

Training Opportunity for Portuguese Trainees

Reference	Specialist Area	Duty Station
PT-2010-TEC-ETP	RF Payloads, Satellite Telecommunication	ESTEC
<p><u>Overview of the Division missions:</u> The RF Payload Systems Division is responsible for space instrumentation and communication systems, subsystems, equipment and technologies which cover the following domains:</p> <ul style="list-style-type: none"> - Communication systems and subsystems design and validation; - Systems for TT&C communication, navigation, remote sensing and scientific applications; - Satellite payloads (e.g. repeaters for telecommunications or navigation instruments, earth remote sensing instruments for scientific applications); - Microwave and millimetre wave equipment and technologies; - Complex on-board payloads for communications and remote sensing, and processing core of such systems, including optically based implementations; - Systems testing for performance evaluation or validation; - Laboratories to test/prove concepts soundness and validation. 		
<p><u>Overview of the field of activity proposed:</u></p> <p>The Trainee will be participating in an R&D working group on advanced flexible telecom payload concepts with particular emphasis on Ka-band broadband multimedia and L/S-band mobile scenarios. In particular, he/she will be very active in the simulation and evaluation of different next generation multibeam payload architectures using on board digital processors and flexible output sections offering on board flexibility in terms of bandwidth and power to beam (e.g. active transmit antennas, multipoint-amplifiers, etc.).</p> <p>The activity will include analyses, trade-offs and performances assessment (e.g. interference, intermodulation, distortions, phase noise, etc.) of flexible payloads architectures and constituent building blocks (e.g. High Power Amplifiers (HPA), multiplexer filters, frequency conversion chains, etc.). Conventional RF-front-end / antenna architectures and advanced payload concepts based on distributed power amplification configurations will be studied and compared in order to determine the most promising architecture for different application scenarios.</p>		
<p><u>Required Education:</u></p> <p>Applicants should be either a last-year university student or a PhD student in telecommunications or electrical engineering, with a good knowledge of RF and microwaves systems, Signal theory and digital signal processing techniques and some background knowledge on satellite telecommunications techniques and systems. Experience in computer programming and MATLAB is also required.</p>		