

Essential GNSS Services

Precise, Wireless, Synchronized

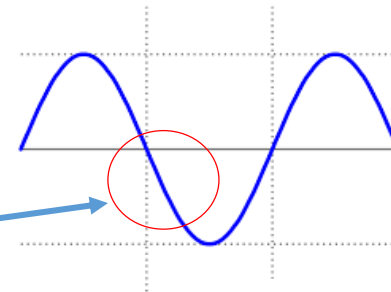
Time (in billionths/sec)

23:55:16.974326089

Frequency



Phase



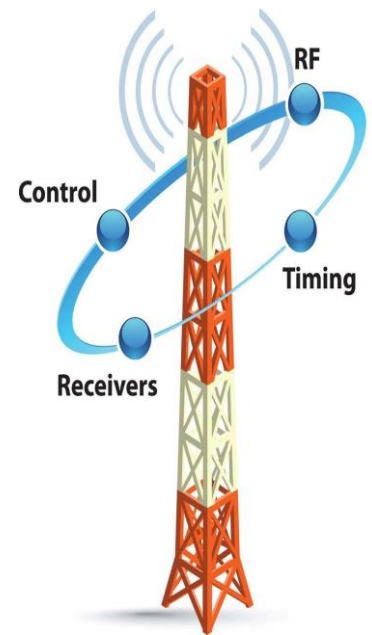
Location



eLoran Technology

Meets or exceeds customer requirements:

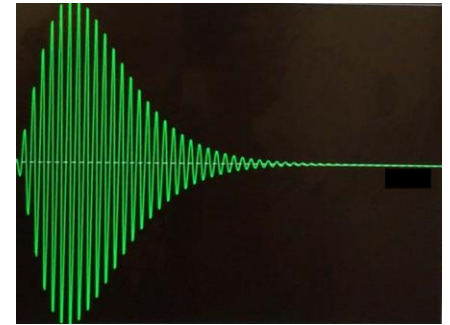
- Time at Stratum-1E standard
- Time $\ll 500\text{ns}$ to UTC
- Synchronized to UTC & GNSS
- Independent of UTC & GNSS
- Data channel(s) available
- Frequency and Phase standard



eLoran Technology

Low Frequency, Tower Based, eLoran

- Now operating, proven in UK
- Unmanned / autonomous operations
- >99.9% reliability
- Terrestrial, Independent but interoperable with GNSS.
- Approx 1,000 km range (1,300 over water) reduces required infrastructure.
- Spectrum (100 kHz) protected, free worldwide
- 1 Megawatt Xmit, signal nearly impossible to disrupt
- Signal useable indoors & underground w/o amp or exterior antenna

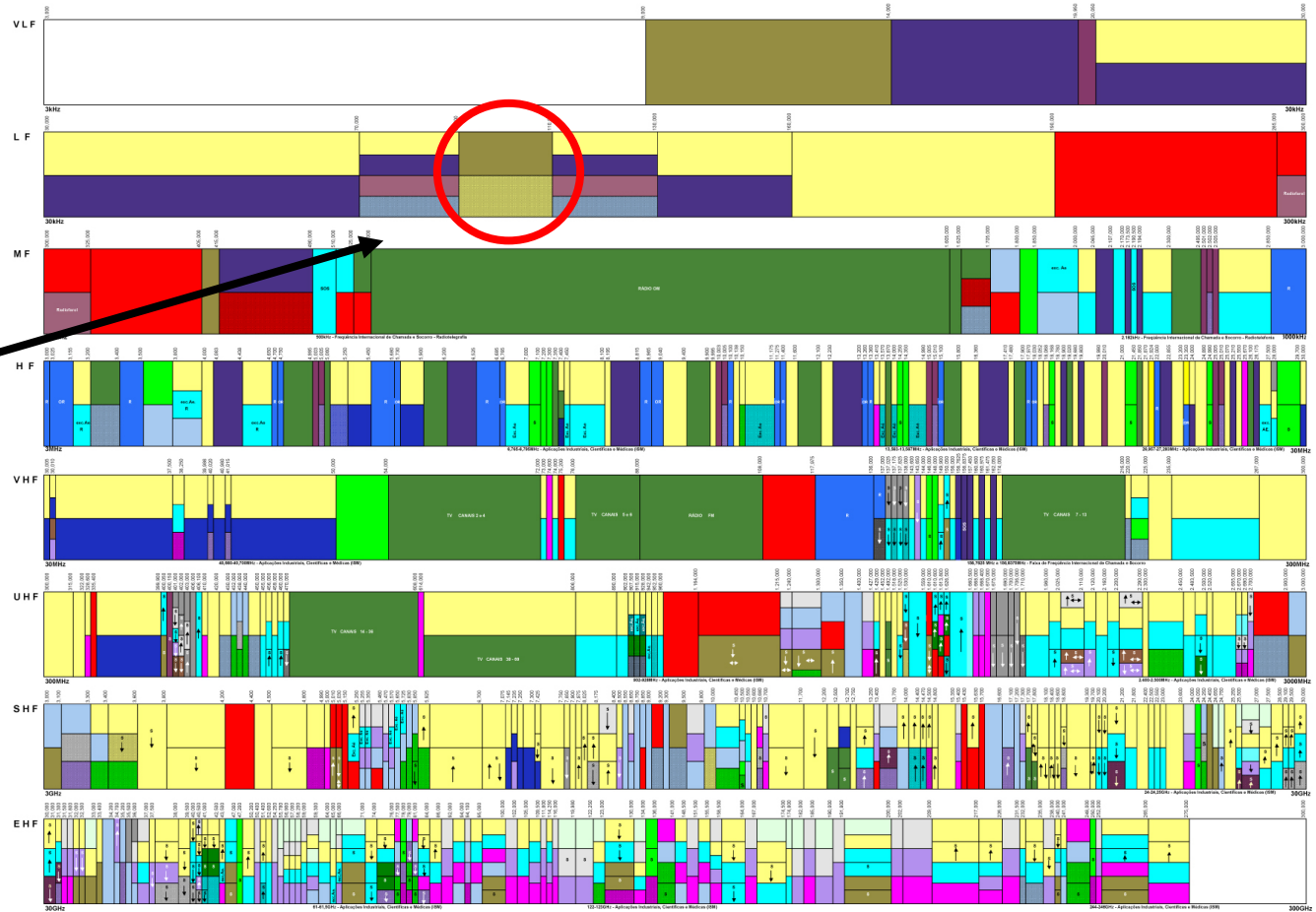


eLoran Technology

- **“Basic Interim Operational Capability (IOC)” eLoran (LDC, UTC sync, Lvl 1 ASF)**
 - Timing typically better than +/- 500 nanoseconds
 - Timing often better than +/- 100 nanoseconds after one-time installation calibration
 - Positioning typically less than 100 meters
- **“Advanced Interim Operational Capability” eLoran, (IOC + Lvl 2 ASF)**
 - Timing typically better than +/- 100 nanoseconds
 - Positioning typically 50-100 meters, or less
- **“Full Operational Capability (FOC)” eLoran (IOC + differential corrections)**
 - Timing typically better than +/- 50 nanoseconds
 - Positioning typically better than ten meters (~ 33 feet)



eLoran Spectrum Available



100kHz

Preserved Worldwide by ITU Agreement

