

PROJECT

GRACE

GaN mm-wave Radar Components Embedded

Funding: European (Horizon 2020)

Duration: Nov 2018 - Oct 2020

Status: Complete

Total project cost: €1,742,815

EU contribution: €1,742,815



Call for proposal: H2020-CS2-CFP07-2017-02

[CORDIS RCN : 221376](#)

Objectives:

The GRACE project aims at development of surface mount technology (SMT) components for mm-wave (mmW) frequencies, with particular focus on radar systems in the W-band.

Low-cost high-performance radars are critical for future Enhanced Flight Vision System (EFVS) combining IR sensors and a mmW radar.

Key radar components are Power Amplifier (PAs) and Signal Sources (SSs), two functionalities that require high power. The most promising technology to deliver the required power levels in an area-effective package with potential to be cost-effective in volume production is a short-gate length GaN HEMT monolithic microwave integrated circuit (MMIC) technology. The GRACE project aims at utilizing the D01GH and the D006GHG processes from OMMIC, which are two only commercially open European MMIC processes with capability of delivering sufficient gain in the W frequency band.

The GRACE project also aims at packaging the designed MMICs using a fan-out wafer level (FOWL) packaging approach offered by Fraunhofer IZM. FOWL packaging (FOWLP) is one of the latest packaging trends in microelectronics with advantages such as significant package miniaturization, substrate-less package, lower thermal resistance, and higher performance with lower loss and low parasitic coupling

The specific objectives of the GRACE project are:

- Design of a 93-100 GHz Power Amplifier (PA) MMIC with an output power in the range of 500mW to 1W
- Design of a signal-source MMIC covering 93-100 GHz with state-of-the art far-carrier phase noise performance
- Development of a FOWL packaging flow for the PA MMIC
- Development of a FOWL packaging flow for the signal source MMIC

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Other programmes: JTI-CS2-2017-CfP07-SYS-01-10 Development of 94 GHz (W-band) Radar Components

Lead Organisation:

Chalmers Tekniska Högskola AB

Address:

-
41296 GOTHENBURG

Sweden

Organisation Website:

<http://www.chalmers.se>

EU Contribution: €614,578

Partner Organisations:

Fraunhofer Gesellschaft Zur Foerderung Der Angewandten Forschung E.v.

Address:

Hansastrasse 27C
80686 MUNCHEN
Germany

Organisation Website:

<http://www.fhg.de>

EU Contribution: €621,125

Ommic Sas

Address:

CHEMIN DU MOULIN 2
94453 LIMEIL BREVANNES
France

EU Contribution: €507,113

Technologies:

Sensor technologies

Radar technologies with novel technological solutions for early warning

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Multimodal transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other