

Fidus RF designers draw from their extensive experience in diverse industries: telecommunications, aerospace and defence, consumer products, transportation, wireless devices and others, to deliver full, turn-key system designs. Fidus can assign an integrated team to your project, including system architects, hardware and PCB layout experts, FPGA, DSP and Signal Integrity/EMC specialists.

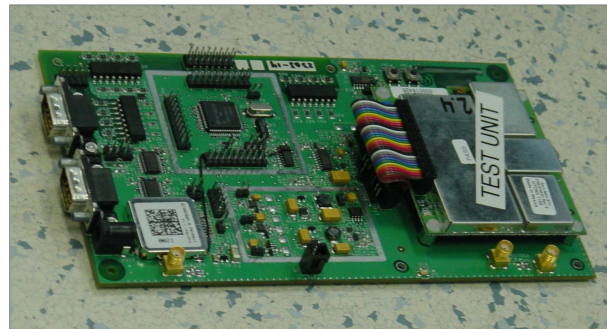
From concept to proven prototype, our designers deliver comprehensive RF systems. Designing in frequencies up to 26 GHz, our designers have expertise in diverse technologies, such as WIFI/WLAN (802.11), GSM, WiMAX® (802.16), WCDMA and CDMA, OFDM, Millimetre Wave, Software Defined Radio (SDR) and RFID.

Fidus also designs solutions to integrate RF systems with FPGAs, DSPs and switching power supplies in your product. We deliver your project on time and on budget.

Fidus RF project examples include:

- **Global Positioning System (GPS) Technology**

Fidus hardware, firmware and PCB layout designers developed this battery-powered, portable unit to receive GPS and sensor information, convert the data into a proprietary message structure and transmit the packet to a satellite network. Designed to be water resistant, the unit supported several different battery types, external sensors, and both internal and external antennae.



- **Radio Frequency Identification (RFID) Tag**

We've solved RF circuit issues in a device consisting of RFID Tags, Tag Reader and system software. As well, we've performed extensive antenna modelling for RFID applications. Our RF expertise and experience designing Software-Defined Radio products enables us to bring innovative techniques to RF design.

- **Point-to-point, K (24 GHz) band microwave link**

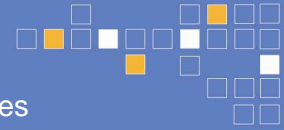
This product provides secure, extended range connectivity by transparently sending traffic over a point-to-point K band microwave link. Designed for outdoor, weatherproof applications, the device combines several diverse technologies into a single integrated system.

- **Software-Defined Radio (SDR) / Automatic Identification System (AIS) Transceiver**

This SDR device has both airborne and maritime AIS applications. A frequency-agile product, it is capable of transmitting and receiving on all authorized AIS channels. A standard NMEA 0183 data-path and proprietary control path provide the back-end interfaces. Software-defined-radio (SDR) technology, in which the VHF band is directly sampled by a high-speed analog-to-digital converter, keeps the physical size to a minimum, as well as improving the device's flexibility and agility over various frequencies. Digital processing enables the product to exceed the M.1371 analog specifications, including a very wide dynamic range.

Fidus RF specialists have experience designing:

- Antennae (802.11, Bluetooth, miniaturized hand-held, mm-wave, GPS, RFID, etc.)
- Filters, couplers, detectors, passive equalizers, switches
- Under-sampling ADC systems for direct RF digitization paired with high-speed DACs for transmission
- Modulators and Demodulators (FSK, GMSK, QAM/QPSK, OFDM, CMDA, etc.)
- Power amplifiers with transmit power control and transmit spectral mask conformance
- Receivers containing AGC loops and variable attenuators
- Low phase noise PLLs/Synthesizers and DDS sources
- Specific Absorption Rate (SAR) computation from wireless transmitters (RFID, cell phones, etc).



In-house design and verification utilizing:

- Spectrum Analyzers
- Arbitrary waveform generators
- Multiple RF signal generators for interferer and intermodulation tests
- Vector Network Analyzer with complete S-Parameter capabilities
- Multi-channel high-speed oscilloscopes
- Specialized AIS test transceivers paired with COTS receivers
- Design and simulation systems comprising Spice, Ansoft HFSS, MATLAB and Simulink, with connectivity into ModelSim for digital processing needs
- Signal integrity tools, including: Hyperlynx, and SPECCTRAQuest.

From targeted consulting to turn-key design, Fidus helps you take your RF product to market:

- From system architecture to board design, circuit simulation, PCB layout, schematics and gerbers
- Component and system characterization (measured or simulated) including full S-parameters, gain and noise figure optimization
- Shielded designs for both compliance and sensitive signal preservation
- Fully documented Design Validation and Functional Testing.

About Fidus Systems

Fidus Systems Inc. develops high-speed electronic products for a wide range of industries including aerospace and defence, consumer, industrial, medical, security, semiconductors and telecommunications. Fidus has extensive design experience in turnkey product development and technical knowledge in System Design & Architecture, Wireless/RF, Signal Integrity/EMC, Hardware, PCB Layout, DSP/FPGA/ASIC, Software/Firmware and Mechanical design. As a trusted design partner, Fidus offers companies greater flexibility and capability in their product development with access to the expertise, process and tools to successfully move their products to market. Fidus has delivered on more than 750 products and projects for 180 customers across North America.

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