

IFR/INSTRUMENT FLIGHT RESEARCH

2026

The IFR 2026 is a multi-source synthesized signal generator designed for testing RF components and systems. Containing up to three independent RF signal sources in a single compact benchtop instrument, it provides high-quality carrier signals with extensive modulation capabilities, making it ideal for intermodulation and receiver selectivity testing.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), RS-232, Auxiliary I/O
Display	High-contrast monochrome liquid crystal display (LCD) with backlight
Setup Memory	100 non-volatile store locations

Physical

Power Supply	90 V to 265 V AC, 45 Hz to 440 Hz, up to 250 VA
Operating Temperature	0 °C to 55 °C °C
Dimensions (W×H×D)	370 mm × 177 mm × 540 mm mm
Weight	16 kg (2-source version) kg

RF Configuration

Number of RF Sources	2 standard (expandable to 3 via Option 002)
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RF Output & Frequency Characteristics

Frequency Resolution	1 Hz
Frequency Accuracy	Depends on internal reference ($\pm 1.5 \times 10^{-7}$ per year standard)
Output Impedance	50 Ω
RF Output Connector Type	Type N female
Individual Source Level Range	-137 dBm to +24 dBm
Combiner Output Level Range	-137 dBm to +10 dBm (+16 dBm overrange)
Output Level Resolution	0.1 dB
Output VSWR (Combiner Port)	< 1.22:1 (for frequencies < 1.2 GHz), < 1.35:1 (for frequencies < 2.4 GHz)

Phase Noise Measurement

System Phase Noise Sensitivity (20 kHz Offset)	<-115 dBc/Hz (typically -121 dBc/Hz) at 1 GHz carrier
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Spectral Purity

Harmonics	<-30 dBc
Non-harmonic Spurious	<-70 dBc at offsets > 10 kHz (for carrier frequencies up to 1 GHz)
Residual FM	< 4.5 Hz RMS at 1 GHz in 300 Hz to 3.4 kHz bandwidth

Frequency Modulation (FM)

FM Resolution	1 Hz
FM Distortion	< 1% at 1 kHz rate and maximum deviation

Amplitude Modulation (AM)

AM Depth Range	0% to 99%
AM Depth Resolution	0.1%
AM Distortion	< 2% at 1 kHz rate and 30% depth

Phase Modulation (ΦM)

Phase Modulation Resolution	0.01 rad
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Internal Reference Oscillator

Internal Reference Oscillator Frequency	10 MHz
Reference Temperature Stability	$\pm 1 \times 10^{-7}$ (0 °C to 50 °C)
External Reference Input Frequency Range	1, 2, 5, 10, or 13 MHz

Internal Modulation Sources

Internal Modulation Waveforms	Sine, Triangular, Square
Modulation Source Frequency Range	0.1 Hz to 50 kHz

Physical and Environmental Specifications

Rack Unit Height	4U
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RF Output

RF Output Level Accuracy	± 1 dB (typically < ± 0.5 dB) for levels down to -127 dBm
Carrier Leakage	< 0.5 μ V PD at carrier frequency into a 50 Ω load
Individual Source Level Flatness	± 0.5 dB
Attenuator Hold Range	Up to 20 dB

Modulation

LF Generator Frequency Range	0.1 Hz to 50 kHz
LF Generator Frequency Resolution	0.1 Hz
LF Generator Waveforms	Sine, triangle, square
External Modulation Input Impedance	100 k Ω nominal

Sweep

Sweep Type	Frequency or level
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Compliance

Safety Compliance	Conforms with EN61010-1
EMC Compliance	Conforms with EN55011, EN50082-1

Phase Control

RF Channel Phase Adjustment Resolution	0.1°
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Intermodulation

Intermodulation Distortion (IMD3)	<-80 dBc (for two tones at -10 dBm each)
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Environmental

Storage Temperature Range	-40 °C to +71 °C
Operating Altitude	Up to 3,050 m (10,000 ft)

Power Requirements

Mains Voltage Range	90 V to 265 V AC
Mains Frequency Range	45 Hz to 440 Hz
Maximum Power Consumption	180 VA

Frequency Reference

Reference Output Frequency	10 MHz
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Modulation - Pulse (Option 001)

Pulse Modulation Rise/Fall Time	< 100 ns
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TECHNOLOGY

Synthesized RF Signal Generator

APPLICATIONS

Receiver Selectivity and Intermodulation Testing

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.