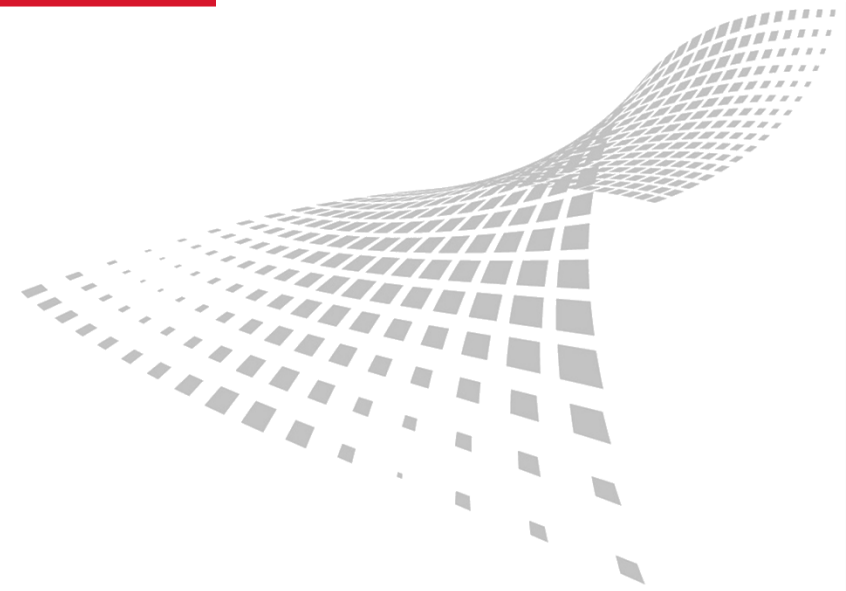


Vector Signal Generator Module

G6

Transcom Instruments



Overview of G6



- G6 vector signal generator module is a high performance vector signal generator. It supports arbitrary wave signal, continuous wave signal, common vector signal, simulation and digital modulation, standard wireless vector signal, standard radio signal and customized signal.
- G6 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.
- G6 satisfied most of the signal simulation practices and provided user continues customization services.



Product Features



- Frequency range: 10MHz~6GHz(up to 9GHz supported in the near future)
- Power coverage: -110~+10dBm
- Full range of common digital modulation: BPSK, QPSK, OQPSK, 8PSK, 16QAM, 32QAM, 64QAM, MSK, FSK, output linearity, log scan and multiple modulation mode
- Variety of common signal generating including GSM/ EDGE/CDMA/TD-SCDMA/WCDMA/CDMA2000/TD-LTE/FDDLTE/ NB-IoT/LoR. Users can modify channels under different configuration
- Pulse modulation function
- Fixable integration interface, customized data can be input into module to generate customized signal
- Simple control via USB port. Provide API for second-time development

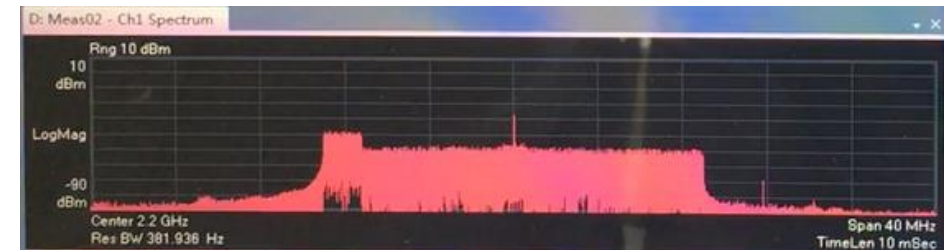
H: Meas02 - Ch1 Frame Summary

Channel	EVM(%rms)	Power(dB)	Mod.Fmt	Num.RB
P-SS	0.57950	0.52574	Z-Chu	12
S-SS	0.58134	0.51872	BPSK	12
PBCH	0.72157	0.49681	QPSK	6
PCFICH	1.0888	0.01710	QPSK	18
PHICH	0.92023	-0.18182	BPSK (CDM)	36
PDCCH	0.74171	0.05310	QPSK	28
C-RS	0.78544	0	QPSK	600
PDSCH_QPSK	0.71637	-0.08013	QPSK	60

Digital Modulation



NB-IoT signal Modulation



LTE signal Modulation

Comparison



Manufacturer	Transcom G6	Keisight N5182A
Frequency Range	10MHz~6GHz	100 kHz~6GHz
Amplitude Range	-110 ~ +10dBm	-110 ~ +13dBm
Harmonic	≤ -30 dBc	< -30 dBc
SSB Phase Noise	≤ -100 dBc/Hz@10kHz(6GHz)	≤ -104 dBc/Hz@20kHz(6GHz)
Modulation bandwidth	60MHz	200MHz (RF) 100MHz (Baseband)
EVM	$\leq 2\%$	$< 0.8 \%$

Comparison



Manufacturer	Transcom G6	Keisight N5182A
Mobile communication standard	GSM/EDGE/CDMA/TD-SCDMA/WCDMA/CDMA2k/TD-LTE/FDD-LTE/NB-IoT/LoRa	GSM/EDGE,cdmaOne, CDMA2000®, 1X EV-DO, WCDMA 802.11a/g, 802.16e WiMAX, WLAN
Universal digital modulation type	BPSK, QPSK, OQPSK $\pi/2$ DBPSK, $\pi/4$ DQPSK, $\pi/8$ D8PSK, $\pi/4$ QPSK, 8PSK, 8PSKEDGE , 16QAM, 32QAM, 64QAM, 256QAM, 10_4QAM ; MSK, 2FSK, 4FSK	BPSK, QPSK, OQPSK, $\pi/4$ DQPSK, 8PSK, 16PSK, D8PSK;QAM4, 16, 32, 64, 128, 256;FSK, MSK, ASK



Manufacturing testing

G6 is able to simulate GSM/ EDGE/ CDMA/ TD-SCDMA/ WCDMA/ CDMA2k/ TD-LTE/ FDD-LTE/ NB-IoT/ LoRa standard base station signals to cooperate with production and calibration of UE/ chips.

By combining G6 vector signal generator module with Micro-Rx signal analyzer module, it provides base station consistency and function testing.

Laboratory radio frequency testing

G6 supports testing of intermodulation distortion on an amplifier, mixer and receiver. By using with spectrum analyzer, G6 is able to complete broadband and frequency response testing for antenna, amplifier, attenuator etc.

Educational practices

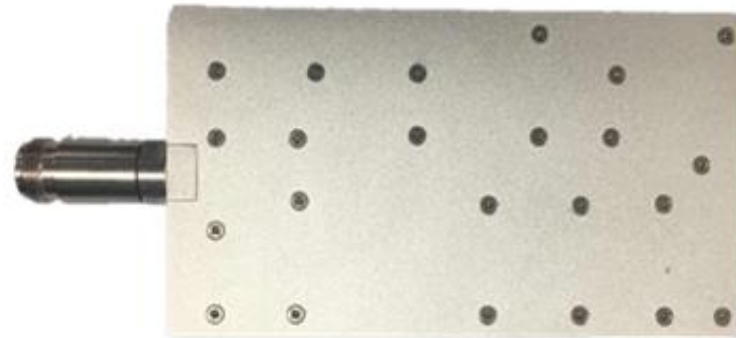
By combining G6 vector signal generator module with Micro-Rx signal analyzer module, it also provides RF microwave device testing demonstration to reduce the complexity of professional teaching.

G6 has the ability to produce all standard uplink and downlink signals and digital modulation signals in any chip rate to satisfy professional practices.



System integration

G6M is the core module of G6, it has small size, high technical specification, comprehensive communication, standard modulation format and independent API. It fulfilled various integration needs with excellent performance. With further system integration, G6 can be used as large scale 5G antenna testing.



Specifications



G6 Vector Signal Generator	
Technical	
Frequency Range	10MHz~6GHz
Frequency Solution	1Hz
Frequency-temperature Stability	± 1 ppm
Initial Frequency Accuracy	± 0.5 ppm
Amplitude Range	-110~+10dBm
Amplitude Solution	0.1dB
Amplitude Accuracy	± 0.5 dB
Harmonic	≤ -30 dBc
Spurious	≤ -55 dBc
SSB Phase Noise	≤ -100 dBc/Hz@10kHz(6GHz)
Modulation Bandwidth	20MHz (can scale to 40MHz)
Modulation Type	Analog, Vector, Pulse
Pulse modulation parameters	Pulse width: 100ns~1s, repetition rate: 1Hz~5MHz
Universal digital modulation type	BPSK, QPSK, OQPSK, 8PSK, MSK, FSK, 16QAM, 32 QAM, 64QAM



Specifications



G6 Vector Signal Generator	
Mobile Communication Standard	GSM/EDGE/CDMA/TD-SCDMA/WCDMA/CDMA 2k/TD-LTE/FDD-LTE/NB-IoT/LoRa
Supported Channel(LTE)	PSS, SSS, PSS, SSS, CSRS, PBCH, PCFICH, PHICH, PDCCH, PDSCH, PUSCH, PUCCH, PRACH and SRS
EVM	$\leq 2\%_{rms}$
Frequency Error	Better than $\pm 10\text{Hz}$
Phase Error	Better than $\pm 3^\circ$
Waveform Quality ρ	> 0.9999
Others	
Power Supply Voltage	12V (DC)
Power Supply Current	1.5A (MAX)
Communication Interface	USB 3.1 type-C
Provide API	Support second-time development
Size	190*93*32(mm)





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