Document Number**:** H2020-EUK-815323/5G-ALLSTAR/D6.4

Project Name:
5G AgiLe and fLexible integration of SaTellite And cellulaR (5G-ALLSTAR)

Deliverable D6.4

Dissemination activity report Y3

Date of delivery:	31/10/2021	Version:	1.0
Start date of Project:	01/07/2018	Duration:	40 months

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Document Number:	H2020-EUK-815323/5G-ALLSTAR/D6.4
Document Title:	Dissemination activity report Y3
Editor(s):	Leszek Raschkowski (FhG-HHI)
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Dissemination Level:	PU
Contractual Date of Delivery:	31/10/2021
Security:	Public
Status:	Final
Version:	1.0
File Name:	5G-ALLSTAR_D6.4_Dissemination activity report Y3.docx

Abstract

This deliverable has been created as part of the work in the project Work Package (WP) 6 “Promotion”, and reports on the status of respective actions after the third year period of the project. Current activities are analysed in order to track the project’s objectives in terms of scientific publications, workshops/tutorials and interaction with media. If required, corrective actions are identified and implemented.

Keywords

Dissemination, publication, exploitation, standardization, regulation.

Acknowledgements

We would like to acknowledge the following people for their valuable reviews of this deliverable: You-Jun Choi (KATECH) and Federico Pigni (GEM).

Executive Summary

This deliverable reports on the dissemination and promotion strategy and activities of the 5G-ALLSTAR project. Its main intent is to further prepare and plan effective communications in line with the project objectives. As this is a public document, this deliverable is also an important mean for the project to disseminate the 5G-ALLSTAR vision and achievements.

The 5G-ALLSTAR accomplishments during the third year period of the project were publicly promoted by numerous scientific publications to conferences as well as to highly ranked journals. In addition, panel discussions and workshops were used to promote the project to an even broader audience. Close collaboration to related projects was kept in order to benefit from each other's work.

It is expected that even after the end of the project, there will be publications following based on the project results.

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List of Abbreviations

3GPP	3rd Generation Partnership Project
5GPPP	5G Infrastructure Public Private Partnership
KPI	Key Performance Indicator
MAC	Medium Access Control
NR	New Radio
PMT	Project Management Team

PoC	Proof of Concept
QoS	Quality of Service
RAN	Radio Access Network
SA	System Architecture
SI	Study Item
V2X	Vehicle-to-Everything
WP	Work Package

1 Introduction

5G-ALLSTAR will dedicate part of its activities to spread the project's knowledge and achievements and make it available to the European and Korean research community. Emphasis will be put on joint European/Korean dissemination activities to best-in-class conferences, journals and other suitable events. The dissemination strategy will be supported through broad-scale open access publishing and self-archiving through the project website. The website will be available at least three years after the project lifetime (i.e., beyond the year 2023). The dissemination of 5G-ALLSTAR results is planned thoroughly to achieve a significant impact on the whole world.

Deliverable D6.1 "Dissemination Plan and project website" provides a coherent and comprehensive description of the dissemination and exploitation activities planned and achieved by the 5G-ALLSTAR consortium during the course of the project. The present document outlines the strategy and planned actions of the 5G-ALLSTAR consortium in order to

- contribute to key and best-in-class conferences and journals,
- organize and contribute to workshops, conference tracks, tutorials, special sessions, summer/winter schools, and other dissemination events,
- contribute to key exhibitions and
- influence the media perception of 5G satellite technology.

5G-ALLSTAR partners are committed to produce best-in-class technical results and to provide thought leadership in the field of 5G technology and its further evolution. Key international scientific conferences and high-profile journals are identified within this document as candidates for contributions by the 5G-ALLSTAR consortium. The objective is to exploit cross European/Korean synergies in order to maximize the visibility and impact in the scientific community and beyond.

Beyond contributing to scientific conferences through paper presentations, the 5G-ALLSTAR consortium will furthermore organize workshops, conference tracks, tutorials, special sessions and other dissemination events.

Finally, the consortium interacts with media representatives in order to disseminate results beyond the scientific and industrial community. The objective is to educate the public on the potential of 5G technology and to facilitate the acceptance of this technology leap.

After restating the dissemination and promotion strategy, this deliverable reports on the achievements during the third year of the project.

2 Dissemination and promotion strategy

This chapter provides a brief overview of the dissemination strategy for 5G-ALLSTAR. Table 2-1 summarizes the main communication measures. The overall plan is, to the most part, consistent with the initial project intentions (see D6.1). A few changes have been introduced after the first year, based on the comments received from the first year review meeting. Those changes are described in the following subchapters. The key technological directions of the 5G-ALLSTAR project are identified and mapped with respect to specific actions that are candidates over the lifetime of the project.

Table 2-1: Summary of the main communication measures

Project website https://5g-allstar.eu	5G-ALLSTAR shares its concepts, results, and achievements to the audience through its dedicated project website, which was designed and set up in September 2018. The website is the primary tool of communication and promotion of the project to distribute all the information to be shared among the project partners and to the public.
Press releases, poster, and leaflets	5G-ALLSTAR prepares and distributes project posters, press releases, and leaflets on the project concept and objectives to a broad audience to raise wide public awareness.
Video	5G-ALLSTAR will work on the creation of a video to present the proposed network scenarios and their capabilities towards the public.
Networks and societies	5G-ALLSTAR partners exploit their involvement in various communities at the national and international levels to promote the project concept and objectives (e.g., the European Technology Platform NetWorld2020).
Exhibitions, conferences	5G-ALLSTAR partners use their participation to the most popular conferences (e.g., EUCNC, ICC, Globecom, PIMRC, and VTC), exhibitions worldwide, e.g., the Mobile World Summit, further events in Korea and Asia, but also other relevant dedicated 5G events, to communicate the progress of the project.
Industry events	5G-ALLSTAR partners participate in industry events organized by telecom operators (including mobile network operators), to promote the proposed 5G-ALLSTAR network scenarios and technologies.

2.1 Website

A public website was set up at the beginning of the project under the domain https://5g-allstar.eu. One of the most important publicly available information about a research project is the list of dissemination activities, which can come in different formats, e.g., white papers and deliverables, amongst which the public ones will be freely downloadable. The website is hosted at the Fraunhofer HHI, and it is planned to keep it online at least 3 years after the project end.

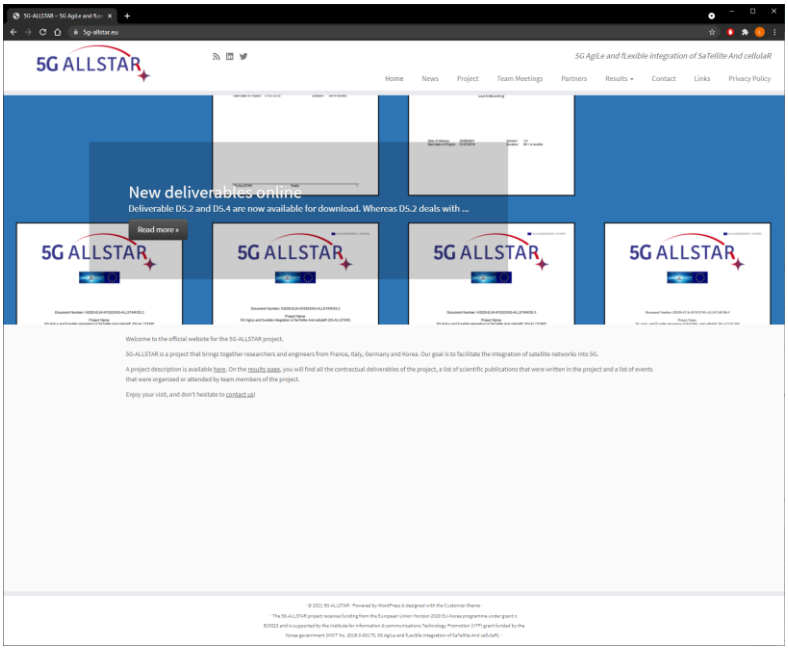

Figure 2-1: 5G-ALLSTAR website - https://5g-allstar.eu

Based on the feedback from the first year review meeting, the website was complemented with an open-source web analytics platform, called Matomo, in order to track the number of visitors.

The following figures give an overview of the visits in the reporting period from June 26th, 2020 until October 23rd, 2021. In total 2363 visits were counted, with a majority of visits coming from the United States (985 visits), followed by France (202) and China (181).

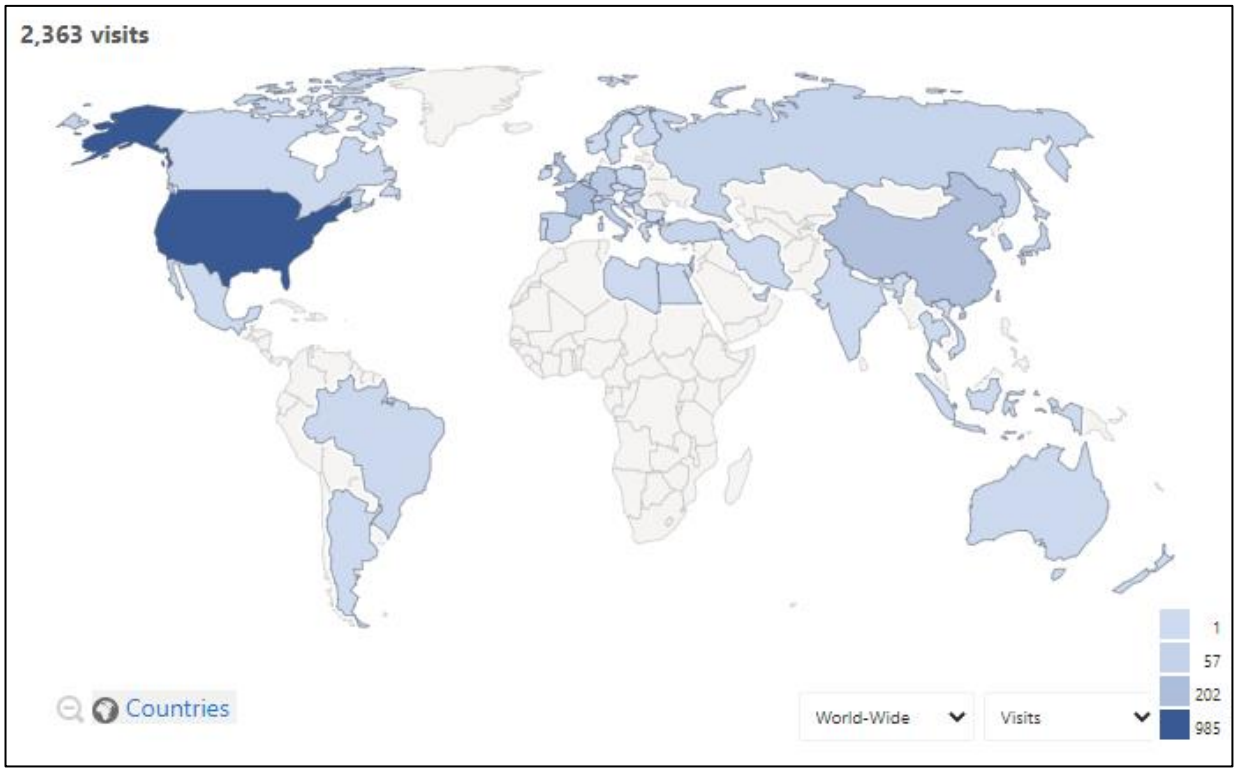

Figure 2-2: Visitor Map for the reporting period Y3

Besides the number of visitors, the number of unique downloads might be an interesting performance indicator. 713 downloads were counted, from which 662 are declared as unique downloads.

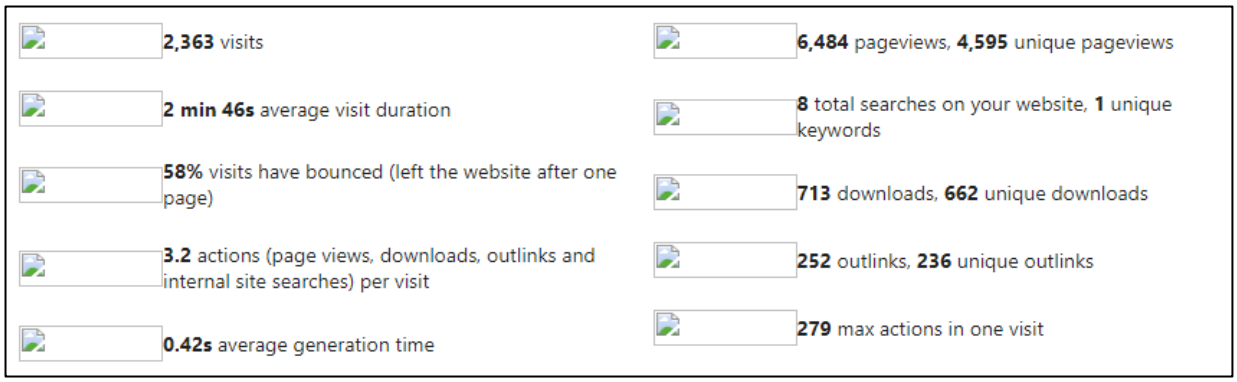

Figure 2-3: Visits overview statistics for the reporting period Y3

The following figure reports about the channels that were used to find the website. The majority of visitors (52%) used search engines to find the website, 38% of the visitor directly accessed the website using its address. The amount of accesses from other websites is reported with 9%, and the number of access from social networks is less than 1%.

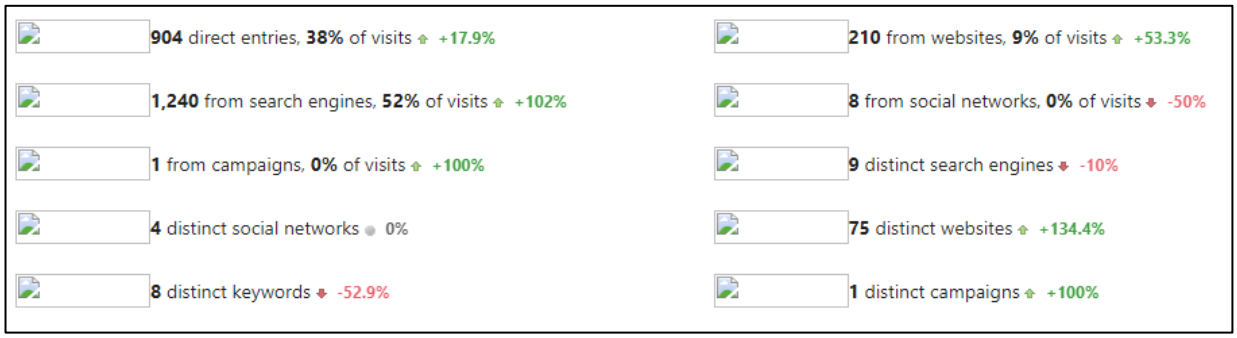

Figure 2-4: Channel type statistics for the reporting period Y3

The visits over time are shown in Figure 2-5. The maximum number of visits per day is reported as 25. On average there were approximately 5 visits per day.

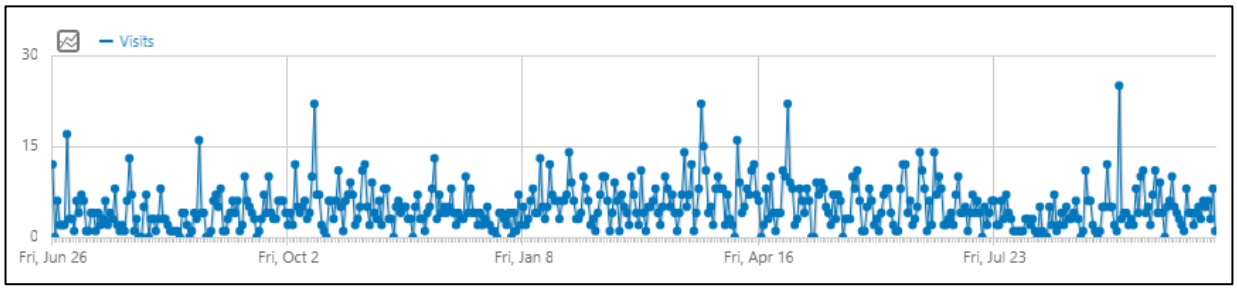

Figure 2-5: Visits over time for the reporting period Y3

When comparing this data with the previous reporting period, an increase in the number of visitors is noticeable (53%), although it has to be taken into account that the Y3 reporting period was extended by 4 months. After clearing this effect, the increase reduces to 15%.

2.2 Interaction with press media, and social media

Nowadays, social media plays an important role in getting publicity. Which is why, the project created a LinkedIn group, as well as a dedicated Twitter account already in the first year of the project.

Figure 2-6: Screenshot of Twitter page, https://twitter.com/5g_allstar

The twitter account currently shows 80 tweets and 158 followers, while following 68. It seems to be well perceived given the numerous likes of the tweets. After year 2 the logo for our social media channels was updated as can be seen in the figures. The number of followers increased by 75%.

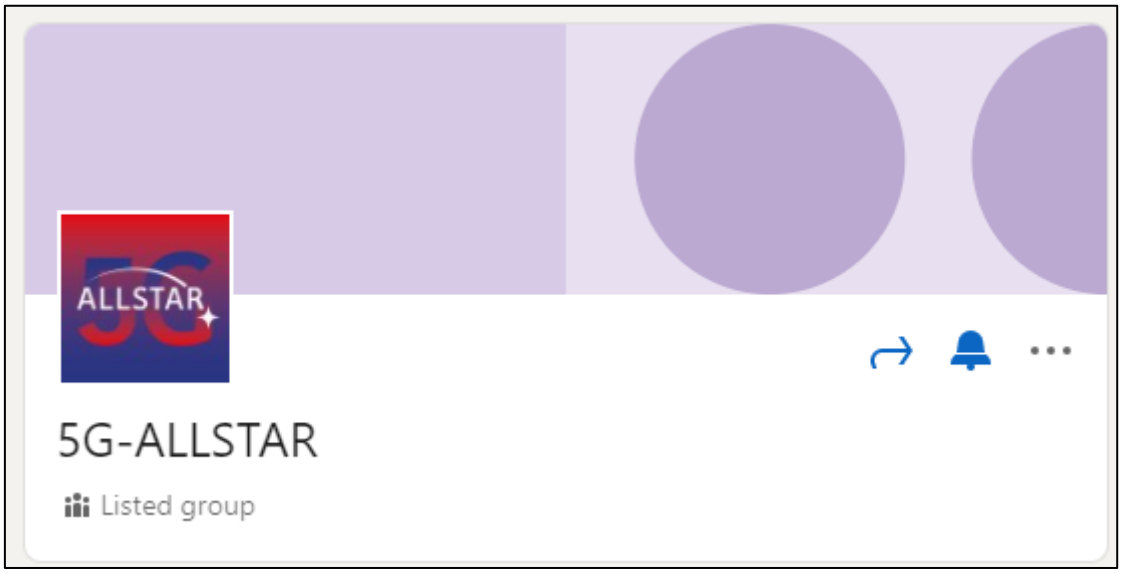

Figure 2-7: Screenshot of LinkedIn group page, https://www.linkedin.com/groups/8695018/

The LinkedIn group page currently has 325 members and also aims at informing about latest news regarding the project.

In addition to twitter and LinkedIn, we set up a YouTube channel (https://www.youtube.com/channel/UCDv56QlOReWQ70AYASWnFvA) to be able to share short videos clips. During the Y3 period, two videos were uploaded and announced on our website and social media. Whereas the first video received 60 views so far, the second one received 48 views.

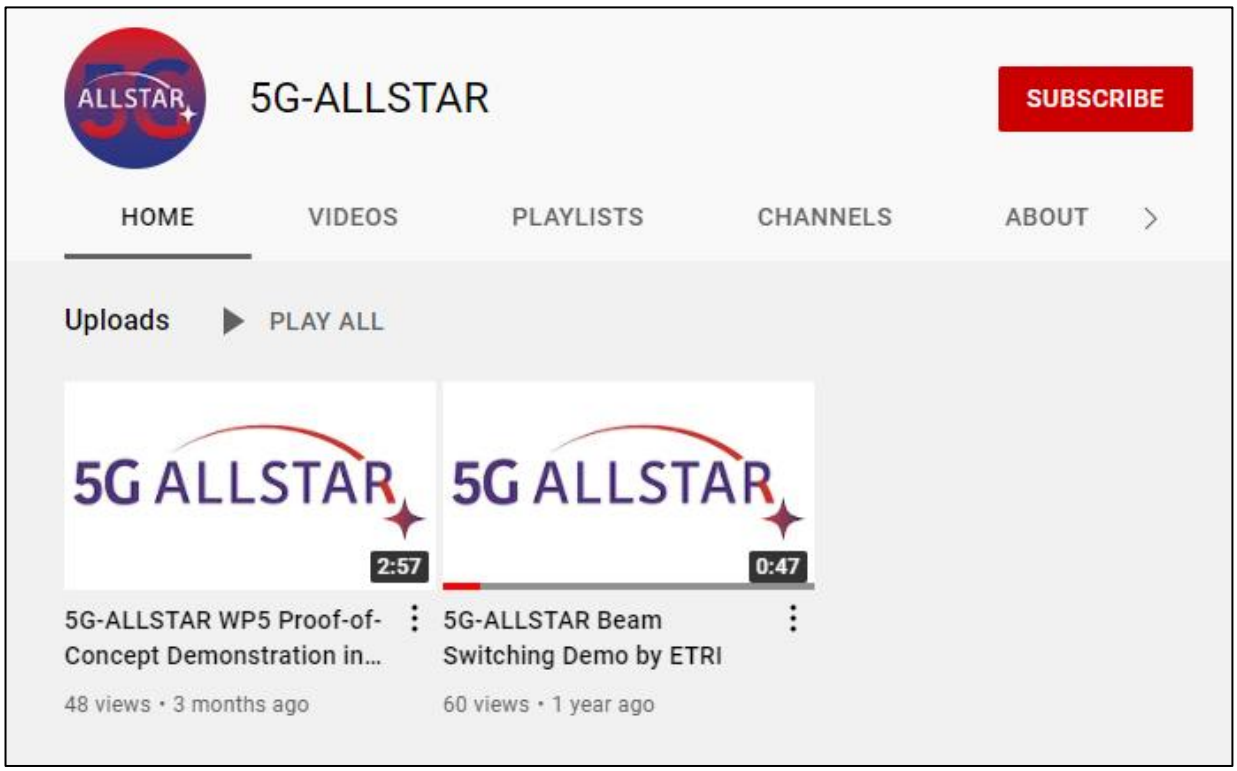

Figure 2-8: Screenshot of the YouTube channel page

2.3 Scientific conferences

While there are no conferences explicitly excluded from the consortiums publication targets list, there are numerous venues preferred to disseminate the scientific findings of the project, which are listed below.

Table 2-2: Identified key conferences

Event name	Main topics
ASMS (Advanced Satellite Multimedia Systems Conference) / Signal Processing for Space Communications Workshop (SPSC)	Satellite Communications and broadcast, signal processing in space
ECC (European Control Conference)	Preliminary results about multi-connectivity, traffic steering algorithms
EUCAP (European Conference on Antennas and Propagation)	Electromagnetics, antennas and propagation
EuCNC (European Communications and Networking Conference)	Communication and networking.
European Microwave Week	Radiofrequency, electromagnetics, and antennas
ICSSC (International Conference on Satellite and Space Communications)	Satellite Communications and broadcast, signal processing in space
ICTC (International Conference on Information and Communication Technology Convergence)	Information and communication technologies
IEEE Antennas and Propagation International Symposium	Electromagnetics, antennas and propagation
IEEE GLOBECOM	IEEE flagship conference covering all aspects of networking and communications.
IEEE ICC (International Conference on Communications)	IEEE flagship conference covering all aspects of networking and communications.
IEEE INFOCOM	Communication and networking
IEEE VTC (Vehicular Technologies Conference)	Networking and vehicular aspects.
IEEE WCNC (Wireless Communications and Networking Conference)	New approaches in wireless communications and networking technology.
MED (Mediterranean Conference on Control and Automation)	Preliminary results about Quality of Experience Control
SPAWC (Signal Processing Advances in Wireless Communications)	Signal Processing in Wireless Communication Systems

2.4 Scientific journals

Contributions to scientific journals are a suitable means to disseminate mature and substantial results of the 5G-ALLSTAR consortium with excellent visibility in the scientific community. A list of targeted journal papers is given in Table 2-3.

Table 2-3: Identified key journals

Publication name	Main topics
AGU Radio Science	Radio frequency electromagnetic-propagation and its applications.
ETRI Journal	Information, telecommunications, and electronics.
EURASIP Journal on Advances in Signal Processing	Algorithms and Signal Processing approaches in general.
EURASIP Journal on Wireless Communications and Networking	General wireless and access network topics, covering PHY to System level.
IEEE Access	Communication and networking aspects.
IEEE Antenna and Wireless Propagation Letters	Electromagnetics, antennas and propagation
IEEE Communication and signal processing magazines	Communication technologies and systems in more tutorial style.
IEEE Communications letters	Communication technologies.
IEEE Communications Magazine	Communications and networking aspects.
IEEE Signal Processing Magazine	Tutorial-style articles on signal processing research and applications, as well as columns and forums on issues of interest
IEEE Transaction on Antennas and Propagation	Electromagnetics, antennas and propagation
IEEE Transactions on Control Systems Technology	Consolidated traffic steering control algorithms
IEEE Transactions on Signal Processing	Algorithms and Signal Processing approaches in general.
IEEE Vehicular Technology Magazine	Networking and vehicular aspects.
IEEE Wireless Transactions	Communication technologies – scientific evaluation of approaches and techniques.

2.5 Organized workshops, special sessions and panels

The 5G-ALLSTAR consortium targets to disseminate at international conferences, international workshops, and EU commission specific events (see for instance EUCNC, ICT days, joint Europe-Korea dedicated workshops, etc.). Besides the dissemination in terms of scientific publications, the organization of workshops, special sessions, industrial seminars and panels at international top-ranked conferences, fares, and events (when possible jointly with other H2020 and Korean projects) is envisaged as well.

2.6 Education – teaching, tutorials, workshops, etc.

The teaching activities within the various universities involved in the 5G-ALLSTAR project are used to introduce students and interested faculty members to the 5G-ALLSTAR topics and primary objectives. Specifically, the research group of the consortium CRAT working in 5G-ALLSTAR mainly belongs to the Department of Computer, Control and Management Engineering of the University of Rome Sapienza. Many seminars and workshops are scheduled and organized in the department mentioned above within the annual university course “Control Communication and Energy Networks”, held by the Prof. F. Delli Priscoli. The main objectives of the course are perfectly in line with the main objectives of WP4, since it aims at applying control algorithms and techniques to cope with network problems in specific network technologies and it also introduces the problems of routing, cloud management and QoE/QoS evaluation and control. In this respect, the seminars are strictly dedicated to presenting the research activities carried out in WP4 concerning the algorithms and techniques to solve the problems of

QoS and Traffic Steering designed and developed in 5G-ALLSTAR. The objective is to foster an interest in developing theses and minor projects in the field of 5G networks and, in general, in network control. The seminars are presented by the CRAT researchers involved in the 5G-ALLSTAR project.

Educational training and provision of new skill sets to industry experts and researchers are among the project's top priorities. Through suitable invited talks in the academic community, in research institutes, through the organization of workshops, special sessions and webinars on selected topics. Pedagogical case studies are developed to facilitate comprehension of both the theory and practice behind the entrepreneurship and management related to emerging technologies.

3 Achieved contributions

3.1 Scientific conference publications

A Distributed Reinforcement Learning approach for Power Control in Wireless Networks

Author list:	Antonio Ornatelli, Andrea Tortorelli, Francesco Liberati
Event title:	2021 IEEE World AI IoT Congress (AIIoT)
Publication type:	Full paper
Status:	Published
DOI:	10.1109/AIIoT52608.2021.9454208

Iterative MPC for Energy Management and Load Balancing in 5G Heterogeneous Networks

Author list:	Antonio Ornatelli, Andrea Tortorelli, Alessandro Giuseppi
Event title:	2020 11th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)
Publication type:	Full paper
Status:	Published
DOI:	10.1109/UEMCON51285.2020.9298113

Hierarchical RL for Load Balancing and QoS Management in Multi-Access Networks

Author list:	Antonio Ornatelli, Andrea Tortorelli, Alessandro Giuseppi, Francesco Delli Priscoli
Event title:	2021 29th Mediterranean Conference on Control and Automation (MED)
Publication type:	Full paper
Status:	Published
DOI:	10.1109/MED51440.2021.9480246

User-aware centralized resource allocation in heterogeneous networks

Author list:	Antonio Ornatelli, Alessandro Giuseppi, Vincenzo Suraci, Andrea Tortorelli
Event title:	2020 28th Mediterranean Conference on Control and Automation
Publication type:	Full paper
Status:	Published (already in Y2 report as accepted)
DOI:	10.1109/MED48518.2020.9183080

Traffic steering and network selection in 5G networks based on Reinforcement Learning

Author list:	Francesco Delli Priscoli, Alessandro Giuseppi, Francesco Liberati, and Antonio Pietrabissa
Event title:	European Control Conference 2020

Publication type:	Full paper
Status:	Published (already in Y2 report as submitted)
DOI:	10.23919/ECC51009.2020.9143837

Demonstration of service continuity based on multi-connectivity with cellular and satellite access networks

Author list:	Heesang Chung, Junhyeong Kim, Gosan Noh, Seok Ho Won, Taesang Choi, Ilgyu Kim
Event title:	2021 International Conference on Information and Communication Technology Convergence (ICTC)
Publication type:	Full paper
Status:	Presented
DOI:	Not available yet

FPGA Implementation of a Wideband Multi-Gb/s 5G BF-OFDM Transceiver

Author list:	Jean-Baptiste Doré, Marc Laugeois, Nicolas Cassiau, Xavier Popon
Event title:	2021 Joint European Conference on Networks and Communications & 6G Summit (EuCNC/6G Summit)
Publication type:	Full paper
Status:	Published
DOI:	10.1109/EuCNC/6GSummit51104.2021.9482424

Software-defined Transmit Array Radio Platform for 5G Wireless Communications

Author list:	Somasekhar Kandukuri, Jean-Baptiste Doré, David Demmer, Benoit Miscopein
Event title:	IEEE International Conference on Communications 2022, ICC22
Publication type:	Full paper
Status:	Submitted
DOI:	Not available yet

3.2 Scientific journal publications

Capacity-constrained Wardrop equilibria and application to multi-connectivity in 5G networks

Author list:	F. Delli Priscoli, E. De Santis, A. Giuseppi, A. Pietrabissa
Event title:	Journal of the Franklin Institute
Publication type:	Full paper
Status:	Published (already in Y2 as submitted)
DOI:	10.1016/j.jfranklin.2021.09.025

Outage Analysis for Terrestrial-Satellite Spectrum Sharing

Author list:	Gosan Noh, Heesang Chung, Ilgyu Kim
Event title:	IEEE Communications Letters
Publication type:	Full paper
Status:	Published (already in Y2 as accepted)
DOI:	10.1109/LCOMM.2020.3006133

6G in the Sky: On-Demand Intelligence at the Edge of 3D Networks

Author list:	Emilio Calvanese Strinati, Sergio Barbarossa, Taesang Choi, Antonio Pietrabissa, Alessandro Giuseppi, Emanuele De Santis, Josep Vidal, Zdenek Becvar, Thomas Haustein, Nicolas Cassiau, Francesca Costanzo, Junhyeong Kim, Ilgyu Kim
Event title:	ETRI Journal
Publication type:	Full paper
Status:	Published (already in Y2 as accepted)
DOI:	10.4218/etrij.2020-0205

Performance analysis of satellite and terrestrial spectrum-shared networks with directional antenna

Author list:	Jeong Seon Yeom, Gosan Noh, Heesang Chung, Ilgyu Kim, and Bang Chul Jung
Event title:	ETRI Journal
Publication type:	Full paper
Status:	Published
DOI:	10.4218/etrij.2020-0185

Design of cellular, satellite, and integrated systems for 5G and beyond

Author list:	Junhyeong Kim, Guido Casati, Nicolas Cassiau, Antonio Pietrabissa, Alessandro Giuseppi, Dong Yan, Emilio Calvanese Strinati, Marjorie Thary, Danping He, Ke Guan, Heesang Chung, Ilgyu Kim
Event title:	ETRI Journal
Publication type:	Full paper
Status:	Published
DOI:	10.4218/etrij.2020-0156

3.3 Patent applications

In addition to the scientific publications, the project partners filed nine patent applications related to the projects objectives in total.

3.4 Book chapters

None

3.5 Non-scientific and non-peer-reviewed publications

La 5G: de quoi s'agit-il vraiment?

Author list:	S. Colombero F. Pigni, P. Dal Zotto, E. Calvanese Strinati
Event title:	Le Monde des Grandes Ecoles
Date	15.03.2021
Link	https://www.mondedesgrandesecoles.fr/exclu-gem-la-5g-de-quoi-sagit-il-vraiment/

5G: une menace pour les uns, un progrès pour les autres

Author list:	Y. Chatelain, P. Dal Zotto
Event title:	Le Monde des Grandes Ecoles
Date	11.03.2021
Link	https://www.mondedesgrandesecoles.fr/5g-une-menace-pour-les-uns-un-progres-pour-les-autres/

Loi anti-Huawei: une balle dans le pied de notre 5G nationale

Author list:	Y. Chatelain, P. Dal Zotto, S. Colombero, F. Pigni
Event title:	Contrepoints
Date	11.02.2021
Link	https://www.contrepoints.org/2021/02/11/390824-loi-anti-huawei-une-balle-dans-le-pied-de-notre-5g-nationale

Loi anti-Huawei: une balle dans le pied de notre 5G nationale

Author list:	Y. Chatelain, P. Dal Zotto, S. Colombero, F. Pigni
Event title:	EchoSciences
Date	14.02.2021
Link	https://www.echosciences-grenoble.fr/articles/loi-anti-huawei-une-balle-dans-le-pied-de-notre-5g-nationale

Tout est-il à jeter dans la 5G?

Author list:	S. Colombero F. Pigni, P. Dal Zotto
Event title:	The Conversation
Date	25.09.2021

Link https://theconversation.com/tout-est-il-a-jeter-dans-la-5g-122210

Tout est-il à jeter dans la 5G?

Author list: S. Colombero F. Pigni, P. Dal Zotto
Event title: Influencia
Date 27.09.2021
Link https://www.influencia.net/tout-est-il-jeter-dans

Tout est-il à jeter dans la 5G?

Author list: S. Colombero F. Pigni
Event title: The World Economic Forum
Date 27.08.2020
Link https://fr.weforum.org/agenda/2019/08/tout-est-il-a-jeter-dans-la-5g/

Anti-Huawei law: a bullet in the foot of our national 5G

Author list: Y. Chatelain, P. Dal Zotto, S. Colombero, F. Pigni
Event title: World Today News
Date: 12.02.2021
Link: https://www.world-today-news.com/anti-huawei-law-a-bullet-in-the-foot-of-our-national-5g/

3.6 Special sessions

Special Interest Session at Virtual ITS World Congress 2020, 9th November

Dr. You-Jun Choi gave a technical presentation with the title “Introduction on 5G and satellite communication for cooperative and connected automated mobility”. This technical presentation gave him the opportunity to show how the 5G-ALLSTAR project can contribute to explain the role of satellite communications in creating a seamless and affordable connectivity fabric for both infrastructure and vehicles.

Special Interest Session at ITS World Congress 2021, October, Hamburg

Dr. You-Jun Choi gave a technical presentation with the title “New Future Mobility Projects in Korea – enabled by a mix of 5G/6GNR and satellite”. This technical presentation gave him the opportunity to show national level Korean Governmental R&D plans for new future mobility projects enabled by a mix of 5G/6GNR and satellite and how the 5G-ALLSTAR project can contribute to providing a seamless and affordable connectivity.

3.7 Workshops and tutorials

Virtual Workshop organized by GEM – 27 May 2021

Hosted by Pierre Dal Zotto (GEM) head of the CDOS Chair, and with the intervention of Federico Pigni (GEM), the workshop was an opportunity to bring together both researchers contributing to the development of 5G technologies, and business actors focused in understanding the economic and industrial benefits of 5G networks. The conference, that gathered more than 80 participants, was an opportunity to present and discuss in a concrete and pragmatic manner the opportunity and challenges in vertical markets, in particular through its satellite and terrestrial capabilities.

3.8 Exhibitions

None

3.9 Interaction with press and media

Fraunhofer HHI releases new version of radio channel model QuaDRiGa for use in 5G evaluations

Type:	News
Publisher:	Fraunhofer HHI
Date:	05.11.2020
Link:	https://www.hhi.fraunhofer.de/en/news/nachrichten/2020/fraunhofer-hhi-releases-new-version-of-radio-channel-model-quadriga-for-use-in-5g-evaluations.html

First software-defined 5G New Radio demonstration over GEO satellite

Type:	Press Release
Publisher:	Fraunhofer IIS
Date:	12.03.2021
Link:	https://www.iis.fraunhofer.de/en/pr/2021/20210312_5G_new_radio.html

On décode la 5G en Aura by Pierre Dal Zotto, 2021, Grenoble

Type:	TV interview
Channel:	France 3

Interview with Pierre Dal Zotto, 2021, Paris

Type:	Radio Interview
Station:	Chérie FM
Date:	02.02.2021

La 5G va casser la fracture numérique by Pierre Dal Zotto, 2021, Grenoble

Type:	Radio Interview

Interview with Federico Pigni, 2021

Type:	Radio Interview
Program:	Le Monde qui vient
Station:	Radio RKS
Link:	https://podloud.fr/podcast/le-miroir-des-sciences/federico-pigni-rks

4 5G-ALLSTAR proof-of-concept demonstration

Originally, when the project was set up, the final demonstration of the 5G-ALLSTAR concepts was planned for May 2021, during the Roland Garros international tennis tournament. However, with the arrival of the COVID-19 pandemic and the difficulties in travelling, it appeared impossible to organize such a human and material move. A fallback plan was then organized with a demonstration planned during the Leti Days usually organized in May at the CEA in Grenoble. Once again, this plan had to be abandoned in the face of the new waves of the pandemic: the face-to-face exhibition was cancelled and the travel bans were extended. A new session of Leti Days was scheduled for October 2021, so it was decided to ask for a 4-month extension of the project and to carry out the demonstration at this edition. The exhibition did not happen but the plan was maintained: the European part of the final demonstration was held at CEA Grenoble; the Korean part of the demonstration took place on the ETRI premises in Daejeon, see deliverable D5.6 for details.

In Grenoble, it was unfortunately impossible to invite non-CEA guests. Nevertheless the success of the demonstration has led to an internal communication to the management at a very high level.

On the Korean side, ETRI and KTSat partners demonstrated the proof-of-concept in front of IITP management. ETRI's senior vice president paid a visit and tried out the Appnori virtual tennis match, while KISTI manager was also present. KISTI is running the KREONET satellite network.

5 Collaboration with other H2020 projects

5.1 5GCHAMPION

The feasibility of operating the 5G NR technology via satellites has been initiated in the H2020 5GCHAMPION project and is further developed and demonstrated in 5G-ALLSTAR with a satellite in orbit as part of the project. ETRI's and CEA's experiences in the joint 5GCHAMPION coordination laid the groundwork for the 5G-ALLSTAR project. CEA and ETRI both work on improving the dissemination plan and create new business opportunities through the preparation of joint collaboration activity reports and selected exchanges.

From 2016-06-01 to 2018-06-30

Project Coordinator: CEA-LETI and ETRI

5.2 Sat5G

The project vision is to develop a cost effective "plug and play" satellite communications solution for 5G to enable phone conferences and network vendors to accelerate 5G deployment across all geographies and at the same time create new and growing market opportunities for industry stakeholders in satellite communications.

The six principal project objectives are:

- Leverage relevant on going 5G and satellite research activities to assess and define solutions integrating satellite into the 5G network architecture;
- Develop the commercial value propositions for satellite based network solutions for 5G;
- Define and develop key technical enablers for the identified research challenges;
- Validate key technical enablers in a lab test environment;
- Demonstrate selected features and use cases;
- Contribute to the standardisation at 3rd Generation Partnership Project (3GPP) and European Telecommunications Standards Institute (ETSI) of the features enabling the integration of sitcom solutions in 5G.

Thales Alenia Space is leading this research project, and a member of 5G-ALLSTAR.

Start date: June 2017, duration: 30 months

Technical Manager: Nicolas Chuberre – Thales Alenia Space France

5.3 SPEED-5G

SPEED-5G is a 5GPPP project, which aimed at achieving a significantly better exploitation of heterogeneous wireless technologies. To complete the mentioned goal, SPEED-5G developed new techniques for optimizing spectrum utilization. As a result, SPEED-5G provided solutions answering the request for a thousand-fold increase in mobile traffic volume over a decade and for efficiently supporting very different classes of traffic and services.

The project started on 1 July 2015 and ran until 30 June 2018. It has been performed by a consortium of ten organisations, led by University of Surrey, UK. CEA-LETI was a member of SPEED5G.

Project Coordinator: Klaus Moessner, University of Surrey, email: k.moessner@surrey.ac.uk

6 Corrective actions

No corrective actions planned to the end of the project.

7 Conclusions

The present document restates the strategy on how to address the dissemination of project results with the objective to

- Drive the 5G technology development forward and show thought leadership in the scientific, industrial and media community,
- Exploit key events to showcase the 5G-ALLSTAR consortium results, in particular, proof-of-concept equipment, and thus to maximize the project visibility and overall impact.

The strategy and plan outlined in combination with the efficient cross-region collaboration between Europe and Korea is expected to manifest in the highest level of visibility and impact of the project results and outcomes.

The deliverable also reports on the dissemination and promotion activities during the last year of the project in terms of scientific publications and other means, e.g. workshops and panel discussions. No corrective actions were defined due to the ending of the project.

The challenging goal to demonstrate an intercontinental link using technology developed by the project partners was affected by the COVID-19 outbreak.