

ADCSS 2013

CAN Bus in space Track



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ESA/ESTEC - Data Systems Division, the
Netherlands

22-23 October 2013 – ESTEC

CAN Bus in Space - Session 1 - Newton (15:45-18:00)

Introduction session on CAN bus with keynote speech.

- Conveners: Mr. Magistrati, Giorgio; Mr. Taylor, Chris; Mr. Furano, Gianluca

time	title	presenter
15:45	Introduction to CAN Bus in Space	FURANO, Gianluca
15:50	CAN/CANopen applications: Past, present, and future	ZELTWANGER, Holger
16:20	The ECSS standard - CAN Bus extension for Space	BOLEAT, Christian
16:45	Where and when can we use CAN?	FURANO, Gianluca
17:20	ECSS Standard public review procedure	BURY, Stephen
17:30	Roundtable	TAYLOR, Chris FURANO, Gianluca MAGISTRATI, Giorgio

CAN bus in Space - Session 2: CAN In Space - Applications - Newton (09:00-14:00)

Continuation of Session 1 with industry's position papers, presentation of CAN tools and wrap up discussions.

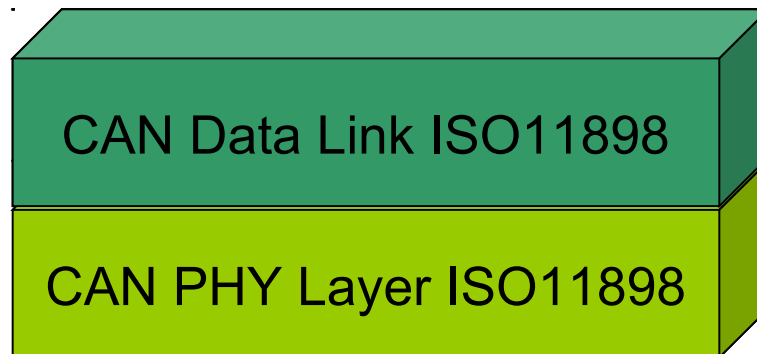
- Conveners: Mr. Taylor, Chris; Mr. Magistrati, Giorgio; Mr. Furano, Gianluca

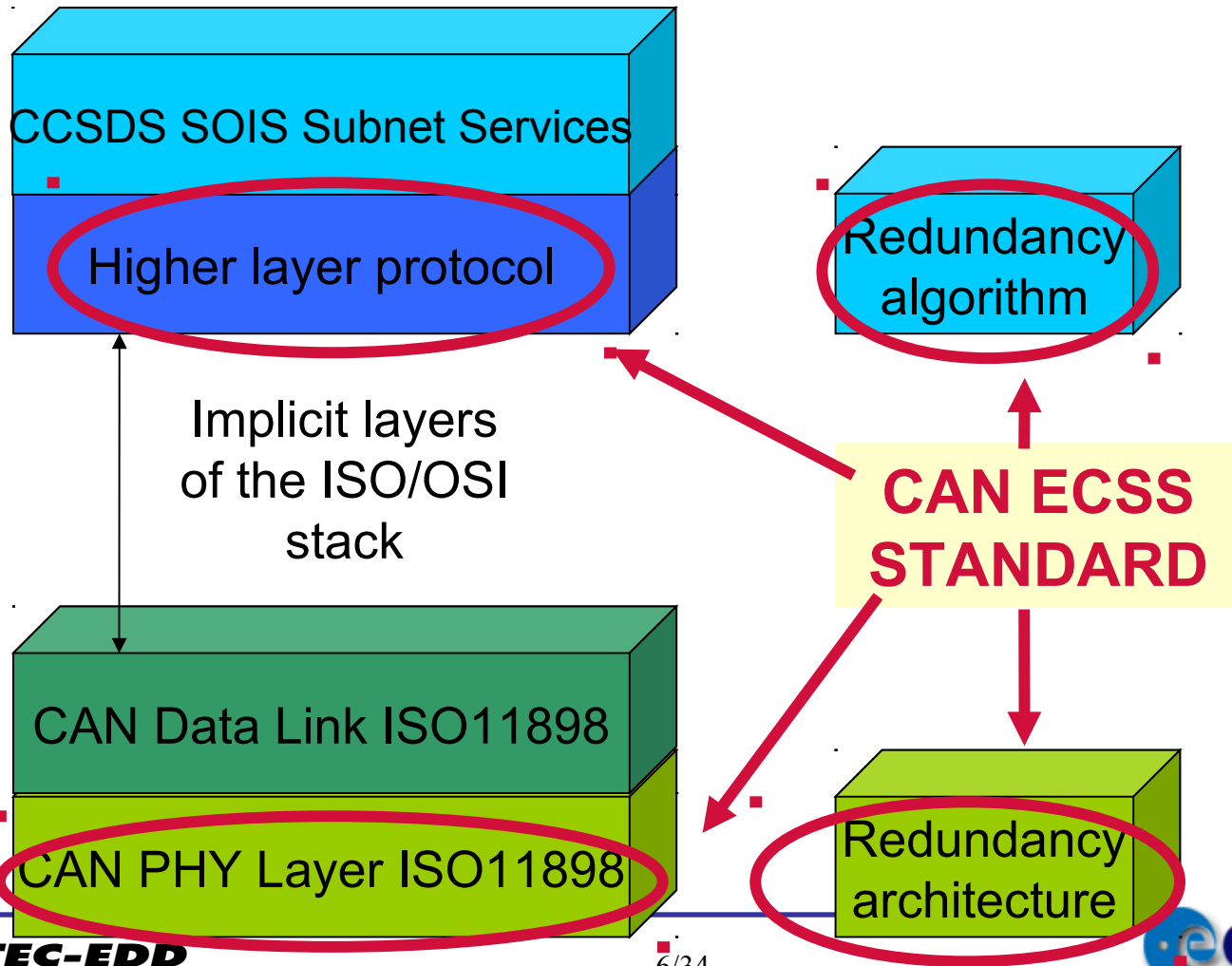
time	title	presenter
09:00	Wrap up of Session 1	MAGISTRATI, Giorgio
09:10	Supporting developments - HW/SW stacks for ECSS CAN	VALVERDE CARRETERO, Alberto
09:20	Supporting developments - IP Cores	FOSSATI, Luca
09:30	Supporting developments testbeds - VECTOR Tools	FREDERIC, Vidy
10:10	Supporting Developments - CAN Bus - Integrating Soft IP Cores into Rad Hard Products	ANDERSSON, Jan
10:25	Supporting developments testbeds - Protocol Validation System	KOLLIAS, Vangelis
10:35	Coffee Break/Product Demos	
11:05	CAN in Space applications - Telecom Satellite - Payload	DALENQ, Jean
11:25	CAN in Space applications - The EXOMARS CAN bus solutions	CARAMIA, Maurizio
11:45	CAN In Space Applications - Thales Telecom Platform	BUSSEUIL, Jacques
12:00	CAN in Space applications - Use of CAN Bus in the VEGA Launcher Autonomous Telemetry Systems.	ORTIX, Francesco
12:20	CAN in Space applications - Small Satellite Platforms	STANTON, David
12:40	Roundtable	FURANO, Gianluca TAYLOR, Chris MAGISTRATI, Giorgio

- We are trying to collect questions and impressions LIVE on **twitter**
- Use hashtag **#adcoss2013** to have your tweets visualized
- Follow **@ADCSS2013** to be up to date
- This will help in optimizing times and log the questions



- In the past, projects **were** using CAN with a variety of implementations because
 - Original CAN only specified Data Link Layer
 - ISO Standard 11898 specified also a PHY Layer
- **ExoMars is one of the first projects starting from the (still draft) ECSS-E-ST-50-15C for CAN Bus in Space**
 - Being still a preliminary draft, the ECSS is not presently applicable to the projects
 - ExoMars can pick features, tailor or change it as needed
 - The ECSS standardization process was started in **2009** and finish within the current year





CAN ECSS-E-ST-50-15C Standard: TOC

- **Higher Layer Protocol**
 - CANopen basics
 - Network management → NMT
 - Method of exchanging process data → PDOs
 - Device configuration → SDOs
 - Emergency Notification → EMCY
 - Time stamping and synchronization → SYNC and time
 - Error Control → Heartbeat
 - Time Distribution protocol
 - Based on CANopen mechanisms
- **Physical Layer**
 - Both ISO and RS422
- **Redundancy Architecture**
- **Redundancy Algorithm**

Mr. Holger Zeltwanger (CAN in Automation)

