Receiving Mode-S with a USRP N200

Contents

Application Note Number: AN-5501

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Last Modified Date: 2016/04/15

Reference: https://www.ettus.com/kb/detail/receiving-mode-s-with-a-usrp-n200

The Ettus Research? USRP? (Universal Software Radio Peripheral) is used for a number of military and aerospace applications. In this example, the USRP N200/N210 is used to receive and decode Mode-S beacons from real-world aircraft. The information from these beacons is displayed on Google Earth. This demonstration shows the flexibility offered by GNU Radio, an a open source package and its strong user-base.

The Gnuradio Out-Of-Tree module (OOT) gr-air-modes will be use to receive Mode-S with the USRP.

- Python >= 2.5
- NumPy and SciPy
- Gnuradio >= 3.5.0
- Ettus UHD >= 3.4.0
- SQLite 3.7 or later
- CMake 2.6 or later

```
$ git clone https://github.com/bistromath/gr-air-modes.git
$ cd gr-air-modes/
$ mkdir build
$ cd build
$ cmake ../
$ make
$ sudo make install
$ sudo ldconfig
```

After successfully building and installing the gr-air-modes OOT, you will have two applications to receive Mode-S.

- **modes_rx**
  - ♦ Command line based, textual output of data received

- **modes_gui**
  - ♦ GUI based interface with Google Maps integration

For additional information on gr-air-modes please see the gr-air-modes Github Repository.