



# Memorandum

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**To:** File

**From:** John Effland

**Date:** 2005-04-05

**Revisions:** 2005-04-05      jee      Initial

**Subject:** Comparison of Measurements from Mixer and Cartridge Test Systems

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## 1. Summary

This memo compares noise temperature and image rejection data measured independently by the Mixer and Cartridge Test Systems. Measurement frequencies differed for the mixer and cartridge measurements making direct comparisons impossible, but qualitative agreement is generally good. That is, the minimum noise temperature and image rejections generally agree, but their frequencies differ. Also, the 12 GHz IF points for the cartridge measurements are consistently worse than the mixer measurements, suggesting a possible problem may exist in the IF chain of the cartridge.

Mixer-preamp gains couldn't be compared for the two systems because cartridge data included gain contributions from the warm IF amps.

Dan Koller measured all the cartridge data and Ralph Groves measured all the mixer-preamp data.

## 2. Procedure

Figure 2 show mixer data was repeated from 264 – 274 GHz, but agreement is poor. Further investigation is warranted.

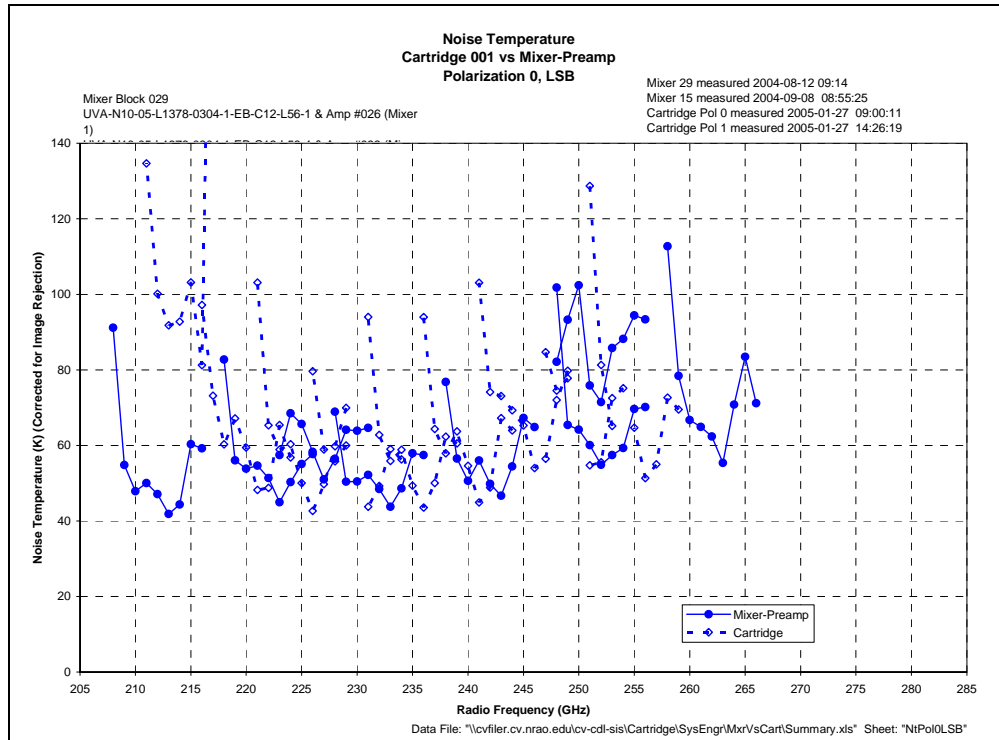


Figure 1: Noise Temps, Pol 0 LSB

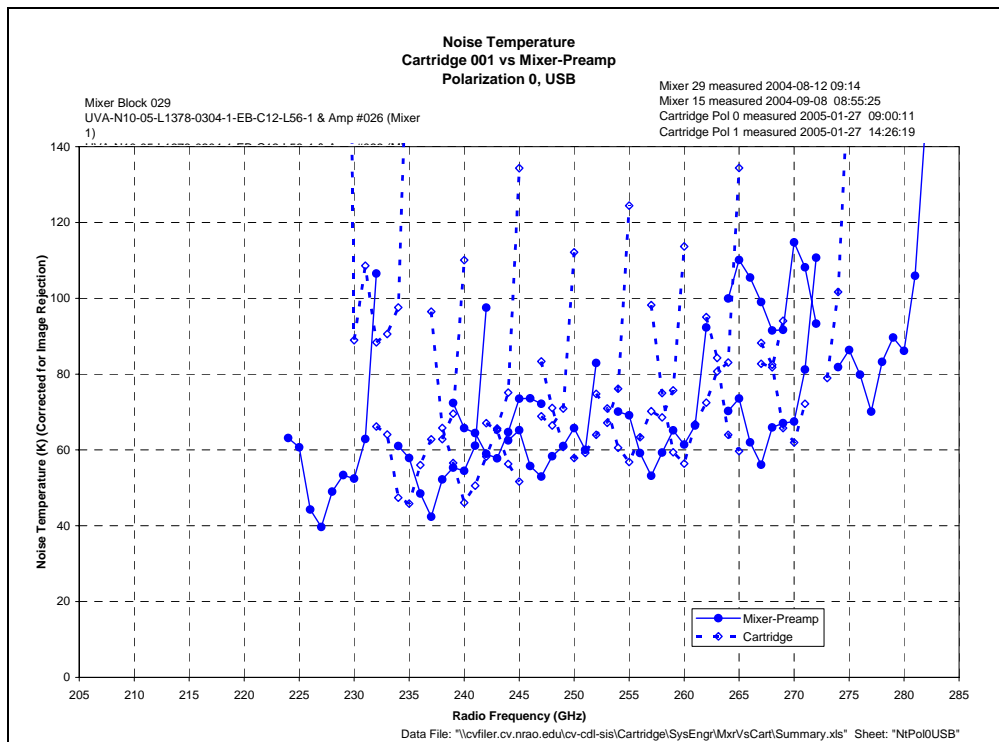


Figure 2: Noise Temps, Pol 0 USB. Note the significant differences in the repeated data from 264-274 GHz.

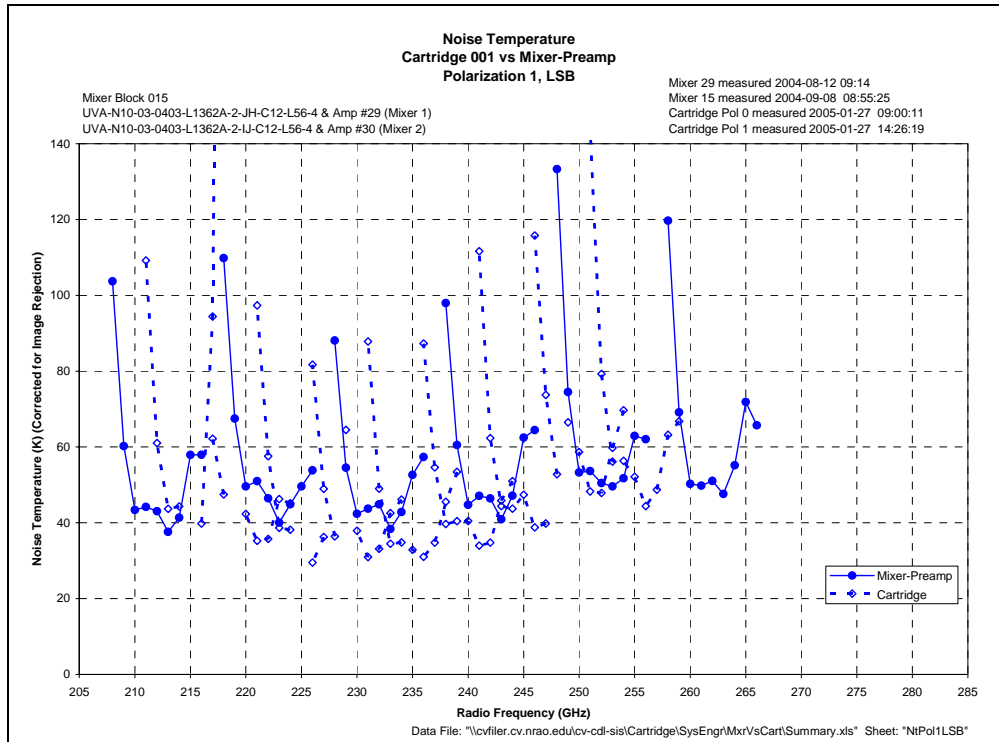


Figure 3: Noise Temps, Pol 1 LSB

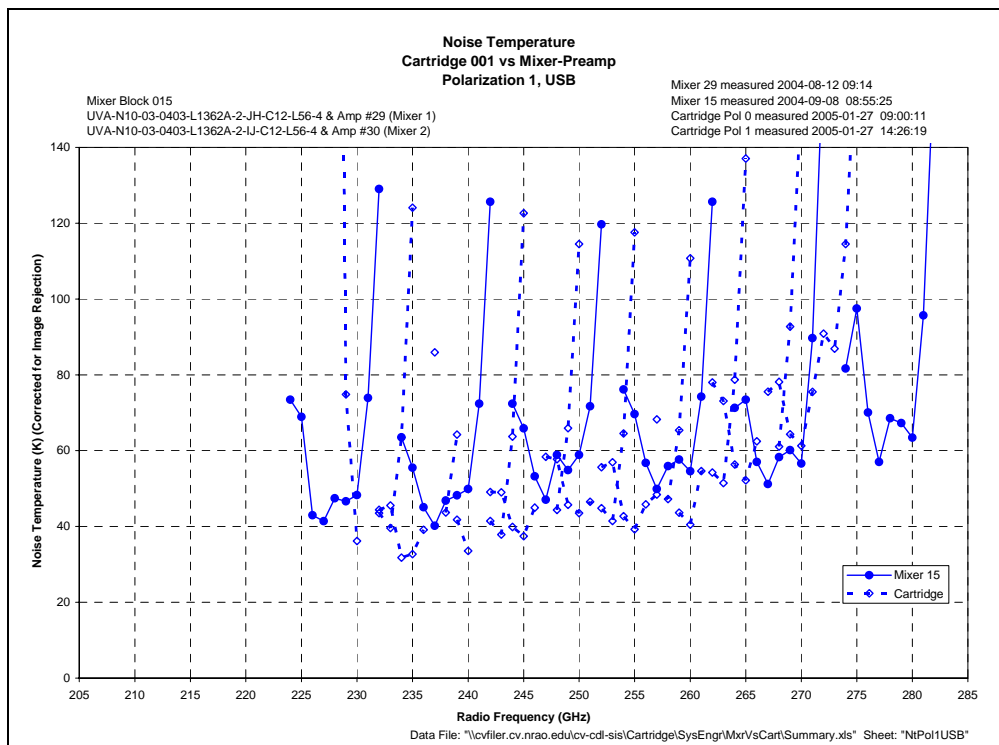


Figure 4: Noise Temps, Pol 1 USB

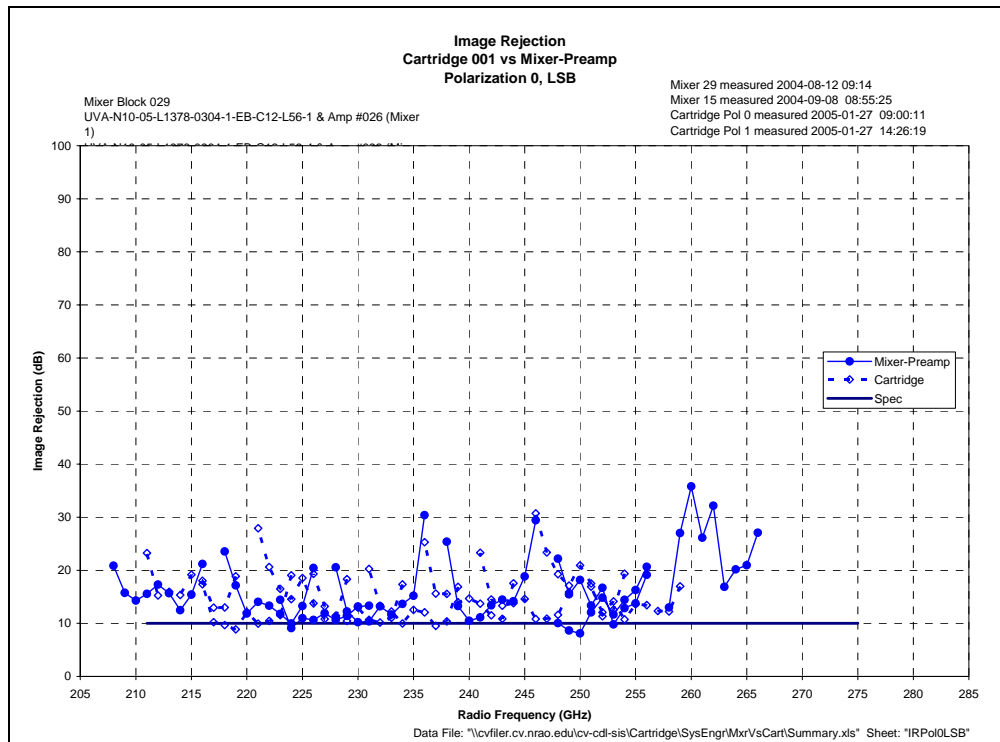


Figure 5: Image Rejection, Pol 0 LSB

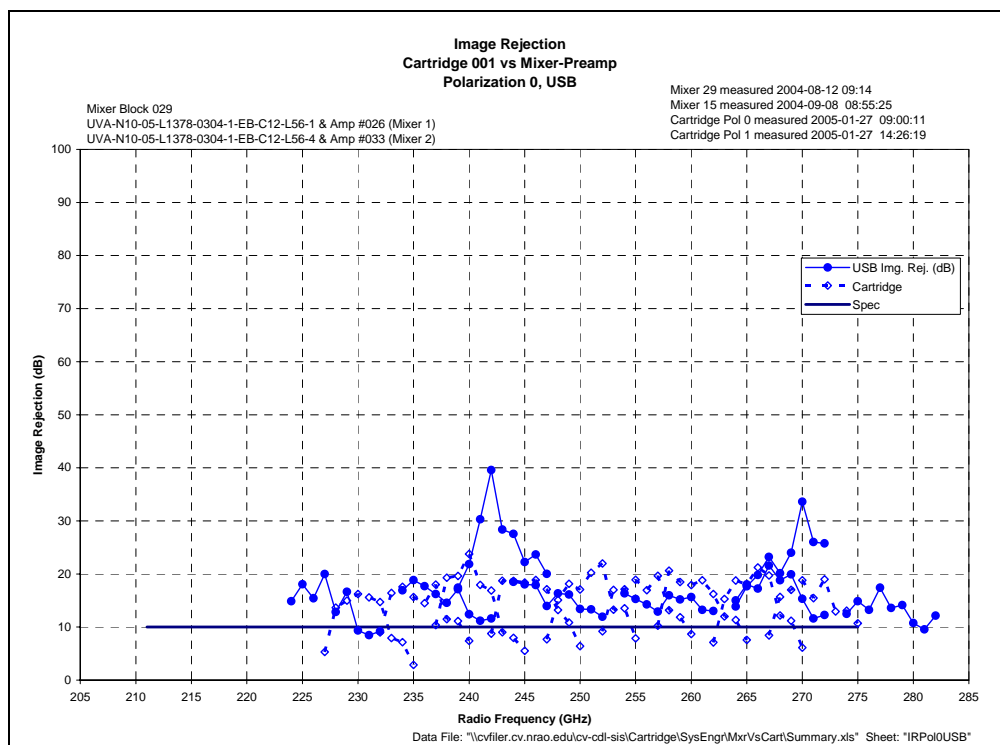


Figure 6: Image Rejection, Pol 0 USB

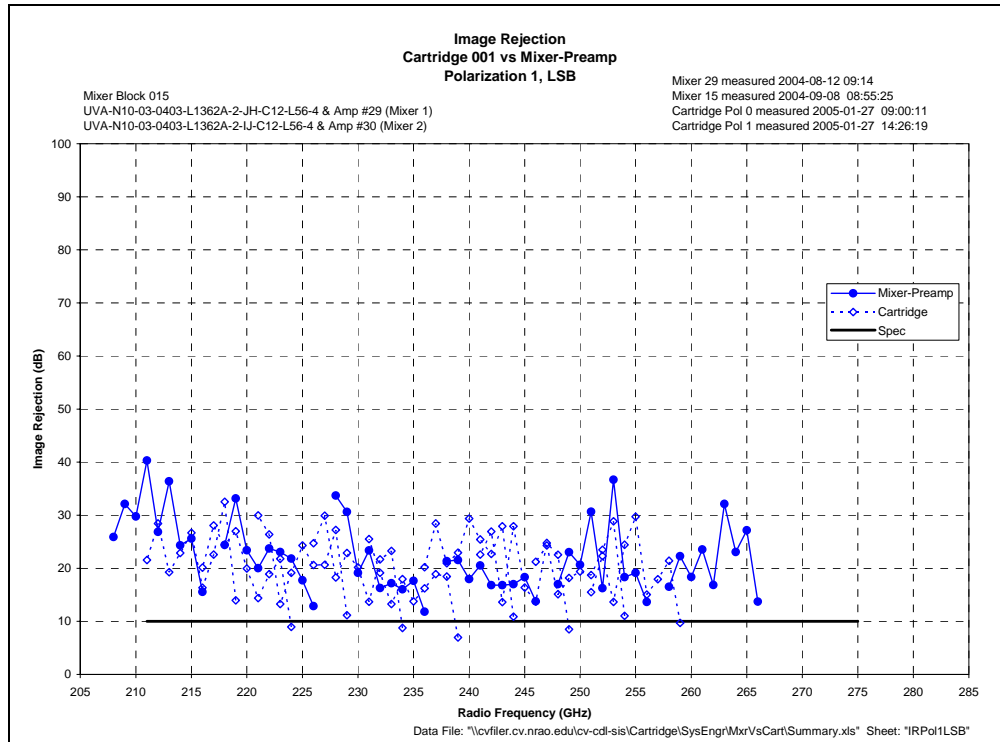


Figure 7: Image Rejection, Pol 1 LSB

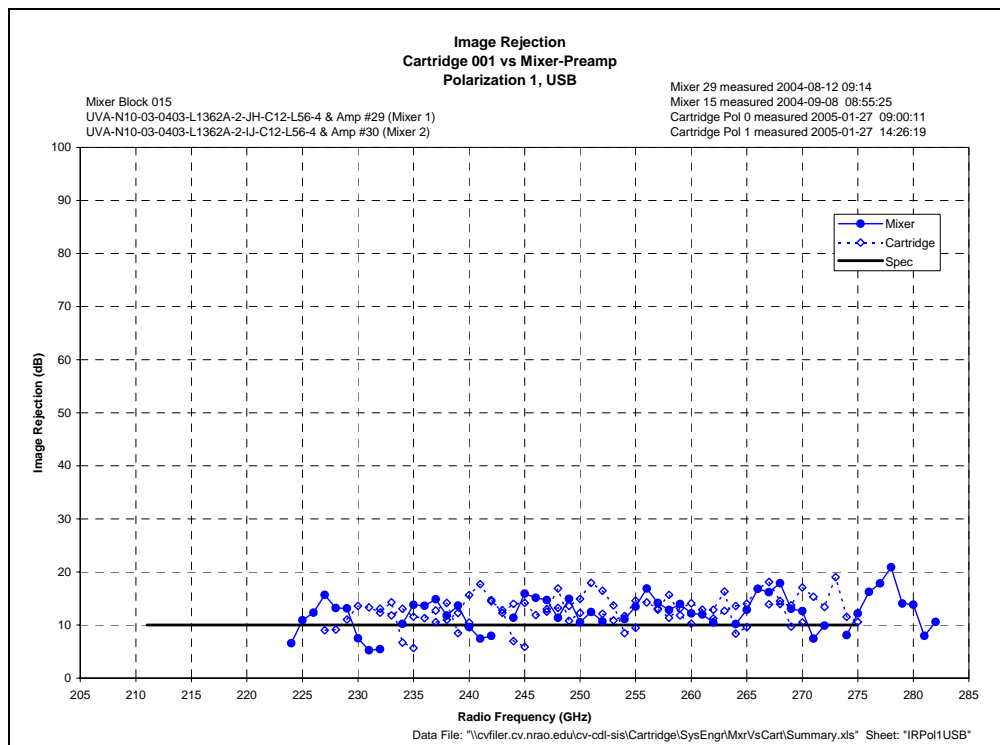


Figure 8: Image Rejection, Pol 1 USB