Acts Propagation Terminals

Engineering Support and Systems Upgrades

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Software Status / Deficiencies and Known Problems

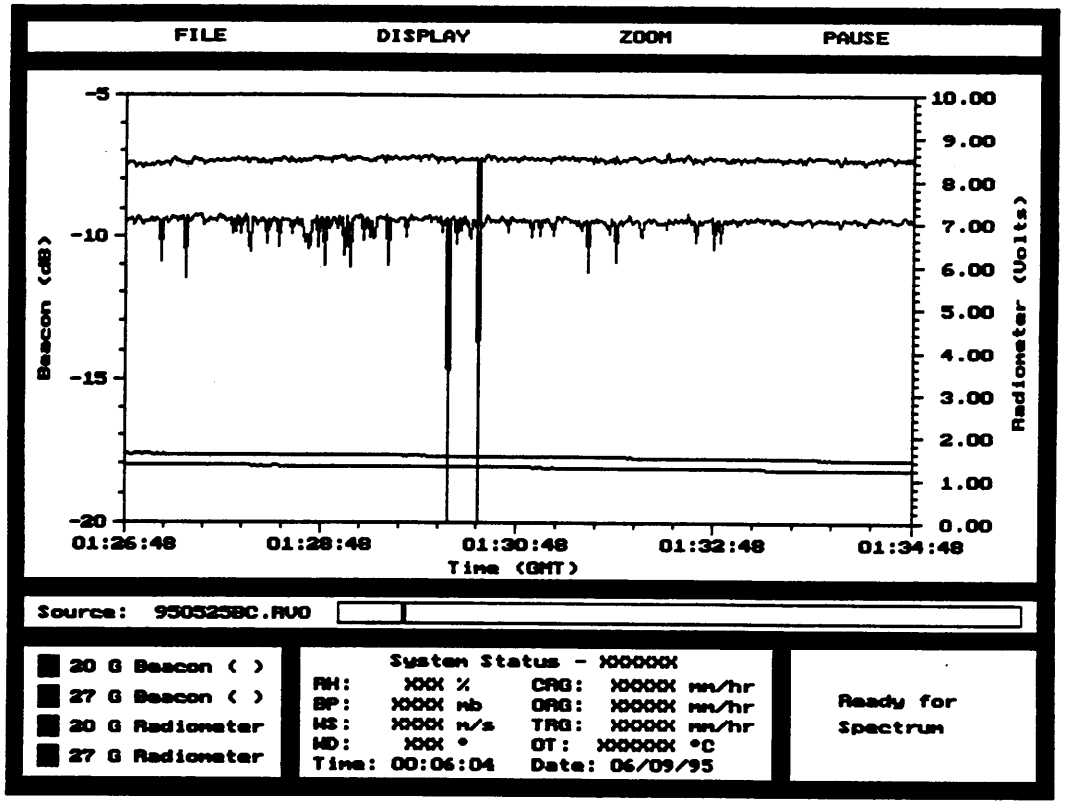
DRX software status:
- Current version 15 of 9/26/94.
  - Remove Post FFT AFC Filter.

DACS software status:
- Current version 8 of 9/26/94.
- Testing version 9:
  - Correct Tipping Bucket Tip Time.
  - Automatic re-start of DRX.

TSR software status:
- Current version 8 of 9/26/94.
  - Testing Using GPS Time via RS-232.
  - Data missing from RV0; Defragment Disk.

ActsView software status:
- Current version 3 of 9/26/94.
  - Add display tipping bucket gauge.

Actspp PreProcessing software status:
- Current version 5.1 of 4/20/95.



950524BC.FFT P3

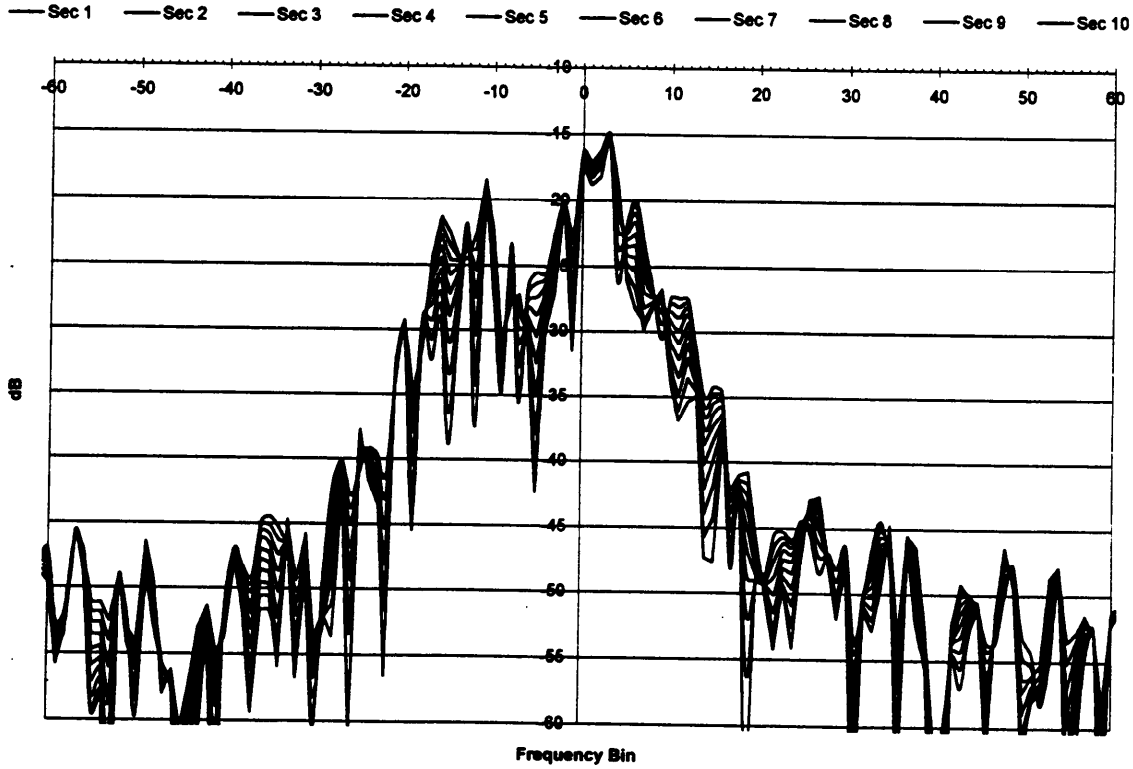


Figure 2

950524BC.FFT P2

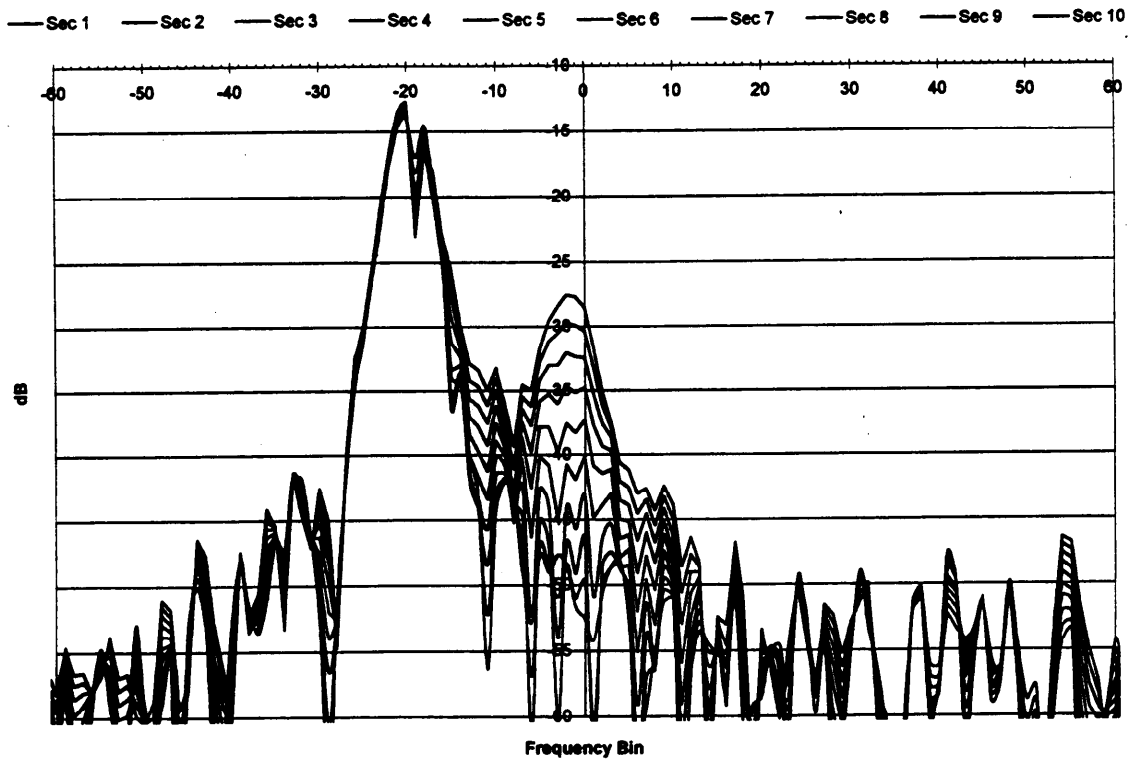


Figure 3

950525BC.FFT P1

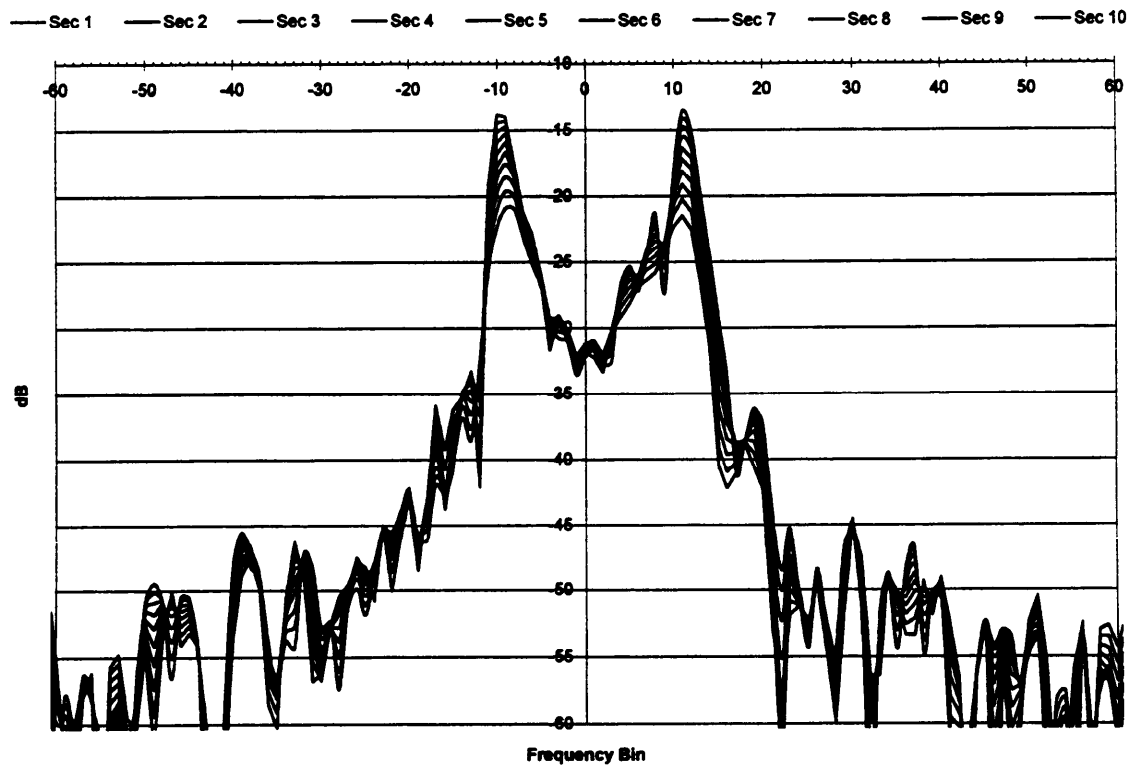


Figure 4

System Hardware Status / Deficiencies and Known Problems

Upper Fan Shroud Installed:

Lowers delta temperatures inside enclosure.

RF Temperature Controller:

The primary design features of this design are:

- The FET's are run at less than 50% their ratings.
- The balanced output filtering removes all high frequencies from the output. The output ripple is a very low level 7.5 KHz sine wave.
- The control loop contains an error integrator making the control loop a type II loop.
- Micro-Controller uses smart controls and protection.

WWV clock:

Problems: Start up & signal loss; Date jumps.

Solution: GPS

Antenna placement (signal level & cable length)

950426FL.UNK

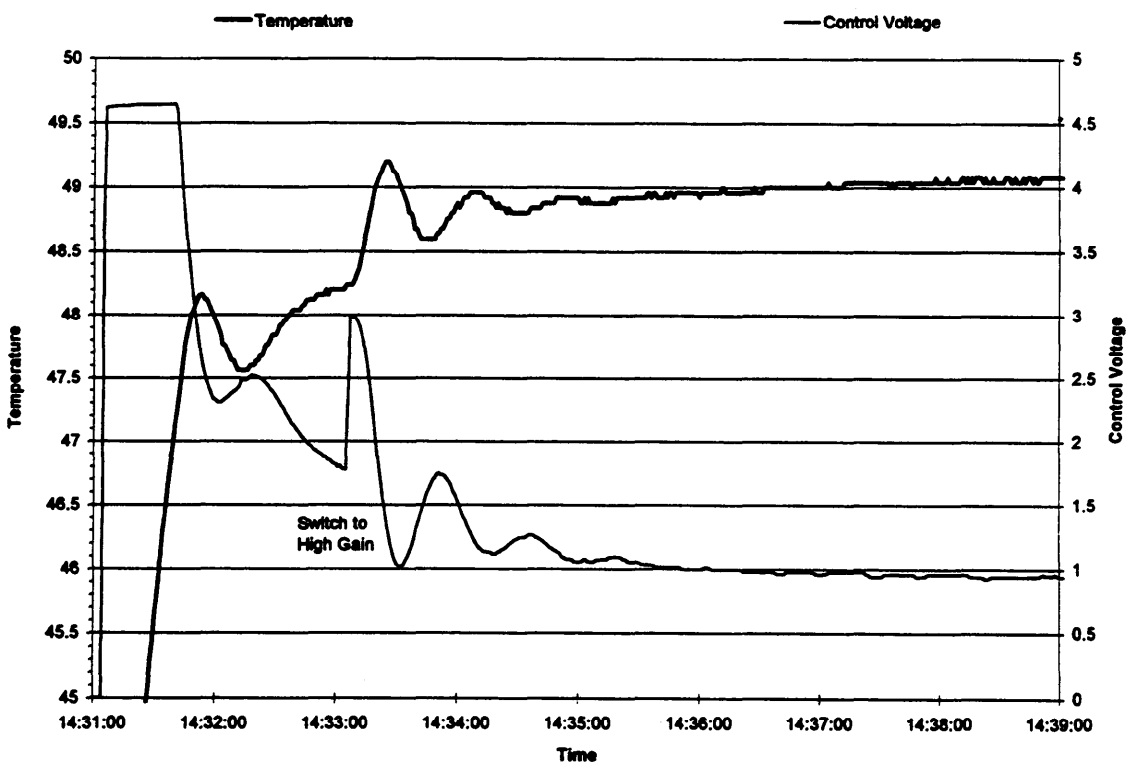


Figure 5

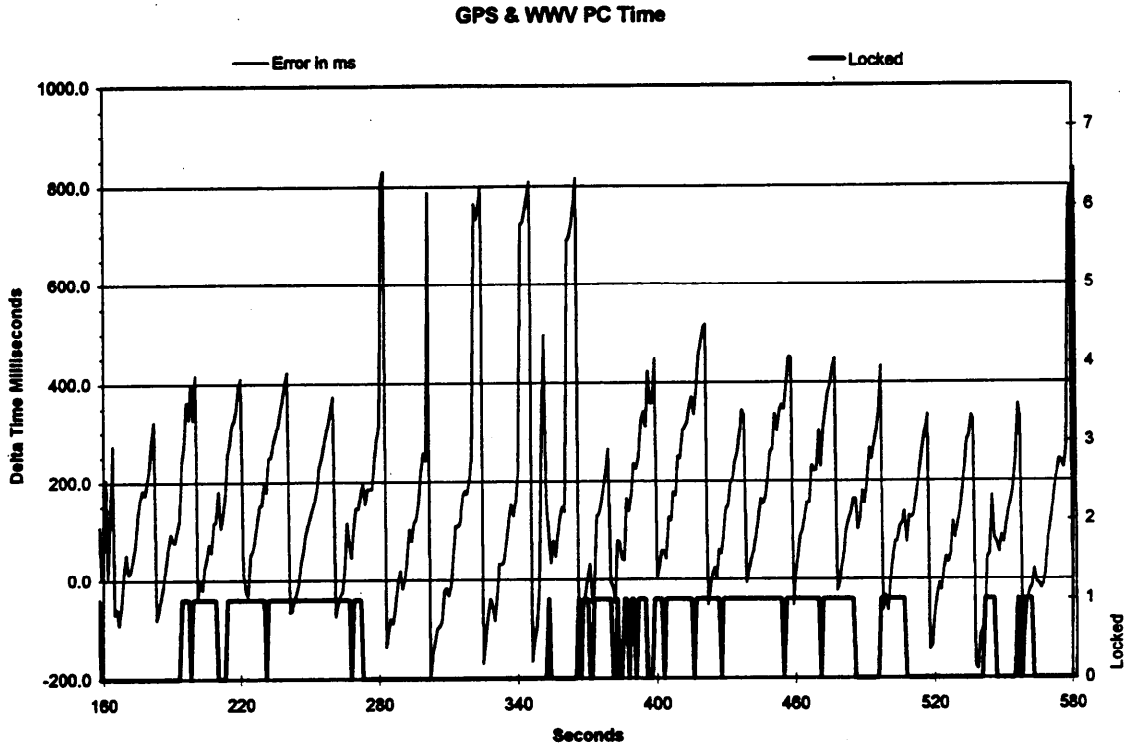


Figure 6

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Decoding System Effects using PreProcessing

Polarization test:

Figure 7 Beacon Levels Vs Polarization Angles:

System Stability

Figure 8 DRX Calibration noise diode & ref. load Vs Time.

Figure 9 Radiometer Calibration; slope and offset Vs Time.

Figure 10 DRX Calibration noise diode & ref. load Vs Time, With A Hardware Change.

Figure 11 Radiometer Calibration; slope and offset Vs Time, With A Hardware Change.

950510OK.UNK

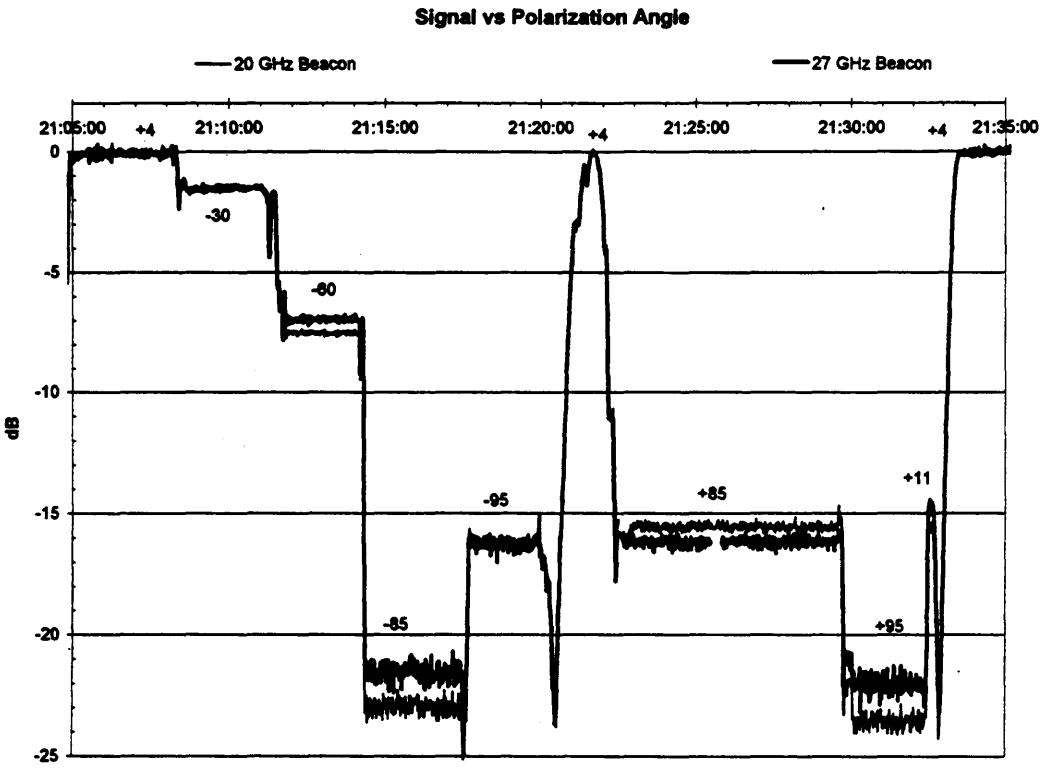

Figure 7

950226FL.SUM

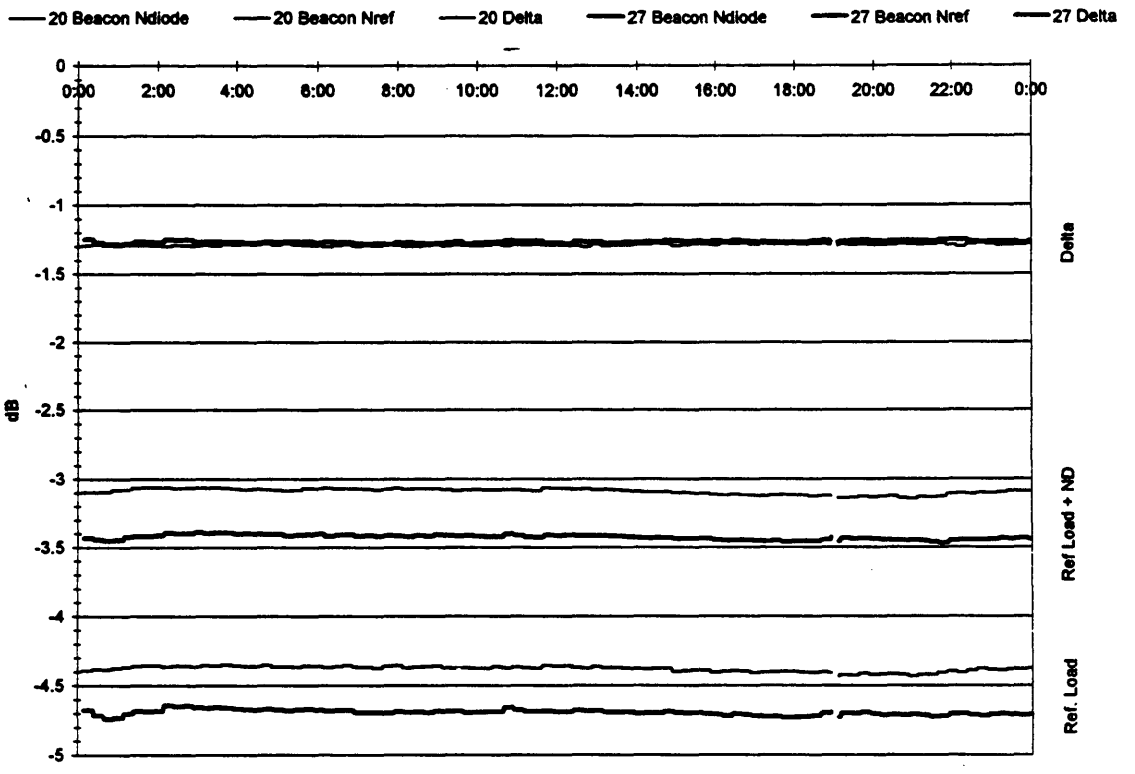

Figure 8

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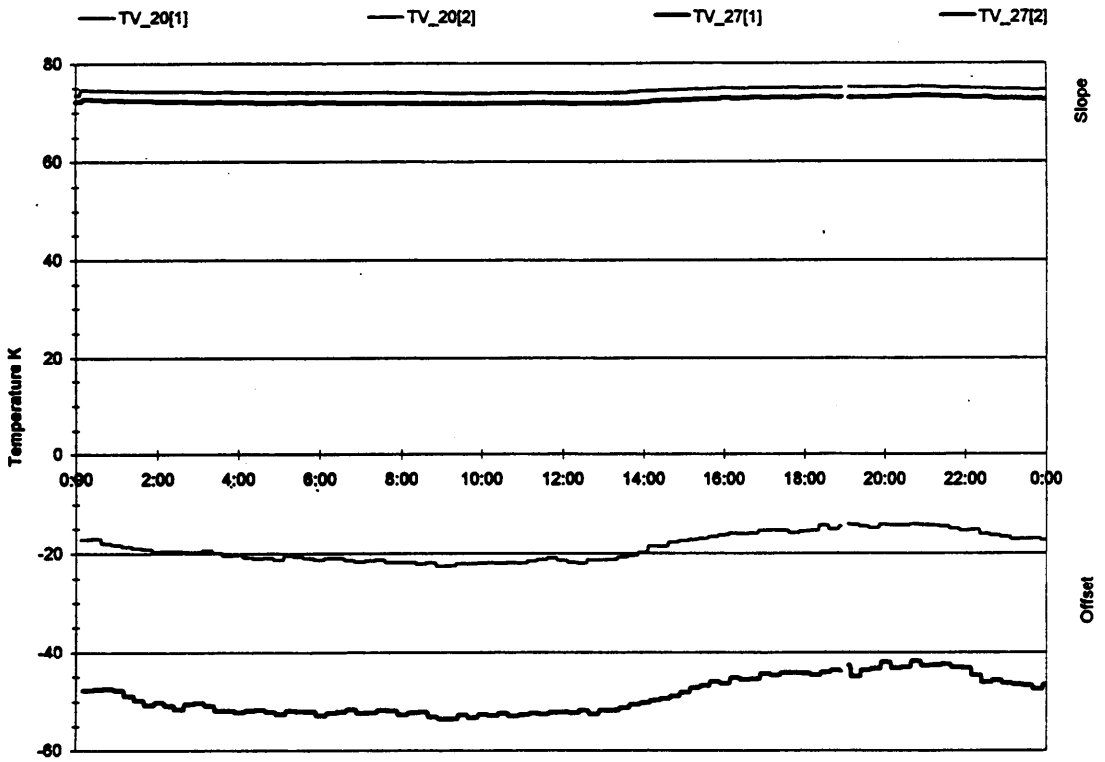

Figure 9

941201BC.SUM

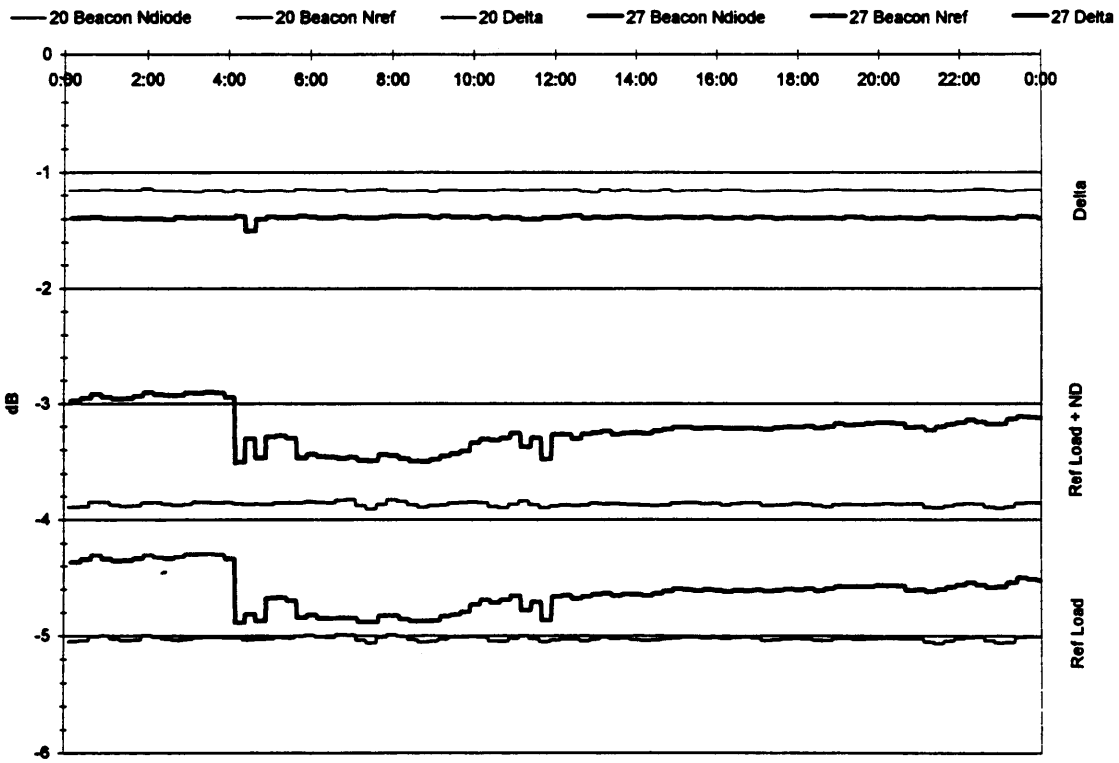

Figure 10

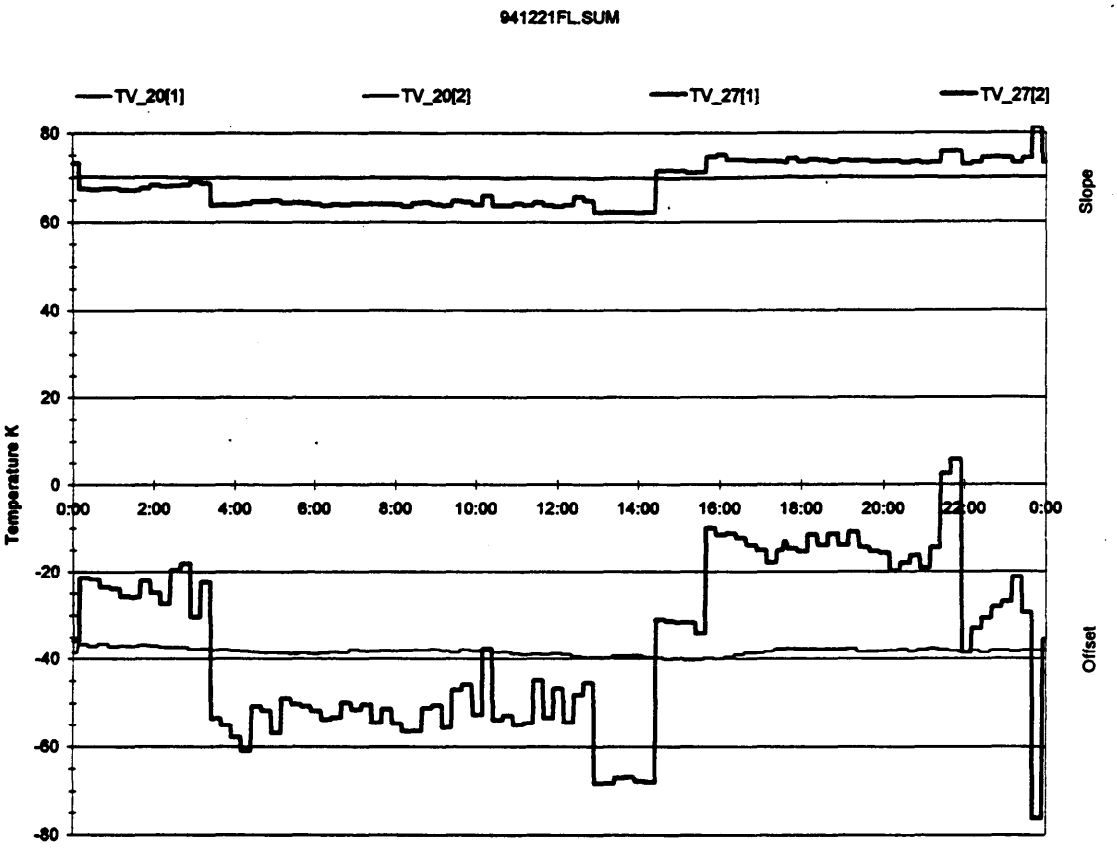

Figure 11

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Conclusions

Systems are collecting almost all of available data 99.9%.

Systems are Dependable.

Systems are Accurate. 0.1 - 0.2 dB, 10- 12 ° K

A Few Potential problems:

- **LOs or PLOs or LNA's have frequency instability causing dropouts.**
- **IFs and Radiometers have gain instability causing random shifts.**
- **Hardware failures.**
- **PC problems.**