TIDA-00277: Automotive Cluster Chime Reference Design - Test Data

This document shares the tests results of the TPA6211A1-Q1 EVM connected to a speaker. This set up simulates the chime in an automotive cluster. A chime can be an audible indicator for various alerts.

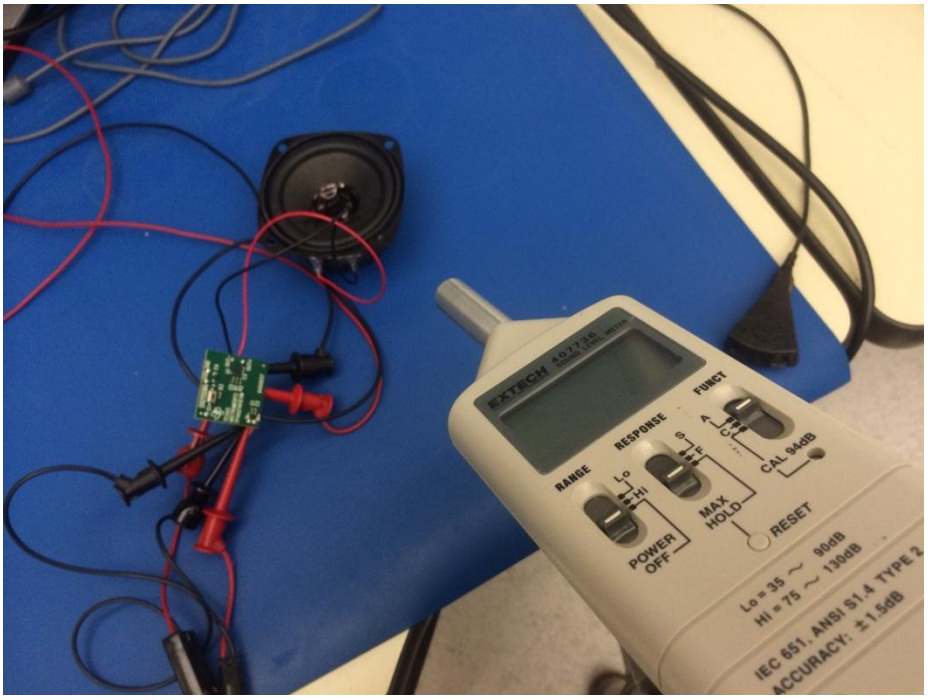
The data is structured into two main categories:

1. Test set up
2. Test data including
    a. Waveform into audio amp
    b. Waveform into speaker
    c. dBA level

Equipment used to create this data:

1. Oscilloscope
2. Function generator
3. Power supply
4. TPA6211A1-Q1 EVM
5. Speaker (Visaton FR8-4ohm)
6. dBA meter (Extech 407736)

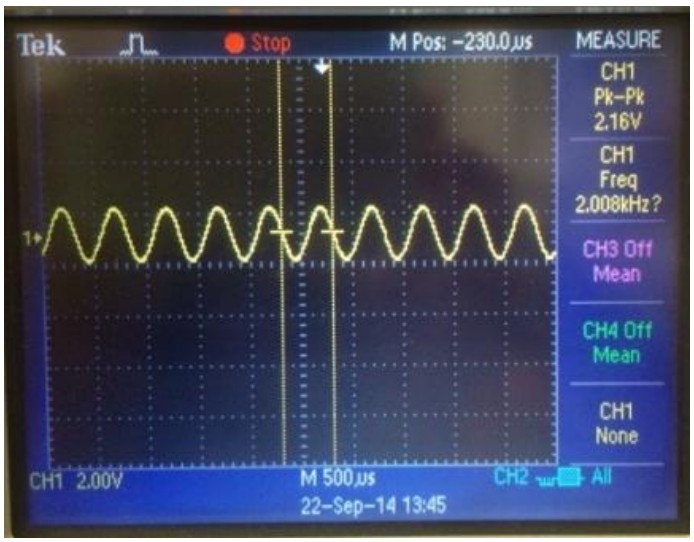
Section 1: Test set up



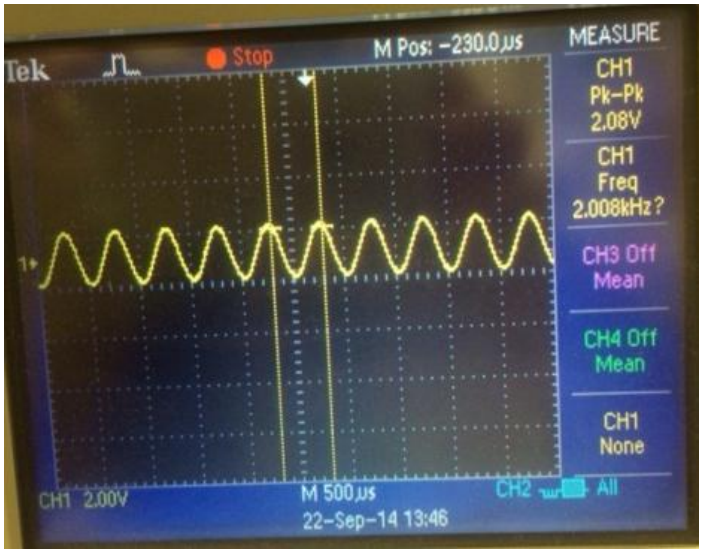
- Set up function generator to 2khz @ 2.16Vpp
- Set power supply to be 5V @ 10mA
- Hook up function generator to pin 3 (IN+) of TPA6211A1-Q1 EVM
- Hook up pin4 (IN-) to ground. Note: We are driving the amplifier with a single-ended sine wave. If filtering is added to the inputs of the amplifier, make sure the same filter circuitry is at both pin3 and pin4 to keep circuit balanced.
- Hook up speaker to pin5 (VO+) and pin8 (VO-) of TPA6211A1-Q1 EVM
- Hook up power supply to pin6 (Vdd) and pin7 (gnd)
- Turn on power supply. An audible, clean sound should come out of the speaker.
- Use Extech 407736 dBA meter to read out sound levels. A good rule thumb for distance from dB meter to speaker is 4-5x the diameter of the speaker.

Section 2: Waveforms

- Power supply @ 3.5V
  - Waveform (from function generator) going into the amplifier
    - Amplitude 2.16Vpp Freq 2kHz

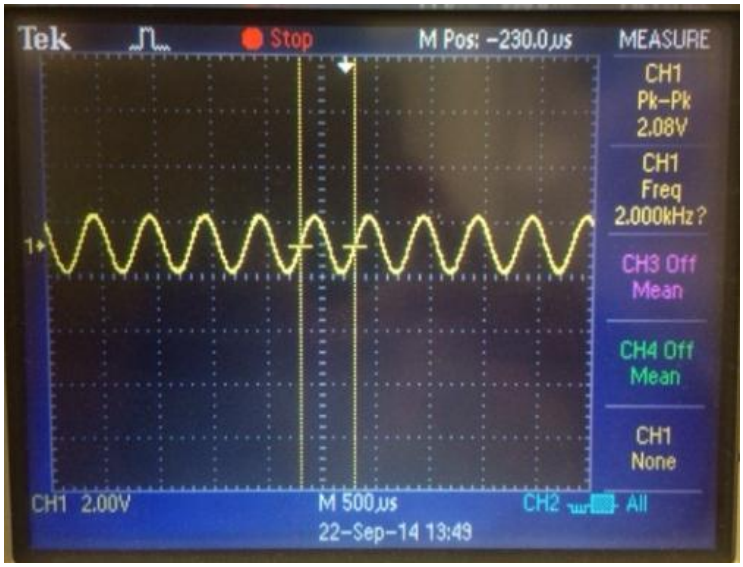


  - Waveform going into speaker
    - Amplitude 2.08V Freq 2.008 kHz

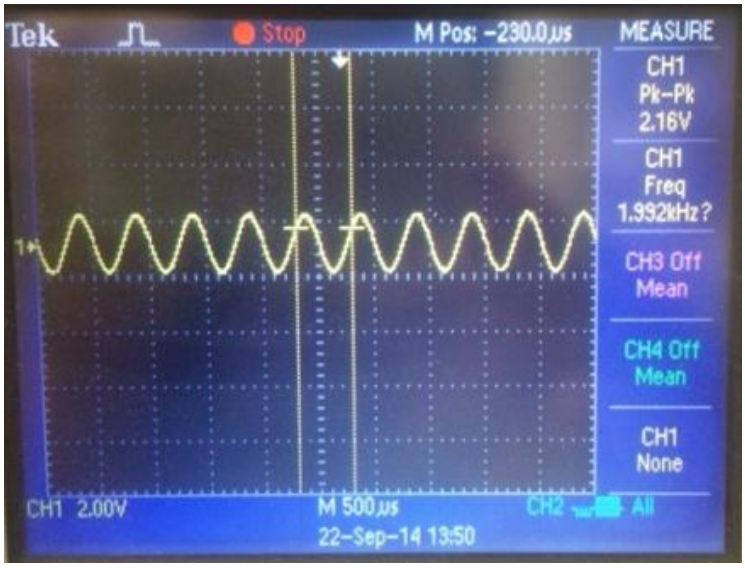


  - dBA meter reading (Extech 407736)
    - 99.7 dBA

- Power supply @5v
  - Waveform (from function generator) going into the amplifier
    - Amplitude 2.16V Freq 2kHz



  - Waveform going into speaker
    - Amplitude 2.16V Freq 1.992kHz



  - dBA meter reading (Extech 407736)
    - Extech 407736 = 100.3 dBA

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