

RAPID VT

0.5-40GHz Mesuro Digital Tuner | Active Load Pull



Introduction | RAPID VT

Focus Microwaves' RAPID digital tuner technology is now available for very wideband communication signals, supporting the latest 5G FR1 and IEEE 802.11ax standards. This new architecture leverages the raw performance of National Instruments PXIe-5841* PXI Vector Signal Transceiver.

The Rapid VT, utilizes two PXIe-5841 VSTs to make a VNA architecture with up to 1GHz active load pull bandwidth capability. The system solution provides a flexible load pull test platform that can be used to test the latest high bandwidth and high modulation cellular standards such as 1024QAM 802.11ax but can also be configured for fast load pull and s-parameter measurements. This opens up the possibility of using this system in all parts of the design cycle, from initial device characterisation, to MMIC or PA design, design verification testing and ultimately to product testing in the factory.

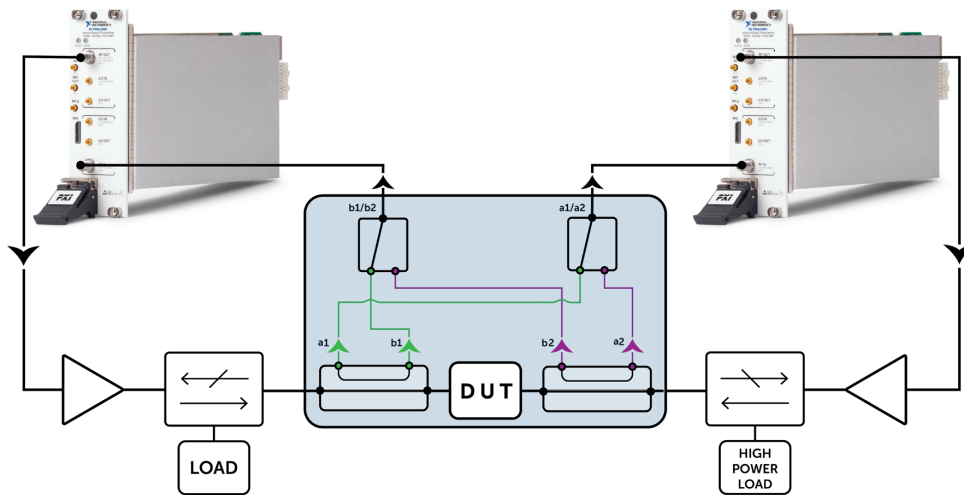


Key Features

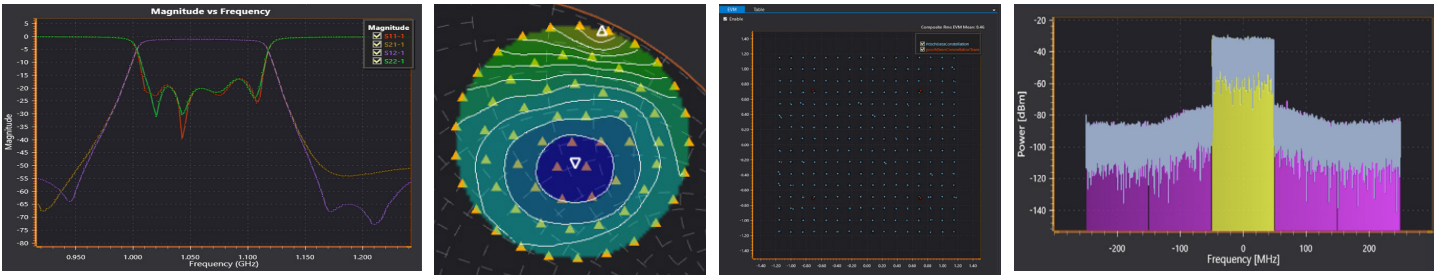
- Supports the latest 5G FR1 and IEEE 802.11ax standards
- Up to 1GHz active load pull bandwidth capability
- Test the latest high bandwidth and high modulation cellular standards such as 1024QAM 802.11ax
- This system can be used in all parts of the design cycle:
 - Initial device characterisation
 - MMIC or PA design
 - Design verification testing
 - Product testing in the factory.

Key Measurements Available

- Input / Output Power
Peak and Average
- Power Added Efficiency
- ACPR and EVM for wideband applications
- Multi Carrier Intermodulation



Measurements



S Parameter Performance Summary*

Model	Frequency Range [GHz]	CW		Pulse		
		Dynamic Range [dB]	Average Power [dBm]	Min. Width [ns]	Dynamic range [dB]	Peak Power [dBm]
RAPID-805**	0.5 - 6 / 8	70	40	200	70	50
RAPID-1805	0.5 - 6 / 8				65	
RAPID-4005	0.5 - 6 / 8	70	70		43	
	6 / 8 - 18	65	65			
	18 - 40	60	60			

* These specifications are with regards to Rapid load pull system performance only and at +23C +/-2C

** VST Model PXIe-5841/42

Load Pull Performance Summary*

Model	Frequency Range [GHz]	CW			Pulse			Modulated		
		Dynamic Range [dB]	Accuracy [dB]	Average Power [dBm]	Min. Width [ns]	Dynamic Range [dB]	Peak Power [dBm]	Max Bandwidth [MHz]	Dynamic Range [dB]	Peak Power [dBm]
RAPID-805**	0.5 - 6 / 8	>60	40	47	200	>60	53	1000	>60	53
RAPID-1805	0.5 - 18			47			53			53
RAPID-4005	0.5 - 40			33			43			43

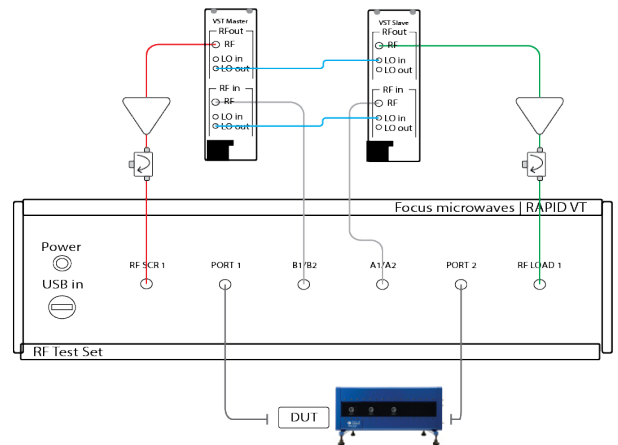
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Harmonic - Expansion Packs

Model	Fmin. [GHz]	Fmax. [GHz]	Option Description
S-XX05-F2H	200	8 / 18 / 40	Passive only 2F0 Load Impedance Control
S-XX05-F3H			Passive only 3F0 Load Impedance Control

- 2 loops fundamental only, Harmonic Control using Passive Tuner.
- This option will offer fundamental full Active or hybrid active Loop under modulated conditions.
- 2f0 tuning with real time Harmonic impedance measurements and passive only impedance control using the passive harmonic tuner.
- 3f0 tuning with real time Harmonic impedance measurements and passive.



Supported VST Model PXIe-5841 / 5842
Chassis PXIe-1092 / 1095 with OCXO Option

For all transmit & receive specs please see VST datasheet
<https://www.ni.com/pdf/manuals/378128a.pdf>
<https://www.ni.com/en-us/support/model/pxie-5842.html>