

# 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

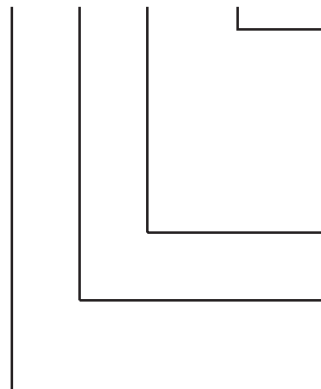


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#### 4 Model name

**20 10 B5771 - XX**



**PCB Thickness**

01 = 0.8 mm

02 = 1.0 mm

03 = 1.2 mm

04 = 1.6 mm

05 = 1.8 mm

**Drawing No.**

**Technology**

-Metal

**Antenna Family**

-Swivel

#### 5 General data

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

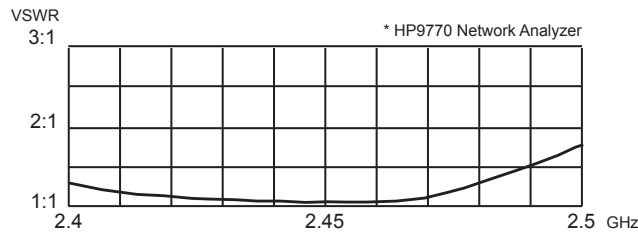
#### 6 Electrical characteristics

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

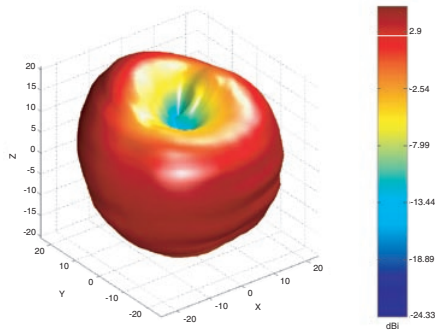
\*Note all data provided in this table are based on the Antenva reference board

## 7 Electrical performance

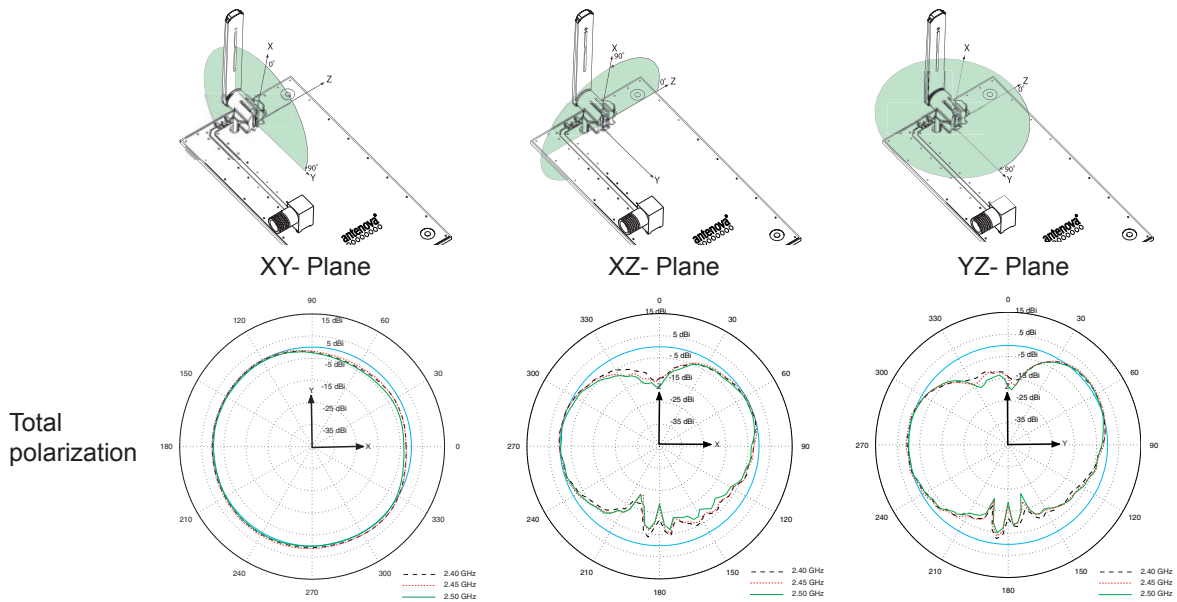
### 7.1 Voltage Standing Wave Ratio



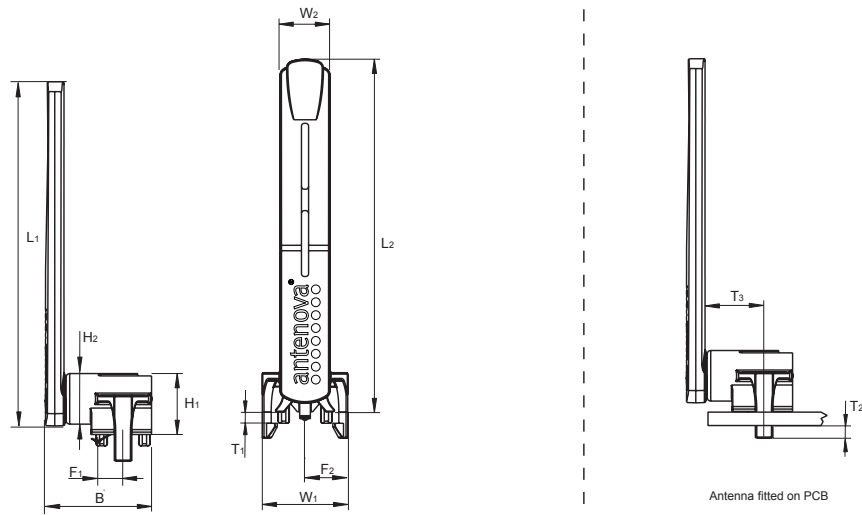
### 7.2 3D-Radiation



### 7.3 Radiation patterns



### 8 Antenna Dimensions

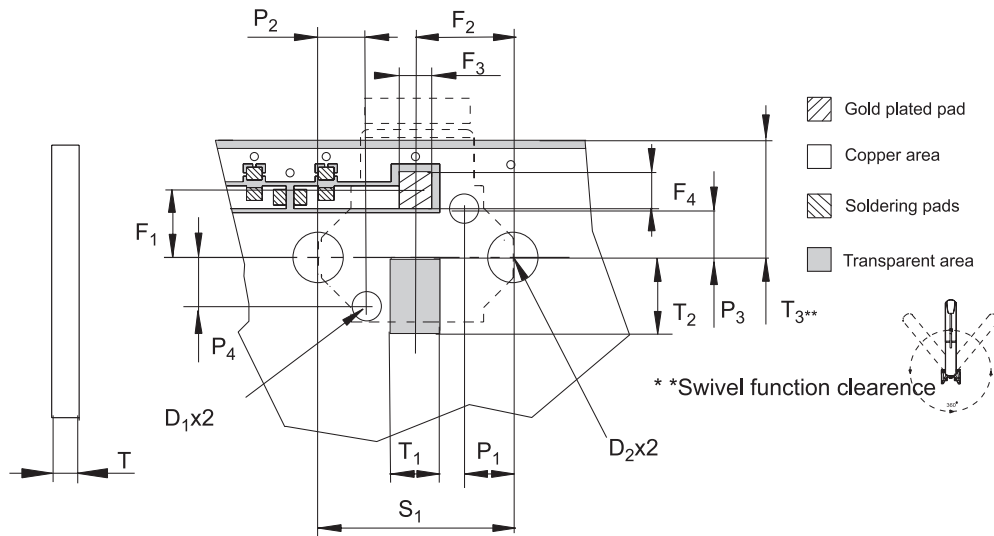


L1	L2	W1	W2	H1	H2	F1	F2	T1	T2	T3	B
Length	Length	Width	Width	Height	Height	Feed	Feed	PCB Thickness*			
48.3 ±0.3	49.5 ±0.3	12±0.2	7.0±0.2	8.55±0.2	7.1±0.2	3.55±0.2	6.0±0.2	T1±0.05	2.1±0.2	8.0±0.2	14.9±0.2

Dimensions in millimeters

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

### 9 Antenna Foot print

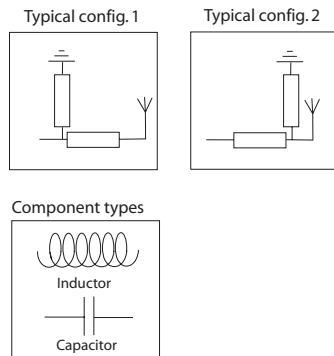


F1	F2	F3	F4	S1	P1/P2	P3/P4	D1	D2	T	T1	T2	T3
Feed	Feed	Feed	Feed	Snap-In	Position	Position	Diam.	Diam.	Thickness*			
4.0±0.1	6.0 ±0.1	2.0±0.1	2.25±0.1	12.5±0.1	3.25±0.1	3.0±0.1	1.8±0.1	3.1±0.1	T	3.0±0.1	4.5±0.1	Max 7.2

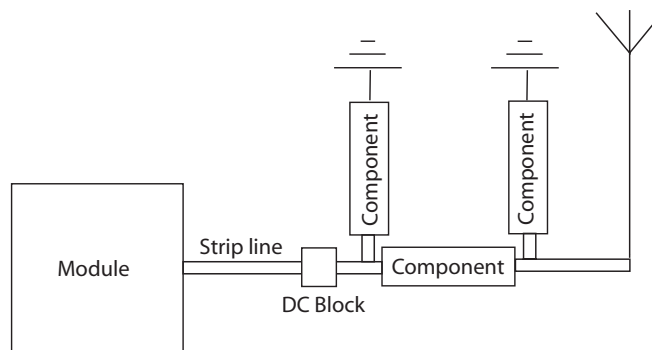
Dimensions in millimeters

## 10 Electrical interface

### 10.1 Transmission line and matching

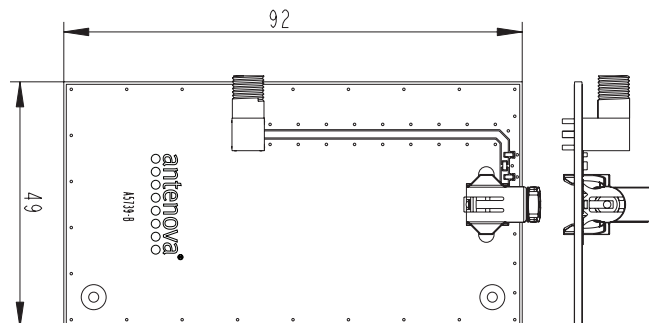


The matching network has to be individually designed using one, two or three components.



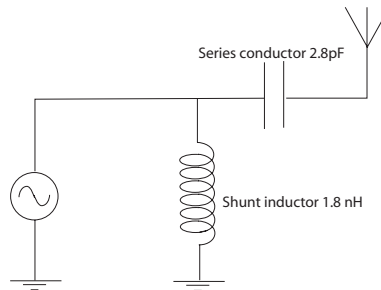
The schematic picture describes the radio module and the matching network. The matching network shall be designed as a PI net. The antenna acts as an active part of the device, the number and value of matching components will be unique for your application.

### 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 appearance 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

Sesivalent chrome compound

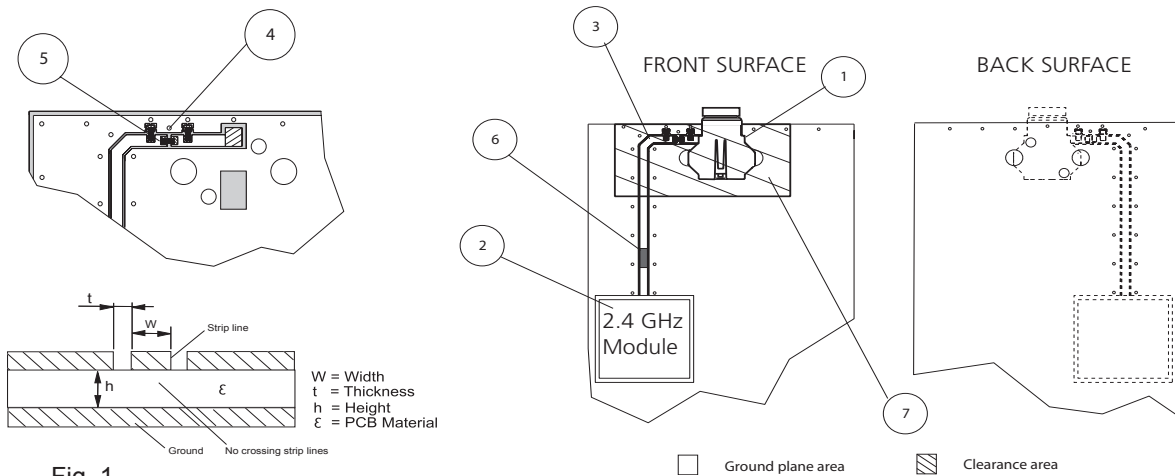
Chlorinated paraffin (CP)

Mirex

Formaldehyde

Tetra-bromo-bisphenol-A-bis (TBBP-A-bis)

## 13 Application example



### 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 groundplanes 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. Clearance area

Avoid components and parts close to the antenna.

**Note! Incorrect implementation of the antenna will affect the performance.**

**Contact Antenva for implementation services.**



## 14 Packaging


### 14.1 Shelf storage recommendation

<b>Temperature</b>	-10 to +40 degree C
<b>Humidity</b>	Less than 75% RH
<b>Shelf Life</b>	48 Months
<b>Storage place</b>	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

	
Antenna Article number :	XXXXXXXX-XX
Description :	Product name, Frequency Hz
Reel Quantity :	XXXX Pcs.
Order No:	Customer PO number
Date:	YYMMDD



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Integrated Antenna Solutions

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