

ANRITSU

MG3697C

The Anritsu MG3697C is a high-performance, broadband microwave signal generator within the MG3690C series. It covers frequencies from 2 GHz to 67 GHz in its standard configuration, and is operational up to 70 GHz. It offers exceptional phase noise performance, extensive analog modulation capabilities, fast frequency switching, and is highly configurable with options extending its frequency range down to 0.1 Hz.

SPECIFICATIONS

Frequency

Minimum Frequency	2 GHz (down to 0.1 Hz with Option 22) Hz
Maximum Frequency	67 GHz (operational to 70 GHz) Hz
Frequency Resolution	0.01 Hz (standard) / 0.1 mHz (with Option 10)

Output

Maximum Output Power	+13 dBm (frequency dependent; up to +19 dBm with Option 15) dBm
Phase Noise	-100 dBc/Hz at 10 kHz offset (10 GHz carrier, standard)

Modulation

Modulation	AM, FM, Phase (IM), Pulse (internal & external)
Sweep Modes	Step Sweep, Analog Sweep, Manual Sweep
Frequency Modulation Maximum Deviation	10 MHz (100 MHz in Wide FM mode, Option 12 dependent)
Phase Modulation Maximum Deviation	10 rad (400 rad in Wide Φ M mode, Option 12 dependent)

General

Reference Oscillator	10 MHz internal reference
Interfaces	GPIO (IEEE-488.2), LAN (10/100 Base-T), RS-232
Display	Backlit graphic LCD front panel
Save/Recall Memory States	10 front panel setups
Warm-up Time	1 hour

Physical

Power Supply	90 to 264 VAC, 47 to 440 Hz
Dimensions (W×H×D)	429 mm W × 133 mm H × 597 mm D mm
Weight	21 kg kg

Frequency Specifications

Internal Reference Aging Rate	$< 2 \times 10^{-9}$ per day (after 30 days warm-up)
Internal Reference Temperature Stability	$< \pm 2 \times 10^{-8}$ over 0 °C to 55 °C
External Reference Input Frequency	10 MHz (± 10 Hz)
External Reference Input Amplitude	0.1 Vp-p to 6 Vp-p, 50 Ω impedance

Amplitude Specifications

Amplitude Resolution	0.01 dB
Output Impedance	50 Ω (nominal)
Attenuator Range	0 to 110 dB in 10 dB steps (with Option 2)

Spectral Purity

Harmonics	< -30 dBc (2 to 20 GHz), < -20 dBc (20 to 67 GHz)
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Analog Modulation

Amplitude Modulation Depth Range	0% to 90% (linear)
Pulse Modulation On/Off Ratio	> 80 dB
Pulse Modulation Minimum Pulse Width	100 ns (leveled), 10 ns (unleveled)
Pulse Modulation Rise/Fall Time	< 10 ns (typical)
Pulse Generator Repetition Frequency	10 mHz to 1 MHz

Sweep & Operating Modes

Dwell Time Range	1 ms to 99 sec
Trigger Modes	Auto, External, Single, GPIB

Connectivity & Interfaces

RF Output Connector Type	V female (1.85 mm)
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Physical & Environmental

Operating Temperature Range	0 °C to 50 °C
Storage Temperature Range	-40 °C to +75 °C
Relative Humidity Range	5% to 95% non-condensing
Rack Unit Height	3U

Power Requirements

Power Consumption	< 350 VA
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Hardware & Software Options

Option 2	Option 2C = Step Attenuator (adds 90 dB attenuator)
Option 3	Ultra-Low Phase Noise Performance
Option 4	Low Frequency Extension (10 MHz to 2 GHz)
Option 22	Low Frequency Extension (0.1 Hz to 2 GHz)
Option 15	High Power Output

Sweep

List Sweep Points	Up to 10,000 points
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Environmental

Maximum Operating Altitude	4,600 m
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Interfaces

GPIO Emulation Languages	SCPI, Anritsu MG3690A/B, WILTRON 6700B, HP 8340/8341, HP 8360, HP 8673, HP 8663
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Compliance

Safety Compliance	EN 61010-1
EMC Compliance	EN 61326-1, EN 55011

Options

Option 5	Analog Sweep Capability
Option 12	Frequency and Phase Modulation (FM/ΦM)
Option 13	Pulse Modulation
Option 14	Amplitude Modulation (AM)
Option 16	High Stability Timebase
Option 17	Delete Front Panel
Option 20	Scan Modulation
Option 28	Option 28 = Analog Modulation (combines Options 12, 13, and 14)
Option 9 Rear Panel RF Output	Moves the RF output connector to the rear panel
Option 11 Internal LF Generator	Adds an internal LF generator (0.1 Hz to 1 MHz sine, 0.1 Hz to 100 kHz square, triangle, ramp, noise)

Reference Oscillator Options

Option 7 Rubidium Aging Rate	$< 5 \times 10^{-11}$ per day (after 30 days warm-up)
Option 7 Rubidium Temperature Stability	$< \pm 2 \times 10^{-10}$ over 0 °C to 50 °C
Option 7 Rubidium Warm-up Time	< 7.5 minutes to lock, < 10 minutes to meet temperature stability

RF Output Performance

Source SWR	< 1.4 (< 2 GHz), < 2.0 (2 to 40 GHz), < 2.3 (40 to 70 GHz) typical
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Pulse Modulation

Pulse Width Resolution	10 ns
Pulse Delay Resolution	10 ns
Internal Pulse Generator Modes	Free-run, Delayed, Gated, Triggered, Doublet, Triplet, Quadruplet

Amplitude Performance

Power Sweep Resolution	0.01 dB
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Phase Modulation

Phase Modulation Bandwidth	DC to 100 kHz (3 dB bandwidth)
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Frequency Modulation

DC FM Modulation Bandwidth	DC to 10 MHz (3 dB bandwidth in FM Extreme Mode)
AC FM Modulation Bandwidth	100 Hz to 250 kHz (3 dB bandwidth)

TECHNOLOGY

RF and Microwave Synthesized Signal Generator

APPLICATIONS

LO Substitution, Clock Generation, Radar Simulation, RF Component Characterization

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