ARTES Competitiveness & Growth Full Proposal

Part 5

Implementation Proposal for the … Phase

Proposal title

Proposal Reference: reference number

Notes for the use of this template (to be removed from Full Proposal)

This document contains requirements gathered in annex. For convenience, they can be accessed via hyperlinks that are located at the beginning of the section they relate to. These requirements must be taken into account when completing the Proposal.

Material presented in this plain style must not be removed nor modified, unless stated otherwise by an explanatory note.

Parts highlighted in yellow may or may not need to be filled in, depending on the scope of the proposal (please refer to the related explanatory notes to determine if they apply or not). The table below provides a summary of optional sections depending on the different cases.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Space Segment | Ground Segment | Application | System | SME support |
| Definition | Annex\* | | | | 5.1 |
| Technology |
| Product |
| Demonstration | 1\*, 4.1\*, 4.3, 4.4, 5.3\*, 6.1\*, Annex\* | 4.1\*, Annex\* | 4.1\*, Annex\* | 1\*, 4.1\*, 4.3, 4.4, 5.3\*, 6.1\*, Annex\* |

\*partially

Text in red font must be modified and/or completed by the Tenderer for the proposed activity (this supplementary information should be presented in plain typeface, i.e. not red, in the final version of the Full Proposal).

This style is used for explanatory notes and guidance to help you to develop the Full Proposal content. They should be removed from the final document before submission.

A separate and self-contained Implementation Proposal shall be included **for each Development Phase** for which support is being requested under the ARTES C&G Call for Proposals

Use of this Full Proposal Template is **mandatory**. The Tenderer shall not change the structure of this Full Proposal Template (i.e. the table of contents must remain unchanged) and adhere to its guidelines and requirements. However, the format and lay-out can be modified, e.g. to be in-line with the Tenderer’s corporate identity.

Table of Contents

[1 Work Breakdown Structure 3](#_Toc531274555)

[2 Project Schedule 4](#_Toc531274556)

[3 Prior Work 6](#_Toc531274557)

[4 Review Meeting Plan 6](#_Toc531274558)

[4.1 Milestones and Review Meetings 6](#_Toc531274559)

[4.2 Progress Meetings 7](#_Toc531274560)

[4.3 Common ESA and Customer Reviews 8](#_Toc531274561)

[4.4 Non-Conformance Reviews 8](#_Toc531274562)

[5 Deliverable Documents 8](#_Toc531274563)

[5.1 Documentation Configuration Management 8](#_Toc531274564)

[5.2 Generic Deliverable Documents 9](#_Toc531274565)

[5.3 Documentation Delivery Plan 9](#_Toc531274566)

[5.4 Proprietary Documents 10](#_Toc531274567)

[6 Deliverable Hardware and Software 10](#_Toc531274568)

[6.1 Hardware 10](#_Toc531274569)

[6.2 Software 11](#_Toc531274570)

[Annex 1: Generic Deliverable Documents 13](#_Toc531274571)

[Annex 2: Work Package Descriptions 19](#_Toc531274572)

[Annex 3: Work Package Descriptions (Prior Work) 20](#_Toc531274573)

[Annex 4: Requirements for Proposal Content 21](#_Toc531274574)

# Work Breakdown Structure

|  |  |
| --- | --- |
| **Content Requirements** | **Phase(s)** |
| [5-1](#R1), [5-2](#R2), [5-3](#R3), [5-4](#R4) | All |
| [5-5](#R5), [5-6](#R6) | Demonstration (Space Segment or System) |

The figure below presents the work breakdown structure, covering the entire scope of the proposed work.

Replace the following diagram with an equivalent showing the proposed work breakdown structure

**Work breakdown structure**



A work package description form (PSS-A20) is presented in Annex 2 and Annex 3 (for Prior Work) herewith for each of the work packages at the lowest level of the work breakdown structure.

Include the following statements if this Part of the Proposal addresses a Space Segment or System Demonstration Phase

The work breakdown structure includes the following work packages for the Space Segment Demonstration Phase:

* A work package/work packages addressing the period of time from the delivery of the product (completion of the Acceptance Review) up to the launch of the host satellite (work package reference(s)).
* A work package/work packages addressing the period of time from the launch of the host satellite to the completion of the Commissioning Results Review (work package reference(s)).
* A work package/work packages addressing the period of time from the completion of the Commissioning Results Review to the Final Review (work package reference(s)).

Include the following statement if this Part of the Proposal addresses a Space Segment or System Demonstration Phase and support is requested for accommodation studies

* A dedicated work package for accommodation studies of the product on the spacecraft (work package reference).

Include the following statement if this Part of the Proposal includes a Space Segment or System Demonstration Phase and support is requested for accommodation of the product on the spacecraft

* A dedicated work package for accommodation of the product on the spacecraft, including assembly, integration and test (work package reference).

Include the following statement if this Part of the Proposal includes a Passenger or Pilot case of the Space Segment or System Demonstration Phase and support is requested for the launch campaign

* A dedicated work package for the launch campaign, including testing and early operations phase activities specific to the item, for verification of function and performance, or monitoring (work package reference).

Include the following statement if this Part of the Proposal includes a Passenger or Pilot case of the Space Segment or System Demonstration Phase and support is requested for in-orbit test and verification

* A dedicated work package for in-orbit test and verification of the performance and function of the product (work package reference).

# Project Schedule

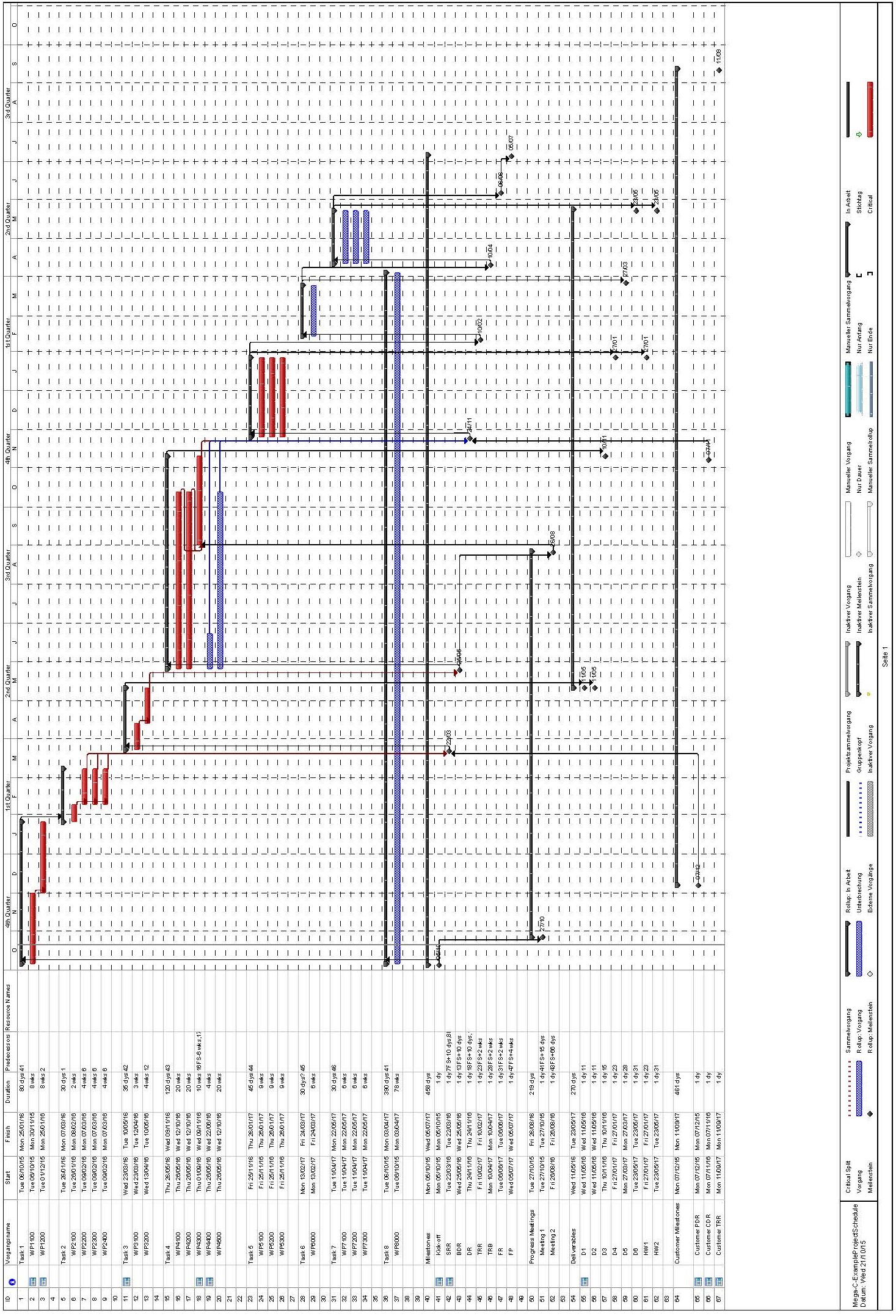
|  |  |
| --- | --- |
| **Content Requirements** | **Phase(s)** |
| [5-7](#R7), [5-8](#R8), [5-9](#R9) | All |
| [5-10](#R10), [5-11](#R11) | Demonstration (Space Segment or System) |
| [5-12](#R12) | Demonstration (Ground Segment) |
| [5-13](#R13) | Demonstration (Application) |

The project schedule is illustrated in a bar chart in reference, attached to the proposal.

or (delete the inapplicable paragraph)

The project schedule is illustrated in the following bar chart.

Replace the example bar chart below with your own. Bar charts embedded in the Proposal document should have sufficient resolution, both on screen and in print, for all elements of the bar chart to be easily read.



# Prior Work

|  |  |
| --- | --- |
| **Content Requirements** | **Phase(s)** |
| [5-14](#R14), [5-15](#R15) | All |

This proposal does not include Prior Work.

or

(delete the inapplicable paragraph)

This proposal includes Prior Work. The Prior Work is presented separately in Annex 2 herewith for each of its own work packages, work package descriptions and complete work package outputs.

# Review Meeting Plan

## Milestones and Review Meetings

|  |  |
| --- | --- |
| **Content Requirements** | **Phase(s)** |
| [5-16](#R17), [5-17](#R18) | All |
| [5-18](#R20) | Demonstration (Space Segment or System) |
| [5-19](#R22) | Demonstration (Ground Segment, System or Application) |

The proposed contractual milestones and review meetings are summarised in the table below. Each review meeting will be attended by the Agency’s representative(s), the project manager, and other members of the project team as required.

Complete the following table as appropriate for the proposed Development Phase. For guidance, typical review objectives are provided in the following Excel® spreadsheet:



**Contractual milestones and review meetings**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Title** | **Date (months)** | **Contributing Work Packages** | **Objectives** |
| MS1 | Kick-off Meeting | T0 |  | 1. Present the project and the company(ies) 2. Present the overall project planning 3. Review all planned deliverables |
| MS2 | … | T0 + … | WP …, WP …, etc. | 1. … 2. … |
| … | … | T0 + … | WP …, WP …, etc. | 1. … 2. … |
| MSn | Phase Completion Review/Final Review | T0 + … | All | 1. Present a summary of the outcome of the development phase, including conclusions and recommendations. 2. Propose an outline of future product development strategies. 3. Present the test or operational data gathered during the phase. 4. Confirm that all outputs, deliverables and work have been successfully completed/delivered to the satisfaction of the Agency and as defined in the contract.   *The following objective applies for a Product or a Demonstration Phase only.*   1. Estimate the socioeconomic impact of the product development and the subsequent commercialisation of the product.   *The following objectives apply for a Space Segment or System Demonstration Phase only.*   1. Present the operational data gathered during the first year of operation of the product. 2. Compare the operational data with performance predictions, including a trend analysis. 3. List and assess any anomaly observed during operation. |

Include the paragraph below if this Part of the Proposal includes a Space Segment or System Demonstration Phase

It is acknowledged that the success of the Acceptance Review shall be conditional upon the acceptance of the flight product by the satellite prime manufacturer.

Include the paragraph below if this Part of the Proposal includes a Space Segment or System Demonstration Phase Pilot Case

It is acknowledged that the success of the Flight Acceptance Review shall be conditional upon the acceptance of the spacecraft by the Launch Service Provider for launch.

Include the paragraph below if this Part of the Proposal includes a Ground Segment, System or Application Demonstration Phase

Representatives of the user organisations involved in the pilot shall participate in the on-site acceptance test (SAT).

## Progress Meetings

In addition to these milestones and review meetings, progress meetings will be held periodically, with no more than eight (8) weeks between consecutive meetings. The right for ESA to call for specific progress meetings is acknowledged.

The objective of each progress meeting will be to present a summary of the current status of the activity and to report on any problems and schedule slippages.

## Common ESA and Customer Reviews

Include this section if this Part of the Proposal includes a Space Segment or System Demonstration Phase

|  |  |
| --- | --- |
| **Content Requirements** | **Phase(s)** |
| [5-20](#R23) | Demonstration (Space Segment or System) |

It is not planned to hold reviews with the Agency in common with customer reviews because ….

or

(delete the inapplicable paragraph)The review meeting plan for the Demonstration Phase has, to the extent practicable, been aligned with that of the flight programme. The table below summarises the reviews with the Agency that, in view of the commonality between the review objectives, are planned to be held in common with customer reviews.

**Common ESA and customer reviews**

|  |  |  |
| --- | --- | --- |
| **Agency Review ID** | **Agency Review Title** | **Customer Review** |
| MS1 | … | … |
| MS2 | … | … |
| … | … | … |
| … | … | … |

The following principles will apply for ESA reviews held in common with customer reviews:

*Identify policies regarding document delivery, distribution & disposition of review comments and close-out of the review*

## Non-Conformance Reviews

Include this section if this Part of the Proposal includes a Space Segment or System Demonstration Phase

The Agency will be invited to any non-conformance reviews related to the flight product that involve the customer and may adversely impact their requirements. In the case of a failure occurring during the testing of an item under development, the Agency’s Technical Officer will be informed within two (2) working days in order to agree on the corrective action to be taken.

# Deliverable Documents

## Documentation Configuration Management

*This section is optional for Proposals claiming SME support (ref. Letter of Invitation, section 2.3)*

A document configuration and management control scheme will be created before the first review meeting and maintained for consultation by the Agency. A list will be created and maintained of all documents produced in connection with the contract. This document list will include a distribution list and, for each document, will indicate the document title, the name of the file, the document reference, the type of document, the date of issue, the revision number and the confidentiality level.

Each deliverable document will include a title page reporting the project name, the contract number, the title of the document, a reference identifier, the author(s) and related organisation(s), the date of issue and the revision number. All deliverable documents will include a record of the document history, indicating in short for each document revision the corresponding date and the reason(s) for the revision. The Agency will be notified of changes to documents subject to change control.

## Generic Deliverable Documents

Generic deliverable documents that are specific to, and mandatory for ARTES C&G are listed in Annex 1 herewith.

## Documentation Delivery Plan

Include and complete the following statement if the document delivery plan is detailed in a separate document attached to the Full Proposal   
(e.g. an Excel® spreadsheet)

The document delivery plan is detailed in a separate document, reference [document reference], which is provided as an attachment to our proposal.

or

(delete the inapplicable paragraph)

The following documents will be delivered to the Agency, at the indicated milestones:

Complete the following table as appropriate for the proposed Development Phase. Typical deliverables are provided in the following Excel® spreadsheet:



**Documentation delivery plan**

| **Document Reference** | **Deliverable Document** | **Contributing Work Package(s)** | **MS1** | **MSn** | **Phase Completion Review/ Final Review** |
| --- | --- | --- | --- | --- | --- |
| **Management** | | | | | |
| … | title | WP…, etc. | update | update | final |
| … | title | WP…, etc. | - | - | final |
| … | title | WP…, etc. | update | etc. | … |
| **Engineering** | | | | | |
| … | title | WP…, etc. | … | … | … |
| … | title | WP…, etc. | … | … | … |
| … | title | WP…, etc. | … | … | … |
| **(Document category)** | | | | | |
| … | Title | WP…, etc. | … | … | … |
| … | Title | WP…, etc. | … | … | … |

Include the following statements if this Part of the Proposal addresses a Space Segment or System Demonstration Phase

The End Item Data Package will be the same as that supplied to the flight customer. Any request for waiver (RFW) or request for deviation (RFD) raised at any time during the development will be delivered to the Agency.

Include the following statement if this Part of the Proposal includes a Space Segment or System Demonstration Phase and support is requested for activities undertaken by the spacecraft manufacturer

The documentation delivery plan includes reports detailing the work performed by the spacecraft manufacturer (insert document references).

## Proprietary Documents

*Include this section if, exceptionally, proprietary documents are included in the documentation delivery plan that are proposed to be made available for review by the Agency at Contractor’s premises only*

|  |  |
| --- | --- |
| **Content Requirements** | **Phase(s)** |
| [5-21](#R26) | All |

The table below identifies proprietary documents that will be made available for review by the Agency at our premises only.

**Proprietary documents**

| **Review Meeting** | **Document Reference** | **Document Title** |
| --- | --- | --- |
| … | … | … |
| … | … | … |

# Deliverable Hardware and Software

## Hardware

|  |  |
| --- | --- |
| **Content Requirements** | **Phase(s)** |
| [5-22](#R27) | All |
| [5-23](#R28) | Demonstration (Space Segment or System) |

No hardware will be produced and delivered to the Agency.

or

(delete the inapplicable paragraph)

The hardware items that will be produced and delivered to the Agency under a resulting contract are listed in the table below.

**Hardware items to be delivered to the Agency**

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliverable ID** | **Description** | **Completion Milestone** | **Number Delivered** |
| … | … | … | … |
| … | … | … | … |
| … | … | … | … |
| … | … | … | … |

Include the following information if this Part of the Proposal includes a Space Segment or System Demonstration Phase

The hardware items that will be produced and delivered for integration and testing at spacecraft level are identified in the table below. Transfer of ownership and waiver of delivery of the hardware will be in accordance with the conditions set out in the Draft Contract.

**Hardware items to be delivered to the Agency**

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliverable ID** | **Description** | **Number to be Developed** | **Flight/Ground** |
| HW1… | Ku-Band Down Converter type 1… | 1… | Flight |
| … | … | … | Flight |
| … | … | … | Ground |
| … | … | … | Flight |

## Software

|  |  |
| --- | --- |
| **Content Requirements** | **Phase(s)** |
| [5-24](#R29), [5-25](#R30), [5-26](#R31) | All |

No software will be produced and delivered to the Agency.

or

(delete the inapplicable paragraph)

The software items that will be produced and delivered to the Agency under Article 2.1.2 of the resulting contract are listed in the table below.

**Software items to be delivered to the Agency 1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Deliverable ID** | **Description** | **Completion Milestone** | **Number Delivered** | **Delivery Format(s)** | **Deliverable Licences** |
| … | … | … | … | … | … |
| … | … | … | … | … | … |
| … | … | … | … | … | … |
| … | … | … | … | … | … |

1. In accordance with Article 3.1.3 of the Draft Contract, if applicable, also include licences to be purchased and delivered to the Agency.

1. Generic Deliverable Documents

**Final Report**

The Final Report shall be prepared in the general form and quality of an item suitable for technical journal publication. It shall be written in a concise yet instructive manner and shall not exceed 20 pages (containing colour photographs, if applicable).

It shall describe the major technical, operational and commercial accomplishments of this contract, especially:

- objective of the activity

- key issues

- results of the work incl. description of the new product/service developed

- main benefits

- perspective (further technical and commercial evolution).

The final report may be made available to all ESA Participating States and Persons and Bodies. Therefore if the Final Report includes commercially sensitive information, two versions of the final report shall be provided.

The version containing commercially sensitive information shall be marked “Proprietary Information”. The version not containing commercially sensitive information shall not be marked “Proprietary Information”.

**High resolution images**

High-Resolution (>2 MB) Photographs shall be delivered, shall be releasable to the public and shall be delivered in a format that can easily be processed electronically (e.g. not in PDF).

**Product Data Sheet**

A Product Data Sheet shall be issued:

* + For each hardware unit which has been developed and tested within the contract, providing the functional performances, budgets (for space: mass, power, volume) and environmental specifications.
  + For each software item which has been developed and tested within the contract, listing the main functions and the demonstrated performance parameters.

**Monthly Progress Reports**

A concise monthly progress report will be provided to the Agency within the first five working days of each month. A template can be found at the following link:

<https://artes.esa.int/sites/default/files/MPR_ARTES_3-4_v3.1.doc>

**Minutes of Meetings**

Formal written minutes of meetings attended by the Agency will be agreed and, as far as possible, be signed and made available to the Agency at the end of the meeting. If this is not possible the minutes will be provided to the Agency no later than five working days from the date of the meeting. The minutes will, as a minimum, identify all agreements made and actions accepted during the meeting.

The action item list will be included in the minutes and will be updated in accordance with the meeting outcome. Each action item will be assigned a unique identifier in the format X.Y, where X is the meeting number in which it originated and Y is the action number, starting from 1 at each meeting.

**Project Web Page**

As part of the first review data package the Contractor shall produce a Project Web Page which shall be suited for publication by ESA in the Telecommunications and Integrated Applications web site. The Project Web Page shall be produced using the template given under: <http://artes.esa.int/documents>. As a minimum, an update of the paragraph called “Current Status” shall be provided at each milestone review together with the minutes of the review meeting. A final version of the Project Web Page shall be provided together with the Final Report. This final version shall include a paragraph summarising the most significant achievements of the project.

**Justification for non-continuation**

Include this deliverable if this Part of the Proposal includes a Definition or Technology Phase

In the event that it is no longer proposed to continue with the development at the end of the Definition or Technology Phase, the Contractor shall deliver a Justification Letter to the Agency. The Justification Letter shall set out the reasons (technical and/or commercial) for not continuing the development.

**Socio-Economic Impact Questionnaire**

Include this deliverable if this Part of the Proposal includes a Technology, Product or Demonstration Phase

A Socio-Economic Impact Questionnaire (SEIQ) shall be delivered in one (1) set of documentation each, to the Agency’s authorised representatives not later than fourteen calendar days before the Final Review Meeting.

A generic example of the SEIQ is available at <https://artes.esa.int/documents>. The Agency shall issue a customised version to be completed by the Contractor not later than 30 calendar days before the Final Review Meeting.

The Agency reserves the right to request up to three updates of the SEIQ within a period of three years following the closure of the contract.

**Quarterly Status Reports**

Include this deliverable if this Part of the Proposal includes a Space Segment or System Demonstration Phase

After the delivery of the product to the satellite prime manufacturer, or in the case of a Pilot case, after the completion of the CRR, a concise status report will be provided to the agency within the first five working days of the following months: February, May, August, and November, starting from the date of delivery to the satellite prime manufacturer or CRR, as appropriate. After delivery, the quarterly status report will replace the monthly progress report.

**System and Service Architecture**

Include this deliverable if this Part of the Proposal addresses the Application Domain

The System and Service Architecture documentation shall define and specify the overall pilot system, starting from the high level architecture down to its building blocks. The SSA shall include the following sections:

1 – Overall System Architecture:

This section shall provide a preliminary high level description of the overall system architecture, and it shall clearly point out the strategic role of the satellite communications component in the proposed system compared to potential terrestrial alternatives. It shall also provide a clear partitioning of the overall system architecture, identifying:

* which elements are pre-existing, like facilities or items developed/procured in previous activities, specifying the required adaptations or modifications whenever applicable;
* which elements have to be developed in the frame of the proposed project;
* which elements have to be procured as Commercial Off The Shelf (COTS) items, indicating the proposed procedure for the procurement.

2 – Design and Development Plan:

If the Demonstration Phase includes the development of hardware and/or software this shall comprise a preliminary design and development plan to illustrate, in a concise and conceptual manner, the logical execution of the developed activities from contract award to final review. It shall define and include decision points on which the course of the development will depend.

3 – Risk and mitigation plan of the implementation:

A table of risks with an estimation of their respective impacts (e.g. cost, delays...), likelihood, and corresponding mitigating actions.

**System Verification Document**

Include this deliverable if this Part of the Proposal includes an Application Product or Demonstration Phase

The System Verification Document (SVD) shall be dedicated to the preparation, planning, execution and reporting of all activities necessary to demonstrate the readiness of the system before entering into the pilot utilisation activities. The SVD shall demonstrate the compliance of the different elements of the system with the system requirements identified in the RD.

The SVD shall include the following sections:

* A Test Plan to define the approach, the methodology, the test sequence and the test conditions to verify the different elements of the system. The Test Plan shall include a Test Matrix that will create traceability between each test and the system requirements identified in the RD together with the milestone review at which the test will be executed. A paragraph that describes the test facilities shall also be included.
* Test Procedures to describe the measurement equipment, test set-up and test methods that will be used for executing the tests defined in the test plan. The Test Procedure shall contain for each test a test form where test identifier, test sequence and associated results, pass/fail status, remarks, date and signatures will be recorded during the test execution.
* Test Reports to provide a collection of the test forms filled in during the tests and an overall assessment of the status of compliance of the system.

**Pilot Utilisation Plan**

Include this deliverable if this Part of the Proposal includes a Ground Segment or Application Demonstration Phase

The Pilot Utilisation Plan shall describe the activities to be carried out during the pilot utilisation of the system and define the related evaluation framework. It shall consist of the following sections:

* Users: identifying the actors in terms of organisations and user groups that will be involved in the pilot operations and describing their roles.
* Pilot utilisation baseline: describing the utilisation of the pilot system (e.g. number of utilisation sessions, volume of data exchanged, duration of interactive sessions) and the associated planning (e.g. duration of pilot stage, starting date of pilot sites).
* Pilot assessment: intended approach to evaluate the pilot including success goals, performance criteria (e.g. quality of the product/service, evolution of the number of users, utilisation time etc.).
* Pilot preparation: describing the content elements that have to be developed or procured in the course of the project as a prerequisite to start the pilot stage (e.g. products, training of people, statement of commitment from user/stakeholders involved in the pilot, planned approach to promote the commercial uptake of the system/services).
* Pilot risks: a risk assessment associated with the pilot service and your mitigation plan.
* Assessment of the Satcom Applications: describing the envisaged approach to evaluate the added value brought to the target user groups by the Satcom Applications developed in the project. The assessment shall be based on a combination of quantitative and qualitative data gathered via forms and/or questionnaires from the user groups directly involved in the pilot stage.

**Pilot Operations Summary Report**

Include this deliverable if this Part of the Proposal includes a Ground Segment or Application Demonstration Phase

Starting from the beginning of the pilot sites installation, a Pilot Operations Summary Report (POSR) will be delivered to the Agency every week. The POSR shall summarise the activity of utilisation of the application/service system in the different pilot sites. A template for the POSR can be downloaded from: <https://artes.esa.int/documents>.

**Digital Media**

Include this deliverable if this Part of the Proposal addresses the Application Domain

Digital Media shall consist of digital pictures and/or digital videos taken during the execution of the pilot-demonstration activities and shall document the installation and utilisation of the system by the pilot users. It shall consist of the following elements:

1 – Photography

The Contractor shall deliver at least ten (10) high resolution photos displaying the technology involved and its end users, specifying how the credits should be listed. ESA shall be granted all rights to use these images, for online, print and any other occasions as needed, free of charge. Accepted formats: JPEG.

2 – Videos, animations

In order to promote the results of the project in a visual and illustrative way, a video of minimum 60 seconds shall be delivered. This video can include interviews with users, the project team, the ESA Technical Officer(s), as well as text and graphical animations. All videos are meant to be published on the ARTES website, together with the related Project Web Page (PWP) and shall comply with these format requirements:

CONTAINER: MP4

FILE EXTENSION: .mp4

VIDEO CODEC: H.264

AUDIO CODEC : AAC

RESOLUTION : 1280 x 720 max

BITRATE : 6 Mbps max

An end sequence shall be provided in order to show the contribution of ESA’s ARTES programme and to maintain a corporate design. On request, ESA shall also get access to the digital files of the raw, unedited footage material in the highest quality available. ESA shall be granted all rights to use the produced video and the footage for its own purposes, free of charge.

3 – Print and on-line productions

Should the Contractor decide to produce any information related to the project in print or in on line form (folders, flyers, brochures, posters, etc.), coordination with the ESA Technical Officer(s) is required by providing the draft content one (1) month before intended publication, so as to ensure a correct representation of ESA and, where possible, ensure consistency with the ESA Corporate Visual Identity. All material prepared by the Contractor, intended for publication including the internet, shall acknowledge that it is an ESA project carried out under the ARTES programme by the ESA. The Contractor shall display in an appropriate and visible way the ESA’s logo, downloadable at [www.esa.int/esalogo](http://www.esa.int/esalogo). The obligation shall cease three (3) years after contract completion.

**Contract Outcome Data**

*Include this deliverable if this Part of the Proposal addresses the Application Domain*

The Contract Outcome Data shall contain information concerning the main commercial development of the project (including exploitation of IPR) and the related impact on the entity using the COD.

On yearly basis, an email will be sent to the Contractor with a specific link to an online form that will be used to gather the data. Access to the form is further protected using the username and password for the telecom website https://artes.esa.int. Contractor must apply for an account to be able to access the form. The questionnaire can be downloaded from: <https://artes-apps.esa.int/documents>.

**Summary and Achievements**

*Include this deliverable if this Part of the Proposal addresses the Application Domain*

The Summary and Achievements document shall provide, in two pages, a concise overview of the project and its main achievements.

This document will be used internally by ESA and, whenever needed, for reporting to the ESA Member States. A template of the S&A document can be found under: <https://artes-apps.esa.int/documents>. The S&A document will be regularly updated by ESA after the completion of the project reflecting possible inputs that will be provided by the Contractor’s team (e.g. new items published on ESA and non-ESA portals, key commercial outcomes).

1. Work Package Descriptions

*Provide completed work package descriptions for each work package identified in the work breakdown structure*

|  |  |
| --- | --- |
| PROJECT: … PHASE: … | WP: … |
| WP Title: …  Company: …  WP Manager: …  Start Event: … Planned Date: …  End Event: … Planned Date: … | Sheet … of …  Issue Ref …  Issue Date … |
| Inputs:  …  Tasks:  …  Outputs:  …  Each work package shall have as an output one or more items that are deliverable to the Agency | |

1. Work Package Descriptions (Prior Work)

*Include only if Prior Work is proposed*

*Provide completed work package descriptions for each work package identified in Prior Work*

|  |  |
| --- | --- |
| PROJECT: … PHASE: … | WP: … |
| WP Title: …  Company: …  WP Manager: …  Start Event: … Planned Date: …  End Event: … Planned Date: … | Sheet … of …  Issue Ref …  Issue Date … |
| Inputs:  …  Tasks:  …  Outputs:  …  Each work package shall have as an output one or more items that are deliverable to the Agency | |

1. Requirements for Proposal Content

| **Requirement** | **Template Section** |
| --- | --- |
| * 1. The Tenderer shall submit a Work Breakdown Structure (WBS) on at least two levels, which shall cover the entire scope of the proposed work. Depending on the size and complexity of the proposed activity, a breakdown to more levels may be necessary. | [Section 1](#_Work_Breakdown_Structure) Work Breakdown Structure |
| * 1. The work shall be structured so that the commencement and completion of work packages are linked to the milestone review meetings. | [Section 1](#_Work_Breakdown_Structure) Work Breakdown Structure |
| * 1. Each work package at the lowest level of the WBS shall be described in a Work Package Description form. (PSS-A20). | [Section 1](#_Work_Breakdown_Structure) Work Breakdown Structure |
| * 1. Work package descriptions shall comply with the following requirements:  1. There shall be a single work package manager for each work package. 2. Work packages shall start and end on milestone events and not span the entire duration of the activity. An exception may be made for the project management work package and any closely associated management function (e.g. Configuration Management, Contract Management, Financial Control). 3. Inputs expected from other work packages shall be clearly indicated (i.e. reference shall be made to the contributing work packages). 4. Task descriptions shall describe the work to be performed in sufficient detail for the Agency to be able to judge the value for money (scope of the proposed work versus the associated man-hours). 5. Each task shall be traceable with a corresponding work package output. 6. Each work package shall have as an output one or more items that are deliverable to the Agency. 7. All deliverable hardware, software and documentation shall be traceable to the identified work packages. | [Section 1](#_Work_Breakdown_Structure) Work Breakdown Structure |
| * 1. If this Part of the Proposal addresses a **Space Segment or System Demonstration Phase** the work breakdown structure shall include:  1. A work package or work packages addressing the period of time from the delivery of the product (completion of the Acceptance Review) up to the launch of the host satellite). 2. A work package or work packages addressing the period of time from the launch of the host satellite to the completion of the Commissioning Results Review. 3. A work package or work packages addressing the period of time from the completion of the Commissioning Results Review to the Final Review. 4. A dedicated work package for studies addressing the accommodation of the product on the spacecraft, if support is requested for **accommodation studies**. 5. A dedicated work package for all accommodation activities, including assembly, integration and test, if support is requested for **accommodating the product on the spacecraft**. | [Section 1](#_Work_Breakdown_Structure) Work Breakdown Structure |
| * 1. If this Part of the Proposal includes a **Passenger or Pilot case** of a **Space Segment or System Demonstration Phase** the work breakdown structure shall include:  1. A dedicated work package for all launch campaign activities (including testing and early operations phase activities specific to the item, for verification of function and performance, or monitoring), if support is requested for the **launch campaign**. 2. A dedicated work package for in-orbit test and verification of the performance and function of the product, if support is requested for **in-orbit test and verification**. | [Section 1](#_Work_Breakdown_Structure) Work Breakdown Structure |
| * 1. The Tenderer shall submit a project schedule, which shall cover the entire duration of the proposed work. | [Section 2](#_Project_Schedule) Project Schedule |
| * 1. In establishing the project schedule, the Tenderer shall take account of the need of the Agency to review and/or approve intermediate deliverables and shall allow at least 10 working days for the Agency to do this. | [Section 2](#_Project_Schedule) Project Schedule |
| * 1. All milestone review meetings and lowest-level work packages shall explicitly be indicated on the project schedule. | [Section 2](#_Project_Schedule) Project Schedule |
| * 1. When presenting the project schedule for the **Space Segment or System Demonstration Phase**, the Tenderer shall clearly indicate how its project plan relates to the procurement plan of the customer (e.g. alignment of key milestones and decision points). | [Section 2](#_Project_Schedule) Project Schedule |
| * 1. The project schedule for the **Space Segment or System Demonstration Phase** shall include a period of at least one year starting immediately after the start of nominal operation of the product, during which time in-orbit operational data shall be gathered for the product. The data shall be analysed and presented at the Final Review meeting for the Demonstration Phase. | [Section 2](#_Project_Schedule) Project Schedule |
| * 1. The total duration of the **Ground Segment Demonstration Phase** shall be between 1 and 2 years. | [Section 2](#_Project_Schedule) Project Schedule |
| * 1. The total duration of the **Application Demonstration Phase** shall be between 1 and 3 years. | [Section 2](#_Project_Schedule) Project Schedule |
| * 1. It shall be explicitly stated whether or not the proposal includes prior work. | [Section 3](#_Prior_Work) Prior Work |
| * 1. If prior work is proposed, the prior work shall be presented separately with its own set of work packages, work package descriptions and complete work package outputs. | [Section 3](#_Prior_Work) Prior Work |
| * 1. The review meeting plan shall include a Phase Completion Review at the end of each Development Phase, unless the Development Phase is the last Development Phase in the contract, in which case the Phase Completion Review is not required and is replaced by the Final Review. | [Section 4.1](#_Milestones_and_Review) Milestones and Review Meetings |
| * 1. The review meeting plan for a Development Phase shall include the mandatory reviews specified in [Table 1](#Reviews) for that development phase. | [Section 4.1](#_Milestones_and_Review) Milestones and Review Meetings |
| * 1. If this Part of the Proposal addresses a **Space Segment or System Demonstration Phase** the objectives of the Phase Completion Review/Final Review shall include the following:  1. Present the operational data gathered during the first year of operation of the product. 2. Compare the operational data with performance predictions, including a trend analysis. 3. List and assess any anomaly observed during operation. | [Section 4.1](#_Milestones_and_Review) Milestones and Review Meetings |
| * 1. If this Part of the Proposal addresses a **Ground Segment, System or Application Demonstration Phase,** and if the Tenderer is proposing a Product Phase in association with a Demonstration phase, the Baseline Development Review (BDR), Critical Design Review (CDR) and Factory Acceptance Test (FAT) are not required in the Demonstration Phase review meeting plan | [Section 4.1](#_Milestones_and_Review) Milestones and Review Meetings |
| * 1. If this Part of the Proposal addresses a **Space Segment or System Demonstration Phase**:  1. The review meeting plan shall, to the extent practicable, be aligned with that of the flight programme. 2. The Tenderer shall indicate which reviews with the Agency are planned to be held in common with customer reviews. 3. The Tenderer shall describe the policies that will apply to Agency reviews held in common with customer reviews, including policies for document delivery, distribution and disposition of review comments and review close-out. 4. If it is not planned to hold reviews with the Agency in common with customer reviews then the Tenderer shall explain why this is not proposed. | [Section 4.3](#_Common_ESA_and) Common ESA and Customer Reviews |
| * 1. Exceptionally, and with justification, the Tenderer may propose to include proprietary documents in the documentation delivery plan that would be made available for review by the Agency at the Contractor’s premises only. If such documents are proposed the Tenderer shall:  1. Clearly identify each document by its unique document reference and title. 2. Indicate at which review meetings/milestones the document will be made available for review by the Agency. | [Section 5.4](#_Proprietary_Documents) Proprietary Documents |
| * 1. Hardware items produced within the scope of an ARTES C&G contract shall be delivered to the Agency in accordance with the following requirements:  1. A list of deliverable hardware items shall be provided in tabular form, providing, for each hardware item, a unique ID, a description of the item, the delivery milestone and the number of units to be delivered to the Agency. 2. If no deliverable hardware items are proposed then this shall be explicitly stated by the Tenderer. 3. If hardware items will be developed as part of the proposed work but they are not proposed as deliverables to ESA, then the Tenderer shall provide an explanation for why they are not proposed as deliverable items. | [Section 6.1](#_Hardware) Hardware |
| * 1. If this Part of the Proposal addresses a **Space Segment or System Demonstration Phase**, then the Tenderer shall:  1. Provide a list of hardware items that will be produced and delivered for integration and testing at spacecraft level. 2. Provide, for each hardware item, a unique ID, a description of the item, the number of such items to be developed and the nature of the item (flight or ground element). | [Section 6.1](#_Hardware) Hardware |
| * 1. Software items produced within the scope of an ARTES C&G contract shall be delivered to the Agency in accordance with the following requirements:  1. A list of deliverable software items shall be provided in tabular form, providing, for each software item, a unique ID, a description of the item, the delivery milestone, the number of units to be delivered to the Agency, the delivery format(s) and the deliverable software licenses, in accordance with Article 3.1.3 of the Draft Contract. 2. If no deliverable software items are proposed then this shall be explicitly stated by the Tenderer. 3. If software items will be developed as part of the proposed work but they are not proposed as deliverables to ESA, then the Tenderer shall provide an explanation for why they are not proposed as deliverable items. | [Section 6.2](#_Software) Software |
| * 1. The Tenderer shall deliver Software Licence Files for third party software. They shall characterise the deliverable software in terms of its constituent elements and the associated licensing schemes (in particular for any commercial off-the-shelf or open source software). Software licence files shall provide the following information for each item of third party software:   + software item name/identifier;   + key features/function of the software item;   + developer name;   + version number;   + license type;   + licensing conditions;   + exportability constraints, if any;   + software dependencies, if any. | [Section 6.2](#_Software) Software |
| * 1. If any existing software is intended to be re-used, the Tender shall provide a Software Reuse File (SRF). This document shall contain an analysis of existing software intended to be reused. The SRF shall be composed of the following two sections: * Section 1, dedicated to present the analysis carried out to decide about the reuse (or not) of existing software taking into account the technical, operational and commercial requirements of the project. Furthermore the analysis shall cover the way the reused software will be embedded and/or integrated with the software to be developed in the project. The reused software shall be described in accordance with the information listed below (SRF List). * Section 2, to characterise the deliverable software in terms of its constituent elements and the associated licensing schemes. The deliverable software (i.e. including developed and existing reused software) shall be described in accordance with the information listed below (SRF List):   + - * software item name and main features;       * developer name;       * considered version and list of components;       * licensing conditions; e.g. industrial property and exportability constraints, if any;       * implementation language;       * development and execution environment (e.g. platform, operating system);       * applicable dispositions for warranty, maintenance, installation and training;       * commercial software necessary for software execution, if any;       * size of the software (e.g. number of source code lines, and size of the executable code). | [Section 6.2](#_Software) Software |

**Table 1: Mandatory Review Meetings**

[*Back to Requirement 5-17*](#R18)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Development Phase** | **Domain** | | | |
| **Space Segment** | **Ground Segment** | **System** | **Application** |
| All | Kick-off Meeting,  Phase Completion Review or Final Review | Kick-off Meeting,  Phase Completion Review or Final Review | Kick-off Meeting,  Phase Completion Review or Final Review | Kick-off Meeting,  Phase Completion Review or Final Review |
| Definition | Mid Term Review (MTR) | MTR | MTR | Baseline Design Review (BDR),  Critical Design Review (CDR) |
| Technology | Preliminary Design Review (PDR) | PDR | PDR | BDR |
| Product | CDR,  Test Readiness Review (TRR),  Test Review Board (TRB) | CDR,  TRR,  Factory Acceptance Test (FAT) | CDR,  TRR,  Factory Acceptance Test (FAT) | BDR,  CDR,  FAT |
| Demonstration | (Embedded and Hosted Case)  Equipment Qualification Status Review (EQSR),  Acceptance Review (AR), Commissioning Results Review (CRR) | CDR,  FAT,  On-Site Acceptance Test (SAT) | CDR,  FAT,  On-Site Acceptance Test (SAT)  Final System Acceptance Test (FSAT) | BDR,  CDR,  FAT,  SAT |
| (Pilot Case)  Mission Requirements Review (MRR)  Detailed Design Review (DDR)  Payload Acceptance Review (PAR)  Flight Readiness Review (FRR)  Commissioning Results Review (CRR) |
|  |  |  |  |  |