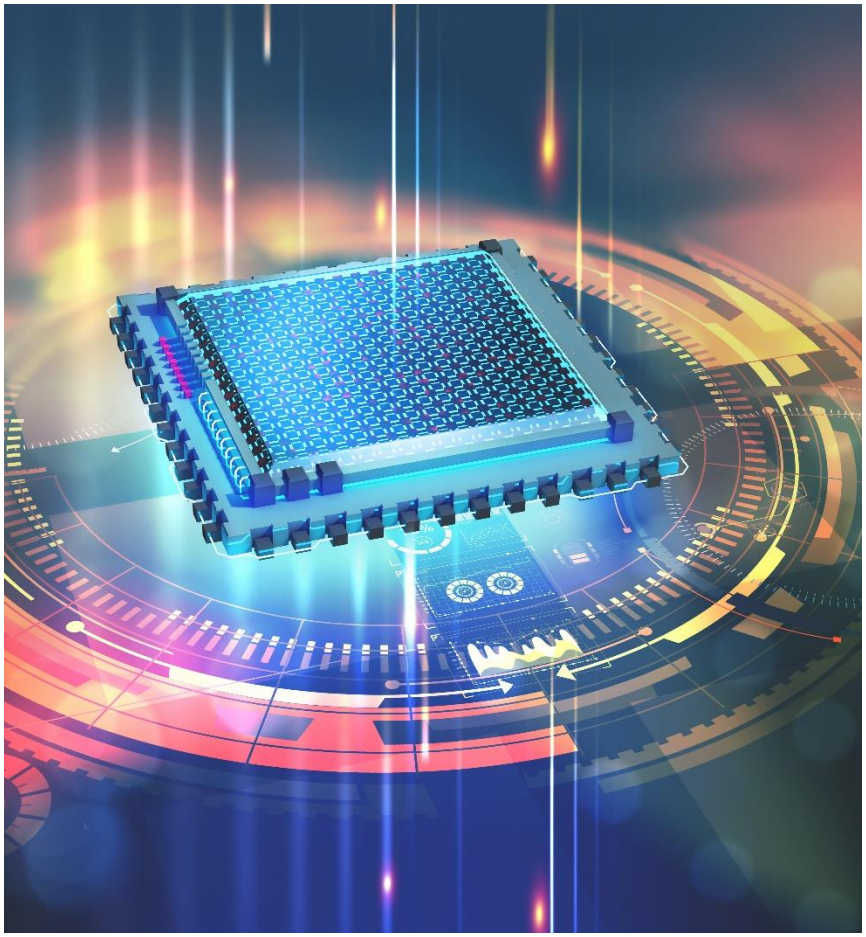
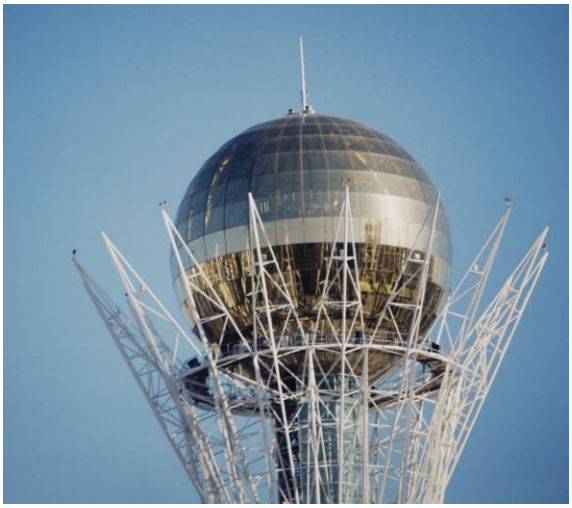
Model RFS-1220 & RFS-1420
RF & Microwave Signal Generators





Features

- Wide Frequency Range
- Adjustment Level up to +15 dBm
- Low Phase Noise & Excellent Spectral Purity
- Precision Frequency Control
- USB C powered, Compact & Rugged Design

Applications

- Automated Test Environment
- Antenna Design
- Aerospace & Defense Research
- Wireless Infrastructure Design
- Satellite Link Testing

Model RFS-1420

100 MHz – 42 GHz

INTRODUCTION

The RFS-1220 and RFS-1420 are compact, high-performance RF and microwave signal generators designed for lab testing, automated systems, and RF development. Offering precise frequency control, low phase noise, and a broad operating range, these generators provide a cost-effective solution for engineers and researchers.

Key Features

- Wide frequency coverage: 0.1 GHz to 42 GHz
- Compact & ruggedized design: small, portable aluminum enclosure ideal for lab and field use
- High output power: up to +15 dBm with fine power control
- Low phase noise: excellent spectral purity for demanding applications
- Precision frequency control: ultra-fine tuning with small frequency step sizes (<2 Hz or 10 Hz)
- Dual powering options: USB-C powered (no bulky DC adapters required)

PRODUCT COMPARISON

Feature	RFS-1220 (22 GHz)	RFS-1420 (42 GHz)
Frequency Range	0.1 – 20 GHz (calibrated) 0.1 – 22 GHz (settable)	0.1 – 40 GHz (calibrated) 0.1 – 42 GHz (settable)
Output Power Range	-40 to +15 dBm (0-13 GHz) -22 to +15 dBm (13-22 GHz)	-20 dBm to +13 dBm (0.1 – 20 GHz) -13 dBm to +15 dBm (20 – 40 GHz)
Power Output Accuracy	±1.0 dB typical	±1.0 dB (LF-20 GHz) ±2.0 dB (20-40 GHz)
Phase Noise	-92 dBc @ 20 GHz (10 kHz offset)	-90 dBc @ 40 GHz (10 kHz offset)
Frequency Step Size	<2 Hz	10 Hz
Harmonic Content	< -25 dBc (typical)	< -25 dBc (typical)
Reference Source	Ultra-low-noise 100 MHz VCXO locked to internal TCXO or external 10 MHz Reference	Ultra-low-noise 100 MHz VCXO locked to internal OCXO or external 10 MHz reference (±10 PPB stability oven-controlled oscillator)
Control Interface	USB & Ethernet, SCPI command	
Power Supply	USB-C (5V-2.0A)	
Size & Enclosure	4.25”W x2.50”H x 6.75”D (Aluminum)	

APPLICATIONS

- Automated Testing Environments: Suitable for integration into automated test setups
- General RF Lab Use: Ideal for various RF laboratory applications
- Flexible LO Sourcing: Can be used as a local oscillator source in different configurations
- Antenna Design: Useful in the development and testing of antenna systems
- EMC Testing: Applicable in electromagnetic compatibility testing scenarios
- Production Verification and Test Setups: suitable for production line testing and verification processes
- Educational / University Lab Use: beneficial for educational purposes and research in academic settings
- Aerospace / Defense Research: Applicable in aerospace and defense research projects
- 802.11n Development / Testing: Useful in the development and testing of 802.11n wireless standards
- Ku-band Satellite Link Testing: suitable testing Ku-band satellite communication links
- X-Band Radar Applications: applicable in X-band radar system developments
- Ka-band Development: (RFS-1420 only) suitable Ka-band technology development and testing
- Up-converting and Down-converting: can be used in frequency conversion applications
- Line of Sight Link Testing: useful in testing line-of-sight communication links
- Wireless Infrastructure Design: beneficial in designing wireless communication infrastructures
- Transponder Verification: suitable for verifying transponder functionalities
- 5G Testing: applicable in the development and testing of 5G technology
- mm-Wave Technology: (RFS-1420 only) Suitable for millimeter-wave technology applications

Document History

Version	Date	Author	Notes
V1.0	03-12-2025	AT	First draft of the datasheet

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