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NISP PROGRESS STATUS

STUDIES

- All subsystems PDR OK
- Detailed design phase started; Start of the subsystems CDR
 - ✓ 2 CDR's are done. 2 CDR's are in progress. The others CDR's are expected for to be concluded for May 2016
- Instrument CDR KO expected for May 2016

HARDWARE

Many subsystems demonstration models and breadboard models have been tested

Subsystem	KO / Doc Delivery	RID's delivery to SS team	RID's answer	RID's discussion
NI-OA	23/10/15	30/10/15	06/11/15	09/11/15
NI-DPU	20/11/15	07/12/15	15/12/15	17/12/15
NI-GS	15/11/15	05/01/16	10/01/16	14/01/16
NI-CM	21/12/15	20/01/16	27/01/16	03/02/16
NI-GWA	22/01/16	28/01/16	03/02/16	09/02/16
NI-FWA	22/01/16	28/01/16	05/02/16	11/02/16
NI-CU	- 15/01/16	27/01/16	08/02/16	15/02/16
NI-ICU	29/01/16	12/02/16	19/02/16	23/02/16
NI-SA & NI-TC	29/01/16	05/02/16	12/02/16	19/02/16
NI-FPA	18/02/16	25/02/16	03/03/16	08/03/16
NI-ICU_ASW	05/05/16	15/05/16	22/05/16	26/05/16
NI_DPU_ASW	25/02/16	06/03/16	13/03/16	17/03/16
VGS PDR	04/11/15	11/11/15	16/11/15	17/11/15

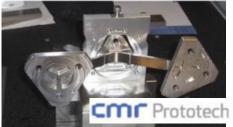


- Structure and Thermal STM
 - ✓ STM = 99% FM design
 - ✓ ALL SiC parts are now manufactured
 - ✓ The complete integrated and glued structure is expected for March 2016 at LAM



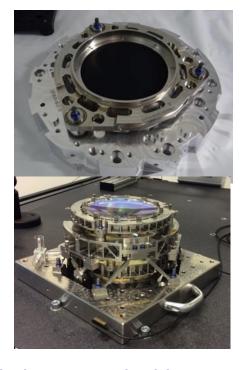






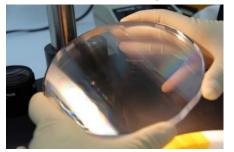
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- ➢ OPTICS (MPE)
 - ✓ DRB STM done
 - ✓ EQM lens manufacturing done. In spec
 - ✓ Scaled model of the NI-OA is built and tested.
 - ✓ Very good performances measured



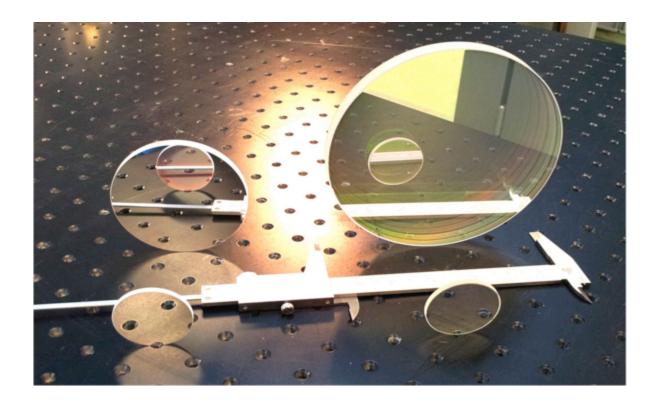
- GRISM II MAN
 - ✓ The Engineering model (EM) of the NI-GS has been fully integrated with a baffle and tested (Thermal & vibration)
 - ✓ SILIOS company has been chosen as the grating manufacturer (very good transmission performance obtained with one prototype scale 1)







- > FILTER =
 - √ Y-prototype (left in image),
 - √ H-prototype (right) up to 140mm in IAD technique.
 - ✓ Performances in line with the requirements

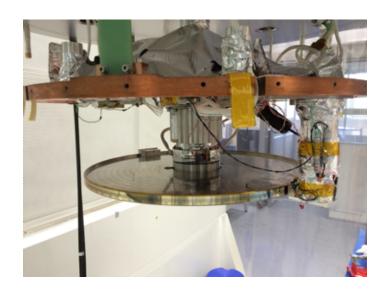


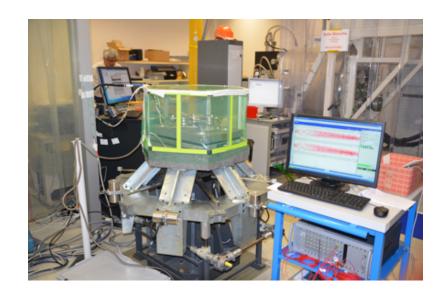
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NISP STATUS

➤ CRYOMECHANISM ■■

- 2 STM produced and tested
- > The BBM integration is now completed
- performances motion profile measurements at operating conditions done and OK
- Concern about bearing friction and "high" exported torque to be treated. Different solutions for bearing modification are under evaluation

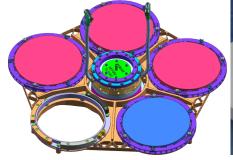






➢ GWA ■■







- > FWA
 - Is tested and ready for shipment to LAM.



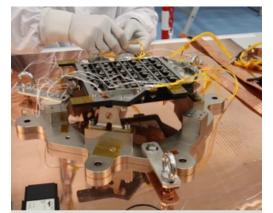


- Calibration Unit
 - Has been shipped to LAM.

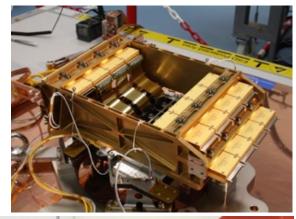


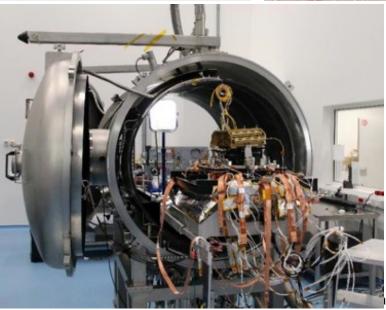


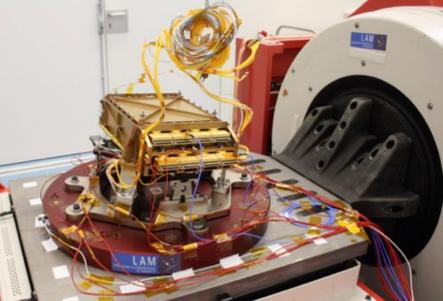
- ➤ NI-DS : Demonstration Model
 - TB/TV done and OK. Good noise and dark performances achieved (comparable to the one measured at TIS and DCL); Low EMC conducted susceptibility sensitivity of the SCS measured





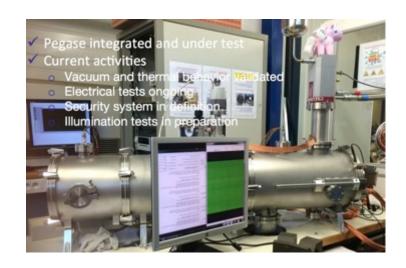








- ➤ DETECTOR TESTS ■ Image: Image: ➤ DETECTOR TESTS ■ Image: ➤ Image: ➤ DETECTOR TESTS ■ Image: ➤ DETECTOR TESTS Im
 - > CPPM/IPNL is almost ready for the detector characterization tests





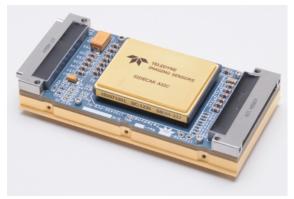


Detectors NI-SCS (detector/flex/electronic)

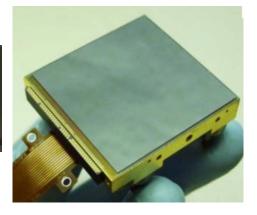




- End of the qualification test for 4 SCS
- Good performances shown by **TELEDYNE**







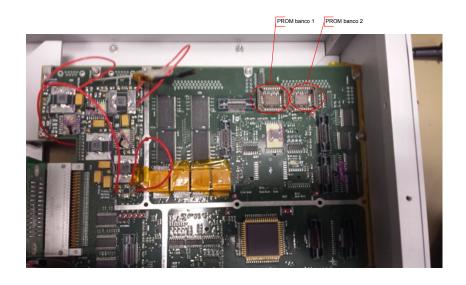
12 FM detectors already produced by TIS



 VERY GOOD performances measured on 3 FM detectors by NASA



- Warm Electronic ICU HW
 - ✓ ICU Demonstration Model (EBB2 CDPU + setup)







- ▶ DPU HWs
 - DPU DM is built and tested at CGS
 - First coupling test with real detector/Flex/Sidecar have been done and are OK







NISP STATUS: MAIN ISSUES

> TECHNICAL ISSUES

- Unwanted LED's Photon emission (due to current leakage and EMI effect in the long harness between the calibration source and the electronic)
- To be checked with a specific EMC radiated susceptibikity test (managed by LPCS with IPNL/CPPM support)
- Spectro permormances (See Anne for more details):
 - Out of field Telescope straylight very high contribution on NISP SNR

PERFORMANCES

Very good optical performances demonstrated during the last Optical KP

BUDGETS

 ALL NISP budgets are green (with reduced system margin of 6% for the mass budget)

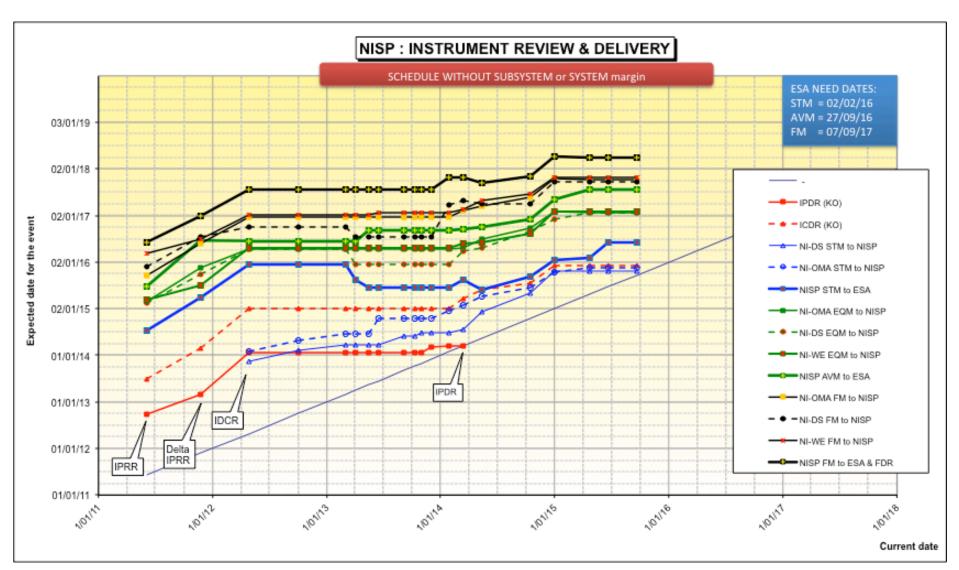


NISP STATUS: PLANNING

- In december 2014, the NISP delivery date requested by ESA (September 2017) has been announced to be impossible to met.
- ♦ A new date, April 2018 (earliest possible date), has been proposed to ESA. An exercise to include "reasonable" margin has been done. This leads to a delivery date of the NISP FM for mid of December 2018. This has been validated by a CNES schedule review board.
- ♦ NI-SA, NI-SCS AND NI-DPU ARE IDENTICALLY THE CRITICAL PATH FOR THE NISP FM



NISP STATUS: PLANNING



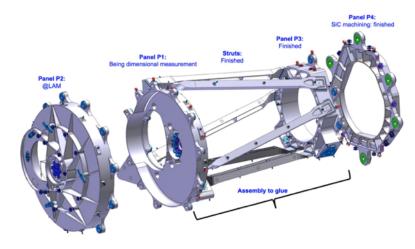


BUT



- Beginning of December 2015, after discussion and negociation with LAM and Boostec, the NI-SA EQM and FM will have 5 to 6 months of delay with regard to the NISP 2015 schedule. The main reasons are:
 - 1/ late modifications on the NI-SA SiC parts in order to accommodate the baffles, the studs for MLI, the harness interfaces and the modification on the P3 in order to avoid vignetting of the NI-CU.
 - These modifications are not major with regard to the STM NI-SA structure but they need a long process of convergence between the LAM NI-SA team and Boostec due to SiC manufacturing constraints

2/ the fact that the structure is more complex with regard to what was considered, 2 years ago, in the Boostec estimation. Boostec cannot reduce their manufacturing duration.



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- ➤ To ask for a new delay for the NISP AVM and FM delivery by 6 months is NOT an option. ESA is just under negociation finalization with industry (TAS-I and AIRBUS) for a Change Notice of MANY M€ called "NISP delay" to treat the NISP delay announced one year ago.
- ➤ The only viable option is to downgrade (NOT SUPPRESSED) the EQM in an EM (Functional Engineering Model) and to remove to objective to do end to end optical performances test on the EQM
- ➤ This EM will be composed of FWA, GWA, CU, DS, ICU and DPU EQM's + interconnecting harness. But NO Optical test nor vibration will be done on this EM
- ➤ The EM/PFM scenario add a little risk for NISP BUT it secure the schedule. The NI-SA will be removed from the critical path.
- ➤ This EM/PFM scenario should be validated by ECB, ESA and the agencies
- > The delivery of the STM is for July 2016
- > The delivery of the AVM is for september 2017 (now with some margin).
- > The delivery of the FM is for april 2018 (without margin).