European project

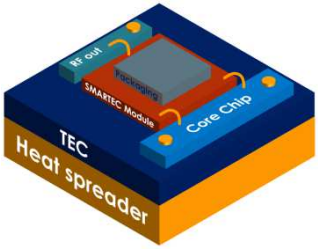
(Fast Track to the innovation)
H2020-EIC-FTI-2018-2020
Project number: 869817

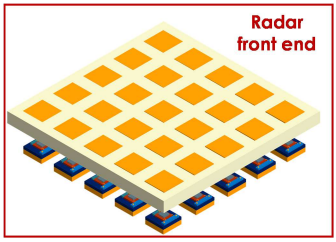
SMARTEC

https://project-smartec.com

A Pilot Line Production of Transceiver Modules For The Next Generation of Smart RF Power Applications

Toward a new generation of Radar Systems based on miniaturized T/R modules



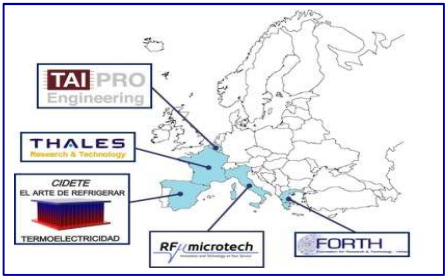


Weather and Vortex Radars (DEMO 1/THALES)

Maritime Radar (DEMO 2/RFM)r

5 partners from 5 countries:

THALES: DEMO1 & RF design
FORTH: Pilot Line fabrication
RF MICROTECH: DEMO2 & RF Design
TAIPRO: Packaging & DEMOs integration
CIDETE: TEC development

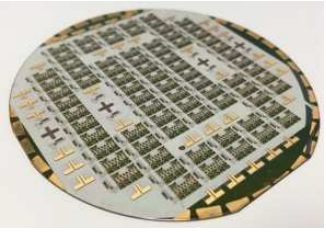


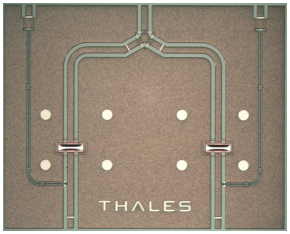
Objectives:

The project SMARTEC aims to establish a Pilot Line Production of Coplanar wave guides (CPW) T/R modules (at TRL8) for Radar applications (X-band). Within the project, 2 demonstrators are adressed
➲ *Vortex Radar (THALES) & Maritime Radar (RF MICROTECH).*

Technological approach:

To improve the integration of sub-systems, a new approach for T/R module fabrication is implemented within the project (SMARTEC module). This technology is based on the ***monolithic integration of HEMT GaN and RF-MEMS switches*** *for high power RF needs* ***(More than 25 W at 10 GHz)****. Within the project, the* ***packaging*** *and* ***Thermo Electrical Cooling (TEC)*** *are also adressed in order to improve the performances and to optimize the integration in radar systems.*





CPW MMIC devices on GaN/SiC substrate (left) & High Power SPDT RF-MEMS switch for X-Band applications (right)

- **Monolithic integration HPA/LNA/MEMS on GaN/SiC**
- **CPW architecture**
- **Sizes reduction**
- **Higher performances**
- **Low cost fabrication**
- **Better integration in systems**

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