



High Speed Tester 2.0

In-depth audio test for production or broadcast in 6 seconds

| | A | B | C | D | E | F | G |
|----|---------------------------|-------------------------------------|-----------------------------|----------------|--------------------|---------------------|-------------------------------|
| 1 | HST Version 2.0 | ATS-2 Serial Number 35-89-76-113-57 | Adjustment Date - 1/15/2009 | | | | |
| 2 | Serial Number | Test Pass/Fail Status | Test Start Time | Test Stop Time | Left DC Offset (V) | Right DC Offset (V) | Left Output Level (dBV/ dBFS) |
| 3 | Measurement Limits -----> | | | | 0.03 | 0.01 | -13.00 to -15.00 |
| 4 | 424223 | PASSED | 10:47:10 AM | 10:47:12 AM | 0.02 | 0.02 | 13.22 |
| 5 | 424224 | PASSED | 10:47:14 AM | 10:47:16 AM | 0.01 | 0.01 | 13.05 |
| 6 | 424225 | FAILED | 10:47:18 AM | 10:47:20 AM | 0.04 | 0.04 | 15.22 |
| 7 | 424226 | PASSED | 10:47:22 AM | 10:47:24 AM | 0.02 | 0.02 | 14.01 |
| 8 | 424227 | PASSED | 10:47:26 AM | 10:47:30 AM | 0.00 | 0.00 | 14.23 |
| 9 | 424228 | PASSED | 10:47:30 AM | 10:47:32 AM | 0.02 | 0.02 | 14.22 |
| 10 | 424229 | FAILED | 10:47:34 AM | 10:47:36 AM | 0.04 | 0.04 | 13.52 |
| 11 | 424230 | FAILED | 10:47:38 AM | 10:47:12 AM | 0.05 | 0.05 | 14.87 |
| 12 | 424231 | PASSED | 10:47:42 AM | 10:47:12 AM | 0.00 | 0.00 | 13.44 |
| 13 | 424232 | PASSED | 10:47:46 AM | 10:47:12 AM | 0.01 | 0.01 | 14.08 |
| 14 | 424233 | FAILED | 10:47:50 AM | 10:47:12 AM | 0.02 | 0.02 | 10.03 |

Ideal For Testing :

MP3 PLAYERS

BROADCAST QUALITY

RECEIVERS

DIGITAL TV

DVD / CD PLAYERS

SATELLITE RADIO

SIGNAL PROCESSORS

STUDIO SIGNAL CHAIN

High Speed Tester (HST) is a fast, accurate and easy-to-operate audio test application that is ideal for high speed production test or testing transmission quality across a broadcast network. HST tests output level, frequency response, interchannel phase, distortion, noise in the presence of signal, crosstalk and DC offset against user-defined limits in just six seconds. The simplified user interface is optimized for high volume testing with clear pass/fail results and user instructions. A log file is automatically generated ready to be emailed for trend analysis or an FFT can be saved for detailed troubleshooting.

High Speed Production Test

HST is an ideal application for customers looking for high-speed production test: DC offset, output level, frequency response, phase, distortion, noise in the presence of signal, and crosstalk are all measured in just six seconds.

In addition testing play-back devices, HST can use the instrument's generator to drive the input of the device under test. Both input and output can be set to digital or analog, and limits, user prompts and sample rate can be defined easily via a new setup utility.

This flexibility allows HST to test almost any type of audio device - amplifiers, receivers, DACs, ADCs, signal processors, MP3 players, TVs, DVD/CD players etc - quickly and easily.

7 measurements in 6 seconds

- Output level
- Frequency response
- Interchannel phase
- Distortion
- Noise in the presence of signal
- Crosstalk
- DC offset

| Test Description | Measurement | Pass/Fail |
|--|-------------|-----------|
| Left DC Offset (V) | 0.00 | Pass |
| Right DC Offset (V) | 0.00 | Pass |
| Left Output Level (dBV / dBFS) | -3.03 | Fail |
| Right Output Level (dBV / dBFS) | -3.11 | Fail |
| Left Frequency Response Deviation (dB) | 0.22 | Pass |
| Right Frequency Response Deviation (dB) | 0.22 | Pass |
| Phase Deviation (deg) | 1.27 | Pass |
| Left Total Distortion and Noise (dB) | -93.16 | Pass |
| Right Total Distortion and Noise (dB) | -94.15 | Pass |
| Left Noise in the Presence of Signal Ratio (dB) | 93.90 | Pass |
| Right Noise in the Presence of Signal Ratio (dB) | 94.04 | Pass |
| Left Crosstalk (dB) | -103.80 | Pass |
| Right Crosstalk (dB) | -82.01 | Pass |

Instrument Options

High Speed Tester is free software that runs on any 2700 Series or ATS-2 audio analyzer running AP2700 v2.3 or ATS v1.5 or later software.



The 2700 Series has the highest performance of any audio analyzer in the industry and is the preferred choice for R&D around the world.



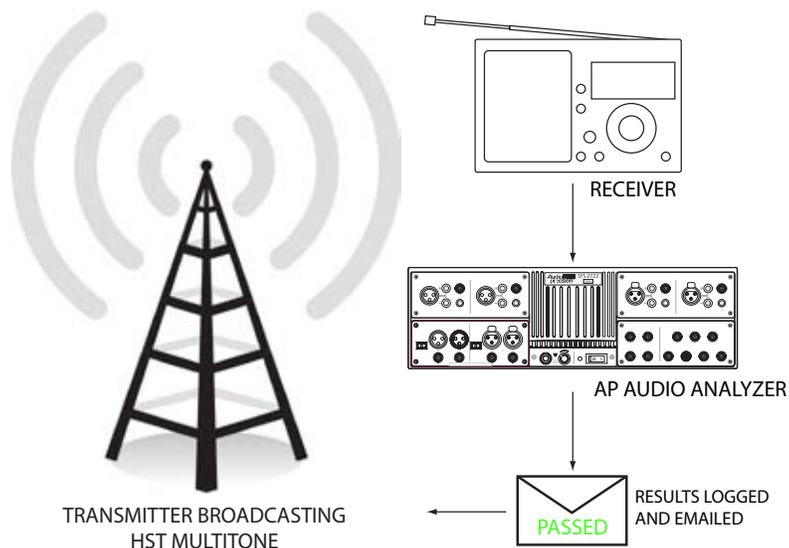
The ATS-2 is a general purpose analyzer that is ideal for production test or broadcast audio test & station equipment troubleshooting.

Broadcast Signal Fidelity Test

National radio networks use High Speed Tester to and to test broadcast audio quality throughout their service areas.

A series of ATS-2s (or 2700 Series) audio analyzers with HST are stationed across the signal area and connected to receivers. The central transmitting station broadcasts the HST multitone (a one second burst, usually as part of a call sign late at night). HST is triggered by the burst, and measurements of the transmission are recorded to a log file. The log file is emailed back to station engineers while HST resets itself and listens for the next burst.

HST can also be used to verify quality of service agreements with telecom carriers transmitting packetized content over fiber. Carriers will tend to compress data as much as possible to conserve bandwidth: HST ensures that audio quality is any compression used during transmission is as agreed in the service contract.



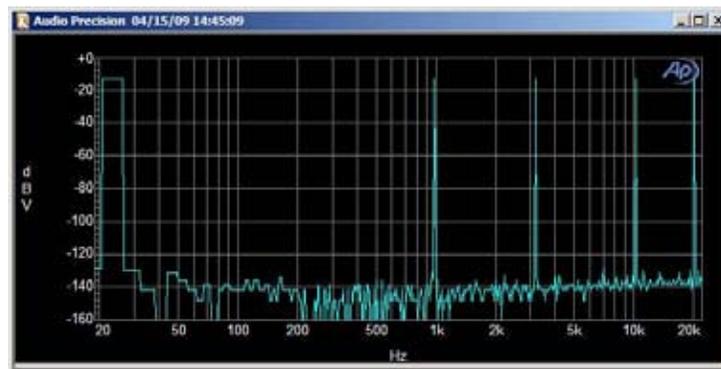
How HST Works

The key to HST's speed is the use of a multitone stimulus which allows HST to derive all its measurements from a single acquisition. Unlike other multitones, HST's windowless, synchronous FFT analysis can provide measurements of noise independently from distortion. While the Operator UI shows a simple "Pass / Fail" result, the underlying FFT is always available for deeper analysis.

The multitone has 5 tones on each channel, at approximately 20 Hz, 1 kHz, 3 kHz, 10 kHz and 20 kHz. The tones around 10 kHz are offset by a few hundred hertz to provide a crosstalk stimulus.

Intelligent triggering

HST has the most advanced triggering algorithm in the industry. One key advantage of the Audio Precision approach is that HST is triggered by the content of the multitone rather than a level trigger, so it works with externally generated stimulus (like a broadcast tone or MP3 played on a personal audio device). HST also has a very wide tolerance for distortion and level, meaning it can listen indefinitely until it hears the correct multitone avoiding false triggering while



An FFT of the High Speed Tester multitone with tones at approximately 20 Hz, 1 kHz, 3 kHz, 10 kHz and 20 kHz.



Download Technote I02:
Using Audio Precision HST Quick and Reliable Testing Against Limits
<http://ap.com/download/hst>