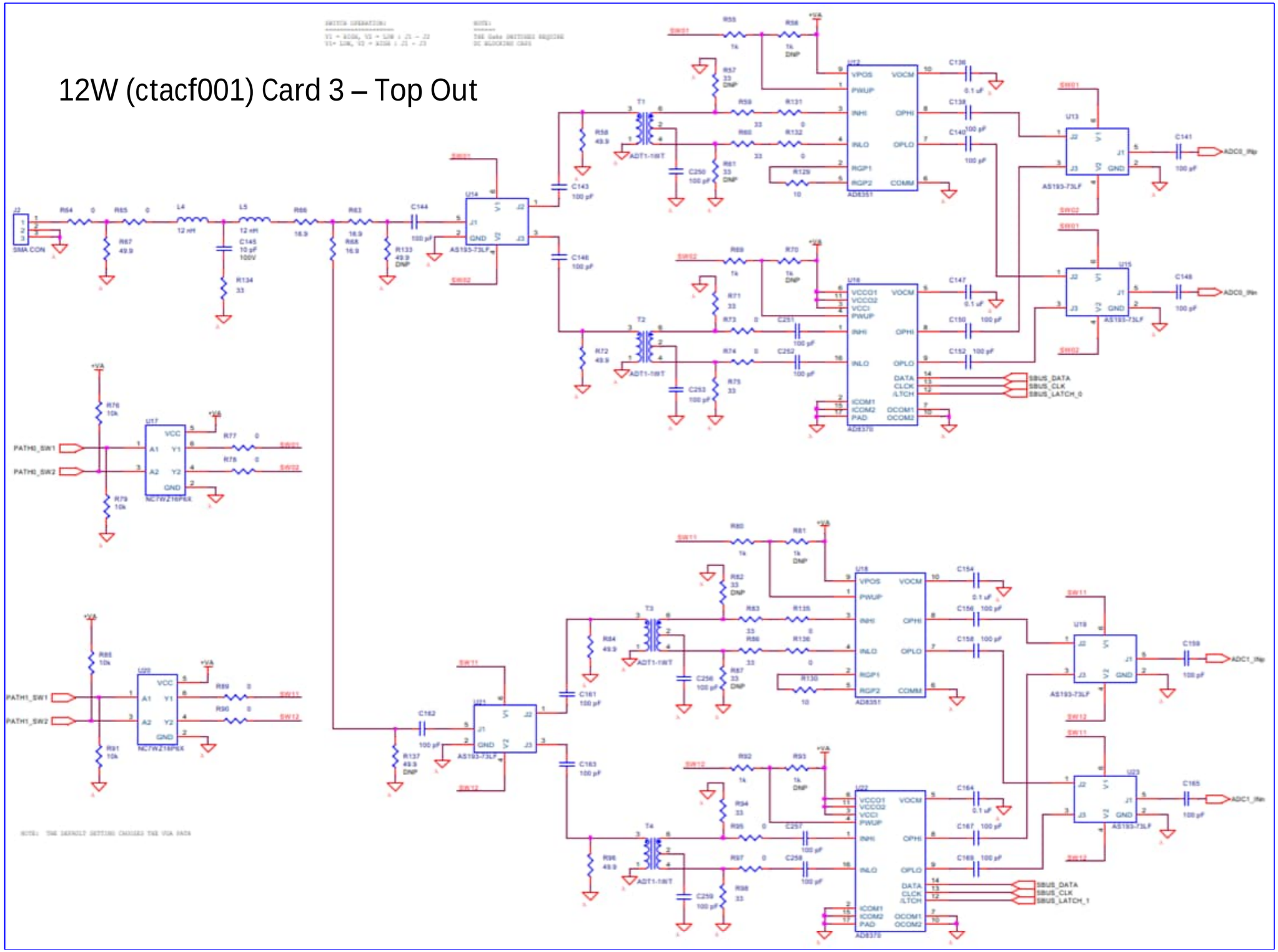
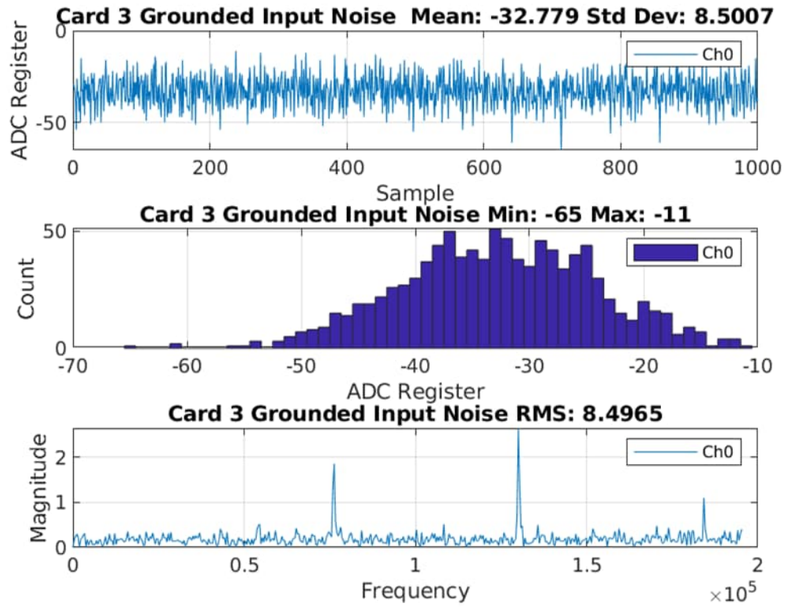
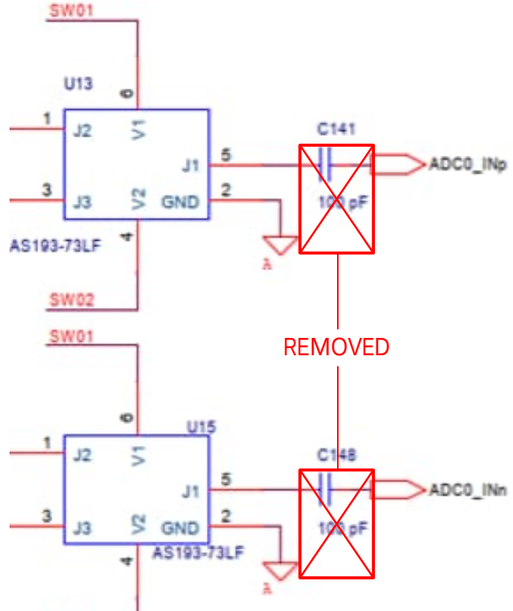
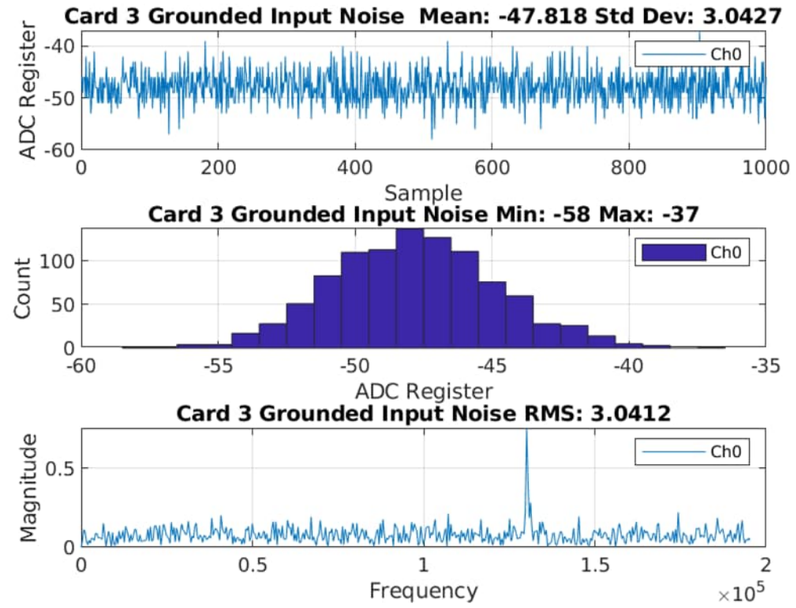
12W (ctacf001) Card 3 – Top Out

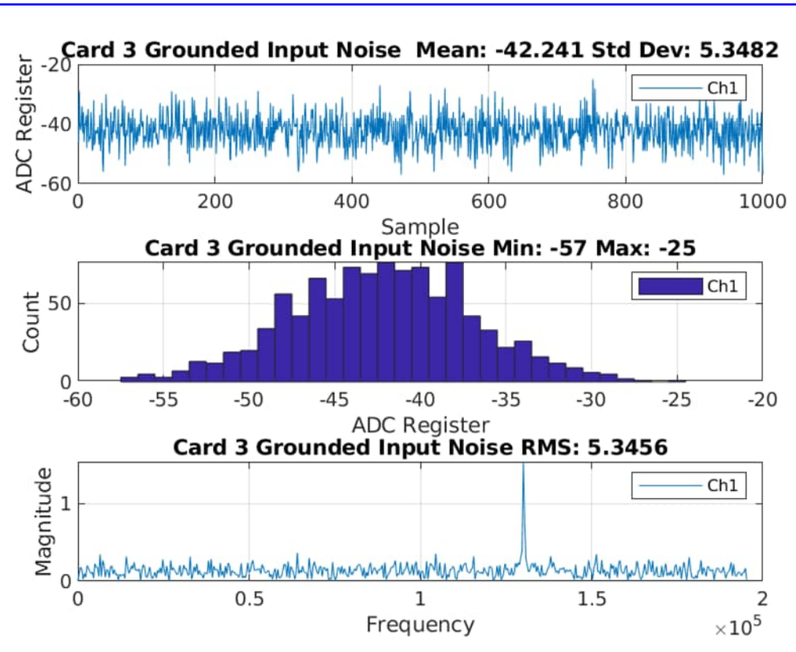


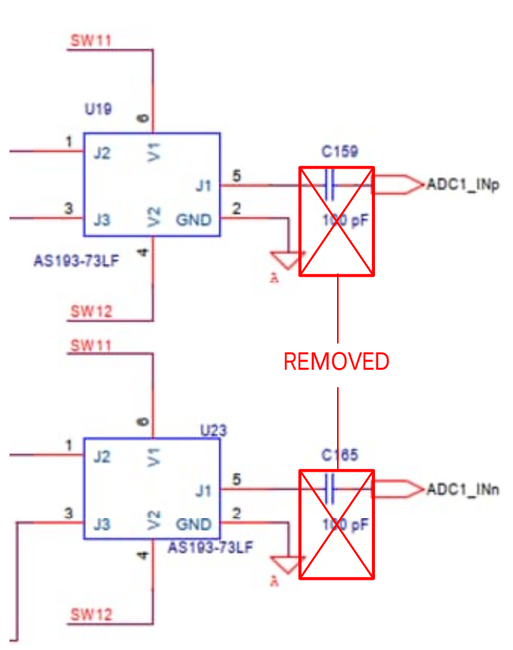
Before (Unchanged Board)

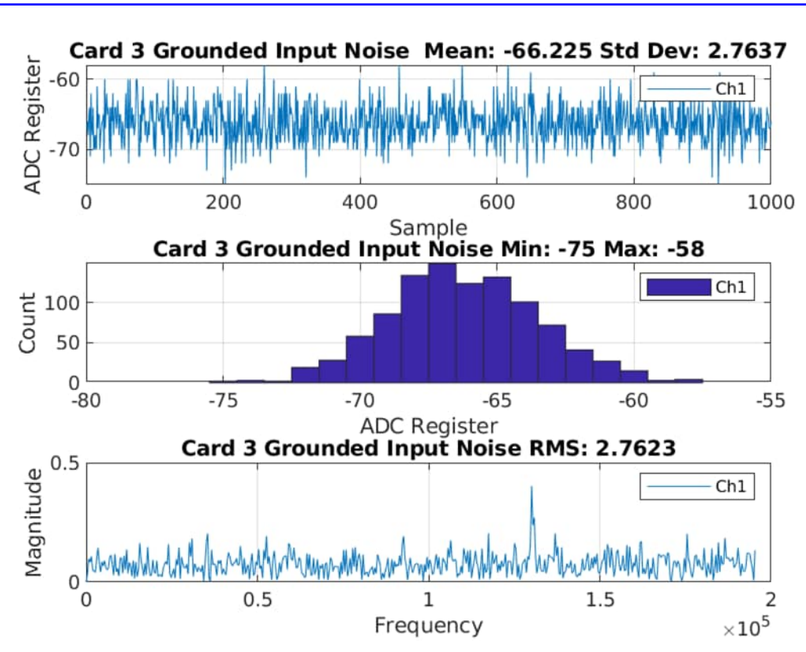








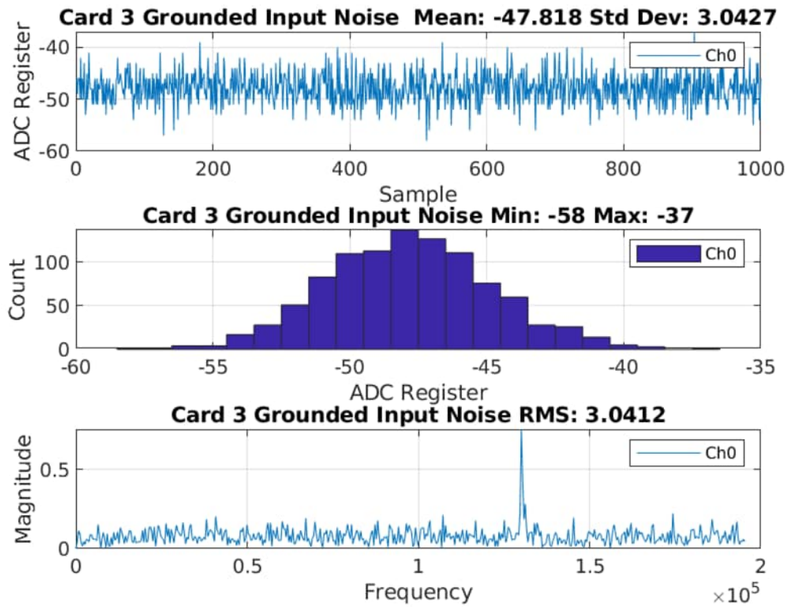


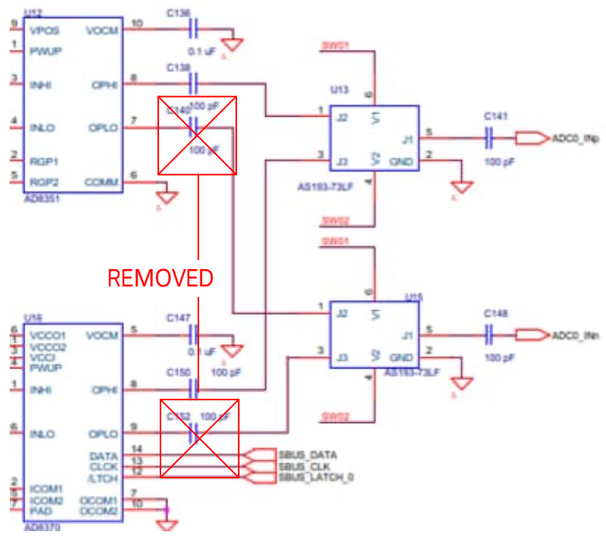


After

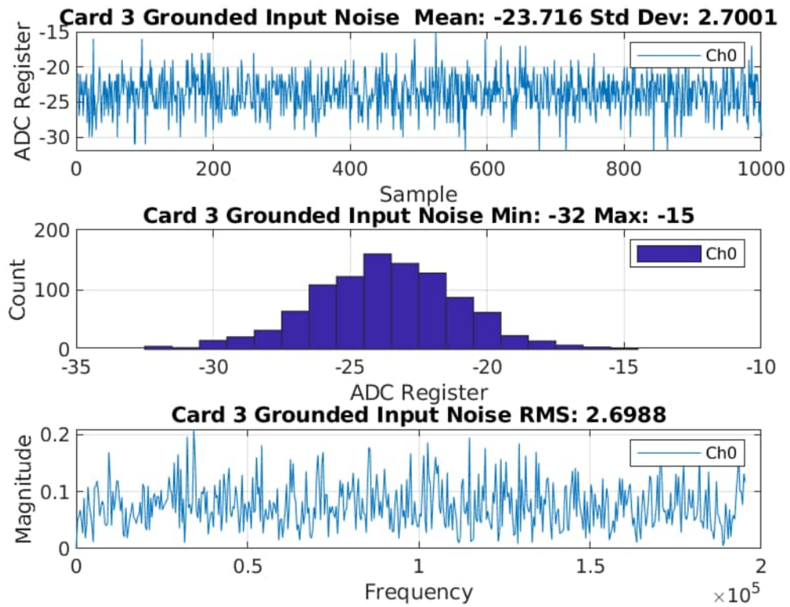
A/Ds Disconnected from Analog Front End.

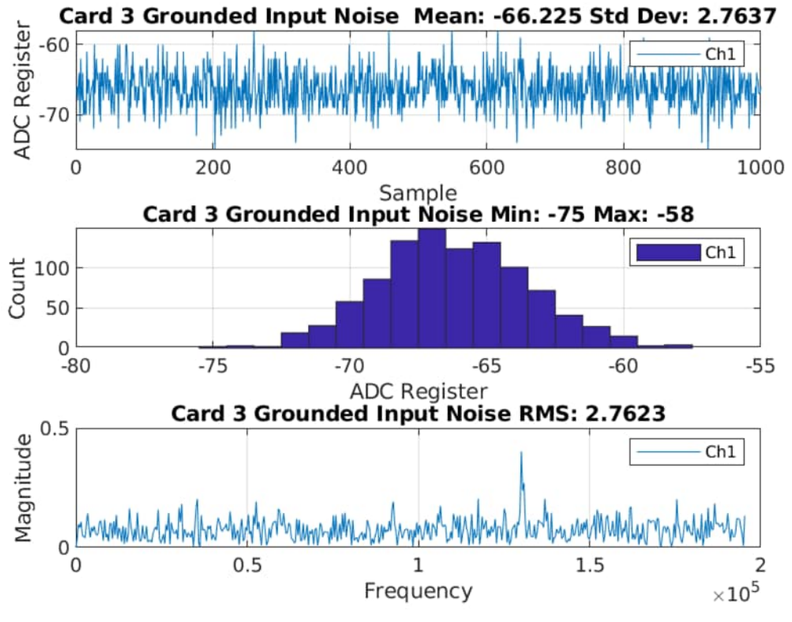
Before (After on A/D Disconnect)

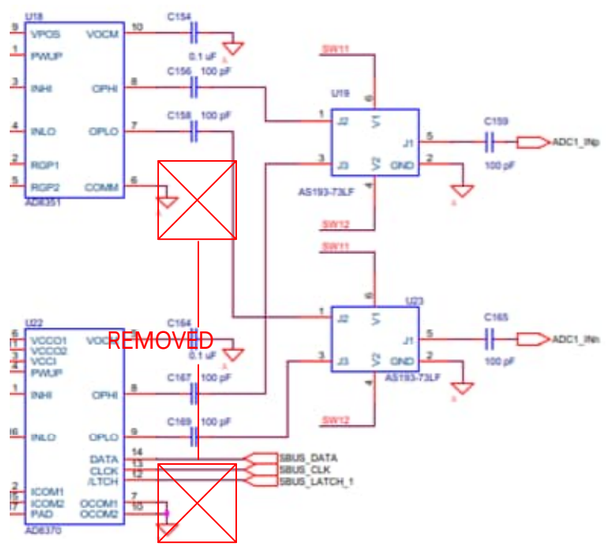


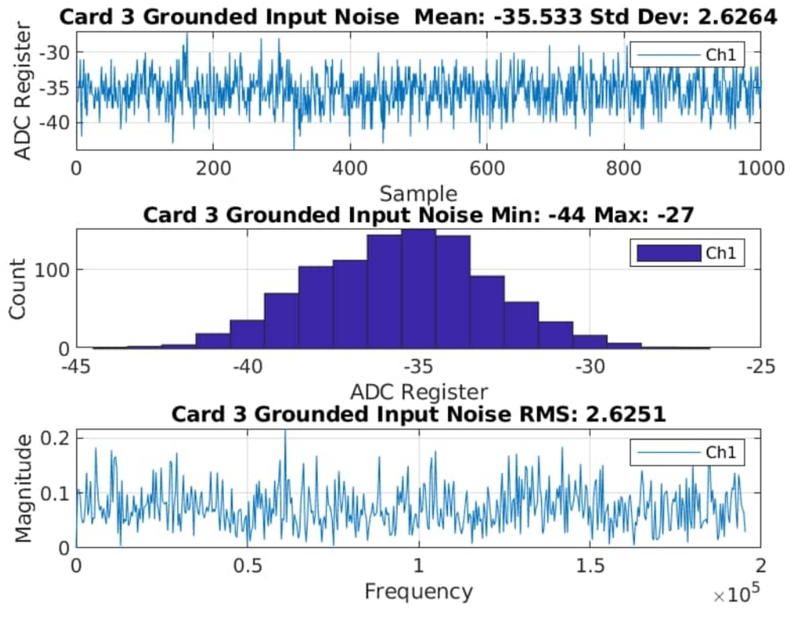


After



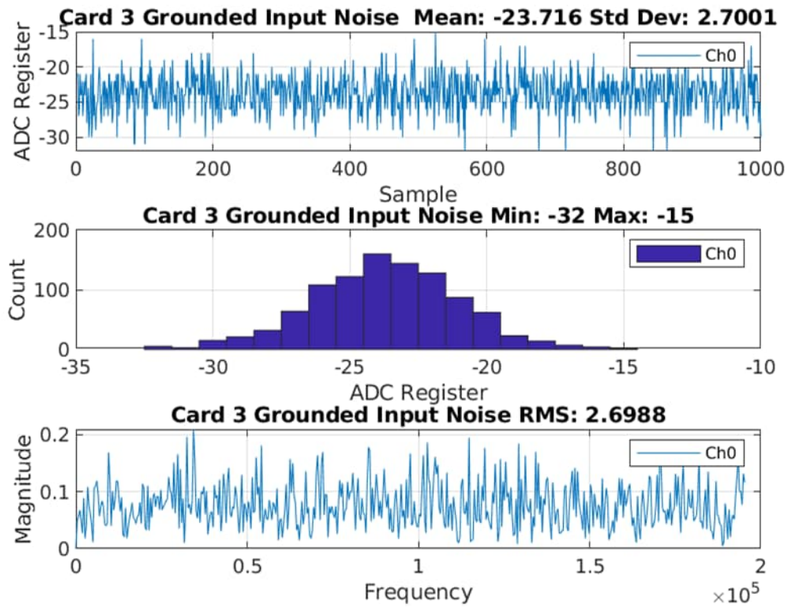


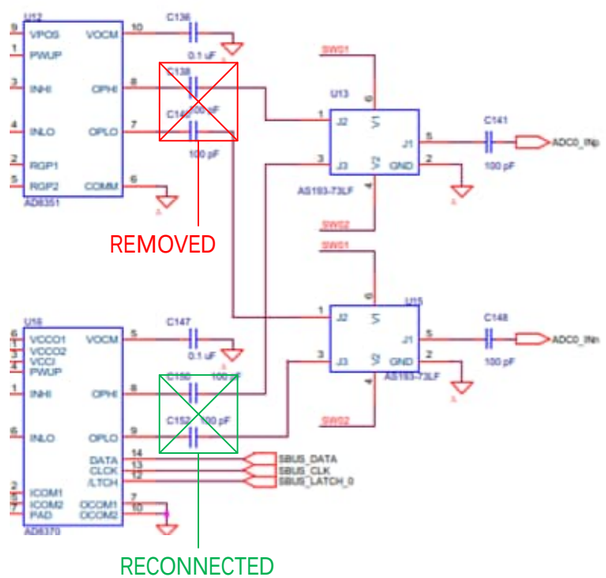




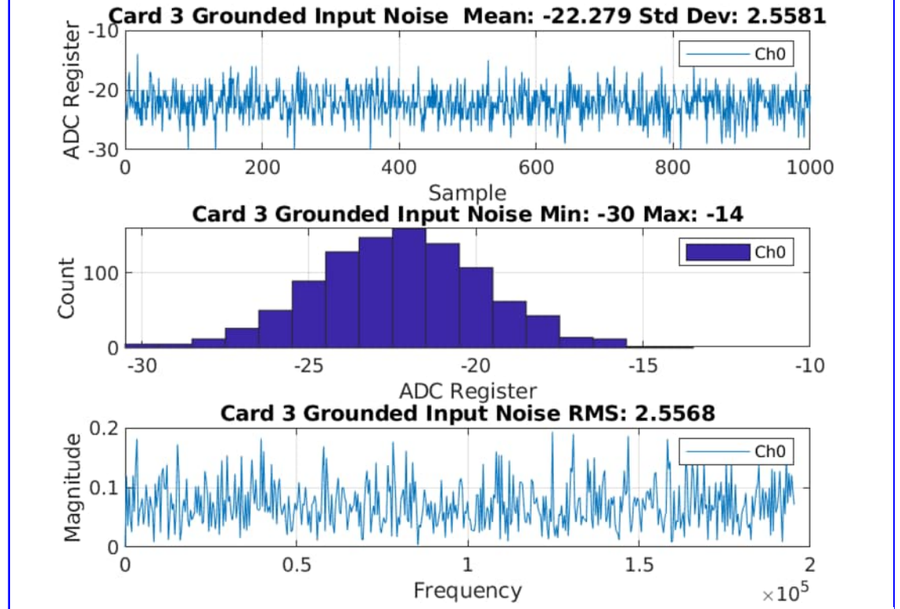
Amplifiers disconnected from Analog Switches which are reconnected to A/Ds

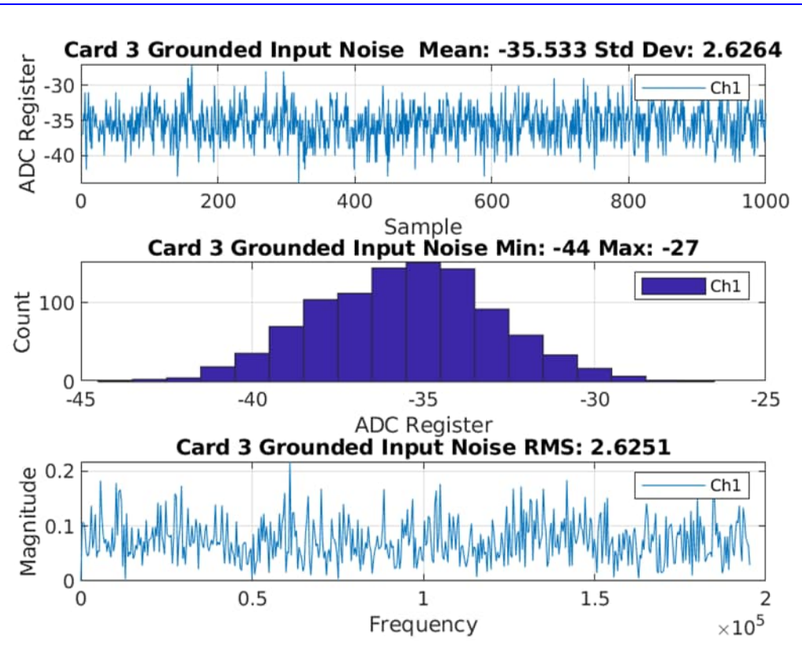
Before (Variable Amp reconnect)

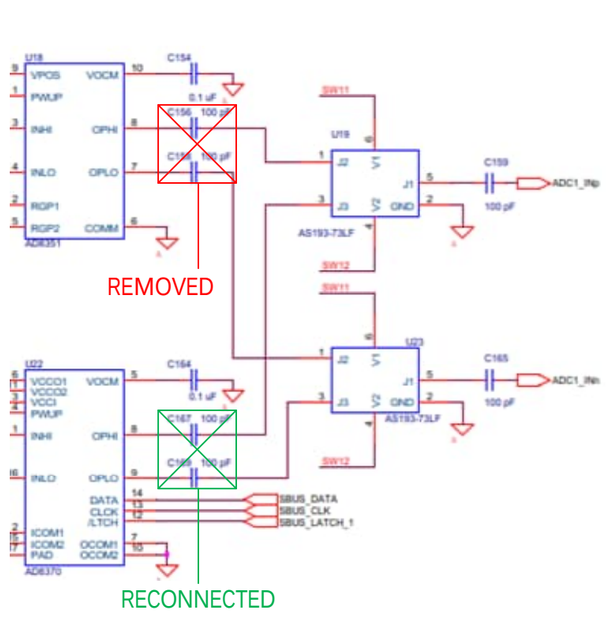


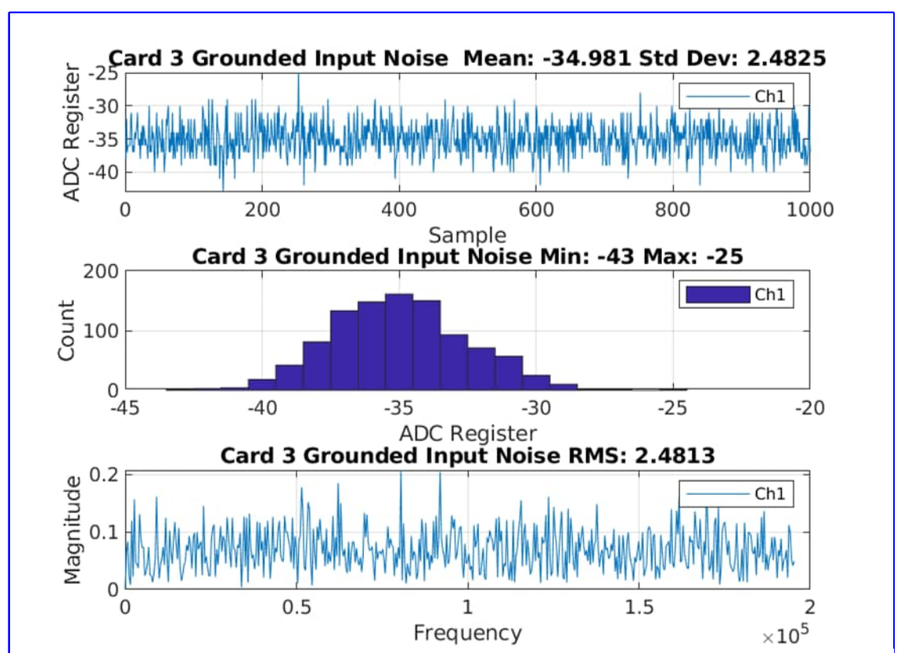


After (Variable Amp reconnect)



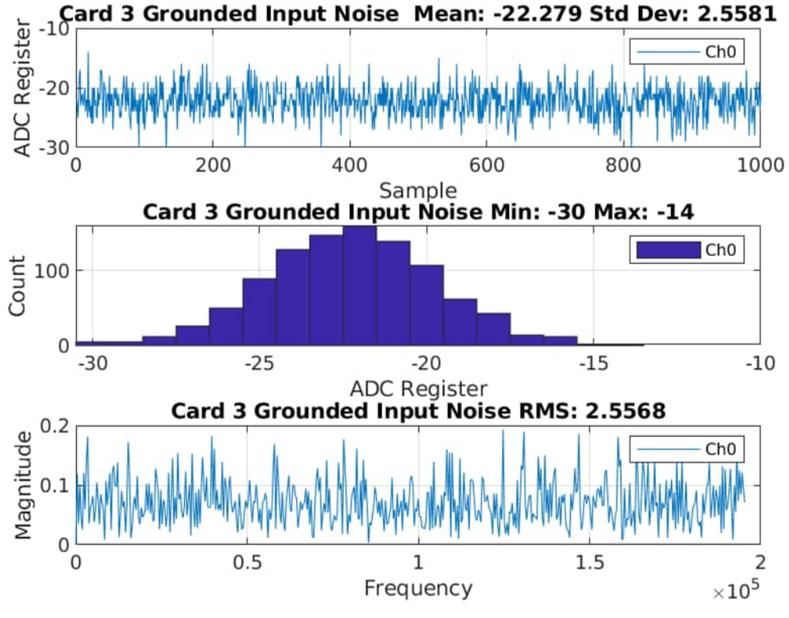


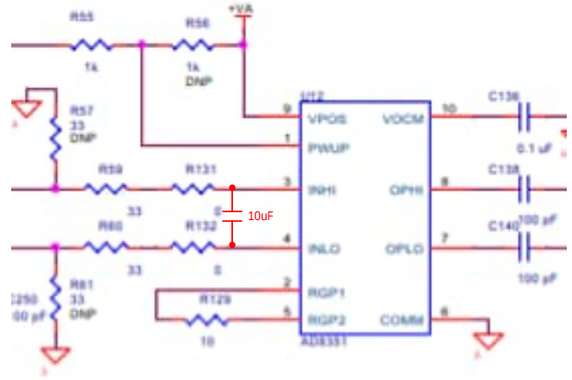




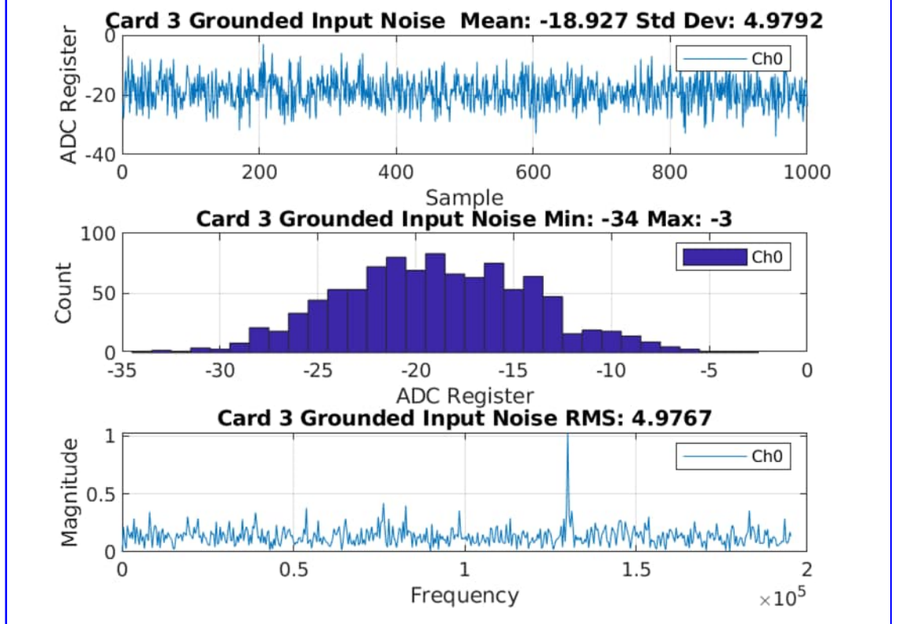
Fixed Amp disconnected/Variable Amp reconnected to Analog Switches which are reconnected to A/Ds

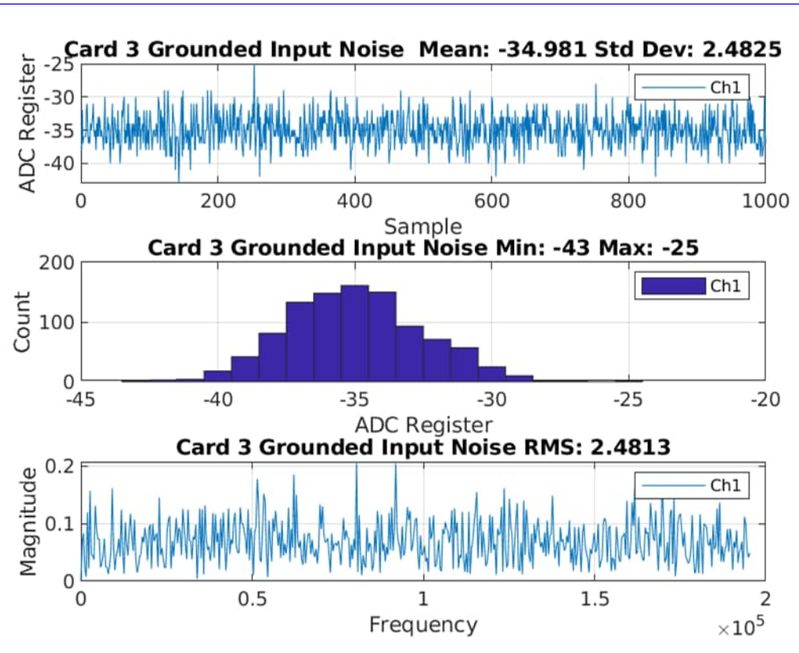
Before (After Variable Amp reconnect)

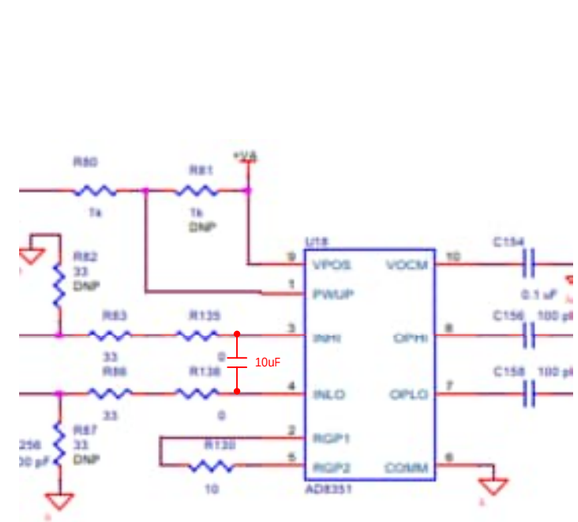


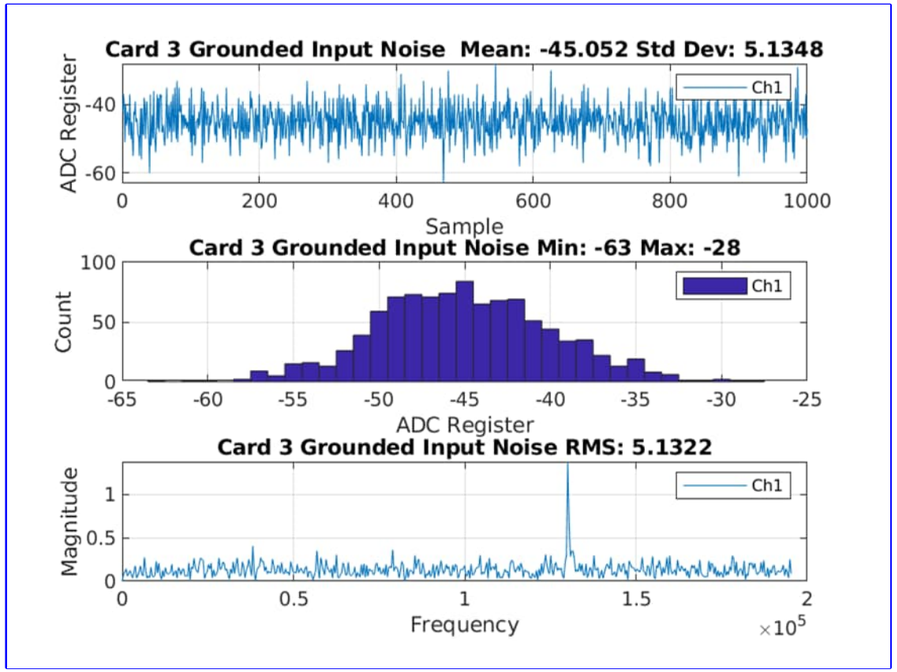


After (Fixed Amp Input Shorted)



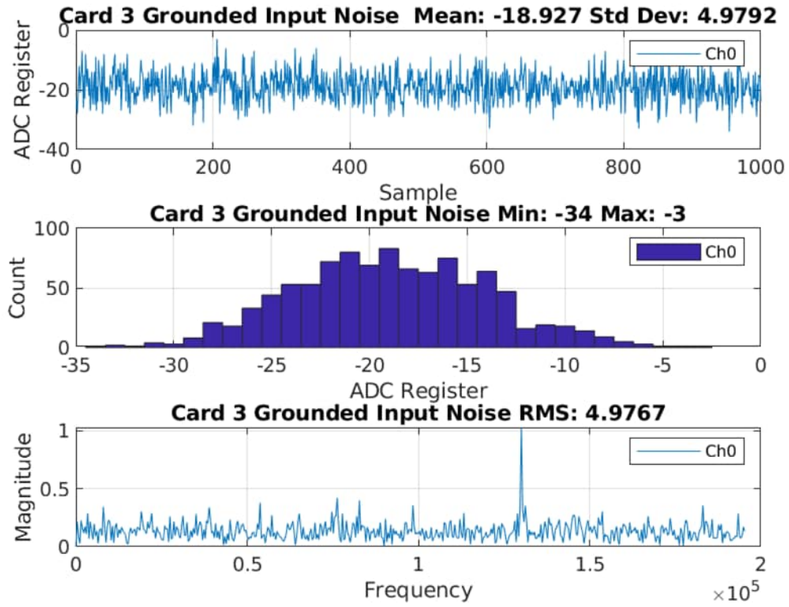


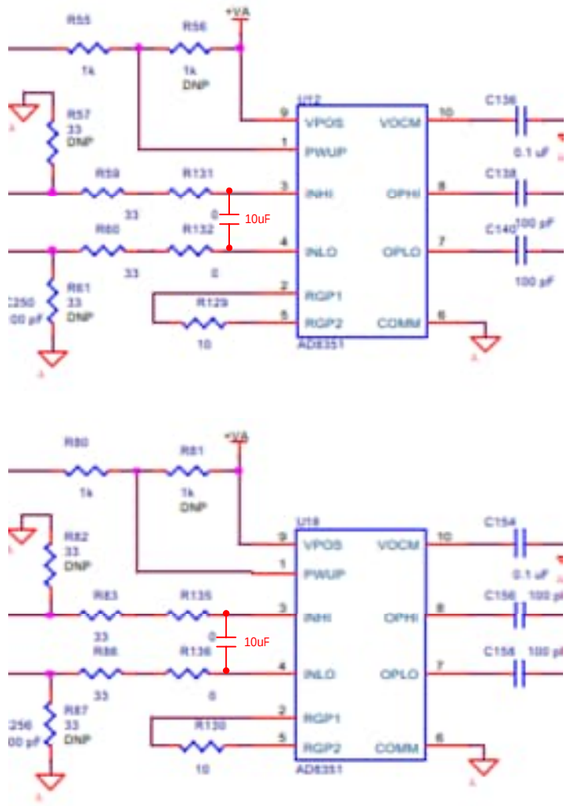




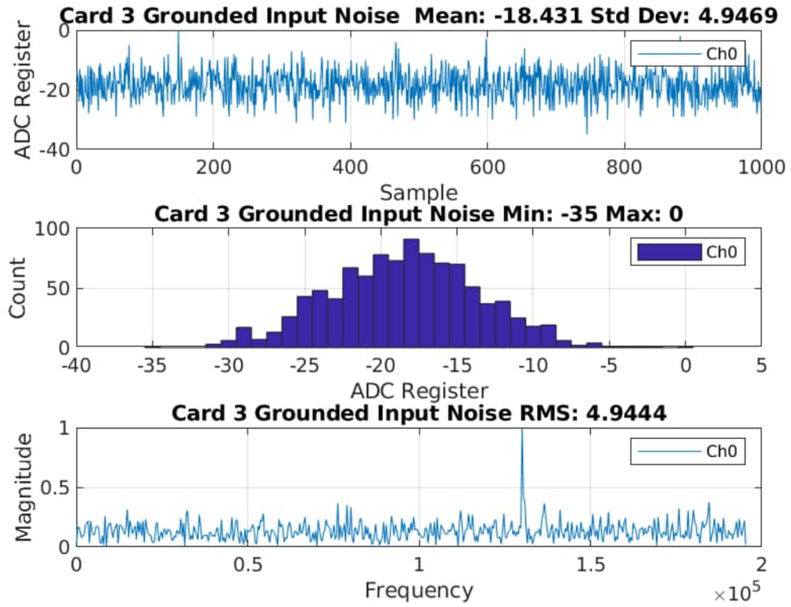
Fixed Amp Input Shorted: Both Amps reconnected to Analog Switches which are reconnected to A/Ds

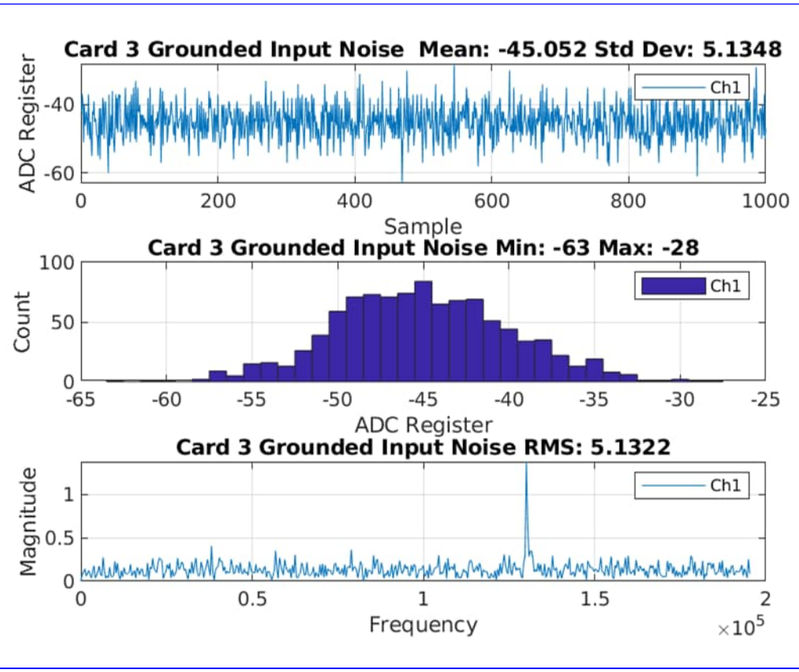
Before (Fixed Amp Input Shorted)



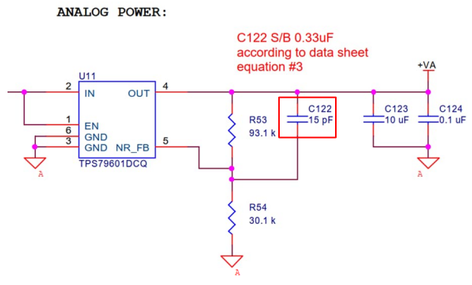


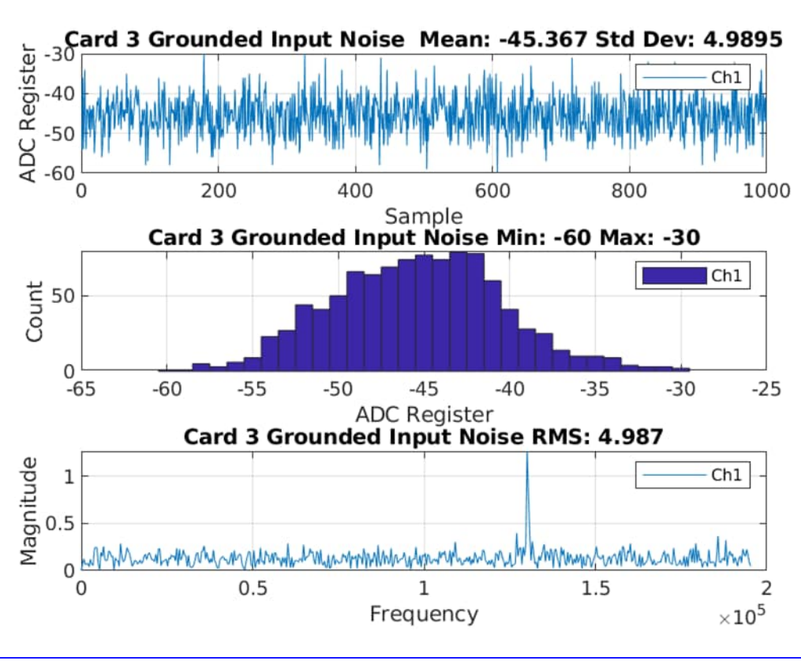
After (Fixed Amp Input Shorted & C122 to .3uF)





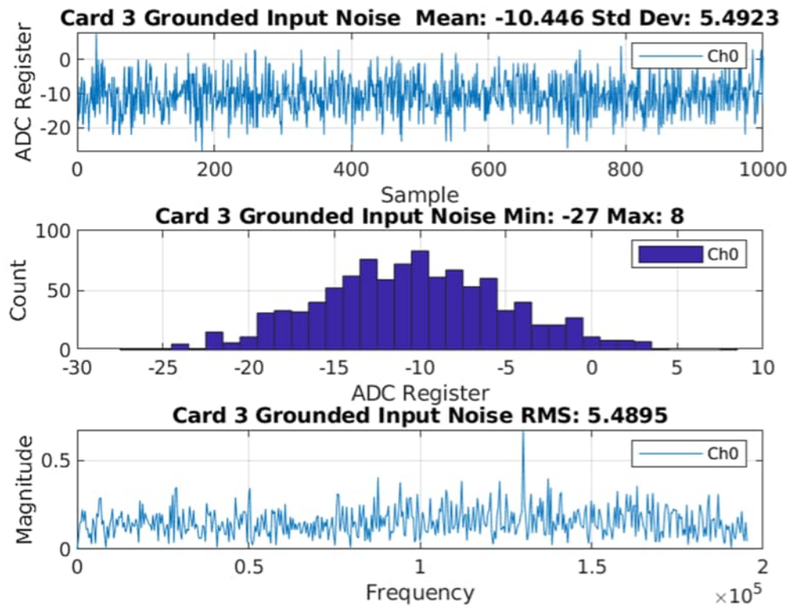
And

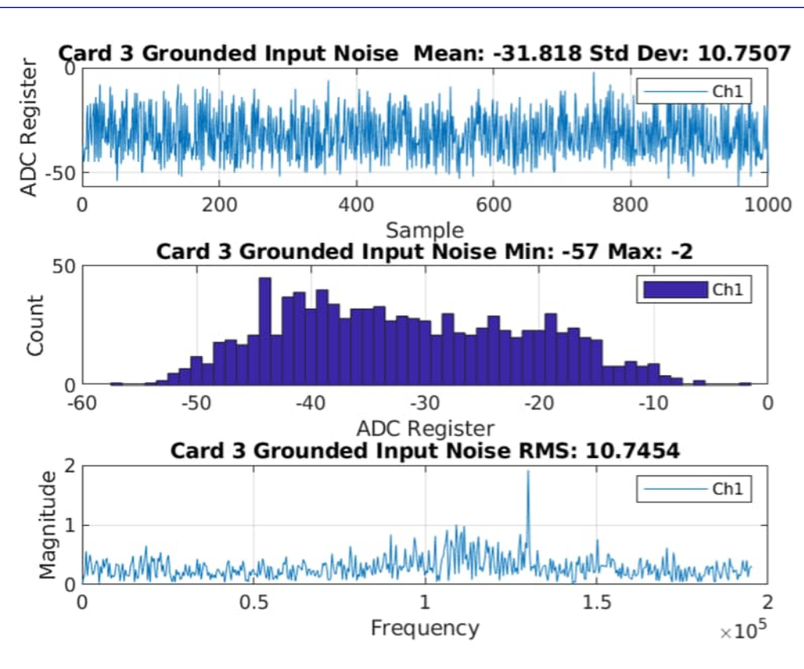




Fixed Amp Input Shorted And C122 (+Va) increased to .3uF, was 15pF

No Heatsink

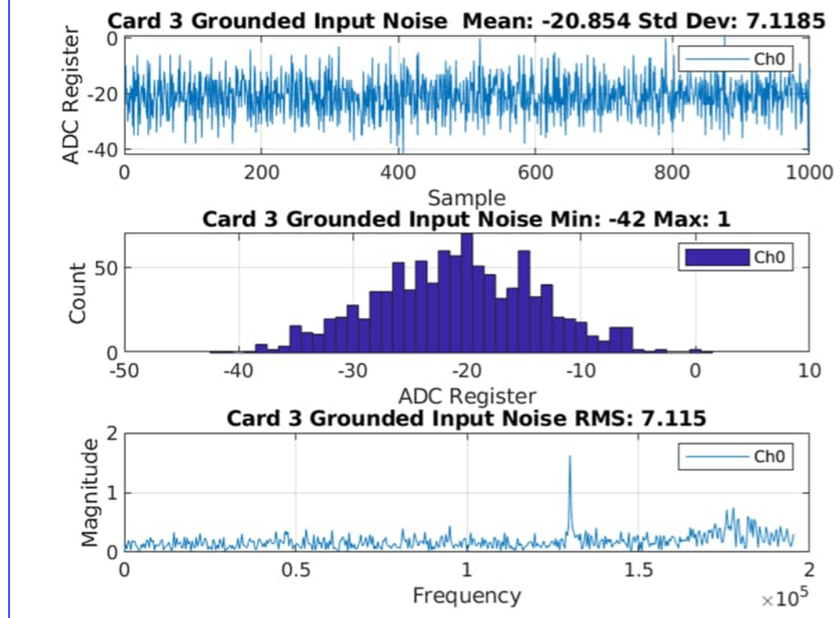


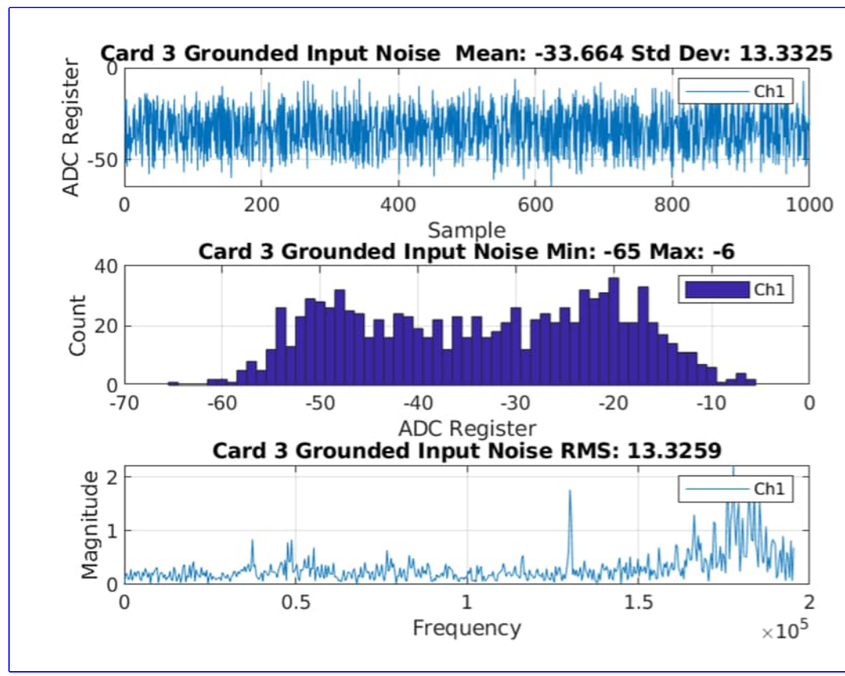


After restoring the Analog signal path I performed a noise test without the Heatsink and noticed the noise went up from the original measurement. Thinking the heatsink would act as a shield the noise went up. Grounding the Heatsink reduced the noise slightly.

Using a Homemade RF sniffing probe, Minicircuits LZF-500+ Amplifier (.05 – 500MHz) and an Oscilloscope, the A/D converter was the noise source.

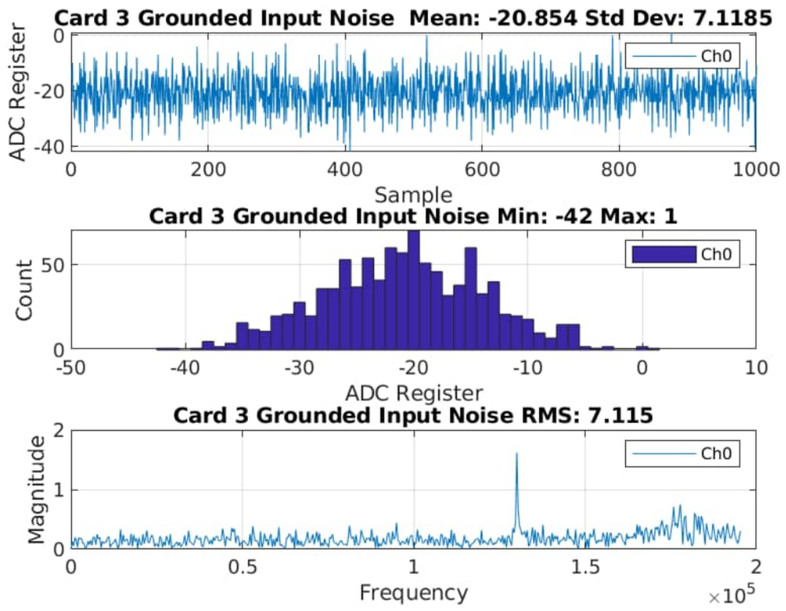
With Heatsink

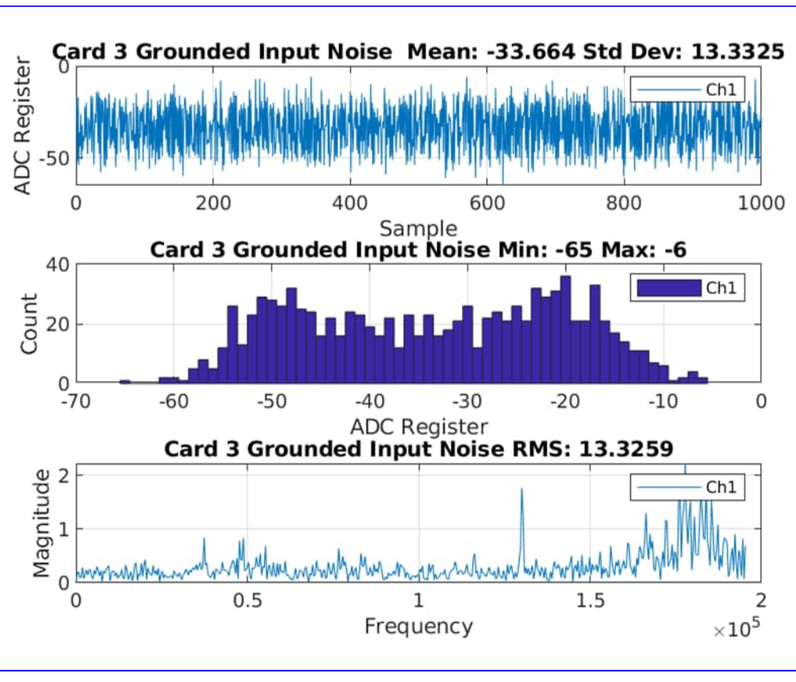




Analog path restored, No Heatsink vs Heatsink (GND'ed)

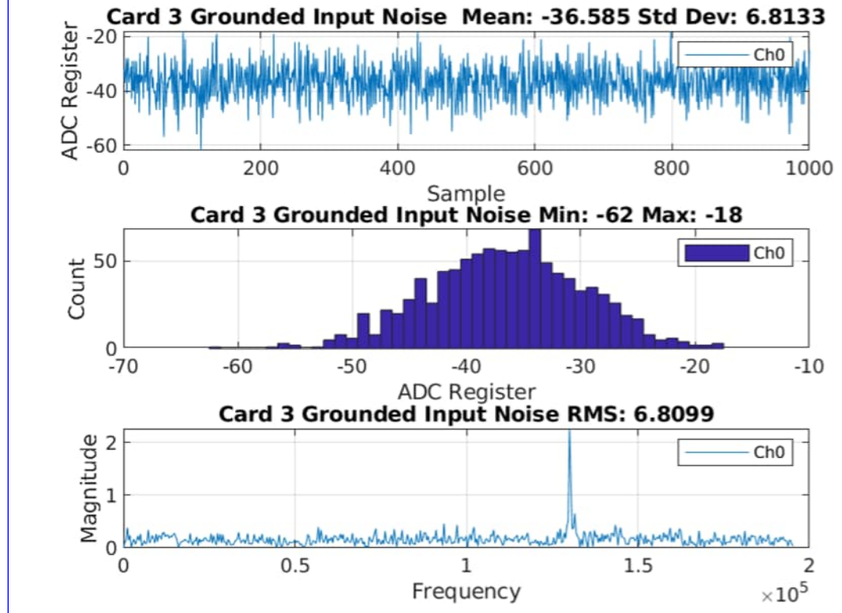
Heatsink

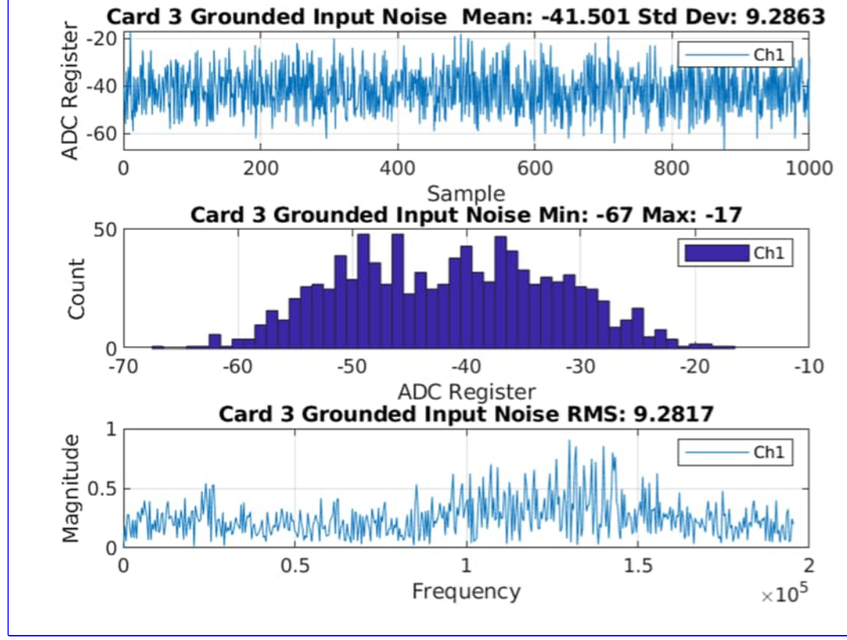




Cutting a strip of Metalized Mylar from an anti-static bag and placing it between the transformers and Heatsink reduced the noise.

Heatsink and Metalized Mylar Shield





Analog path restored, Heatsink (GND'ed) vs Heatsink (GND'ed) with Metalized Mylar Shield by Transformers