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DUO mXTEND™ (NN03-320)

DATASHEET

DUO mXTEND™ (NN03-320)

The DUO mXTEND™ antenna booster can provide optimal performance, even under the restriction **of having no ground clearance beyond the antenna footprint**. This miniature and multipurpose component is designed to provide **GNSS** and **Bluetooth** connectivity worldwide, **simultaneously**, as well as other regions of the spectrum, such as 5G and UWB, simultaneously, thanks to its multiport nature.

Product Benefits

- **Multipurpose:** Multiband and multi-RAT IoT chip antenna component with 2 independents ports.
- **Smallest clearance:** No clearance beyond the antenna footprint.
- **Miniature**: Small form factor of 7.0 mm x 3.0 mm x 2.0 mm.
- **Best for combining:** One or more of GNSS, Bluetooth, UWB and 5G applications.
- **Versatile:** Dual mounting on device corner or center edge.
- **Reliability**: Off-the-Shelf standard product, no antenna part customization (electronic optimization).
- **Use cases:** tracking devices, wearables, gaming devices, IoT-5G modules.

Operation Bands Summary

- GNSS, Bluetooth, 5G and UWB (1561 – 1606MHz, 2400 – 2500MHz, 3400 – 3800MHz, 3100 – 4800MHz and 6000 – 10600 MHz).

1. AVAILABLE SOLUTIONS SUMMARY

Class	Frequency Regions	Frequency range	More detailed info
2 Ports	4	1561MHz, 1575MHz, 1598MHz to 1606MHz, and 2400MHz to 2500MHz.	GNSS + BLUETOOTH
1 Port	3	1561 MHz, 1575 MHz, 1598MHz to 1606MHz	GNSS
1 Port	1	2400 MHz to 2500 MHz	BLUETOOTH
1 Port	1	3400 MHz to 3800 MHz	5G
1 Port	1	3100 MHz to 4800 MHz and 6000 MHz to 10600 MHz	UWB
1 Port	2	2400MHz to 2500MHz, 4900MHz to 5900MHz	WIFI DUAL BAND

2. DETAILED AVAILABLE SOLUTIONS

2.1. GNSS AND BLUETOOTH SOLUTION

Technical features	BeiDou	GPS & GALILEO	GLONASS	Bluetooth
	1561MHz	1575MHz	1598 – 1606MHz	2400 – 2500MHz
Average Efficiency	> 40%	> 45%	> 50%	> 50%
Peak Gain	-1.1 dBi	-1.0 dBi	-1.0 dBi	-0.9 dBi
VSWR	< 3:1			
Radiation Pattern	Omnidirectional			
Polarization	Linear			
Weight (approx.)	0.11 g.			
Temperature	-40 to +125 ºC			
Impedance	50 Ω			
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 2.0 mm			

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

2.2 GNSS SOLUTION

Technical features	1561 MHz	1575 MHz	1598 – 1606 MHz
Average Efficiency	> 60 %	> 70 %	> 60 %
Peak Gain	1.6 dBi	1.8 dBi	1.1 dBi
VSWR	< 2.5:1		
Radiation Pattern	Omnidirectional		
Polarization	Linear		
Weight (approx.)	0.11 g.		
Temperature	-40 to +125 ºC		
Impedance	50 Ω		
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 2.0 mm		

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

2.3 BLUETOOTH SOLUTION

Technical features	2400 MHz – 2500 MHz
Average Efficiency	> 70 %
Peak Gain	1.8 dBi
VSWR	< 2.5:1
Radiation Pattern	Omnidirectional
Polarization	Linear
Weight (approx.)	0.11 g.
Temperature	-40 to +125 ºC
Impedance	50 Ω
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 2.0 mm

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

2.4 5G SOLUTION

Technical features	3.4 – 3.8 GHz
Average Efficiency	> 60%
Peak Gain	2.6 dBi
VSWR	< 3.0:1
Radiation Pattern	Omnidirectional
Polarization	Linear
Weight (approx.)	0.11 g.
Temperature	-40 to + 125 ºC
Impedance	50 Ω
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 2.0 mm

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

2.5 UWB SOLUTION

Technical features	Option 1 UWB (LFR)	Option 2 UWB (HFR)
	3.1 – 4.8 GHz	6.0 – 10.6 GHz
Average Efficiency	> 80%	> 80%
Peak Gain	2.3 dBi	3.6 dBi
VSWR	< 2.6:1	< 4.0:1
Radiation Pattern	Omnidirectional	
Polarization	Linear	
Weight (approx.)	0.11 g.	
Temperature	-40 to + 125 ºC	
Impedance	50 Ω	
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 2.0 mm	

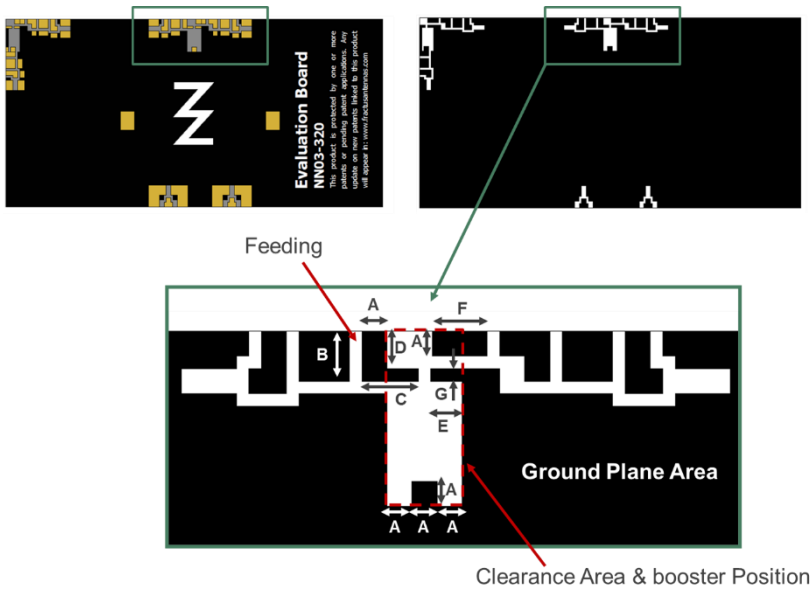
Technical features. Measures from the evaluation board (25 mm x 20 mm x 1 mm).

2.6 WIFI DUAL BAND SOLUTION

Technical features	2.4 – 2.5 GHz	4.9 – 5.875 GHz
Average Efficiency	> 65%	> 65%
Peak Gain	4.1 dBi	3.8 dBi
VSWR	< 2.0:1	< 3.0:1
Radiation Pattern	Omnidirectional	
Polarization	Linear	
Weight (approx.)	0.11 g.	
Temperature	-40 to + 125 ºC	
Impedance	50 Ω	
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 2.0 mm	

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

2.7 ANTENNA FOOTPRINT: 1 PORT IN THE MIDDLE

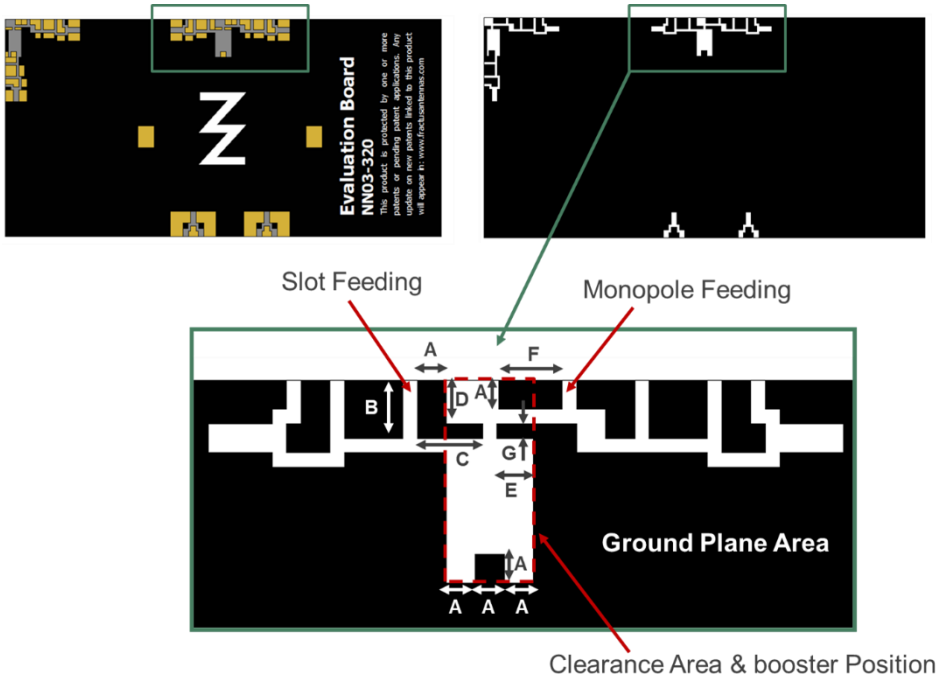


Measure	mm
A	1.0
B	2.0
C	2.25
D	1.5
E	1.25
F	2.2
G	0.5

Tolerance: ±0.05mm

Footprint dimensions for the DUO mXTEND™ (NN03-320) antenna booster.

2.8 ANTENNA FOOTPRINT: 2 PORTS IN THE MIDDLE

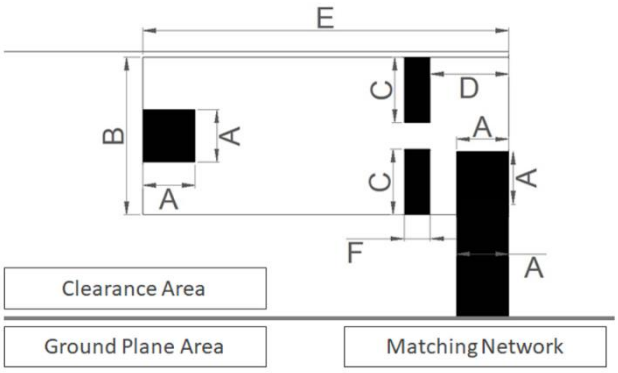


Measure	mm
A	1.0
B	2.0
C	2.25
D	1.5
E	1.25
F	2.2
G	0.5

Tolerance: ±0.05mm

Footprint dimensions for the DUO mXTEND™ (NN03-320) antenna booster.

2.9 ANTENNA FOOTPRINT: 1 PORT IN THE CORNER



Measure	mm
A	1.0
B	3.0
C	1.25
D	1.5
E	7.0
F	0.5

Tolerance: ±0.05mm

Footprint dimensions for the DUO mXTEND™ (NN03-320) antenna booster placed on the corner.

If you need assistance to design your matching network beyond this application note, please contact support@ignion.io, or if you are designing a **different device size** or a **different frequency band**, **we can assist you** in less than 24 hours. Please, try our free-of-charge[1] Antenna Intelligence Cloud, which will get you a complete design report including a custom matching network for your device in 24h[1]. Additional information related to Ignion's range of R&D services is available at: https://ignion.io/rdservices/

[1] See terms and conditions for a free Antenna Intelligence Cloud service in 24h at: https://www.ignion.io/antenna-intelligence/

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