



Horizon 2020 ULTRAWAVE

Ultra capacity wireless layer beyond 100 GHz based on millimetre wave Traveling Wave Tubes

WP7. Deliverable D7.5: Data Management Plan (Version 2)

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Dissemination level

PU	Public	X
PP	Restricted to other programme participants (including Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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EXECUTIVE SUMMARY

This deliverable provides an updated and reviewed version of the Data Management Plan (DMP) of ULTRAWAVE project. This is, therefore, the second version of the DMP. The first one was submitted as Deliverable 7.3 in February 2018.

The document describes the data management life cycle for the data to be generated in the framework of the project. It describes the data management and stewardship procedures, such as the handling of research data during and after the project; what data will be collected, processed or generated; what methodology and standards will be applied; whether this data will be shared and/or made open and how will it be done; and how data will be curated and preserved.

The DMP is expected to be a living document in which information can be made available through updates as the implementation of the project progresses.

1. INTRODUCTION

Deliverable 7.5 constitutes the second version of the Data Management Plan (DMP) of H2020 project ULTRAWAVE. The objective of the deliverable is the description of the plan for managing the data generated and collected during the project.

2. DATA MANAGEMENT IN THE CONTEXT OF H2020

Horizon 2020 has established a set of principles on open access to scientific peer reviewed publications and research data that beneficiaries have to follow¹, with the general goal that the information generated by projects funded within H2020 is made publicly available. However, this must be done without affecting the previous decision on the commercial exploitation of research results. These principles require the provision of “Open Access” to research results derived from H2020 funding but the decision on publishing must come after the more general decision on whether to publish directly or to first seek protection, as shown in Figure 1. ULTRAWAVE partners will decide what information is made public according to potential conflicts with commercialization potential and IPR protection of the knowledge generated.

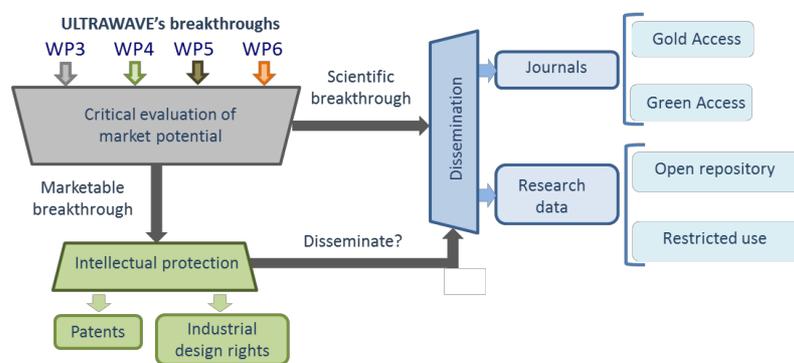


Fig. 1. IPR protection versus dissemination strategy in ULTRAWAVE

Open access can be defined as “*the practice of providing on-line access to scientific information that is free of charge to the reader*”. It means both allowing the access to peer-reviewed scientific research articles (published in scholarly journals)², which is mandatory, but also to research data³ (data underlying publications, curated data and/or raw data).

These principles have been established because the Commission considers that there should be no need to pay for information obtained in the framework of research made with public funds. This principle should benefit European businesses and the public allowing the building on previous research results (improved quality of results), encouraging collaboration and avoiding duplication of effort (greater efficiency), speeding up innovation (faster progress to market means faster growth) and involving citizens and society (improved transparency of the scientific process).

This philosophy means that public-funded scientific information must be made available online, at no extra cost, to European researchers, innovative industries and the public, while ensuring that it is preserved in the long term. Additionally, the Commission encourages authors to retain their copyright and grant adequate licences to publishers and also to include persistent, non-proprietary, open and interoperable identifiers to

¹http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-dissemination_en.htm

²Article 29.2 of the Grant Agreement of project 762119 ULTRAWAVE

³Article 29.3 of the Grant Agreement of project 762119 ULTRAWAVE

uniquely identify the research, e.g. through leveraging existing sustainable initiatives such as ORCID for contributor identifiers.

Access to peer-reviewed scientific research articles means that any user must be able to read and print the content online but also to have the right to copy, distribute, search, link and mine them. To comply with the open access mandate the Commission considers two steps:

- 1) *Depositing publications in repositories*: The first step implies that beneficiaries must deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications. This must be done as soon as possible and at the latest upon publication. Beneficiaries must also provide open access, through the repository, to the bibliographic metadata that identify the deposited publication to make it easier to find publications and ensure that EU funding is acknowledged. Information on EU funding will be included in the bibliographic metadata.
- 2) *Providing open access to publications*: After depositing the publication in a repository, the beneficiaries must ensure its open access (OA) through one of the next methods:
 - a. *“Self-archiving / Green Open Access”*: The author, or a representative, archives the published article (or the final peer-reviewed manuscript) in an online repository. Some publishers request that open access can only be granted after an embargo period has elapsed. Following, H2020 mandate, the beneficiaries must ensure open access to the publication within a maximum of six months.
 - b. *“Open access publishing / Gold Open Access”*: In this model, the payment of publication costs is made by the beneficiaries of the funding. In this case, the most common business model is based on one-off payments by authors. Researchers publish their results in open access journals, or in journals that sell subscriptions and also offer the possibility of making individual articles openly accessible via the payment of author processing charges (hybrid journals).

The second pillar of open access is related to the right to access and reuse digital research data to encourage good data management as an essential element of research best practice and to foster further discoveries. Beyond proper collection, annotation, and archival, data management includes the notion of ‘long-term care’ of valuable digital assets, with the goal that they should be discovered and re-used for downstream investigations. In this context, research data refers to any numbers collected in the framework of the project and needed to validate the results presented in scientific publications. The general principle is to make the project research data findable, accessible, interoperable and reusable, what is known as the FAIR Guiding Principles⁴. To reach this goal, the beneficiaries will deposit the research data in a repository to be kept for the longer term. These are online research data archives, which may be subject-based/thematic, institutional or centralised.

3. MANAGEMENT OF PUBLICATIONS

A key aspect of the OA policy in H2020 is related to the mandate to allow open access to all peer-reviewed journal publications derived from the project.

ULTRAWAVE project will preferably proceed through the option of ‘gold’ OA in order to provide the widest dissemination of project results. ULTRAWAVE partners, whenever possible, will retain the ownership of the copyright for their work through the use of Creative Commons licences (e.g. CC-BY).

As previously described in section 2, in addition to this, a published version or final peer-reviewed manuscript accepted for publication will be deposited at the institutional repository of the academic partner leading the

⁴ “Guidelines on FAIR Data Management in Horizon 2020”

publication. Zenodo⁵ will be used by non academic partners and may also be used for academic ones as a centralised repository. For this purpose, a community in Zenodo, H2020 762119 ULTRAWAVE, was created⁶. The public deliverables of the project have been uploaded to ULTRAWAVE Zenodo community.

ZENODO assigns a Digital Object Identifier (DOI) to all publicly available uploads, in order to make content easily and uniquely citable and this repository also makes use of the OAI-PMH protocol (Open Archives Initiative Protocol for Metadata Harvesting) to facilitate content search through the use of defined metadata.

A list of institutional repositories of ULTRAWAVE partners can be found on Annex I. Publications deposited in the institutional repositories will be in a format that can be used and understood by a computer. They must be stored in text file formats that are either standardised or otherwise publicly known so that anyone can develop new tools for working with the documents.

To ensure that ULTRAWAVE results reach the broadest dissemination, the consortium has identified a set of relevant journals to be initially considered for the publication of project results. Table 1 shows this preliminary list with information about the open access policy of each journal.

⁵ www.zenodo.org

⁶ <https://zenodo.org/communities/ultrawave/?page=1&size=20>

Journal	Impact factor ⁷	OA charges	Comments about open access
Institute of Electrical and Electronics Engineers (IEEE)			
IEEE Communications Magazine	9.27	\$1950	Hybrid journals with open access option (OAPA, CC-BY)
IEEE Wireless Communications	9.202		
IEEE Journal of Solid-State Circuits	4.075		
IEEE/OSA Journal of Lightwave Technology	3.652		
IEEE Electron Device Letters	3.433		
IEEE Transactions Microwave Theory Techniques	3.176		
IEEE Transaction Terahertz Science & Technology	2.955		
IEEE Transactions on Electron Devices	2.62		
IEEE Photonics Technology Letters	2.446		
IEEE Transactions on Components, Packaging, and Manufacturing Technology	1.66		
IEEE Journal of the Electron Devices Society	2.696	\$1350	Open access journals (OAPA, CC-BY)
IEEE Photonics Journal	2.627	\$1037	
Nature Publishing Group			
Nature Communications	12.353	€3700	Open access journal (CC-BY)
Nature Electronics	NA	-	No OA
Optical Society of America (OSA)			
Optics Letters	3.589	\$1942	Hybrid journal with open access option (OAPA, CC-BY)
Optics Express	3.356	\$1279	Open access journal (OAPA, CC-BY)
Springer			
Journal of Infrared, Millimeter, and Terahertz Waves	1.677	€2200	Hybrid journal with open access option (CC-BY)
Institute of Physics			
Semiconductor Science and Technology	2.28	-	No OA

Table 1. List of potential journals for ULTRAWAVE results

Most of the journals showed in Table 1 are from the IEEE, which has several options in relation to open access. Most IEEE journals are hybrid, meaning that they allow both traditional subscription-based content as well as open access. Two open access-only journals have been also identified as relevant in the fields covered by ULTRAWAVE. In general, IEEE offers two open access options for authors: Open Access Publishing Agreement (OAPA), which is the default option, and the Creative Commons Attribution license (CC-BY). In both cases, the author charges for OA are the same (which are shown in Table 1). OAPA allows the authors to copy the article, translate it, or use it for text or data mining as long as the purpose is non-commercial, however, the copyright is transferred to IEEE. It allows users to distribute, reuse, modify, and build upon a work as long as proper attribution to the original article is provided. On the other hand, in works published with a CC-BY license, the authors retain the copyright. This also allows the content to be reused for commercial purposes. The EU recommends that beneficiaries of EU funds retain the copyright, so, in the framework of ULTRAWAVE, IEEE publications under CC-BY will be chosen. In both open access options authors are allowed to post the final,

⁷ Corresponding to 2017 (last year available)

published versions of their articles to their personal websites, institutional repositories, or any repository required by their funding agencies.

Another journal identified as a target of the proposal is Nature Communications. This is an open access-only journal with CC BY license.

For some of the activities related to WP5, publications in photonics journals are envisaged. In addition to journals from the IEEE Photonics Society, two journals from the Optical Society of America (OSA) are included in Table 3. Optics Letters is a hybrid journal whereas Optics Express is an open access-only one. OSA has a specific open access policy which offers its Open Access Publishing Agreement (OAPA). It also allows the application for a Creative Commons license (CC-BY) but only if the research is funded by an entity that OSA has confirmed that requires CC-BY. Additionally, in this case, an additional fee has to be paid (\$750). Since H2020 recommends but not mandates that beneficiaries retain the copyright, for these journals, the license method will be decided by the consortium partner leading the research.

Finally, the Journal of Infrared, Millimeter, and Terahertz Waves, which is published by Springer, is also a relevant journal in the field of THz technology. Springer offers CC-BY in its journals.

When possible, the final version of an article will be deposited before publication, typically as soon as when the article is accepted by the journal. In any case, publications will be deposited in its repository at the date of publication at the latest. To fully agree with EU recommendations, the final published version will be deposited in the corresponding repository among the ones listed in Annex 1, when allowed by the Publisher. If the publisher requires an embargo period, which is not expected for the journals considered in Table 1, the embargo limits fixed by the EU will be taken into account (6 months). Consortium partners will provide in the repository the bibliographic metadata that identify the deposited publication. These must be in a standard format and include the following terms:

- "European Union (EU)" & "Horizon 2020"
- "Research and innovation actions", "ULTRAWAVE" and "762119"
- publication date, the length of the embargo period (if applicable) and persistent identifier (DOI).

Additionally, the consortium will seek to provide, when possible, open access also to conference papers through the "green open access" model, using the repositories listed in Annex 1, and deliverables, previously identified as public, and presentations mainly through the project website.

4. MANAGEMENT OF RESEARCH DATA

1. Data summary

The purpose of the data collection and generation within ULTRAWAVE is double. On the one hand, data related to the specifications of the components to be developed in the project will be measured and collected to allow the interoperation of the different building blocks in the technology demonstrators to be developed in the project. This information will be collected and internally distributed through a cloud sharing service as described in Annex I, but it will be made public only when explicitly indicated by the responsible partner to ensure proper IPR protection. On the other hand, the underlying data related to the scientific publications will be made publicly available to maximize the added-value gained by digital scholarly publishing.

The data types to be generated in the project will be mainly text files with experimental characterizations of the newly developed components and subsystems to be created in ULTRAWAVE. Also, performance estimations calculated using simulation software (CST, VPI) will also be created.

In principle, at this stage of the project, it is not expected that the consortium will re-use any existing data. The origin of the data to be generated will mainly be the obtained from measurements carried out at the partner's facilities. Therefore, in principle the size of the data will be small (of the order of kb).

It is expected that the data generated in the project will be of use to other research groups and companies in the field of millimeter-waves and THz science and technology as well as in wireless and mobile communications.

2. Making data findable, including provisions for metadata

The data produced in the project will be combined with metadata to make them easily identifiable. A persistent and unique identifier, DOI, will be automatically provided through ZENODO. The particular metadata that would best describe the project datasets strongly depends on the nature of the data. A priori, in ULTRAWAVE it is difficult to establish a global criterion for all data, since the project combines very different technologies. In general, the metadata will follow the general fields used in ZENODO, i.e. it will include elements such as the ones shown in Table 2.

Field	Description
Name	Free text
Creator	Last name, first name
Date	Date of the creation of the dataset
Funding	Including the terms: "European Union (EU)", "Horizon 2020", "RIA", "ULTRAWAVE", "grant number 762119"
Subject	Choice of keywords and classifications
Description	Free text explaining the content of the dataset
Format	Details of the file format
Resource type	Dataset, image, audio, report
Identifier	DOI
Access rights	Open access, closed access, embargoed access

Table 2. Metadata

Datasets associated with publications will be named to easily relate each dataset with the figure to which they are derived, e.g. Figure1.txt. If the figure is composed of different datasets, they will be consequently named, e.g. Figure1a.txt, Figure1b.txt. Datasets for internal distribution will follow the name conventions described in Annex II.

The main repository for open access research data to be used in ULTRAWAVE, ZENODO, provides the functionality of keyword search to maximize re-use potential.

3. Making data openly accessible

By default, all research data associated with journal papers will be made public through ZENODO and/or institutional repositories. The consortium will do its best to make open research data from conference papers following the same protocol as for journal papers. Datasets associated with the characterization of components and subsystems newly developed within the project will be, in general, not shared outside the consortium, to protect key results with commercial potential in compliance with article 27 of the project Grant Agreement.

Research data to be made public will be deposited in a repository as described in Annex I. In general, datasets shared through the repository will be directly available with no need of a specific software. Otherwise, for example, for certain simulation results, the particular software needed to process the data will be explicitly made clear in the metadata. This particular software being usually protected by licences will not be made available jointly with the datasets.

No control will be made on the identity of people accessing to the data.

At the time of this version of the document, version 1, there is no apparent reason to need a data access committee.

4. Making data interoperable

In most cases, datasets associated with the publications will follow common practices followed by the telecommunications research community in terms of the KPIs to be provided and the methods to get them. This will allow data exchange and re-use from other researchers who could easily compare and replicate the datasets with their own research.

To ease interoperability, in general, standardized terms (from IEEE and other institutions) will be employed for the metadata as well as standard measuring procedures.

5. Increase data re-use

Unless otherwise required by a particular partner, all datasets made open through a repository will be licensed through a Creative Commons Attribution 4.0 (CC-BY), which retains the copyright but it allows a very liberal use of information. Datasets to be made public will be deposited in the repository at the latest at the time of publication. No restrictions on the use of the open datasets by third parties will be made, unless explicitly required by one of the partners. In the same way, no time restrictions will be imposed on the use of these open datasets.

6. Allocation of resources

The cost of making data FAIR jointly with open access of journal publications is being estimated, in a first approximation, to be around 6000€. This cost was included in the grant proposal.

The partner responsible for data management will be UPV and, in particular, the person will be Borja Vidal.

7. Data security

Datasets will be stored in ZENODO and/or in an institutional repository when possible. ZENODO stores information safely for the long-term future in the same cloud infrastructure used by CERN (Conseil Européen pour la Recherche Nucléaire). In particular, it relies on the repository software Invenio⁸, which is used by some of the world's largest repositories such as INSPIRE HEP and CERN Document Server.

8. Ethical aspects

As described in the Gran Agreement, Section 5, the research conducted within ULTRAWAVE might result in a potential dual use. The consortium agreed that in case of potential dual use appearing during the research, the consortium will work to meet all needed national legal and ethical requirements.

In relation to this, any legal or ethical issue related to the dissemination of dual use datasets will be discussed in the Ethics & Security Group of the consortium to agree on potential restrictions on its data sharing that will be made in compliance of national requirements and IPR considerations.

Otherwise, no personal or medical information is going to be handle by the consortium within the activities covered by ULTRAWAVE. Thus, there is no need to add informed consent information to datasets.

⁸ <http://invenio-software.org/>

5. CONCLUSION, FUTURE UPGRADES AND REVISION HISTORY

This deliverable is the second version of the Data Management Plan as planned in the previous version (D7.3). It will be additionally updated over the course of the project whenever significant changes arise, such as the presence of new data, changes in consortium policies or changes in consortium composition. A final DMP will be provided in M1+36 (D7.9).

DMP Revision History			
Version	Date	Revised by	Comments
0.1	15/02/2018	UPV	
1	26/2/2018	UPV	
2	03/2/2019	UPV	

Table 3. History of revisions

Annex I DATA SHARING, ARCHIVING AND PRESERVATION

A repository is the mechanism to be used by the project consortium to make the project results (i.e., publications and scientific data) publicly available and free of charge for any user. According to this, ULTRAWAVE will employ the next repositories:

- For archiving scientific publications:
 - Institutional repository of the research institutions, see Table 4, for publications led by academic partners.
 - Zenodo, as an optional repository for academic members of the consortium and for publications led by industrial partners
- For depositing generated research data:
 - Zenodo, as the main option
 - Institutional repositories, when possible.

The institutional repositories of academic partners are listed in Table 4. They fulfil the requirements of the “The Open Access Infrastructure for Research in Europe” (OpenAIRE) initiative⁹. The partner leading the publication will be responsible of depositing the publication in its own repository. UPV will be responsible of managing the ULTRAWAVE site on Zenodo.

Partner	Lancaster University (ULANC)
Name of repository	Lancaster E-Prints
Website	http://eprints.lancs.ac.uk/
Compatibility	OpenAIRE Basic (DRIVER OA)
Partner	Goethe Universität Frankfurt am Main (GUF)
Name of repository	Hochschulschriftenserver
Website	http://publikationen.ub.uni-frankfurt.de/
Compatibility	OpenAIRE Basic (DRIVER OA)
Partner	University of Roma Tor Vergata (UTOR)
Name of repository	Institutional Research Information System (IRIS)
Website	https://art.torvergata.it/
Compatibility	OpenAIRE Basic (DRIVER OA)
Partner	Universitat Politècnica de Valencia (UPV)
Name of repository	RiuNet
Website	http://riunet.upv.es/
Compatibility	OpenAIRE 2.0+ (DRIVER OA, EC funding)

Table 4. List of ULTRAWAVE institutional repositories

⁹ <https://www.openaire.eu/participate/deposit/idrepos>

All these repositories make use of the OAI-PMH protocol (Open Archives Initiative Protocol for Metadata Harvesting), what allows that the content can be properly found by means of the defined metadata.

In addition to these, for internal distribution of documents and datasets within the consortium, the cloud-based file-sharing service Box available through Lancaster University (LU Box) is being used. Box is a cloud content management and file sharing service aimed at business collaboration.

Table 5 shows a list of the data that has been archived in institutional or centralised repositories.

Data title	Data type	Repository	Date	DOI
Folded waveguide traveling wave tube in a parallel configuration with a single electron beam	Conference datasets	Zenodo ULTRAWAVE	13/02/2019	10.1109/IVEC.2018.8391519
Design of Sub-THz Traveling Wave Tubes for High Data Rate Long Range Wireless Links	Journal datasets	Lancaster E-prints	8/2/2019	10.17635/lancaster/researchdata/263
Data Management Plan (Version 1) (D7.3)	Deliverable	Zenodo ULTRAWAVE	8/5/2018	10.5281/zenodo.1254289
Project website (D7.2)	Deliverable	Zenodo ULTRAWAVE	7/5/2018	10.5281/zenodo.1243019
Press Release (D7.1)	Deliverable	Zenodo ULTRAWAVE	7/5/2018	10.5281/zenodo.1243016

Table 5. ULTRAWAVE archived data

Annex II DESCRIPTION OF DATASETS TO BE GENERATED

This Annex describes the different types of datasets to be produced in ULTRAWAVE to be distributed internally with the aim to facilitate the interoperability between the different building blocks. As the nature and extent of these data sets can be evolved during the project, more detailed descriptions will be provided in future versions of the DMP.

In principle, these datasets will be distributed only among partners through the internal project repository at ULANC (LU Box).

The naming convention will show the component characterized,

Dataset reference	TWT_D_SP
Dataset name	S-parameter D-band TWT characterization
Dataset description	This dataset will comprise the measured or simulated S-parameter results for the TWT structure in D-band. It will mainly consist of small-signal calculations of the cold simulations or measurements of the TWT in D-band at the respective ports.
File format	Text format
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 5. Dataset TWT_D_SP

Dataset reference	TWT_D_P
Dataset name	Power-level D-band TWT characterization
Dataset description	This data set will comprise results of the power levels at the relevant ports of the TWT structure in D-band. They will include the DC bias conditions together with the input and output power at all ports. The results will be either based on measured values or obtained from simulations. It will mainly consist of small-signal calculations of the hot simulations or measurements of the TWT in D-band at the respective ports.
File format	Text format
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 6. Dataset TWT_D_P

Dataset reference	TWT_G_SP
Dataset name	S-parameter G-band TWT characterization
Dataset description	<p>This dataset will comprise the measured or simulated S-parameter results for the TWT structure in G-band.</p> <p>It will mainly consist of small-signal calculations of the cold simulations or measurements of the TWT in G-band at the respective ports.</p>
File format	Text format
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 7. Dataset TWT_G_SP

Dataset reference	TWT_G_P
Dataset name	Power level G-band TWT characterization
Dataset description	<p>This data set will comprise results of the power levels at the relevant ports of the TWT structure in G-band. They will include the DC bias conditions together with the input and output power at all ports. The results will be either based on measured values or obtained from simulations.</p> <p>It will mainly consist of small-signal calculations of the hot simulations or measurements of the TWT in G-band at the respective ports.</p>
File format	Text format
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 8. Dataset TWT_G_P

Dataset reference	MMIC_D
Dataset name	D-band semi-conductor Radio Chipset Datasheet
Dataset description	It contains the datasheet of the III-V semiconductor products used by the ULTRAWAVE system in the D-band.

File format	Text format
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 9. Dataset MMIC_D

Dataset reference	MMIC_G
Dataset name	G-band semi-conductor Radio Chipset Datasheet
Dataset description	It contains the datasheet of the III-V semiconductor products used by the ULTRAWAVE system in the G-band.
File format	Text format
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 9. Dataset MMIC_G

Dataset reference	PHOT_G
Dataset name	Passive characterization of the photonic transmitter for G-band
Dataset description	It contains the optical characterization of the photonic transmitter to be used in the ULTRAWAVE proof-of-concept in the G-band.
File format	CSV
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 9. Dataset PHOT_G

Dataset reference	SYS_D
Dataset name	D-band system-level datasheet
Dataset description	Information about the D-band of the system general architecture, network interfaces, system data sheet, sub-assemblies datasheets, range diagram and any other general information useful for potential users.

File format	CSV
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 9. Dataset SYS_D

Dataset reference	SYS_G
Dataset name	G-band system-level datasheet
Dataset description	Information about the G-band of the system general architecture, network interfaces, system data sheet, sub-assemblies datasheets, range diagram and any other general information useful for potential users.
File format	CSV
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 9. Dataset SYS_G

Dataset reference	FT_D
Dataset name	D-band Field trial description
Dataset description	This data set will comprise a description of the wireless network architecture including the hardware, interfaces and services that will be deployed at the UPV campus and used for the field trial in D-band. In addition, it will provide information about sites (number of sites and its location), the expected objectives to be achieved and the envisaged scenarios for the system.
File format	PDF
Standards and metadata	The metadata will include: title, creator, date, contributor, description, keywords, format, resource type, etc.
Data sharing	Internal use.

Table 9. Dataset FT_D