Picea 2.4 GHz Swivel Antenna

Product Specification

1 Features

- Designed for 2.4 GHz applications [Bluetooth™, WiFi™ (802.11b/g), Zigbee™, WiMedia™ etc.]
- Intended for snap-in mounting
- Supplied in bulk

2 Description

The Picea antenna is intended for use with all 2.4 GHz applications. The antenna is intended for snap-in mounting. The blade is made of a flexible material and can be rotated 360 degrees.

3 Application

- Development tools
- Test equipment
- Instruments
- Access points and gateways
- Printers

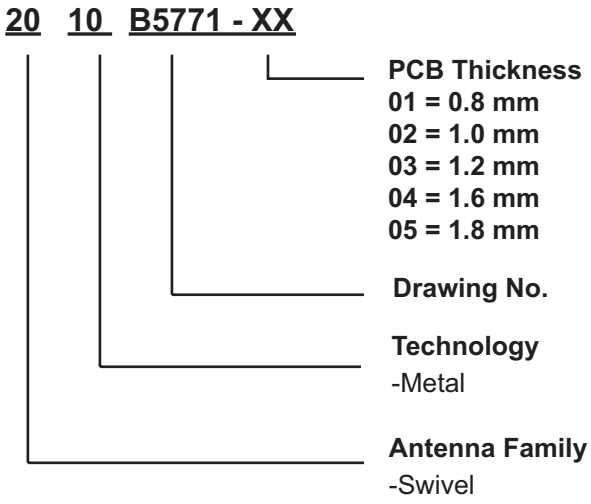


Integrated Antenna Solutions

Contents

1 Features 1
2 Description 1
3 Application 1
4 Model name 3
5 General data 3
6 Electrical characteristics 3
7 Electrical performance 4
7.1 Voltage Standing Wave Ratio 4
7.2 3D-Radiation 4
7.3 Radiation patterns 4
8 Antenna Dimensions 5
9 Antenna Foot print 5
10 Electrical interface 6
10.1 Transmission line and matching 6
10.2 Test board dimensions 6
10.3 Test board matching 7
11 Reliability 7
11.1 Temperature and Humidity 7
11.2 Judgement standard 7
12 Hazardous Material Regulation Conformance 7
13 Application example 8
14 Packaging 9
14.1 Shelf storage recommendation 9
14.2 Packaging characteristics 9
14.3 Bag label information 9

4 Model name



5 General data

Product Name	Picea 2.4 GHz
Article No.	2010B5771-01..05
Frequency	2.4-2.5 GHz
Polarization	Linear
Operating temperature	-40 to + 85 degC
Impedance	50 Ohm
Weight	3.2 gram
Antenna type	Swivel

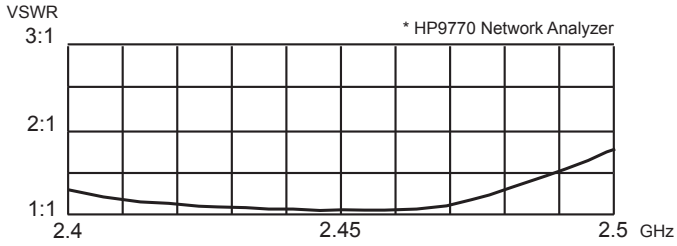
6 Electrical characteristics

	Characteristics			**Conditions***
	Min	Typ	Max	
Peak Gain		4.1 dBi		Frequency 2.4-2.5 GHz, Measured in 3D chamber (near field)
Efficiency		60%		
VSWR		<2:1		Frequency 2.4-2.5 GHz, Measured in Network Analyzer

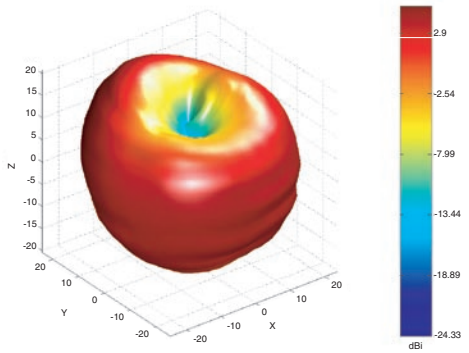
*Note all data provided in this table are based on the Antenova reference board

7 Electrical performance

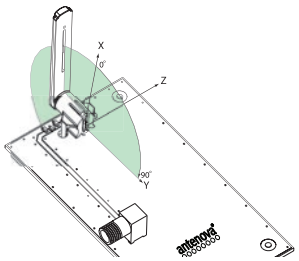
7.1 Voltage Standing Wave Ratio



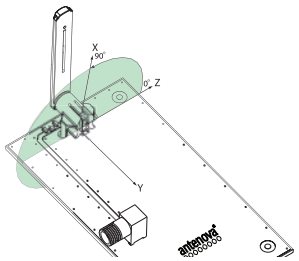
7.2 3D-Radiation



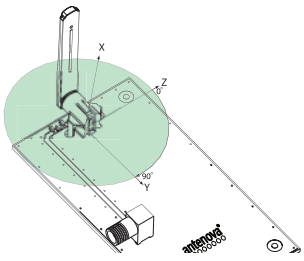
7.3 Radiation patterns



XY- Plane

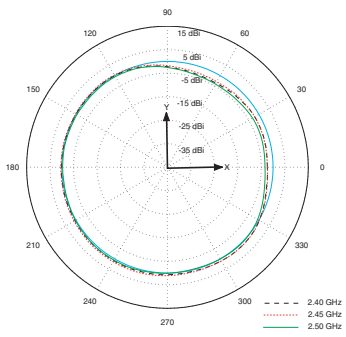


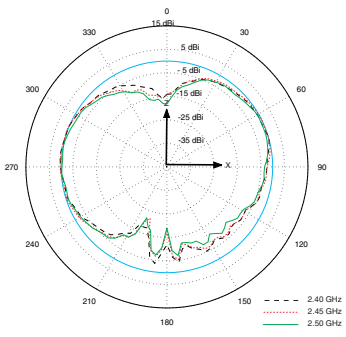
XZ- Plane

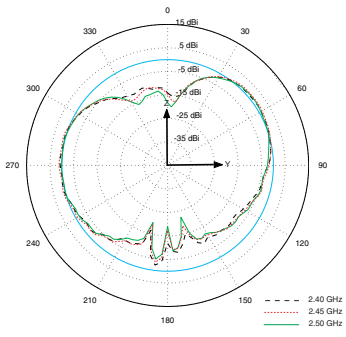


YZ- Plane

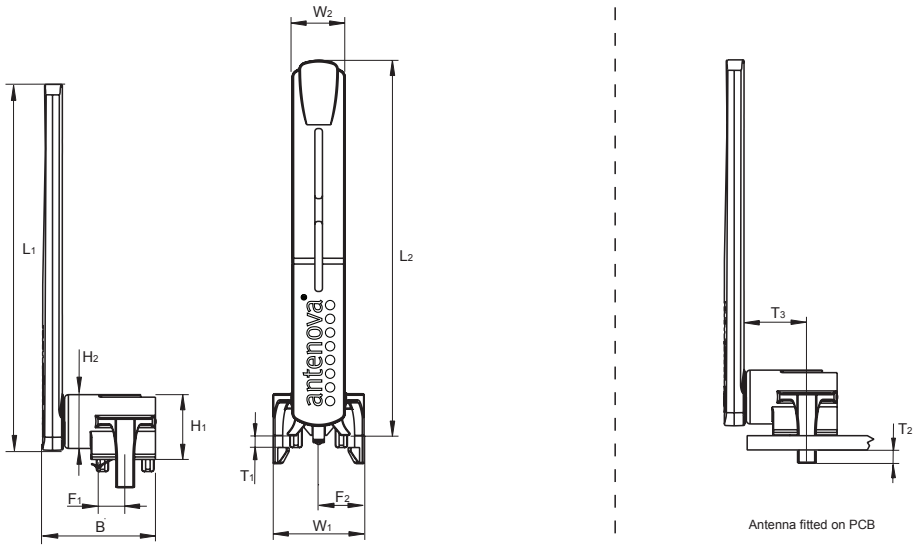
Total polarization







8 Antenna Dimensions

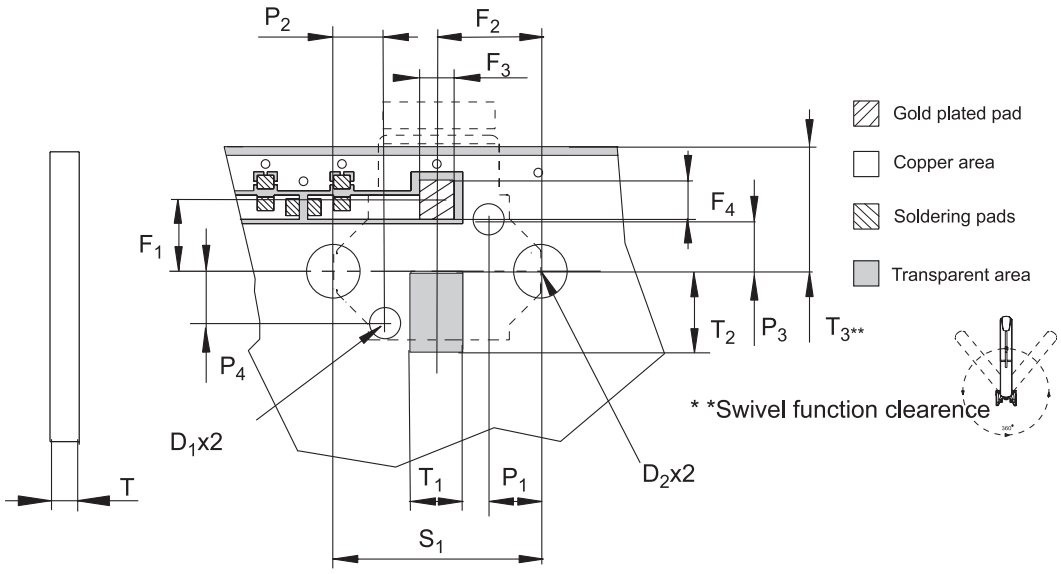


L1	L2	W1	W2	H1	H2	F1	F2	T1	T2	T3	B
Length	Length	Width	Width	Height	Height	Feed	Feed	PCB Thickness*			
48.3 ±0.3	49.5 ±0.3	12±0.2	7.0±0.2	8.55±0.2	7.1±0.2	3.55±0.2	6.0±0.2	T1±0.05	2.1±0.2	8.0±0.2	14.9±0.2

Dimensions in millimeters

*PCB Thickness (T) : 0.8, 1.0, 1.2, 1.6, 1.8 mm

9 Antenna Foot print

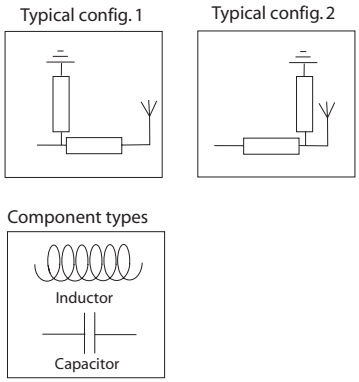


F1	F2	F3	F4	S1	P1/P2	P3/P4	D1	D2	T	T1	T2	T3
Feed	Feed	Feed	Feed	Snap-In	Position	Position	Diam.	Diam.	Thickness*			
4.0±0.1	6.0 ±0.1	2.0±0.1	2.25±0.1	12.5±0.1	3.25±0.1	3.0±0.1	1.8+0.1	3.1+0.1	T	3.0±0.1	4.5±0.1	Max 7.2

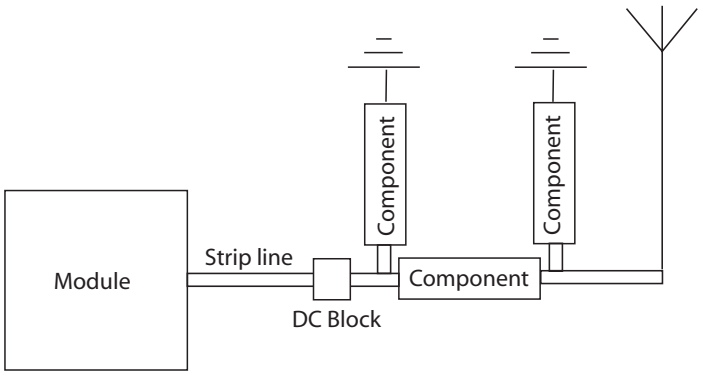
Dimensions in millimeters

10 Electrical interface

10.1 Transmission line and matching

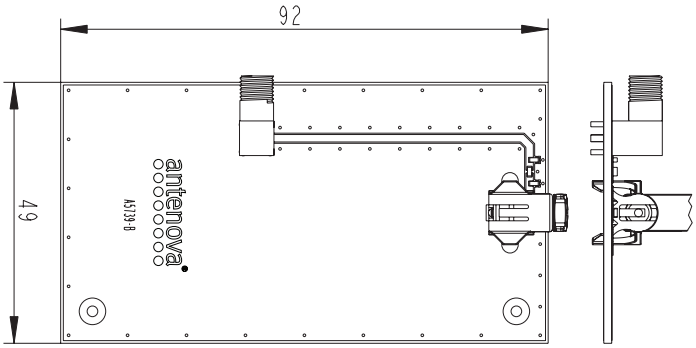


The matching network has to be individually designed using one, two or three components.



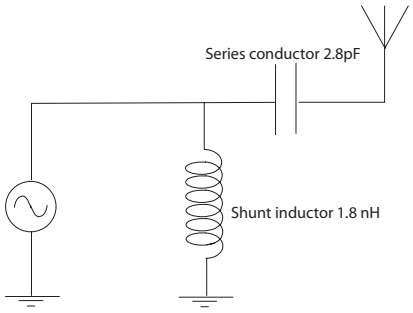
The schematic picture describes the radio module and the matching network.The matching network shall be designed as a PI net. The antenna acts as an active part of the device, the number and value of matching components will be unique for your application.

10.2 Test board dimensions



The testboard is designed for evaluation purposes for the Picea 2.4 GHz. The card has the same size as a typical PCMCIA card. The board is fitted with an SMA connector.

10.3 Test board matching



The testboard is matched with above specified components.

Note! The component values will vary depending on size of PCB board, surrounding components etc.

11 Reliability

11.1 Temperature and Humidity

Item	Standard	Low	High	Duration
Operating temperature	EN/IEC 60068-2-2, Test Bd: Dry heat	-30 degC	+90 degC	-
Temperature cycling	EN/IEC 60068-2-14, Test Na: Change of temperature	-40 degC	+90 degC	500 cycles / 10 min
Storage life Humidity	EN/IEC 60068-2-1, Test Ca: Damp heat	+60 degC / 90% RH		500 h
Storage life Low temperature	EN/IEC 60068-2-1, Test Ad: Cold	-55 degC	-	500 h
Storage life High temperature	EN/IEC 60068-2-2, Test Bb: Dry heat	-	+125 degC	500 h

11.2 Judgement standard

The judgement of the above tests should be made as follows:

1. Visual inspection - Normal apperance with no obvious cracking, peeling-off.
2. Electrical inspection - The DUT satisfies the VSWR specification throughout the 2.4-2.5 GHz band.

12 Hazardous Material Regulation Conformance

Cadmium and cadmium compound.
Organic brominated compound (PBB, PBDE)
Polychlorinated biphenyl (PCB)
Polychlorinated naphthalene (PCN)
Organic tin compound
Asbestos
Azo compound
Lead and lead compound
Mercury and mercury compound
Sexivalent chrome compound
Chlorinated paraffin (CP)
Mirex
Formaldehyde
Tetra-bromo-bisphenol-A-bis (TBBP-A-bis)

13 Application example

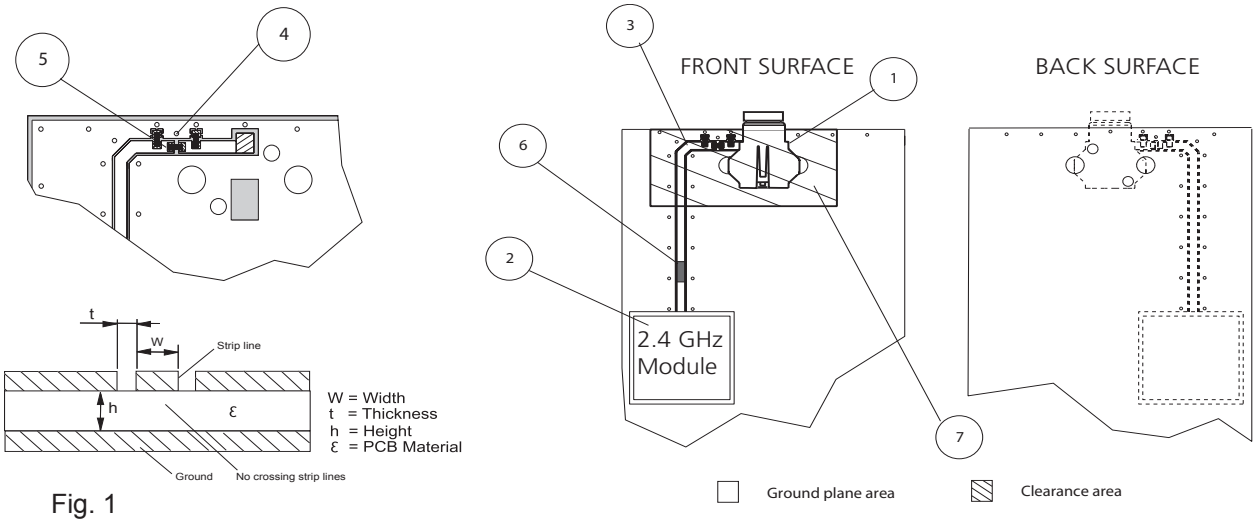


Fig. 1

1. **Placement of antenna**
   The antenna shall preferably be placed at the edge of the PCB oriented as above so that the antenna blade can be placed outside the application's casing. Other placements and orientations and size of grounplanes are possible, but this will affect the performance. Avoid active components near the antenna.
2. **Placement of 2.4 GHz module**
   To avoid losses the module shall be placed as close to the antenna as possible.
3. **Strip line**
   The strip line must be dimensioned according to your specific PCB. (see fig 1). No crossing strip lines are allowed between the strip line and its ground plane.
4. **Via connections**
   To avoid spurious effects, via connections must be made to analogue ground.
5. **Component matching**
   Component values are depending on antenna placement, PCB dimensions and location of other components.
6. **DC Block**
   Might be needed depending on RF Module configuration.
7. **Clearence area**
   Avoid components and parts close to the antenna.

Note! Incorrect implementation of the antenna will affect the performance.
Contact Antenova for implementation services.

14 Packaging

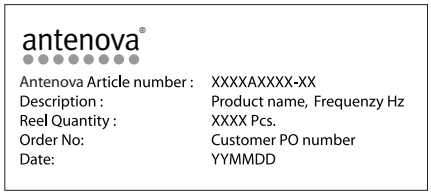
14.1 Shelf storage recommendation

Temperature	-10 to +40 degree C
Humidity	Less than 75% RH
Shelf Life	48 Months
Storage place	Away from corrosive gas and direct sunlight

14.2 Packaging characteristics

The antennas are delivered in bulk enclosed in plastic bags

14.3 Bag label information



antenova®

www.antenova.com

Corporate Headquarters

Antenova Ltd.
Far Field House
Albert Road
Stow-cum-Quy
Cambridge
CB9 5AR

Tel: +44 (0) 1223 810600
Fax: +44 (0) 1223 810650
Email: info@antenova.com

Asia Headquarters

Antenova Asia Ltd.
3F, No 10, Alley 6, Lane 45
Poa Shing Road
Hsin Tien City
Taipe County
ROC 23145

Tel: +886 (0) 2 2917 6536
Fax: +886 (0) 2 2910 6546
Email: info@antenova.com

Sales Offices

Europe
Charlotta Olander
UK/EU Sales Manager

Tel: +46 702 913731
Email: Lotta.Olander@antenova.com

America
David Nuti
NA Sales Manager

Tel: +1 214 668 0357
Email: David.Nuti@antenova.com

Asia
CL Lim
VP Sales Asia

Tel: +886 (0) 931 201 318
Email: CL.Lim@antenova.com

ISOQAR QUALITY ASSURED ISO 9001 — UKAS QUALITY MANAGEMENT 026
Certificate No: 4598/04

Integrated Antenna Solutions