Testing Playback Devices

FX100 Use Case

The quality assurance (QA) of playback devices (e.g. MP3 players, smartphones, tablet computers) has to cope with a special challenge – how does one input a sound source to trigger the audio quality measurement? At the same time, this process should not slow down the production process.

A large OEM manufacturer chose the FX100 Audio tester, as its external GlideSweep analysis exactly meets the high demands of this application.

The challenge

Playback devices normally don't provide an electrical audio input that could be used to transmit the test signal through the device. Therefore, an audio test must be realized by downloading a test signal to the internal memory, which is then replayed and analyzed by the T&M instrument.

The key challenge of this procedure is to make sure that the external Audio analyzer triggers and synchronizes correctly to the incoming test signal within minimum time.

The solution

The external GlideSweep feature of the FLEXUS system is the perfect solution for verifying the Audio performance of playback devices, both in a lab or a production environment.

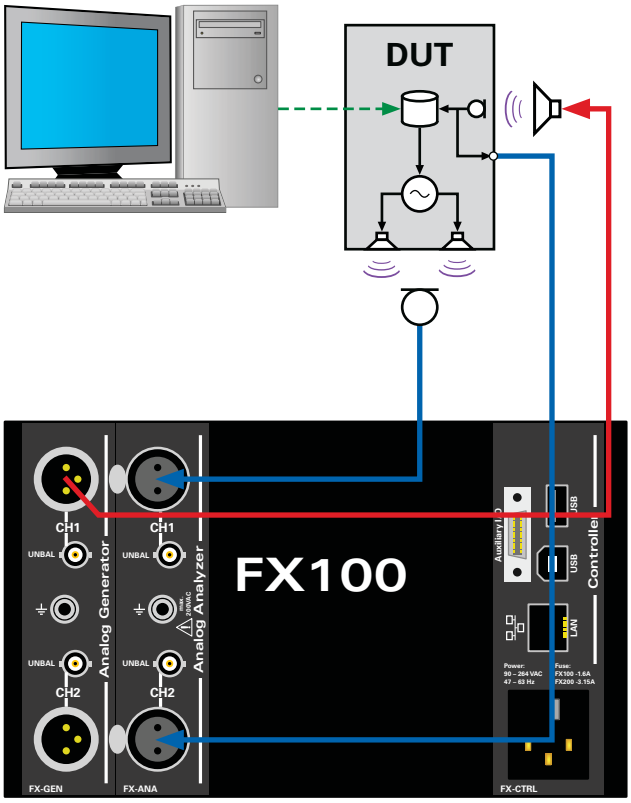
First, the GlideSweep is parameterized under FX-Control PC-software, and then saved on the DUT in WAV or MP3 format. The signal comprises a short header that allows the analyzer to trigger properly, followed by the customized GlideSweep.

The test starts by replaying the GlideSweep from the DUT to the FX100, which triggers & synchronizes to it. The analyzer then samples the incoming signal and calculates the required measurement results of level, steepness, frequency response and harmonic distortions.

Finally, the microphone of the DUT may be tested. For this purpose, the test signal is played through a reference speaker that is located in front of the mic. Depending on DUT architecture, the signal is forwarded directly to the earphone connector or sampled & buffered on the internal memory and replayed from there via the built-in speakers.

Highlights

- Simple parameterization and generation of the test signal.
- Integrated header ensures quick, reliable triggering of the analyzer.
- Comprehensive analysis of the built-in DUT speakers and mic within fractions of a second.



System overview

Hardware

- NTi Audio FX100 2-chn Audio analyzer

Control software

- FX-Control
- RT-Speaker for FX100

Measurements

- Frequency response
- Sound pressure level
- PureSound™ steepness
- Distortion response

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