Sage 935AT and 930i
Test Specifications

SMOS Test Line

Sage Mean Opinion Score Test Line

The Sage Instruments Mean Opinion Score (SMOS) test line provides an accurate assessment of how telephone users perceive speech quality over a live VoP network. SMOS provides a comprehensive set of measurements that pertain to all aspects of voice quality.

The SMOS test uses a robust algorithm to deliver accurate results in the presence of jitters, band limitations, and dropouts, producing both near-to-far and far-to-near measurements in a test line director/responder format.

SMOS Measurements

Clarity - Mean Opinion Score (MOS)

Effective Bandwidth - percentage of bandwidth available in the 300 Hz to 3400 Hz range

Voice Frame Slips - compressive and expansive jitters in milliseconds

Comfort Noise Level - measured in dBrnC during silent period

Gain - audio level change measured in dB

Codec Type - detects and reports codec type used

Delay - round trip measured in milliseconds

Call Completion Time - completion time measured in seconds

SMOS Specifications

SMOS Signal

Artificial Voice	per ITU-T P.50
Active Speech Level	-20 dBTLP

SMOS Measurement	Range	Accuracy
MOS	1.00 to 5.00	+/- .05
Noise	0 to 90 dBrnC	+/- 1 dB
Frame Slips	0 to 2000 msecs	+/- 1 msec
Effective Bandwidth	0.0 to 99.9%	+/- .2%
Gain	-80 to +20 dB	+/- 1 dB
Delay	0.0 to 5000.0 msec	+/- .2 msec
Codec	*see "Codec Types Detected"*	tolerates up to 15% packet loss

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SMOS Specifications, continued

Codec Types Detected

SMOS Test Result	Codec Type Description
VCD4K	Sub-4kbs vocoders
VCD8K	5-8kbps vocoders
VCD16K	12-16kbps vocoders
ADPCM16	16kbps G.726 ADPCM
ADPCM24	24kbps G.726 ADPCM
ADPCM32	32kbps G.726 ADPCM
ADPCM40	40kbps G.726 ADPCM
ADPCM	G.726 ADPCM with unknown data rates
PCM	G.711 μ/A-law PCM or pure analog
UNSURE	Distortion prevents codec type detection

SMOS Test Parameters	Range	Default
Test Duration	3 to 60 seconds	10 seconds
Send TLP	-30.0 to +10.0 dBm	0.0 dBm
Receive TLP	-30.0 to +10.0 dBm	0.0 dBm

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