LMV1099 Quick Start Guide

Contents

1 – Assembled LMV1099TL evaluation board

1 – USB mini board

1 – USB mini cable

1 – Dummy handset*

* The dummy cell phone handset contains no functional electronics. It is a shell with two microphones mounted on the bottom end and an earpiece speaker at the top. There are 3 cables attached to the phone. MIC 1 is connected to the microphone mounted on the front of the phone. MIC 2 is connected to the microphone mounted on the back of the phone. The cable without a label is connected to the terminals of the earpiece speaker.

Additional Equipment Needed

- 2 – 3.5 mm male to male stereo headphone cables
- PC with LMV1099 digital control software AND recording software
- Two independent audio sources (one to provide environmental noise and one to route as downlink receive path signal)

  Note: For the purpose of the Quick Start Guide, an MP3 player is used to provide environmental noise and the headphone output of a PC or laptop provides the downlink receive signal.
- Speakers to provide environmental noise

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Basic Connections

1. Plug in USB mini board to J20 as seen in *Figure 1*.
2. Connect USB mini cable from USB mini board to PC or laptop.
3. Connect the microphones from the dummy headset to the LMV1099TL eval board. Connect MIC 1 and MIC 2 (from headset) to the UL MIC1 and UL MIC2 3.5 mm headphone jacks (from LMV1099 eval board) respectively.
4. Connect the third cable (not labeled) on headset to the DL OUT 3.5 mm headphone jack on the LMV1099 eval board.
5. Click on *Default All*.
6. Use a male to male stereo headphone cable to connect UL OUT (on the LMV1099 eval board) to the microphone input of a PC or laptop.
7. Use a male to male stereo headphone cable to connect the DL IN (of the LMV1099 eval board) to the headphone output of the laptop or PC to provide the downlink receive signal.
8. Connect MP3 player to speaker.

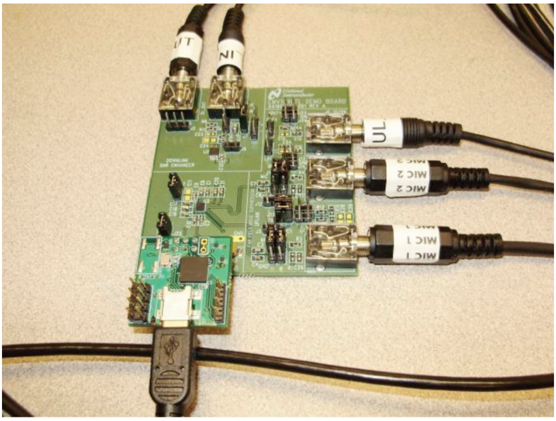

Figure 1. Connection Setup

Operation

1. Launch LMV1099 software.
2. Verify the board is talking to the PC by reading the bottom of the Graphic User Interface (GUI), it should read *USB Connected, All Ack* if it is connected correctly.
   If there is an error, it will read *USB I/O error I^{2}C Error* (***see Figure 2***).
3. Click *Power* on LMV1099 I^{2}C interface (GUI).
4. Turn on MP3 player to create background environmental noise.

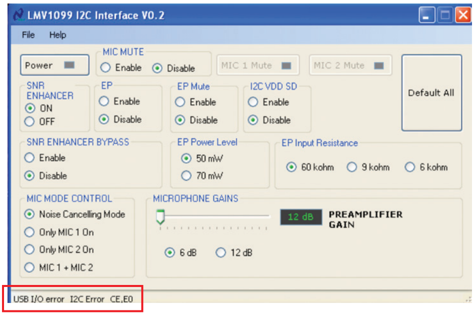

Figure 2. GUI error message

Uplink

1. Turn *FFNR OFF* on GUI (to create reference recording).
2. Start recording.
3. Speak into microphones while holding dummy headset to ear.
4. Stop recording.
5. Turn *FFNR ON* on GUI (to create noise cancelled recording).
6. Repeat steps 1-4.
7. Compare reference and noise cancelled recordings to evaluate FFNR performance.

Downlink

1. Turn *SNR ENHANCER ON* on GUI.
2. Enable EP (earpiece) on GUI.
3. Verify *SNR EHNANCER BYPASS* is Disabled.
4. Turn on downlink audio signal from laptop or PC. It can now be heard on the earpiece output of the dummy handset.
5. Toggle *SNR ENHANCER BYPASS Disable* (SNR Enhancer On) and Enable (SNR Enhancer Off) to analyze the effect of the SNR Enhancer.

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