

J20H066 Bluetooth Module User Manual

Revision History

Date	Revision	Description
2012/07/09	0.0	Initial released

Content

1. PRODUCT OVERVIEW	3
2. INTERFACE PIN DEFINE	4
2.1 ANALOG AUDIO I/F MODULE PIN DEFINE	4
2.2 DIGITAL AUDIO I/F MODULE PIN DEFINE	5
3. ELECTRICAL SPECIFICATION	5
3.1 ABSOLUTE MAXIMUM RATING	5
3.2 BLUETOOTH RF SPECIFICATION	5
4. BLUETOOTH TOOL UTILITY AND INSTALL @ WINDOW XP	7
4.1 INSTALL BLUESUITE TOOL	7
4.2 RUN BLUETEST	7
4.3 SET PROTOCOL	8
4.4 TX COMMAND	8
4.5 RX COMMAND	9

1. Product overview

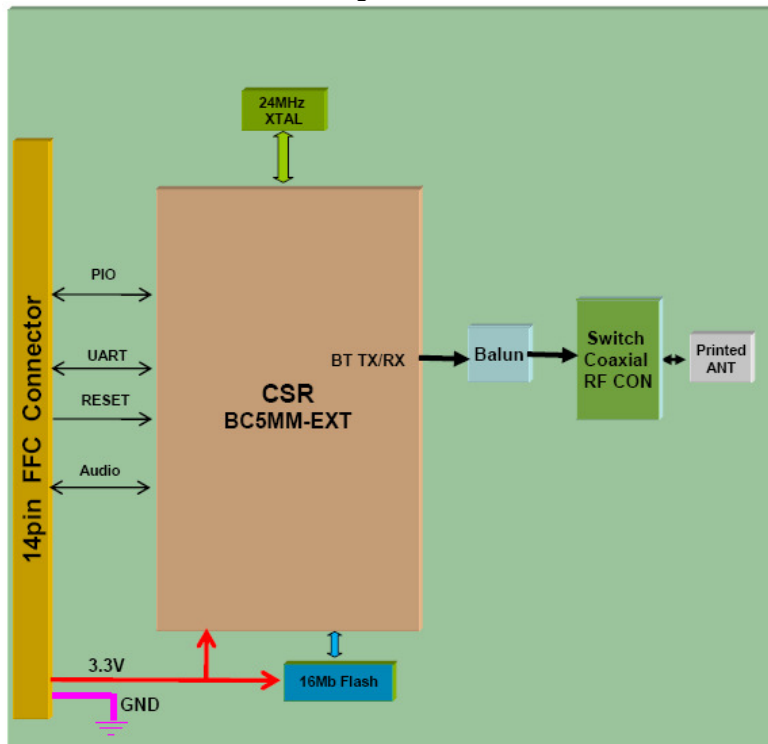
This documentation outlines the Bluetooth Module. It is designed for Bluetooth 2.4GHz systems. The module provides a fully compliant Bluetooth v2.1/ v3.0+ EDR specification system for data and voice. And it support below function:

1. Bluetooth
 - 1.1 Operating Frequency: 2402MHz ~ 2480 MHz
 - 1.2 Carrier Spacing: 1.0MHz
 - 1.3 Duplexing: TDD
 - 1.4 Modulation: FHSS
GFSK BT=0.5, $\pi/4$ -DQPSK, 8DPSK
 - 1.5 Symbol Rate: 1Mbps (GFSK), 2Mbps ($\pi/4$ -DQPSK), 3Mbps (8DPSK)
2. This project includes 4 Foxconn part numbers, and they have different feature in Bluetooth specification version. This is realized by software.

Customer Part No.	Foxconn Part No.	Feature
1-490-558-11	J20H066.00	Analog Audio Bluetooth v2.1 + EDR
1-490-558-21	J20H066.01.	Digital Audio Bluetooth v2.1 + EDR
1-490-558-31	J20H066.02	Analog Audio Bluetooth v3.0 + EDR
1-490-558-41	J20H066.03	Digital Audio Bluetooth v3.0 + EDR

2 . Below figure1 shows function block diagram of the Bluetooth module.

Figure 1: Module Functional Block Diagram



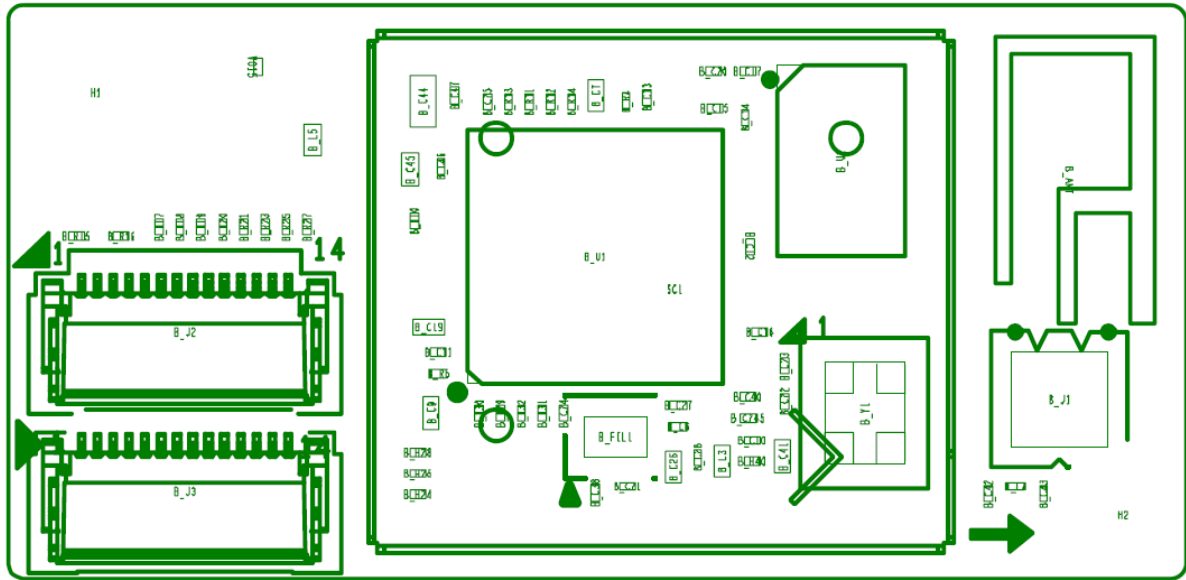
Key Features:

Solution	CSR BC5MM-EXT
Standard	Bluetooth v2.1/v3.0 + EDR
Host I/F	UART
Operating Voltage	3.3V
Operating Temperature	-10°C to +70°C
Memory	Flash(16Mb)
RF Connector	1*Switch Coaxial Connector (Murata / MM8430-2610RB3)
RF	1. 1* 24MHz Crystal 2. 1* BALUN 3. 1* (Printed Antenna)
PCB	6 Layers, single side placement
Dimension	37 x 18 x 3.3mm HDI PCB Board
Audio I/F Connector	1* FFC Connector (14pin 0.5mm pitch connector)

2. Interface Pin define

This module has 2 different signal interfaces for supporting analog signal and digital signal.

Figure 2: Key component is shown as below marks



2.1 Analog Audio I/F module pin define

Pin NO.	Pin Type	Description	Remark
1	-	Ground	B_J2
2	I	BT_RST	B_J2
3	Power	BT_VDD33	B_J2
4	I	URT_CTS	B_J2
5	O	URT_RTS	B_J2
6	I	URT_RX	B_J2
7	O	URT_TX	B_J2
8	O	MUTE	B_J2
9	-	Ground	B_J2
10	O	LCH_N	B_J2
11	O	LCH_P	B_J2
12	O	RCH_P	B_J2
13	O	RCH_N	B_J2
14	-	Ground	B_J2

2.2 Digital Audio I/F module pin define

Pin NO.	Pin Type	Description	Remark
1	-	Ground	B_J3
2	I	BT_RST	B_J3
3	Power	BT_VDD33	B_J3
4	I	URT_CTS	B_J3
5	O	URT_RTS	B_J3
6	I	URT_RX	B_J3
7	O	URT_TX	B_J3
8	O	MUTE	B_J3
9	-	Ground	B_J3
10	-	Ground	B_J3
11	O	PCM_SYNC	B_J3
12	O	PCM_CLK	B_J3
13	O	PCM_OUT	B_J3
14	-	Ground	B_J3

3. Electrical Specification

3.1 Absolute Maximum Rating

Symbol	Condition	Min.	Typ.	Max	Unit
VDD33	VDD33 Respect to GND	3.0	3.3	3.6	V
Operating Temperature	--	-10	25	70	°C
Storage Temperature	--	-40	25	85	°C

3.2 Bluetooth RF Specification

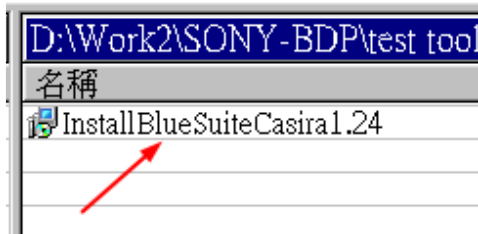
Test station	Test item	Test Condition	Test Spec and Comments	
PT	Program Customer Specific FW	N/A	Pass	
	Write BD Address	N/A	Pass	
	Current Consumption	Standby		0.0005~0.005A
		Max Consumption (Continuous Tx)		0.036~0.054A
	Output power test(class 2)	Channel 0, 39, 78		-2dBm ≤ Output Power ≤ +1.66 dBm
	Power control	Channel 39		1.66dBm
	Initial Carrier Frequency Tolerance Test	Channel 39		-25KHz < Δ < 25KHz
	Carrier Frequency Drift Test	Channel 78		Drift Rate/50us: -20KHz < Δ < 20KHz DH1: -25KHz < Δ < 25KHz DH3: -40KHz < Δ < 40KHz DH5: -40KHz < Δ < 40KHz
Multi-slot Sensitivity Test	Channel 0,39,78 (BER<0.1%)		≤ -84dBm	

	Modulation Characteristics Test	Channel 0	$140\text{kHz} \leq \Delta f_{1\text{avg}} \leq 175\text{kHz}$ $\Delta f_{2\text{max}} \geq 115\text{kHz}$ $\Delta f_{2\text{avg}} / \Delta f_{1\text{avg}} \geq 0.8(80\%)$
	Maximum Input Power	Channel 0, 39, 78 (BER<0.1%)	$\geq -20\text{dBm}$

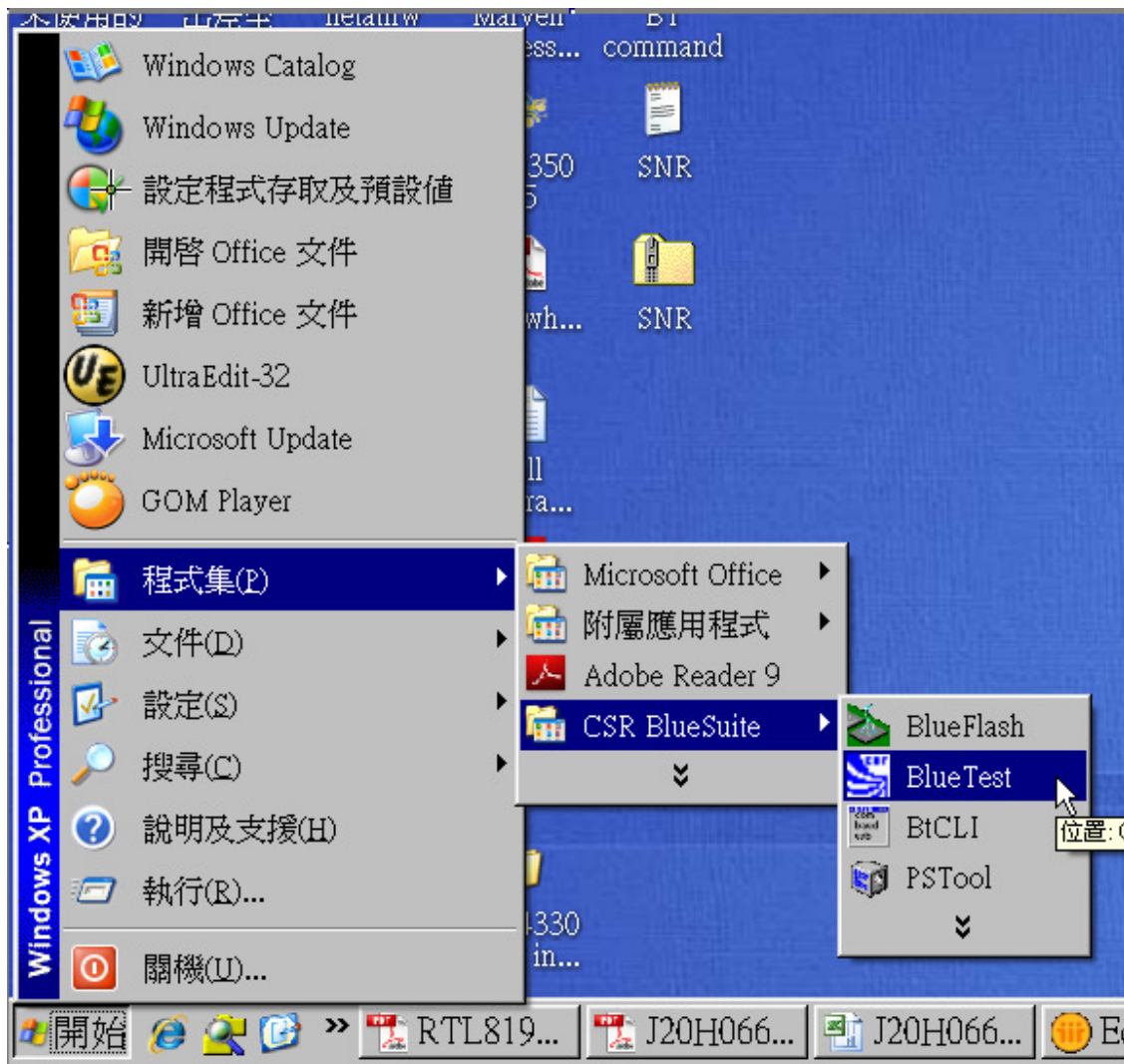
Test Station	Test Items	Test Condition	Test Spec and Comments
PT	EDR Relative Tx Power (3Mbps only)	Channel 0, 39, 78	$P[\text{GFSK}] - 4\text{dB} < P[\text{DPSK}] < P[\text{GFSK}] + 1\text{dB}$
	EDR Carrier Frequency Stability and Modulation Accuracy (3Mbps only)	Channel 0, 39, 78	$-75\text{kHz} < \omega_i < 75\text{kHz}$
		Channel 0, 39, 78	$-10\text{kHz} < \omega_0 < 10\text{kHz}$
		Channel 0, 39, 78	RMS DEVM ≤ 0.13 for all 8DPSK
		Channel 0, 39, 78	Peak DEVM ≤ 0.25 for all 8DPSK
		Channel 0, 39, 78	99% DEVM ≤ 0.2 for 99% 8DPSK
	EDR Sensitivity (3Mbps only)	Channel 0, 39, 78	-78dBm
Check BD Address	N/A	Match with the ID in Label	

4. Bluetooth tool Utility and install @ Window XP

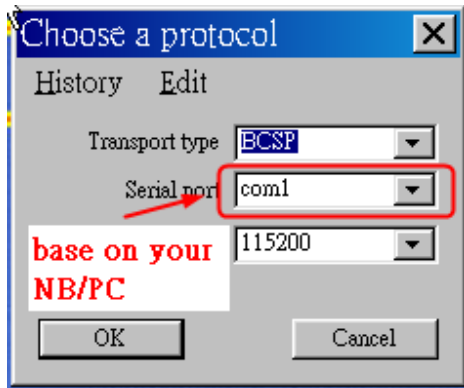
4.1 Install **Bluesuite** tool



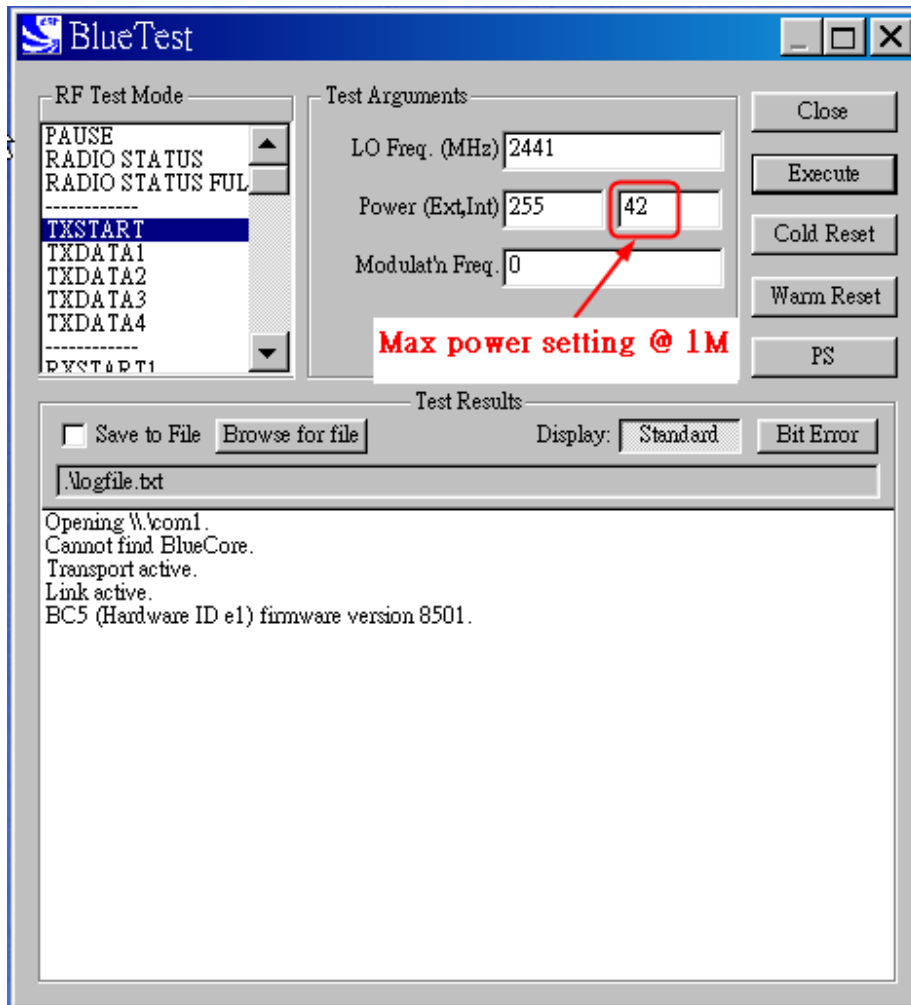
4.2 Run **BlueTest**



4.3 Set Protocol



4.4 Tx command



4.5 Rx command

