

Complete GNSS Solutions for Multi-Band, Multi-Constellation Positioning

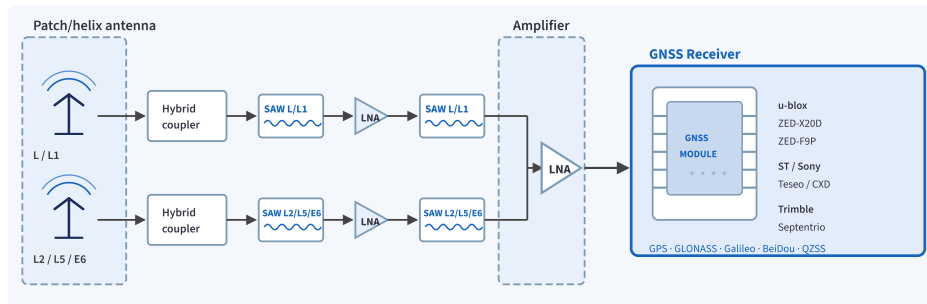


- End-to-End GNSS Signal Chain
- Phase-Center Stability for cm-Level RTK Accuracy
- Optimized for Multi-Band Accuracy (L1/L2/L5/L6)
- Low Noise Figure + High Out-of-Band Rejection

Summary

The rapid growth of drones, robotics, connected vehicles, asset tracking, and precision agriculture is driving increased demand for accurate and reliable GNSS positioning. As designs move toward multi-band GNSS and operate in increasingly crowded RF environments, engineers face challenges such as signal interference, antenna size constraints, and maintaining high sensitivity in compact devices. Abracon's GNSS portfolio addresses these challenges with high-accuracy antennas, 3 dB 90° hybrid couplers, high-rejection SAW diplexers/filters, low-noise amplifiers, and RF switches that preserve signal integrity across L1, L2, L5, and L6 bands. Fully compatible with leading GNSS chipsets and modules, these solutions help designers improve positioning accuracy, accelerate development, and deliver robust performance in next-generation navigation and tracking applications.

High-Precision GNSS System Diagram



Compatible with leading GNSS chipsets and modules:

u-blox STMicroelectronics Sony Telit Trimble / Septentrio

Applications

- UAVs and Drones
- Robotics and Autonomous Driving
- Asset Tracking and Telematics
- Real-Time Kinematic (RTK)
- Precision Agriculture

Abracon Antenna Optimization, Testing and Design Services



Antenna Optimization Service

- Part Number: ABAOS-5WK
- S-parameter measurement and impedance matching on a vector network analyzer
- Maximizes radiation efficiency, range, and link stability in the host device



Antenna Testing Service

- Part Number: ABATS-5WK
- 3D radiation pattern measurement in a multi-probe anechoic chamber
- Characterizes gain, directivity, beamwidth, and total antenna efficiency
- Validates real-world coverage, performance, and reliability



Advanced Simulation & Design

- Part Number: ABADS-5WK
- Full-wave 3D EM simulation of the antenna in the complete device environment
- Accelerates optimization and reduces design risk before prototyping

ABRACON GNSS ANTENNA SOLUTIONS

Key benefits: multi-band L1/L2/L5/L6, multi-constellation support (GPS/GLONASS/Galileo/BeiDou), compact passive & active form factors, high gain RHCP

Product Image	Part Number	Product Description	Product Features	Size (mm)	Peak Gain (dBic)	Band Coverage
	AANI-PP-0227	GNSS L1 Patch Antenna	Compact, through-hole, multi-constellation, RHCP	18 × 18 × 4	3.1	L1
	AANI-PP-0228	GNSS L1 Patch Antenna	Compact, SMD, multi-constellation, RHCP	18 × 18 × 4	4.5	L1
	AANI-PP-0237	GNSS L1 Dual-Feed Patch Antenna	Low axial-ratio, through-hole, multi-constellation, RHCP	25 × 25 × 4	4.1	L1
	AANI-PP-0229	Multi-Band GNSS Patch Antenna	Compact, through-hole, multi-constellation, RHCP	25 × 25 × 8	4.8	L1/L2/L5
	AANI-PP-0234	Full-Band GNSS Quad-Feed Patch Antenna	Low axial-ratio, through-hole, multi-constellation, RHCP	50 × 50 × 10	5.2	L1/L2/L5/L6
	AANI-AP-0200	Active GNSS L1 Patch Antenna	Compact, 15 dB LNA, multi-constellation, RHCP	18 × 18 × 6.6	2.1	L1
	APARC2511X-SGL2L5	Multi-Band Active Patch Antenna	Compact, 28 dB LNA, multi-constellation, RHCP	25 × 25 × 12	3.7	L1/L2/L5
	APXG6413GH-0600A	Full-Band Active Patch Antenna	33 dB LNA, multi-constellation, RHCP	64 × 64 × 13.4	4.7	L1/L2/L5 + L
	AANI-AH-0126	Full-Band Active Helix Antenna	360° omnidirectional, lightweight, RHCP, 33 dB LNA, multi-constellation, RHCP	Ø46 × 21.9	3.3	L1/L2/L5/L6 + L

ABRACON GNSS COUPLER SOLUTIONS

Key benefits: wideband GNSS signal splitting, low insertion loss, compact SMD footprint, enables improved antenna polarization purity, multipath rejection, and overall positioning accuracy.

Product Image	Part Number	Product Description	Product Features	Size (mm)	IL (dB)	Isolation (dB)
	ACPI-WB-0002-T	Wideband GNSS Hybrid Coupler	GNSS L1/L2/L5/L6 3 dB 90° Hybrid Coupler, 30W, 4-SMD	6.35 × 5.08 × 1.7	0.3	23

ABRACON GNSS SAW FILTER & DIPLEXER SOLUTIONS

Key benefits: high rejection of LTE/5G/Wi-Fi interference, low insertion loss, automotive-qualified (AEC-Q200), compact SMD packages, multi-band & diplexer options.

Product Image	Part Number	Product Description	Product Features	Size (mm)	Frequency Range (MHz)	IL (dB)
	AFII-SW-0071-Q-T	Automotive GNSS L1 SAW Filter	1583 MHz, AEC-Q200 GNSS L1, 5-Pads, -40°C to +105°C	1.1 × 0.9	1559 – 1606	1.0
	AFII-SW-0072-Q-T	Automotive GNSS L1 SAW Filter	1583 MHz, AEC-Q200 GNSS L1, 5-Pads, -40°C to +105°C	1.4 × 1.1	1559 – 1606	1.4
	AFII-SW-0073-Q-T	Automotive GNSS L2 SAW Filter	1227 MHz, AEC-Q200 GNSS L2, 4-Pads, -40°C to +105°C	2.0 × 1.6	1217 – 1237	1.4
	AFII-SW-0074-Q-T	Automotive GNSS L5 SAW Filter	1176 MHz, AEC-Q200 GNSS L5, 5-Pads, -40°C to +105°C	1.4 × 1.1	1166 – 1186	1.4
	ABSTS5A2-2HMM01MM	GNSS L1 SAW Filter	1582.47 MHz, GNSS L1, 5-Pads, -30°C to +85°C	1.1 × 0.9	1559 – 1606	1.2
	ABSTS5A2-22NM024M	GNSS L2 SAW Filter	1223 MHz, GPS L2, 5-Pads, -40°C to +105°C	1.1 × 0.9	1197 – 1249	1.2
	ABSTS5A2-210M011M	GNSS L5 SAW Filter	1176.5 MHz, GPS L5, 5-Pads, -20°C to +85°C	1.1 × 0.9	1164 – 1189	1.8
	AFII-SW-0094-Q-T	Automotive GNSS Dual-SAW L1/L2/L5/L6	1231 / 1567.5 MHz, Dual-SAW GNSS L1/L2/L5/L6, AEC-Q200, 6-Pads, -40°C to +105°C	1.5 × 1.1	1164 – 1299, 1525 – 1610.5	1.5
	AFII-SW-0095-Q-T	Automotive GNSS SAW Diplexer L1/L2/L5/L6	1231 / 1567.5 MHz, SAW Diplexer GNSS L1/L2/L5/L6, AEC-Q200, 6-Pads, -40°C to +105°C	1.5 × 1.1	1164 – 1299, 1525 – 1610.5	1.3

ABRACON GNSS LOW NOISE AMPLIFIER SOLUTIONS

Key benefits: ultra-low noise figure (0.5 dB), broadband L1/L2/L5 coverage (1165–1610 MHz), adjustable current from 1.5 mA, wide supply 1.2–3.6 V, 1 kV HBM ESD protection, GaAs pHEMT process.

Product Image	Part Number	Product Description	Product Features	Size (mm)	NF (dB)	Gain (dB)	Current (mA)
	ALND-WB-0013-T	Full-Band GNSS Low Noise Amplifier	L1/L2/L5, 1165 – 1610 MHz, GaAs pHEMT, 1 kV ESD, 1.2 – 3.6 V supply	1.45 × 1.0 DFN-6L	0.5 – 0.7	16	1.5 – 7.0

ABRACON GNSS RF SWITCH SOLUTIONS

Key benefits: low insertion loss, high isolation, high linearity, compact SMD footprint, automotive-grade (AEC-Q200) option, enables antenna diversity & multi-band switching.

Product Image	Part Number	Product Description	Product Features	Size (mm)	Frequency (GHz)	IL (dB)	Current (µA)
	ASWD-S2-0003-T	SPDT GaAs RF Switch	Miniaturized, top-market performer, low current	2.4 × 2.2	0.1 – 3.0	0.6	1
	ASWD-S2-0008-T	SPDT GaAs RF Switch	Low current, easy soldering, high linearity	1.0 × 1.0	0.8 – 6.0	0.45	15
	ASWD-S2-0009-Q-T	SPDT GaAs RF Switch (AEC-Q200)	Automotive-grade, high isolation, compact footprint	1.6 × 1.6	0.3 – 8.5	0.3	5