BLK-MD-BC04B

Key Features

* Bluetooth Spec v2.0+EDR Compliant
* Enhanced Data Rate (EDR) compliant with V2.0.E.2 of specification for both 2Mbps and 3Mbps modulation modes
* Class 2 type Output Power
* Full Speed Bluetooth Operation with Full Piconet Support
* Scatternet Support
* 3.3V operation
* Minimum External Components
* USB,UART,SPI,PCM interface
* Support for 8Mbit External Flash Onboard
* Support for 802.11Co-Existence
* RoHS Compliant

Product Description

BLK-MD-BC04B
Rev.2.2

May 2009

BC04B Module

27mm×13mm×2mm

BLK-MD-BC04B is a Class 2 Bluetooth module using CSR BlueCore4-external chipset from leading Bluetooth chipset supplier Cambridge Silicon Radio.

BLK-MD-BC04B interfaces up to 8Mbit of 16-bit external Flash memory. When used with the CSR Bluetooth software stack, it provides a Bluetooth specification V2.0+EDR fully compliant system for data and voice communications .

Applications

* Bluetooth carkit
*PCs
* Personal Digital Assistants (PDAs)
* Computer Accessories (compact Flash Cards, PCMCIA Cards, SD Cards and USB Dongles)
* Acess Points
* Digital Cameras

Specifications

Operating Frequency Band	2.4GHz -2.48GHz unlicensed ISM band
Bluetooth Specification	V2.0+EDR
Output Power Class	Class 2
Operating Voltage	3.3V
Host Interface	USB 1.1/2.0 or UART
Audio Interface	PCM and Analog interface
Flash Memory Size	8Mbit
Dimension	27mm (L) x 13 (W) mm x 2mm (H)

*** Specifications are subject to change without prior notice**

Electrical Characteristics

Absolute Maximum Ratings		
Rating	**Min**	**Max**
Storage temperature	-40℃	+150℃
Supply voltage: VBAT	-0.4V	5.6V
Other terminal voltages	VSS-0.4V	VDD+0.4V

Recommended Operating Conditions		
Operating Condition	**Min**	**Max**
Operating temperature range	-40℃	+150℃
Guaranteed RF performance range[a]	-40℃	+150℃
Supply voltage: VBAT	2.2V	4.2V[b]

*** Typical figures are given for RF performance between -40℃ and +105℃.**

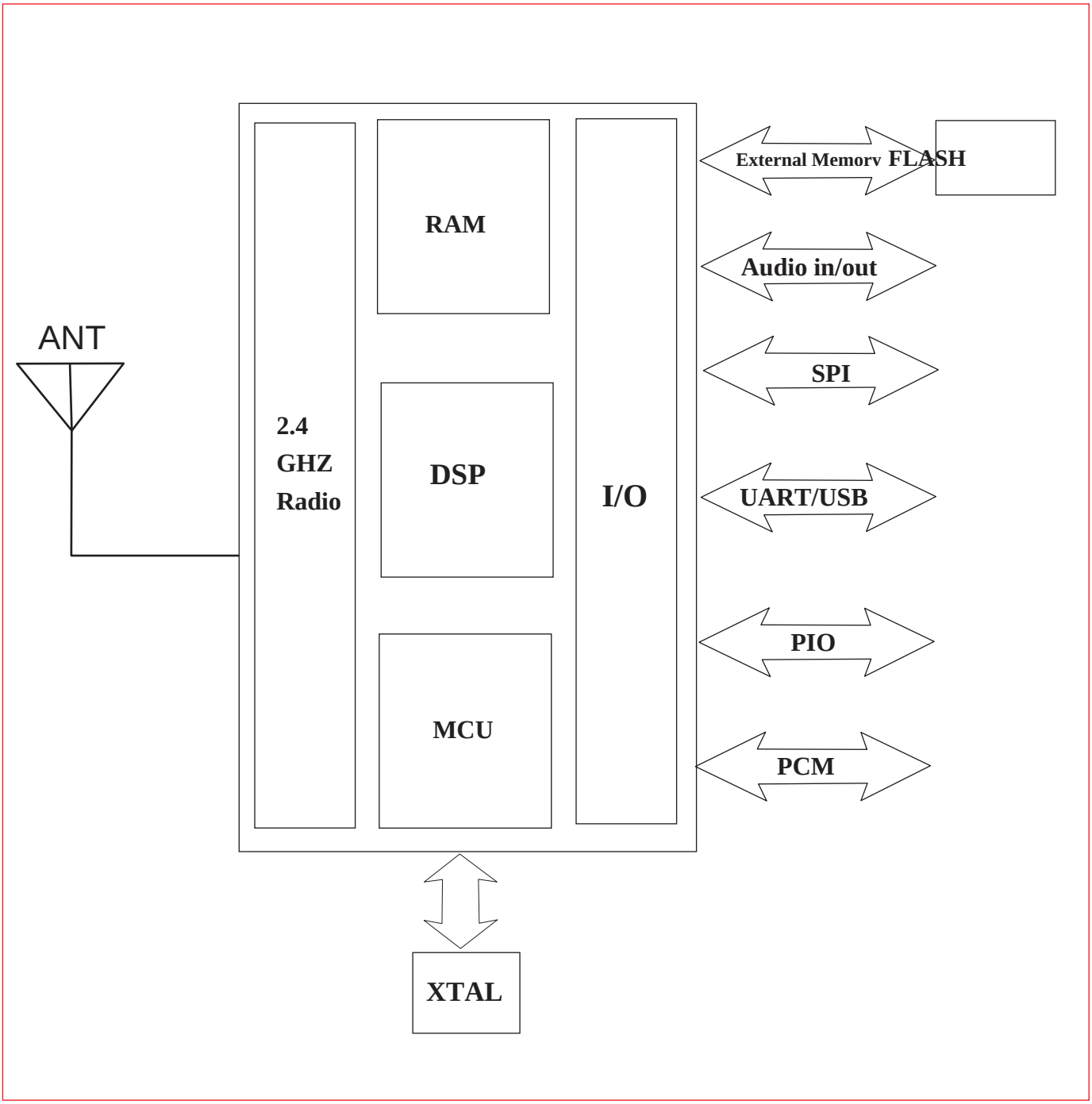
Power Consumption

Operation Mode	Connection Type	UART Rate(kbps)	Average	Unit
Page scan	-	115.2	0.42	mA
ACL No traffic	Master	115.2	4.60	mA
ACL With file transfer	Master	115.2	10.3	mA
ACL 1.28s sniff	Master	38.4	0.37	mA
ACL 1.28s sniff	Slave	38.4	0.42	mA
SCO HV3 30ms sniff	Master	38.4	19.8	mA
SCO HV3 30ms sniff	Slave	38.4	19.0	mA
Standby Host connection[a]	-	38.4	40	μA

*** Low power mode on the linear regulator is entered and exited antomatically when the chip enters/leaves Deep Sleep mode. For more information about the electrical haracteristics of the linear regulator, see section 4 in this document.**

BLK-MD-BC04B

Block Diagram



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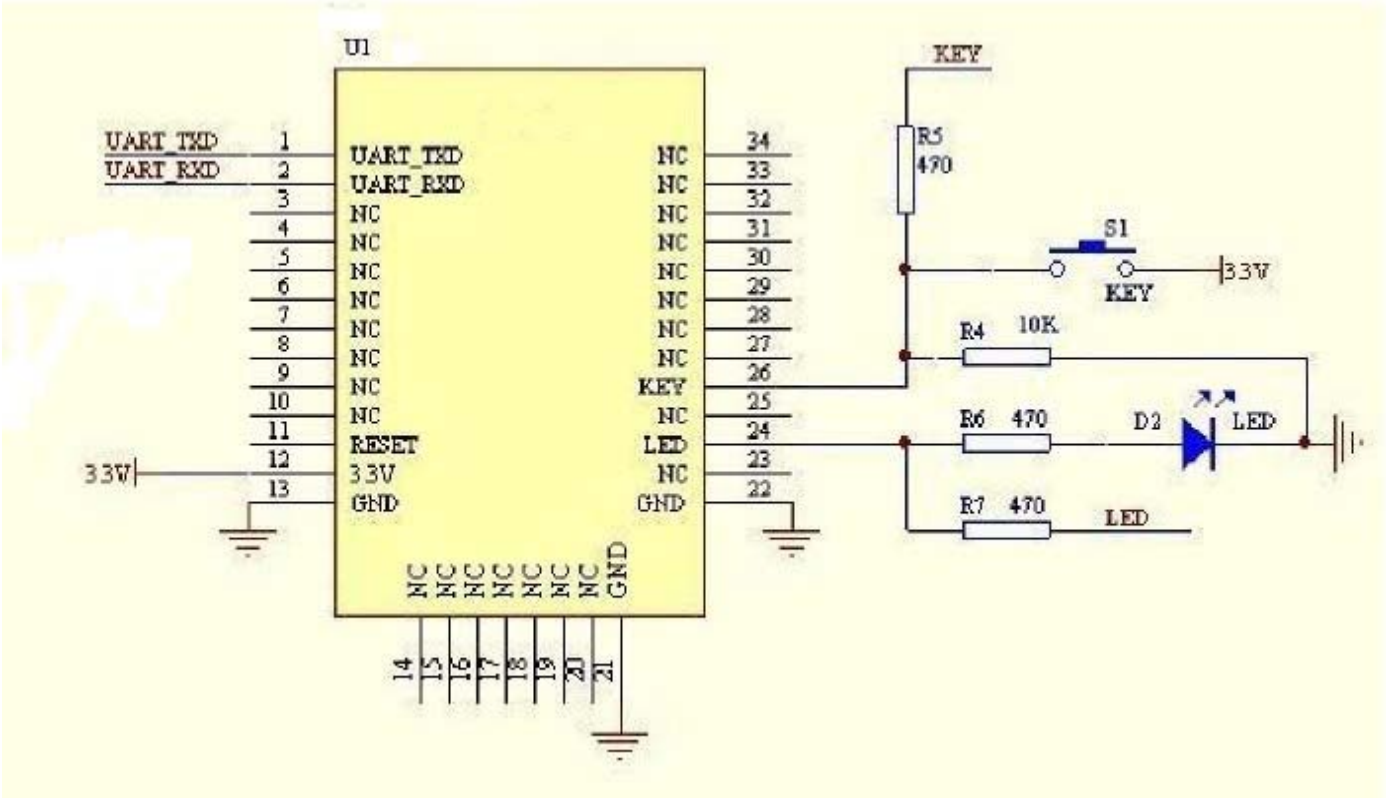
Application Schematic



Pin Configurations

NAME	PIN NO.	TYPE	FUNCTION	RE-MARK
UART-TX	1	CMOS Output	UART Data Output	
UART-RX	2	CMOS Input	UART Data Input	
UART-CTS	3	CMOS Input	UART Clear To Send Active Low	
UART-RTS	4	CMOS Output	UART Request To Send Active Low	
PCM-CLK	5	Bi-directional	Synchronous Data Clock	
PCM-OUT	6	CMOS Output	Synchronous Data Output	
PCM-IN	7	CMOS Input	Synchronous Data Input	
PCM-SYNC	8	Bi-directional	Synchronous Data Sync	
AIO(0)	9	Bi-directional	Programmable Input/Output Line	
AIO(1)	10	Bi-directional	Programmable Input/Output Line	
RESETB	11	CMOS Input	Reset if low.Input debounced so must below for>5ms to cause a reset	
3.3V	12	POWER	+3.3V Supply F	or 3.3V Version
GND	13	GND	Ground	
GND	14	GND	Ground	
USB D-	15	Bi-directional	USB Data Minus	
SPI-CSB	16	CMOS Input	Chip Select For Synchronous SerialInterface	
SPI-MOSI	17	CMOS Input	Serial Peripheral Interface Data Input	
SPI-MISO	18	CMOS Output	Serial Peripheral Interface Data Output	
SPI-CLK	19	CMOS Input	Serial Peripheral Interface Clock	
USB D+	20	Bi-directional	USB Data Plus with selectable internal 1.5KO	
GND	21	GND	Ground	
GND	22	GND	Ground	
PIO(0)	23	Bi-directional with programmable strength	Control output for external LNA (if fitted)	
PIO(1)	24	Bi-directional with programmable strength	Control output for external PA (if fitted)	

PIO(2)	25	Bi-directional	Programmable Input/Output Line	
PIO(3)	26	Bi-directional	Programmable Input/Output Line	
PIO(4)	27	Bi-directional with programmable strength	Programmable Input/Output Line or optional BT_Priority/CH_Clk output for co-	
PIO(5)	28	Bi-directional with programmable strength	Programmable Input/Output Line or optional BT_Active output for co-existence	
PIO(6)	29	Bi-directional with programmable strength	Programmable Input/Output Line or optional WLAN_Active/Ch_Data input for co-	
PIO(7)	30	Bi-directional	Programmable Input/Output Line	
PIO(8)	31	Bi-directional	Programmable Input/Output Line	
PIO(9)	32	Bi-directional	Programmable Input/Output Line	
PIO(10)	33	Bi-directional	Programmable Input/Output Line	
PIO(11)	34	Bi-directional	Programmable Input/Output Line	

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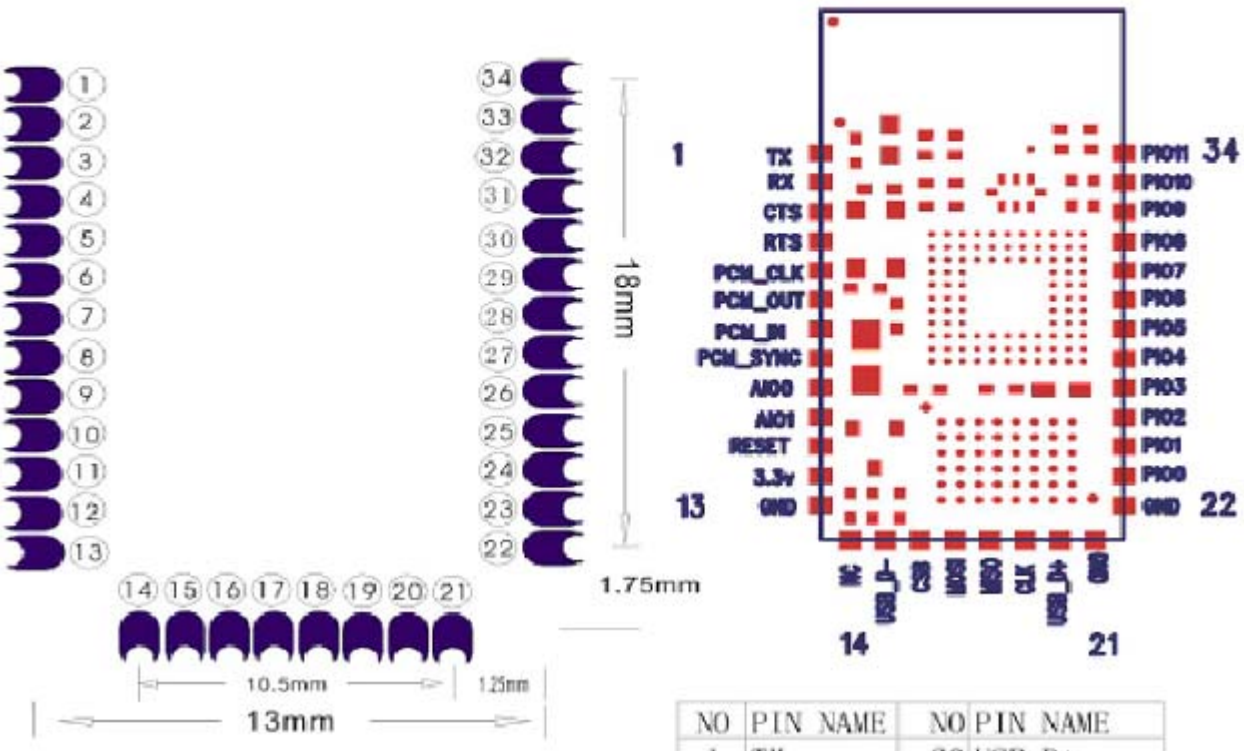

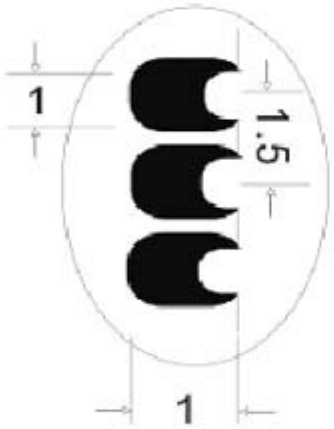

PCB Layout 请参考实物

NO	PIN NAME	NO	PIN NAME
1	TX	20	USB D+
2	RX	21	GND
3	CTS	22	GND
4	RTS	23	PIO0
5	PCM CLK	24	PIO1
6	PCM OUT	25	PIO2
7	PCM IN	26	PIO3
8	PCM SYNC	27	PIO4
9	AIO0	28	PIO5
10	AIO1	29	PIO6
11	RESET	30	PIO7
12	3.3V	31	PIO8
13	GND	32	PIO9
14	NC	33	PIO10
15	USB D-	34	PIO11
16	CSB		
17	MOSI		
18	MISO		
19	CLK		

Anritsu BlueTest

Anritsu
BlueTest2 Test Report

Test Set Serial Number: 6K00004754 Date: 2006-7-15
EUT Bluetooth Address: 00025B00A5B7 Time: 13:53:45

Overall Result: PASS

TRM/CA/01/C (Output Power)

Packet Length Tested: DH5

Hopping ON	Low	Med	High	Limits
Average Power	3.14 dBm	3.47 dBm	3.39 dBm	
Max Power	3.20 dBm	3.53 dBm	3.47 dBm	< 20.00 dBm
Min Power	3.11 dBm	3.42 dBm	3.35 dBm	> -6.00 dBm
Peak Power	3.31 dBm	3.65 dBm	3.60 dBm	< 23.00 dBm
Total Packets Failed	0	0	0	
Total Packets Tested	10	10	10	
Result	Pass	Pass	Pass	

TRM/CA/02/C (Power Control)

Packet Length Tested: DH1

Hopping OFF	Low	Med	High	Limits
Max Power	3.10 dB	3.40 dB	3.30 dB	
Min Power	-25.60 dB	-24.70 dB	-25.00 dB	
Max Power Step	4.80 dB	4.50 dB	4.60 dB	<= 8.00 dB
Min Power Step	3.80 dB	3.80 dB	3.80 dB	>= 2.00 dB
Total Packets Failed	0	0	0	
Total Packets Tested	14	14	14	
Result	Pass	Pass	Pass	

TRM/CA/08/C (Initial Carrier)

Packet Length Tested: DH1

Hopping ON	Low	Med	High	Limits
Average Offset	3.1 kHz	6.6 kHz	5.8 kHz	
Max Offset	9.8 kHz	12.5 kHz	16.6 kHz	<= 75 kHz
Min Offset	-2.2 kHz	-3.9 kHz	-4.0 kHz	<= 75 kHz
Total Packets Failed	0	0	0	
Total Packets Tested	10	10	10	
Result	Pass	Pass	Pass	

TRM/CA/09/C (Carrier Drift)

Hopping On - Low Channel	DH1	DH3	DH5	Limits
Drift Rate / 50µs	3.92 kHz	-5.53 kHz	-7.66 kHz	+/- 20 kHz
Max Drift	15 kHz	24 kHz	25 kHz	DH1: +/- 25kHz
Average Drift	5 kHz	9 kHz	7 kHz	DH3: +/- 40kHz
Total Packets Failed	0	0	0	DH5: +/- 40kHz
Total Packets Tested	10	10	10	
Overall Result	Pass	Pass	Pass	

Hopping On - Med Channel	DH1	DH3	DH5	Limits
Drift Rate / 50µs	4.51 kHz	-6.31 kHz	5.87 kHz	+/- 20 kHz
Max Drift	10 kHz	17 kHz	19 kHz	DH1: +/- 25kHz
Average Drift	0 kHz	6 kHz	4 kHz	DH3: +/- 40kHz
Total Packets Failed	0	0	0	DH5: +/- 40kHz
Total Packets Tested	10	10	10	
Overall Result	Pass	Pass	Pass	

Hopping On - High Channel	DH1	DH3	DH5	Limits
Drift Rate / 50µs	-5.26 kHz	6.23 kHz	-6.76 kHz	+/- 20 kHz
Max Drift	-10 kHz	15 kHz	18 kHz	DH1: +/- 25kHz
Average Drift	-2 kHz	2 kHz	1 kHz	DH3: +/- 40kHz
Total Packets Failed	0	0	0	DH5: +/- 40kHz
Total Packets Tested	10	10	10	
Overall Result	Pass	Pass	Pass	

TRM/CA/07/C (Modulation Characteristic)

Packet Length Tested: DH5

Hopping OFF	Low	Med	High	Limits
'Flavg'	163.4 kHz	164.2 kHz	162.7 kHz	140kHz < F1 < 175kHz
'Flmax'	167.6 kHz	167.8 kHz	167.5 kHz	
F1 Packets Failed	0	0	0	
'F2avg'	165.4 kHz	165.0 kHz	165.0 kHz	
'F2max'	156.8 kHz	157.6 kHz	155.7 kHz	>= 115 kHz
'F2max' Pass Rate	100.00%	100.00%	100.00%	
F1/F2 Ratio	1.01	1.00	1.01	>= 0.8
Total Packets Tested	20	20	20	
Result	Pass	Pass	Pass	

RCV/CA/02/C (Single Sensitivity)

Power Level: -71 dBm, Dirty Tx Status: OFF

Hopping ON	Any	Limits
Overall BER	0.00%	<= 0.1%
Overall FER	0.00%	<= 100%
Packets Sent	7408	
Total Packets Tested	7408	
Total Packets Failed	0	
Bit Errors	0	
CRC Errors	0	
Length Errors	0	
Lost Packets	0	
Result	Pass	

Hopping OFF	Low	Med	High	Limits
Overall BER	0.00%	0.00%	0.00%	<= 0.1%
Overall FER	0.04%	0.00%	0.00%	<= 100%
Packets Sent	7408	7408	7408	
Total Packets Tested	7405	7408	7408	
Total Packets Failed	0	0	0	
Bit Errors	3	0	0	
CRC Errors	0	0	0	
Length Errors	0	0	0	
Lost Packets	3	0	0	
Result	Pass	Pass	Pass	

RCV/CA/01/C (Multi Slot Sensitivity)

Power Level: -71 dBm, Dirty Tx Status: OFF, Packet Length Tested: DH5

Hopping ON	Any	Limits
Overall BER	0.02%	<= 0.1%
Overall FER	1.36%	<= 100%
Packets Sent	590	
Total Packets Tested	590	
Total Packets Failed	367	
Bit Errors	8	
CRC Errors	8	
Length Errors	1	
Lost Packets	0	
Result	Pass	

Hopping OFF	Low	Med	High	Limits
Overall BER	0.01%	0.03%	0.02%	<= 0.1%
Overall FER	0.85%	4.24%	0.85%	<= 100%
Packets Sent	590	590	590	
Total Packets Tested	590	590	590	
Total Packets Failed	213	467	283	
Bit Errors	5	25	5	
CRC Errors	5	25	5	
Length Errors	0	0	0	
Lost Packets	0	0	0	
Result	Pass	Pass	Pass	

RCV/CA/02/C (Max Input Level)

Power Level: -19dBm

Hopping OFF	Low	Med	High	Limits
Overall BER	0.00%	0.00%	0.00%	<= 0.1%
Overall FER	0.00%	0.00%	0.00%	<= 100%
Packets Sent	7408	7408	7408	
Total Packets Tested	7408	7408	7408	
Total Packets Failed	0	0	0	
Bit Errors	0	0	0	
CRC Errors	0	0	0	
Length Errors	0	0	0	
Lost Packets	0	0	0	
Result	Pass	Pass	Pass	

---- Report End ----

BLK-MD-BC04B

AT 指令表

1）修改波特率

发送：AT+BAUD1(“1”是个序号，请参照各个波特率的序号)
返回：ok1200
波特率的序号如下：
1--------1200
2--------2400
3--------4800
4--------9600
5--------19200
6--------38400
7--------57600
8--------115200
9--------230400
A--------460800
B--------921600
C--------1382400
不建议超过 115200 的波特率，信号的干扰会使系统不稳定。波特率修改成 115200 以上，电脑将无法再把波特率修改回来，只能用单机片发送指令把波特率修改回来！

2）修改蓝牙名称

发送 AT+NAMExxxx（xxxx 是您想要取的名称，20 个字符之内）
返回：OKname

3）修改配对密码

发送 AT+PINxxxx（xxxx 是您想要取的密码）
返回：OKsetpin

4）为了测试蓝牙模块和 PC 端(或在其他)通讯是否成功，可发送以下指令测试

发送：AT（如果返回“OK”则成功，如果不返回则要检查接线是否接对或者串行调试助手的设置是否对）
返回：OK

出厂默认波特率：9600BPS

LED 状态： **闪烁时为等待配对状态(从模式)或者搜寻状态(主模式)，长亮表示连接状态。**
按键功能： **短按---清除配对记录。长按 3 秒---恢复默认设置。**