

MTG LI procurement status, expected performances, & commissioning plan

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13th MTG LI Mission Advisory Group
05th April 2022, via teleconference



Development models

- ❑ *OC VM (Verification Model) → test campaign successfully completed, TRB held August 2021*
 - FPA/FEE mechanical qualification vs. shock successfully achieved July 2021
 - Thermal cycles after shock + final electrical and functional health checks → ok
 - OC VM sequence completed.
 - Cold start-up investigated and root cause found, solution available for recurrent models

- ❑ *EM → investigations on LOH functional issues + FCV + ESD*
 - EM used for investigations vs. ASIC-FPGA IF errors – solved through ASW update
 - FCV (part on EM) completion now in April (was postponed by PFM priorities)
 - EMC RE “hybrid test” with filter connections in April
 - ESD on LME EM and FPA/FEE EM planned at the end of FCV, in April 2022
 - EM TRB/DRB in May 2022

LME

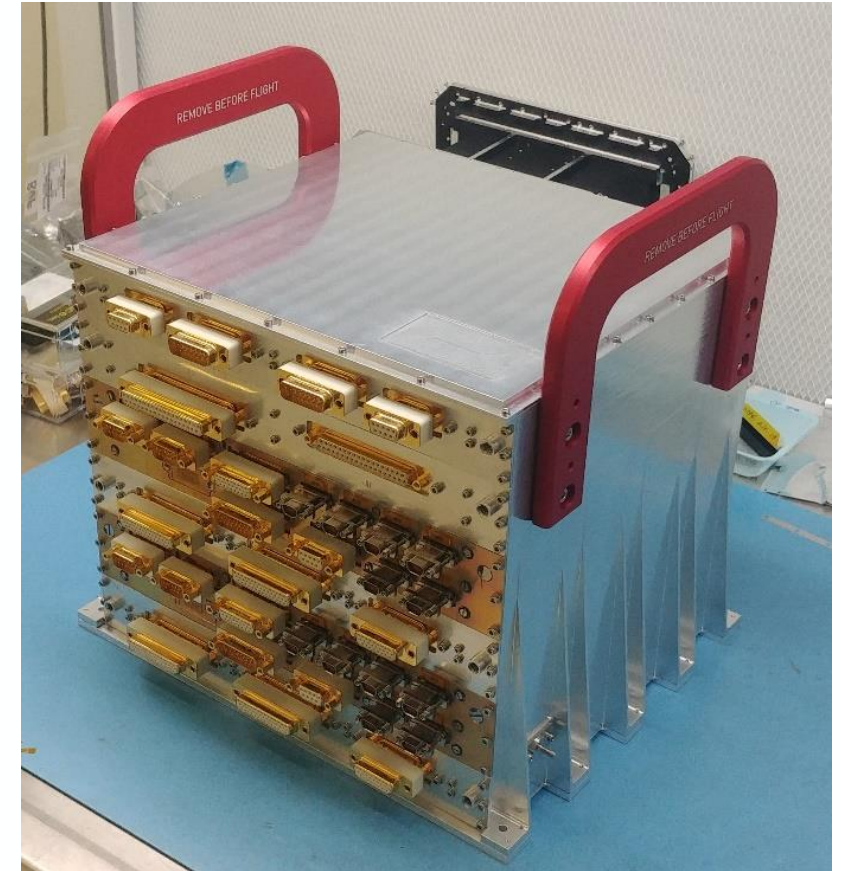
No change since MAG #12

LME PFM

- Delivered to TAS for the hybrid satellite testing
- Returned to LDO in July
- Being used by LDO for completion of LI PFM testing
 - ✓ EMC, FCV, TVAC, ASW
- To be refurbished for LI FM2

LME FM2

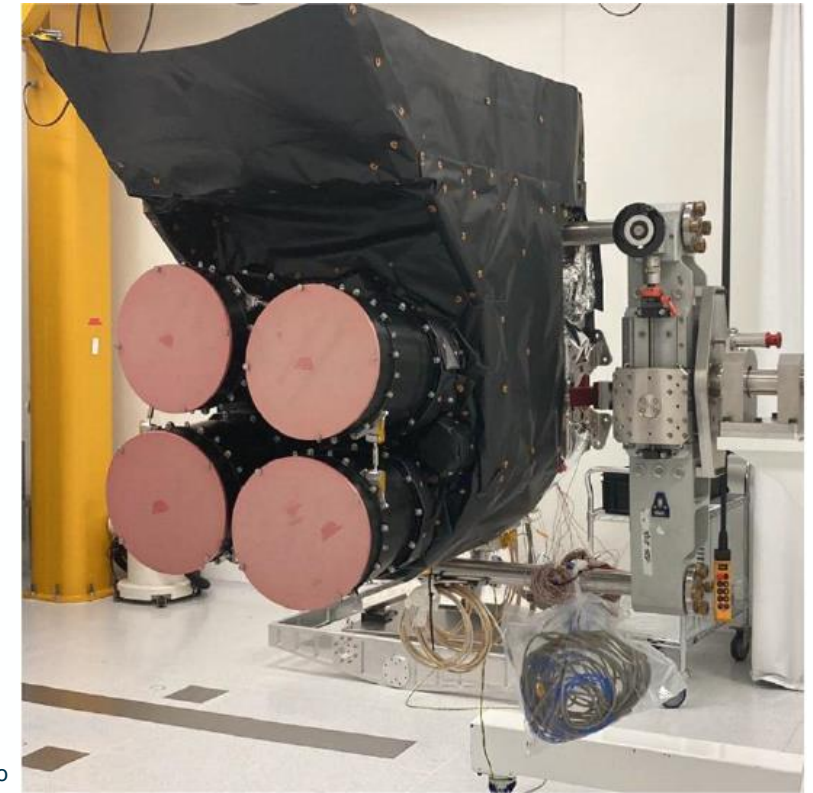
- Delivered to TAS early August 2021
- Integrated on MTG-I PFM platform



LME FM2 integrated and electrical test completed
- courtesy Leonardo

LOH PFM

- ❑ *Consent to Ship completed March 2022*
- ❑ *Deliberate delay of 3 months to allow validation of the ASW solutions on PFM hardware*
- ❑ *In time for TAS needs (re-ordered AIT sequence at MTG-I level)*
 - Assembly/Alignment completed in 2020
 - Mechanical tests completed January 2021
 - Thermal balance completed April 2021
 - Characterisation/calibration tests completed
 - EMC on PFM completed
 - RS test postponed to FM2 but considered low risk
 - Thermal vacuum tests completed
 - Including successful cold start (return from safe mode)
 - Functionally tested with ASW 05.00.01
 - ASIC-FPGA error issues resolved
 - Reference test with deliverable OGSE-S



LOH PFM
- courtesy Leonardo

LI Qualification Review

- ❑ QR kick-off April 2022
 - Board in July 2022
 - Schedule fits with Satellite QAR

- ❑ Qualification at lower levels mainly completed or completion imminent
 - SMT qualification affected by a fire at Ciretec
 - ✓ Some PCBs/test vehicle destroyed
 - ✓ Solutions under investigation

LI Recurrent Models

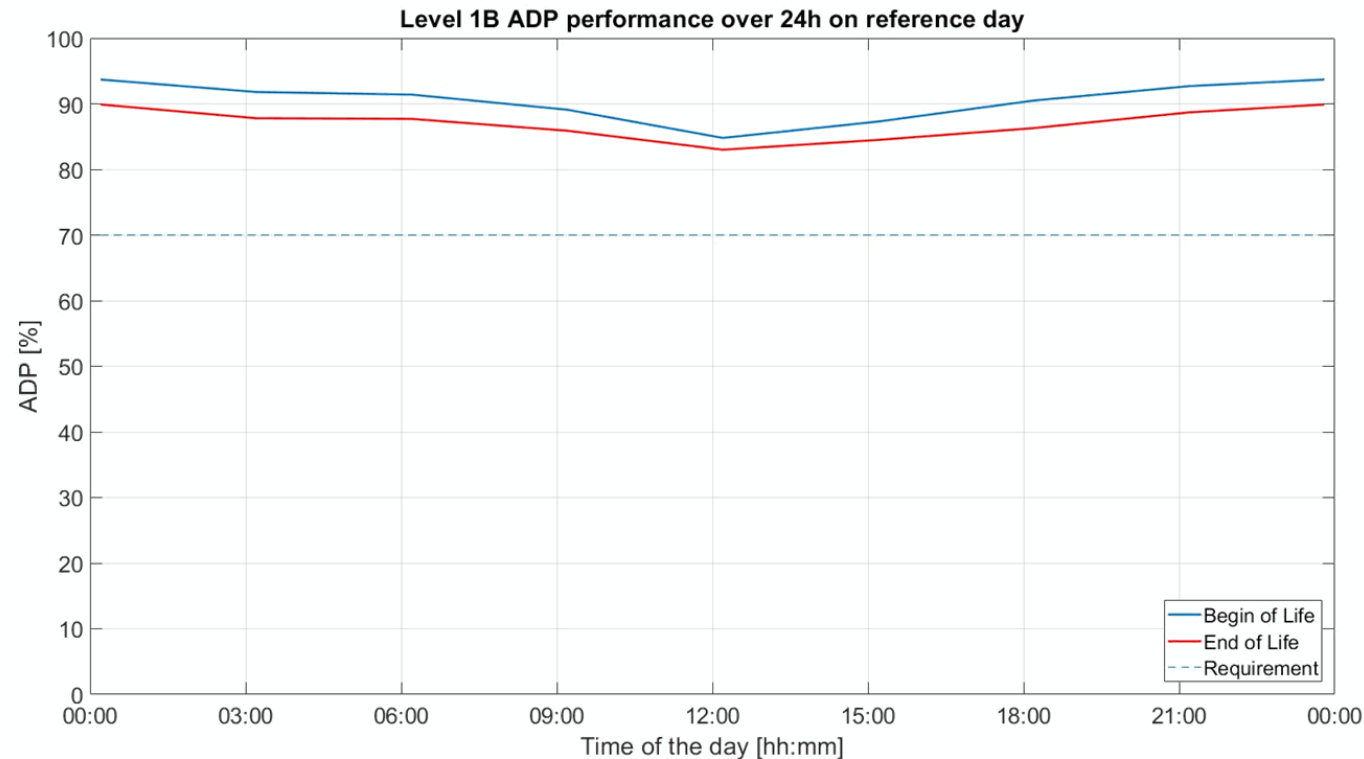
- ❑ Design Check Point held for recurrent models
 - Design adjustments known and actions agreed: “Lessons Learnt” from PFM

- ❑ LIPP#2 ASIC for LI FM2
 - World semiconductor supply issues causing significant delay in procurement
 - ✓ Improvements to schedule negotiated
 - ✓ New flight ASIC available November 2022

- ❑ PCB supply affected by Ciretec fire
 - Solutions under investigation

- ❑ LI FM2 DRB scheduled Q3 2023 (but challenging)
 - Currently not delaying MTG-I FM2

- After the end of the on-ground LI PFM characterization and calibration test campaign, the LI end-to-end simulator was correlated to the measurements in Oct21.
- Final before-launch estimation of the ADP (Average engineering pulse Detection Performance) performance improved with respect to previous simulations, well above requirements.



With a FAR at L1b < 6k/s (req is <35k/s), tunable