Subject: [Fwd: Re: Test data report]
From: Antonio Perfetto <aperfett@nrao.edu>
Date: Wed, 09 Jul 2008 13:17:50 -0400
To: Darrel Emerson <demerson@nrao.edu>
CC: Geoff Ediss <gediss@nrao.edu>

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I think this is on the same subject from Bernard
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Subject: Re: Test data report
From: Bernard Lazareff <lazareff@iram.fr>
Date: Thu, 21 Feb 2008 09:35:01 +0100
To: Geoff Ediss <gediss@nrao.edu>
CC: Antonio Perfetto <aperfett@nrao.edu>, John Webber <jwebber@nrao.edu>, John Effland <jeffland@nrao.edu>, Gie Han Tan <ghtan@eso.org>, brian@sron.nl, andrey@sron.rug.nl, "Claude, Stephane" <Stephane.Claude@nrc-cnrc.gc.ca>

Hi, Geoff,

Phase unwrapping is IMHO purely cosmetic in the sense that it should not affect efficiency calculations; not the same, though, as flattening the phase by a change of the phase origin (normally along Z to remove curvature, but also possibly in the XY plane to remove gradients). Just in case, here is a snippet of code to unwrap 1-D phase versus position; note that as written, indices start at 0 (zero). I believe that could be generalized to 2-D but haven't tried. The routine fails (noise in, noise out) in the regions of the plot where the S/N is such that there is no meaningful phase anyway.

A function to "unfold" phase (radians)

$$\begin{aligned}&\text{PhaseUnfold}(\phi) := \left|\begin{array}{l}\text{Imax} \leftarrow \text{length}(\phi) - 1\\ \phi u \leftarrow \phi\\ \text{for } i \in 1..\text{Imax}\\ \quad \phi u_i \leftarrow \phi u_i - 2\cdot\pi\cdot\left[\text{floor}\left[\frac{1}{2} + \frac{(\phi u_i - \phi u_{i-1})}{2\cdot\pi}\right]\right]\\ \phi u\end{array}\right.\end{aligned}$$

To make any comments beyond my message of yesterday, and only in case these comments are of any help, I would need the original data, amplitude phase versus X Y scanner position, in any "dumb" format, e.g. one line per point or anything else that is straightforward:
X Y Amp Phas
X Y Amp Phas
...

Preferably for the "worsest" B7 case, i.e.:
B7 317 Pol1 Tilt 0 (Taper_eff 24.91%)

Regards,
Bernard

Geoff Ediss wrote:

Hi everybody

I have put the latest version of the report on almaedm at

http://edm.alma.cl/forums/alma/dispatch.cgi/iptfedocs/docProfile/104861/d20080214152926/No

We are having difficulties phase unwrapping some of the scans, these will be added later (especially band 9 - so more to come).

We are about to start measuring band 6.

With reference to Bernards comments, yes we do move to get the best focus (by looking at the phase) the original plots you looked at were wrong (that is why they were removed) I attach one set for you to look at. Top two plots are phase Horizontal and vertical cuts through max, bottom two are amplitude. We get one cut pretty flat but the other direction still has some variation. Note these are NOT different polarizations.

We calculate the efficiencies as given in the TICRA optics report chapter 5 in an excell spread sheet.
I have also given the squint on the sky (see tables).

Hope this helps the discussion

regards

Geoff

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Re: Test data report	**Content-Type:** message/rfc822 **Content-Encoding:** 7bit