

SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Tools and Technology in Support of Integrated Applications (2)

Author: Mr. Frank Zeppenfeldt
European Space Agency (ESA), The Netherlands

Mr. Amnon Ginati
European Space Agency (ESA), The Netherlands

Mr. Sergio Lopriore
European Space Agency (ESA), The Netherlands

SPACE FOR UNMANNED AERIAL SYSTEMS - AN UPDATE ON EDA/ESA'S COORDINATED
INITIATIVE

Abstract

The use of UAS (Unmanned Aerial Systems) is nowadays often restricted to line-of-sight operations, and limited to segregated airspace. The European Space Agency (ESA) and the European Defence Agency (EDA) have started a joint activity that will support a wider usage of UAS by using advanced satellite systems. Satellite systems can be supportive to implement Air Traffic Management regulations, provide efficient Command and Control of the UAS and provide long reach backhauls for the mission data.

The use of UAS in non-segregated airspace is under investigation in EDA supported activities such as Air4all and MIDCAS, while the various telecommunication and navigation aspects are under investigation by ESA Directorate of Telecommunications and Integrated Applications. The European Data Relay Satellite which is currently being implemented by ESA and Industry, is an important building block of a space infrastructure that support BLOS (beyond line of sight) operations of UAS's. The presentation will report an important achievements supported by EDA and ESA. The current developments with regards to UAS-satellite communication and possible cooperative missions of UAS's with satellite systems will be assessed.

Furthermore, the outline plan will be presented for an EDA/ESA demonstration mission that shall prove to the UAS stakeholders the state-of-the-art for what concerns UAS-satellite cooperative missions. The "Space-for-UAS" activity in the Integrated Applications Programme of the European Space Agency is a typical example of actual users benefiting from an integrated satellite system solution, relying on navigation and advanced satellite telecommunications.

Recommendations for standardisation and future research in order to improve UAS-satellite cooperative missions will be presented, in combination with an update of the European Data Relay Satellite which in itself is an example of supporting Integrated Applications with communications, navigation and earth observation.