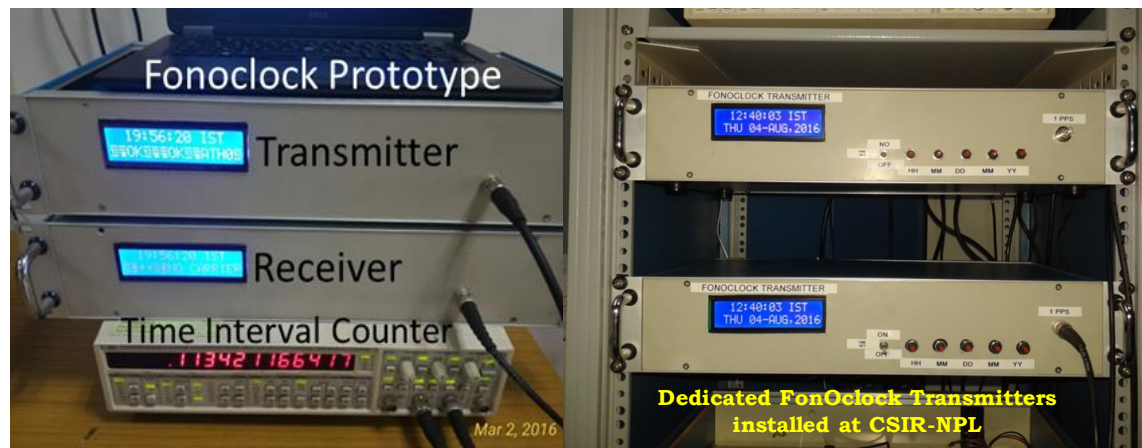




**Name of the Technology: FonOclock with time synchronization accuracy of  $\pm 10$  ms.**

**Summary:** NPL India maintains IST (Indian standard time) by an act of parliament. The time maintained is disseminated to the users via telephone line with a service known as Teleclock (accuracy is  $\pm 2$  s). A new and upgraded hardware and software along with communication delay compensation has been developed by CSIR-NPL to provide better time synchronization accuracy ( $\pm 10$  ms) via public switch telephonenetworkand the service is known as FonOclock. FonOclock transmitters and receivers have been developed and will be transferred to the industry for commercial production. The users can synchronize their time and devices to Indian Standard Time using FonOclock receivers and a landline phone connection. Dedicated FonOclock Transmitters (synchronized to Indian Standard Time) are hosted at CSIR-NPL. The transmitter telephone numbers will be distributed to the users. Some of the specifications of the system are:



**Specifications:**

- Time accuracy within  $\pm 10$  ms of IST
- Microcontroller based system
- Built-in modem
- Direct connection to telephone line required with the FonOclock receiver
- Auto-dialing at pre-programmed time as well as manual dial-up option



**Applications:** Time synchronization to IST

**Advantages:**

**General**

- Transmission of IST via telephone line
- Access to IST via telephone line and FonOclock receiver
- No need of computer and internet which makes it attractive for strategic sector

**Over existing technology**

- More than 100 times better time synchronization accuracy
- Delay compensation implemented
- Latest and compact hardware and programming
- 1 pps output for direct synchronization and measurements

**Choose the Readiness level of the Technology:**

Idea	Concept Definition	Proof of Concept	Prototype	Lab Validation	Technology Development	Technology Demonstration	Technology Integrated	Market Launch

**Related Patents: Knowhow** (Patent will be filed soon)

**Year of Introduction:** 2016

**Broad Area/Category:** Electronics & Instrumentation

**User Industries:**

- Defense labs and offices, Railways, Airports, Parliament House, Banks, Govt. offices
- Universities and institutions etc.