

1. What kind of tags will be involved?

Answer:

Currently, we are using the following tags for sampling purposes:

- Smartrack Dogbone Impinj Monza R6
- AD Dogbone R6

The specific details for the tags are as follows:

- Chip: Impinj Monza R6
- Frequency Band: UHF (860-960 MHz)
- Antenna Dimensions: 94 x 24 mm / 3.70 x 0.90 in
- Die Cut Dimensions: 97 x 27 mm / 3.82 x 1.06 in
- EPC Memory: 96 bits
- TID Memory: Available
- ARC Specification: Not applicable
- Product Codes:
 - Dry+ inlay 3004004 / IL-602812
 - Wet+ inlay 3004005 / IL-602813
 - Label/sticker 3004006 / IL-602814

As these tags are reaching end-of-support, we are considering using the following model: Avery Dennison Smartrac Dogbone M730

2. How many tags will go in and out simultaneously?

Answer:

Our RFID readers are configured to handle up to 2400 transponders in a single pass, achieving approximately 90% read accuracy. However, the typical number of transponders handled at once is around 250, with a read accuracy ranging between 95%-99%.

3. Does it use tray, metal bags, or any other type of container for inbound or outbound processing?

Answer:

Yes, we utilize a variety of postal transportation methods including metal cages, trays, ULDs (Unit Load Devices), and other types of containers for both inbound and outbound processing.

LETTERS	PARCELS	PACKETS
		

3.2 Types of receptacles

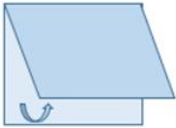
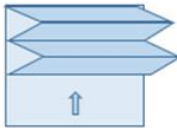
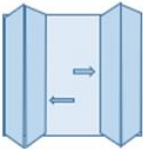
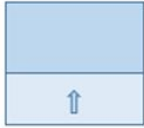




TRAY	MAILBAG	OTHER Specify:
		

3.3 Types of mail transportation methods

TROLLEY	ULD	ROLL CAGE
		
FORKLIFT	TRANSPALLET	MANUAL
		

4. Can you kindly provide a picture of the application scenarios?

Answer:

(A) ROTATING DOOR	(B) HORIZONTAL PANELS	(C) VERTICAL PANELS	(D) ROLLING DOOR
			
(E) DOOR	(F) ELEVATOR	(G) CORRIDOR	(H) CONVEYOR BELT
			

5. Regarding the printer specifications:

Answer:

The current printer in use for printing transponders for sampling is the Zebra ZT400.

Bidders are encouraged to propose their own printer variant, provided it meets the requirements. Alternatively, a Zebra printer that satisfies these needs can be proposed.

1. Specific application scenarios:

The RFID in this tender is primarily designed for logistics scenarios related to postal operations management. This includes:

- Management of inbound and outbound shipments at postal facilities (various sizes of entry/exit doors).
- Processing of shipments at airmail units.
- Tracking on conveyor belts.

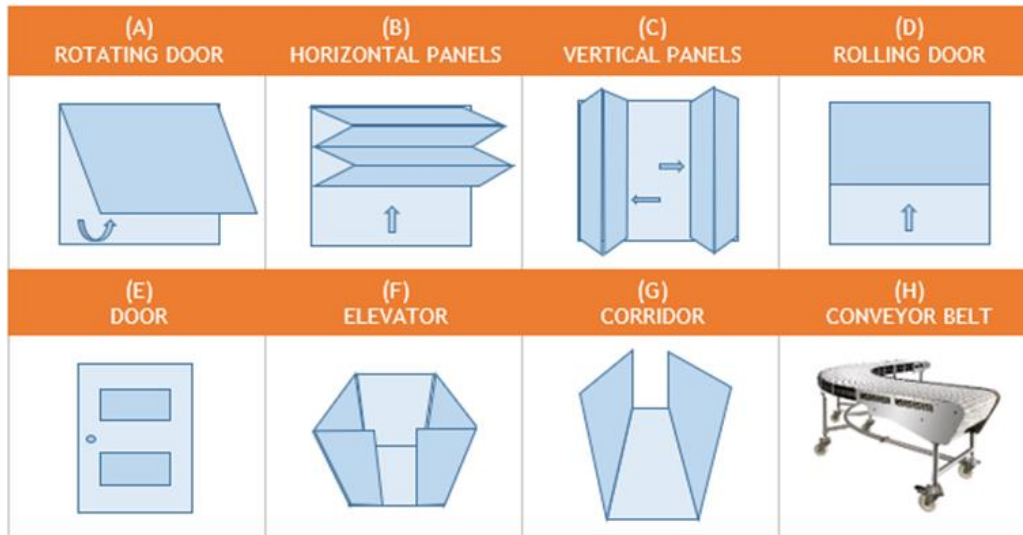
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Although the technology could be applied in other fields, its specific use is to improve postal processes through real-time identification and tracking of postal items.

2. Specific functions of the RFID equipment:

The RFID equipment aims to:

- **Real-time tracking** of postal items as they pass through control points within postal facilities.
- **Inventory management** of postal items, such as mailbags, trays, and unit load devices (ULDs).
- **Precise identification** of postal items using UHF transponders, ensuring efficient handling of inbound and outbound shipments.

3. Tag types:

Currently, we are using the following tags for sampling purposes:

- Smartrack Dogbone Impinj Monza R6
- AD Dogbone R6

The tags we use are inlay adhesive labels, suitable for postal logistics management, and we are also considering transitioning to tags like Avery Dennison Smartrac Dogbone M730.

4. RFID system support:

The solution provider is only responsible for providing level 3 support for all issues related to hardware and software failures, in line with the expected design and functionality. This support includes:

- Acting as the intermediary between UPU and the supplier of the solution components.
- Handling our level 1 inquiries for diagnosing new equipment failures (bugs).
- Conducting tests and diagnostics on equipment exhibiting abnormal behavior compared to its standard operational performance.

5. The number of pieces receive per year (related to the number of label requirements)

The number of pieces received annually does not impact the proposed RFID solution, as the tender focuses on the supply of the specified solution, independent of the volume of labels received. The system is designed to accommodate any processing volume.

6. Types of items materials (such as plastic/metal/wooden, related to label type selection)

The proposed RFID solution is compatible with a wide range of item materials, including plastic, metal, and wood. If any material interferes with the readability of the RFID labels, appropriate shielding will be applied to the base to ensure proper functionality.

7. Item value (price range) (related to label scheme selection)

The value of the items does not impact the proposed RFID solution, as the tender focuses on the supply of the specified solution, independent of the price range of the items. The system is designed to accommodate any type of product, ensuring efficient traceability.

8. Present Label sample diagram (display content and color)

The current label sample, including content and color, does not impact the proposed RFID solution, as the tender focuses on the supply of the specified solution, independent of the label's design. The system is designed to integrate with any labeling scheme.

9. Minimum delivery time required by RFID labels (bulk goods and over-orders)

The minimum delivery time for RFID labels does not impact the proposed solution, as the tender focuses on the supply of the specified solution, independent of the delivery times. The system is designed to adapt to any required delivery schedule.

10. What problem want to solve on RFID? (Anti-counterfeiting, anti-channeling, traceability, efficiency improvement, cost saving, etc.)" The proposed RFID solution is primarily focused on addressing traceability issues, ensuring accurate and real-time tracking of items throughout the supply chain.

11. Warehouse level (automatic intelligent warehouse, three-dimensional warehouse, ordinary warehouse)

The RFID readers are positioned at the entry points of various postal facilities. These typically include a warehouse door, a pedestrian access door, or a conveyor belt. The solution is adaptable to any warehouse configuration and operational setup.

12. Current tracking barcode or QR code encoding rules? Whether to use a unique code

The coding system will depend on the type of item being identified. The coding model for an asset will differ from that of a package. The RFID solution will accommodate these variations, ensuring that each type of item is tracked appropriately.

13. Number and type of warehouses (self-built warehouses, third-party warehouses)

The number of RFID readers is specified in the tender document. This information is not required for submitting a financial proposal, as the focus is on the supply of the specified solution.

14. Inventory qty and area of each warehouse (related to warehouse matching equipment)

The number of RFID units required is specified in the tender document. Further details regarding inventory quantity and warehouse area are not necessary for the proposal.

15. Annual shipment volume and annual receipt volume of warehouse? What is the peak daily receipts and shipments?

This question is not relevant to the tender, which focuses on the provision of equipment and is not related to shipment or receipt volumes.

16. Storage method (mounted/stacked), and proportion?

The storage method, whether mounted or stacked, does not impact the proposed RFID solution, as the tender is focused on the supply of equipment, independent of how items are stored.

17. How many common receiving scenarios are there? (Futures receipt, tail box receipt, store return receipt, e-commerce receipt?) (Received by order, by box?) Better to provide a flowchart

The common receiving scenarios are not relevant to the proposed RFID solution, as the tender focuses on the supply of equipment and is independent of specific receiving workflows. A flowchart is not required for this proposal.

18. What are the common shipping scenarios? (inter-warehouse transfer delivery, store delivery, etc.) provide flow charts

The common receiving scenarios are not relevant to the proposed RFID solution, as the tender focuses on the supply of equipment and is independent of specific receiving workflows. A flowchart is not required for this proposal.

19. Warehouse inventory requirements ?

The common receiving scenarios are not relevant to the proposed RFID solution, as the tender focuses on the supply of equipment and is independent of specific receiving workflows. A flowchart is not required for this proposal.

20. Provide pictures of the receiving area (dock, workbench, production line) (equipment placement determination)

An image of the receiving area is attached for reference regarding the placement of the equipment.

21. Provide a picture of the shipping area (requirement same as above)

Example images of the receiving area are attached for reference regarding the placement of the equipment.

22. Which brand of software systems (ERP/WMS/POS, etc.) is currently in use?)

The current software systems in use are not relevant to the proposed RFID solution, as the tender focuses solely on the supply of equipment and is independent of existing software infrastructure. Existing overall business process diagram

23. The general business process diagram is not required for the proposal, as the tender focuses on the supply of RFID equipment and does not depend on the existing business process.

Data model? XML or JSON?

It is not required for the proposal, as the tender focuses on the supply of RFID equipment and does not depend on the existing business process.

24. IT team size

It is not required for the proposal, as the tender focuses on the supply of RFID equipment and does not depend on the existing business process.

25. Interface interaction mode: active mode, passive mode?

It is not required for the proposal, as the tender focuses on the supply of RFID equipment and does not depend on the existing business process.

26. Cloud server in which the system deployed?

It is not required for the proposal, as the tender focuses on the supply of RFID equipment and does not depend on the existing business process.

27. Is it a B/S architecture or a C/S architecture presently in use?

It is not required for the proposal, as the tender focuses on the supply of RFID equipment and does not depend on the existing business process.

28. Page 6: You mention a reading point in the center of the 4x4 reading field. Should the tags be read while driving through or can they be put still for a couple of seconds?

The reading scenario is always dynamic. In most cases, the tags are read while in motion, typically as a postal worker moves a trolley or postal sacks through the field. Occasionally, a pallet truck is used to transport the items. This continuous movement ensures efficiency in the workflow, allowing for rapid processing without the need to pause for data capture. The system is designed to handle such mobile environments, ensuring accurate reading even when the items are in transit.

29. Page 13: Microcomputer: Is this a necessary component? Some modern RFID readers already have processing included and can send the read data through cloud services.

It is true, and it is an option to be considered. However, it is important to note that while some modern RFID readers include processing capabilities and can send data via cloud services, this capacity is often more limited compared to a dedicated microcomputer. Therefore, both scenarios can be evaluated depending on the specific needs of the project, with the option to choose either a more integrated solution or one with greater processing power if required.

30. Page 13: Main Unit: For construction, only Vesa brackets are mentioned. Is it planned to mount those on the ceiling or walls of the distribution centers? Can alternative "reading gate" constructions be offered as well?

Our experience shows that placing these elements at ground level is risky, as they often sustain impacts that result in higher maintenance costs. Therefore, solutions that minimize these risks and involve lower maintenance costs are a priority for this project.

31. Page 16: Can you please describe the use case for the UHF RFID power detection device?

We use the UHF RFID power detection device to verify whether the system is radiating without needing to be connected to a network. The goal is to provide the installer with an objective tool to confirm that the installation has been successfully completed without relying on a cloud service for verification. However, other options that achieve the same result will also be positively considered.

32. General: Should there be no software solution or the system integration to ERP / WMS systems be offered, as it is existing already for all relevant parts (gate reading status display software, handheld android app, data interface etc.) at UPU or can there be a full solution incl. hardware software and services be offered as well?

The tender will primarily assess the main requirements outlined in the document, but as additional information, offering the services you mention will be viewed positively. This will provide us with a more comprehensive understanding of your capabilities as a supplier. However, it should be clear that these services and platforms are outside the scope of the tender.

33. General: Is it already decided which RFID tags are being used? Can you give us a product description?

The RFID tags have already been selected and are outside the scope of the tender. However, it is important to consider that for local market applications, the tags may vary. For the main project, we will measure performance ratios using the tags we have predefined.

34. General: Does your system know via ASN or similar how many tags are expected to be read or is it a "blind count". If the number is known and the main unit does not capture all, should the handheld be used to find missing tags?

It is a blind count. The main objective is to register only what passes through our reading gates. Unless we have established batches with known content, we do not extrapolate unregistered readings. At present, we do not conduct location operations with handheld readers, though we do not exclude the possibility of introducing this in the future.

35. General: Is 7. the use case for the handheld or is it only for single tag checks? (how many tags should it be able to read at one timeframe?)

It depends on the operational scenario, which could involve localization, counting (around 300 tags), or precise reading and initialization. My recommendation is to offer two different types of handheld readers: one focused on precise reading and initialization, and another for area-wide reading. This will ensure flexibility and adaptability to the various operational needs.

36. General: What is your process set up for ta It depends on the operational scenario, which could involve localization, counting (around 300 tags), or precise reading and initialization. My recommendation is to offer two different types of handheld readers: one focused on precise reading and initialization, and another for area-wide reading. This will ensure flexibility and adaptability to the various operational needs. gs which are nearby the reading point but not part of the relevant shipment? (e.g. a pallet standing 5m away from the reading point, which has been read already previously) In most of our projects the reading point is usually a gate construction and the antennas are shielded by a tunnel, so they can be put to a high read rate but avoid reading anything outside of the "tunnel". This situation is resolved through middleware logic. The system is designed to filter out irrelevant reads and prevent duplicates or erroneous reads of nearby tags that are not part of the current shipment. This ensures that only relevant tags are processed, even if other tags are within the reading range.

37. We usually start a global RFID project with a proof of concept at one location, to be sure the chosen hardware, the setup and the construction fits to the use case, the customer and the tags. (as there is a lot of fine tuning possibility available for RFID projects, we recommend this to all our customers, we can offer this for a very small fee, e.g. in Switzerland). Is this planned for the project in some form or is the experience with the mentioned readers already enough for UPU?

It is possible that more than one supplier will be required to conduct a proof of concept. In that case, the supplier will be invited to a postal center and will need to cover the cost of the trial.

38. Is the goal of UPU in this tender to replace all existing GMS Solutions in the 110 active countries or to extent to more countries?

The goal of UPU in this tender is the extension of the GMS network to more countries

39. Once a 1 year contract between UPU and Vendor is established, does this give Vendor UPU's commitment of an order of 500 GMS UHF RFID units?

No, UPU is not automatically committed to an order of 500 GMS UHF RFID units. Orders will be placed based on the specific requirements of the project, up to a maximum of 500 units.

40. What is the expected timing after signing the contract for first implementation

The unit requirements are ongoing, although we understand that some time may be needed to fully deploy the solution. This aspect can be detailed in the tender document, where a more precise timeline for the first implementation can be provided.

Not all items will be tagged with UHF Gen2 RFID labels. Only a specific portion of the items will be tagged, depending on the type of shipment or process involved. The implementation of RFID tags is primarily focused on those critical elements needed for tracking and traceability within the postal system.

41. Will all items in scope (envelopes, smaller parcels) be RFID tagged, or partially or only test badges?

The application of RFID tags will depend on the final solution implemented. The tags may be applied at the point of origin or at a specific stage within the postal network. This flexibility allows the system to adapt to the different phases of the logistics process, optimizing traceability according to the specific needs of each operation.

42. Where in the process will the RFID tag be applied to the item in the process?

No, not all trays and mailbags will be RFID tagged. The implementation of RFID tags will depend on the specific process requirements. Additionally, whether the tags are fixed or temporary will be decided based on operational needs and the reuse of the containers.

43. Will all trays and mailbags be RFID Tagged as well? Will they be fixed or temporary tagged with labels?

No, not all metal cages, pallets, and ULDs will contain RFID tags. The decision to tag these items with RFID will depend on specific operational needs and will not be applied universally. Additionally, whether the tags are fixed or temporary will be determined based on the usage cycle and logistics process requirements.

44. Will all Metal Cages/ Pallets / ULDs used contain RFID Tags? Will they be fixed or temporary tagged with labels?

A test was conducted involving a trolley passing under a reading point, carrying individually tagged letters in the quantity required for the test, without stopping underneath the reading point. This method allows for evaluating the system's performance under dynamic conditions, ensuring that the RFID tags are read efficiently as the items move through the operation.

45. Which tests are already done to set the expected performance of 500 & 2000 items at 99% and 90% in one go?

To achieve a 99% read rate for 500 units, the tagged envelopes are placed in plastic postal trays, contained within a metal trolley with low-density metal mesh walls. The trolley is pulled manually by a person at a moderate speed, allowing the RFID reading system to efficiently capture the tags without the need for stopping. This scenario simulates real operational conditions within a postal environment.

46. Under what process conditions should 500 units be 99% read: please describe in more detail (loose items, bags or crates stacked in metal cages, speed, etc...)

The conditions for achieving a 90% read rate for 2000 units are similar to those described in the previous question. The tagged envelopes are placed in plastic postal trays, contained within a metal trolley with low-density metal mesh walls. The trolley is pulled manually by a person at a moderate speed. Although the scenario remains the same, the larger quantity of items may slightly affect the read rate, but it remains efficient for postal operations.

47. Under what process conditions should 2000 units be 90% read: please describe in more detail (loose items, bags or crates stacked in metal cages, speed, etc...)

The performance is validated by defining a specific test scenario. In this controlled environment, real postal process conditions are simulated, allowing the RFID system's reading performance to be measured in situations comparable to daily operations. This approach ensures that the measurements are consistent and representative of the expected performance in regular operations.

48. How is this performance validated: during each shipment against order reference or with periodic test batches?

It depends on the postal center. The most extreme scenario occurs in Air Mail Units, where items are moved in ULDs, and in these centers, the highest reading ratios are not expected to be achieved. The most common scenario is when items pass under a reading point located at a loading dock within a warehouse. In this case, the expected success ratios should be met, as the conditions are more controlled and favorable for efficient RFID tag reading.

49. Can you provide an overview of the typical process steps from Inbound to Outbound within postal facility and indicate where items are loose items, in a bag, on a metal cart, ULD or pallet?

It is a fully passive measurement process, with no intervention or control from the operator. The RFID reading system automatically captures the data without requiring visual confirmation from the operator. Additionally, the operator is not expected to take action if something is not correct, as the process is designed to function without direct supervision in this regard.

50. Does the operator need (visual) confirmation when all items are (un)loaded? And is expected that the operator takes action if not ok?

Yes, it is necessary to know through which dock door each item enters or exits the facility, and this is managed by the middleware. However, this aspect is outside the scope of the tender, as it is part of an existing control system that is not included in the current requirements.

51. Do you need to know where each item is entering or leaving the premise (via which dock door)?

All the mentioned scenarios are expected at a typical site, including small doors, standard doors, airmail, elevators, and conveyors. Each of these elements represents critical points in the logistics flow and must be considered in the design and implementation of the RFID system.

52. How many expected scenarios are typically on 1 site? Small Door, Standard Door, Airmail, Elevators, Conveyors?

We are attaching images with further details regarding the bags, trays, metal cages, and ULDs used in the process. These images will provide a clearer view of the types of containers and materials handled in our postal operations.

53. Can you provide more information and pictures regarding Bags/ Trays/ Metal Cages / ULD's used in the process

Preferably, UPU favors LAN connection, but we are open to implementing alternative solutions that lower implementation costs, provided they do not increase maintenance costs. The priority is to ensure a balance between operational efficiency and long-term economic sustainability.

54. What preference has UPU with regards to connecting the GMS Postal Unit to UPU IoT Software Platform: Local LAN, Wifi or 5G connection?

The fundamental elements, such as the reader, antennas, and data processing system, can be extrapolated from the technical requirements. If the proposed solution deviates from this framework but can meet the needs in a more cost-effective and efficient manner, it can be submitted as an additional offer. This approach allows for the evaluation of alternatives that optimize cost and efficiency without compromising the project's technical objectives.

55. What is leading for providing an optimal solution: a solution following actual prescribed technical requirement or most lean, future proof and competitive solution?

Another tender for the supply of RFID tags will be published soon. A definitive decision on the specific tags has not yet been made, as this selection process will occur in a subsequent phase.

56. Has UPU already made a choice for a RFID label?

Another tender for the supply of RFID tags will be published soon. A definitive decision on the specific tags has not yet been made, as this selection process will occur in a subsequent phase.

57. On average, how much RFID labels will be printed per printer per day?

The number of RFID tags printed per printer per day will depend on the specific operational scenario, but print runs of approximately 2000 tags per day can be expected. This number may vary based on the logistical needs and demands at each facility.

58. The tender mentioned that mobile RFID readers needs to support up to +60 degrees Celsius. Will +55 degrees also be accepted?

We invite you to propose what you consider your best offer in relation to the temperature requirements. We will evaluate the proposal as a whole, taking into account all technical and operational factors to ensure it meets the project's needs.

59. How important is it for the UPU that Fixed RFID readers and Handheld RFID readers have Wi-Fi and/or 4G/5G?

We consider the Wi-Fi connectivity scenario for RFID readers to be feasible and aligned with our operational expectations. However, the use of 4G/5G is less likely in this context and is not a priority in our evaluation.

60. Do you prefer physical keys or touch-screen on the Mobile RFID reader?

Either option, physical keys or a touchscreen on the mobile RFID reader, is acceptable for us. The choice will depend on the supplier's proposal and ease of use in the operational context.

61. What purpose and functions has UPU's IoT Software platform?

The UPU IoT software platform includes a Docker container that provides middleware functions and temporary storage of RFID readings. This allows for efficient data management and processing before integration with the main systems.

62. What role does the UPU Data team play in implementation?

The UPU data team plays a key role in analyzing the site survey to determine the best installation options. Additionally, they coordinate with the installer to ensure that the implementation is carried out optimally, in line with the project's technical and operational specifications.

