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ALL mXTEND[™]: A STANDARD ANTENNA SOLUTION FOR MOBILE FREQUENCY BANDS

USER MANUAL
ALL mXTEND[™] (NN02-220)

ALL mXTEND[™]: A STANDARD ANTENNA SOLUTION FOR MOBILE FREQUENCY BANDS

Ignion specializes in enabling effective mobile communications. Using Ignion technology, we design and manufacture optimized antennas to make your wireless devices more competitive. Our mission is to help our clients develop innovative products and accelerate their time to market through our expertise in antenna design, testing and manufacturing.



ALL mXTEND[™] chip antenna component

NN02-220

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Ignion is an ISO 9001:2015 certified company. All our antennas are lead-free and RoHS compliant.

ISO 9001:2015 Certified



1. ANTENNA DESCRIPTION

The ALL mXTEND[™] chip antenna component has been specifically designed for providing multiband performance in wireless devices (in particular in mobile devices), enabling worldwide coverage by allowing operation in the communication standards GSM850, GSM900, GSM1800/DCS, GSM1900/PCS, UMTS, LTE700, LTE800, LTE850, LTE900, LTE1700, LTE1800, LTE1900, LTE2000, LTE2100, LTE2300, LTE2500, and LTE2600.

TOP



BOTTOM



Material: The ALL mXTEND[™] chip antenna component is built on glass epoxy substrate.

APPLICATIONS

- Handsets
- Smartphones
- Tablets
- Phablets
- Laptop PCs
- Netbooks
- Modules
- Routers
- eBooks

BENEFITS

- High efficiency
- Small size
- Cost-effective
- Easy-to-use (pick and place)
- Multiband behaviour (worldwide standards)
- Off-the-Shelf Standard Product (no customization is required)

The ALL mXTEND[™] chip antenna component belongs to a new generation of antenna solutions based on the Virtual Antenna[™] technology owned by Ignion. The technology is mainly focused on replacing conventional antenna solutions by miniature and standard components.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 674491



2. QUICK REFERENCE GUIDE

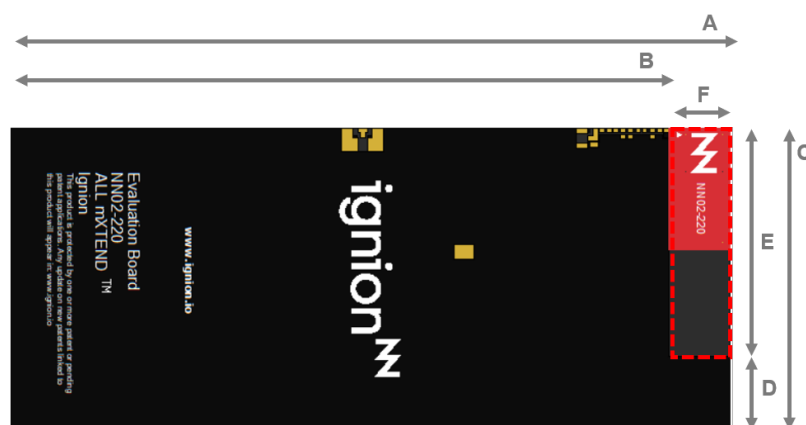
Technical features	698 – 960 MHz	1710 – 2690 MHz
Average Efficiency	> 55 %	> 75 %
Peak Gain	2.3 dBi	3.1 dBi
VSWR	< 3:1	
Radiation Pattern	Omnidirectional	
Polarization	Linear	
Weight (approx.)	1.23 g	
Temperature	-40 to +125 °C	
Impedance	50 Ω	
Dimensions (L x W x H)	24.0 mm x 12.0 mm x 2.0 mm	

Table 1 – Technical features. Measures from the Evaluation Board. See Figure 1. Note that for obtaining comparable results, a ground plane length larger than 100 mm is recommended.

3. ELECTRICAL PERFORMANCE

3.1. EVALUATION BOARD

This Evaluation Board (part number: EB_NN02-220-1B-2R-1P) integrates one ALL mXTEND™ chip antenna component to provide operation in two frequency regions, from 698 MHz to 960 MHz and from 1710 MHz to 2690 MHz. A UFL cable connects this single input/output port to the SMA connector.



Measure	mm
A	142
B	130
C	60
D	15
E	45
F	12

Tolerance: ±0.2 mm

Material: The Evaluation Boards are built on FR4 substrate. Thickness is 1 mm.

Clearance Area: 45 mm x 12 mm (ExF)

Figure 1 – EB_NN02-220. Evaluation Board 1 port providing operation in 2 frequency ranges, 698 – 960MHz and 1710 – 2690MHz.

3.3. VSWR AND EFFICIENCY

VSWR (Voltage Standing Wave Ratio) and Total Efficiency versus Frequency (GHz).

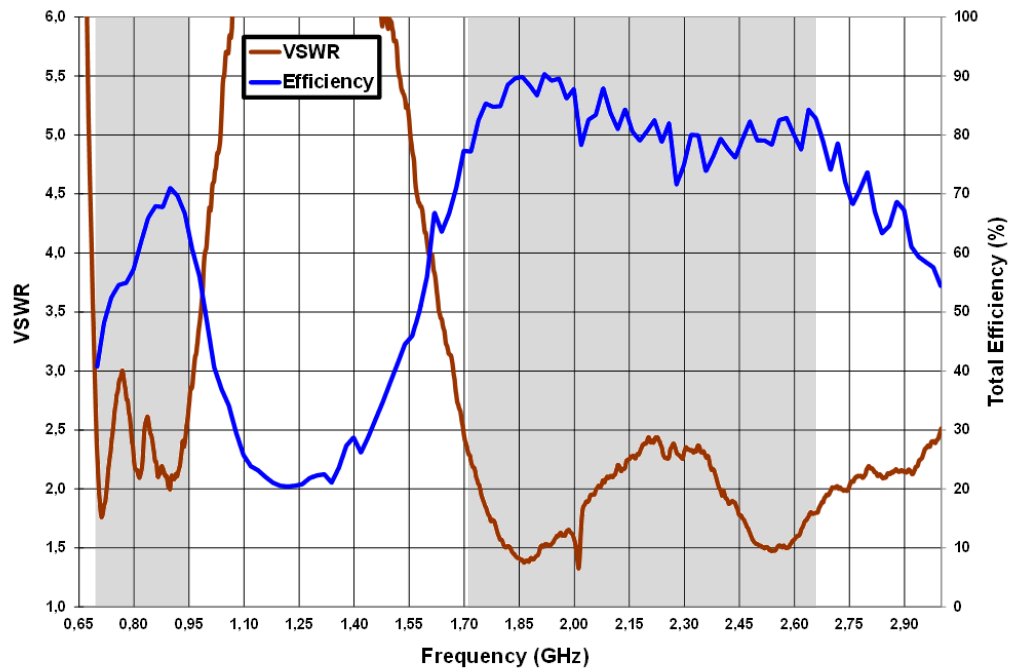
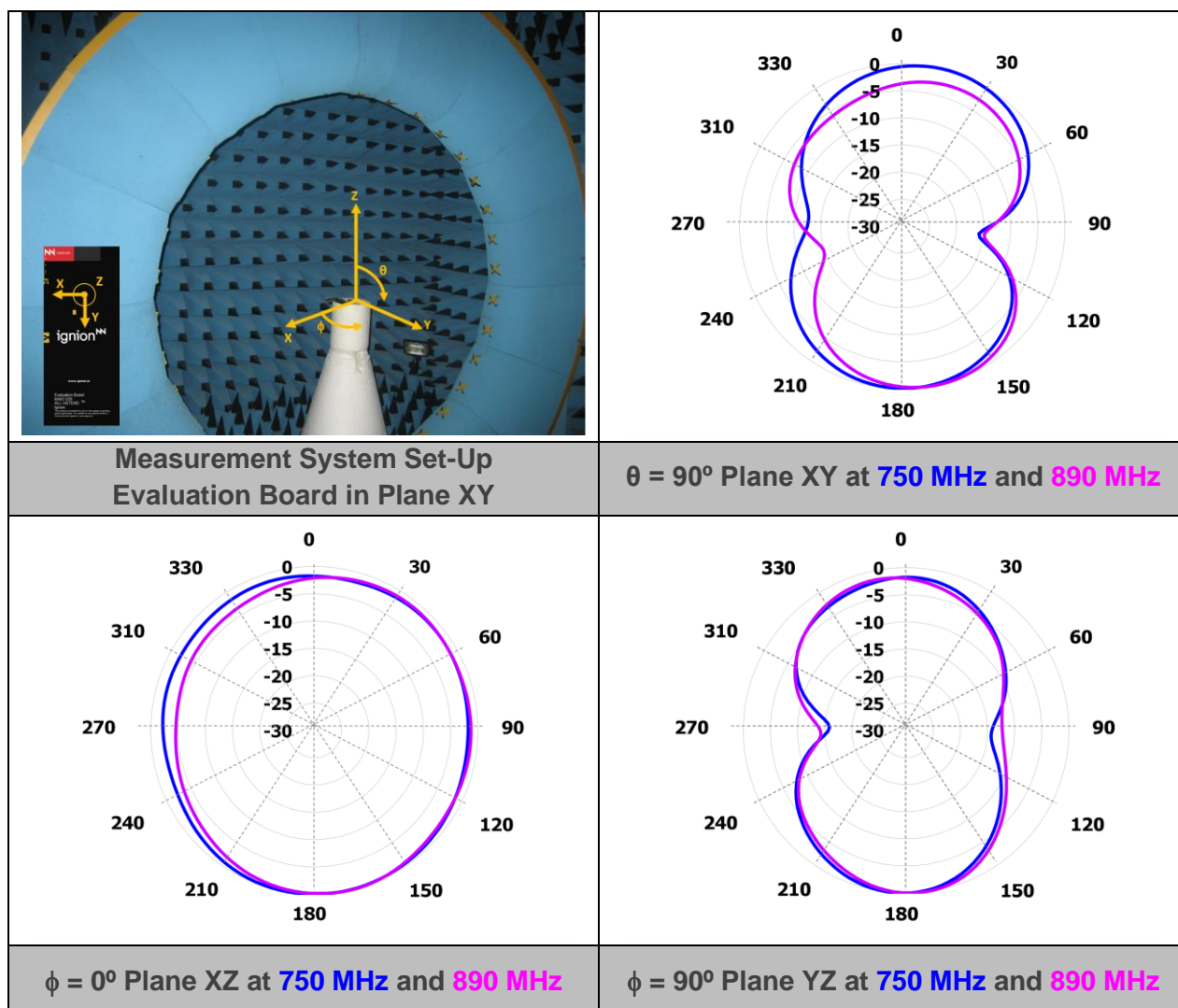


Figure 3 – VSWR and Total Efficiency for the 698 – 960 MHz frequency range and for the 1710 – 2690 MHz frequency range (from the Evaluation Board) (Figure 1).

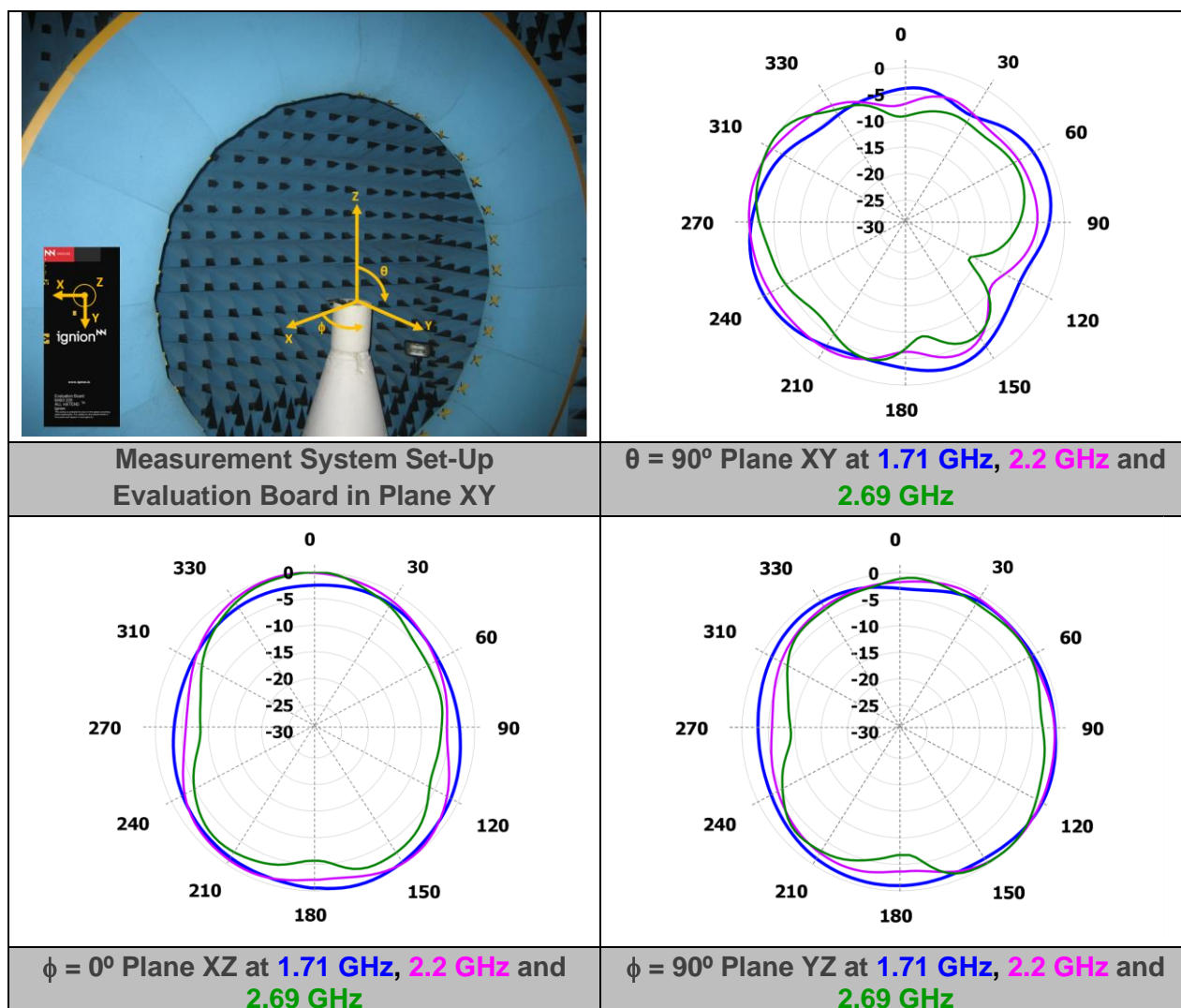
3.4. RADIATION PATTERNS (698-960 MHz), GAIN AND EFFICIENCY



Gain	Peak Gain	2.3 dBi
	Average Gain across the band	0.8 dBi
	Gain Range across the band (min, max)	-0.8 \leftrightarrow 2.3 dBi
Efficiency	Peak Efficiency	71.1 %
	Average Efficiency across the band	60.7 %
	Efficiency Range across the band (min, max)	40.2 – 71.1 %

Table 2 – Antenna Gain and Total Efficiency from the Evaluation Board (Figure 1) within the 698 – 960 MHz frequency range. Measures made in the Satimo STARGATE 32 anechoic chamber.

3.5. RADIATION PATTERNS (1710-2690 MHz), GAIN AND EFFICIENCY



Gain	Peak Gain	3.1 dBi
	Average Gain across the band	2.5 dBi
	Gain Range across the band (min, max)	1.6 \leftrightarrow 3.1 dBi
Efficiency	Peak Efficiency	90.3 %
	Average Efficiency across the band	82.1 %
	Efficiency Range across the band (min, max)	71.6 – 90.3 %

Table 3 – Antenna Gain and Total Efficiency for the Evaluation Board (Figure 1) within the 1710 – 2690 MHz frequency range. Measures made in the Satimo STARGATE 32 anechoic chamber.



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