

Module Features

- Bluetooth™ V1.1 Compliant
- Transmit Power +4dBm(Class2)
- 2.7V to 3.6V Operation
- Full Bluetooth data rate over UART and USB
- Four low power modes : Park, Sniff, Hold and Deep Sleep
- Support for up to seven slaves

General Description

ABM-200-2XXX is a Class 2 surface mountable Bluetooth™ Module for Mobile Phone, PDA, Notebook PC, Desktop PC, applications. It provides fully compliant Bluetooth system for data and voice communications. Physical interface to host (UART, USB) can support full Bluetooth data rate 723.2k/57.6kbps.

A-Law, u-Law, 13bit or 16bit linear PCM, 8k sample/sec synchronous bidirectional audio interface is also available.

Application

Laptop and Desktop PCs
Mobile Phones
Cordless Headsets
Personal Digital Assistants (PDAs)
Digital Camera & Printer
Domestic and Industrial Applications

ABM-200

Class2 Bluetooth Module Production Information Data Sheet

ID : ABM-200-2XXX

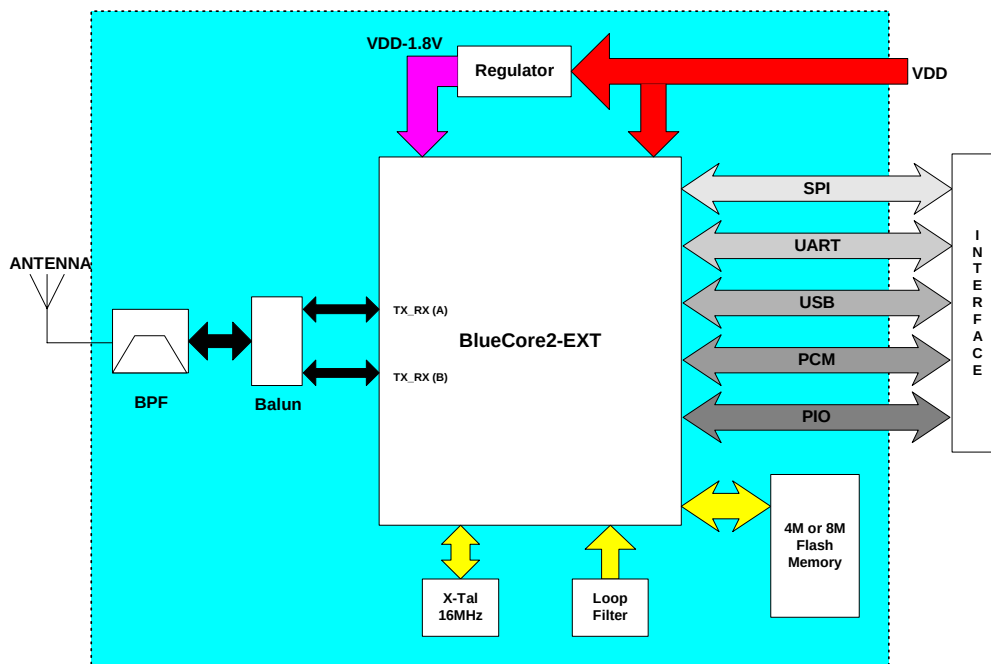
Dec.2002

Features

- Size(18.0 X 14.0 X 2.0mm)
- Class2 Support(+4dBm)
- Surface Mountable
- Single 3.3V Power Supply
- Support PCM interface for SCO

Specification

- Operating Conditions
 - Support Voltage..... 2.7V ~3.6V
 - Temperature Range..... -20~+70°C
- Power Consumption
 - ACL Data (UART/115.2kbps) 18mA
 - Voice Only (HV3 Packet) 28mA
- Radio Characteristics
 - Receiver Sensitivity ... -84dBm
 - Transmitter Power +2.0dBm(Typical)



Electrical Characteristics

Absolute Maximum Ratings			
Parameter	Min	Max	Unit
Storage Temperature	-40	+85	°C
Supply Voltage	2.7	3.6	DCV
Other Pin Voltage	$V_{SS}-0.4$	$V_{DD}+0.4$	DCV
Recommended Operating Conditions			
Parameter	Min	Max	Unit
Temperature	-20	+70	°C
Supply Voltage for UART	3.0	3.6	DCV
Supply Voltage USB	3.1	3.6	DCV
Power Consumption			
Mode	Average	Peak	Unit
SCO connection HV3(1s interval sniff mode)(Slave)	28		mA
SCO connection HV3(1s interval sniff mode)(Master)	28		mA
SCO connection HV1(Slave)	62		mA
SCO connection HV1(Master)	62		mA
ACL Data transfer, 115.2kbps UART (Master)	18		mA
ACL Data transfer, 720kbps USB (Slave)	62		mA
ACL Data transfer, 720kbps USB (Master)	62		mA
Deep Sleep Mode, Initial	1.5		mA
ACL connection, Sniff Mode 40ms interval, 57.6kbps UART	4		mA
ACL connection, Sniff Mode 1.28s interval, 38.4kbps UART	0.8		mA
Park Mode	0.6		mA

RF Specification

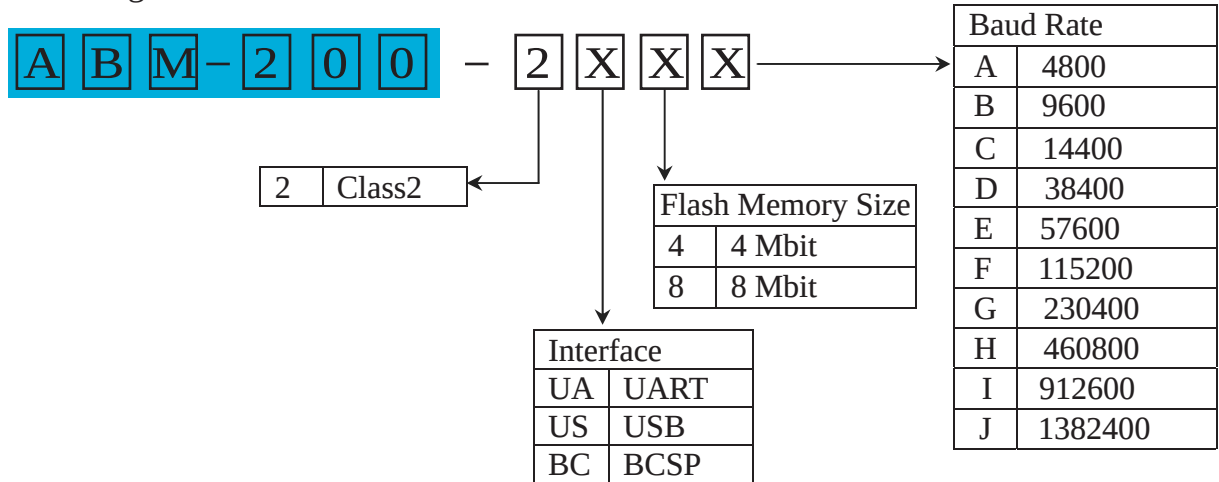
Transmitter Performance					
Parameter	Condition	Min	Typ	Max	Unit
Output Power	Normal/extreme test	-6	2	4	dBm
Power Density	Normal/extreme test	-	-	20	dBm
Power Control	Normal/extreme test	2dB ≤ Step size ≤ 8dB			
Frequency Range	Normal/extreme test	2402	-	2480	MHz
20dB Bandwidth	Normal/extreme test	-	850	1000	KHz
Adjacent channel power	± 2MHz	-	-	-20	dBm
	± 3MHz	-	-	-40	dBm
	± 4MHz	-	-	-40	dBm
Modulation Characteristics	ΔF_{1avg}	140	-	175	KHz
	ΔF_{2max}	115	-	-	KHz
	$\Delta F_{2avg} / \Delta F_{1avg}$	-	-	80	%
Initial Carrier Frequency Tolerance		-75	-	75	KHz
Carrier Frequency Drift	One slot packet(DH1)	-25	-	25	KHz
	Three slot packet(DH3)	-40	-	40	KHz
	five slot packet(DH5)	-40	-	40	KHz
Transceiver Performance					
Parameter	Condition	Min	Typ	Max	Unit
Out-of-Band Spurious Emissions	30MHz-1GHz	-	-	-36	dBm
	1GHz-12.75GHz	-	-	-30	dBm
	1.8GHz-5.3GHz	-	-	-47	dBm
	5.1GHz-5.3GHz	-	-	-47	dBm

Receiver Performance					
Parameter	Condition	Min	Typ	Max	Unit
Sensitivity level	Single slot packets	-70	-80	-	dBm
Sensitivity level	Multi slot packets	-70	-	-	dBm
C/I performance	C/I co-channel	-	9	11	dB
	C/I1MHz (Adjacent channel selectivity)	-	-2	0	dB
	C/I2MHz (2nd Adjacent channel selectivity)	-	-34	-30	dB
	C/I ≥ 3MHz (3rd Adjacent channel selectivity)	-	-43	-40	dB
Blocking performance	30MHz-2000MHz	-10	-	-	dBm
	2000MHz-2400MHz	-27	-	-	dBm
	2500MHz-3000MHz	-27	-	-	dBm
	3000MHz-12.75MHz	-10	-	-	dBm
Intermodulation Performance	n=5	-39	-	-	dBm
Maximun Input Level		-20	-5	-	dBm

Pin Description

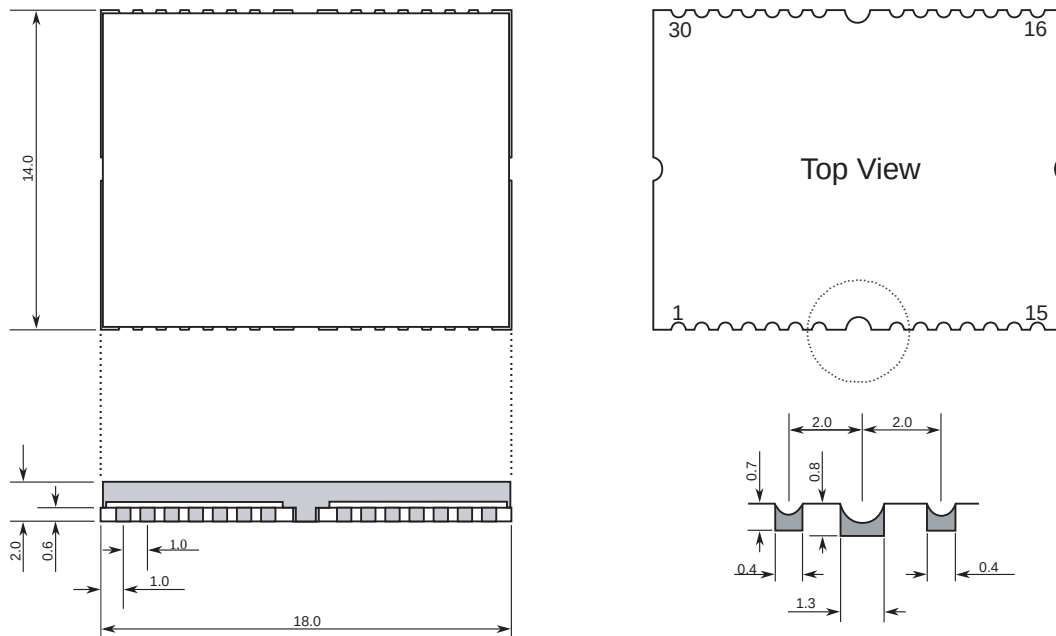
Pin No.	Pin Name	Description
1	PIO(6)	Programmable I/O terminal or CLK_REQ
2	PIO(1)	TX Enable
3	PIO(0)	RX Enable
4	AIO(0)	Programmable I/O terminal
5	PIO(7)	Programmable I/O terminal
6	AIO(1)	Programmable I/O terminal
7	RESET_IN	Module Reset INPUT
8	GND	Common Ground
9	UART_RX	UART Data in
10	UART_TX	UART Data out
11	UART_RTS	UART ready to send
12	UART_CTS	UART clear to send
13	SPI_CLK	Serial Peripheral Interface clock
14	SPI_MISO	Serial Peripheral Interface data output
15	VCC	+3.3V Power Supply
16	PCM_SYNC	Synchronous data strobe
17	PCM_IN	Synchronous 8Kss ⁻¹ data input
18	PCM_OUT	Synchronous 8Kss ⁻¹ data output
19	PCM_CLK	Synchronous data clock
20	USB_DP	USB Data plus
21	USB_DN	USB Data minus
22	SPI_MOSI	Serial Peripheral Interface data input
23	GND	Common Ground
24	SPI_CSB	Chip select for Synchronous Serial Interface active low
25	PIO(5)	Programmable I/O terminal or USB_DETACH
26	PIO(2)	Programmable I/O terminal or USB_PULL_UP
27	PIO(3)	Programmable I/O terminal or USB_WAKE_UP
28	PIO(4)	Programmable I/O terminal or USB_ON
29	GND	Common Ground
30	RF-IN_OUT	Connect to Antenna

Ordering information



Dimensions

Unit : mm



Packing : Tape & Reel(MOQ : 1000EA)



Specifications Sheet

Object	Internal Antenna	Page	1 of 7
Customer	JCOM	Date	July 2, 2004
System	Bluetooth	Rev.	IR
Model Name	W4I-BF-19	Written by	W. I. KWAK

Electrical Specifications

Frequency Range (MHz)	2400 ~ 2483.5
Band Width (MHz)	83.5
V.S.W.R (Min)	1.9 : 1
Gain (Max)	3.4 ± 1 (dBi)
Input Impedance	50 (Ω)
Polarization	Linear

Mechanical Specifications

Antenna Size (Width x Length x Height)	11 × 5 × 1.2 mm
Weight	N / A
Radiator Material	Copper
Operation Temperature	- 30 ~ 90 ($^{\circ}\text{C}$)
Operation Humidity	10 ~ 90 (%)

Option	
Remarks	

WINiZEN Co., Ltd.



Fig 1. Return Loss (Agilent E8357A 300KHz~6GHz PNA Series Network Analyzer)

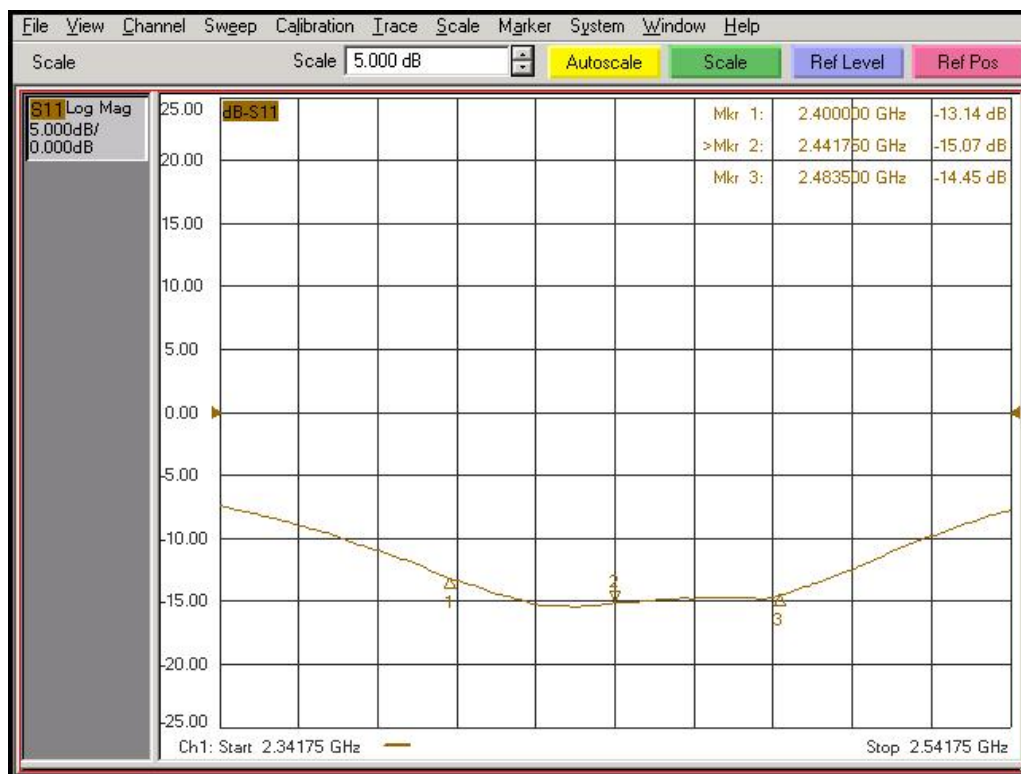


Fig 2. V.S.W.R (Agilent E8357A 300KHz~6GHz PNA Series Network Analyzer)

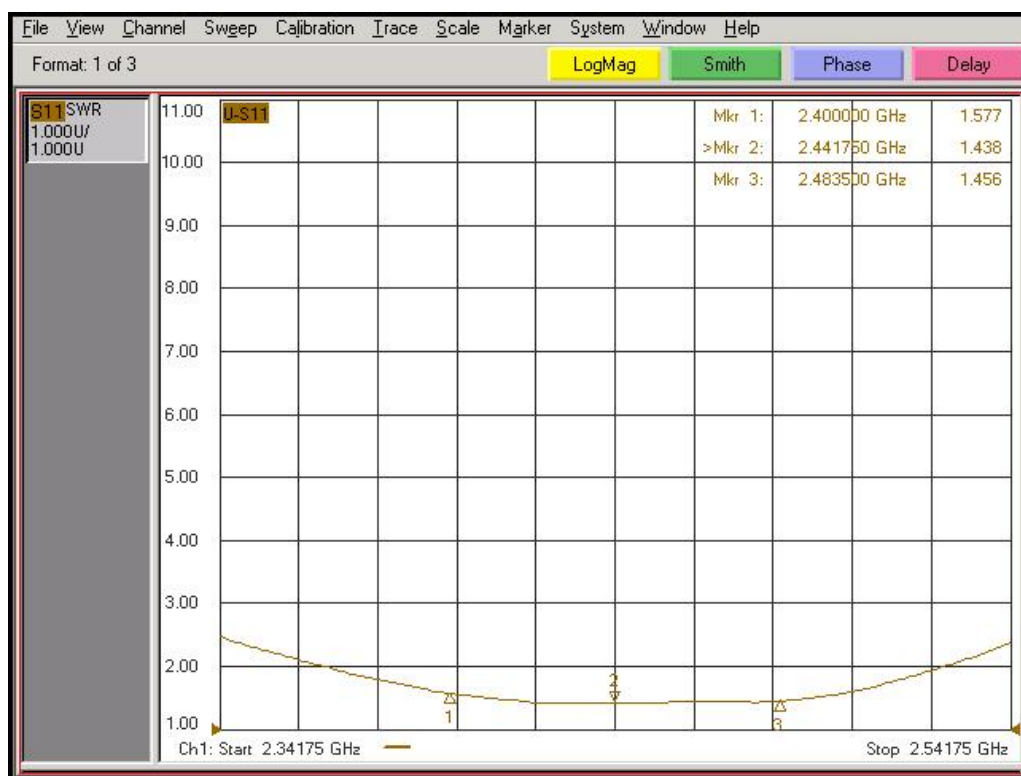


Fig 3. Smith Chart (Agilent E8357A 300KHz~6GHz PNA Series Network Analyzer)

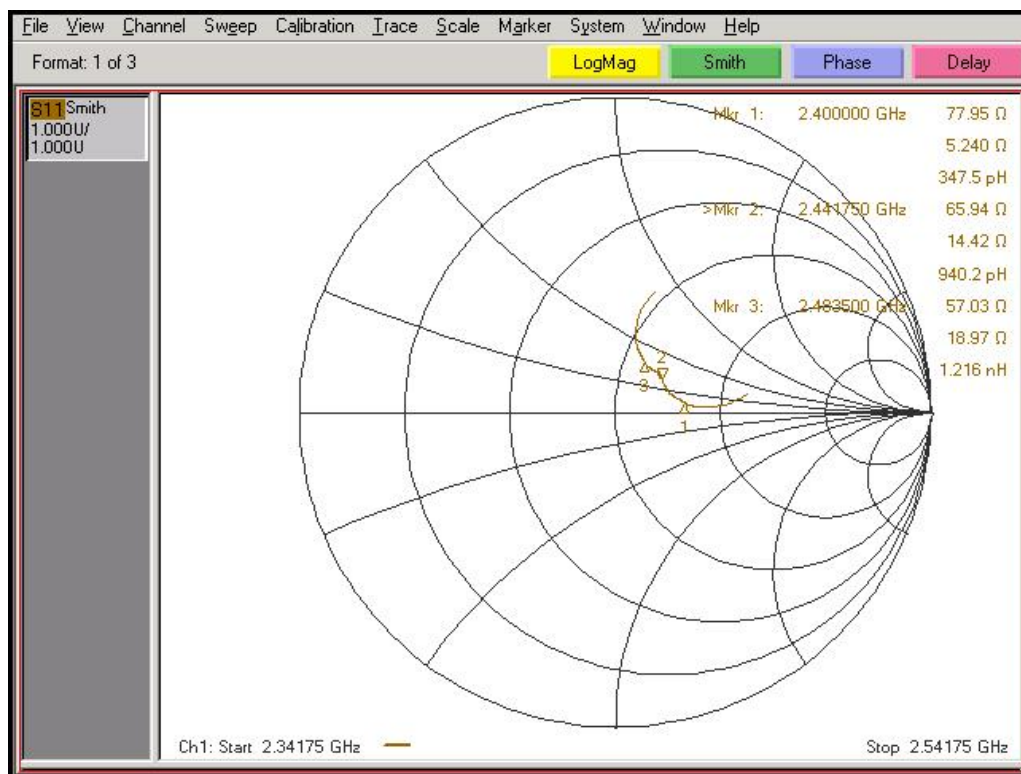
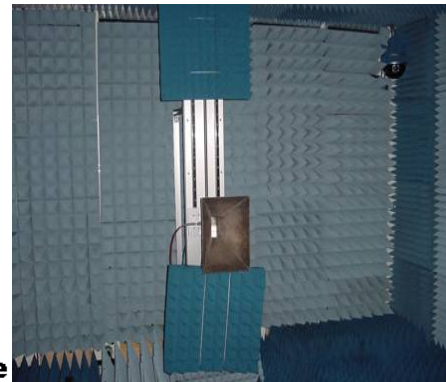
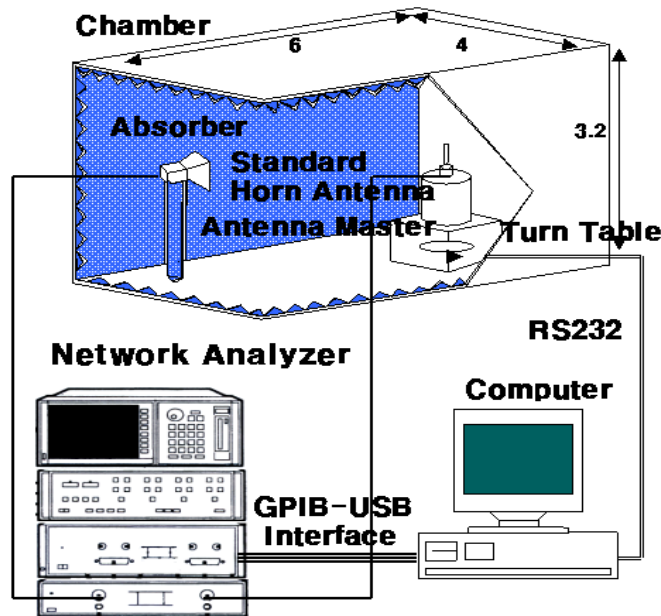
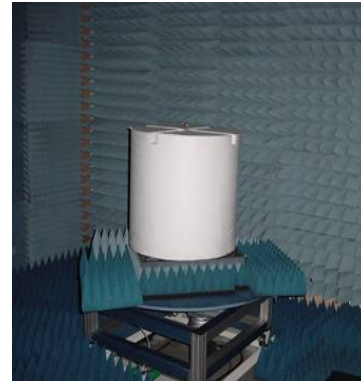


Fig 4. Measurement Configuration

(Hewlett Packard 8722ES 50 MHz ~ 40 GHz S-Parameter Network Analyzer)

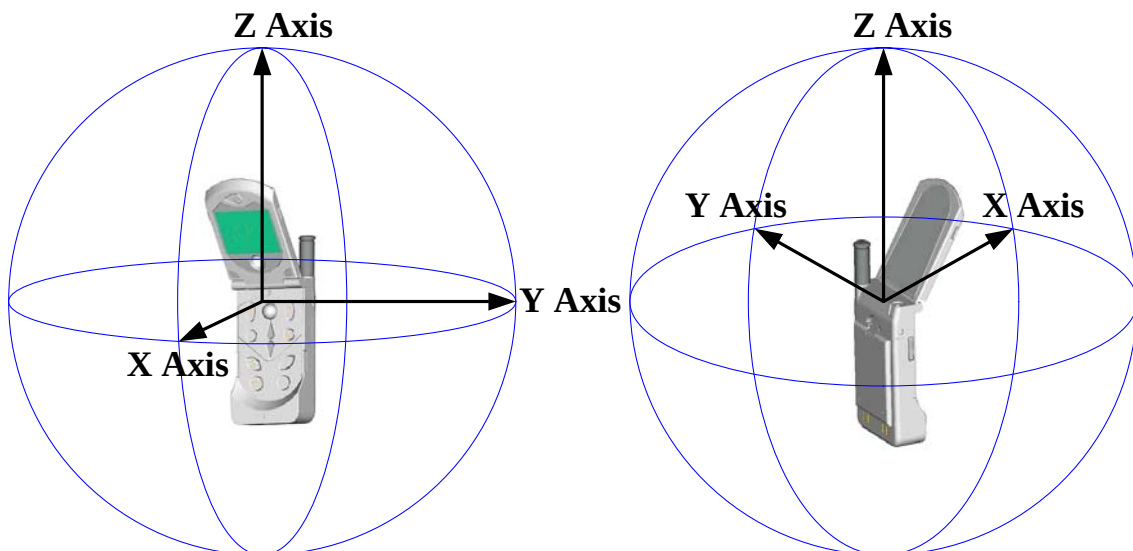


Standard Horn



Turn Table

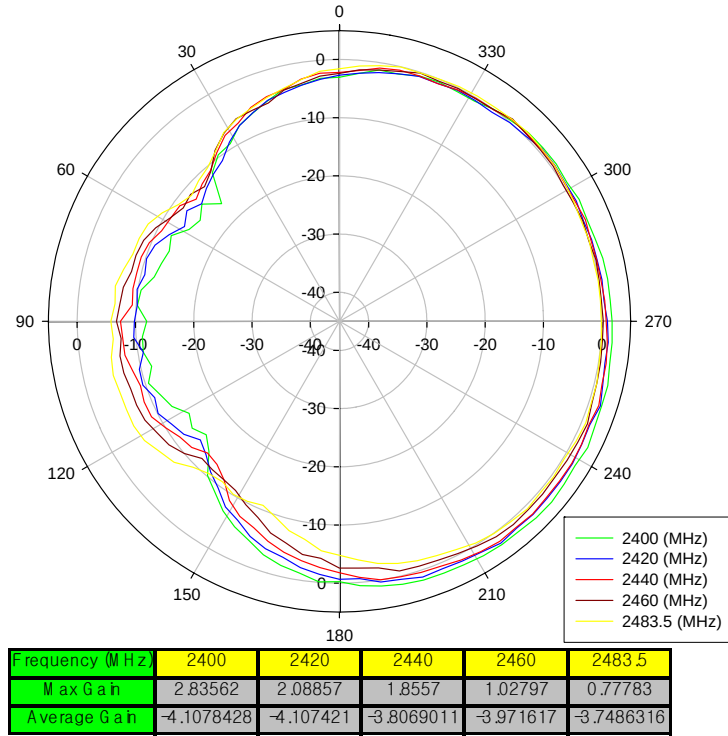
Fig 5. Axis Definitions (Antenna Center)



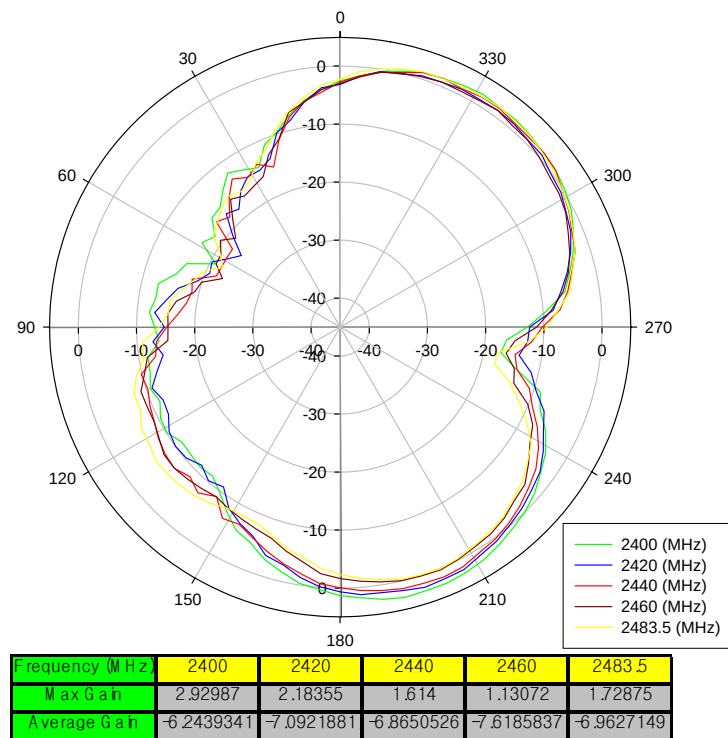
- a. Azimuth Pattern (Co-pol) : XY Plane ; Horn Antenna Polarization : Vertical
- b. Elevation Pattern (Co-pol) : XZ Plane ; Horn Antenna Polarization : Horizontal
- c. Elevation Side Pattern (Co-pol) : YZ Plane ; Horn Antenna Polarization : Horizontal

Fig 6. Gain Patterns

a. Azimuth Pattern



b. Elevation Pattern



c. Elevation Side Pattern

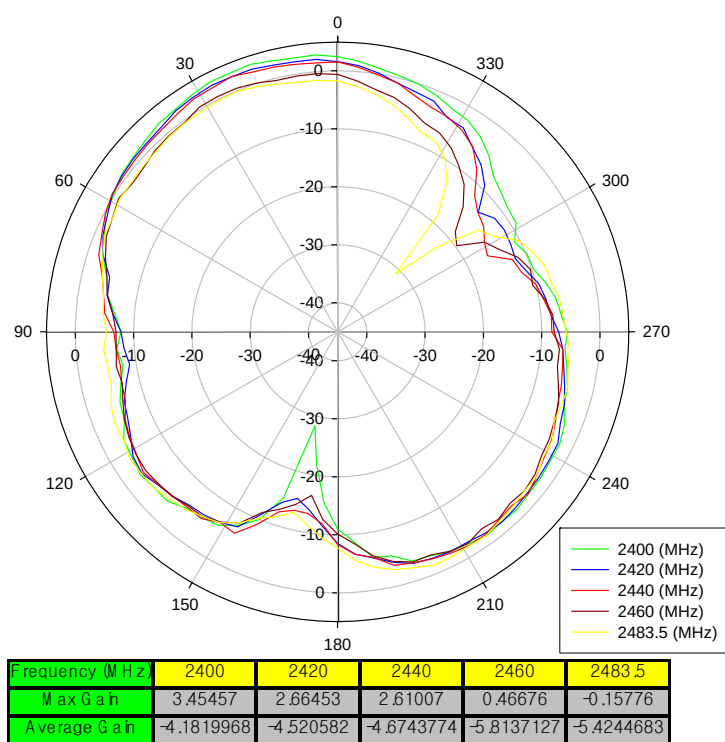


Fig 7. Antenna Mounting





Fig 8. Antenna Mechanical

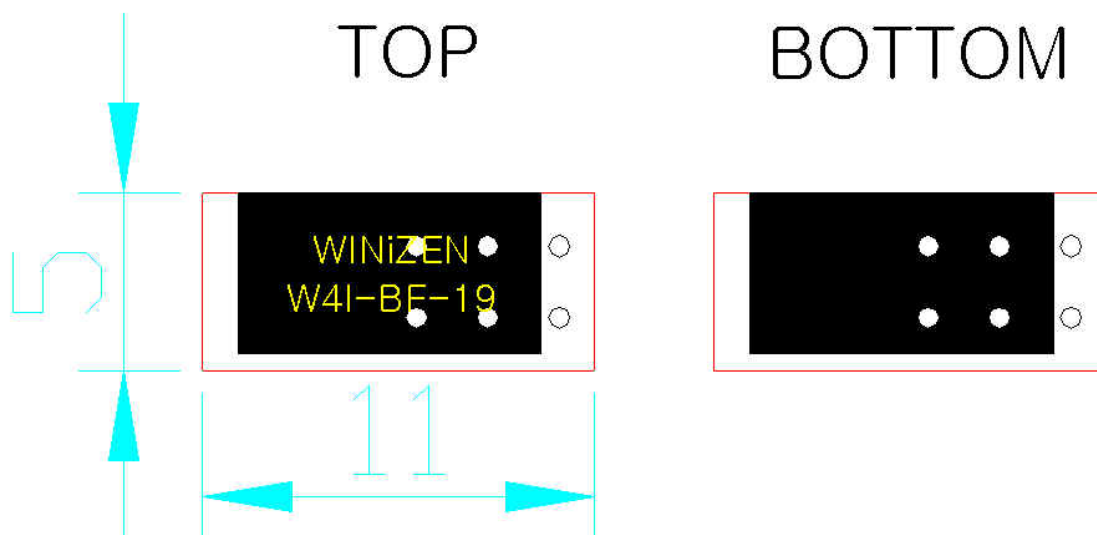


Fig 9. Printed Circuit Board Mechanical

