

DSA DOCSIS[®] Signal Analyzer



At a glance

The Calian DSA enables high-fidelity, real-time analysis of DOCSIS signals and spectrum analysis to give users a better understanding of their networks. Downstream DOCSIS 4.0 OFDM and legacy SC-QAM carriers can be received, while upstream OFDMA and ATDMA burst carriers are also supported.

Real-time BER analysis and MER measurements over time are sure to capture transient issues in cable networks since every sample is received and processed. Constellation display and IQ density display features provide critical information in understanding why a carrier might be degraded. Channel analysis measurements help pinpoint the cause of performance issues.

Symbol synchronous spectrum measurements offer high fidelity adjacent channel power measurements. The feature rich spectrum analyzer allows RF measurements to be made with the same device providing instrumentation grade receiver diagnostics.

The Calian DSA offers a variety of advanced and unique features such as Dynamic Upstream Analysis mode which receives downstream DOCSIS carriers to lock to upstream burst traffic from Cable Modems at any part of an operator's network.

The Calian DSA can make upstream performance measurements from a high-fidelity, remote located Calian SFD test generator to characterize the upstream in your networks. When the Calian SFD and DSA are paired they can range cable modems to verify and test the upstream DOCSIS cable modem transmission to verify modems in manufacturing environments.

Benefits and key features

Downstream signal analysis

- DOCSIS 4.0 OFDM carriers up to 1.8GHz
- ITU J.83A/B/C carriers

Upstream signal analysis

- DOCSIS OFDMA and ATDMA burst reception

Carrier measurements

- Long term BER measurements
- MER constellation plots and measurements over time
- IQ density plots
- DOCSIS carrier timing analysis
- Channel response measurements

Advanced network analysis modes

- DOCSIS cable modem ranging
- Static Upstream Analysis when paired with the Calian SFD
- Dynamic Upstream Analysis to detect and measure the performance of upstream carriers from any part of your network

User interfaces

- Intuitive 10.1" touch screen display
- Remote desktop accessible
- Machine programmable with a full set of SCPI commands

Specifications in brief

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RP parameters		
Frequency range	Downstream with J.83 QAM	47 MHz to 1794 MHz
	Upstream (model DSA-USDS only)	5 MHz to 204 MHz
Level	Downstream per 24 MHz	Up to 67 dBmV (+18 dBm)
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MER (downstream)	47 MHz to 600 MHz	≥ 50 dB
	600 MHz to 1000 MHz	≥ 48 dB
	1000 MHz to 1794 MHz	≥ 47 dB
	With SC-QAM, 100 MHz to 1200 MHz	≥ 56 dB
Spectrum analyzer		
Level accuracy		±0.5 dB at +25 °C
Resolution bandwidth		10 Hz to 3 MHz, zero span
Downstream demodulation		
Legacy DOCSIS (SC-QAM) J.83 A/B/C	In line with CM-SP-PHYv3.0, CM-SP-DRFI and ITU-T J.83	
Symbol rate		0.4 Msymbol/s to 7.2 Msymbol/s
Constellation		4QAM to 256QAM (J.83A/C up to 1024QAM)
DOCSIS OFDM	In line with CM-SP-PHYv3.1	
Bandwidth		Up to 192 MHz
FFT modes		4k, 8k
Constellation		16QAM to 16384QAM
Upstream demodulation		
Legacy DOCSIS A-TDMA	In line with CM-SP-PHYv3.0	
Symbol rate		1.28 Msymbol/s to 5.12 Msymbol/s
Constellation		QPSK to 256QAM, DQPSK, DQAM16
DOCSIS OFDMA	In line with CM-SP-PHYv3.1	
Bandwidth		Up to 96 MHz
FFT modes		2k, 4k
Constellation		QPSK to 2048QAM
General data		
Screen		10.1" touchscreen
Resolution		1280 × 800 pixel
Dimensions	W × H × D	358 mm × 196 mm × 411 mm (14.1 in × 7.7 in × 16.2 in)
Weight		≤ 7.5 kg (16.5 lb)