

# Flavus 2.4 GHz Snap-In 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 trays

## 2 Description

The Flavus antenna is intended for use with all 2.4 GHz applications. The antenna is a halfwave type and this makes the antenna less sensitive to ground and surrounding components and facilitates easy antenna placement on the PCB. The antenna uses plastic snap ins to attach to the PCB, no need for soldering.

## 3 Application

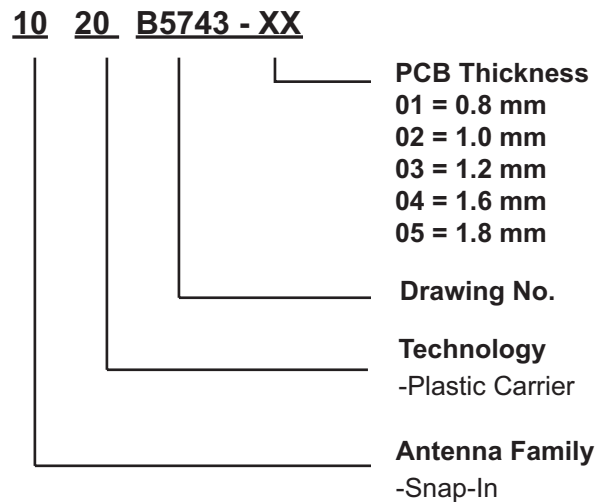
- Industrial applications
- Network nodes
- Access points
- Portable PCs
- Wireless cable modems



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## 4 Model name



## 5 General data

|                              |                  |
|------------------------------|------------------|
| <b>Product Name</b>          | Flavus 2.4 GHz   |
| <b>Article No.</b>           | 1020B5743-01..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>                | 0.6 gram         |
| <b>Antenna type</b>          | Snap-in          |

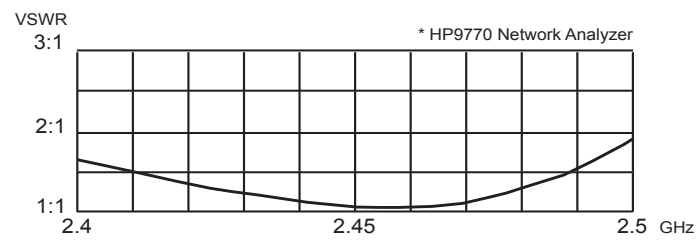
## 6 Electrical characteristics

|                   | Characteristics |         |         | Conditions*                                                   |
|-------------------|-----------------|---------|---------|---------------------------------------------------------------|
|                   | Min             | Typ     | Max     |                                                               |
| <b>Peak Gain</b>  | 3.5 dBi         | 4.0 dBi | 4.3 dBi | Frequency 2.4-2.5 GHz,<br>Measured in 3D chamber (near field) |
| <b>Efficiency</b> | 62%             | 65%     | 66%     |                                                               |
| <b>VSWR</b>       | 1.2:1           | 1.5:1   | 2.1:1   | Frequency 2.4-2.5 GHz,<br>Measured in Network Analyzer        |

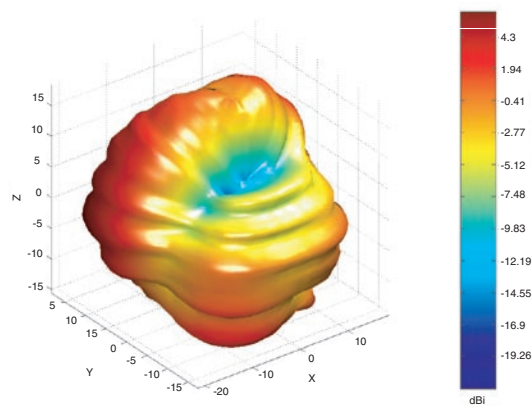
\*Note all data provided in this table are based on the Antenna reference board

## 7 Electrical performance

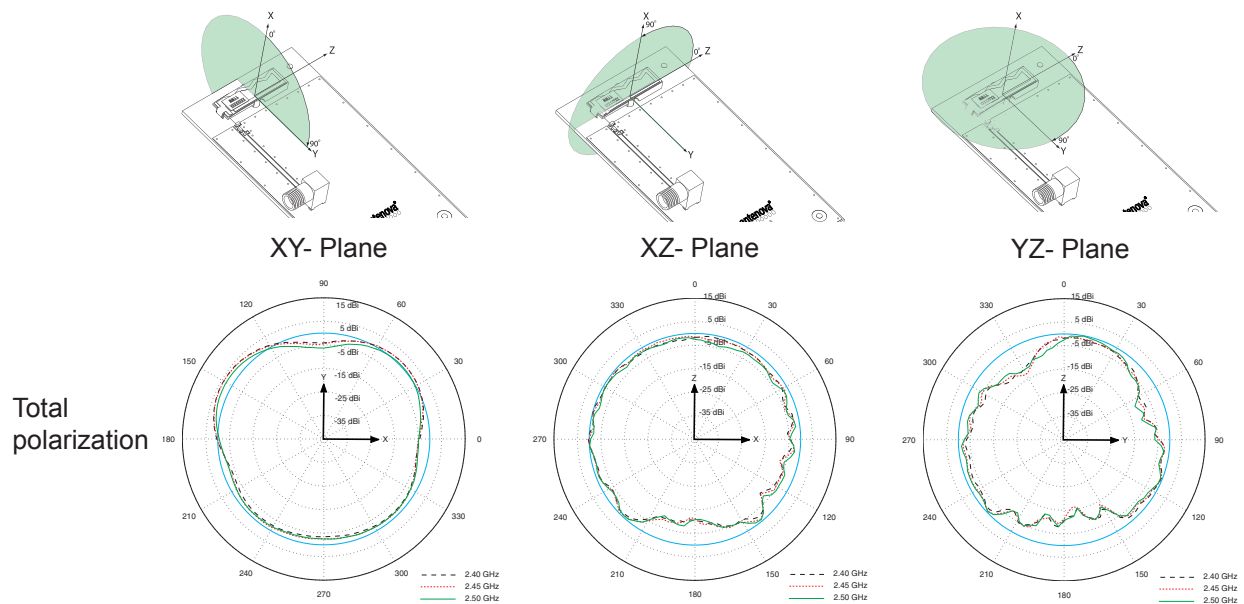
### 7.1 Voltage Standing Wave Ratio



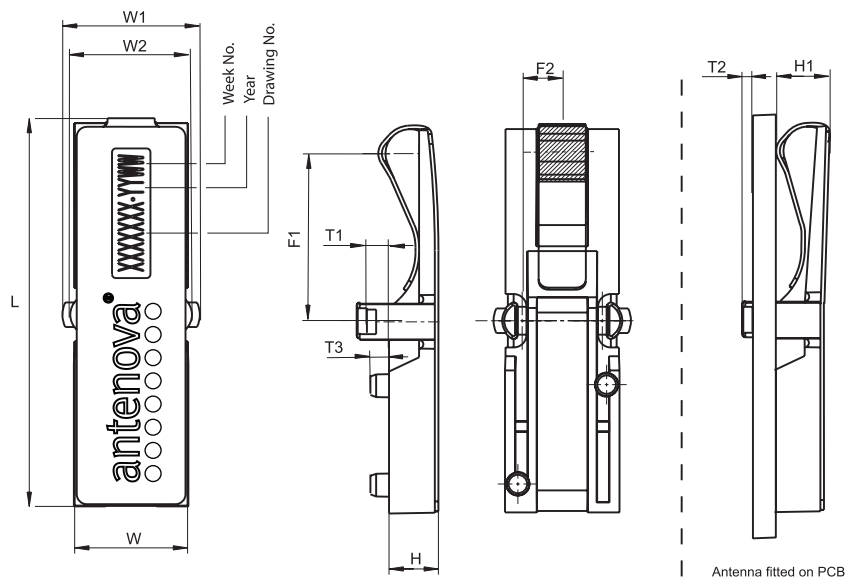
### 7.2 3D-Radiation



### 7.3 Radiation patterns



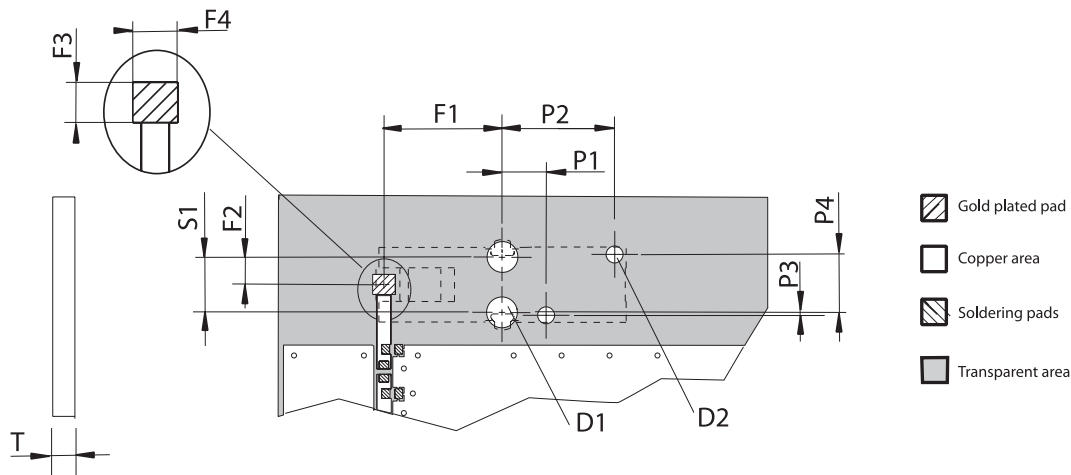
## 8 Antenna Dimensions



| L         | W        | W1      | W2      | H        | H1       | F1        | F2      | T1      | T2       | T3      |
|-----------|----------|---------|---------|----------|----------|-----------|---------|---------|----------|---------|
| Length    | Width    | Width   | Width   | Height   | Height   | Feed      | Feed    | PCB     |          |         |
| 27.3 ±0.2 | 7.9 ±0.2 | 9.6±0.2 | 8.5±0.2 | 3.45±0.1 | 3.85±0.1 | 11.85±0.2 | 2.8±0.1 | T1±0.05 | 1.35±0.2 | 1.3±0.1 |

Dimensions in millimeters

## 9 Antenna Footprint

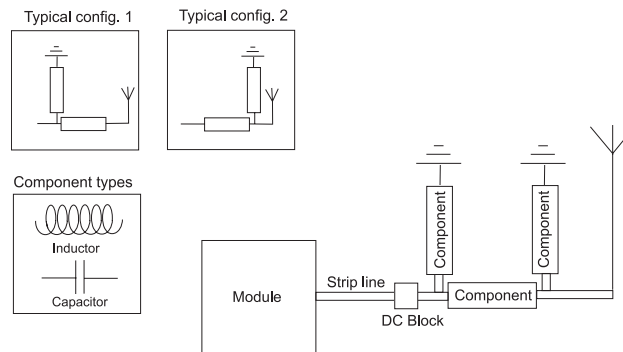


| F1        | F2      | F3     | F4        | S1      | P1       | P2       | P3       | P4       | D1       | D2       | T*                      |
|-----------|---------|--------|-----------|---------|----------|----------|----------|----------|----------|----------|-------------------------|
| Feed      | Feed    | Feed   | Feed      | Snap-In | Position | Position | Position | Position | Diameter | Diameter | PCB                     |
| 11.85±0.1 | 2.8±0.1 | 2±0.05 | 2.25±0.05 | 5.6±0.1 | 4.5±0.1  | 11.5±0.1 | 0.3±0.1  | 5.9±0.1  | 3.05±0.1 | 1.75±0.1 | 0.8, 1.0, 1.2, 1.6, 1.8 |

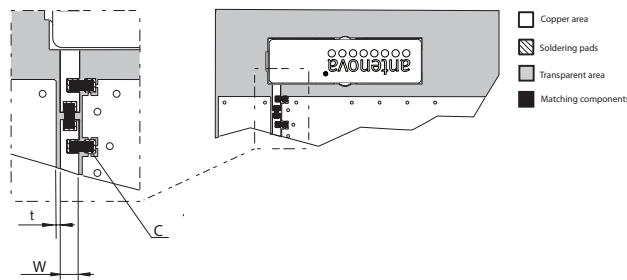
Dimensions in millimeters

## 10 Electrical interface

### 10.1 Transmission line and matching



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

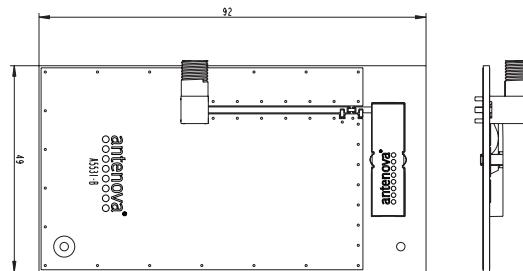


t, w = Unique dimensioning according to your PCB \*

C = Inductor and capacitor values according to your specific device\*

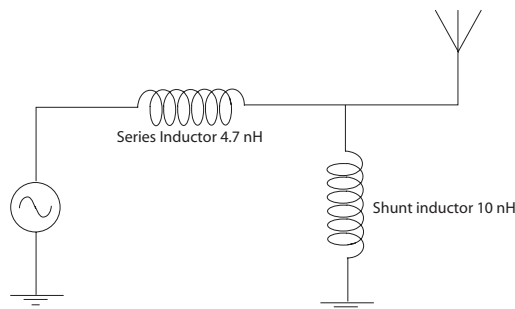
\* Antenna provides this service upon request

### 10.2 Test board dimensions



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

### 10.3 Test board matching



The testboard is matched with above specified component.

**Note! The component value(s) will vary depending on size of PCB, surrounding components etc.**

## 11 Reliability

### 11.1 Temperature and Humidity

| Item                          | Standard                                             | Low               | High      | Duration          |
|-------------------------------|------------------------------------------------------|-------------------|-----------|-------------------|
| Operating temperature         | EN/IEC 60068-2-2,<br>Test Bd: Dry heat               | -30 degC          | +90 degC  | -                 |
| Temperature cycling           | EN/IEC 60068-2-14,<br>Test Na: Change of temperature | -30 degC          | +90 degC  | 100cycles / 10min |
| Storage life Humidity         | EN/IEC 60068-2-1,<br>Test Ca: Damp heat              | +40 degC / 93% RH |           | 96 h              |
| Storage life Low temperature  | EN/IEC 60068-2-1,<br>Test Ad: Cold                   | -25 degC          | -         | 200 h             |
| Storage life High temperature | EN/IEC 60068-2-2,<br>Test Bb: Dry heat               | -                 | + 90 degC | 1000 h            |

### 11.2 Mechanical

| Item          | Standard                                  | Specification                                                                                                           | Duration                              |
|---------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Contact force |                                           | Antenna is mounted on reference board. and a pressure gauge is applied to antenna contact.                              |                                       |
| Drop test     |                                           | Dummy weight: 150g<br>Height: 170cm                                                                                     | One drop at each side, total drops: 6 |
| Vibration     | EN/IEC 60068-2-6,<br>Test Fc (sinusoidal) | Acceleration spectral density:10-1000Hz<br>Acceleration: 20m/s <sup>2</sup><br>Number of axes: 3 mutually perpendicular | 5 cycles per axis                     |

### 11.3 Miscellaneous

| Item                  | Standard  | Specification                                                              | Duration |
|-----------------------|-----------|----------------------------------------------------------------------------|----------|
| Contact pad Corrosion | ASTM B117 | SO <sub>2</sub> Concentration: 25 ppm<br>Temperature : 25 Deg C<br>RH: 93% | 96 hours |

### 11.4 Judgement standard

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

1. Visual inspection - Normal appearance with no obvious deformation
2. Electrical inspection - The antenna satisfies the VSWR specification throughout the 2.4-2.5 GHz band
3. Mechanical inspection - Acceptable contact force min. 0.5 N

## 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

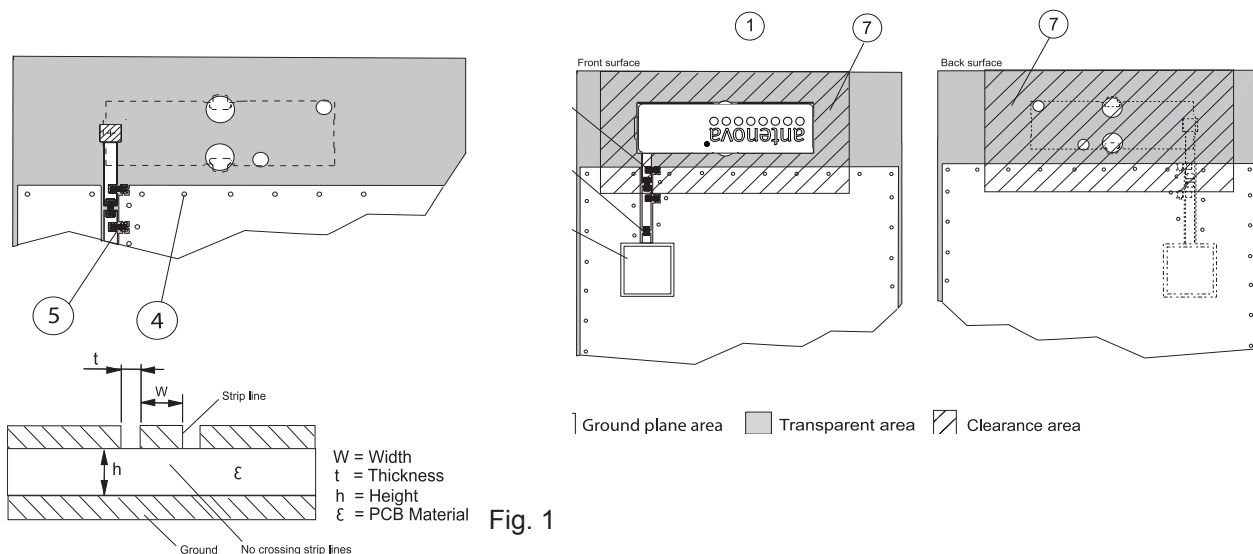
Chlorinated paraffin (CP)

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. Other placements and orientations and size of groundplanes are possible, but 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 Antenova for implementation services.**

## 14 Packaging

### 14.1 Shelf storage recommendation

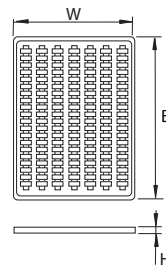
|               |                                             |
|---------------|---------------------------------------------|
| Temperature   | -10 to +40 degree C                         |
| Humidity      | Less than 75% RH                            |
| Shelf Life    | 12 Months                                   |
| Storage place | Away from corrosive gas and direct sunlight |

### 14.2 Packaging characteristics

| Quantity      | Number of trays | Tray quantity |
|---------------|-----------------|---------------|
| 840 pcs / box | 6 / box         | 140 pcs       |

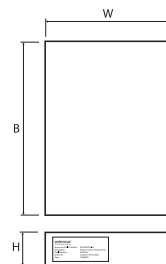
### 14.3 Tray dimension

Material: Anti static plastic tray  
Width [mm] W: 290  
Breadth [mm] B: 390  
Height [mm] H: 14



### 14.4 Box dimension

Material: Paper  
Width [mm] W: 296  
Breadth [mm] B: 396  
Height [mm] H: 75



### 14.5 Label information

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



[www.antenova.com](http://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](mailto: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](mailto:info@antenova.com)

#### Sales Offices

##### Europe

**Charlotta Olander**

UK/EU Sales Manager

**Tel:** +46 702 913731  
**Email:** [Lotta.Olander@antenova.com](mailto:Lotta.Olander@antenova.com)

##### America

**David Nuti**

NA Sales Manager

**Tel:** +1 214 668 0357  
**Email:** [David.Nuti@antenova.com](mailto:David.Nuti@antenova.com)

##### Asia

**CL Lim**

VP Sales Asia

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



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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9