Investigating Amplifier Measurements

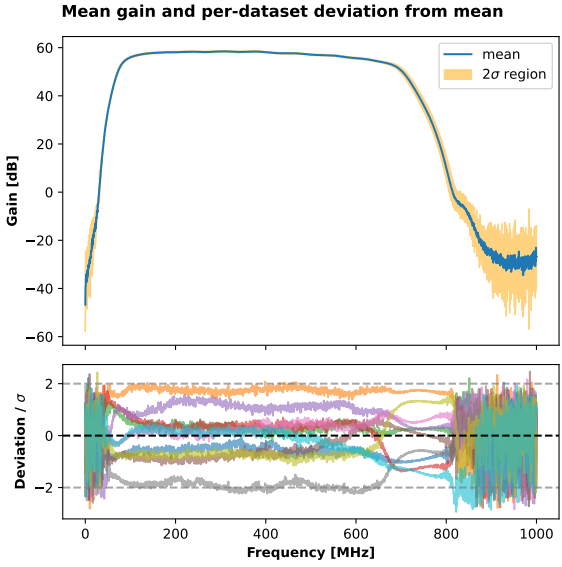
Task for the Multimessenger School

Annanay Jaitly

Thursday 18th January, 2024

Mean Gain Curve and Deviations

- The amplifiers are designed to be identical – the mean gain curve is expected to approximate the manufacturer's ideal gain curve.
- The deviations from the mean gain curve are plotted in units of standard deviation at each frequency. These are symmetrically distributed about the mean gain curve.
- Offsets in the gain curves specific to each amplifier are visible. In the constant gain region amplifiers' gain curves lie within ~ 2 standard deviations or ca 5% of the mean gain curve.



Zooming in on the Constant Gain Region

- The constant gain region is approximated as the region between the extrema of the gain gradient w.r.t frequency.
- The offsets in the individual gain curves are more visible now.
- The gradient of the mean gain curve oscillates between ± 0.04 dB/MHz in this region. The individual gain gradients follow the same trend in phase with the former's oscillations