



**UPU** | UNIVERSAL  
POSTAL  
UNION

## **Call for tenders**

**Procurement of RFID equipment and engineering services to implement RFID tracking services**

17 January 2023

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## **1 Introduction**

### *1.1 Profile of the UPU*

The Universal Postal Union (UPU) was founded in 1874 in Berne, Switzerland, with the main goals of establishing a single postal territory for the reciprocal exchange of letter-post items and adopting common principles for the international postal service in a non-discriminatory manner. Currently comprising 192 member countries, the UPU became a specialized agency of the United Nations in 1948.

The main mission of the UPU is to stimulate the lasting development of efficient and accessible universal postal services of quality, in order to facilitate communication between the inhabitants of the world. It does this by guaranteeing the free circulation of items over a single postal territory composed of interconnected networks, encouraging the adoption of fair common standards and the use of technology, ensuring cooperation and interaction among stakeholders, promoting effective technical cooperation, and ensuring the satisfaction of customers' changing needs. The UPU is thus expected to play a major role in the continued revitalization of postal services.

Furthermore, the UPU facilitates the development of worldwide postal services by providing an information and communication technology framework that allows the designated operators<sup>1</sup> of UPU member countries to concentrate on the delivery of postal services to their customers. In this context, the UPU provides a global network with value-added services, as well as computerized applications for the management of international mail and international postal money orders.

## **2 Terms and conditions**

Unless otherwise indicated in this call for tenders, the term "Bidder" shall refer to any person, company or legal entity submitting a proposal in response to this call for tenders. The term "Vendor" shall refer to any selected bidder.

### *2.1 Confidentiality*

Bidders shall treat in strict confidence all information contained in this call for tenders and its attached documents that is not already publicly known or generally accessible, particularly any documentation marked as confidential and distributed by the UPU to Bidders as additional confidential tender documentation. Bidders shall prevent the disclosure or distribution of all such information to third parties and other entities and persons not expressly authorized herein. In case of doubt, these confidentiality provisions shall nevertheless be observed. All Bidders are obliged to observe these confidentiality provisions before, during and after the tender process. These provisions shall not affect the legal obligations of the UPU and Bidders to disclose information.

Bidders shall not use such information for any purposes other than those associated with this call for tenders. The call for tenders and all attached documents may be distributed or made available only to persons directly involved in the tender process on behalf of Bidders. If external agents or subcontractors are involved in the preparation of the tender documents, this must be indicated and their names provided in the participation notification (see section 2.14).

Bidders shall assume full responsibility for the compliance of their agents, consultants, employees and subcontractors, as well as any third parties involved on their behalf in this tender process, with these rules of confidentiality, and shall be liable for any damages resulting from misconduct or unauthorized disclosure.

If a Bidder violates the confidentiality provisions contained herein, it shall be liable to pay a penalty to the UPU unless it can prove that no fault is attributable to it. This penalty shall not exceed 50,000 CHF per infringement. Payment of any such penalties shall not release Bidders from their obligation to observe these confidentiality requirements.

<sup>1</sup> In accordance with article 2.1.6 of the UPU Constitution, a designated operator is any governmental or non-governmental entity officially designated by the member country to operate postal services and to fulfil the related obligations arising out of the Acts of the Union on its territory.

Bidders wishing to submit a proposal in response to this call for tenders must contact the person(s) specified in section 2.15 below and may, if necessary, request additional information from the UPU in relation to this call for tenders.

Without prejudice to the confidentiality provisions set out above, Bidders agree that the receipt of any such information may be subject to the prior signature of a non-disclosure agreement between the Bidder and the UPU, under conditions to be determined and communicated by the latter.

## *2.2 Legal status of the Vendor*

The Vendor shall be regarded as having, in law, the legal status of independent contractor. The Vendor and its agents, consultants, employees and subcontractors (as authorized by the UPU) shall in no way be regarded as employees of the UPU. Such agents, consultants, employees and subcontractors of the Vendor shall not be entitled to any employment benefits from the UPU. The Vendor alone shall be responsible for due payment of all compensation owed to such agents, consultants, employees and subcontractors, including payment of any employment taxes, benefits, compensation and insurance. The Vendor shall represent and warrant that it will comply with all laws, rules and regulations required by the relevant authorities, including the appropriate withholding, reporting and payment of all necessary taxes.

The Vendor shall be liable for all work performed, including any acts or omissions, by its agents, consultants, employees and subcontractors.

## *2.3 Scope of the call for tenders*

This call for tenders concerns two main areas of work, namely the provision of i) ultra-high frequency (UHF) radio frequency identification (RFID) equipment to the UPU for the purpose of monitoring and tracking postal items in real time and ii) engineering services to design a specialized RFID solution to track and identify items based on their electronic declaration attributes.

The RFID equipment shall be used by designated operators in the management of their day-to-day operational processes, and will serve to identify, track and monitor postal items in real time at operational facilities where postal traffic is received and processed.

In addition, a solution must be engineered to identify postal items in real time and check their compliance attributes against up-to-date customs-related business rules. The solution must be capable of isolating from the postal pipeline any items that are not compliant with the regulations, thus preventing the sending of such items.

The solution shall be tried and tested in the field prior to its subsequent roll-out. If the proposed solution requires the use of specific hardware, machinery or any other assets, Bidders should also provide the design, prototype and deployment costs thereof.

## *2.4 Background*

### *Current situation*

The UPU is tasked with improving the global performance of the international letter-post sector. According to UPU estimates, the global letter-post market stood at 350 billion domestic and international letter-post items and over 6 billion international parcels in 2012.

It was agreed that the desired improvement in global performance would be achieved through a system associating letter-post quality of service and the payments made between designated operators. The UPU therefore devised the Global Monitoring System (GMS), a neutral and independent measurement system, which was first implemented in 2009 and is now actively used in more than 110 member countries.

Under this system, external panellists (independent of designated operators) exchange test letters containing a passive UHF RFID transponder that is read by RFID equipment installed at operational facilities where postal traffic is received and processed. This is a well-established process used by various member countries, serving to generate the majority of the information required to determine quality of service.

In order to respond to new market and customer needs, the UPU now aims to extend this established mail measurement technique to encompass the real-time tracking and monitoring of all postal items, including receptacles, through the use of RFID technology.

#### *Project background*

EMS (Express Mail Service) offers a faster delivery solution than the UPU's letter-mail and parcel services. It competes with other express services offered by integrators and express carriers in a highly competitive market, where service reliability is key to attracting and retaining customers and ensuring business growth.

Leg 2 transportation (i.e. the time taken to transport an item between two designated operators) plays a crucial role in ensuring a reliable EMS service. Currently, several measurements are used to provide indicators in this regard, based on electronic data interchange (EDI) messages exchanged between the parties involved in leg 2 transportation, at item, dispatch and consignment level. Although these measurements are well established, they are subject to limitations, as EMS receptacles are scanned before or after their actual handover between the parties involved in leg 2 transportation. Consequently, these measurements do not enable the monitoring of the actual leg 2 transportation time.

In parallel, new regulations concerning customs and security require all postal items containing goods to carry electronic data describing those goods. The aim is to improve the accuracy of goods inspections and to prevent the acceptance of items that are not compliant with security regulations. To this end, airlines and designated operators will be required to submit manifests with consignment information to the customs authorities of transit and destination countries. Within this framework, RFID passive technology can support the tracking of compliance through the automatic collection of data from postal items.

#### *Implementation at postal facilities*

The RFID equipment is usually installed at postal facilities so as to ensure optimum detection of the entry and exit of test letters containing passive RFID transponders.

Depending on the postal facility, different postal scenarios may be implemented, as follows:

| <i>Type</i>       | <i>Purpose</i>   | <i>Maximum dimensions</i> | <i>Type of container</i>                             |
|-------------------|------------------|---------------------------|--|
| Small door        | Inbound/outbound | 1.5 m (W) x 2 m (H)       | Trays/mailbags                                       |
| Standard dock     | Inbound/outbound | 4 m (W) x 4 m (H)         | Metal cages and/or pallets containing trays/mailbags |
| Airmail unit dock | Inbound          | 5 m (W) x 4 m (H)         | Unit load devices (ULDs) containing trays/mailbags   |
| Elevators         | Inbound/outbound | 4 m (W) x 4 m (H)         | Metal cages and/or pallets containing trays/mailbags |
| Conveyor belt     | NA               | 1.5 m (W)                 | Trays/mailbags                                       |

Although the RFID equipment is normally installed according to the scenarios described above, it may occasionally be installed at a "bottleneck" (such as a corridor) and/or in an open area to capture all RFID transponders from various operational processes.

#### *2.5 Objectives*

The objectives of the services to be provided are as follows:

- Improve the quality of monitoring of leg 2 transportation;
- Ensure real-time identification and monitoring of postal items;
- Identify and isolate postal items that are not compliant with regulations concerning the declaration of goods, before such items are sent to their destination.

To this end, Bidders must provide a technical solution for the procurement of the following items and services (see section 4 for further details), taking due account of any applicable best practices and regulations:

- UHF RFID GMS postal units adaptable to different postal scenarios (up to 100 units);
- UHF RFID passive transponders to be encoded with S9 and S10 identifiers (up to 5,000,000 units);
- UHF RFID printers to print and codify UHF RFID inlays (up to 10 units);
- Operational services in the field to conduct site surveys, install and configure the UHF RFID equipment, and certify the installation and use thereof, for the purpose of real-time identification and monitoring of postal items (for up to 10 designated operators);
- Engineering services to design and deploy a solution to identify postal items in real time and isolate them in the event of non-compliance with customs-related business rules;
- Prototype and implementation of the designed solution (up to two prototypes to be implemented for two different operators);
- Optional: any other products or services aimed at leveraging the Bidder's tender.

All hardware components shall provide the maximum quality and performance achievable by the technology currently available on the market.

If so required by the UPU, a visit to the Bidders' premises shall be arranged, in order to evaluate the proposed RFID hardware and to meet the proposed project team, at no cost to the UPU.

#### *2.6 Use of subcontractors*

The Vendor shall not assign, sublicense, subcontract, pledge or otherwise transfer or dispose of its tender, or any of the rights and obligations contained therein or in an associated contract with the UPU, without the prior written consent of the UPU.

The approval by the UPU of the engagement of any subcontractor shall not relieve the Vendor of any of its obligations or responsibilities concerning the work performed by such subcontractors.

#### *2.7 Use of the emblem, name and initials of the UPU*

Bidders shall not advertise or otherwise make public the fact that they intend to provide, are providing or have provided services to the UPU, or use the emblem, name or initials of the UPU in connection with their business for purposes of commercial advantage or goodwill, without prior and explicit permission from the UPU. Bidders shall take all reasonable measures to ensure compliance with this provision by their agents, consultants, employees and subcontractors.

#### *2.8 Collusive bidding, anti-competitive practices and any other similar conduct*

Without prejudice to the provisions in sections 3 and 4 below, Bidders (including their agents, consultants, employees and subcontractors) shall not engage in any collusive bidding, anti-competitive practices or any other similar conduct in relation to:

- the preparation and submission of tenders;
- the clarification of tenders;
- the conduct and content of any negotiations, including final contract negotiations.

For the purposes of this call for tenders, collusive bidding, anti-competitive practices and any other similar conduct may include the disclosure to, or exchange or clarification with, any other Bidder of information (in any form), whether or not such information is confidential to the UPU or to any other Bidder, in order to alter the results of the call for tenders in such a way that would lead to an outcome other than that which would have been obtained through a competitive process. In addition to any other remedies available to it, the UPU may, at its sole discretion, immediately reject any tender submitted by a Bidder that, in the UPU's opinion, has engaged in any collusive bidding, anti-competitive practices or any other similar conduct with any other Bidder in relation to the preparation or submission of tenders, whether with respect to this call for tenders or other procurement processes conducted by the UPU.

## 2.9 *Intellectual property*

This call for tenders and all its attached documents, including any content, forms, statements, concepts, projects and procedures explicitly or implicitly forming part of the call for tenders, constitute the exclusive intellectual property of the UPU. This call for tenders is communicated to the various Bidders with the sole purpose of assisting them in the preparation of their respective tenders. Any hard copies of this call for tenders shall be destroyed or returned to the UPU by unsuccessful Bidders at the request of the UPU.

## 2.10 *Privileges and immunities*

Nothing in or relating to this call for tenders, the activities described herein or any potential agreements related thereto shall be deemed as a waiver, expressed or implied, of any of the privileges, immunities and facilities that the UPU enjoys as a specialized agency of the United Nations system, pursuant to the Swiss Host State Act and the Agreement on Privileges and Immunities of the United Nations (on Swiss territory), the Convention on the Privileges and Immunities of the Specialized Agencies (outside Switzerland), and any other conventions and laws recognizing and/or granting such privileges, immunities and facilities to the UPU and its officials (such as the International Organizations Immunities Act in the case of the United States of America).

Accordingly, the Vendor shall expressly acknowledge and agree that the property and assets of the UPU, including any archives, data, documents and funds belonging to the UPU or held by it (including, without limitation, the data/hosting environments and servers pertaining to or associated with the provision of the services, as well as any data or documents in any form belonging to or held by the UPU on behalf of UPU member countries and their designated operators), are inviolable and shall be immune from search, requisition, confiscation, expropriation and any other form of interference, whether through executive, administrative, judicial or legislative action. The Vendor shall immediately contact the UPU in the event of any attempt to violate or any violation of the UPU's privileges and immunities, and shall take all reasonable measures to prevent such violations.

In the light of the UPU's status as a specialized agency of the United Nations (and without prejudice to the observance, by the UPU, of any sanctions established by the United Nations Security Council), Bidders shall expressly certify their legal and operational willingness and ability to provide the services on a non-discriminatory basis for the benefit of all eligible entities established and/or situated in the territory of any UPU member country, irrespective of the existence of diplomatic relations between a Bidder's country of incorporation and/or operation and any UPU member country (including its designated operators).

## 2.11 *Tax exemption*

Pursuant to article III, section 9, of the Convention on the Privileges and Immunities of the Specialized Agencies, the UPU is exempt from all direct taxes and from customs restrictions, duties and charges of a similar nature in respect of articles imported or exported for its official use.

Furthermore, as an intergovernmental organization and a specialized agency of the United Nations, the UPU is exempt from value-added tax (VAT) in Switzerland (OLTVA, article 22; *Instructions 2001 sur la TVA*, articles 574, 816 and others), as well as in other countries. Therefore, all prices shall be indicated in "net" form, without VAT or similar taxes.

## 2.12 *Language*

Bidders must submit all tender documents entirely in English.

## 2.13 *Signature*

Tender documents shall be signed by a representative (or representatives) duly designated and authorized to act on the Bidder's behalf and with the authority to legally bind the Bidder and accept the terms and conditions of this call for tenders.

## 2.14 *Participation notification*

Upon receipt of this call for tenders, Bidders shall send confirmation of participation to the contact person(s) listed in section 2.15 by the deadline indicated in section 2.20.



### 2.15 Contact persons

Secretary of the Tenders and Procurements Committee  
Universal Postal Union  
International Bureau  
Weltpoststrasse 4  
3015 BERNE  
SWITZERLAND

E-mail: [caa@upu.int](mailto:caa@upu.int)

### 2.16 Further inquiries and questions

Bidders must send any questions regarding the content of this call for tenders or any requests for clarification in writing to the contact person(s) listed in section 2.15 by 30 January 2023.

Answers to questions submitted by Bidders, as well as any additional information and updates relevant to this call for tenders, shall be published on the UPU website at [www.upu.int/en/Universal-Postal-Union/Procurement](http://www.upu.int/en/Universal-Postal-Union/Procurement).

### 2.17 Delivery of tenders and deadline

All tenders must be submitted to the UPU by e-mail only at [RFP-2023-001@upu.int](mailto:RFP-2023-001@upu.int) with "RFP-2023-001 – Procurement of RFID equipment and engineering services to implement RFID tracking services" as the subject line.

The deadline for the submission of tenders is **6 February 2023 at 16.00 CET**.

The UPU shall not take into consideration any tenders received after this date and time. Furthermore, it shall not accept any tenders sent to any e-mail address other than that specified above or sent by any other means.

There shall be no charge to the UPU for the preparation and submission of tender documents by Bidders.

### 2.18 Evaluation procedure

The objective of the UPU's evaluation process is to ensure the selection of a qualified, reliable and experienced Vendor capable of providing the specialized services and fulfilling the objectives set out in this call for tenders.

The UPU shall conduct its evaluation procedure with a view to determining as objectively as possible the tender that best meets its specific requirements. All tenders submitted shall be subject to an in-depth assessment, at the UPU's sole discretion, in order to enable the UPU to engage the most appropriate service provider. Due consideration will be given to Bidders' specific backgrounds, qualifications and experience in relation to the required services.

The prescribed structure of tenders, as set out in section 3, is mandatory for all Bidders. The UPU shall not take into consideration any tenders that do not fulfil the mandatory criteria.

Tenders received by the UPU must address all aspects of this call for tenders, and Bidders should identify any aspects where they envisage modifications being necessary or consider elements to be missing.

Tenders shall be evaluated on the basis of the following criteria, in descending order of importance:

- Quality of the tender (according to the specifications herein);
- Knowledge and experience of the Bidder and its team and/or consultant(s), as applicable to the subject matter;
- Price.

The winning tender will be selected based on a non-exhaustive list of criteria as set out in section 4. Bidders should therefore consider how their tender corresponds with the criteria listed and clearly indicate this in their response document.

The deliberations of the UPU Tenders and Procurements Committee (TPC) are strictly confidential. The TPC shall submit a report on its evaluation of the tenders received to the Director General of the UPU International Bureau, together with its final recommendation, for his assessment and authorization.

The UPU is not bound to accept the lowest tender and reserves the right to accept all or part of a tender. In awarding the contract, account will be taken of both the overall costs of the work and of the nature and quality of the services to be provided. The UPU reserves the right to negotiate prices and terms and conditions of contract after receipt of tenders.

Bidders will be informed of the outcome of their tender as soon as possible after the UPU has made its final selection.

### 2.19 *Modification, suspension or cancellation of the call for tenders*

The UPU reserves the right, at its sole discretion and at any time before the conclusion of the tender process (i.e. at any time prior to the signature of the relevant contract with the Vendor), to modify, suspend or cancel all or part of this call for tenders.

### 2.20 *Tentative schedule*

|   |                                      |
|---|--------------------------------------|
| Publication of call for tenders                       | 17 January 2023                      |
| Deadline for submission of participation notification | 30 January 2023                      |
| Deadline for submission of queries                    | 25 January 2023                      |
| Deadline for provision of responses to queries        | 30 January 2023                      |
| <b>Deadline for submission of tenders to the UPU</b>  | <b>06 February 2023 at 16.00 CET</b> |
| Estimated start of engagement                         | 1 March 2023                         |

## 3 **Tender structure – Response format**

All information provided by Bidders must be fully compliant with the terms and conditions set out in section 2 above, as well as the provisions of this section and the service requirements listed in section 4 below.

Moreover, the requirements stipulated in this call for tenders must be met in their entirety, according to the structure defined below and following the sequence and numbering provided in this section. The UPU shall evaluate all Bidder responses in accordance with the structure defined herein and shall have the right to reject any tenders that do not fulfil the requirements of this call for tenders.

For each of the requirements listed in this call for tenders, Bidders shall answer with one of the following statements:

- Covered;
- Covered with limitations (explaining relevant limitations);
- Not covered.

Where the answer is “covered” or “covered with limitations”, Bidders shall provide further details and/or examples of existing implementations of their solution in the field (existing use cases).

### 3.1 *Cover letter*

Bidders shall submit a cover letter including:

- A statement that the Bidder has read, understands and accepts all provisions of this call for tenders;
- The Bidder’s name, telephone number, postal address and e-mail address, and the name(s) of its representative(s);
- A statement that the Bidder’s tender documents are valid for a minimum period of 120 days.

The cover letter shall be signed by a representative (or representatives) duly designated and authorized to act on the Bidder's behalf and with the authority to legally bind the Bidder and accept the terms and conditions of this call for tenders, and shall also include a confirmation of such authorization by the Bidder.

### 3.2 *Executive summary*

Bidders shall provide an executive summary highlighting the most important aspects of their tender.

### 3.3 *Bidder information*

Bidders must provide the following information:

- Company structure, locations/subsidiaries;
- Financial data (turnover, profit, etc.);
- Number of employees;
- Partners and equity holders of the company;
- Company history;
- Market position and share in relevant markets;
- Customer reference list with descriptions of similar projects;
- Quality management certifications and statements;
- Reference letters.

### 3.4 *Subcontractor information*

In the event that Bidders intend to engage a subcontractor for part or all of the services set out in this call for tenders, the following information must be provided with regard to the subcontractor(s):

- Company structure, locations/subsidiaries;
- Degree of involvement, with a list of services and/or products;
- Customer reference list with descriptions of similar projects;
- Reference letters.

### 3.5 *Technical proposal*

Bidders shall submit a technical proposal addressing all of the requirements set out in section 4 (Service requirements). This proposal should outline the methodology, processes and timelines, as appropriate, that Bidders intend to implement in order to fulfil the objectives of this call for tenders.

### 3.6 *Pricing structure*

Bidders shall provide a detailed pricing structure for the services proposed, including unit prices for the following items:

| <i>Product/service</i>                           | <i>Quantity</i>  | <i>Geographic scope</i>  | <i>Price per unit</i> | <i>Total price</i> |
|--|--|--------------------------|-----------------------|--------------------|
| UHF RFID GMS postal unit                         | 100  | NA                       |                       |                    |
| UHF RFID passive transponder                     | 5,000,000  | NA                       |                       |                    |
| UHF RFID printer                                 | 10   | NA                       |                       |                    |
| Site surveys (operational services in the field) | For up to 10 designated operators (several facilities may apply) | United States of America |                       |                    |
|  |  | Thailand                 |                       |                    |
|  |  | Cayman Islands           |                       |                    |

| <i>Product/service</i>                                      | <i>Quantity</i>  | <i>Geographic scope</i>   | <i>Price per unit</i> | <i>Total price</i> |
|---|--|---|-----------------------|--------------------|
| Site surveys (operational services in the field)<br>(cont.) |  | Eastern Europe<br>(potentially Bosnia and Herzegovina, Georgia) |                       |                    |
|   |  | Central Europe<br>(potentially Switzerland and one other)       |                       |                    |
|   |  | Northern Europe<br>(potentially Norway, Poland)                 |                       |                    |
|   |  | Western Asia<br>(potentially Kazakhstan)                        |                       |                    |
| Installation and configuration of equipment                 | For up to 10 designated operators (several facilities may apply) | United States of America  |                       |                    |
|   |  | Thailand  |                       |                    |
|   |  | Cayman Islands  |                       |                    |
|   |  | Eastern Europe<br>(potentially Bosnia and Herzegovina, Georgia) |                       |                    |
|   |  | Central Europe<br>(potentially Switzerland and one other)       |                       |                    |
|   |  | Northern Europe<br>(potentially Norway, Poland)                 |                       |                    |
|   |  | Western Asia<br>(potentially Kazakhstan)                        |                       |                    |
| Certification of equipment installed                        | For up to 10 designated operators (several facilities may apply) | United States of America  |                       |                    |
|   |  | Thailand  |                       |                    |
|   |  | Cayman Islands  |                       |                    |
|   |  | Eastern Europe<br>(potentially Bosnia and Herzegovina, Georgia) |                       |                    |
|   |  | Central Europe<br>(potentially Switzerland and one other)       |                       |                    |
|   |  | Northern Europe<br>(potentially Norway, Poland)                 |                       |                    |
|   |  | Western Asia<br>(potentially Kazakhstan)                        |                       |                    |

| <i>Product/service</i>   | <i>Quantity</i> | <i>Geographic scope</i> | <i>Price per unit</i> | <i>Total price</i> |
|--|-----------------|-------------------------|-----------------------|--------------------|
| Engineering services to design and deploy a solution to identify postal items in real time and isolate them in the event of non-compliance with customs-related business rules | 1               |                         |                       |                    |
| Prototype and implementation of the solution   | 1               | Thailand                |                       |                    |
|  | 1               | Cayman Islands          |                       |                    |
| Optional products and/or services <sup>2</sup>   | NA              |                         |                       |                    |
| <b>Total</b>   |                 |                         |                       | <b>CHF</b>         |

Bidders shall not be allowed to withdraw and resubmit their tender, for any reason whatsoever, after the tenders have been opened by the TPC.

Bidders shall not include VAT in any of their pricing information (see section 2.11 above). All pricing information shall be set out exclusively in Swiss Francs (CHF).

Bidders shall confirm that the prices quoted in CHF are fixed and that there shall be no additional cost to the UPU owing to exchange rate variation (if any) at the time of the contract.

### 3.7 *Delivery and payment schedule*

The target dates for provision of the services are as follows:

Start date: 1 March 2023

End date: 29 February 2024

The delivery and payment schedules should be proposed by Bidders in their pricing structures, and must be agreed with the UPU.

The services provided by the Vendor shall be invoiced in arrears on a monthly basis. The UPU will make payment within 30 business days of receipt of invoice, subject to its acceptance of the services provided and the Vendor's transmission to the UPU of any and all documentation clearly detailing the services to which the invoice pertains (in a format to be established by the UPU).

### 3.8 *UPU General Terms and Conditions*

Bidders shall include in their tender a statement of acceptance of the UPU General Terms and Conditions for the Provision of Goods and Services, attached hereto for reference.

The final terms of any contract arising from this call for tenders shall be defined by the UPU and accepted by the Vendor. Contract negotiations shall commence only after the final selection of a Vendor by the UPU.

## 4 **Service requirements**

### 4.1 *Description of the services/products*

As outlined in section 2.3, the Vendor will be expected to provide the following services/products:

- UHF RFID GMS postal units adaptable to different postal scenarios (up to 100 units);
- UHF RFID passive transponders to be encoded with S9 and S10 identifiers (up to 5,000,000 units);
- UHF RFID printers to print and codify UHF RFID inlays (up to 10 units);

<sup>2</sup> Bidders may specify any other optional products and/or services aimed at leveraging their tender.

- Operational services in the field to conduct site surveys (in up to 10 countries);
- Operational services in the field to install and configure the UHF RFID equipment (in up to 10 countries)
- Operational services in the field to certify the installation and use of the UHF RFID equipment for the purpose of real-time identification and monitoring of postal items (for up to 10 designated operators);
- Engineering services to design and deploy a solution to identify postal items in real time and isolate them in the event of non-compliance with customs-related business rules;
- Prototype and implementation of the solution (up to two prototypes to be implemented for two different operators);
- Optional: any other products or services aimed at leveraging the Bidder's tender.

#### 4.1.1 UHF RFID GMS postal unit

The UHF RFID GMS postal unit essentially consists of an RFID reader with the corresponding power supply cables and adapters, RF antennas and all associated electrical and RF cables required to be functional. A "less is more" philosophy is preferred (in order to mitigate maintenance issues), but certain additional peripherals may be integrated (e.g. active ventilation, motion detection) if required to ensure the proper and robust functioning of the units.

All these components shall be encapsulated in a single product, known as the main unit, to guarantee ease of installation and to protect against impacts and external environmental agents. Although the design should be robust and industrial, the main unit must be easy to open for maintenance purposes and should be compatible with both the modular kit and compact structure versions of the UHF RFID GMS postal unit.

In addition to the main unit, each UHF RFID GMS postal unit shall include a single-board computer ensuring the operating, processing and storage capacity required to load and run the GMS IoT software application.

Furthermore, the RF external antennas and/or RF cabling required for the modular kit and/or compact structure shall comprise a protective casing, and shall be easy to install and compatible with both versions.

All RFID hardware, peripherals and components shall be flexible enough to operate worldwide under the applicable national power and radio frequency regulations, and to comply with any required industry standards, wherever applicable.

The UPU wishes to provide a robust, easy-to-install and attractive solution for its member countries and their designated operators. The goal is to achieve a 99% read rate, reading up to 500 different postal items containing passive UHF transponders passing a reading point simultaneously within a reading range of 4x4 metres.

##### *a Items to be included*

The Vendor shall provide the following elements:

- Single-board computer: each UHF RFID GMS postal unit should include a powerful industrial microcomputer for interconnection with the RFID reader and/or any other peripherals to be managed through the UPU's GMS IoT software solution (the UPU shall be responsible for software integration). The GMS IoT solution has been developed for an ARMv7I (32 bits) architecture;
- UHF RFID reader: it would be preferable for Bidders to propose various RFID readers, with all options offering a high reading performance and a power transmission level and processing speed specially designed to operate under industrial environments with a high density of Gen2 RFID transponders. For reference, the GMS IoT software solution is currently compatible with Impinj Speedway XR420 and Zebra FX9600 readers (both with four RF ports). If commercially available, these readers should be included in the offer;
- Power supply cables and adapters: all electrical components and industrial power supply cables and adapters necessary to ensure the continuous functioning of the equipment. These elements must be compatible with the electrical systems of all countries around the world and their respective plugs/outlets and voltages/frequencies used for domestic appliances. Power supply cables and adapters should be officially approved and certified by the corresponding RFID reader manufacturers;

- UHF RFID antennas: a directional antenna with circular polarization and high gain covering all known RFID ultra-high frequencies known worldwide, allowing a non-obstructed reading range of at least 5 metres;
- RF cabling: various RF cable lengths to allow flexible and adaptable installation, e.g. 3, 6 and 9 metres;
- Network cabling: a secure, fast and stable connection between the microcomputer and RFID reader should be established via a direct Ethernet connection;
- Enclosure: an enclosure to protect the RFID equipment and its components, and to simplify the installation process. The enclosure for the main unit must be compatible with both the modular kit and compact structure versions;
- Peripherals: the RFID solution may include optional peripherals (e.g. motion sensors, active ventilation, light indicators, power-over-Ethernet converters and/or integrated WiFi access points allowing 4G/5G connection) where this adds value to a Bidder's tender;
- Mounting elements: VESA mounting interface standard (MIS) is required. Any other mounting or fastening systems that might facilitate installation should also be identified in the tender.

*Other elements:*

- Product datasheet and user manual for the integrated solution;
- Product datasheet for the individual components comprising the integrated solution;
- All cabling and any accessories required for the proper functioning of the solution;
- Packaging ensuring the protection (and efficient palletization) of equipment for global transportation.

Bidders should identify any other components that might add value to their tender.

*b Required technical specifications*

*i Hardware specifications*

- Microcomputer:
  - Type: industrial microcomputer built for high reliability and uptime with components resistant to harsh environments and 24/7 operation. Hardware other than Odroid and Raspberry Pi may be used as long as it meets the architectural requirements;
  - Architecture: as the GMS IoT solution has been developed for ARMv7I (32 bits), either an ARMv7 (32 bits) or ARMv8 (32/64 bits) architecture is required;
  - Memory: the device should include an embedded MultiMediaCard (eMMC) or SD card module (minimum V30 storage speed) as a hard disk for high storage capacity (minimum: 16 GB);
  - Processing capacity: a minimum of 2 GB of RAM;
  - Operating system: minimum Linux 9 (Kernel version 4.14), Docker 19.03.4 and Java 11 support;
  - Connectivity: two Ethernet ports, one USB port and one HDMI port. If possible, external converters of any kind should be avoided.
- UHF RFID reader:
  - Transmit power: +10 to +33 dBm (EIRP);
  - Frequency: global reader supporting countries within the UHF band from 860 to 960 MHz;
  - General purpose input/output: minimum of four inputs/outputs;
  - Antenna ports: minimum three monostatic ports available.
- RFID antennas:
  - Gain: UHF RFID high gain antenna;
  - Polarization: circular;

- Operating frequency: supporting the UHF band from 860 to 960 MHz;
  - Radiation pattern: beamwidth (AZ/EL) with minimum of 40°/40°.
- ii UHF RFID GMS postal unit specifications
- Physical specifications:
- Design: RFID equipment components can either be embedded in a modular kit for modular mounting or as one product in a compact structure version. Additional details of both options are provided below:
    - RFID modular kit: comprising the main unit integrating all required components (microcomputer, reader, antenna, power supply cables with adapters, and peripherals) for ease of installation. External antennas to be connected to the RFID main unit when required, depending on the reading scenario;
    - RFID compact structure: a single product comprising a main unit and external antennas as described under the RFID modular kit option, including a telescopic structure joining all parts, to be mounted horizontal or vertically depending on the reading scenario;
    - Component compatibility: both the main unit and external antennas should be compatible with both the modular kit and compact structure versions.
  - Enclosure: an enclosure must be provided to protect the equipment against environmental factors (e.g. dust and rain) that could affect the equipment and result in damage or degradation of the hardware. The enclosure must allow easy access to the internal components whenever required by IT staff for maintenance purposes;
  - Weight: the enclosure for the main unit should be lightweight to facilitate logistics and the installation process. For reference, a maximum weight of 15 kg should be taken into account;
  - Mounting pattern: all mounting components for both the RFID modular kit and RFID compact structure should be provided, preferably following the VESA standard of 100x100 mm and/or 200x200 mm.
- Environmental:
- Temperature range: minimum operational temperature range of -25 to 55°C and storage temperature range of -40 to 70°C (options offering a greater range are acceptable);
  - Seal: minimum IP64 and IK08 protection.
- UHF RFID specifications:
- Transmit power: +10.0 to +36 dBm (according to the existing regulatory status for using RFID in the GS1 EPC Gen2 (860 to 960 MHz) band of the UHF spectrum in each country);
  - Supported regions or geographical areas: compatible with allocations authorized for RFID applications specifically within the 860 to 960 MHz band of the UHF spectrum;
  - Air interface protocol: EPC Global Class 1 Gen 2, ISO1800-6C, ISO1800-6B, ISO1800-63, UCODE 1.19;
  - RF regulations: FCC Part 15, ETSI EN 302 208 and ETSI EN 301 489.
- External connectivity ports:
- Communication: Ethernet protocol RJ45 connector;
  - Antenna ports: minimum three monostatic ports available;
  - Electrical plug: locking power connector, adaptable 100–240 V AC (50-60 Hz).
- Default configuration:
- Firmware: versions updated to the last existing version from manufacturers;
  - Applications (to be installed on the microcomputer): TeamViewer – already installed and connected with the UPU's account.



- Network services:
  - Internal static IP between the microcomputer and the RFID reader;
  - Preconfigured DHCP to connect externally from network to the microcomputer;
  - HTTP/s, Telnet/SSH, SNMP and NTP, WS-Discovery.
- Optional:
  - Wireless access point: an integrated module allowing wireless connection;
  - Dummy transponder: a near-field detection transponder attached (not visible) to each of the RFID antennas for testing purposes.

#### 4.1.2 UHF RFID passive transponder

The UHF RFID passive transponders should have sufficient capacity to be encoded with alphanumeric codes (such as A.BR123456999CH), transformed to binary or hexadecimal codes following the URN40 standard encoding method.

#### 4.1.3 UHF RFID inlay printer

The RFID printer shall be a high-performance device capable of printing and encoding high volumes of postal item labels with a high print speed. It must ensure the print quality and encoding accuracy of the data embedded in every UHF transponder.

##### a *Items to be included*

The Vendor shall provide the following elements:

- UHF RFID printer.
- Other elements:
  - Product user guide;
  - All cables and accessories required for the proper functioning of the equipment.

Bidders should identify any other components that may add value to their tender.

##### b *Required technical specifications*

- Hardware specifications:
  - Printer command language: ZPL and EPL as a minimum;
  - Memory: minimum of 256 MB of RAM and persistent memory;
  - Ribbon length: minimum of 400 metres;
  - Print width: minimum 168 mm;
  - Print resolution: minimum 300 DPI;
  - Print speed: minimum 14 ips/356 mm per second;
  - User interface: LCD available.
- UHF RFID specifications:
  - Supported regions: ETSI band: 865 to 868 MHz, FCC band: 902 to 928 MHz, and sub-bands;
  - Supported tags: UHF EPC Gen 2, ISO/IEC 18000-63 and RAIN RFID protocols.
- Connectivity ports:
  - Communication: 10/100 BASE-T Ethernet (RJ45);
  - Optional: WLAN IEEE 802.11 a/b/g, serial RS-232 and Bluetooth communication link;
  - Electrical: auto-detectable 100–240 V AC (50-60 Hz).

#### *4.1.4 Operational services in the field – site surveys (in up to 10 countries)*

In order to monitor and track postal items, designated operators may be interested in covering additional entry or exit points of postal facilities and/or handling agents in their region.

The Vendor is requested to conduct surveys in the field to ascertain requirements as to the new equipment to be installed, based on operational needs and the scale of the necessary reading points.

Bidders should provide information concerning the costs and methodology applicable to this survey process. The surveys are to be conducted in the following countries and regions:

- United States of America;
- Thailand;
- Cayman Islands;
- Eastern Europe (potentially Bosnia and Herzegovina, Georgia);
- Central Europe (potentially Switzerland and one other);
- Northern Europe (potentially Norway, Poland);
- Western Asia (potentially Kazakhstan).

#### *4.1.5 Operational services in the field – installation and configuration of UHF RFID equipment (in up to 10 countries)*

The new UHF RFID equipment will be installed at the identified reading points, based on the outcome of the site surveys.

The Vendor is requested to provide the equipment and to perform the physical installation and configuration thereof.

Bidders should provide information concerning the costs and methodology applicable to this installation process. The equipment is to be installed in the following countries and regions:

- United States of America;
- Thailand;
- Cayman Islands;
- Eastern Europe (potentially Bosnia and Herzegovina, Georgia);
- Central Europe (potentially Switzerland and one other);
- Northern Europe (potentially Norway, Poland);
- Western Asia (potentially Kazakhstan).

#### *4.1.6 Operational services in the field – certification of the installation and use of the UHF RFID equipment for the purpose of real-time identification and monitoring of postal items (for up to 10 DOs)*

In order to monitor and track postal items, designated operators may use existing equipment already installed for the measurement of the quality of service. In such cases, any equipment that is suitable to be used for the tracking of postal items shall be certified as such.

Bidders should provide information concerning the costs and methodology applicable to this certification process.

The following countries and regions have equipment that may require certification services:

- United States of America;
- Thailand;
- Cayman Islands;
- Eastern Europe (potentially Bosnia and Herzegovina, Georgia);
- Central Europe (potentially Switzerland and one other);

- Northern Europe (potentially Norway, Poland);
- Western Asia (potentially Kazakhstan).

Bidders should also provide information concerning the costs and methodology applicable to the certification process for new equipment installed in the same regions.

#### *4.1.7 Engineering services*

Bidders should provide information concerning engineering services to design a solution to identify and sort postal items, based on the operational framework of the designated operator of Thailand.

According to new security requirements, all postal items must be associated with an electronic message declaring their contents. Any postal items that lack this message or that are missing mandatory attributes shall remain at the postal facility.

The solution should ensure, with 99% accuracy, that all items prepared for shipment are compliant with the above-mentioned customs-related requirements.

It is recommended that the Vendor conduct field visits to study operational requirements prior to developing the design. In this case, Bidders should include the associated travel costs in their tender.

Bidders should provide a project schedule outlining the expected relative times allocated to the various phases of the design process.

#### *4.1.8 Prototype and deployment*

The proposed solution must be prototyped and deployed for testing at the premises of the designated operator of Thailand. The Vendor shall monitor the test results and adjust the design in the event that the prototype does not perform as expected.

Upon achieving successful test results in Thailand, the same solution will be tested at the premises of the designated operator of the Cayman Islands.

Bidders should provide a project schedule outlining the expected relative times allocated to the various phases of the design process. Bidders should also provide information concerning the costs of production, installation and testing of the prototype solution, as applicable.

### *4.2 Production management*

In order to monitor and manage the production processes, and adjust delivery schedules as needed, the Vendor shall provide a living archive containing all relevant information for production control and inventory purposes. In addition, regular meetings shall be held between the Vendor's production/project manager and UPU's production manager.

### *4.3 Spare parts*

Bidders shall provide information on spare parts management measures, including delivery times, taking into account any issues relating to raw material shortages, prolonged transit times or disruptive external events.

### *4.4 Warranties, support and product life time*

Although the UPU will conduct preventive and corrective maintenance for any installed equipment, Bidders shall provide the following information relating to warranties and support for the proposed solution:

- Support options available, including the names and addresses of support agents (if any) in the region;
- Standard hours during which support shall be provided and out-of-hours support options and costs;
- Number of staff in the support team;
- Response time to support requests;
- Duration and conditions of warranties, replacement policies, and extension options and costs.

#### 4.5 *Quality control*

Bidders shall describe the procedure that will be implemented to control the production quality (where applicable) to ensure that the products provided meet the functional requirements.

If required by the UPU, Bidders shall provide reports as evidence of activities implemented as part of their quality control process.

#### 4.6 *Delivery of equipment*

The Vendor shall be solely responsible for delivering all items in good condition to the various destination countries (both already confirmed and yet to be defined by the UPU), under the following conditions:

- The Vendor shall be responsible for the packaging (in accordance with international requirements) of all equipment to ensure the safety of the content;
- The Vendor shall make the goods available at its premises until shipment;
- The Vendor shall be responsible for replacing any items damaged during shipment;
- The Vendor shall inform the UPU of the shipment options, respective transit times and costs;
- The Vendor shall ship the goods according to the shipment option selected by the UPU;
- The Vendor shall be responsible for completing all export and customs documentation;
- Shipment tracking information shall be sent to the project team once it is available.

Shipments are subject to the prior written consent of the UPU. Reimbursement of any unavoidable costs shall be subject to the presentation, by the Vendor to the UPU, of any and all documents constituting proof of such costs.

The Vendor is requested to provide information on delivery lead times (i.e. the time from receipt of the purchase order to equipment being packed and ready for shipment).

Given the current global situation and the resulting shortages of raw materials and logistical delays, the Vendor shall inform the UPU at least one month in advance in the event of any incident affecting the lead time.

#### 4.7 *Bidder demonstrations*

Prior to award of the contract, shortlisted bidders may be required to demonstrate their respective solutions to the selection committee at no additional cost to the UPU.

Each invited Bidder may be requested to demonstrate its technical solution in a real postal operational scenario. Details concerning the demonstration shall be provided by the UPU at a later stage. The time assigned to each Bidder shall be communicated 20 working days in advance of the demonstration to allow for set-up.

#### 4.8 *Bidder requirements*

Bidders are expected to have the necessary knowledge and expertise in the following areas:

- Good understanding of logistics and the postal sector;
- Good understanding of operating systems and networking;
- Thorough understanding of existing regulations applicable to operations using UHF RFID equipment;
- Thorough understanding of logistics and customs processes;
- Experience and qualifications in the field of RFID;
- Experience of technical support and maintenance activities for global projects;
- Experience of designing functional and robust hardware solutions;
- Experience of providing worldwide products and services.

Bidders shall demonstrate a record of satisfactory performance in similar activities (i.e. reference letters and/or work completion certificates). The business transactions and activities carried out by the Bidder must be compliant with the mandates and principles of the UPU.

#### 4.9 Business travel

The Vendor, at the request of the UPU, will be required to perform certain technical tasks in various locations around the world, as listed in section 4.1.

The Vendor shall not be reimbursed for travel expenses associated with this project unless otherwise specifically authorized by the UPU. In this regard, Bidders are required to note that a number of UPU-defined procedures regarding reimbursement for incurred travel costs shall apply, without prejudice to other conditions that may be determined by the UPU in the relevant services agreement with the Vendor, as follows:

- a Reimbursable expenses shall not include local travel. For the purposes of this call for tenders, "local travel" shall mean any travel/transportation within the city where the offices used by a Vendor's consultant are located;
- b Travel by plane, train or bus shall be reimbursed on the basis of the actual expenses incurred by the Vendor's consultant;
- c Travel shall always be via the most direct route and most economical means of transportation;
- d Saturdays and Sundays, as well as holidays falling during travel, shall not be compensated for by time in lieu or additional remuneration;
- e Air travel and car rental expenses shall be limited to reasonable rates obtained through a competitive travel service (e.g. a travel or car rental website);
- f Other pre-authorized expenses, such as taxi fares, parking costs or urban rail tickets, shall be reimbursable on the basis of actual costs;
- g Accommodation costs shall be reimbursed on the basis of the actual expenses incurred by the Vendor's consultant;
- h A lump sum shall be paid for meals and incidental expenses (for subsistence purposes) for each travel day.

Bidders' tenders should include the cost of two return business trips to the UPU headquarters in Berne, Switzerland. Each trip shall be for a duration of five days (not including travel time).

Bidders' tenders shall include the cost of 10 travel days as per the structure below:

| Region          | No. of countries | Estimated travel costs per region |                    |             |                            | Total |
|-----------------|------------------|-----------------------------------|--------------------|-------------|----------------------------|-------|
|                 |                  | Flights                           | Hotel <sup>3</sup> | Subsistence | Miscellaneous <sup>4</sup> |       |
| North America   | 1                |                                   |                    |             |                            |       |
| Caribbean       | 1                |                                   |                    |             |                            |       |
| Asia            | 1                |                                   |                    |             |                            |       |
| Eastern Europe  | 2                |                                   |                    |             |                            |       |
| Central Europe  | 2                |                                   |                    |             |                            |       |
| Northern Europe | 2                |                                   |                    |             |                            |       |
| Western Asia    | 1                |                                   |                    |             |                            |       |
| <b>Total</b>    | <b>10</b>        |                                   |                    |             |                            |       |
| <b>Average</b>  |                  |                                   |                    |             |                            |       |

<sup>3</sup> Please indicate the price for an average stay of three nights per country.

<sup>4</sup> Includes taxi fares, visas, vaccines and transit fees.

| Estimated travel costs for trips to UPU headquarters |                |              |                    |                                  |              |
|--|----------------|--------------|--------------------|----------------------------------|--------------|
| <i>Days</i>  | <i>Flights</i> | <i>Hotel</i> | <u>Subsistence</u> | <u>Miscellaneous<sup>5</sup></u> | <u>Total</u> |
| 5  |                |              |                    |                                  |              |
| 5  |                |              |                    |                                  |              |
| <b>Total</b>   |                |              |                    |                                  |              |

The purpose of these estimations is to ensure that the potential travel costs are included in the overall contract amount.

As further specified in the UPU General Terms and Conditions for the Provision of Goods and Services (attached), the Vendor is required to take out insurance for the entire duration of the contract (including for its consultants), at its own expense. The Vendor's consultants shall be insured inter alia against illness, accident, disability and death.

#### 4.10 Assessment criteria

Bidders will be assessed on the basis of a scoring system of up to 70 points for their technical proposal and 30 points for their pricing structure.

The technical proposal shall be assessed on the basis of the following criteria:

| <i>Criteria</i>  | <i>Points obtainable</i> |
|--|--------------------------|
| Pricing structure  | 30                       |
| <i>Technical proposal</i>                                      |                          |
| Bidder's reputation, experience and qualifications             | 10                       |
| Design, functionality and suitability of the proposed hardware | 40                       |
| Support, warranties and logistics                              | 20                       |
| <b>Total</b>   | <b>100</b>               |

Bidders shall provide evidence of their ability to meet these requirements by means of a list of references.

#### 4.11 Duration of services

The services are scheduled to commence in March 2023 for a total contract term of 12 months.

The following milestones are expected. Bidders should confirm their ability to meet this schedule, or provide comments and propose amendments (i.e. changes or new milestones) to the proposed schedule:

| <i>Milestone</i>   | <i>Timeline</i>     | <i>Comments</i> |
|--|---------------------|-----------------|
| Kick-off   | March 2023          |                 |
| Site surveys in US, CY and TH  | March to April 2023 |                 |
| Site surveys in EEU, CEU, NEU and WA                                       | April to May 2023   |                 |
| Certification of existing equipment in US, CY and TH                       | April to May 2023   |                 |
| Certification of existing equipment in EEU, CEU, NEU and WA                | May to June 2023    |                 |
| Delivery, installation and configuration of new equipment in US, CY and TH | April to June 2023  |                 |

<sup>5</sup> Includes taxi fares, visas, vaccines and transit fees.

| <i>Milestone</i>  | <i>Timeline</i>                | <i>Comments</i> |
|---|--------------------------------|-----------------|
| Delivery, installation and configuration of new equipment in EEU, CEU, NEU and WA | June to August 2023            |                 |
| Engineering services to design a solution to identify and sort postal items       | April to July 2023             |                 |
| Prototyping and installation of the solution in TH                                | August to November 2023        |                 |
| Testing and monitoring of the solution in TH                                      | November 2023 to February 2024 |                 |
| Testing of the solution in CY and conclusions                                     | December 2023 to February 2024 |                 |

The operations in the field are to be prioritized on the basis of the designated operators' needs and the milestones listed above have therefore been established in order of priority. Accordingly, the activities in the field shall be scheduled in accordance with this prioritization (i.e. in order, line by line). However, the countries/regions listed within each milestone can be addressed in any order or in parallel, and Bidders may propose to group certain countries/regions together in order to optimize costs (e.g. the same consultant might conduct the work for the United States and the Cayman Islands as one assignment).

#### *4.12 Additional information*

Bidders may include any additional information that they deem necessary or relevant in order for the UPU to gain a clear and detailed understanding of the services being offered.