

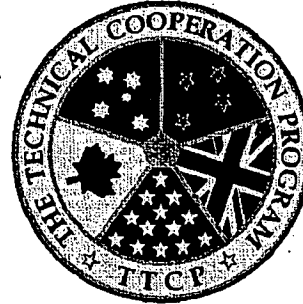


TTCP JSA TP 4-3

***Joint Systems and
Analysis Group
Technical Panel 4-3
Safety-Critical Systems***

Update January 2009

**Frédéric Michaud
System of Systems Section
DRDC-Valcartier**



The Technical Cooperation Program

TTCP objectives:

- Augment national defence S&T programs with knowledge and resources gained from the member nations.
- Avoid unnecessary duplication.
- Promote coordinated action to identify and close important gaps in the national technology base.
- Assist each other in meeting defence requirements through the exchange of S&T information.





JSA-TP-4-3 Safety Critical Systems

Aim:

- promote and share science and technology, which supports the development of critical systems for national defence.

Reason and Justification:

- *Critical systems* are systems, largely dependent on complex electronics/software, which provide mission, security and safety critical functions. Implementation of complex electronics and software, estimated as 40% of some nations' R&D defence budgets.
- The particular emphasis is **safety critical systems/software as problems and issues are strongly related to mission and security.**



2008 Tasks

- All tasks for 2008 are closed.
- CDs with 2008 presentations, progress report, shared documents, and 2009 plan are being shipped (gov. participants only).





2009 Tasks

- **2.1 Common System Safety Standards**
- **2.2 Collaboration on Implementation of US Safety Precepts**
- **2.5 Joint policy for the development and procurement of Complex Electronics (FPGAs, ASICs)**
- **Tasks 2.3 and 2.4 are closed.**



PM/SA Efforts Redistribution

- Coordination and management of tasks will always be done by Defence engineering Valcartier (DeV)
 - Scientific « reach back » from the DS as needed.
- Fred Marcheterre will be the PM.
- The SA will vary following the nature of the task.
- New sub tasks are being created to support TTCP JSA 4-3.





Priorities/Resources

- Need to establish a list of priorities.
 - Some tasks may require a lot of time and effort.
 - Local resources are already very committed to existing tasks and projects, many will not be available for some time.
- Additional resources required to increase support level.
- Need to manage expectations.



Task 2.1 Common System Safety Standards

Task Objective:

To facilitate certification and procurement of equipment among TTCP partner nations, Aus/Can/UK/US work toward a common safety standard and practices.

Work:

- Review of the new Joint Software System Safety Handbook: DONE, no feedback on CF comments.
- NATO STANAG 3839 Avionics Software Engineering: Need to establish review team and obtain last version.
- Look at ISO 31000 Safety Engineering: Need to establish review team (we have the draft).





Task 2.2 Collaboration on Implementation of Safety Precepts published by US in 2007

Task Objective: Investigate co-operation with Aus/Can/UK/US to identify the underlying S&T that would enable the Unmanned Systems Safety precepts to be implemented coalition wide.

UAS Standards: There is a large number of recent standards related to safety of UAS:

- NATO USAR (UAS A/W Requirements) STANAG 4671
- US DOD Unmanned Systems Safety Guide for DOD Acquisition (27 Jun 07)
- RTCA/DO-304 (22 mar 07), several Eurocontrol docs, SAE etc...

Work:

- Need to establish a review team with a clear mandate.
- Need to identify key players on the Canadian side for cooperation.
 - JUSTAS?



Task 2.5

Joint policy for the development and procurement of Complex Electronics (FPGAs, ASICs)

Task Objective:

- Industry and procurers are seeking guidance on the development and management of the Field Programmable Gate Arrays (FPGAs) and similar devices. These devices are increasingly being used in mission, security and safety critical systems.

Work:

- Need to establish a work team that will identify relevant studies/research, key players, and coordinate efforts toward preparation of a series of recommendations.





DEFENSE  DEFENSE

Questions ?



The Department of Defense Program is: 75-70305