



MAXWELLON 1433

1MHz~20GHz/26.5GHz/40GHz/50GHz
Handheld Signal Generator
2023

Maxwellon 1433 Series Handheld Signal Generator is designed for field testing. It has the functions of CW signal output, FM/AM/Pulse modulation, large dynamic range amplitude adjustment, step/list sweep, Unstable amplitude and unlock alarm function etc.

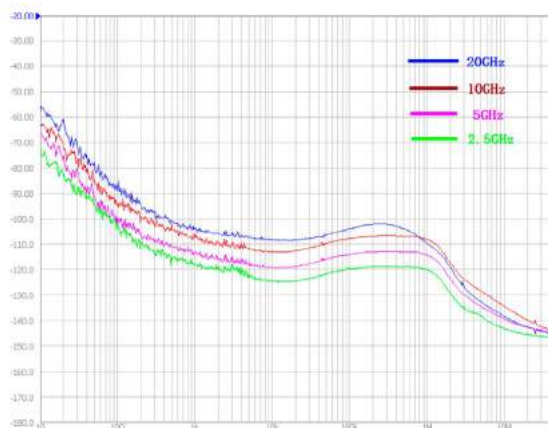
1433 Series Handheld Signal Generator has 8.4-inch large capacitive touch screen, with small size, flexible power supply and good working environment adaptability. It can be applied to the field installation, debugging and daily maintenance of fault diagnosis of electronic integrated system, receiver performance test, radar, communication, navigation and other equipment test.

■ Key Feature

- Wide frequency range: 1MHz to 20/26.5/40/50GHz
- Higher frequency resolution: 0.1Hz
- Phase noise performance: $-110\text{dBc/Hz}@10\text{kHz}$ frequency offset @10GHz carrier (typical)
- Various auxiliary test interfaces: reference input/output, pulse input, monitoring output, synchronization output etc.
- Support LAN and USB interface program control
- 8.4-inch LCD touch screen, multi-window display

Excellent Phase Noise Performance

SSB phase noise is better than $-110\text{dBc/Hz}@10\text{kHz}$ frequency offset @10GHz carrier



Convenient And Fast User Operation Experience

8.4-inch high-brightness LCD touch-screen, 800×600 resolution, multi-window display



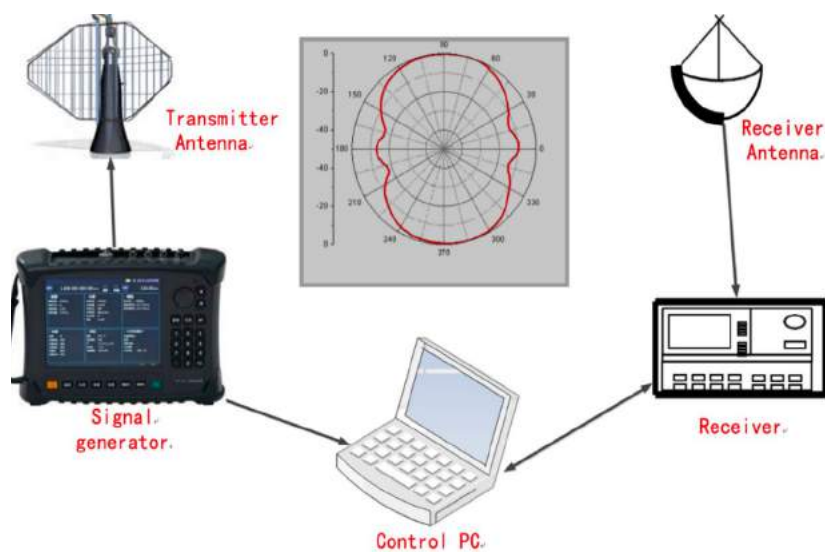
■ Typical Applications

Electronic System Anti-Jamming Performance Test

Radar Reception Performance Test And Troubleshooting



Field Test of Antenna Pattern



■ Specification

Frequency Properties			
Frequency Range	1433D: 1MHz to 20GHz, 1433E: 1MHz to 26.5GHz, 1433F: 1MHz to 40GHz, 1433H: 1MHz to 50GHz	Frequency	N (Internal YO harmonic number)
		1MHz≤f≤2.35GHz	1/2
		2.35GHz≤f≤2.5GHz	1/8
		2.5GHz≤f≤5GHz	1/4
		5GHz≤f≤10GHz	1/2
		10GHz≤f≤20GHz	1
		20GHz≤f≤40GHz	2
		40GHz≤f≤50GHz	4
Frequency Resolution	0.1Hz		
Initial Calibration Accuracy	±0.5×10 ⁻⁶		
Internal Timebase	Aging rate	±0.5×10 ⁻⁶ /year	
	Temperature effects	±0.3×10 ⁻⁶ (-10℃ ~ 50℃ , versus 25℃ ±5℃)	
Reference Output	Frequency	10MHz	
	Power	>0dBm to 50 Ω load	
Reference Input	Frequency	10-100MHz, 1MHz step	
	Power	-5dBm to +10dBm, impedance: 50Ω	

Sweep Properties		
Sweep Mode	Step Sweep, List Sweep	
Sweep points	2 to 1601	
Dwell time	10ms~100s	
Trigger mode	Auto/Manual	
Power Properties		
Stable Output Power Range (25℃ ±10℃ , CW mode)	1MHz≤f<2.5GHz	-120dBm to +5dBm
	2.5GHz≤f≤10GHz	-120dBm to +10dBm
	10GHz<f≤20GHz	-120dBm to +5dBm
	20GHz<f≤40GHz	-120dBm to +5dBm
	40GHz<f≤50GHz	-120dBm to 0dBm
Power Accuracy (25℃ ±10℃)	-10dBm<P≤Max. output power	±1.0dB
	-60dBm<P≤-10dBm	±1.5dB
	-90dBm<P≤-60dBm	±1.8dB
Output Impedance	50Ω (Rating)	
SWR	1MHz≤f≤20GHz	<1.8:1
	20GHz<f≤40GHz	<2.0:1
	40GHz<f≤50GHz	<2.5:1
Maximum Reverse Power	+27dBm (0V DC)(Rating)	
Spectral Purity (specification is point frequency without modulated mode)		
Harmonics (Measured at +5dBm or maximum specified power, whichever is lower)	1MHz≤f≤1.5GHz	≤-40dBc
	1.5GHz<f≤2.5GHz	≤-30dBc
	2.5GHz<f≤19GHz	≤-40dBc
	19GHz<f≤25GHz	≤-30dBc
	25GHz<f≤50GHz	≤-35dBc (typical)
Non-harmonics (0dBm, >10kHz offset)	1MHz≤f<2.5GHz	≤-54dBc
	2.5GHz≤f<5GHz	≤-60dBc
	5GHz≤f≤10GHz	≤-56dBc
	10GHz<f≤20GHz	≤-50dBc
	20GHz<f≤38GHz	≤-44dBc
	38GHz<f≤50GHz	≤-40dBc
SSB Phase Noise (at maximum stable output power)	1MHz≤f≤2.35GHz	≤-82dBc/Hz@100Hz
		≤-98dBc/Hz@1kHz
		≤-108dBc/Hz@10kHz
		≤-106dBc/Hz@100kHz
	2.35GHz≤f≤2.5GHz	≤-94dBc/Hz@100Hz
		≤-110dBc/Hz@1kHz
		≤-120dBc/Hz@10kHz
		≤-118dBc/Hz@100kHz
	2.5GHz≤f≤5GHz	≤-88dBc/Hz@100Hz
		≤-104dBc/Hz@1kHz
		≤-114dBc/Hz@10kHz
		≤-112dBc/Hz@100kHz
	5GHz≤f≤10GHz	≤-82dBc/Hz@100Hz
		≤-98dBc/Hz@1kHz
		≤-108dBc/Hz@10kHz
		≤-106dBc/Hz@100kHz

SSB Phase Noise (at maximum stable output power)	10GHz<f≤20GHz	≤-76dBc/Hz@100Hz
		≤-92dBc/Hz@1kHz
		≤-102dBc/Hz@10kHz
		≤-100dBc/Hz@100kHz
	20GHz<f≤40GHz	≤-70dBc/Hz@100Hz
		≤-86dBc/Hz@1kHz
		≤-96dBc/Hz@10kHz
		≤-94dBc/Hz@100kHz
	40GHz<f≤50GHz	≤-68dBc/Hz@100Hz
		≤-84dBc/Hz@1kHz
		≤-94dBc/Hz@10kHz
		≤-92dBc/Hz@100kHz
Modulation Characteristics		
Pulse Modulation (Frequency >10MHz)	On/off ratio	≥80dB
	Rise/fall times	≤30ns
	Minimum pulse width ALC ON	1us (Deviation±50ns)
	Minimum pulse width ALC OFF	100ns (Deviation±20ns)
Amplitude Modulation (Frequency >10MHz)	Modulation type	Linear modulation, exponent modulation
	Modulation rate (3dB bandwidth)	DC - 20kHz
	Maximum depth	Linear closed loop: ≥90%
		Exponent closed loop: ≥20dB
	Linear AM accuracy	± (5%× setting depth+1%) (at 1kHz modulation rate)
	Exponent AM accuracy	± (5%× setting depth+1dB) (at 1kHz modulation rate)
Frequency Modulation (Frequency >10MHz)	Modulation rate (3dB bandwidth)	DC - 20kHz
	Maximum peak deviation	N×800kHz (N: YO harmonic number) , accuracy: ±10% (at 1kHz)
	Distortion	±3% (at 1kHz, 100kHz offset, 300Hz - 3kHz demodulation bandwidth)
General Characteristics		
RF Output Port	1433D	N (female) , impedance: 50Ω
	1433E	2.4mm (male) , impedance: 50Ω
	1433F	2.4mm (male) , impedance: 50Ω
	1433H	2.4mm (male) , impedance: 50Ω
Dimensions (W×H×D)	314mm×218mm×91mm (excluding handle, foot mat and footing)	
Weight	≤ 5.5kg (including battery)	
Power Supply	Power adapter	Input: 100 - 240V, 50/60Hz AC; Output: 15VDC, 4A
	Lithium electronic battery	10.8V, 9900mAh
Power Consumption	≤45W (Battery charging is not included)	
Temperature Range	Operating temperature	-10℃ to +50℃ (battery charging temperature: 0℃ to +45℃)
	Storage temperature	-40℃ to +70℃ (battery storage temperature: -20℃ to +60℃)
Other Interface	Pulse input	BNC (male)
	Synchronization output	BNC (male)
	Monitoring output	BNC (male)
	Reference input/output	BNC (male)

Notes:

Ratings refer to expected performance, or describe product performance that is useful in the product but not covered by the product warranty.

■ Ordering Information

Model

Model	Name	Description
1433D	Handheld Signal Generator	1MHz to 20 GHz
1433E	Handheld Signal Generator	1MHz to 26.5 GHz
1433F	Handheld Signal Generator	1MHz to 40 GHz
1433H	Handheld Signal Generator	1MHz to 50 GHz

Standard

No.	Name	Description
1	Power Cord	Standard three core power cord
2	Product certificate	

Options

Option Model	Name	Description
1433-S01	USB Power Meter Option (software)	USB Power Measurement Function (Requires USB Power sensor:H06~H13)
1433-H02	Power Adapter	Power Adapter
1433-H03	Rechargeable Battery	Standby Battery
1433-H04	Purple Cat5e Cable	Point to Point, 2 Meters
1433-H05	Micro SD Card	Class4, Capacity: 8G
1433-H06	87230 USB CW Power Sensor	9kHz ~ 6GHz, for CW power measurement (S01 is optional)
1433-H07	87231 USB CW Power Sensor	10MHz ~ 18GHz , for CW power Measurement (S01 is optional)
1433-H08	87232 USB CW Power Sensor	50MHz ~ 26.5GHz , for CW power Measurement (S01 is optional)
1433-H09	87233 USB CW Power Sensor	50MHz ~ 40GHz , for CW power Measurement (S01 is optional)
1433-H10	87234D USB Peak Power Sensor	50MHz ~ 18GHz , for Peak power Measurement (S01 is optional)
1433-H11	87234E USB Peak Power Sensor	50MHz ~ 26.5GHz , for Peak power Measurement (S01 is optional)
1433-H12	87234F USB Peak Power Sensor	50MHz ~ 40GHz , for Peak power Measurement (S01 is optional)
1433-H13	87234L USB Peak Power Sensor	50MHz ~ 67GHz , for Peak power Measurement (S01 is optional)
1433-H16	Safety Instrument Carrying Case	High strength light weight packing case with handle for transportation



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