Part No. 1002436

Vertical Wideband FR4 Embedded LTE / LPWA Antenna

700 / 750 / 850 / 900 / 1800 / 1900 / 2100 MHz

Supports: Broadband LTE (OCTA-BAND), LTE CAT-M, NB-IoT, SigFox, LoRa, Cellular LPWA, RPMA, Firstnet

Vertical Wideband FR4 Embedded LTE / LPWA

Low Band 700 - 960 MHz
High Band 1700 - 2700 MHz

KYOCERA AVX Vertical Wideband Embedded LTE/LPWA antenna utilizes Isolated Magnetic Dipole™ (IMD) technology which address the challenges facing today's product designers. IMD's high performance and isolation characteristics offer better connectivity and minimal interference. A versatile solution such as the 1002436 FR4 antenna offers support for Broadband LTE, LTE CAT-M, NB-IoT, SigFox, Lora, Cellular LPWA, RPMA applications.

Stays in Tune

IMD antenna technology provides superior RF field containment, resulting in less interaction with surrounding components. KYOCERA AVX IMD antennas resist detuning; providing a robust radio link regardless of the usage position

KYOCERA AVX antennas use patented IMD technology in many antenna configurations to provide high performance. IMD antennas requires a smaller design keep-out area, carry lower program development risk which yields a quicker time-to-market, without sacrificing RF performance.

KEY BENEFITS

Reduced Costs and Time-to-Market

Standard antenna eliminates design fees and cycle time associated with a custom solution; getting products to market faster. **Greater Flexibility with Unique Form Factors**

KYOCERA AVX technology helps you deliver more advanced ergonomic designs without adverse impact on product performance.

Environmental Compliance

Comply with latest RoHS requirements

APPLICATIONS

- Medical applications
- Home automation
- Smart metering
- M2M, Industrial devices
- Automotive
- Healthcare
- Point of Sale
- Tracking
- Cellular
- 3G Systems
- IoT
- Firstnet

Electrical Specifications

Typical Characteristics on 50 x 120 mm ground plane

Frequency	698 - 960 MHz	1710 - 2200 MHz	2500 – 2700 MHz
Efficiency	69%	63%	53%
VSWR	< 3.5:1	< 2.5:1	< 2.5:1
Peak Gain	2.3 dBi	3.2 dBi	3.0 dBi
Polarization	Linear		
Power Handling	2 Watts CW		
Radiation Pattern	Omni-directional		
Feed Point Impedance	50 ohms unbalanced		

Mechanical Specifications & Ordering Part Number

Ordering Part #	1002436
Dimensions (mm)	50.6 x 19.6 x 1.6
Weight (grams)	3.05
Mounting	Vertical FR4 antenna with through-hole solder pads
Packaging	5,000 pcs/box
Demo Board	1002436-01

Broadband LTE Embedded KYOCERA AVX FR4 Antenna.
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

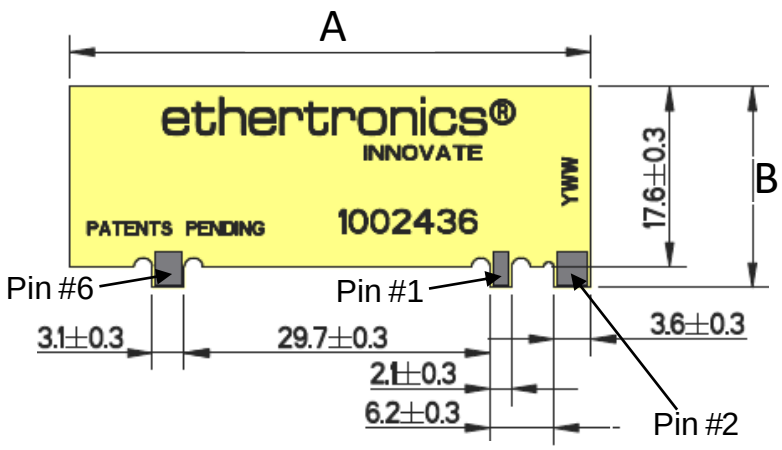
Antenna Dimensions

Typical antenna dimensions (mm)

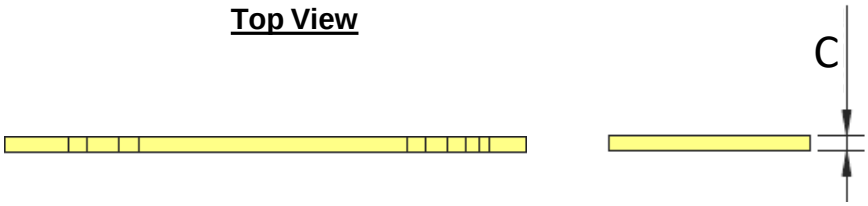
Part Number	A	B	C
1002436	50.6 ± 0.3	19.6 ± 0.3	1.6 ± 0.2

Pin Descriptions

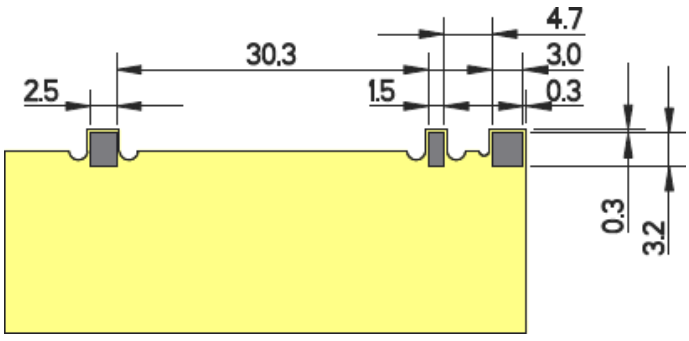
Pin#	Description
1	Feed
2	Ground
6	Low Band Tuning



Top View



Height



Bottom View

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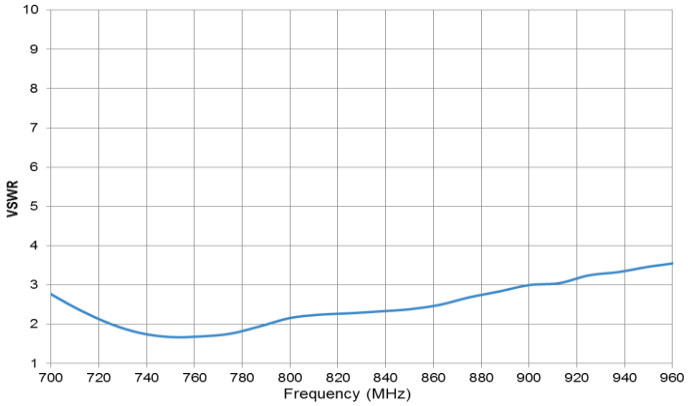
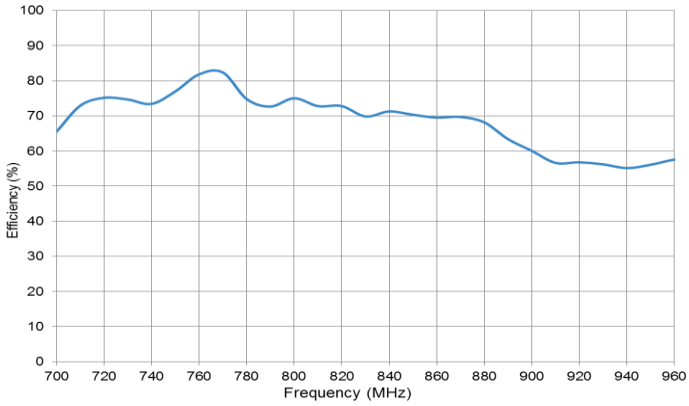
VSWR and Efficiency Plots

Typical performance on 120 x 50 mm PCB

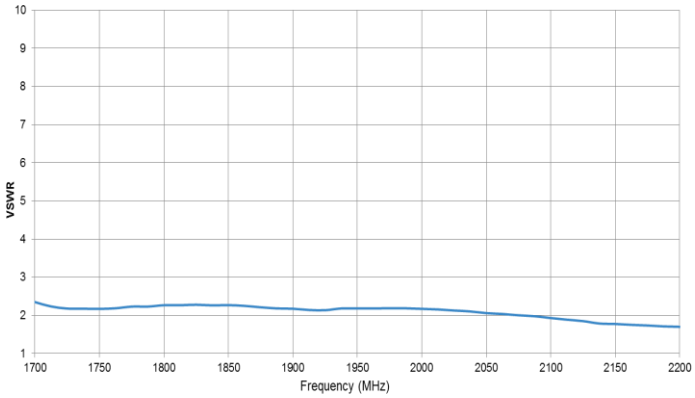
Low Band VSWR



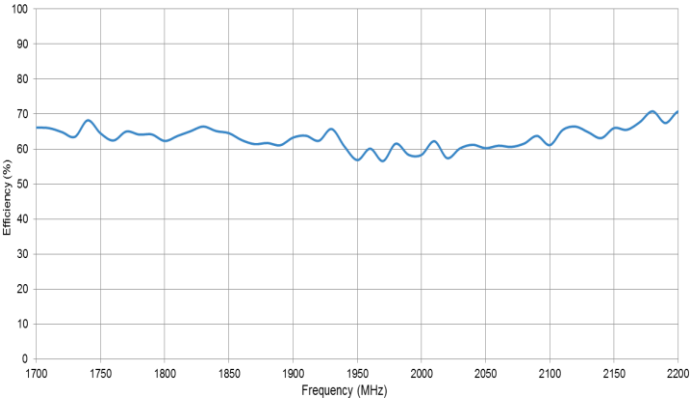
Low Band Efficiency



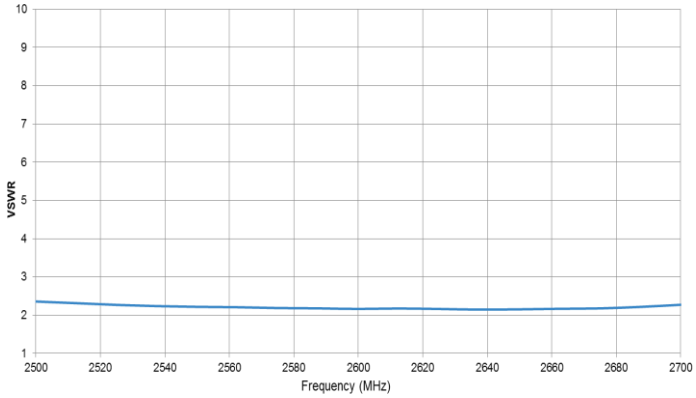
High Band VSWR



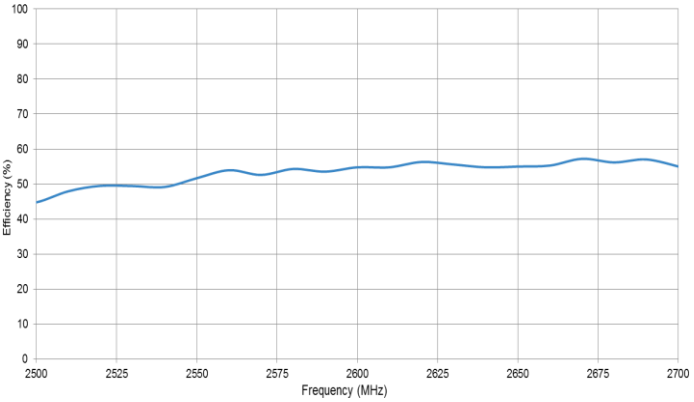
High Band Efficiency



High High Band VSWR



High High Band Efficiency



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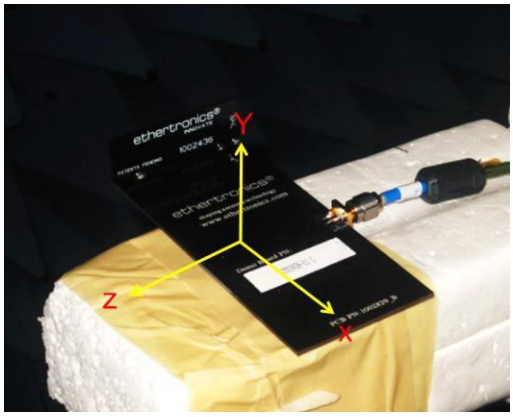
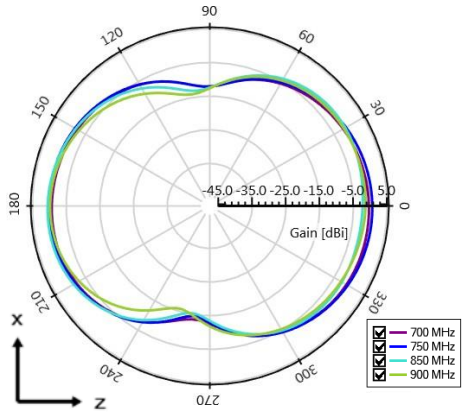
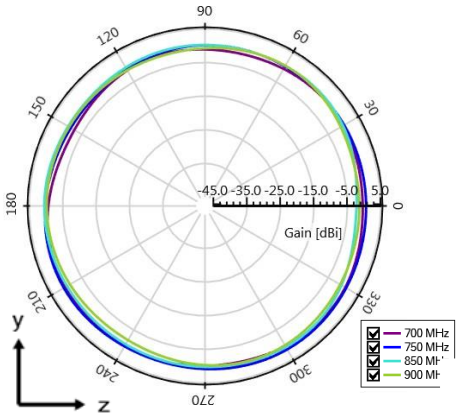
Antenna Radiation Patterns

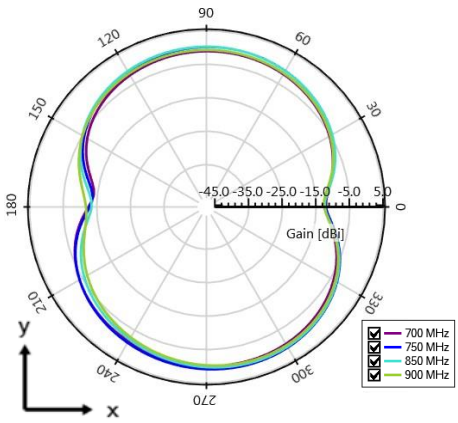
Typical performance on 120 x 50 mm PCB
Measured @ 700, 750, 850, 900, 1710, 1800, 1900, 2150 MHz



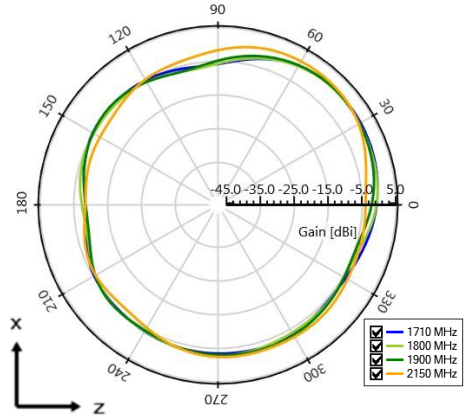
Low Band Measured at 700, 750, 850, 900 MHz

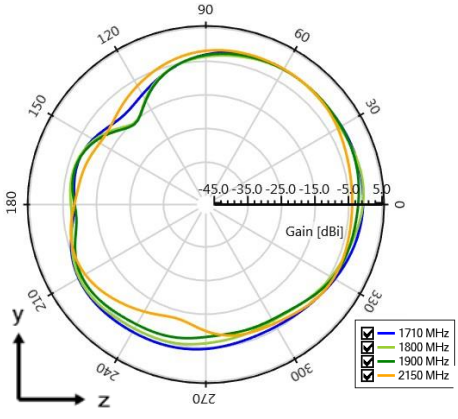


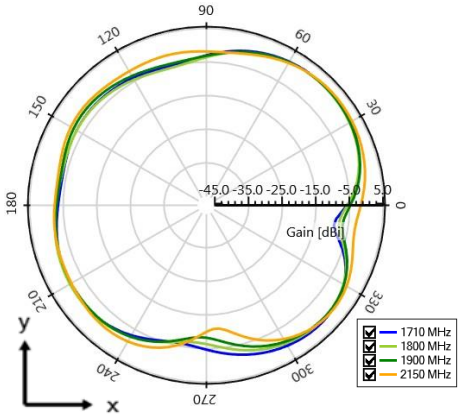




High Band Measured at 1710, 1800, 1900, 2150 MHz







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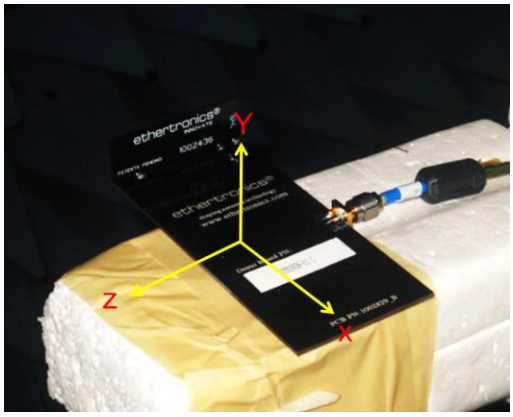
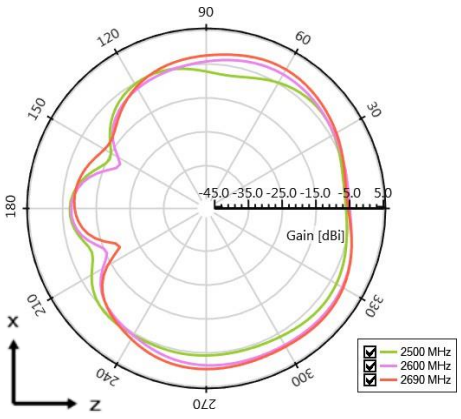
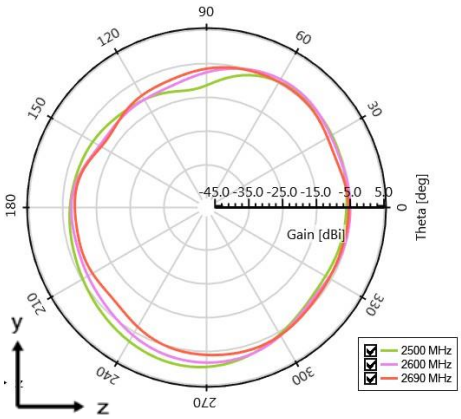
Antenna Radiation Patterns

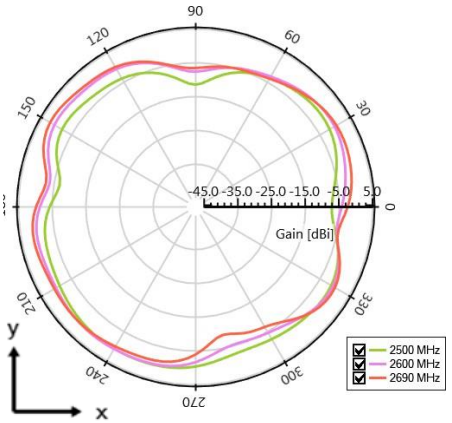
Typical performance on 120 x 50 mm PCB
Measured @ 2500, 2600, 2690 MHz



High High Band Measured at 2500, 2600, 2690 MHz







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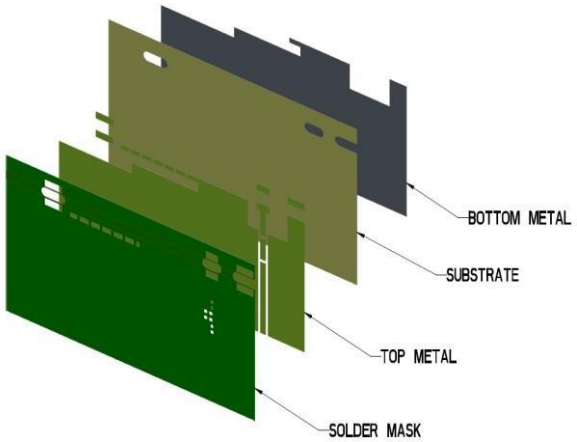
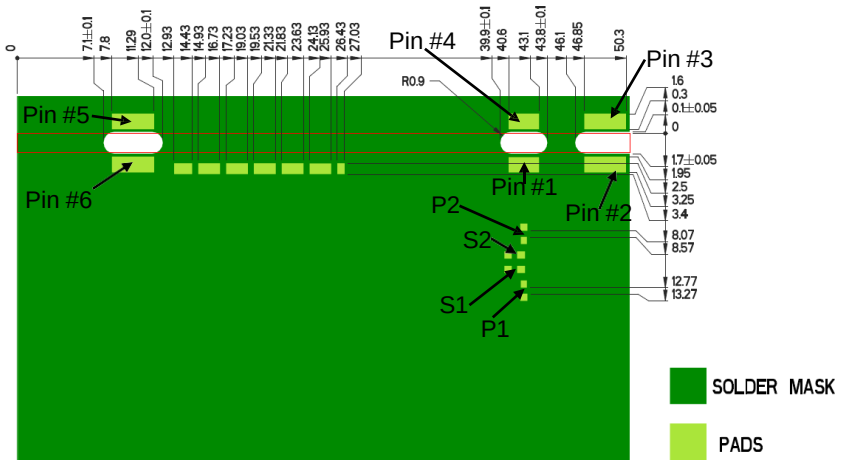
Antenna Layout (On-Ground)

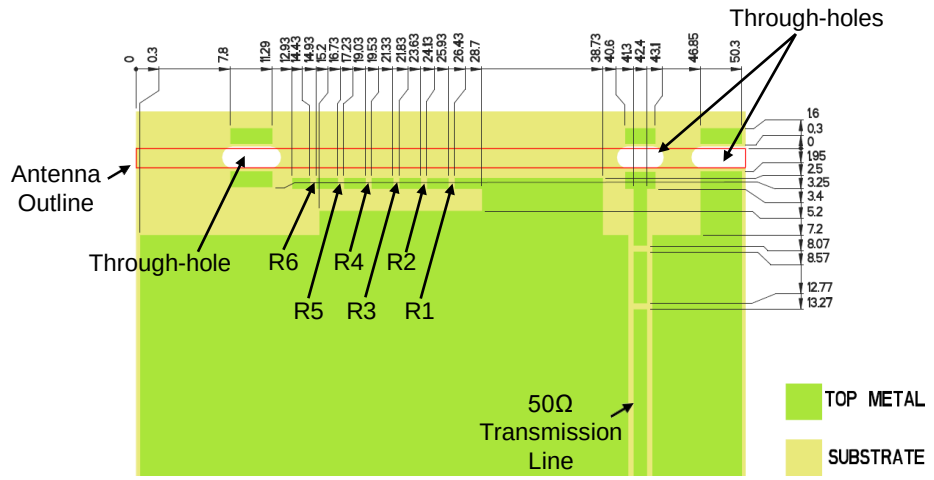
Typical layout dimensions (mm)





Pin Descriptions

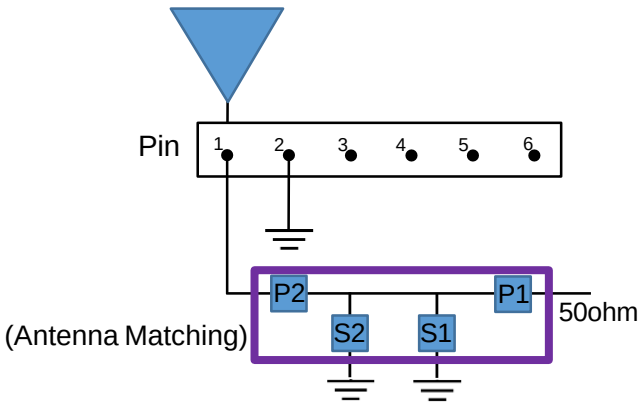
Pin#	Description
1	Feed
2	Ground
3	Dummy Pad
4	Dummy Pad
5	Dummy Pad
6	Low Band Tuning

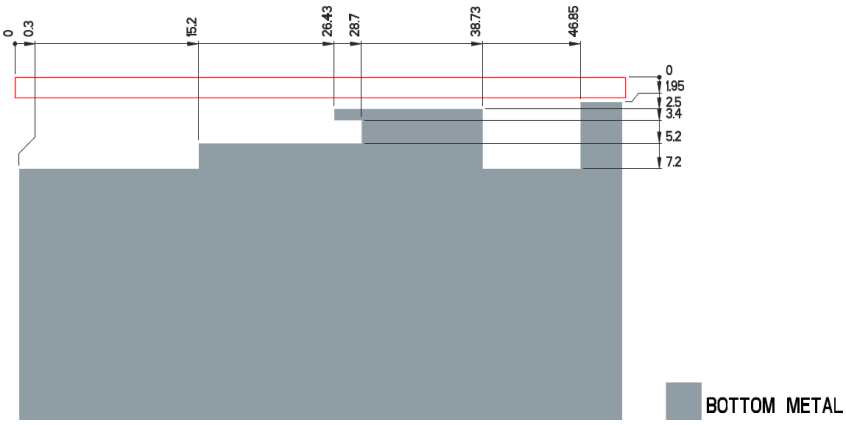


Matching Pi Network +Tuning values

Component	Value	Tolerance
P1	6.8pF	±0.1pF
S1	22nH	±5%
S2	DNI	N/A
P2	0Ω	N/A
R1 – R6	DNI	N/A

Default Pi Matching Network values and (R1- R6) tuning instructions can be found under Antenna Matching Structure.





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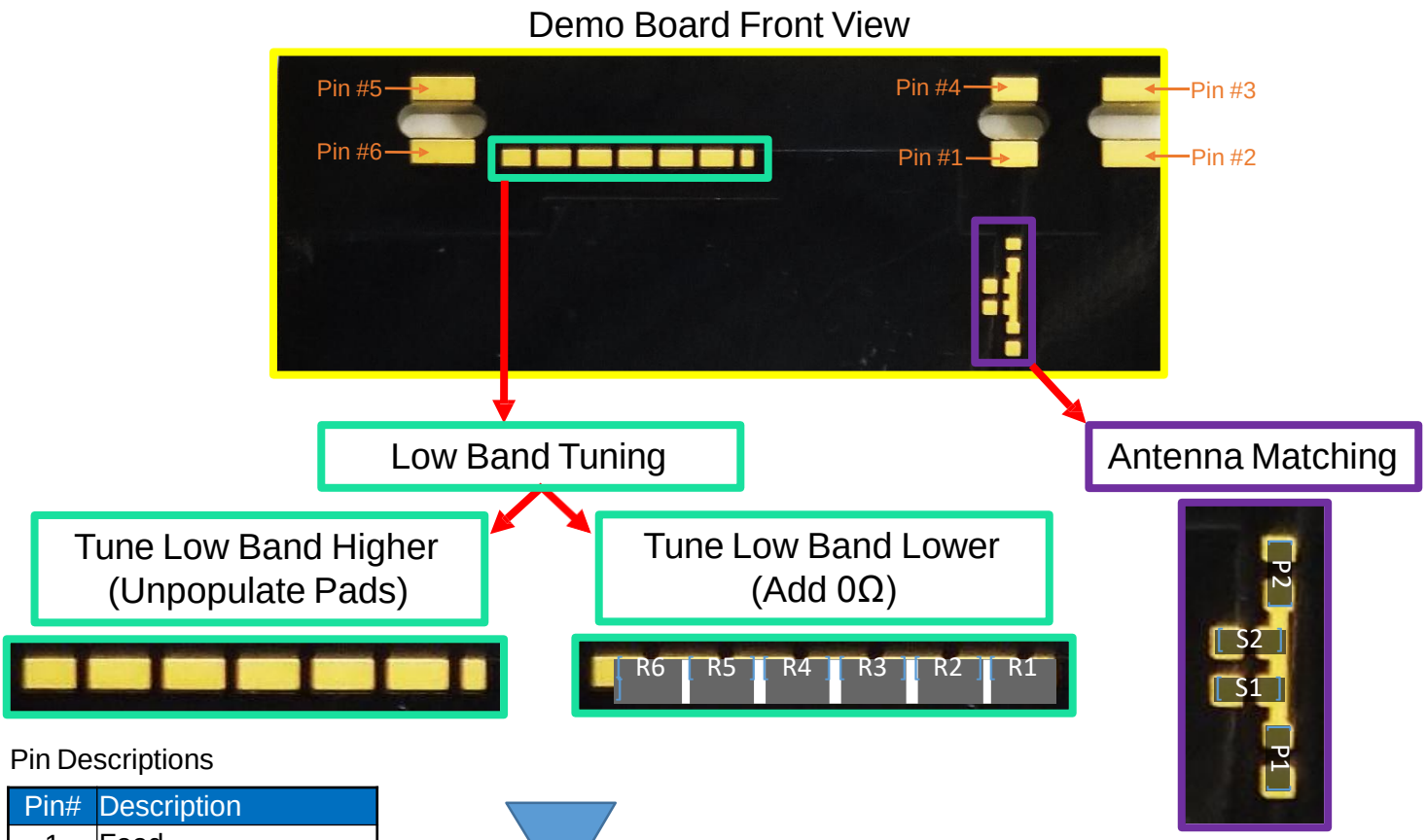
Antenna Matching Structure

Typical matching values on 50 x 120 mm PCB



Pin Descriptions

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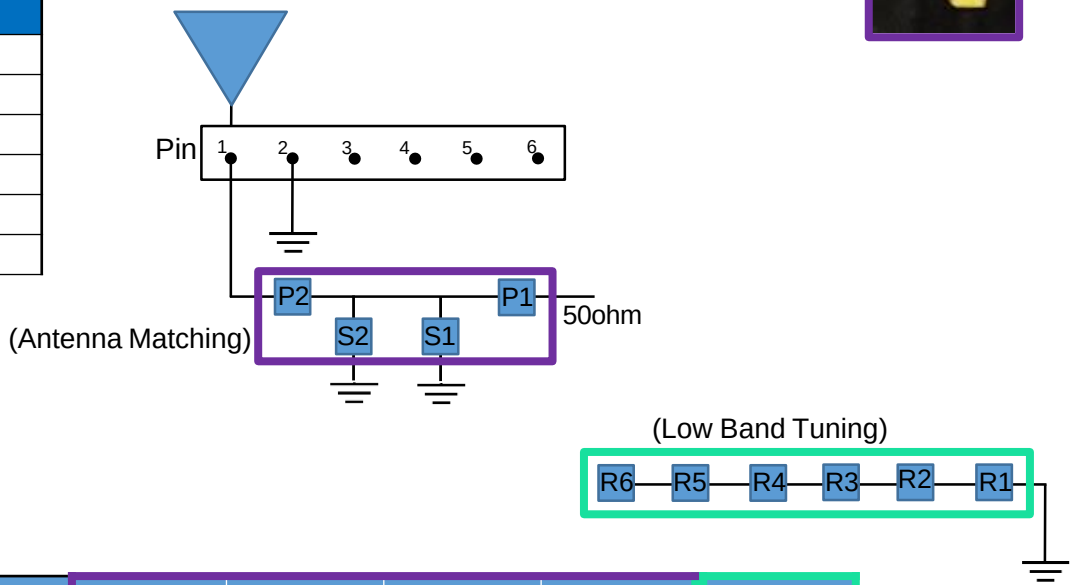
6	Low Band Tuning



	P1	S1	S2	P2	(R1 - R6)
Default Matching	6.8pF	22nH	DNI	0Ω	DNI
Tolerance	±0.1pF	± 5%	N/A	N/A	N/A

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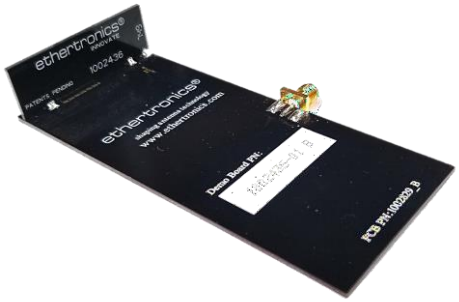
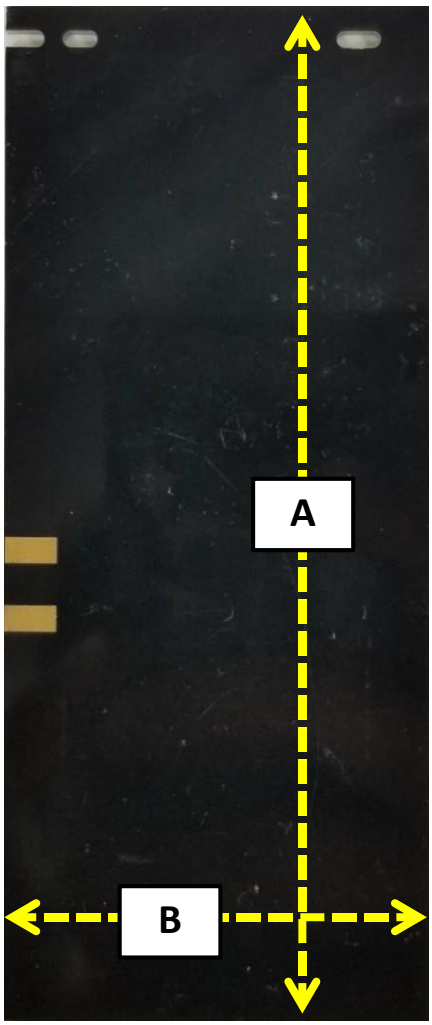
Antenna Demo Board

Demo Board Front/Back View

Part Number	A	B
1002436-01	120	50



Front View



Back View

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