Sage 925VST
Test Specifications
Echo Sounder and Echo Generator

Purpose and Functions

Echo is one of the most important quality of service parameters on a telephone network. The Sage Instruments echo test suite includes a complete set of tools to characterize the level and delay of echoes anywhere on a network. It provides an objective measurement of this important aspect of overall voice quality.

The Sage echo test suite includes two test functions:

- Echo Sounder
- Echo Generator

Echo Sounder

The Sage Echo Sounder test measures multiple echoes on any telephone call. Results display in real time on the Sage 925VST display.

For each echo, Echo Sounder reports:

- Round trip delay
- Round trip attenuation

Echo Generator

The Sage Echo Generator creates multiple echoes with programmable echo delay and echo level. When combined with Echo Sounder, Echo Generator facilitates echo canceller tests. Echo Generator operates in responder mode: it automatically answers test calls and returns programmed echoes. An operator can remotely change the level or delay of the generated echo signal via DTMF commands.

Echo Generator features include:

- Programmable echoes
- Programmable levels
- Global echo disable in manual mode
- Facilitates echo canceller tests

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Echo Sounder

Echo Canceller Disabler Tone

Frequency	2100 Hz ±0.1 Hz
Level	-12 dBm ±0.5 dB
Phase Reversal	every 450 ms ±1 ms
Phase Jump	180°

Echo Level Measurement

Measurement Range	-50 dB to 20 dB, ±1 dB

Echo Delay Measurement

2-Wire Analog	7 ms to 500 ms, ±1 ms
4-Wire	0 ms to 500 ms, ±1 ms

Test Results

The Sage test set displays and updates the decibel level and delay of up to two echoes as they occur during a telephone call.

Echo Generator

Level Range and Accuracy

Analog 2-wire	-40 dB to 9 dB, ±0.5 dB
Analog 4-wire	-60 dB to 9 dB, ±0.5 dB

Delay Range and Accuracy

Analog 2-wire and 4-wire	16 ms to 600ms , ±0.5ms

First Default Echo (On)

Default Level	-10 dB
Default Delay	30 ms

Second Default Echo (Off)

Default Level	-6 dB
Default Delay	250 ms

Responder Mode Test Duration

Default	300 seconds (range 0 to 99,999 seconds)

DTMF Digit Acceptance

Timing (minimum)	50 ms ON, 50 ms OFF
Frequency Error (maximum)	±10 Hz
Received Power Level	greater than -30 dBm

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