

KEYSIGHT TECHNOLOGIES (AGILENT HP)

4935A

The Keysight Technologies (formerly Agilent / HP) 4935A is an industry-standard Transmission Impairment Measuring Set (TIMS) designed for wideband data and voice line testing. It offers comprehensive testing capabilities, covering transmitter and receiver measurements from 20 Hz to 110 kHz.

SPECIFICATIONS

General

Display	Dual 4-digit LED displays
Monitor Speaker	Built-in speaker with front-panel volume control for audio monitoring of the line

Physical

Power Supply	100 / 120 / 220 / 240 VAC (+10%, -13%), 48 to 66 Hz; optional internal rechargeable battery
Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	284 mm × 133 mm × 343 mm mm
Weight	5.4 kg kg

Transmitter

Transmitter Frequency Range	20 Hz to 110 kHz
Transmitter Frequency Resolution	1 Hz (20 Hz to 9999 Hz), 10 Hz (10.00 kHz to 99.99 kHz), 100 Hz (100.0 kHz to 110.0 kHz)
Transmitter Frequency Steps	1, 10, 100, 1000, or 10000 Hz
Transmitter Fixed Stored Frequencies	404 Hz, 1004 Hz, 2713 Hz, 2804 Hz
Transmitter User-Programmable Frequencies	4 temporary frequency registers
Transmitter Output Level Range	-40 to +13 dBm
Transmitter Output Level Resolution	0.1 dB
Transmitter Noise-with-Tone Frequency	1004 Hz (fixed tone)
Transmitter 3-Level Impulse Noise Frequency	1004 Hz (fixed tone) or quiet terminated (filter dependent)
Transmitter Optional P/AR Frequency	Complex pulse train of 16 frequencies between 140 Hz and 3890 Hz
Transmitter Optional P/AR Level Range	-40 to 0 dBm
Transmitter Optional P/AR Level Resolution	1 dB

Receiver

Receiver Frequency Range	20 Hz to 110 kHz
Receiver Level Range	-60 to +13 dBm
Receiver Level Resolution	0.1 dB
Receiver Noise-with-Tone Notch Filter Rejection	>50 dB (995 Hz to 1025 Hz)
Receiver Noise-with-Tone Range	10 to 100 dBrn
Receiver Signal-to-Noise Ratio Signal Level Range	-40 to +13 dBm
Receiver Signal-to-Noise Ratio Range	10 to 45 dB
Receiver 3-Level Impulse Noise Level Range	-40 to +13 dBm
Receiver Optional P/AR Range	0 to 120 P/AR units
Receiver Optional P/AR Level Range	-40 to +3 dBm
Receiver Optional P/AR Resolution	1 P/AR unit

Line Interface

Line Termination Impedances	135, 600, 900 ohms
Receiver Bridging Impedance	>50 kohms
Loop Holding Current	≥ 20 mA (typically 24 mA)
Line Connectors	WECO 310 (3-pin) jacks for Transmit, Receive, and Dial

Transmitter Specifications

Transmitter Frequency Accuracy	±0.005%
Transmitter Level Accuracy (1004 Hz)	±0.1 dB (at 0 dBm)
Transmitter Level Accuracy (300 Hz to 110 kHz)	±0.2 dB (relative to 1004 Hz)
Transmitter Output Distortion and Noise	At least 50 dB below fundamental at 1004 Hz (0 dBm)

Receiver Specifications

Receiver Frequency Measurement Accuracy	±0.005% of reading ± 1 Hz
Receiver Level Accuracy (1004 Hz)	±0.1 dB (from 0 to -40 dBm)
Receiver Level Accuracy (300 Hz to 110 kHz)	±0.2 dB (from 0 to -40 dBm)
Receiver Noise Filters	C-Message, 3 kHz Flat, 15 kHz Flat (or Program with Option 003 / 50 kbit with Option 004)

Impulse Noise Measurement

Impulse Noise Dead Time	125 ms
Impulse Noise Count Rate	Maximum 8 counts/second
Impulse Noise Timer	1 to 99 minutes or continuous
Impulse Noise Thresholds	Low threshold selectable from 30 to 109 dBrn in 1 dB steps; Mid threshold is 4 dB above Low, High threshold is 8 dB above Low

Power Options	
Battery Operation	Up to 5 hours of continuous operation (with Option 001 Battery Pack)
Inputs & Outputs	
DC Blocking	Up to 200 Vdc on receiver and transmitter ports
Power	
Battery Operating Time	Up to 5 hours (Option 001)
Environmental	
Storage Temperature	-40°C to +75°C (without batteries)
Operating Humidity	Up to 95% RH at 40°C
Receiver Specs	
Impulse Noise Max Count	9999 counts
Receiver Noise Measurement Range	0 to 97 dBrn (C-message), 10 to 97 dBrn (3 kHz flat), 20 to 97 dBrn (15 kHz flat), 30 to 97 dBrn (50 kbit)
Receiver Noise Accuracy	±1 dB (from 10 to 97 dBrn)
TECHNOLOGY	
Analog Telecom Testing	
APPLICATIONS	
Transmission Impairment Measurement (TIMS)	

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