

# Comata N

A6111N • gigaNOVA<sup>®</sup>



## Features

- Designed for 2.4 GHz applications: Bluetooth<sup>®</sup>, Wi-Fi<sup>®</sup> (802.11a/b/g/n), ZigBee<sup>®</sup>.
- Easy to integrate
- Designed for use with the ground plane extended beneath the antenna
- High efficiency
- Light weight
- Intended for SMD mounting
- Supplied in tape on reel

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## 1. Description

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Comata N is intended for use with all 2.4 GHz applications. The antenna uses a ground plane in order to radiate efficiently and the ground plane must extend underneath the antenna itself.

## 2. Applications

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- Mobile phones
- PDAs
- PNDs
- Headsets
- PMPs / MP3s
- Laptops
- PC-Cards
- Sensors
- Automotive

## 3. General data

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FREQUENCY	2.4-2.5GHz
POLARIZATION	Linear
OPERATING TEMPERATURE	-40°C to 140°C
ENVIRONMENTAL CONDITION TEST	ISO16750-4 5.1.1.1/5.1.2.1/5.3.2
IMPEDANCE WITH MATCHING	50 Ω
WEIGHT	<0.3g
ANTENNA TYPE	SMD
DIMENSIONS	12.8 x 3.6 x 3.3 (mm)

## 4. Part number

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COMATA N  
A6111N



## 5. RF characteristics

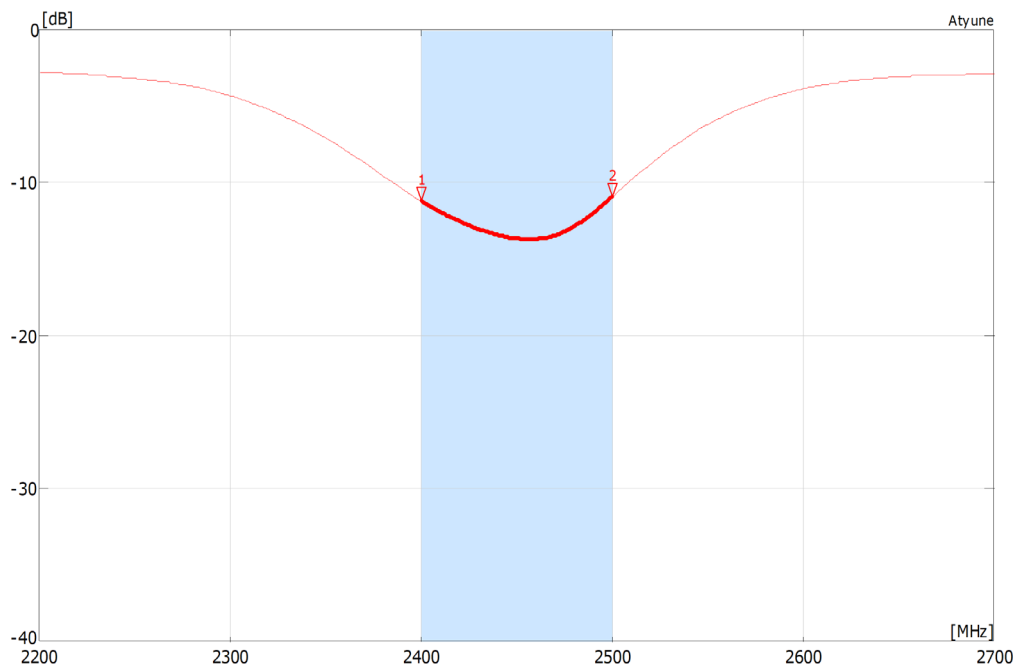
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	2.4-2.5GHz
PEAK GAIN	0.3dBi
AVERAGE GAIN (LINEAR)	-3.4dB
AVERAGE EFFICIENCY	45%
MAXIMUM RETURN LOSS	-10dB
MAXIMUM VSWR	1.8:1

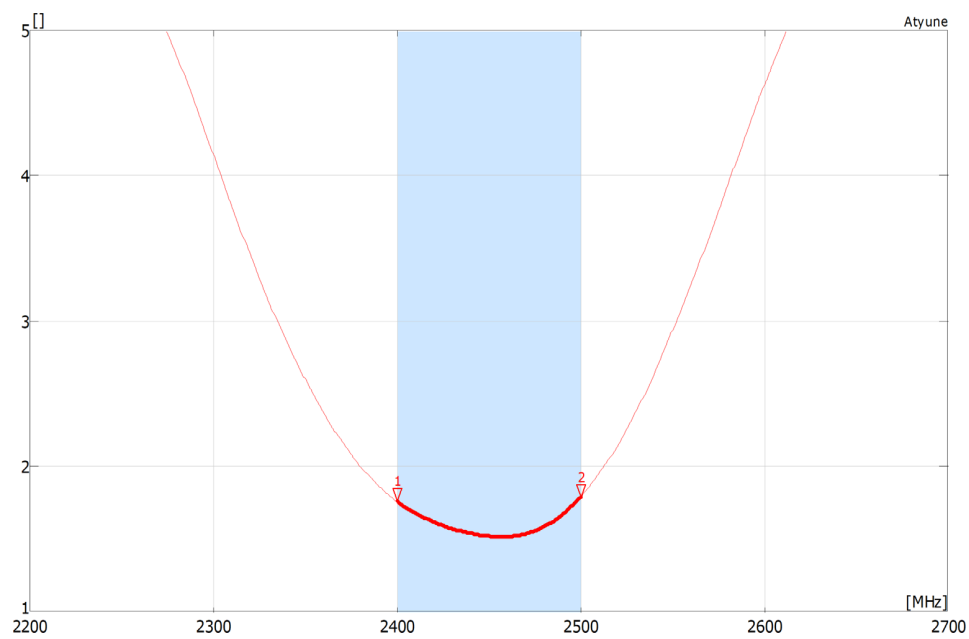
*All data measured on Antenna's evaluation PCB Part  
No. A6111-U1*

## 6. RF performance

### 6.1. Return loss



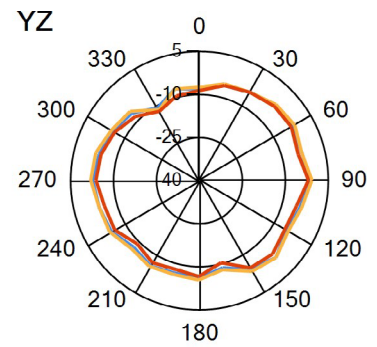
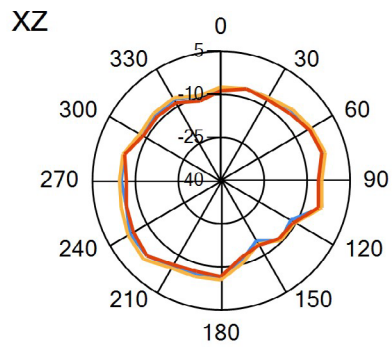
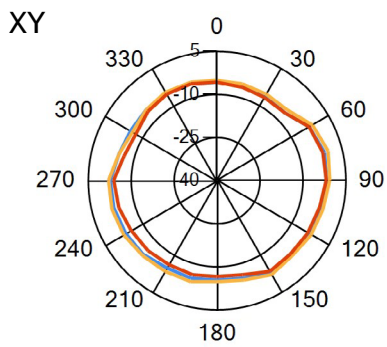
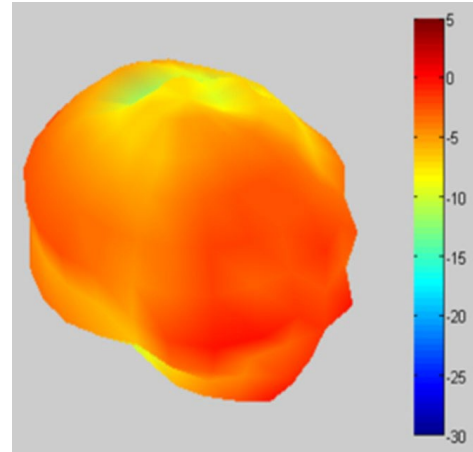
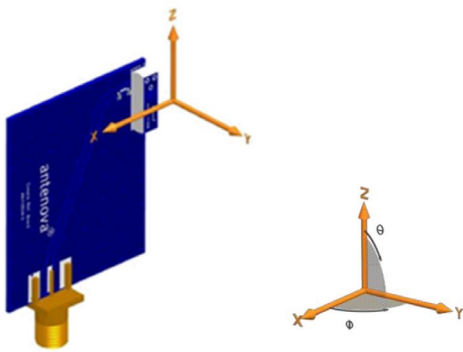
### 6.2. VSWR



## 6.4. Antenna pattern

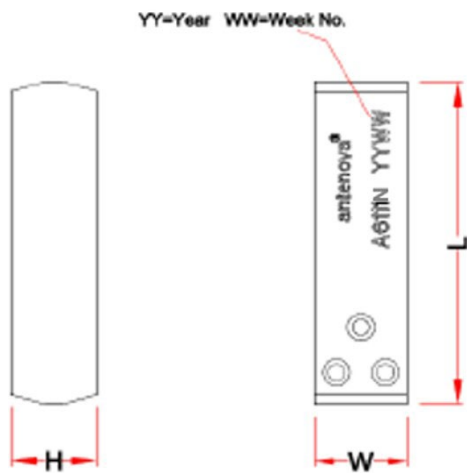
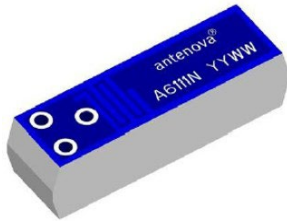
### 6.4.1. 2400 MHz – 2500 MHz

3D pattern at 2450MHz



— 2.4GHz — 2.45GHz — 2.5GHz

## 7. Antenna dimensions



Top view

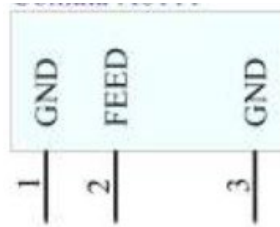
L	W	H
Length	Width	Height
12.8 ±0.2	3.6 ±0.2	3.3 ±0.2

All dimensions in (mm)

## 8. Schematic symbol and pin definition

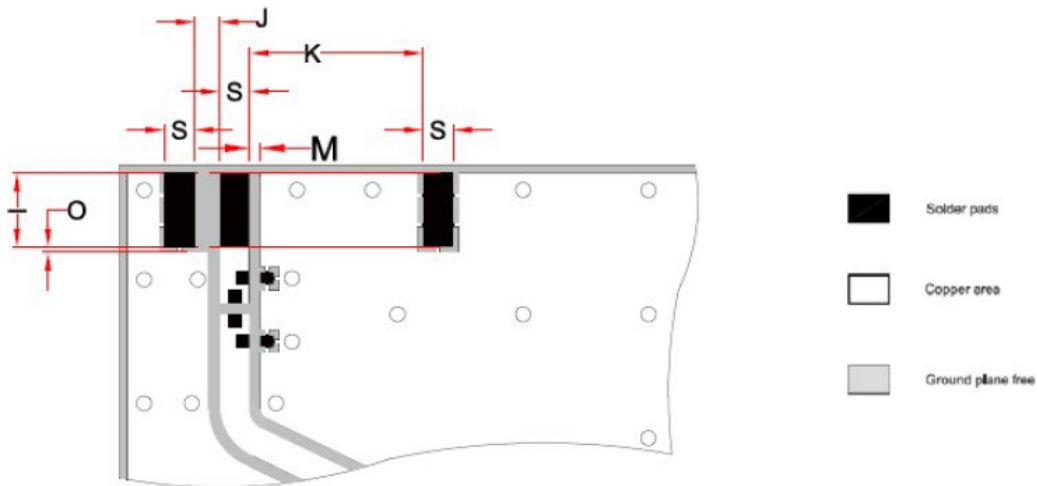
The circuit symbol for the antenna is shown below. The antenna has 3 pins and all are functional.

PIN	DESCRIPTION
2	Feed (Transceiver port)
1, 3	Return/GND



## 9. Host PCB footprint

The recommended host PCB footprint is below.



I	S	K	J
3.0 ± 0.1	1.2 ± 0.1	6.9 ± 0.1	1.0 ± 0.1

M	O
0.4 ± 0.1	0.2 ± 0.1



## 10. Electrical interface

### 10.1. Transmission line

All transmission lines should be designed to have a characteristic impedance of 50Ω.

- The length of each transmission lines should be kept to a minimum
- All other parts of the RF system like transceivers, power amplifiers, etc, should also be designed to have a 50 Ω impedance

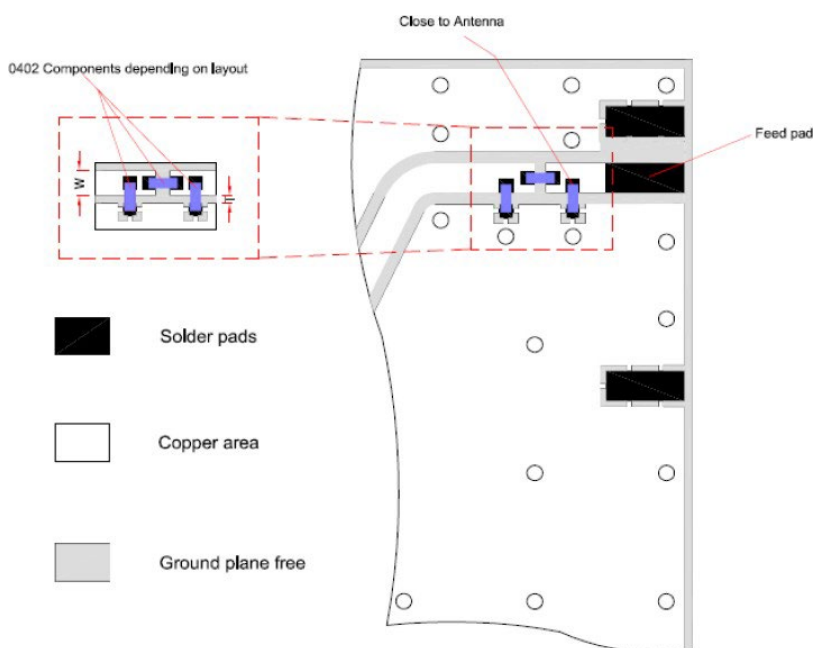
A co-planar transmission line can be designed using an online transmission line calculator tool, such as:

<https://blog.antenna.com/rf-transmission-line-calculator>

The PCB thickness, copper thickness and substrate dielectric constant are entered, then the tool calculates the transmission line width and gaps on either side of the track to give a 50 Ω impedance.

### 10.2. Matching circuit

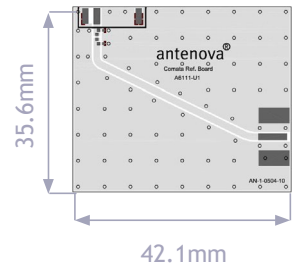
The antenna requires a matching circuit that must be optimized for each product. The matching circuit will require up to six components and the following circuit should be designed into the host PCB. Not all components may be required but should be included as a precaution. The matching network should be placed close to the antenna feed to ensure it is optionally effective in tuning the antenna.



## 11. Reference board

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A reference board is used for evaluating the antenna A6111N and it includes a SMA female connector.



*Front view*

## 12. Soldering

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This antenna is suitable for lead free soldering. The reflow profile should be adjusted to suit the device, oven and solder paste, while observing the following conditions:

- For leaded soldering, the maximum temperature should not exceed 240 °C.
- For lead free soldering, a maximum temperature of 255 °C for no more than 20 seconds is permitted.
- The antenna should not be exposed to temperatures exceeding 120 °C more than 3 times during the soldering process.

## 13. Hazardous material regulation conformance

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The antenna has been tested to conform to RoHS and REACH requirements. A certificate of conformance is available from Antenova's website.

## 14. Packaging

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### 14.1. Optimal storage conditions

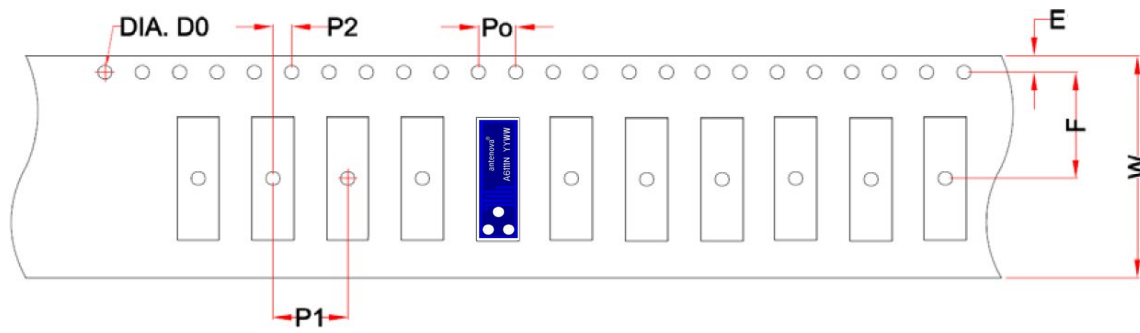
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TEMPERATURE	-10°C to 40°C
HUMIDITY	Less than 75% RH
SHELF LIFE	18 Months
STORAGE PLACE	Away from corrosive gas and direct sunlight
PACKAGING	Reels should be stored in unopened sealed manufacturer's plastic packaging.
MSL LEVEL	1

Note: Storage of open reels of antennas is not recommended due to possible oxidization of pads on antennas. If short term storage is necessary, then it is highly recommended that the bag containing the antenna reel is re-sealed and stored in conditions as described in the tabel above.

The shelf life of the antenna is 18 months provided the factory seal on the package has not been broken.

### 14.2. Tape characteristics



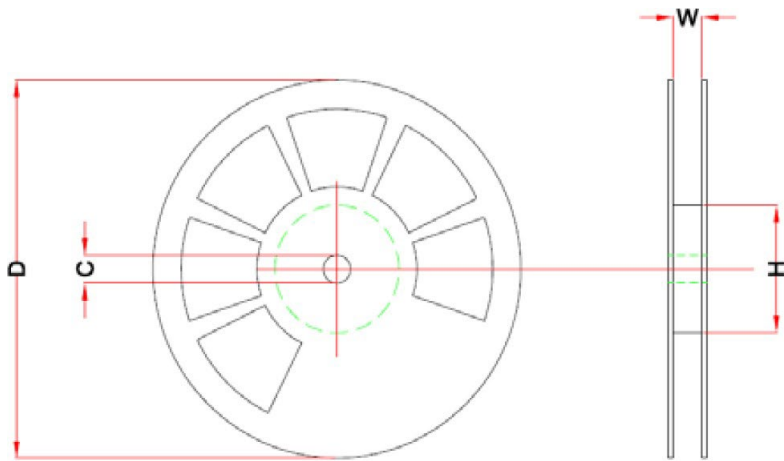
P0	P1	P2	D0
4.00 ± 0.1	8.00 ± 0.1	2.00 ± 0.1	1.50 ± 0.1

E	F	W
1.75 ± 0.1	10.2 ± 0.15	24.00 ± 0.2

All dimensions in (mm)

QUANTITY	LEADING SPACE	TRAILING SPACE
2000 pcs / reel	50 blank antenna holders	37 blank antenna holders

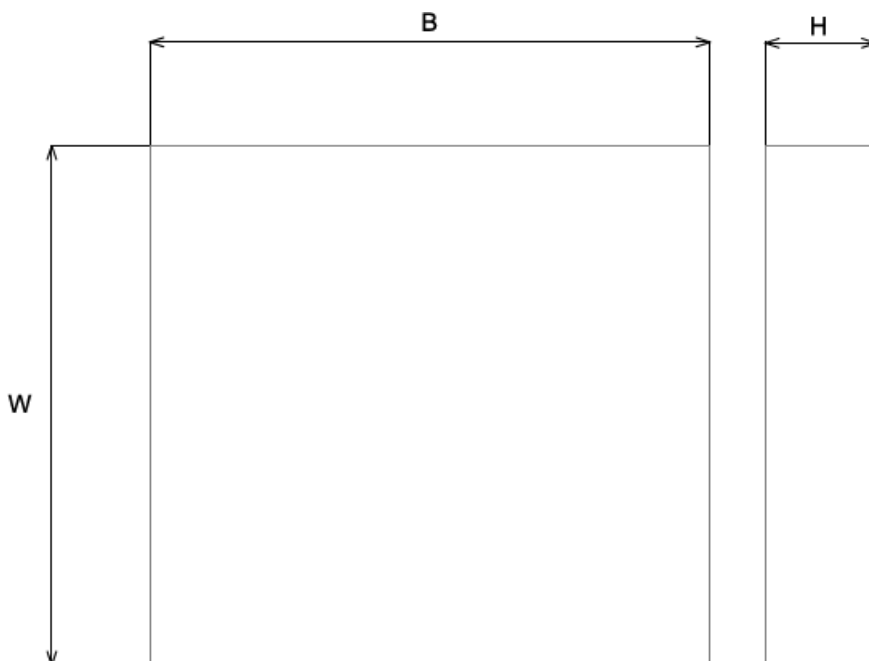
### 14.3. Reel dimensions



W	D	H	C
27	330.0 ± 2.0	100	13.0 ± 0.5

All dimensions in (mm)

### 14.4. Box dimensions



WIDTH (W)	BREADTH (B)	HEIGHT (H)
345mm	345mm	45mm

### 14.5. Bag properties

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Reels are supplied in protective plastic packaging.

### 14.6. Reel label information

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