

ignionTM

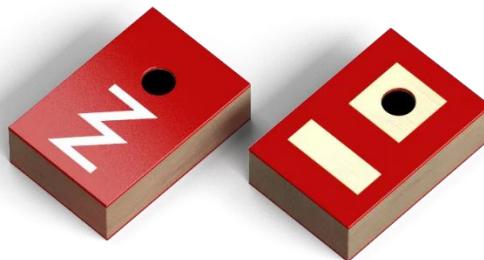
Your innovation.
Accelerated.

NANO mXTENDTM (NN02-101)

DATASHEET

NANO mXTEND™: Versatility and Space efficiency in the smallest Virtual Antenna® component.

The **NANO mXTEND™** is the smallest Virtual Antenna® chip to date. Featuring a size of only 3 mm x 2 mm x 0.8 mm, this off-the-shelf chip antenna has been designed to fit almost every **IoT device** from entry-level to high-end products. The **NANO mXTEND™** is enabled by Virtual Antenna® technology, thus featuring the unique properties of this class of products: easy to use; versatile, and broadly tunable. The **NANO mXTEND™** is available for Bluetooth, Wi-Fi, Wi-SUN, and any wireless connectivity protocol operating from 2.4 GHz to 10.6 GHz. Due to Ignion's proprietary Virtual Antenna® technology, this chip antenna is non-resonant and therefore broadly tunable, enabling additional frequency bands to be supported by the same antenna part and released in the future.



NANO mXTEND™ component (NN02-101)

Most used industries.

- Asset Tracking & Logistics.
- Consumer Electronics.
- Smart home.

NANO mXTEND™ benefits.

- **Smallest clearance:** 5mm x 5mm.
- **Miniature:** Smallest Virtual Antenna® form factor of 3.0 mm x 2.0 mm x 0.8 mm.
- **Versatile:** Can be mounted either on the device corner or on the center edge.
- **Reliability:** Off-the-Shelf standard product, no antenna part customization (electronic optimization).
- **Use cases:** smart home, tracking devices, wearables, gaming devices, IoT modules.

Operation bands summary.

Bluetooth and Wi-Fi (2.4 GHz – 2.5 GHz).

UWB (3.1 GHz – 8.5 GHz)

1. AVAILABLE SOLUTIONS SUMMARY

Configuration	Frequency range	Frequency Regions
<u>BLUETOOTH/Wi-Fi</u>	2.4 – 2.5 GHz	1
<u>UWB</u>	3.1 – 4.8 GHz, 6.0 – 8.5 GHz	2

A list of communication standards included in this user manual is sorted by frequency range.

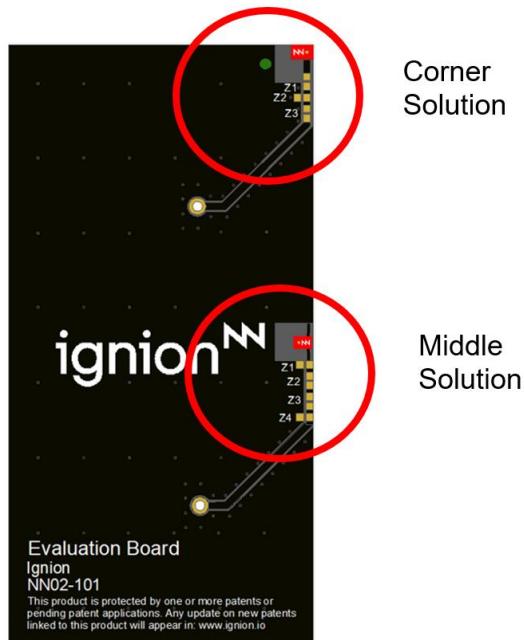
2. DETAILED AVAILABLE SOLUTIONS

The following table presents the technical specifications of the NANO mXTEND™ antenna booster, including its radiation pattern, polarization, weight, temperature range, impedance, and dimensions. These features make the NANO mXTEND™ antenna booster a highly versatile and durable component that can be easily integrated into a wide range of wireless applications.

Technical Features	NANO mXTEND™ (NN02-101)
Radiation Pattern	Omnidirectional
Polarization	Linear
Weight (approx.)	0.01 g
Temperature	-40 to + 125 °C
Impedance	50 Ω

Technical features for the NANO mXTEND™.

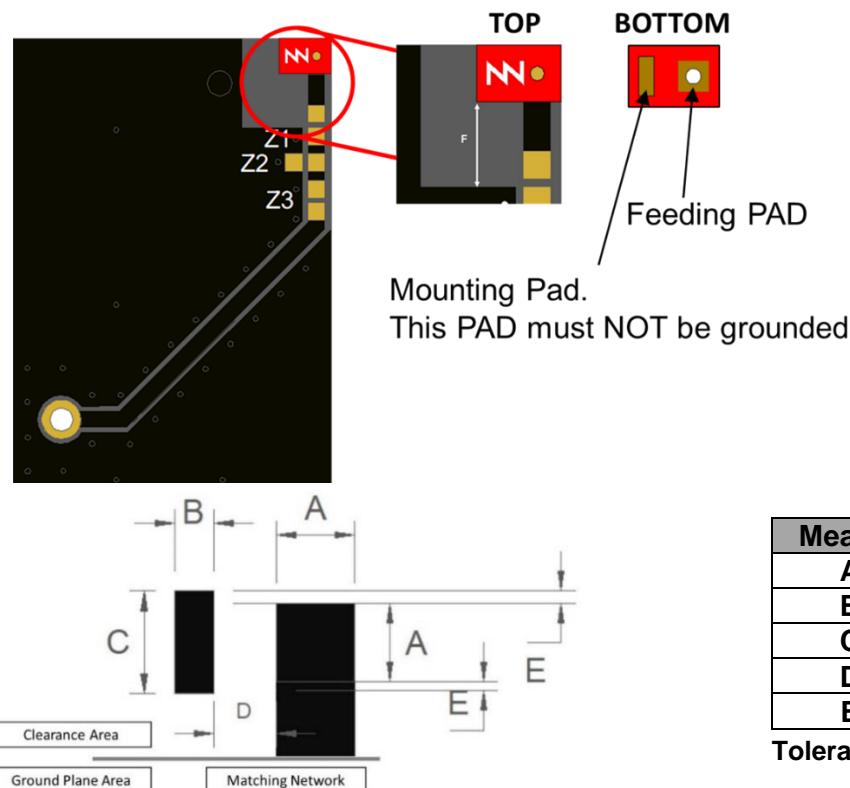
2.1 BLUETOOTH AND Wi-Fi SOLUTION



2.1.1 ANTENNA IN THE CORNER

Technical features	2400 MHz – 2500 MHz
Average Efficiency	>55 %
Peak Gain	2.4 dBi
VSWR	< 2.5:1

Technical features. Measurements from the evaluation board (80 mm x 40 mm x 1 mm).

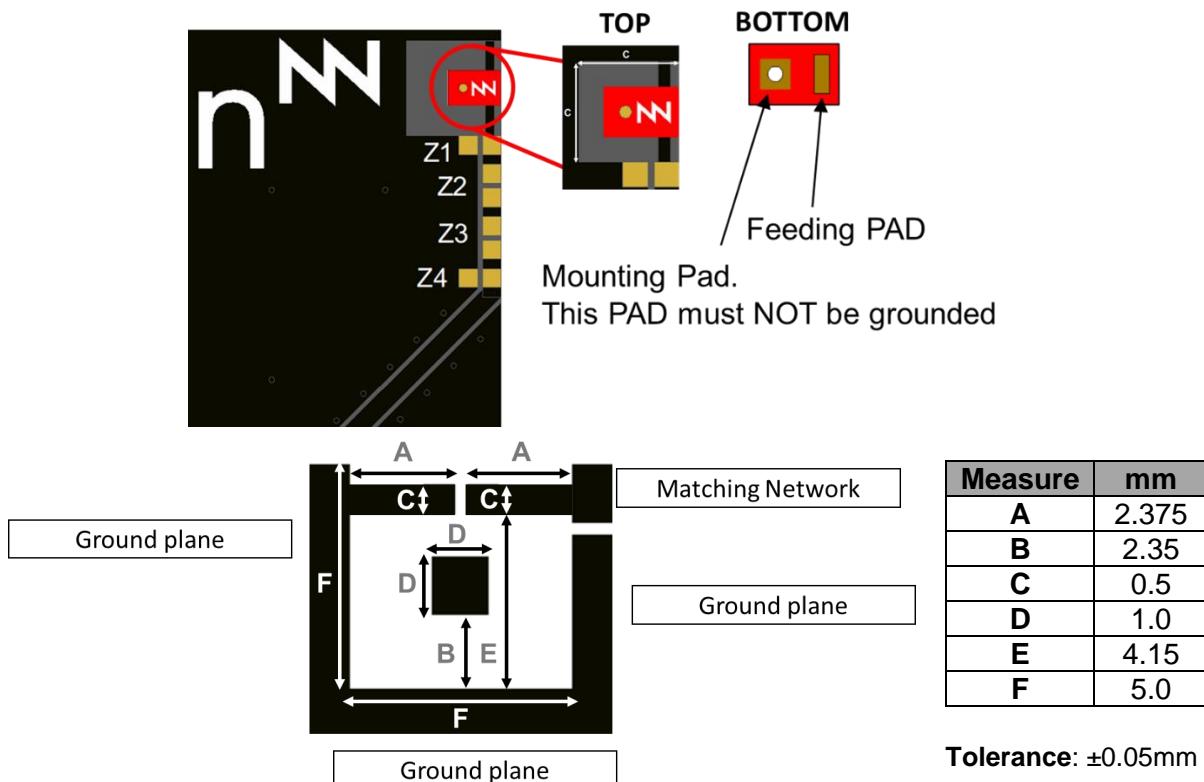


Footprint dimensions for the NANO mXTEND™ (NN02-101) antenna booster (in the corner).

2.1.2 ANTENNA IN THE MIDDLE

Technical features	2400 MHz – 2500 MHz
Average Efficiency	>65 %
Peak Gain	2.4 dBi
VSWR	< 3.0:1

Technical features. Measurements from the evaluation board (80 mm x 40 mm x 1 mm).



Footprint dimensions for the NANO mXTEND™ (NN02-101) antenna booster (in the middle).

2.2. UWB BANDS 1 – 3

Technical features	UWB (LFR)
	3.1 – 4.8 GHz
Average Efficiency	77%
Peak Gain	3.6 dBi
VSWR	< 2.6:1

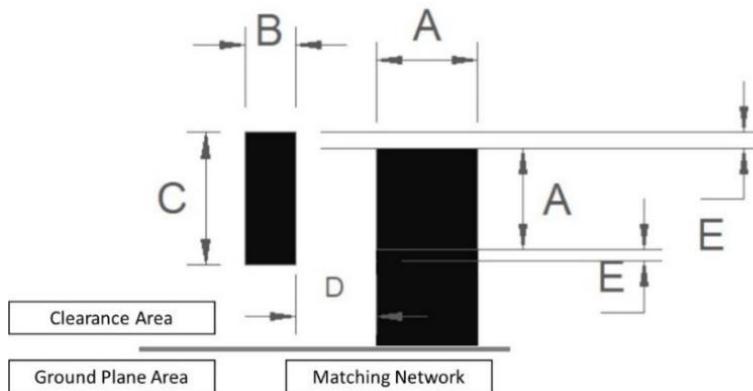
Performance of NANO mXTEND™ configured for UWB bands 1 - 3 on evaluation board (40 mm x 20 mm x 1 mm).

2.3. UWB BANDS 5 – 9

Technical features	UWB (HFR)
	6.0 – 8.5 GHz
Average Efficiency	70.4%
Peak Gain	3.1 dBi
VSWR	< 3:1

Performance of NANO mXTEND™ configured for UWB bands 5 – 9 on evaluation board (25 mm x 20 mm x 1 mm).

2.4. ANTENNA FOOTPRINT: UWB



Footprint dimensions for the NANO mXTEND™ (NN02-101) antenna booster (on the corner).

If you are designing a device with a different size or operating frequency than shown above, you can assess the performance of this configuration using our free-of-charge [Oxion™](#) platform. This tool provides a complete design report, including expected performance and tailored design guide, within 24 hours. For additional information about Ignion's range of R&D services, please visit: <https://ignion.io/resources-support/technical-center/engineering-support/>. If you require further assistance, please contact support@ignion.io.

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