HELLENIC REPUBLIC
ΑΑΔΕ
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Directorate for Infrastructure Management
Section E

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SAA: Government Gazette: 3875 B /15.06.2023
Athens , 13-6-2023
A .1088

TO: As switchboard

SUBJECT: Amendment of the Decision of the Governor of AADE A.1098/13-7- 2022 "Determination of technical specifications (communication protocol) and other functions for the interconnection between Fiscal Electronic Mechanisms and EFT/POS terminals. Implementation of the principle "collection by card – mandatory issuance of a receipt by a F.I.M". (B'3940)

DECISION

THE COMMANDER OF A.A.D.E.

Considering:

1. The provisions of: a) Articles 12 and 40 of Law 4308/2014 (A' 251), as in force.
b) Articles 15 & 15A of Law 4174/2013 (A' 170), as added by the provisions of Law 4646/2019 (A'201) and in force.
c) Decision A.1098/13-7-2022 of the Governor of the Independent Authority of Public Revenue "Determination of technical specifications (communication protocol) and other functions for the interconnection between Fiscal Electronic Mechanisms and EFT/POS terminals. Implementation of the principle "collection by card – mandatory issuance of a receipt by a F.I.M". (B'3940), as amended by Decision A.1190/30-12-2022 of the Governor of the Independent Authority of Public Revenue (B'6993). d) the joint decision A.1138/12.6.2020 of the Minister of Finance and the Governor of the Independent Authority of Public Revenue "Determination of the scope, time and procedure of electronic transmission of data to the Independent Authority of Public Revenue, as well as any

other matter necessary for the implementation of the provisions of article 15A of Law 4174/2013 (K.P.D.)" (B'2470).
e) Decision A.1024/31.1.2020 of the Governor of the Independent Authority for Public Revenue "Additional technical specifications of communication protocol and encryption for the transmission of data to the information system of FIMs" (B' 317).
f) Decision A.1011/2020 of the Governor of the Independent Authority of Public Revenue "Withdrawal from the use of models of Tax Electronic Mechanisms (FIM), which received a suitability license based on A.Y.O.O. POL.1234/9.10.2002 (Β΄1362) and POL.1135/26-10-2005 (Β΄1592), except for E.A.F.D.S.S. and ADIME Taximeters" (B' 85).
g) Decision POL.1166/2018 of the Governor of the Independent Authority of Public Revenue "Technical specifications of communication protocol and encryption for the transmission of data to the information system of FIM" (B 3603).
h) The AYO POL.1220/2012 (B 3517) "Codification – Completion of technical specifications of Fiscal Electronic Mechanisms and systems. Procedures for their use and operation. Specifications for files to be sent to the GSIS." i) Under reference A.Y.O. POL.1221/2012 (Β΄ 3513) "Upgrade of software for the support of E.A.F.D.S.S.-Determination of sent data files of tax information to the GSIS pursuant to the provisions of article

20 of Law 3842/2010 (A' 58)" j) Decision A.1173/7-12-2022 of the Governor of the Independent Authority of Public Revenue "Amendment of technical specifications of FIM." (B'6953) k) Chapter A of Part One of Law 4389/2016 "Urgent provisions for the implementation of the agreement on fiscal targets and structural reforms and other provisions" (A' 94)

2. The European Commission's document C(2012) 4961 providing us with comments on notification 2012/266/EN
3. The European Commission's document C(2012) 4967 providing us with comments on notification 2012/267/EN
4. The approval of the European Commission on notification 2022/183/GR, for the acceptance of the urgency procedure, with the Ministry of Foreign Affairs. No. GROW/E3/BH/as (2022)3027420/12.04.2022 letter addressed to the Minister Plenipotentiary of the Permanent Representation of Greece in Brussels and communicated to us through ELOT.
5. Reference No. D.ORG.A 1125859 EX 2020/23.10.2020 decision of the Governor of the Independent Authority of Public Revenue "Organization of the Independent Authority of Public Revenue (A.A.D.E.)" (B 4738)
6. Reference No. 1. of 20.1.2016 act of the Council of Ministers "Selection and appointment of the Secretary General of the General Secretariat of Public Revenue of the Ministry of Finance" (Y.O.D.D. 18) in conjunction with the provisions of the first paragraph of para. 10 of number 41 of Law

4389/2016, decisions no. 39/3/30.11.2017 (Y.O.D.D. 689) of the Board of Directors of A.A.D.E. and under data 5294ΕΧ2020/17.01.2020 of the Minister of Finance "Renewal of the term of office of the Governor of the Independent Authority of Public Revenue" (Y.O.D.D. 27)

7. The conclusion of the Project Management Team at AADE on the elaboration of specifications for the interconnection of cash registers with POS terminals, in the framework of reform 16614 for the reform and interconnection of cash registers with tax administration, implemented under the National Recovery and Resilience Plan "Greece 2.0"

8. The need to interconnect FIM with EFT/POS Terminals, to ensure the issuance of tax transactions through card payment for effective tax monitoring and the reduction of tax evasion.

9. The fact that, as a result of the procedures of this decision, no expenditure is incurred at the expense of the A.A.D.E. Budget.

WE DECIDE

We amend the Decision of the Governor of AADE A.1098/13-7-2022, as in force, the Annex, with regard to EFTPOS communications with the Operational Programme of Esend, as attached to this Decision.

This Decision shall take effect on the date of its publication in the Official Gazette.
That decision be published in the Official Gazette.

THE COMMANDER OF
A.A.D.E. GEORGIOS
PITSILIS

LIST OF RECIPIENTS

- **RECIPIENTS FOR ENERGY**

  1. National Printing Office (e-mail address "webmaster.et@et.gr"), for the publication of the decision

  2. Association of Importers and Manufacturers of Cash Registers (SEKT) – 165 Athinon Avenue, PC 12461 Chaidari, for the information of its members.

  3. Association of Information Technology Communications Enterprises of Greece (SEPE) Amvrosiou Frantzi 19, P.C. 11743 Athens, for the information of its members.

4. **DI.S.TE.PL. (with a request to post on the website of A.A.D.E.)**
5. **EFTPOS Manufacturers**

- **RECIPIENTS FOR NOTIFICATION**

1. **Ministry of Finance**

   a) Office of the Minister

   b) Office of the Deputy Minister

   c) Office of the Special Secretary of S.D.O.E.

   d) Central Service of S.D.O.E. and Regional Directorates

2. **Independent Authority for Public Revenue:**

   a) Tax Regions of Athens, Piraeus, Thessaloniki, Patras
   b) I.P.A.E.E.
   c) All Y.E.D.D.E.
   d) D.A.F.E

3NTUA-School of Electrical & Computer Engineering – Department of Electrical Power – High Voltage Laboratory, Iroon Polytechniou 9, Zografou University Campus, 15780 Zografou, Athens

4NTUA – School of Electrical & Computer Engineering – Department of Information Transmission Systems & Materials Technology – Wireless Links and Electromagnetic Compatibility Laboratory, Iroon Polytechniou 9, Zografou University Campus, 15773 Zografou, Athens

III. INTERNAL DISTRIBUTION

1. **Office of the Governor of A.A.D.E.**
2. **Legal Support Division**
3. **Communication Directorate**
4. **Heads of the General Directorates of A.A.D.E.**
5. **Directorates of the Directorate-General for Taxation**
6. **Directorates of the Directorate-General for Tax Operations**
7. **Infrastructure Management Directorate**
8. **Data Services Directorate**
9. **Independent Security Department of G.D.I.L.D.**

ANNEX

INTERCONNECTION OF RETAIL DATA ISSUANCE SYSTEMS AND PAYMENT CARD ACCEPTANCE TERMINALS (EFTPOS)

Basic communication protocol

Version : 1.08

Date: : 6 June 2023

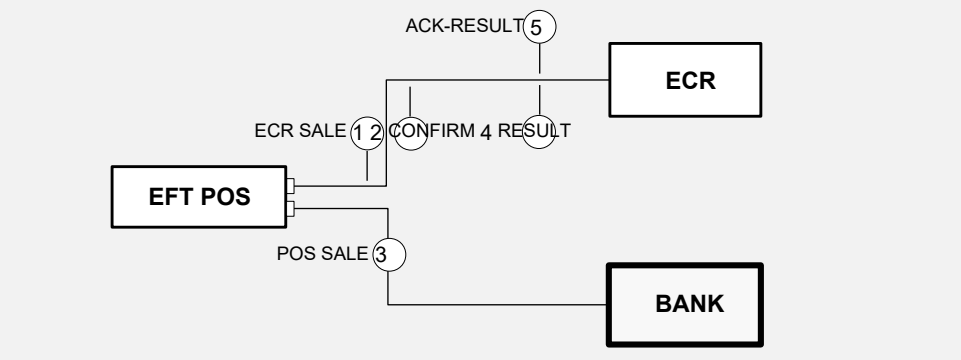
Contents

1. INTRODUCTION

The text describes the minimum implementation requirements for retail issuance systems (FIMs) to communicate with card acceptance terminals (EFTPOS) located in the field. An important issue is to ensure the presence in tax systems of every transaction executed in EFTPOS. The term ECR ("Electronic Cash Register") or the term "cash register" or the term "FIM" used in the technical description, are considered in the context of the text to be identical to any legal tax system for issuing retail receipts according to the current legislation (tax cash registers, ADIME, EAFDSS).

2. THE GENERAL SCHEME

The interconnection concerns three systems: ECR, EFTPOS and SERVICE PROVIDERS PAYMENTS (BANK):



Picture 1

The usual communication flow follows 5 steps:

1. **The transaction is initiated by ECR. The operator chooses card payment and ECR sends a request to EFTPOS.**
2. **EFTPOS shall immediately acknowledge receipt of the request to the ECR by putting it on hold of the final result.**
3. **The EFTPOS connects to the payment service provider for online approval or approves offline or rejects offline or stops the transaction.**
4. **The EFTPOS shall respond to the ECR with the final result: refusal or approval. In the approval, it sends transaction details (such as transaction number, approval code, etc.). The final result is sent directly to ECR, before printing starts from EFTPOS. If ECR**

supports this, the transaction details include data for printing the EFTPOS receipt by the ECR

5. **The ECR shall confirm receipt of the final result. If this confirmation does not reach EFTPOS for any reason, EFTPOS marks this transaction as not fully processed for the ECR.**

Key assumptions and limitations:

1. **Only ECR can initiate a new debit transaction (purchase, purchase by installments, registration of pre-approval, mailorder). EFTPOS has a locked keyboard and menu for making debit transactions.**

2. **If, due to an ECR failure or an ECR-EFTPOS communication failure, EFTPOS has made debit transactions that are not recorded in the ECR, then there is a mandatory procedure for EFTPOS to send these transactions to the ECR (see 4.6, 4.7) after the ECR failure has been rectified. The EFTPOS has long kept the most basic details of these transactions in a separate repository for ex-post control and verification purposes.**

3. **No interruption of processing in EFTPOS is foreseen by order of the ECR. If during step 3 ECR wants to stop processing, then this is done manually in EFTPOS.**

4. **EFTPOS only serves one ECR request at a time, does not have a queue of requests and cannot even respond to a new request while the current one is being processed.**

5. **The communication does not contain in any way sensitive transaction data, such as uncovered card number, cvv2, track2 or cardholder name.**

6. **EFTPOS should keep log files with the following priority and according to their storage and computing capabilities:**

   a) **Communication problems or system errors (mandatory)**
   b) **Actions of operators related to the interconnection (mandatory)**
   c) **Transaction basics (time/amount/sessionId/outcome)**

   d) Full recording of messages exchanged The format of recording incidents is a matter of implementation by each manufacturer, as long as it fulfills the purpose of establishing facts and resolving any technical problems.

7. **In case the employee is awarded a tip via card, there is the possibility of a specific option to enter a tip in EFTPOS and execute independently by typing the amount of the tip for the specific preloaded ALP. There is a mandatory procedure for sending these transactions from EFTPOS to the ECR. Gratuity amounts are kept as pending transactions and sent to ECR as a tip amount. The ECR returns an ACK-RESULT message to EFTPOS for**

each pending record so that EFTPOS can close a package.

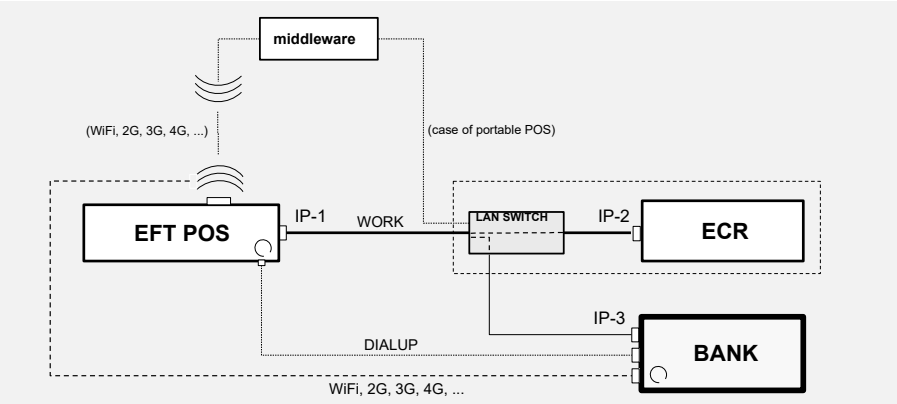
3. THE PHYSICAL CONNECTION

In the connection between the parties, EFTPOS acts as a "server" in relation to the ECR and as a "client" in relation to the payment service provider.

3.1. CONNECTING VIA TCP/IP

The connection between EFTPOS and ECR over TCP/IP is made:

- **With direct connection ECR-EFTPOS. Examples: connection to a LAN network with Ethernet cables, WIFI connection, etc.**
- **Via middleware system for EFTPOS that cannot be connected otherwise.**



Picture 2

The LAN switch can be an external device or built-in.

In the case of a middleware connection, because the local IP of the EFTPOS is typically unknown or inaccessible by the ECR, some additional implementation is required, where the connection to the middleware will be opened by EFTPOS with a "logon" and will keep it open as needed, entering itself into a waiting loop for ECR requests. Middleware acts as a simple message forwarder.

3.2. CONNECTING VIA USB, BLUETOOTH AND RS232

USB, Bluetooth connection is supported without changing the communication protocol at all.

RS232 connection is also supported, with the only protocol change being the addition of a small string as a prefix to each exchanged message.

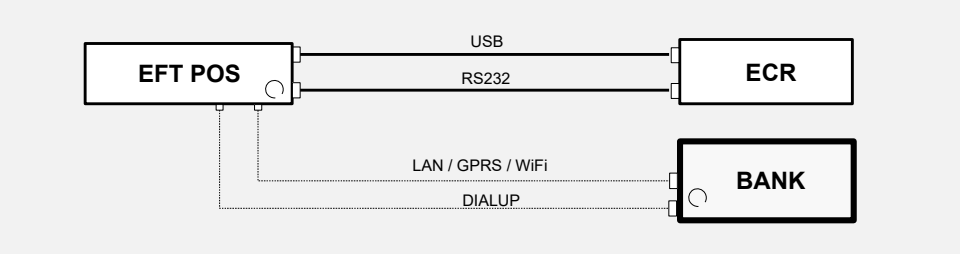


Figure 3

4. FLOW AND MESSAGES CONCISE

Using symbolic names, messages exchanged between ECR and EFTPOS are:

[AMOUNT]: Purchase Start Request (ECR->EFTPOS)

[CONFIRMED]: Confirmation of receipt of request (EFTPOS->ECR)

[ERROR]: Unable to service request (EFTPOS->ECR)

[RESULT]: Transaction result (EFTPOS->ECR)

[ACK-RESULT]: Confirm receipt of [RESULT] (ECR->EFTPOS)

[RESEND- ONE]: Single Transaction Request [RESULT]

[RESEND-ALL]: Request to send [RESULT] outstanding credit transactions executed autonomously by EFTPOS without using ECR, executed transactions related to preloaded receipts and invoices already issued by ECR, as well as debit transactions executed by EFTPOS not connected to ECR, due to ECR failure or

EFTPOS-ECR interface failure. (ECR ->EFTPOS)

[ECHO]: **Communication Test (ECR->EFTPOS->ECR)**

[CONTROL]: **Miscellaneous Configuration Command (ECR->EFTPOS)**

[SUCCESS]: **General Success Message (EFTPOS->ECR)**

[REGRECEIPT]: **Request to upload a receipt or invoice for a subsequent debit transaction (ECR- >EFTPOS)**

Optional extensions for other transactions:

[AMOUNT-INSTALM]: Request to start a purchase using installments (ECR->EFTPOS)

[AMOUND-REFUND]: **Return Start Request (ECR->EFTPOS)**

[AMOUNT-VOID]: **Start cancellation request (ECR->EFTPOS)**

[AMOUNT-COMPLETION]: Request to start pre-approval registration (ECR->EFTPOS)

[AMOUNT- M AIL]: **MAIL ORDER transaction initiation request (ECR->EFTPOS)**

The following 6 message streams are allowed, which always run on the same connection (in the same session).

4.1. NORMAL MARKET FLOW (OR OTHER TRANSACTIONS)

	[t0] EFTPOS [AMOUNT] ECR **In addition to the purchase amount, ECR sends other information, such as receipt number, cash register, cashier code, etc**	

[t1]	**EFTPOS [CONFIRMED] ECR** **EFTPOS immediately confirms the download, and the ECR waits for a result.**	**t1-t0 < 2 sec**
	EFTPOS processes the request, requests card insertion, logs in for online approval, etc.	
[t2]	**EFTPOS [RESULT] ECR** **EFTPOS responds with the result, which can be rejection or approval. If it is an approval, it sends additional transaction details (e.g. approval code, transaction number, etc.)**	**Usually** **T2-T1 < 60 sec**
[t3]	**EFTPOS [ACK-RESULT] ECR** **The ECR confirms receipt of the final result and the EFTPOS registers (if it was an approval) that the transaction has been fully processed for the ECR.**	**T3-T2 < 2 sec**

The above four messages ([AMOUNT], [CONFIRMED], [RESULT], [ACK-RESULT]) carry a common 6-digit session number, different for each new transaction, which ECR generates and serves as a control of message relevance and avoidance of critical errors. A schematic illustration of the standard flow is shown in Figure 4.

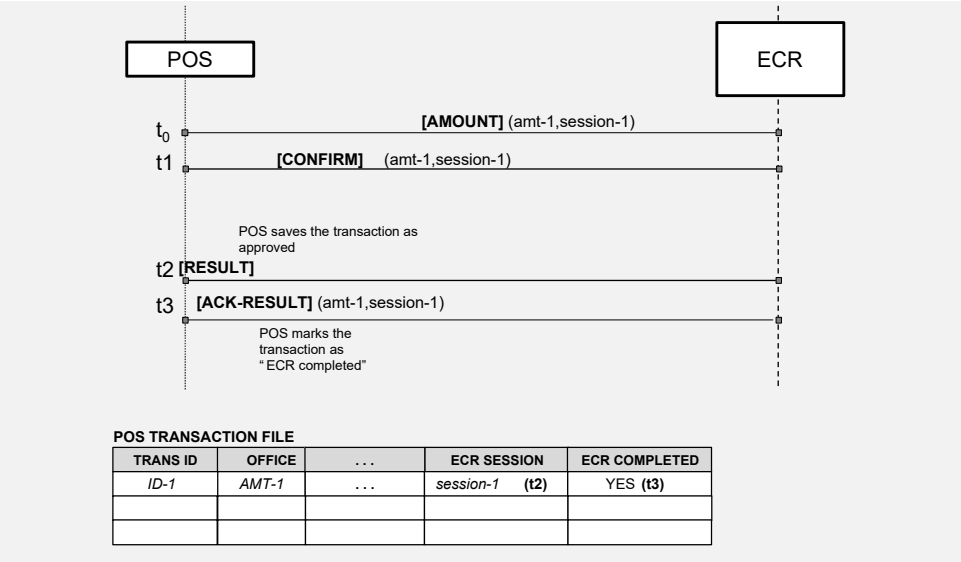


Figure 4

4.2. FLOW OF TEMPORARY ENTRY OF ISSUED RECEIPT OR INVOICE BY ECR IN EFTPOS

[t0]	**EFTPOS [REGRECEIPT] ECR** **The ECR provides information on an ALP or an invoice it has just issued so that the EFTPOS can use it in a deferred transaction (e.g. home delivery)**	
[t1]	**EFTPOS [SUCCESS] ECR** **The action is always expected to be successful** **(except in cases of technical problem)**	**t1-t0 < 2 sec**

4.3. FLOW IN CASE OF TRANSACTION FAILURE

[t0]	**EFTPOS [AMOUNT] ECR**	
[t1]	**EFTPOS [ERROR] ECR** **EFTPOS immediately confirms the download, but with an error code, telling the ECR that processing is not possible.**	**t1-t0 < 2 sec**

4.4. ELEMENTARY ECHO FLUX

[t0]	**EFTPOS [ECHO]** ECR	
[t1]	**EFTPOS [ECHO] ECR**	**t1-t0 < 2 sec**

4.5. SETTINGS COMMAND EXECUTION FLOW

[t0] EFTPOS [CONTROL] ECR **It is possible for the ECR to configure certain parameters of EFTPOS related to the interface with**		

	ECR.	
[t1]	**EFTPOS [SUCCESS or ERROR] ECR**	**t1-t0 < 2 sec**

4.6. LAST TRANSACTION RESULT FLOW

[t0]	**EFTPOS [RESEND- ONE] ECR** **If the transaction was approved in EFTPOS but due to a connection problem the ECR does not receive the answer [RESULT] or EFTPOS does not receive the answer [ACK-RESULT], the ECR operator can select this action to complete the normal flow.**	
[t1]	**EFTPOS [RESULT] ECR** **EFTPOS searches the transaction package for the last transaction and, if it matches the data of the request, sends its details immediately. Otherwise returns rejection.**	**t1-t0 < 5 sec**
[t2]	**EFTPOS [ACK-RESULT] ECR** **The ECR confirms receipt of the final result and the EFTPOS registers (if it was an approval) that the transaction has been fully processed for the ECR.**	**t2-t1 < 2 sec**

A schematic illustration of the repetition flow [RESULT] is shown in Figure 5.

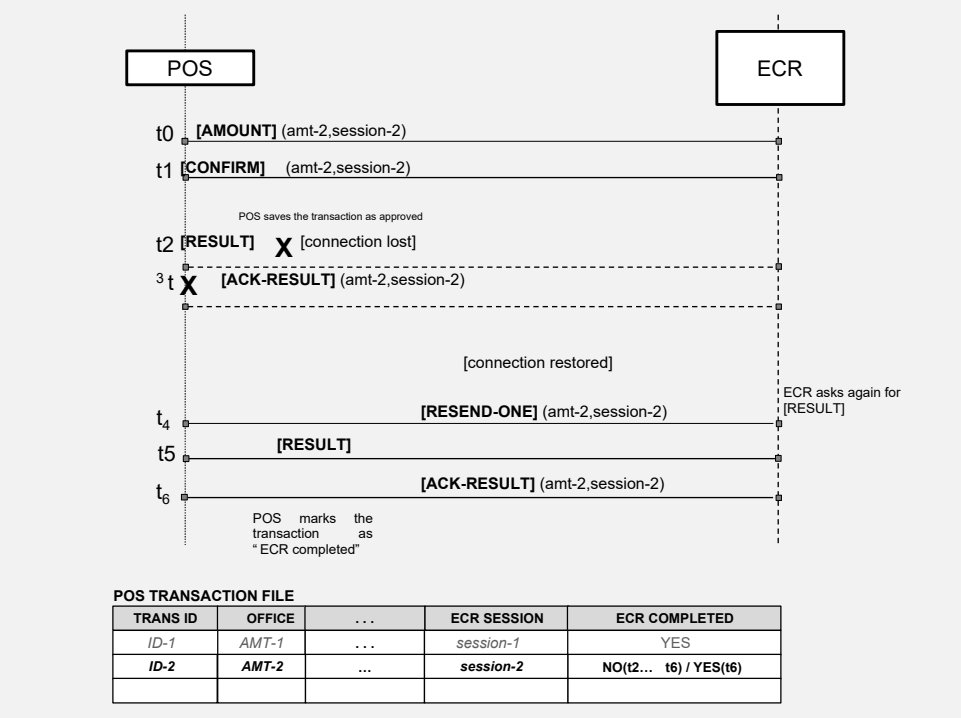


Figure 5

4.7. RETRY FLOW [RESULT] FOR ALL PENDING TRANSACTIONS

[t0]	**EFTPOS [RESEND-ALL] ECR** **If EFTPOS has stored credit transactions that were executed autonomously, or debit transactions initiated by EFTPOS as preloaded receipts (via REGRECEIPT flows) or preloaded ECR invoices, then EFTPOS does not allow the option** **"SEND PACKAGE", i.e. the clearing of transactions by the payment service provider and the credit of the merchant.** **In this case, the ECR operator should request EFTPOS through a specific command to receive these pending transactions.**	
[t1]	**EFTPOS starts and sends as many transactions as possible**	**t1-t0 < 5 sec**

	• were credited and executed autonomously In this case because they did not have an ECR *session-number,* it is sent as **POSTXN.** • were debited and executed on the basis of preloaded receipts or preloaded invoices. **EFTPOS [RESULT] ECR** **EFTPOS [ACK-RESULT] ECR** **EFTPOS [RESULT] ECR** **EFTPOS [ACK-RESULT] ECR** **EFTPOS [RESULT] ECR** **EFTPOS [ACK-RESULT] ECR** **[RESEND-ALL] does not send print data even if it is supported by ECR.** **The last [RESULT] has a zero amount, zero *session number* and is a rejection, signaling the end of the mission.**	. . . . .

An example of a repeat flow for pending transactions is illustrated in Figure 6. EFTPOS resends [RESULT] for only 2 transactions:

- **For *ID-3,* which concerns a credit transaction**
- **For *ID-4,* which was initiated by EFTPOS as it corresponded to a receipt already issued by the ECR and uploaded to EFTPOS for payment by card.**

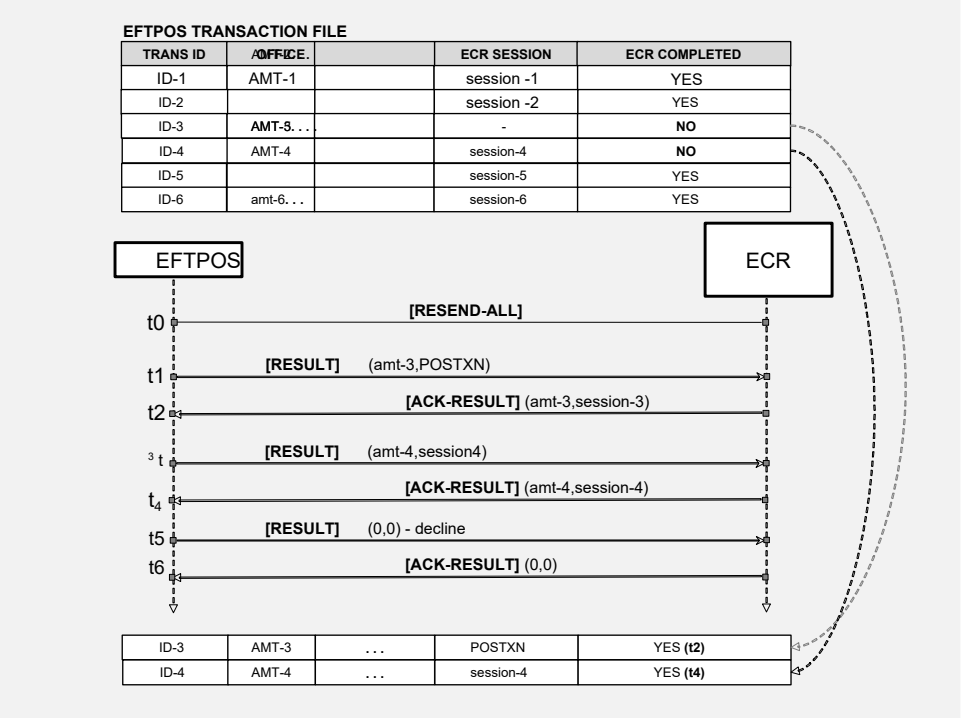

EFTPOS TRANSACTION FILE
TRANS ID
AMT-1
ECR SESSION
ECR COMPLETED
ID-1
session -1
YES
ID-2
session -2
YES
ID-3
AMT-5. . .
-
NO
ID-4
AMT-4
session-4
NO
ID-5
session-5
YES
ID-6
amt-6. . .
session-6
YES
EFTPOS
ECR
t0
[RESEND-ALL]
t1
[RESULT] (amt-3,POSTXN)
t2
[ACK-RESULT] (amt-3,session-3)
[RESULT] (amt-4,session4)
[ACK-RESULT] (amt-4,session-4)
t5
[RESULT] (0,0) - decline
t6
[ACK-RESULT] (0,0)
ID-3
AMT-3
. . .
POSTXN
YES (t2)
ID-4
AMT-4
. . .
session-4
YES (t4)

Figure 6

5. FLOW AND MESSAGES IN DETAIL

5.1. COMPILATION OF MESSAGES

Each message consists of a header and a main part as follows:

BYTES	DESCRIPTION	
0-1	MSG SIZE (2 bytes, binary)	The size of the message in bytes follows: MSG SIZE: b0*256 + b1
2-4	DIRECTION INDICATOR (3 bytes, ascii)	Characterizes the source of the message: ECR (ECR to EFTPOS) EFTPOS (from EFTPOS to ECR)
5-6	PROTOCOL VARIANT (2 bytes, ascii)	Determines the flow and function: 01: Default mode ("Variant 1") 02: ECR undertakes the printing of the EFTPOS receipt ("variant 2")
7-8	PROTOCOL VERSION (2 bytes, ascii)	Specifies the syntax in the body of the message. For the proposed protocol its value is 10.
9-…	Message body (MSG SIZE-7)	As specified below.

SPECIAL CASES

For RS232 connection, the string "ECR" or "POS" respectively will be used as a prefix of the entire message (i.e. before and before the length prefix) and an LRC digit (i.e. as the last byte of the body) for additional message integrity checking (see 5.14).

The middleware connection will be prefixed with the string "ACQ<3-digits-acqId>TID<8-digits-POS-tid>", where ACQ will be a specified three-digit clearing agent.

The main part of the message consists of a capital prefix of a Latin letter that characterizes its type, followed by fields that are usually prefixed

with a capital letter. Each field can be subdivided into subfields, whose importance is determined by their location alone.

The field separator is '/' and the subfield separator is ':'. Escape character is defined as '\', however in practice there is no need to use an escape character. Thus, the body of each message follows the following syntax:

MSG BODY* := *<msg type>/<field>{/<field>{/<field>}… }
msg type* := *<letter>
field* := *{<letter>}<subfield>{:<subfield>{:<subfield>}… }
***letter* := A | B | C | ... | Z**
***subfield* := as specified in each case**
(data type, byte count, meaning)

For their Definitions Types Data Following abbreviations n – numeric, right-align and fill with 0 Used The

AN – alphanumeric, no spaces or special characters allowed

ANP – alphanumeric, intervals allowed

ans – alphanumeric, spaces and special characters allowed

5.2. [ECHO] MESSAGE

It is sent by ECR at the operator's choice (usually during installation) to check the connection to the EFTPOS. Terminal ID and EFTPOS application version are added to the echo. Please note that this command is sent by ECR to EFTPOS without encryption.

<u>Syntax:</u>

ECR REQUEST:

X/<text>

EFTPOS RESPONSE:

X/<text>/T<tid>:<app-version>

Element	Press	Size	Description
text	ANP	1..200	Free text, which is expected the same in the reply
time	an	1..8	Terminal ID
App version	Years	1..10	EFTPOS application version

Example:

```
ECR->EFTPOS: BYTES 23
00 17 |..
45 43 52 30 32 31 30 58 2F 48 65 6C 6C 6F 20 66 |ECR0210X/Hello f
72 6F 6D 20 45 43 52 |rom ECR
EFTPOS->ECR: BYTES 42 00 2A 50 4F 53 30 32 31 30 58 2F 48 65 6C
6C 6F |. *POS0210X/Hello
20 66 72 6F 6D 20 45 43 52 2F 54 36 34 39 39 39 | from ECR/T64999
39 39 39 3A 31 2E 35 2E 32 33 2E 30 |999:8.5.23.0
```

In particular, the following format of the ECHO command may be used in order for the ECR to inform the EFTPOS of the ECR registration number in order to enable the EFTPOS to apply to the ESSEND for the Master Key as described in paragraph 9:

X/INIT:ECRNumber

5.3. MESSAGE [AMOUNT]

It is sent by ECR at the start of a new purchase.

Syntax:

ECR REQUEST:

A/S<session *number*>/F<amount>:<cur-code>:<cur-exp> /D<datetime>/R<ecr-id>/H<operator-number>/T<receipt *number*> /M<custom-data>{/Q<mac>}

Element	Press	Size	Description
session number	**an**	**6**	**Different for each new purchase 6-digit number. It can be sequential, pseudorandom or based on another convention.** **EFTPOS must check that each new request comes with a different session number than the previous one.**
amount	**A**	**1..12**	**The amount of the transaction**
Cur Code	**A**	**3**	**ISO 4217 currency code** **(978 for €)**
cur-exp	**A**	**1**	**The decimals of the currency** **(2 for €)**
datetime	**A**	**14**	**Current date and time in YYYYMMDDhhmmss format**
ecr-id	**an**	**11**	**ECR registration number**
operator-number	**an**	**1..8**	**Cashier's Code**
receipt-number	**an**	**1..8**	**ECR progressive receipt number**
custom-data	**Years**	**1..100**	**Data determined on a case-by-case basis and type of cash. If it is not used, it is enough to send a zero character ("M0").** **In bill payment transactions, custom-data includes a special 12-digit payment code.**
mac	**an**	**8**	**T-DES mac mechanism for authenticating ECR requests. MAC is calculated on the message total from the prefix letter to '/Q' (without it).** **By convention, the first 4 bytes of MAC (expressed in ASCII) are used.** **MAC is mandatory. It is optional only in software maintenance and troubleshooting status.**

Example:

```
ECR->EFTPOS: BYTES 81
00 51                          |. Q
45 43 52 30 32 31 30 41 2F 53 30 30 31 30 30 38 |ECR0210A/S001008
2F 46 32 35 30 30 3A 39 37 38 3A 32 2F 44 32 30 |/F2500:978:2/D20 32
32 30 35 32 34 31 30 32 35 31 37 2F 52 41 42 |220524102517/RAB 43 30
30 31 31 31 32 32 32 2F 48 31 32 31 2F 54 |C00111222/H121/T 31 30 32
30 2F 4D 30 2F 51 35 39 44 31 39 45 37 |1020/M0/Q59D19E7
44                             |D
```

5.4. M΄HNYMA [CONFIRMED]

It is sent directly by EFTPOS in response to ECR's initial purchase request, confirming that processing is ongoing.

Syntax:

EFTPOS RESPONSE:

A/S<session *number*>/F<*amount*>/R<*ecr-id*>/T<*receipt-number*>

Element	Press	Size	Description
session number	an	6	They must be the same as for [AMOUNT] and this must be checked by the ECR.
amount	A	1..12	
ecr-id	an	11	
receipt-number	an	1..8	

Example:

```
EFTPOS->ECR: BYTES 41 00 29 50 4F 53 30 32 31 30 41 2F 53 30 30
31 30 |.) POS0210A/S0010 30 38 2F 46 32 35 30 30 2F 52 41 42 43 30
30 31 |08/F2500/RABC001 31 31 32 32 32 2F 54 31 30 32 30
|11222/T1020
```

5.5. [RESULT] MESSAGE

It is sent by EFTPOS as a final response to ECR's initial purchase (or other transaction) request regarding the outcome of the transaction.

The answer can come immediately (if it concerns offline rejection or approval), in a few seconds (typical case of online approval) or even more than a minute if online communication or PIN entry is delayed. A timeout setting of >150 sec in ECR is recommended.

Syntax:

R/S<session *number*>/R<*ecr-id*>/T<*receipt-number*>{:<*receipt-number*>}

/ M <*custom-data*>/C<*rsp-code*>{/D<*trans-data*>{/P<*prn-data*>}}

- **The <trans-data> field is returned only if the transaction was approved, i.e*. the* <*rsp-code*> is 00.**

Το πεδίο <trans-data> συντίθεται από τα ακόλουθα στοιχεία

***:<trans-data*> = <*card-type*>:<*txn-type*>:<*cardpan-masked* >:**

<amount>:<amount-final>:<amount-tip>:

<amount-loy>:<amount-cb>:<bankId (acqid) >:<terminalId>: < *batch-num*

>:<rrn>:<stan>:<authcode>: <trans-datetime>:<txn-ecr-status>

- **The *field* <*prn-data*> is returned if a) the transaction was approved b) the protocol variant in the message header [AMOUNT] was 02 c) *the protocol variant in the header of the* message [RESULT] is also 021. It is usually 1-4 Kb in size and consists of the rows to be printed together with defined formatting characters, as specified below.**

Element	Press	Size	Description
session number	**an**	**6**	**They must be the same as those of [CONFIRMED] and this must be checked by the ECR unless it is the following exception where such testing cannot be done or is not certain to succeed.** **exception: if the [result] message comes in response to a message [RESEND-ALL], the *session number* may have the special value "POSTXN", which means that the transaction was initiated by EFTPOS. In this case the data:** • ***ecr-id* and *receipt-number* will have zero value if the transaction was made only in EFTPOS.** • ***ECR-ID* and *receipt-number* will have non-**
ecr-id	**an**	**11**	
receipt-number ***(progressive signage number in FTM, ADIME, EA FDSS/FAMAS)***	**an**	**1..8**	

[1] **The POS may have to print the card payment receipt, despite ECR's ability to print it. This may be the case where the CVM of the card requires the signature of its holder. Especially in implementations where ECR prints only the copy of the customer's card payment receipt, it is necessary to print the copy for the merchant of the card payment receipt, from EFTPOS.**

			zero value if the transaction matches a preloaded receipt or invoice issued by the FIM.
rsp-code	**A**	**2**	**EFTPOS transaction outcome code:** **00: Success, transaction approved** **33: generic rejection code** **In some implementations the outcome code better identifies the reason for rejection as follows:** **03: user cancellation or timeout** **04: declined by the terminal** **05: declined by the host** **06: communication problem** **09: bank's host unreachable** **66: system error in EFTPOS**
card-type	**an**	**1..20**	**The type of card (Visa, Mastercard, etc.)**
txn-type	**A**	**2**	**Transaction type:** **00: Market** **01: Cancellation** **02: Back** **03: Registration of pre-approval** **04: mail order** **05: purchase by installments**
card-pan-masked	**Years**	**14..19**	**The card number with the intermediate digits covered.**
amount	**A**	**1..12**	**The amount of the transaction. It must be the same as [CONFIRMED] and this must be checked by the ECR. The field is positive if it is a card payment, while it is negative (has the minus sign) if it is a return to a card.**
amount-final	**A**	**1..12**	**It may differ from the *amount* in case of loyalty by redeeming or adding a tip. The field is**

			Positive if it is a card payment, while it is negative (has the minus sign) if it is a return to a card.
amount-tip	**A**	**1..12**	**Gratuity amount**
amount-loy	**A**	**1..12**	**Loyalty redemption amount**
amount-cb	**A**	**1..12**	**Cashback amount**
bankId **(Acqid)**	**A**	**1..3**	**Code of the payment service provider or final clearing bank.** **Useful in configurations with more approval banks (multiacquiring)**
Terminals	**an**	**1..8**	**The terminal Id.**
batch-num	**A**	**1..6**	**The package number in EFTPOS**
RRN	**A**	**0..12**	**The rrn of the transaction** **In some implementations it may be blank in the case of offline projects.**
stan	**A**	**1..6**	**The transaction number in EFTPOS**
authcode	**an**	**6..8**	**The approval code**
trans-datetime	**A**		**Date and time of approval in YYYYMMDDhhmmss format**
txn-ecr status	**A**	**1**	**Characterizes the transaction in terms of communication with ECR** • **0 – start from ECR – success** • **1 - start from ECR – failure to complete (initial RESULT)** • **2 – start in EFTPOS using preloaded ALP/HRA/invoice data** • **3 – start in EFTPOS with ALP/HRH/invoice data identified in a previous EFTPOS record.** • **4 – start from EFTPOS without entering ALP/HRA/invoice data (corresponds to ECR failure).** • **5 – Failure to communicate ECR-EFTPOS due to failure of individual interconnection systems (infrastructure failure).**
prn-data	**Years**	**0..4 K b**	**It is composed of series to be printed and**

			Control characters for special formatting as follows: • **0x0A - line break** • **0x1B 0x01 - print basic logo** • **0x1B 0x02 - printing of 2nd logo (e.g. loyalty)** • **0x1B 0x03 - c- less icon printing** • **0x1B 0x04 to 0x1B 0x06 reserved for icon use** • **0x1B 0x07 to 0x1B 0x09 reserved for BAR/QR codes** • **0x1B 0x0C - pause to print client copy** • **0x1B 0x43 - center alignment** • **0x1B 0x52 - right aligned** • **0x1B 0x4C ('L') - align left (default after new line)** • **0x1B 0x4E ('N') - use normal size characters (default)** • **0x1B 0x42 ('B')- use bold characters** • **0x1B 0x53 ('S') - use of small characters.** **Greek characters are sent in ISO-8859-7. Cyrillic to ISO-8859-5.**

Examples:

1. Example of rejection

[220524 184605] ECR connection from [10.1.101.129] **ECR->EFTPOS: BYTES 81** **00 51 |. Q** **45 43 52 30 31 31 30 41 2F 53 30 30 31 30 34 39 |ECR0110A/S001049** **2F 46 32 35 30 30 3A 39 37 38 3A 32 2F 44 32 30 |/F2500:978:2/D20 32** **32 30 35 32 34 31 37 34 32 33 31 2F 52 41 42 |220524174231/RAB 43 30** **30 31 31 31 32 32 32 2F 48 31 32 31 2F 54 |C00111222/H121/T 31 30 34** **34 2F 4D 30 2F 51 36 42 32 38 37 45 39 |1044/M0/Q6B287E9** **|5 35** **EFTPOS->ECR: BYTES 41 00 29 50 4F 53 30 31 31 30 41 2F 53 30 30** **31 30 |.) POS0110A/S0010 34 39 2F 46 32 35 30 30 2F 52 41 42 43 30** **30 31 |49/F2500/RABC001 31 31 32 32 32 2F 54 31 30 34 34** **|11222/T1044** **[220524 184606] ECR request [220524 184610] TXN-C** **[1][552053xxxxxx9096][000000002500] [220524 184616]** **Connecting (0) to [.....]** **[220524 184618] T [280]===> .** **[220524 184619] <===H [128]**	**[AMOUNT]** **[CONFIRMED]** **online authorization . . . .**

..... [220524 184622] TXN-C declined (75) rrn=214430253013 EFTPOS->ECR: BYTES 42 00 2A 50 4F 53 30 31 31 30 52 2F 53 30 30 31 30 |. *POS0110R/S0010 34 39 2F 52 41 42 43 30 30 31 31 31 32 32 32 2F |49/RABC00111222/ 54 31 30 34 34 2F 4D 30 2F 43 33 33 |T1044/M0/C33 [220524 184626] ECR connection closed	[RESULT]

2. Example of approval (without sending print data – "variant-1"):

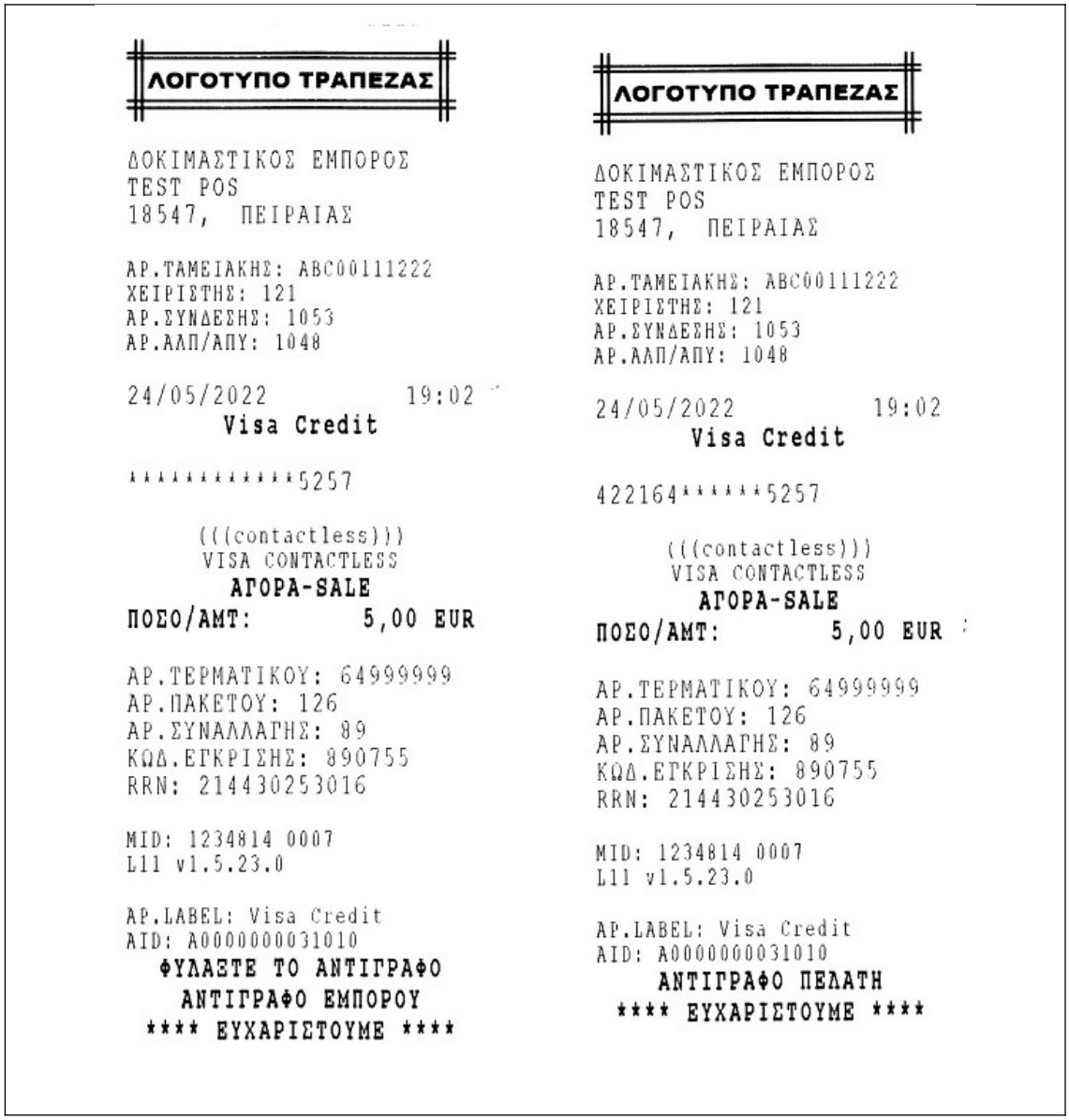
[220524 185118] ECR connection from [10.1.101.129] ECR->EFTPOS: BYTES 81 00 51 |. Q 45 43 52 30 31 31 30 41 2F 53 30 30 31 30 35 30 |ECR0110A/S001050 [AMOUNT] 2F 46 32 30 30 30 3A 39 37 38 3A 32 2F 44 32 30 |/F2000:978:2/D20 32 32 30 35 32 34 31 37 34 34 34 2F 52 41 42 |220524174744/RAB 20,00€ 43 30 31 31 31 32 32 32 2F 48 31 32 31 2F 54 |C00111222/H121/T 31 30 34 35 2F 4D 30 2F 51 31 45 44 45 43 43 44 |1045/M0/Q1EDECCD 39 |9 EFTPOS->ECR: BYTES 41 00 29 50 4F 53 30 31 31 30 41 2F 53 30 30 31 30 |.) POS0110A/S0010 [CONFIRMED] 35 30 2F 46 32 30 30 30 2F 52 41 42 43 30 30 31 |50/F2000/RABC001 31 31 32 32 32 2F 54 31 30 34 35 |11222/T1045 [220524 185118] ECR request . . . . . . [220524 185124] TXN-L [1][422164xxxxxx5257][2000] [220524 185129] Connecting (0) to [.....] [220524 185131] T [117]===> online . . . . . authorization . . . . . . [220524 185135] TXN-L authorized (890753) rrn=214430253014 EFTPOS->ECR: BYTES 147 00 93 50 4F 53 30 31 31 30 52 2F 53 30 30 31 30 |.. POS0110R/S0010 35 30 2F 52 41 42 43 30 30 31 31 31 32 32 32 2F |50/RABC00111222/ 54 31 30 34 35 2F 4D 30 2F 43 30 30 2F 44 56 69 |T1045/M0/C00/DVi 73 61 20 43 72 65 64 69 74 3A 30 30 3A 34 32 32 |sa Credit:00:422 31 36 34 2A 2A 2A 2A 2A 2A 2A 35 32 35 37 3A 32 30 |164******5257:20 [RESULT] 30 30 3A 32 30 30 30 3A 30 3A 30 3A 30 3A 31 31 |00:2000:0:0:11 3A 36 34 39 39 39 39 39 39 3A 31 32 36 3A 32 31 |:64999999:126:21 34 34 33 30 32 35 33 30 31 34 3A 38 36 3A 38 39 |4430253014:86:89 30 37 35 33 3A 32 30 32 32 30 35 32 34 31 38 35 |0753:20220524185 31 33 35 3A 30 |135:0 ECR->EFTPOS: BYTES 41 00 29 |.) 45 43 52 30 31 31 30 52 2F 53 30 30 31 30 35 30 |ECR0110R/S001050 [ACQ-RESULT] 2F 52 41 42 43 30 30 31 31 31 32 32 32 2F 46 32 |/RABC00111222/F2 30 30 30 2F 54 31 30 34 35 |000/T1045 [220524 185136] ECR connection closed

3. Approval example (by sending print data – "variant-2"):

[220524 190150] ECR connection from [10.1.101.129] ECR->EFTPOS: BYTES 80 00 50 |. P 45 43 52 30 32 31 30 41 2F 53 30 30 31 30 35 33 |ECR0210A/S001053 2F 46 35 30 30 3A 39 37 38 3A 32 2F 44 32 30 32 |/F500:978:2/D202 32 30 35 32 34 31 37 35 38 31 35 2F 52 41 42 43 |20524175815/RABC 30 30 31 31 31 32 32 32 2F 48 31 32 31 2F 54 31 |00111222/H121/T1 30 34 38 2F 4D 30 2F 51 36 43 30 42 38 38 35 42 |048/ M0/Q6C0B885B	[AMOUNT]

EFTPOS->ECR: BYTES 40 00 28 50 4F 53 30 32 31 30 41 2F 53 30 30 31 30 |. (POS0210A/S0010 35 33 2F 46 35 30 30 2F 52 41 42 43 30 30 31 31 |53/F500/RABC0011 31 32 32 32 2F 54 31 30 34 38 |1222/T1048 [220524 190150] ECR request [220524 190154] TXN-L [1][422164xxxxxx5257][500] [220524 190209] Connecting (0) to [........] [220524 190213] T [276]===>	**[CONFIRMED]**
[220524 190214] <===H [152]	**online authorization**
[220524 190214] TXN-L authorized (890755) rrn=214430253016 EFTPOS->ECR: BYTES 1235 04 D3 50 4F 53 30 32 31 30 52 2F 53 30 30 31 30 |.. POS0210R/S0010 35 33 2F 52 41 42 43 30 30 31 31 31 32 32 32 2F |53/RABC00111222/ 54 31 30 34 38 2F 4D 30 2F 43 30 30 2F 44 56 69 |T1048/M0/C00/DVi 73 61 20 43 72 65 64 69 74 3A 30 30 3A 34 32 32 |sa Credit:00:422 31 36 34 2A 2A 2A 2A 2A 2A 2A 35 32 35 37 3A 35 30 |164****5257:50 30 3A 35 30 30 3A 30 3A 30 3A 30 3A 31 3A 36 |0:500:0:0:0:11:6 34 39 39 39 39 39 3A 31 32 36 3A 32 31 34 34 |4999999:126:2144 33 30 32 35 33 30 31 36 3A 38 39 3A 38 39 39 30 37 |30253016:89:8907 35 35 3A 32 30 32 32 30 35 32 34 31 39 30 32 31 |55:2022052419021 33 3A 30 2F 50 1B 01 0A 1B 4E C4 4F 4B 49 4D 41 |3:0/P.... N.OKIMA D3 54 49 4B 4F D3 20 45 4D D0 4F 50 4F D3 0A 1B |. TIKO. IN. OPOPS... 4E 54 45 53 54 20 50 4F 53 0A 1B 4E 31 38 35 34 |NTEST POS.. N1854 37 2C 20 20 D0 45 49 50 41 49 41 D3 0A 0A 1B 53 |7, . EIPAIA.... S C1 D1 2E D4 C1 CC C5 C9 C1 CA C7 D3 3A 20 41 42 |...............: AB 43 30 30 31 31 31 32 32 32 0A 1B 53 D7 C5 C9 D1 |C00111222.. S.... C9 D3 D4 C7 D3 3A 20 31 32 31 0A 1B 53 C1 D1 2E |.....: 121..S... D3 D5 CD C4 C5 D3 C7 D3 3A 20 31 30 35 33 0A 1B |........: 1053.. 53 C1 D1 2E C1 CB D0 2F C1 D0 D5 3A 20 31 30 34 |S....../...: 104 38 0A 0A 1B 4E 32 34 2F 30 35 2F 32 30 32 32 1B |8...N24/05/2022. 52 1B 4E 31 39 3A 30 32 0A 1B 43 1B 42 56 69 73 |R.N19:02..C.BVis 61 20 43 72 65 64 69 74 0A 0A 1B 4E 2A 2A 2A 2A |a Credit... N**** 2A 2A 2A 2A 2A 2A 2A 2A 35 32 35 37 0A 0A 1B 43 |********5257...C 1B 53 28 28 28 63 6F 6E 74 61 63 74 6C 65 73 73 |. S(((contactless 29 29 29 0A 1B 43 1B 53 56 49 53 41 20 43 4F 4E |))).. C.SVISA CON 54 41 43 54 4C 45 53 53 0A 1B 43 1B 42 C1 C3 CF |TACTLESS.. C.B... D1 C1 2D 53 41 4C 45 0A 1B 42 D0 CF D3 CF 2F C1 |.. -SALE.. B..../. CC D4 3A 1B 52 1B 42 35 2C 30 30 20 45 55 52 0A |..:. R.B5,00 EUR. 0A 1B 4E C1 D1 2E D4 C5 D1 CC C1 D4 C9 CA CF D5 |.. N............. 3A 20 36 34 39 39 39 39 39 39 0A 1B 4E C1 D1 2E |: 64999999..N... D0 C1 CA C5 D4 CF D5 3A 20 31 32 36 0A 1B 4E C1 |.......: 126..N. D1 2E D3 D5 CD C1 CB CB C1 C3 C7 D3 3A 20 38 39 |...............: 89 0A 1B 4E CA D9 C4 2E C5 C3 CA D1 C9 D3 C7 D3 3A |.. N............: 20 38 39 30 37 35 35 0A 1B 4E 52 52 4E 3A 20 32 | 890755..NRRN: 2 31 34 34 33 30 32 35 33 30 31 36 0A 0A 1B 53 4D |14430253016...SM 49 44 3A 20 31 32 33 34 38 31 34 20 30 30 30 37 |ID: 1234814 0007 0A 1B 53 4C 31 31 20 76 31 2E 35 2E 32 33 2E 30 |.. SL11 v1.5.23.0 0A 0A 1B 53 41 50 2E 4C 41 42 45 4C 3A 20 56 69 |... SAP. LABEL: Vi 73 61 20 43 72 65 64 69 74 0A 1B 53 41 49 44 3A |sa Credit.. SAID: 20 41 30 30 30 30 30 30 30 30 30 33 31 30 31 30 0A | A0000000031010. 1B 43 1B 42 D6 D5 CB C1 CE D4 C5 20 D4 CF 20 C1 |. C.B....... .. . CD D4 C9 C3 D1 C1 D6 CF 0A 1B 43 1B 42 C1 CD D4 |.......... C.B... C9 C3 D1 C1 D6 CF 20 C5 CC D0 CF D1 CF D5 0A 1B |............... 43 1B 42 2A 2A 2A 2A 20 C5 D5 D7 C1 D1 C9 D3 D4 |C.B**** .... CF D5 CC C5 20 2A 2A 2A 2A 0A 1B 4E 0A 0A 0A 0A |.... ****.. N.... 0A 1B 0C 1B 01 0A 1B 4E C4 4F 4B 49 4D 41 D3 54 |....... N.OKIMA. T 49 4B 4F D3 20 45 4D D0 4F 50 4F D3 0A 1B 4E 54 |IKO. IN. OPOPS... NT 45 53 54 20 50 4F 53 0A 1B 4E 31 38 35 34 37 2C |EST POS.. N18547, 20 20 D0 45 49 50 41 49 41 D3 0A 0A 1B 53 C1 D1 | . EIPAIA.... S..**	**[RESULT] With print data.** **The result of the printing is shown in Figure 7**

2E D4 C1 CC C5 C9 C1 CA C7 D3 3A 20 41 42 43 30 |.....: ABC0 30 **31 31 31 32 32 32 0A 1B 53 D7 C5 C9 D1 C9 D3 |0111222..S.....** **D4 C7 D3 3A 20 31 32 31 0A 1B 53 C1 D1 2E D3 D5 |...: 121..S.....** **CD C4 C5 D3 C7 D3 3A 20 31 30 35 33 0A 1B 53 C1 |.....: 1053..S.** **D1 2E C1 CB D0 2F C1 D0 D5 3A 20 31 30 34 38 0A |...../...: 1048.** **0A 1B 4E 32 34 2F 30 35 2F 32 30 32 32 1B 52 1B |.. N24/05/2022.R.** **4E 31 39 3A 30 32 0A 1B 43 1B 42 56 69 73 61 20 |N19:02..C.BVisa 43** **72 65 64 69 74 0A 0A 1B 4E 34 32 32 31 36 34 |Credit... N422164** **2A 2A 2A 2A 2A 2A 35 32 35 37 0A 0A 1B 43 1B 53 |******5257...C.S** **28 28 28 63 6F 6E 74 61 63 74 6C 65 73 73 29 29 |(((contactless)) 29** **0A 1B 43 1B 53 56 49 53 41 20 43 4F 4E 54 41 |).. C.SVISA ACCOUNT** **43 54 4C 45 53 53 0A 1B 43 1B 42 C1 C3 CF D1 C1 |CTLESS.. C.B.....** **2D 53 41 4C 45 0A 1B 42 D0 CF D3 CF 2F C1 CC D4 |-SALE.. B..../...** **3A 1B 52 1B 42 35 2C 30 30 20 45 55 52 0A 0A 1B |:. R.B5,00 EUR...** **4E C1 D1 2E D4 C5 D1 CC C1 D4 C9 CA CF D5 3A 20 |N.....: 36** **34 39 39 39 39 39 39 0A 1B 4E C1 D1 2E D0 C1 |64999999..N.....** **CA C5 D4 CF D5 3A 20 31 32 36 0A 1B 4E C1 D1 2E |.....: 126..N...** **D3 D5 CD C1 CB CB C1 C3 C7 D3 3A 20 38 39 0A 1B |.....: 89..** **4E CA D9 C4 2E C5 C3 CA D1 C9 D3 C7 D3 3A 20 38 |N.....: 8 39** **30 37 35 35 0A 1B 4E 52 52 4E 3A 20 32 31 34 |90755..NRRN: 214 34** **33 30 32 35 33 30 31 36 0A 0A 1B 53 4D 49 44 |430253016...SMID 3A** **20 31 32 33 34 38 31 34 20 30 30 30 37 0A 1B |: 1234814 0007..** **53 4C 31 31 20 76 31 2E 35 2E 32 33 2E 30 0A 0A |SL11 v1.5.23.0..** **1B 53 41 50 2E 4C 41 42 45 4C 3A 20 56 69 73 61 |. SAP. LABEL: Visa** **20 43 72 65 64 69 74 0A 1B 53 41 49 44 3A 20 41 | Credit.. SAID: A 30** **30 30 30 30 30 30 30 33 31 30 31 30 0A 1B 43 |0000000031010..C 1B** **42 C1 CD D4 C9 C3 D1 C1 D6 CF 20 D0 C5 CB C1 |. B..... ....** **D4 C7 0A 1B 43 1B 42 2A 2A 2A 2A 20 C5 D5 D7 C1 |.... C.B**** ....** **D1 C9 D3 D4 CF D5 CC C5 20 2A 2A 2A 2A 0A 1B 4E |..... ****.. N** **0A 0A 0A 0A 0A |.....** **ECR->EFTPOS: BYTES 40** **00 28 |. (45 43 52 30 32 31 30 52 2F 53 30 30 31 30 35 33 |ECR0210R/S001053 2F 52 41 42 43** **30 30 31 31 31 32 32 32 2F 46 35 |/RABC00111222/F5 30 30 2F 54 31 30 34 38 |00/T1048** **[ACQ-RESULT]** **[220524 190216] ECR connection closed**	



ΛΟΓΟΤΥΠΟ ΤΡΑΠΕΖΑΣ

ΔΟΚΙΜΑΣΤΙΚΟΣ ΕΜΠΟΡΟΣ
TEST POS
18547, ΠΕΙΡΑΙΑΣ

ΑΡ.ΤΑΜΕΙΑΚΗΣ: ABC00111222
ΧΕΙΡΙΣΤΗΣ: 121
ΑΡ.ΣΥΝΔΕΣΗΣ: 1053
ΑΡ.ΑΑΠ/ΑΠΥ: 1048

24/05/2022 19:02
Visa Credit

**********5257

(((contactless)))
VISA CONTACTLESS
ΑΓΟΡΑ-SALE
ΠΟΣΟ/AMT: 5,00 EUR

ΑΡ.ΤΕΡΜΑΤΙΚΟΥ: 64999999
ΑΡ.ΠΑΚΕΤΟΥ: 126
ΑΡ.ΣΥΝΑΛΛΑΓΗΣ: 89
ΚΩΔ.ΕΓΚΡΙΣΗΣ: 890755
RRN: 214430253016

MID: 1234814 0007
L11 v1.5.23.0

AP.LABEL: Visa Credit
AID: A0000000031010
ΦΥΛΑΞΤΕ ΤΟ ΑΝΤΙΓΡΑΦΟ
ΑΝΤΙΓΡΑΦΟ ΕΜΠΟΡΟΥ
****** ΕΥΧΑΡΙΣΤΟΥΜΕ ******

ΛΟΓΟΤΥΠΟ ΤΡΑΠΕΖΑΣ

ΔΟΚΙΜΑΣΤΙΚΟΣ ΕΜΠΟΡΟΣ
TEST POS
18547, ΠΕΙΡΑΙΑΣ

ΑΡ.ΤΑΜΕΙΑΚΗΣ: ABC00111222
ΧΕΙΡΙΣΤΗΣ: 121
ΑΡ.ΣΥΝΔΕΣΗΣ: 1053
ΑΡ.ΑΑΠ/ΑΠΥ: 1048

24/05/2022 19:02
Visa Credit

422164******5257

(((contactless)))
VISA CONTACTLESS
ΑΓΟΡΑ-SALE
ΠΟΣΟ/AMT: 5,00 EUR

ΑΡ.ΤΕΡΜΑΤΙΚΟΥ: 64999999
ΑΡ.ΠΑΚΕΤΟΥ: 126
ΑΡ.ΣΥΝΑΛΛΑΓΗΣ: 89
ΚΩΔ.ΕΓΚΡΙΣΗΣ: 890755
RRN: 214430253016

MID: 1234814 0007
L11 v1.5.23.0

AP.LABEL: Visa Credit
AID: A0000000031010
ΑΝΤΙΓΡΑΦΟ ΠΕΛΑΤΗ
****** ΕΥΧΑΡΙΣΤΟΥΜΕ ******

Figure 7

5.6. [ACK-RESULT] MESSAGE

It is sent by ECR as confirmation of receipt of [RESULT]. Syntax:

ECR RESPONSE:

R/S<session *number*>/R<*ecr-id*>/F<*amount*> ***/T<receipt-number>{:<receipt-number>}***

Element	Press	Size	Description

session number	**an**	**6**	**They must be the same as those of [RESULT] and this must be checked by the EFTPOS.** **Exception: (see [RESULT] message)**
ecr-id	**an**	**11**	
amount	**A**	**1..12**	
receipt-number	**an**	**1..8**	

Example: Section 5.5 for cases 2 and 3.

5.7. [REGRECEIPT] MESSAGE

It is sent by ECR with APL data issued for deferred payment (e.g. for home delivery). This is the process of uploading receipts or invoices already issued by the FIM into EFTPOS, which must be paid by card later.

EFTPOS registers the receipt details (amount, session number, receipt number) and has them available for use for 24 hours.

It is the same as the [AMOUNT] message except for the original symbol which is W.

The *custom-data* field may have a brief note, as free text, related to the payment.

Syntax:

ECR REQUEST:

W/S<session *number*>/F<*amount*>:<*cur-code*>:<*cur-exp*>

/D<datetime>/R<ecr-id>/H<operator-number>/T<receipt *number*>

/M<custom-data>{/Q<mac>}

Example:

```
[220711 115333] ECR connection from [10.1.101.217]
ECR->EFTPOS: BYTES 81
00 51                                  |. Q
45 43 52 30 31 31 30 57 2F 53 30 30 31 35 37 33 |ECR0110W/S001573
2F 46 35 30 30 30 3A 39 37 38 3A 32 2F 44 32 30 |/F5000:978:2/D20 32
32 30 37 31 31 31 30 35 30 30 39 2F 52 41 42 |220711105009/RAB 43 30
30 31 31 31 32 32 32 2F 48 31 32 31 2F 54 |C00111222/H121/T 31 32 32
38 2F 4D 30 2F 51 33 30 41 44 44 38 41 |1228/M0/Q30ADD8A
33                                     |3
EFTPOS->ECR: BYTES 12
00 0C 50 4F 53 30 31 31 30 45 2F 30 30 30 |.. POS0110E/000
```

5.8. Μ΄ΗΝΥΜΑ [RESEND-ONE]

It is sent by the ECR at the choice of the operator, in case the EFTPOS approved the transaction but failed to send [RESULT]. Syntax:

ECR REQUEST:

O /S<session *number*>/F<*amount*>:<*cur-code*>:<*cur-exp*>

/R<ecr-id>/T<receipt-number>{/Q<mac>}

Element	Press	Size	Description
session number	an	6	They must match those of the transaction approved in EFTPOS.
amount	A	1..12	
Cur Code	A	3	
cur-expo	A	1	
ecr-id	an	11	
receipt-number	an	1..8	
mac	an	8	(Βλ . [AMOUNT])

Example:

```
[220524 193308] ECR connection from [10.1.101.135]
ECR->EFTPOS: BYTES 56
00 38 |. 8
45 43 52 30 31 31 30 4F 2F 53 30 30 31 30 35 38 |ECR0110O/S001058
2F 46 31 35 30 3A 39 37 38 3A 32 2F 52 41 42 43 |/F150:978:2/RABC 30
30 31 31 31 32 32 32 2F 54 31 30 35 31 2F 51 |00111222/T1051/Q 46 37
31 36 37 41 39 46 |F7167A9F [220524 193309] ECR request
EFTPOS->ECR: BYTES 145 00 91 50 4F 53 30 31 31 30 52 2F 53 30 30
31 30 |.. POS0110R/S0010 35 38 2F 52 41 42 43 30 30 31 31 31 32 32 32
2F |58/RABC00111222/ 54 31 30 35 31 2F 4D 30 2F 43 30 30 2F 44 56
69 |T1051/M0/C00/DVi 73 61 20 43 72 65 64 69 74 3A 30 30 3A 34 32 32
|sa Credit:00:422 31 36 34 2A 2A 2A 2A 2A 2A 35 32 35 37 3A 31 35
|164******5257:15 30 3A 31 35 30 3A 30 3A 30 3A 3A 30 3A 3A 31 31 3A
36 |0:150:0:0:0:11:6 34 39 39 39 39 39 3A 31 32 36 3A 32 31 34 34
|4999999:126:2144 33 30 32 35 33 30 31 39 3A 39 32 3A 38 39 30 37
|30253019:92:8907 35 38 3A 32 30 32 32 30 35 32 34 31 39 33 32 30
|58:2022052419320 31 3A 31 |1:1 ECR->EFTPOS: BYTES 40 00 28 |. (
```

```
45 43 52 30 31 31 30 52 2F 53 30 30 31 30 35 38 |ECR0110R/S001058
2F 52 41 42 43 30 30 31 31 31 32 32 32 2F 46 31 |/RABC00111222/F1 35
30 2F 54 31 30 35 31 |50/T1051 [220524 193310] ECR connection
closed
```

5.9. [RESEND-ALL] MESSAGE

It is sent by the ECR at the choice of the operator, in case the EFTPOS cannot close a packet due to pending ECR transactions.

Syntax:

ECR REQUEST:

```
L/R<ecr-id>/D<datetime>{/Q<mac>}
```

Element name	Type	Size	Description
ecr-id	an	11	EFTPOS must override transactions received from a different ECR.
datetime	A	14	(Bλ . [AMOUNT])
mac	an	8	(Bλ . [AMOUNT])

Example:

```
[220711 121010] ECR connection from [10.1.101.217]
ECR->EFTPOS: BYTES 47 00 2F |. / 45 43 52 30 31 31 30 4C 2F 52 41 42 43 30 30 31
|ECR0110L/RABC001 31 31 32 32 32 2F 44 32 30 32 32 30 37 31 31 31 |11222/D202207111 31 30
36 34 35 2F 51 36 43 34 38 33 46 43 45 |10645/Q6C483FCE EFTPOS->ECR: BYTES 132 00 84 50
4F 53 30 31 31 30 52 2F 53 50 4F 53 54 |.. POS0110R/SPOST 58 4E 2F 52 2F 54 2F 4D 30 2F 43 30
30 2F 44 56 |XN/R/T/M0/C00/DV Buy 25€   with invoice



69 73 61 20 43 72 65 64 69 74 3A 30 30 3A 34 33 |isa Credit:00:43
32 34 38 33 2A 2A 2A 2A 2A 2A 34 31 38 35 3A 32 |2483******4185:2 35
30 30 3A 32 35 30 30 3A 30 3A 30 3A 31 |500:2500:0:0:0:1 31 3A 36 34
39 39 39 39 39 39 33 3A 32 33 3A 32 32 32 32 |1:64999993:23:22 32 32
32 32 31 30 30 30 30 31 3A 31 35 33 3A 31 |2222100001:153:1 32 33 34
35 37 3A 32 30 32 32 30 37 31 31 31 32 |23457:2022071112 30 30 35 37
3A 35 |0057:5
ECR->EFTPOS: BYTES 41
```

00 29 |.) **45 43 52 30 31 31 30 52 2F 53 30 30 31 35 37 34 |ECR0110R/S001574** **2F 52 41 42 43 30 30 31 31 31 32 32 32 2F 46 35 |/RABC00111222/F5 30** **30 30 30 2F 54 31 32 32 38 |000/T1228 ECR ACK RES: RESULT OF** **PARSING S=[001574] amt=[5000] ecr=[ABC00111222] rcp=[1228]** **EFTPOS->ECR: BYTES 145 00 91 50 4F 53 30 31 31 30 52 2F 53 31 35** **37 33 |.. POS0110R/S1573 2F 52 41 42 43 30 30 31 31 31 32 32 32 2F 54** **31 |/RABC00111222/T1 32 32 38 2F 4D 30 2F 43 30 30 2F 44 56 69 73** **61 |228/M0/C00/DVisa 20 43 72 65 64 69 74 3A 30 30 3A 34 33 32 34 38** **| Credit:00:43248 33 2A 2A 2A 2A 2A 2A 34 31 38 35 3A 35 30 30 30** **|3******4185:5000 3A 35 30 30 30 3A 30 3A 30 3A 30 3A 3A 31 31 3A 36** **|:5000:0:0:0:11:6 34 39 39 39 39 39 33 3A 32 3A 32 32 32 32 32** **|4999993:23:22222 32 31 30 30 30 30 32 3A 31 35 34 3A 31 32 33 34** **|2100002:154:1234 35 38 3A 32 30 32 32 30 37 31 31 31 32 30 31 32** **|58:2022071112012 34 3A 32 |4:2 ECR->EFTPOS: BYTES 41 00 29 |.)**	**Buy 50€ through REGRECEIPT stream**
45 43 52 30 31 31 30 52 2F 53 30 30 31 35 37 34 |ECR0110R/S001574 **2F 52 41 42 43 30 30 31 31 31 32 32 32 2F 46 35 |/RABC00111222/F5 30** **30 30 30 2F 54 31 32 32 38 |000/T1228 ECR ACK RES: RESULT OF** **PARSING S=[001574] amt=[5000] ecr=[ABC00111222] rcp=[1228]** **EFTPOS->ECR: BYTES 147 00 93 50 4F 53 30 31 31 30 52 2F 53 50 4F** **53 54 |.. POS0110R/SPOST 58 4E 2F 52 41 42 43 30 30 31 31 31 32 32** **32 2F |XN/RABC00111222/ 54 31 32 33 30 2F 4D 30 2F 43 30 30 2F 44** **56 69 |T1230/M0/C00/DVi 73 61 20 43 72 65 64 69 74 3A 30 30 3A 34 33** **32 |sa Credit:00:432 34 38 33 2A 2A 2A 2A 2A 2A 34 31 38 35 3A 32 30** **|483******4185:20 30 30 3A 32 30 30 30 3A 30 3A 30 3A 3A 30 3A 30 3A** **31 |00:2000:0:0:11 3A 36 34 39 39 39 39 39 33 3A 32 33A 33A 32 32 32** **|:64999993:23:222 32 32 32 31 30 30 30 30 34 3A 31 35 35 3A 31 32** **|222100004:155:12 33 34 36 30 3A 32 30 32 32 30 37 31 31 31 32 30** **|3460:20220711120 32 30 31 3A 32 |201:2 ECR->EFTPOS: BYTES 41** **00 29 |.)**	**Purchase 25€ by typing the ALP number by the operator.**
45 43 52 30 31 31 30 52 2F 53 30 30 31 35 37 34 |ECR0110R/S001574 **2F 52 41 42 43 30 30 31 31 31 32 32 32 2F 46 35 |/RABC00111222/F5 30** **30 30 30 2F 54 31 32 32 38 |000/T1228 ECR ACK RES: RESULT OF** **PARSING S=[001574] amt=[5000] ecr=[ABC00111222] rcp=[1228]** **EFTPOS->ECR: BYTES 39 00 27 50 4F 53 30 31 31 30 52 2F 53 30 30** **30 30 |.' POS0110R/S0000 30 30 2F 52 41 42 43 30 30 31 31 31 32 32 32** **2F |00/RABC00111222/ 54 30 2F 4D 30 2F 43 33 33 |T0/M0/C33 [220711** **121012] ECR connection closed**	

5.10. [ERROR] MESSAGE

It is sent by EFTPOS as an immediate response to ECR's initial request in cases where it cannot be processed.

<u>Syntax:</u>

EFTPOS RESPONSE:

E/<error *code*>

Element	Press	Size	Description
error code	A	3	001: “ protocol not supported” 002: “ duplicate request received” 003: “ Syntax error in request” 004: “ Invalid currency” 100: “ Internal EFTPOS error” 500: “ Invalid command” 501: “ Wrong parameter” 502: “ Missing MAC” 503: “ MAC error” 504: “ MAC not supported” 777: “ EFTPOS not connected” 999: “ BUSY”

Explanations by code:

1. **Code 001 : unsupported protocol. However, the EFTPOS response uses the same version and variant of the ECR request in the header.**
2. **Code 002: the session number is the same as the previous session.**
3. **Code 003 : Syntax error in the body of the message.**
4. **Code 004 : the cashier sends an amount in a different currency than that of the EFTPOS.**
5. **Code 100 : internal problem of EFTPOS.**
6. **Code 500/501 : sent in case of invalid [CONTROL] message.**

7. **Code 502 : the ECR request is missing a MAC field while it is mandatory**
8. **Code 503 : the ECR request has a wrong MAC**
9. **Code 504 : EFTPOS cannot support MAC (e.g. missing keys)**

10.Code 777 : unconnected EFTPOS (reserved code for middleware)
11.Code 999 : EFTPOS is busy (e.g. maneuvering from the menu, communicating for parameters, etc.).

Note: during the period of servicing a transaction originating from ECR, EFTPOS cannot respond to any other request even when printing the receipt of the current transaction.

Examples:

1. **Request from ECR to occupied EFTPOS**

```
ECR->EFTPOS: BYTES 80
00 50                                  |. P
45 43 52 30 32 31 30 41 2F 53 30 30 31 30 31 35 |ECR0210A/S001015
2F 46 32 35 30 3A 39 37 38 3A 32 2F 44 32 30 32 |/F250:978:2/D202 32
30 35 32 34 31 32 33 32 32 39 2F 52 41 42 43 |20524123229/RABC 30
30 31 31 31 32 32 32 2F 48 31 32 31 2F 54 31 |00111222/H121/T1 30 32
37 2F 4D 30 2F 51 33 42 35 34 30 37 33 46 |027/ M0/Q3B54073F
EFTPOS->ECR: BYTES 12 00 0C 50 4F 53 30 32 31 30 45 2F 39 39 39
|.. POS0210E/999
```

2. **Request from an ECR that has another currency regulated**

```
ECR->EFTPOS: BYTES 81
00 51                                  |. Q
45 43 52 30 32 31 30 41 2F 53 30 30 31 30 31 36 |ECR0210A/S001016
2F 46 32 30 30 30 3A 36 34 31 3A 32 2F 44 32 30 |/F2000:641:2/D20 32
32 30 35 32 34 31 32 33 35 32 30 2F 52 41 42 |220524123520/RAB 43 30
30 31 31 31 32 32 32 2F 48 31 32 31 2F 54 |C00111222/H121/T 31 30 32
38 2F 4D 30 2F 51 46 38 32 38 36 42 39 |1028/M0/QF8286B9
32                                    |2
EFTPOS->ECR: BYTES 12 00 0C 50 4F 53 30 32 31 30 45 2F 30
30 34 |.. POS0210E/004
```

3. **Request from ECR with unsupported protocol version or variant**

```
ECR->EFTPOS: BYTES 80
00 50                                  |. P
45 43 52 30 33 30 33 41 2F 53 30 30 30 36 37 35 |ECR0303A/S000675
2F 46 32 35 30 30 3A 39 37 38 3A 32 2F 44 32 30 |/F2500:978:2/D20 32
31 31 31 32 32 31 31 35 39 32 37 2F 52 38 2F |211122115927/R8/ 48 31
32 31 2F 54 30 30 30 36 37 34 2F 47 3A 30 |H121/T000674/G:0 3A 30 3A
30 3A 30 2F 4D 31 32 33 34 35 36 37 38 |:0:0:0/M12345678
EFTPOS->ECR: BYTES 12 00 0C 4D 45 4C 30 33 30 33 45 2F 30 30 31
|.. POS0303E/001
```

5.11. [SUCCESS] MESSAGE

This is a special case of a [ERROR] message with code 000.

Syntax:

EFTPOS RESPONSE:

```
E/000
```

5.12. [CONTROL] MESSAGE

General message for ECR to check EFTPOS behavior.

Syntax:

ECR REQUEST:

U/R<ecr-id>/C<command-name>:<parameter-value>{:paramater-value}

Element	Press	Size	Description
ecr-id	an	11	
command-name	an	1..20	Symbolic name of the parameter to be adjusted
parameter-value	an	1..50	Value of the parameter

The set of parameters and their possible values is expandable, depending on the needs that will arise.

PARAMETER	PRICES
UNBIND_POS	• 0 - EFTPOS has a locked keyboard and cannot initiate transactions autonomously. • 1 - EFTPOS can execute credit transactions autonomously, without an ECR mandate
MAC_K	1st value: MAC session key (32 hex digits), encrypted under a certain master key implanted in both ECR and EFTPOS. 2 value: the CV of the key (6 hex digits). If the KCV test fails, EFTPOS returns E/503 For the example chapter Error: Reference source not found would be: MAC_K:1ED9F7AE0B2509281BBC2DE38EF2A12B:CC5FFF

Examples:

1. **Open – close terminal keyboard (credit transactions only):**

```
ECR->EFTPOS: BYTES 35
00 23                                  |. #
45 43 52 30 32 31 30 55 2F 52 41 42 43 30 30 31 |ECR0210U/RABC001
31 31 32 32 32 2F 43 55 4E 42 49 4E 44 5F 50 4F |11222/CUNBIND_PO
53 3A 31                                |S:1
EFTPOS->ECR: BYTES 12 00
```

```
0C 50 4F 53 30 32 31 30 45 2F 30 30 30 |.. POS0210E/000
ECR->POS: BYTES 35
00 23 |. #
45 43 52 30 32 31 30 55 2F 52 41 42 43 30 30 31 |ECR0210U/RABC001
31 31 32 32 32 2F 43 55 4E 42 49 4E 44 5F 50 4F |11222/CUNBIND_PO
53 3A 31 |S:0 EFTPOS->ECR: BYTES 12 00 0C 50 4F 53 30 32 31 30 45
2F 30 30 30 |.. POS0210E/000
```

2. Successful sending of MAC session key:

```
ECR->EFTPOS: BYTES 68
00 44 |. D 45 43 52 30 32 31 30 55 2F 52 41 42 43 30 30 31
|ECR0210U/RABC001 31 31 32 32 32 2F 43 4D 41 43 5F 4B 3A 31 45 44
|11222/CMAC_K:1ED 39 46 37 41 45 30 42 32 35 30 39 32 38 31 42 42
|9F7AE0B2509281BB 43 32 44 45 33 38 45 46 32 41 31 32 42 3A 43 43
|C2DE38EF2A12B:CC 35 46 46 46 |5FFF EFTPOS->ECR: BYTES 12 00
0C 50 4F 53 30 32 31 30 45 2F 30 30 30 |.. POS0210E/000
```

5.13. OTHER TRANSACTION MESSAGES

They have syntax, content and flow just like [AMOUNT] with the only difference being the original symbol, which will also be a prefix to the corresponding message [CONFIRM].

Any additional information necessary for cancellation, refund, etc. (e.g. initial transaction number) is now entered into EFTPOS by the operator and is not received by the ECR.

ECR REQUEST (AMOUNT-INSTALM):

I/S<session *number>/F<amount>:<cur-code>:<cur-exp>*

/D<datetime>/R<ecr-id>/H<operator-number>

/T<receipt number>/M<custom-data>{/Q<mac>}

EFTPOS CONFIRMATION:

I/S<session *number>/F<amount>/R<ecr-id>/T<receipt number>*

ECR REQUEST (AMOUNT-REFUND):

Z /S<session *number>/F<amount>:<cur-code>:<cur-exp>*

/D<datetime>/R<ecr-id>/H<operator-number>

/T<receipt number>/M<custom-data>{/Q<mac>}

EFTPOS CONFIRMATION:

Z/S<session *number>/F<amount>/R<ecr-id>/T<receipt number>*

ECR REQUEST (AMOUNT-VOID):

V/S<session *number>/F<amount>:<cur-code>:<cur-exp>*

/D<datetime>/R<ecr-id>/H<operator-number>

/T<receipt number>/M<custom-data>{/Q<mac>}

EFTPOS CONFIRMATION:

V/S<session *number>/F<amount>/R<ecr-id>/T<receipt number>*

ECR REQUEST (AMOUNT-COMPLETION):

P/S<session *number>/F<amount>:<cur-code>:<cur-exp>*

/D<datetime>/R<ecr-id>/H<operator-number>

/T<receipt number>/M<custom-data>{/Q<mac>}

EFTPOS CONFIRMATION:

P/S<session *number>/F<amount>/R<ecr-id>/T<receipt number>*

ECR REQUEST (AMOUNT-MAIL):

M/S<session *number>/F<amount>:<cur-code>:<cur-exp>*

/D<datetime>/R<ecr-id>/H<operator-number>

/T<receipt number>/M<custom-data>{/Q<mac>}

EFTPOS CONFIRMATION:

M/S<session *number>/F<amount>/R<ecr-id>/T<receipt number>*

In the case of preloaded receipts via REGRECEIPT message, the type of debit transaction can be selected retrospectively via a selection menu in

EFTPOS. After the receipt selection follows the selection of the type of transaction e.g.: PURCHASE, INSTALLMENTS, REGISTRATION PRE-APPROVAL, MAIL ORDER, OFFLINE APPROVAL.

The LOCAL APPROVAL transaction (which is being removed by banking institutions) does not have a separate message type. It will only be made as a preloaded receipt.

5.14. ERROR HANDLING

Errors in flows and messages as described in the previous sections are treated as system errors that are expected to occur extremely rarely and if they do occur then they mean:

- **Either a problem of physical connection and network that requires human intervention**
- **Either internal programming error and incomplete handling of a conjuncture In both cases, a clear indication of the problem must be given to the operator so that he can take the necessary steps to manually complete the transaction (or cancel it), eliminate the problem or even call technical support. The responsibility for both parties (EFTPOS and ECR) as independent and autonomous systems in this interconnection; is to carefully check the validity of their entry.**

The protocol for such rare errors does not provide for mechanisms for retransmission or automatic correction of data. This would unnecessarily complicate implementation, especially since transmission integrity is considered to be guaranteed over TCP/IP and USB connections and for such a small amount of data.

Exceptionally, for RS232 connection, an acknowledgement mechanism familiar from the era of asynchronous modems can be implemented in addition, where each side at the end of the outgoing message adds a control byte (LRC) as a result of successive XOR on the characters sent.

If the recipient calculates a different LRC from the one stated in the message, he responds with a unique NIS character (0x15) requesting the repetition of the mission or, after 3 repetitions, interrupts the communication as ineffective.

Below is a summary of the cases in a typical market cycle where errors can occur and the appropriate handling by EFTPOS and ECR.

[t0]	**EFTPOS [AMOUNT] ECR**	
[t1]	**EFTPOS [CONFIRMED] ECR**	**t1-t0 < 2 sec**
[t2]	**EFTPOS [RESULT] ECR**	**Usually** **T2-T1 < 60 sec**
[t3]	**EFTPOS [ACK-RESULT] ECR**	**T3-T2 < 2 sec**

CASE 1 (EFTPOS): At [t0] EFTPOS is it out of power or not connected to ECR
The ECR must abandon the connection attempt and report a connection failure to the operator.
CASE 2 (EFTPOS): At [t0] EFTPOS receives: **a) garbage (completely unstructured data)** **b) invalid message (unsupported version, duplicate session etc.)**
For (a) EFTPOS should ignore and reject the data and preferably inform the operator by printing or displaying a message. **For b) EFTPOS must respond with the corresponding error message (001, 002, 003, 004 and so on) as described in section 5.10.**
CASE 3 (EFTPOS): In [t1] EFTPOS becomes aware of a failure to send CONFIRM AMOUNT due to a communication problem.
EFTPOS should not proceed with the execution of the transaction but display or print a relevant message.
CASE 4 (ECR): The message CONFIRMED **a) is not received within the expected time, or** **b) an error message is received instead of confirmed** **c) the CONFIRMED message has invalid data (session number, amount, ecr ID etc.)** **d) instead of CONFIRMED, receives an out-of-order RESULT message, with details of a previous transaction.**
For 4.a) the ECR after 5 seconds may request confirmation from the operator to stop the attempt or continue waiting For 4.b) the ECR reports

the relevant error and stops the communication. Especially in the case of error 503 and 504, ECR can send a CONTROL message once with a MAC session key and repeat the mission. **For 4.c) the ECR must stop communicating with EFTPOS and display a message that the system is in an invalid state.** **If EFTPOS received the original request correctly and approved the transaction, then it will attempt to unsuccessfully send a RESULT and the transaction will be saved with ecr txn status 1. In this case, sending RESEND-ONE on behalf of ECR can successfully complete the communication.** **For 4.d) the ECR must ignore the message that for some reason came late from a previous incomplete transaction and wait for the arrival of CONFIRMED (or ERROR).**
CASE 5 (ECR): The waiting interval t2 and t1 take a long time. There are two possible causes: **(a) communication between EFTPOS and payment institution is very slow or the holder takes too long to enter the PIN;** **b) EFTPOS stuck or restarted**
The ECR must provide for the possibility of interruption of communication. Then: **In case 5.a) EFTPOS eventually receives approval and sends a RESULT message, but this does not reach the ECR due to a connection failure. It is up to the operator to take the required actions, such as performing RESEND-EMU.** **In case 5.b): appropriate action by the operator and technical support is required.**
CASE 6: In [t2] the ECR does not receive a valid response to the RESULT (garbage, wrong message or wrong information)
ECR should cease communication and display a message. It is up to the operator to take the required actions, such as checking whether the transaction was approved by EFTPOS and performing RESEND-EMU. **If EFTPOS detects the failure to send a RESULT, it displays or prints a message and registers the transaction (if approved) with ecr txn status 1.**
CASE 7 (EFTPOS): In [t3] EFTPOS does not receive ACK-RESULT
This may be due to either a failure to send the RESULT, an internal ECR problem, or a communication problem during sending

of ACK-RESULT.

EFTPOS registers the transaction with ecr txn status 1.

6. DESCRIPTION OF THE MAC ENGINE

The relevant mechanism of MAC (message authentication checksum) in terms of implementation for the communication of the two parties is summarized in the Image 8.

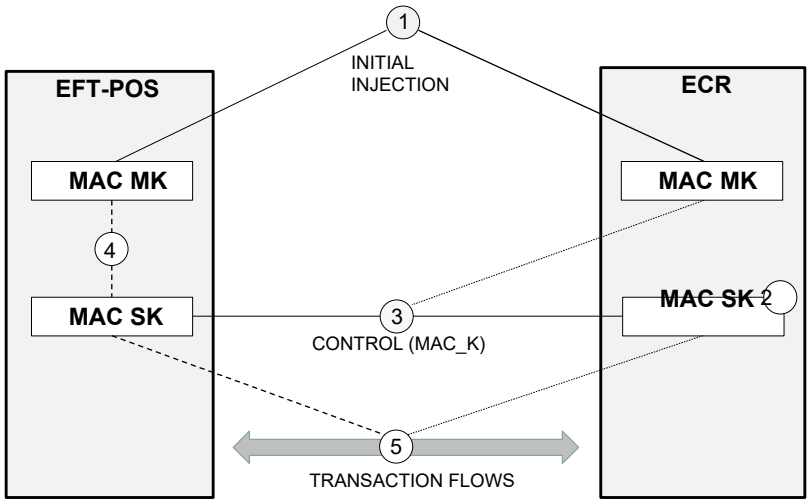


Figure 8

1) **At the initial stage of preparation, it is agreed between the providers EFTPOS and ECR to implant a common master key (MK) in both devices, with procedures and practices that will protect it from leaking.**

   The procedure is described in the chapter "Issuance and distribution of master key (MK)"

2) **ECR generates a pseudorandom session key (SK) for use.**
3) **Via control flow ([CONTROL] message), ECR sends to EFTPOS the SK encrypted under MK with T-DES**
4) **EFTPOS decrypts SK under MK and stores it for use.**
5) **During transaction flows it is the SK used to check the validity of the sender of requests.**

The SK can be updated regularly using a [CONTROL] message from the ECR.

The MK may be renewed at less frequent intervals, with procedures and mechanisms mutually agreed between EFTPOS and EFTPOS providers. ECR.

It is recommended to use a T-DES MAC algorithm (the usual CBC 1 mode) with a double length key (16 bytes).

Example of session key encryption and MAC computation

MK test (plain): ABCDEF0123456789987654321 0ABCDEF (KCV: 48934A) S K test (plain): 12340000ABCD111122223333FFFFDDDD (KCV: CC5FFF) S K test (encr): 1ED9F7AE0B2509281BBC2DE38EF2A12B
Message:

A/S000922/F2000:978:2/D20220513150958/RABC00111222/H121/T000922/M00000000

MAC: 4540A2547CFBA23A

mac element*:* /Q4540A254

The calculation of the MAC of the example above is done as follows:

INPUT AFTER PADDING (length=80): 41 2F 53 30 30 30 39 32 32 2F 46 32 30 30 30 3A |A/S000922/F2000: 39 37 38 3A 32 2F 44 32 30 32 32 30 35 31 33 31 |978:2/D202205131 35 30 39 35 38 2F 52 41 42 43 30 30 31 31 31 32 |50958/RABC001112 32 32 2F 48 31 32 31 2F 54 30 30 30 30 39 32 32 2F |22/H121/T000922/ 4D 30 30 30 30 30 30 00 00 00 00 00 00 |M00000000.....
Number of blocks: 10

Block 0:	**Block 5:**
P:	**P: 42 43 30 30 31 31 31**
41 2C 53 30 30 30 39 32 |A/S00092	**32 H: |BC001112**
H:	
00 00 00 00 00 00 00 00 |.....	**E2 D8 E8 13 0F 40 1A |.....@..**
P(xor)H:	**F0 P(xor)H:**
41 2F 53 30 30 30 39 32 |A/S00092	**A0 9B D8 23 3E 71 2B |...#>q+.**
TDES of P(xor)H:	**C2 TDES of P(xor)H:**
00 41 06 32 34 81 FB 65 |. A.24.. e	**1C 84 7B 3C E8 0D 33 41 |.. {<.. 3A**
Block 1:	**Block 6:**
P:	**P:**
32 2F 46 32 30 30 30 3A |2/F2000:	**32 32 2C 48 31 32 31 2C |22/H121/**
H:	**H:**
00 41 06 32 34 81 FB 65 |. A.24.. e	**1C 84 7B 3C E8 0D 33 |.. {<.. 3A**
P(xor)H:	**41 P(xor)H:**
32 6E 40 00 04 B1 CB |2n@...._	**2E B6 54 74 D9 3F 02 |.. Tt.?. n**
5F TDES of P(xor)H:	**6E TDES of P(xor)H:**
EB 92 A8 CD 45 24 2A 10 |.... E$*.	**15 9E 89 04 3C B1 CA 40 |....?.. @**
Block 2:	**Block 7:**
P:	**P:**

39 37 38 3A 32 2F 44 32	|978:2/D2	54 30 30 30 39 32 32 2C	|T000922/
H:		H:	
EB 92 A8 CD 45 24 2A 10	|.... E$*.	15 9E 89 04 3C B1 CA 40	|....?.. @
P(xor)H:		PCS(xor)H:	
D2 A5 90 F7 77 0B 6E 22	|.... w.n"	41 AE B9 34 06 83 F8 6F	|a.. 4...o
TDES of P(xor)H:		TDES of P(xor)H:	
EC 85 08 94 25 AE 32 5E	|....%.2^	19 48 5D 23 E9 36 DD 38	|. H]#.6.8
Block 3:		Block 8:	
P: 30 32 32 30 35 31 33		P:	
31 H:	|02205131	4D 30 30 30 30 30 30	|M0000000
		30 H:	
EC 85 08 94 25 AE 32 5E	|....%.2^	19 48 5D 23 E9 36 DD 38	|. H]#.6.8
P(xor)H:		PCS (xor)H:	
FE B7 3A A4 10 9F 01 6F	|..:.... o	54 78 6D 13 D9 06 ED 08	|Txm.....
TDES of P(xor)H:		TDES of P(xor)H:	
D5 E9 95 DF DA 5F DF 69	|....._i	93 56 0E EC A7 E2 CA 8A	|. V.....
Block 4:		Block 9:	
P:		P: 30 00 00 00 00 00 00	
35 30 39 35 38 2C 52 41	|50958/RA	00 H:	|0.....
H:			
D5 E9 95 DF DA 5F DF	|....._i	93 56 0E CE A7 E2 CA	|. V.....
69 P(xor)H:		8A P(xor)H:	
E0 D9 AC EA E2 70 8D	|..... p.(	A3 56 0E CE A7 E2 CA	|. V.....
28 TDES of P(xor)H:		8A TDES of P(xor)H:	
E2 D8 E8 13 0F 40 1A F0	|.....@..	45 40 A2 54 7C FB A2 3A	|E@. T|..:
		Result: [4540A2547CFBA23A]	

7. SUMMARY OF SET MAPPING MANIPULATIONS

A prerequisite for transition to the new interconnection is the closure in both parties of previous pending transactions that had started with any existing interconnection.

IN THE NEW INTERFACE:

Each EFTPOS transaction must be matched to an ECR receipt.

EFTPOS will not allow the menu to close a day package if there are transactions that do not have such a match and will refer to ECR processing.

In any case, EFTPOS transactions made without ECR communication are clearly marked on both receipts and daily EFTPOS reports, such as:

- **POS-1: if initiated by ECR but communication was interrupted at the end**
- **POS-2: if initiated by EFTPOS based on a preloaded receipt or invoice already issued by ECR.**

- **POS-3: if initiated by EFTPOS based on a preloaded receipt or invoice already issued by ECR where more cards were used for the same purchase.**
- **POS-4: credit transaction made in EFTPOS autonomously without using FIM, or debit transaction made in EFTPOS autonomously, due to ECR failure or infrastructure failure, after approval by the VS FAM.**

COMMON SCENARIOS:

1) **Cash purchase at ECR**
2) **Purchase in ECR with card, but the customer did not have a card with him Discontinued by EFTPOS and ECR receives [RESULT] rejection.**
3) **Purchase at ECR using card and smooth EFTPOS-ECR communication EFTPOS automatically receives, registers and prints on its receipt: *session number, ecr Id, receipt - number. PROOF).***
4) **Purchase in ECR using card and problematic communication completion EFTPOS-ECR**
   - **EFTPOS automatically receives, registers and prints: *session number, ecrId, receipt - number.***
   - **ECR does not receive the final EFTPOS response and does not print a receipt. The EFTPOS shall mark the relevant registration as pending for ECR. The EFTPOS receipt is additionally printed "**S/ LAND POS-1**".**
   - **The ECR operator can ask EFTPOS to repeat the final response (RESEND ONE e.g. with a " *POS RESEND" option)* and print a receipt. The EFTPOS then marks the relevant registration as processed with respect to the ECR.**
5) **Purchase at EFTPOS upon home delivery**

   EFTPOS has received a "preloaded" receipt or invoice from ECR through the REGRECEIPT flow with its data (amount, ecrid, session number, receipt number, custom data) and performs deferred and autonomously through a special handling option one or more debit or credit transactions for the specific preloaded receipt, without however the algebraic set of these transactions exceeding the total amount of the preloaded receipt.

   The EFTPOS receipt prints the marking "PLUS/LAND POS-2**"**
6) **Payment of multiple preloaded receipts with one debit transaction**

   EFTPOS has received several preloaded receipts or invoices from ECR through the REGRECEIPT flow with their details (amount, ecrid, session number, receipt number, custom data) and executes

a debit payment transaction deferred and autonomously through a special handling option by selecting more than one preloaded receipt or invoice, always with the limitation of not entering an amount.

On the POS receipt the marking "PLUS/LAND POS-3**" is printed.**

CLOSE PACKAGE IN EFTPOS :

If EFTPOS detects credit transactions executed autonomously or debit transactions executed with preloaded ECR receipts or invoices, it will not allow the action to be performed and will refer to the ECR to settle pending issues through a named option e.g. *"POS PACKAGE CHECK".*

The " *CHECK POS PACKAGE"* option runs the RESEND-ALL flow where the ECR receives one by one the pending records from EFTPOS and returns a sessionId.

In any case, the ECR should return an ACK-RESULT message to EFTPOS for each pending record so that EFTPOS can close a package.

The EFTPOS has for a long time kept a separate record of the basic details of transactions sent with RESEND-ALL. Specifically, for each transaction, the following data are kept:

- **Date-time**
- **Press (purchase, cancellation, ...)**
- **Amount**
- **ECR communication category (0,1,2,3,4,5)**
- **ecrId**
- **Session Id**

The retention period of these records is limited by the EFTPOS storage and the daily occurrence of pending records. The standard limit is set at 1000 records.

In case of operation of EFTPOS with ECR failure, but not in case of infrastructure failure, EFTPOS is allowed to perform packet closure, provided that pending transactions to the ECR are not deleted. The distinction in EFTPOS whether it is an ECR failure or an infrastructure failure results from the value of the UNLTime field that EFTPOS received

from the Esend PSSP when reporting the failure. In particular, if the UNLTime field has a value greater than 12, it is an ECR failure, while if it has a value less than or equal to 12, it is an infrastructure failure.

8. POSSIBLE FAULT SCENARIOS AND PROCEDURES FOR DEALING WITH THEM

For the proper functioning of businesses, in case of ECR failure or in case of damage to the business infrastructure, the following procedure for releasing the EFTPOS keyboard lock is defined. In all cases of communication, a prerequisite is the successful sending of the Master Key MK from the Esend PSSP to EFTPOS, as described in paragraph 9.

Terminal keyboard activation process:

The user of EFTPOS, after a communication failure is detected and confirmed, through appropriate handling selects the type of failure, ECR Failure or Infrastructure Failure. After selecting the user, EFTPOS makes a call to the End where the type of fault is stated (sample communication below). If there is a SUCCESS answer from the End PSSP, the EFTPOS keyboard is unlocked and manual issuance of transactions is allowed. The length of time that EFTPOS is allowed to operate with manual transaction amount entry enabled, as well as how often this activation is allowed, is stated in this Decision. The length of time that EFTPOS is allowed to operate with manual transaction entry enabled is set in a special field (UNLTime) within the response received from the server. The scenarios for which the keyboard activation process is allowed are the following:

1. Scenario 1: The ECR has a failure that cannot be addressed immediately (critical hardware error). The transaction when executed autonomously by EFTPOS and gets num 4 in the "txn-ecr-status" field.

2. Scenario 2: ECR works, but there is a failure in the business infrastructure that does not allow devices to communicate. The transaction, when executed autonomously by EFTPOS, gets num 5 in the "txn-ecr- status" field. The operator is obliged in each transaction to enter the receipt number (Progressive A/A receipts). After entering the receipt number, the approval process proceeds.

Please note that in all the above scenarios these transactions must be kept in EFTPOS until proper communication with the ECR is restored.

Reset Communication - Terminal Keyboard Deactivation Procedure:

After the repair of the damage, either through special handling of the ECR the CONTROL command (UNBIND_POS - 0) must be sent to the EFTPOS, or any other correct communication between ECR->EFTPOS. In this way, ECR confirms the repair of the damage. By receiving this command, EFTPOS automatically locks its keyboard and then makes a new call to the End PSSP, where it states that the fault has been resolved. Then, through special handling, ECR by sending the RESEND-ALL command requests from EFTPOS all transactions issued autonomously (whether they are for some other reason pending), so that the documents of the tax files e.txt with document code 356 and amounts amount, amount final positive if it is a card payment or negative, can be created, in the case of a return to a card. Until these transactions are successfully sent to the ECR, EFTPOS will not be able to perform packet closure.

In EFTPOS there is a special report in which the meters, data and amounts for the above transactions are recorded separately, based on calendar criteria.

Technical specifications for requesting a request in Esend

Data Interchange Format: JSON
HTTP method: POST

Standard API Description (EFTPOS <--> Esend) Production endpoint: https://www1.aade.gr/tameiakes/mysec/keyblock.php

Shipping package fields

Field	Size	Description
TIME	≤ 10 tanks	Terminal Identification Number (EFTPOS)
UNBOUND_POS	1 char	0 (Damage repaired) 1 (Keyboard activation)
TAX ID	9 tanks	Business VAT number
ECR ID	11 tanks	ECR registration number for which a temporary fault has already been declared in accordance with paragraph 39 of the A .1173/2022.
MACKEY	32 tanks	The Master key that EFTPOS initially received from the PSFM esend.

Format fields (keyboard activation request):

{

"TIME": "99009999",

"UNBOUND_POS": "1",

"TAXID": "01345678",

"ECRID" means "XXX12345678",

"MACKEY": "30001234C330001234C330001234C322" }

Format fields (fault recovery call):

{ "TIME": "99009999",

"UNBOUND_POS": "0",

"TAXID": "01345678",

"ECRID" means "XXX12345678",

"MACKEY": "30001234C330001234C330001234C322" }

Answer fields

Field	Size Description
Status	3 chars Replied status code
TIME	≤ 10 chars Terminal Identification Number (EFTPOS)
UNLTime	≤ 4 chars The Maximum allowed time (in hours) that EFT can accept manual payments

Format answer fields:

{ "Status": "000",

"TIME": "99009999"

"UNLTime": "12" }

Response Status codes

Status	Description
000	SUCCESS
101	Check the contents of the fields
102	Format error
103	Unregistered Device
104	Busy-Retry
105	Unspecified error
106	DENIED (The UNLTime field will be zero)

In the event that there has been no prior declaration of temporary ECR failure or a declaration of temporary infrastructure failure in the PSSP, or the validity of the temporary failure declaration has expired, then the reply of the ESSEND PSSP to EFTPOS for the release of the keyboard is negative. The answer is also negative if the master key does not correspond to the specific EFTPOS.

9. ISSUANCE AND DISTRIBUTION OF MASTER KEY (MK)

In order to avoid the publication of the keys during the pairing of ECR and EFTPOS and in order to prevent any action to bypass the initial connection, the issuance and installation of the master key (MK) is done through independent calls of ECR and EFTPOS to the Essend PSSP, which operates and is maintained in its infrastructure AADE.

Calls are executed with initialization fields for ECR: the ECR registration number and VAT number of the business, while for EFTPOS: the TID of

the EFTPOS, the VAT number of the business, the distinguishing name of the manufacturer EFTPOS and the corresponding APIKEY.

The process of creating the master key (MK) is initiated by the ECR so that after the original key is generated and returned to the ECR by the Essend PSG, it is available for download by the EFTPOS.

Security

- **The contact url of EFTPOS with the Esend PSFM for the receipt of the MK is: https://www1.aade.gr/tameiakes/mysec/eftposmk.php**
- **The encryption procedure through AES-256 specified in the Decision of the Governor of AADE POL 1166/2018 is used for the communication of the FIM with the Esend PSFM for the receipt of the MK is: http://tam.gsis.gr/eafdss/ myweb/fhmmk.php**

Standard API Description (EFTPOS <--> Esend) Production endpoint: https://www1.aade.gr/tameiakes/mysec/eftposmk.php

Data Interchange Format: JSON
HTTP method: POST

Shipping package fields

Field	Size	Description
TIME	≤ 10 tanks	Terminal Identification Number (EFTPOS)
ECRID	11 tanks	Fiscal device number from ECR ECHO call
TAX ID	9 tanks	Business VAT number
MAN	<=20 tanks	EFTPOS manufacturer distinctive name
APIKEY	<= 64 tanks	APIKEY

Format fields:
{ "TID": "99009999", "ECRID": "XXX99000000", "TAXID": "01345678", "MAN": "eftpos-hellas", "APIKEY": "012345678901234567890123456789QWERTYUIOPASDFGHJKLZ12345678901234" }

The MAN field is determined by the interested EFTPOS manufacturer who notifies it to the competent authority of the Esend PSSP by email request, while the APIKEY field is determined by the competent service of the Esend PISP that communicates it to the interested EFTPOS manufacturer via email.

Answer fields

Field	Size Description
Status	3 chars Replied status code
Description	<= 25 chars Status description
TIME	≤ 10 chars Terminal Identification Number (EFTPOS)
MACKEY	32 master key-MK tanks

Format fields:
{ "Status": "000",

"Description": "SUCCESS",

"TIME": "990099",

"MACKEY": "30001234C330001234C330001234C322"

}

Standard API Description (ΦΗΜ <--> Esend) Production endpoint: http://tam.gsis.gr/eafdss/myweb/fhmmk.php

Data exchange format: ENCRYPTED RAW (AES KEY encryption method).
HTTP method: POST

Shipping package fields

Field	Size	Description

ECRID	**11 chars FIM Registration Number**
TIME	**≤ 10 chars Terminal Identification Number (EFTPOS)**
TAX ID	**9 chars business VAT number**

Format fields (if they were not encrypted):
"XXX99000000;990099;01345678"

Answer fields

Field	Size Description
Status	**3 chars Replied status code**
Description	**<= 25 chars Status description**
TIME	**≤ 10 chars Terminal Identification Number (EFTPOS)**
MACKEY	**32 master key-MK tanks**

Format fields (if they weren't encrypted):
"000; SUCCESS; XXX99000000;30001234C330001234C330001234C322"

Response Status codes

Status	Description
000	**SUCCESS**
101	**Check the contents of the fields**

102	**Format error**
103	**Unregistered Fiscal Device**
104	**Busy-Retry**
105	**Unspecified error**

In particular, the following encryption rules apply to download the Master Key (MK, MACKEY):

Enquiry from FIM:
1) ECRID

2) TID-encrypted-HEX_representation

3) TAXID VAT number-encrypted-HEX_representation(with same IV)

4) IV (Initialization vector of FIM)-HEX_representation

The encryption is done with the manufacturer's AESKEY.
All fields are contiguous, with delimiter separator (;), plain/text POST.

Answer from Esend:
1) Status

2) Description

3) TID-encrypted-HEX_representation

4) MACKEY-encrypted-HEX_representation(with same IV)

5) IV (Initialization vector του server)-HEX_representation

Decryption is done with the manufacturer's AESKEY.

All fields are contiguous, with delimiter separator (;).

10. DOWNLOAD OF AESKEY FROM PSGM FOR FAM.

At the same time as the decision to approve a reputation shall be notified to the manufacturer of a reputation the 'base AESKEY' of the manufacturing undertaking for the reputations of that approval. After submitting the D13 declaration of initiation, the FIM can contact a specific url of the Essend PSFM, using the manufacturer's basic AESKEY as

AESKEY. The End PSSP returns to the FIM encrypted, the AESKEY of the FIM that will be used to encrypt transaction data transmissions.

Standard API Description (ΦΗΜ <--> Esend) Production endpoint: http://tam.gsis.gr/eafdss/myweb/aeskey.php

Data exchange format: ENCRYPTED RAW (AES KEY encryption method).
HTTP method: POST

Shipping package fields

Field	Size Description
ECRID	11 chars FIM Registration Number
TAX ID	9 chars VAT number of business - holder

Format fields (if they weren't encrypted):
"XXX99000000;01345678"

Answer fields

Field	Size Description
Status	3 chars Replied status code
Description	25 chars Status description
ECRID	11 chars FIM Registration Number
AESKEY	40 AESKEY tanks

Format fields (if they weren't encrypted):

**"000; SUCCESS;
XXX99000000;30001234C330001234C330001234C3223456 789F"**

Response Status codes

Status	Description
000	SUCCESS
101	Check the contents of the fields
102	Format error
103	Unregistered Fiscal Device
104	Busy-Retry
105	Unspecified error

In particular, when receiving the AESKEY for FIM from Esend, the following encryption rules apply:

Enquiry from FIM:

1) ECRID

2) TAXID ΑΦΜ -encrypted-HEX_representation

3) IV (Initialization vector of FIM)-HEX_representation

The encryption is done with the manufacturer's AESKEY.

All fields are contiguous, with delimiter separator (;), plain/text POST.

Answer from ESEND:

1) Status

2) Description

3) ECRID-encrypted-HEX_representation

4) AESKEY-encrypted-HEX_representation(with same IV)

5) IV (Initialization vector του server)-HEX_representation

Decryption is done with the manufacturer's AESKEY.

All fields are contiguous, with delimiter separator (;).