Information Classification:
NOT CLASSIFIED
Re: Gain Compression Application Demo
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1 Attachment


image001.png

Perhaps it makes sense for R&S to rent a PNA-X with the GCA (or we can do that), so they can see what we're looking for.

Whatever happens, we need to have a fully operations GCA by the end of December. Wayde, Greg, Nick, this is ***EXTREMELY*** important.

Kind regards,

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Subject: Gain Compression Application Demo

Greg / Waide,

Thank you for coming to Lowell today for the demo. Overall, I can tell the gain compression algorithm has made progresses. I am happy to see I can now display some of the data directly on the screen of the VNA, as we requested. However, some important features are missing.

- The current solution is rather slow to measure, which came as a surprise as last time we met, I can remember the sweep was running much faster. We need to find out why the measurement slowed down so much in the current version.
- As for our goals, to summarize it in simple terms, we want to run a measurement in two dimensions (frequency and power). This should provide one large table with all the data.
    - Measurement sequence can either be :
        - Frequency sweep, then Power sweep (as it is right now)
        - Power sweep, then frequency sweep
    - It should be possible to export this table into one single output datafile.
    - This table should provide all the data we need. The compression data (Pin, Pout, Gain, IRL, etc.) should be mathematically derived by interpolating from the table.
        - It should be possible to plot input or output PxdB, Gain at PxdD, IRL, etc. as a function of frequency (and it looks like it is right now).
        - At the same time, using the data from the same table, we should also be able to plot Gain or Phase of S21 at a single frequency, as a function of input power. This allows me to look at the amplifier's behavior along both frequency and power dimensions at the same time.
        - A single GCA sweep should allow to update all the traces on the screen that are related to this data table.
- The current solution that retains the input power providing compression at the output doesn't take into account the performance variation of the PA over time, which could be cause just by self-heating. That means, with time and temperature, if I remeasure the amplifiers after it is on for a few minutes can provide different gain/output power data. Ideally, any gain compression measurement should be performed with a power sweep dimension in the measurement dataset.
- Is the application currently operational in pulse CW?

I think we need to all get together on a conference call to align targets properly. Time is now very short until the end of December.

Regards,

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