

CRISA

Airbus Crisa

NAVISP APR Final Presentation

CRISA

40Years
Airbus Crisa

AIRBUS

Know the Team

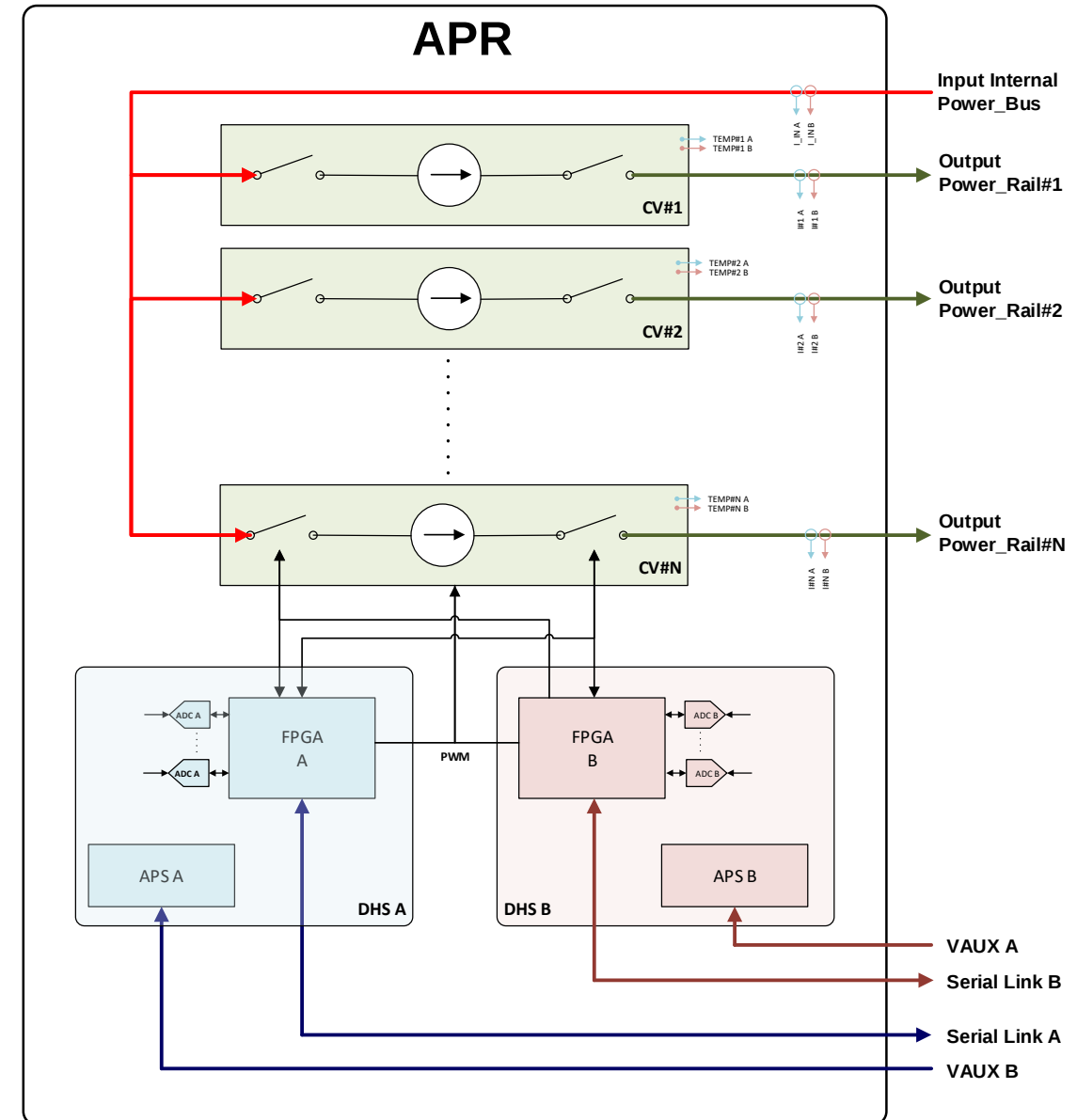
- Know the Team
- Functional architecture
- APR carrier assembly
- Test setup
- Test Results
- Product Roadmap
- Conclusions

NAVISP Team

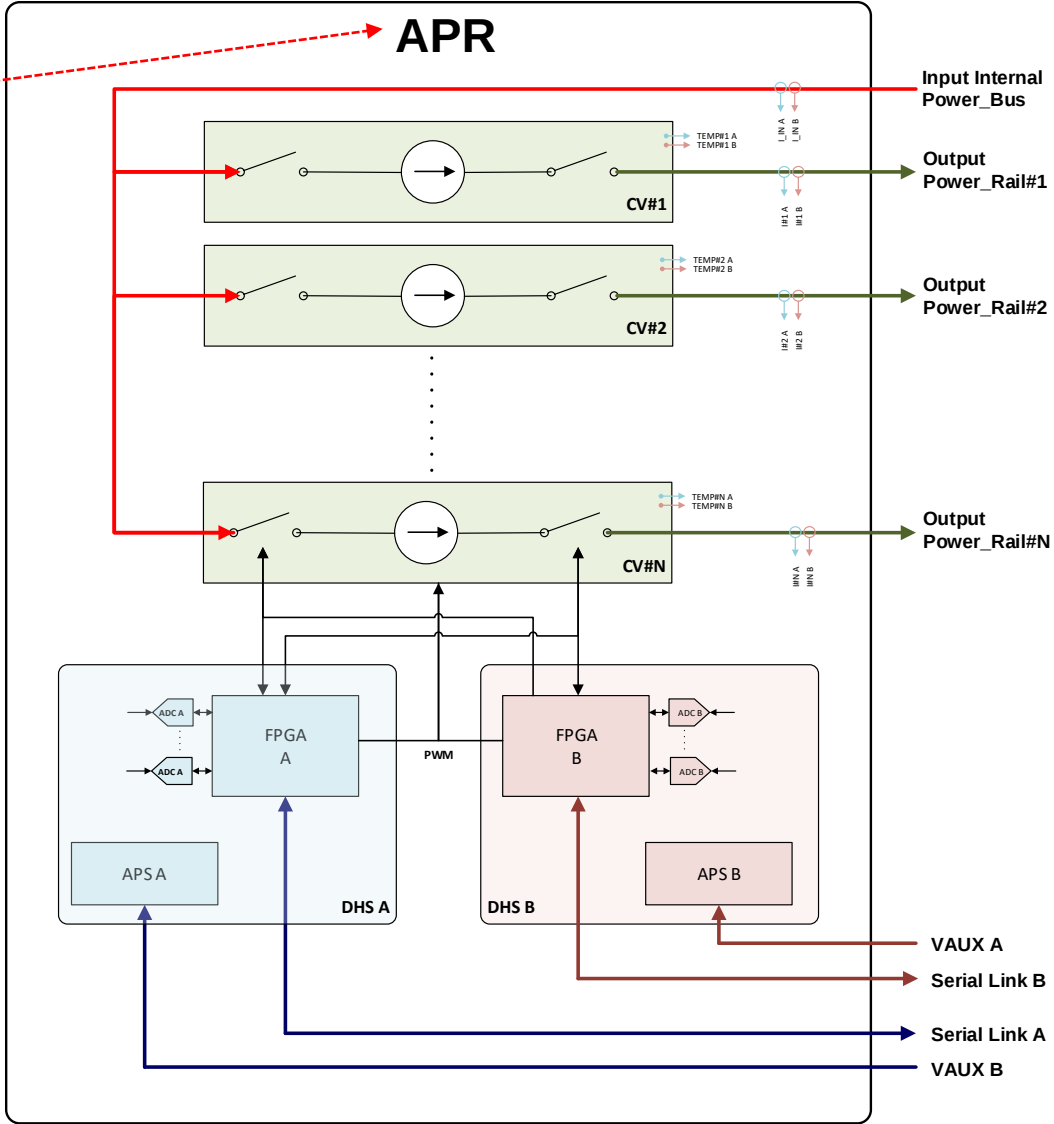
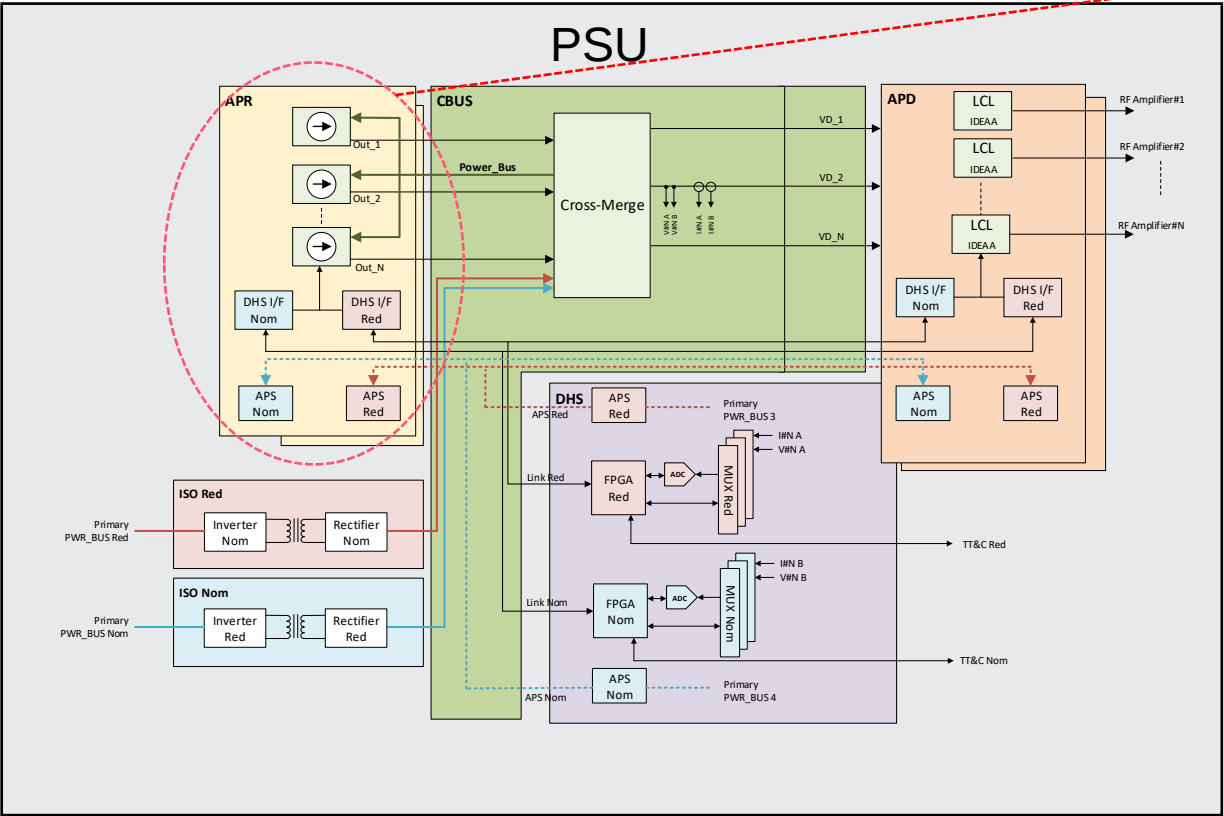
- **Daniel García Aller**
– Technical Manager
- **David Gonzalez Bravo**
– Power Electronics Designer
- **Ana Macdonald**
– Mech. And Thermal Engineer
- **Marcelo Durán Perez**
– Project Manager
- **Marcos Nuñez**
– Sys. Eng. Team Leader

APR functional architecture

- APR = Antenna Power Regulator
 - To feed RFPA in an Active Antenna
 - Generate several power rails
 - Outputs controlled in current
 - From a common input rail
 - Nom/Red control

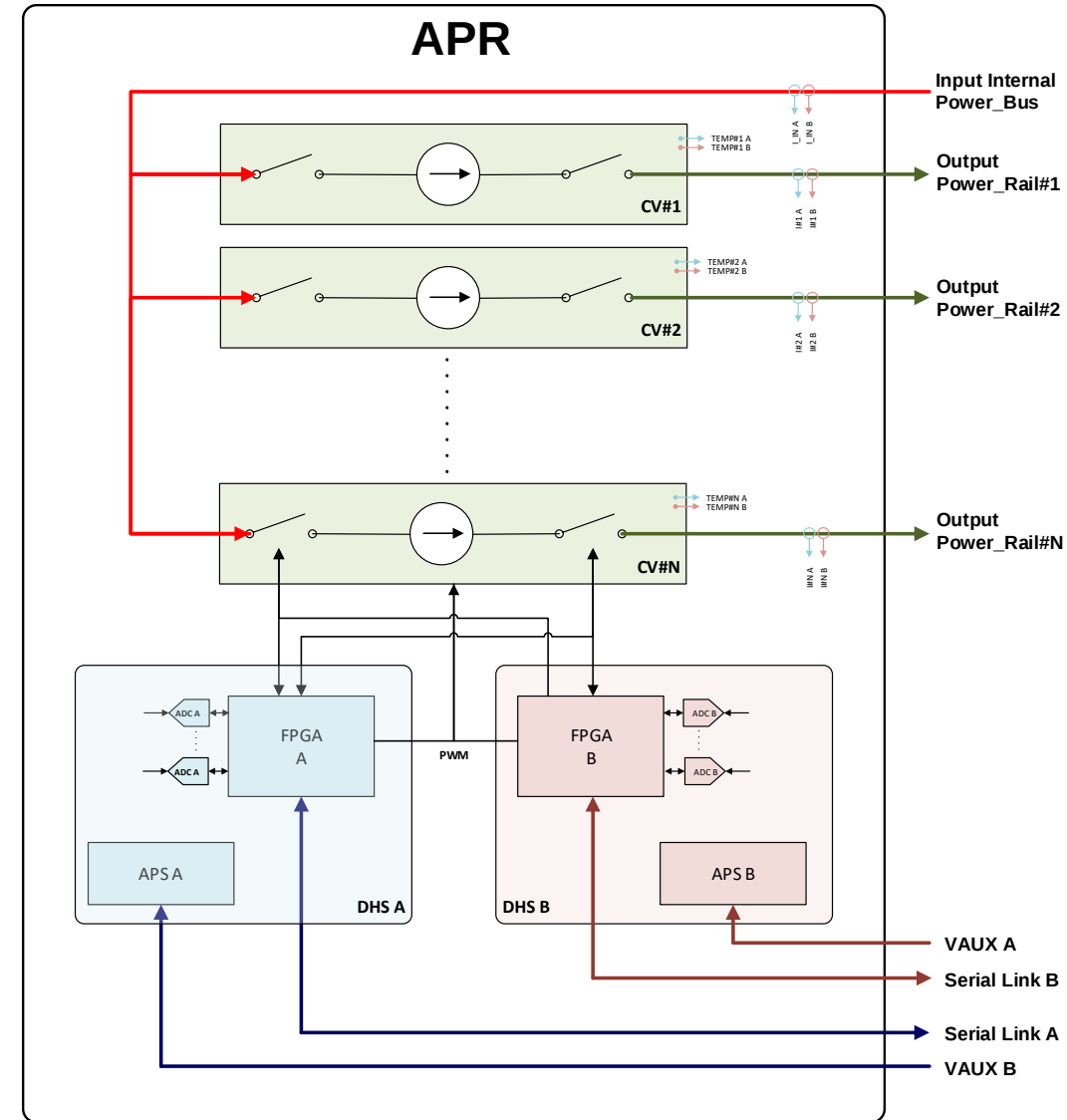


PSU functional architecture

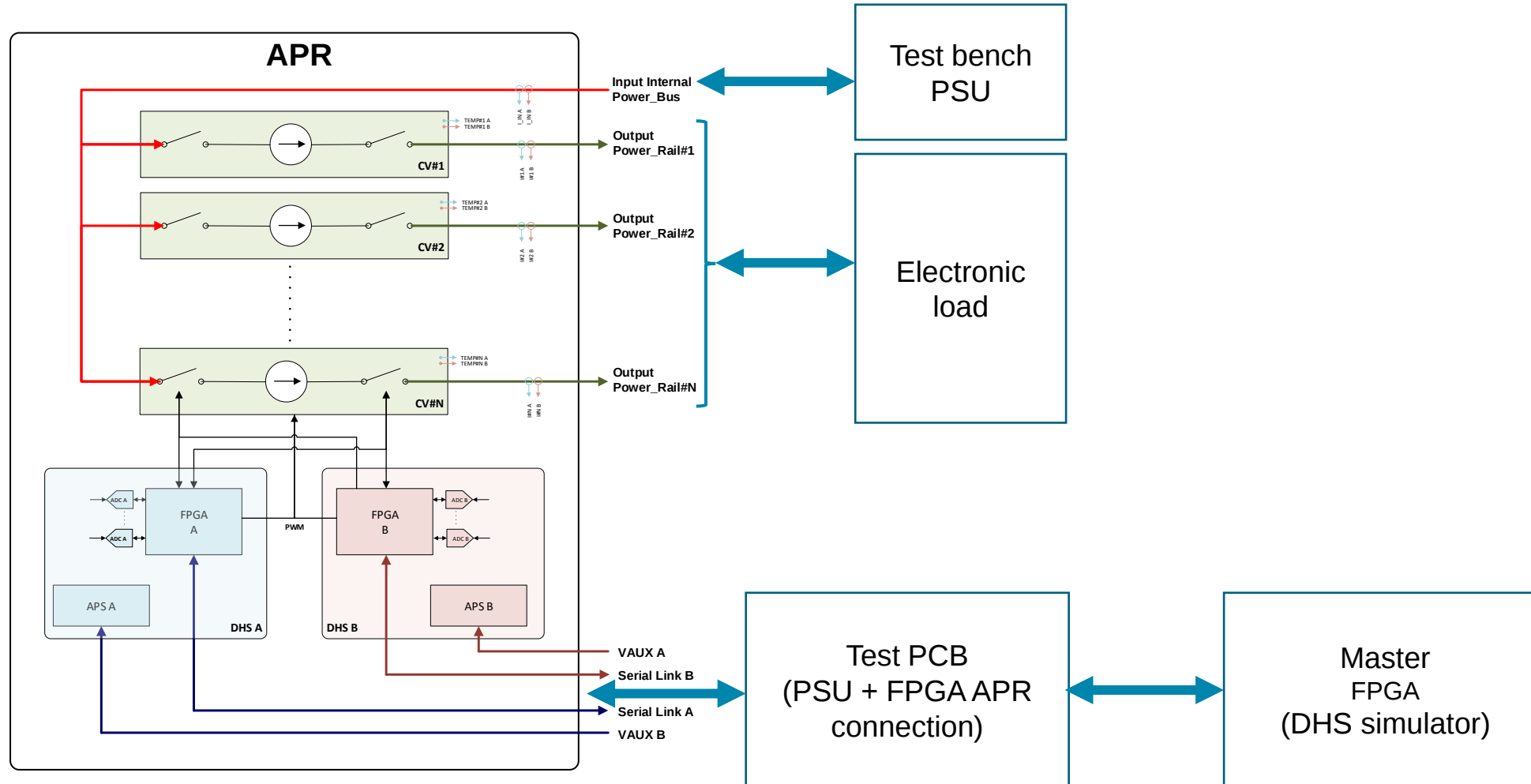


APR functional architecture: datasheet

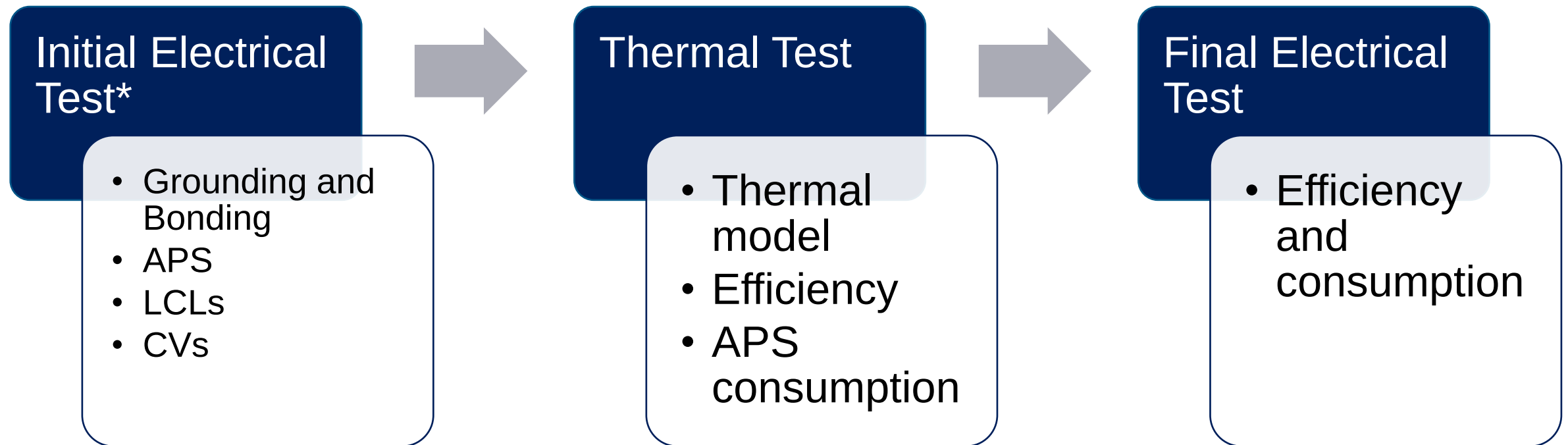
- Several independent bidirectional converters
- Current controlled
- EEE COTS + GaN Switches
- Up to 50V 8A each CV
- CV parallel configuration
- Efficiency of 97,8%
- Nom/Red control (cold redundancy)



Test Setup



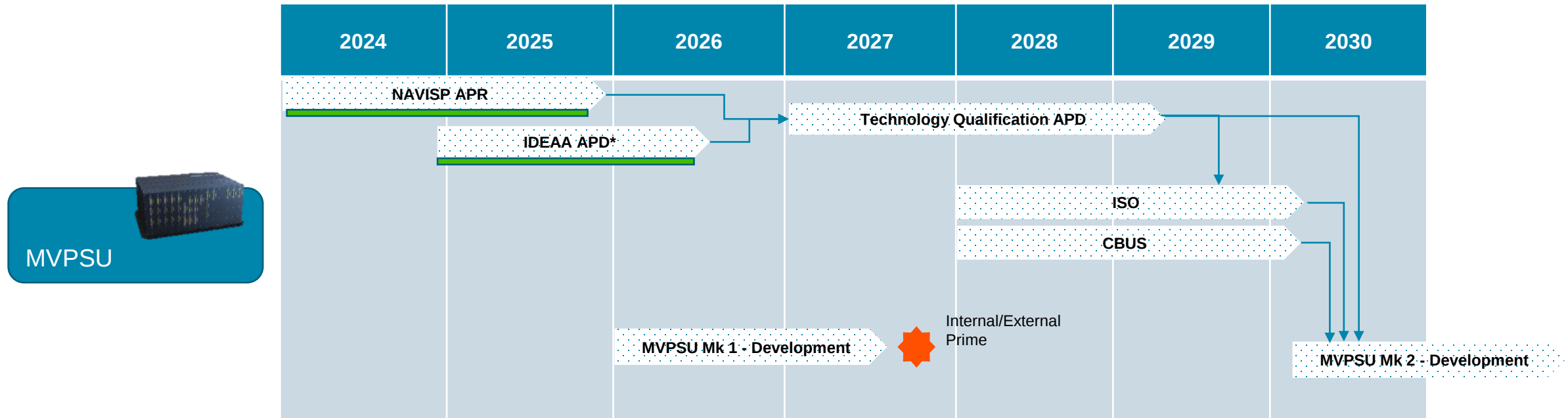
Test Development



Test results

Test ID	Test name	Status	Comments
EL/FUNC	Electrical test. Functional performances checks	POK	Current setting steps higher than requirement
EL/PWR	Electrical test. Power performance checks	POK	APS power consumption higher than requirement
EL/FUNC/DHS	Electrical test. Functional performance checks related with data handling	POK	Redesign some part of the telemetry acquisition
EL/FUNC/SAFETY	Electrical test. Functional performance checks related with safety interfaces	OK	
MECH/DIMENSIONS	Mechanical test. Dimension checks	POK	The width is higher than requirement
MECH/MASS	Mechanical test. Mass checks	NO PASS	The mass is higher than the requirement
MECH/THERM	Mechanical test. Thermal checks	POK	Maximum temperature condition has not been tested due to a set up failure
EL/EMC/GRD	Electrical test. Grounding checks	OK	

MVPSUs Products – Roadmap



- ❑ **MVPSU Mk-1 (fast track):** Power Supply Unit based on MVPCU building blocks (RPMs) and linear LCLs (MOSFETs-P) to reach time to market
- ❑ **MVPSU Mk-2:** Power Supply Unit based on NAVISP APR+ISO+CBUS+APD building blocks to improve performances

Legend

- Funded
- ▤ Activities

* APD: Antenna Power Distribution

Conclusions

- EEE COTS + GaN Switches allows to reduce cost/size and increase power density
- GaN Switches enables the use of Switching LCLs
- PCB design effort is needed due to:
 - New and small EEE COTS packages
 - Large power density
 - High switching frequency

Thank you