TB7300 Transportable Base Station/Repeater

User's Guide

www.taitradio.com

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Tait will comply with environmental requirements in other markets as they are introduced.

Preface

Scope of Manual

This user's guide provides information on the TB7300 Transportable Base Station/Repeater. For full details on the operation of the repeater itself, refer to MBD-00001-xx TB7300 Installation and Operation Manual.

Alerts

Please follow exactly any instruction that appears in the text as an 'alert'. An alert provides necessary safety information as well as instructions about the proper use of the product. This manual uses the following types of alert:

> ⚠️ **Warning** This alert is used when there is a hazardous situation which, if not avoided, could result in serious injury or death.

> ⚠️ This alert is used when there is a hazardous situation which, if not avoided, could result in minor or moderate injury.

Notice This alert is used to highlight significant information that may be required to ensure procedures are performed correctly. Incorrectly performed procedures could result in equipment damage or malfunction.

> ⓘ This alert is used to highlight significant information that may be required to ensure that you perform procedures correctly, or to draw your attention to ways of doing things that can improve your efficiency or effectiveness.

Associated Documentation

The following associated documentation for this product is available on the Tait Partner Portal website.

- Safety and Compliance Information supplied with each radio, the same information is included in this user's guide.
- MBD-00001-xx TB7300 Installation and Operation Manual
- MBD-00002-xx TB7300 Base Station/Repeater Specifications Manual

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

Technical notes are published from time to time to describe applications for Tait products, to provide technical details not included in manuals, and to offer solutions to any problems that arise. Look for new or updated technical notes on the Tait Partner Portal website.

Publication Record

Issue	Publication Date	Description
04	June 2024	Added statement on radio frequency emissions in Canada
03	December 2020	Minor updates throughout Updated battery placement section
02	November 2019	Updated name of battery select switch and replaced battery select switch photo, section 3.1 Added charge button photo, section 3.1 Updated section 3.3 Updated section 3.4 Updated section 3.6.3
01	July 2019	First release

1   General Safety and Compliance Information

This chapter provides general information on safety precautions for operating the transportable base station/repeater.

1.1 Personal Safety

1.1.1   Explosive Environments

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

1.1.2   High Temperatures

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

> ⚠️ **Warning** If the unit is operated in a high duty cycle environment with the lid closed, the maximum output power should not exceed 15W.

1.1.3   LED Safety (EN60825-1)

This equipment contains Class 1 LED Products.

1.1.4   Proximity to RF Transmisions

To comply with the RF Field Limits for Devices Used by the General Public for (Uncontrolled Environment)[a], a safe separation distance of at least 12 feet (3.6 metres) from the antenna system should be maintained.

This figure is calculated for a typical installation, employing one 50W base station transmitter. Other configurations, including installations at multi-transmitter sites, must be installed so that they comply with the relevant RF exposure standards.

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[a]Reference Standards Health Canada's Safety Code 6: *Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3kHz to 300GHz*

USA Federal Communications Commission OET bulletin 65 (47CFR 1.1310)

IEEE C95.1 2005: *Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300GHz*

1.2 Equipment Safety

1.2.1 Installation and Servicing Personnel

The equipment should be installed and serviced only by qualified personnel.

1.2.2 Preventing Damage to the PA

The repeater has been designed to operate safely under a wide range of antenna loading conditions. Transmitting into a low VSWR will maximize the power delivered to the antenna.

Notice Do not remove the load from the TB7304 while it is transmitting.

Load transients (switching or removing the load) can damage the PA output stage.

1.3 Environmental Conditions

1.3.1 Operating Temperature Range

The operating temperature range of the equipment is –22°F to +140°F (–30°C to +60°C) ambient temperature with external DC, battery isolated, or –22°F to +122°F (–30°C to +50°C) ambient temperature with internal battery and AC input.

Notice Ambient temperature is defined as the temperature of the air at the intake to the cooling fans.

1.3.2 Humidity

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

1.3.3 Dust and Dirt

For uncontrolled environments, the level of airborne particulates must not exceed 100µg/m^3.

1.4 Regulatory Information

1.4.1 Distress Frequencies

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

1.4.2 Compliance Standards

This equipment has been tested and approved to various national and international standards. Refer to the latest issue of the Specifications Manual for a complete list of these standards.

1.4.3 Unauthorized Modifications

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

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

1.4.4 Health, Safety and Electromagnetic Compatibility in Europe

In the European Community, radio and telecommunications equipment is regulated by Directive 2014/53/EU. 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 a radio transceiver. It is intended for radio communications in the Private Mobile Radio (PMR) or Public Access Mobile Radio (PAMR) services, to be used in all member states of the European Union (EU) and states within the European Economic Area (EEA). This product can be programmed to transmit on frequencies that are not harmonized throughout the EU/EEA, and will require a license to operate in each member state.

Declaration of Conformity

You can download the formal Declaration of Conformity from https://www.taitcommunications.com/our-resources/compliance/declarations-of-conformity#base-stations-|-repeaters-link.

1.4.5 Radio frequency emissions limits in Canada

For products supplied in this region, this device complies with ISED RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Limitation des émissions de fréquences radio au Canada

Pour les produits fournis dans cette région, cet appareil est conforme aux normes RSS d'Innovation, Sciences et Développement économique Canada. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

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1.5 Device and Network Security

If this radio network equipment is used for mission-critical applications, it is important to be able to ensure security and continuity of operation. For IP-network-connected equipment, it is also important to ensure that this equipment is not a means of compromising other equipment in the network.

All network elements should be physically secured, where possible. This includes the use of locked cabinets and locked rooms. Seals on connectors can also provide a visual indication of unauthorized tampering.

Tait recommends that all network and audio connectors should be sealed with the stick-on type of seal. The seal should reveal if any of the connectors have been unplugged, or if any unauthorized equipment has been plugged in.

The seals should be difficult to remove without breaking, and should bridge between the cable and equipment side (plug and socket) of the connection.

Seals should cover any unused network or audio sockets. This includes the Ethernet connector on any adaptor front panels, any spare switch ports, and the console port on the router and switch.

The seals should be difficult to reproduce. A sticker initialed or signed by the technician should satisfy this.

Seals must be replaced if they need to be disturbed during maintenance.

2   Introduction

The Transportable Base Station/Repeater is a complete transportable radio solution in a rugged case with three power supply options. It consists of:

- A TB7300 repackaged into a rugged Pelican case with an internal AC supply
- An internal 12V, 15AH SLA battery
- A charge circuit for AC supply to charge the internal battery
- Switching circuits for AC and DC supplies
- An external DC supply input

Notice   The Transportable Base Station/Repeater was designed to be waterproof, but should not be operated in the rain with the lid open.

An N-type antenna connector on the outside of the case enables a sturdy external antenna connection. An Amphenol screw-lock connector for the DC input is also located on the outside of the case.

Four LEDs indicate the status of the repeater. Two further LEDs are present on the inside top panel to indicate the status of the battery while charging. The Shurter three-pin mains socket is located on the left side for AC Mains connection. The Ethernet connection is via a waterproof RJ45 connector on the outside of the case.