Satellite navigation depends on truly accurate and stable onboard clocks. A number of different technologies exist and have been used with GPS and GLONASS. The Passive Hydrogen Maser, with its excellent frequency stability performance has been chosen as the Master clock in the Galileo Navigation Payload. The Passive Maser can guarantee stability performances within the Galileo requirements for more than eight hours without any correction/upload from ground.

Main Features:

- Volume: 25 litres
- Thermal sensitivity over −5°C to 10°C: ≤1x10⁻¹⁴/°C
- Long term stability: 3x10⁻¹²/year
- Power supply range: 23V to 33V
- Output frequency: 10.0028MHz
Development History:

First developments started under the ESA Technology Demonstration Program during early 1990’s for an Active Maser.

- **In 1998**: kick off of the first contract for the development of an Active Maser for navigation applications.
- **First half 2000**: re-direction of the activity towards the development of an EM Passive Maser.
- **Early 2001**: follow on contract for the clock lifetime qualification and industrialization.
- **First quarter 2003**: completion of EM test campaign, full characterization of the clock.

**Coming soon:**

- **First quarter 2004**: delivery of an EQM clock for the GSTBV2 satellite.
- **End 2004**: delivery of the PFM clock for GSTBV2 satellite.

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