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To: VSRT Group
From: Alan E.E. Rogers
Subject: Calibration of 2-element interferometer

As mentioned in memo #6 an absorbing vane (shown in Fig. 1) can be used to calibrate a 2-element interferometer. This vane needs to be in the far field of each dish and to be unresolved by the interferometer. The vane was 8.5" in diameter and was located 285" away from the interferometer so it subtends an angle of 1.48°.

The fringes on the calibrator are shown in Figure 2. The interferometer pointing was peaked up on the signal using the "npoint" command. It's position is a little different from the initial assumed position for the vane entered into the srt.cat file.

The measured amplitudes were

Sun: 443

Vane: 33

From which we obtain the calibrated temperature of the Sun:

$$Sun = (443/33) \times 300 \times (1.48/0.5)^2 = 35,000K$$

The sources of error along with rough estimates of the error are:

- 1] Noise in the measurement ~ 5%
- 2] Imperfect absorption in the vane due to reflections ~ 5%
- 3] Non linearity in the square law detector ~ 10%



Fig. 1. Vane absorber seen from behind 2-elements interferometer.

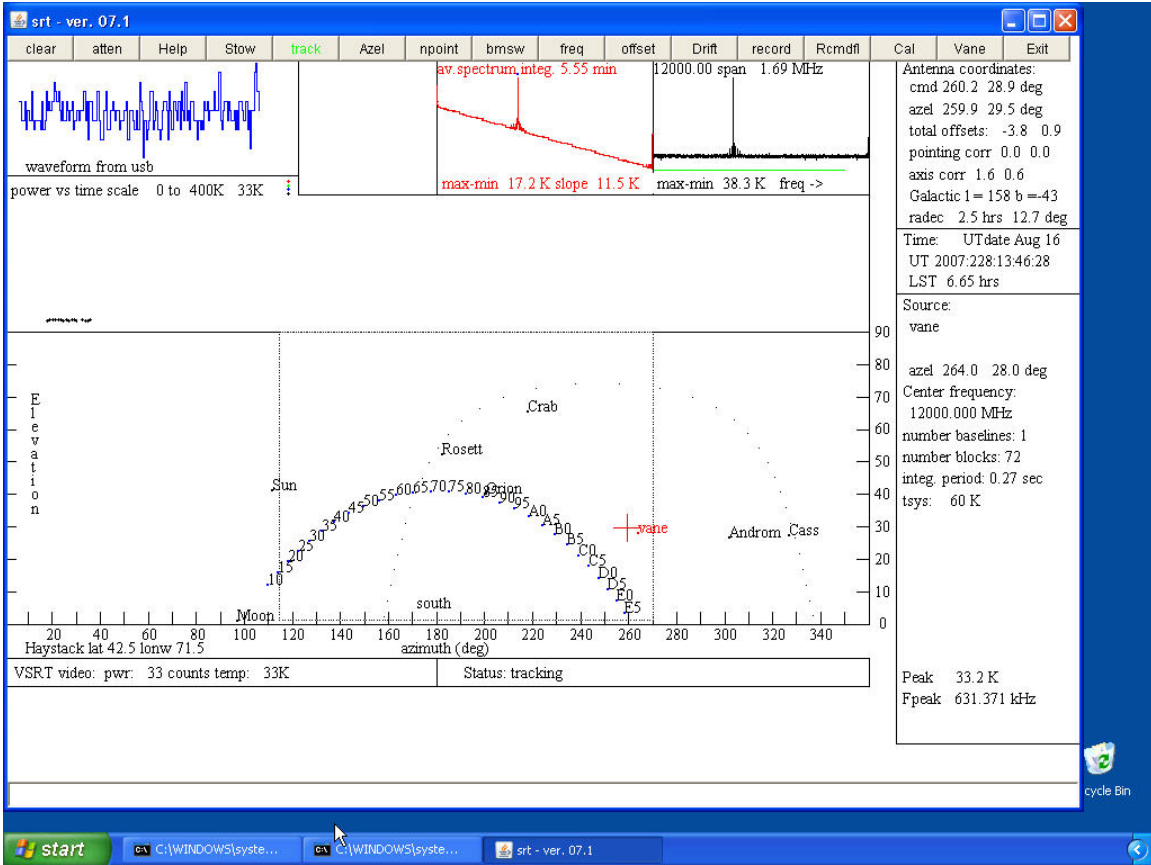


Fig 2. Fringes on vane calibrator

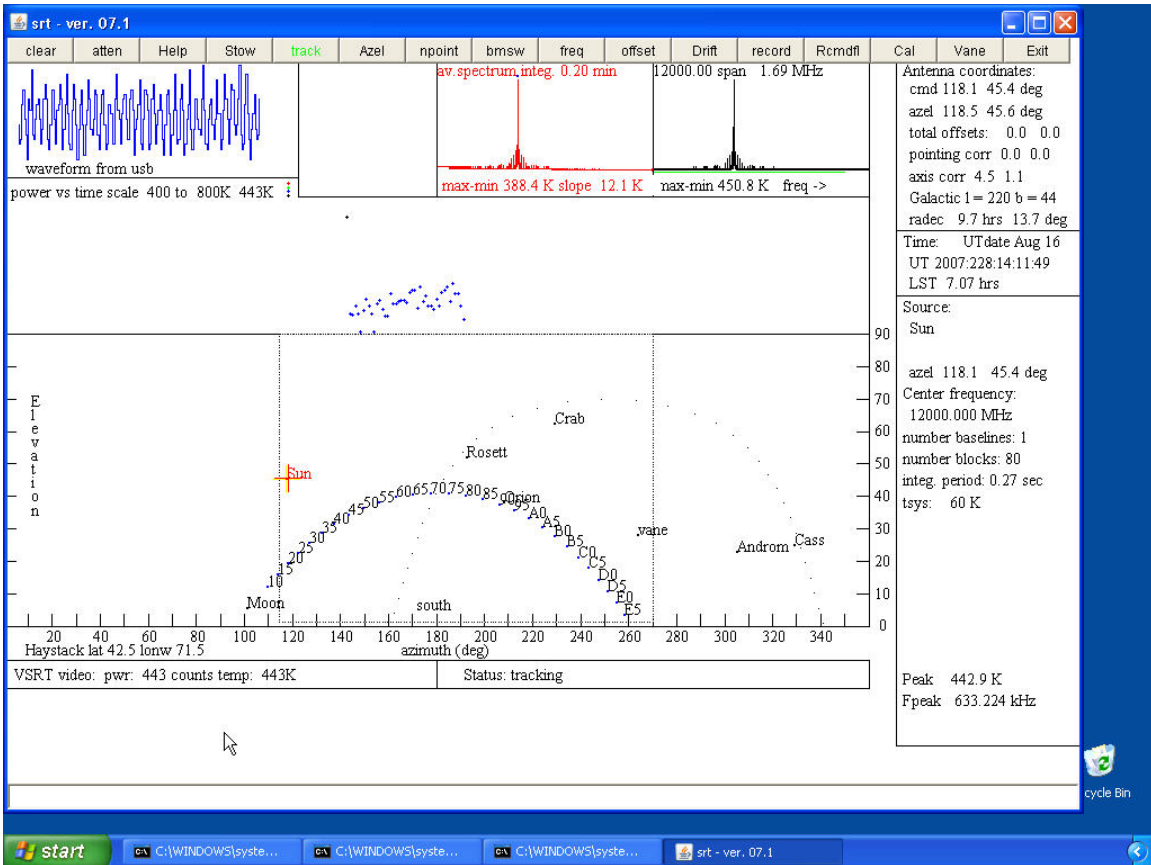


Fig. 3. Fringes on Sun.