

Reference

No. TRJC-1F12

June. 28. 2001

Technical Report

Product Name : Surface Mountable Dielectric Chip Antenna

Part Number : AHD1403-244ST01

Subject : Input and radiation properties (DRJC-1F03)

Mitsubishi Corporation

Input and radiation properties	Approval		No	DRJC-1F03
AHD1403-244ST01	Drawn		Date	June .28. 2001

Sample Name :AHD1403-244ST01	DRJC-1F03	Page	1/5
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(1).Evaluation board and land pattern (unit: mm)

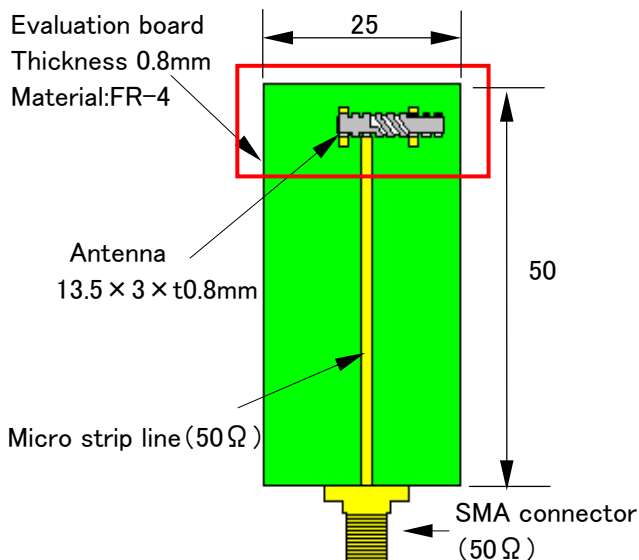


Fig.1 Evaluation board

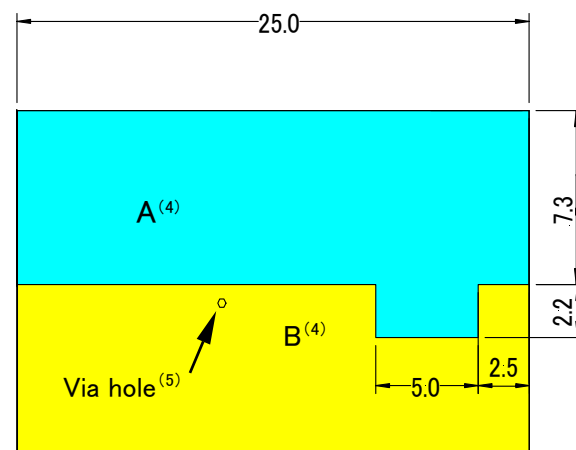


Fig.2 GND Pattern
(Backside of the Substrate)

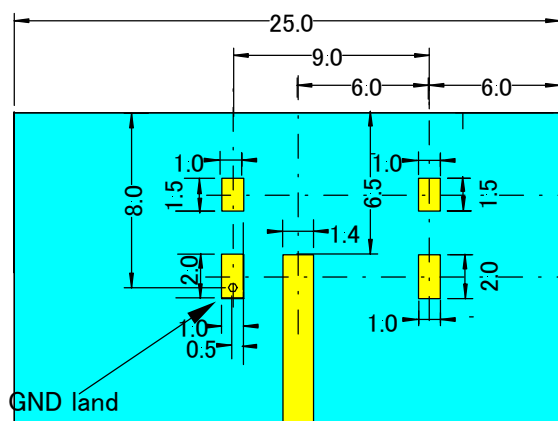


Fig.3 Land pattern
(Surface of the Substrate)

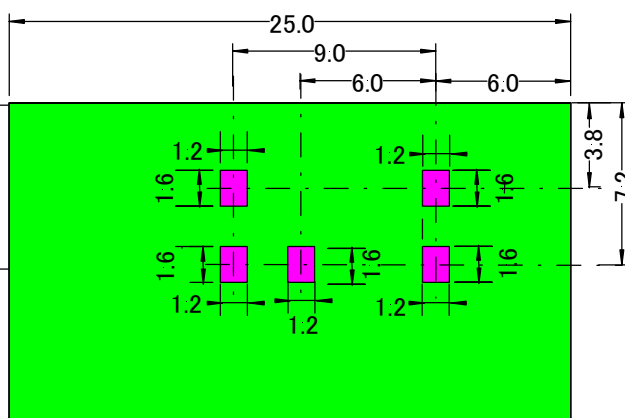


Fig.4 Solder resist pattern
(Surface of the Substrate)

Notes

- (1) The tolerance of Fig.1, Fig.2, Fig.3, and Fig.4 is $\pm 0.1\text{mm}$.
- (2) Fig.2, Fig.3, Fig.4 and Fig.5 are enlargements of the area surrounded by the red line in Fig.1 (Fig.2 is the perspective view of Fig.1).
- (3) Yellow areas show conductor, light blue areas show FR-4 substrate and green areas show solder resist.
- (4) We recommend to make a ground plane on area B, and no ground plane on area A. (shown in Fig.2)
- (5) Via hole ($\phi 0.4\text{mm}$) joins GND land and ground plane.
- (6) We recommend to make solder resist on the surface of the substrate but no solder resist on the pink areas shown in Fig.4.
- (7) We recommend to solder Antenna 0.3mm away from the edge of the ground plane. (shown in Fig.5)

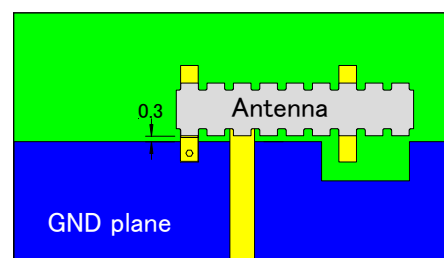


Fig.5 Mount position

(2) Dimension (Unit:mm)

- ① : In/Out Terminal
② : GND Terminal
③ : Fixing Electrode (Should be connected with the floating pad)

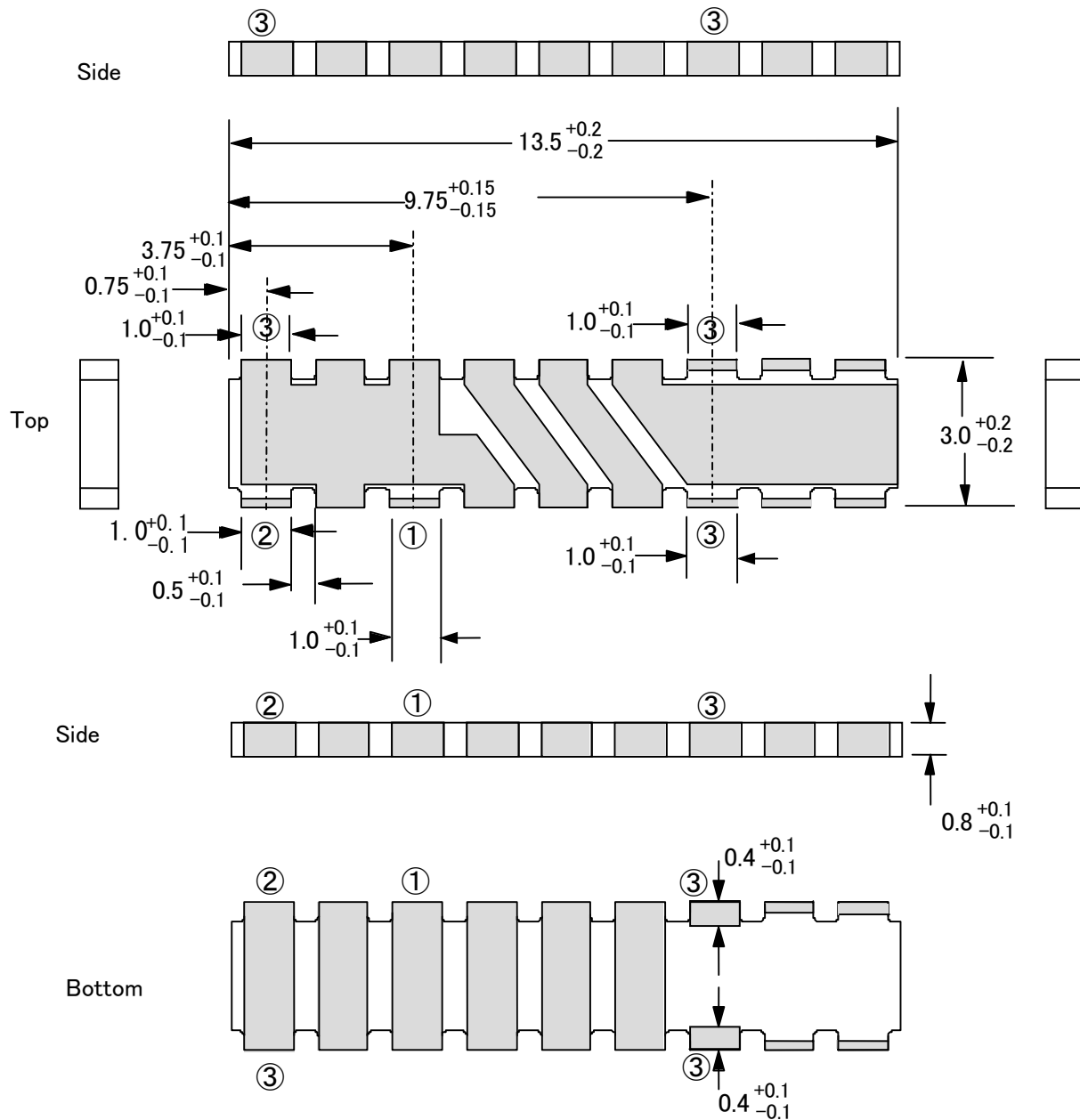


Fig.6 Dimension

(3) Typical data

(measured with HP8510 network analyzer)

Input properties

- Input Impedance
- Input Impedance on Smith chart
- Return Loss

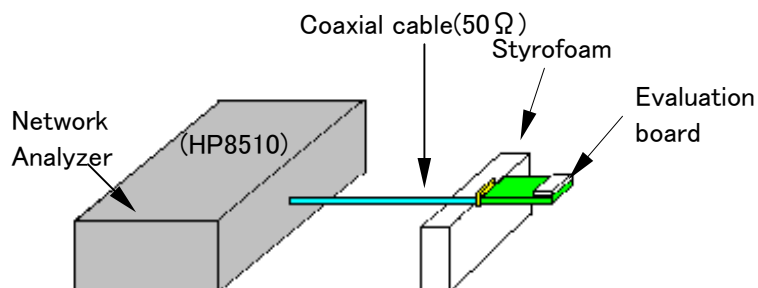


Fig.7 Input properties measuring system

Radiation properties

- Radiation Pattern (Z-X, Y-Z, X-Y plane)

Note:

Radiation Pattern was measured with standard Dipole Antenna rotated in the direction of curved arrow.

ex. In the Y-Z plane Data, The direction of 0 degree represents Z-axis and the direction of 90 degree represents Y-axis.

Horizontal polarization is indicated by pink line and vertical polarization is indicated by dark blue line.

Evaluation results

- Input properties (Input Impedance, Return Loss) → see page 4/5
- Radiation Pattern (Z-X, Y-Z and X-Y plane) → see page 5/5

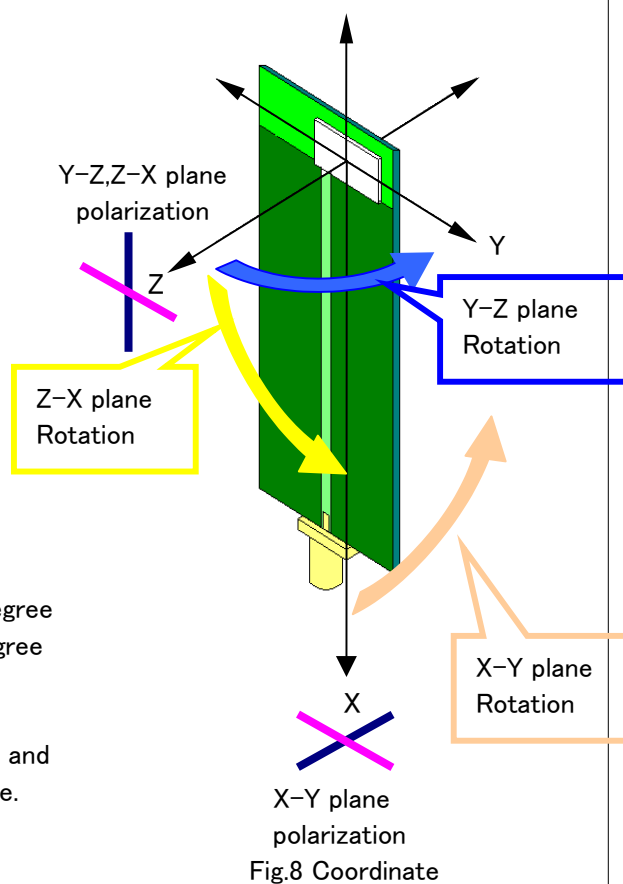
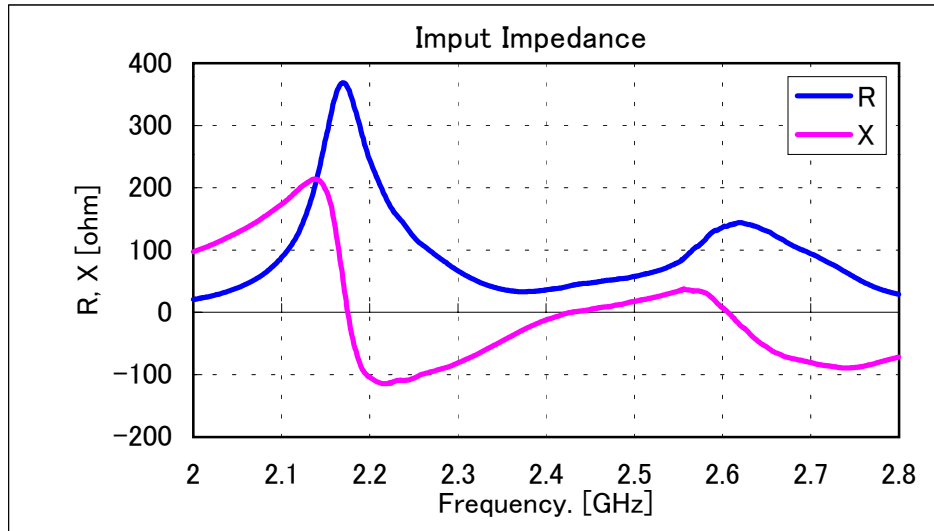
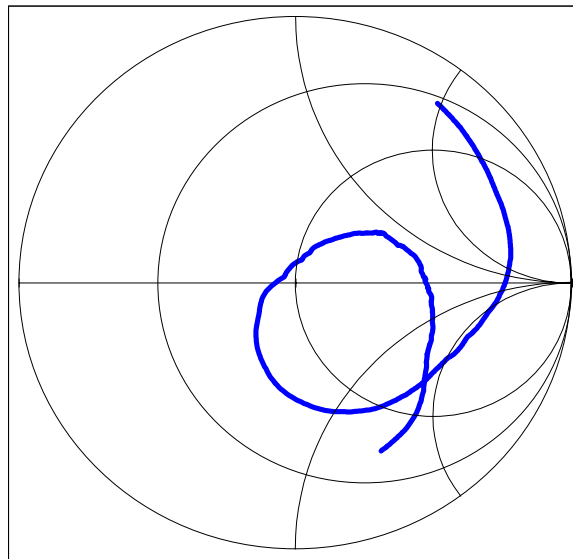
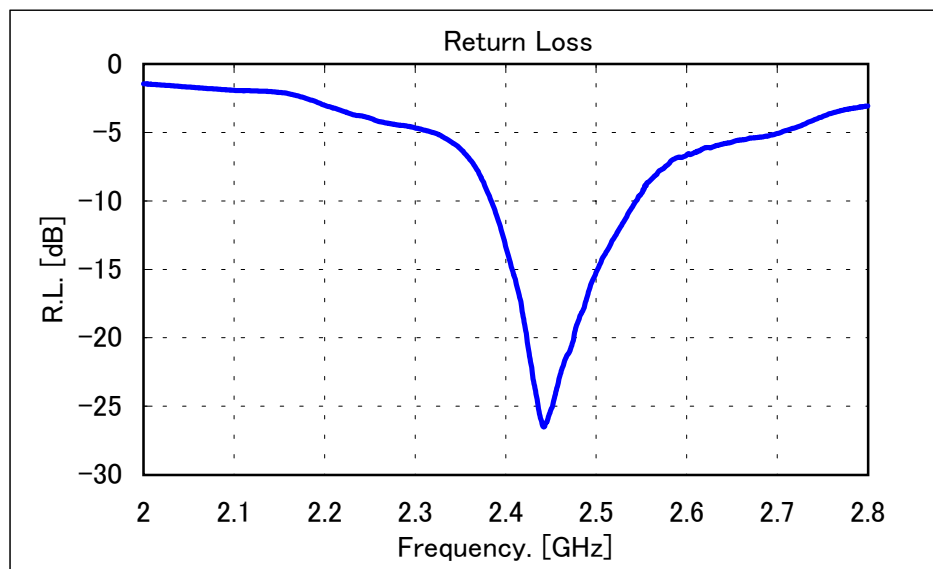


Fig.8 Coordinate

1. Input Impedance

2. Input Impedance
(on Smith Chart)

3. Return Loss

frequency at return loss minimum(f_0):2442MHz

Band width (VSWR<3) 283 [MHz]

Band width (VSWR<2) 158 [MHz]

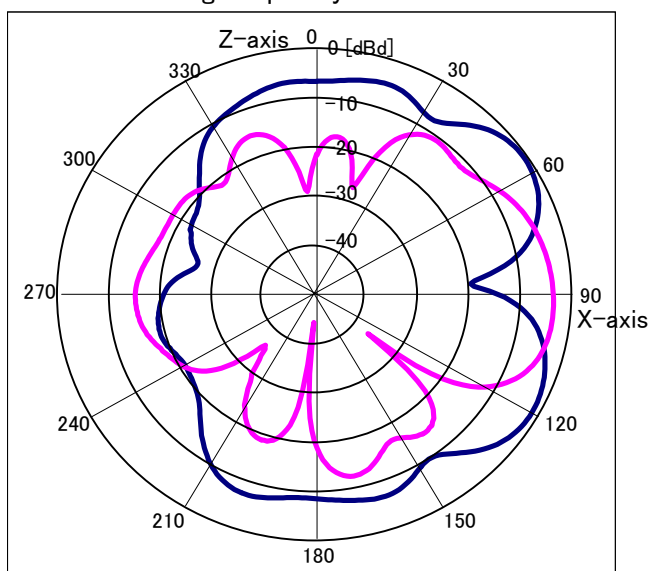
*These properties are not guaranteed properties but typical properties.

Return loss minimum=-26.5dB, $R=46.1\ \Omega$, $X=2.2\ \Omega$ (at f_0) $f(\text{lower})2348\text{MHz}$, $f(\text{upper})2631\text{MHz}$ (VSWR<3), $f(\text{lower})2385\text{MHz}$, $f(\text{upper})2543\text{MHz}$ (VSWR<2)

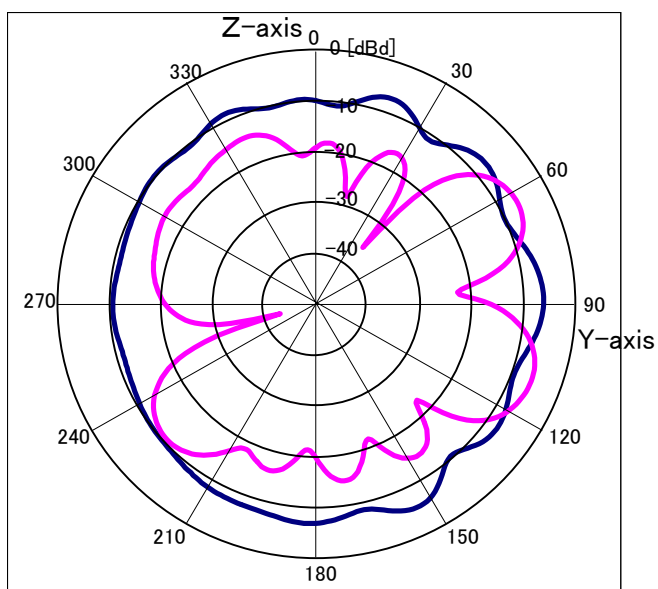
4.Radiation Pattern

Measuring frequency:2442MHz

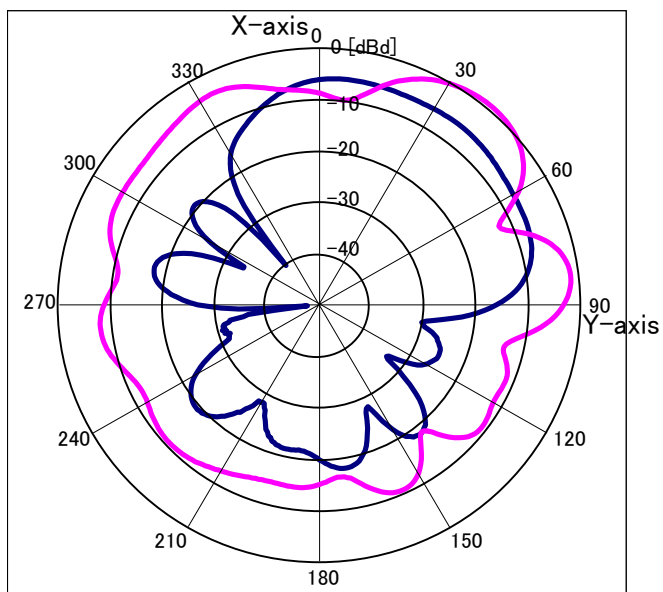
ZX plane



YZ plane



XY plane



*These properties are not guaranteed properties but typical properties.