

# UTE LABORATORY

January 2015



# Time & Frequency

- **Standard frequency**
  - **Caesium Atomic Clock 5071A**
  - **NTP Server**
  - **GPSDO**
  - **Rubidium Atomic Clock with drift compensated (own development)**
  - **Rubidium Atomic Clock running free (2 units)**

# Time & Frequency

## ■ Equipment

- Common View System GPS, SIM
- Universal counter (up 350MHz, 2 units)
- Universal counter (up 15GHz, 1 units)
- Arbitrary function generator
- (1 $\mu$ Hz - 100MHz, frequency resolution up 12bits)
- Frequency generator (10MHz - 20GHz)
- Oscilloscope (100MHz, 1GS and 9bits)

# Time & Frequency

- **Equipment & Measurement System, own development**
  - **Time and Frequency Distribution Amplifier**  
(20 outputs of 10MHz and 10 outputs of 1pps)
  - **Stopwatches calibrator system**
  - **Dual mixer frequency measurement system**
  - **Tachometer with output frequency**  
(effective resolution: 0.01 RPM)
  - **NTP monitoring system, comparison our NTP with NIST, NRC, CEMAN, PTB and ROA**

# Time & Frequency

- **Calibration Services**
  - **Stopwatches and timer**
  - **Tachometer**
  - **Relay and switch calibrator**
  - **Universal counters**
  - **Frequency oscillators**
  - **Signal generators**
  - **Standard Frequency**

# Time & Frequency

- **Future development**
  - **Standard frequency monitoring system**
    - **Universal counter**
    - **Scanner (8 inputs and 2 outputs)**
    - **Software (in process)**
  - **Participate in the generation UTC (Circular T)**
  - **Technical procedure review and publication of CMC**

**THANK YOU FOR YOUR ATTENTION**

**[ltrigo@ute.com.uy](mailto:ltrigo@ute.com.uy)**