

Activity Summary

RF MEMS Switch Technology for Space Application:
Phase 1: Benchmarking and selection

MilliLab

The Millimetre Wave Laboratory of Finland - MilliLab

MilliLab is a joint laboratory between VTT Technical Research Centre of Finland and Aalto University (formerly Helsinki University of Technology). Furthermore, MilliLab has the status of ESA External Laboratory on Millimetre Wave Technology and specialises in micro to sub-millimetre wave frequency measurements. The MilliLab work proposed in this proposal is planned to be carried out utilising VTT's resources. VTT is located in the campus area of Aalto University in Otaniemi, Espoo.

VTT has substantial amount of expertise and experience (through MilliLab or otherwise) in the field of microwave, millimetre and sub-millimetre wave antennas, components, and systems. This includes RF MEMS design, manufacturing and characterization. MilliLab-VTT has produced RF MEMS components and circuits from DC to 220 GHz. RF MEMS components and circuits developed by MilliLab-VTT include switches, varactors, switched capacitors, filters, power sensors, phase shifters, impedance tuners, and matching networks.

Contacts

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Overview

This activity aims to benchmark and select European RF MEMS technologies for further industrialization and space qualification to secure European source for RF MEMS. Benchmarking of technologies is carried out with identical test plan and testing set-ups for devices from a minimum of four suppliers. As a result of the benchmarking campaign, one or two European RF MEMS technologies are chosen for further development.

To achieve this, European RF MEMS technology providers and their switches are surveyed and compared to agreed technical requirements, based on which RF MEMS switches are selected for a benchmarking test campaign. Each RF MEMS switch type (several units per type) then goes through identical benchmarking tests. Depending on the benchmarking results one or two switch technologies will be recommended for industrialization and further space qualification.



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Work structure

The activity is a two-phased project with total duration of 24 months spanning from September 2014 to August 2016. Phase 1 is scheduled to end in January 2015. The below block diagram shows the task division within the project phases and lists planned tests in the benchmarking campaign.

