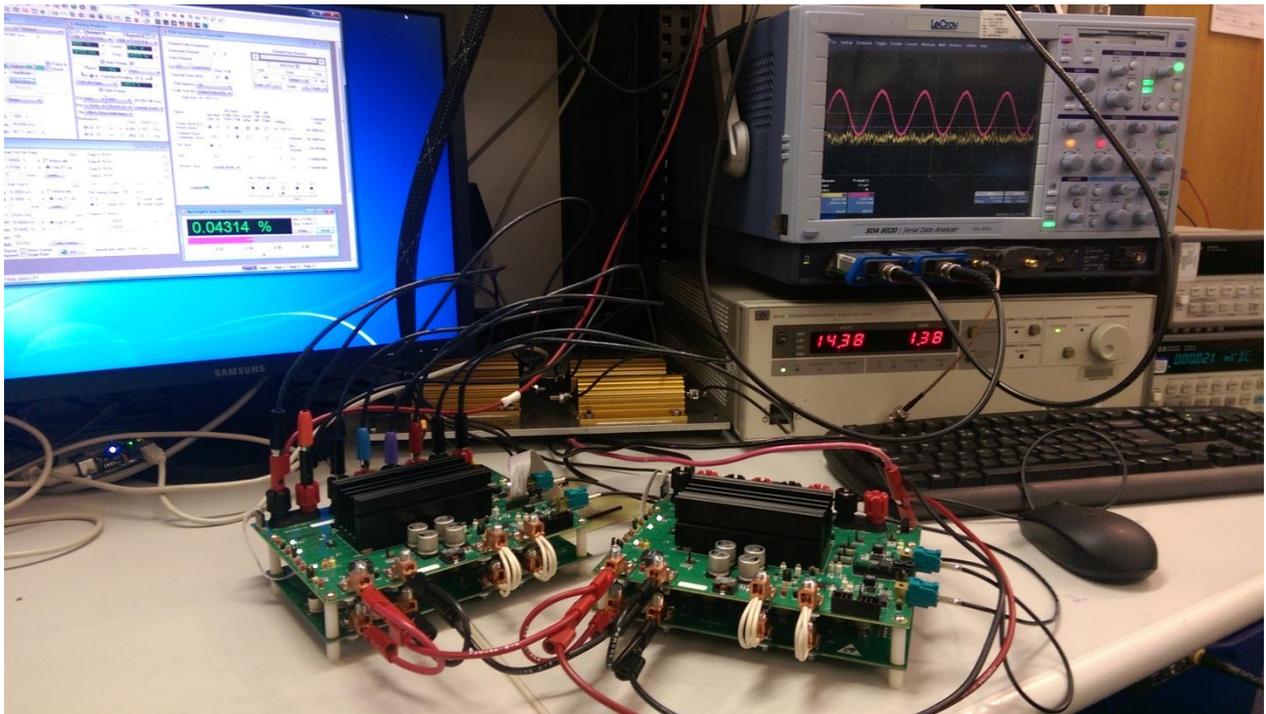


# TIDA-00223 Automotive Audio I2S over Coax Class D Amplifier TEXAS INSTRUMENTS

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The TIDA-00223 hardware was utilized for this test report, which includes the following:

- A. Configuration
- B. Power-ON Voltage Waveforms
- C. Operating Voltage Waveforms
- D. Power-OFF Voltage Waveforms
- E. Eye Diagram
- F. Audio Amplifier THD vs Power Plot
- G. Audio Amplifier THD vs Frequency Plot
- H. Audio Amplifier Frequency Response Plot



## A. Configuration

Two TIDA-00223 hardware setups were linked together using coax cables to conduct the tests in this report. One of the setups was configured as a master with I2S input capability and the other as a slave.

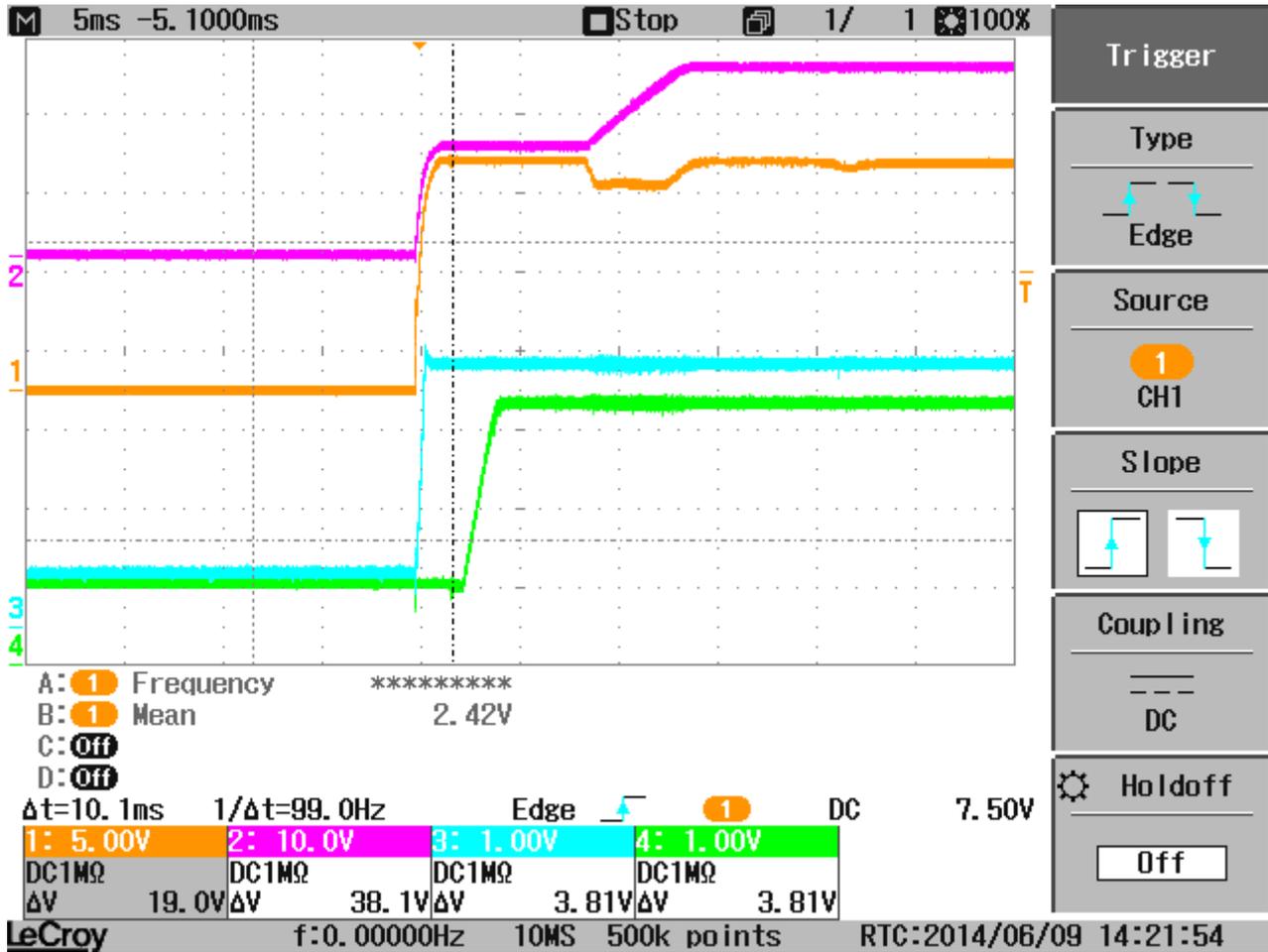
The power supply was configured to provide 14.4VDC to the VBAT input terminals of both hardware setups.

Jumpers were installed in position 1-2 of J24 as well as in position 2-3 of J21 on SAT0084 for both hardware setups to enable and select the 8VDC rail as the source to the downstream rails.

For the audio source, a USB to I2S generator was utilized with audio playing from a laptop. An Audio Precision tool was used to configure and analyze the audio amplifier performance.

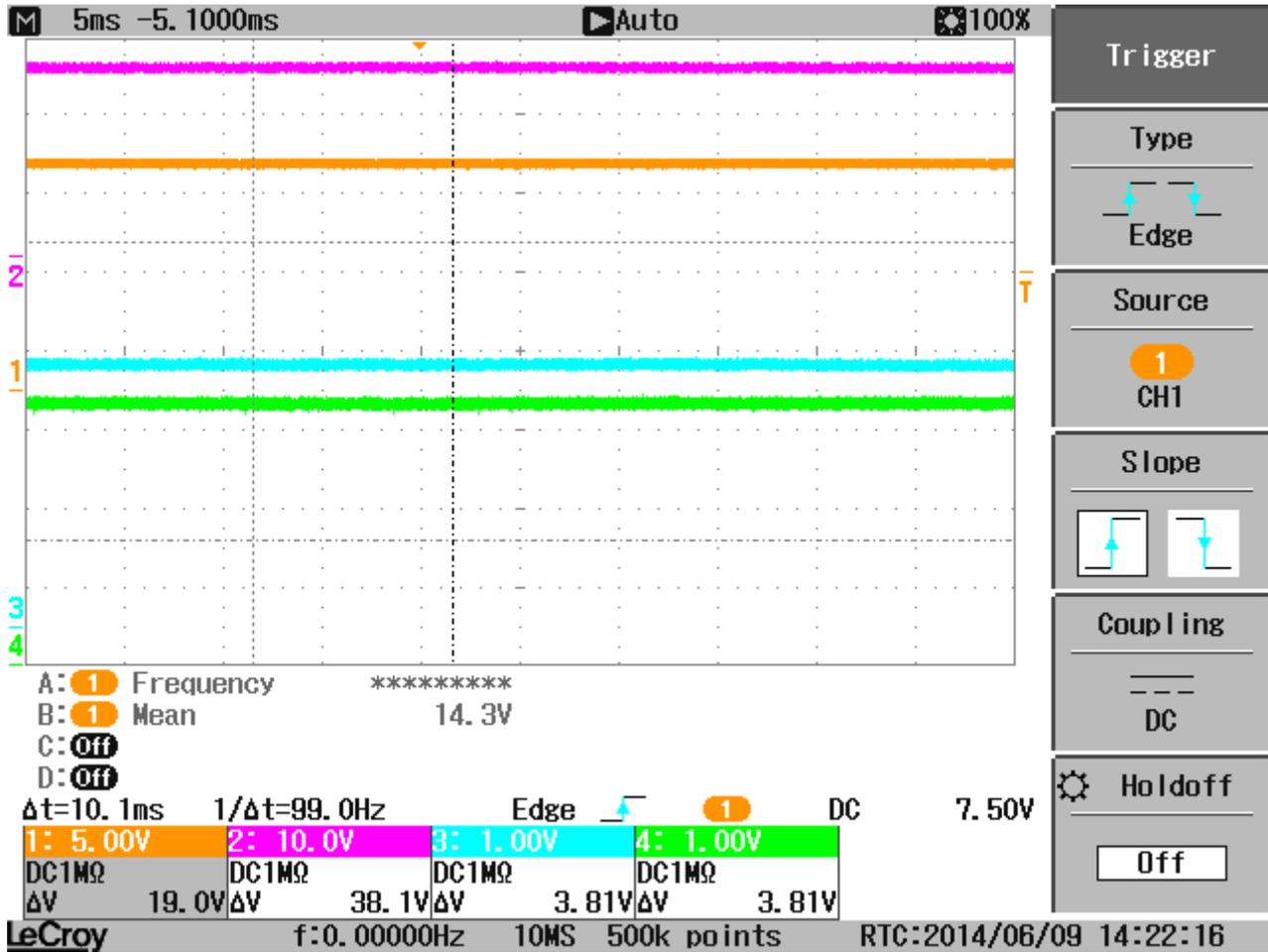
**B. Power-ON Voltage Waveforms**

The following waveforms illustrate VBAT rail (TP10), 24V rail (TP1), 3.3V MCU rail (TP19), and 3.3V rail (TP16) during power-on of the hardware setups.



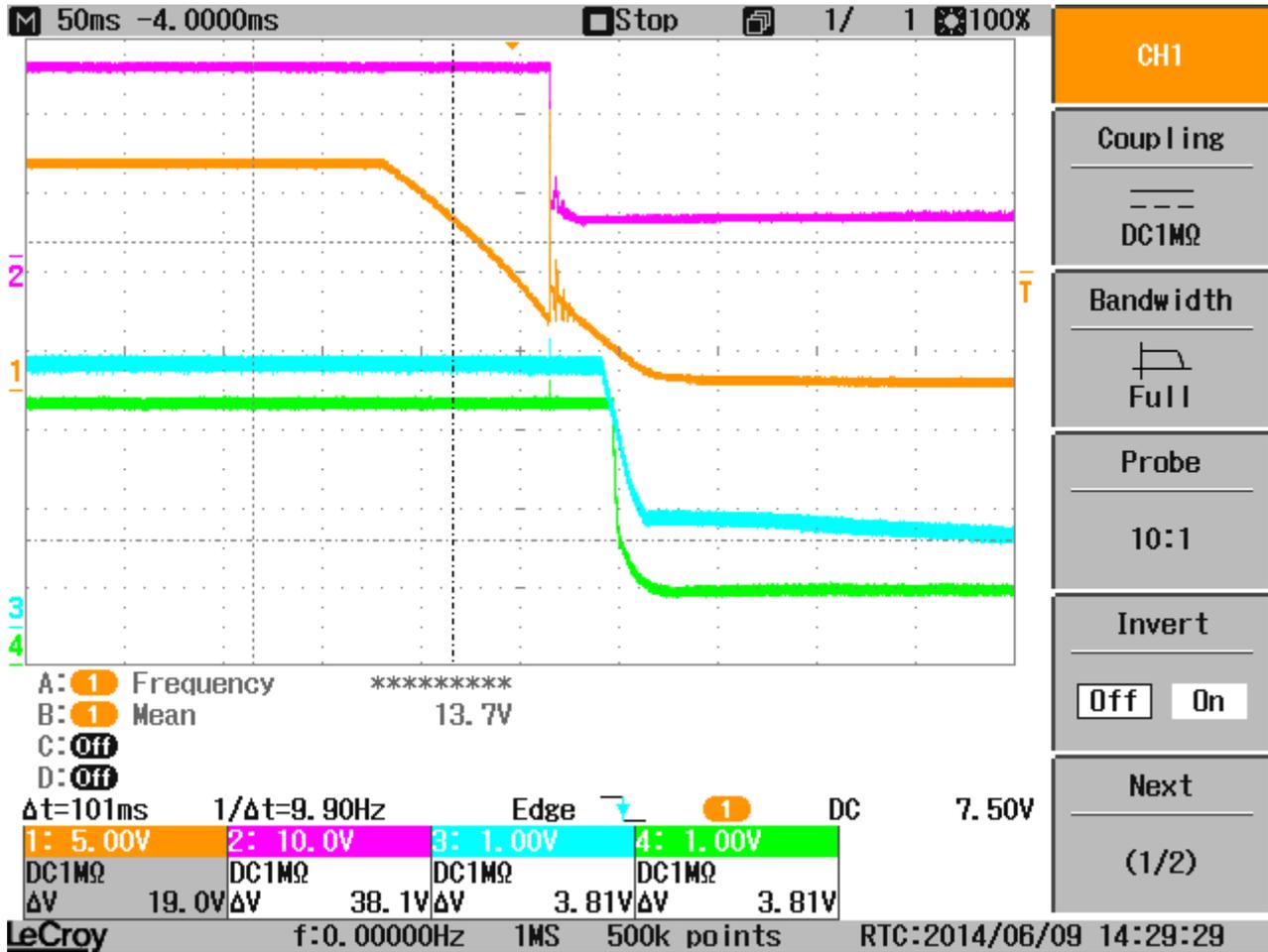
### C. Operating Voltage Waveforms

The following waveforms illustrate VBAT rail (TP10), 24V rail (TP1), 3.3V MCU rail (TP19), and 3.3V rail (TP16) during operation of the hardware setups.



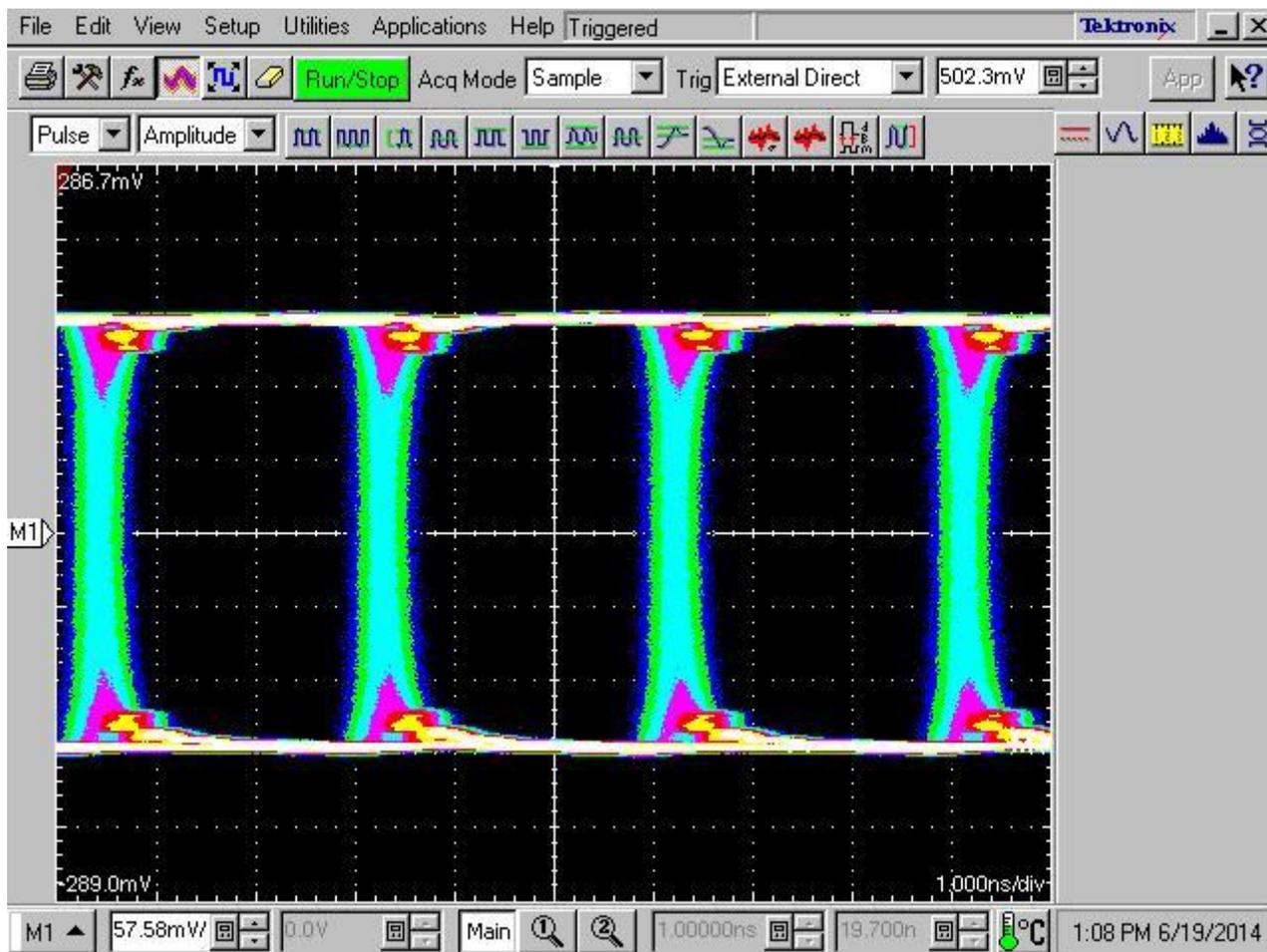
### D. Power-OFF Voltage Waveforms

The following waveforms illustrate VBAT rail (TP10), 24V rail (TP1), 3.3V MCU rail (TP19), and 3.3V rail (TP16) during power-off of the hardware setups by disconnecting the input power supply.



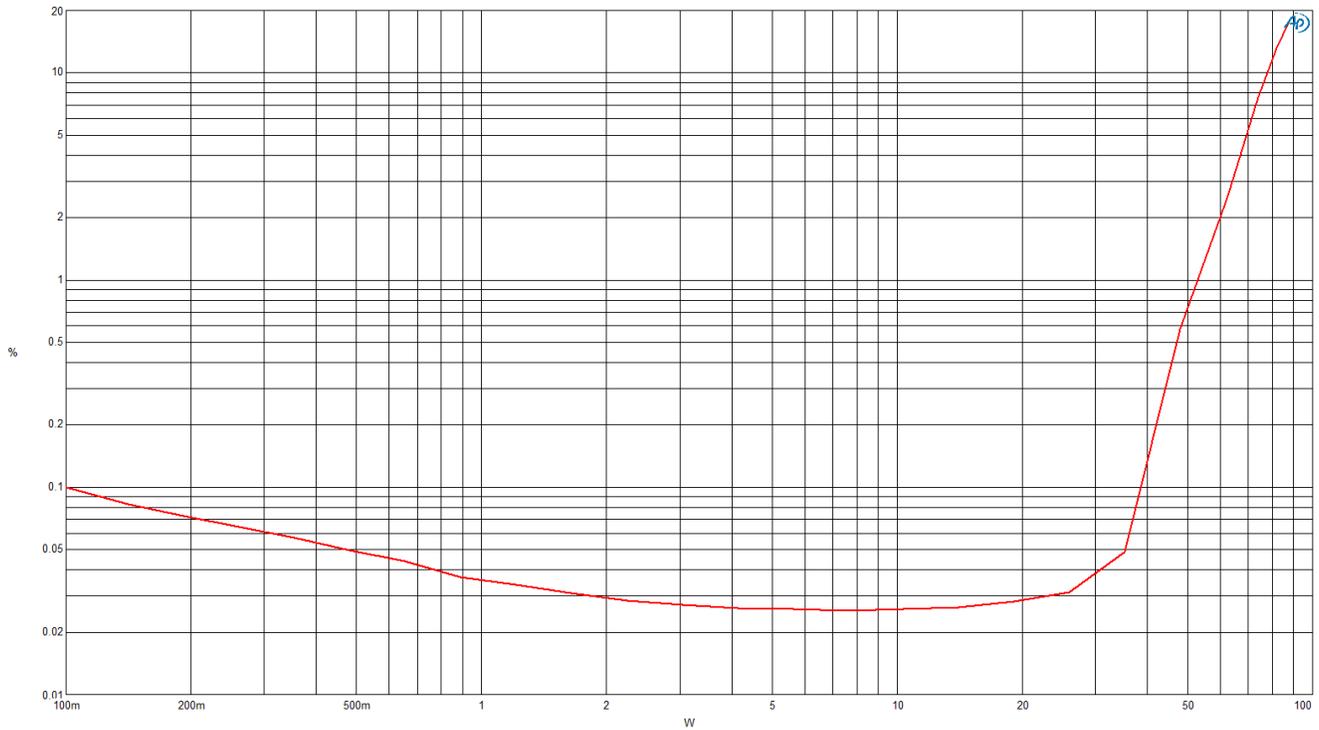
## E. Eye Diagram

The following image illustrates an eye diagram captured while I2S audio was playing. From the diagram, it is evident that the eye is fairly clear which increases the ability of recovering data error-free at the receiving end.



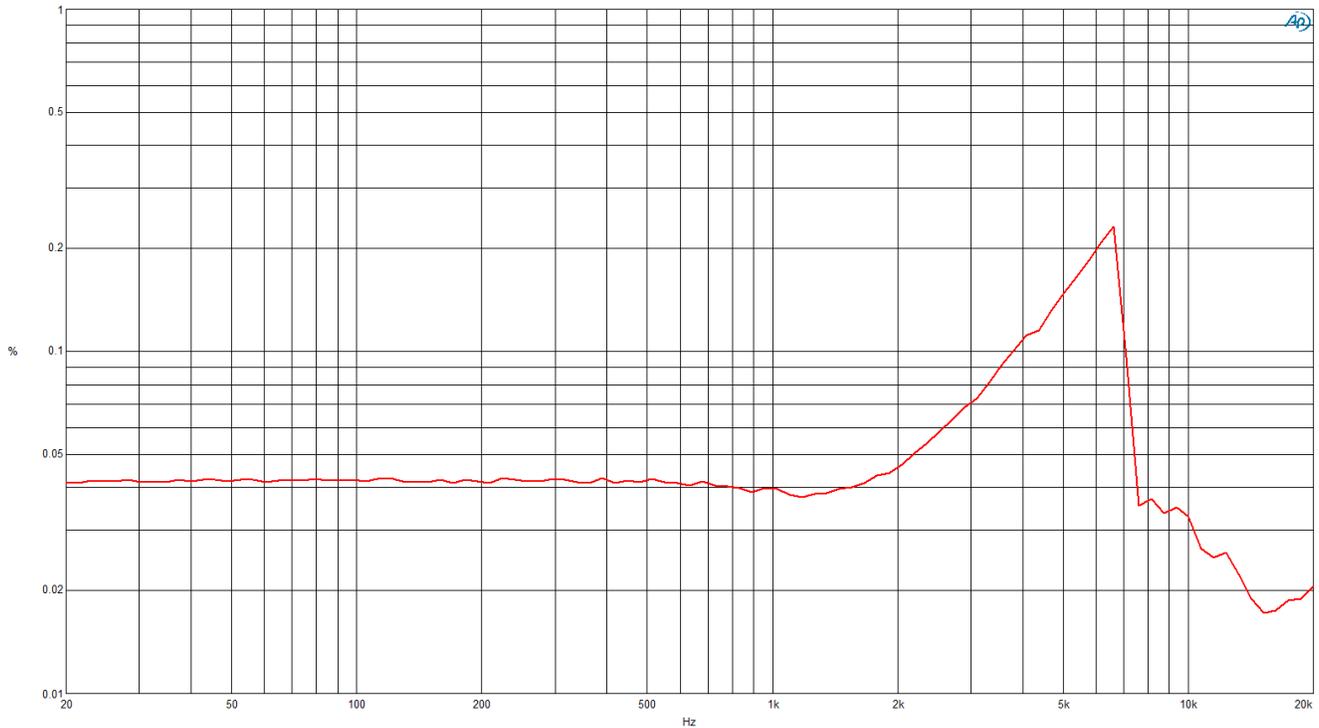
### F. Audio Amplifier THD vs Power Plot

The following is a plot of THD vs Power for the audio amplifier in the system captured using an AP tool.



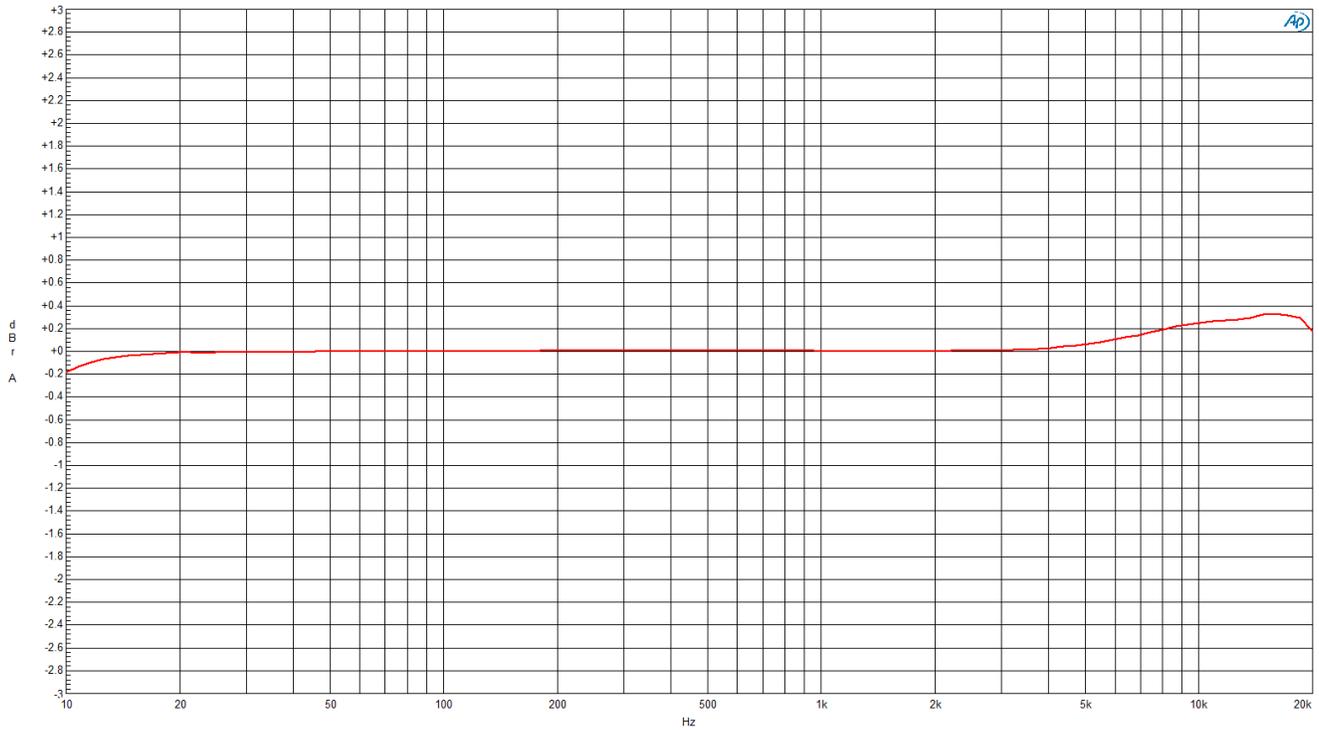
## G. Audio Amplifier THD vs Frequency Plot

The following is a plot of THD vs Frequency for the audio amplifier in the system captured using an AP tool.



### H. Audio Amplifier Frequency Response Plot

The following is a plot of the frequency response for the audio amplifier in the system captured using an AP tool.



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