AGENDA

- NISP TECHNICAL PRESENTATION and STATUS
- NISP PHOTOMETRY PRESENTATION
- NISP SPECTROMETRY PRESENTATION
NISP MAIN PRODUCTS

- NI-OMA : Opto Mechanical Assembly (Inside PLM)

- NI-DS : Detection System

- NI-WE : Warm Electronics (inside SVM)
NI-OMA

Structure Assembly (SA) & Thermal Control (TC)

Camera Lens Assembly (CaLA)

Correlator Lens Assembly (CoLA)

Grism Wheel Assembly (GWA)

Filter Wheel Assembly (FWA)

Temperature 140K

Grism position

CL Dichroic Filter L1 L2 L3 Focal plane
4 Thermal Conductive interface with 135K provided by PLM

FLEX

3D SiC Monolithic structure

Baffle

INVAR Bipods

ASIC Sidecar @140K

16 H2RG DETECTORS @ <100K (provided by ESA)
Euclid Consortium

NI-WE

- NI-DS
  - ASIC
  - Detector + ASIC
  - FPA

- NI-OMA
  - FWA
  - GWA
  - CU
  - TC

- DCU (Detector Control Unit)
  - Commanding
  - Houskeeping
  - Power

- DPU (Data Processing Unit)
  - Science TM
  - Spacewire
  - Commanding
  - Houskeeping

- ICU (Instrument Control Unit)
  - Commanding TC
  - 1553
  - Commanding
  - Houskeeping
  - 1553

- POWER

SATELLITE

Euclid Consortium

 Authors: NISP TEAM

EUCLID CONSORTIUM MEETING | BOLOGNA | 7&8 September 2011
NISP ORGANISATION

System Engineer
- Detection
- Mechanic & Thermal HW
- Electrical
- AIV (Lead & Deputy)

Architects
- Optic
- Mechanism
- EMC
- OBSW
- Data Proc

Calibration
- Thermal
- Command & Control

EC Lead
- Instrument Scientists
- NISP PM
- PA
- Project Control

Project

Authors: NISP TEAM
NISP INSTRUMENT DEVELOPMENT PLAN

• OSTM (Optical Structural Thermal Model); deliverable
  ➢ Qualification of primary and secondary structures by test (sine, random, thermoelectric)
  ➢ Qualification of thermal design by test (TB steady state + transient),
  ➢ To allow alignment verification @RT and @OT at the optics & detector interfaces

• EQM (Engineering Qualification Model); NOT deliverable
  ➢ Flight standard model with limited number of detectors, filters, grism, no redundancy
  ➢ To allow units electrical, functional, mechanical, thermal and performances qualification
  ➢ To allow development of calibration procedures
  ➢ To validate the electrical I/F and the C&C of the integrated instrument

• EM (Electrical Model); deliverable
  ➢ Build from NISP EQM limited to electrical / C&C interface for satellite Electrical tests

• FM (Flight Model); deliverable

• FS (Flight Spare kit); deliverable
**NISP AIV SEQUENCE**

- **// integration of:**
  - NI-OMA, NI-DS, NI-WE

- NI-DS fully tested (vibration, thermal, EMC, functional, performances)

- NI-WE boxes fully tested (vibration, thermal, functional, performances), then integrated and tested together (NI-ICU+NI-DPU+NI-DCU)

- NI-OMA + NI-DS integration @RT

- NI-OMA + NI-DS + NI-WE integration and tests

  - Alignment, Functional, Vibration, TB/TV, Performances and Calibration, reference for satellite tests.
The NISP detailed schedule presented for the IPRR is compatible with the ESA requested delivery date for all the NISP models:

- The NISP OSTM delivery date is 15 July 2014
- The NISP EM delivery date is 26 June 2015
- The NISP FM delivery date is 7 June 2016

ESA has recommended to revisit these dates. A delay of 6 months is expected (under discussion).
NISP GLOBAL ARCHITECTURE ALMOST FROZEN and the INSTRUMENT HAS NO FEASIBILITY PROBLEM

Action plan in place for ESA IPRR review recommendations

- All predevelopments to be completed for end 2011 (Grim & Optics @TRL5)
- Detector trade off 2\(\mu\)m / 2.5\(\mu\)m to be completed
- Compensating wheel to be implemented in the NISP design
- FWA/GWA cryo-mechanism design consolidation
- NI-OMA mechanical trade off to be completed (bolted or glued Sic/Invar interface, secondary structure, MLI/SLI implantation, full SIC structure)
- NI-WE and data processing (NI-DPU & NI-DCU) trade off to be completed (data processing hardware/software sharing)
- Complete the flowdown of the requirements and the justifications. Update / complete the NISP units specifications