



1434 series

Signal Generator

1434A, 1434D/G
(9kHz - 3/6GHz, 9kHz - 20GHz /45GHz)



Ceyear Technologies Co., Ltd

Product Overview

The 1434A/D/G signal generator is an economical analog signal generator. It covers a frequency range of 9kHz to 3GHz/6GHz/20GHz/45GHz and offers a wide range of modulation capabilities, including frequency modulation, phase modulation, amplitude modulation, and pulse modulation.

Housed in a 2U portable structure, the instrument is compact and weighs only 5.2kg, making it easy to carry. Delivering excellent performance in a compact package, it meets the testing needs of various fields, including communications, industrial electronics, and universities.

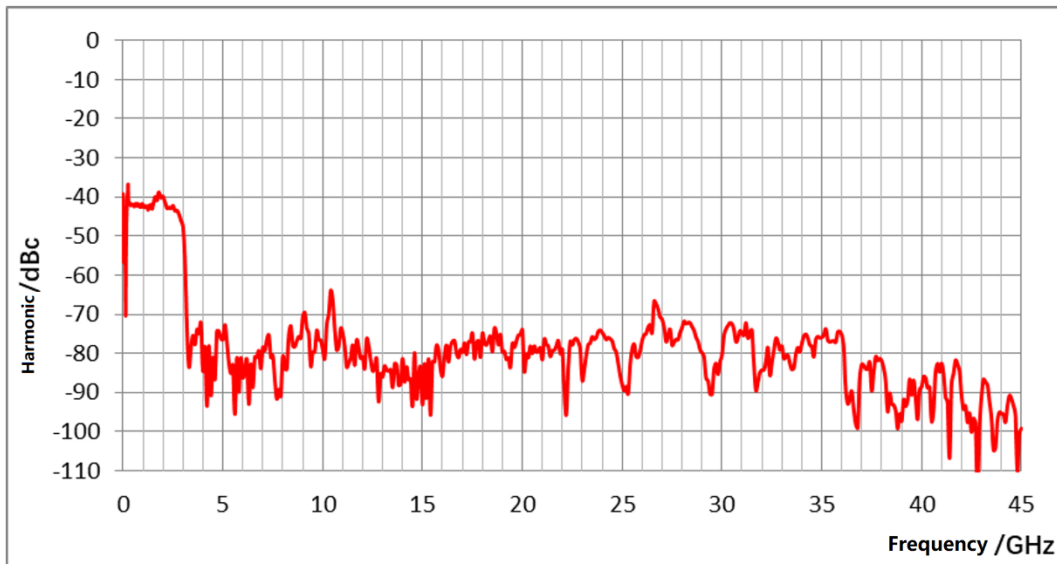
Main Features

- Frequency coverage: 9kHz to 3/6GHz and /20GHz /45GHz
- Wide dynamic range output power
- High power output accuracy, measured value <0.5dB
- Excellent spectral purity, phase noise -124dBc/Hz (1GHz@10kHz, measured value)
- Reverse power burnout protection, DC-50V, AC-50W (1GHz)
- Combined with standard modulation functions including FM, PM, AM, and pulse modulation
- Supports cross-platform browser access control
- Supports USB power meter for result display and power flatness calibration
- Supports SCPI command recording, generating programmable example projects in Qt, C#, and C++
- Supports USB and LAN programmable control
- 2U chassis design, weighing as little as 5.2kg, for easy portability

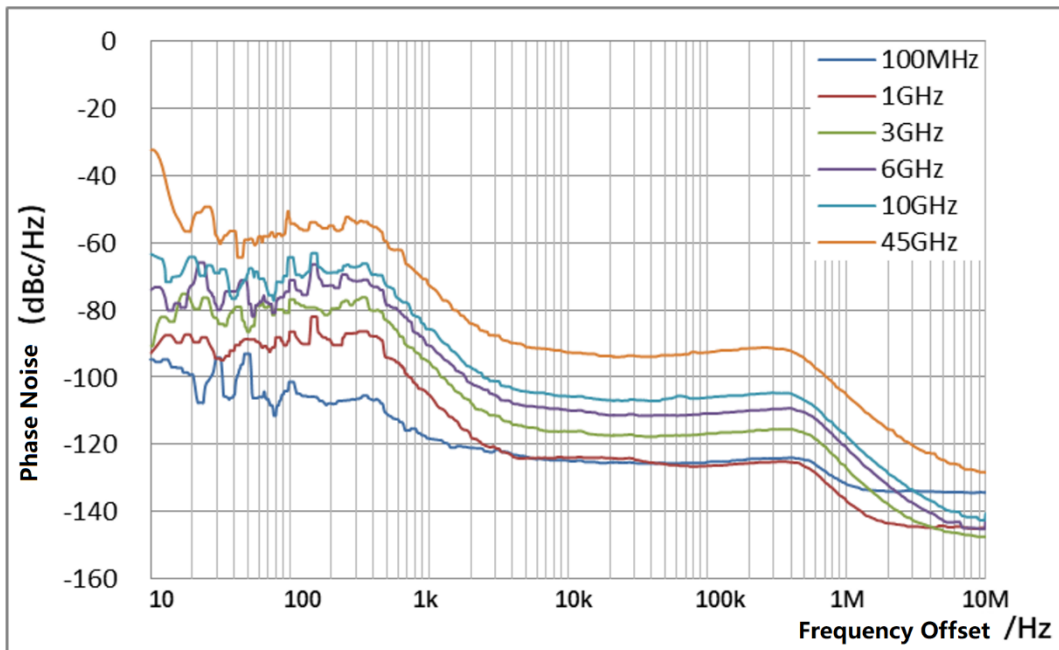


Excellent Spectrum Purity

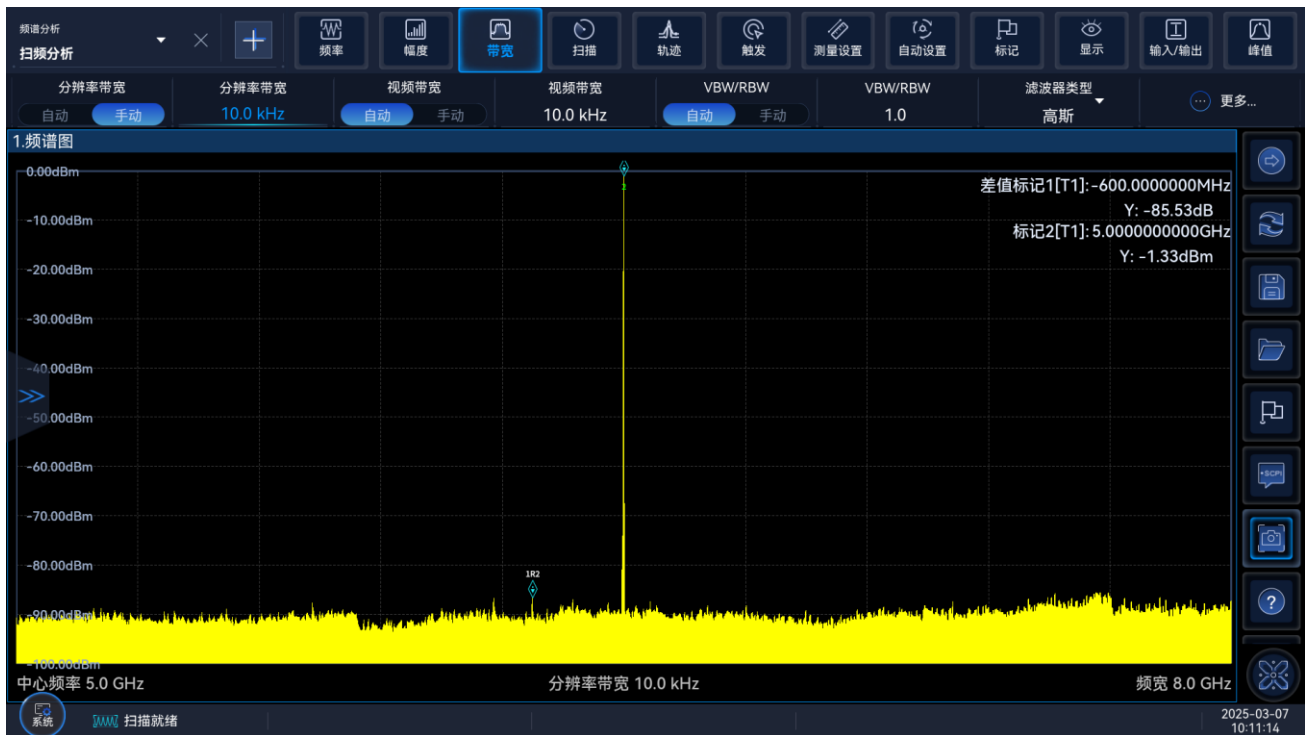
1434 series signal generators offer pure output signals. Single-sideband phase noise is better than -122dBc/Hz (1GHz carrier, 10kHz offset), non-harmonics at 5GHz are less than -70dBc , and harmonics at 10GHz are less than -55dBc .



1434G Typical Harmonic (+10dBm, 2nd harmonic)



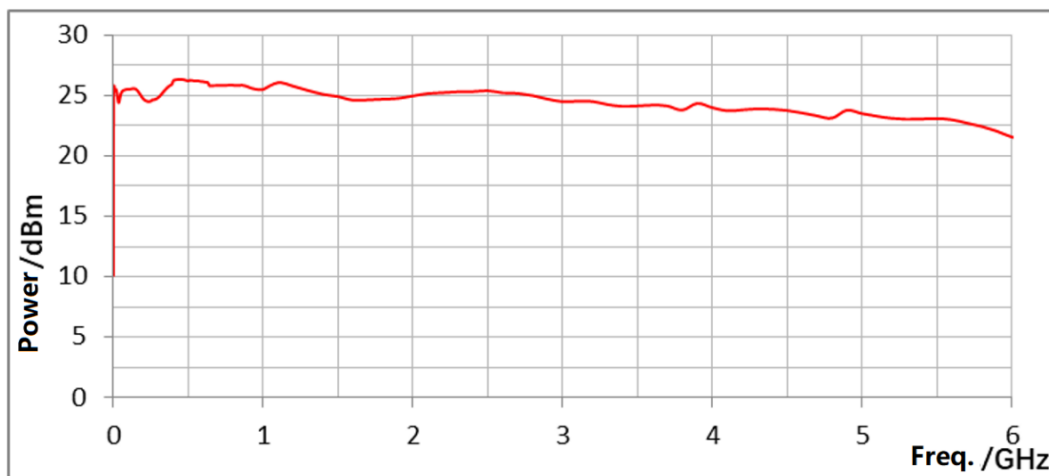
1434G Typical SSB Phase Noise (Power +10dBm)



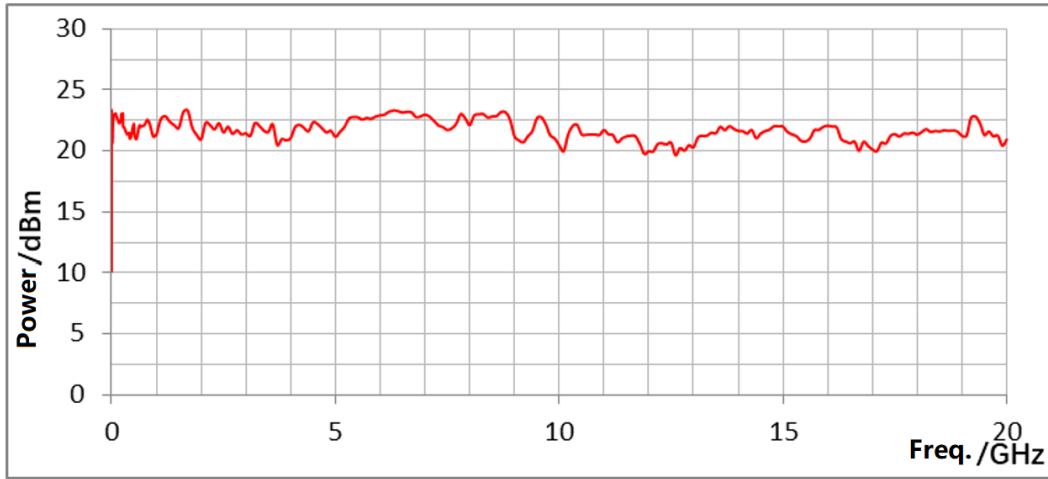
5GHz Non-harmonic Valuse

Wide dynamic range, high-accuracy output power

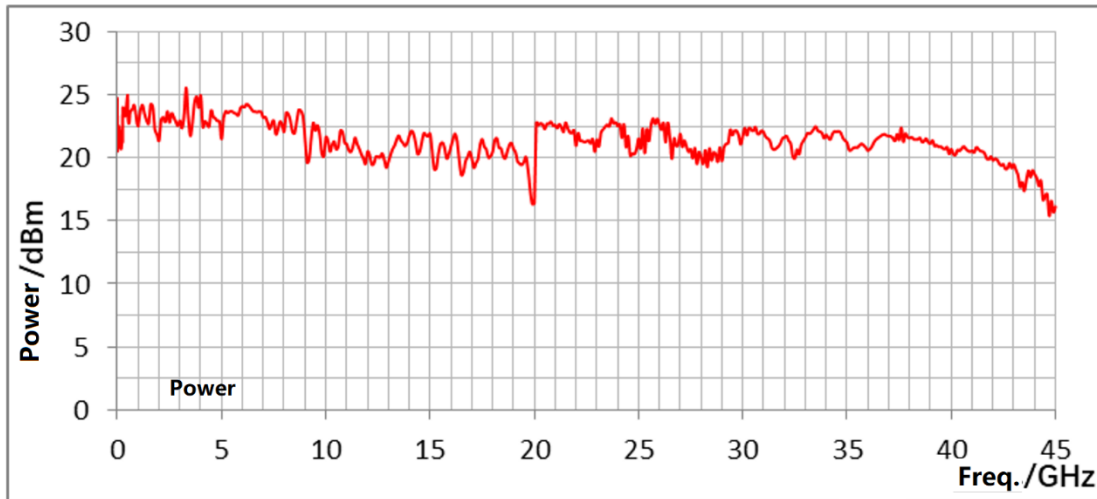
1434A comes standard with a highly reliable, high-dynamic range electronic attenuator. And 1434D/G feature an optional mechanical attenuator. Minimum output power reaches -120dBm. Maximum output power reaches +25dBm (2GHz), +20dBm (20GHz), and +16dBm (45GHz), with power accuracy <0.5dB (actual measured value).



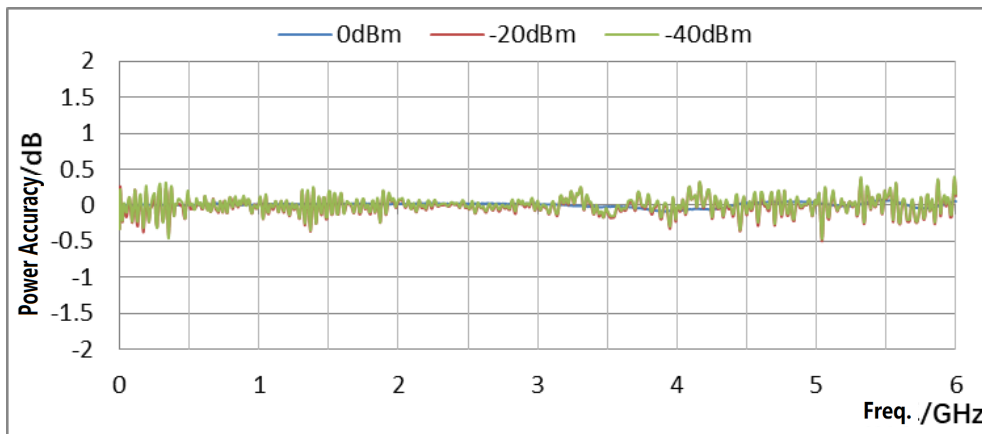
1434A (6GHz) Maximum Output Power(Actual Value)



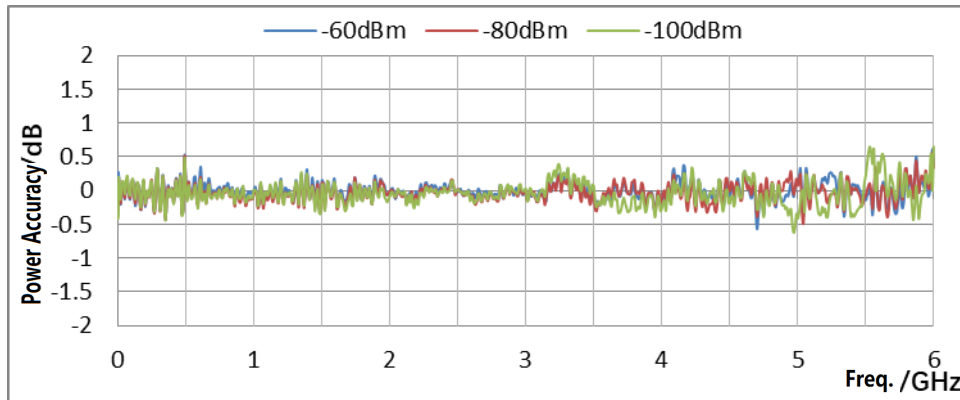
1434D Maximum Output Power(Actual Value)



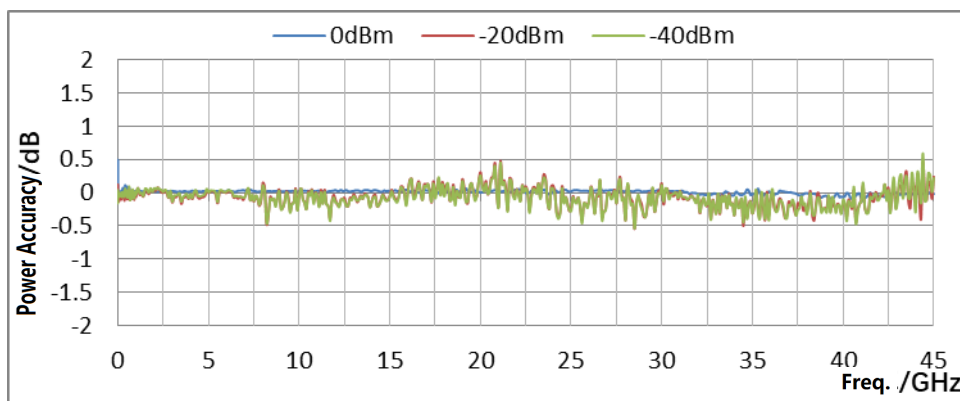
1434G Maximum Output Power (Actual Value)



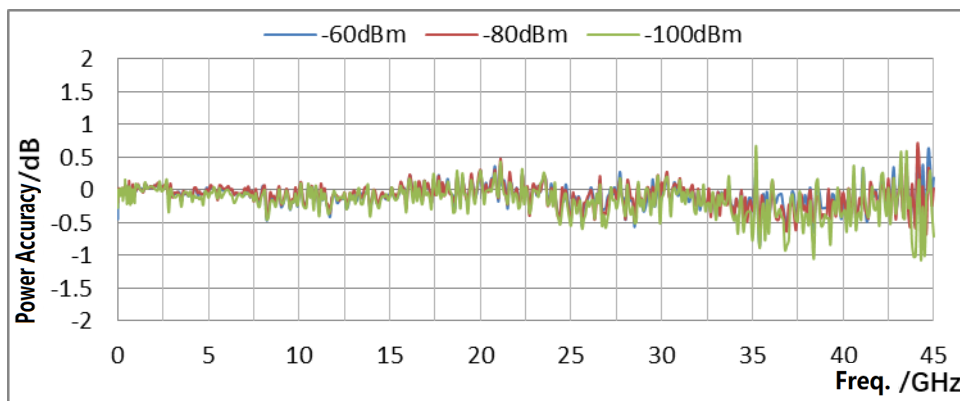
1434A Power Accuracy at 0, -20, -40 dBm (Actual Value)



1434A Power Accuracy at -60, -80, -100 dBm (Actual Value)



1434G Power Accuracy at 0, -20, -40 dBm (Actual Value)



1434G Power Accuracy at -60, -80, -100 dBm (Actual Value)

Rich Modulation Functions

Comes standard with multiple modulation styles, including frequency modulation, phase modulation, amplitude modulation, and pulse modulation. Frequency modulation, phase modulation, and amplitude modulation support multiple modulation waveforms, including sine, square, triangle, sawtooth, noise, swept sine, and dual sine. Pulse modulation supports

complex pulse modulation functions, including dual pulses, pulse trains, staggered repetition rates, jittered repetition rates, and sliding repetition rates.



Analog Modulation



Pulse Modulation

Supports USB power measurement and power flatness calibration and compensation

The 1434 supports power sensors from various manufacturers, including DES Instruments, for test display and can use these sensors for power flatness calibration and compensation.



USB Power Measurement Screen

Supports SCPI command recording

The 1434 series signal generators support SCPI command recording, automatically generating programmable example projects in Qt, C#, and C++, making programmable control easier.

RF/Microwave/mmW SIGNAL GENERATOR

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SCPI Command Record



Rear Panel of 1434A Signal Generator



Rear Panel of 1434D/G Signal Generator

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1434A Signal Generator (9kHz – 3/6GHz)



1434D/G Signal Generator (9kHz – 20GHz/45GHz)



1434D/G Signal Generator (9kHz – 20GHz/45GHz)

Technical Specifications

Frequency Characteristics			
Frequency range	1434A: 9kHz~3GHz 9kHz~6GHz (1434A-H20-06) 1434D: 9kHz~20GHz 1434G: 9kHz~45GHz	Frequency range	N (YO Harmonic Order)
		9kHz≤f≤250MHz	1/8
		250MHz < f≤312.5MHz	1/32
		312.5MHz < f≤625MHz	1/16
		625MHz < f≤1.25GHz	1/8
		1.25GHz < f≤2.5GHz	1/4
		2.5GHz < f≤5GHz	1/2
		5GHz < f≤10GHz	1
		10GHz < f≤20GHz	2
		20GHz < f≤40GHz	4
40GHz < f≤45GHz	8		
Frequency Resolution	0.001Hz		
Frequency accuracy	±3×10 ⁻⁸ (Factory calibration accuracy, 25°C±10°C)		
Switching speed	≤ 5ms		
Aging rate (Typical ¹)	±5×10 ⁻¹⁰ /day (Powered after 30 days), ±5×10 ⁻⁸ /year		
Reference output	Frequency	10MHz	1GHz
	Power	>+4dBm, impedance 50Ω	Power>-10dBm, impedance 50Ω
Reference input	Frequency	1 ~ 100MHz, step 1MHz	1GHz
	Power	-5dBm ~ +10dBm, impedance 50Ω	-10dBm ~ +5dBm, impedance 50Ω
Sweep Characteristics			
Sweep mode	Step sweep, List sweep		
Power Characteristics			
Minimum Output Power (25°C±10°C)	Model	Standard Configuration	H01-130 option: Programmable Attenuator
	1434A	9kHz≤f≤100kHz: -90.0dBm f > 100kHz: -120.0dBm	—
	1434D/G	-10.0dBm	9kHz≤ f ≤100kHz: -90.0dBm f > 100kHz: -120.0dBm
Maximum Output Power (CW, 25±10°C)	1434A		
	9kHz≤f≤100kHz		≥+5.0 dBm
	100kHz < f≤1MHz		≥+15.0 dBm
	1MHz < f≤3GHz		≥+20.0 dBm
	1434A-H20-06 Option		
3GHz < f≤6GHz		≥+15.0 dBm	

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	1434D			
	9kHz ≤ f ≤ 100kHz	≥ +5.0 dBm		
	100kHz < f ≤ 1MHz	≥ +15.0 dBm		
	1MHz < f ≤ 3GHz	≥ +20.0 dBm		
	3GHz < f ≤ 20GHz	≥ +16.0 dBm		
	1434G			
	9kHz ≤ f ≤ 100kHz	≥ +5.0 dBm		
	100kHz < f ≤ 1MHz	≥ +14.0 dBm		
	1MHz < f ≤ 3GHz	≥ +15.0 dBm		
	3GHz < f ≤ 20GHz	≥ +14.0 dBm		
	20GHz < f ≤ 40GHz	≥ +11.0 dBm		
	40GHz < f ≤ 45GHz	≥ +9.0 dBm		
Power Accuracy ² (25±10°C)	Standard Configuration			
	1434A			
	Powe(dBm) \ Freq.	-120 ≤ P ≤ -90 (Typical ²)	-90 < P ≤ -50	-50 < P ≤ P _{max}
	9kHz ≤ f ≤ 1MHz	—	±0.9dB	±0.7dB
	1MHz < f ≤ 3GHz	(±2.0dB)	±0.9dB	±0.7dB
	1434A-H20-06 option			
	3GHz < f ≤ 6GHz	(±2.0dB)	±0.9dB	±0.7dB
	1434D/G			
	Powe(dBm) \ Freq.	-120 ≤ P ≤ -90	-90 < P < -10	-10 ≤ P ≤ P _{max}
	9kHz ≤ f ≤ 3GHz	—	—	±0.7dB
	3GHz < f ≤ 20GHz	—	—	±0.9dB
	20GHz < f ≤ 45GHz	—	—	±1.2dB
	H01-130 Programmable Attenuator			
	Powe(dBm) \ Freq.	-120 ≤ P ≤ -90 (Typical)	-90 < P ≤ -50	-50 < P ≤ P _{max}
	9kHz ≤ f ≤ 1MHz	—	±0.7dB	±0.7dB
	1MHz < f ≤ 3GHz	(±1.2dB)	±0.7dB	±0.7dB
	3GHz < f ≤ 20GHz	(±1.8dB)	±0.9dB	±0.9dB
20GHz < f ≤ 45GHz	—	±1.2dB	±1.2dB	
Power resolution	0.01dB			
Impedance	50Ω (Rated ³)			
VSWR (internal ALC on) (typ)	100kHz ≤ f ≤ 6GHz	< 1.6		
	6GHz < f ≤ 20GHz	< 1.8		
	20GHz < f ≤ 45GHz	< 2.0		
Maximum reverse power (Rated)	1434A			
	Frequency	AC	DC	
	1MHz ≤ f ≤ 1GHz	50W	50V	
	1GHz < f ≤ 2GHz	25W	50V	
	2GHz < f ≤ 3GHz	10W	50V	

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	1434A-H20-06 option	
	3GHz < f≤6GHz	10W
	50V	
	1434D/G	
	AC	DC
	0.5W	0V
Spectrum Purity Characteristics ⁴		
Harmonics (dBc at +10dBm or maximum specified output power, whichever is lower)	100kHz≤f≤6GHz	< -30dBc
	6GHz < f≤20GHz	< -55dBc
	20GHz < f≤45GHz	< -50dBc
Sub-harmonics (at +10dBm or maximum specified output power, whichever is lower)	9kHz≤f≤6GHz	<-80dBc
	6GHz < f≤20GHz	<-55dBc
	20GHz < f≤45GHz	<-50dBc
Non-harmonics (dBc at 0dBm, for offset > 10kHz)	9kHz≤f≤250MHz	< -56dBc
	250MHz < f≤5GHz	< -70dBc
	5GHz < f≤10GHz	< -64dBc
	10GHz < f≤20GHz	< -58dBc
	20GHz < f≤40GHz	< -52dBc
	40GHz < f≤45GHz	< -46dBc
SSB phase noise (dBc/Hz, at +10dBm or maximum specified output power, whichever is lower)	Offset	10kHz/20kHz
	Frequency	
	100MHz	< -119
	500MHz	< -122
	1GHz	< -122
	3GHz	< -108
	6GHz	< -102
	7.5GHz	< -102
	10GHz	< -102
	20GHz	< -96
45GHz	< -84	
Modulation Characteristics		
Frequency modulation (f≥10MHz)	Maximum deviation: N×4MHz (N: YO harmonic number) Accuracy (1kHz modulation rate, Freu. Offset: N×500kHz): < ±(2.0%× set frequency offset +20Hz) Modulation rate (3dB bandwidth, N×500kHz frequency offset): DC ~ 100kHz Distortion (at 1kHz modulation rate, Frequency Offset ×500kHz): < 0.4%	
Phase modulation (f≥10MHz)	Maximum phase deviation: N×5rad (N: YO harmonic number) Accuracy (1kHz modulation rate, phase offset N×5rad) : < ±(2.0%× setting deviation +0.01 rad) Modulation rate (3dB bandwidth, Phase offset N×5rad) : DC ~ 100kHz Distortion (1kHz modulation rate, phase offset N×5rad) : < 0.4%	
Amplitude modulation (f≥10MHz)	Maximum depth: > 90% Accuracy (1kHz modulation rate,30% modulation depth): ± (4%×Setting depth+1%)	

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	Modulation rate (3 dB bandwidth, 30% modulation depth): DC ~ 100kHz Distortion (1kHz modulation rate, 30% modulation depth): < 2.0%		
Pulse modulation (f≥50MHz)	On/Off ratio	≥80dB	
	Rise/fall times	≤15ns	
	Repetition frequency	0.023Hz to 25MHz	
	Minimum pulse width	20ns	
Low Frequency Out	Waveform	sina, square, triangle, sawtooth, noise, double sine, sweep sine	
	Frequency	sine, double sine, sweep sine	0.1Hz ~ 10MHz
		square, triangle, swatooth	0.1Hz ~ 1MHz
	Amplitude	1mVpp ~ 5Vpp	
General Characteristics			
RF output port	1434A: N Type(femal), Impendance 50Ω 1434D: 3.5mm(male), Impendance 50Ω 1434G: 2.4mm(male), Impendance 50Ω		
Dimension (W×H×D)	Dimension (Excludes handle and protective bottom corner) 1434A: (213.0±1.2) mm× (88.1±0.8) mm× (300.0±1.2) mm 1434D/G: (319.0±1.2) mm× (88.1±0.8) mm× (300.0±1.2) mm		
Weight	< 6kg (weight depends on product model and options)		
Power Supply	100 ~ 120VAC, 50 ~ 60Hz; or 200 ~ 240VAC, 50 ~ 60Hz (automatic adaptive)		
Power Consumption	< 100W		
Temperature Range	Operating temperature: 0°C ~ +40°C; Storage temperature: -40°C ~ +70°C		

Remarks:

1. Typical values refer to product performance information outside the guaranteed specifications. These specifications are achieved by approximately 80% of instruments within the temperature range of 20°C to 30°C. Typical values exclude measurement uncertainty.
2. Measured values are actual data from a specific instrument and are representative. They are provided for user reference only and are not subject to verification.
3. Rated values indicate expected performance or describe product performance that is useful in a product but is not covered by the warranty.
4. Spectral purity specifications are under point-frequency, unmodulated mode.

Ordering Information

● **Mainframe Unit**

- 1434A Signal Generator: 9kHz ~ 3GHz (Standard Configuration)
9kHz ~ 6GHz (Option of 1434A-H20-06)
- 1434D Signal Generator: 9kHz ~ 20GHz
- 1434G Signal Generator: 9kHz ~ 45GHz

● **Standard Configuration**

No.	Description	Remarks
1	Power cable assembly	
2	The Product certificate of conformity	/

● **Options**

	Options	Option Name	Function and performance descriptions
1	1434-H01-130	130dB programmable step attenuator	To expand output power dynamic range for 1434D/G
2	1434-H04	Low Phase Noise	Optimized phase noise, 10GHz@10kHz: -112dBc/Hz.
3	1434A-H20-06	Frequency Extension	To expand the frequency to 6GHz for 1434A signal generator.
4	1434-H94-212	Rack mount kit	Mount kit for rack of 1434A
5	1434-H94-319	Rack mount kit	Mount kit for rack of 1434D/G
6	1434-H98	English version	English version of front/rear panel and software.
7	1434-H100	User Manual paper version	A detailed user manual in hard copy is provided.
8	1434A-JL	Metrology Certificate	Metrology Certificate Report. For 1434A
9	1434D-JL	Metrology Certificate	Metrology Certificate Report. For 1434D
10	1434G-JL	Metrology Certificate	Metrology Certificate Report. For 1434G
11	1434A-EWT1	Extend 1 year warranty	Extend 1 year warranty after 3 years standard warranty. For 1434A
12	1434D-EWT1	Extend 1 year warranty	Extend 1 year warranty after 3 years standard warranty. For 1434D
13	1434G-EWT1	Extend 1 year warranty	Extend 1 year warranty after 3 years standard warranty. For 1434G