Attachment No. 1

Technical Specification 7024M.110-18

Item	Specification
1.	**Functionalities and Basic Characteristics**
	Full page passport reader with no moving parts inside for automatic reading and authenticity verification of passports, IDs, visas, driver's licenses and other identification documents, allowing to capture images in white, infrared, ultraviolet and coaxial lights.
2.	**Minimum Technical, Quality and Operational Characteristics**
	USB power supply: 5 V DC; **Optical Document Reader** Scanning area — 88 × 128 mm, full passport page; Sensor type — CMOS; Color representation — RGB; Color depth — 24-bit; Megapixel count — minimum 18 MP; Pixel density — minimum 860 ± 10% ppi; Resolution — 4908 × 3684 pixels; Scratch-resistant, high-durability glass. **Contactless Electronic Identification Circuit Reader** 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. **Functional Capabilities** 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 search and cropping of a document image from a general imageю **Machine Readable Zone (MRZ)** Supported MRZ formats — conformity with ICAO 9303: 44×2, 30×3, 36×2; with ISO IEC 18013 (IDL): 30×1, support of special MRZ data structure for documents of certain countries; MRZ detection — automatic detection of the MRZ area within the document image; Recognition — in white and infrared light spectra; Check digit verification — control of check digits and data structure in conformity with ICAO 9303 and BSI TR-03105 Part 5.1; 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 image from Information Reference Systems «Passport», «Autodocs», «Frontline Documents System»;
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 searching of faces on the document image and cropping the document holder portrait if the document type is not recognized;
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 and Eastern European Latin (Windows-1250);
Cyrillic (Windows-1251);
Western European Latin (Windows-1252);
Greek (Windows-1253);
Turkish (Windows-1254);
Baltic (Windows-1257);
Other fonts of any size;
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 is supplied with a Software Development Kit (SDK), including Basic module supplied by default, with additional VizOCR and AAC modules.

RFID SDK (Software Development Kit):

Supported RFID-chip standards:

- ISO/IEC 14443-2 (type A and B)
- ISO/IEC 14443-4
Data access modes: Direct, BAC, EAC, PACE, SAC
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 1.8;
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;
adjustment of formats and measuring units to those used in the user OS: date, weight, height, etc.;
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);
Checking luminescence of 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);
Detection of holograms (OVD – Optically Variable Device);
Reading a luminescent text and comparing it with the data obtained from the MRZ and VIZ (OCR Security Text);
Visualization of hidden images (IPI — Invisible Personal Information);

	Checking barcode format and eIPI verification. **SDK Update Requirements** The SDK will be updated at least twice per year, including the addition of new authenticity verification functionalities, for a period of 5 years. **Compatibility** Compatibility with current versions of Microsoft operating systems (Windows 7 x86/x64, Windows 8, Windows 10, Windows 11, Ubuntu 20.04—24.04, Debian 11—12, RHEL 9, macOS 11+); 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 will be supplied new and 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). **Documentation:** User (operation) manual for the equipment will be supplied together with the equipment. **Warranty period: 5 years from the commencement of operation.** All warranty service costs will be borne by the supplier, including the transportation of the equipment to the service center and back to the place of operation, where such transportation is required. **Prototype Provision:** Upon request.

Signed: _____
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Signature not validated

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