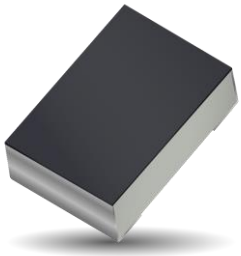
Part No. A9002137

Automotive GNSS L1/L2/L5/L6 Chip Antenna

(1575.42 / 1227.6 / 1176.45 / 1278.75) MHz or (1560-1610) MHz

Supports: Automotive, Tracking, Smart Home, Agriculture, Healthcare, Digital Signage, Wearables, Industrial Devices



KYOCERA AVX A-Series automotive antennas deliver on the key needs of device designers for higher functionality.

KYOCERA AVX has completed rigorous testing to qualify the A-series antennas for automotive applications. Although the AEC-Q200 standard does not include antenna products, all testing has been done following applicable AEC-Q200 requirements and procedures as closely as possible. Customers must provide additional quality requirements, if any, to drive additional compliance testing.

GNSS L1, L2, L5, L6 Chip Antenna

1575.42 MHz, 1227.6 MHz, 1176.45 MHz
1278.75 MHz; or
1560 MHz-1610 MHz

KEY BENEFITS

Greater Flexibility with Unique Form Factors

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

Quicker Time-to-Market

By optimizing antenna size, performance and emissions, customer and regulatory specifications are more easily met.

Environmental Compliance

Products are the latest RoHS version compliant.

APPLICATIONS

- Automotive
- Embedded design
- POS, Headsets, Tablets
- Gateway, Access Point
- Handheld
- Telematics
- Tracking
- Healthcare
- M2M, Industrial devices
- Smart Grid
- OBD-II

Electrical Specifications

Typical performance on 90 x 40 mm PCB

Frequency (MHz)	1575.42	1227.6	1176.45	1278.75	1560-1610
GNSS Band	L1	L2	L5	L6	GNSS
Average Efficiency (%)	75	86	72	85	
VSWR Match	1.5:1 max	1.7:1 max	2.0:1 max	1.8:1 max	Refer to Appendix 1
Polarization	Linear				
Power Handling	0.5 Watt CW				
Feed Point Impedance	50 Ω unbalanced				

Mechanical Specifications & Ordering Part Number

Ordering Part Number	A9002137
Size (mm)	1.00 x 0.55 x 0.40
Mounting	Surface mounted to the PCB
Weight (grams)	< 0.001
Packaging	Tape & Reel A9002137 – 5,000 pieces per reel
Demo Board	9002137-06 (L1, L2, L5, L6) 9002137-05 (GNSS) Appendix 1
Temperature Cycle	MIL-STD-202F Method 107E MIL-STD-883D Method 1010.7
Temperature Exposure	MIL-STD-202 Method 108
High Temperature & High Humidity	MIL-STD-202 Method 103
Mechanical Shock	MIL-STD-202 Method 213
Vibration	MIL-STD-202 Method 204
IMDS and PPAP available	

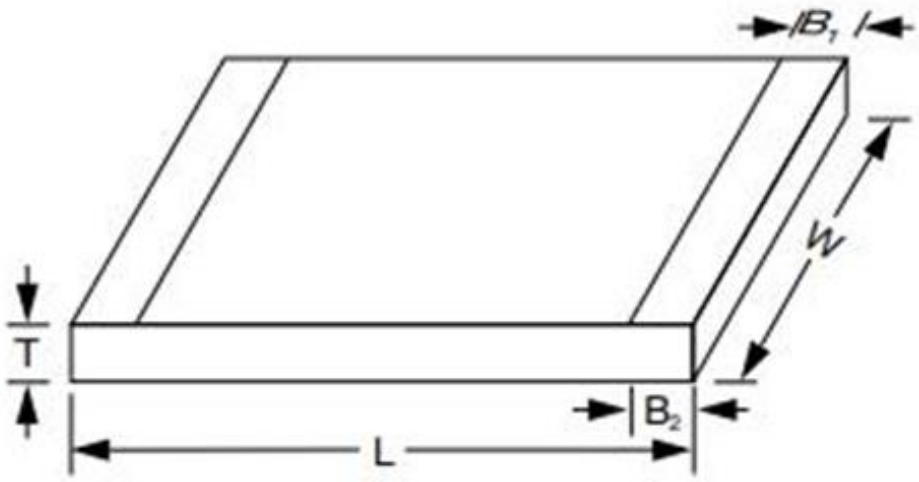
Automotive GNSS L1/L2/L5/L6 or GNSS KYOCERA AVX Embedded Chip Antenna Specifications
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs

Antenna Dimensions

Typical antenna dimensions (mm)

Part Number	L	W	T	B_1	B_2
A9002137	1.00 ± 0.10	0.55 ± 0.07	0.40 ± 0.10	0.00 + 0.10	0.20 ± 0.10

***Mount Black Side up**



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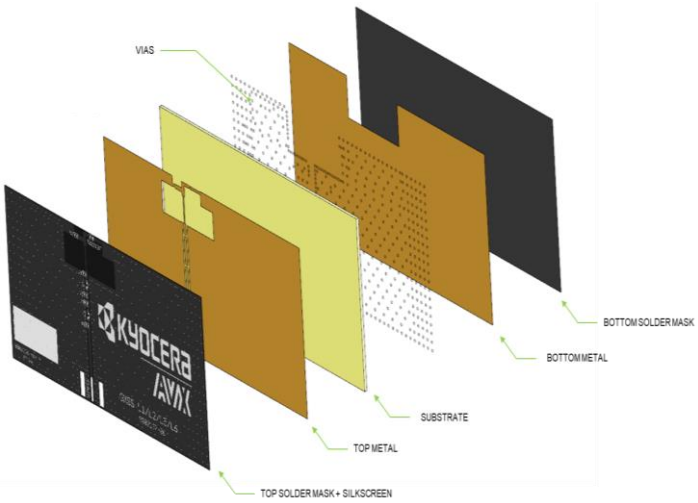
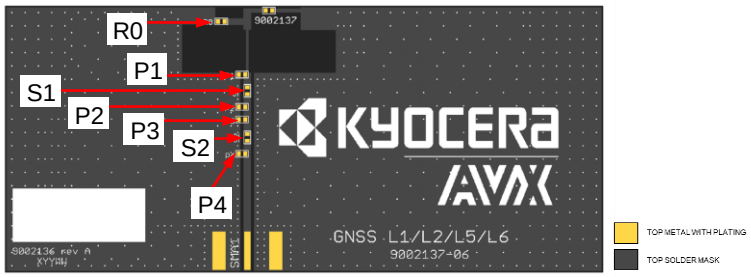
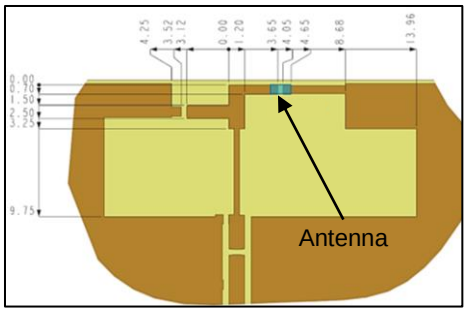
Layout (9002137-06)

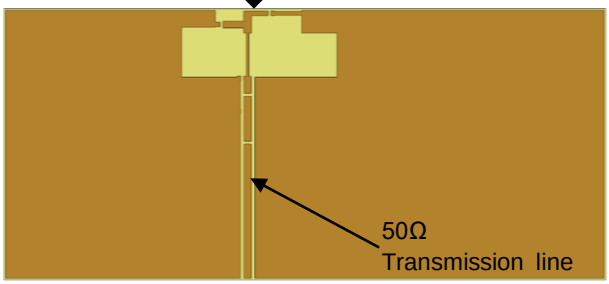
Typical antenna dimensions (mm)





- Additional VIAS : Diam. 0.2mm to be placed around antenna, (no vias on transmission lines).
- Via holes must be covered by solder mask

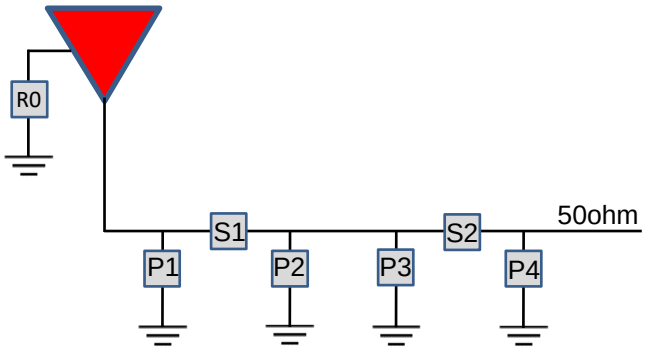




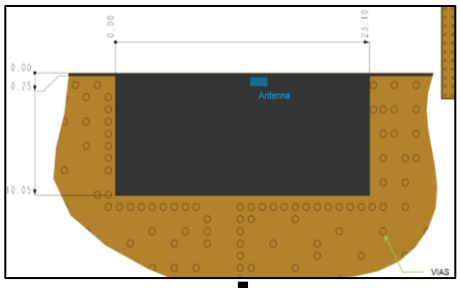
Matching Pi Network

R0	P1	S1	P2	P3	S2	P4
0.5 pF	DNI	2 pF	8.2 nH	DNI	0 Ω	DNI

*Actual matching values depend on customer design



(Antenna Matching)



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Automotive GNSS L1/L2/L5/L6 or GNSS KYOCERA AVX Embedded Chip Antenna Specifications
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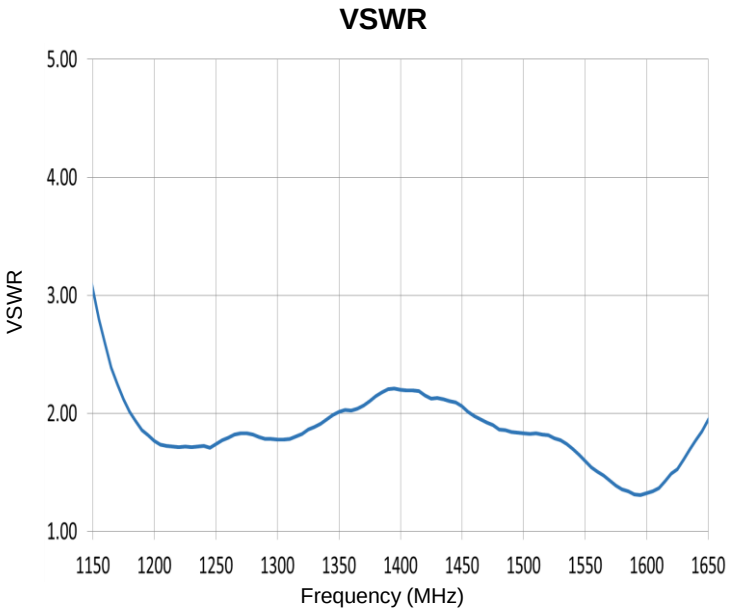
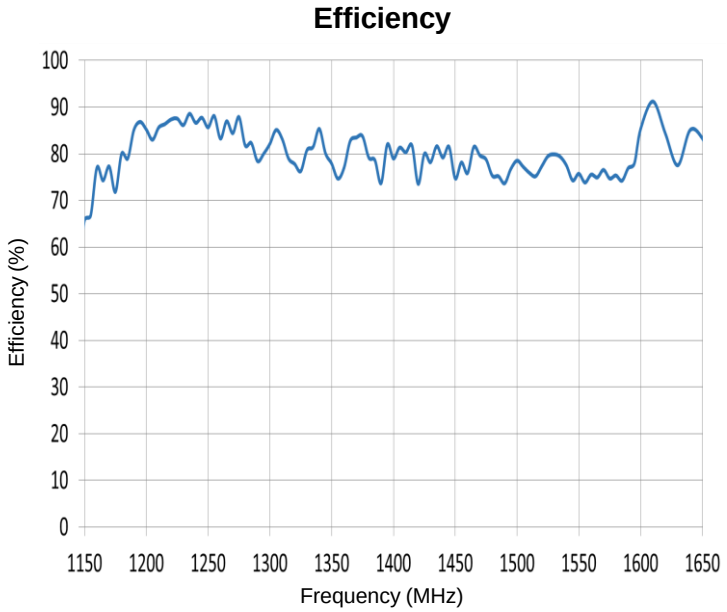
VSWR, Efficiency Plots (9002137-06)

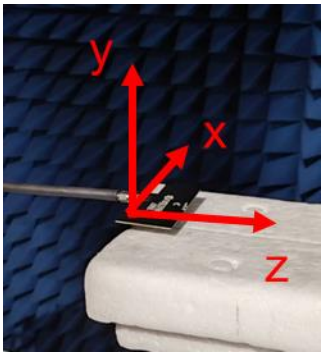
Typical performance on 90 x 40 mm PCB

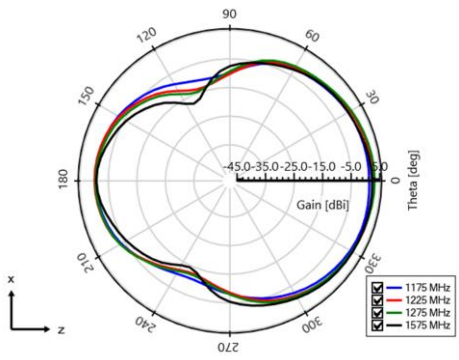


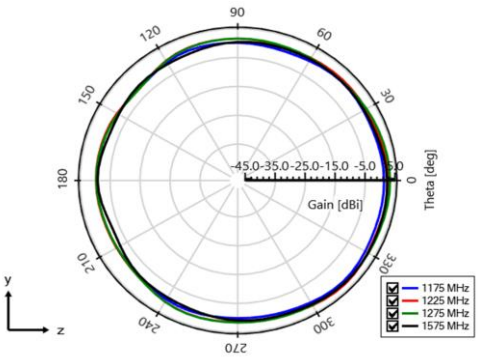


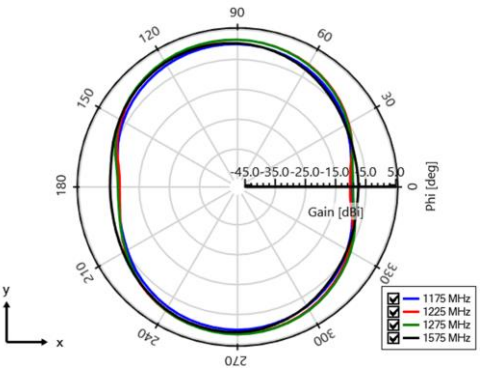
Antenna Radiation Patterns (9002137-06)

Typical performance on 90 x 40 mm PCB
Measured @ 1175 MHz, 1225 MHz, 1275 MHz, 1575 MHz









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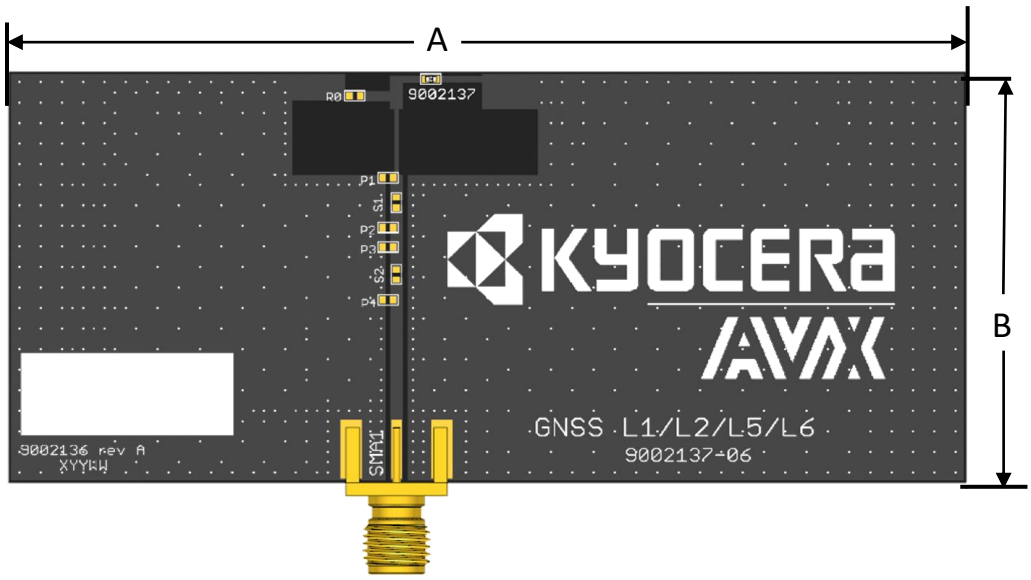
Antenna Demo Board

Typical layout dimensions (mm)

Part Number	Description	A	B
9002137-06	L1, L2, L5, L6	90.0	40.0

9002137-06



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Appendix 1

Appendix 1 gives instructions on how to achieve GNSS coverage (Beidou/GPS/Galileo/Glonass) using the 9002137-05 layout.

Frequency (MHz)	1560-1610
Peak Gain	2.0 dBi
Average Efficiency	65%
VSWR Match	< 2.0:1
Polarization	Linear
Power Handling	0.5 Watt CW
Feed Point Impedance	50 Ω unbalanced

*Data shown above has Appendix 1 matching applied on 80 x 40 mm pcb.

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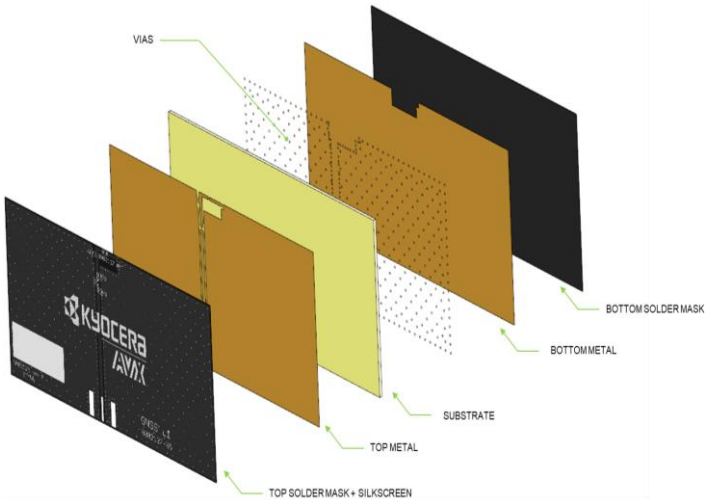
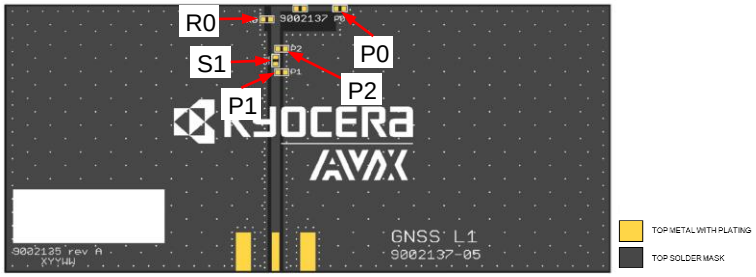
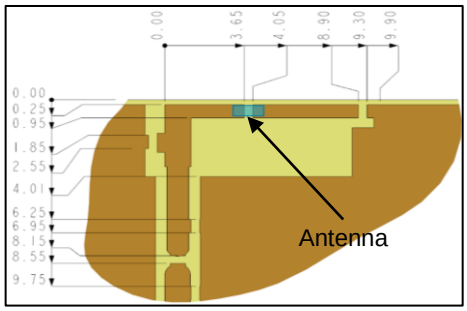
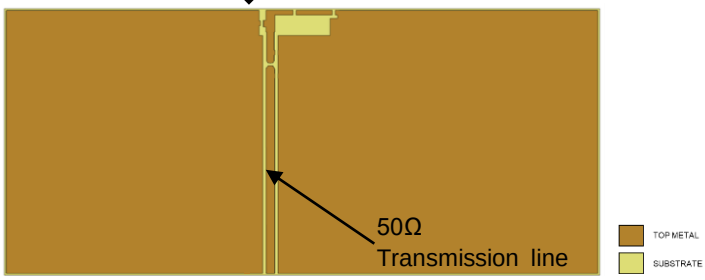
Layout (9002137-05)

Typical antenna dimensions (mm)







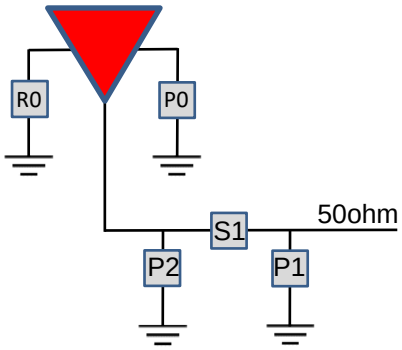


- Additional VIAS : Diam. 0.2mm to be placed around antenna, (no vias on transmission lines).
- Via holes must be covered by solder mask

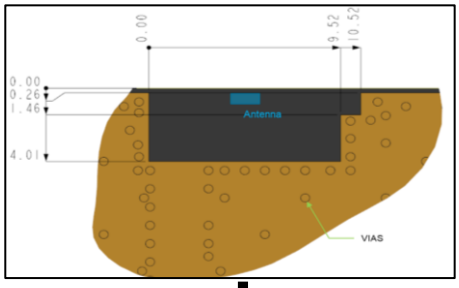
Matching Pi Network

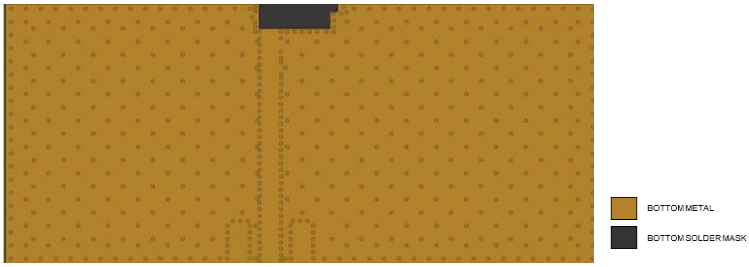
P0	R0	P1	S1	P2
82 pF	1 nH	DNI	0 Ω	DNI

*Actual matching values depend on customer design



(Antenna Matching)





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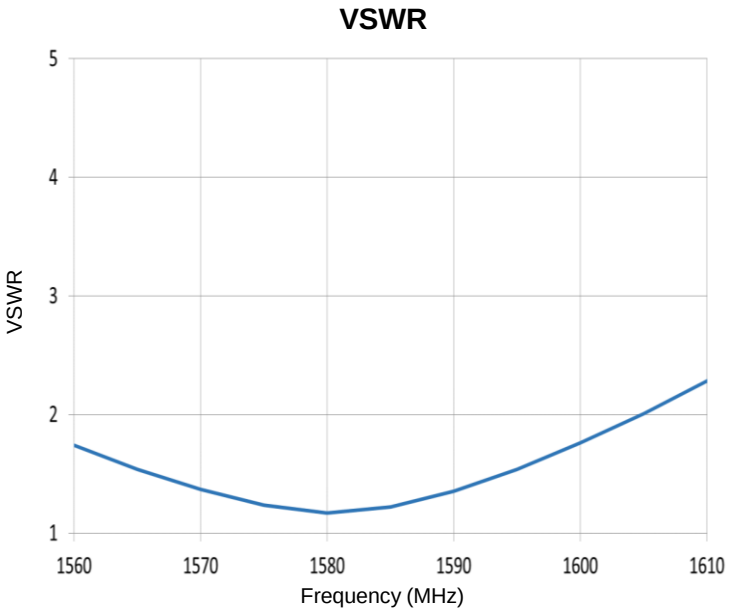
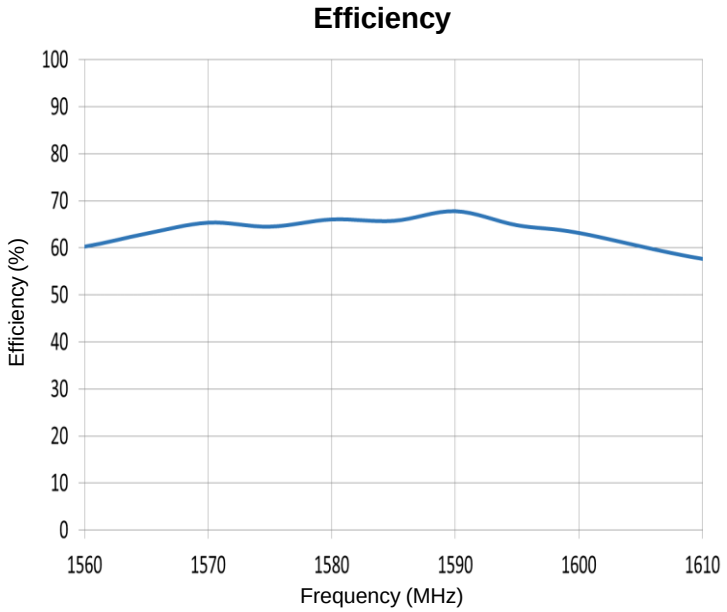
VSWR, Efficiency Plots (9002137-05)

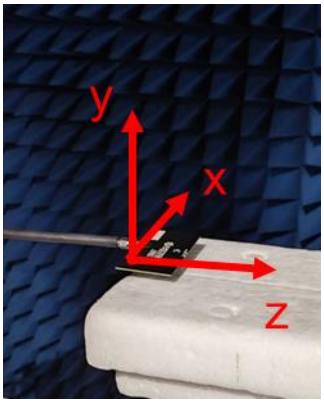
Typical performance on 80 x 40 mm PCB

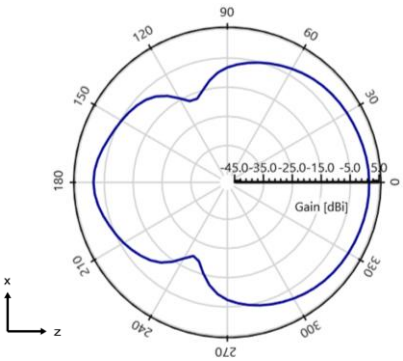


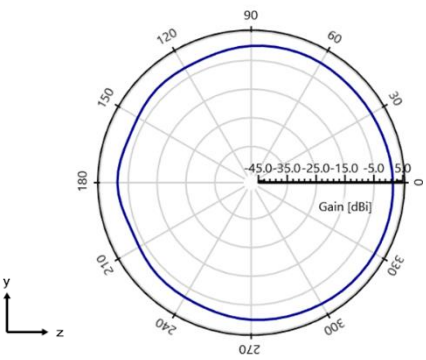


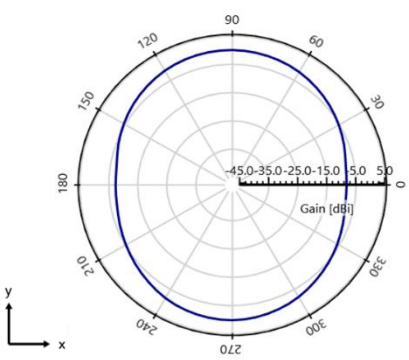
Antenna Radiation Patterns (9002137-05)

Typical performance on 80 x 40 mm PCB
Measured @ 1575 MHz









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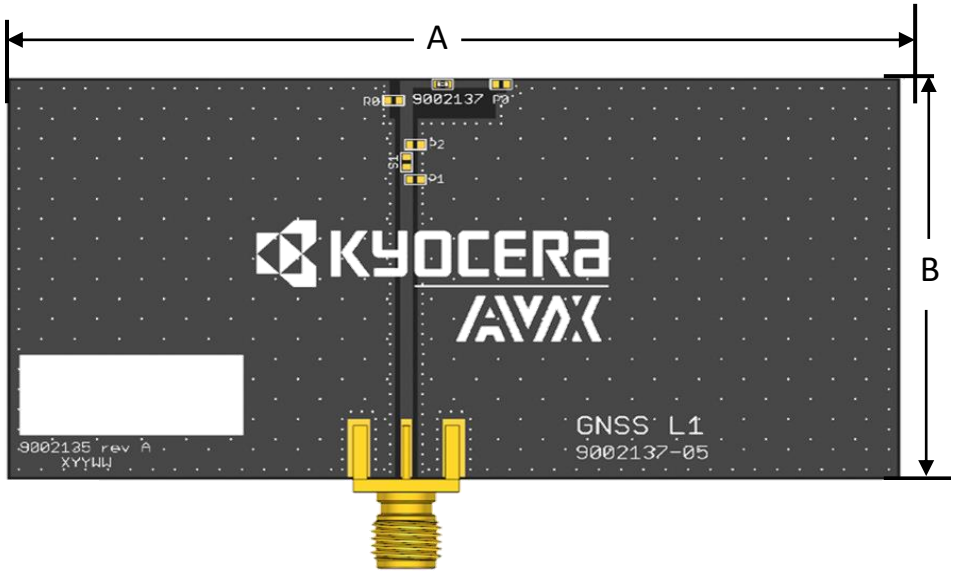
Antenna Demo Board (9002137-05)

Typical layout dimensions (mm)

Part Number	Description	A	B
9002137-05	GNSS (Beidou/GPS/Galileo/Glonass)	80.0	40.0

9002137-05



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