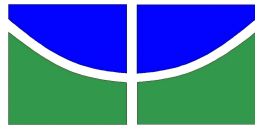


GNU Radio

Aula 0



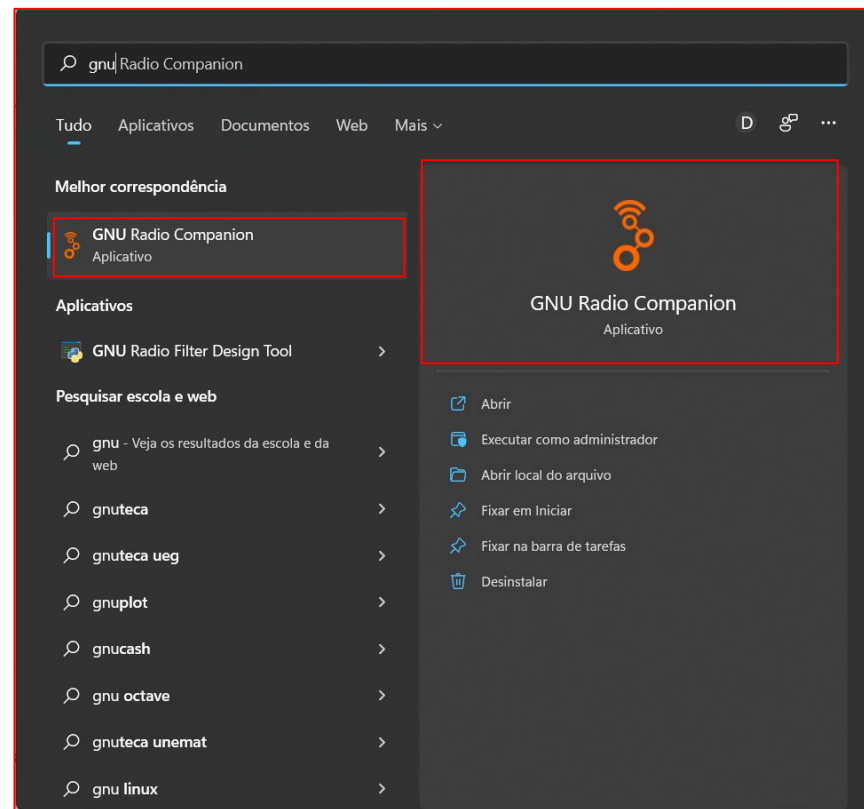
Links Importantes

- Site do GNU Radio: <https://www.gnuradio.org/docs/>
- Instalação:
 - Windows, Linux e MacOS <https://wiki.gnuradio.org/index.php/InstallingGR>

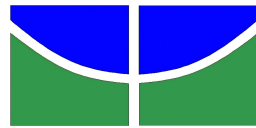


Primeiros Passos

- 1 . Buscar no menu iniciar GNU Radio Companion
2. Abrir



Propriedades



File Edit View Run Tools Help

Options
Title: Not titled yet
Output Language: Python
Generate Options: QT GUI

Variable
ID: samp_rate
Value: 32k

Properties: Options

General Advanced Documentation

ID: default

Title: Not titled yet

Author:

Copyright:

Description:

Output Language: Python

Generate Options: QT GUI

Run: Autostart

Param - ID(id):
ID "default" is blacklisted.

OK Cancel Apply

<<< Welcome to GNU Radio Companion 3.9.5.0 >>>

Block paths:
C:
(Users\danie\radioconda\Library\share\gnuradio\grc\blocks

Loading: "C:
(Users\danie\Git\GNSS_rep\GNUradio\CA_CODE.grc"
>>> Done

ID	Value
Imports	
Variables	
samp_rate	32000

- Core
 - Audio
 - Boolean Operators
 - Byte Operators
 - Channel Models
 - Channelizers
 - Coding
 - Control Port
 - Debug Tools
 - Deprecated
 - Digital Television
 - Equalizers
 - Error Coding
 - File Operators
 - Filters
 - Fourier Analysis
 - GUI Widgets
 - Impairment Models
 - Instrumentation
 - IQ Correction
 - Level Controllers
 - Math Operators
 - Measurement Tools
 - Message Tools
 - Misc
 - Modulators
 - Networking Tools
 - OFDM
 - Packet Operators
 - Peak Detectors
 - Resamplers
 - Soapy
 - Stream Operators
 - Stream Tag Tools

Taxa de amostragem



File Edit View Run Tools Help

Options
Title: Not titled yet
Output Language: Python
Generate Options: QT GUI

Variable
ID: samp_rate
Value: 32k

Properties: Variable

General Advanced Documentation

ID: samp_rate

Value: 32000

OK Cancel Apply

<<< Welcome to GNU Radio Companion 3.9.5.0 >>>

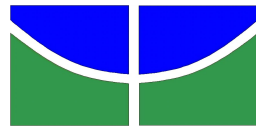
Block paths:
C:
(Users\danie\radioconda\Library\share\gnuradio\grc\blocks

Loading: "C:
(Users\danie\Git\GNSS_rep\GNUradio\CA_CODE.grc"
>>> Done

ID	Value
Imports	
Variables	
samp_rate	32000

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Variáveis da simulação



File Edit View Run Tools Help

Options
Title: Not titled yet
Output Language: Python
Generate Options: QT GUI

Variable
ID: samp_rate
Value: 32k

- Core
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<<< Welcome to GNU Radio Companion 3.9.5.0 >>>

Block paths:
C:
(Users\danie\radioconda\Library\share\gnuradio\grc\blocks

Loading: "C:
(Users\danie\Git\GNSS_rep\GNUradio\CA_CODE.grc"
>>> Done

ID	Value
Imports	
Variables	
samp_rate	32000

Bibliotecas



File Edit View Run Tools Help

Options
Title: Not titled yet
Output Language: Python
Generate Options: QT GUI

Variable
ID: samp_rate
Value: 32k

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 - Stream Tag Tools

<<< Welcome to GNU Radio Companion 3.9.5.0 >>>

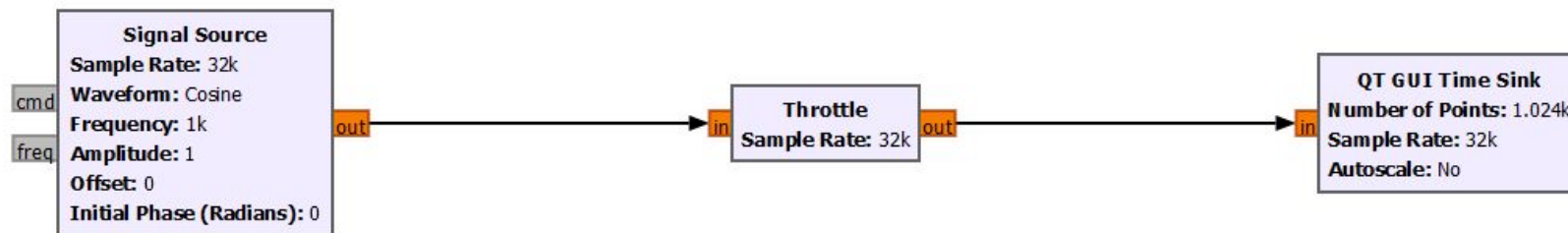
Block paths:
C:
\\Users\\danie\\radioconda\\Library\\share\\gnuradio\\grc\\blocks

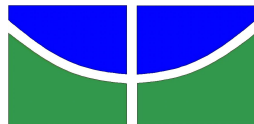
Loading: "C:
\\Users\\danie\\Git\\GNSS_rep\\GNUradio\\CA_CODE.grc"
>>> Done

ID	Value
Imports	
Variables	
samp_rate	32000

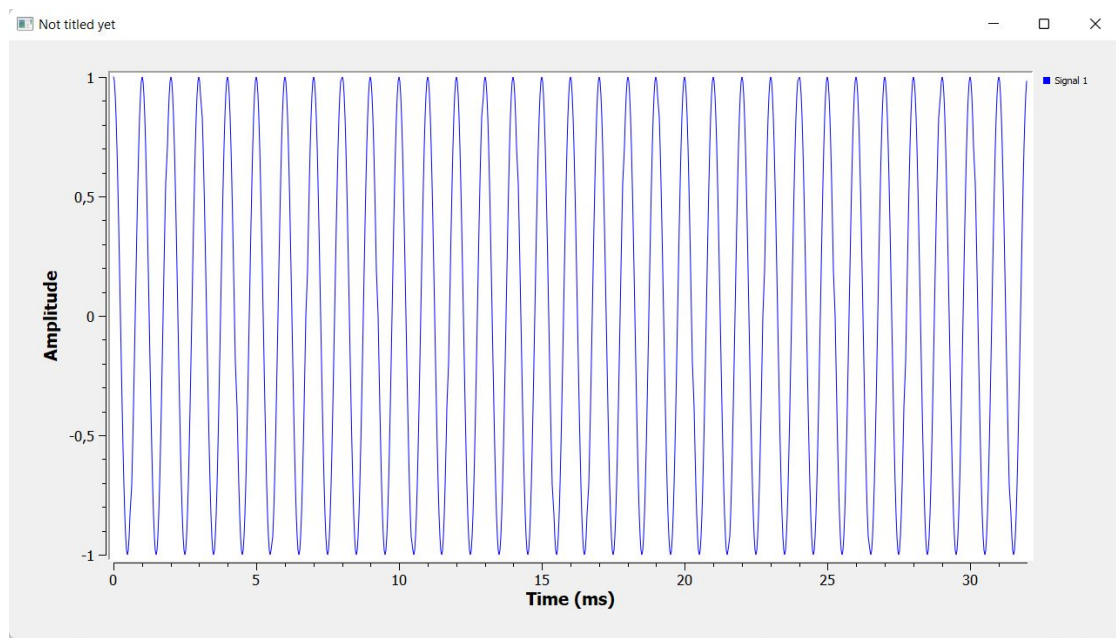


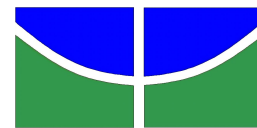
Plot do Sinal no tempo





Resultado





Configurações do plot

Properties: QT GUI Time Sink

General Advanced Trigger Config Documentation

Type Float

Name ""

Y Axis Label Amplitude

Y Axis Unit ""

Number of Points 1024

Sample Rate samp_rate

Grid No

Autoscale No

Y min -1

Y max 1

Number of Inputs 1

Update Period 0.10

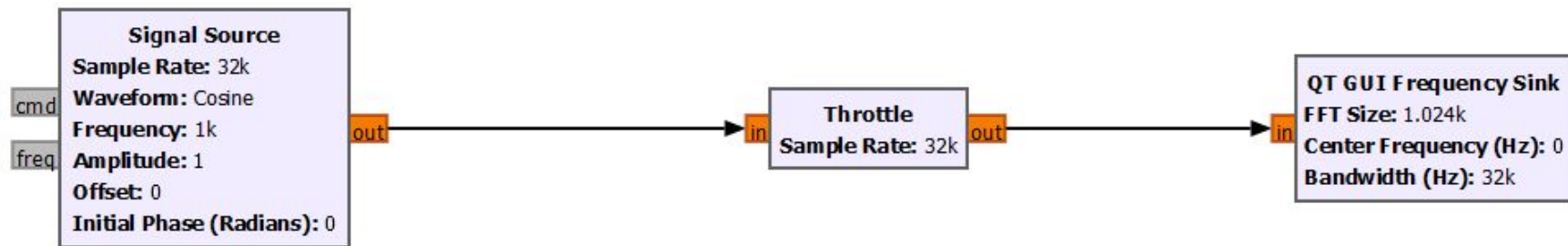
Disp. Tags Yes

GUI Hint

OK Cancel Apply

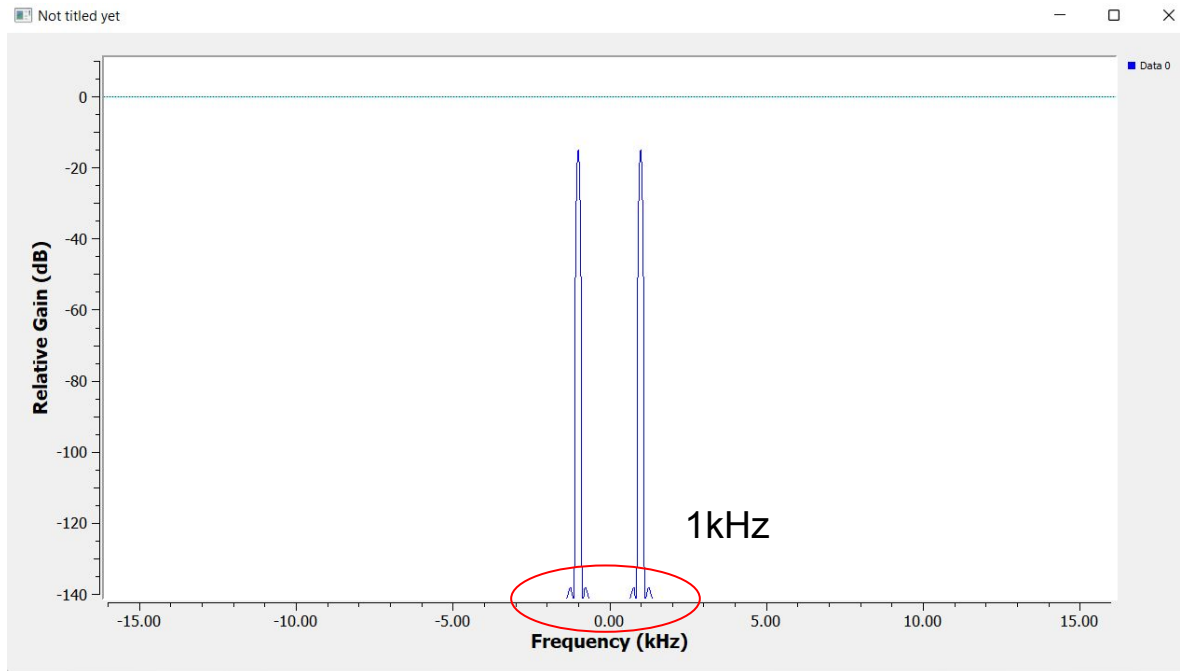


Espectro de Frequência





Resultado





Configurações do plot

Properties: QT GUI Frequency Sink

General Advanced Trigger Config Documentation

Type: Float

Name:

FFT Size: 1024

Spectrum Width: Full

Window Type: Blackman-harris

Normalize Window Power: False

Center Frequency (Hz): 0

Bandwidth (Hz):

Grid: No

Autoscale: No

Average: None

Y min: -140

Y max: 10

Y label: Relative Gain

Y units: dB

OK Cancel Apply



Crie variáveis

Screenshot of the GNU Radio Companion (GRC) interface showing the process of creating variables.

The top toolbar contains several icons, with the 'Variable' icon (a square with a circle inside) circled in red. An arrow points from this icon to the 'Variable' option in the right-hand menu.

The right-hand menu is open, showing a search bar with 'varia' and a list of options. The 'Variable' option is highlighted.

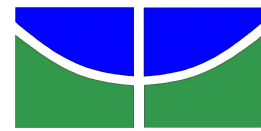
The bottom-left pane shows the command prompt output:

```
Loading: "C:\Users\danie\Git\PricomAulas\LAB_FM\lab_mod_fm.grc"
>>> Done

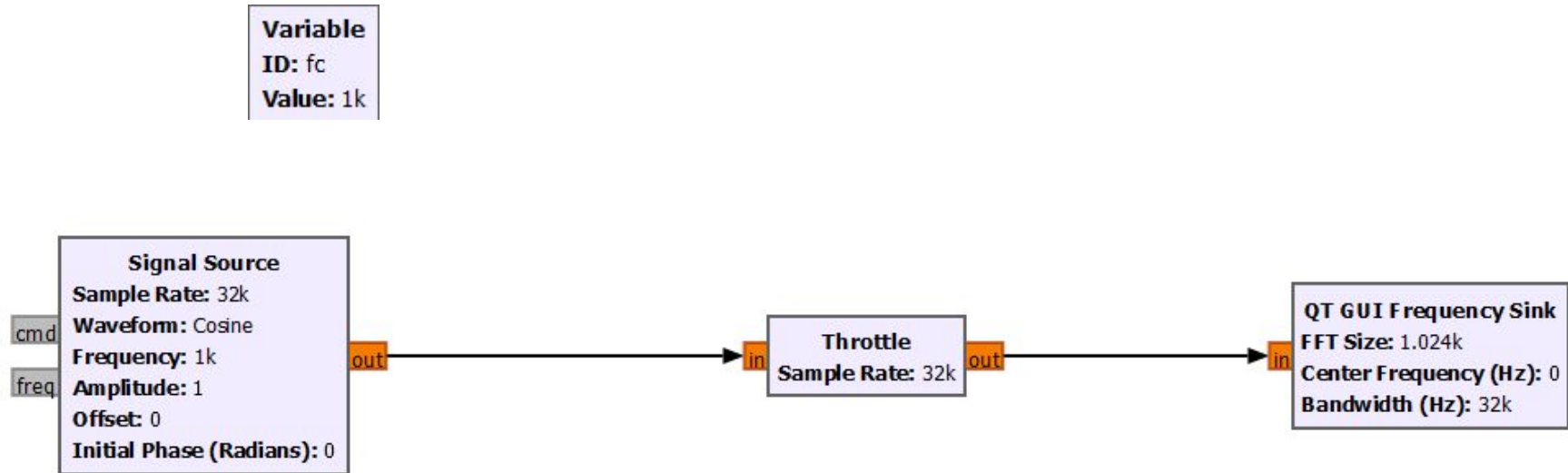
Loading: "C:\Users\danie\OneDrive - unb.br\Documentos\GNURadio\AM_Noise.grc"
>>> Done
```

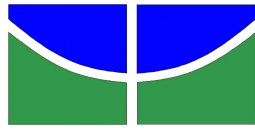
The bottom-right pane shows the 'Variables' table:

ID	Value
Imports	
Variables	
fc	1000
samp_rate	32000



Repita o plot com a variável





Exercício:

1. Calcular a potência da portadora a uma frequência 5 KHz.
2. Plotar o espectro de frequência da portadora ao quadrado
 - a. O que você observa de diferente para o espectro original?