iDirect Government

RESILIENT. SECURE. INNOVATIVE.

# 450SDM Spec Sheet

Today's military forces operate in increasingly dispersed and complex environments, requiring a single, adaptable software defined appliance that delivers flexibility, resilience, and security—empowering users at the tactical edge with unmatched operational agility. iDirectGov's 4-Series Software Defined Modems (SDM) fills this void with its unique architecture that provides a multi-orbit, multi-waveform solution while maintaining the highest security standards.

## Flexible

The 4-Series SDMs utilize an open standards architecture to support multiple modes optimizing performance, cost and SWaP. By using a system-on-module approach for the common compute platform, users have the benefit of off-the-shelf hardware with the flexibility to host multiple applications in the most efficient way. New applications include satellite waveforms, interference excision with iDirectGov's Communication Signal Interference Removal (CSIR) technology, and a FIPS-140-3 Level 3 approved AES Cryptographic Core.

Applications are integrated into the platform via the WCore interface. The WCore allows for both iDirectGov hosted applications as well as 3rd party applications. This integration is accomplished using iDirectGov's WCore Waveform Development Kit (WDK), which provides the software and ICDs required for integrators to develop onto the platform while maintaining their Intellectual Property (IP).

### Supported Applications:

- Satellite Waveforms
  - Evolution Defense
  - Velocity
  - Intuition Defense
  - MIL-STD-188/165B (EBEM)
- Other Applications
  - CSIR
  - FIPS 140-3 Level 3 Cryptographic Core

## Resilient

The multi-technology architecture allows 4-Series SDM users to switch between satellite service providers seamlessly by storing an encrypted archive file for each mode. Archive files contain the necessary configuration needed to connect to a specific network. This enables a simplified commissioning process as all calibration and commissioning measurements are stored securely within the 4-Series SDMs. Should an external a third-party satellite modem be needed to meet mission requirements, the 4-Series SDMs can switch from a multi-waveform mode to a stand-alone CSIR appliance to provide interference excision capabilities to the external modems.

## Secure

4-Series SDMs are designed around Zero Trust Architecture (ZTA) common practices including micro watermarks and a fabrication process to ensure wafers have not been compromised. The 4-Series also employs a unique 2D barcode device DNA, this provides instant verification of the device delivered back to the wafer it was manufactured from.

The 4-Series deploys a secure boot technology providing constant verification that all applications installed onto the platform are authentic and digitally signed with an iDirectGov digital signature.

The System on Module design implemented on the 4-Series creates a logical boundary between the secure and nonsecure environments contained on the FPGA. By creating a "digital fence" the FIPS 140-3 Level 3 certification is maintained should any modifications be made outside the secure environment.

Built for security and performance, the 4-Series SDMs deliver TRANSEC-compliant network architecture that goes beyond U.S. government standards while providing exceptional quality for voice, video, and data over satellite links.

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# 450SDM

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## NETWORK CONFIGURATION

| | |
|---|---|
| Compatibility | Multi-waveform - Evolution Defense, Velocity[1] |
| Maximum Rates (Symbol) | TX: 125 Msps<br>RX: 125 Msps |

## INTERFACES

| | |
|---|---|
| SATCOM Interfaces | Tx: SMP/SSMA, 950-2450 MHz, 0dBm, 50Ω , software controllable 10/50 MHz reference<br>Rx: SMP/SSMA, 950-2450 MHz, -5dBm (max) composite/ -130+10*log (Sym rate) dBm (min) single carrier, 50Ω |
| Available BUC Power (IFL) | +24 VDC nominal, 2 A max |
| Available LNB Power (IFL) | +13 VDC to +19 VDC, 0.45 A max |
| Data Interfaces | Dual RJ Point Five 10/100/1000 Mbps Ethernet |
| I/O | SGMII Integrator Port, RS-232 Serial NMEA GPS input, RS-422 Keyline, RS-422 BUC control, RS-422 Filter Select |
| Protocols Supported | TCP, UDP, ICMP, IGMP, RIPv2, Static Routes, NAT, DHCP, DHCP Helper, Local DNS Caching, OpenAMIP, OpenBMIP, cRTP |
| Security | TRANSEC, X.509 Digital Certificates, Automatic Key Management, CSIR, SHIELD |
| Traffic Engineering | Group QoS, QoS (Priority Queuing and CBWFQ), Strict Priority Queuing, Application Based QoS, Minimum CIR, CIR (Static and Dynamic), Rate Limiting |
| Other Features | Built-in Automatic Uplink Power, Frequency and Timing Control, Authentication, High-Speed COTM, 22 kHz DiSEqC tone |

## MECHANICAL/ENVIRONMENTAL

| | |
|---|---|
| Size | W 3.70 in x D 6.00 in x H 1.25 in (W 9.40 cm x D 15.14 cm x H 3.18 cm) |
| Weight | 1.22 lbs (0.55 kg) |
| Temperature | Operational: -40° to +140°F (-40° to +60°C); Storage: -40° to +185°F (-40° to +85°C) |
| Altitude | Operational: Up to 15,000 ft (4,572m); Storage: Up to 40,000 ft (12,192m) |
| Humidity | 95% non-condensing humidity |
| Input Voltage | 12-24VDC |
| Power Consumption | 26W at 12V input voltage (typical at 22°C ambient temperature) |
| Certifications | WGS Pending, FIPS 140-3 Level 3 Pending |
| Compliance | Designed and tested to MIL-STD 810H for vibration, shock, temperature, humidity, and altitude, RoHS |

[1]More waveforms in the future

Unless otherwise specified, the information given above is software dependent. The activation of some features may require a license or subscription. Integrators are responsible for certifications at the terminal level. For more information, please contact your sales representative.

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