



ELECTRONICS

516-229, Chen Jiang Town, Huizhou-City, Guangdong-Province,
China

BTW200 Declaration Per FCC 15.247 Requirements

1 Output power and channel separation:

BTW200 is standard module to deliver 2channel Stereo audio in 2.4GHz frequency band. This device follows 15.247 category about the definition of frequency hopping device. There is only one transmitter which is driven by identical input parameters concerning these two parameters. Only a different hopping sequence will be used.

For this reason the check of these RF parameters in one op-mode is sufficient.

2 Frequency range of a Bluetooth device:

Hereby we declare that the maximum frequency of this device is 69Channels between 2,402 ~ 2,480 MHz.(excluded 2,402 / 2,410 / 2,418 / 2,426 / 2,434 / 2,442 / 2,450 / 2,458 / 2,466 / 2,474MHz). This band is permitted ISM band by Federal Communication Committee of US.

3 Co-ordination of the hopping sequence in data mode to avoid simultaneous occupancy by multiple transmitters:

Each BTW200 device which want to communicate with other units must contain the same 28bit digital ID. Based on this digital ID, each device randomly calculates and stores the hop sequence by itself.

4 Example of a hopping sequence in data mode:

Example of a BTW200's 69 hopping sequence

21, 44, 23, 53, 46, 55, 48, 33, 52, 35, 50, 65, 54, 67,
37, 60, 39, 58, 69, 62, 71, 25, 68, 27, 66, 57, 70, 59,
29, 76, 31, 74, 61, 78, 63, 01, 41, 05, 43, 03, 73, 07,
09, 45, 13, 47, 11, 77, 15, 49, 66, 53, 68, 02, 70, 06,
01, 51, 03, 55, 05, 04

5 Receiver input bandwidth and behaviors for repeated single or multiple packets:

The input bandwidth of the receiver is 1 MHz.

In every connection, there is one Transmitter and the other one is the Receiver.

The Transmitter determines the hopping sequence randomly. The slave follows this sequence.

Both devices shift between Tx and Rx time slot according to the clock of the master. The Transmitter adapts its hopping frequency and its Tx/Rx timing according to the packet type of the connection. Also the Receiver of the connection will use these settings. Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the Transmitter of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

6 Dwell time in data mode

Dwell time(The average time of occupancy) on any channel shall not be greater than 0.4 seconds(400ms) within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Based on above information:

Dwell time = $(3 \times 575\mu s \times 400 + 575\mu s \times 400) / (69 \text{ hopping channels} \times 400\mu s) = 0.033\text{ms}$

7 Channel Separation

The nominal channel spacing of BTW200 is 1Mhz independent of the operating mode. The maximum "initial carrier frequency tolerance" is $f_{center} = 75 \text{ kHz}$. This was checked for three frequencies (2403, 2443, 2480 MHz).

Additionally an example for the channel separation is given in the test report

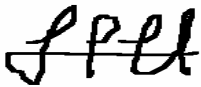
8 Receiver input bandwidth and synchronization in hybrid mode:

The receiver input bandwidth is 1 MHz. When two BTW200 devices establish connection for the first time, one device sends an SEEK signal, the other device is scanning for this SEEK signal. If two devices loose connection, repeat same procedure as above.

9 Equally average use of frequencies in data mode and behavior for short transmissions:

Each Frame is 2.5ms. 4Slots consists of One Frame. There is 3 Tx Slot an 1 Rx Slot. Each Slot is 575uS. Sequentially, 3 Tx and 1Rx have been repeated.

Sincerely,



O-Won Seo
R&D Management Group /Manager