

### 2450 MHz Quarter Wave Antenna with SMA connector

#### Product Description

The ANT2450QW-SMA is a rugged rubber coated quarter wave antenna for use in the 2.45 GHz band. The quarter wave antenna must be mounted on a ground plane for best performance.

#### Applications

- 2.45 GHz radio links
- Radio modems
- Outdoor installations

#### Features

- Whip antenna for 2.45 GHz
- Rugged rubber coated design
- Flexible moulded sheath
- SMA-Male connector
- No external matching components



#### Specification

Parameter		Unit
Frequency band	2.45	GHz
Radiating element	Quarter wave*	
Antenna peak gain**	0	dBi
Polarisation	Linear, vertical	
VSWR	< 2:1	
Power rating	3	W
Connector	SMA, male	
Dimensions	53.5 x 7.8 (height x diameter at base)	mm

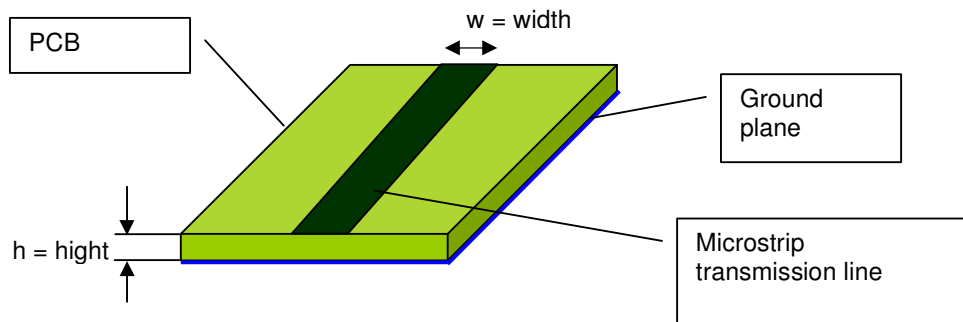
\* Needs to be mounted on a ground plane

\*\* Measured mounted on a ground plane

### Antenna Connection

A quarter wave whip antenna above a ground plane yields 37 Ohm impedance and a matching circuit for 50 Ohm are usually not required. The RF pin on the RF module is matched to 50 Ohm. If the antenna connector is placed away from the module at the motherboard, the track between the RF pin and the connector must be a 50 Ohm transmission line. The track should be as short as possible in order to reduce transmission loss.

On a two layer board made of FR4 the width of a microstrip transmission line should be 1.8 times the thickness of the board, assuming a dielectric constant of 4.8. Example: For a  $h = 1.6$  mm thick FR4 board, the width of the trace on the top side should be  $w = 1.8 \times 1.6$  mm = 2.88 mm. The line should be run at the top of the board, and the bottom side should be a ground plane. See illustration below. The bottom side ground plane should be as large as possible to work as a counterweight and ground plane for the antenna.



If the antenna connector is mounted on the chassis, a 50 Ohm coaxial cable must be used from the module to the connector. A metal chassis is preferred as this will act as a ground plane. The coaxial cable shield should be connected to the chassis. If the chassis is non-conducting, a conducting (metal) plate should be placed at the base of the antenna to act as the ground plane.

The ground plane should always be as large as possible. As a rule of thumb, the radius of the plane as measured from the base of the antenna should be minimum  $\frac{1}{4}$  wavelength (i.e. approximately 3 cm at 2.45 GHz).

### Document Revision History

Document Revision	Changes
1.0	First release

### Product Status and Definitions

Current Status	Data Sheet Identification	Product Status	Definition
	Advance Information	Planned or under development	This data sheet contains the design specifications for product development. Specifications may change in any manner without notice.
	Preliminary	Engineering Samples and First Production	This data sheet contains preliminary data, and supplementary data will be published at a later date. Radiocrafts reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
<b>X</b>	<b>No Identification Noted</b>	<b>Full Production</b>	<b>This data sheet contains final specifications. Radiocrafts reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.</b>
	Obsolete	Not in Production	This data sheet contains specifications on a product that has been discontinued by Radiocrafts. The data sheet is printed for reference information only.

### Disclaimer

Radiocrafts AS believes the information contained herein is correct and accurate at the time of this printing. However, Radiocrafts AS reserves the right to make changes to this product without notice. Radiocrafts AS does not assume any responsibility for the use of the described product; neither does it convey any license under its patent rights, or the rights of others. The latest updates are available at the Radiocrafts website or by contacting Radiocrafts directly.

As far as possible, major changes of product specifications and functionality, will be stated in product specific Errata Notes published at the Radiocrafts website. Customers are encouraged to check regularly for the most recent updates on products and support tools.

### Trademarks

All trademarks, registered trademarks and product names are the sole property of their respective owners.

### Life Support Policy

This Radiocrafts product is not designed for use in life support appliances, devices, or other systems where malfunction can reasonably be expected to result in significant personal injury to the user, or as a critical component in any life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness. Radiocrafts AS customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Radiocrafts AS for any damages resulting from any improper use or sale.

© 2007, Radiocrafts AS. All rights reserved.

### Contact Information

Web site: [www.radiocrafts.com](http://www.radiocrafts.com)

Email: [radiocrafts@radiocrafts.com](mailto:radiocrafts@radiocrafts.com)

Address:

**Radiocrafts AS**  
Sandakerveien 64  
NO-0484 OSLO  
NORWAY

Tel: +47 4000 5195

Fax: +47 22 71 29 15

E-mail: [sales@radiocrafts.com](mailto:sales@radiocrafts.com)