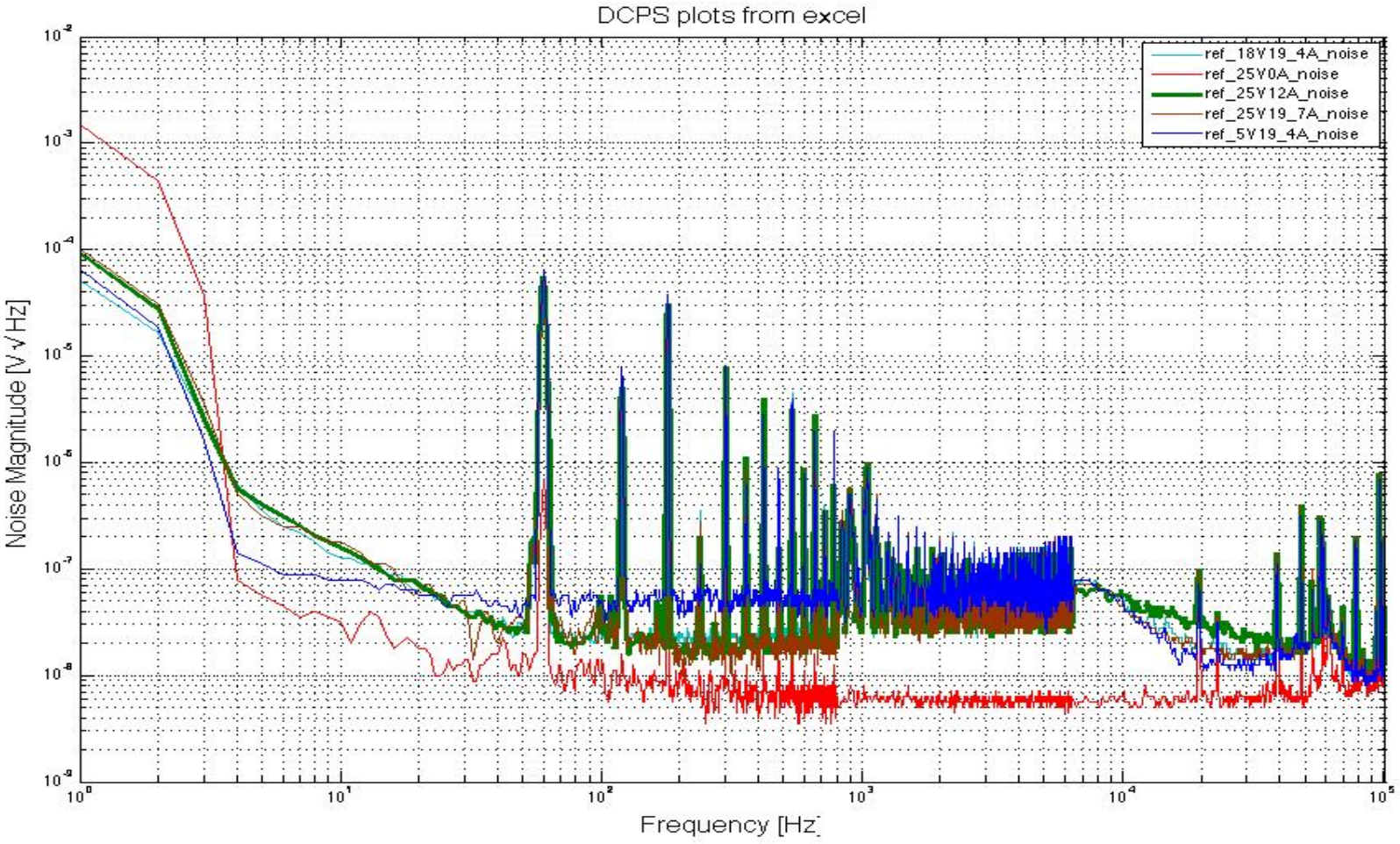
DC Power Supply Acceptance Noise Testing

- The following slide is a plot of all the measurements taken from Rich Abbott's excel file, on unit H210618 converted to Vrms/rtHz.
  - As per T1100478; **"Acceptance Testing of aLIGO DC Power Supplies"**
- The 25V 12A plot is the one we use as the 'Reference' in our comparison plots.

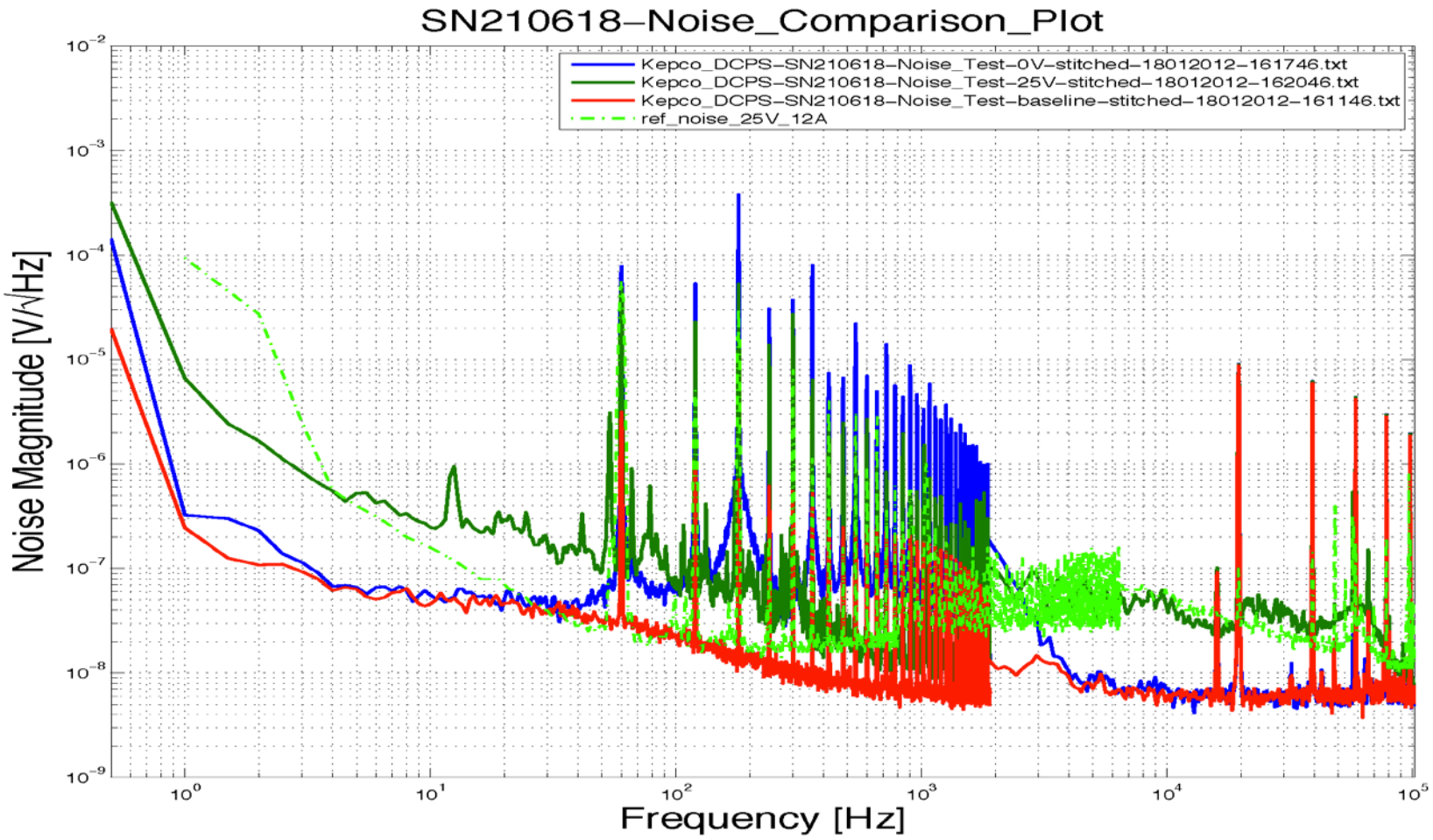
Serial Number H210618 Plots from KEPCO Trip



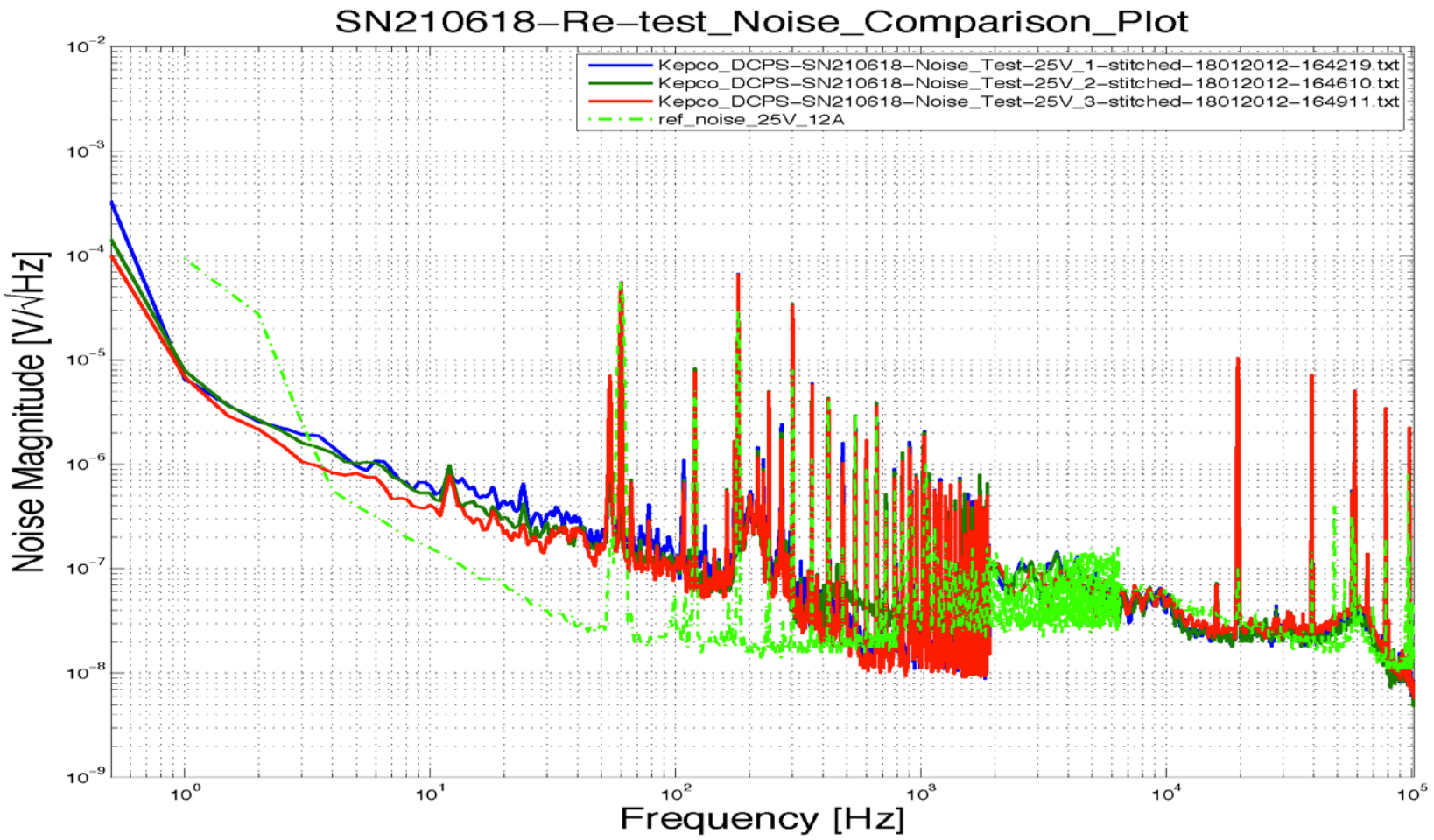
DC Power Supply Plots from KEPCO Trip

- The following slide is a plot of new measurements taken on unit H210618 with our current test setup.
- This is the same unit used for evaluation at Kepco for the measurements performed by Rich Abbott and David Kinzel.
  - As per T1100478; **"Acceptance Testing of aLIGO DC Power Supplies"**
- This plot shows the difference in noise due to our testing setup compared to the measurements taken at Kepco.
- The subsequent plot is 3 consecutive measurements plotted together to show the consistency of the measurements.

Serial Number H210618 on LLO Equipment



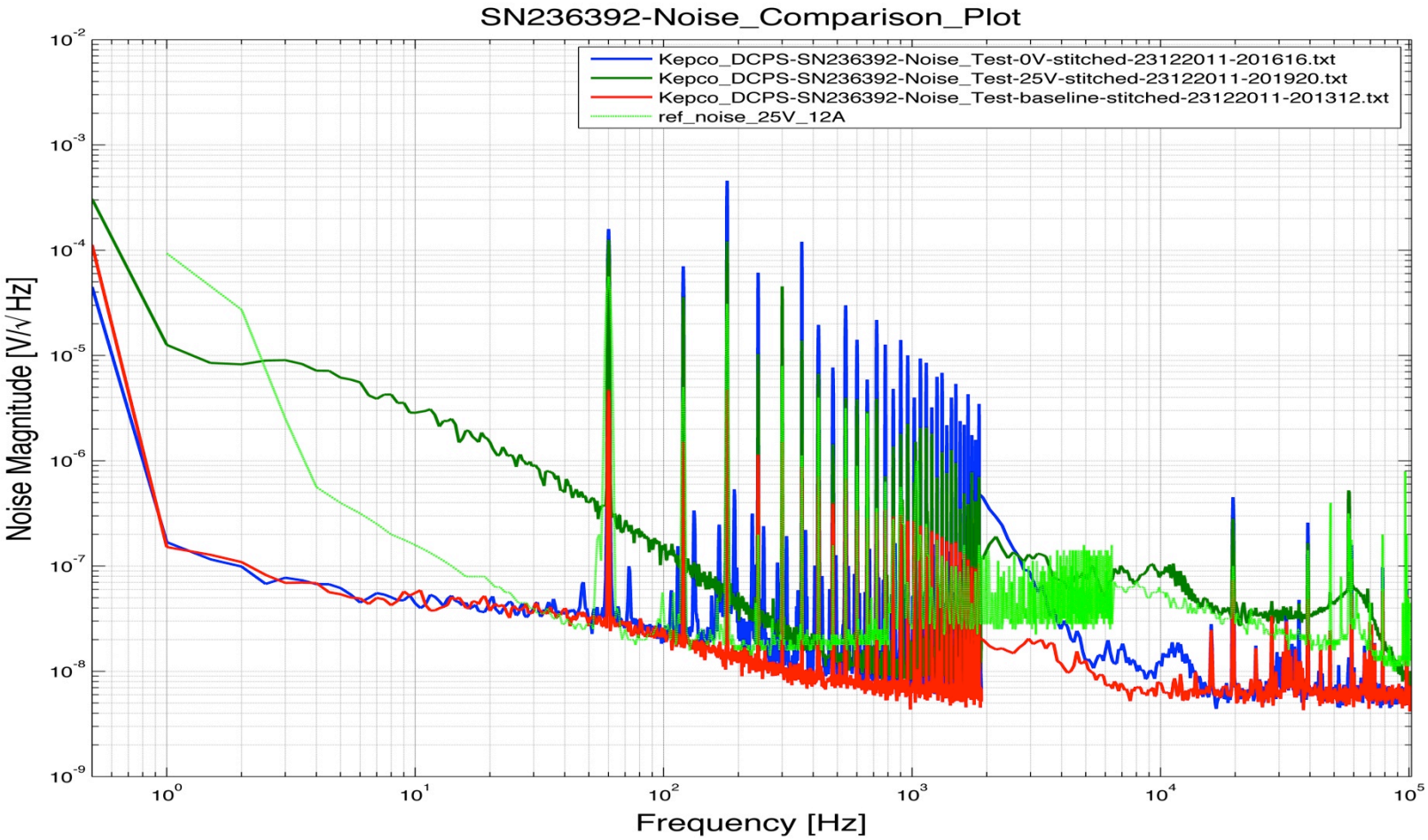
Serial Number H210618 Consistency Plot



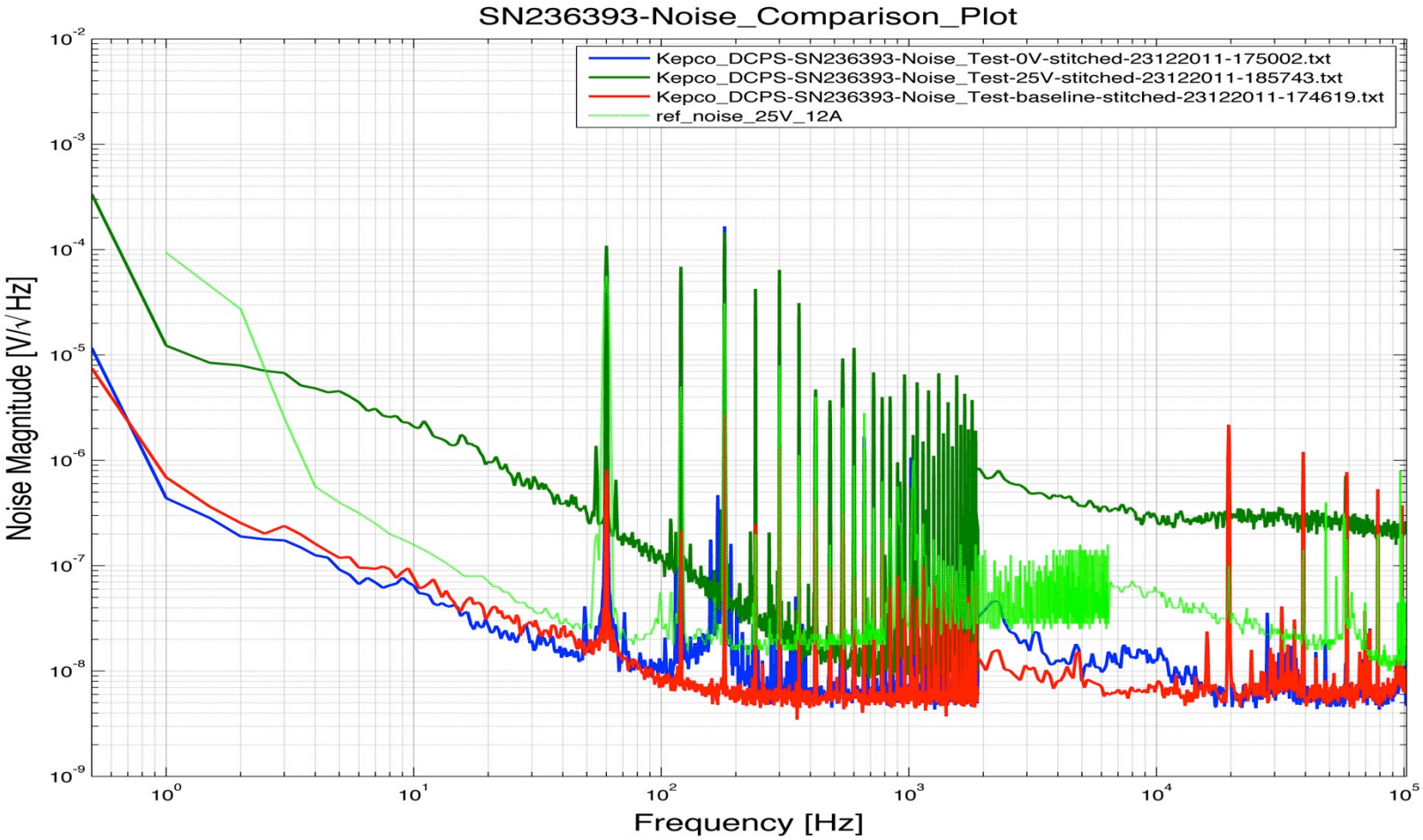
Serial Number H210618 Consistency Plot

- The following slides show the comparison plots generated by the automated scripts for a sample of DC Power supplies:
- The power supplies are connected to a 2 ohm 600 watt load.
- Steven Petree has compiled the following notes:
- Here are my notes on instructions for testing the supplies.
- Here is my summary of the current test status of the supplies.
- This page is a collection of the Noise Comparison plots.
- This page is a collection of the Monitor plots.

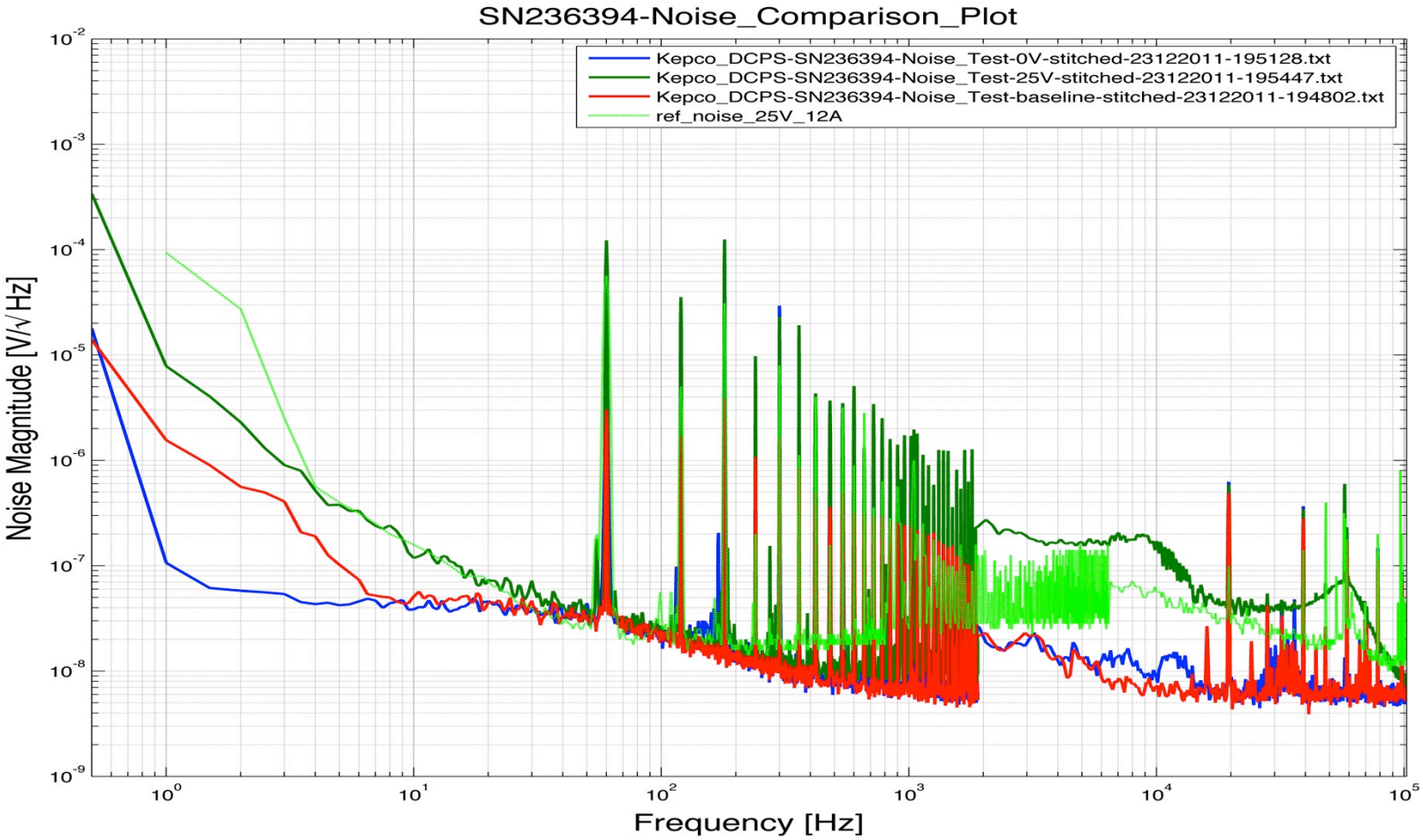
Serial Number H236392



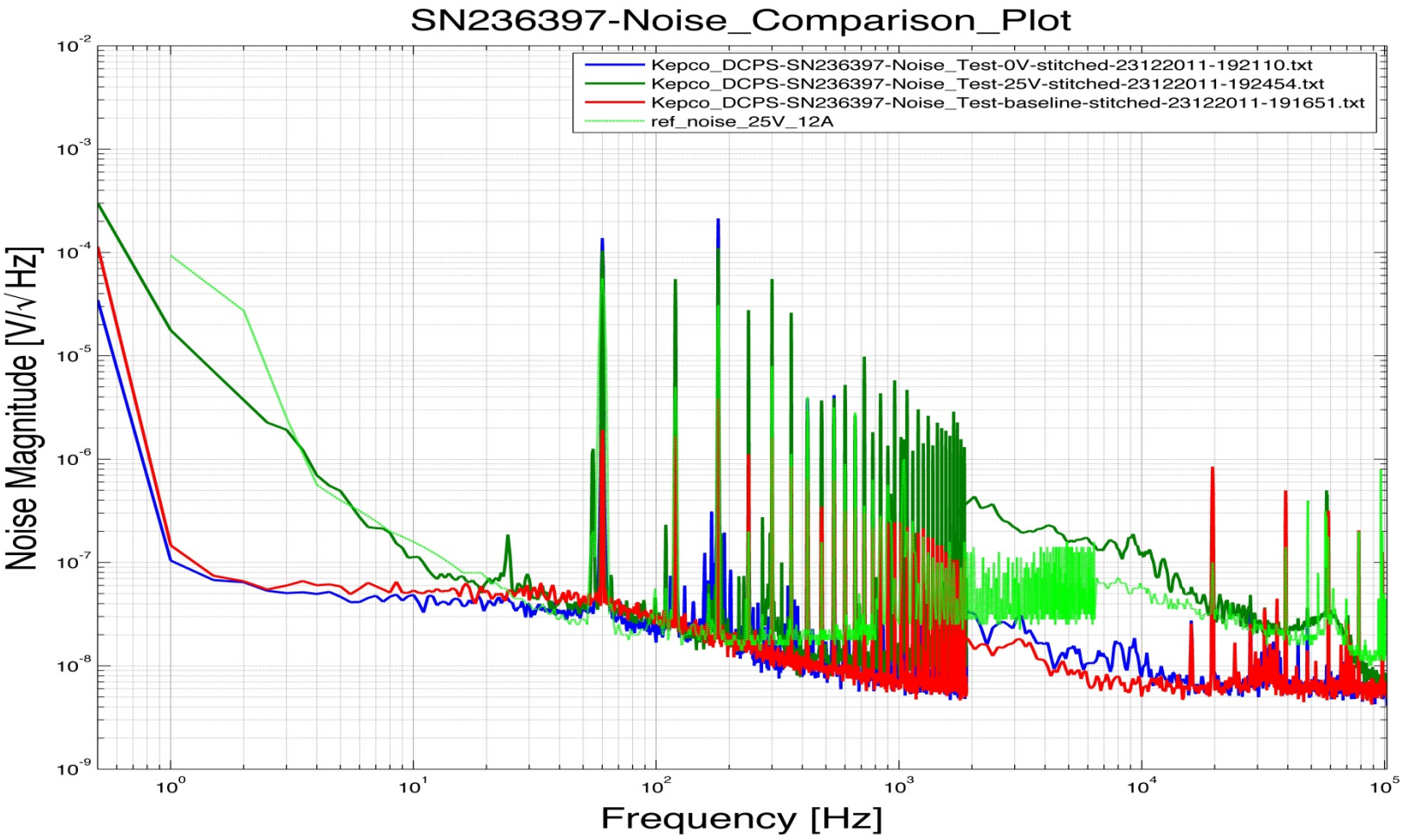
Serial Number H236393



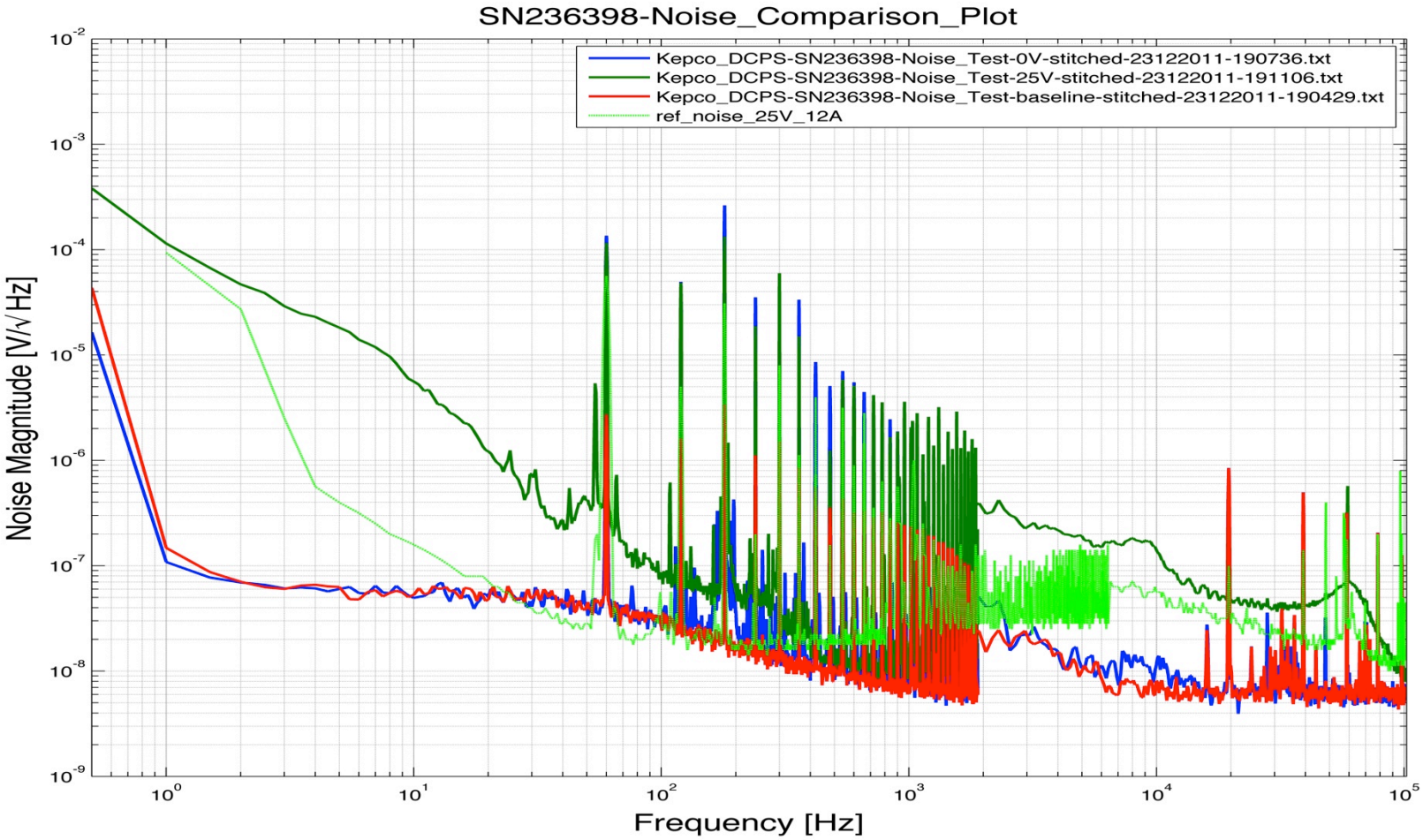
Serial Number H236394



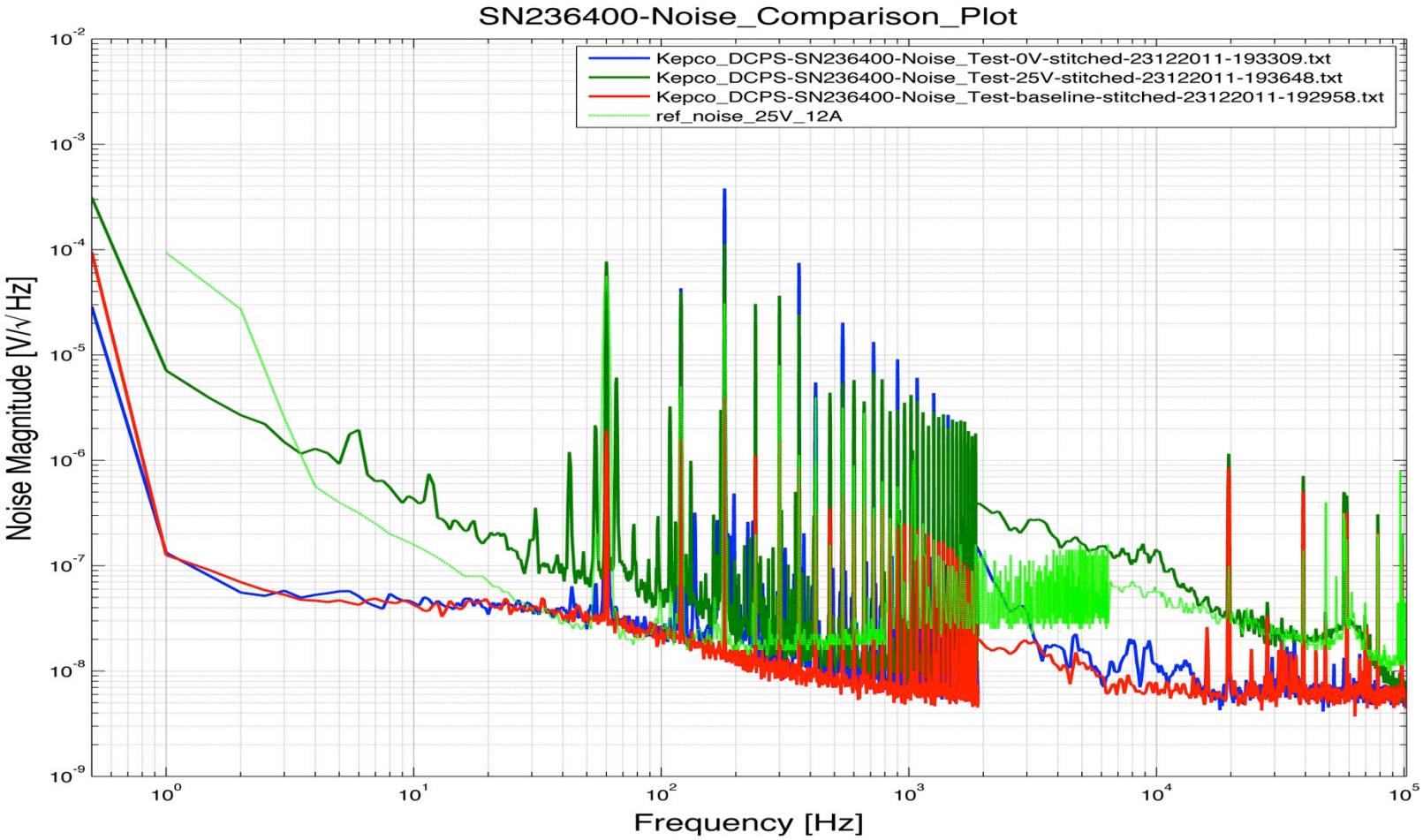
Serial Number H236397



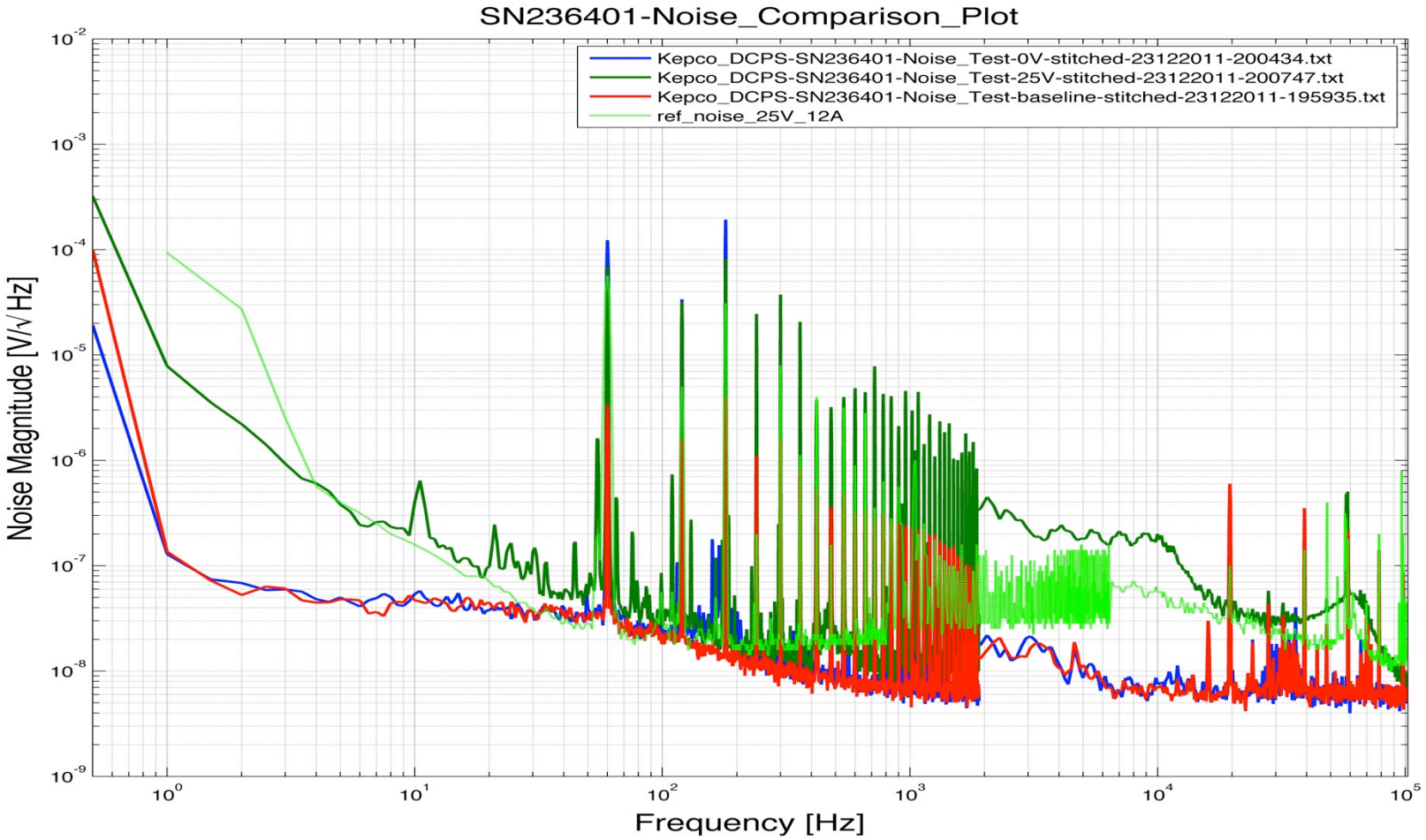
Serial Number H236398



Serial Number H236400



Serial Number H236401



Summary

- The difference in noise measured, for example at 10 Hz, between the reference and actual at 25V and 12.5A varies between 0.3 x 10^-6Vrms (SN H236400) and 5.5 x 10^-6Vrms (SN H236398).
- This difference may be due to different environmental noise, or the use of different loads at the Kepco factory vs. here at LLO.
- Based on these observations, we propose that we choose the local reference measurement as a guideline for acceptance. (Note that the guideline shown on all of our measurements presented here is still the measurement made at KEPCO.)