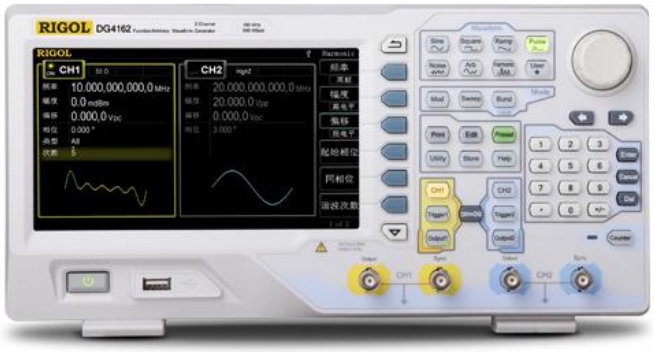


DG4000 Series Function/Arbitrary Waveform generator

RIGOL
Beyond Measure

RIGOL TECHNOLOGIES,INC.

Content

- **DG4000 Series Introduction and Demonstration**

DG4000 Series
Function/Arbitrary waveform Generator

RIGOL
Beyond Measure

RIGOL TECHNOLOGIES,INC.

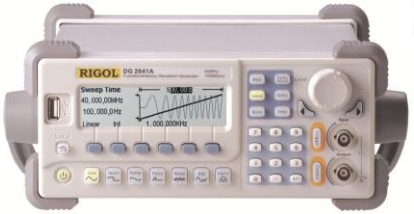
RIGOL DG product positioning

Performance

DG5000 series
100MHz,250MHz,350MHz,1 or 2 channel

DG4000 series
60MHz,100MHz,160MHz
2 identical channel

DG2041：40MHz



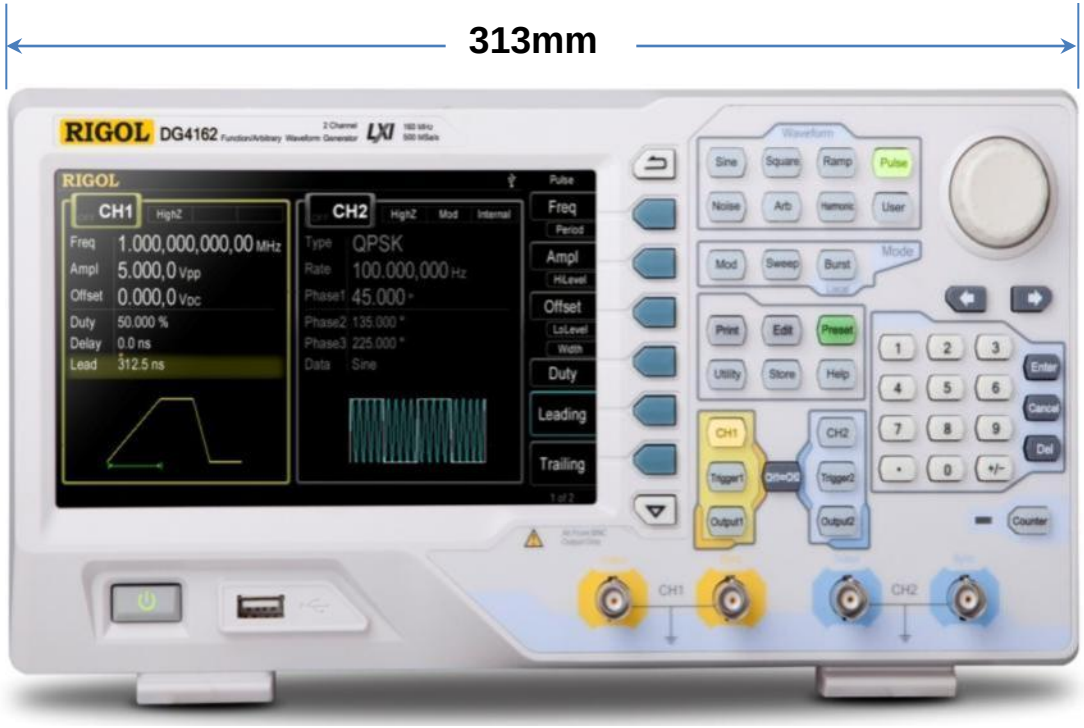
DG1022： 20MHz,2Ch

Price

Key features of DG4000 Series

- Standard 2 full functional channels
- 500 MSa/s sample rate,14 bits vertical resolution
- 2ppm high frequency stability, -115dBc/Hz low phase noise
- Arbitrary waveform function with up to 150 built-in waveforms
- Versatile analog and digital modulation functions(AM,FM,PM,ASK,FSK,PSK,BPSK,QPSK,3FSK,4FSK,OSK,PWM)
- Build-in high precision 200MHz frequency counter
- Up to 16 orders customized Harmonic Generation function
- 7 inch color LCD(800X480 pixels)

Compact size Light weight design

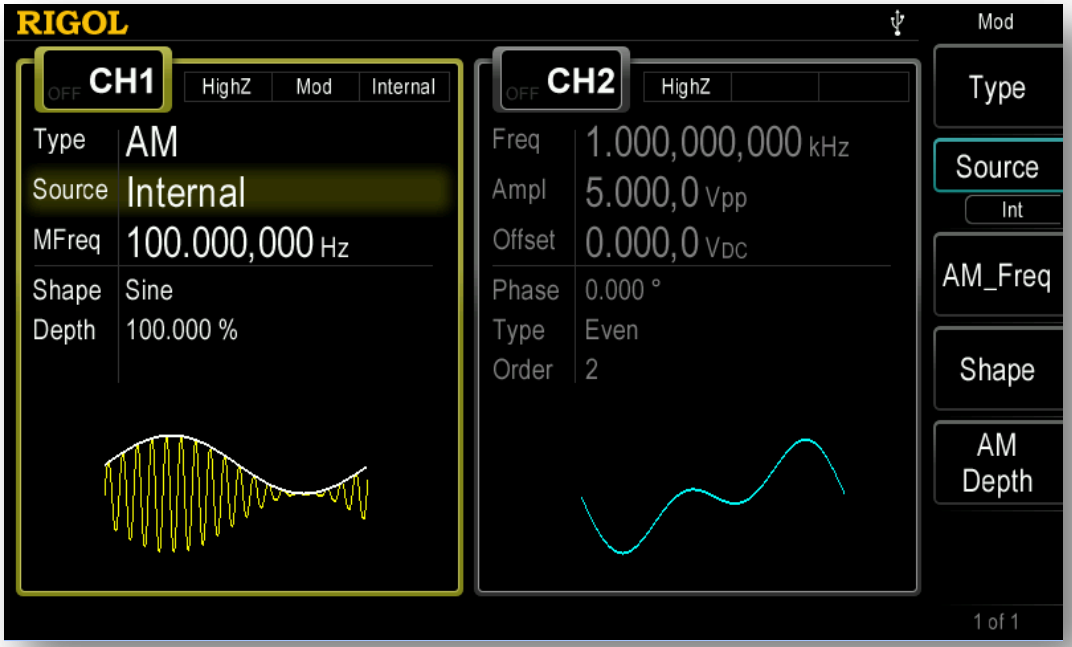


3.2 kg

Model	DG4162	DG4102	DG4062
Channel	2	2	2
Maximum Frequency	160MHz	100 MHz	60 MHz
Sample Rate	500 MSa/s		

Complete connectivity

New Features

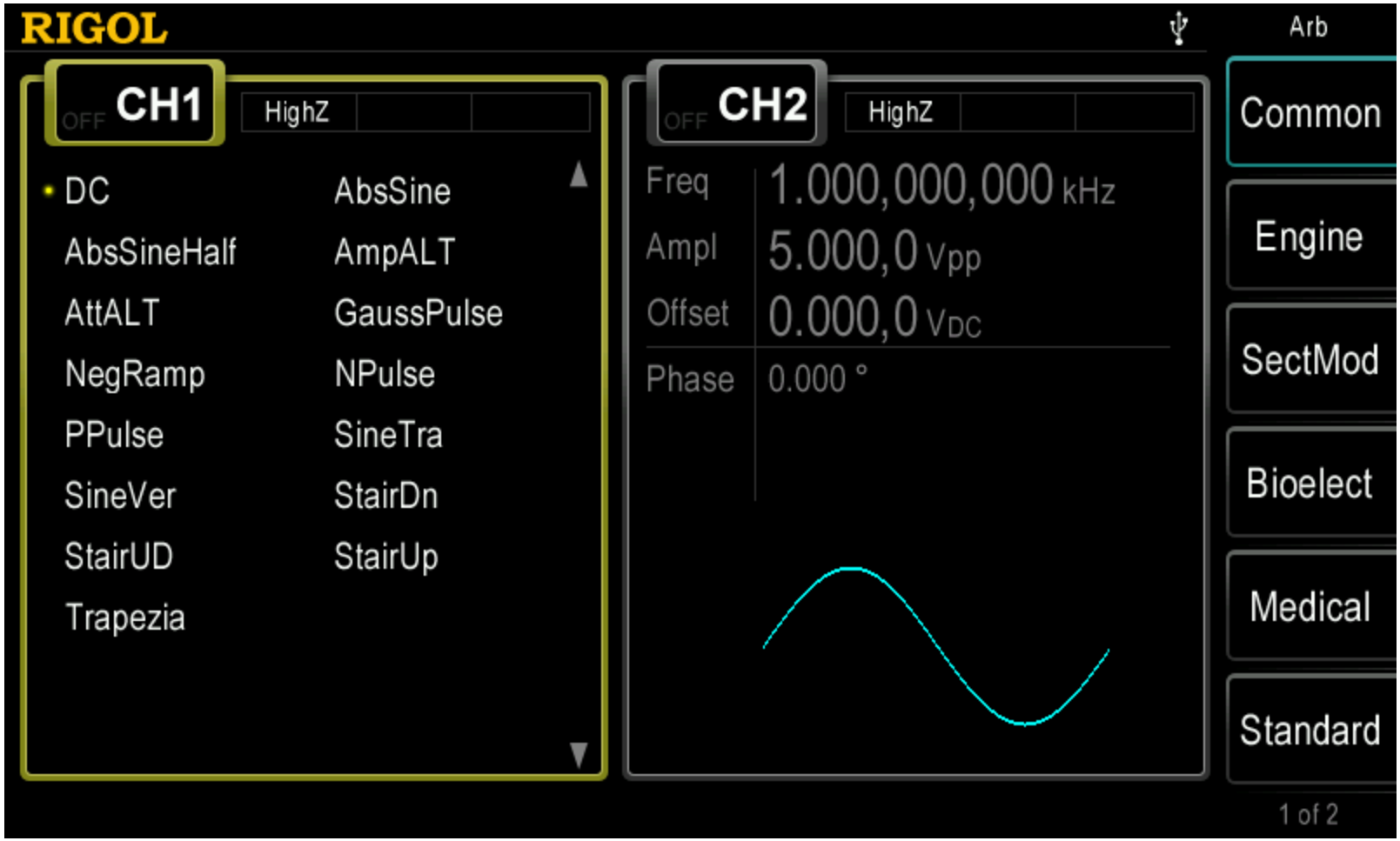


- **7” 800x480 LED backlight LCD Display**
- **Intuitive user interface**

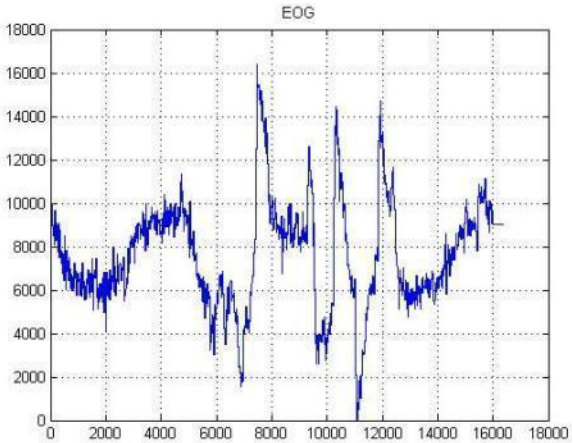
Built in 150 Arbitrary waveforms

	Common	Engine	
SectMod	Bioelect	Medical	Standard
Maths	Trigonome	Anti Trigonome	Window

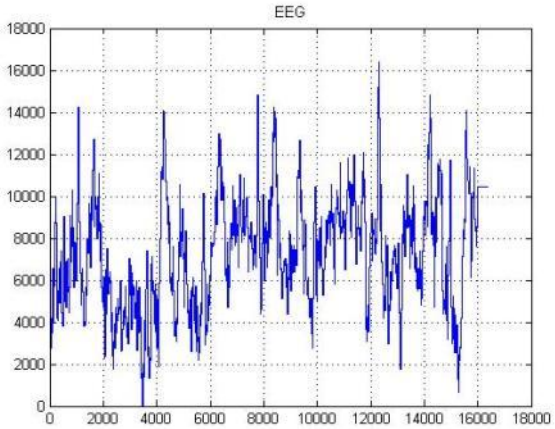
Built in 150 Arbitrary waveforms



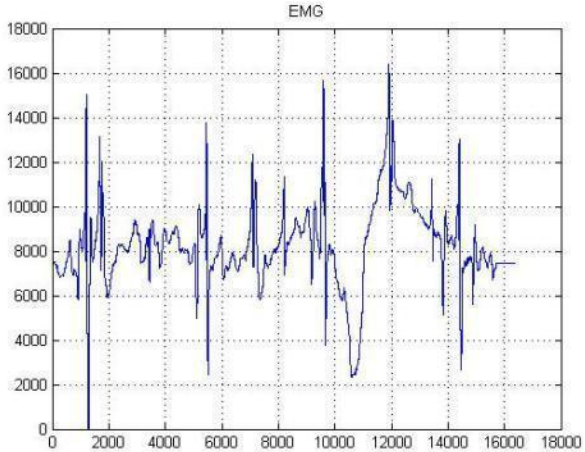
Built in Bio-electronic Arbitrary waveforms



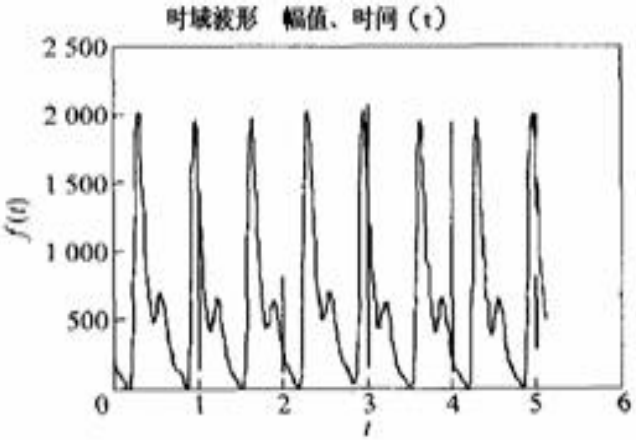
眼电
(EOG)



脑电
(EEG)

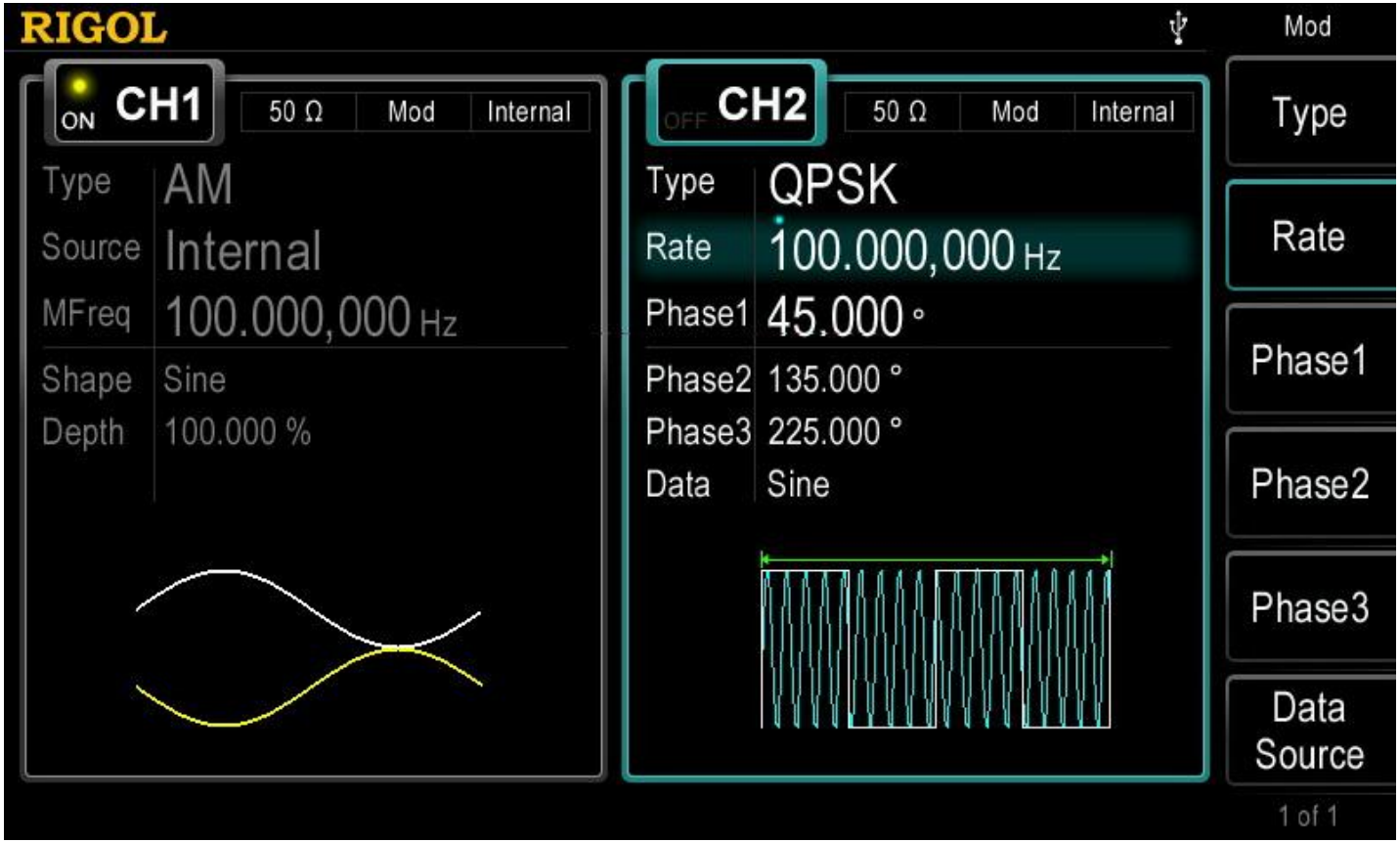


肌电
(EMG)



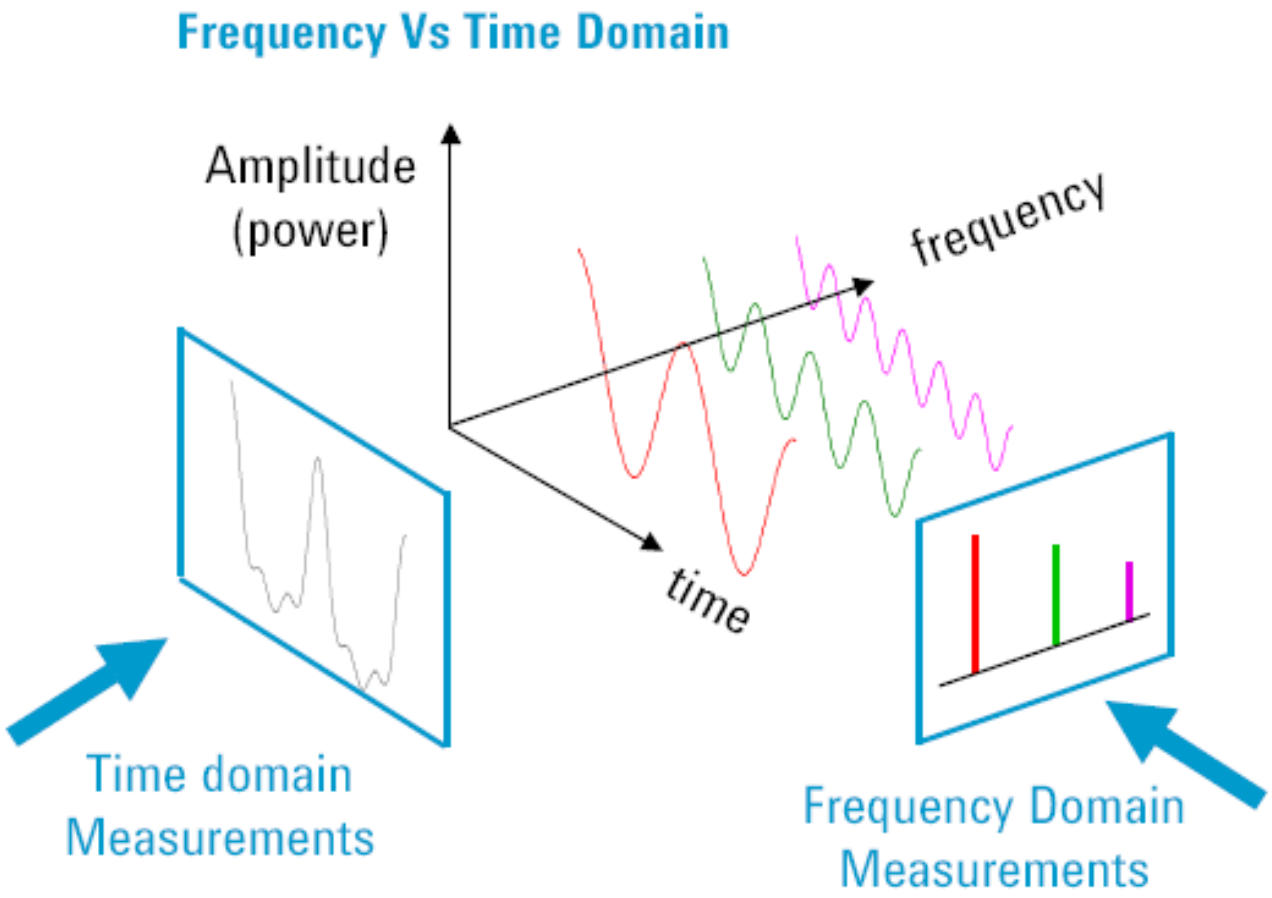
Pulseilogram
常人脉搏曲线

Standard Analog and Digital modulation functions



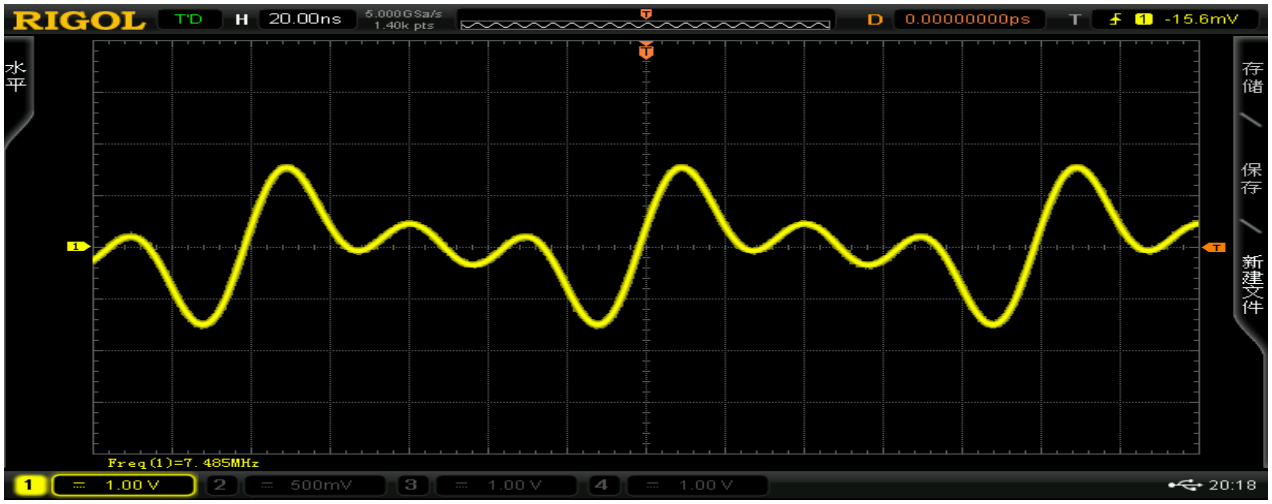
- **Standard Analog and Digital modulation functions（AM、FM、PM、ASK、FSK、PSK、BPSK、QPSK、3FSK、4FSK、OSK、PWM）**

Signal generation

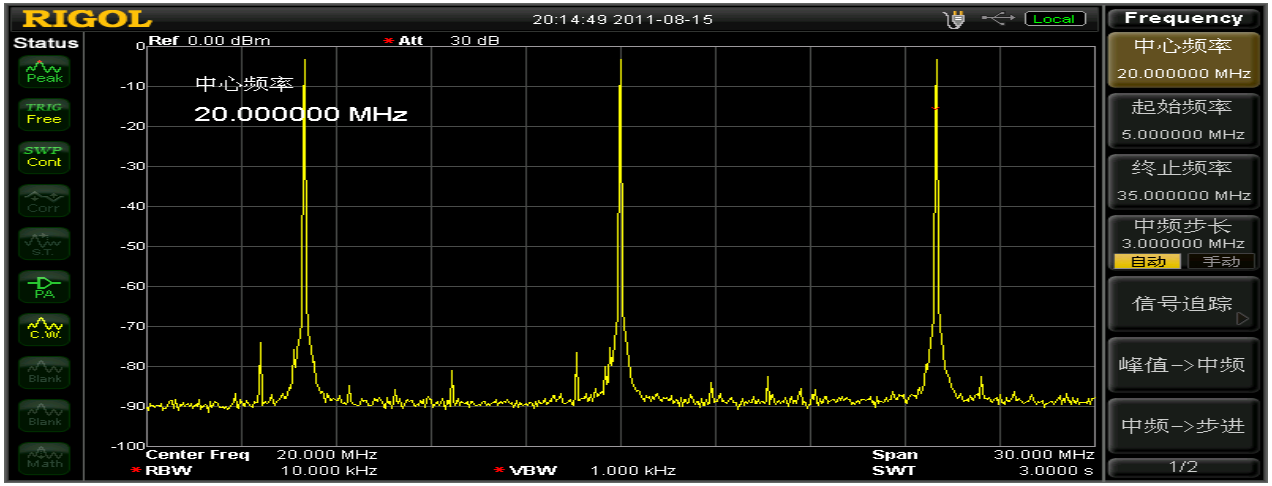


Harmonic Generation

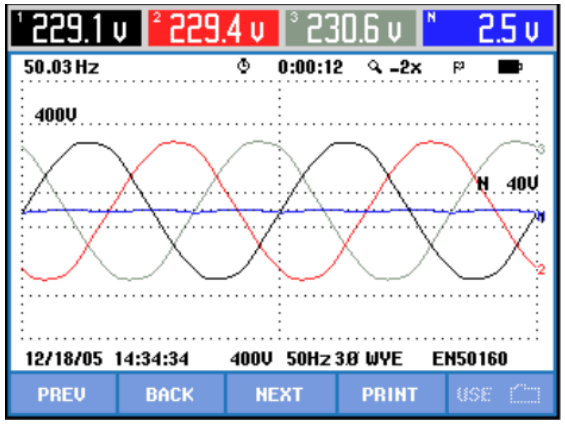
Time domain



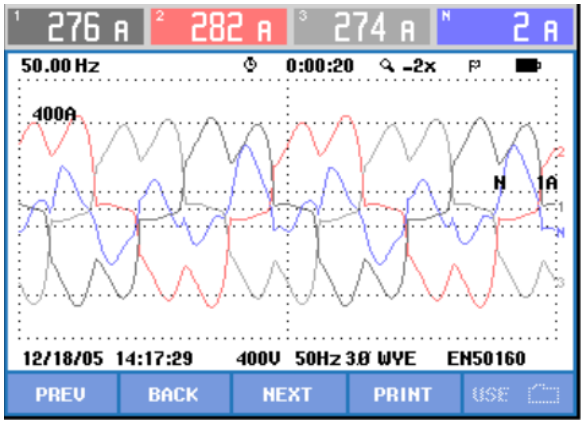
Frequency domain



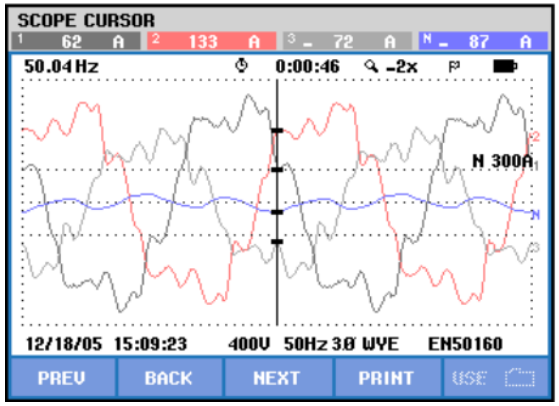
Harmonic Generation



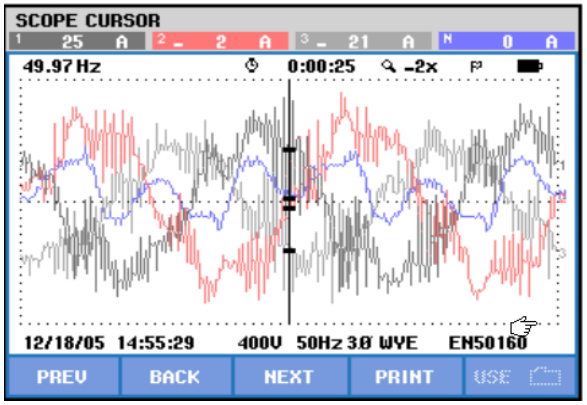
Standard Sine wave



Current waveform
（Transducer）

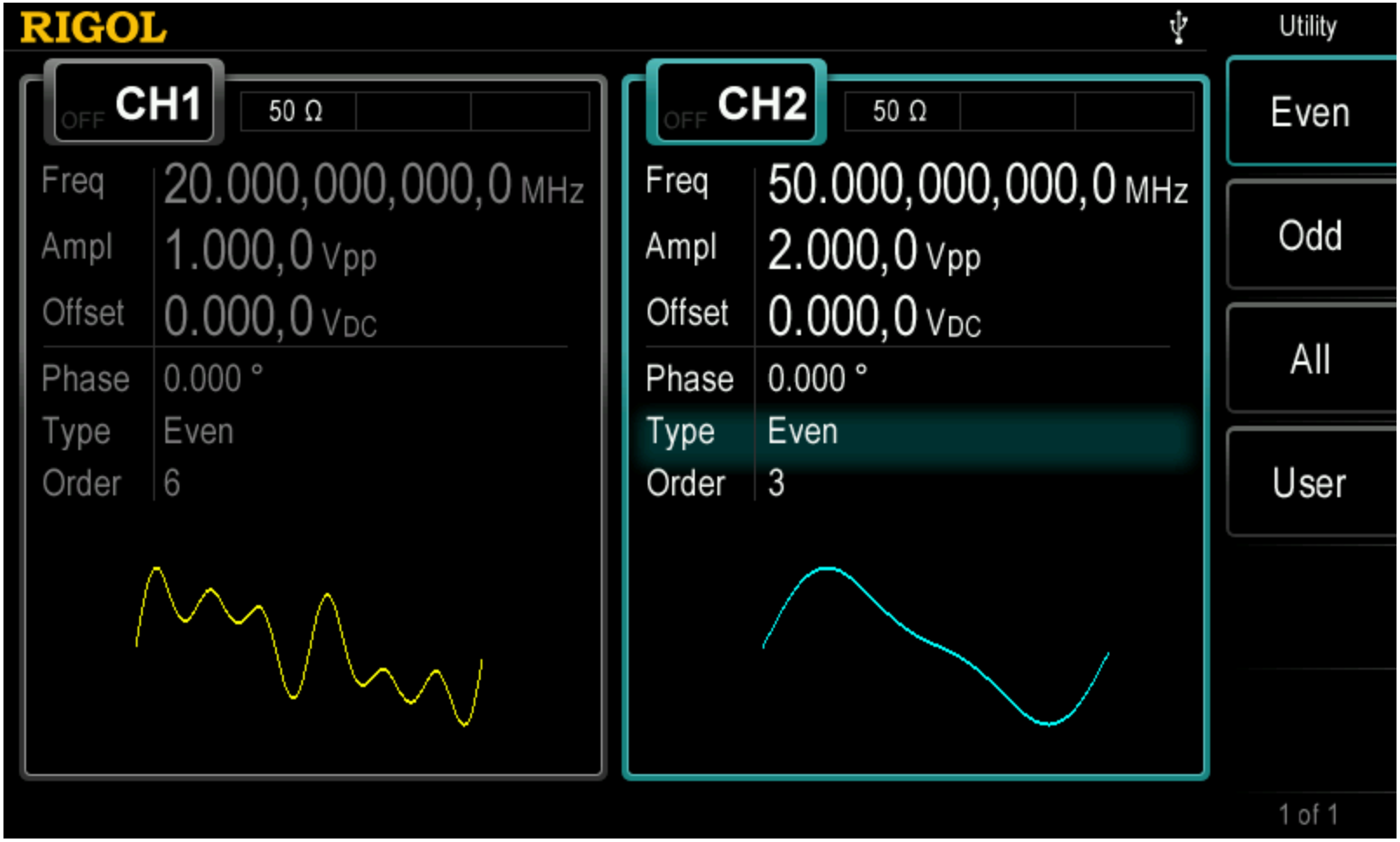


Current waveform
（fluorescent lamp）

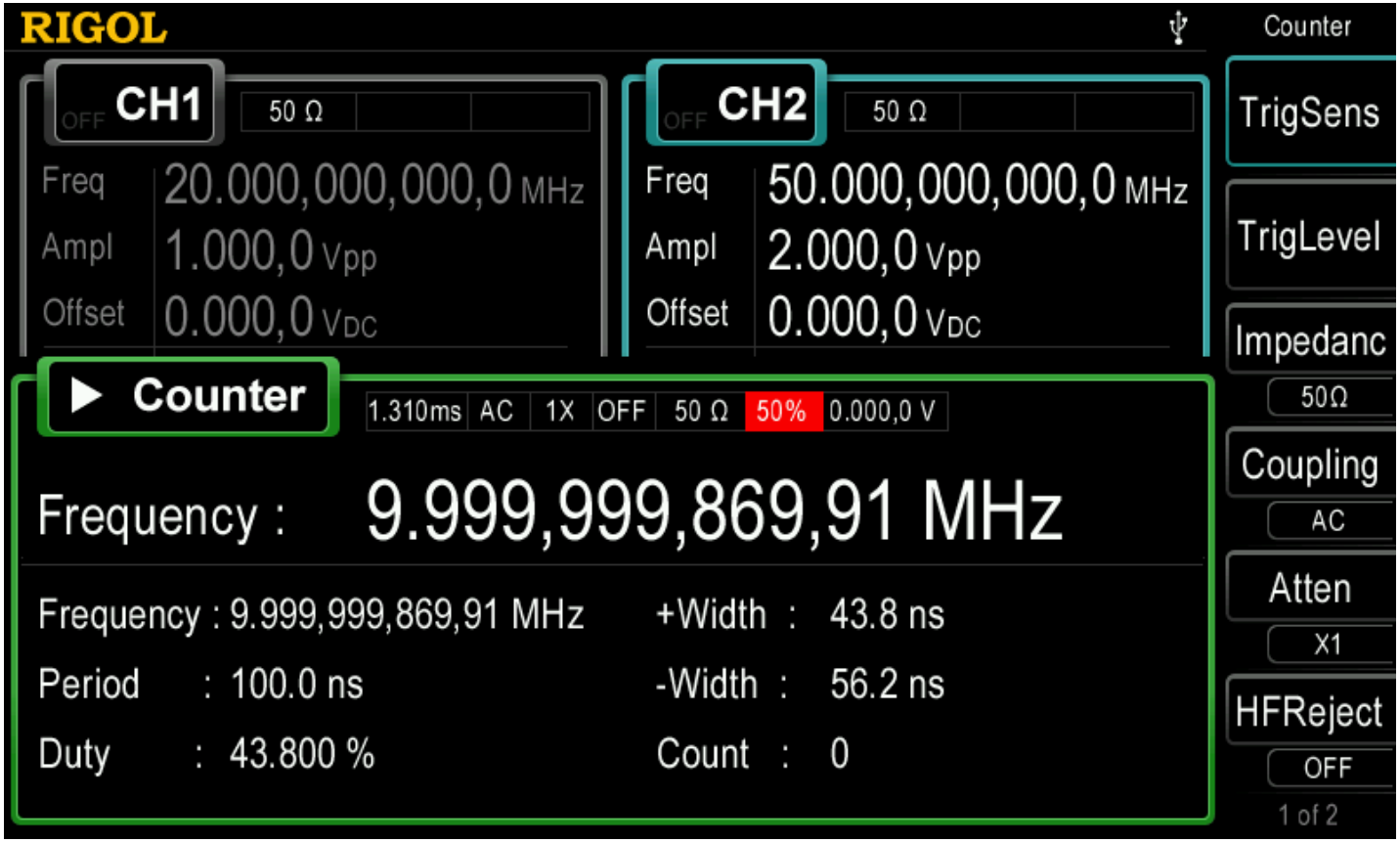


Current waveform
（Elevator)

Harmonic Generation

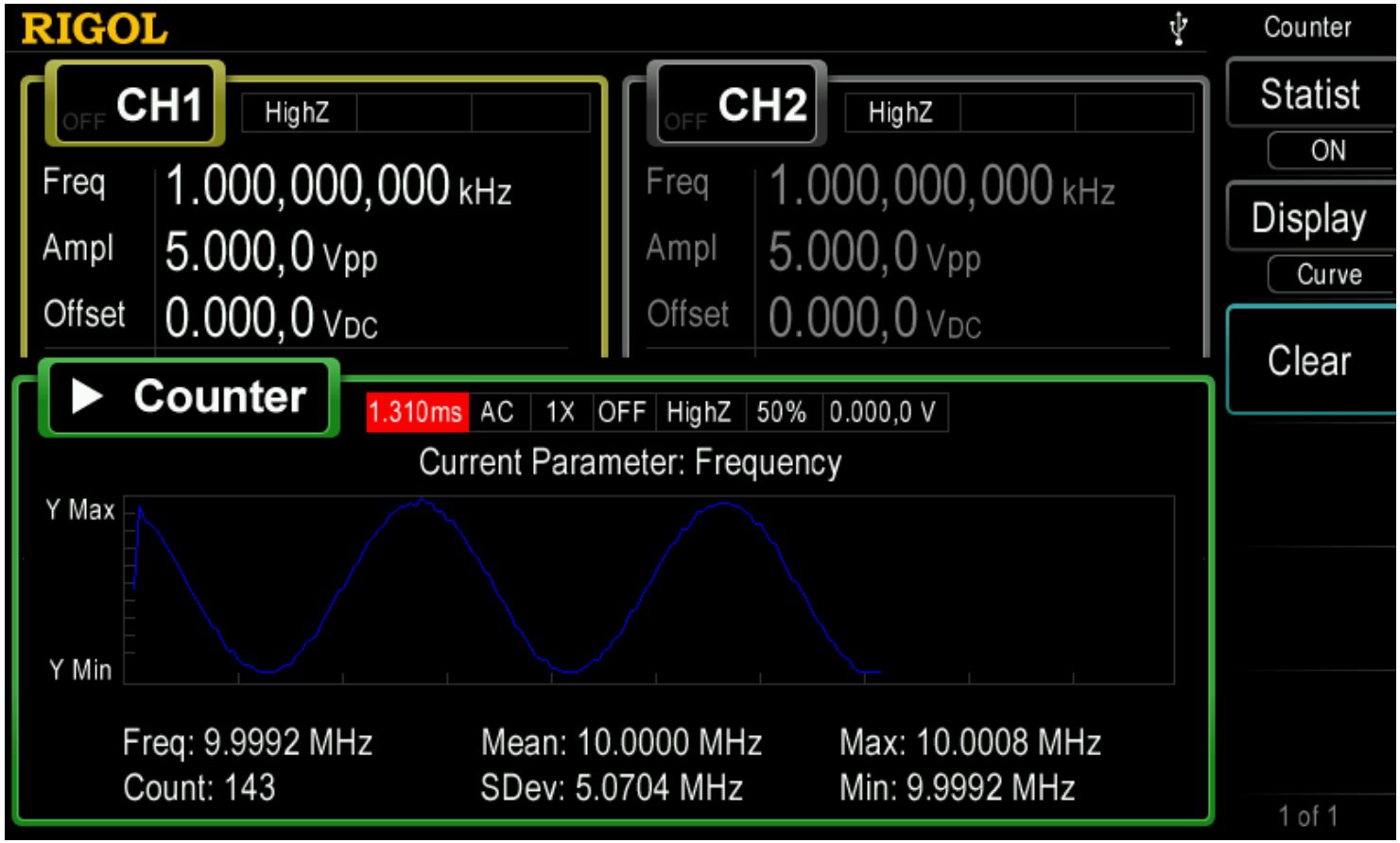


Counter



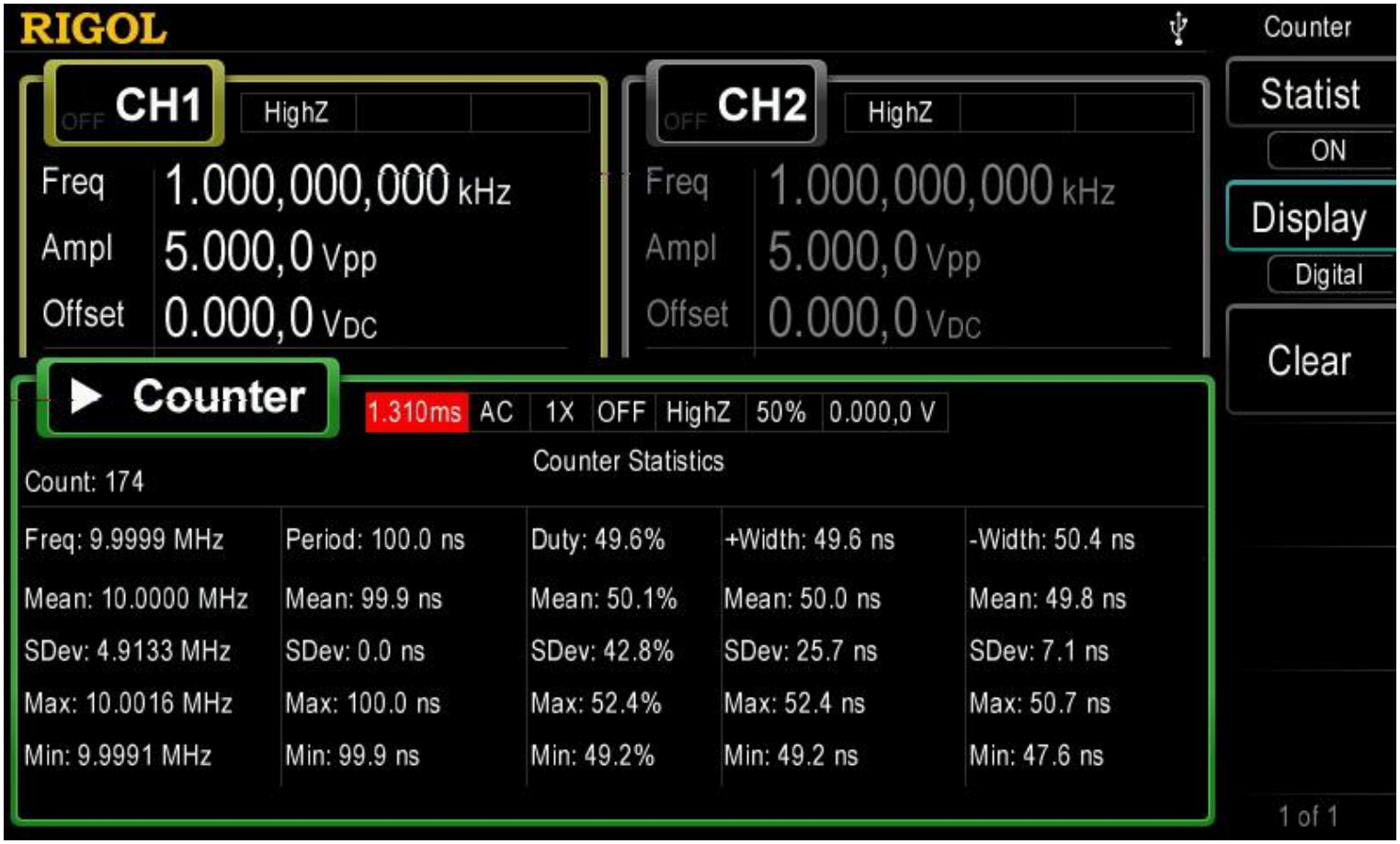
- **Just like the professional counter --- Lots of setups**
- **7digits/s resolution**

Counter



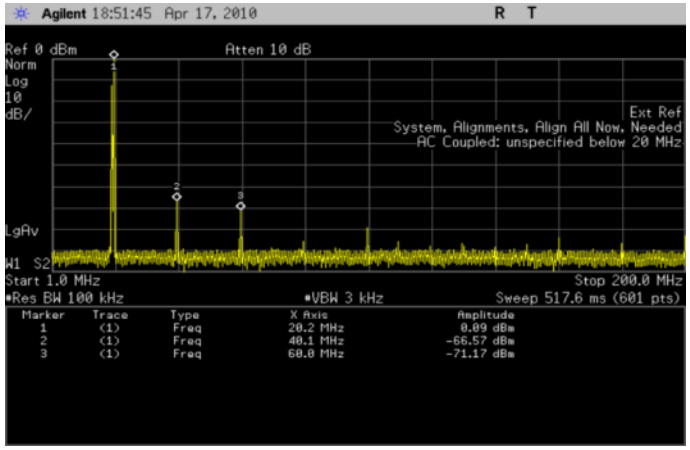
- **Statistic function**
- **2 signal outputs + 1 counter input**

Counter – Measurement functions

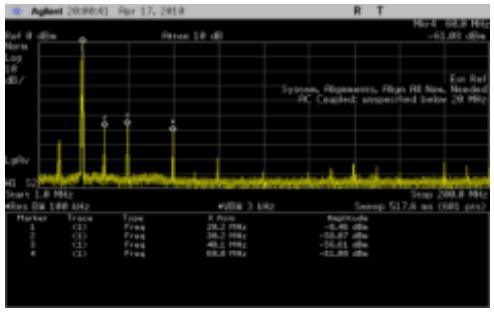


DG4000 Competition analysis

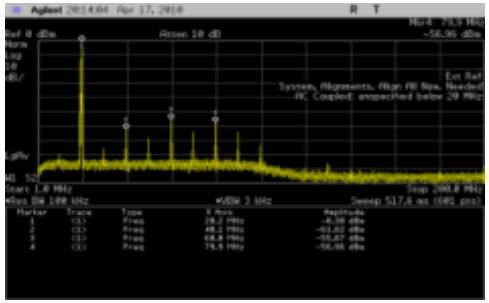
- **Low harmonic distortion** **@ 20MHz Sin, 0dBm, 50Ohm; SA: Agilent E4440A**



RIGOL DG4162
HD2: -66dBm
HD3: -71dBm

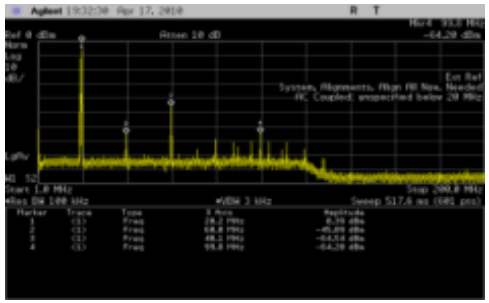


Agilent 33220A
HD2: -56dBm
HD3: -61dBm



Agilent 33250A
HD2: -61dBm
HD3: -56dBm

20M Sine



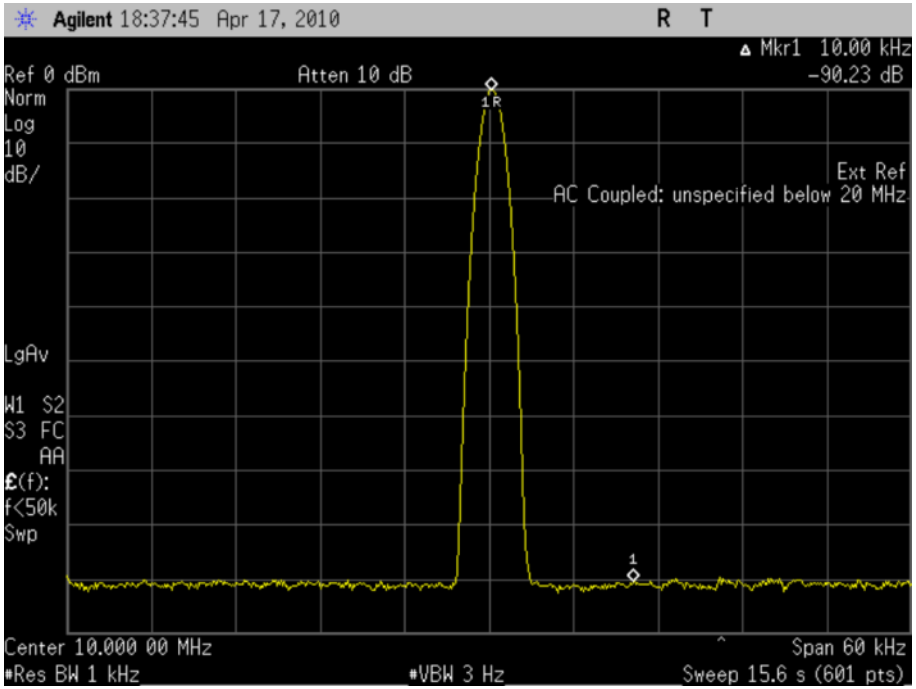
Tek AFG3102
HD2: -64dBm
HD3: -45dBm

HD2: 2nd order Harmonic Distortion
HD3: 3rd order Harmonic Distortion

DG4000 Competition analysis

- **Low Phase noise** @ 10MHz Sin, 0dBm, 50Ohm; SA: Agilent E4440A

Spec.:
<-115dBc/Hz
@ 10MHz, 0dBm

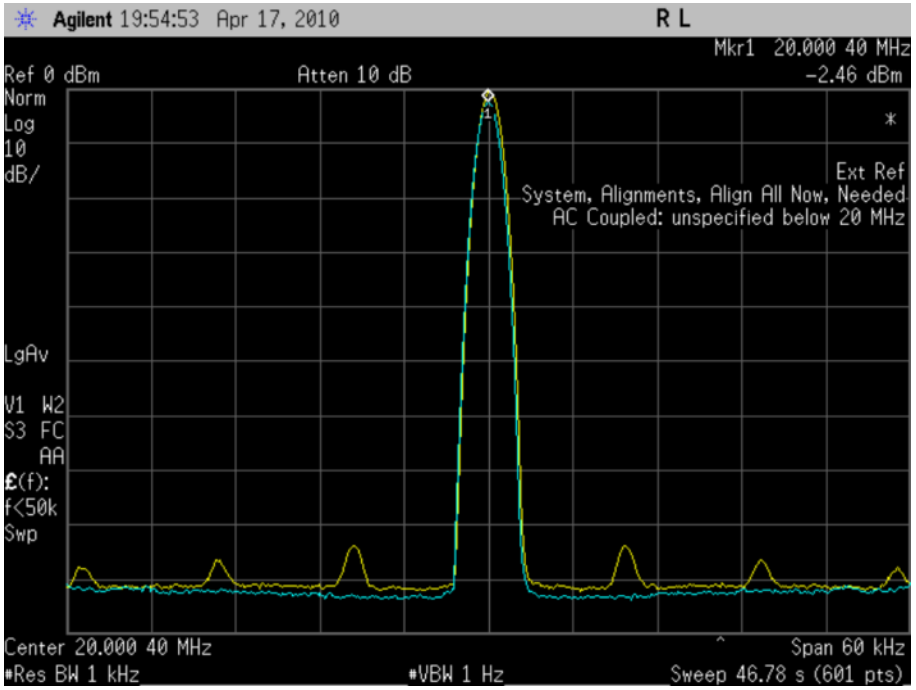


RIGOL DG4162

Phase Noise <-120dBc/Hz @ 10kHz Offset
About -134dBc/Hz in theory
@10MHz Sine

DG4000 Competition analysis

- **Low Phase noise** **@ 20MHz Sin, 0dBm, 50Ohm; SA: Agilent E4440A**

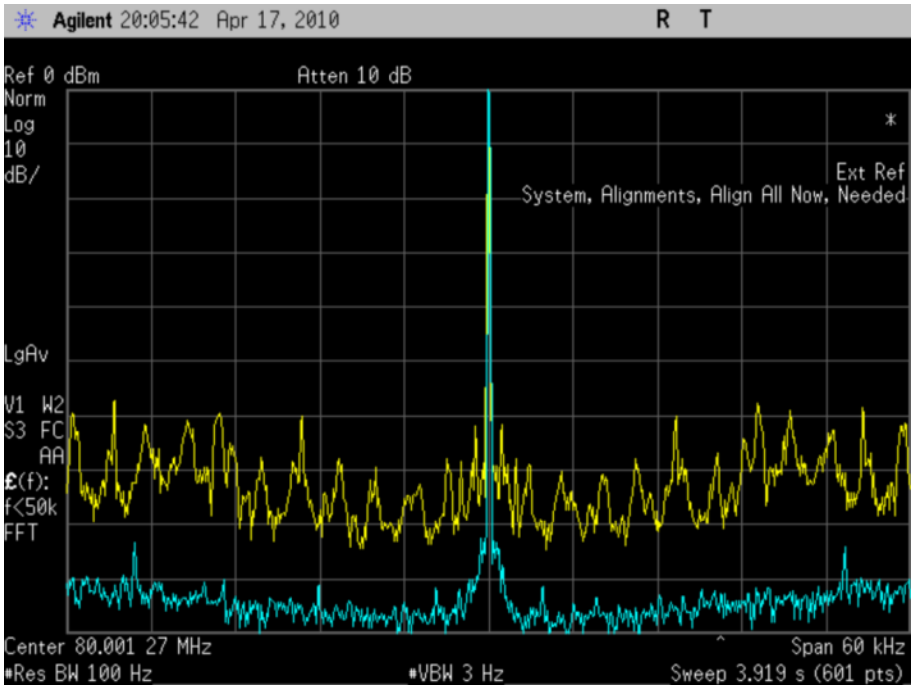


Agilent 33220A
RIGOL DG4162

@20MHz Sine, Span 60kHz

DG4000 Competition analysis

- **Low Phase noise @ 80MHz Sin, 0dBm, 50Ohm; SA: Agilent E4440A**

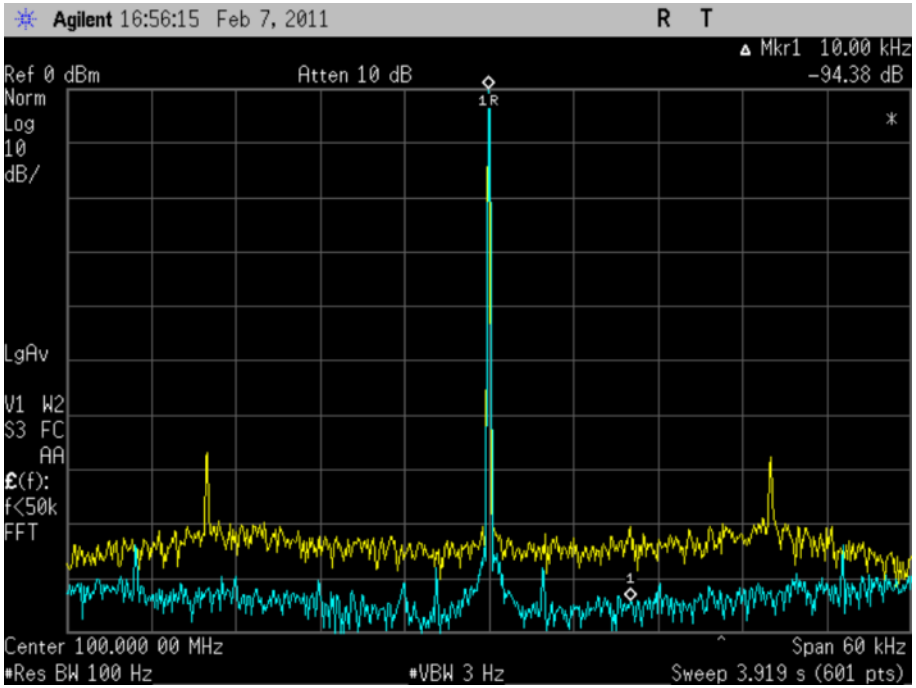


Agilent 33250A
RIGOL DG4162

@80MHz Sine, Span 60kHz

DG4000 Competition analysis

- **Low Phase noise** **@ 100MHz Sin, 0dBm, 50Ohm; SA: Agilent E4440A**



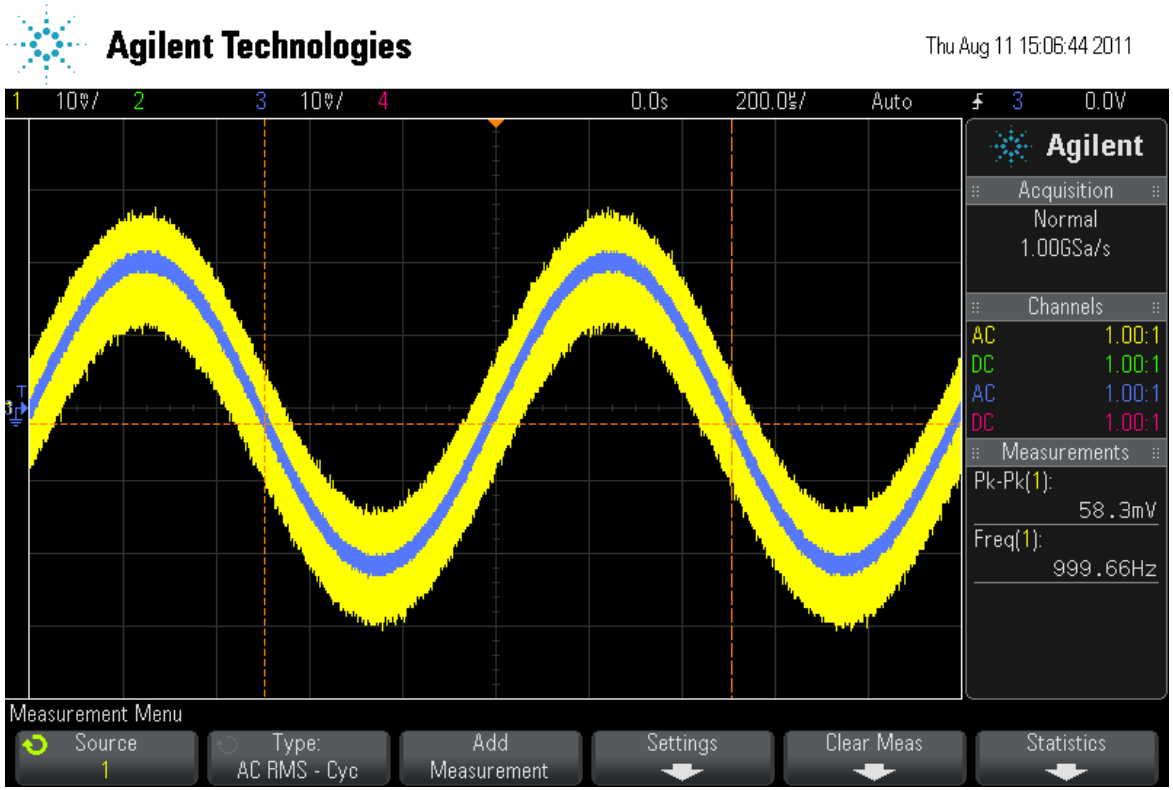
Tek **AFG3102**
RIGOL **DG4162**

@100MHz Sine, Span 60kHz

DG4000 Competition analysis

- **Clear Small signal output** **@ 1KHz, 40mVpp, 50Ohm, No BW Limitation**

  Scope Agilent DSO3054X



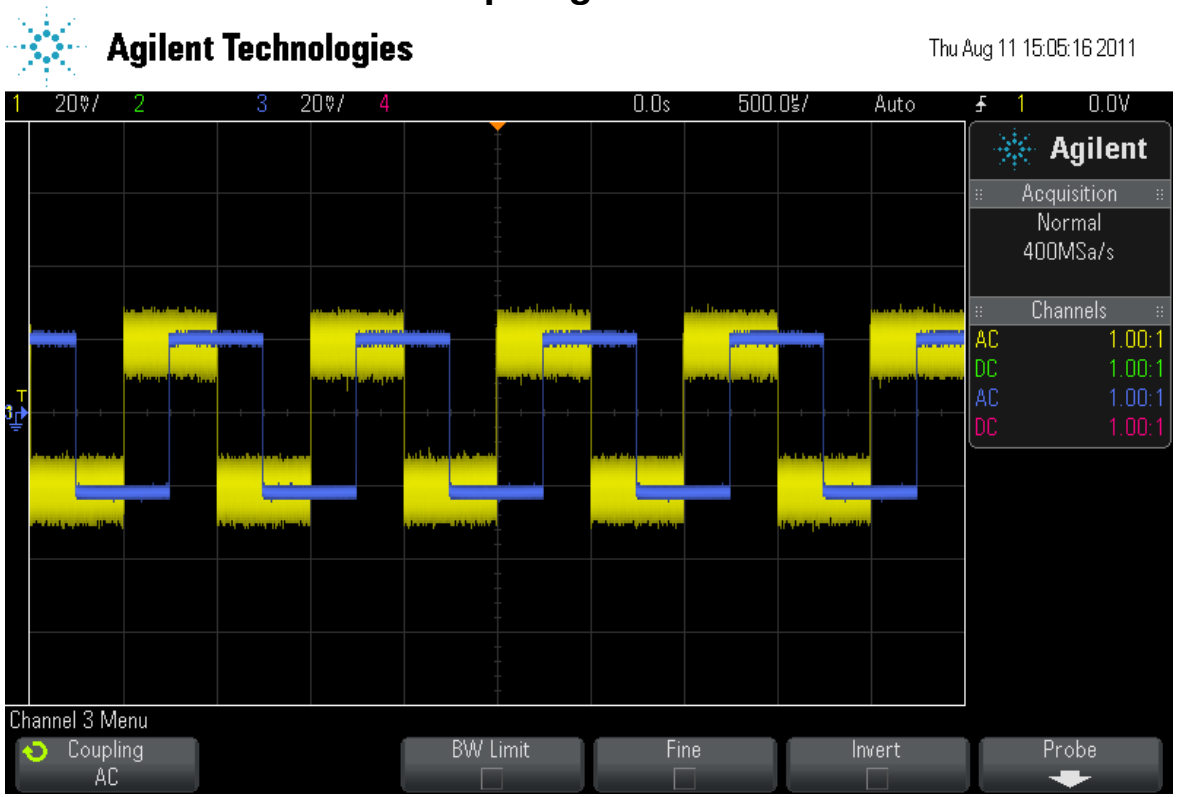
Tek AFG3102(20mVp-p~10Vp-p)

RIGOL DG4162(1mVp-p~10Vp-p)

DG4000 Competition analysis

- **Clear Small signal output** **@ 1KHz, 40mVpp, 50Ohm, No BW Limitation**

Scope Agilent DSO3054X



Tek AFG3102(20mVp-p~10Vp-p)
RIGOL DG4162(1mVp-p~10Vp-p)

Thank You !

www.rigol.com