



## Baseband Audio Test Suite

RT-TS-BBA is fully automated environment for evaluation and verification of a Baseband audio processing (Bass, Treble, Equalizer)

RT-TS-BBA is intended for chip vendors and TV/STB/DVD/BR producers

RT-TS-BBA is market proven solution with Tier 1 chip vendors for CE like Cirrus Logic, TRIDENT (Micronas), ZORAN

### KEY FEATURES AND BENEFITS

#### One-Stop Shop Approach

- This tool is intended for CE industry in order to speed-up testing procedure
- With this test tool you get test report fully compliant with certification labs expectations

#### Flexible business models

Test suite could be delivered as:

- Hardware and software
- Only software, installed on customer existing hardware
- Testing service in our laboratories

#### Open Solution

- No time/project limits
- Open for further improvement and modification

#### In-house audio DSP expertise

Since 1998 team of 30+ experts is in this arena implemented more than 50 audio DSP applications on more than 15 different DSPs including Motorola, Micronas, Cirrus Logic, Zoran, ARM, MIPS, x86 and many more.



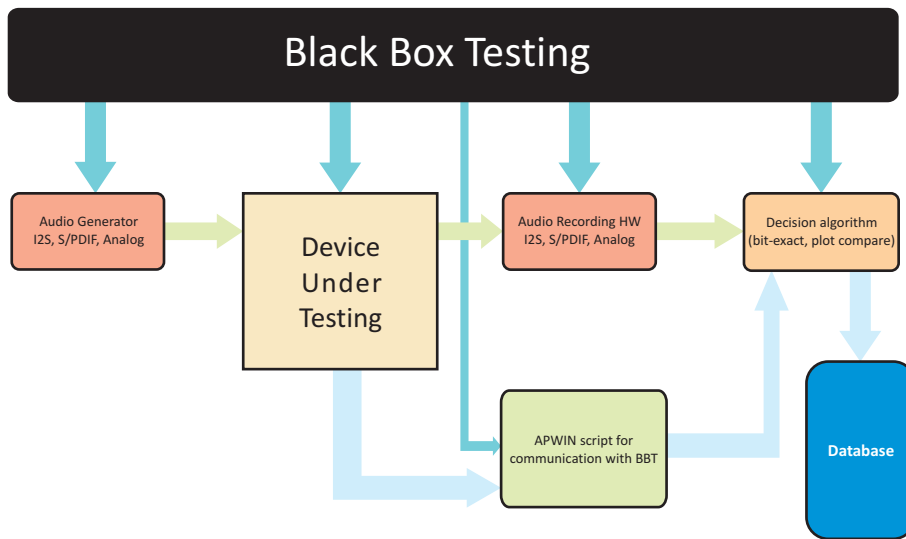
# Black Box Testing

# RT-TS-BBA

## Features

- Tests performed on all digital and analog interfaces
- Wide spectrum of measurements of the audio signal quality available by AP
- Run time and post run analysis possible
- Various mechanisms for definition of expected results, limits, and areas of interest
- Automatic verification of the signal quality based on previously set references and tolerances
- Powerful APWin library for automatic verification of the graph results obtained in measurements
- Simple graphic user interface (GUI)
- Support for special mode when measurements are stored as references and later used for verification of further measurements
- Possibility for simple implementation and integration of libraries for dedicated signal analysis (like steering const or crosstalk in DPLII)
- Results in Word documents
- Summary report available for the overall testing

## Test Environment



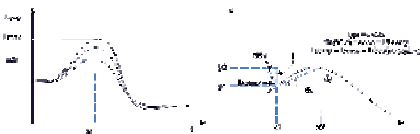
## Reporting

Work in Word is single document based VBA for APWin. Word documents are prepared as templates, more or less complex depending on the way the results need to be presented.

The concept is based on the substitution of the key words from the template by actual numeric results or graphics. Each Word result document is usually used for presentation of results of a given feature or module under test.

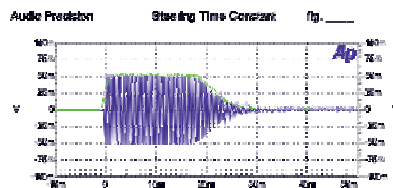
A Word summary overview is also created for a quick overview of the overall results and the course of the testing.

### Example 1



In the above example, during transition period around 10 point, it is allowed that signal varies in amplitude around certain value, while it is more important that after a transition period measured signal behaves very close to a reference. For those purposes, a slope verification procedure is implemented. It modifies a defined tolerance  $L$  to  $L_{comp}$  according to an angle enclosed by a tangent on the slope in a given point and x axis.

### Example 2



In the above example, verification of the graph output can be performed by comparison of the two envelopes, one from the captured and other from the referent graph. The envelopes are obtained by filtering absolute values of the captured signals.

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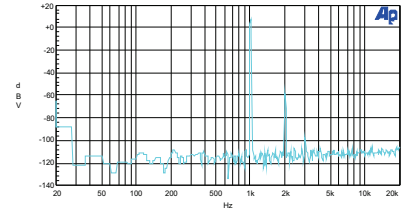
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## Measurement Types

### Single measurement

Refers to AP measurements that produce one value as a result, like DC component of the signal, THD, SNR and other values supported by Analog Precision device.

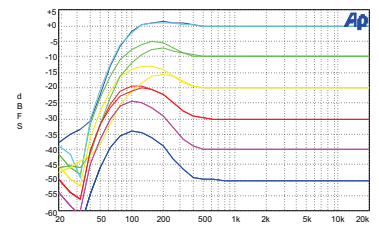
Obtained values can be immediately compared against expected value given in advance in form of a referent values within areas of tolerance.



### Complex measurement

Refers to all tests that produce output which is intended to be post analyzed either by a tester who approves the correct behavior of DUT during performed test, or automatically by dedicated procedures.

Results of these tests are usually presented in form of graphs. The suite implements various mechanisms for verification of graphic results thus decreasing role of a tester to a minimum.



## Package

- CD with software installation and documentation

### Software

- RT-Executor
- Device Manager
- Device drivers
- VBA scripts for AP2
- USB node lock
- Test cases

### Hardware

- PC Workstation\*
- AP2+PSI

\*optional

(integration with customer existing blocks is acceptable)

## RT-RK Computer Based Systems

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