GeneMini Handheld Signal Generator

Overview

Genemini hand-held signal generator perfectly combines high-performance, high portability and controllability. With excellent engineering design, it has the volume and weight for single hand operation, the excellent RF performance and rich signal generation function are applicable to integration, R&D and manufacture in different communication fields. Based on the high-performance platform, it can meet most of the signal simulation requirements and provide customized signal services.

Key Facts

- Frequency range：10MHz - 6GHz；
- GeneMini is an Android hand-held signal generator. It features simple operation;
- Support system integration, excellent performance, support secondary development and customize signal generation；
- Analog modulation：AM、FM、PM；
- Support communication standard signal type：GSM/EDGE/TD-
- SCDMA/WCDMA/TDD-LTE/FDD-LTE/NB-IoT/LoRa/5GNR；
- Support digital modulation type：BPSK/QPSK/OQPSK/8PSK/16Q
- AM/32QAM/64QAM/128QAM/256QAM/MSK/FSK；
  Modulation bandwidth：20MHz（can upgrade to 100MHz）；
- Support pulse modulation；
- High portability：Small size（197*93*61 mm），light weight (0.9kg);

Functions & Applications

Functions

Analog Modulation

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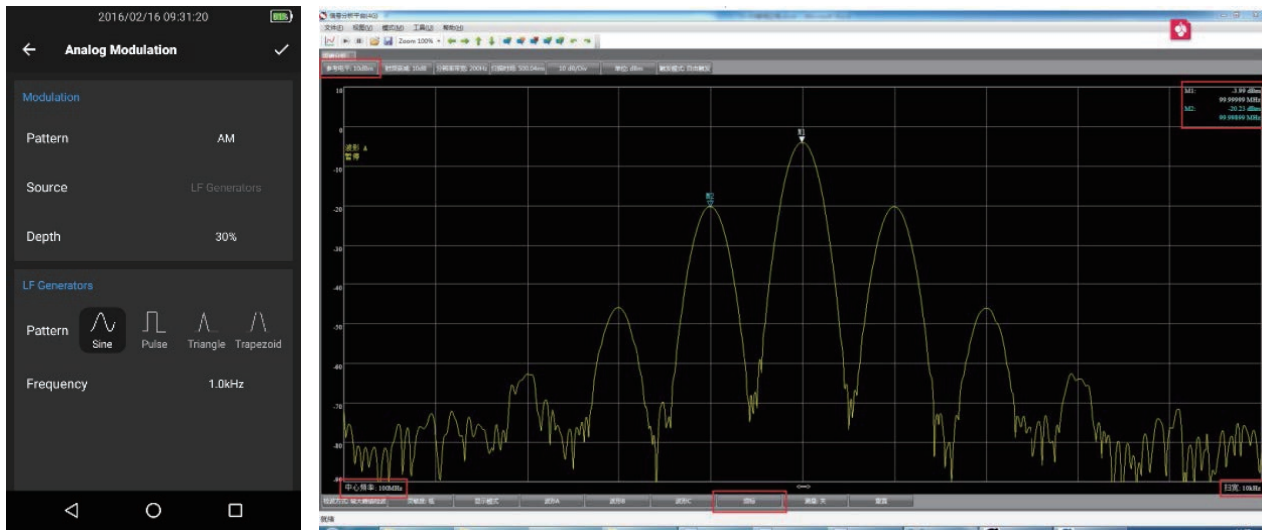
General Digital Modulation

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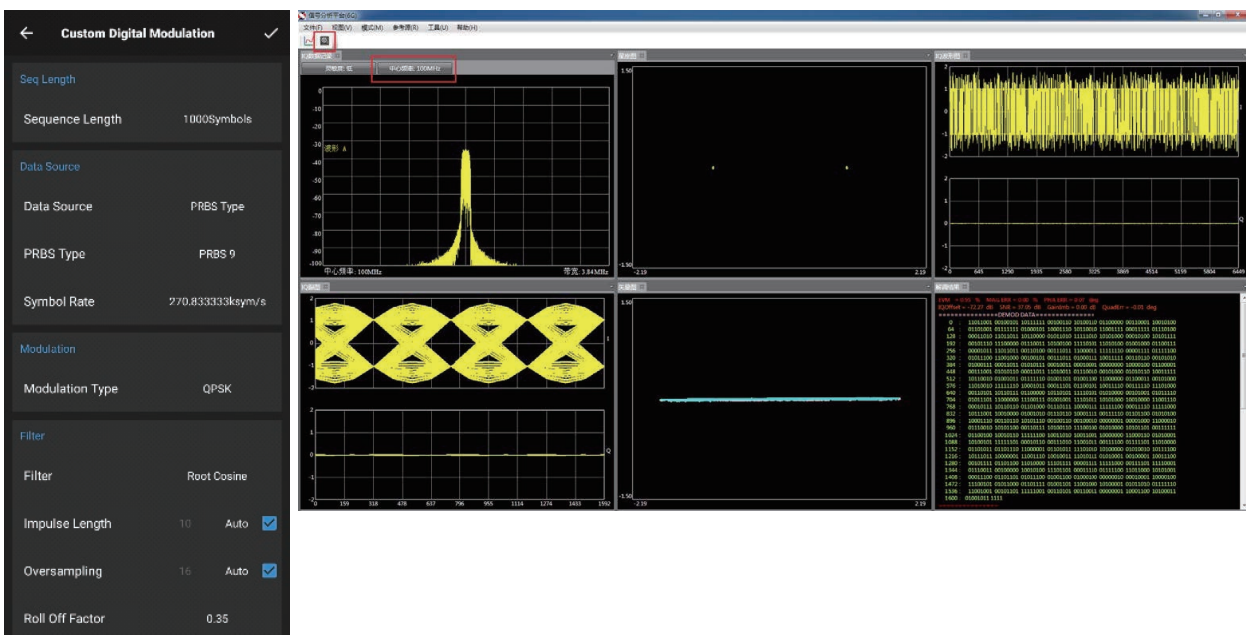
Standard Communication Mode Output

GeneMini 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.
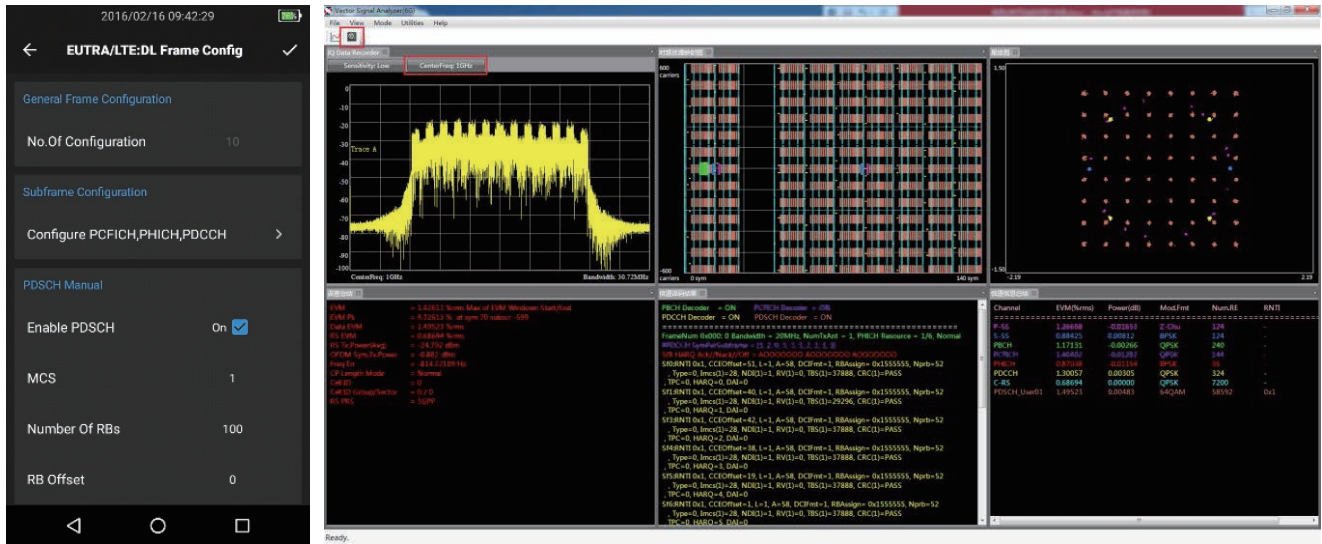
AWGN Function

SSupport control add AWGN signal on output

Sweep Mode

GeneMini 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.

Pulse Modulation

GeneMini support pulse modulation, the pulse period and pulse width can be configured.

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.
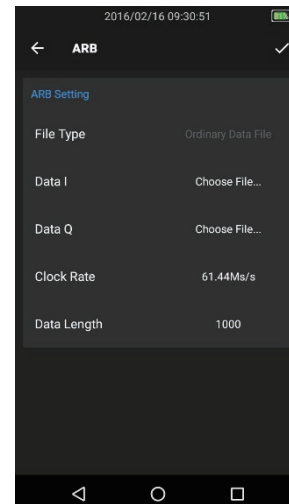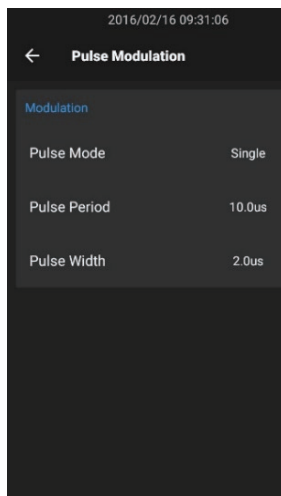
Applications

Laboratory RF Test

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

GeneMini also supports testing of intermodulation distortion on amplifier, mixer and receiver. By using with spectrum analyzer, GeneMini is able to complete broadband and frequency response performance testing for antenna, amplifier, attenuator etc.

Teaching application test

By combining GeneMini with signal analyzer, it also provides RF micro-wave device testing demonstration to reduce the complexity of professional teaching. GeneMini has the ability to produce all standard uplink and downlink signals and digital modulation signals in any chip rate to satisfy professional education practices.

Manufacture application test

GeneMini is able to simulating GSM, EDGE, CDMA, TD-SCDMA, WCDMA, CDMA2000, TD-LTE, FDD-LTE, NB-IoT, and LoRa standard base station signals to cooperate with production and calibration of UE, chips. By combining GeneMini with Signal Analyzer module, it can provide base station consistency and function testing.

Innovative Features

High portability and long battery life

GeneMini is a hand-held signal generator with small size, but no compromise on battery. Users can carry it easily and use for a long time.

Rich functionality for general digital modulation

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

Support expansion and second development

GeneMini bases on Android system, which allow users install other applications according to needs, it's an opened platform which allows second development.

Control Elements

RF output

On/Off button

HD screen

USB, Power interface and LED

Specification

GeneMini Handheld Signal Generator	
Frequency range	10MHz-6GHz (can upgrade to 1MHz - 6GHz)
Frequency step	0.1Hz
Frequency-temperature Stability	±1ppm @0℃ -50℃
Initial Frequency Accuracy	±0.5ppm
Power range	-110 - +14dBm
Power step	0.1dB
Power accuracy	±0.75dB@Lev ≥ -80dBm,；±1.5dB@Lev<-80dBm
Harmonic	≤ -30dBc（+10dBm）
Nonharmonic	≤ -50dBc
Phase noise	≤ -105dBc/Hz@10kHz(3GHz-6GHz); ≤ -109dBc/Hz@10kHz(≤ 3GHz)
Modulation bandwidth	20MHz（can upgrade to 100MHz）
Pulse modulation parameter	Pulse period：10us-40s，Pulse width：10ns-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
Support channel (LTE)	PSS、SSS、PSS、SSS、CSRS、PBCH、PCFICH、PHICH、PDCCH、PDSCH、PUSCH、PUCCH、PRACH and SRS
EVM	≤ 2%rms
Frequency error	Better than ±10Hz
Phase error	Better than ±3°
TOI	+15dBm (-10dBm tones, 1MHz apart, Sensitivity set to low, Ref set to -10dBm)
Wave quality ρ	>0.9999
API	Support secondary development（open API）
Mechanical Features	
Operation system	Based on Android
Connectors	RF output：N type，female，50 Ω USB port：USB type-C Power interface：DC12V
Operation environment	Operation temperature： 0° C - 50° C Storage temperature： -20° C - 70° C
Dimension	197mm*93mm*61 mm
Weight	0.9kg

Ordering List

Model	Description
T3106	GeneMini Handheld Signal Generator
Accessories	
MTX-AS001	Power adapter
Option	
MTX-S001	GSM License
MTX-S002	WCDMA License
MTX-S003	TDD-LTE License
MTX-S004	FDD-LTE License
MTX-S005	NB-IoT License
MTX-S006	LoRa License
MTX-S007	TD-SCDMA 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-S014	5GNR License
MTX-S015	Two Tone License
MTX-S016	Linear Frequency Modulation License
MTX-S017	GNSS Interference License
MTX-S018	AWGN