
1	RX_RX_AUD	no connection	no connection
2	RX_+13V8_SW	input	+13V8DC for PCB
3	RX_CH_TXD	output	programming data
4	RX_CH_PTT	no connection	no connection
5	RX_MIC_AUD_OUT	input	no connection
6	RX_AGND	ground	analogue ground
7	RX_CH_RXD	input	programming data
8	RX_DGND	ground	digital ground
9	RX_CH_ON_OFF	input	digital ground
10	RX_VOL_WIP_DC	output	volume control
11	RX_CH_SPI_D0	input	
12	RX_CH_LE	input	
13	RX_CH_GPIO1	input	digital ground
14	RX_+3V3	input	+3V3DC for PCB
15	RX_CH_SPI_DI	output	
16	RX_CH_SPI_CLK	input	
17	RX_CH_SPK-	input	speaker audio
18	RX_CH_SPK+	input	speaker audio

external view
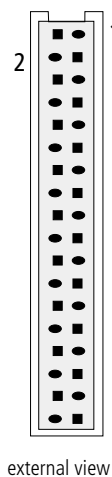
⟨ CE ⟩ ① Directive 1999/5/EC Declaration of Conformity

da **Dansk**

Undertegnede Tait Electronics Limited erklærer herved, at følgende udstyr TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Se endvidere: http://eudocs.taitworld.com/

de **Deutsch**

Hiermit erklärt Tait Electronics Limited die Übereinstimmung des Gerätes TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG.
Siehe auch: http://eudocs.taitworld.com/

el **Ελληνικός**

Με την παρουσα Tait Electronics Limited δηλωνει οτι TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B συμμορφωνεται προσ τισ ουσιωδεισ απαιτησεισ και τισ λοιπεσ σχετικεσ διαταξεισ τησ οδηγιασ 1999/5/ΕΚ.
βλέπε και: http://eudocs.taitworld.com/

en **English**

Tait Electronics Limited declares that this TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B complies with the essential requirements and other relevant provisions of Directive 1999/5/EC.
See also: http://eudocs.taitworld.com/

es **Español**

Por medio de la presente Tait Electronics Limited declara que el TBBA4A, el TBBB1A, el TBBB1B, el TBBC0A, el TBBH5A y el TBBH5B cumplen con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Vea también: http://eudocs.taitworld.com/

fi **Suomi**

Tait Electronics Limited vakuuttaa täten että TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Katso: http://eudocs.taitworld.com/

fr **Français**

Par la présente, Tait Electronics Limited déclare que l'appareil TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Voir aussi: http://eudocs.taitworld.com/

it **Italiano**

Con la presente Tait Electronics Limited dichiara che questo TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Vedi anche: http://eudocs.taitworld.com/

nl **Nederlands**

Hierbij verklaart Tait Electronics Limited dat het toestel TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/ EG.
Zie ook: http://eudocs.taitworld.com/

pt **Português**

Tait Electronics Limited declara que este TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B está conforme com os requisitos essenciais e outras provisões da Directiva 1999/5/CE.
Veja também: http://eudocs.taitworld.com/

sv **Svensk**

Härmed intygar Tait Electronics Limited att denna TBBA4A, TBBB1A, TBBB1B, TBBC0A, TBBH5A & TBBH5B står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/ EG.
Se även: http://eudocs.taitworld.com/