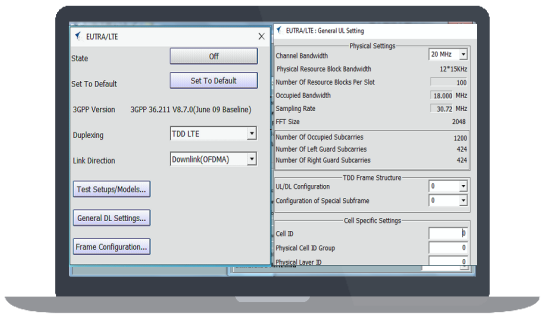
BG100 Vector Signal Generator

Overview

BG100 Vector Signal Generator is a high performance vector signal generator. It can generate arbitrary wave signal, continuous wave signal, common vector signal, analog and digital signal, standard wireless vector signal, standard radio signal and customized signal. BG100 is applicable for educational practices, wireless monitoring, mobile communication, aerospace and national defense industry in terms of research, manufacturing, testing and measurement, and electronic countermeasure. BG100 can satisfy most of the signal simulation practices and provide user continues customization services.

Key Facts

- Frequency range: 10MHz - 6GHz
- Power coverage: -110 to +14dBm
- Full range of common digital modulation: BPSK, QPSK, OQPSK, 8PSK, 16QAM, 32QAM, 64QAM, MSK, and FSK.
- Variety of common signal generating including GSM, EDGE, CDMA, TD-SCDMA, WCDMA,NB-IoT, TD-LTE, FDD-LTE, LoRa and 5GNR. Users can modify channels under different configuration
- Pulse modulation and sweep mode
- Fixable integration interface, customized data can be input into module to generate customized signal
- Simple control via USB port. API is provided for secondary development

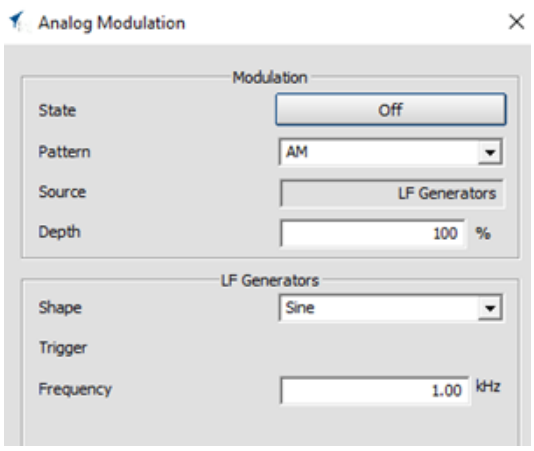


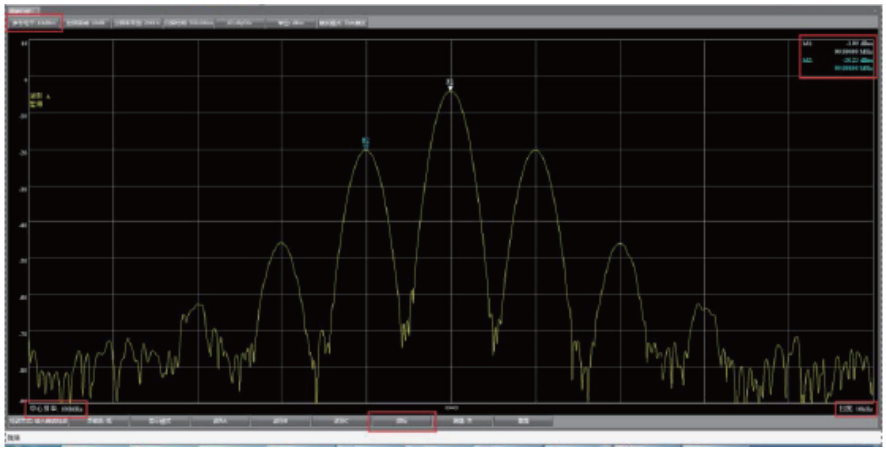
Functions & Applications

Signal Modulation

Analog Modulation

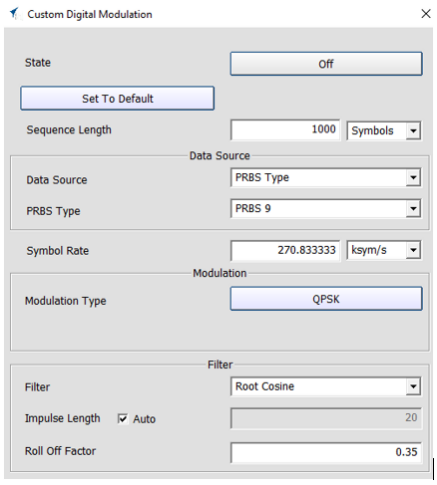
Analog modulation is a change to a characteristic of a periodic or non-periodic signal in order to convey information. BG100 can generate a variety of analog signals such as AM\FM\PM.

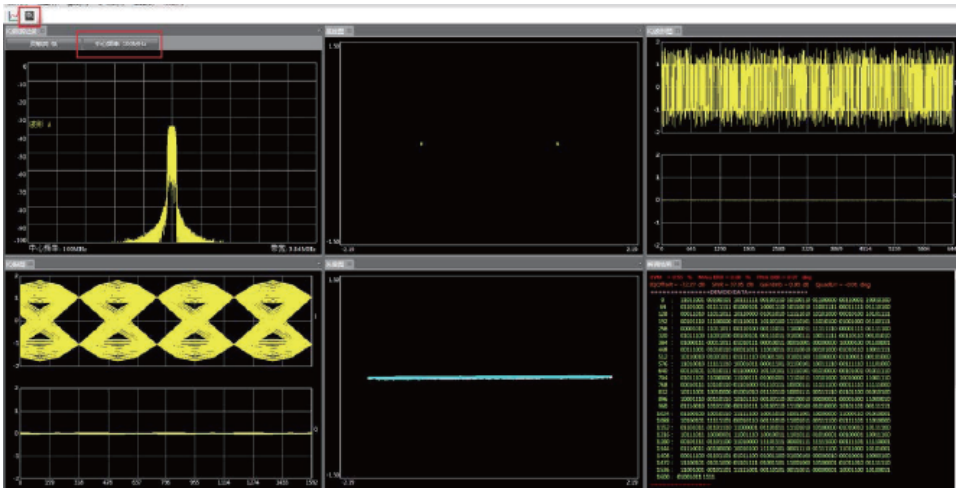




Digital Modulation

Digital modulation is an important signal modulation method for modern telecommunications. It has better anti-interference ability and safety. BG100 can output a variety of digital modulated signals.



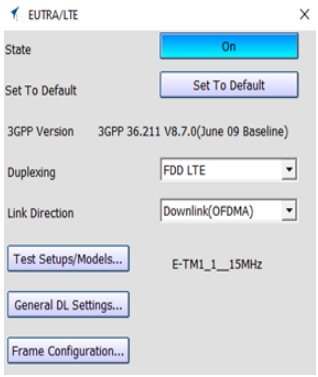


Wireless Communication Standard Modulation

BG100 supports modulation of signals based on mainstream wireless communication standards. It not only includes 2G/3G/4G mobile communication standards, but also supports IoT signal standards such as LoRa and NB-IoT. The release of WiFi and Bluetooth signal modulation functions is also planned.

5GNR Modulation

Support fast configuration to generate 5GNR modulation signal.

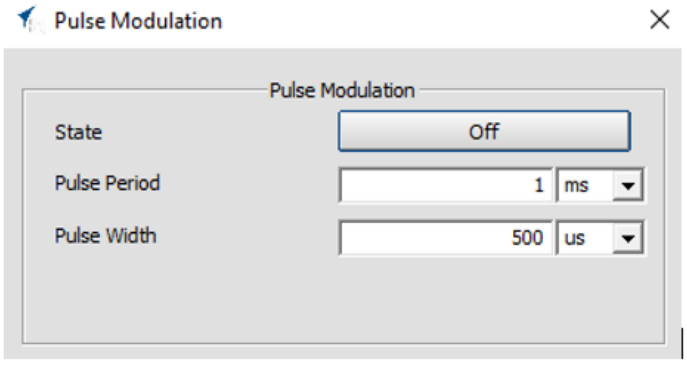


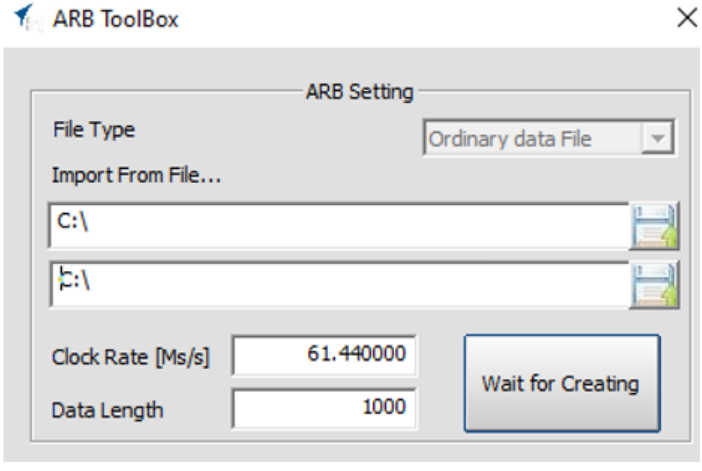
Pulse Modulation

Digital modulation is an important signal modulation method for modern telecommunications. It has better anti-interference ability and safety. BG100 can output a variety of digital modulated signals.

ARB Function

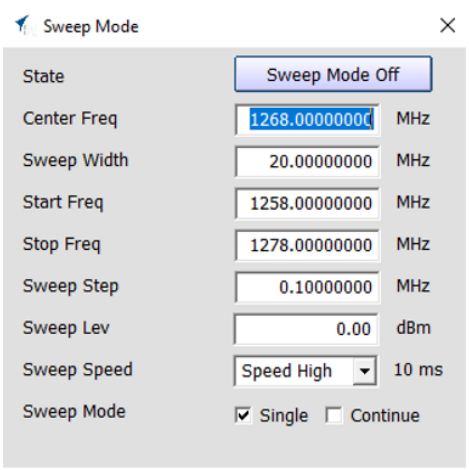
ARB function allows users to transmit customized baseband data. Supports IQ data in .txt and .mat formats. Users need to set the data length and signal sampling rate according to the IQ data file.

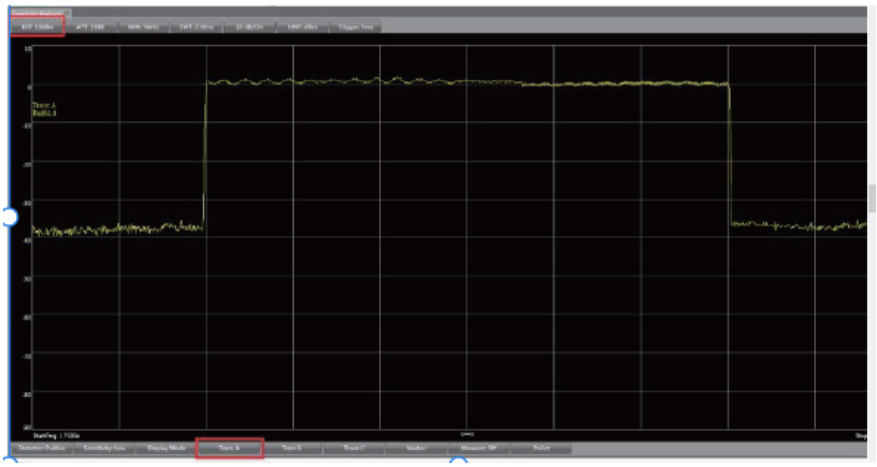




Sweep Mode

The BG100 has a frequency sweep function. In this function, engineers can configure parameters such as start and stop frequency, frequency stepping, sweep power, and scan speed.

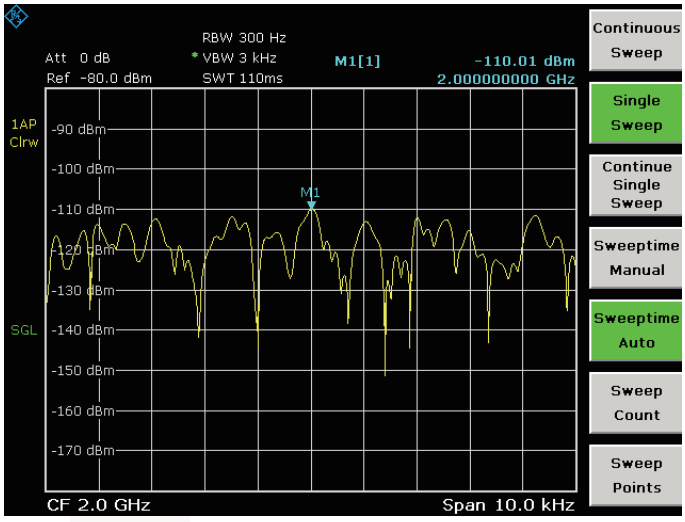


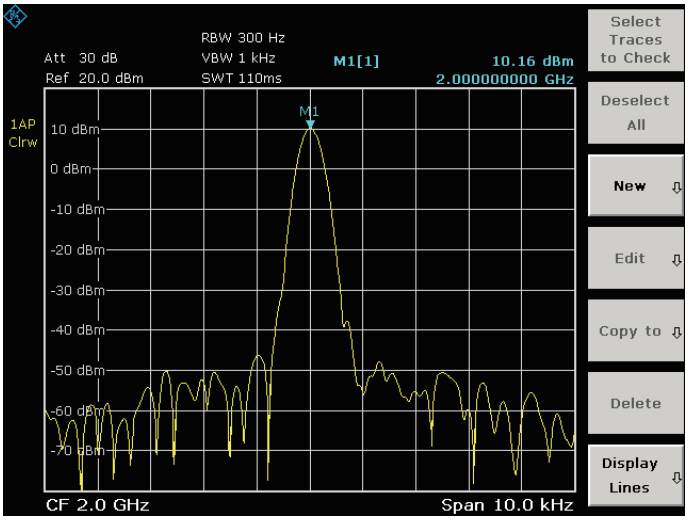


Performance Advntage

Dynamic Range

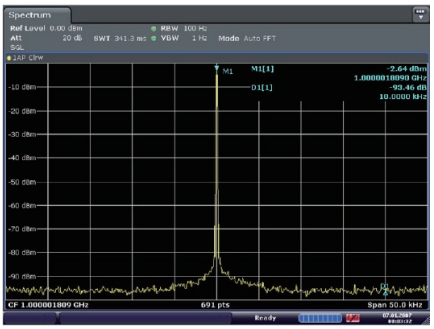
The dynamic range of the signal source is the power difference between the maximum and minimum signals that can be output. The dynamic range of the BG100 is as large as -100dBm to +10dBm.





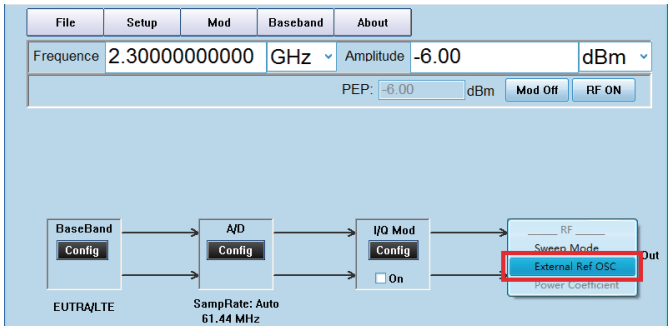
Phase Noise

Phase noise is an important indicator of the performance of a signal source. It refers to the ratio of the signal power in the 1 Hz bandwidth at the signal center frequency offset of 10 kHz to the total power of the signal. The phase noise of the BG100 is very good, at -105dBc/Hz.



10MHz Reference Signal

BG100 has a physical 10MHz reference signal port (SMA). Engineer can choose to use the built-in 10MHz clock signal and send it out, or receive and synchronize clock signals from other devices.

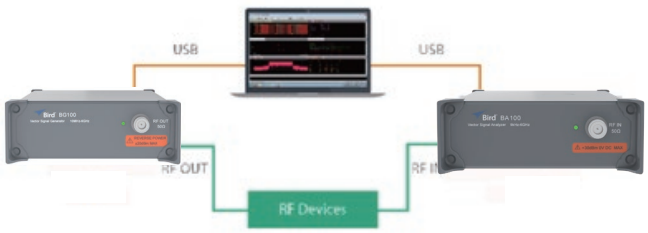


Typical applications

Laboratory radio frequency testing

BG100 covers 10MHz to 6GHz wireless radio frequency communication range with full range 10KHz phase noise better than-110dBc, which realize the replacement of local oscillatorin wide frequency band.

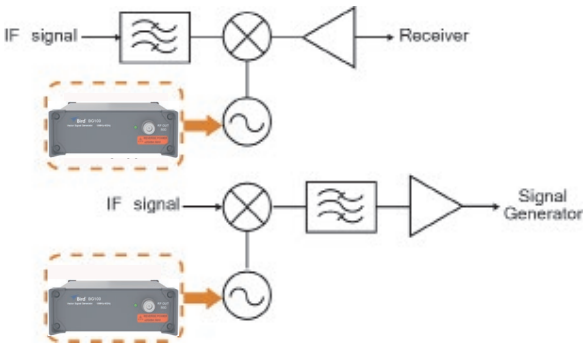
BG100 also supports testing of inter modulation distortion onamplifier, mixer and receiver. By using with spectrumanalyzer, BG100 is able to complete broadband and frequency response perfor-mance testing for antenna, amplifier,
attenuator etc.



Manufacturing testing

BG100 is able to simulating GSM, EDGE, CDMA, TD-SCDMA, WCD-MA, TD-LTE, FDD-LTE, NB-IoT, and LoRa standard base station signals to cooperate with production and calibration of UE, chips.

By combining BG100 Vector Signal Generator Module with A6 Vector Signal Analyzer module, it provides base station consistency and function testing.



Educational practices

By combining BG100 signal generator with A6 vector signal analyzer, it also provides RF micro-wave device testing demonstration to reduce the complexity of professional teaching.

BG100 has the ability to produce all standard uplink and downlink signals and digital modulation signals in any chip rate to satisfy professional education practices.

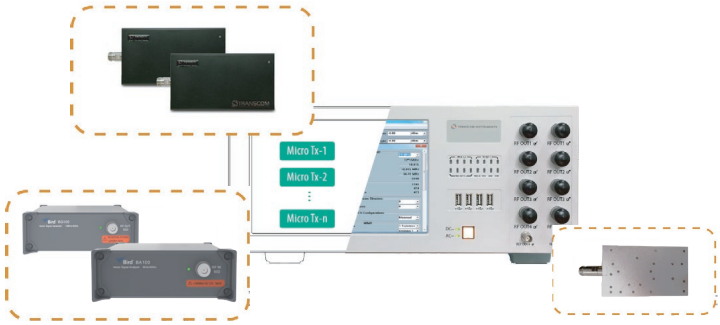
Innovative Features

Compact Size & Fast Deployment

BG100 is compact and easy to set up. User can easily carry to field and quickly build the test environment.

System Integration & Secondary Development

BG100 vector signal source has a small size, superior specifications, comprehensive telecommunication & general modulation support, and an open API interface. It also offers three different product models: full-size USB module, small-size USB module and PCB module. Thus, BG100 can meet the system integration needs of different users. Through system integration, BG100 can achieve high-end applications such as 5G large-scale antenna testing.



Control Elements

Specifications

Technical	
Frequency Range	10MHz to 6GHz
Frequency Step	0.1Hz
Frequency-temperature Stability	±1ppm @0 - 50°C
Initial frequency accuracy	±0.5ppm
Power Range	-110 to +14dBm
Power Step	0.1dB
Power Accuracy	±0.75dB@Lev>=-80dBm; ±1.5dB@Lev<-80dBm
Harmonic	⩽ -30dBc（+10dBm）
Spurious	⩽ -50dBc
Phase Noise	⩽ -105dBc/Hz@10kHz(3-6GHz); ⩽ -109dBc/Hz@10kHz(⩽ 3GHz)
Modulation bandwidth	20MHz（can upgrade to 100MHz）
Modulation Type	I/Q, Pulse
Pulse modulation parameters	pulse width: 10ns to 40s, repetition cycle: 10us to 40s
General digital modulation type	BPSK, QPSK, OQPSK, 8PSK, MSK, FSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM
Analog modulation standard	AM、FM、PM、DSB、USB、LSB
Mobile communication standard	GSM, EDGE, CDMA, TD-SCDMA, WCDMA, CDMA2000, TD-LTE, FDD-LTE, NB-IoT, LoRa, 5GNR
Supported Channel(LTE)	PSS, SSS, CSRS, PBCH, PCFICH, PHICH, PDCCH, PDSCH, PUSCH, PUCCH, PRACH and SRS
EVM	⩽ 1%rms (20MHz); ⩽ 3.5%rms (100MHz)
Reference output	10MHz，frequency error ±20Hz，power >0dBm
Waveform Quality ρ	>0.9999
Provide API	Support secondary development (Open API)
General	
OS for Software	Windows 10, Windows 7
Power Supply Current	2A MAX
Connect interface	RF output: N-type, 50 Ω PC connect：USB type-C Power connect: DC12V
Temperature	Opearting： 0° C to 50° C Storage： -20° C to 70° C
Dimension and weight	180×50×290(mm), 1.8kg

Ordering List

Model	Description
BG100	Vector Network Analyzer
Accessories	**Description**
MTX-AS001	power adapter
MTX-AS002	USB cable
Option	**Description**
MTX-S001	GSM Modulation License
MTX-S002	WCDMA Modulation License
MTX-S003	TDD-LTE Modulation License
MTX-S004	FDD-LTE Modulation License
MTX-S005	NB-IoT Modulation License
MTX-S006	LoRa Modulation License
MTX-S007	TD-SCDMA Modulation License
MTX-S008	Custom Digital Modulation License
MTX-S009	ARB License
MTX-S010	Pulse Modulation License
MTX-S011	Analog Modulation License
MTX-S012	Sweep Mode License
MTX-S013	LSB\USB\Two Tone License
MTX-S014	5G NR License
MTX-S015	10MHz Ref IN/OUT Option
MTX-S016	Linear Frequency Modulation License
MTX-S018	AWGN
MTX-S019	100MHz Bandwidth (hardware upgrade)

EXECUTIVE PARTNER

SANKO TECHNOLOGIES SDN.BHD.

Add: 2-2-3, TINGKAT MAHSURI 1 11950 BAYAN LEPAS PULAU PINANG MALAYSIA

Tel: +6 010-9253100

Mail: support@sanko.my

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