

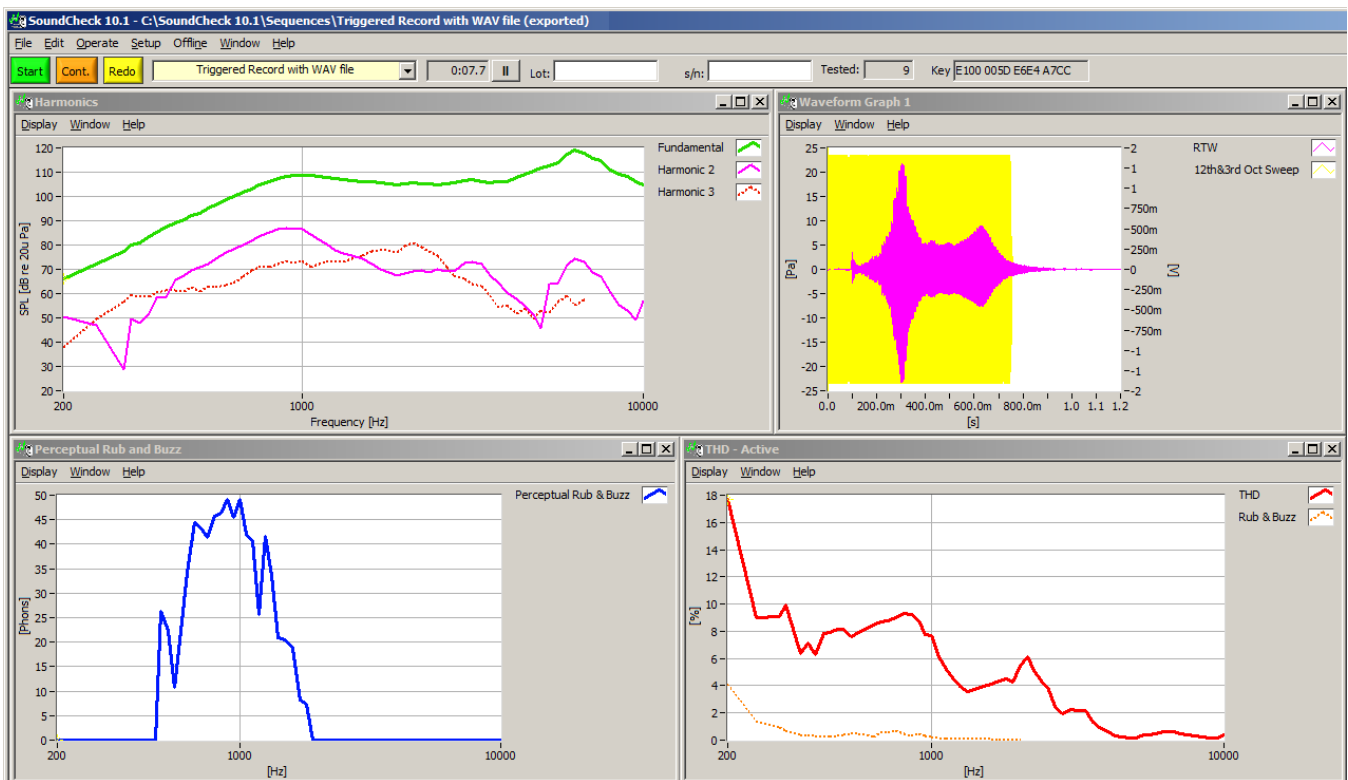


Sequence Note

Triggered Record Using WAV File

Introduction

This sequence allows you to test devices without an analog input such as tablets, cellphones and MP3 players. A stimulus WAV file is created in SoundCheck, and copied to a the device under test, where it is played and the response recorded in SoundCheck as if the stimulus were played directly from SoundCheck.



Final Display for *Triggered Record* sequence

The stimulus WAV file to be used on the device under test (DUT) may be customized in the stimulus step. The sequence default is a stepped sine sweep from 10 kHz to 200 Hz. The waveform of the stimulus is saved as a WAV file in the memory list. This file will have the same sample rate and bit depth as set in the hardware configuration (in this case, 44.1kHz, 24 bit). By default, the WAV file is automatically normalized to 0 dB FS in the autosave step, so the stimulus level is not important.

- The parameters of the sweep in the stimulus step are used when creating the WAV file. The duration of this stimulus must be considered in the “Time” field of the acquisition step. See page 2.
- The stimulus step must remain in the sequence and the stimulus settings cannot be changed without re-saving the WAV file.
- The stimulus WAV file used in this example is included in the exported sequence folder.
- Changing the sample rate or bit depth in the hardware configuration also requires re-saving the WAV file.



Acquisition Step Settings

Channel	Response
Reference Mic	RTW

- **Mode:** Record
- **Record:** Triggered
- **Time (sec):** Must be set to slightly longer than length of original stimulus sweep plus the Trig. Offset.
- **Input Channel:** Set to Reference Mic
- **Trigger Level:** Set according to background noise and playback level from DUT
- **Trigger Unit:** Set to dB or Pa according to your preference
- **Trigger Channel:** Set to Reference Mic input
- **Trigger Offset (sec):** Sets the amount of time that the Acquired Signal is shifted, relative to the point at which it is triggered.
- **Slope:** For triggering on WAV files this should be set to positive
- **Time Out (sec):** Amount of time sequence will wait for trigger before stopping

Display

The waveform window in the display shows the stimulus waveform as well as the recorded time waveform (RTW). This can be used to make sure the stimulus is well within the start and stop time of the acquisition step.

Jitter and playback sample rate of the DUT can also be displayed.

Requirements

Software:

- SoundCheck 10.11, 11.1 or newer
- p/n 2017 – Stimulus editor
- p/n 2001 – Harmonic Distortion
- p/n 2030 – Perceptual Rub and Buzz (optional - can be un-checked in Analysis Step)

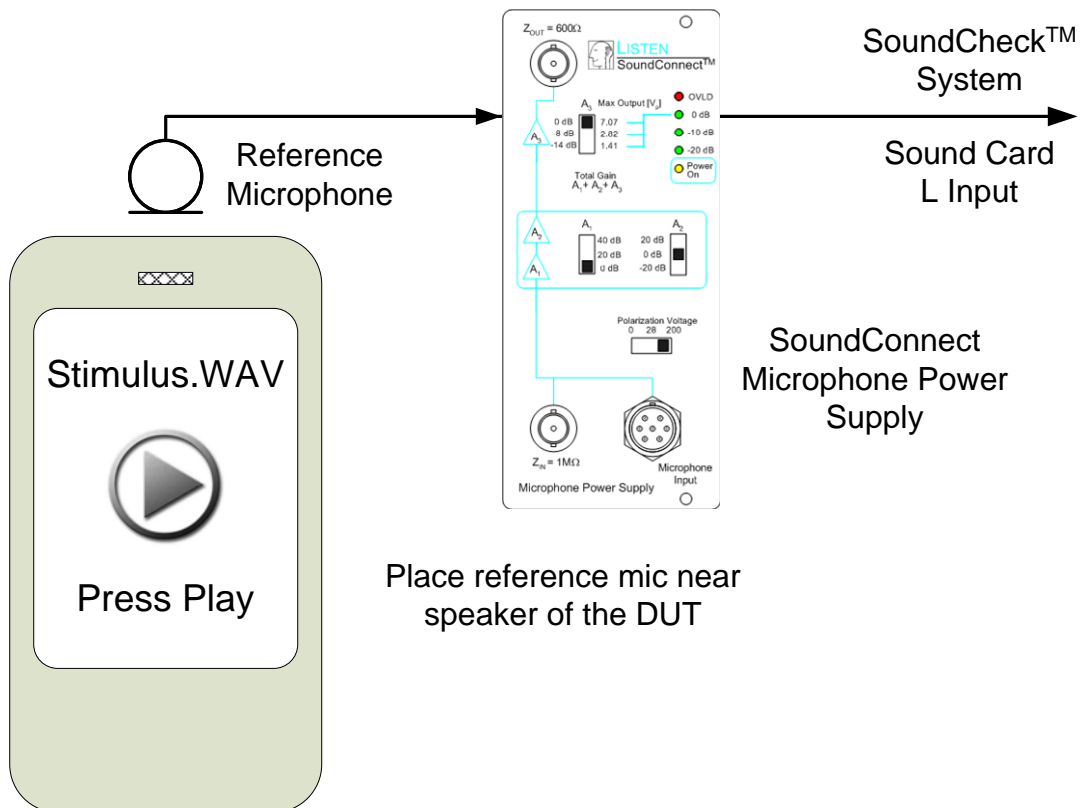
Hardware:

- MP3 playback device with speaker (Cell Phone, tablet, MP3 player, etc.)
- p/n 4002 – SCM 3 reference mic or equivalent
- p/n 4020 – Listen SoundConnect microphone power supply

Hardware Setup & Calibration

1. Calibrate the SCM 3 Reference Microphone as instructed in the SoundCheck manual.
2. Connect the output of the mic supply to the channel 1 (or Left) input of your soundcard.
3. The sequence prompts you to Save the Stimulus waveform as a WAV file. Enter a name for the WAV file. The default location for the file is: C:\SoundCheck x.x\Data\
4. Copy the stimulus WAV file to the Device Under Test.
5. Make sure the WAV file plays from the DUT.
6. Set the playback level of the DUT to the desired level.
7. Position the DUT so the speaker is approximately 1 inch away from the reference microphone.
8. Start SoundCheck sequence, click “No” to start acquisition and then play the WAV file on the DUT.

System diagram





Sequence Logic

Type	Step Name	#	Out	In	
Sti	12th&3rd Oct Sweep Save WAV	1	Digital Out		// Must remain in sequence. If modified, must re-save WAV file.
Mes	Prompt	2			// Prompt to save WAV file or run test.
Aut	Save WAV File	3			// Saves Stimulus WFM as WAV file.
Acq	Triggered Rec	4		Reference Mic	// Records output of DUT. // Corrects for clock errors between DUT and the original stimulus.
Pos	Frequency Shift	5			// Analysis compares Recorded WFM from DUT to original Stimulus WFM.
Ana	Rub & Buzz	6			
Dis	Rub & Buzz	7			