

VLB ARRAY MEMO No. 276

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Dr. A. E. E. Rogers
Haystack Observatory
Westford, Mass. 01886

Dear Alan:

By the time you receive this, we may already have discussed it, at least briefly, at the 7 October telephone conference, provided you are able to attend. I called Haystack yesterday, and your secretary said you would be away until Monday.

In the VLBA baseband converters, I wonder if it is out of the question to use a fractional N synthesizer. This would allow a good high reference frequency for the phase lock and still give all the frequency resolution we might desire. I enclose a sketch. The idea is taken from the H-P 3325A synthesizer, where the phase detection is done at 100 kHz. I would propose using 1 MHz in order to reduce the phase noise due to multiplication of the jitter in the digital phase detector. Other frequency schemes are possible, and the pulse-delete block could be combined with the prescaler using a dual-modulus device such as the Plessey SP8785 or the new Motorola MC12081.

This scheme is a good bit more complex than your Mark III synthesizer, but digital devices are pretty cheap. What do you think?

Yours,

Alan T. Moffet

cc. M. Ballister

