

## TECHNICAL SPECIFICATION

<b>Devices for reading and establishing the authenticity of travel documents</b>	
<b>Functionalities and Basic Characteristics</b>	Device for automated full-page reading of travel document data, without moving parts, intended for: verification of the authenticity of travel documents, recognition of textual information and barcodes under white, UV and IR light spectra, and reading of contactless electronic identification circuits (RFID).
<b>Technical, Quality and Operational Characteristics</b>	<p>USB power supply: 5 V DC;</p> <p><b>Optical Document Reader</b>            Scanning area — full passport data page;            Sensor type — CMOS;            Color representation — RGB;            Color depth — 24-bit;            Megapixel count — minimum 17 MP;            Pixel density — minimum 800 ppi;            Resolution — minimum 4850 × 3600 pixels;            Scratch-resistant, high-durability glass</p> <p><b>Contactless Electronic Identification Circuit Reader</b>            Standards — ISO/IEC 14443 Type A and B for RFID electronic circuits;            Data transfer rates — 106, 212, 424, 848 kbaud;            RFID reading capability — ability to read contactless RFID chips located in any part of the travel document;            Anti-collision — detection/reading of the RFID chip corresponding to the document for which the Machine Readable Zone (MRZ) has been read.</p> <p><b>Functional Capabilities</b>            Reading and processing of document images in formats: ID-1, ID-2, ID-3, as well as other documents not exceeding dimensions of 88 × 128 mm;            Scanning Process:            Document presence detection in the reader based on a sensor;            Automated scanning upon detection of the document;            Glare elimination (reflection from laminate and holograms) in white and infrared light spectra;            Compensation of ambient light exposure during image capture in the ultraviolet spectrum (Smart UV);            Automatic adjustment of ultraviolet illumination intensity depending on the type of document being processed;            Automatic detection (search) and selection of document elements (photo, MRZ zone, signature, data fields) from the full document image.</p> <p><b>Machine Readable Zone (MRZ)</b>            Supported MRZ formats — in accordance with ICAO Doc 9303: 44×2, 30×3, 36×2;            MRZ detection — automatic detection of the MRZ area within the document image;</p>

Recognition — in white and infrared light spectra;  
Check digit verification — validation of check digits to ensure correctness of the MRZ data in accordance with ICAO Doc 9303;  
Print quality assessment — evaluation of correctness and print quality in accordance with ICAO Doc 9303 and ISO 7501, ISO 1831, ISO 1073-2.

### **Barcode Reading**

Supported formats:

1D: Codabar, Code 39 (including Extended), Code 93, Code 128, EAN-8, EAN-13, IATA 2 of 5 (Airline), Interleaved 2 of 5 (ITF), Matrix 2 of 5, Standard 2 of 5 (Industrial), UPC-A, UPC-E;

2D: PDF417, Aztec Code, QR Code, Data Matrix.

### **Automatic Document Type Detection**

Document type detection sequence — Country → Type → Series;

Retrieval of the document template from the SDK database for further processing, including:

layout of textual and graphical fields;

presence of barcodes and security features;

authenticity verification and its parameters;

presence of electronic circuits (RFID);

possibility to obtain reference templates (documents) from external reference information systems;

automatic rotation of document images according to the predefined angle specified in the template.

### **Processing of Graphical Fields**

Types of graphical fields:

document holder's photograph;

signature;

barcode;

fingerprints and others;

Cropping and extraction of graphical fields into separate images, in accordance with the template of the identified document type;

Automatic face detection within the document images and graphical representation of the face in cases where the document type has not been identified;

Automatic rotation of the document image based on the position of the document holder's photograph.

### **Optical Character Recognition (OCR) in the Visual Zone**

Character recognition based on the following code pages:

Central European (Windows-1250);

Cyrillic (Windows-1251);

Western European Latin (Windows-1252);

Greek (Windows-1253);

Turkish (Windows-1254);

Baltic (Windows-1257);

Support for custom font sizes;  
Support and use of dictionaries (names, surnames, addresses, countries, etc.);  
Automatic segmentation of text into separate fields (e.g., address split into index, country, region, etc.);  
Recognition of data with complex formats;  
Recognition of characters encoded in different code pages within the same line.

**The device shall be supplied with a Software Development Kit (SDK) equivalent in functionality and performance to that of the device model “Regula Baltija 7024M.110-18A”.**

**RFID SDK (Software Development Kit):**

Standardele acceptate pentru circuitele electronice - RFID:

- ISO/IEC 14443-2 (de tip A și B)

- ISO/IEC 14443-4

Regimul de acces la date: Direct, BAC, EAC, PACE

**Authentication:**

Active Authentication (AA);

Passive Authentication (PA);

Chip Authentication (CA v1, CA v2);

Terminal Authentication (TA v1, TA v2).

**Application Support:**

ePassport (DG1–DG16);

eID (DG1–DG21);

eSign.

**Certificate Management**

Local storage of certificates;

Online retrieval of certificates via the software interface;

Support for Master List and CRL (Certificate Revocation List);

Support for Extended Length reading;

Reading of contactless electronic circuits (RFID) in accordance with ICAO data formats:

LDS (Logical Data Structure) version 1.7;

PKI (Public Key Infrastructure) version 1.1.

**Analysis and Comparison of Textual Information**

Document zones subject to data analysis and comparison:

Machine Readable Zone (MRZ);

Visual Inspection Zone (VIZ);

RFID electronic chip;

Barcode;

Data validation (e.g., date of birth, expiry date, date of issue, etc.) for validity;

Date conversion into the format used by the operating system;

Full and partial comparison of data fields;

Data aggregation from multiple pages of the document;  
Computational support for certain fields (e.g., age calculation, etc.);  
Transliteration into Latin characters in accordance with ICAO Doc 9303 for comparison with the MRZ.

### **Authenticity Verification**

UV Dull Paper verification — of the document substrate, MRZ area, and photo area;

MRZ print contrast verification in accordance with ICAO Doc 9303 (IR B900 Ink);

Checks available after document type identification

Verification of patterns of specific colors and shapes under white, infrared, and ultraviolet light (Image Pattern);

Verification of UV protection fibers (color and size) (UV Protection Fibers);

Detection of false luminescence (False Luminescence);

Verification of photo embedding method (printed or attached) (Photo Embedding Type);

Infrared (IR) visibility verification

document substrate elements;

textual data;

photograph (primary and secondary);

Verification of the presence of holograms (OVD – Optically Variable Device);

Reading of luminescent security text and comparison with data from the MRZ or VIZ (OCR Security Text);

Visualization of hidden images (IPI — Invisible Personal Information);

Barcode format verification.

SDK Update Requirements

The SDK shall be updated at least twice per year, including the addition of new authenticity verification functionalities, for a minimum period of 5 years.

Compatibility

Compatibility with current versions of Microsoft operating systems (x86, x64);

Drivers (libraries) certified by Microsoft;

SDK Capabilities

Simultaneous optical scanning and RFID chip reading;

Firmware update via USB port, performed automatically upon installation of a new SDK version;

MUI (Multilingual User Interface) support;

Inclusion of demonstration applications providing full functionality of the reader device both visually and via COM-server technology;

Inclusion of source code examples for accessing device functionalities via COM-server technology in:

MS Visual Studio for .NET;

Delphi / Embarcadero.

Equipment Condition

**The device shall be new (not refurbished).**

### **Compliance Certificates**

ISO certificates: ISO 27001:2022, ISO 14001:2015, ISO 9001:2015;

CE Certificate, in accordance with:  
the Directive on Waste Electrical and Electronic Equipment (WEEE);  
Directive 2011/65/EU on the restriction of the use of certain hazardous substances  
in electrical and electronic equipment (RoHS).

**Manufacturer's Authorization Certificate**

Tenderers offering equipment from third-party manufacturers shall hold valid authorization from the respective manufacturers in order to participate in this tender procedure.

The tenderer shall also provide confirmation from the manufacturer regarding: the warranty period, and the terms and conditions for maintenance and support of the Software Development Kit (SDK), issued by the holder of the intellectual property rights over the respective product.

**Documentation: User (operation) manual for the equipment.**

**Warranty: Minimum warranty period: 5 years from the commencement of operation.**

All warranty service costs shall be borne by the supplier, including the transportation of the equipment to the service center and обратно to the place of operation, where such transportation is required.

Prototype Provision:

Provision of a prototype equipment upon request of the contracting authority.