



**Real Casa de la Moneda**  
Fábrica Nacional  
de Moneda y Timbre

F21111701

## **TECHNICAL SPECIFICATION**

**SUPPLY OF RADIO FREQUENCY IDENTIFICATION (RFID)  
EQUIPMENT**

**OPEN PROCEDURE  
No. PA/403975/2021**

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Annexes, drawings, diagrams, samples, handbooks, etc.

## 1.- SUBJECT-MATTER.

The object of this technical specification is to define the technical characteristics of the equipment to be procured by Fábrica Nacional de Moneda y Timbre-Real Casa de la Moneda (FNMT-RCM).

## 2.- DESCRIPTION.

The equipment to be supplied is based on a device consisting of the following:

- 1 Oscilloscope
- 1 Amplifier.
- 1 Card emulator/analyser and reader.
- 2 Antenna platforms.
- Instrument control computer system (Laptop)

The elements making up the equipment will all be arranged on a worktop or bench. This will be standalone equipment with 220V 50Hz connection to the electricity grid, together with the respective certificates of Electromagnetic Compatibility (CE Marking).

The equipment shall comply with and conform to all regulations in both Spain and the European Union relating to the Prevention of Occupational Hazards and Health and Safety at Work.

### 3.- SCOPE OF THE SUPPLY

The new equipment shall undergo the following:

Analogue tests upon receipt of the raw material (inlays, labels, prelams) and in the finished product.

Analogue tests for type approval of suppliers and new design or prototype studies for this technology.

The new RFID equipment will be tried or tested for electrical functionality of the radio frequency identification device (RFID) in identification documents and proximity cards, according to regulations:

- Test methods for cards and security devices for personal identification, ISO 10373-6 (2020).
- .- Test methods for machine-readable travel documents and associated devices, ISO 18745-2 (2016).
- .- Cards and security devices for personal identification (ISO 14443/1/2/3 and 4).

### 4.- CONTRACT PERFORMANCE STAGES, LEVELS, OR MILESTONES.

The following milestones shall be taken into account:

- 4.1. Installation of the equipment.
- 4.2. In-person training in the handling of the equipment (3+2 days). 5 Days divisible into 2 periods of (3 + 2 days), 3 days for equipment handling and 2 days for advanced training and clarifying handling-related queries

### 5.- TENDER QUANTITY (of goods).

This tender refers to the acquisition of one set of Radio Frequency Identification (RFID) Equipment.

## 6.- PRICE.

The maximum amount set for this tender procedure is €90,000, not including VAT.

## 7.- DELIVERY TERMS AND LEAD TIMES. CARRIAGE.

The equipment shall be delivered within not more than 16 weeks after the award of the equipment.

## 8.- ASSEMBLY, INSTALLATION.

Delivery of the supply awarded shall comprise the following actions, which shall in any case be borne by the successful bidder.

Commissioning of the equipment supplied shall be carried out at no additional expense. Once the equipment has been installed, the component parts shall be checked for proper operation.

The essential technical characteristics shall be checked for compliance and so will assessable items in which a score has been obtained. The laboratory reserves the right to carry out such tests as shall be deemed appropriate to check that the equipment complies with the specifications.

## 9.- DOCUMENTATION.

Upon submission of the technical offers:

- The offers will be delivered in digital form.
- Within its technical offer, the bidder shall have to complete schedule 1 to this technical specification which comprises the essential technical characteristics.
- Certificate of electromagnetic compatibility (CE Marking).

## 9.1. UPON DELIVERY OF THE EQUIPMENT

The use, maintenance and calibration/verification handbooks for the equipment shall be provided in Spanish and in digital form.

## 10.- WARRANTIES.

The successful bidder shall provide a 1-year warranty from installation, starting from the date of receipt of the equipment at FNMT-RCM.

That warranty shall cover the following:

- Remote and in-person technical support service.
- Labour.
- Travel.
- Spare parts.
- Software licences.

## 11.- PENALTIES.

As specified in the terms of reference.

## 12.- CLARIFICATIONS TO THE TECHNICAL SPECIFICATION.

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## SCHEDULE 1

### ESSENTIAL TECHNICAL CHARACTERISTICS (EQUIPMENT FAILING TO MEET THESE CHARACTERISTICS MAY NOT BE ASSESSED)

RFID EQUIPMENT	CHARACTERISTIC	REQUIREMENT	Proof of compliance.- The bidder shall identify compliance with the following essential technical characteristics in the technical documentation provided. To do so, it shall specify <u>in this column how to locate those essential technical characteristics in the technical documentation provided.</u>
Test bench	Compatible with Proximity Card (PICC) test methods	ISO 10373/6 (2020)	
	Compatible with Travel Document (eMRTD) test methods	ISO 18745/2 (2016)	
	Within not more than 1 year	ISO 18745/2 (2021) tests to be adapted	
System element requirements	Test platforms (Test PCD Assembly)	ISO 10373/6 Compliance Certificate	
	Calibration coil	ISO 10373/6 Compliance Certificate	
	Class 1, 2 and 3 Reference cards (PICC Reference)	ISO 10373/6 Compliance Certificate	
	Amplifier	Class A Power $\geq 40$ W, Impedance 50 ohms Bandwidth > 25MHz	
	Oscilloscope	Vertical resolution $\geq 8$ bits Millions of samples per second (MSps) > 240 Bandwidth (AB) > 100MHz	
System element requirements	Card emulator/analyser.	Analogue / digital signal acquisition Wave form acquisition Protocols 14443 A and B	

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Equipment verification	Analogue Tests under ISO 10373/6	Type A and B Verification Sample	
	Digital Tests under ISO 10373/6	Type A and B Verification Sample	
Type A and B Proximity Cards (PICC)	ISO 10373/6 Analogue tests	Alternating Magnetic Field PICC PICC Transmission PICC Reception PICC EMD level and low EMD time PICC Resonance Frequency PICC Maximum Loading Effect PICC operating Field Strength	
		Velocidad of tasa of bits (bit rate) 106, 212, 424, 848, kbps 1.7, 3.4, 6.8 Mbps (VHBR)	
	Other analogue tests	Minimum Field Strength basic Type A/B Sequence (REQUEST)	
		Minimum Field Strength Type B Sequence (REQ – ATTRIB – IBLOCK) Type A Sequence (REQ – ANTICOL – SELECT – RATS – PPS – IBLOCK)	
	ISO 10373/6 Digital Tests	Annex G Compliance	



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Type A and B Travel Documents (eMRTD)	Analogue tests (ISO 18745/2)	Alternating Magnetic Field eMRTD Transmission eMRTD Reception eMRTD EMD level and low EMD time eMRTD Resonance Frequency eMRTD Maximum Loading Effect eMRTD Operating Field Strength	
		Bit rate 106, 212, 424, 848, kbps 1.7 , 3.4 , 6.8 Mbps (VHBR)	
		Test temperatures -10°C, 50°C and Room Temperature	
	Other analogue tests	Minimum Field Strength basic Type A/B Sequence (REQUEST)	
		Minimum Field Strength Type B Sequence (REQ – ATTRIB – IBLOCK) Type A Sequence (REQ – ANTICOL – SELECT – RATS – PPS – IBLOCK)	
	Digital Tests ISO 10373/6	Annex G Compliance	
Analogue and digital test parameters	Alternating Magnetic Field	ISO 14443/1	
	Radio frequency and signal interface	ISO 14443/2	
	Initialisation and anticollision	ISO 14443/3	

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<b>Analogue and digital test parameters</b>	Transmission protocol	ISO 14443/4	
<b>Test bench analysis software</b>	ISO 10373/6 and ISO 18745/2 Test Software	Real-time analogue and digital test visualisation	
		Analogue and digital test reporting	
<b>Communication with samples</b>	Access control	BAC, EAC, PACE command sequence	
		MRZ Lines	
<b>Control system. Computer</b>	Computer	Laptop	
	Operating System	Windows 10	
	Flat screen	17"	
	Connections	Network (Ethernet) USB and HDMI Ports	
<b>Other requirements</b>	Manufacturer's Certification	ISO 9001 Certificate	
	Declaration of Conformity. CE Marking		
	Handbook in Spanish		
<b>Warranty</b>	Cover	1 year	
		Direct labour (MOD)	

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Warranty	Cover	Travel and spare parts	
		In-person and remote technical support	
		Software licences (analogue and digital tests)	
Training	In-person training in the handling of the equipment	5 Days divisible into 2 periods of (3 + 2 days), 3 days for equipment handling and 2 days for advanced training and clarifying handling-related queries.	