



S2P Extractor v1.1.4 with switch matrix

Mathieu Caillet to: Nick Lalic

Cc: Mike Leffel

08/11/2014 07:33 AM

Hi Nick,

One of our customers is trying to use the RSA S2P extractor macro you wrote with a setup including a switch matrix. In its actual form, the macro can't work in this circumstance because a different SCPI command is necessary to read the error terms. Basically, we are using the command `":SENSe<Ch>:CORRection:CDATa? <ErrorTerm>, <SourcePort>, <LoadPort>"` at the moment. With a switch matrix, we need to use the command `":SENSe<Ch>:CORRection:SMATrix:CDATa <ErrorTerm>, <SourceTestPort>, <LoadTestPort>, <SourceVNAPort>, <LoadVNAPort>"` to specify which ports of the switch matrix and VNA are used during calibration. The customer is using a 2-port VNA, so `<SourceVNAPort>` and `<LoadVNAPort>` will always be 1 or 2. Could you please give me a call when you have a chance to talk about how we can help the customer?

For your reference, I have attached the two calibration files.

Regards,

Mathieu



OSP_6port_inner.cal OSP_6port_outer.cal

Nick Lalic

03/03/2014 10:15:16 AM

From: Nick Lalic/RSA@RSA
To: Mathieu Caillet/RSC@RSC, Mike Leffel/RSA@RSA
Date: 03/03/2014 10:15 AM
Subject: S2P Extractor v1.1.4

All,

Here is the latest version. I developed unit tests for each of the math operations and confirmed that they are working correctly.

All along I've been using a function, `smoothSqrt()`, which seemed like a good idea at the time: A complex `sqrt()` loses phase information, so if at all possible it would be nice to develop a function that not only takes the `sqrt()` but also compensates for this. Unfortunately, the angles associated with the raw corrections are quite large. As such, no assumptions can be made on the continuity of phase by looking at just the `sqrt()`.

So I backed up and applied all my phase smoothing algorithms on the whole calculation for s21. Now everything works, including for Mike's latest test case.

I also went back through the GUI and made sure the initial values made sense. I now check to make sure that there is a calibration in channel 1 and 2 and that the ports overlap before pre-populating the GUI with the default selections.

Take a look and let me know if there is anything else

v1.1.4

<https://cloud.rs-us.net/public.php?service=files&t=614cf77f5e4e9ae4292b930d4eb828af>

Perhaps I'll hear from you on today's Vna call-in.

Best Regards,

Nick Lalic



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Mathieu Caillet

Mike Leffel---02/28/2014 11:50:56 AM---From...

02/28/2014 04:12:39 PM