## Implementation of a Simple FM Receiver in GNU Radio

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## AN-5501

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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=KWeY2ygwVA0

You can download the sample GRC file here: http://files.ettus.com/app\_notes/fm\_rcvr/fm\_example.grc