晶訊科技股份有限公司
CC&C Technologies, Inc.

8F, No. 150, Jian Yi Road, Chung Ho City,
Taipei County, Taiwan 235, R.O.C.
Tel: 886-2-8226-5088 Fax: 886-2-8226-5077

Product Specification

Product:	**Bluetooth module, Class 1**
Model Number:	**BM-395**
Doc version:	**1.0**
Customer:	**CINO**
Date:	**June 27, 2006**

Note：All electrical and mechanical specification may be changed by CC&C Technologies incorporation without notice.

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BM-395 Bluetooth module, Class 1

Description

The Bluetooth module BM-395 is adopted CSR BlueCore 4 External ship solution. Which includes an 8Mbit Flash memory, used with CSR Bluetooth stack, provides a fully compliant Bluetooth system to v2.0 + EDR of the specification for data and voice communications.

Features

(1) Fully Qualified Bluetooth v2.0+EDR
(2) Enhanced Data Rate (EDR) compliant with v2.0.E.2 of specification for both 2Mbps and 3Mbps modulation modes
(3) Full speed USB v1.1 interface supports OHCI and UHCI host interfaces. Compliant with USB v2.0
(4) UART interface with programmable baud rate up to 3Mbaud with USB and an optional bypass mode
(5) Support for 8Mbit External Flash
(6) RoHS compliant
(7) Bluetooth class 1 RF output
(8) 2.4GHz~2.483GHZ ISM band
(9) Bluetooth stack runs on-chip in a variety of configurations, includes Standard HCI (UART or USB), Fully embedded to RFCOMM, or customized builds with embedded application code.

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Specification

Product Name	Bluetooth Module, Class 1
Model Number	BM-395
Standard	Bluetooth v2.0+EDR
Frequency Band	2.402GHz ~ 2.480GHz unlicensed ISM band
Modulation Method	GFSK for 1Mbps; Π/4-DQPSK for 2Mbps; 8-DPSK for 3Mbps
Spread Spectrum	FHSS (Frequency Hopping Spread Spectrum)
Transfer rates (Max)	Max UART baud rates of 3Mbps
RF Output Power	Class 1 (under 20 dBm)
Antenna terminal	50 Ohms
DC power	DC 5V
Dimension	48.5 x 19.5 mm
Operating Temperature	0 ~ +60℃
Storage Temperature	-10 ~ +70℃
Humidity	5 ~ 90% (non-condensing)

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Electronic Interface Specification

The interface between the module and the host system is through a 24-pin connector defined below.

Pin	Signal	Description
1	VCC_5	DC 5V power supply
2	GND	Power ground
3	UART_RX	UART data input
4	UART_TX	UART data output
5	UART_RTS	UART request to send active low
6	UART_CTS	UART clear to send active low
7	RESET	Reset signal input, active high
8	PIO2	Programmable input/output line 2
9	PIO3	Programmable input/output line 3
10	PIO4	Programmable input/output line 4
11	PIO5	Programmable input/output line 5
12	PIO6	Programmable input/output line 6
13	PIO7	Programmable input/output line 7
14	PIO8	Programmable input/output line 8
15	PIO9	Programmable input/output line 9
16	PIO10	Programmable input/output line 10
17	PIO11	Programmable input/output line 11
18	PCM_SYNC	Synchronous data sync
19	PCM_IN	Synchronous data input
20	PCM_OUT	Synchronous data output
21	PCM_CLK	Synchronous data clock
22	USB_D-	USB data minus
23	USB_D+	USB data plus with selectable internal 1.5kohms pull-up resistor
24	GND	Power ground

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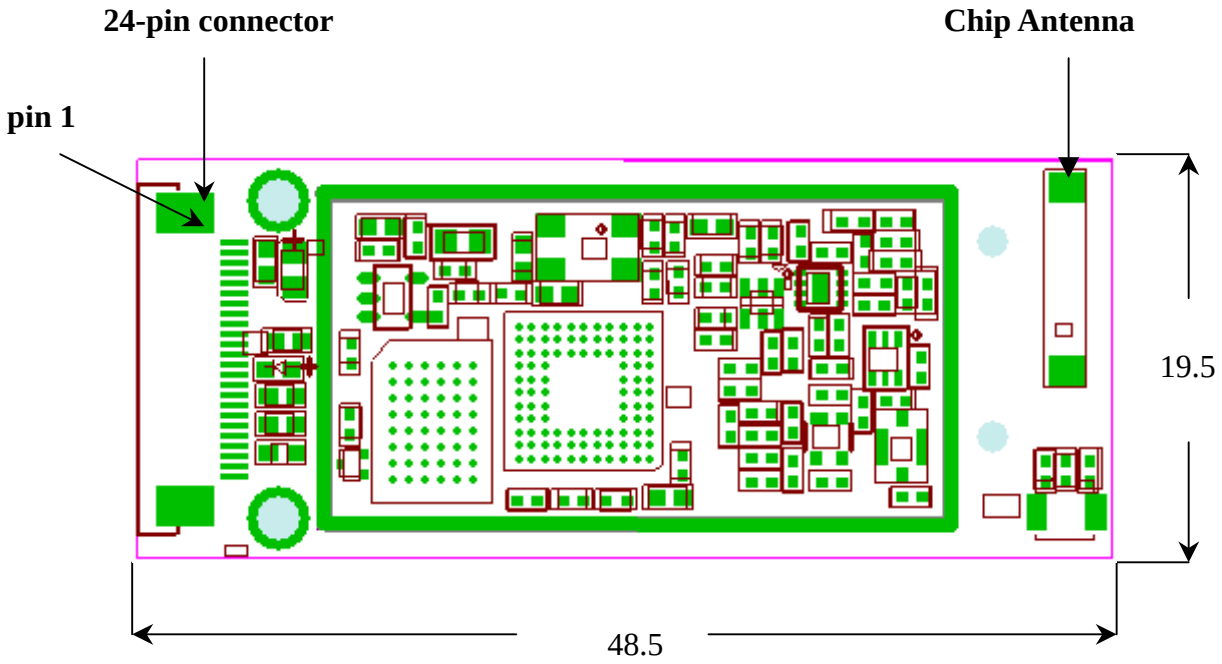
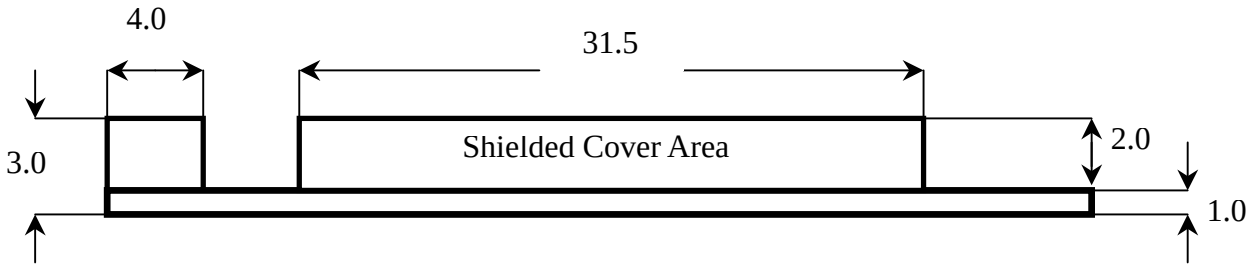
Mechanical Specification





All dimensions are in millimeters.

AT9520 Series

Multilayer Chip Antenna

Features

❖ Monolithic SMD with small, low-profile and light-weight type.

❖ Wide bandwidth

Applications

❖2.4GHz WLAN, Home RF, Bluetooth Modules, etc.

Specifications

Part Number	Frequency Range (MHz)	Peak Gain (XZ-V)	Average Gain (XZ-V)	VSWR	Impedance
AT9520-B2R4HAA_	2400~2500	3.0 dBi typ.	1.0 dBi typ.	2 max.	50 Ω

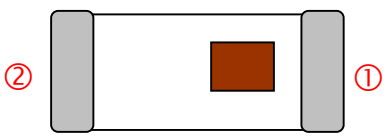
Q'ty/Reel (pcs) : 1000pcs
Operating Temperature Range : -40 ~ +85 °C
Storage Temperature Range : -40 ~ +85 °C
Power Capacity : 3W max.

Part Number

AT	9520	-	B	2R4	HAA	□
①	②		③	④	⑤	⑥

① Type	AT : Antenna	② Dimensions (L × W)	9.5× 2.0 mm
③ Material Code	B	④ Frequency Range	2R4=2400MHz
⑤ Specification Code	HAA	⑥ Packaging	T: Tape & Reel B: Bulk

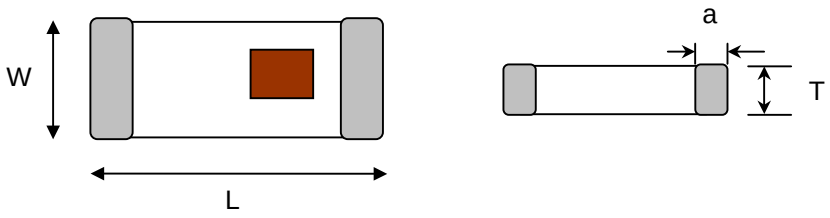
Terminal Configuration



No.	Terminal Name	No.	Terminal Name
①	Feeding Point	②	NC

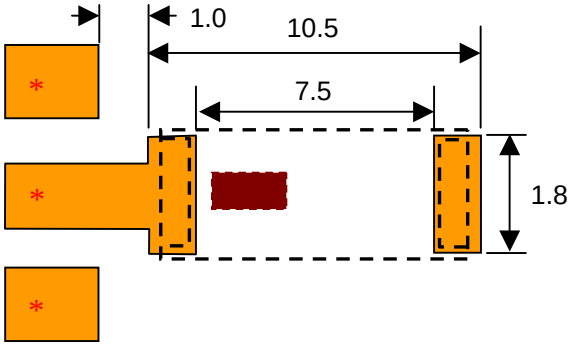
Dimensions and Recommended PC Board Pattern

Unit : mm

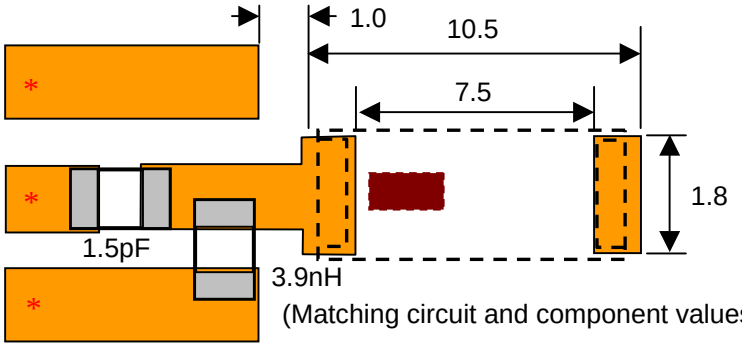


Mark	L	W	T	a
Dimensions	9.5±0.2	2.0±0.2	1.2+ 0.1/-0.2	0.5±0.3

(a) Without Matching Circuits (Moderate Bandwidth)



(b) With Matching Circuits (Wide Bandwidth)

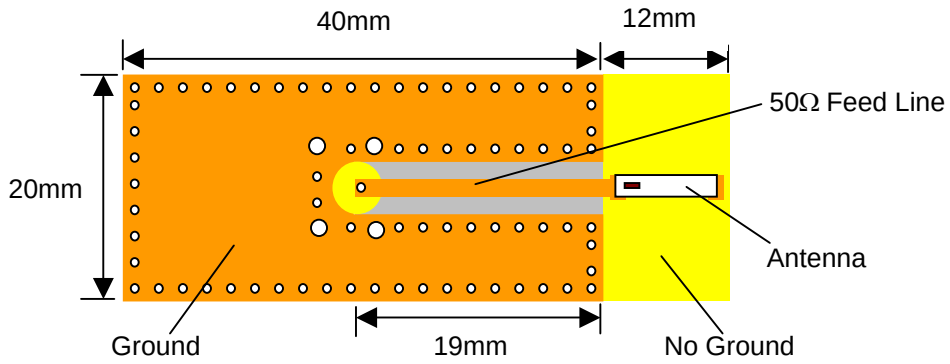


(Matching circuit and component values will be different, depending on PCB layout)

*Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

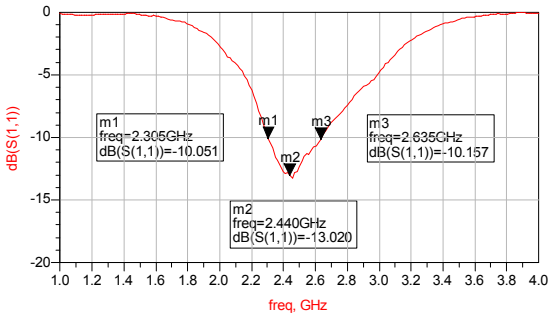
Typical Electrical Characteristics (T=25°C)

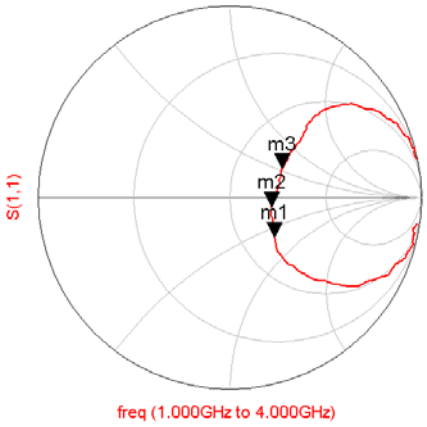
❖Test Board



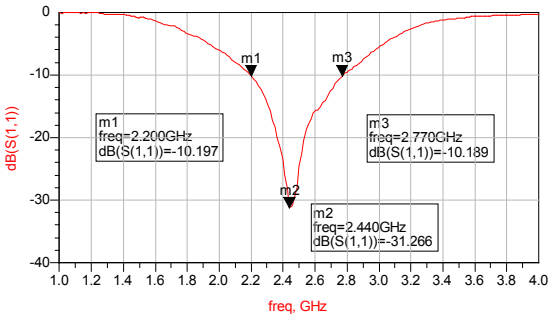
❖Return Loss

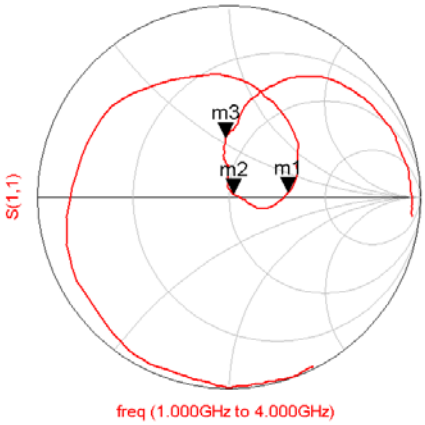
(a) Without Matching Circuits





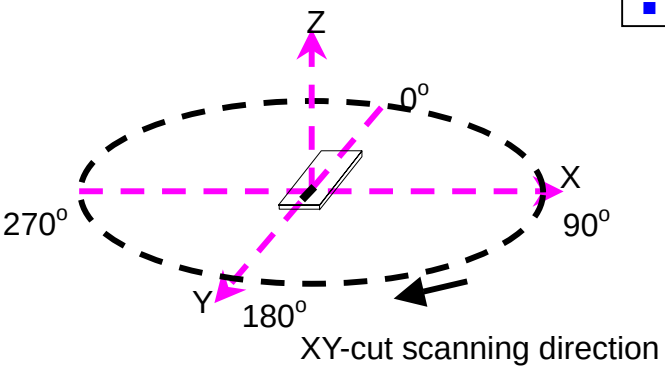
(b) With Matching Circuits



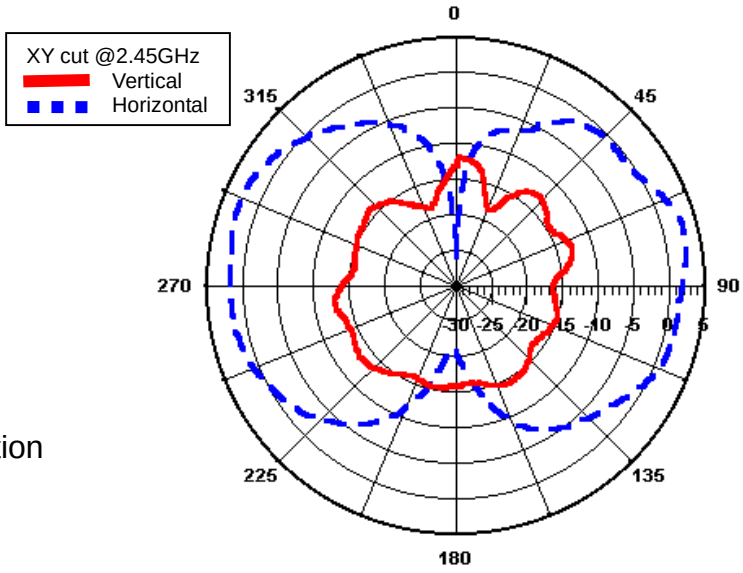


❖Radiation Patterns

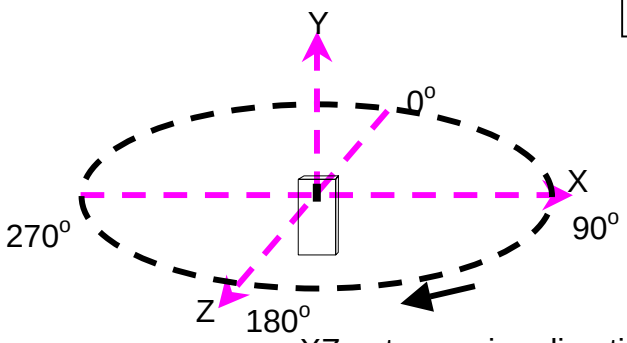
XY-V/XY-H



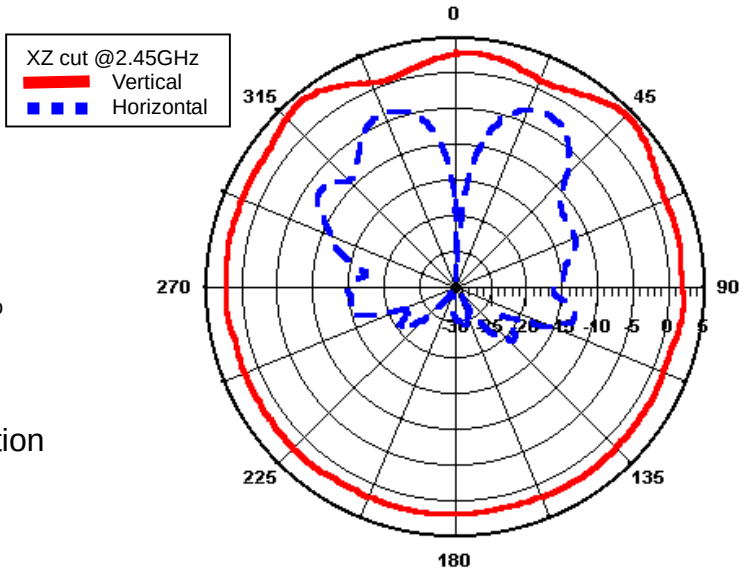
XY-cut scanning direction



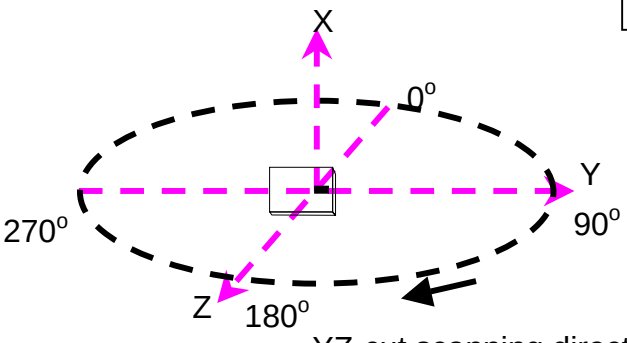
XZ-V/XZ-H



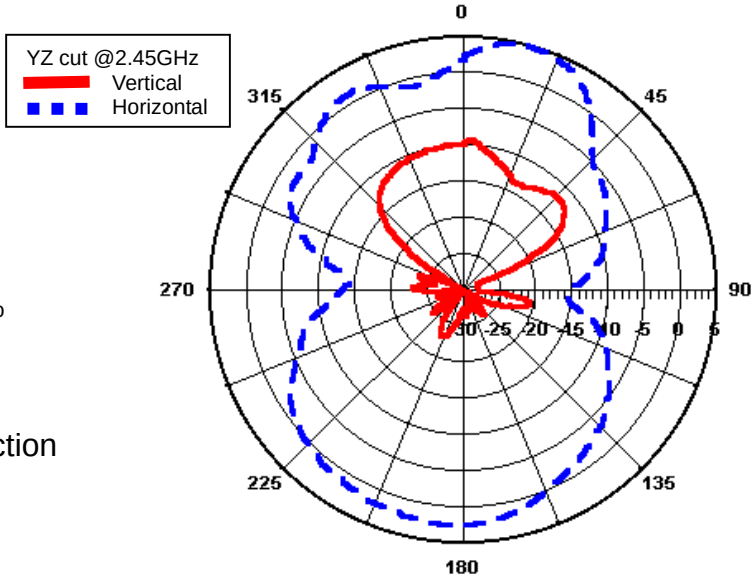
XZ-cut scanning direction



YZ-V/YZ-H



YZ-cut scanning direction



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