

TIME AND FREQUENCY ACTIVITIES AT CENAMEP BETWEEN 2020 AND 2021

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Laboratory Staff

- The Time and Frequency area is formed by 3 laboratories:
 - Timekeeping, calibration and dissemination
 - Start activities in 2002
- Actually the T&F staff is formed by three metrologists:
 - Raul Solis (since 2006)
 - Luis Mojica (since 2008)
 - Cristy Sanchez (since 2015)

UTC(CNMP) generation and maintenance

- Participating in UTC and UTCr comparisons:
 - TTS-5 as main GNSS receiver and a PolaRx5TR recently acquired as a backup / replacement of the TTS-5
- Participating in SIMTN and SIM Timescale:
 - SIM receiver as main GPS receiver
- Time and frequency references:
 - 5 Cesium clocks (2 clocks are working since 2002, one since 2013 and two since 2017) and one of the newest clock shown problems in his internal electronic (ion pump) in 2020.
 - Multichannel phase comparator
 - Frequency and Phase offset generator

The realization of UTC(CNMP) is based in a Cesium clock with a Frequency and phase offset generator

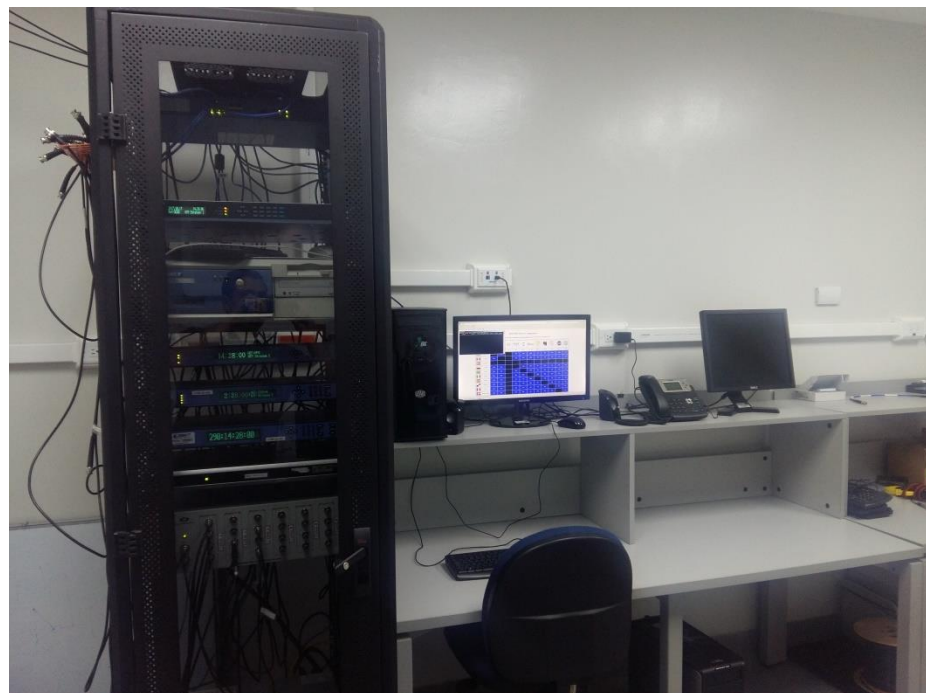
Calibration and Dissemination Services

- 8 calibration services:
 - 1 related to Time Interval Measurement (1 with CMCs)
 - 7 related to Frequency Measurements (5 with CMCs)
- 3 Time dissemination services:
 - 1 NTP server
 - 1 Web clock
 - 1 Voice clock by clock

2020-2021 Period

- Keeping the laboratories working in COVID-19 times
 - Closing findings of the last peer review (Dr. Marina Gertsvolf)
 - Priority of calibrations for medical-clinical areas (most timers and optical tachometers)
 - Improvement of actual measurement capabilities (stopwatches and optical tachometers)
 - Updating UTC(CNMP) equipment (PolaRx5TR, Weather station, multi-channel pulse comparator)
 - Participating in multi-laboratory works (Ventilators for Panama initiative)

Calibration and dissemination



**Calibration
laboratory**



**Dissemination
laboratory**



UTC(CNMP) generation and other works



**Time and Frequency
reference laboratory**

**Weather
station**



**Ventilators for
Panama initiative**





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