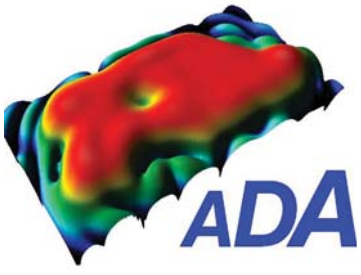
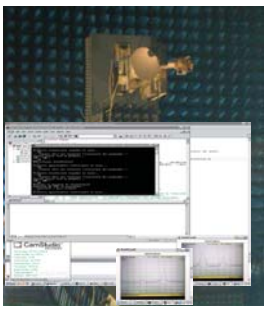
Activity Title:	***Adaptive Antenna for Telecommunication Links***		
Contract type	**Artes 5.1**	**Budget** *(k€)*	**500+100**
Company (-ies) *(including country)*	Space Engineering		
Team *(name of the participants in the project)*	Mr. Alfredo Catalani, SpEng Mr. Fabio Maggio, SpEng Mr. Massimiliano Tosti, SpEng Mr. Claudio Campa, SpEng Mr. Enzo Coviello, SpEng		
(*) **Speaker (s)**	Mr. Alfredo Catalani	**Email**	alfredo.catalani@space.it
Short Speaker Information *(experience and involvement in this project – maximum 60 words)*	Senior Antenna Engineer with 15 years of experience in passive and active antenna design considering the main antenna configurations and technologies (reflectors antenna, printed antenna, waveguide antenna) Project/Programme Manager of the activity, following all the steps from the adaptive architecture definitions to the antenna design; and finally contributing to the demonstrator implementation and test campaign.		
Summary of the activity *(maximum 400 words and 2 pictures)*	The growing number of incidents of space satellites being "hacked" in this last period has created a need for systems with Anti-Jamming capabilities, whose development has led to significant improvements in the quality of communications satellites services, becoming of great interest for all the operators. In response to this problem, it is relevant to develop electronic tools for attacking and defending satellite communications; but taking under control the costs, the complexity and the flexibility aspects. The selected architecture/configuration exhibits flexibility characteristics and it is devised to be integrated with an existing antenna system in order to provide protection features for the transponder against interferers for a 36 MHz channel. Using small adjustment, the Adaptive Antenna System can be integrated into the Focal Array Fed Reflector Antennas (FAFR) or also into the Shaped Reflector Antennas (SRSF): the first one foresees the introduction of a number (equal to the number of the feed cluster) of 15 dB coupler to extract the signal for the elementary beams; while the second one integartes additional feed around the main illuminator to the same scope. The performance are most promising with the FAFR configuration that is able to protect large coverage area (in terms of percentage better than 85%); but also with the SRSF it is possible to guarantee the same service in case of the interferer presence depending the accepted complexity of the auxiliary cluster size. An additional activity has been carried out in the frame of CCN; where a simplified architecture has been investigated to be applied to Shaped Reflector Antennas (SRSF) in order to minimize the digital hardware and to maintain good RF performance. The strenght of the developed system and the adaptive algorithms has been checked and validated in the frame of a test campaign, where a demonstrator with scaled antenna configuration has been tested in real time.  		

(*) The speaker needs to do the registration through this website