



# Phase Coherent MIMO Acquisition and Generation Toolkit

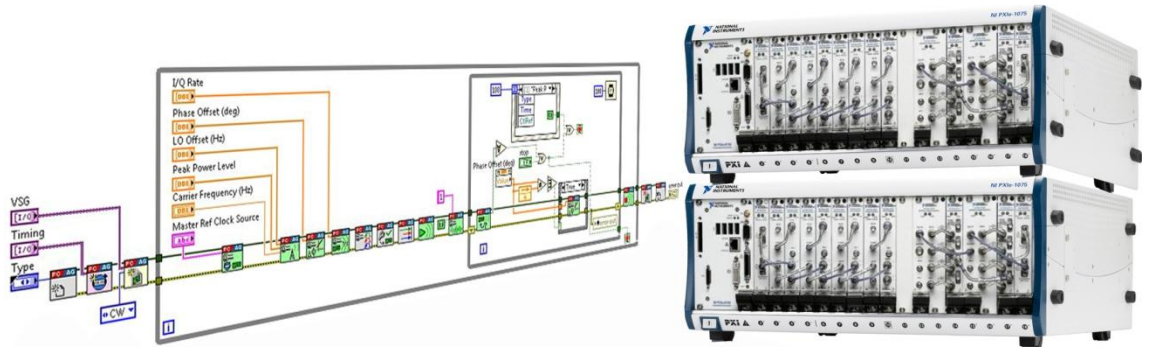
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## Overview

The Phase Coherent MIMO Acquisition and Generation (PCAG) Toolkit is based on the NI PXI platform. Software is developed in the LabVIEW graphical programming environment.

With the PCAG Toolkit and NI hardware you can make phase coherent generation and/or acquisition of RF signals.

PCAG Toolkit can be used both for single- and multi-chassis.

## Features

- Multichannel phase coherent acquisition and generation
- Typical phase mismatch between the channels less than  $0.1^\circ$  (at 1 MHz bandwidth) after the calibration process
- Compensation of the phase difference between acquisition channels
- Calibration of amplitude and phase differences between the generation channels
- Automated trigger routing between the PXI trigger buses in single- and multi-chassis systems
- Visualization of measured results
- Front panel consists of PCAG VSA Front Panel and PCAG VSG Front Panel

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Rev. **0.1**



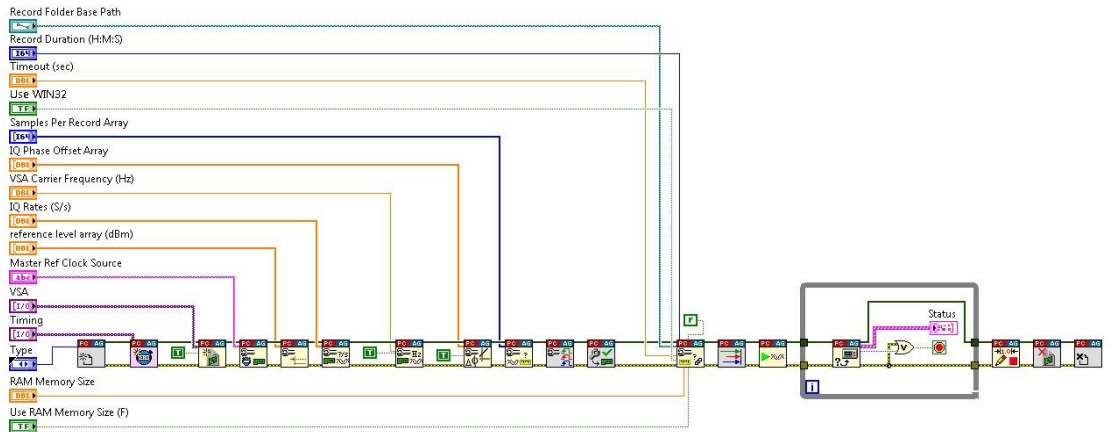
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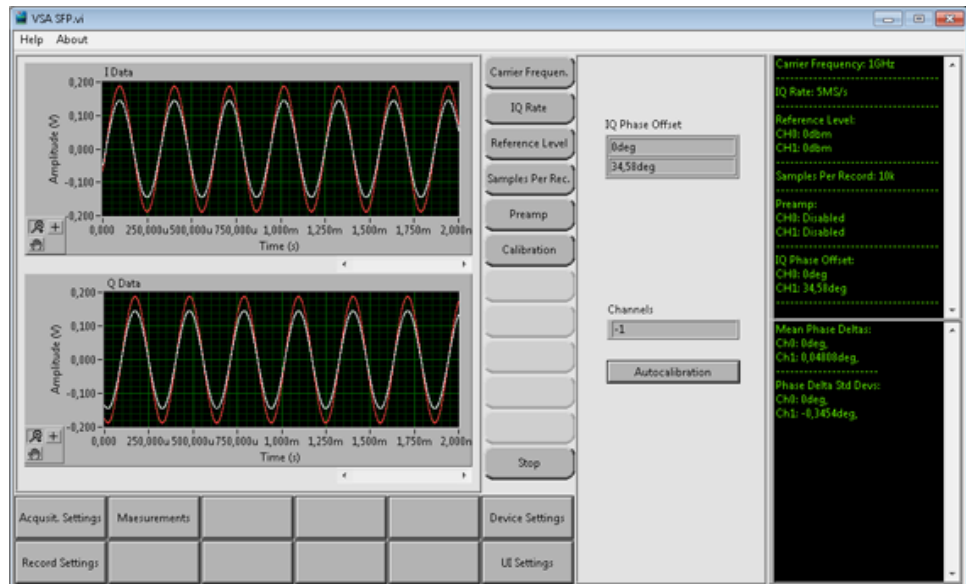


## Hardware and software

Hardware	Software
NI PXI platform	Windows 7 (or higher)
Vector Signal Analyzer	LabVIEW 13 (or higher)
Vector Signal Generator	NI-RFSG
	NI-RFSA
	NI-Sync
	Quick Syn
	NI spectral measurements toolkit

The system includes also two front panels:

- **VSA Front Panel**
- **VSG Front Panel**





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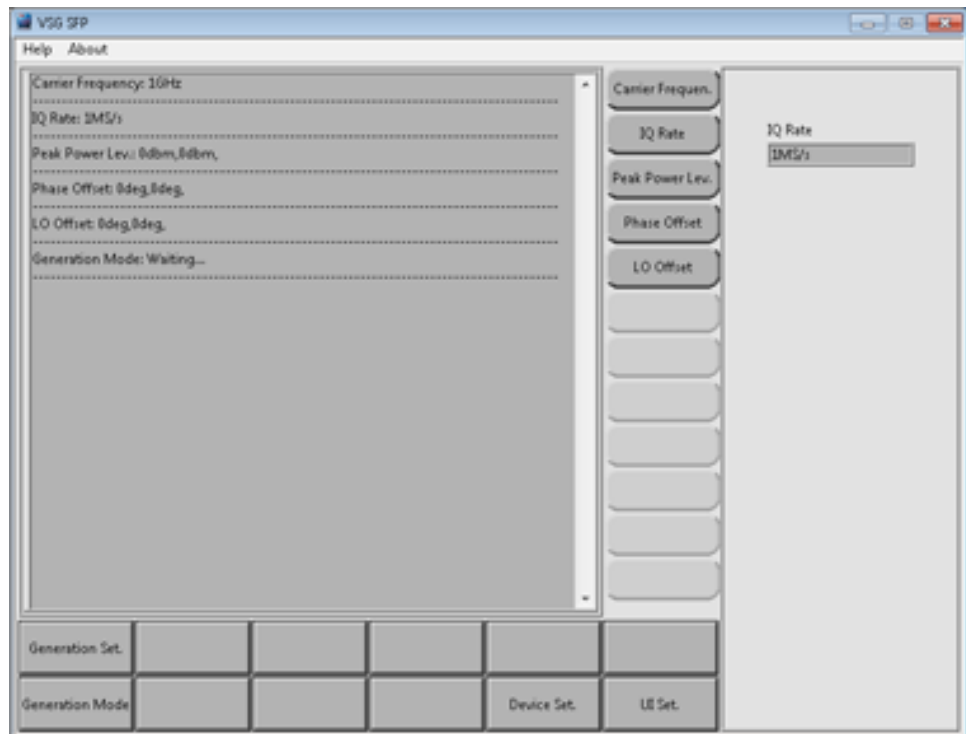
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PCAG VSA Front Panel performs coherent acquisition and analysis of RF signals and:

- Displays the signals on various graphs (I/Q versus Time, I versus Q, Power versus Time, Phase versus Time, Phase Delta versus Time, Power Spectra) Displaying of the phase difference
- Displays the phase difference
- Saves the file after calibration of channels
- Records and saves the file after data acquisition
- Self-calibrates the phase and amplitude differences
- Operates the PCAG VSA Front Panel and downconverter jointly



PCAG VSG Front Panel performs coherent generation of RF signals for:

- Continuous waveform signal generation
- Arbitrary waveform generation
- Generation of signal with parameters read from the recorded file
- Joint operation of PCAG VSG Front Panel and upconverter