Euclid is a wide-field mission for the cartography of the dark Universe lead by European Space Agency (ESA) and the Euclid Consortium that is to launch in 2020. This mission was selected within the Cosmic Vision program and aims at bringing more understanding on the nature of the recent acceleration of the expansion of the Universe and the possible related nature of dark matter and dark energy.

**Cosmology & Euclid**

- **Dark Matter**
  - Heavier mass of galaxies than observed
  - Weak Lensing (WL) shape of galaxies
  - High quality imager & photometry

- **Dark Energy**
  - Present acceleration of the expansion of the Universe
  - Baryonic Acoustic Oscillations (BAO): distribution of galaxies
  - Spectroscopy: detection of Hα line

**Euclid survey**

- 15,000 deg² over 6 years
- 10s of millions of galaxies
- z between 0.9 and 2.0

**Control of systematics**

- High precision measurements <1%
- Frequent calibration
- Detailed *a priori* knowledge of instruments
- Need for characterization

**Method** - Multi cosmological probes

**Facilities and first results**

**Limited telemetry**

- Transfer of slopes and readout
- Detection of cosmic rays

**The NISP instrument**

- 16 detectors in the FPA
- 2048x2048 hybrid pixels
- 1560s exposure
- 1% reachable

**NISP IR detectors**

- 18µm pitch / 2.3µm cut-off
- Provided by TIS under ESA/NASA contract

**Readout strategy** – Non destructive MACC

- Average down readout noise

**Dark**

- 3 layers of protection from thermal and stray light: remotely handled dark lid @100K, optical baffle < 150K and thermal screen
- IR absorbing black cover
- Mean CDS noise = 13.5 ± 0.35 adu
- 2 ramps of 500 frames @ 250mV bias

**Summary**

Dedicated facilities, being assembled and validated at CPPM, will be ready before the end of this year.

First results of commissioning show that facilities enable to reach the accuracies required for the characterization of the detectors.