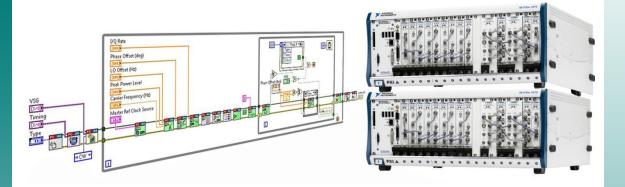


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# Phase Coherent MIMO Acquisition and Generation Toolkit



### **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 singleand multi-chassis.

### **Features**

- Multichannel phase coherent acquisition and generation
- Typical phase mismatch between the channels less than 0.1° (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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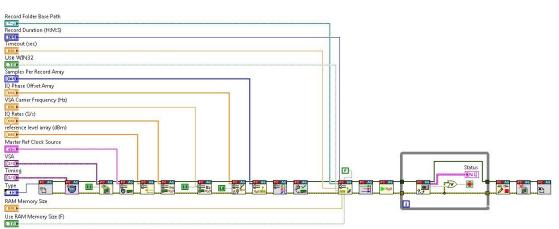
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## Hardware and software

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

VSA SFP.vi			· · · · · ·
Help About			
6,200 0,100 0,	Carrier Frequen. IQ Rate Reference Level Samples Per Rec. Preamp Calibration	IQ Phase Offset Bdeg 34,58deg	Carrier Frequency: 10Hz A IQ Rate: 5MS/s Reference & revel: CH1: 0.8mm CH1: 0.8mm Samples Per Record: 10k Preampl: CH1: Duabled CH1: Duabled CH1: Duabled CH1: Duabled CH1: Duabled CH1: Duabled CH1: Duabled
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Acquist. Settings Maesurements	Device Settings		
Record Settings	UI Settings		-

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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

VS0 SFP Help About			
Carrier Frequency: 16Hz IQ Rate: 1MS/s Peak Power Lev.: 0dbm,0dbm, Phase Offset: 0deg.8deg.		Carrier Frequen. IQ Rate Peak Power Lev.	1Q Rate IME/s
LO Offiet: Bdeg,Bdeg,		Phase Offset	
Generation Mode: Waiting			
Generation Set.			
eneration Mode	Device Set.	UE Set.	

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

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