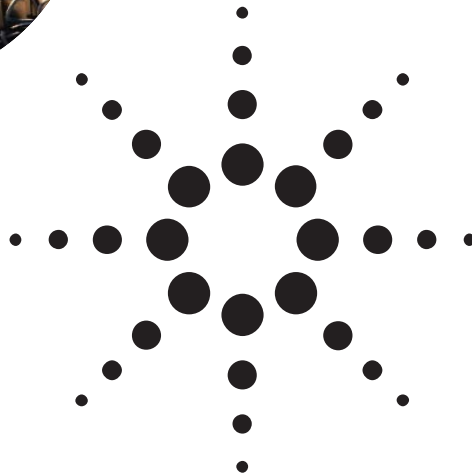
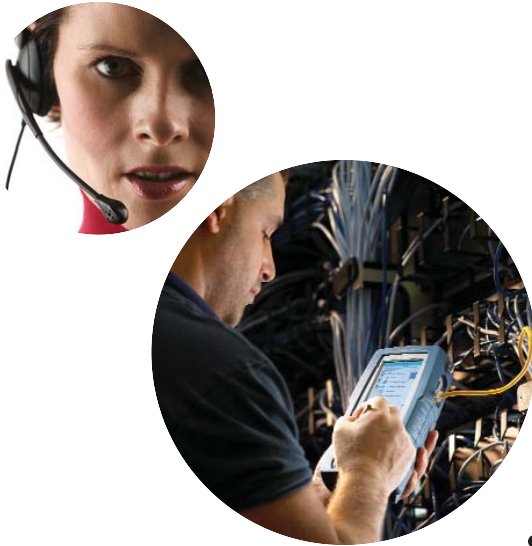


# Agilent N2620A FrameScope™ Pro

## More Efficient VoIP Service Turn-Up and Gigabit Ethernet Troubleshooting

### Features and Benefits

- Quickly and easily qualify your network for voice services.
- Measure Quality of Service with unambiguous MOS and R-factor values.
- Test call setup and control with or without a SIP server in place.
- Optional two-port configuration for simultaneous traffic generation and VoIP testing.
- Highly capable troubleshooting tool for network administrators to pinpoint potential network performance issues.
- Remote control via any web browser allows central troubleshooting, monitoring, and reporting.
- Lightweight, handheld solution with generous battery life for greatest flexibility and mobility.



### Efficient VoIP Service Turn-Up

FrameScope™ Pro provides technicians deploying voice over IP (VoIP) services with a fast and efficient testing solution to qualify the voice readiness of Ethernet networks. In addition to setting up and controlling calls, FrameScope™ Pro delivers quality of service (QoS) measurements based on operator-independent criteria. Network troubleshooting and autodiscovery functions, and the optional network performance analysis function, make the FrameScope™ Pro a highly valuable tool for network administrators.

Equipped with an RJ45 port for copper networks (10/100/1000BASE-T) and an SFP (1 Gbit/s, Small Form-factor Pluggable) interface for fiber networks, the FrameScope™ Pro covers line rates from 1 Mbit/s to 1 Gbit/s.

### Call Setup and Call Control

FrameScope™ Pro VoIP is capable of setting up and controlling SIP (RFC 3261) calls. Acting as a SIP phone, it can initiate a call on demand, or it answers an incoming call automatically and then plays back a loop of pre-recorded speech/tone.

### R-Factor & MOS Calculation (ITU-T G.107)

During VoIP transactions, FrameScope™ Pro periodically calculates MOS (Mean-Opinion Score) and R-Factor (Network-based), based on the RTCP and audio codec information collected. The display indicates the actual voice quality. These calculations are based on the ITU-T G.107 standard for measurement of QoS for VoIP.

### PPPoE

FrameScope™ Pro VoIP supports PPPoE (Point-to-Point Protocol over Ethernet) for VoIP

performance testing. PPPoE relies on two widely accepted standards: PPP and Ethernet. PPPoE features help facilitate testing for Service Providers and Cable Operators employing cable modems and DSL services. PPPoE allows a virtual 'dial in' to other Ethernet equipment and makes a connection which is used to transport IP packets, based on features of PPP.

### Audio Input and Output

To provide an impression of the transmission quality, FrameScope™ Pro VoIP can play back and transmit audio files that have been pre-recorded in 8 kHz/ 16 bit/ Mono format. Received sound can be directed to the instrument's speaker or to a headset connected to the FrameScope™ Pro. In addition, the instrument can act as a SIP phone using the headset's microphone.



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### **RFC 2544 Performance Benchmark Testing** (*\*Available as an option*)

The FrameScope™ Pro is a powerful Ethernet deployment tool capable of throughput, latency, back-to-back frames and frame loss measurements for SLA verification and performance testing. It uses a standardized point-to-point testing method defined by RFC 2544. The test results can be stored on the included CompactFlash™ card or viewed, transferred and printed via the remote interface.

### **Autodiscovery and Network Autotest**

FrameScope™ Pro Autotest uses an innovative technique to objectively measure and benchmark the performance of network application servers, and produces detailed reports on the performance metrics.

This unique feature is useful for both troubleshooting and network pre-qualification. Using the network database that is populated by the Autodiscovery function, rogue stations can be found and identified.

### **Report Generation and Remote Control**

For documentation and certification purposes, hardcopy reports of the VoIP test results can be produced using the instrument's built-in web server interface. The web interface includes a real-time view of the instrument's display and allows for remote control of all functions.



## FrameScope™ Pro VoIP Specifications

### **Test Interfaces**

- 10/100/1000BASE-T copper interface.
- Supported SFP fiber interfaces: SX and LX.
- 100BASE-FX through optional media converter.

### **Supported Protocols**

- IP, IPX, NetBIOS.

### **Supported Tests**

- VoIP performance testing based on R-Factor and MOS Calculation (ITU-T G.107).
- Use of RTCP to provide feedback on quality of service being provided by RTP.
- Supports audio codecs ITU-T G.711  $\mu$ -Law, G.711 A-Law.
- Ping, Trace Route and SNMP Queries, verify connectivity to user-defined devices.
- Statistical analysis of the network condition.
- Traffic Generator up to full line rate at 10/100/1000 Mbit/s speeds.
- Optional RFC 2544 tests for measurement of throughput, latency, back-to-back frames and frame loss at full 1 Gbit/s line rate.
- VLAN tag and priority fields are configurable.
- QoS IP TOS and DSCP settings are configurable.

- IP and MAC Loopback functions measure precise roundtrip delay at layer 2 (MAC) or layer 3 (IP).
- Locate Switch Port & Blink Hub Port tools locate live network cable connections.
- Optional Wiremap test function to locate miswires using the Wiremap adapter.

### **Recommended Accessories**

- N2620A-050 - Multimode SFP Transceiver, 1000BASE-SX
- N2620A-051 - Single Mode SFP Transceiver, 1000BASE-LX
- N2620A-053 - 100BASE-FX Media Converter
- N2595A-096 - Rechargeable Battery Pack
- N2620A-080 - Universal AC Adapter
- N2605A-090 - Accessory Kit (Replacement stylus, strap set, PCMCIA II dummy card, display cover & dust caps)
- N2595A-094 - Auto Lighter DC Power Adaptor

### **Ordering Information**

N2620A-003 - FrameScope™ Pro with headset

N2620A-030 - SIP RFC 3261 signaling protocol support (required for VoIP test)

N2620A-031 - Optional FrameScope™ Pro RFC 2544 test function

*Must choose one from:*

N2620A-040 - Wiremap port for Wiremap testing (includes Wiremap Adapter)

N2620A-041 - Auxiliary 10/100 Mbit/s Ethernet Port for remote control across another network

### **VoIP Test Upgrade for N2620A-001 FrameScope™ Pro Ethernet**

N2620A-030 - FrameScope™ Pro VoIP test license, standard SIP RFC 3261 signaling protocol support.

N2620A-060 - Headset with microphone and volume control.

For more information refer to the FrameScope™ Pro VoIP Data Sheet 5989-3852EN.

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