



## KEY FEATURES

- Typical THD+N  $-106$  dB and 1.2M point FFTs
- Comprehensive test in 3 seconds without any coding
- Intuitive UI with one-click measurements
- Supports VB.NET, C#.NET, MATLAB, full LabVIEW driver
- Share projects and .wav acquisition files with any APx analyzer
- Advanced measurement library includes IMD, MOL, dynamic range, FFTs, and more
- Transfer Function Measurement
- Open-Loop Chirp Measurement\*

\* Requires a chirp-enabled option

## Ideal for production test and entry-level R&D applications

The **APx515 B Series** is a high-performance audio analyzer optimized for production test. It is a best-in-class instrument for its combination of speed, performance, automation and ease-of-use.

APx515 can make all of the key audio measurements in less than three seconds. Despite its low cost, APx515 still has excellent performance, with a typical THD+N of  $-106$  dB, 1.2M point FFTs and up to 216k digital I/O, as well as the one-click automation and ease-of-use of all APx Series audio analyzers. Like all AP instruments, APx515 comes with an ISO:17025 Accredited Calibration and three year warranty, so its results are trusted everywhere.

### Comprehensive test in 3 seconds, easy automation AND low cost

The B Series APx515 operates either as a stand-alone test unit with its own user interface, or it can be controlled by a master .NET or LabVIEW application. In either case, an operator can control the APx515 with a keyboard, foot switch or barcode scanner, or the system can be totally automated. Switchers and external devices such as pass/fail lights are also supported.

In stand-alone mode, sophisticated test sequences are created by selecting from a list of common audio measurements—no coding required. Pass/fail limits, advanced configurations and user prompts can be added as necessary. Test reports may be generated automatically in a variety of formats and test data are easily exported to spreadsheets and other file formats. Additionally, a production test mode with simplified user interface is available that locks the project to prevent accidental changes once on the production line.

On an automated manufacturing line, a master .NET or LabVIEW application can control the APx515 directly using the API or APx LabVIEW driver. Individual measurements can be made or the master application can call a test sequence created with the APx user interface.

## APX1701 TRANSDUCER TEST INTERFACE



Conducting electro-acoustic test with an APx515 B Series? Consider adding an APx1701 Transducer Test Interface to your setup. The APx1701 provides the correct power to the preamplifiers and will read the TEDS data and pass it on to the APx500 measurement software. The APx1701 also features a high-performance two-channel power amplifier optimized for acoustic test, switchable hardware for loudspeaker impedance measurements, and complete control and automation integration with the APx500 measurement software.



## Trusted results between vendors, designers and manufacturers

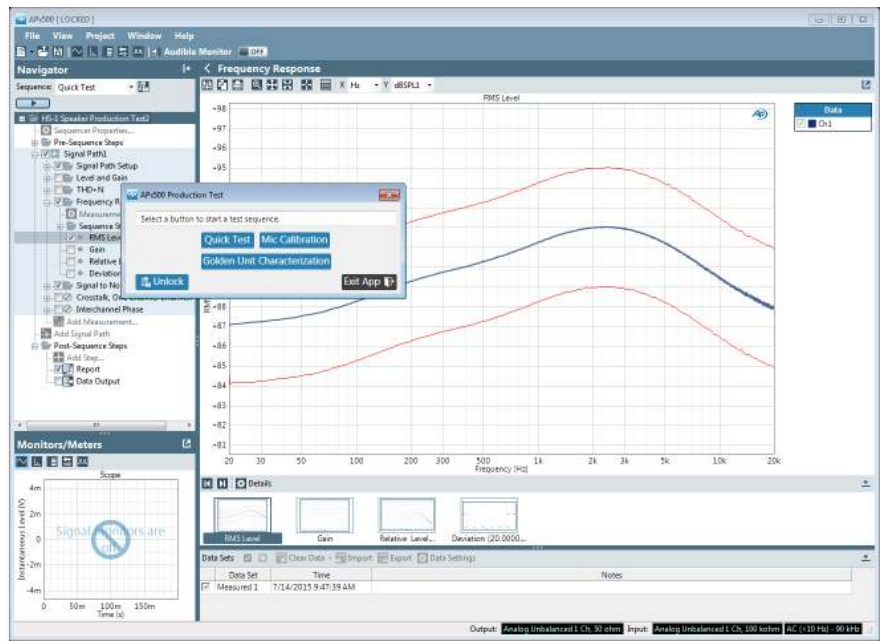
Thousands of engineers around the world trust measurements made with AP instruments, so collaboration can start with the mutual agreement that each party's test equipment is accurate and reliable.

From a practical perspective, all APx audio analyzers use the same software, making tests and results easier to share between vendors, R&D and production facilities anywhere in the world.

For example, a test designer using an APx525 can create a production test sequence and email it to a contract manufacturer whose APx515 will run the project natively. Performing quality assurance on the production line, the APx515 operator can save a recording of the actual output of a device under test and email it (along with the 515's settings) in a single project back to Engineering for further analysis.

## APx515 Standard Measurements

- Crosstalk
- DC Level
- DC Level Sweep
- DUT Delay
- Frequency Measurement
- Frequency Response
- Interchannel Phase
- Level & Gain
- Level Ratio
- Measurement Recorder
- Noise
- Pass / Fail
- Q-peak Noise
- SINAD
- Signal Acquisition
- Signal-to-Noise Ratio
- Stepped Frequency Sweep
- Stepped Level Sweep
- TEDS Data
- THD+N
- Transfer Function



### FAST & INTUITIVE UI

An example of the APx500 software's Production Test mode. In this mode, a test operator's use of the system is limited to a range of custom configurable presets.

Serial number	Test Pass / Fail Status	Test Start time	Test Stop Time	Left DC Offset
424223	PASSED	10:43:03 AM	10:43:06 AM	0.03
424224	PASSED	10:43:08 AM	10:43:09 AM	0.03
424225	PASSED	10:43:11 AM	10:43:12 AM	0.02
424226	PASSED	10:43:14 AM	10:43:15 AM	0.01
424227	PASSED	10:43:17 AM	10:43:18 AM	0.03
424228	PASSED	10:43:20 AM	10:43:21 AM	0.03
424229	PASSED	10:43:23 AM	10:43:24 AM	0.01
424230	PASSED	10:43:26 AM	10:43:27 AM	0.01
424231	PASSED	10:43:29 AM	10:43:30 AM	0.03
424232	FAILED	10:43:32 AM	10:43:33 AM	0.04
424233	FAILED	10:43:35 AM	10:43:36 AM	0.05
424234	PASSED	10:43:38 AM	10:43:39 AM	0.01
424235	PASSED	10:43:41 AM	10:43:42 AM	0.02
424236	PASSED	10:43:44 AM	10:43:45 AM	0.01
424237	PASSED	10:43:47 AM	10:43:48 AM	0.02

### BEST-IN-CLASS FOR SPEED

Production line results from APx515.

## KEY SPECIFICATIONS

### SYSTEM PERFORMANCE

**Residual THD+N (20 kHz BW)**  
-102dB + 1.4 µV  
Typical <-106 dB (1 kHz, 2.0 V)

### GENERATOR PERFORMANCE

**Sine Frequency Range**  
2.0 Hz to 80.1 kHz

**Frequency Accuracy**  
3 ppm

**IMD Test Signals**  
SMPTE, MOD, DFD

**Maximum Amplitude (balanced)**  
16.00 Vrms

**Amplitude Accuracy**  
±0.05 dB

**Flatness (5 Hz - 20 kHz)**  
±0.010 dB

**Analog Output Configurations**  
Unbalanced,balanced, common mode

**Digital Output Sampling Rate**  
27 kS/s - 200 kS/s\*

**Dolby / DTS Generator**  
Yes (encoded file)

\*Optical 27 kS/s to 108 kS/s

### ANALYZER PERFORMANCE

**Maximum Rated Input Voltage**  
125 Vpk

**Maximum Bandwidth**  
>90 kHz

**IMD Measurement Capability**  
SMPTE, MOD, DFD

**Amplitude Accuracy (1 kHz)**  
±0.05 dB

**Amplitude Flatness (10 Hz - 20 kHz)**  
±0.010 dB

**Residual Input Noise (20 kHz BW)**  
1.4 µV

**Individual Harmonic Analyzer**  
d2-d10

**Maximum FFT Length**  
1024K points

**DC Voltage Measurement**  
Yes



Accredited by A2LA  
under ISO/IEC: 17025  
for equipment calibration

# SOFTWARE OPTIONS

APx515 B Series has software options for additional measurement capabilities

## SOFTWARE BUNDLES

Part No.	Description	Measurements/Features
APX-SW-ACR	Acoustic Response	Acoustic Response for non-anechoic environments.
APX-SW-AML	Advanced Measurement Library	Bandpass Level, Bandpass Frequency Sweep, Bandpass Level Sweep, Crosstalk Sweep (custom), Crosstalk Sweep (1 channel driven), Crosstalk Sweep (1 channel undriven), Digital Error Rate, IMD (DFD/MOD/SMPTE/CCIF), IMD Frequency Sweep, IMD Level Sweep, Maximum Output, Maximum Output (CEA-2006), Metadata Recorder, Noise Recorder, Regulated Frequency Sweep, Signal Analyzer, FFT spectrum monitor.
APX-SW-ASIO	ASIO Output and Input	Provides ability to connect directly to an ASIO device on a PC.
APX-SW-HST	High Speed Test	Continuous Sweep (a brief log-swept sine wave that moves continuously across a specified range of frequencies), Multitone Analyzer (a very fast stimulus signal that provides a broad range of results).
APX-SW-BEN	Bench Mode for APx515	Adds a real-time UI mode to APx515.
APX-SWB-2	APx515 Software Bundle	Combines: ACR, AML, ASIO, and HST software options in a single bundle.
APX-SWB-6	APx515 Software Bundle	Combines: ACR, AML, ASIO, HST, and BEN software options in a single bundle.

## ELECTRO-ACOUSTIC MEASUREMENTS

APX-SW-SPK-PT	Loudspeaker Test: Production	Combines an acoustic measurement (Frequency Response, Phase, Distortion and Rub & Buzz) and an electromechanical impedance measurement (Impedance Response Curves plus a subset of Thiele-Small). Also includes Acoustic Response (APx v4.0 or later) and Modulated Noise.
APX-SW-SPK-RD	Loudspeaker Test: R&D	Acoustic Response (with Rub & Buzz), Impedance / Thiele-Small, Modulated Noise. Includes all measurements in APX-SW-SPK-PT plus the APx Polar Plot and APx Waterfall Graph utilities.

## PERCEPTUAL AUDIO

APX-SW-STI	Speech Transmission Index	Plug-in for conducting Speech Transmission Index (STI) measurements using the STIPA method.
APX-SW-PESQ	PESQ	Widely-used, enhanced perceptual measurement for voice quality on low-bandwidth devices.
APX-SW-POLQA2	POLQA	Successor to PESQ with support for HD Voice, 3G, 4G/LTE and VoIP technologies. (2 channels)
APX-SW-ABC-MRT	ABC-MRT	Provides an objective measure of speech intelligibility following the paradigm of the Modified Speech Ryme Test.

## SOFTWARE MAINTENANCE OPTIONS

SW-MAINT-1/3/5	Software Maintenance	Provides 1,3, or 5 years of software maintenance for an existing APx Legacy or B Series audio analyzer.
SW-EXT-3/5	Software Maintenance	Provides 2 or 4 additional years of software maintenance with the purchase of a new APx B Series analyzer.
SW-UPG-APX5	Software Upgrade	Software upgrade to APx Version 5 for Legacy APx analyzers.