

Options

Title: Leanspace + GNU Radio

Output Language: Python

Generate Options: No GUI

Run Options: Prompt for Exit

Variable

Id: sampRate

Value: 480k

Variable

Id: freqOffset

Value: 11k

XMLRPC Server

Address: localhost

Port: 7.777k

Doppler compensation

Receives an updated frequency

Update from GSC through XMLRPC

Variable Config

Id: main\_Resu...le\_Prefix\_Str

Default Value: ERROR\_PREFIX

Type: String

Config File: ...aster/default

Section: main

Option: main\_Re...File\_Prefix

WriteBack: None

Variable

Id: fileNameRes

Value: ERROR\_PREFIX.dat

Variable

Id: fileNameRaw

Value: ERROR\_PREFIX.raw

Note

Note: File names config

Variable Config

Id: sdr\_Freq\_Int

Default Value: 103.6M

Type: Int

Config File: ...aster/default

Section: sdr

Option: sdr\_Freq

WriteBack: None

Variable Config

Id: sdr\_LNA\_Gain\_Int

Default Value: 470k

Type: Int

Config File: ...aster/default

Section: main

Option: main\_LPF\_Cutoff\_Freq

WriteBack: None

Variable Config

Id: sdr\_LF\_Gain\_Int

Default Value: 40

Type: Int

Config File: ...aster/default

Section: sdr

Option: sdr\_LF\_Gain

WriteBack: None

Variable Config

Id: sdr\_BB\_Gain\_Int

Default Value: 40

Type: Int

Config File: ...aster/default

Section: sdr

Option: sdr\_BB\_Gain

WriteBack: None

Variable Config

Id: modulation\_Type\_Int

Default Value: 3

Type: Int

Config File: ...aster/default

Section: modulation

Option: modulation\_Type

WriteBack: None

Variable Config

Id: modulation\_Baud\_Rate\_Int

Default Value: 9.6k

Type: Int

Config File: ...aster/default

Section: modulation

Option: modulation\_Baud\_Rate

WriteBack: None

Variable Config

Id: modulation...ub\_Audio\_Bool

Default Value: False

Type: Bool

Config File: ...aster/default

Section: modulation

Option: modulat...K\_Sub\_Audio

WriteBack: None

Variable Config

Id: modulation...nchester\_Bool

Default Value: False

Type: Bool

Config File: ...aster/default

Section: modulation

Option: modulat...Manchester

WriteBack: None

Variable Config

Id: deframer\_G3RUH\_Bool

Default Value: False

Type: Bool

Config File: ...aster/default

Section: deframer

Option: deframer\_G3RUH

WriteBack: None

Variable Config

Id: deframer\_CRC16\_Bool

Default Value: False

Type: Bool

Config File: ...aster/default

Section: deframer

Option: deframer\_CRC16

WriteBack: None

Variable Config

Id: main\_Netw...m\_Address\_Str

Default Value: 127.0.0.1

Type: String

Config File: ...aster/default

Section: main

Option: main\_Ne...eam\_Address

WriteBack: None

Variable Config

Id: main\_Netw...ream\_Port\_Int

Default Value: 8.08k

Type: Int

Config File: ...aster/default

Section: main

Option: main\_Ne...Stream\_Port

WriteBack: None

Note

Note: SDR config

Note

Note: Modulation config

Note

Note: Deframing config

Note

Note: Network config

The main processing flow starts with an **osmocom Source** block. Its output goes to a **DC Blocker** block (Length: 32, Long Form: True). The output of the DC Blocker goes to a **Selector** block (Enabled: Enabled, Number of Inputs: 2, Number of Outputs: 1, Input Index: 1, Output Index: 0). The output of this Selector goes to a **Low Pass Filter** block (Decimation: 1, Gain: 1, Sample Rate: 480k, Cutoff Freq: 470k, Transition Width: 3k, Window: Hamming, Beta: 6.76). The output of the Low Pass Filter goes to another **Selector** block (Enabled: Enabled, Number of Inputs: 1, Number of Outputs: 2, Input Index: 0, Output Index: 1). The output of this Selector goes to a **File Sink** block (File: fileNameRaw, Unbuffered: Off, Append file: Overwrite). The output of the File Sink goes to a **Selector** block (Enabled: Enabled, Number of Inputs: 2, Number of Outputs: 1, Input Index: 0, Output Index: 0). The output of this Selector goes to a **Selector** block (Enabled: Enabled, Number of Inputs: 1, Number of Outputs: 4, Input Index: 0, Output Index: 3). The output of this Selector goes to four **Virtual Sink** blocks (Stream IDs: bpskRaw, afskRaw, fskRaw, analogFM). A **Wav File Source** block (File: ...ecordings/gomx\_1.wav, Repeat: Yes) goes to a **Null Source** block, which then goes to a **Float To Complex** block. The output of the Float To Complex block goes to the **Selector** block (Enabled: Enabled, Number of Inputs: 2, Number of Outputs: 1, Input Index: 0, Output Index: 0). A **Virtual Source** block (Stream ID: debug) goes to a **Message Debug** block.

The demodulation and deframing flow starts with four **Virtual Source** blocks (Stream IDs: bpskRaw, afskRaw, fskRaw, analogFM). Each Virtual Source goes to a corresponding demodulator: **BPSK Demodulator** (Baudrate: 9.6k, Sample rate: 48k, Frequency offset (Hz): 11k, Differential: True, Manchester: False), **AFSK Demodulator** (Baudrate: 9.6k, Sample rate: 48k, AF carrier: 3.6k, Deviation: -1.2k), **FSK Demodulator** (Baudrate: 9.6k, Sample rate: 48k, Subaudio: False), and **FM Demod** (Channel Rate: 480k, Audio Decimation: 10, Deviation: 17k, Audio Pass: 2.4k, Audio Stop: 3.4k, Gain: 1, Tau: 75u). The outputs of these demodulators go to a **Selector** block (Enabled: Enabled, Number of Inputs: 4, Number of Outputs: 7, Input Index: 3, Output Index: 6). The output of the Selector goes to five deframers: **AO-40 FEC Deframer** (Syncword threshold: 4, Use short frames (SMOG-P): False, Use CRC-16 ARC: False), **GOMspace U482C Deframer** (Syncword threshold: 4), **AX.25 Deframer** (G3RUH scrambling: False), **FOSSASAT Deframer** (Syncword threshold: 4), and **GOMspace AX100 Deframer** (Mode: Reed Solomon, Syncword threshold: 4). The outputs of these deframers go to a **PDU to Tagged Stream** block (Length tag name: data). The output of the PDU to Tagged Stream block goes to a **UDP Sink** block (Destination IP Address: 127.0.0.1, Destination Port: 8.08k, Payload Size: 1.472k, Send Null Pkt as EOF: True) and a **File Sink** block (File: fileNameRes, Unbuffered: Off, Append file: Overwrite). A **Virtual Sink** block (Stream ID: debug) also receives input from the deframers.