Sage 935AT and 930i Test Specifications

PVIT and PSQM
Next Generation Voice Tests

Next Generation Voice Tests

The Sage Next Generation Voice Tests on the 935AT and 930i include:
- Packet Voice Impairment Test (PVIT)
- Perceptual Speech Quality Measurement (PSQM)

Next Generation voice tests are ideally suited for quality of service testing over packet switched networks, including:
- Voice over the internet (VoIP)
- Voice over digital subscriber line (DSL)
- Voice over asynchronous transfer mode (ATM)
- Voice over frame relay (FR)
- Voice over hybrid fiber coax (HFC)

PVIT Description

PVIT provides detailed diagnostic information about events that impact voice clarity over packet switched networks, including:

- •Voice frame losses
- •Voice frame slips (also know as jitters)
- •Voice clippings
- •Noise hits

PVIT works by sending a complex test signal over the network, and measuring events that degrade that signal. The test:

- •Measures four types of impairment events
- •Displays cumulative event counts in real time
- •Displays details about events as they occur
- •Accumulates data over the test period

PVIT Specifications

PVIT Signal

The PVIT signal is a carrier-modulated spread spectrum signal with silence insertion.

Active Signal Bandwidth	1000 Hz
Active Signal Center Frequency	1000 Hz
Active Signal Peak to RMS Ratio	5 dB
Active to Silence Period Ratio	65/35
PVIT Signal Send Range	-40 dBm to -3 dBm
PVIT Signal Measurement Range	>-30 dBm to 0 dBm
Test Duration	15 minutes, 1 hour, 24 hours, or continuous (NOTE: The continuous duration operates for up to 1000 hours)

PVIT Measurement Precision

Voice Frame Loss	±2 ms
Voice Frame Slip (jitter)	±0.5 ms
Voice Clipping	±2 ms
Noise Level	±1 dB
Percentage Voice Frame Loss	±10% of actual percentage of frame loss

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Specifications May Change Without Notice
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PSQM Description

The Sage Perceptual Speech Quality Measurement is an objective, quantitative test of voice quality that uses an artificial voice test signal. Voice characteristics in the test signal include:

- •Long term average spectrum
- •Short term spectrum
- •Instantaneous amplitude distribution
- •Voice and unvoiced structure of speech waveform
- •Syllabic envelope

The Sage PSQM test is based on ITU standard Part 861, and correlates with traditional Mean Opinion Score (MOS) results.

PSQM Specifications

Send

Artificial voice	per ITU-T P.50
Active Speech Level	-20 dBm
Genders	male and female
Talk Speed	slow, medium, fast

Measure

Round Trip Delay	0 to 8000 ms, ±0.2 ms
PSQM	0 to 6.5, ±.2
MOS	1 to 5, ±.2
Gain	-30 dB to 10 dB, ±0.5 dB

Test Duration

Default	10 seconds
Duration Range	1 to 16 seconds

Transmission Level Point

Send TLP Default	0 dBm
Valid Send Values	-30 dBm to +10 dBm
Receive TLP Default	0 dBm
Valid Receive Values	-30 dBm to +10 dBm