

Product Features

- 6.0 GHz Wide Frequency Range
- 1Hz Frequency Resolution
- Ultra-Low Phase Noise
- +17 dBm High Output Power Option
- 0.05 dB Power Step-Size
- Baseband: 1250 MHz x 16 bit x I/Q
- 500 MHz Wide Modulation Bandwidth
- -70 dBc Industry-Lead ACPR
- < -80 dBc Low Spur level
- Large on-board waveform memory
- USB 3.0 Control Interface
- Pre-installed Multi Standard Waveforms

WavesLine AWG6B (Vector Signal Generator) delivers industry-lead performance in a compact package with a low cost combination, including reduced spurious levels, larger waveform memory, wider modulation bandwidth, faster switching speeds, excellent ACPR & EVM, and plus most popular standard waveform generation capabilities in current market such as 5G, 4G/LTE, WCDMA, Wi-Fi and etc. It uses the common non-proprietary standard high-speed USB 3.0 interface that simplifies connectivity — allowing users to set up and configure their test system with the plug and play feature

AWG6B Vector Signal Generator offers a level of versatility that enables you to set up complex real-world signals — whether you need precise signals to characterize the performance of a design or need to stress a device to its limits. From low-observable radar to high-density communications, testing is more realistic with our precision AWG6B unit and pre-installed standard waveforms.

Typical Applications

- ATE & Lab Testing
- Semiconductor & RF System/Component
- Automotive & IoT
- Medical Device
- Cable & Satellite
- Telecommunication
- Consumer Electronics
- Aerospace/Defense
- Material Measurement
- High Education & Research



Specifications

Parameter	Specification				Condition
	Min.	Typ.	Max.	Unit	
Base-Band Section					
I/Q Band Width		500		MHz	125/250 MHz Optional
Sample Rate		614.4		MSPS	153.6/307.2 MHz Optional
Sample Resolution		16		Bit	16 bit x I/Q Sample Format
Onboard Memory		256		MSa	1024 Optional
Nonvolatile Memory		32		GB	Integrated Memory
System Clock		1228.8	1250	MHz	
I/Q Output		Diff			Differential I/Q Output

Parameter	Specification				Condition
	Min	Typ.	Max	Unit	
RF Section					
CW Frequency Range	0.1		6.0	GHz	
RF Output Power	-75		+17	dBm	0.1 ~ 0.15 GHz CW
	-75		+15		0.15 ~ 2.2 GHz CW
	-71		+15		2.2 ~ 4.4 GHz CW
	-71		+13		4.4 ~ 5.0 GHz CW
	-71		+7		5.0 ~ 5.6 GHz CW
	-71		+5		5.6 ~ 6.0 GHz CW
RF Output Power Step Size		0.05		dB	0.02dB Achievable
Frequency Resolution ^①		1		Hz	
Harmonics ^①		-47		dBc	+0dBm @3800MHz
		-45			+0dBm @2700MHz
		-62			+0dBm @2100MHz
		-40			+0dBm @900MHz
		-45			+0dBm @430MHz
		-52			+0dBm @100MHz
Non-Harmonic Spur ^①		<-80		dBc	
Phase Noise @ 800MHz		-110		dBc/Hz	1K Offset
		-119			100K Offset
		143			1M Offset



Phase Noise @ 2170MHz		-101		dBc/Hz	1K Offset
		-109			100K Offset
		-133			1M Offset
Phase Noise @ 2700MHz		-100		dBc/Hz	1K Offset
		-108			100K Offset
		-133			1M Offset
Phase Noise @ 3800MHz		-98		dBc/Hz	1K Offset
		-105			100K Offset
		-130			1M Offset
Phase Noise @ 4900MHz		-94		dBc/Hz	1K Offset
		-102			100K Offset
		-128			1M Offset
Phase Noise @ 5800MHz		-94		dBc/Hz	1K Offset
		-102			100K Offset
		-126			1M Offset
Modulation Output Range	0.4		6.0	GHz	
Baseband Input		Diff			Differential I/Q Input
3dB Modulation Bandwidth		650		MHz	
Sideband Suppression		-40		dBc	Unadjusted
		-70		dBc	Adjusted
Carrier Feed Through		-40		dBc	Unadjusted
		-75		dBc	Adjusted
ACP [20MHz LTE @ 2.7GHz]		-67		dBc	Adjacent Channel
		-70		dBc	Alternate Channel
ACP [100M 5G NR @ 3.5GHz]		-60		dBc	Adjacent Channel
		-64		dBc	Alternate Channel
ACP [100M 5G NR @ 4.5GHz]		-58		dBc	Adjacent Channel
		-62		dBc	Alternate Channel
ACP [2 x 100M 5G NR @ 3.5GHz]		-57		dBc	Adjacent Channel
		-58		dBc	Alternate Channel
ACP [2 x 100M 5G NR @ 4.5GHz]		-55		dBc	Adjacent Channel
		-57		dBc	Alternate Channel
EVM 1CC x 100M 5G NR @ 3.5GHz		0.55		%	TDD TM3.1a
EVM 2CC x 100M 5G NR @ 3.5GHz		0.60		%	TDD TM3.1a



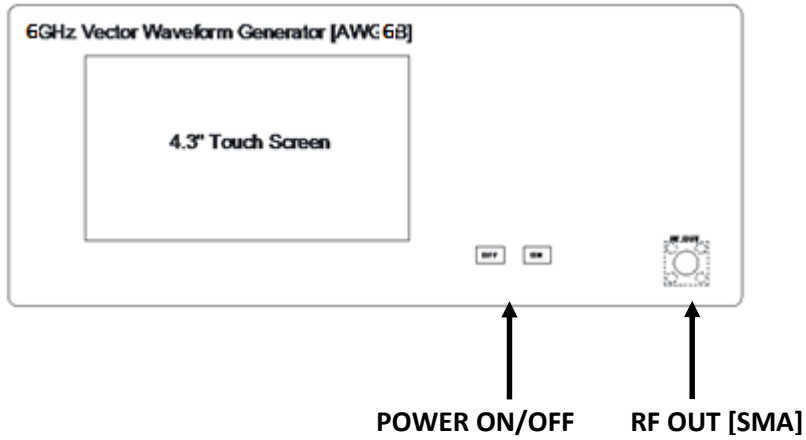
EVM 3CC x 100M 5G NR @3.5GHz	0.65	%	TDD TM3.1a
EVM 1CC x100M 5G NR @4.7GHz	0.70	%	TDD TM3.1a
EVM 2CC x 100M 5G NR @4.7GHz	0.75	%	TDD TM3.1a
EVM 3CC x 100M 5G NR @4.7GHz	0.70	%	TDD TM3.1a

©Fractional Spur Measured at 0dBm Output

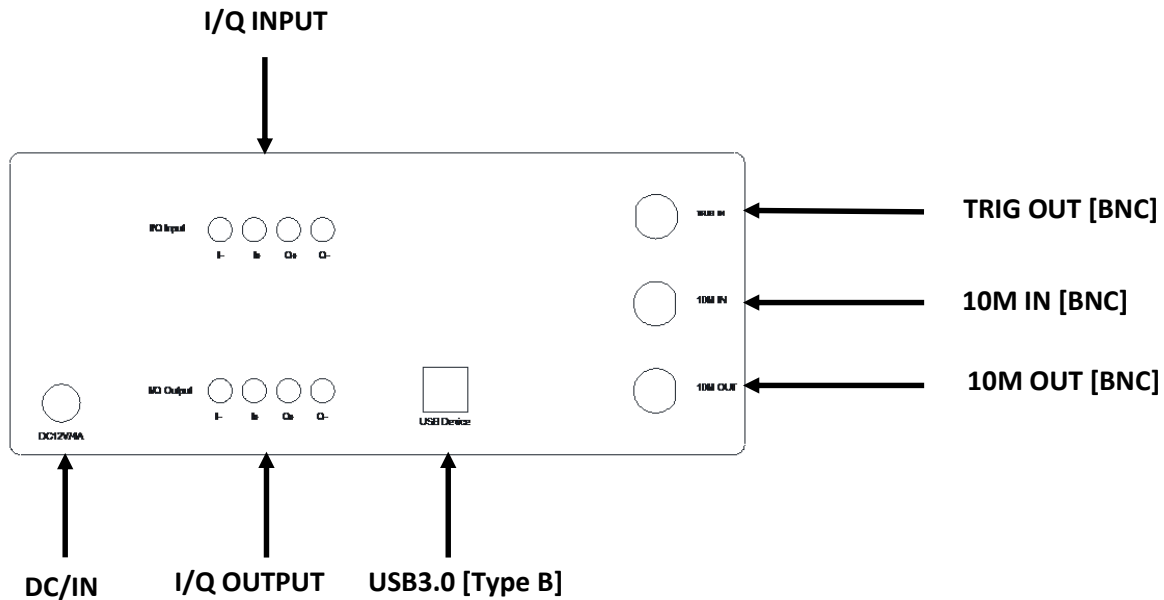
General Specification	
Front Panel	Power Switch
	RF Output
	Touch Screen
Rear Panel	I/Q Input
	I/Q Output
	Ext REF Input
	REF Output
	Trig Out
	USB3.0 Type B
	DC Input(12V)
Dimension	215mm(W) x 88mm(H) x 320mm (D)
Power Deceptions	30W



Front Panel

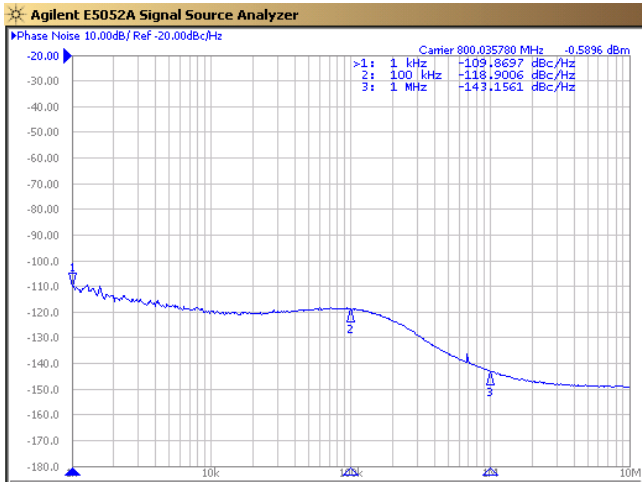


Rear Panel

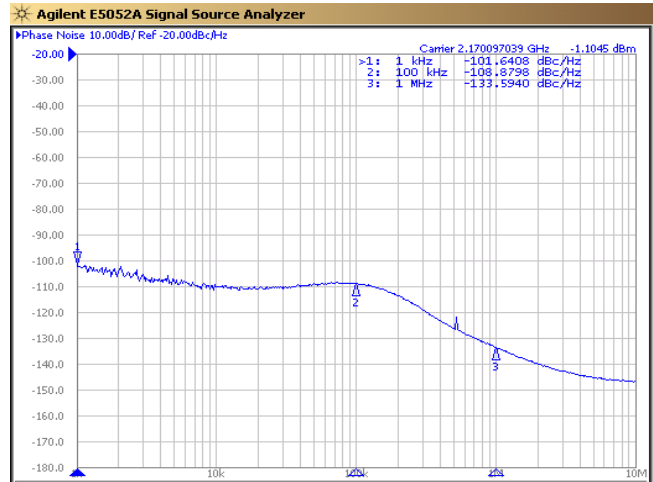




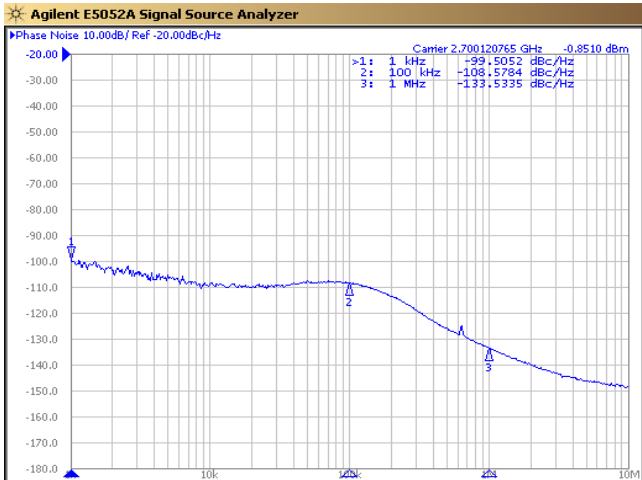
Typical Phase Noise [Internal Reference]



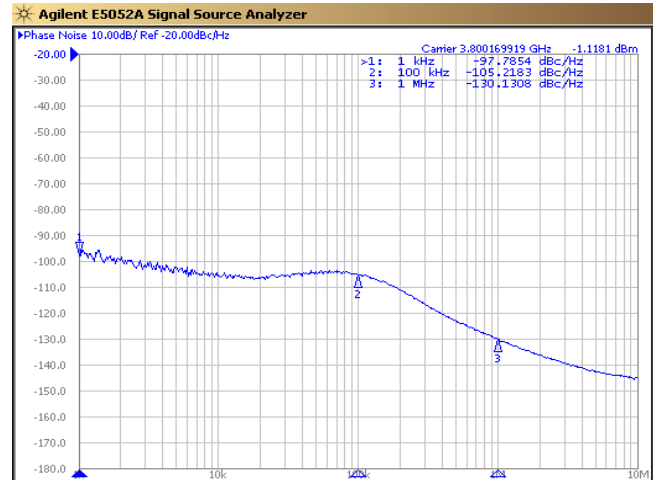
Phase Noise @ 800MHz



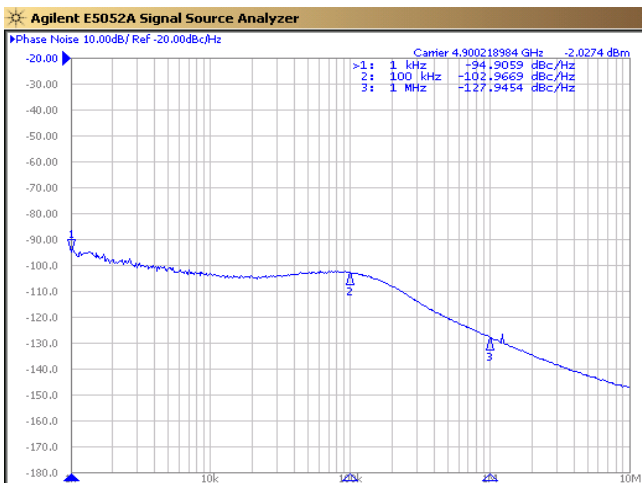
Phase Noise @ 2170MHz



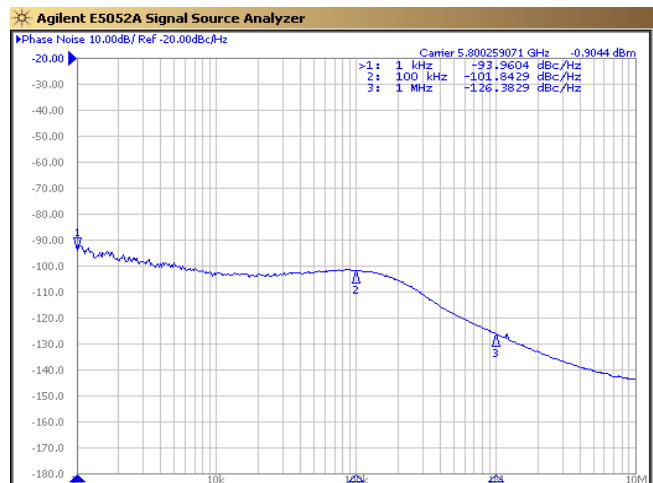
Phase Noise @ 2700MHz



Phase Noise @ 3800MHz



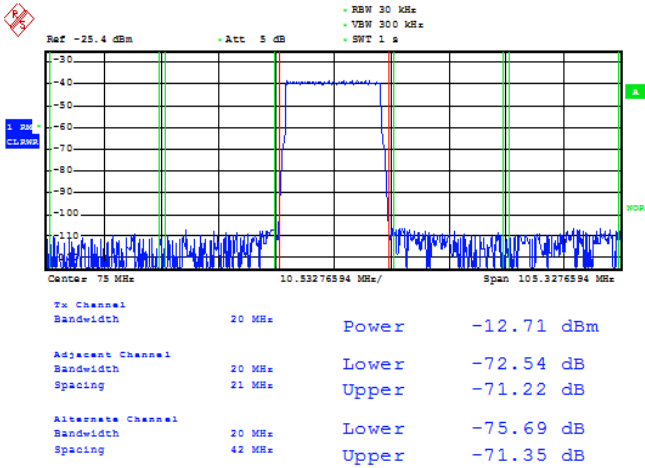
Phase Noise @ 4900MHz



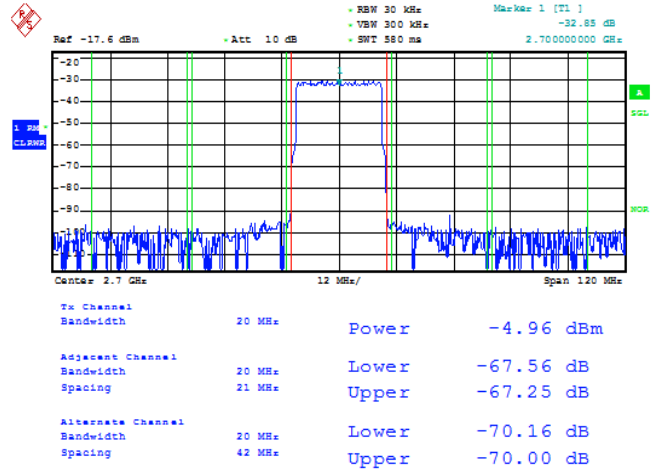
Phase Noise @ 5800MHz



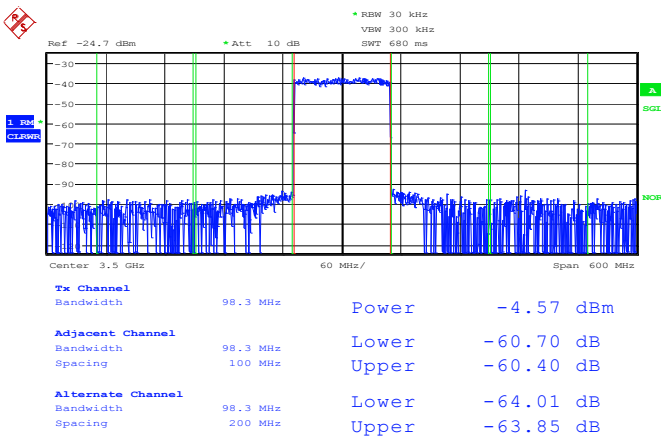
Typical RF Output Performance (ACPR)



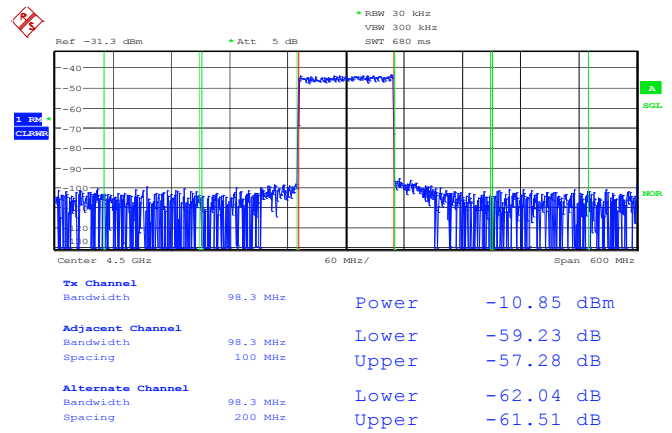
20MHz LTE Output at BBG



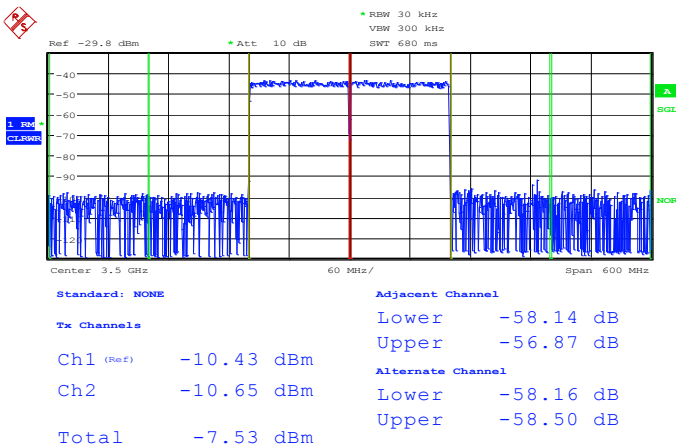
20MHz LTE RF Output at 2.7GHz



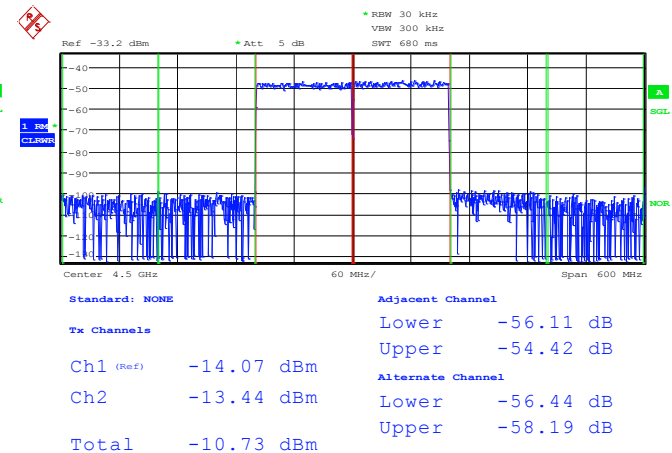
100MHz 5G NR RF Output at 3.5GHz



100MHz 5G NR RF Output at 4.5GHz



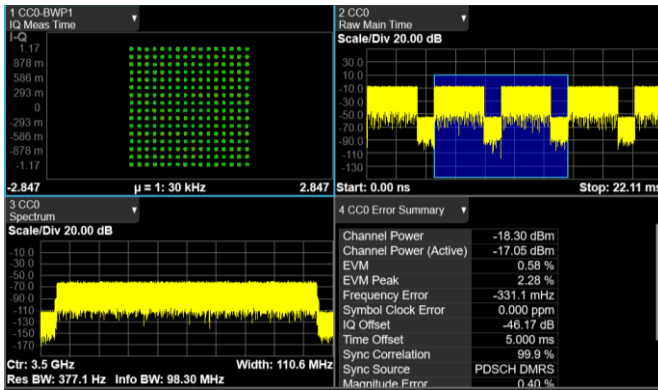
2 x 100MHz 5G NR RF Output at 3.5GHz



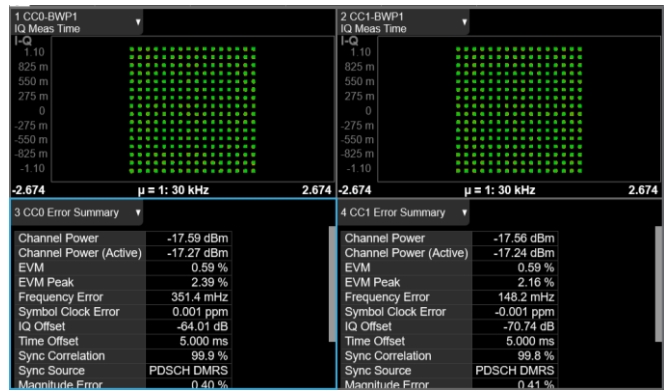
2 x 100MHz 5G NR RF Output at 4.5GHz



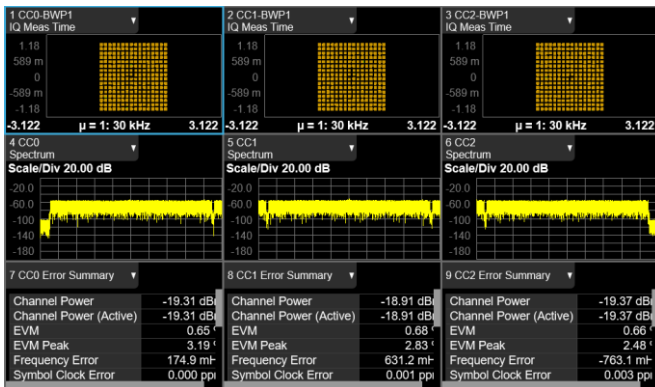
Typical RF Output Performance (EVM)



1CC x 100MHz 5GNR TDD TM3.1a EVM at 3.5GHz



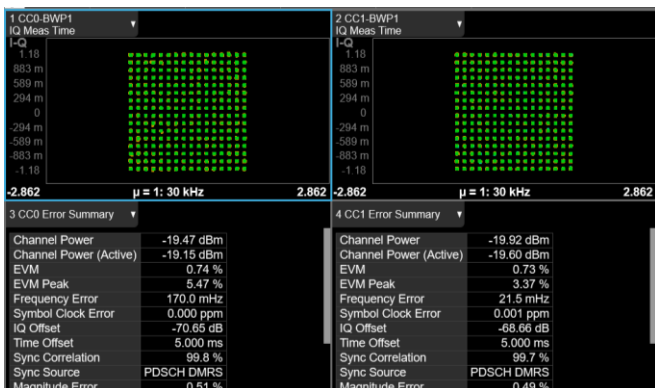
2CC x100MHz 5GNR TDD TM3.1a EVM at 3.5GHz



3CC x100MHz 5GNR TDD TM3.1a EVM at 3.5GHz



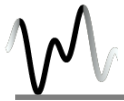
1CC x 100MHz 5GNR TDD TM3.1a EVM at 4.7GHz



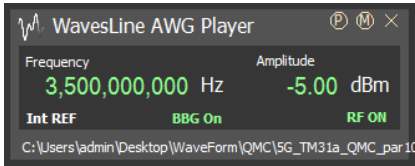
2CC x100MHz 5GNR TDD TM3.1a EVM at 4.7GHz



3CC x 100MHz 5GNR TDD TM3.1a EVM at 4.7GHz



Host Computer - Control Software



Host Computer - Waveform File Editor





Waveform File - Data Format

WavesLine Waveform is stored in *.WFM file format, which contains necessary configurations, I/Q data as well as correction information.

User can generate any arbitrary waveform with any programming tools/languages such as C, C++, C#, Matlab and etc., and then load it into AWG waveform Editor to create a desired WFM file that can be replayed by AWG hardware.

The waveform I/Q data can be written in 2 different formats, either TXT or Binary.

1. When using TXT format, each line contains an I/Q sample, range from -32767 to 32767.

Eg:

I Data = -16384, Q Data = 128, then write

-16384[space] 128 ----Format: I data [space] Q data [CR]

2. When using Binary format, then write 16bit I, 16BitQ, 16bitI, 16bitQ in sequence.

(16bit) I0	(16bit) Q0	(16bit) I1	(16bit) Q1	(16bit) I2	(16bit) Q2
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Note

Sample count must N times of 1024.