



gan-on-Silicon Efficient mm-wave euROpean systEm iNtegration pLatform

**Newsletter / November 2018 -
Issue 02**

Consortium

9 partners (5 countries)

Project Coordinator

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Project number: **779305**

Project website: **www.serena-h2020.eu**

Project start: **1st January, 2018**

Duration: **36 months**

Total cost: **EUR 3,910,185**

EC contribution: **EUR 3,910,185**

Message from the Coordinator

The SERENA project has been successfully started and the first ten months have passed. The ongoing work is on good track and the collaboration among partners is well functioning and fruitful due to effective project management, a well-established IT infrastructure and regular dedicated and focused conference calls.

The partners looking forward to the first review meeting which will take place in Brussels on 15th November 2018.

Upcoming Conferences and Meetings

SERENA Preparation and Review Meeting - 14th to 15th November 2018

@ Brussels, Belgium

The first day of the meeting is planned as a preparation meeting. The second day is dedicated to the actual review meeting.

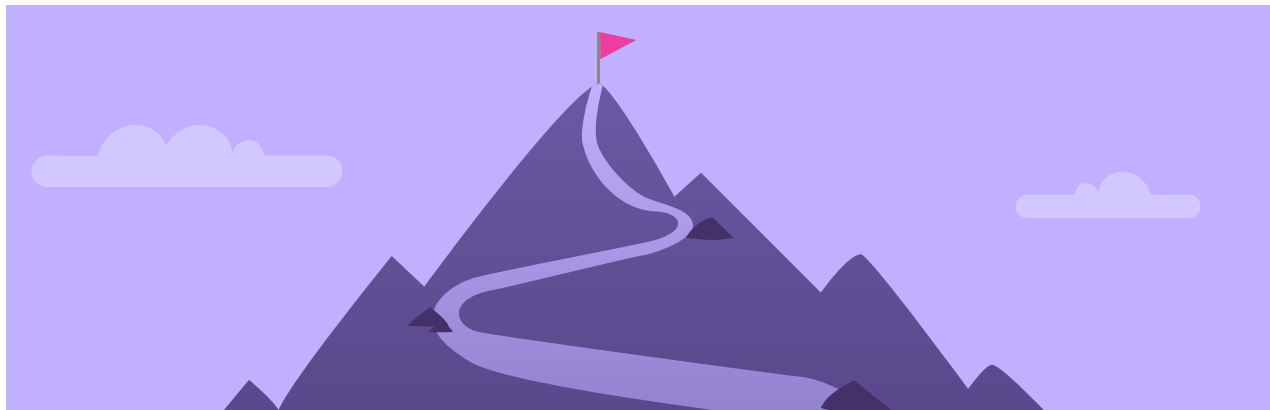
SERENA Technical Meeting - 30th to 31st January 2019

@ Villach, Austria

The next technical meeting will be held in Austria hosted by partner IFAT. Each work package leader will present the progress in their work packages.



Main achievements within first 9 project months



Overall the SERENA project is structured around 8 Work Packages (WPs). One main achievement is the close collaboration amongst all partners that resulted in sound specifications for the various building blocks.

The main result in **WP1 (System architecture and specifications)** is a revision of the achievable maximum output power from an individual power amplifier in the proposed SERENA platform. The deliverables D1.1, D1.2 and D1.3 have been delivered according to plan. These deliverables have served as valuable input for the circuit design activities in WP2, WP3 and WP4. Together the D1-series of deliverables will set the performance limits of the proof-of-concept demonstrators (being developed in WP6).

In **WP2 (39 GHz Front-end Circuit: Design and Manufacturing)** a preliminary design review and the tape-out (critical design review) were performed successfully. Within **WP3 (39 GHz Core & Control Circuits: Design and Manufacturing)**

functional specifications and key electrical specifications for the Beamer IC operating at 39 GHz have been derived. The BEAMER39 IC design towards tape out is on schedule. The electrical design was completed in compliance with system-level specifications (WP1) and physical design commenced.

The activities in **WP4 (E-/W-band Single chip front-end MMIC: Design and Manufacturing)** have focused on providing some early feedback to WP1 in terms of estimating feasible target values for the key RF circuit characteristics (i.e. frequency range, gain, isolation, noise figure, output power, efficiency etc).

The interaction between WP1 and WP4 has resulted in the definition of a plausible target specification for the GaN-on-Si based E-/W-band multifunctional single-chip transceiver MMIC.

In **WP5 (Integration Platform)** two integration concepts could be developed by Fraunhofer. The work on the demonstrators is ongoing and will be presented in month 18, 24 and 29.

The **WP6 (Proof-of-concept Platform)** has just started in M09 and is dedicated

to the **Proof-of-concept Platform.**

WP7 (Dissemination, Communication, Exploitation and Training) is executed according to plan. A good collaboration between the two main partners within this WP has been the main driver for good results. Various dissemination material was designed and prepared within this WP.

A leaflet and the official announcement letter, two public newsletters and a project logo was created. Furthermore, a project-website was launched (serena-h2020.eu). Additionally, a LinkedIn and a twitter account were created.

The project has been successfully started and the ongoing work is on good track.

Collaboration among partners is well functioning and quite efficient due to effective project management, a well-established IT infrastructure and regular dedicated and focused conference calls.

Additionally, there are well-functioning structures and processes for the risk assessment and project monitoring. Overall there were 9 deliverables submitted and two milestones reached in the respective period (M01-M09).



Technical Meeting

4th - 5th June 2018 @ Gothenburg, Sweden



From 4th to 5th of June 2018 the **SERENA** consortium met for a **technical meeting** hosted by Ericsson AB in Gothenburg/Sweden.

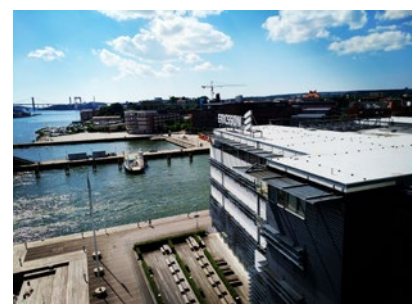
The meeting started with a short introduction and the welcome by the host. Afterwards, the technical leader gave a short presentation on the **technical status** and also presented the **objectives** of the meeting. Then, the team members started a deep and intense **discussion** with regards to the technical Work Packages.

The **system architecture** and **specifications**, and the **design** and **manufac-**

turing of the **39 GHz core & control circuits** as well as of the **E-/W-band single chip front-end MMIC** were part of the lively discussions.

The **second day** was dedicated to the **integration platform** and the **design and manufacturing of the 39 GHz front-end circuit**. The partners had the chance to define and align certain tasks and responsibilities.

Furthermore, the partners agreed on the next essential steps in the project. It was a very successful and fruitful meeting. The partners were satisfied and are looking forward to continuing the work.

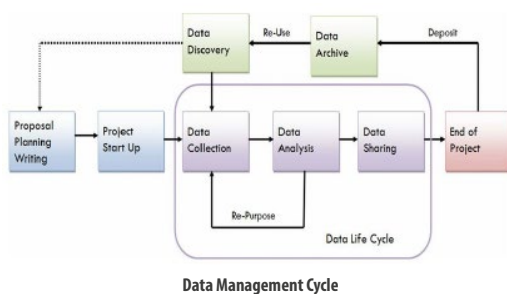




Submitted public deliverables

D7.2 Data Management Plan

The Data Management Plan (DMP) is a public deliverable and was due in month 6. It outlines how research data will be handled during the SERENA research project and after its completion. It is important to identify the most important aspects of data management early in the project. However, the DMP is not a fixed document; it evolves and gains more precision and substance during the lifespan of the SERENA project.



Upcoming public deliverables

D1.4 Signal processing algorithms and specifications

This deliverable is due in month 12. It is part of WP1. It reports on the signal processing algorithms and specifications necessary to implement hybrid beamforming for mobile (5G) and fixed backhaul applications. It includes the theory underlying the algorithms, the algorithm specification and computational complexity analysis, and extensive performance simulations in selected scenarios.

D5.3 Interface between the modules and the signal processing platform

This public deliverable is part of WP5 which is working on the Integration Platform. It is due in month 24 and includes the hardware components of the interface and the documentation of the interface and the control software.

Highlights of Dissemination Activities

WSA - Workshop on Smart Antennas

14th to 16th March 2018, Bochum, Germany

German Partner TUB presented a conference paper.

Compound Semiconductor International Conference - CSIC

10th April 2018, Brussels, Belgium

Partner EPIGAN gave an oral presentation at the conference, as part of the session "5G: where are we and what's next?".

Future Industrial Communication

12th September 2018, Berlin, Germany

Partner Fraunhofer attended the 5G event in Berlin.

EU - South Korea workshop on Nanoelectronics

13th September 2018, Seoul, South Korea

Partner EAB participated in the workshop on Nanoelectronics.

49th EMW Week

01st October 2018, Madrid, Spain

Partner EPIGAN presented the booth: GaN products for 5G.

ESA 9th Wide band gap semiconductor workshop

08th October 2018, Didcot, UK

Partner EPIGAN attended the workshop.

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