VIPER RF Ltd; Study of X-and Ku-band Transmitter Prototypes for Microsat Communications

Project Summary

The project aims to develop key technological building blocks towards a highly integrated, low cost transmitter suitable for high capacity data-links on micro-sat platforms. This will be based on existing high performance VIPER RF monolithic microwave integrated circuits (MMIC) components developed in the UK. Key objectives are as follows:

- a technical review of published data for state-of-the-art micro-satellite transmitters;
- establish technical and commercial requirements through discussions with space industry partners;
- design phase for a compact high data-rate X-Band transmitter benchtop model based on existing VIPER MMICs & work in co-operation with Satellite Catapult Missions Lab; areas of particular study will be efficiency improvement of the Tx chain, to reduce the power budget or allow increased transmission output power and data-rate;
- recommendations towards a manufacture-ready benchtop design and roadmap for an Engineering Model development at X/Ku/Ka-band.

Successful completion of this exploratory phase will allow VIPER to explore development of higher data rate transmitters using its existing Intellectual Property in GaAs MMIC chips; such IP will provide a strong foundation on which to allow VIPER to provide reference designs.