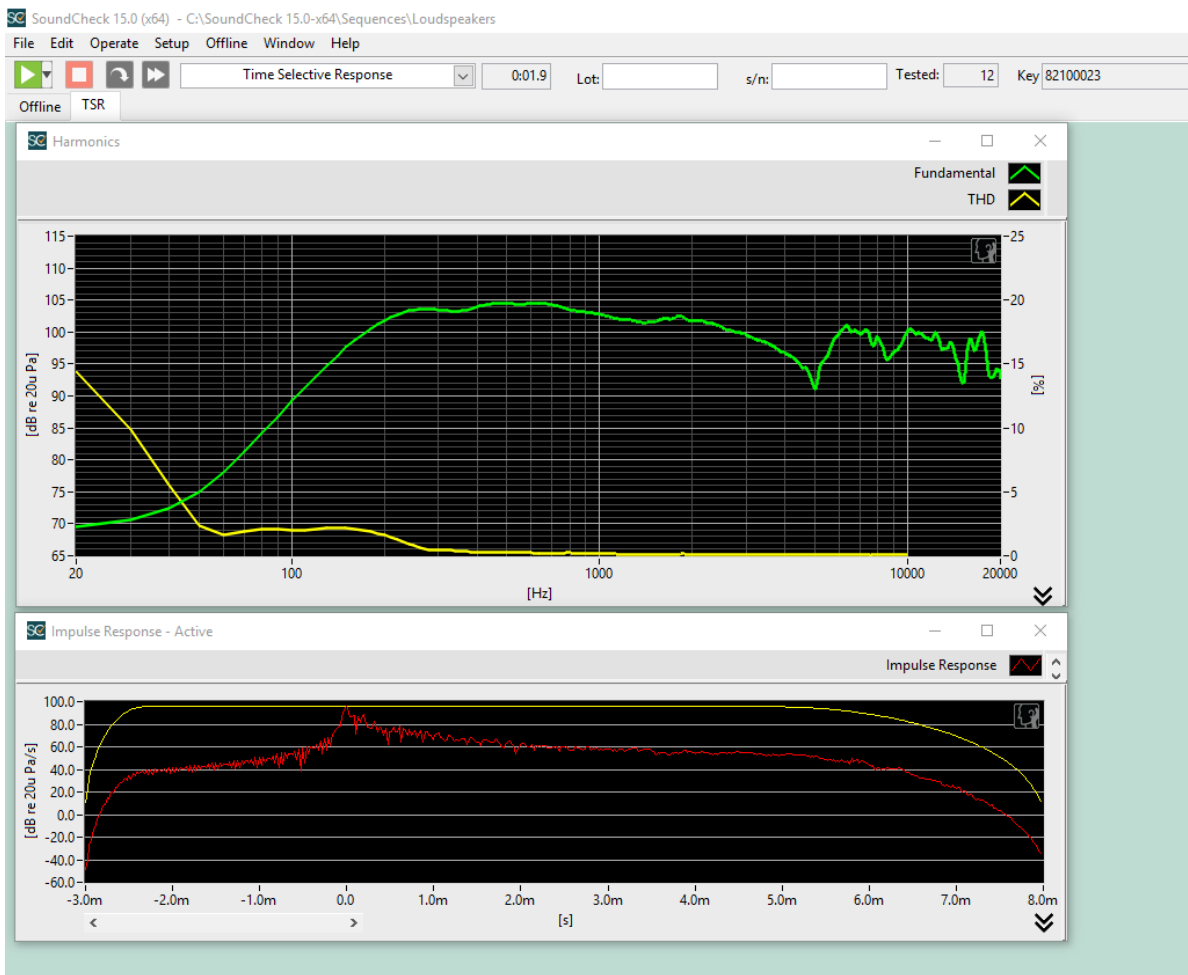


Time Selective Response

Introduction

This sequence demonstrates the capabilities of the TSR (Time Selective Response) algorithm in SoundCheck. Using TSR with a log sweep is a very fast and effective method for measuring frequency response and THD of a speaker in a non-anechoic environment. This example plays a quick log sweep from 20 Hz to 20 kHz. An analysis step then uses the TSR algorithm with time windowing to output frequency response, harmonics, THD, and impulse response curves.

The default time window is set rather wide and needs to be scaled down depending on the user's setup. The goal is to window out everything after the first reflection so that only the direct signal is being analyzed.



Final Display for the *Time Selective Response* sequence



Software Requirements

This sequence requires the following modules:
2006 – Time Selective Response

Hardware Requirements

Reference Microphone – Listen SCM-3 or similar

Audio Interface – Listen AudioConnect or similar (**note:** AudioConnect provides bias voltage for the SCM-3 microphone. If you use a different microphone or interface, you will likely need to add a microphone power supply such as the Listen SoundConnect to your hardware setup.)

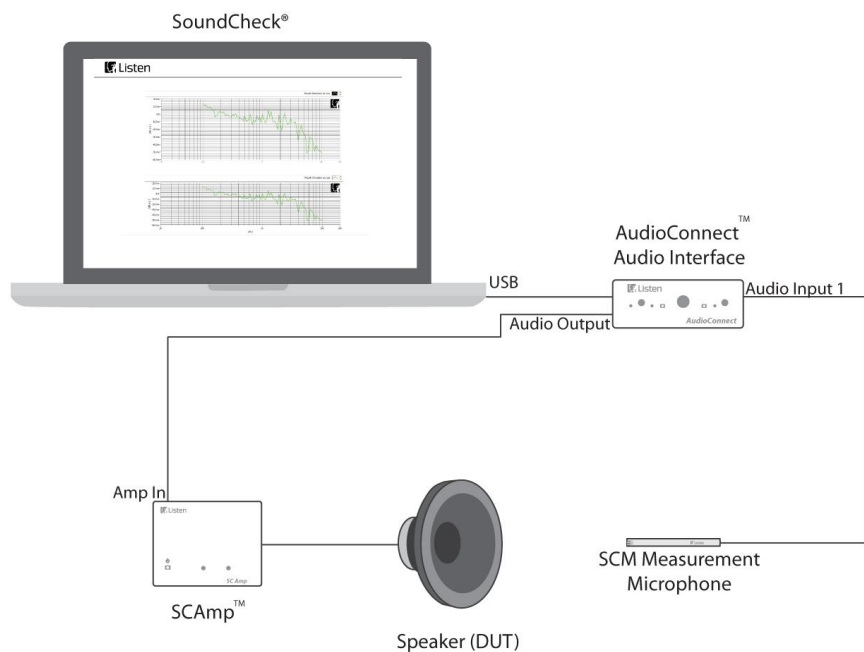
Power Amplifier – Listen SCamp or similar

Hardware Setup & Calibration

1. Calibrate the amplifier as instructed in the SoundCheck manual.
2. Calibrate the reference microphone as instructed in the SoundCheck manual.
3. Connect output 1 of your audio interface to the input of the amplifier.
4. Connect the output of the amplifier to your loudspeaker.
5. Position your reference microphone at the desired test distance from the loudspeaker, and connect it to the microphone power supply.
6. Connect the output of the mic supply to input 1 of your audio interface.

You are ready to start the sequence.

System Diagram





Sequence Logic

Type	Step Name	#	Out	In
	(Overall sequence)			
Sti	TSR log sweep	1	Amp ch 1	
Acq	Play & Record	2	Amp ch 1	Reference Mic
Ana	TSR	3		
Dis	TSR	4		

Further sequence development

Ways in which you could modify or further develop the sequence include:

- This sequence is currently setup to test a loudspeaker; if you calibrated a source speaker with the Simulated Free Field calibration sequence you could then test a microphone with the TSR method.
- A THD curve is being created by the analysis step but is not currently being displayed. You may wish to include this piece of data in the sequence and perhaps add some limit steps.