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Immunity Tests of a Class-D Audio Amplifier.

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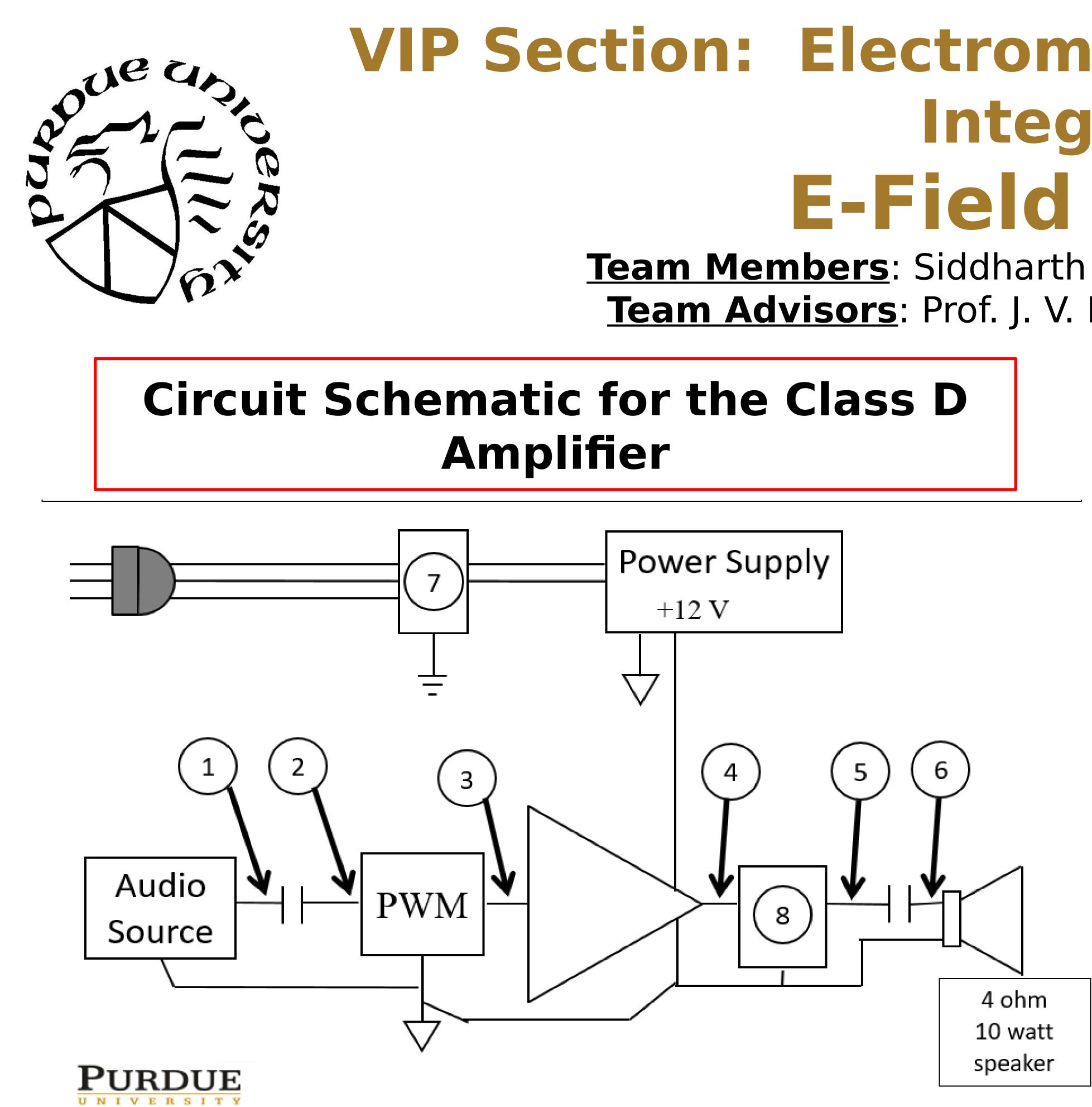
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Prakash, Raghul; Inani, Siddharth; Suzuki, Yuichiro; Ulvog, Krister; and Ogunkoya, Fiyi, "Immunity Tests of a Class-D Audio Amplifier." (2019). *Purdue Undergraduate Research Conference*. 18. https://docs.lib.purdue.edu/purc/2019/Posters/18

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Proposal

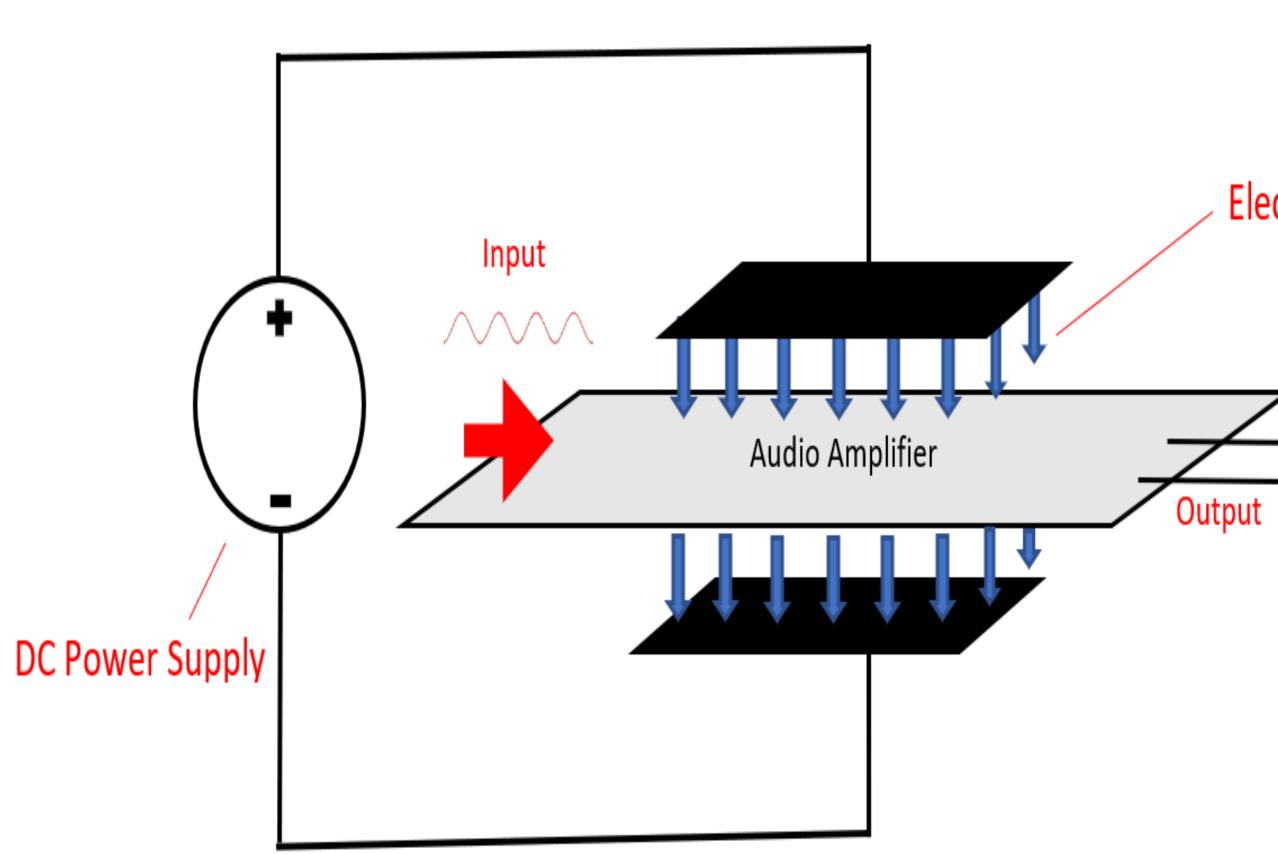
The project tests the noise immunity of a Class-D Audio Amplifier that we built which uses the Texas Instruments **TPA3122D2** integrated circuit and its output signal performance and integrity when exposed to a controlled electric field source is analyzed. This study was conducted to determine the best PCB layout practices for digital switching circuits that operate at high frequencies which would lead to better EMC design practices.

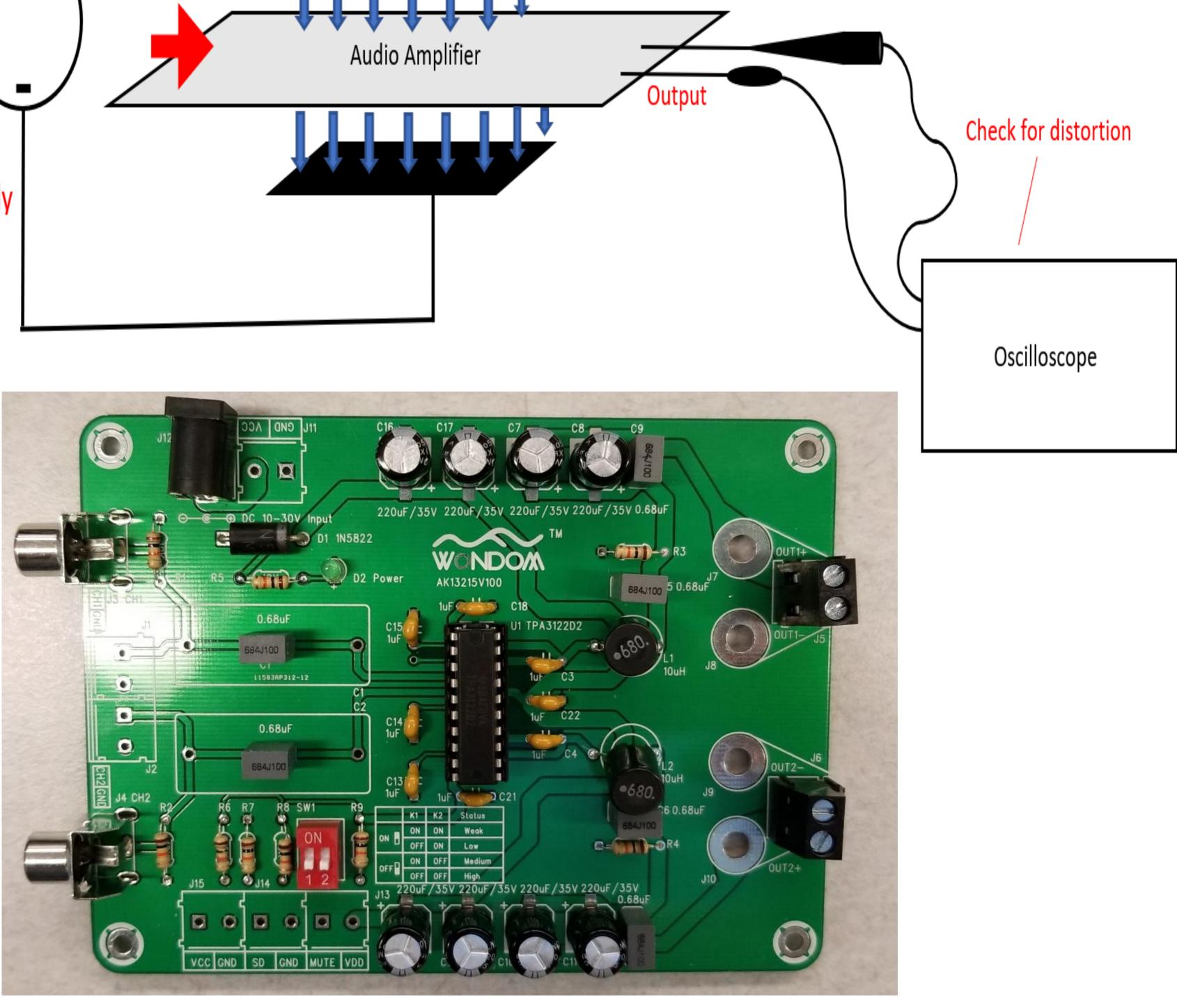
VIP Section: Electromagnetic Compatibility (EMC)/Signal Integrity (Spring 2018) **E-Field Immunity Testing**

Team Members: Siddharth Inani, Raghul Prakash, Krister Ulvog, Yuichiro Suzuki Team Advisors: Prof. J. V. Krogmeier, Prof. Barrett Robinson; Mr. Don Heirman

EXPERIMENT

A high intensity E-field near-field capacitor was designed and constructed and applied to the IC on the printed circuit board of the amplifier. E-Field intensities and output signal distortion were measured using calibrated near-field probes, a spectrum analyzer, and an oscilloscope. It was found that the output waveform was distorted when the Efield source was of high frequency but at relatively low frequencies the coupling capacitor that we added at Stage 1 was able to shunt out the noise





Electric Field