

# TP9300/9400 Portable Radios

## Bluetooth<sup>®</sup> Functionality

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# 1. INTRODUCTION

## 1.1 Purpose

This document provides an overview of the Bluetooth functionality of the TP9300/TP9400 portable radios. It is not intended to be a complete description of the TP9300/TP9400 Bluetooth feature.

## 1.2 Description of TP9300 Bluetooth Releases

Bluetooth in TP9300 was released in Firmware v1.02.00 in September 2013.

Additional support for wireless PTT with approved devices is available from version 2.20.04 onwards.

## 1.3 Description of TP9400 Bluetooth Releases

Bluetooth in TP9400 was released in Firmware v1.03.01 in July 2013.

Additional support for wireless PTT with approved devices is available from version 2.14.03 onwards.

## 1.4 Publication Record

Issue	Document Status	Release Date
03	Added TP9300 information to obsolete TD-0015 Summarised BT functions. Updated recommended headsets. Removed repeated content.	31 July 2019
02	Updated Section 2.3 Bluetooth Headset Requirements with respect to Bluetooth Core Specification 4.0+. Updated Section 2.5 regarding Bluetooth headset use-case and environment considerations.	21 September 2016
01	First release	6 June 2014

## 2. REQUIREMENTS

### 2.1 Radio Requirements

Bluetooth requires:

- TP9400 Firmware v1.03.01 or later; or
- TP9300 Firmware v1.02.00 or later; and
- TPAS082 (SFE Key - Bluetooth (93/94)).
- Wireless PTT

### 2.2 Bluetooth Headset Requirements

TP9300/TP9400 Bluetooth supports commercially available Bluetooth headsets with the following specifications:

- Must support HFP (Handsfree Profile) version 1.5 or 1.6 and/or HSP (Headset Profile) version 1.1 or 1.2
- For wireless PTT, only Tait approved devices can be used

Once a headset is paired and connected to a radio, the headset and the radio are in active voice call mode until they are disconnected. The specified headset talk time will give an indication of the shift life of the headset when it is connected to a radio.

### 2.3 Recommended Bluetooth Headsets

Many commercially available Bluetooth headsets are compatible with TP9300/TP9400 Bluetooth.

Tait recommends the following devices:

- Savox BTR-155 with wireless PTT function (TT0012-0002)
- AINA PTT Voice Responder with wireless buttons (TT0011-0001)

Note: only PTT and a programmable function mapped to the orange key (emergency button) are currently supported by Tait radios.

- Savox BT-COM with wireless PTT function (TT0012-0001)

### 2.4 Bluetooth Headsets Acceptance Test

See the **Bluetooth Headset Test Guidelines** (TN-2817-AN) document for a simple set of tests that should be performed when selecting a headset that has not been recommended by Tait.

## 3. PROGRAMMING AND OPERATION

### 3.1 TP9300/TP9400 Radio Programming for Bluetooth

A radio must be programmed for Bluetooth operation. The following is not a complete description of the programming options.

The Bluetooth PTT can be a radio function key and/or a wired PTT connected to the radio accessory connector.

If a wired audio accessory is to be connected to the radio accessory connector, then the Bluetooth PTT must be a radio function key. If a radio is programmed for the Bluetooth PTT to be a wired PTT connected to the radio accessory connector, then a wired audio accessory connected to the radio accessory connector will not operate correctly.

Refer to the XPA Help for details on the following actions:

- Using a radio function key as the Bluetooth PTT
- Using a wired PTT connected to the radio accessory connector as the Bluetooth PTT
- Setting the radio to search for and connect to new devices
- Allowing the user to disconnect from the currently connected device
- Setting reconnection behavior if connection is lost
- Setting power-on behavior

Note: TPAS082 (SFE Key – Bluetooth (93/94)) must be enabled

### 3.2 Pairing and Connecting

Pairing is the process of establishing an initial connection between a radio and a headset. Connecting is the process of establishing an audio connection between a paired radio and headset. If necessary, the radio pairs and then connects to a headset in one process.

A radio can maintain pairing with up to three headsets. This enables faster connecting to another headset when the battery on the currently connected headset goes flat. A radio can only connect to one headset at a time.

Reprogramming a radio will erase the paired headsets information from the radio.

See **Using a wireless headset** in the TP9300 **User's Guide** (MPD-00001-xx) or TP9400 **User's Guide** (MPD-00003-xx) and the Bluetooth headset user's guide.

### 3.3 Disconnecting

Disconnecting is the process of terminating an audio connection between a radio and a headset. Once disconnected, the radio and the headset remain paired.

See **Using a wireless headset** in the TP9300 **User's Guide** (MPD-00001-xx) or TP9400 **User's Guide** (MPD-00003-xx) and the Bluetooth headset user's guide.

## 3.4 PTT Audio Path Switching

### 3.4.1 When a wired audio accessory is not connected to the radio

When a wired audio accessory is not connected to the radio accessory connector, the audio path can be switched between the Bluetooth headset and the radio using the Bluetooth PTT and the radio PTT.

The audio connection between the radio and the headset is maintained during the switching of the audio path. This means that changing the audio path from the headset to the radio does not terminate the audio connection, and changing the audio path from the radio to the headset does not require an audio connection to be established.

- In normal headset operation, the audio path is switched to the headset. This means that the headset speaker(s) and microphone are enabled and the radio speaker and microphone are disabled. The Bluetooth PTT is used for transmitting.
- If the audio path is switched to the headset, then pressing the radio PTT switches the audio path to the radio. This means that the headset speaker(s) and microphone are disabled and the radio speaker and microphone are enabled. The radio PTT is then used for transmitting.

Note that if the radio speaker volume is low, then the radio user may not be able to hear audio from the radio speaker.

- If the audio path is switched to the radio, then pressing the Bluetooth PTT switches the audio path to the headset. This means that the radio speaker and microphone are disabled and the headset speaker(s) and microphone are enabled. The Bluetooth PTT is then used for transmitting.

### 3.4.2 When a wired audio accessory is connected to the radio

When a wired audio accessory is connected to the radio accessory connector, the audio path can be switched between the Bluetooth headset, the wired audio accessory and the radio using the Bluetooth PTT, the wired audio accessory PTT and the radio PTT.

When a wired audio accessory is connected to the radio accessory connector, the radio speaker is disabled.

The audio connection between the radio and the headset is maintained during the switching of the audio path. This means that changing the audio path from the headset to the wired audio accessory or to the radio does not terminate the audio connection, and changing the audio path from the wired audio accessory or from the radio to the headset does not require an audio connection to be established.

- In normal headset operation, the audio path is switched to the headset. This means that the headset speaker(s) and microphone are enabled, the wired audio accessory speaker(s) and microphone are disabled and the radio microphone is disabled. The Bluetooth PTT is used for transmitting.
- If the audio path is switched to the headset or to the radio, then pressing the wired audio accessory PTT switches the audio path to the wired audio accessory. This means that the headset speaker(s) and microphone are disabled, or the radio microphone is disabled, and the wired audio accessory speaker(s) and microphone are enabled. The wired audio accessory PTT is then used for transmitting.

Note that if the wired audio accessory speaker(s) volume is low, then the radio user may not be able to hear audio from the wired audio accessory speaker(s).

- If the audio path is switched to the wired audio accessory or to the radio, then pressing the Bluetooth PTT switches the audio path to the headset. This means that the wired audio accessory speaker(s) and microphone are disabled, or the radio microphone and the wired audio accessory speaker(s) are disabled, and the headset speaker(s) and microphone are enabled. The Bluetooth PTT is then used for transmitting.

- If the audio path is switched to the headset or to the wired audio accessory, then pressing the radio PTT switches the audio path to the radio. This means that the headset speaker(s) and microphone are disabled, or the wired audio accessory microphone is disabled, and the radio microphone and the wired audio accessory speaker(s) are enabled. The radio PTT is then used for transmitting.

Note that if the wired audio accessory speaker(s) volume is low, then the radio user may not be able to hear audio from the wired audio accessory speaker(s).

### **3.5 Bluetooth Headset Volume Control**

The headset speaker(s) volume is controlled by the headset volume control. The radio volume control does not control the headset speaker(s) volume.