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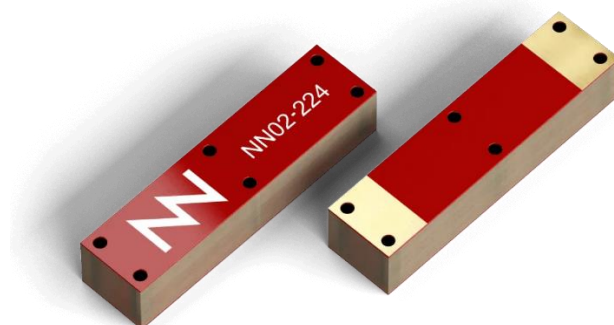
RUN mXTEND[™] **(NN02-224)**

DATASHEET

RUN mXTEND[™]: Highly versatile and powerful.

The small, versatile RUN mXTEND[™] (NN02-224) is the perfect solution for devices where **volume and cost are constrained but maximum performance is desired**.

Thanks to its dimensions and tuneability, the antenna easily adapts to almost every wireless device and to any radio technology within the 824-8000 MHz frequency range.



RUN mXTEND[™] component (NN02-224)

Most used industries.

- Asset Tracking.
- Smart Metering.
- Fleet Management.
- IoT Sensors and Modules.
- 5G and Wi-Fi Routers (MIMO).

RUN mXTEND[™] benefits.

- **Top performance:** Top multiband IoT performance.
- **Ultra-compact form factor:** 12.0 mm x 3.0 mm x 2.4 mm.
- **Global reach:** Multiband performance compatible with global standards.
- **Fast time to market** – build a digital prototype using Antenna Intelligence Cloud[™].
- **Simple manufacturing:** Off-the-Shelf standard component mounted with pick-and-place.

Operation bands summary.

LTE/LTE-M/NB-IoT, GSM, UMTS, 4G, 5G, GNSS, Bluetooth, Wi-Fi 7, and many more within the frequency range of 698 MHz to 8000 MHz.

1. AVAILABLE SOLUTIONS SUMMARY

Configuration	Frequency range	Frequency Regions
<u>CELLULAR IoT</u>	824 – 960 MHz & 1710 – 2690 MHz	2
<u>ISM</u>	863 – 928 MHz	1
<u>ISM + BLUETOOTH</u>	863 – 928 MHz & 2400 – 2500 MHz	2
<u>GNSS</u>	1561 MHz, 1575 MHz & 1598 – 1606 MHz	3
<u>BLUETOOTH</u>	2400 – 2500 MHz	1
<u>Wi-Fi DUAL BAND</u>	2400 – 2500 MHz & 4900 – 5875 MHz	2

2. DETAILED AVAILABLE SOLUTIONS

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

Technical Features	RUN mXTEND [™] (NN02-224)
Radiation Pattern	Omnidirectional
Polarization	Linear
Weight (approx.)	0.19 g
Temperature	-40 to + 125 °C
Impedance	50 Ω

Technical features for the RUN mXTEND[™].

2.1. LTE SOLUTION

Technical features	824 – 960 MHz	1710 – 2690 MHz
Average Efficiency	> 65 %	> 70 %
Peak Gain	1.8 dBi	1.9 dBi
VSWR	< 3:1	

Technical features. Measures from the evaluation board (131 mm x 60 mm x 1 mm).

2.2 ISM SOLUTION

Technical features	863 – 870 MHz	902 – 928 MHz	863 – 928 MHz
Average Efficiency	> 85 %	> 85 %	> 85 %
Peak Gain	2.1 dBi	2.1 dBi	2.2 dBi
VSWR	< 2:1	< 2:1	< 2:1

Technical features. Measures from the evaluation board with UFL cables (131 mm x 60 mm x 1 mm).

2.3 GNSS SOLUTION

Technical features	1561 MHz	1575 MHz	1598 – 1606 MHz
Average Efficiency	> 75 %	> 75 %	> 80 %
Peak Gain	2.9 dBi	3.0 dBi	3.3 dBi
VSWR	< 1.5:1		

Technical features. Measures from the evaluation board with UFL cables (126.5 mm x 60 mm x 1 mm).

2.4 BLUETOOTH SOLUTION

Technical features	2400 – 2500MHz
Average Efficiency	> 75%
Peak Gain	4.2 dBi
VSWR	< 1.5:1

Technical features. Measures from the evaluation board with UFL cables (126.5 mm x 60 mm x 1 mm).

2.5 Wi-Fi-DUAL BAND SOLUTION

Technical features	2400 – 2500 MHz	4900 – 5875 MHz
Average Efficiency	> 70 %	> 70 %
Peak Gain	2.9 dBi	3.1 dBi
VSWR	< 2.5:1	

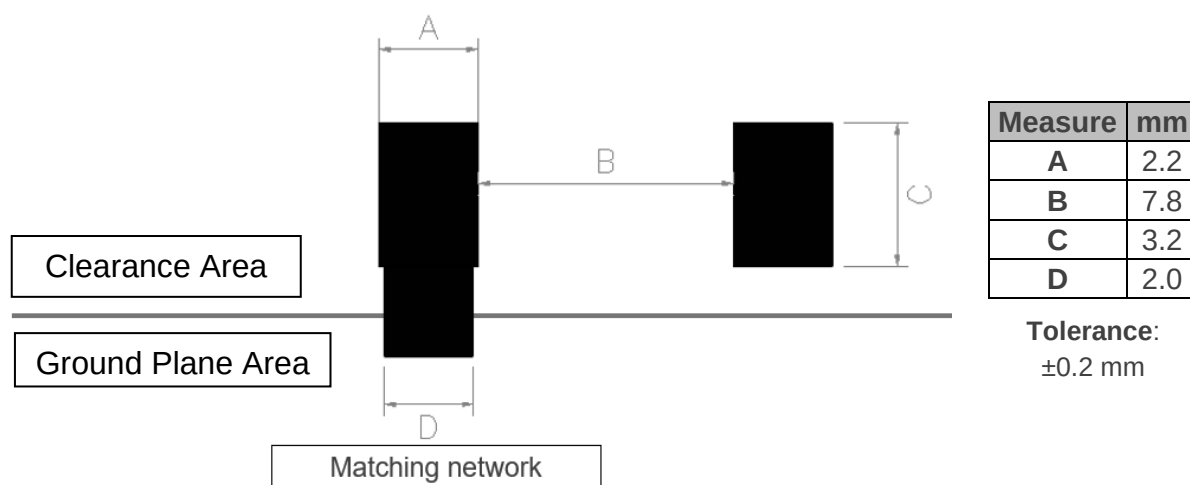
Technical features. Measures from the evaluation board with a coplanar grounded transmission line (126.5 mm x 60 mm x 1 mm).

2.6 ISM + BLUETOOTH SOLUTION

Technical features	863 – 870 MHz	902 – 928 MHz	863 – 928 MHz
Average Efficiency	> 75 %	> 75 %	> 75 %
Peak Gain	1.4 dBi	1.6 dBi	1.6 dBi
VSWR	< 2:1	< 2:1	< 2:1
Technical features	2400 – 2500MHz		
Average Efficiency	> 80 %		
Peak Gain	2.9 dBi		
VSWR	< 2:1		

Technical features. Measures from the evaluation board with UFL cables (131 mm x 60 mm x 1 mm).

2.7 ANTENNA FOOTPRINT

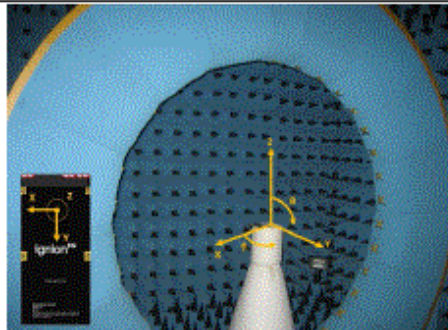


Footprint dimensions for the single booster.

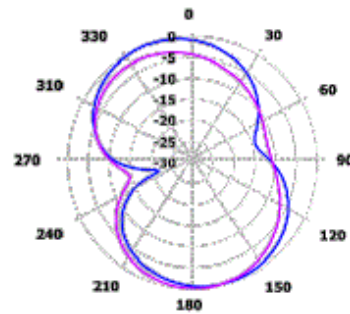
If you are designing a device with a different size or operating frequency than shown above, you can assess the performance of this solution using our free-of-charge [Antenna Intelligence Cloud[™]](#) tool. This tool provides a complete design report, including expected performance and tailored design 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.

Purchase this or other evaluation boards through our main distributors by visiting the following link: <https://ignion.io/distributors/>.

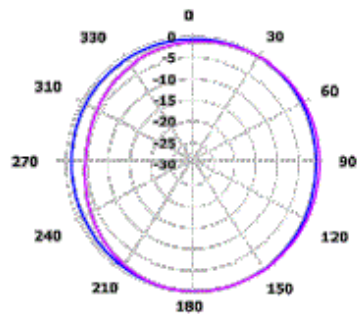
RADIATION PATTERNS (698-960 MHz), GAIN AND EFFICIENCY



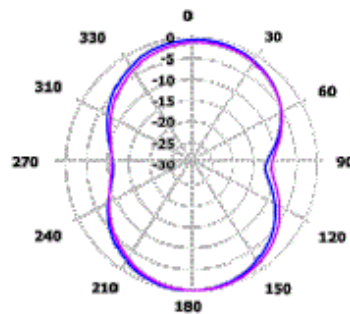
Measurement System Set-Up
Evaluation Board in Plane XY



$\theta = 90^\circ$ Plane XY at 750 MHz, and 890MHz



$\phi = 0^\circ$ Plane XZ at 750 MHz, and 890MHz



$\phi = 90^\circ$ Plane YZ at 750 MHz, and 890MHz



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