Title:	***"EVEREST :*** Evaluation and Validation of Electromagnetic Software, Test Facilities and Test Standard in Europe to Predict and Test RF Breakdown and Passive Intermodulation **"**		
Contract type	TRP	**Budget** *(K€)*	**582 k€**
Company (-ies) *(including country)*	Coordinator : CNES (Centre National d'Etudes Spatiales) : France Airbus Defence and Space (UK, France) Aurorasat (Spain) Chalmers University (Sweden) COMDEV (United Kingdom) CSIC (Spain) Darmstadt Technical University (Germany) Intespace (France) ONERA (France) RUAG (Sweden) RYMSA (Spain) Thales Alenia Space (France) TESAT (Germany) UAM Polytechnics (Spain) UAM Applied Physics (Spain) University of Valencia (Spain) Polytechnical University of Valencia (Spain)		
Team *(name of the participant in the project)*	J. PUECH (**CNES**), C.E. MIQUEL-ESPANA (**ESA**), D. RABOSO (**ESA**) L. GALAN (**UAM**), I. MONTERO (**CSIC**), M. BELHAJ (**ONERA**) D. HILL, N. LOOMBA (**AIRBUS D&S**), C. VICENTE (**AURORASAT**) D. ANDERSON, M. LISAK, J. RASCH (**CHALMERS**) J. PETIT (**COMDEV**), A. AL MUDHAFAR, D. SCHÖNHERR, PR. HARTNAGUEL (**DARMSTADT TECHNICAL UNIVERSITY**) E. CAVRO, P. MEISSE (**INTESPACE**) P. MAGNUSSON, U. JOSTELL (**RUAG**) P. MADER (**THALES ALENIA SPACE**), R. ESTEVE (**RYMSA**) D. WOLK (**TESAT**), J. DE LARA (**UAM POLYTECHNICS**) B. GIMENO, V. E. BORIA (**ESA-VSC**)		
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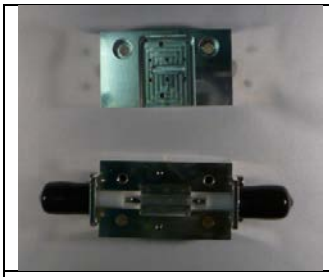
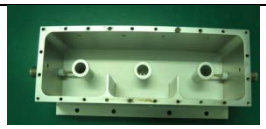
Short Speaker Information *(experience and involvement in this project)*	J. Puech : Expert in charge of studies related to the RF high power applications (TWT) and phenomena (Multipactor, Corona) at CNES. He was the coordinator of the project. C. Vicente : Technical Director at Aurorasat. He has a long experience in high RF power phenomena modelling. During the project, he was in charge of Aurorasat tasks related mainly to Multipactor and Corona modelling. P. Mader : Expert in charge of RF high power phenomena at TAS. He was		

	involved in all TAS tasks within this study. M. Belhaj : Expert in secondary emission measurements. He was in charge of the ONERA secondary emission yields measurements during the project. I. Montero : Expert in secondary emission measurements. She was in charge of the CSIC secondary emission yields measurements during the project. L. Galan : Expert in secondary emission measurements. She was in charge of the UAM secondary emission yields measurements during the project.
Summary of the activity *(maximum 400 words)*	At the payload level, microwave components must handle very high electric fields in vacuum. Risks of discharge such as Multipactor or Gaseous Discharge triggered by Multipactor can become critical and must be taken into account at the system level, as well as at the equipment level. At platform level during launch, the whole range of pressure levels are imposed onto hardware and gaseous discharge (Corona effect) often determines the power handling limit. Cross-validations between measurements and simulations results were addressed within this activity named "EVEREST", coordinated by CNES. The objective of this activity performed by a consortium of 17 entities was to evaluate and validate electromagnetic software, test facilities and test standards in Europe used to predict and test RF breakdown. A first phase was dedicated to the state of the art (studies, prediction tools, test means) related to thigh power RF phenomena. Then, the test hardware was defined according to the capabilities of the test facilities. In parallel to this work plan, a SEY sample measurement strategy was devised to obtain SEY inputs for the Multipactor numerical analysis tools. The SEY samples were manufactured from the same batch with the same material process as the corresponding RF hardware. These SEY data were then used in the Multipactor simulation process. The objective was to perform Multipactor simulations of the RF test hardware with different available tools and to compare them with Multipactor measurements realized on these RF hardware in different test set-ups in Europe. For the 2 kind of discharge phenomena (Multipactor, Corona), different analyses were performed: simulations with measurements, simulations with simulations, measurement results compared between test systems within the envelope of the simulation error windows. The aim of the last Work Package was to synthesize all results in order to prepare outputs for the standardization purposes. The activity consisted in updating the test plans and assessment of test samples and in evaluating the common test procedure which were used in the different test facilities. It also consisted in evaluating the prediction tools which were cross-validated with measurements.  *Courtesy of Airbus DS*  *Courtesy of RYMSA*  *Courtesy of TAS*

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