

Options

Title: DCF77 Transmitter

Author: henningM1R

Output Language: Python

Generate Options: QT GUI

Complexity: 358ubal

QT GUI Range

ID: gain

Label: Gain

Default Value: 72m

Start: 10m

Stop: 3

Step: 10m

Variable

ID: samp_rate

Value: 192k

Variable

ID: freq_DCF77

Value: 77.5k

Vector Source

Vector: (1,1,1,1,1,0,0,0,0...

Tags:

Repeat: Yes

Vector Source

Vector: (0,0,1,1,1,0,0,0,0...

Tags:

Repeat: Yes

example DCF77 encoded bit-stream (with random weather data bits)
full length: must be 60 elements, the last element must be a 2

Char To Float

Scale: 1

Repeat

Interpolation: 192k

each bit stretches a number of "samp_rate" samples, i.e. fill one full second

Tags Strobe

Value (PMT): second

Key (PMT): Second

Num. Samples: 192k

set a tag each second

Add

QT GUI Time Sink

Name: DCF77_bits

Number of Points: 768k

Sample Rate: 192k

Autoscale: No

DCF77-Signalling

Scaling: 1

Samp_Rate: 192k

* encode bits to signals
* each bit has a total signal length of "samp_rate"
* convert 0 bit to:
100ms low (0) , 900ms high (1)
* convert 1 bit to:
200ms low (0), 800ms high (1)

QT GUI Time Sink

Name: Baseband_DCF77_signal

Number of Points: 768k

Sample Rate: 192k

Autoscale: No

Fast Multiply Const

Constant: 72m

Constant Source

Constant: 0

Signal Source

Sample Rate: 192k

Waveform: Cosine

Frequency: 77.5k

Amplitude: 1

Offset: 0

Initial Phase (Radians): 0

modulate pass band signal to 77.5 kHz

Float To Complex

Multiply

QT GUI Frequency Sink

Name: Modulate...al_frequency

FFT Size: 1024

Center Frequency (Hz): 0

Bandwidth (Hz): 192k

QT GUI Time Sink

Name: Modulate..._signal_time

Number of Points: 768k

Sample Rate: 192k

Autoscale: No

TCP Sink

Mode: Server

Port: 55.553k

to the DCF77 channel