D 1.3 DATA MANAGEMENT PLAN

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0.3	29/05/2018	Comments	Boffi, Parolari, Martelli (POLIMI)
0.4	30/05/2018	Quality review	Gatto (POLIMI)
1.0	31/05/2018	Final version	Amarilli (FPM)

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EXECUTIVE SUMMARY

The present document represents "D1.3 Data Management Plan" of the PASSION Project. The project aims at the development of new photonic technologies to support agile metro networks, enabling capacities of Tb/s per spatial channel, 100 Tb/s per link and Pb/s per node over increased transport distances. The project breakthroughs are achieved by developing all the essential photonic building blocks. On the transmitter side, a novel 3D stacked modular design will be developed combining a silicon photonics (SiPh) circuit layer with directly modulated high-bandwidth 1550nm VCSELs light sources. At the receiver side a novel InP based coherent receiver array which handles polarization on chip making polarization handling off chip unnecessary will be implemented. Finally, the partners will develop a compact and cost-effective switching concept which can support the Pb/s capacities generated by the transceiver modules, using a combination of InP and SiPh PICs.

In order to achieve the claimed objective project partners will have to collect and manage data related to several domains: suppliers' data (e.g. projects, technical details of market technologies), technological details delivered throughout the project (e.g. tests results), partners' personal data (e.g. emails of partners personnel), and data collected from dissemination activities (e.g. data collected through presentations, communication through social media).

The purpose of this document is to provide the plan for managing the data generated and collected during the project; the Data Management Plan (DMP). Specifically, the DMP describes the data management life cycle for all datasets to be collected, processed and/or generated by a research project. It covers:

- the handling of research data during and after the project
- which data will be collected, processed or generated
- which methodology and standards will be applied
- whether data will be shared/made open and how
- how data will be curated and preserved

Following the EU's guidelines regarding the DMP, this document is prepared for M6 and will be updated, if necessary, during the project lifetime (in the form of an updated deliverable).

1 INTRODUCTION

1.1 DMP AND AUDIENCE

This document is the PASSION Data Management Plan that the project consortium is required to create as the project participates to the Open Research Data pilot. The DMP describes the data management life cycle for all datasets to be collected, processed and/or generated by a research project.

The intended audience for this document is the PASSION consortium, the European Commission, and all stakeholders (e.g. technology suppliers, research community, etc.) who will interact with the project in several forms and whose data will be collected by the project partners.

1.2 METHODOLOGY

The methodology used by the consortium to prepare the document is as follows.

- The objectives and the general structure of the DMP were illustrated and shared with partners.
- A template for the collection of data was defined.
- Each partner was invited to prepare an individual contribution to the DMP.
- Contributions were integrated and revised.

1.3 STRUCTURE OF THE DMP

For each identified data set the DMP provides a description of the following elements.

- Data summary, describing the types of data, the origin of the data (generated internally or collected from external sources), how they fit into the project (where they are produced or collected and what contribution is provided to project objectives).
- Details on how to make data findable, including provisions for metadata.
- Details on how to access data and how data will be findable and accessible.
- Details on how to make data interoperable.
- Policies to support re-use and sharing of data.
- Resources necessary to support the collection and maintenance of data.
- Policies to guarantee a secure management of data.
- Ethical aspects and other issues.

These elements correspond to the sections of the document. The elements are provided for each partner.

2 INDIVIDUAL DMP

For each partner, details on data sets and how they will be produced, managed, and shared in accordance with EU indications on DMP are provided in the following sections.

2.1   DATA SUMMARY

1. POLIMI	POLIMI will collect data on: 1. test measurement of transmitters, receivers, and node characterization of device, systems, and sub-systems 2. simulation of systems and sub-systems performance 3. simulation of device design for systems and sub-systems Collection of data is instrumental to achieve the following objectives of the project: Objective 1. Design and development of photonic technologies for the realization of a new generation of energy-efficient and compact transmitter (Tx) modules for the metro network enabling up to Tb/s capacity per PIC Objective 2. Design and development of photonic technologies for the realization of a new generation of compact, flexible receiver (Rx) modules for the metro network, able to sustain the PASSION sliceable- bandwidth/bitrate approach. Objective 4. Design and development of scalable and modular S-BVT architectures, allowing to adaptively generate multiple flows of Tb/s capacity and enabling up to 100 Tb/s aggregated capacity per link Objective 5. Development of scalable and modular metro network architectures for subsystem sharing and functional reuse to support flexible agile spectrum/spatial switching addressing capacities of Pb/s per node. In particular, data will be used in the following WPs: 2, 3, 5. Data are generated by project activities; no re-use of previously generated data is foreseen in this context. In the context of the project, data are useful for the technology partners (VTT, TUE, VERT, CTTC, EFP, NICT), for technology suppliers (SMO, TID), for dissemination partners (EPIC). Data format will comprise Excel files (.xls), Matlab files (.mat, .dat), txt. Access to data will be granted to: - all partners of the PASSION project - external organisations that will submit an access request to POLIMI and be approved (if necessary after consultation with the other PASSION partners).
2. CTTC	CTTC will collect data on: 1. Measurements and experimental analysis of transmitters, receivers, systems, and sub-systems, related to the PASSION S-BVT architectures supported by the developed photonic technologies and devices 2. Simulation of systems and sub-systems for suitable transceiver architecture design and performance evaluation 3. Overall setup time attained in the targeted project demonstrations when automatically programming an end-to-end optical connection involving transmitters, receivers and optical switch nodes developed according to the devised PASSION solutions. 4. Devised data model (YANG) and related encoding (JSON or.XML) for configuring and retrieving status of the PASSION network elements and devices. 5. Collection of different performance metrics (i.e., connection blocking, average SBVT utilization, average optical spectrum usage, control setup time, etc.) when dynamically provisioning optical flows aligned with the defined PASSION use cases The collection of this data is crucial to cope with the following PASSION objectives: Objective 4. Design and development of scalable and modular S-BVT architectures, allowing to adaptively generate multiple flows of Tb/s capacity and

	enabling up to 100 Tb/s aggregated capacity per link Objective 5. Development of scalable and modular metro network architectures for subsystem sharing and functional reuse to support flexible agile spectrum/spatial switching addressing capacities of Pb/s per node. In particular, the generated data will be used within WP2 and WP5. Data are generated by project activities; specific existing data (such as systems and sub-systems specifications) on CTTC laboratory facilities and ADRENALINE Testbed® are envisioned to be shared (re-used) if needed by the project. In the context of the project, data are useful for the rest of the PASSION partners including technology partners, technology suppliers and dissemination partners. Data format will comprise Excel files (.xls), Word Documents (.doc), .txt, as well as specific files for the used data model (.yang) and the protocol encoding (.xml or .json) Access to data will be granted to: - all partners of the PASSION project - external organisations that will submit an access request to CTTC either directly or through the coordinator POLIMI and be approved (if necessary after consultation with the other PASSION partners).
3. TUE	TUE will collect data on: 1. simulation of device design for systems and sub-systems 2. devices fabrication 3. test measurement of transmitters, receivers, and node characterization of device, systems, and sub-systems Collection of data is instrumental to achieve the following objectives of the project: Objective 1. Design and development of photonic technologies for the realization of a new generation of energy-efficient and compact transmitter (Tx) modules for the metro network enabling up to Tb/s capacity per PIC Objective 2. Design and development of photonic technologies for the realization of a new generation of compact, flexible receiver (Rx) modules for the metro network, able to sustain the PASSION sliceable- bandwidth/bitrate approach. Objective 3: Development of energy-efficient and small-footprint switching technologies for a node featuring functional aggregation/disaggregation, together with switching in the space and wavelength domain in order to handle 1-Pb/s capacity. Objective 4. Design and development of scalable and modular S-BVT architectures, allowing to adaptively generate multiple flows of Tb/s capacity and enabling up to 100 Tb/s aggregated capacity per link Objective 5. Development of scalable and modular metro network architectures for subsystem sharing and functional reuse to support flexible agile spectrum/spatial switching addressing capacities of Pb/s per node. Data are generated by project activities; no re-use of previously generated data is foreseen in this context. In the context of the project, data are useful for the technology partners (POLIMI, VTT, VERT, CTTC, EFP, NICT), for technology suppliers (SMO, TID), for dissemination partners (EPIC).

	Data format will comprise Excel files (.xls), Matlab files (.mat, .dat), txt. GDS files (.gds) and photos (.jpg) Access to data will be granted to: - all partners of the PASSION project
4. VTT	VTT will collect data on: 　1. Optical, Electrical, Thermomechanical Simulations of Silicon Photonic chips, fiber-coupled packaged transmitter modules with VCSEL and node switching sub-assemblies. 　2. Test measurement of the above at room temperature and operating temperatures Collection of data is instrumental to achieve the following objectives of the project: Objective 1. Design and development of photonic technologies for the realization of a new generation of energy-efficient and compact transmitter (Tx) modules for the metro network enabling up to Tb/s capacity per PIC Objective 2. Highly dense Packaging Design and manufacturing technologies for VCSEL-based, energy-efficient,Tb/s capacity transmitter (Tx) modules In particular, data will be mainly used in the following WPs: 3, 4. Data are generated by project activities; no re-use of previously generated data is foreseen in this context. In the context of the project, data are useful for the technology partners (TUE, VERT, VLC, OPSYS, POLIMI), for technology suppliers (SMO, TID), for dissemination partners (EPIC). Data format will comprise Excel files (csv.xls), Matlab files (.mat, .dat), txt. Access to data will be granted to: - all partners of the PASSION project - external organisations that will submit an access request to POLIMI and be approved (if necessary after consultation with the other PASSION partners).
5. VERT	Vertilas will collect data on: 　1. Test data of VERTILAS VCSELs 　2. Test data of VERTILAS VCSELs with laser drivers 　3. Data on optical coupling of VCSELs and PICs 　4. Data on assembly and integration of VCSELs and PICs This data is required to achieve the following objectives: Objective 1. Verify the VCSEL design and laser produictio parameters Objective 2: Characterise the VCSELs for project partners for system design concept, module integration and performance evaluation. Objective 3: Set requirements and operation parameters to operate VCSELs with other components and achieve optimized performance Objective 4: Provide data to partners to derive system requirements from VCSELs functionality and performance Objective 5. Define and support component integration techniques Data generated by VERTILAS is useful for project partners, e.g. POLIMI; VTT, TUE, CCTC and others. For dissemination, data can be provided to EPIC. Data formats used will be mainly excel files, graphs and text (word, powerpoint). Data will be made accessible to project partners for the system design and component integration.
6. VLC	VLC will collect data on: 1. Simulation data for the design and layout of photonic integrated circuits. 2. Characterization of photonic integrated circuits and building blocks. Collection of data is instrumental to achieve the following objectives of the project: Objective 1. Improving the performance of the target PICs through iterative design based on characterization data.

	Objective 2. Performance evaluation towards achieving the target goals. Objective 3. Validating the fabrication platforms. In particular, data will be used in the following WPs: 3, 4, and partially 5. Data are generated by project activities; no re-use of previously generated data is foreseen in this context. In the context of the project, data might be useful for the technology partners (VTT, TUE, POLIMI, VERT, OPSYS, SMO, EFP, ETRI). Data format will comprise Excel files (.xls), Matlab files (.mat, .dat), .txt. GDS design files will not be shared. Access to data will be granted to: - all requesting partners of the PASSION project - external organisations that will submit an access request to POLIMI and be approved (if necessary after consultation with the other PASSION partners).

7. OPSYS	OPSYS will collect data on:
	1. Characterization data different types of switches and WSS. Data on performance of node different parts and at the end the sub-systems and system level performance including different transmission scenarios.
	2. Data on Techno-economic analysis of the proposed solutions
	3. Data on recommended device packaging design reliable for the sub-systems integration
	Collection of data is instrumental to achieve the following objectives of the project:
	Objective 1. Design and development of photonic technologies for the realization of a new generation of energy-efficient and compact transmitter (Tx) modules for the metro network enabling up to Tb/s capacity per PIC
	Objective 3: Development of energy-efficient and small-footprint switching technologies for a node featuring functional aggregation/disaggregation, together with switching in the space and wavelength domain to handle 1-Pb/s capacity. In particular:
	  • Design of the optical switching node with added flexibility through implementation of different levels of aggregation, as in spectrum and in space, to improve effective and agile usage of the traffic pipes.
	  • Design of compact and low number of electrodes WSSs and low insertion loss high connectivity WDM and multicast switches (MCSs).
	
	Objective 4. Design and development of scalable and modular S-BVT architectures, allowing to adaptively generate multiple flows of Tb/s capacity and enabling up to 100 Tb/s aggregated capacity per link
	Objective 5. Development of scalable and modular metro network architectures for subsystem sharing and functional reuse to support flexible agile spectrum/spatial switching addressing capacities of Pb/s per node.
	In particular, data will be used in the following WPs: 2, 3, 4, 5.
	Data are generated by project activities; no re-use of previously generated data is foreseen in this context.
	In the context of the project, data are useful for the technology partners (TUE, ETRI, VLC, EFP, VTT), for technology suppliers (SMO, TID, VERTILAS), for dissemination partners (EPIC).
	Data format will comprise Excel files (.xls), Matlab files (.mat, .dat), txt.
	Access to data will be granted to:
	- all partners of the PASSION project
	- external organisations that will submit an access request to POLIMI and be approved (if necessary after consultation with the other PASSION partners).

8. EFP	EFP will collect data on:
	  • Chip level DC qualification (i.e. quantify DC figures of merit of components)
	  • Chip level RF qualification (i.e. quantify electro-optical response of components)

	• Wafer level qualification (i.e. photoluminescence measurements) • Prototype DC&RF qualification (i.e. verify prototype design satisfy requirements) Collection of these data is key to achieve: Objective 2. Design and development of photonic technologies for the realization of a new generation of compact, flexible receiver (Rx) modules for the metro network, able to sustain the PASSION sliceable- bandwidth/bitrate approach. Yet, as all project objectives are correlated, feedback from the above is relevant to the achievement of the other project objectives. No re-use of previously generated data is foreseen. Data in custom trext files, and in the case of the wafer level qualification, additional PL reports generated by software from equipment vendor. Only relevant plots, and/or values of relevant figures of merit will be shared to project partners when necessary and/or requested.

9. SMO	SMO will collect data on:
	  1. measurement of the telecommunication nodes and related sub-system, which will be developed and/or integrated during the Project development.
	  2. simulation results that will be produced during the project execution will be part of the collected data.
	
	Data collection will be manly used to:
	  1. characterise the behaviour of the developed systems and sub-systems, according to the Project objectives. In particular:
	    • transmitter (Tx) and receiver (Rx) modules for the metro network enabling up to Tb/s capacity per PIC;
	    • optical nodes and switching capacity;
	    • scalable and modular metro network architectures;
	    • demonstration results and statistics
	
	Data format will include the most common file format (e.g. Excel files *.xls*, Matlab files *.mat*, *.dat*, Word files *.doc*, *.docx*, PowerPoint files *.ppt*, *.pptx*, Text files *.txt*, etc.)
	Access to data will be granted to:
	all partners of the PASSION project
	external organisations that will submit an access request to POLIMI as coordinator. PASSION partners will approve access grant.

10. TID	Telefonica is collecting and sharing information about real network topologies and their physical characteristics for network design and techno-economic analysis. Telefonica is not providing any information about customers data.
11. EPIC	EPIC will collect data on: 1. End-user companies interested in the technology developed by PASSION 2. Companies interested in providing the components to the PASSION supply chain for the next generation of metro network based on PASSION technology 3. Companies interested in the standards developed or adopted by PASSION 4. European Projects competing/complementing PASSION Collection of data is instrumental to achieve the following objectives of the project: - Objective 1: provide recommendations on migration and roadmap for industrialization; - Objective 2: coordinate and perform project results dissemination, giving appropriate visibility of PASSION to the relevant European, national and international forums; - Objective 3: promote the technical results of PASSION to the European and global research community (e. g. setting up a project web site, dissemination

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	events);
	- Objective 4: coordination of dissemination activities (e.g. participation in conferences, contribution to scientific journals, organization of workshops and events, etc.);
	- Objective 5: exchange with other projects active in neighbouring fields with similar focus (within and possibly outside EU HORIZON2020);
	- Objective 6: generate a software tool for metro network design useful for the operators willing to exploit PASSION technologies, devices and architectures;
	- Objective 7: participate to international standardization bodies
	Data are generated by attending the events, organizing the workshops and also through the website and social media; no re-use of previously generated data is foreseen in this context.
	In the context of the project, data are useful for the technology partners (VTT, TUE, VERT, CTTC, EFP, NICT), for technology suppliers (SMO, TID), for dissemination partners (EPIC).
	Data format will comprise Excel files (.xls) and txt.
	Access to data will be granted to:
	- all partners of the PASSION project
	- external organisations that will submit an access request and be approved (if necessary after consultation with the other PASSION partners).
12. NICT	NICT will collect data on:
	1. test measurement of transmitters, receivers, and node characterization of device, systems, and sub-systems
	Collection of data is instrumental to achieve the following objectives of the project:
	Objective 1. Design and development of photonic technologies for the realization of a new generation of energy-efficient and compact transmitter (Tx) modules for the metro network enabling up to Tb/s capacity per PIC
	Objective 2. Design and development of photonic technologies for the realization of a new generation of compact, flexible receiver (Rx) modules for the metro network, able to sustain the PASSION sliceable- bandwidth/bitrate approach.
	Objective 4. Design and development of scalable and modular S-BVT architectures, allowing to adaptively generate multiple flows of Tb/s capacity and enabling up to 100 Tb/s aggregated capacity per link
	Objective 5. Development of scalable and modular metro network architectures for subsystem sharing and functional reuse to support flexible agile spectrum/spatial switching addressing capacities of Pb/s per node.
	In particular, data will be used in WP 5.
	Data are generated by project activities; no re-use of previously generated data is foreseen in this context.
	In the context of the project, data are useful for the technology partners (VTT, TUE, VERT, CTTC, EFP, NICT), for technology suppliers (SMO, TID), for dissemination partners (EPIC).
	Data format will comprise Excel files (.xls), Matlab files (.mat, .dat), txt.
	Access to data will be granted to:
	- all partners of the PASSION project
	- external organisations that will submit an access request to NICT and be approved (if necessary after consultation with the other PASSION partners).
13. ETRI	ETRI will collect data on:
	1. Mask design of the photonic space switch (polymer based optical matrix switch).
	2. Simulation results of switching characteristics (e.g. BPM simulation)
	3. Device (Chip) Characterization results:
	- optical insertion loss, polarization dependent loss, extinction ratio, electrical switching power
	- waveguide cross-section analysis, SEM & EDAX

	Objective of the data collection: - Development of energy-efficient and small-footprint switching technologies for a node featuring functional aggregation/disaggregation, together with switching in the space domain. Data will be used in the following WPs: 4, 5. Data are generated by project activities; no re-use of previously generated data is foreseen in this context.

2.2 MAKING DATA FINDABLE

1. POLIMI	• Data will be stored in a shared folder called PASSION DATA (https://www.dropbox.com/sh/gr43zcj8vmqaeox/AAAV1NftJ85mNngZRmNGXWXDa?dl=0)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	   • [WP#] indicated the number of WP that generated the data. Optional
	   • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	   • [V] indicates the version of the file
	   • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

2. CTTC	• Data will be stored in a shared folder called PASSION DATA (ttps://www.dropbox.com/sh/gr43zcj8vmqaeox/AAAV1NftJ85mNngZRmNGXWXDa?dl=0)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	   • [WP#] indicated the number of WP that generated the data. Optional
	   • [CODE] indicates the type of data (e.g. SIM for simulation, TST for test, DES for design, …)
	   • [V] indicates the version of the file
	   • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

3. TUE	• Data will be stored in a shared folder (https://www.dropbox.com/sh/njorvbpkal6hptw/AADdsrhZ-lUmztQm7e2laUgKa?dl=0)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	   • [WP#] indicated the number of WP that generated the data. Optional
	   • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	   • [V] indicates the version of the file
	   • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

4. VTT	• Data will be stored in a shared folder called PASSION DATA (https://www.dropbox.com/sh/gr43zcj8vmqaeox/AAAV1NftJ85mNngZRmNGXWXDa?dl=0)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	   • [WP#] indicated the number of WP that generated the data. Optional
	   • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	   • [V] indicates the version of the file
	   • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end

	of the project

5. VERT	• Technical information and VCSEL parameters for project partners will be stored on the shared folder (Repository URL will be provided once ready)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	    • [WP#] indicated the number of WP that generated the data. Optional
	    • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	    • [V] indicates the version of the file
	    • [EXT] is the extension of the file
	Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

6. VLC	• Data will be stored in a shared folder called PASSION DATA (https://www.dropbox.com/sh/gr43zcj8vmqaeox/AAAV1NftJ85mNngZRmNGXWXDa?dl=0)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	    • [WP#] indicated the number of WP that generated the data. Optional
	    • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	    • [V] indicates the version of the file
	    • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

7. OPSYS	• Data will be stored in a shared folder called PASSION DATA (https://www.dropbox.com/sh/gr43zcj8vmqaeox/AAAV1NftJ85mNngZRmNGXWXDa?dl=0)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	    • [WP#] indicated the number of WP that generated the data. Optional
	    • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	    • [V] indicates the version of the file
	    • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

8. EFP	• Data stored in in-house database • Since only relevant plots and/or values of relevant figures of merit will be provided when necessary and/or requested, the internally used naming conventions are irrelevant to share

9. SMO	• All the relevant data collected will be send to the Project Coordinator. PoliMI will store and manage the data in a shared folder called PASSION DATA (https://www.dropbox.com/sh/gr43zcj8vmqaeox/AAAV1NftJ85mNngZRmNGXWXDa?dl=0)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	    • [WP#] indicated the number of WP that generated the data. Optional
	    • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	    • [V] indicates the version of the file
	    • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

10. TID	• Reference Network topologies and fibre characteristics are reported in D21.
11. EPIC	• Data will be stored in a shared folder called PASSION DATA (https://www.dropbox.com/sh/gr43zcj8vmqaeox/AAAV1NftJ85mNngZRmNGXWXDa?dl=0) • Naming convention will be: [Name of the company]_[Website of the company]_[Name of the contact]_ [Details of the company] • Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

12. NICT	• Data will be stored in a shared folder (Dropbox URL)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	    • [WP#] indicated the number of WP that generated the data. Optional
	    • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	    • [V] indicates the version of the file
	    • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

13. ETRI	• Data will be stored in a shared folder called PASSION DATA (https://www.dropbox.com/sh/gr43zcj8vmqaeox/AAAV1NftJ85mNngZRmNGXWXDa?dl=0)
	• Raw measurement data will be stored in the local server of ETRI (Measurement data will be shared to the project cloud shared folder if requested)
	• Naming convention will be: [WP#]_[CODE]_ [CONTENT DATA]_[V].[EXT]
	   • [WP#] indicated the number of WP that generated the data. Optional
	   • [CODE] indicates the type of data (SIM for simulation, TST for test, DES for design)
	   • [V] indicates the version of the file
	   • [EXT] is the extension of the file
	• Access to data will be guaranteed for the duration of the project and for 6 months after the end of the project

2.3 MAKING DATA OPENLY ACCESSIBLE

1. POLIMI	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.) • No metadata will be associated to the files
2. CCTC	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, etc.) • No metadata will be associated to the files
3. TUE	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.) • No metadata will be associated to the files
4. VTT	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.) • No metadata will be associated to the files
5. VERT	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.) • No metadata will be associated to the files
6. VLC	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.). • No metadata will be associated to the files.
7. OPSYS	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.) • No metadata will be associated to the files
8. EFP	• Only relevant plots and/or values of relevant figures of merit will be provided to project partners when necessary and/or requested. This will be done by e-mail or on project's shared folder (access granted by the coordinator, who is the repository owner) • Data can be accessed through applications of common use (e.g. Microsoft Office, Matlab, etc.)

	• No metadata will be associated to the files
9. SMO	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.) • No metadata will be associated to the files • The project will not provide the tool and the licenses that may be needed to read the stored data.
10. TID	• Reference networks and cost models will be included in public deliverables
11. EPIC	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software) • No metadata will be associated to the files
12. NICT	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.) • No metadata will be associated to the files
13. ETRI	• Data will be available to all project partners through access to the shared folder. Access to folder will be granted by the repository owner (coordinator) • Data can be accessed through applications that depends on the format of data (e.g. MW Office or other office software, Matlab, etc.) • No metadata will be associated to the files

2.4   MAKING DATA INTEROPERABLE

1. POLIMI	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
2. CCTC	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
3. TUE	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
4. VTT	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
5. VERT	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
6. VLC	• No specific issues of interoperability are present.

	• PDAflow foundation standards will be used to compile any PDK or design library, making them interoperable with the main photonic design frameworks.
7. OPSYS	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
8. EFP	• Not applicable
9. SMO	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
10. TID	• No issues on interoperability are expected
11. EPIC	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
12. NICT	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided
13. ETRI	• No specific issues of interoperability are present • Since data will be "flat" and consist of one single entity with attributes, structure of data will not be described and the schema of the table will be representative of the structure • Mapping with ontologies will not be provided

2.5   INCREASE DATA REUSE

1. POLIMI	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests
2. CTTC	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project, partners will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests
3. TUE	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests
4. VTT	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project, partner will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests if specifically

	authorized by the project coordinator
5. VERT	• Licensing of VERTILAS data is not planned • Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests
6. VLC	• Use of data will be freely available to all partners for R&D purposes, following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests
7. OPSYS	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests
8. EFP	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project, partners will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests
9. SMO	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests
10. TID	• Reference Networks and cost models included in public deliverables can be freely reused
11. EPIC	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods)
12. NICT	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods) Quality of data will be guaranteed through repetition of tests
13. ETRI	• Use of data will be freely available to all partners following the access rights regulated by the PASSION CA • After the end of the project partner will agree on the kind of access to data and on the limitations (including embargo periods) • Quality of data will be guaranteed through repetition of tests

2.6 ALLOCATION OF RESOURCES

1. POLIMI	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner
2. CTTC	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository

	owner
3. TUE	• Data will be kept in Dropbox, no extra cost
4. VTT	• Costs of maintaining the repository of data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner
5. VERT	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner
6. VLC	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner
7. OPSYS	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner
8. EFP	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner
9. SMO	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner
10. TID	• Costs are included in the technical WP effort
11. EPIC	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner
12. NICT	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner (coordinator)
13. ETRI	• Costs of maintaining the repository of the data are covered by the hosting institution and will not be charged on the project • Responsible for the maintenance of the infrastructure is the repository owner

2.7 DATA SECURITY

1. POLIMI	• Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, Coordinator will access to data through dedicated app that will guarantee replication of data at local level
2. CTTC	• Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, CTTC will access to data through dedicated app that will guarantee replication of data at local level
3. TUE	• Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, TUE will access to data through dedicated app that will guarantee replication of data at local level
4. VTT	• Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, VTT will access to data through dedicated

	app that will guarantee replication of data at local level
5. VERT	• Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, VERT will access to data through dedicated app that will guarantee replication of data at local level
6. VLC	• Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, VLC will access to data through dedicated app that will guarantee replication of data at local level
7. OPSYS	• Data are stored in in-house database and partially shared through the cloud repository
8. EFP	• Data is stored in an in-house database and local storage with back-up on-line
9. SMO	• Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, SMO will access to data through dedicated app that will guarantee replication of data at local level
10. TID	• Project information is stored in cloud back ups.
11. EPIC	• Address data recovery as well as secure storage and transfer of sensitive data • Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, EPIC will access to data through dedicated app that will guarantee replication of data at local level
12. NICT	• Since data are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, NICT will access to data through dedicated app that will guarantee replication of data at local level
13. ETRI	• Since data related to PASSION project are stored in a shared cloud repository, cloud will guarantee backups of data. Furthermore, ETRI network blocks the unauthorized access from outside and only limited information (e.g. e-mail, electronic approval system) is accessible through VPN connection. The unauthorized USB memory cannot be used at the computers in the ETRI networks.

2.8 ETHICS

1. POLIMI	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance
2. CTTC	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance
3. TUE	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance
4. VTT	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance
5. VERT	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance
6. VLC	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance
7. OPSYS	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance

8. EFP	• No ethical issues are associated to the process of collecting data, to their content and maintenance
9. SMO	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance
10. TID	• No sensitive data are collected
11. EPIC	• Sensitive data are collected. Contacts must agree to share their contact information.
12. NICT	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance
13. ETRI	• No sensitive data are collected. No personal data are collected. No ethical issues is associated to the process of collecting data, to their content and maintenance

2.9 OTHER

1. POLIMI	• Not relevant
2. CTTC	• Not relevant
3. TUE	• Not relevant
4. VTT	• Not relevant
5. VERT	• Not relevant
6. VLC	• Not relevant
7. OPSYS	• Not relevant
8. EFP	• Not relevant
9. SMO	• Not relevant
10. TID	• Not relevant
11. EPIC	• Not relevant
12. NICT	• Not relevant
13. ETRI	• Not relevant