



## MASTER IN AEROSPACE SCIENCE AND TECHNOLOGY

### ✧ Satellite and Hybrid Networks ✧

**Monday, 18 May 2009**

**Time:** 16.00h

**Location:** Castelldefels School of Technology, Room 001

#### Conference

#### ***“ The New DVB-SH Standard: Capabilities, Performances and First Field Trials Results”***

by Riccardo De Gaudenzi (European Space Agency, The Netherlands)

#### Abstract

Standards worldwide are competing today for supremacy in the Mobile TV landscape and these include DVB-SH. But, in contrast to previous standards which are derived either from legacy broadcast networks or from legacy cellular networks, DVB has taken a fresh approach for its “new star”. Firstly, the main goal of the new DVB-SH standard was based on the observation that not only is good coverage of a population important, but equally so is good coverage of a national territory. Indeed, at a time when reducing the Digital Divide and promoting e-Mobility features at the top of public authorities’ priorities lists, this consideration is fundamental. Secondly, for shorter time-to-market, the standardization group pragmatically chose to leverage tools from other mature standards, in particular DVB-based ones such as DVB-H and DVB-S2. Thirdly, recognizing the importance of the mobile phones in everyday life, TM-SSP also took into consideration the need for co-existence and co-evolution with mobile telephony networks. And finally, DVB-SH fully embraced the convergence to an all-IP networking that is happening in all fields of Information Communication Technology.

The DVB-SH standard is devised to operate over land mobile satellite (LMS) channels with a complementary ground component to provide service in urban and dense suburban, and also indoor, environments where satellite alone can not fulfill the requirements. The system is economically viable, provided the satellite component can deliver a good quality of service over open, rural environments and low populated areas where a terrestrial infrastructure is not justified.

After a short introduction on the overall satcom business and other worldwide initiatives related to mobile satellite broadcasting the lecture will provide an in-depth review of the new DVB-SH standard, its design drivers and key performance obtained by simulation. In the second part of the lecture the key results of a field trial campaign of early DVB-SH prototypes co-funded by ESA will be presented and outcomes reviewed. Finally, possible future improvements directions of the standard will be shortly outlined.

## Biography

**Riccardo De Gaudenzi** was born in Italy in 1960. He received his Doctor Engineer degree (cum Laude) in electronic engineering from the University of Pisa, Italy in 1985 and the PhD from the Technical University of Delft, The Netherlands in 1999. From 1986 to 1988 he was with the European Space Agency (ESA), Stations and Communications Engineering Department, Darmstadt (Germany) where he was involved in satellite telecommunication ground systems design and testing. In particular, he followed the development of two new ESA's satellite tracking systems. In 1988, he joined ESA's Research and Technology Centre (ESTEC), Noordwijk, The Netherlands where in 2000 he has been appointed head of the Communication Systems Section and since 2005 he is Head of the RF Payload and Systems Division. The division is responsible for the definition and development of advanced satellite system, subsystems and technologies for telecommunications, navigation and earth observation applications. In 1996 he spent one year with Qualcomm Inc., San Diego USA, in the Globalstar LEO project system group under an ESA fellowship. His current interest is mainly related with efficient digital modulation and access techniques for fixed and mobile satellite services, synchronization topics, adaptive interference mitigation techniques and communication systems simulation techniques. From 2001 to 2005 he has been serving as Associate Editor for CDMA and Synchronization for IEEE Transactions on Communications. He is co-recipient of the VTS Jack Neubauer Best System Paper Award from the IEEE Vehicular Technology Society.

## More Information

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