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## 5GENESIS Newsletter

July - September 2020 - Issue 9

5GENESIS website: [www.5genesis.eu/](http://www.5genesis.eu/)

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### 5GENESIS Project Overview

The 9th issue of the 5GENESIS newsletter presents the project activities and achievements during the period July - September 2020. This issue focuses on the latest 5GENESIS dissemination (papers, articles) and communication activities, the deliverables that have been published as well as the details of the ninth GA meeting, which was hosted virtually, due to the coronavirus outbreak, 2-3 September 2020.

**5GENESIS activities in numbers for the July - September 2020 period:**

- Two Conference papers
- Two Special Issues - Call for Papers
- Four Journal papers
- Two Workshops
- One Article
- One White paper
- Trials - Test flights
- Presentation/Webinar
- Deliverables
- GA meeting

#### Communication Channels



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## Dissemination and Communication Activities

Dissemination and Communication activities of 5GENESIS during July - September 2020, cover a great number of initiatives such as publications, participation in conferences, workshops, and presentations.

### Conference Papers

#### **EuCNC 2020 (15/06/2020)**

The Eurecom conference paper entitled "Feedback enhancements for semi-persistent downlink transmissions in ultra-reliable low-latency communication", was submitted and presented at the EuCNC 2020, virtual, European Conference on Networks and Communications, 15 June 2020, Dubrovnik, Croatia. This paper is available online at 5GENESIS website:

<https://5genesis.eu/wp-content/uploads/2020/08/Feedback-enhancements-for-semi-persistent-downlink-transmissions-in-ultra-reliable-low-latency-communication.pdf>



#### **IEEE Asilomar Conference on Signals, Systems, and Computers (3-6/11/2019)**

The Eurecom conference paper entitled "Control and data channel combining in Ultra-Reliable Low-Latency Communication", was published at the IEEE Asilomar Conference on Signals, Systems, and Computers, 3-6 November 2019, Pacific Grove, CA, USA. This paper is available online at 5GENESIS website:

<https://5genesis.eu/wp-content/uploads/2020/08/Control-and-data-channel-combining-in-Ultra-Reliable-Low-Latency-Communication.pdf>



### Special Issues - CFP

- 5GENESIS team of SRL, KAU, NCSRD, UMA and INTEL partners are leading a special issue on the journal Sensors entitled: "Experimentation in 5G and Beyond Networks: State of the Art and the Way Forward". This Special Issue aims to collect original contributions on experimental aspects of 5G and beyond networks and systems. Manuscripts submission is now open! Start submitting your papers now! Deadline 30 April 2021. Information available at:

[https://www.mdpi.com/journal/sensors/special\\_issues/5G\\_beyond\\_networks](https://www.mdpi.com/journal/sensors/special_issues/5G_beyond_networks)

- 5GENESIS team of UMA is leading a special issue on the journal SENSORS (ISSN 1424-8220) entitled "5G Mission-Critical Applications". This special issue belongs to the section "Communications". Call for papers submission is open! Start submitting your papers now! Deadline 15 November 2020. More information available at:

[https://www.mdpi.com/journal/sensors/special\\_issues/5G\\_mission?fbclid=IwAR2xEVEeEKwVGw0XzMA4TeR\\_cYMIie-Y8J3f8bJcfPgZ0yQfCh4IAbLf-s](https://www.mdpi.com/journal/sensors/special_issues/5G_mission?fbclid=IwAR2xEVEeEKwVGw0XzMA4TeR_cYMIie-Y8J3f8bJcfPgZ0yQfCh4IAbLf-s)



## Journal Papers (from previous reporting periods)

- The 5GENESIS paper “A New Dimension to Spectrum Management in IoT Empowered 5G Networks” was published in IEEE Network, pp.186-193, July/August 2019. You may access and read the full paper online at: [https://5genesis.eu/wp-content/uploads/2020/09/A\\_New\\_Dimension\\_to\\_Spectrum\\_Management.pdf](https://5genesis.eu/wp-content/uploads/2020/09/A_New_Dimension_to_Spectrum_Management.pdf)
- The 5GENESIS paper “Multi-Carrier M-ary DCSK System with Code Index Modulation: An Efficient Solution for Chaotic Communications” was published at IEEE Journal of Selected Topics in Signal Processing, Vol. 13, No. 6, pp.1375-1386, October 2019. Read the full paper online at: <https://5genesis.eu/wp-content/uploads/2020/09/Multi-Carrier-M-ary-DCSK-System-with-Code.pdf>
- The 5GENESIS paper “A Promising Non-Orthogonal Multiple Access Based Networking Architecture: Motivation, Conception, and Evolution” was published at IEEE Wireless Communications, pp.152-159, October 2019. Read the full paper online at: <https://5genesis.eu/wp-content/uploads/2020/09/A-Promising-Non-Orthogonal-Multiple-Access-Based-Networking.pdf>
- The 5GENESIS paper “Physical-Layer Network Coding: An Efficient Technique for Wireless Communications” has been published at IEEE Network, pp.270-276, March/April 2020. Read the full paper online at: <https://5genesis.eu/wp-content/uploads/2020/09/Physical-Layer-Network-Coding-An-Efficient-Technique-for-Wireless-Communications.pdf>



Research Papers



## Workshop

### 2020 Workshop on Machine Learning for Communications (MLCOM)

RunEL, 5GENESIS partner, is a member of the WIN consortium in Israel (under the Israeli Innovation Authority) which organized the "2020 Workshop on Machine Learning for Communications (MLCOM)" on 7-8 September 2020. RunEL participated at the workshop as a representative of 5GENESIS project. More information about the workshop are available at: <http://www.ee.bgu.ac.il/~haimp/mlcom2020>





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## Articles

### EKT OFFICIAL WEBSITE

An article entitled "Demokritos joined forces with 28 partners in order to research 5G technology" is available at <http://www.ekt.gr/> describing the 5GENESIS project. The article is accessible online at: <http://www.ekt.gr/el/news/24616>



### 5G-PPP White Paper

#### "Empowering Vertical Industries through 5G Networks - Current Status and Future Trends"

The 5GENESIS contributing partners: Harilaos Koumaras, Pedro Merino, Dimitris Tsolkas contributed to the 5G-PPP white paper "Empowering Vertical Industries through 5G Networks - Current Status and Future Trends" This 5G-PPP white paper was prepared by 21 5G-PPP Phase II and Phase III R&I projects and the 5G-IA verticals engagement task force. The paper is now available in the 5G-PPP official website and you may download it here: <https://5g-ppp.eu/wp-content/uploads/2020/09/5GPPP-VerticalsWhitePaper-2020-Final.pdf>



5G PPP

5G IA

5G PPP Technology Board &  
5G IA Verticals Task Force

Empowering Vertical Industries through  
5G Networks - Current Status and  
Future Trends

Version 1.0

## Trials – Test Flights and Video

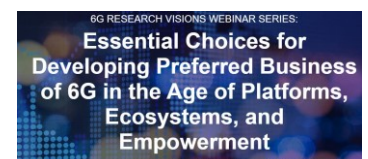
Test flights of UAVs/Drones with C2 over 5G/5GENESIS Athens Platform took place at the end of May 2020. The video presents two flights of UAVs properly modified with C2 over 5G. The one flight is the result of the collaboration of 5G!Drones project with 5GENESIS, while the other flight is the preparation of the 5GENESIS showcasing event. Both flights refer to feasibility flights and testing of the 5G flight controller module/proper modification in order to allow the appropriate testings and experiments. Watch the video at the 5GENESIS YouTube channel:

<https://www.youtube.com/watch?v=zGQ3sw8gTaE>



## Presentation/Webinar

The second webinar of the 6G Research Visions Webinar Series, organised by 6G-Flagship of the University of Oulu, took place on 16th of September. Dr. Harilaos Koumaras from NCSR, 5GENESIS project coordinator, participated and presented in this webinar, which addressed the essential choices for developing preferred business of 6G in the age of platforms, ecosystems, and empowerment. More information and access to the webinar, available at: <https://www.youtube.com/watch?v=4ebFm1qdgC0>



## Online Workshop – Organized by NCSR D on 14 Oct 2020

The Institute of Informatics & Telecommunications of NCSR “Demokritos” and Dr. Harilaos Koumaras, 5GENESIS project coordinator, invite you to participate at the online workshop entitled “5G Experimentation Facilities and Vertical Trials: Current Status and Future Perspectives” on 14 Oct 2020, 09:00-15:00. This online workshop is organised by the Institute of Informatics & Telecommunications of NCSR Demokritos (Athens, Greece), EU projects 5GENESIS and 5G!Drones and with the support of the 5G-PPP partnership. The workshop will focus on 5G Experimentation Facilities and Vertical Trials, their current status and future perspectives. More information on the workshop, agenda and registration process, available at <https://5g-ppp.eu/event/5g-experimentation-facilities-and-vertical-trials/>

## 5GENESIS Deliverables

The following deliverables were published by 5GENESIS at the end of year 2 period:

**D2.4 Final report on facility design and experimentation planning:** This deliverable provides a complete view of the final 5GENESIS architecture, covering all the components of the experimentation chain, from the experiment control tools to the infrastructure. This deliverable is available at: [https://5genesis.eu/wp-content/uploads/2020/07/5GENESIS\\_D2.4\\_v1.0.pdf](https://5genesis.eu/wp-content/uploads/2020/07/5GENESIS_D2.4_v1.0.pdf)

**D5.3 Documentation and supporting material for 5G stakeholders:** Midterm report on a complete guide for the provided facility in a multi-perspective approach including technical description and user’s manual. The whole deliverable at: [https://5genesis.eu/wp-content/uploads/2020/07/5GENESIS-D5.3\\_v1.0.pdf](https://5genesis.eu/wp-content/uploads/2020/07/5GENESIS-D5.3_v1.0.pdf)

**D6.2 Trials and experimentation (cycle 2):** This deliverable includes the trials and experimentation results on the 5GENESIS platform that has resulted from the second integration cycle, emphasizing on the 5G KPI validation through the described use cases. This deliverable is available at: [https://5genesis.eu/wp-content/uploads/2020/08/5GENESIS\\_D6.2\\_v1.0\\_FINAL.pdf](https://5genesis.eu/wp-content/uploads/2020/08/5GENESIS_D6.2_v1.0_FINAL.pdf)

**D7.3 Dissemination, communication, and ecosystem engagement activities:** This deliverable is based on dissemination, communication and ecosystem engagement activities, including 5G PPP contributions and synergies with other research projects, during the year 2 of the project. This deliverable is available at: [https://5genesis.eu/wp-content/uploads/2020/07/5GENESIS\\_D7.3\\_V1.0.pdf](https://5genesis.eu/wp-content/uploads/2020/07/5GENESIS_D7.3_V1.0.pdf)

**D7.6 Standardisation and regulation:** This deliverable elaborates on the achieved results w.r.t standards and regulatory bodies engagements, during the year 2 of the project. This deliverable is available at: [https://5genesis.eu/wp-content/uploads/2020/07/5GENESIS-D7.6\\_v1.0.pdf](https://5genesis.eu/wp-content/uploads/2020/07/5GENESIS-D7.6_v1.0.pdf)

If you wish to learn more about 5GENESIS deliverables you can visit 5GENESIS website on the corresponding Deliverables page <http://www.5genesis.eu/deliverables/>

## GA Meeting

### 5GENESIS 9th GA Meeting (virtual)

Due to the COVID-19 impact and safety restrictions that apply worldwide, the 9th 5GENESIS GA plenary meeting took place virtually! It ran for 2 days (2-3 September 2020) and the project's partners discussed the project's progress, activities, upcoming deliverables, demos, and goals to be met during the 3rd phase of the project.



GA Meeting



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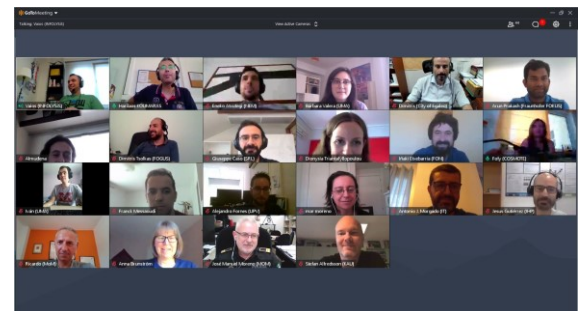


#### Communication Channels



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