

**TECHNICAL PROCEDURE**  
**for checking the functionality of the banknote and coin processing machines**  
**handled by trained employees and banks' clients**

**Laws and bylaws on the basis of which the document is made:**

<b>Name of the regulation:</b>	<b>Published in:</b>
Law on the National Bank of the Republic of North Macedonia	Official Gazette of the Republic of Macedonia No. 158/10, 123/12, 43/14, 153/15, 6/16 and 83/18 and Official Gazette of the Republic of North Macedonia No. 110/21
Decision on the conditions and the manner of supplying banknotes and coins	Official Gazette of the Republic of North Macedonia No. 149/21
Decision on the conditions and the manner of inspecting the supply of banknotes and coins	Official Gazette of the Republic of North Macedonia No. 149/21
Decision on determining the procedure for detecting and withdrawing counterfeit money	Official Gazette of the Republic of Macedonia No. 42/11
Instructions for implementing the Decision on the conditions and the manner of supplying banknotes and coins	Official Gazette of the Republic of North Macedonia No. 169/21

## **1. Introduction**

In accordance with the laws and bylaws of the National Bank of the Republic of North Macedonia (hereinafter: the National Bank) banks and cash centers are obliged to check the authenticity and fitness of currency in circulation. For that purpose, this technical procedure defines the National Bank procedure for checking the manner of operation of the banknote and coin processing machines used by banks and cash centers when controlling the quantity, authenticity and fitness for re-putting into circulation of banknotes and coins.

## **2. Request for checking the machines**

The National Bank shall perform the testing of the functionality of cash processing machines on the basis of a request<sup>(\*)</sup> (Annex 5 of the Instructions for implementing the Decision on the conditions and the manner of supplying banknotes and coins) submitted by the bank, the cash centers, the manufacturer, the supplier or the authorized representative of these machines on the territory of the Republic of North Macedonia.

(\*) <https://www.nbrm.mk/ns-newsarticle-upatstvo-za-uslovite-i-nacinot-za-snabduvane-so-knizni-i-kovani-pari.nspix>

All required data, referring to the functionality of the cash processing machine, shall be entered in the request.

The data submitted to the National Bank shall not be presented to third parties.

Upon receipt of the request, the National Bank shall set a date for testing of the machine and shall inform the applicant thereon. The machine shall be tested by the manufacturer or the authorized representative on the premises of the National Bank, except in the cases when the transport to the National Bank is hindered, then the testing of the machine may be conducted with the applicant.

### **3. Publication of the results of the testing of the functionality of the machines**

Upon conducted testing, the National Bank shall issue a confirmation on the successfully conducted testing of the cash processing machine for a limited time period of one year. Only the machines that successfully passed the testing process, shall be published on the list of successfully tested cash processing and selection machines, published by the National Bank on its web site. Banks and cash centers may put in use cash processing machines if they are successfully tested and if they are put on the list published on the website of the National Bank.

After each conducted hardware or software upgrade of the cash processing machines that were successfully tested, the bank, the cash center, the manufacturer, the supplier or the authorized representative shall submit request for second testing of the machine.

### **4. Categorization of the banknote handling machines**

To qualify as banknote handling machine, the machine has to be capable of processing banknotes, classifying and physically separating them according to their characteristics without the intervention of the trained machine operator, in accordance with Annexes II-a and II-b of the Decision on the conditions and the manner of supplying banknotes and coins.

Banknote handling machines must have a possibility for adjustment of the software to recognize new issues or printings of money. Furthermore, they should be adjustable in order to enable setting of more or less restrictive sorting standards (levels), if necessary.

Categories of banknote handling machines are the following:

#### **I. Customer-operated machines, with the following sub-categories:**

Table 1

1.	Machines for depositing cash (Cash in Machines – CIMs)	These machines enable bank customers to deposit banknotes in their bank accounts by using the bank card, but have no function to issue banknotes. CCMs check the authenticity of banknotes and allow for traceability of the account holder. Checking the fitness for circulation is not obligatory.
2	Machines for depositing and withdrawing cash (Cash recycling machines – CRMs)	These machines enable the bank customers to deposit and withdraw banknotes in/from their bank accounts, by using the bank card. CRMs check the authenticity and fitness of banknotes and allow for traceability of the account holder. For withdrawals, the machines may use authentic and fit banknotes deposited by other customers in previous transactions.

3	Combined machines for depositing cash (Combined cash in Machines – CCMs)	These machines enable the bank customers to deposit and withdraw banknotes in/from their bank accounts, by using the bank card. CCMs check the authenticity of banknotes and allow for traceability of the account holder. Checking the fitness for circulation is not obligatory. For withdrawals, the machines do not use banknotes deposited by other bank customers in previous transactions, but only banknotes loaded separately into them.
Other customer-operated machines		
4.	Machines for cash withdrawal (Cash out Machines – COMs)	These machines are usually ATMs checking the authenticity and fitness of banknotes for circulation prior to being withdrawn by bank customers. COMs use banknotes that were loaded into them by the bank cash handlers or other automatic systems.

II. Staff-operated machines, with the following sub-categories:

Table 2

1.	Banknote processing machines – BPMs	Machines that check the authenticity and fitness of banknotes for circulation, physically separate the suspect counterfeit and unfit for circulation from the genuine and fit cash for circulation
2.	Banknote authenticity machines – BAM	Machines checking the authenticity of banknotes and performing selection and sorting out banknotes to genuine and suspect counterfeit ones, extracting the suspect ones.
3	Machines returning back the cash in circulation with assistance of employees tellers (Teller assistant recycling Machines – TARMs)	Machines operated by trained employees checking the authenticity and fitness of banknotes for circulation. For withdrawals, TARMs may use authentic and fit banknotes for circulation deposited by other customers in previous transactions. Furthermore, they keep the banknotes in safe custody and enable bank employees to credit or debit customer accounts with banks.
4	Teller assistant machines – TAMs	These machines are operated by trained employees that check the authenticity of banknotes. Furthermore, they keep the banknotes in safe custody and enable bank employees to credit or debit customer accounts with banks.

The machines from both categories need to enable processing and classification of banknotes and coins according to the Decision on the conditions and the manner of supplying banknotes and coins. For the new issues or printings/minting of banknotes/coins, the National Bank, upon request of the manufacturer or supplier of the machines, shall provide a sample of banknotes/coins for appropriate adjustment of the machine.

Table 1 and Table 2 shall not include:

Banknote authentication machines that process single banknotes or a series of banknotes without intervention of the user, classify money as authentic or suspicious, but without an option for automatic physical separation of suspicious from authentic banknotes;

Banknote authentication machines requiring from the user to decide by themselves if the money is authentic or not (i.e. verification instruments).

## **5. Checking the functionality of the machines and their application**

The National Bank shall test all categories of banknote processing and selection machines listed in Table 1 and Table 2.

For that purpose, the National Bank shall establish procedures for testing of various types of banknote processing machines.

The aim of these tests is to check the capability of a certain type (model) of banknote processing machine, to successfully separate authentic from suspicious banknotes ("counterfeit detection test") and if applicable, to sort banknotes according to their fitness for circulation ("test for checking the sorting function"). For customer-operated machines, the regular functioning of the user monitoring system ("test of the monitoring system") shall also be checked.

The tests are conducted by using test sets of money of all denominations in circulation, composed of authentic and counterfeit banknotes, as it will be stated below. As new counterfeit banknotes with characteristics different from those of the money used in the test set can appear at any time, it should be borne in mind that the results of the tests published on the web site of the National Bank solely confirm the capability of that type of banknote processing machine for detecting counterfeits contained in the test set used on the day of the testing.

Consequently, the National Bank calls upon manufacturers/distributors to monitor the developments in the field of counterfeiting and to regularly update/upgrade their machines in order to be sure that newly created counterfeits can also be detected.

All tests follow the same procedures and are performed in cooperation with the manufacturers/distributors of the machine.

### **5.1 Checking the capability of the machines for identifying counterfeit banknotes**

The counterfeit detection test shall be conducted with a standardized test set, which is composed of various types of counterfeit banknotes detected in circulation.

During the testing, the capability of the machines to detect the counterfeit banknotes of all denominations shall be checked, in all orientations supported by the machine.

The banknote processing machine successfully passed the test if:

(a) none of the counterfeits from the test set are classified as authentic banknotes (category 4 or 5 of ANNEX IIa Table 3 or category 2 or 3 of ANNEX IIb Table 4 of the Decision on the conditions and the manner of supplying banknotes and coins);

(b) for customer-operated machines with enabled monitoring of the transaction, 90% of the counterfeit banknotes should be classified in category 2 and 3 (Table 3), i.e. only 10% are allowed to be classified in category 1 (Table 3).

#### **5.1.1. Checking the capability of the machines for identifying counterfeit coins**

The check on the capability of the machines to identify the counterfeit coins and value the results shall be carried out in the same way as in the check on the capability of the machines to identify counterfeit banknotes.

## **5.2 Checking the capability of the machines for determining the quality of banknotes according to their fitness for circulation**

The test of the capability of the machines to sort money ("test for checking the sorting function") shall be conducted by means of a set of authentic banknotes that are not fit for circulation and show signs of wear-out and defects caused by the everyday use and a certain quantity of authentic banknotes, fit for circulation.

The test shall be conducted so that the machine is tested with the entire set in all possible orientations that are supported by the machine.

The testing shall be successful if not more than 5% of the banknotes unfit for circulation are classified and physically separated in category 4 (Table 3) or category 2 (Table 4) of Annexes IIa or IIb of the Decision on the conditions and the manner of supplying banknotes and coins, respectively and all banknotes from those denominations and/or issues that are not supported by the machine or fed into the machine in orientations that are not supported by it, are rejected by the machine.

### **5.2.1. Checking the capability of the machines for determining the quality of coins according to their fitness for circulation**

The check on the capability of the machines to determine the quality of coins according to their fitness for circulation and value the results shall be carried out in the same way as in the check on the capability of the banknote machines.

## **5.3 Checking the transaction monitoring system**

The test of the transaction monitoring system, which is carried out only for customer-operated machines, shall be successful if the banknote processing machine stores data on the account holder for all money classified in categories 2 and 3 (Table 3) of Annex IIa of the Decision on the conditions and the manner of supplying banknotes and coins and links all this money with the data for the respective account holder.