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	Direct chip antenna	-
Antenna gain (dBi)	1.9	
Power level	fix	
Type of equipment	stand alone	stand alone
Connection to public utility power line	No	
Nominal voltage	V_{nor}: 3.7 V	V_{nor}: 3.7 V
Independent Operation Modes	Transmitting Charging	

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.