

## 1.2 Operational Descriptions

### 1.2.1 Product Descriptions

	Transmitter	Receiver
Operating frequency range	2402 - 2480 MHz	2402 - 2480 MHz
Type of modulation	FHSS modulation	FHSS modulation
Number of channels	79	79
Channel separation	1 MHz	1 MHz
Type of antenna	Integral Antenna	Integral Antenna
Antenna gain (dBi)	1.2	
Power level	fix	
Type of equipment	stand alone radio device	stand alone radio device
Connection to public utility power line	No	
Nominal voltage	V <sub>nom</sub> : 3.7 V	V <sub>nom</sub> : 3.7 V
Independent Operation Modes	Page scan Inquiry scan Connection state - ACL Link Connection state - SCO Link	

The test item is a wireless headset based on the Bluetooth technology. It transfers the audio signal to and from a corresponding Bluetooth Audio Gateway such as mobile phone wirelessly.

Bluetooth is a short-range radio link intended to be a cable replacement between portable and/or fixed electronic devices.

### 1.2.2 Technical Background of the Wireless Technology

Bluetooth operates in the unlicensed ISM band at 2.4 GHz. A frequency hop transceiver is applied to combat interference and fading. A shaped, binary FM modulation is applied to minimize transceiver complexity. The symbol rate is 1 Ms/s. A slotted channel is applied with a nominal slot length of 625 µs. For full duplex transmission, a Time-Division Duplex (TDD) scheme is used. On the channel, information is exchanged through packets. Each packet is transmitted on a different hop frequency. A packet nominally covers a single slot, but can be extended to cover up to five slots. The Bluetooth protocol uses a combination of circuit and packet switching. Slots can be reserved for synchronous packets. Bluetooth can support an asynchronous data channel, up to three simultaneous synchronous voice channels, or a channel which simultaneously supports asynchronous data and synchronous voice. Each voice channel supports a 64 kb/s synchronous (voice) channel in each direction. The asynchronous channel can support maximal 723.2 kb/s asymmetric (and still up to 57.6 kb/s in the return direction), or 433.9 kb/s symmetric. The Bluetooth system consists of a radio unit, a link control unit, and a support unit for link management and host terminal interface functions.