



6688 & 6689

High Stability Frequency Standards

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- Rubidium or high stability oven frequency reference standard
- Distribution amplifiers for 5 x10 MHz and 1x5MHz outputs as standard
- Optional 10x 10 MHz outputs
- 0.001 ppm aging in 10 years (Rubidium)
- Ideal for telecommunication test systems and calibration laboratories



The Pendulum Frequency References; model 6689 with a Rubidium clock and model 6688 with a high-stability oven-controlled crystal oscillator, are designed for use in test systems, where a very high stability frequency reference is required and where multiple instruments or testers need to be supplied.

The Frequency References are also suited in calibration laboratories for calibrating various instrumentation, like frequency counters and synthesizers. The 6689 Rubidium Reference can be used as a primary lab reference, ensuring a frequency drift due to aging of less than 0.001 ppm during 10 years.

Reference Outputs

Standard Model:

5x 10 MHz, 1x 5MHz; sine >0,6 Vrms in 50 Ω

Incl. option 70:

10x 10 MHz, 1x 5MHz; sine >0,6 Vrms in 50 Ω

Frequency Stability

Stability	6688 (Oven)	6689 (Rubidium)
Aging/month	3x10 ⁹	5x10 ¹¹
Aging/year; aging/10 years	2x10 ⁸ (1 year)	1x10 ⁹ (10 years)
Temperature (0 to +50°C)	2.5x10 ⁹	3x10 ¹⁰
Short term (Root Allan variance)	5x10 ⁻¹² τ=1s 5x10 ⁻¹² τ=1s	1x10 ⁻¹¹ τ=10s 3x10 ⁻¹¹ τ=1s
Warm up (at +25°C):	10 min to 5x10 ⁹	5.4 min to lock 11 min to 4x10 ⁻¹⁰

General Specifications

Environmental Data

Temperature: 0°C to +50°C (operating), -40°C to +70°C (storage)

Safety: Compliant to EN 61010-1, Cat II, pollution degree 2, CE

EMI: Compliant to EN 55011 ISM group, class B and EN 50082-2, CE

Power Consumption (90 to 264 V, 47 to 63 Hz)

6688: <20 W at warm-up,

<7W continuous operation

6689: <70 W at warm-up,

<30 W continuous operation

Mechanical Data

WidthxHeightxDepth:

315 x 86 x 395 mm (12.4 x 3.4 x 15.6 in)

Weight: Net 4.8 kg (10.6 lb)

Shipping 7.8 kg (17.2 lb)

Built-In Options

Option 70

5 extra 10 Mhz outputs

Ordering Information

6688/011: Crystal oven standard model;

5x 10 MHz and 1x 5MHz outputs

6688/021: Crystal oven incl. option 70;

10x 10 MHz and 1x 5MHz outputs

6689/011: Rubidium standard model;

5x 10 MHz and 1x 5MHz outputs

6689/021: Rubidium incl. option 70;

10x 10 MHz and 1x 5MHz outputs

Included with instrument:

Operators manual, Calibration certificate

Optional accessories

Option 22: 19" rack mount kit

Option 27: Carrying case