From ATV to MPCV
EEE-parts management by CPPA

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ESTEC, Noordwijk
Tesat-Spacecom

Location       Backnang, Germany
Core Business  Satellite Payload Equipment & Subsystems
Employees      1250
Turnover 2014  337.6 Mio Euro
Equip. Capacity up to 1500/year
Website        www.tesat.de
Agenda

- ATV: The main figures
- ATV: CPPA point of view
- CPPA: Benefits for prime and users
- MPCV-SM: Evolution from ATV to Orion
- MPCV-SM: Differences to ATV and impact on EEE-parts
- MPCV-SM: Experiences from CPPA
ATV (Automated Transfer Vehicle): The main figures

- ESA’s largest and most complex project to date
- 5 unmanned space cargo ships to the ISS + reboosts of ISS
- Launched with Ariane-5-ES-ATV
- 23 different user involved in CPP for EEE-parts
- 46 different equipments per vehicle
- > 20 years program duration
ATV: CPPA point of view

- TESAT (prime) in cooperation with ALTER (subco)
- Engineering support started in 1998
- > 7500 EEE-part types per vehicle
- ≈ 300k pieces of EEE-parts per vehicle
- > 2Mio pieces in total
- Close-out in Dec 2015

✓ Successful handling by CPPA
CPPA Set-up

Prime

CPPA
Prime

Subco.

Supplier

USER
CPPA: Benefits for prime and users (1)

- Part type reduction and standardization
  - Reduced overall cost and reduced logistics
  - Homogeneity of quality in acc. with project requirements

- Procurement control and visibility
  - Single interface to manufacturer
  - One point contact for Prime

- Purchasing power
  - Stronger position with vendors, better prices & lead times
  - Reduction of MOQ & additional testing
  - Better response time from manufacturer
CPPA: Benefits for prime and users (2)

- Technical Support
  - Know-how on all part types
  - Experience with all manufacturers
  - Issuing of specifications
  - Handling of Warning Notices and Alerts

- Additional service
  - Performing tests and inspections (CSI, DPA, RVT, etc.)
  - Export license management
  - Obsolescence management
  - Access to stock
MPCV-SM: Evolution from ATV to Orion

- Orion Multi-Purpose Crew Vehicle (MPCV) by NASA
- Service Module (SM or ESM) as European contribution
- In-space propulsion, energy, thermal control, life support systems
- Based on ATV-technologies + new designs/concepts
- EEE-parts: TESAT (CPPA-prime) with ALTER (Subco)
- Engineering support started in 2014

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MPCV-SM: Differences to ATV and impact on EEE-parts

- Manned missions foreseen
  - Level class 1 (instead of class 2)
- Missions beyond LEO
  - Rad-hard devices (instead of low TID/SEE req.)
- Time-lag between missions
  - Combined procurement for several vehicles in ATV
- Less numbers of users and equipments
  - Still consolidation options in MPCV
MPCV-SM: Experiences from CPPA (1)

- Standardization/Consolidation of EEE-parts
  - approx. 25% of line items across different DCLs

- Cost impact by requirements (class 1, rad-hardness, etc.)
  - significant higher cost for EEE-parts per DCL

- First cost estimation for MPCV were based on ATV
  - considering new req. for level, rad-hardness, etc.
  - within ±10% of cost for first DCL for MPCV

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unclassified
MPCV-SM: Experiences from CPPA (2)

- High quality of EEE-parts
  - very low number of NCRs (compared to ATV)
  - significant lower post-procurement costs

- Combined procurement for multiple vehicles limited
  - Further savings could be realized in future

[Images of MPCV-SM spacecraft components]

[Unclassified]
Summary

- EEE-parts impact by mission req. well estimated at early stage
- EEE-parts CPPA concept was/is applied successfully in ATV/MPCV
- Good base for further benefits to future MPCV-SM
- Currently planned: MPCV mission in 2018 and in 2022
Thank you, Merci, Grazie, Vielen Dank!

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