



COMPANY CONFIDENTIAL

**WIN-B3
Bluetooth Module
User Manual
Rev. 1.01**

Prepared by Gallon Tao	Reviewed by	Approved by
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1. Revision History

Date	Change Note	REV Note
2011-02-22	Initial Release	1.0



2. Introduction

Project Name: Bluetooth 4.0 +EDR(Low Energy support) module

This documentation describes the product specification of the Bluetooth 4.0 module. It is a confidential document of Foxconn.

2.1 Scope

This Bluetooth module is available in the 2.4-GHz ISM band, it is compatible with Bluetooth specification v4.0. It supports basic rate of 1Mbps with GFSK modulation, and EDR 2Mbps for DQPSK and 3Mbps for 8DPSK, in addition, it supports Low Energy function (LE GFSK).

2.2 Function

- Class 2 specification RF output power (max +4 dBm @ average power)
- Full piconet and scatternet operation
- Supports 1Mbps basic rate, 2Mbps, 3Mbps Enhanced Data Rate, and Bluetooth Low Energy (1Mbps).
- USB 2.0 full-speed compliant interface
- Full support for power saving modes
- FW via on-line downloading and upgrade



3. Product Specification

3.1 Bluetooth RF Specification

Bluetooth Standards	v4.0 (Basic Rate + EDR + LE)
Operating Frequency	2.400 – 2.4835
Data Rate	Basic Rate: 1Mbps Enhanced Data Rate: 2Mbps, 3Mbps Low Energy: 1Mbps
Modulation Schemes	GFSK(1Mbps); DQPSK(2Mbps), 8DPSK(3Mbps); LE GFSK(1Mbps)

Transmitter Output Power

Transmitter Output Power: -6dBm~ +4dBm (Class 2 Specification)
EDR Relative Transmit Power: $(P_{GFSK}-4dB) < P_{DPSK} < (P_{GFSK}+1dB)$

Receiver Sensitivity

Typical -90dBm @1Mbps (PER<0.1%)
Typical -90dBm @2Mbps (PER<0.01%)
Typical -85dBm @3Mbps (PER<0.01%)

3.2 Electrical Specification

Absolute Maximum Ratings

These specification indicate levels where permanent damage to the device can occur. Functional operation is not guaranteed under these conditions. Operation at absolute maximum conditions for extended can adversely affect long-term reliability of the device.

Rating	Symbol	Value	Unit
DC supply voltage for the device	VDD	3.0~3.6	V

Recommended Operating Condition

Element	Symbol	Value			Unit
		Minimum	Typical	Maximum	
DC supply voltage for the device	VDD	3.0	3.3	3.6	V

Function operation is not guaranteed outside this limit, and operation outside this limit for extended periods can adversely affect long-term reliability of the device.

Current Consumption

Idle: 6mA @3.3V
Transmit: 36mA @3.3V
Receive: 26mA @3.3V

4. Product Requirements and Characteristic

4.1 Hardware Characteristic

Form factor	26.3X17(mm ²) module with 2X9 pin board to board connector
Host Interface	USB 2.0 (Full Speed)
PCB	4-layer single side
Antenna &RF connector	One printed Antenna, Two W.FL RF connector for testing purpose, One is for antenna path conductive testing, another is for ATT path conductive testing.

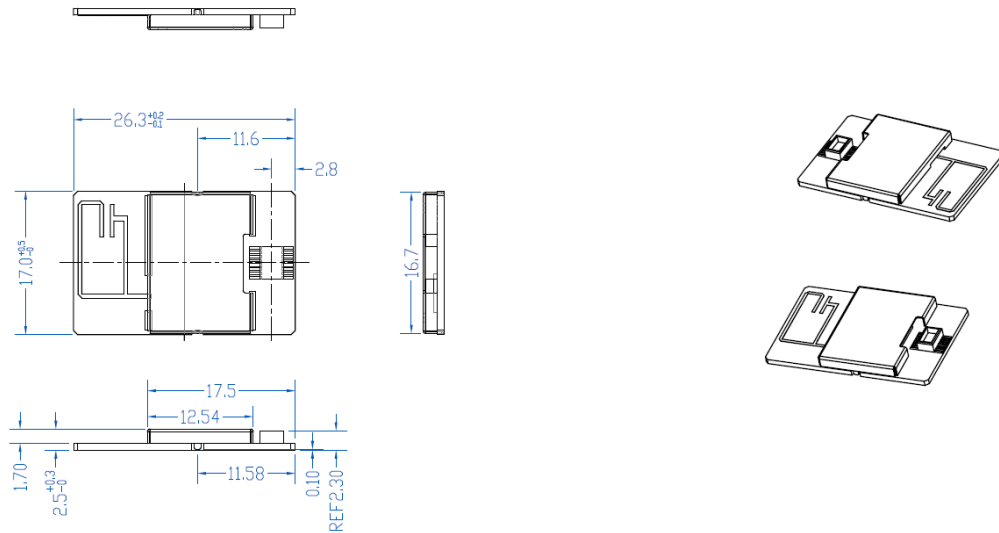
4.2 Hardware Architecture

This Bluetooth module design is based on Broadcom BCM20702 chipset, which is a highly integrated single chip solution for Bluetooth 4.0+EDR.

This Bluetooth device is operating at 2.4 GHz ISM band. For basic rate and EDR, it works with hopping in 79 1MHz bandwidth channels, the channel center frequency is 2402+kMHz, k=0, 1, 2,....., 78. For Low energy, it uses 40RF channels, which have center frequencies at 2402+K*2MHz, where k=0, ..., 39.

The Bluetooth module employs a 512Kbit serial flash and a 26MHz crystal, it use a 18pin board to board connector to link host interface, power supply, and GPIOs to the Host.

5. Mechanical Drawing





6. Regulatory Information

USA-Federal Communications Commission (FCC)

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Labeling

Hon Hai Precision Bluetooth 4.0 module WIN-B3 labeled as below.

FCC ID: MCLWINB3

The proposed with FCC ID label format is to be placed on the module. If FCC ID is not visible when the module is installed into the system, "Contains FCC ID: MCLWINB3" shall be placed on the outside of final host system.

Caution: Exposure to Radio Frequency Radiation.

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

Canada-Industry Canada (IC)

This device complies with RSS 210 of Industry Canada.

Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of this device.

The term "IC" before the equipment certification number only signifies that the Industry Canada technical specifications were met.

Caution: Exposure to Radio Frequency Radiation.

To comply with IC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.