IRS MAG Meeting: Instrument & Commissioning Status

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MTG-S1/IRS Commissioning

- Starting point was MTG-I1 commissioning
- However, commissioning of IRS is more complex:
    - More complicated instrument (iFTS vs. imager)
    - More complicated processing
    - Non-standard acquisitions needed for characterisation and performance assessments
        - More complicated commanding/ops
    - Being a spectrometer adds an extra “dimension” to instrument performance
    - Need for coordination with Sentinel 4

- Schedule driver is the data processing, not acquisitions
- Strategy is to acquire all data as soon as possible in order to free up the spacecraft

IRS Commissioning Outline

- Commissioning starts after LEOP and arrival at the commissioning orbital position
  - Target date: 17/07/2025 (based on launch date L0=01/07/2025)
- Early activities will be spent on platform and IRS good health checks, followed by a 5-week initial decontamination phase
- Rough outline of IRS commissioning from then on:
  - September 2025 - January 2026:
    - Optimise on-board parameters (analog gain, integration time, nonlinearity coefficients, etc.)
    - 1st tuning of commissioning L1 processor (IQT)
  - January 2026 – March 2026
    - Radiometric characterisation (e.g. front section, calibration flip-in-mirror)
    - Spectral characterisation (e.g. feature thresholds for spectral calibration, chromatism check)
  - March 2026 – May 2026
    - 2nd tuning of IQT (including S4 navigation)
    - **Final acquisitions** for spacecraft commissioning
    - Geometric performance verification, partial spectral/radiometric verification
    - Start of commissioning results review (CRR)
  - May 2026 - ~July 2026
    - Additional calibration processing (esp. sun straylight)
    - Final performance assessments
    - Close-out of CRR

S/C ready for EUM activities

Processing/analysis only

Performance budget updates

- Radiometric accuracy has been partially recalculated

- Reasons:
  - Fixed some “double counting” of errors that were already covered in the noise budget
  - Fixed a missing sqrt(2) factor in the accuracy nonuniformity
  - Took into account anticorrelation of noise between front section transmission and radiometric response

- On average, this leads to **improved** performances (see following slides)

New performance budget: absolute rad. accuracy

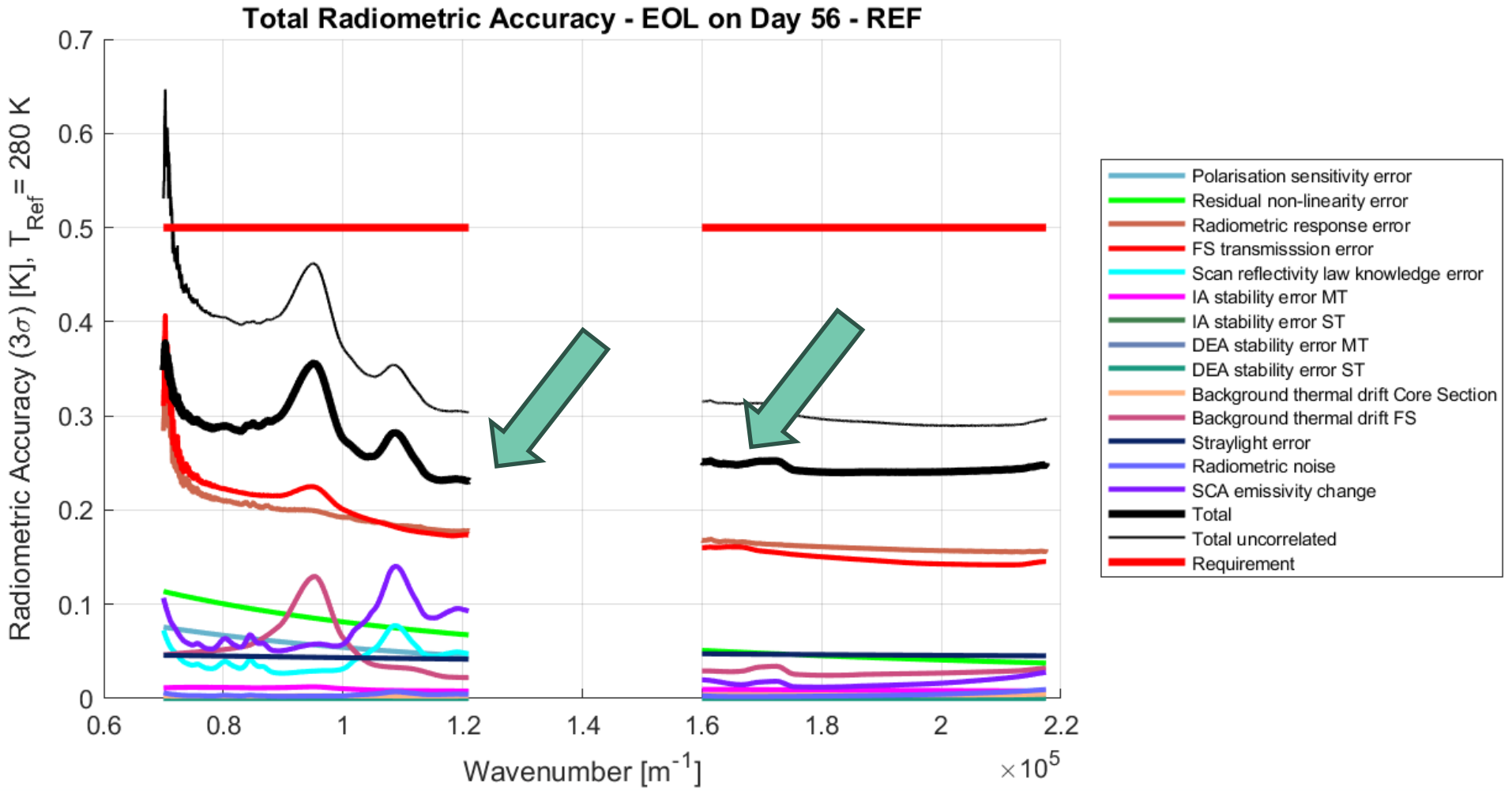


Figure: OHB

New performance budget: accuracy nonuniformity

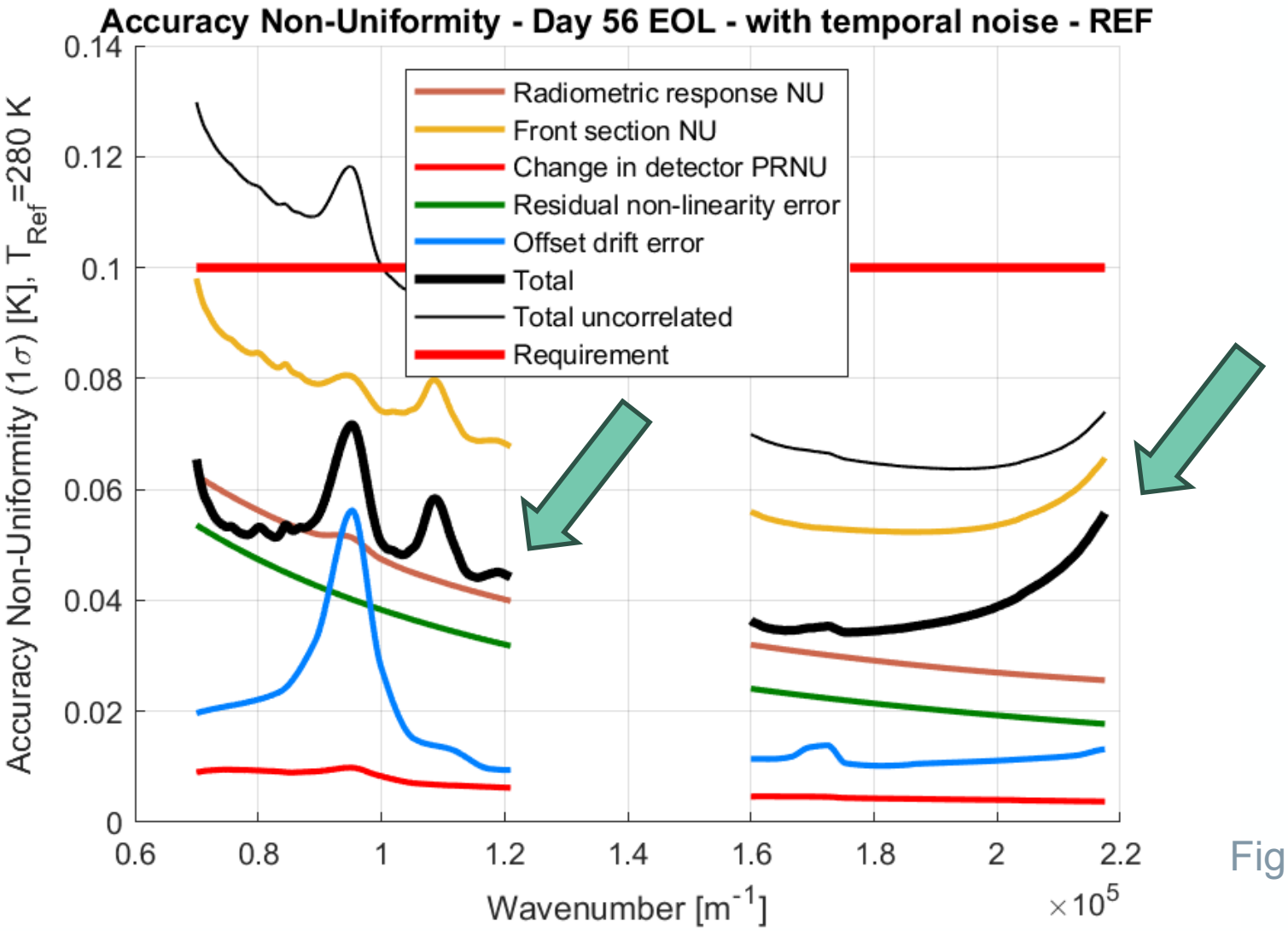


Figure: OHB

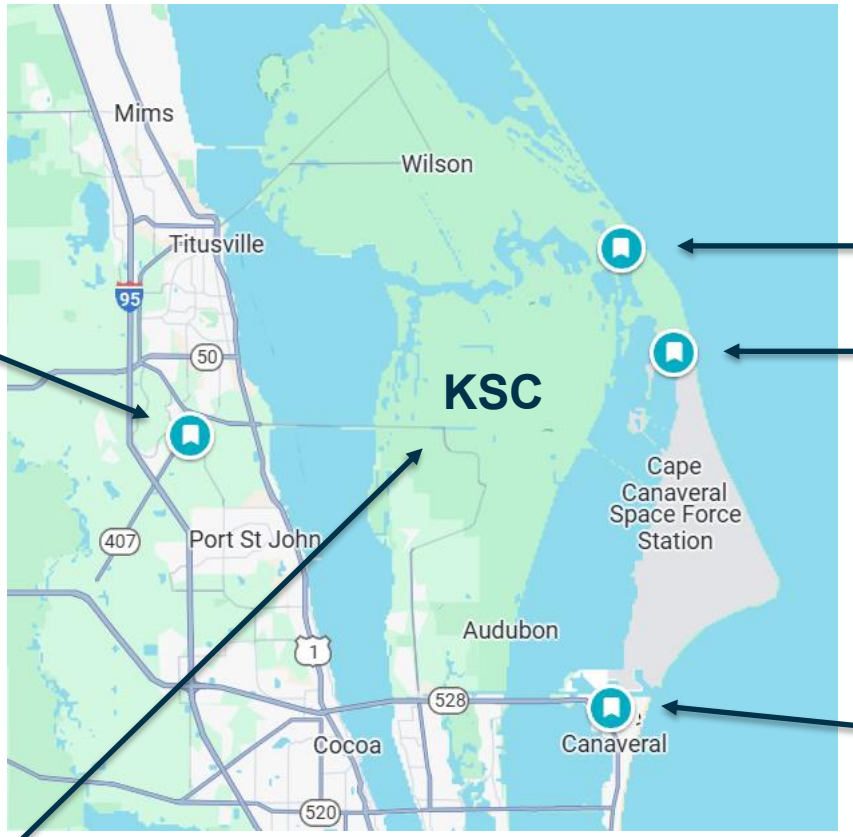
MTG-S1 Launch Campaign

- Launch campaign started on **02/05/2025** (L0 – 60 days) at **Astrotech** (Lockheed Martin) in Titusville, FL, USA.
- Spacecraft arrived on **07/05** in Port Canaveral
- Launch “window” starts on **01/07/2025**
- Precise date and launch pad to be confirmed by SpaceX in late June

- Expert teams from OHB, TAS, ESA, and EUMETSAT on site
- Daily coordination of upcoming activities with Astrotech and SpaceX

Launch Campaign Geography

ASTROTECH SPACE OPERATIONS
A Lockheed Martin Company



NASA Kennedy Space Center

SPACEX

Launch Complex 39A

Launch Complex 40

Port Canaveral

(home base for the ESA & industry teams)

Launch site options

SLC-40 (baseline)

SLC 39A

IRS-specific tests (19-30/05)

- Some of the tests performed:
  - Unlocking/testing of the corner cube mechanism (CCM)
  - Installation and check of the CCM cartridge (which releases the mechanism in flight)
  - Locking of all mechanisms for flight
  - Final patching of EEPROMs
  - Checking of on-board encryption keys
  - Test of data connections
  - Final inspection

All activities were successful => The IRS instrument is now **in launch configuration**.

Upcoming: finalisation of the spacecraft, launch countdown rehearsal, fuelling & mating with Falcon 9 payload adapter.

MTG-S1 in the cleanroom - Questions?