

Thales Alenia Space point of view on future AOCS sensors/actuators

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As a major spacecraft Prime, Thales Alenia Space permanently updates his avionics road map for future missions. The trends of the evolution of AOCS sensors/actuators have a strong impact on the definition of the next generation avionics. Thales Alenia Space is currently performing an ESA study of new architecture needs for AOCS / avionics. This study is correlated to several projects on similar subjects, which are also currently under progress: sensor on a chip, optical wireless transmission.... The main conclusions of the presentation are derived from the work performed through these studies. While the Observation and Science applications have been in the past the origin of new development of AOCS units, we could note that more and more often the needs for Telecommunication missions are similar and lead to develop a common unit able to cover the different missions, even if the orbits and life duration are largely different. It is clear that the credibility of future avionics development is based on the availability of AOCS sensors/actuators and that ESA road map shall be coordinated with Prime road maps to ensure that AOCS units developed during the next ten years under ESA funding fit well with the needs of the maximum number of users. Thales Alenia Space supports ESA in its policy to sponsor AOCS unit developments, allowing European primes to have access to high performance and competitive European AOCS units. Through this presentation, Thales Alenia Space view will be explained addressing the following points: - lessons learnt from current AOCS units have allowed to list the main limitations of the current AOCS units - major key drivers have been identified for next developments: some drivers are common to all the units (cost, procurement, interface...), other drivers are specific to each unit - survey of the current market situation and its specificities - a strong standardization of the AOCS units shall be defined covering the following areas: functional exchanged data, electrical interface, synchronisation of the units, power interface, test interface capability for AIT - the EEE procurement restrictions (COTS/radhard approach, ITAR legislation)