File S1
Block diagram of the complete system designed in GNU Radio Companion.

TRANSMITTER

Options
Title: FMCW_CHIRP
Author: Marcelo Ojeda Zurita
Output Language: Python
Generate Options: QT GUI

Variable
ID: A
Value: 1

Variable
ID: fc
Value: 3G

Variable
ID: fs
Value: 1M

Variable
ID: Bw
Value: 200k

Signal Generator FMCW
Sample rate: 1M
Samples CW: 0
Samples up-chirp: 1M
Samples down-chirp: 0
Frequency CW: 0
Sweep frequency: 200k
Amplitude: 1
Packet length key: packet_len

IQ out

Complex To Float

Throttle
Sample Rate: 1M
Limit: Max Time (sec)
Maximum: 1

QT GUI Sink
Name: Transmitida
FFT Size: 1024
Center Frequency (Hz): 3G
Bandwidth (Hz): 200k
Update Rate: 10

File Sink
File: ...alExample\fmcwTx.dat
Unbuffered: Off
Append file: Overwrite

Float To Complex

command

async_msgs

UHD: USRP Sink
Sync: No Sync
Mb0: Clock Source: Internal
Samp rate (Sps): 1M
Ch0: Center Freq (Hz): 3G
Ch0: Gain Value: 70
Ch0: Antenna: TX/RX
Ch0: Bandwidth (Hz): 200k

RECEIVER

Multiply
in0
in1
out

Throttle
Sample Rate: 1M
Limit: Max Time (sec)
Maximum: 1

QT GUI Sink
Name: Multiplicada
FFT Size: 1024
Center Frequency (Hz): 3G
Bandwidth (Hz): 200k
Update Rate: 10

File Sink
File: ...\Multiplicada_Rx.dat
Unbuffered: Off
Append file: Overwrite

UHD: USRP Source
Sync: No Sync
Mb0: Clock Source: Internal
Samp rate (Sps): 1M
Ch0: Center Freq (Hz): 3G
Ch0: AGC: Default
Ch0: Gain Value: 65
Ch0: Antenna: TX/RX
Ch0: Bandwidth (Hz): 200k

command

out

async_msgs

Complex To Float

Throttle
Sample Rate: 1M
Limit: Max Time (sec)
Maximum: 1

QT GUI Sink
Name: Recibida
FFT Size: 1024
Center Frequency (Hz): 3G
Bandwidth (Hz): 200k
Update Rate: 10

File Sink
File: ...alExample\fmcwRx.dat
Unbuffered: Off
Append file: Overwrite