Welkin Sciences

DIFI Digital IF Vector Analyzer (DIVA-D)

Meet your test, validation, and troubleshooting needs

The DIFI Digital IF Vector Analyzer (DIVA-D) includes a 100 GbE network interface that supports IEEE-ISTO Standard 4900-2021: Digital IF Interoperability Standard, up to version 1.2.1. The DIVA-D unit's test and analysis capabilities form a potent solution for your test, validation, and troubleshooting needs, enabling you to analyze the flow of DIFI packets in a network while examining the signals transported by those packets. This unique capability is an effective asset for packet inspection on the testbench as well as in deployed DIFI transport networks.

WS-SYS-DIFI-DIVA

Features & Benefits

Interface	• DIFI v1.2.1 signal transport, Dual port 100/50/25/10 GbE, QSFP-28 with support for other transceivers via an adapter. • DPDK 21 for kernel network interface bypass. Operation in promiscuous mode to monitor non-destination traffic. • ARP and ICMP are supported. • Web browser control interface. • Pyro5 remote Python API for automated testing.
Monitor	• Overview of all streams on interface with drilldown on selected stream. • Observe traffic statistics with detection of dropped packets. Report on malformed packets. • Display information in stream context packets. Signal capture to files is also supported.
Analyze	• Payload extraction for all DIFI bit-widths and packet sizes. • Digital spectral analysis. • Supports display of I/Q histogram to monitor signal dynamic range and risk of sample overflow.

Now available to U.S. Government customers
on GSA contract 47QTCA19D0035

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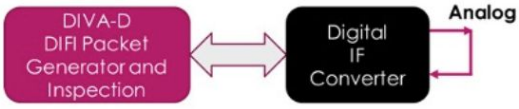
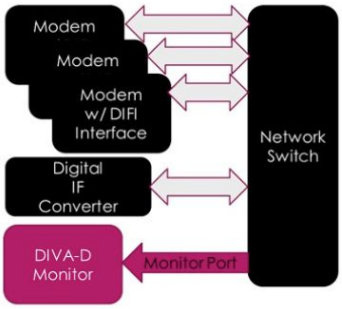
Options

Phase Noise Option	• Single sideband phase noise PSD from Rsamp/2 down to 1 Hz. • Integrated phase noise calculator. Comparison to arbitrary phase noise mask. • Phase noise PSD measured up to 500 MHz.
Demodulation Option	• Demodulate standard linear modulations with displays of constellation diagram and error-vector magnitude. • Es/No measurement. • Support for blind demodulation, adaptive or fixed-tap equalization.
Transmit Option	• Low-jitter Signal Data DIFI Information Stream Producer (Signal Data and Context). • Signals supported include multi-carrier M-PSK & M-APSK, multi-tone with Low PAPR. • Adjustable Signal Payload Size from 72 to 8944 bytes. Bit-width adjustable from 4 to 16 bits. • Maximum signal sample rate of 93 Gbps, or 2.9 Gsps at bit depth 16 and MTU 1500.

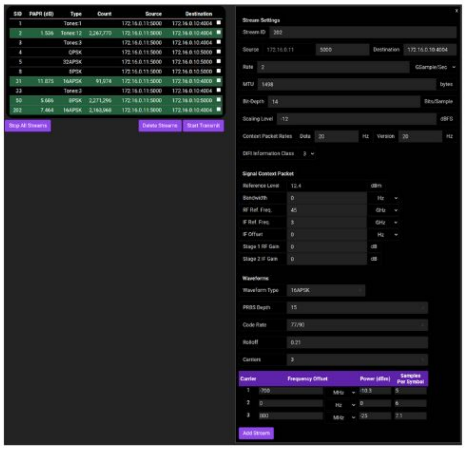
Channel Simulation Option	• Modifies existing DIFI streams to impart various channel effects.
	  ○ Doppler shifts
	  ○ Time-varying attenuation
	  ○ Additive White Gaussian Noise (AWGN)
	  ○ Periodic packet drops in network



Standalone Device Testing with DIVA-D



Monitoring DIFI Network Traffic with DIVA-D



Transmitting Multiple DIFI Signal Data Streams with DIVA-D