Thor Series 9200 Headset Operational Description
Thor BT Headset

Document history:

Rev.	*Description*	*date/init.*
1	Released	010822/JDJ

1 Introduction

The Series 9200 Headset is a lightweight “over the ear” wireless headset utilizing Bluetooth technology in the 2.4 GHz band for a short range (up to 10 meters) RF link. The headset contains a microphone and a receiver, and is intended for hands free communications with mobile telephones containing Bluetooth compatibility or any other device that has a Bluetooth Audio Gateway. Headset power is provided by a rechargeable battery. The battery can be charged with a vehicular charge adapter or an AC charge adapter.

2 User Operated Controls

The headset has the following user operated controls:

- 1. Boom Switch: The power is OFF when the microphone boom is in the closed position and the power is ON when the microphone boom is in the open position.

- 2. Function Button: This button is pushed for various lengths of time to initiate a call, hang up a call, pairing, transferring a call to a headset, microphone mute and call waiting.

- 3. Volume Rocker Switch: The upper portion of this switch is pushed momentarily to increase the receive volume in steps and the lower portion of this switch is pushed momentarily to decrease the receive volume in steps.

3 Indicators

A Blue LED at tip of microphone boom flashes at various rates and durations to indicate Power ON/OFF, Charging, Search & Pairing, BT Link Established, Standby/Sniff Mode, and Audio Link (on a call).

Tones in receiver vary in duration, duty cycle and frequency to indicate Volume Steps, Volume Min, Volume Max, Low Battery, Microphone Mute, Incoming Call, and Pairing.

4 RF Scheme of Operation

The channel is represented by a pseudo-random hopping sequence hopping through the 79 RF channels. The unique hopping sequence is determined by the Bluetooth device address of the master; the phase in the hopping sequence is determined by the Bluetooth clock of the master. The channel is divided into time slots where each slot corresponds to an RF hop frequency. Consecutive hops correspond to different RF hop fre-quencies. The nominal hop rate is 1600 hops/s. All Bluetooth units participating in a piconet are time- and hop-synchronized to the channel.

The channel is divided into time slots, each 625 µs in length. In the time slots, master and slave can transmit packets. A TDD scheme is used where master and slave alternatively transmit. The RF hop frequency shall remain fixed for the duration of the packet. For a

single packet, the RF hop frequency to be used is derived from the current Bluetooth clock value. For a multi-slot packet, the RF hop frequency to be used for the entire packet is derived from the Bluetooth clock value in the first slot of the packet. The RF hop frequency in the

first slot after a multi-slot packet shall use the frequency as determined by the current Bluetooth clock value. If a packet occupies more than one time slot, the hop frequency applied shall be the hop frequency as applied in the time slot where the packet transmission was started.

In total, 5 types of hopping sequences are defined:

- A page hopping sequence with 32 unique wake-up frequencies distributed equally over the 79MHz, with a period length of 32.

- A page response sequence covering 32 unique response frequencies that all are in an one-to-one correspondence to the current page hopping sequence.

- An inquiry sequence with 32 unique wake-up frequencies distributed equally over the 79MHz, with a period length of 32.

- A inquiry response sequence covering 32 unique response frequencies that all are in an one-to-one correspondence to the current inquiry hopping sequence.

- A channel hopping sequence which has a very long period length, which does not show repetitive patterns over a short time interval, but which distributes the hop frequencies equally over the 79MHz during a short time interval.