



Product Features

- 7.8 GHz Wide Frequency Range
- 1Hz Frequency Resolution
- Ultra-Low Phase Noise
- +15 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 AWG8B (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

The AWG8B 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 AWG8B 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		250/500		MHz	Optional
Sample Rate			650	MSPS	
Sample Resolution		16		Bit	16 bit x I/Q Sample Format
Volatile Memory		4096		MB	Integrated DDR
Nonvolatile Memory		32		GB	Integrated Memory
System Clock			1300	MHz	
I/Q Output		Diff			Differential I/Q Output

Parameter	Specification				Condition
	Min	Typ.	Max	Unit	
RF Section					
CW Frequency Range	0.1		7.8	GHz	
RF Output Power	-35		+15	dBm	0.1 ~ 7.125 GHz CW
	-35		+10		7.125 ~ 7.8 GHz CW
RF Output Power Step Size		0.05		dB	
Frequency Resolution ^①		1		Hz	
Harmonics ^①		<-30		dBc	100 MHz
		<-50			1.0 GHz
		<-50			4.0 GHz
		<-30			7.8 GHz
Non-Harmonic Spur ^①		<-80		dBc	
0.9G Phase Noise ^①		-110		dBc/Hz	1K offset
		-110			10K offset
		-118			100K offset
		-145			1M offset
2.4G Phase Noise ^①		-100		dBc/Hz	1K offset
		-105			10K offset
		-110			100K offset
		-140			1M offset



3.6G Phase Noise [Ⓣ]		-98		dBc/Hz	1K offset
		-102			10K offset
		-108			100K offset
		-135			1M offset
5.8G Phase Noise [Ⓣ]		-90		dBc/Hz	1K offset
		-100			10K offset
		-103			100K offset
		-132			1M offset
7.4G Phase Noise [Ⓣ]		-90		dBc/Hz	1K offset
		-95			10K offset
		-100			100K offset
		-130			1M offset
Modulation Output Range	0.4		7.8	GHz	
Baseband Input		Diff			Differential I/Q Input
Modulation Bandwidth		1000		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 [100M 5G NR @ 3.5GHz]		0.80		%	
EVM [2 x 100M 5G NR @ 3.5GHz]		0.97		%	

[Ⓣ]Fractional Spur Measured at 0dBm Output

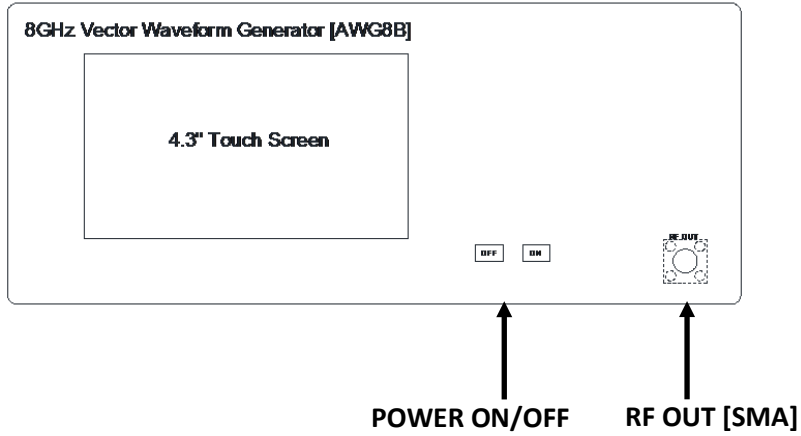


General Specification

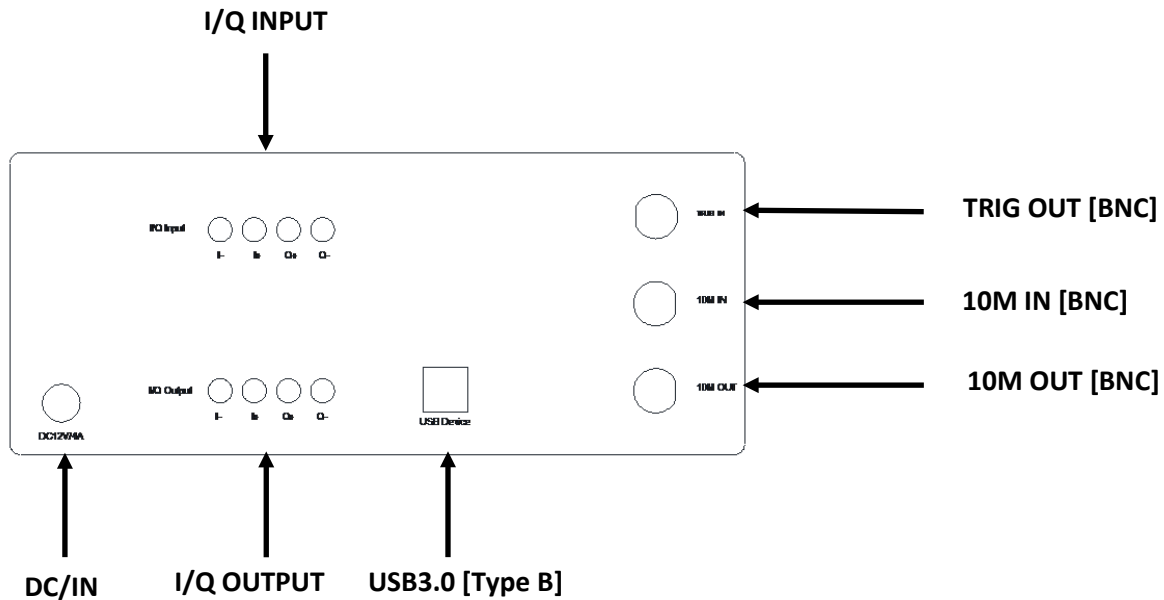
Front Panel	Power Switch
	RF Output
	Touch Screen
Rear Panel	I/Q Input
	I/Q Output
	Ext REF Input
	REF Output
	Trig Out
	USB3.0 Type B
	DC Input(12V)
Dimension	215mm(W) x 88mm(H) x 320mm (D)
Power Deceptions	30W



Front Panel

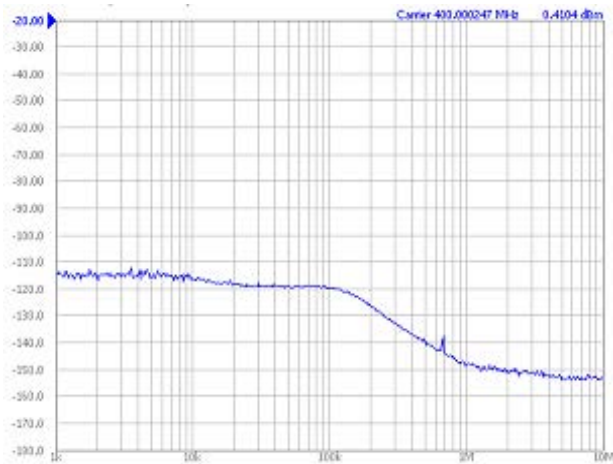


Rear Panel

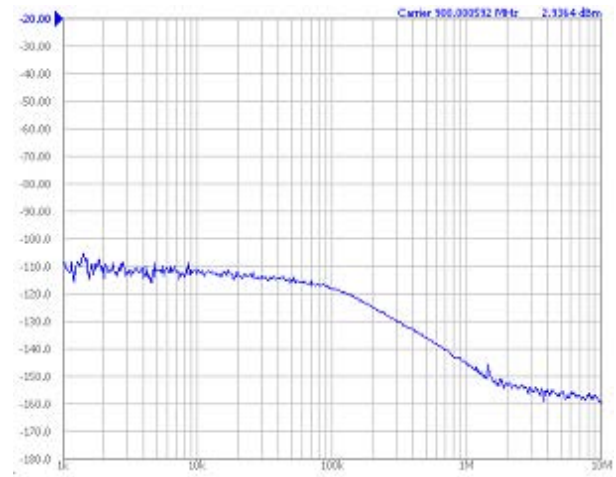




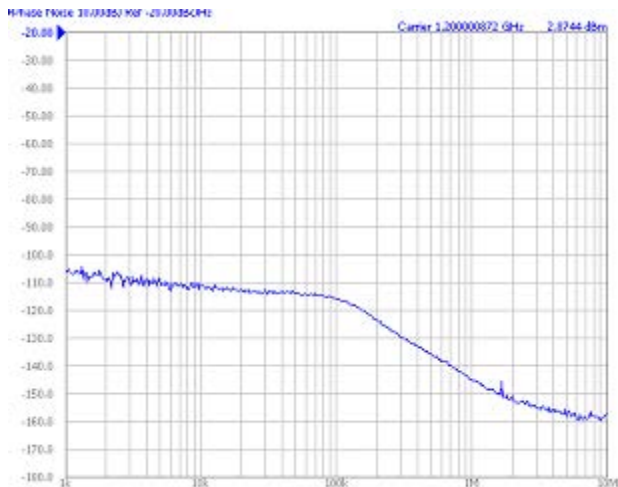
Typical RF Output (Phase Noise)



Phase Noise @ 0.4GHz Output



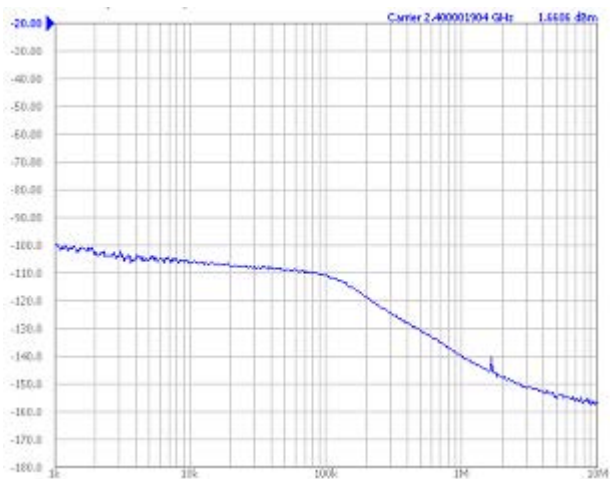
Phase Noise @ 0.9GHz Output



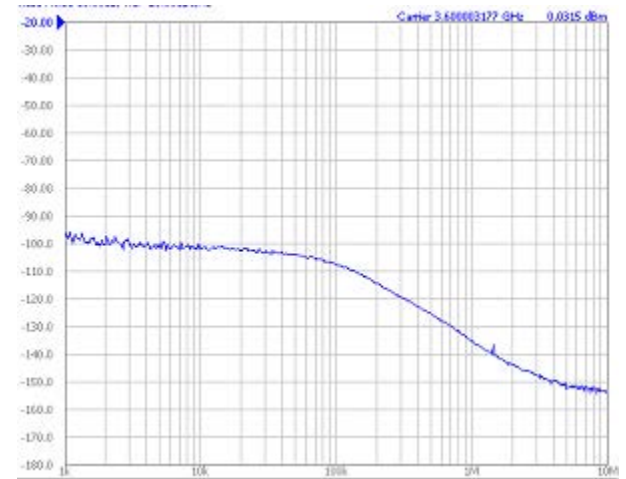
Phase Noise @ 1.2GHz Output



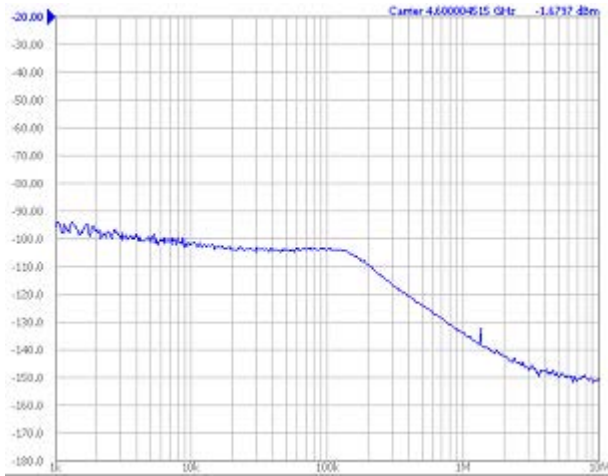
Phase Noise @ 1.8GHz Output



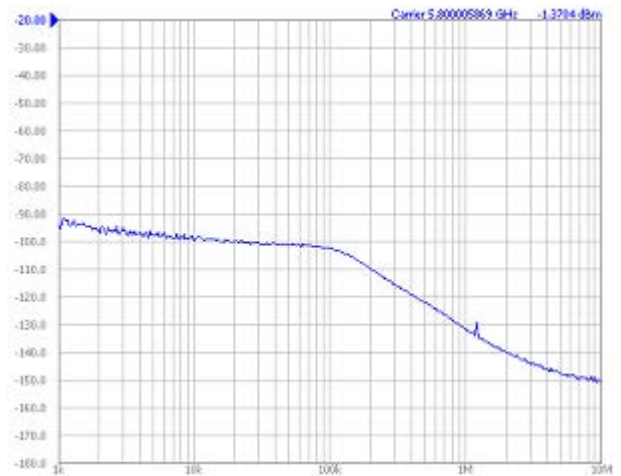
Phase Noise @ 2.4GHz Output



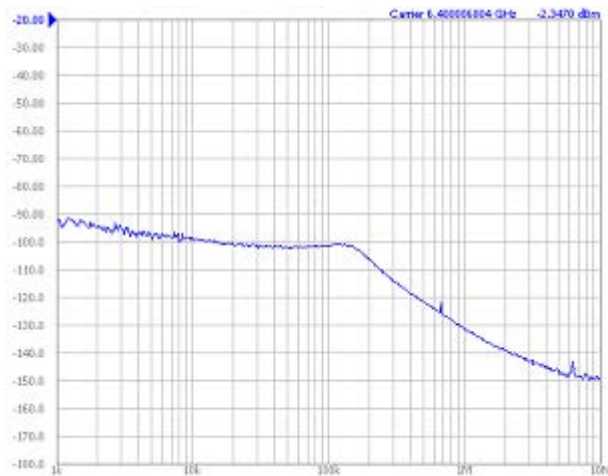
Phase Noise @ 3.6GHz Output



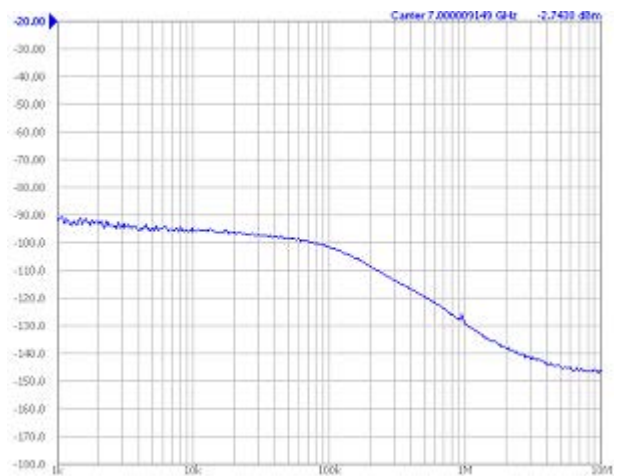
Phase Noise @ 4.6GHz Output



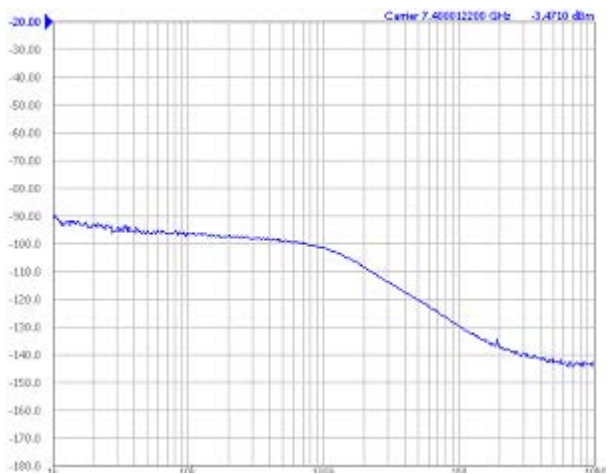
Phase Noise @ 5.8GHz Output



Phase Noise @ 6.4GHz Output



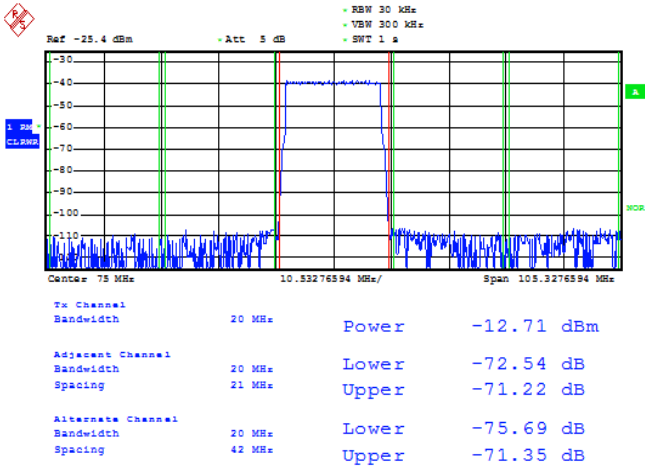
Phase Noise @ 7.0GHz Output



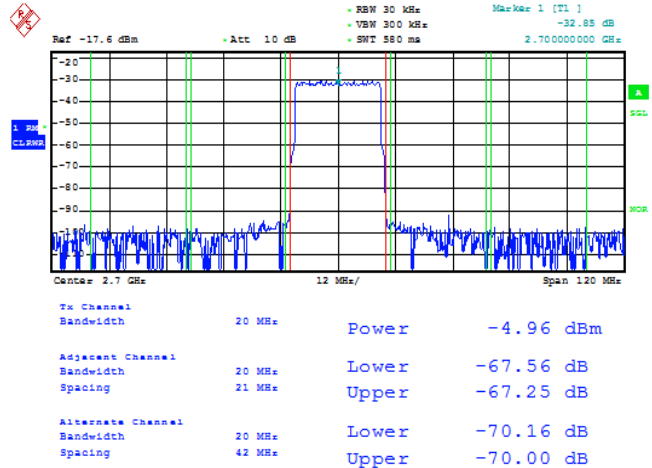
Phase Noise @ 7.4GHz Output



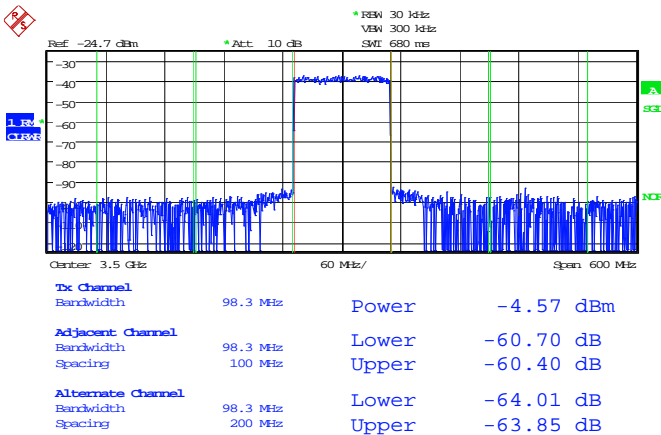
Typical RF Output Performance (ACPR)



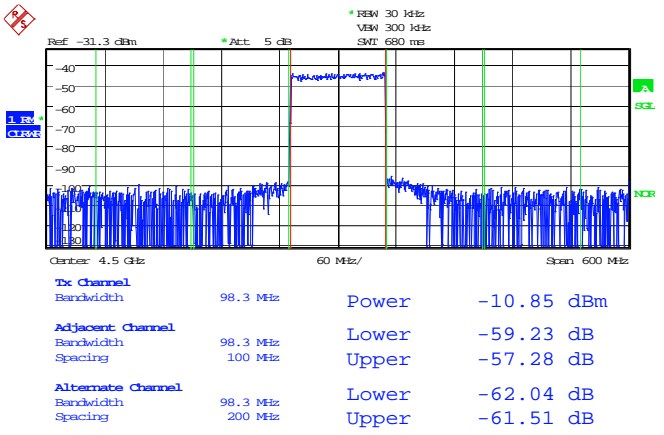
20MHz LTE Output at BBG



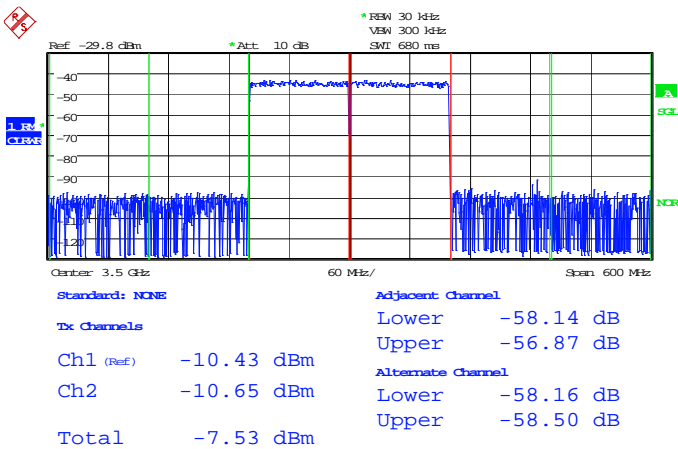
20MHz LTE RF Output at 2.7GHz



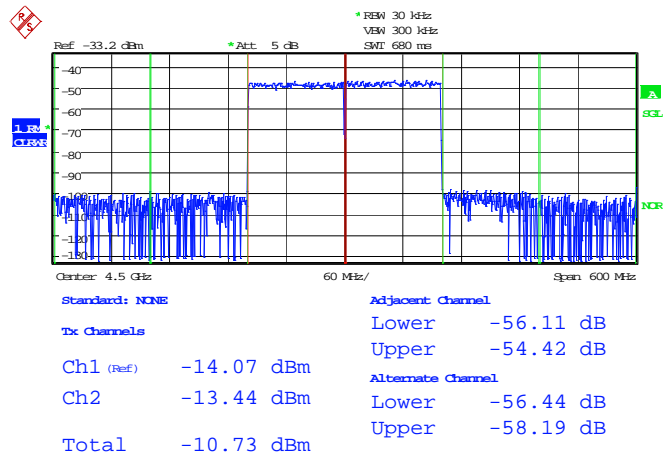
100MHz 5GNRRF Output at 3.5GHz



100MHz 5GNRRF Output at 4.5GHz



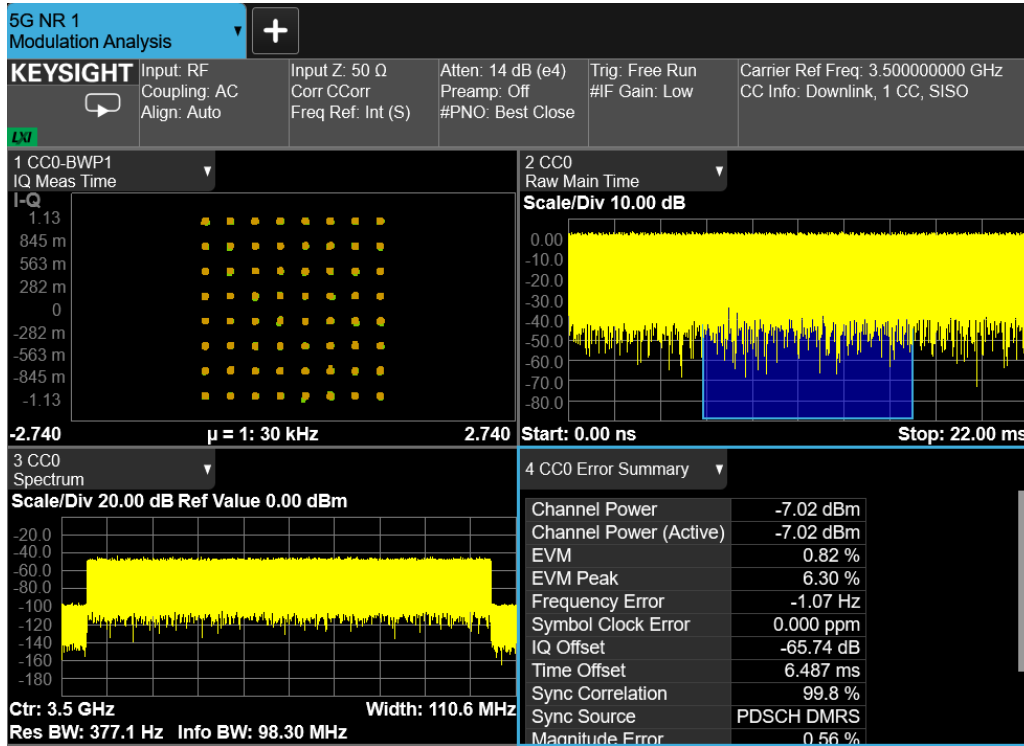
2 x 100MHz 5GNRRF Output at 3.5GHz



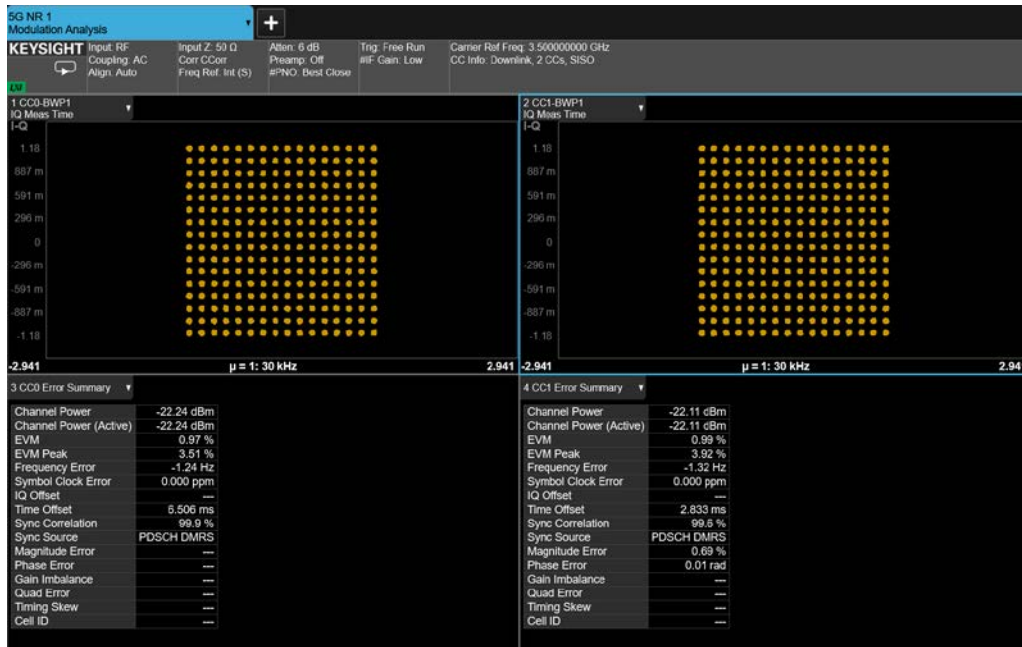
2 x 100MHz 5GNRRF Output at 4.5GHz



Typical RF Output Performance (EVM)



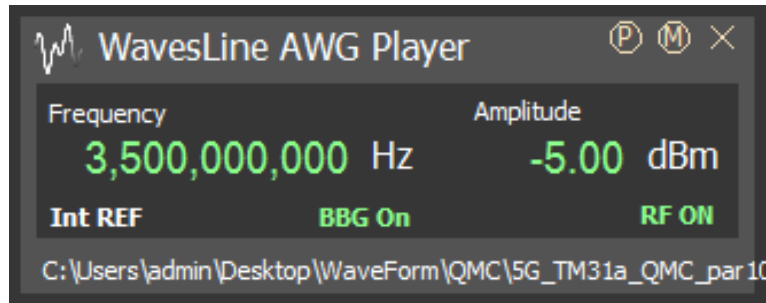
100MHz 5G NR Output EVM at 3.5GHz



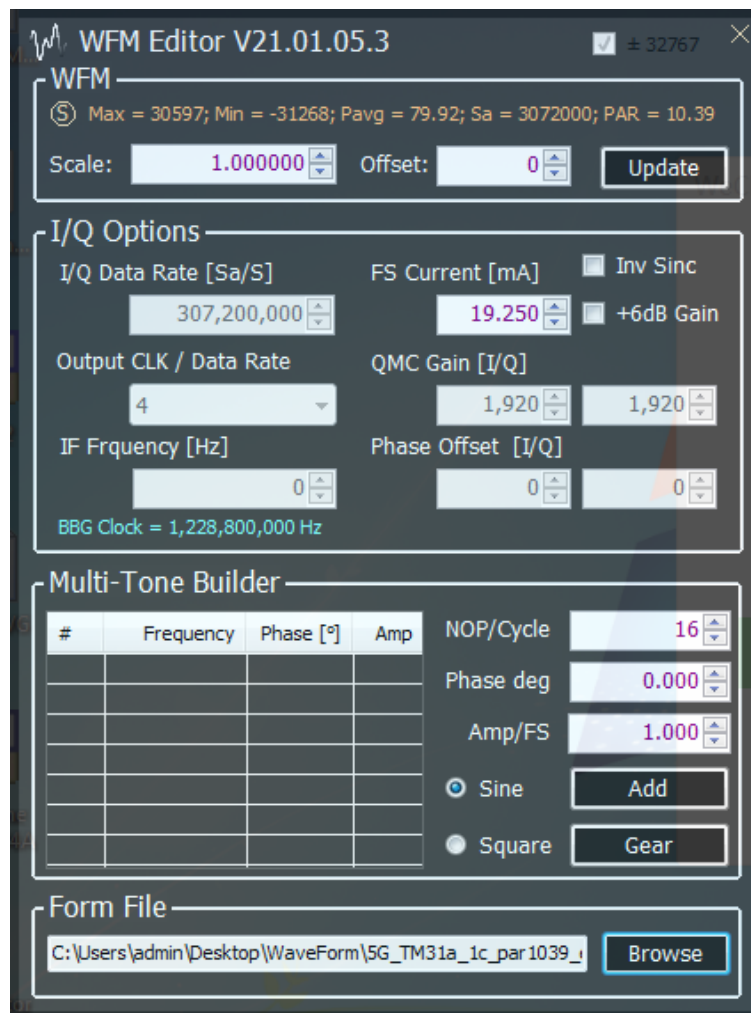
2 x 100MHz 5G NR Output EVM at 3.5GHz



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.