Atrie Technology Inc.

BTM-203B

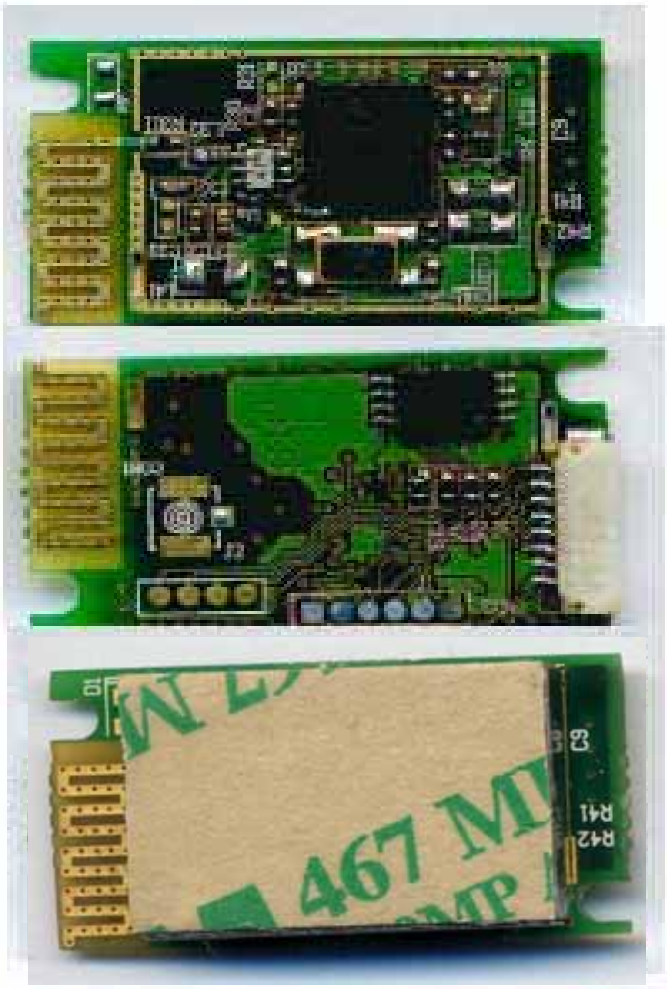
Bluetooth Module Data Sheet

Bluetooth EDR+V2.0

Nov., 09 REV 1.5

Bluetooth® Module

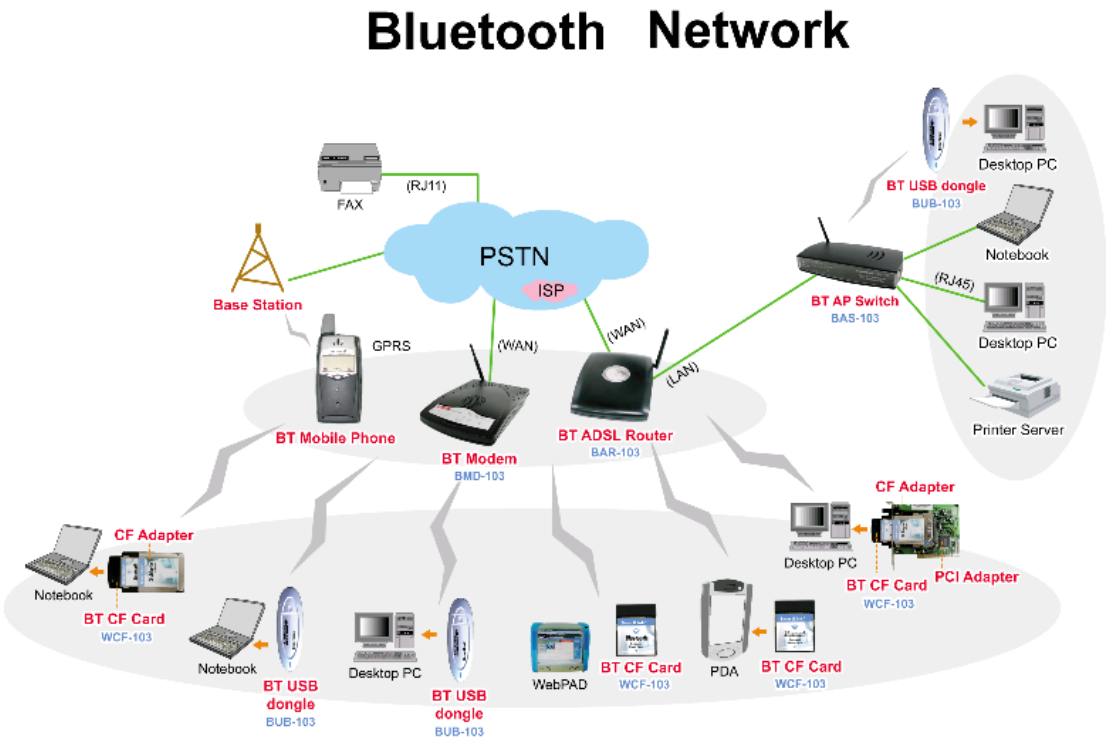
BTM-203B



(With Shielding Case, Optional)

Description

The Wireless Class 2 Bluetooth Module *BTM-203B* is a compact and qualified modules that provide a complete turnkey Bluetooth solution for wireless data communications. The modules can be integrated into various applications to enable any electronic devices equipped with Bluetooth wireless technology, including Desktop, Laptop computers, Web-pads and emerging application specific devices. BTM-203B is available with antenna. It is a low cost, high speed and fast implementation Bluetooth device.



As were seen above, our Bluetooth Module was integrated into many applications which embedded with various Bluetooth protocol stacks, like Dial-up Network profile in wireless BT Modem, PAN profile in wireless BT AP Switch and so on. So, our Bluetooth Module can be installed with H.I.D.(Human Interface Device) profile to bundle with CPE(like keyboard and mouse) in order to be wireless connection with computer.

Feature

- Complete 2.4GHz radio transceiver and baseband
- Bluetooth® V2.0+EDR compliant embedded
- Bluetooth® qualified
- Small footprint (26.0mm x 14.0mm x 4.17mm)
- Bluetooth® Class 2 operation (up to 10 meter range)
- Board to wire 8 pin connector on Board
- CSR BlueCore4-ROM, single chip Bluetooth® system
- SPI interface can upgrade firmware
- Park, Sniff, Hold and Sleep low power modes
- Added ESD protection circuit into module supply voltage pins to prevent electrostatic damage
- (Optional) Shielding mask GND layout design to reduce EMI issue
- Built in +1.8V operation
- Programmable collaborative Co-Existence scheme
- Support USB 1.1 specification, compatible to USB 2.0 host controller with USB 1.1 backward compliance.
- Gain : -1.22 dBi

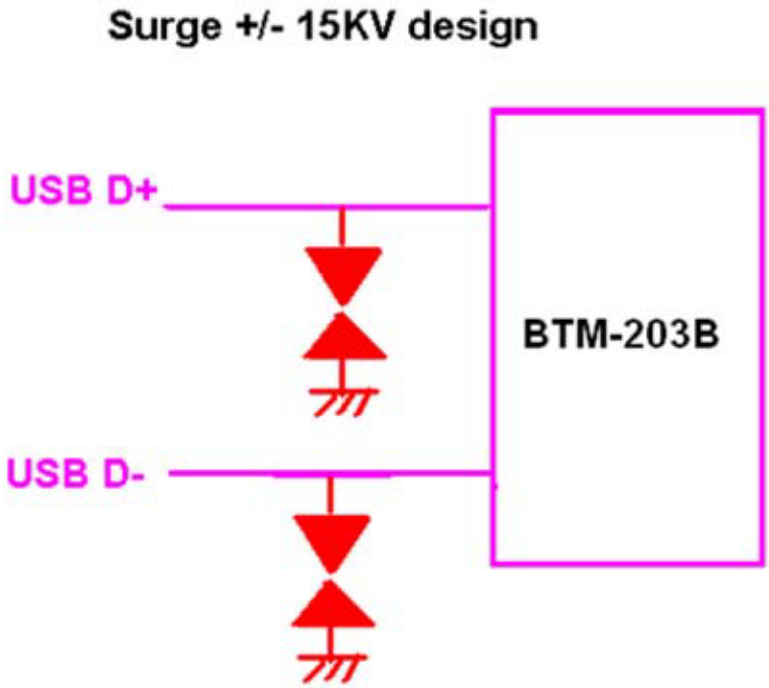
Application

Notebook PC, Tablet PC, Webpad,

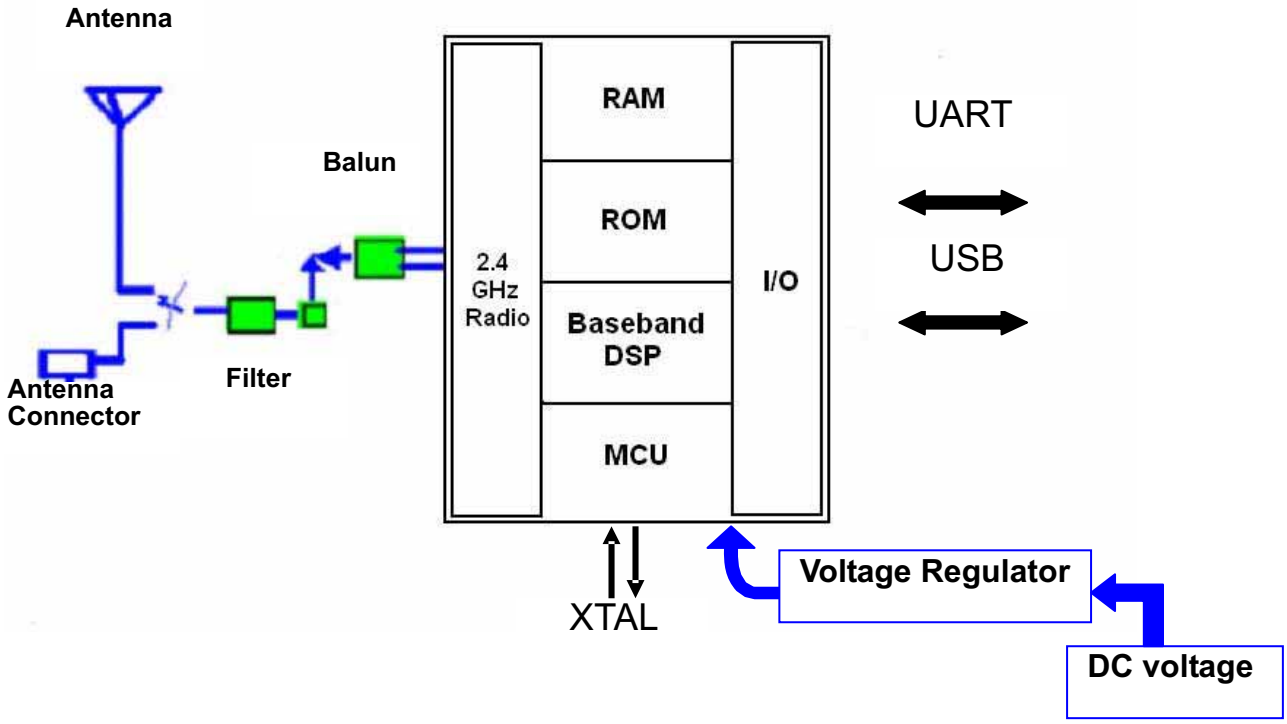
Specification

General	
Actual throughput	TX: average. 1920 kbps RX: average. 1900 kbps
Recommended Supply Voltage	DC +1.7V TO +3.6V
Peak current Consumption	Max current: 70 mA Conditions: 115200 Baud rate, 0dBm RF power
Link Distance	Better than 10 meters(33 feet) in free space
Certifications	Radio/ Baseband Bluetooth BQB EDR+V2.0
Operating Temperature	–40℃ to +75℃
Storage Temperature	–40℃ to +75℃
Radio	
Modualtion	π/4 DQPSK(2Mbps), 8DPSK(3Mbps)
Carrier Frequency Range	2.40GHz–2.4835GHz(ISM Band)
RF Channels	79 Channels for USA, Japan& Europe
RF Output Power	+4 dBm max., Class2
Receiving Signal Range	-15dBm to - 84dBm
Receiver IF Frequency	1.5MHz
Antenna	PCB layout pattern /RF connector support
Frequency Hopping	1600 hops/sec, Channel Space: 1MHz
Baseband	
Link Mode	ACL, SCO Link support
Network Capabilities	Piconet: point-to-point&point-to-multipoint and Scatternet support.
Security	Initialization: 4 digit PIN code Authentication: Security Mode 2 support Encryption: 128-bit Data Encryption support
Data Packets	DM1/DH1, DM3/DH3, DM5/DH5
Interface	USB

ESD Protection PAD

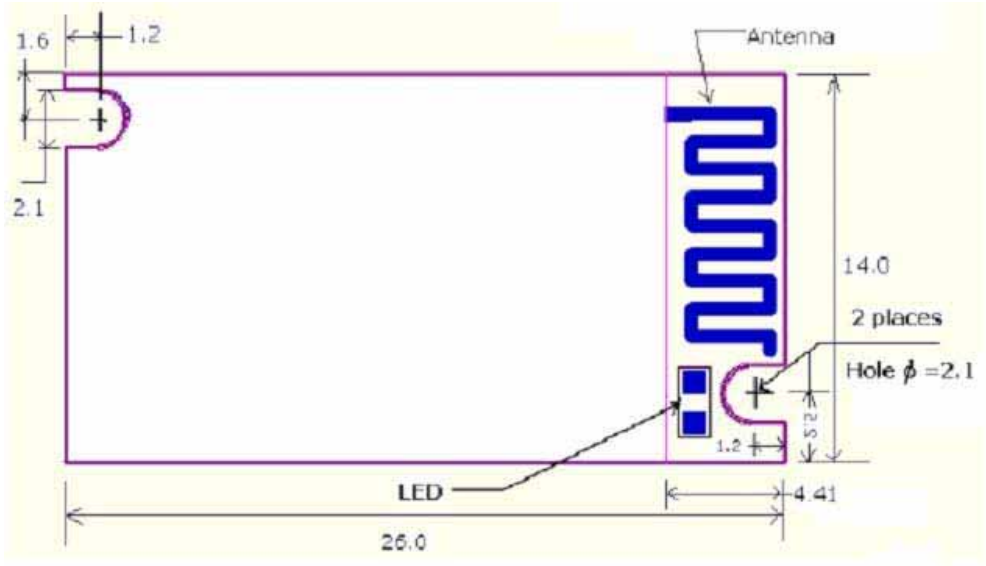


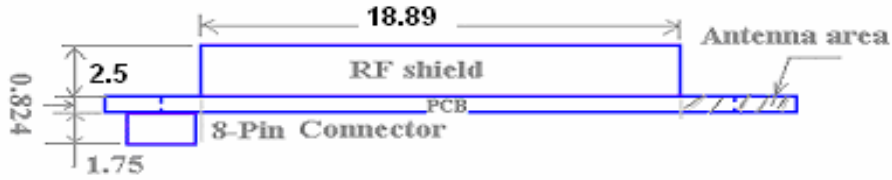
System Architecture

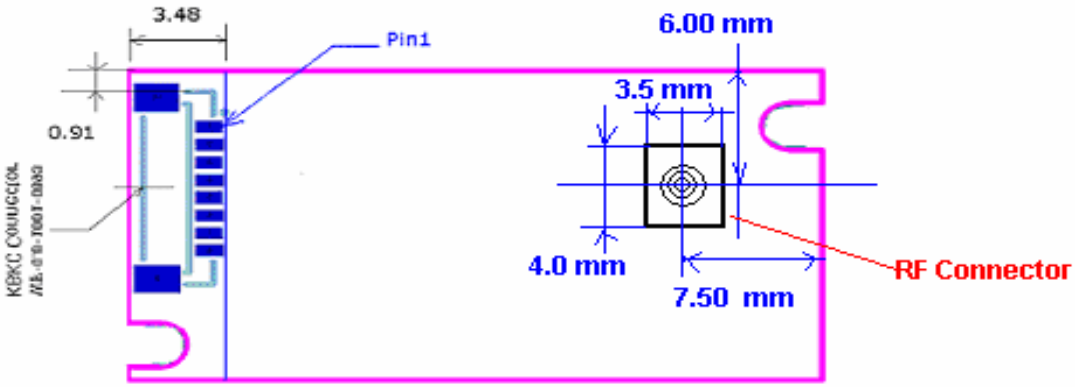


Mechanical Information

Unit : mm

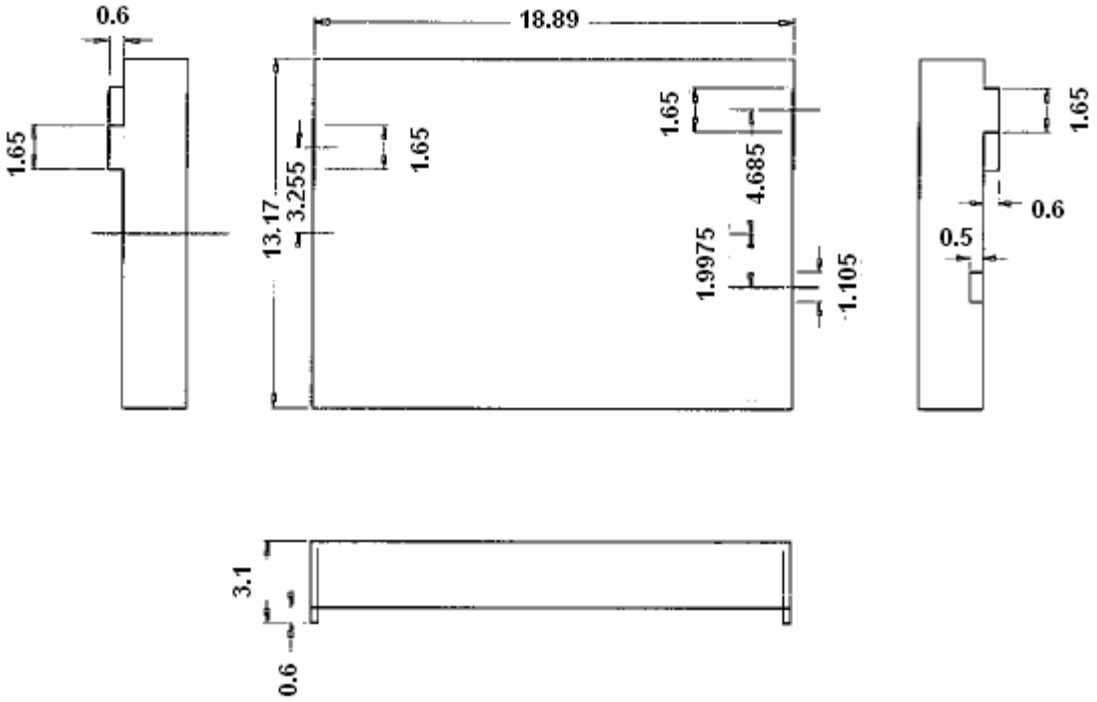




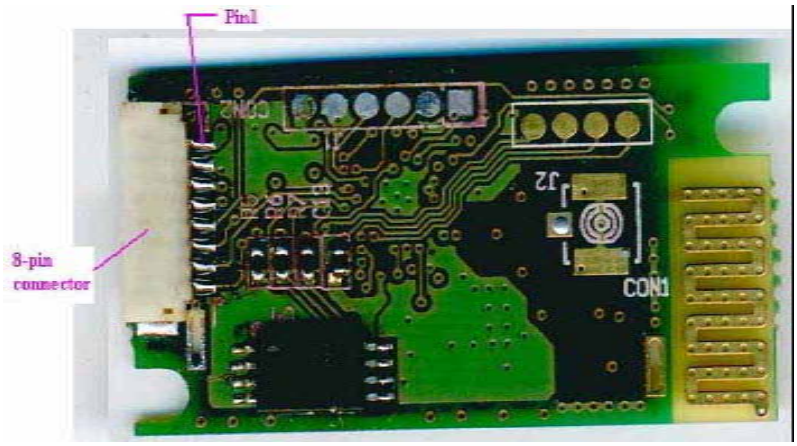


Shielding case

Unit :mm



Pin Assignment and Definition



The interface between the module and the host system is through 8-pin connector whose pin definition is listed below:

Pin	Pin Name	Pin Type	Descreption
1	+V3v3	VDD	+3.3V from Host
2	GND	VSS	Power Ground
3	USB D-	I/O	USB data line, minus
4	USB D+	I/O	USB data line, plus
5	LED Link	O/P	Logic level for LED indicator on host system, LED indicates Bluetooth activity, Active High to indicate the Bluetooth active, PIO(0)connected to pin5 through a LED.
6	Channel CLK	O/P	Signal output for 802.11g/b co-existence, PIO(3)connected to pin 6
7	Channel Data	I/P	Signal output for 802.11g/b co-existence, PIO(4)connected to pin 7
8	BT_ACT/ Module Detect	I/P	Low active,<0.42V, Bluetooth enable, >2.0V, Bluetooth disable.

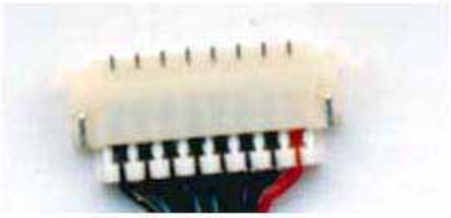
8-Pin Connector

SM10B-SURS-TF(LF)(SN)

Receptacle for Board

WC-0.8-1001-0801N

Plug for Cable

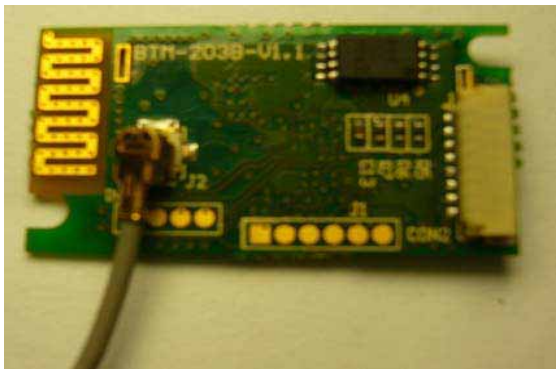


Mated Drawing

USB Interface

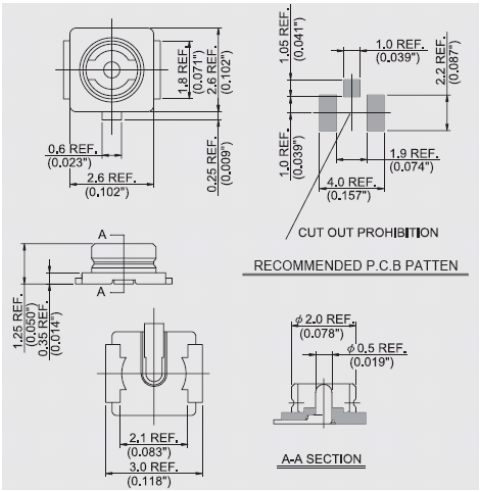
The BTM-203B module interface is a standard USB 1.1 connection to the PC. The module supports a standard Bluetooth HCI interface.

Ultra –Miniature RF Receptacle



Compatible with Hirose's U.FL/ U.FL(V)

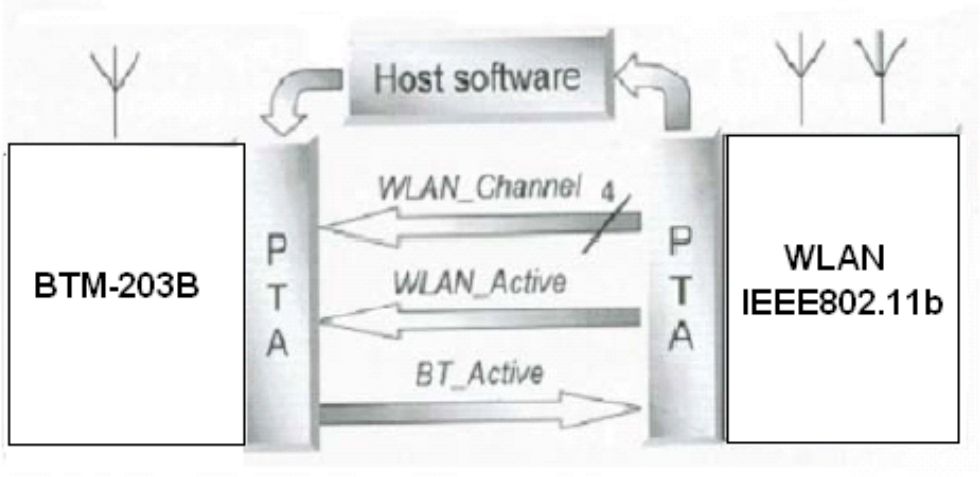
SMT Receptacle



BTM-203B Test Board (BHPB-101)

The Test Board supports testing, developing and evaluating BTM-203B sample functions. Host controls module through USB port. The test program can be packaged to customers, too.

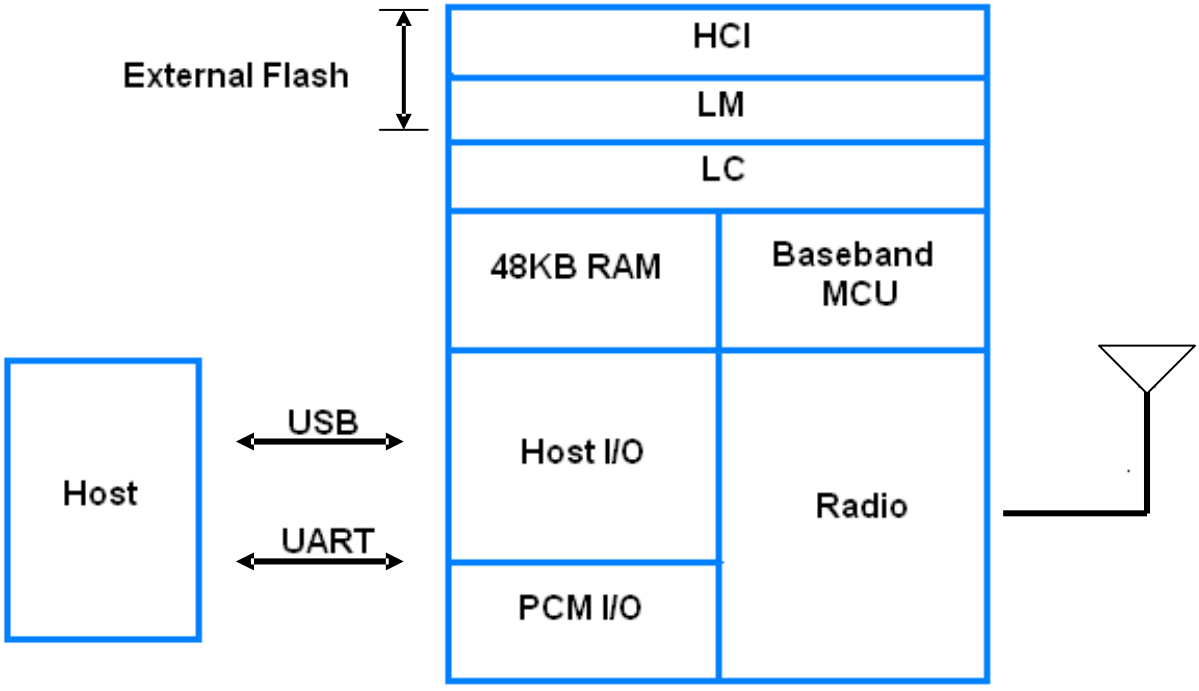
Coexistence Scheme



PTA:Packet Traffic Arbitration

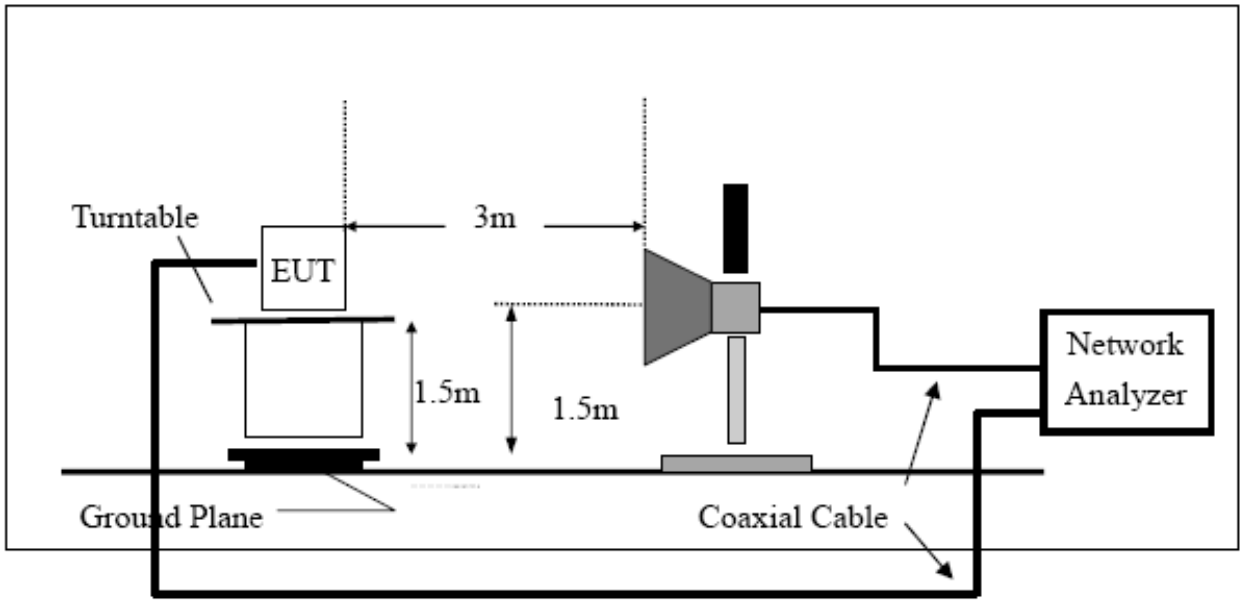
Bluetooth and WLAN request permisson to transmit from PTA control entity.

. Software Stack



BTM-203B HCI Stack

1. Test SET-UP (Block Diagram of Configuration)



Measurement Equipment Used:							
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.	Cal. Lab.	Note
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	12/01/2005	12/01/2006	ETC	Calibration based on the article 24-2-4-2-Ha of the radio law
Network Analyzer	Aglient	8714ET	US41442815	11/01/2005	11/01/2006	ETC	
Turn Table	HD	DT420	N/A	N.C.R	N.C.R	N/A	
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R	N/A	
Controller	HD	HD100	N/A	N.C.R	N.C.R	N/A	
1166 chamber	TDK	Fully chamber	S0006150	N.C.R	N.C.R	N/A	

2. Test Result :

	Peak (dBi)			Average (dBi)		
	Hor.	Ver.	Total	Hor.	Ver.	Total
	-1.94	-1.22	-1.22	-7.79	-5.92	-3.745