

PROJECT FACTS

Start: 1st December 2020

Duration: 28 Months

Call: H2020-SPACE-2018-2020

Topic: SPACE-29-TEC-2020, Satellite communication technologies

Type: Research & Innovation Action

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DYNASAT project



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DYNASAT

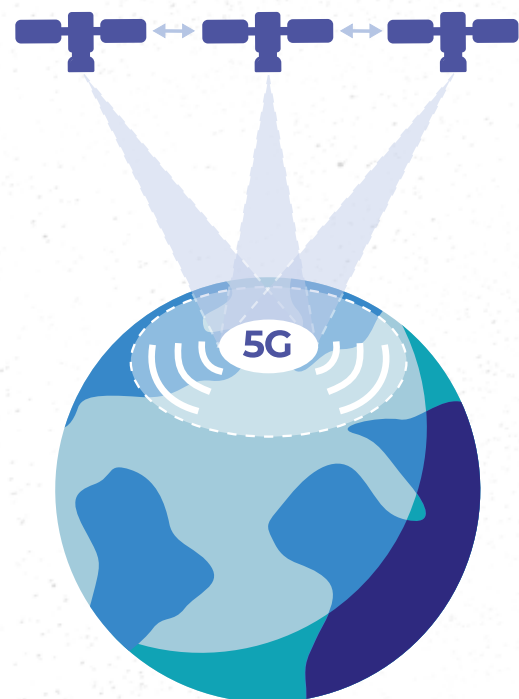
**DYNAMIC SPECTRUM SHARING
AND BANDWIDTH-EFFICIENT TECHNIQUES
FOR HIGH-THROUGHPUT MIMO SATELLITE SYSTEMS**

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CONCEPT

NGSO-based satellite access technology



KEY DESIGN PRINCIPLES

- ✓ Minimising the impact on the bill of material of mass-market user equipment.
- ✓ Minimising the impact on 5G network infrastructure.
- ✓ Being able to scale the capacity with the traffic demand.

OBJECTIVES

- #1** Evaluate the performance gain of using bandwidth-efficient transmission techniques in an NGSO-based 5G satellite access system providing eMBB services to mass-market 5G devices.
- #2** Evaluate the performance gain of using the cellular/satellite spectrum sharing techniques enabling the operation of an NGSO-based 5G satellite access system concurrently with a cellular system in the same frequency band.
- #3** Assess the implementation feasibility of bandwidth-efficient transmission techniques and spectrum sharing techniques for efficient spectrum usage in a practical system.
- #4** Demonstrate the isolated operation of spectrum sharing techniques on DSA software system and bandwidth-efficient transmission techniques on portable RAN lab software demonstration platform at the MWC 2022.
- #5** Define and plan an in-orbit demonstration of the developed bandwidth-efficient and spectrum sharing techniques.
- #6** Demonstrate the integrated operation of bandwidth-efficient transmission techniques and spectrum sharing techniques for efficient spectrum usage with a portable RAN lab software demonstration platform at the MWC 2023.
- #7** Promote future work on multi-satellite cooperative multi-user MIMO and spectrum sharing techniques within the 3GPP community and get the 3GPP non-terrestrial networks Release 18 work item approved at the TSG-RAN plenary.
- #8** Prepare/submit contributions about multi-satellite cooperative multi-user MIMO and satellite/terrestrial Dynamic Spectrum Sharing techniques to 3GPP RAN working groups for NTN evolution in preparation of Rel-19 and beyond, supported by simulation results.
- #9** Promote the evolution of the telecommunication regulatory framework needed to support spectrum sharing between satellite and mobile services in targeted bands that could be allocated to satellite and/or mobile services.

INNOVATION

BUSINESS

Enabling 5G satellite access to offer affordable services to most users will open a new market.

SERVICE

Increased service performance and reduced latency will enable the offering of higher QoS to targeted 5G end users.

ECOSYSTEM

Spinning in cellular technologies in 5G satellite access will encourage investment in customized products and fuel a new cycle of innovation.

STANDARDIZATION

Supporting standardization of NTN and DYNASAT outcomes in 3GPP will provide a harmonized solution based on 5G and 5G-Advanced New Radio.

IMPACT

