

# GFSK IQ Baseband Builder User Guide

The GFSK IQ Baseband Builder (GFSK IQBB) was developed on MATLAB version 8.0.0.783 (R2012b), allowing you to create GFSK baseband waveforms. It contains 2 files for you to use in the MATLAB environment:

- GFSK\_N9310A\_33522B\_IQ.m file is used to generate baseband waveform data and download them to 33522B.
- Data.m file is used to make custom IQ baseband signal.

With the GFSK IQBB program, you can download the GFSK baseband waveform data into an Agilent 33522B 2-channel waveform generator and generate the GFSK baseband signals. Furthermore, you can input the GFSK baseband signals into the Agilent N9310A RF signal generator to generate the real-world GFSK signals.

## PC environment for the GFSK IQBB program:

- MATLAB version 8.0.0.783 (R2012b) or above, requiring the Signal Processing toolbox and the Instrument Control toolbox.

## System requirements for generating GFSK signals

- Agilent 33522B 2-channel waveform generator
- Agilent N9310A RF signal generator with option 001 (IQ modulator) installed
- 2 pieces of BNC cable
- 1 piece of USB or LAN cable

## Procedures of using the GFSK IQBB program

To run the GFSK IQBB program,

1. Open up Matlab and set the “Current Folder:” to the folder containing the GFSK IQBB program files
2. Open GFSK\_N9310A\_33522B\_IQ.m file and click the “Run” button in the shortcuts toolbar.

## Hints:

- You can control the waveform parameters such as symbol rate, frequency deviation, Gaussian filter's BT, etc in the GFSK IQBB program. The digital data used to build the signals is generated randomly by MATLAB, but you can also import your own digital data to the GFSK IQBB program via the *data.m* file, in order to generate the specified baseband waveform
- Once the waveforms data are generated from the GFSK IQBB, you can export them to an Agilent 33522B 2-channel waveform generator and automatically generate a CSV file. When the 33522B's address is correctly set up in the GFSK IQBB, the GFSK IQBB will not only download the GFSK waveform data to 33522B, but also set up 33522B's parameters.
- The CSV file includes the GFSK waveform data only, but none of 33522B's parameters is included. So that you can recall it in 33522B by USB memory and manually set up 33522B's parameters, such as sample rate, amplitude, enable output, etc.

If you need further help, feel free to post your questions onto [Agilent RF and Microwave signal Sources Forum](#)