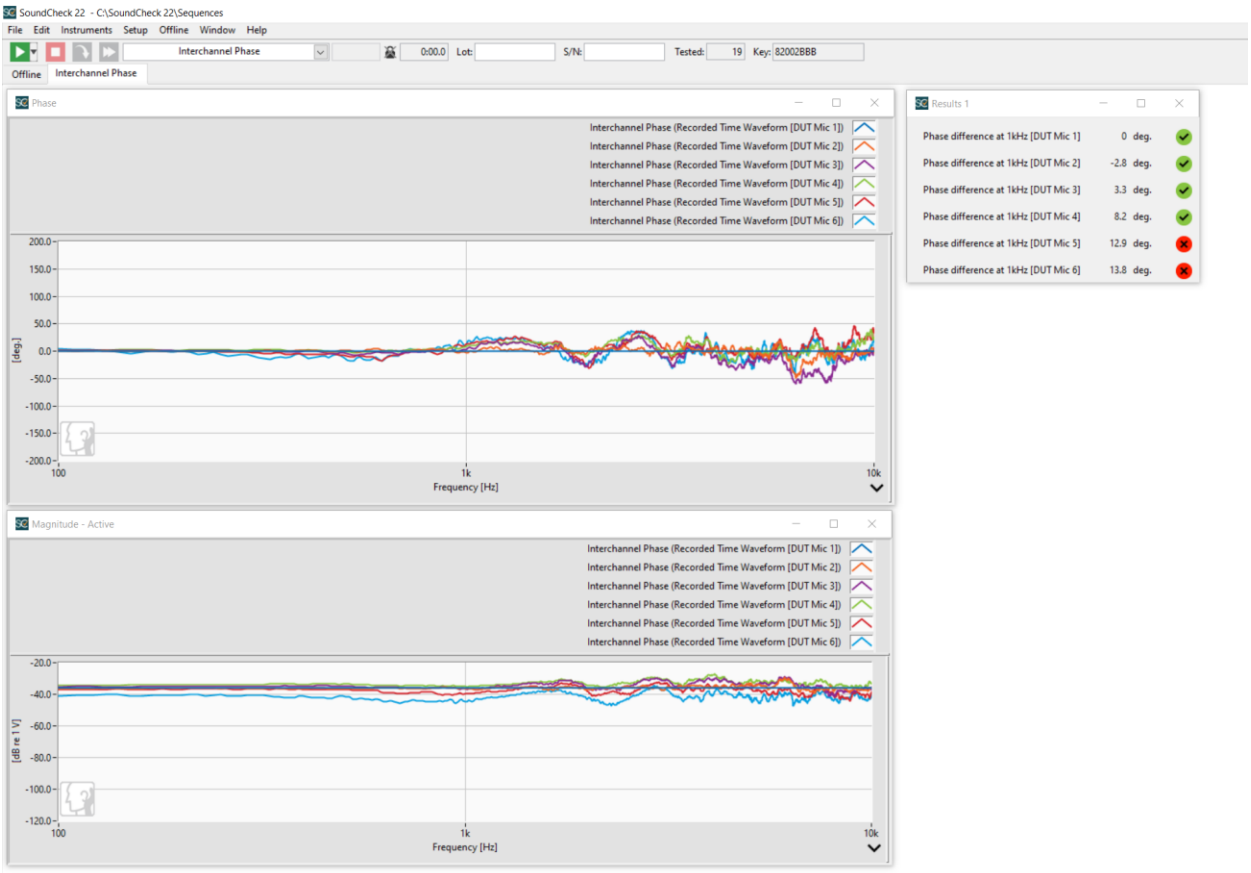
Interchannel Phase

Introduction

When measuring multiple inputs, for example testing a beamforming microphone array, it can be useful to measure the phase response in reference to a single microphone in the array. This measurement is called interchannel phase. In this sequence, a six microphone array is measured. The user can select a reference microphone (defaulted in this sequence to DUT Mic 1), and it will measure the phase difference between this microphone and the five other recordings. A limit of +/-10° is taken at 1kHz, and the magnitude comparison of all measurements is also displayed



Final Display for the *Interchannel Phase* sequence

Hardware Requirements

- Audio Interface – AmpConnect 621 or similar multichannel interface with 6+ inputs
- Source Speaker

Software Requirements

- SoundCheck 22 or later
- Module P/N 2021 – Transfer Functions

Hardware Setup & Calibration

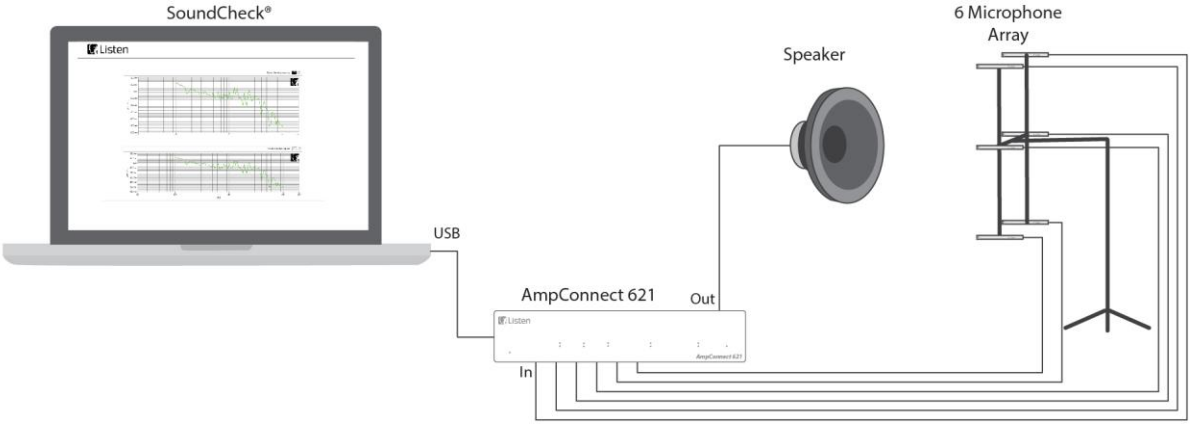
1. Calibrate the Source Speaker according to the directions in the SoundCheck manual

2. *Before* opening the sequence, in “Setup > Calibration > Import” and select System.cal included in the Interchannel Phase folder
    a. Select Yes to import calibrated devices
    b. Select No to All to overwrite existing devices

3. Connect the 6 Microphones to Inputs 1-6

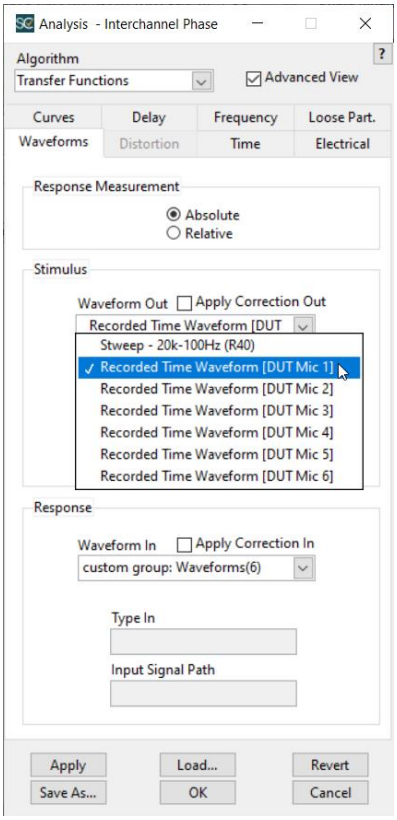
You are ready to start the sequence.

System Diagram



Changing the Phase Reference Microphone

DUT Mic 1 is set to be used as the reference when calculating the phase difference between inputs. This can be set to any other microphone in the array by opening step 5 “Ana – Interchannel Phase” and choosing the appropriate waveform in the “Stimulus” dropdown



Further sequence development

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

- This sequence uses a six microphone array but could be edited to compare only two microphones, or add in as many additional channels as required
- The default 10° limit on 1kHz is arbitrary and can be set for any expected phase difference