Core Infrastructure Design Definition document

Author(s): Thales Alenia Space France

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- **PU** = Public
- **PP** = Restricted to other programme participants
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Public Abstract

DEMETRA, for “DEMonstrator of EGNSS services based on Time Reference Architecture” is a project that aims to demonstrate the commercial interest and the feasibility of providing EGNSS early Time services to end-users. This demonstration is done through the identification of the users’ needs and the validation of time service concepts applicable for future mass market applications.

Figure 1: DEMETRA overview

This demonstration is made possible with the development of a Time Service Demonstrator that will support and provide nine services developed and integrated in the scope of DEMETRA:

1. Time broadcasting over TV and Radio Links
2. Time dissemination through authenticated NTP and timestamp server.
3. Time dissemination though White Rabbit network
4. Time broadcasting using geostationary satellite
5. Calibration Service for User GNSS Receivers
6. Certified Time Steering Service
7. Time monitoring and steering service (UT clock and time scales monitoring) based on the IGS time products
8. Time integrity service for user timing accuracy and positioning improvement
9. Time synchronisation service for a scalable network of atomic clock driven nodes (“SynchroNet”)

The demonstrator will also be the proof of the feasibility of a final TSP (Time Service Provider) which will support the future time services provided to a large users market and will also acts as an interface between Galileo Mission Segment (GMS) and the European UTC(k) laboratories for providing the major function of steering the Galileo System Time (GST) with respect to Universal Time Coordinated (UTC).

In that context, the main objective of this document is to present the missions, the operational concept and the design that can be applicable to a future TSP.