Subject: RE: K-band receiver noise characterization
From: "Horiuchi, Shinji" <shoriuchi@cdscc.nasa.gov>
Date: Wed, 9 Oct 2013 20:35:41 +1100
To: Tom Kuiper <kuiper@jpl.nasa.gov>
CC: "Olin, Timothy R" <TOlin@cdscc.nasa.gov>, "Baines, Graham P" <GBaines@cdscc.nasa.gov>, "Rochblatt, David" <David.J.Rochblatt@jpl.nasa.gov>, "Teitelbaum, Larry" <Lawrence.Teitelbaum@jpl.nasa.gov>, <greenhill@cfa.harvard.edu>

Hi Tom and all,

I made some new plots. The first plot is from yesterday's squarelaw detector data for sky. This appears to be good data taken at 100Hz sample mode for 9 minutes. As I mentioned at the telecon it would be interesting how Allan variance goes for this data set.

The last two plots are from the gain-stability test today with ambient load (one plot for Pol-1 comparison and another plot for Pol-2 comparison). Both plots are for 5 minutes or less, which are not long enough data to see gain stability. But I notice an interesting thing. In all three plots Beam-1 data looks noisier than Beam-2! Will that possibly explain that even the Beam-1 data without the power drop issue has the minimum Allan variance at less than 1 second?

As for the power drop problem pointed out earlier for the ACME Beam2-Pol1 data, Tim and I actually saw the same this afternoon. Then we fed the same set of signal to squarelaw detector but didn't see like that. But when we patched those back to ACME, we found that the problem has gone! So it's likely that the power drop problem was caused by bad patching at the patch panel.

Tim is running ACME-PM over night, so hopefully we will here more news tomorrow before another sky measurement on Friday.

Cheers,
Shinji.

-----Original Message-----
From: Tom Kuiper [mailto:kuiper@jpl.nasa.gov]
Sent: 2013/10/09 Wed 11:27
To: Horiuchi, Shinji
Cc: Olin, Timothy R; Baines, Graham P; Rochblatt, David; Teitelbaum, Larry; greenhill@cfa.harvard.edu
Subject: Re: K-band receiver noise characterization

On 10/08/2013 03:51 PM, Horiuchi, Shinji wrote:
> Just for quick update. We discovered that the ch2 PM data yesterday
> suffered some periodical power drop every minute or so (that is
> causing larger rms in ch1 plot than in ch2!). We don't know what was
> wrong, but Tim has just started gain stability test with ambient load
> and it looks so far so good. We will repeat the same zenith
> measurement on Friday. Hopefully the new data will be better for your
> analysis.
>
>
Nice job catching that! I would in any case have asked for more data.
It seems the atmosphere was very stable. Try and get some clouds next
time :-) .

Tom

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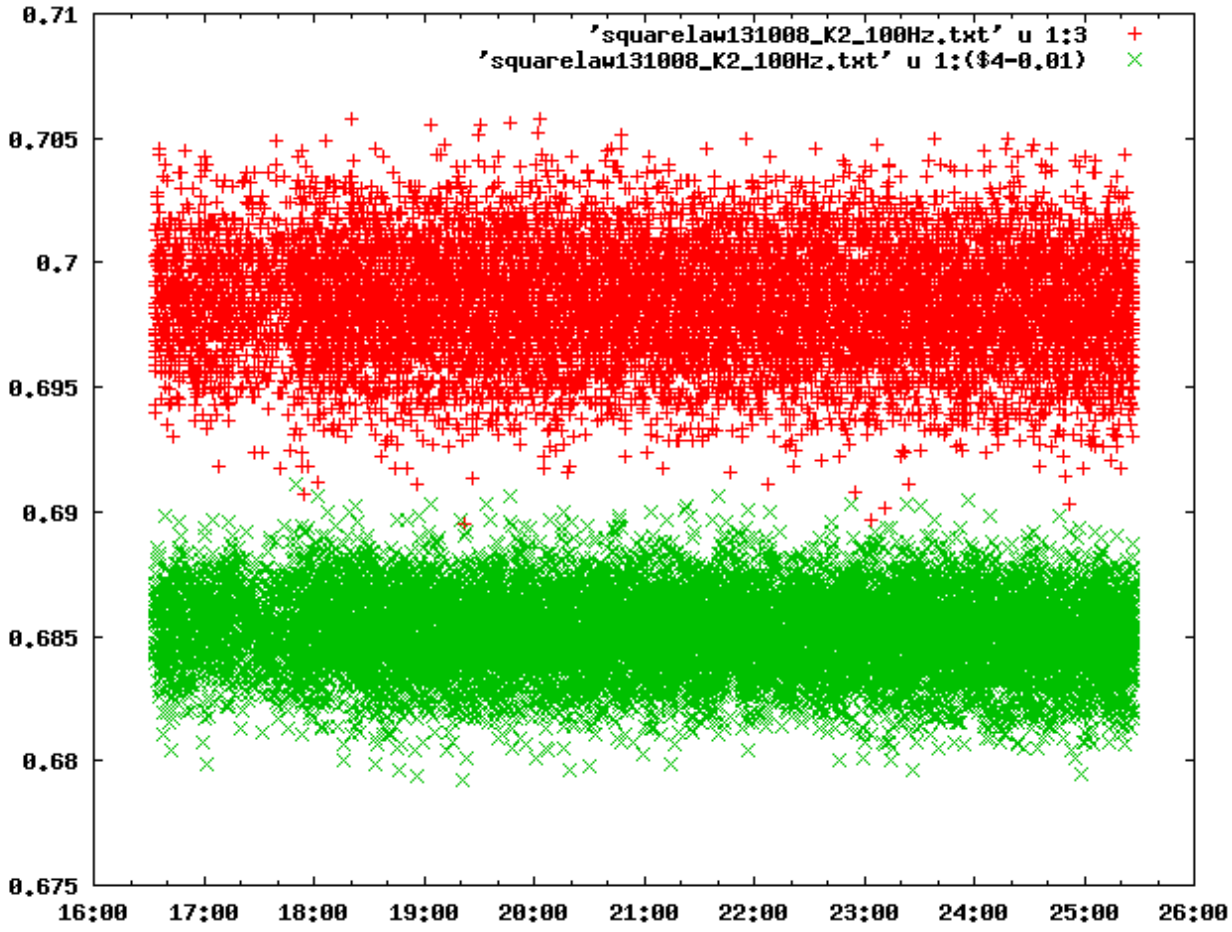
transmitted in this email, however all email is scanned prior to being transmitted.

squarelaw131008_K2_100Hz_shift.png



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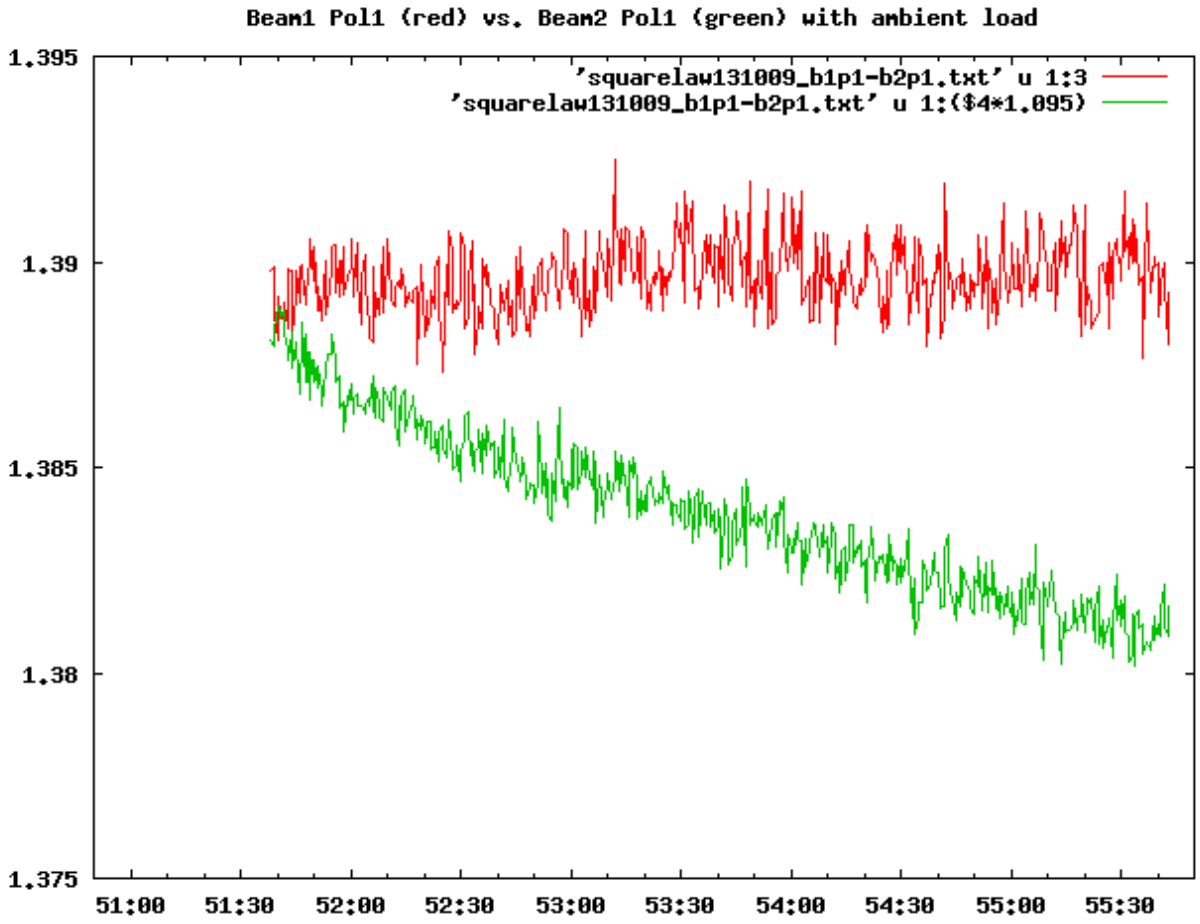

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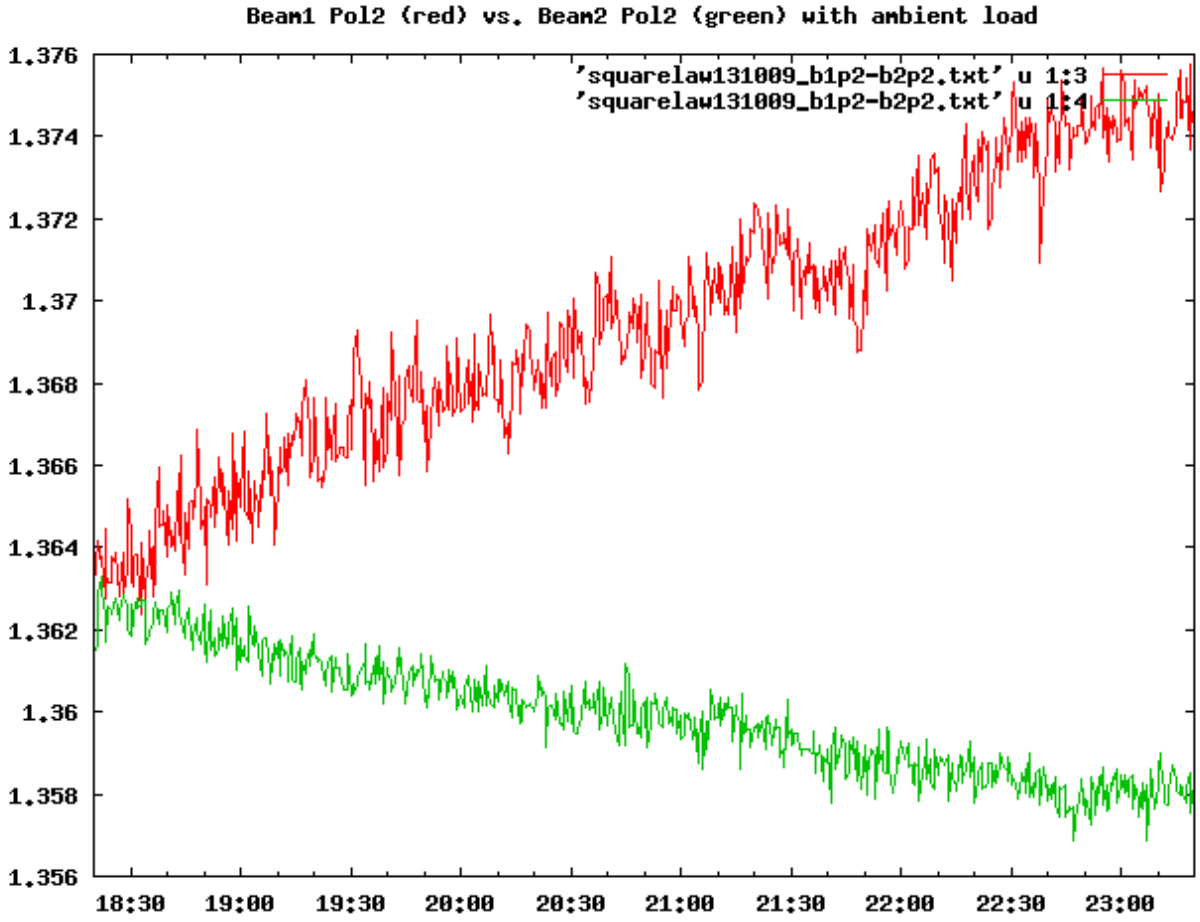

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