Implementation of a Simple FM Receiver in GNU Radio

Contents

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Date	Author	Details
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This AN shows a quick and simple implementation of an FM receiver for the USRP using GNU Radio. The goal is to easily demonstrate a practical application, and to verify that the USRP is functioning properly.

In this application note, a Universal Software Radio Peripheral (USRP?) N200/N210 and a WBX daughterboard is used with GNU Radio to build a simple FM receiver. The intent of this example is to:

- Teach some basic DSP and RF concepts including: filtering, demodulation, and sample rate conversion.
- Show how to build graphical applications with GNU Radio Companion
- Illustrate the simplicity of the software tools that can be used with the USRP product family.

- USRP with compatible daughterboard to receive 88-108 MHz
- GNU Radio
- UHD

- Configures USRP
- Receives data stream from USRP

- Display Fast Fourier Transform of data stream

- Apply low pass filter to data stream
- Optional: Decimation or Interpolation

- Demodulates Wide Band Frequency Modulated signal from data stream

- Decimate or Interpolate data stream to desired sample rate

- Audio hardware interface
- Optional: Decimate Audio Rate

- Save data stream as WAV file type

- Textbox - Input field
- Slider - Adjustable slider
- Notebook - Assign Widgets/GUI Sinks to tabs within flowgraph

- Creates variable within flowgraph

https://www.youtube.com/watch?v=KWeY2yqwVA0

You can download the sample GRC file here: http://files.ettus.com/app_notes/fm_rcvr/fm_example.grc