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Test suite for future REM interoperability test events

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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Contents

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Electronic Signatures and Infrastructures (ESI).

1 Scope

The present document defines a number of test suites for supporting interoperability tests within the field of Registered Electronic Mail as specified in TS 102 640 parts 1 to 6 [i.1], [i.2], [i.3], [i.4], [i.5] and [i.6].

A layering approach has been adopted for defining the test suite as described below:

- First a number of tests cases on evidences are defined so that entities testing interoperability may concentrate in identifying potential problems caused only by evidences. These tests do not depend on the type of format and transport binding expected (i.e. they are common to REM-MDs using S/MIME on SMTP and to REM-MDs using SOAP on HTTP).

- Secondly, a number of tests cases have been defined for testing interoperability regarding the REM-MD Envelope format and contents. Some of these test cases (specifically those that include an evidence set within the REM-MD Envelope), are built on already defined test cases on individual evidence. It has to be mentioned that two sets of test cases are defined at this layer: one for REM-MDs using S/MIME on SMTP as specified in TS 102 640-2 [i.2], and another for REM-MDs that use SOAP on HTTP binding as specified in TS 102 640 SOAP binding profile.

- Finally, a number of tests cases have been defined on complete flows of REM Objects so that entities testing interoperability may check several complete flows, including successful and unsuccessful by (well defined reasons) cycles.

For each of the three layers, both positive and negative test cases have been defined.

The present document defines interoperability tests for covering the following scenarios:

1) Scenarios where both sender and recipient are subscribed to the same REM-MD, be it operating under Store and Forward or Store and Notify mode of operation, and be it using S/MIME on SMTP or SOAP on HTTP.

2) Scenarios where sender and recipient are subscribed to a different REM-MD. This set assumes that both REM-MD use the same format and transport mechanisms (i.e. both use S/MIME on SMTP or SOAP on HTTP). As for the style of operation, this set includes test cases for scenarios where both REM-MDs operate under Store and Forward; test cases for scenarios where the sender's REM-MD operates under Store and Notify; and test cases for scenarios where the recipient's REM-MD operates under Store and Notify.

3) Scenarios where sender and recipient are subscribed one to a REM-MD as specified in TS 102 640 **[**i.1**] to [**i.6**]** and the other is subscribed to a UPU's Designated Operator. This set includes test cases for the REM-MD/UPU gateway as specified in TS 102 640 **[**i.1**]** to **[**i.6**]** REM-MD UPU Interoperability Profile.

Readers of the present document are entirely free to select the subset of test cases that best suits their purposes and their convenience. In no way they should infer that they are required to test all the test cases specified in the present document.

Additionally, readers of the present document are noticed that for the test cases on complete flows of REM objects, certain decisions were made on the inclusion or not of certain objects within one REM-MD Envelope, as the TS 102 640 [i.1**] to [**i.6**] does provide certain degree of freedom for doing that. They should, in consequence, feel free to alter the definitions of the test cases as best suits their purposes and their convenience as long as these changes do not lead to situations that are not compliant with the TS 102 640 specifications [**i.1**] to [**i.6**].**

Clause 4 of the present document defines test cases on all the different types of evidence specified in TS 102 640-2 [i.2].

Clause 5 defines the test cases for testing REM-MD envelope formats and contents. Two sets of test cases are defined: one for entities using S/MIME on SMTP (clause 5.1) and other for entities using SOAP on HTTP (clause 5.2).

Clause 6 defines test cases for testing signatures generated by REM-MD.

Clause 7 defines test cases for testing complete flows of REM objects.

Clause 8 defines test cases for testing seamless exchange of messages and evidence between subscribers of REM-MDs and subscribers of UPU's Designated Operator (DO henceforth).

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI TS 102 640-1: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 1: Architecture".

[i.2] ETSI TS 102 640-2: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 2: Data requirements, Formats and Signatures for REM".

[i.3] ETSI TS 102 640-3: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 3: Information Security Policy Requirements for REM Management Domains".

[i.4] ETSI TS 102 640-4: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 4: REM-MD Conformance Profiles".

[i.5] ETSI TS 102 640-5: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 5: REM-MD Interoperability Profiles".

[i.6] ETSI TS 102 640-6: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 6: Interoperability Profiles".

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

DO	Designated Operator
QES	Qualified Electronic Signature
REM-MD	Registered Electronic Mail Management Domain
SAML	Security Assertion Markup Language
SMTP	Simple Mail Transfer Protocol

4 Testing Evidence Formats

The present clause specifies a number of tests on evidence formats. Each sub-clause clearly indicates what specific aspects of the evidence format are tested.

Evidence, as specified in TS 102 640-2 [i.2], include mandatory components, optional components that the issuer REM-MD may decide to include or not and conditional components that the issuer REM-MD includes or not depending on certain conditions.

The test suite is specified using a tabular form. Each row of the tables specifies one test case. For each test case, the table incorporates mechanisms for indicating:

1) Those optional and/or conditional elements that are present or absent (mandatory elements will be present anyway). This is done including one column per each optional/conditional component in the evidence.

2) This is done including one column per each optional/conditional component in the evidence.

3) Additional remarks on optional/conditional elements that are present.

4) Additional remarks on mandatory elements.

Conditional and/or optional elements that are not mentioned in the tables, are absent for the all the test cases specified in the table.

The following acronyms for the conditional/optional components are used in the tables:

- **evR**: eventReasons.
- **evIsPolID**: evidenceIssuerPolicyID
- **senAuthDet**: senderAuthenticationDetails
- **recAuthDet**: recipientAuthenticationDetails
- **recDelDet**: recipientsDelegateDetails
- **TrLog**: TransactionLogInformation
- **Ext**: Extensions
- **Sig**: Signature
- **NotTag**: Notification tag

Below follows an example of a table providing details on eventReason, evidenceIssuerPolicyId, senderAuthentication and replyTo. Other optional/conditional components are absent of the evidence.

Table 1: Example of table for specifying test cases on Evidence formats

Test identifier	Trigger Event	evR	evIsPolID	senAuthDet	Purpose of test case

Column **Test identifier** indicates the identifier code for the test case specified in the row. The test identifiers for all these tests will follow the following pattern: EVF-[EvidenceTypeAcronym]-[number], where EVF stands for "Evidence Format".

Column **Trigger Event** indicates what event has triggered the issuance of the evidence whose format is tested.

Columns **evR**, **evIsPolID**, **senAuthDet** include indications of presence/absence of the component indicated by the header. If the component is absent, the cell will be empty. If the component is present in the test case and no additional remarks are required, the cell will contain the symbol ✓. If the component is present in the test case and some additional remarks are required, the cell will contain a number referencing additional remarks that appear numbered below the table.

Column **Purpose of test case** provides details on the main purpose for defining the corresponding test case.

4.1 Testing senderAuthenticationDetails component

The present clause specifies test cases for testing inclusion of authentication details of the sender within evidence.

Table 2: Testing senderAuthenticationDetails component

Test identifier	Trigger Event	senAuthDet	Purpose of test case
EVF-AUT-001	Acceptance of Message by REM-MD	1	Check senderAuthenticationDetails when no signature has been used for authenticating the sender.
EVF-AUT-002	Acceptance of Message by REM-MD	2	Check senderAuthenticationDetails when a signature has been used for authenticating the sender, but the signature itself is not present in the evidence.
EVF-AUT-003	Acceptance of Message by REM-MD	3	Check senderAuthenticationDetails when a signature has been used for authenticating the sender, and the signature itself is present in the evidence.

1) The senderAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced, Strong or through a SAML token.

2) The senderAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: AdES, AdES-Plus or QES.

3) The senderAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: AdES, AdES-Plus or QES. Additionally the AdditionalDetails element will include the signature itself.

4.2 Testing recipientAuthenticationDetails component

The present clause specifies test cases for testing inclusion of authentication details of the recipient within evidence.

Table 3: Testing recipientAuthenticationDetails component

Test identifier	Trigger Event	recAuthDet	Purpose of test case
EVF-AUT-004	Retrieval of the message by the recipient	1	Check recipientAuthenticationDetails when no signature has been used for authenticating the sender.
EVF-AUT-005	Retrieval of the message by the recipient	2	Check recipientAuthenticationDetails when a signature has been used for authenticating the sender, but the signature itself is not present in the evidence.
EVF-AUT-006	Retrieval of the message by the recipient	3	Check recipientAuthenticationDetails when a signature has been used for authenticating the sender, and the signature itself is present in the evidence.

1) The senderAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced, Strong or through a SAML token.

2) The recipientAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: AdES, AdES-Plus or QES.

3) The recipientAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: AdES, AdES-Plus or QES. Additionally the AdditionalDetails element will include the signature itself.

4.3 Testing SubmissionAcceptanceRejection evidence

The present clause specifies test cases for testing the SubmissionAcceptanceRejection evidence.

Table 4: Testing SubmissionAcceptanceRejection evidence

Test identifier	Trigger Event	evR	evIsPollD	senAuthDet	repTo	Purpose of test case
EVF-SUBACC-001	Acceptance of Message by REM-MD		✓	1	✓	Check SubmissionAcceptanceRejection evidence proving acceptance. Same contents as test case EVF-AUT-001.
EVF- SUBACC-002	Rejection Message by REM-MD	2	✓	1	✓	Check SubmissionAcceptanceRejection evidence proving rejection due to invalid format.
EVF- SUBACC-003	Rejection of Message by REM-MD	3	✓	1	✓	Check SubmissionAcceptanceRejection evidence proving rejection due to malware detection.
EVF- SUBACC-004	Rejection of Message by REM-MD	4	✓	1	✓	Check SubmissionAcceptanceRejection evidence proving rejection due to not accepted attachment format.
EVF- SUBACC-005	Rejection of Message by REM-MD	5	✓	1	✓	Check SubmissionAcceptanceRejection evidence proving rejection due to invalid sender's signature.
EVF- SUBACC-006	Rejection of Message by REM-MD	6	✓	1	✓	Check SubmissionAcceptanceRejection evidence proving rejection due to sender's signing certificate revoked or expired.

1) The senderAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

2) The message has been rejected because its format is invalid.

3) The message has been rejected because the REM-MD has detected that the message contains malware.

4) The message has been rejected because the attachement format is not accepted by the REM-MD.

5) The message has been rejected because the sender's signature of the original message is invalid.

6) The message has been rejected because the sender's signing certificate is revoked or expired.

4.4 Testing RelayREMMDAcceptanceRejection evidence

The present clause specifies test cases for testing the RelayREMMDAcceptanceRejection evidence.

Table 5: Testing RelayREMMDAcceptanceRejection evidence

Test identifier	Trigger Event	evR	evIsPollD	senAuthDet	Purpose of test case
EVF-RELACC-001	Acceptance Relay REM-MD		✓	1	Check RelayREMMDAcceptanceRejection evidence proving relaying acceptance.
EVF- RELACC -002	Rejection Message by REM-MD	2	✓	1	Check RelayREMMDAcceptanceRejection evidence proving rejection due to invalid message format.
EVF- RELACC -003	Rejection Message by REM-MD	3	✓	1	Check RelayREMMDAcceptanceRejection evidence proving rejection due to malware found.
EVF- RELACC -004	Rejection Message by REM-MD	4	✓	1	Check RelayREMMDAcceptanceRejection evidence proving rejection due to invalid message signature format.
EVF- RELACC -005	Rejection Message by REM-MD	5	✓	1	Check RelayREMMDAcceptanceRejection evidence proving rejection due to signing certificate expired or revoked.
EVF- RELACC -006	Rejection Message by REM-MD	6	✓	1	Check RelayREMMDAcceptanceRejection evidence proving rejection due to recipient's REM-PD or REM-MD policy violation non accepted.

1) The senderAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

2) Relaying has been rejected because the format of the message is invalid.

3) Relaying has been rejected because the there is malware in the REM Dispatch.

4) Relaying has been rejected because the signature is invalid.

5) Relaying has been rejected because the signing certificate of the REM Dispatch is revoked or expired.

6) Relaying has been rejected because there is a recipient's REM-MD's REM-PD policy violation non accepted.

4.5 Testing RelayREMMFailure evidence

The present clause specifies test cases for testing the RelayREMMDFailure evidence.

Table 6: Testing RelayREMMDFailure evidence

Test identifier	Trigger Event	evR	evIsPollD	senAuthDet	Purpose of test case
EVF-RELFAL-001	Failure in delivering to recipient's REM-MD	2	✓	1	Check RelayREMMDFailure evidence proving failure due to no identification of recipient's REM-MD in the Internet.
EVF- RELFAL - 002	Failure in delivering to recipient's REM-MD	3	✓	1	Check RelayREMMDFailure evidence proving failure due to recipient's REM-MD unreachable.
EVF- RELFAL - 003	Failure in delivering to recipient's REM-MD	4	✓	1	Check RelayREMMDFailure evidence proving failure due to REM-MD's malfunction.
EVF- RELFAL - 04	Failure in delivering to recipient's REM-MD	5	✓	1	Check RelayREMMDFailure evidence proving failure due to unknown recipient.

1) The senderAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

2) Relaying has failed because the sender's REM-MD cannot identify the recipient's REM-MD.

3) Relaying has failed because the recipient's REM-MD is unreachable.

4) Relaying has failed because the recipient's REM-MD has malfunctions that prevent delivery.

5) Relaying has failed because the recipient is unknown.

4.6 Testing DeliveryNonDeliveryToRecipient evidence

The present clause specifies test cases for testing the DeliveryNonDeliveryToRecipient evidence.

Table 7: Testing DeliveryNonDeliveryToRecipient evidence

Test identifier	Trigger Event	evR	evIsPollD	recpAuthDet	NotTag	recDelDet	Purpose of test case
EVF-DELREC-001	Successful delivery to recipient's mailbox		✓	1			Check DeliveryNonDeliveryToRecipient evidence proving delivery to the recipient's mailbox.
EVF- DELREC - 002	Failure in delivery to recipient's mailbox	2	✓	1			Check DeliveryNonDeliveryToRecipient evidence proving failure due to the fact that the sender's REM-MD has not received any delivery information from recipient's REM-MD within a certain giving period of time.
EVF- DELREC - 003	Failure in delivery to recipient's mailbox	3	✓	1			Check DeliveryNonDeliveryToRecipient evidence proving failure due to Invalid format of REM Dispatch.
EVF- DELREC - 004	Failure in delivery to recipient's mailbox	4	✓	1			Check DeliveryNonDeliveryToRecipient evidence proving failure due to the fact that recipient's mailbox is full.
EVF- DELREC - 005	Failure in delivery to recipient's mailbox	5	✓	1			Check DeliveryNonDeliveryToRecipient evidence proving failure due technical malfunction.
EVF- DELREC - 006	Failure in delivery to recipient's mailbox	6	✓	1			Check DeliveryNonDeliveryToRecipient evidence proving failure due to the fact the attachement format is not accepted.
EVF- DELREC - 007	Failure in delivery to recipient's mailbox	7	✓	1			Check DeliveryNonDeliveryToRecipient evidence proving failure due to the fact the retention period has expired without successful delivery.
EVF-DELREC-008	Successful delivery to recipient's delegate's mailbox		✓	8		✓	Check DeliveryNonDeliveryToRecipient evidence proving delivery to the recipient's delegate's mailbox.
EVF-DELREC-009	Successful delivery of a notification to recipient's mailbox		✓	9	✓		Check DeliveryNonDeliveryToRecipient evidence proving delivery of a notification to the recipient's mailbox.

1) The recipientAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

2) Delivery has failed because the sender's REM-MD has not received any indication of delivery from the recipient's REM-MD within a certain period of time.

3) Delivery has failed because the REM Dispatch format was invalid.

4) Delivery has failed because the recipient's mailbox is full.

5) Delivery has failed because there has been a certain technical malfunction detected by recipient's REM-MD.

6) Delivery has failed because the format of some attachement is not accepted.

7) Delivery has failed because recipient's REM-MD has not been able to successfully deliver during the retention period.

8) The recipientAuthenticationDetails component for this test case will indicate the authentication method used for authenticating the recipient's delegate and will be one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

9) This test case tests generation of a positive DeliveryNonDeliveryToRecipient evidence for proving delivery of a notification to recipient's mailbox (this may be used in certain scenarios with Store and Notify mode of operation, where the original message is stored in the REM-MD Repository and a notification is forwarded to the recipient).

4.7 Testing DownloadNonDownloadByRecipient evidence

The present clause specifies test cases for testing the DownloadNonDownloadByRecipient evidence.

Table 8: Testing DownloadNonDownloadByRecipient evidence

Test identifier	Trigger Event	evR	evIsPolID	recpAuthDet	recDelDet	Purpose of test case
EVF-DOWNREC-001	Successful download by recipient		✓	1		Check DownloadNonDownloadByRecipient evidence proving download by the recipient.
EVF-DOWNREC - 002	Failure in download by recipient	2	✓	1		Check DownloadNonDownloadByRecipient evidence proving failure due to the fact that the sender's REM-MD has not received any download information from recipient's REM-MD within a certain giving period of time.
EVF-DOWNREC - 003	Failure in download by recipient	3	✓	1		Check DownloadNonDownloadByRecipient evidence proving failure due to Invalid format of REM Dispatch.
EVF-DOWNREC - 004	Failure in download by recipient	4	✓	1		Check DownloadNonDownloadByRecipient evidence proving failure due technical malfunction.
EVF-DOWNREC - 005	Failure in download by recipient	5	✓	1		Check DownloadNonDownloadByRecipient evidence proving failure due to the fact the attachement format is not accepted.
EVF-DOWNREC - 006	Failure in download by recipient	6	✓	1		Check DownloadNonDownloadByRecipient evidence proving failure due to the fact the retention period has expired without successful download.
EVF-DOWNREC - 007	Failure in download by recipient	7	✓	1		Check DownloadNonDownloadByRecipient evidence proving failure due rejection by the recipient.
EVF-DOWNREC - 008	Successful download by recipient's delegate		✓	8	✓	Check DownloadNonDownloadByRecipient evidence proving successful download by the recipient's delegate.

1) The recipientAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

2) Evidence proving failure is issued because the sender's REM-MD has not received any indication of successful download from the recipient's REM-MD within a certain period of time.

3) Evidence proving failure is issued because the REM Dispatch's format is not valid.

4) Evidence proving failure is issued because the recipient's REM-MD has detected some malfunction.

5) Evidence proving failure is issued because the format of one attachement is not accepted.

6) Evidence proving failure is issued because the recipient's REM-MD has detected that the retention period has expired without successful download.

7) Evidence proving failure is issued because the recipient's has rejected download.

8) The recipientAuthenticationDetails component for this test case will indicate the authentication method used for authenticating the recipient's delegate and will be one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

4.8 Testing RetrievalNonRetrievalByRecipient evidence

The present clause specifies test cases for testing the RetrievalNonRetrievalByRecipient evidence.

Table 9: Testing RetrievalNonRetrievalByRecipient evidence

Test identifier	Trigger Event	evR	evIsPollD	recpAuthDet	notTag	recDelDet	Purpose of test case
EVF-RETRREC-001	Successful retrieval by recipient		✓	1			Check RetrievalNonRetrievalByRecipient evidence proving retrieval by the recipient.
EVF-RETRREC-002	Failure in retrieval by recipient	2	✓	1			Check RetrievalNonRetrievalByRecipient evidence proving failure due to Invalid format of REM Dispatch.
EVF-RETRREC-003	Failure in retrieval by recipient	3	✓	1			Check RetrievalNonRetrievalByRecipient evidence proving failure due to presence of malware in the REM Dispatch.
EVF-RETRREC-004	Failure in retrieval by recipient	4	✓	1			Check RetrievalNonRetrievalByRecipient evidence proving failure due technical malfunction.
EVF-RETRREC-005	Failure in retrieval by recipient	5	✓	1			Check RetrievalNonRetrievalByRecipient evidence proving failure due to the fact the attachement format is not accepted.
EVF-RETRREC-006	Failure in retrieval by recipient	6	✓	1			Check RetrievalNonRetrievalByRecipient evidence proving failure due to the fact the retention period has expired without successful retrieval.
EVF-RETRREC -007	Successful retrieval by recipient's delegate		✓	7		✓	Check RetrievalNonRetrievalByRecipient evidence proving successful retrieval by the recipient's delegate.
EVF-RETRREC -008	Successful retrieval by recipient's delegate		✓	8	✓		Check RetrievalNonRetrievalByRecipient evidence proving successful retrieval of a notification by the recipient.

1) The recipientAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

2) Evidence proving failure is issued because the REM Dispatch's format is not valid.

3) Evidence proving failure is issued because the recipient's REM-MD has detected malware.

4) Evidence proving failure is issued because the recipient's REM-MD has detected some malfunction.

5) Evidence proving failure is issued because the format of one attachement is not accepted.

6) Evidence proving failure is issued because the recipient's REM-MD has detected that the retention period has expired without successful retrieval.

7) The recipientAuthenticationDetails component for this test case will indicate the authentication method used for authenticating the recipient's delegate and will be one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

8) This test case tests generation of a positive RetrievalNonRetrievalByRecipient evidence for proving retrieval by recipient of a notification (this may be used in certain scenarios with Store and Notify mode of operation, where the original message is stored in the REM-MD Repository and a notification is forwarded to the recipient).

4.9 Testing AcceptanceRejectionByRecipient evidence

The present clause specifies test cases for testing the AcceptanceRejectionlByRecipient evidence.

Table 10: Testing AcceptanceRejectionlByRecipient evidence

Test identifier	Trigger Event	evR	evIsPollD	recpAuthDet	notTag	recDelDet	Purpose of test case
EVF-ACRECREC-001	REM Dispatch accepted by recipient		✓	1			Check AcceptanceRejectionlByRecipient evidence proving acceptance by the recipient.
EVF-ACRECREC-002	REM Dispatch rejected by recipient		✓	1			Check AcceptanceRejectionlByRecipient evidence proving rejection by the recipient.
EVF-ACRECREC-003	REM Dispatch accepted by recipient's delegate		✓	2		✓	Check AcceptanceRejectionlByRecipient evidence proving acceptance by the recipient's delegate.
EVF-ACRECREC-004	REM Dispatch rejected by recipient's delegate		✓	2		✓	Check AcceptanceRejectionlByRecipient evidence proving rejection by the recipient's delegate.
EVF-ACRECREC-004	REM Dispatch rejected by recipient's delegate			3	✓		Check AcceptanceRejectionlByRecipient evidence proving acceptance of a notification by the recipient.

1) The recipientAuthenticationDetails component for this test case will indicate one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

2) The recipientAuthenticationDetails component for this test case will indicate the authentication method used for authenticating the recipient's delegate and will be one of the following authentication mechanisms identified in TS 102 640-2 [i.2]: Basic, Enhanced or Strong.

3) This test case tests generation of a positive AcceptanceRejectionIByRecipient evidence for proving acceptance by recipient of a notification (this may be used in certain scenarios with Store and Notify mode of operation, where the original message is stored in the REM-MD Repository and a notification is forwarded to the recipient).

4.10 Testing RelayToNonREMSystem evidence

The present clause specifies test cases for testing the RelayToNonREMSystem evidence.

Table 11: Testing RelayToNonREMSystem evidence

Test identifier	Trigger Event	evR	evIsPolID	Purpose of test case
EVF-RELNREM-001	Successful relay	✓	✓	Check RelayToNonREMSystem evidence proving successful relaying to regular e-mail system.
EVF-RELNREM-002	Failure in relaying	✓	✓	Check RelayToNonREMSystem evidence proving failure due to the fact that regular e-mail system is unreachable.
EVF-RELNREM-003	Failure in relaying	✓	✓	Check RelayToNonREMSystem evidence proving failure due to the fact that regular e-mail system is non operational.
EVF-RELNREM-004	Failure in relaying	✓	✓	Check RelayToNonREMSystem evidence proving failure due to the fact that regular e-mail rejects relaying.
EVF-RELNREM-005	Failure in printing	✓	✓	Check RelayToNonREMSystem evidence proving failure due to the fact that the printing system is unreachable.
EVF-RELNREM-006	Failure in printing	✓	✓	Check RelayToNonREMSystem evidence proving failure due to the fact that the printing system is not operational.
EVF-RELNREM-007	Failure in printing	✓	✓	Check RelayToNonREMSystem evidence proving failure due to the fact that the printing system buffer is full.

4.11 Testing ReceivedFromNonREMSystem evidence

The present clause specifies test cases for testing the ReceivedFromNonREMSystem evidence.

Table 12: Testing ReceivedFromNonREMSystem evidence

Test identifier	Trigger Event	evR	evIsPolID	Purpose of test case
EVF-RECNREM-001	Successful reception	✓	✓	Check ReceivedFromNonREMSystem evidence proving successful reception from a regular e-mail system.

5 Testing REM-MD Envelope Formats

The present clause defines test suites for testing REM-MD Envelopes. Two different sets are specified:

- Test cases for REM-MDs that use S/MIME on SMTP (clause 5.1).
- Test cases for REM-MDs that use SOAP on HTTP (clause 5.2).

5.1 REM-MDs using S/MIME on SMTP

The present clause defines a number of test cases for testing correctness of REM-MD Envelope formats when the REM-MD is using S/MIME on SMTP. Each sub-clause contains test cases for one or a combination of several REM-MD Envelope content part(s). Test cases have been defined for different combinations of envelope headers and envelope contents.

The test identifiers for all these tests will follow the following pattern: MSGF-[Section/Combination acronym]-[number], where MSGF stands for "Message Format".

The test suite is specified using a tabular form. Each row of the tables specifies one test case. For each test case, the table incorporates mechanisms for indicating:

1) Those optional and/or conditional headers or REM-MD Envelope sections that are present or absent (mandatory headers/sections of the REM-MD Envelope will be present anyway). This is done including one column per each optional/conditional header/section in the REM-MD Envelope.
2) Additional remarks on optional/conditional header/section that are present.
3) Additional remarks on mandatory header/section.

Conditional and/or optional header/section that are not mentioned in the tables, are absent for the all the test cases specified in the table.

The following acronyms for the conditional/optional components are used in the tables of the subclauses of the present clause:

- **X-REM-Msg-Type**: X-REM-Msg-Type optional header of the REM-MD Envelope outermost headers set (specified in TS 102 640-2 [i.2], clause 4.1).
- **X-REM-Section-Type**: X-REM-Section-Type optional header in some of the REM-MD Envelope sections headers.
- **PlainText introduction body**: body of the part corresponding to plain text part within the Introduction section.
- **HTML introduction body**: body of the part corresponding to HTML part within the Introduction section.
- **SubmissionAccetpanceRejection Evidence specified in test case**: the content of the cells are identifiers of evidences test cases on SubmissionAcceptanceRejection evidence.
- **RelayToREMMDAcceptanceRejection Evidence specified in**: the content of the cells are identifiers of evidences test cases on RelayToREMMDAcceptanceRejection evidence.
- **Original Message section as specified in test case**: for test cases testing presence of more than one section (apart from the Signature section), the content of the cells are identifiers of test cases on original message section.
- **Evidence section as specified in test case**: for test cases testing presence of more than one section (apart from the Signature section), the content of the cells are identifiers of test cases on evidence section.

Below follows an example of a table for defining test cases for REM-MD Envelope that contain only one section in addition to the mandatory Signature Section.

Table 13: Example of table for specifying test cases on REM-MD Envelope containing one section in addition to the Signature Section

Test identifier	X-REM-Msg-Type (Clause 4.1)	Submission AccetpanceRejection Evidence specified in test case	RelayToREMMD AcceptanceRejection Evidence specified in test case	Purpose of test case

Column **Test identifier** indicates the identifier code for the test case specified in the row. The test identifiers for all these tests will follow the following pattern: MSGF-[Section(s) acronym(s)]-[number], where MSGF stands for "Message Format".

Column **X-REM-Msg-Type (clause 4.1)** indicates presence if ticked or absence if not ticked and not number in the cell of the X-REM-Msg-Type optional header as specified in TS 102 640-2 [i.2], clause 4.1 in the REM-MD Envelope outermost headers set.

Columns **SubmissionAccetpanceRejection Evidence specified in test case, RelayToREMMDAcceptanceRejection Evidence specified in test case.** As mentioned above, each cell of these columns will be empty (in which case, no section for this evidence will be generated for the test case) or will contain an identifier of an evidence test case, in which case, a section including an evidence as specified in the referenced test case will be added to the REM-MD Envelope.

Column **Purpose of test case** provides details on the main purpose for defining the corresponding test case.

Below follows an example of a table for defining test cases for REM-MD Envelope that contain more than one section in addition to the mandatory Signature Section.

Table 14: Example of table for specifying test cases on REM-MD Envelope containing more than one section in addition to the Signature Section

Test identifier	Original Message section as specified in test case	Evidence section as specified in test case	Purpose of test case

Columns **Original Message section as specified in test case / Evidence section as specified in test case.** As mentioned above, each cell of these columns will be empty (in which case, no section will be generated for the test case) or will contain an identifier of an original message section/ evidence section test case, in which case, the corresponding section as specified in the referenced test case will be added to the REM-MD Envelope.

This format of table is used throughout a number of clauses wherever new test cases may be built on already defined test cases.

5.1.1 Testing REM-MD Envelope with REM-MD Introduction section

The present clause defines test cases where the REM-MD Envelope only contains the REM-MD introduction section.

Table 15: Testing REM-MD Envelope with Introduction section

Test identifier	X-REM-Msg-Type (Clause 4.1)	X-REM-Section-Type (Clause 4.4)	PlainText introduction body	HTML introduction body	Purpose of test case
MSGF-INTR-001			1	1	Check introductory section requirements.
MSGF-INTR-002	✓		1	1	Check introductory section requirements. Check optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-INTR-003		✓	1	1	Check introductory section requirements. Check optional X-REM-Section-Type header in Introduction section headers set.
MSGF-INTR-004	✓	✓	1	1	Check introductory section requirements. Check optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set . Check X-REM-Section-Type header in Introduction section headers set.

1) The corresponding introductory part will be present and its body will contain one URL.

5.1.2 Testing REM-MD Envelope with REM-MD Evidence

The present clause defines test cases where the REM-MD Envelope contains only one or more Evidence sections.

Table 16: Testing REM-MD Envelope with one or more Evidence

Test identifier	X-REM-Msg-Type (Clause 4.1)	SubmissionAcceptanceRejection Evidence specified in test case	RelayToREMMDAcceptanceRejection Evidence specified in test case	Purpose of test case
MSGF-EVD-001		EVF-SUBACC-001, 1		Check requirements on one evidence section containing one XML evidence.
MSGF-EVD-002		EVF-SUBACC-001, 1	EVF-RELACC-001, 1	Check requirements on two evidence sections each one containing one XML evidence.
MSGF-EVD-003	✓	EVF-SUBACC-001, 1	EVF-RELACC-001, 1	Check requirements on two evidence sections each one containing one XML evidence. Check optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-EVD-004		EVF-SUBACC-001, 2		Check requirements on one evidence section containing one ASN.1 evidence.
MSGF-EVD-005		EVF-SUBACC-001, 2	EVF-RELACC-001, 2	Check requirements on two evidence sections each one containing one ASN.1 evidence.
MSGF-EVD-006	✓	EVF-SUBACC-001, 2	EVF-RELACC-001, 2	Check requirements on two evidence sections each one containing one ASN.1 evidence. Check optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-EVD-007		EVF-SUBACC-001, 3		Check requirements on one evidence section containing one PDF evidence.
MSGF-EVD-008		EVF-SUBACC-001, 3	EVF-RELACC-001, 3	Check requirements on two evidence sections each one containing one PDF evidence.
MSGF-EVD-009	✓	EVF-SUBACC-001, 3	EVF-RELACC-001, 3	Check requirements on two evidence sections each one containing one PDF evidence. Check optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.

1) The Evidence will formatted as an XML element as specified in annex B of TS 102 640-2 [i.2] .

2) The Evidence will be encoded using the Distinguished Encoding Rules of the ASN.1 structure specified in annex A of TS 102 640-2 [i.2].

3) The Evidence will be a human readable PDF document as specified in annex C of TS 102 640-2 [i.2].

5.1.3 Testing REM-MD Envelope with Original Message

The present clause defines test cases where, the REM-MD Envelope only contains the Original Message.

Table 17: Testing REM-MD Envelope with Original Message section

Test identifier	X-REM-Msg-Type (Clause 4.1)	X-REM-Section-Type (Clause 4.5)	Purpose of test case
MSGF-ORM-001			Check original message section requirements.
MSGF-ORM-002	✓		Check original message section requirements. Check optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-ORM-003		✓	Check original message section requirements. Check optional X-REM-Section-Type header in the Original Message section headers set.
MSGF-ORM-004	✓	✓	Check original message section requirements. Check optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers. Check the optional X-REM-Section-Type header in the Original Message section headers set.

5.1.4 Testing REM-MD Envelope with parts of different types

5.1.4.1 Testing REM-MD Envelope with Original Message and Evidence sections

This clause defines test cases for the Store and Forward mode of operation, as the contents original message is present in the REM-MD Envelope.

Table 18: Testing REM-MD Envelope with Original Message and Evidence sections

Test identifier	Original Message section as specified in test case	Evidence section as specified in test case	Purpose of test case
MSGF-ORM&EVD-001	MSGF-ORM-001	MSGF-EVD-001	Check original message section requirements in combination with one XML Evidence section.
MSGF-ORM&EVD-002	MSGF-ORM-001	MSGF-EVD-004	Check original message section requirements in combination with one ASN.1 Evidence section.
MSGF-ORM&EVD-003	MSGF-ORM-001	MSGF-EVD-007	Check original message section requirements in combination with one PDF Evidence section.
MSGF-ORM&EVD-004	MSGF-ORM-001	MSGF-EVD-001	Check original message section requirements in combination with two XML Evidence sections.
MSGF-ORM&EVD-005	MSGF-ORM-001	MSGF-EVD-004	Check original message section requirements in combination with two ASN.1 Evidence sections
MSGF-ORM&EVD-006	MSGF-ORM-001	MSGF-EVD-007	Check original message section requirements in combination with two PDF Evidence sections.
MSGF-ORM&EVD-007	MSGF-ORM-002	MSGF-EVD-001	Check original message section requirements in combination with one XML Evidence section. Check also optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-ORM&EVD-008	MSGF-ORM-002	MSGF-EVD-004	Check original message section requirements in combination with one ASN.1 Evidence section. Check also optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-ORM&EVD-009	MSGF-ORM-002	MSGF-EVD-007	Check original message section requirements in combination with one PDF Evidence section. Check also optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-ORM&EVD-010	MSGF-ORM-003	MSGF-EVD-001	Check original message section requirements in combination with one XML Evidence section. Check also optional X-REM-Section-Type header in the Original Message section headers set.
MSGF-ORM&EVD-011	MSGF-ORM-003	MSGF-EVD-004	Check original message section requirements in combination with one ASN.1 Evidence section. Check also optional X-REM-Section-Type header in the Original Message section headers set.
MSGF-ORM&EVD-012	MSGF-ORM-003	MSGF-EVD-007	Check original message section requirements in combination with one PDF Evidence section. Check also optional X-REM-Section-Type header in the Original Message section headers set.

5.1.4.2 Testing REM-MD Envelope with Introduction and Evidence sections

This clause defines test cases for the Store and Notify mode of operation, as the contents original message is not present in the REM-MD Envelope; instead the introduction section is present with a reference to the original message stored in the REM-MD Repository.

Table 19: Testing REM-MD Envelope with Introduction and Evidence sections

Test identifier	Original Message section as specified in test case	Evidence section as specified in test case	Purpose of test case
MSGF-INTR&EVD-001	MSGF-INTR-001	MSGF-EVD-001	Check introduction section requirements in combination with one XML Evidence section.
MSGF-INTR&EVD-002	MSGF-INTR-001	MSGF-EVD-004	Check introduction section requirements in combination with one ASN.1 Evidence section.
MSGF-INTR&EVD-003	MSGF-INTR-001	MSGF-EVD-007	Check introduction section requirements in combination with one PDF Evidence section.
MSGF-INTR&EVD-004	MSGF-INTR-002	MSGF-EVD-001	Check introduction section requirements in combination with one XML Evidence section. Check also optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-INTR&EVD-005	MSGF-INTR-002	MSGF-EVD-004	Check introduction section requirements in combination with one ASN.1 Evidence section. Check also optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-INTR&EVD-006	MSGF-INTR-002	MSGF-EVD-007	Check introduction section requirements in combination with one PDF Evidence section. Check also optional X-REM-Msg-Type header in the REM-MD Envelope outermost headers set.
MSGF-INTR&EVD-007	MSGF-INTR-003	MSGF-EVD-001	Check introduction section requirements in combination with one XML Evidence section. Check also optional X-REM-Section-Type header in the Introduction section headers set.
MSGF-INTR&EVD-008	MSGF-INTR-003	MSGF-EVD-004	Check introduction section requirements in combination with one ASN.1 Evidence section. Check also optional X-REM-Section-Type header in the Introduction section headers set.
MSGF-INTR&EVD-009	MSGF-INTR-003	MSGF-EVD-007	Check introduction section requirements in combination with one PDF Evidence section. Check also optional X-REM-Section-Type header in the Introduction section headers set.

NOTE: No test case for two evidence sections has been defined because according TS 102 640-2 [i.2] the only two evidences whose primary intended recipient is the original message recipient are SubmissionAcceptanceRejection and ReceivedFromNonREMSystem.

5.2 REM-MDs using SOAP on HTTP

The present clause defines a number of test cases for testing correctness of REM-MD Envelope formats when the REM-MD is using SOAP on HTTP. Each clause contains test cases for one or a combination of several REM-MD Envelope content part(s). Test cases have been defined for different combinations of envelope contents.

The test identifiers for all these tests will follow the following pattern: XMSGF-[Section/Combination acronym]-[number], where XMSGF stands for "XML-based Message Format".

The test suite is specified using a tabular form. Each row of the tables specifies one test case. For each test case, the table incorporate mechanisms for indicating:

1) Those optional and/or conditional elements or REM-MD Envelope contents that are present or absent (mandatory elements/attributes of the REM-MD Envelope content will be present anyway). This is done including one column per each optional/conditional element/attribute in the REM-MD Envelope.

2) Additional remarks on optional/conditional elements/attributes that are present.

Conditional and/or optional elements/attributes that are not mentioned in the tables, are absent for the all the test cases specified in the table.

As for the <NormalizedMsg>, the present document only defines test cases where this element is used for carrying an attachment. No other test cases are specified for transporting normalized versions of the original message as the rules for building the normalized version are defined on a case per case basis.

5.2.1 Testing **<REMDispatch>** without Evidence list

The present clause defines test cases where, in addition to the mandatory <MsgMetaData>, the <REMDispatch> only contains <OriginalMsg> and <NormalizedMsg> but not the <REMEvidenceList> child.

Table 20: Testing <REMDispatch> without evidence list

Test identifier	MsgMetaData								OriginalMsg	NormalizedMsg	Purpose of test case
	DelConstraints		Originators		Destinations/Other Recipients		MsgIdentification				
	Origin	ObsoleteAfter	Sender	ReplyTo	To	Cc	In-Reply-To	References			
XMSGF-ORM-001					1				✓		Check <MsgMetaData> without any optional descendant element, only mandatory. No signature is present.
XMSGF-ORM-002	✓	✓			1				✓		Check <MsgMetaData>'s <DeliveryConstraints> with all optional children present, except <xades:Any>. No signature is present.
XMSGF-ORM-003			✓		1				✓		Check <MsgMetaData>'s <DeliveryConstraints> including information of the delegate responsible for the actual transmission within <Sender>. Its contents are different than <From>'s contents. No signature is present.
XMSGF-ORM-004				✓	2				✓		Check <MsgMetaData>'s <Destinations> containing several <To> children. No signature is present.
XMSGF-ORM-005				✓	1	3			✓		Check <MsgMetaData>'s <Destinations> containing one <To> child and several <Cc> children. No signature is present.
XMSGF-ORM-006					1		4		✓		Check <MsgMetaData>'s <MsgIdentification> including one <In-Reply-To> child. No signature is present.
XMSGF-ORM-007					1			5	✓		Check <MsgMetaData>'s <MsgIdentification> including one <References> child. No signature is present.
XMSGF-ORM-008					1				✓	6	Check <NormalizedMsg> including an embedded attachement
XMSGF-ORM-009					1				✓	7	Check <NormalizedMsg> including <Content-ID-Ref> element with the MIME boundary value of the attachment in the original message.
XMSGF-ORM-010	✓	✓	✓	✓	1	3	4	5	✓	6	Check <REMDispatch> with optional descendants present.

1) There will be only one <To> child element in <Destinations>.

2) There will be more than one <To> children elements in <Destinations>.

3) There will be one <To> child and more than one <Cc> children elements in <Destinations>.

4) There will be one <In-Reply-To> child element in < MsgIdentification >.

5) There will be one <References> child element in < MsgIdentification >.

6) There will be one <Embedded> child element in < Attachment >.

7) There will be one <Content-ID-Ref> child element in < Attachment >.

5.2.2 Testing <REMDispatch> with Evidence list

The present clause defines test cases where, in addition to the mandatory <MsgMetaData>, <OriginalMsg> and the optional <NormalizedMsg>, it also contains some evidence. The test cases identified in the present clause will be built on test cases specified in the previous clause 5.2.1. The new test cases are built by reference to formerly defined test cases.

Table 21: Testing <REMDispatch> with evidence list

Test identifier	<OriginalMsg> and <NormalizedMsg> as specified in test case	SubmissionAcceptanceRejection Evidence specified in test case	Purpose of test case
XMSGF- ORM &EVD-001	XMSGF-ORM-001	MSGF-EVD-001	Check <REMDispatch> containing <OriginalMsg> and one XML Evidence section.
XMSGF- ORM &EVD-002	XMSGF-ORM-002	MSGF-EVD-001	Check <REMDispatch> containing <OriginalMsg> and one XML Evidence section.
XMSGF- ORM &EVD-003	XMSGF-ORM-003	MSGF-EVD-001	Check <REMDispatch> containing <OriginalMsg> and one XML Evidence section.
XMSGF- ORM &EVD-004	XMSGF-ORM-006	MSGF-EVD-001	Check <REMDispatch> containing <OriginalMsg> and one XML Evidence section.
XMSGF- ORM &EVD-005	XMSGF-ORM-008	MSGF-EVD-001	Check <REMDispatch> containing <OriginalMsg> and one XML Evidence section.

5.2.3 Testing <REMMDMessage> with Evidence list

The present section outlines interoperability tests for <REMMDMessage> with <REMMDEvidenceList> element as only child (no signature is present).

Table 22: Tests for <REMMDMessage> with Evidence list

Test identifier	First Evidence as specified in test case	Second Evidence as specified in test case	Purpose of test case
XMSGF-EVD-001	EVF-SUBACC-001		Test <REMMDMessage> with one evidence
XMSGF-EVD-002	EVF-RELACC-001		Test <REMMDMessage> with one evidence
XMSGF-EVD-003	EVF-DELREC-001		Test <REMMDMessage> with one evidence
XMSGF-EVD-004	EVF-DELREC-008		Test <REMMDMessage> with one evidence
XMSGF-EVD-005	EVF-RETRREC-001		Test <REMMDMessage> with one evidence
XMSGF-EVD-006	EVF- RETRREC -007		Test <REMMDMessage> with one evidence
XMSGF-EVD-007	EVF-ACRECREC-001		Test <REMMDMessage> with one evidence
XMSGF-EVD-008	EVF-ACRECREC-003		Test <REMMDMessage> with one evidence
XMSGF-EVD-009	EVF-SUBACC-001	EVF-RELACC-001	Test <REMMDMessage> with two evidence
XMSGF-EVD-010	EVF-SUBACC-001	EVF-DELREC-001	Test <REMMDMessage> with two evidence
XMSGF-EVD-011	EVF-SUBACC-001	EVF-ACRECREC-001	Test <REMMDMessage> with two evidence

6 Testing REM-MD Signatures

The present clause defines a test suite for testing electronic signatures applied to both REM-MD envelopes and to individual signatures by REM-MD.

The test suite defined in the present document is not an exhaustive one for the AdES signatures; instead it is limited to the types and forms specified in TS 102 640-2 [i.2] clause 6. For a more exhaustive test suite on XAdES and CAdES signatures please refer to ETSI CTI and its remote XAdES/CAdES Plugtests™ supported by the ETSI portal of electronic signatures (general information on Plugtests™ at http://www.etsi.org/WebSite/OurServices/plugtests/home.aspx).

Clause 6.1 defines a test-suite for XAdES signatures individually signing one specific Evidence.

Clause 6.2 defines a test-suite for S/MIME signatures covering the contents of a S/MIME REM-MD envelope.

Finally clause 6.3 defines a test-suite for XAdES signatures covering the contents of a SOAP based REM-MD envelope contents.

6.1 Testing REM-MD Signatures on individual REM-MD Evidence

As mentioned above, the current clause defines a test suite for testing XAdES signatures that individually sign a XML REM-MD Evidence.

All the signatures specified in these test cases will be SXCAdES signatures that incorporate the following properties:

- SigningCertificate
- SigningTime

In addition to these ones, each test case may require addition of other XAdES properties as indicated in the table below.

Table 23: Tests for XAdES signatures individually signing one Evidence

Test identifier	Signed Evidence	SignaturePolicy Identifier	Signature TimeStamp	Purpose
SIG-EVXADES-1	SubmissionAcceptanceRejection			Testing XAdES signature signing a REM-MD evidence. No other properties than the ones identified in the bulleted list above.
SIG-EVXADES-2	SubmissionAcceptanceRejection	✓		Testing XAdES signature signing a REM-MD evidence. SignaturePolicyIdentifier property present in addition to the attributes identified in the bulleted list above.
SIG-EVXADES-3	SubmissionAcceptanceRejection		✓	Testing XAdES signature signing a REM-MD evidence. SignatureTimeStamp property present in addition to the attributes identified in the bulleted list above.
SIG-EVXADES-4	SubmissionAcceptanceRejection	✓	✓	Testing XAdES signature signing a REM-MD evidence. SignatureTimeStamp and SignaturePolicyIdentifier properties present in addition to the attributes identified in the bulleted list above.

6.2 Testing REM-MD S/MIME Signatures

As mentioned above, the current clause defines a test suite for testing S/MIME signatures based on CAdES that cover the contents of a S/MIME formatted REM-MD envelope.

All the signatures specified in these test cases will be S/MIME encoded CAdES signatures that incorporate the following attributes:

- ESS-signing-certificate-V2
- Signing-time

In addition to these ones, each test case may require addition of other CAdES attributes as indicated in table 24.

Table 24: Tests for S/MIME CAdES-based signatures on S/MIME based REM-MD Envelopes

Test identifier	Original Msg.	Evidence	signature-policy-identifier attribute	signature-time-stamp attribute	Purpose
SIG-SMIME-1	✓				Testing S/MIME encoded CAdES signature signing a REM-MD envelope containing only the Original message generated by the sender. No other attributes than the ones identified in the bulleted list above.
SIG-SMIME-2		SubmissionAcceptanceRejection (not individually signed with XAdES) RelayREMMDAcceptanceRejection (not individually signed with XAdES)			Testing S/MIME encoded CAdES signature signing a REM-MD envelope containing the two evidence identified in the corresponding cell. No other attributes than the ones identified in the bulleted list above.
SIG-SMIME-3	✓		✓		Testing S/MIME encoded CAdES signature signing a REM-MD envelope containing only the Original message generated by the sender. Signature-policy-identifier attribute present in addition to the attributes identified in the bulleted list above.
SIG-SMIME-4	✓			✓	Testing S/MIME encoded CAdES signature signing a REM-MD envelope containing only the Original message generated by the sender. Signature-time-stamp attribute present in addition to the attributes identified in the bulleted list above.
SIG-SMIME-5	✓	SubmissionAcceptanceRejection (not individually signed with XAdES) RelayREMMDAcceptanceRejection (not individually signed with XAdES)	✓	✓	Testing S/MIME encoded CAdES signature signing a REM-MD envelope containing the Original message generated by the sender and the two evidence identified in the corresponding cell. Signature-time-stamp and signature-policy-identifier attributes present in addition to the attributes identified in the bulleted list above.
SIG-SMIME-6	✓	SubmissionAcceptanceRejection (individually signed with XAdES) RelayREMMDAcceptanceRejection (individually signed with XAdES) 1	✓	✓	Testing S/MIME encoded CAdES signature signing a REM-MD envelope containing the Original message generated by the sender and the evidence identified in the corresponding cell. Every evidence are individually signed with a XAdES Signature. Signature-time-stamp and signature-policy-identifier attributes present in addition to the attributes identified in the bulleted list above.

1) XAdES signatures that individually sign the evidence will be as profiled in test case SIG-EVXADES-2 as for the properties that will be present.

6.3 Testing XAdES signatures on SOAP based REM-MD Envelope

As mentioned above, the current clause defines a test suite for testing XAdES that cover the contents of a SOAP formatted REM-MD envelope.

All the signatures specified in these test cases will be XAdES signatures that incorporate the following attributes:

- SigningCertificate

- SigningTime

In addition to these ones, each test case may require addition of other XAdES properties as indicated in table 25.

Table 25: Tests for XAdES signatures signing a `<REMDispatch>`

Test identifier	REMEvidenceList	NormalizedMsg/ Attachment	signature-policy-identifier attribute	signature-time-stamp attribute	Purpose
SIG-XADESSOAP-1					Testing XAdES signature signing a <REMDispatch> without evidence and attachment. No other properties than the ones identified in the bulleted list above.
SIG-XADESSOAP-2			✓		Testing XAdES signature signing a <REMDispatch> without evidence and attachment. SignaturePolicyIdentifier property present in addition to the properties identified in the bulleted list above.
SIG-XADESSOAP-3				✓	Testing XAdES signature signing a <REMDispatch> without evidence and attachment. SignatureTimeStamp property present in addition to the properties identified in the bulleted list above.
SIG-XADESSOAP-4		✓			Testing XAdES signature signing a <REMDispatch> with attachment but without evidence. No other properties than the ones identified in the bulleted list above.
SIG-XADESSOAP-5	SubmissionAcceptanceRejection (not individually signed with XAdES) RelayREMMDAcceptanceRejection (not individually signed with XAdES)	✓			Testing XAdES signature signing a <REMDispatch> with attachment and with the two indicated unsigned evidence. No other properties than the ones identified in the bulleted list above.
SIG-XADESSOAP-6	SubmissionAcceptanceRejection (not individually signed with XAdES) RelayREMMDAcceptanceRejection (not individually signed with XAdES)	✓	✓	✓	Testing XAdES signature signing a <REMDispatch> with attachment and with the two indicated unsigned evidence. SignaturePolicyIdentifier and SignatureTimeStamp properties in addition to the ones identified in the bulleted list above.

Test identifier	REMEvidenceList	NormalizedMsg/ Attachment	signature-policy-identifier attribute	signature-time-stamp attribute	Purpose
SIG-XADESSOAP-7	SubmissionAcceptanceRejection (individually signed with XAdES) RelayREMMDAcceptanceRejection (individually signed with XAdES) 1		✓	✓	Testing XAdES signature signing a <REMDispatch> without attachment and with the evidence identified in the corresponding cell. Every evidence are individually signed with a XAdES Signature. Signature-time-stamp and signature-policy-identifier attributes present in addition to the attributes identified in the bulleted list above.

1) XAdES signatures that individually sign the evidence will be as profiled in test case SIG-EVXADES-2.

7 Testing REM Objects flows

The present clause defines test cases for the most relevant object flows that may appear within the Registered Electronic Mail framework.

Clause 7.1 defines test cases for situations where sender and recipient(s) are subscribed to the same REM-MD, or where one of them are not subscribed to any REM-MD at all (i.e. is sending or receiving via regular e-mail).

Clause 7.2 defines test cases for situations where sender is subscribed to a REM-MD and the recipient(s) is(are) not subscribed to any REM-MD, or where the sender is not subscribed to any REM-MD and the recipient(s) is(are) subscribed to one REM-MD. The objects flow between one REM-MD and Non REM System.

Clause 7.3 defines test cases for situations where the sender and the recipient(s) are subscribed to different REM-MDs.

Throughout this clause, the test suite is specified using a tabular form. Each row of the tables specifies one test case. For each test case, the table incorporate mechanisms for indicating:

1) Details of the original message submitted by the sender (whether it is signed or not, whether there is one attachment or not and the number of recipients).

2) Details of the REM-MD Message generated by the REM-MD for the sender. These details are: the list of present sections; and in case of evidence sections present, which evidence set appears, as well as whether each specific evidence signals success or failure.

3) Details of the REM Dispatch(es) generated by the REM-MD for the recipient(s) if any. These details are: the list of present sections; and in case of evidence sections present, which evidence set appears, as well as whether each specific evidence signals success or failure.

The following acronyms for evidence are used in the tables of the subclauses of the present clause:

- **SubAccRej**: SubmissionAcceptanceRejection evidence.
- **DelivNonDeliv**: DeliveryNonDeliveryToRecipient evidence.

- **DownNonDown**: DownloadNonDownloadByRecipient evidence.
- **RetrNonRetr**: RetrievalNonRetrievalByRecipient evidence.
- **AccRejRec**: AcceptanceRejectionByRecipient evidence.
- **RelTNonREM**: RelayToNonREMSystem evidence.
- **RecFNonREM**: ReceivedFromNonREMSystem evidence.

Below follows an example of a table for defining this set of test cases.

Table 26: Example of table for specifying test cases for testing intra REM-MD objects flows or between regular e-mail system and users subscribed to one REM-MD

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	

Column **Test identifier** indicates the identifier code for the test case specified in the row. The test identifiers for all these tests will follow the following pattern: OF-[SystemsImpliedAndOperationMode acronym(s)]-[Evidence set acronym]-[Recipient(s) acronym]-number, where:

- OF stands for "Objects Flow".
- [SystemsImpliedAndOperationMode acronym(s)] provides details of the systems implied in the flow and the mode of operation.
  - For the Store and Forward mode of operation, the acronyms used will be: **ISF**, standing for Intra REM-MD Store and Forward mode of operation, **SFTNR** standing for messages goring from REM-MD with Store and Forward To Non REM Systems; **SFNR** standing for messages coming From Non REM Systems to REM-MD with Store and Forward.
  - For the Store and Notify mode of operation, , the acronyms used will be: **ISN**, standing for Intra REM-MD Store and Notify mode of operation, **SNTNR** standing for messages goring from REM-MD with Store and Notify To Non REM Systems; **SNNR** standing for messages coming From Non REM Systems to REM-MD with Store and Notify.
- [Evidence set acronym]: provides details of the set of evidence managed in the test case: **ME** stands for Mandatory Evidence, namely SubmissionAcceptanceRejection and DeliveryNonDeliveryToRecipient evidence; **MOE** stands for Mandatory and Optional Evidence set.
- [Recipient(s) acronym]: provides details about the number of recipients or whether the recipient has delegated reception: **ONER** stands for one recipient, **SEVR** stands for several recipients, **RDEL** stands for recipient's delegate.

Column **Original Message** indicates, through its three sub-columns, details about the original message, namely: whether it is signed or not, whether there is attachments to the body message or not, and the number of recipients.

Columns **REM-MD Message for sender.** This column provides details of the REM-MD message generated by the REM-MD for the sender, if any. Its sub-columns indicate, respectively, the list of sections of the REM-MD message, and if any evidence section is present, the list of the evidence. If there are evidence, this subcolumn also indicates for each evidence, if it indicates a successful event or a failure. Successful events are indicated attaching a **(+)** to the evidence acronym in the cell; failures are indicated attaching a **(-)** to the evidence acronym in the cell.

Columns **REM Dispatch(es) for recipient**. The sub-columns below this header provide details of the objects flowing towards recipient, if any. Its sub-columns indicate, respectively, the list of sections of the REM-MD message, and if any evidence section is present, the list of the evidence. If there are evidence, this subcolumn also indicates for each evidence, if it indicates a successful event or a failure. Successful events are indicated attaching a **(+)** to the evidence acronym in the cell; failures are indicated attaching a **(-)** to the evidence acronym in the cell.

Column **Purpose of test case** provides details on the main purpose for defining the corresponding test case.

7.1 Testing intra REM-MD REM Objects flows

The present clause defines test cases for situations where sender and recipient(s) are subscribed to the same REM-MD.

Clause 7.1.1 defines test cases for REM-MDs that operate with the Store and Forward Mode of Operation.

Clause 7.1.2 defines test cases when for REM-MDs that operate with the Store and Notify Mode of Operation.

7.1.1 Testing Store and Forward Mode of Operation

The present clause defines test cases for flows between sender and recipient(s) when they are subscribed to the same REM-MD, which is operating with the Store and Forward Mode of Operation. It also defines test cases for flows between sender and recipient when one of them is not subscribed to any REM-MD and the other is subscribed to a REM-MD that is operating with the Store and Forward Mode of Operation.

Test cases are organized depending of the evidence set generated by the REM-MD.

Clause 4.4.1.1.1 defines test cases for situations where the REM-MD only generates the mandatory set, namely SubmissionAcceptanceRejection and DeliveryNonDeliveryToRecipient evidence.

Clause 4.4.1.1.2 defines test cases for situations where the REM-MD generates both mandatory and optional evidence, namelyRetrievalNonRetrievalByRecipient, AcceptanceRejectionByRecipeient evidence.

7.1.1.1 Testing flows with mandatory set of evidence

**Table 27: Testing submission of messages to one recipient.
Evidence set includes only mandatory ones: {SubAccRej, DelivNonDeliv}**

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	
OF-ISF-ME-ONER-1			One	Evidence	SubAccRej (+) DelivNonDeliv (+)	Original Mess. Evidence	SubAccRej(+)	Testing successful delivery of one non signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient.
OF-ISF-ME-ONER-2			One	Evidence	SubAccRej (+) DelivNonDeliv (+)	Original Mess. Evidence	 SubAccRej(+)	Testing successful delivery of one non signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient.
OF-ISF-ME-ONER-3_x			One	Evidence	SubAccRej(-) 1			Testing **rejection** of one non signed message without attachments. REM-MD generating no REM Dispatch for recipient.
OF-ISF-ME-ONER-4_x			One	Evidence	SubAccRej(+) DelivNonDeliv(-) 2			Testing **unsuccessful** delivery of one non signed message without attachments REM-MD generating no REM Dispatch for recipient.
OF-ISF-ME-ONER-5		✓	One	Evidence	SubAccRej(+) DelivNonDeliv(+)	Original Mess. Evidence	SubAccRej(+)	Testing **successful** delivery of one non signed message with one attachment. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient.
OF-ISF-ME-ONER-6		✓	One	Evidence	SubAccRej (+) DelivNonDeliv (+)	Original Mess. Evidence	 SubAccRej(+)	Testing **successful** delivery of one non signed message with one attachment. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient.
OF-ISF-ME-ONER-7		✓	One	Evidence	SubAccRej (-) 3			Testing **rejection** by REM-MD due to bad format of the attachment.
OF-ISF-ME-ONER-8		✓	One	Evidence	SubAccRej (+) DelivNonDeliv (-) 4			Testing **unsuccessful delivery** to recipient due to bad format of the attachment.

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	
OF-ISF-ME-ONER-9	✓		One	Evidence	SubAccRej(+) DelivNonDeliv(+)	Original Mess. Evidence	SubAccRej(+)	Testing **successful** delivery of one signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient.
OF-ISF-ME-ONER-10	✓		One	Evidence	SubAccRej (+) DelivNonDeliv (+)	Original Mess. Evidence	 SubAccRej(+)	Testing **successful** delivery of one signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient.
OF-ISF-ME-ONER-11	✓		One	Evidence	SubAccRej (-) 5			Testing **rejection** by REM-MD due to bad sender's signature.
OF-ISF-ME-ONER-12	✓		One	Evidence	SubAccRej (-) 6			Testing **rejection** by REM-MD due to the fact that the sender's certificate is revoked or expired.

1) This row defines 2 test cases (OF-ISF-ME-ONER-3_1 and OF-ISF-ME-ONER-3_2), one per each potential source of rejection by REM-MD, as specified in clause 4.3 and in consequence generate evidences as specified in test cases EVF- SUBACC-002 and EVF- SUBACC-003.

2) This row defines 5 test cases (OF-ISF-ME-ONER-4_1 to OF-ISF-ME-ONER-4_5), one per each potential source non-delivery to the recipient, as specified in clause 4.6 and in consequence generate evidences as specified in test cases EVF- DELREC -002, EVF- DELREC -003, EVF- DELREC -004, EVF- DELREC -005, and EVF-DELREC -007.

3) For this test case the rejection reason is the fact that the attachment format is not accepted by the REM-MD. In consequence the evidence generated should be as specified in test case EVF-SUBACC-4.

4) For this test case the reason for not delivery to the recipient is the fact that the attachment format is not accepted. In consequence the DeliveryNonDelivery evidence generated should be as specified in test EVF- DELREC -006.

5) For this test case the rejection reason is the fact that the sender's signature is invalid. In consequence the evidence generated should be as specified in test case EVF-SUBACC-005.

6) For this test case the rejection reason is the fact that the sender's certificate is revoked or expired. In consequence the evidence generated should be as specified in test case EVF- SUBACC-006.

**Table 28: Testing submission of messages to several recipients.
Evidence set includes mandatory and optional: {SubAccRej, DelivNonDeliv }**

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipients	Sections	Evidence set	Sections	Evidence set	
OF-ISF-ME-SEVR-1			Three	Evidence	SubAccRej (+) DelivNonDeliv (+)	Original Mess. Evidence	SubAccRej(+)	Testing successful delivery of one non signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-ME-SEVR-2			Three	Evidence	SubAccRej (+) DelivNonDeliv (+)	Original Mess.		Testing successful delivery of one non signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient
						Evidence	SubAccRej(+)	
OF-ISF-ME-SEVR-3_x			Three	Evidence	SubAccRej(-) 1			Testing **rejection** of one non signed message without attachments. REM-MD generating no REM Dispatch for recipient
OF-ISF-ME-SEVR-4_x			Three	Evidence	SubAccRej(+) DelivNonDeliv(-) 2			Testing **unsuccessful** delivery of one non signed message without attachments REM-MD generating no REM Dispatch for recipient.
OF-ISF-ME-SEVR-5		✓	Three	Evidence	SubAccRej(+) DelivNonDeliv(+)	Original Mess. Evidence	SubAccRej(+)	Testing **successful** delivery of one non signed message with one attachment. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-ME-SEVR-6		✓	Three	Evidence	SubAccRej (+) DelivNonDeliv (+)	Original Mess.		Testing **successful** delivery of one non signed message with one attachment. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient.
						Evidence	SubAccRej(+)	
OF-ISF-ME-SEVR-7		✓	Three	Evidence	SubAccRej (-) 3			Testing **rejection** by REM-MD due to bad format of the attachment.
OF-ISF-ME-SEVR-8		✓	Three	Evidence	SubAccRej (+) DelivNonDeliv (-) 4			Testing **unsuccessful delivery** to recipient due to bad format of the attachment.

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipients	Sections	Evidence set	Sections	Evidence set	
OF-ISF-ME-SEVR-9	✓		Three	Evidence	SubAccRej(+) DelivNonDeliv(+)	Original Mess. Evidence	SubAccRej(+)	Testing **successful** delivery of one signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-ME-SEVR-10	✓		Three	Evidence	SubAccRej (+) DelivNonDeliv (+)	Original Mess. Evidence	 SubAccRej(+)	Testing **successful** delivery of one signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient.
OF-ISF-ME-SEVR-11	✓		Three	Evidence	SubAccRej (-) 5			Testing **rejection** by REM-MD due to bad sender's signature.
OF-ISF-ME-SEVR-12	✓		One	Evidence	SubAccRej (-) 6			Testing **rejection** by REM-MD due to the fact that the sender's certificate is revoked or expired.

1) This row defines 2 test cases (OF-ISF-ME-SEVR-3_1 and OF-ISF-ME-SEVR-3_2), one per each potential source of rejection by REM-MD, as specified in clause 4.3 and in consequence generate evidences as specified in test cases EVF- SUBACC-002 and EVF- SUBACC-003.

2) This row defines 5 test cases (OF-ISF-ME-SEVR-4_1 to OF-ISF-ME-SEVR-4_5), one per each potential source non-delivery to the recipient, as specified in clause 4.6 and in consequence generate evidences as specified in test cases EVF- DELREC -002, EVF- DELREC -003, EVF- DELREC -004, EVF- DELREC -005, and EVF- DELREC -007.

3) For this test case the rejection reason is the fact that the attachment format is not accepted by the REM-MD. In consequence the evidence generated should be as specified in test case EVF-SUBACC-4.

4) For this test case the reason for not delivery to the recipient is the fact that the attachment format is not accepted. In consequence the DeliveryNonDelivery evidence generated should be as specified in test EVF- DELREC -006.

5) For this test case the rejection reason is the fact that the sender's signature is invalid. In consequence the evidence generated should be as specified in test case EVF-SUBACC-005.

6) For this test case the rejection reason is the fact that the sender's certificate is revoked or expired. In consequence the evidence generated should be as specified in test case EVF- SUBACC-006.

Table 29: Testing submission of messages to one recipient, but received by the recipient's delegates. Evidence set includes only mandatory ones: {SubAccRej, DelivNonDeliv}

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	
OF-ISF-ME-RDEL-1			One	Evidence	SubAccRej (+) DelivNonDeliv (+) 1	Original Mess. Evidence	SubAccRej(+)	Testing successful delivery of one non signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-ME-RDEL-2			One	Evidence	SubAccRej (+) DelivNonDeliv (+) 1	Original Mess. Evidence	 SubAccRej(+)	Testing successful delivery of one non signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient
OF-ISF-ME-RDEL-3_x			One	Evidence	SubAccRej(-) 2			Testing **rejection** of one non signed message without attachments. REM-MD generating no REM Dispatch for recipient
OF-ISF-ME-RDEL-4_x			One	Evidence	SubAccRej(+) DelivNonDeliv(-) 3			Testing **unsuccessful** delivery of one non signed message without attachments REM-MD generating no REM Dispatch for recipient.
OF-ISF-ME-RDEL-5		✓	One	Evidence	SubAccRej(+) DelivNonDeliv(+) 1	Original Mess. Evidence	SubAccRej(+)	Testing **successful** delivery of one non signed message with one attachment. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-ME-RDEL-6		✓	One	Evidence	SubAccRej (+) DelivNonDeliv (+) 1	Original Mess. Evidence	 SubAccRej(+)	Testing **successful** delivery of one non signed message with one attachment. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient.
OF-ISF-ME-RDEL-7		✓	One	Evidence	SubAccRej (-) 4			Testing **rejection** by REM-MD due to bad format of the attachment.
OF-ISF-ME-RDEL-8		✓	One	Evidence	SubAccRej (+) DelivNonDeliv (-) 5			Testing **unsuccessful delivery** to recipient due to bad format of the attachment.

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	
OF-ISF-ME-RDEL-9	✓		One	Evidence	SubAccRej(+) DelivNonDeliv(+) 1	Original Mess. Evidence	SubAccRej(+)	Testing **successful** delivery of one signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-ME-RDEL-10	✓		One	Evidence	SubAccRej (+) DelivNonDeliv (+) 1	Original Mess.		Testing **successful** delivery of one signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient.
						Evidence	SubAccRej(+)	
OF-ISF-ME-RDEL-11	✓		One	Evidence	SubAccRej (-) 6			Testing **rejection** by REM-MD due to bad sender's signature.
OF-ISF-ME-RDEL-12	✓		One	Evidence	SubAccRej (-) 7			Testing **rejection** by REM-MD due to the fact that the sender's certificate is revoked or expired.

1) The REM-MD delivers the message to the recipient's delegates. In consequence the DeliveryNonDeliveryToRecipient evidence should be as specified in test case EVF-DELREC-008 in clause 4.6.

2) This row defines 2 test cases (OF-ISF-ME-RDEL-3_1 and OF-ISF-ME-RDEL-3_2), one per each potential source of rejection by REM-MD, as specified in clause 4.3 and in consequence generate evidences as specified in test cases EVF- SUBACC-002 and EVF- SUBACC-003.

3) This row defines 5 test cases (OF-ISF-ME-RDEL-4_1 to OF-ISF-ME-RDEL-4_5), one per each potential source non-delivery to the recipient, as specified in clause 4.6 and in consequence generate evidences as specified in test cases EVF- DELREC -002, EVF- DELREC -003, EVF- DELREC -004, EVF- DELREC -005, and EVF-DELREC -007.

4) For this test case the rejection reason is the fact that the attachment format is not accepted by the REM-MD. In consequence the evidence generated should be as specified in test case EVF-SUBACC-4.

5) For this test case the reason for not delivery to the recipient is the fact that the attachment format is not accepted. In consequence the DeliveryNonDelivery evidence generated should be as specified in test EVF- DELREC -006.

6) For this test case the rejection reason is the fact that the sender's signature is invalid. In consequence the evidence generated should be as specified in test case EVF-SUBACC-005.

7) For this test case the rejection reason is the fact that the sender's certificate is revoked or expired. In consequence the evidence generated should be as specified in test case EVF- SUBACC-006.

7.1.1.2 Testing flows with mandatory and optional sets of evidence

Table 30: Testing submission of messages to one recipient. Evidence set includes also optional ones: {SubAccRej, DelivNonDeliv, RetrNonRetr}

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	
OF-ISF-MOE-ONER-1			One	Evidence	SubAccRej (+) DelivNonDeliv (+) RetrNonRetr(+)	Original Mess. Evidence	SubAccRej(+)	Testing **successful** retrieval by recipient of one non signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-MOE-ONER-2			One	Evidence	SubAccRej (+) DelivNonDeliv (+) RetrNonRetr(+)	Original Mess.		Testing **successful** retrieval by recipient of one non signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient
						Evidence	SubAccRej(+)	
OF-ISF-MOE-ONER-3_x			One	Evidence	SubAccRej(+) DelivNonDeliv (+) RetrNonRetr(-) 1	Original Mess. Evidence	SubAccRej(+)	Testing **non retrieval by recipient** of one non signed message without attachments. REM-MD generates REM Dispatch with the original message and evidence to the recipient. Recipient does not retrieve it.
OF-ISF-MOE-ONER-4		✓	One	Evidence	SubAccRej(+) DelivNonDeliv(+) RetrNonRetr(+)	Original Mess. Evidence	SubAccRej(+)	Testing **successful** retrieval by recipient of one non signed message with one attachment. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-MOE-ONER-5		✓	One	Evidence	SubAccRej (-) DelivNonDeliv(+) RetrNonRetr(-) 2	Original Mess. Evidence	SubAccRej(+)	Testing **non retrieval by recipient** of one non signed message with one attachment. REM-MD generates REM Dispatch with the original message and evidence to the recipient. Recipient does not retrieve it because unaccepted attachment format

1) This row defines 4 test cases (OF-ISF-MOE-ONER-4_1 to OF-ISF-MOE-ONER-4_4), one per each potential source of non retrieval by the recipient, as specified in clause 4.8 and in consequence generate evidences as specified in test cases EVF-RETRREC-002, EVF-RETRREC-003, EVF-RETRREC-004, and EVF-RETRREC-006.

2) For this test case the recipient does not retrieve the REM Dispatch generated by the REM-MD due to unaccepted attachment format. In consequence the RetrievalNonRetrievalByRecipient evidence generated for the sender should be as specified in clause 4.8 test case EVF-RETRREC-005.

**Table 31: Testing submission of messages to one recipient.
Evidence set includes also optional ones: {SubAccRej, DelivNonDeliv, AccRejRec}**

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	
OF-ISF-MOE-ONER-1			One	Evidence	SubAccRej (+) DelivNonDeliv (+) AccRejRec (+) 1	Original Mess. Evidence	SubAccRej(+)	Testing **acceptance** by recipient of one non signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-MOE-ONER-2			One	Evidence	SubAccRej (+) DelivNonDeliv (+) AccRejRec(+) 1	Original Mess.		Testing **acceptance** by recipient of one non signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient
						Evidence	SubAccRej(+)	
OF-ISF-MOE-ONER-3			One	Evidence	SubAccRej(+) DelivNonDeliv (+) AccRejRec(-) 2	Original Mess. Evidence	SubAccRej(+)	Testing **rejection by recipient** of one non signed message without attachments. REM-MD generates REM Dispatch with the original message and evidence to the recipient. Recipient does not retrieve it.

1) For this test case the accepts the REM Dispatch generated by the REM-MD. In consequence the RetrievalNonRetrievalByRecipient evidence generated for the sender should be as specified in clause 4.9 test case EVF-ACRECREC-001.

2) For this test case the recipient rejects the REM Dispatch generated by the REM-MD. In consequence the RetrievalNonRetrievalByRecipient evidence generated for the sender should be as specified in clause 4.9 test case EVF-ACRECREC-002.

**Table 32: Testing submission of messages to several recipients.
Evidence set includes also optional ones: {SubAccRej, DelivNonDeliv, AccRejRec}**

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	
OF-ISF-MOE-SEVR-1			Three	Evidence	SubAccRej (+) DelivNonDeliv (+) AccRejRec (+) 1	Original Mess. Evidence	SubAccRej(+)	Testing **acceptance** by several recipients of one non signed message without attachments. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-ISF-MOE-SEVR-2			Three	Evidence	SubAccRej (+) DelivNonDeliv (+) AccRejRec(+) 1	Original Mess.		Testing **acceptance** by several recipients of one non signed message without attachments. REM-MD generating two REM Dispatches: one with the Or. Mess. and another one with the Evidence for recipient
						Evidence	SubAccRej(+)	
OF-ISF-MOE-SEVR-3			Three	Evidence	SubAccRej(+) DelivNonDeliv (+) AccRejRec(-) 2	Original Mess. Evidence	SubAccRej(+)	Testing **rejection by several recipients** of one non signed message without attachments. REM-MD generates REM Dispatch with the original message and evidence to the recipient. Recipient does not retrieve it.

1) For this test case each recipient accepts the REM Dispatch generated by the REM-MD. In consequence the RetrievalNonRetrievalByRecipient evidence generated for the sender should be as specified in clause 4.9 test case EVF-ACRECREC-001.

2) For this test case each recipient rejects the REM Dispatch generated by the REM-MD. In consequence the RetrievalNonRetrievalByRecipient evidence generated for the sender should be as specified in clause 4.9 test case EVF-ACRECREC-002.

7.1.2 Testing Store and Notify Mode of Operation

The present clause defines test cases for flows between sender and recipient(s) when they are subscribed to the same REM-MD, which is operating with the Store and Notify Mode of Operation.

As for the Store and Notify mode of operation, the est cases are organized depending of the evidence set generated by the REM-MD.

Clause 4.4.1.2.1 defines test cases for situations where the REM-MD only generates the mandatory set, namely SubmissionAcceptanceRejection and DonwloadNonDownloadByRecipient evidence.

Clause 4.4.1.2.2 defines test cases for situations where the REM-MD generates both mandatory and optional evidence, namely AcceptanceRejectionByRecipeient evidence.

7.1.2.1 Testing flows with mandatory set of evidence

**Table 33: Testing submission of messages to one recipient.
Evidence set includes only mandatory ones: {SubAccRej, DownNonDown}**

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient stored by REM-MD		REM Message (notification) for recipient	Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set		
OF-ISN-ME-ONER-1			One	Evidence	SubAccRej (+) DownNonDown (+)	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **successful download by recipient** of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-ONER-2_x			One	Evidence	SubAccRej(-) 2				Testing **rejection** of one non signed message without attachments. REM-MD generating neither stored REM Dispatch nor REM-MD Message for recipient
OF-ISN-ME-ONER-3_x			One	Evidence	SubAccRej(+) DownNonDown(-) 3	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **unsuccessful download by recipient** of one non signed message without attachments. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-ONER-4		✓	One	Evidence	SubAccRej(+) DownNonDown(+)	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **successful download by recipient** of one non signed message with one attachment. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient stored by REM-MD		REM Message (notification) for recipient	Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set		
OF-ISN-ME-ONER-5		✓	One	Evidence	SubAccRej (-) 4				Testing **rejection** by REM-MD due to bad format of the attachment.
OF-ISN-ME-ONER-6		✓	One	Evidence	SubAccRej (+) DownNonDown (-) 5	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **unsuccessful download by recipient** of one non signed message with one attachment due to bad format of the attachment.
OF-ISN-ME-ONER-7	✓		One	Evidence	SubAccRej(+) DownNonDown(+)	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **successful download by recipient** of one signed message without attachments. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-ONER-11	✓		One	Evidence	SubAccRej (-) 6				Testing **rejection** by REM-MD due to bad sender's signature.
OF-ISN-ME-ONER-12	✓		One	Evidence	SubAccRej (-) 7				Testing **rejection** by REM-MD due to the fact that the sender's certificate is revoked or expired.

1) The REM-MD Message submitted by the REM-MD to the recipient will contain the Introduction section and the Signature section. The Introduction section generated for this test case will be as specified in clause 4.2.1 test case SGF-INTR-001.

2) This row defines 2 test cases (OF-ISN-ME-ONER-2_1 and OF-ISN-ME-ONER-2_2), one per each potential source of rejection by REM-MD, as specified in clause 4.3 and in consequence generate evidences as specified in test cases EVF- SUBACC-002 and EVF- SUBACC-003.

3) This row defines 5 test cases (OF-ISN-ME-ONER-4_1 to OF-ISN-ME-ONER-4_5), one per each potential source of non download by the recipient, as specified in clause 4.7 and in consequence generate evidences as specified in test cases EVF-DOWNREC-002, EVF-DOWNREC-003, EVF-DOWNREC-004, EVF-DOWNREC-005, EVF-DOWNREC-007 and EVF-DOWNREC-008.

4) For this test case the rejection reason is the fact that the attachment format is not accepted by the REM-MD. In consequence the evidence generated should be as specified in test case EVF-SUBACC-4.

5) For this test case the reason for not delivery to the recipient is the fact that the attachment format is not accepted by the recipient. In consequence the DownloadNonDownloadByRecipient evidence generated should be as specified in clause 4.7 test case EVF-DOWNREC-006.

6) For this test case the rejection reason is the fact that the sender's signature is invalid. In consequence the evidence generated should be as specified in clause 4.3 test case EVF- SUBACC-005.

7) For this test case the rejection reason is the fact that the sender's certificate is revoked or expired. In consequence the evidence generated should be as specified in clause 4.3 test case EVF- SUBACC-006.

Table 34: Testing submission of messages to several recipients. Evidence set includes mandatory and optional: {SubAccRej, DelivNonDeliv }

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient stored by REM-MD		REM Message (notification) for recipients	Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set		
OF-ISN-ME-SEVR-1			Three	Evidence	SubAccRej (+) DownNonDown(+)	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **successful download by recipients** of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for each recipient. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-SEVR -2_x			Three	Evidence	SubAccRej(-) 2				Testing **rejection by REM-MD** of one non signed message without attachments. REM-MD neither stores REM Dispatches nor generates REM-MD Messages for recipients.
OF-ISN-ME-SEVR-3		✓	Three	Evidence	SubAccRej (+) DownNonDown(+)	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **successful download by recipients** of one non signed message with one attachment. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for each recipient. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-SEVR -4		✓	Three	Evidence	SubAccRej(-) 3				Testing **rejection by REM-MD** of one non signed message with one attachment due to bad format of the attachment. REM-MD neither stores REM Dispatches nor generates REM-MD Messages for recipients.
OF-ISN-ME-SEVR -5		✓	Three	Evidence	SubAccRej(+) DownNonDown(-) 4	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **unsuccessful download by recipients** of one non signed message with one attachment due to unaccepted format of the attachment. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient stored by REM-MD		REM Message (notification) for recipients	Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set		
OF-ISN-ME-SEVR-6	✓		Three	Evidence	SubAccRej (+) DownNonDown(+)	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **successful download by recipients** of one signed message without attachment. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for each recipient. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-SEVR -7	✓		Three	Evidence	SubAccRej(-) 5				Testing **rejection** by REM-MD due to bad sender's signature. REM-MD neither stores REM Dispatches nor generates REM-MD Messages for recipients.
OF-ISN-ME-SEVR -8	✓		Three	Evidence	SubAccRej(-) 6				Testing **rejection** by REM-MD due to the fact that the sender's certificate is revoked or expired. REM-MD neither stores REM Dispatches nor generates REM-MD Messages for recipients.

1) The REM-MD Message submitted by the REM-MD to the recipient will contain the Introduction section and the Signature section. The Introduction section generated for this test case will be as specified in clause 4.2.1 test case SGF-INTR-001.

2) This row defines 2 test cases (OF-ISN-ME-SEVR-2_1 and OF-ISN-ME-SEVR-3_2), one per each potential source of rejection by REM-MD, as specified in clause 4.3 and in consequence generate evidences as specified in test cases EVF-SUBACC-002 and EVF-SUBACC-003.

3) For this test case the rejection reason is the fact that the attachment format is not accepted by the REM-MD. In consequence the evidence generated should be as specified in test case EVF-SUBACC-4.

4) For this test case the reason for unsuccessful download by recipients is the fact that the attachment format is not accepted. In consequence the DownloadNonDownloadByRecipient evidence generated should be as specified in clause 4.7 test case EVF-DOWNREC-006.

5) For this test case the rejection reason is the fact that the sender's signature is invalid. In consequence the evidence generated should be as specified in test case EVF-SUBACC-005.

6) For this test case the rejection reason is the fact that the sender's certificate is revoked or expired. In consequence the evidence generated should be as specified in test case EVF- SUBACC-006.

Table 35: Testing submission of messages to one recipient, but received by the recipient's delegate. Evidence set includes only mandatory ones: {SubAccRej, DelivNonDeliv}

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient's delegate stored by REM-MD		REM Message (notification) for recipient's delegate	Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set		
OF-ISN-ME-RDEL-1			One	Evidence	SubAccRej (+) DownNonDown(+) 2	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **successful download by recipient's delegate** of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-RDEL-2_x			One	Evidence	SubAccRej(-) 3				Testing **rejection by REM-MD** of one non signed message without attachments. REM-MD neither stores REM Dispatches nor generates REM-MD Messages for recipients.
OF-ISN-ME-RDEL-3_x			One	Evidence	SubAccRej(+) DownNonDown(-) 4	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **unsuccessful download** of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-RDEL-4		✓	One	Evidence	SubAccRej (+) DownNonDown(+) 2	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **successful download** by recipient's delegate of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-RDEL-5		✓	One	Evidence	SubAccRej(-) 5				Testing **rejection by REM-MD** of one non signed message with one attachment due to bad format of the attachment. REM-MD neither stores REM Dispatches nor generates REM-MD Messages for recipients.
OF-ISN-ME-RDEL-6		✓	One	Evidence	SubAccRej(+) DownNonDown(-) 6	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **unsuccessful download** of one non signed message with one attachment due to unaccepted format of the attachment. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient's delegate stored by REM-MD		REM Message (notification) for recipient's delegate	Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set		
OF-ISN-ME-RDEL-4	✓		One Delegate	Evidence	SubAccRej (+) DownNonDown(+) 2	Original Mess. Evidence			Testing **successful download** by recipient's delegate of one signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch.
OF-ISN-ME-RDEL-5		✓	One Delegate	Evidence	SubAccRej(-) 7				Testing **rejection by REM-MD** of one signed message without attachments due to bad sender's signature. REM-MD neither stores REM Dispatches nor generates REM-MD Messages for recipients.
OF-ISN-ME-RDEL-6		✓	One Delegate	Evidence	SubAccRej(-) 8	Original Mess. Evidence			Testing **rejection by REM-MD** of one signed message without attachments due to signing certificate revocation or expiration. REM-MD neither stores REM Dispatches nor generates REM-MD Messages for recipients.

1) The REM-MD Message submitted by the REM-MD to the recipient will contain the Introduction section and the Signature section. The Introduction section generated for this test case will be as specified in clause 4.2.1 test case SGF-INTR-001.

2) The REM-MD delivers the message to the recipient's delegates. In consequence the DownloadNonDownloadByRecipient evidence should be as specified in clause 4.7 test case EVF-DOWNREC-009.

3) This row defines 2 test cases (OF-ISN-ME-RDEL-3_1 and OF-ISN-ME-RDEL-3_2), one per each potential source of rejection by REM-MD, as specified in clause 4.3 and in consequence generate evidences as specified in test cases EVF- SUBACC-002 and EVF- SUBACC-003.

4) This row defines 5 test cases (OF-ISN-ME-RDEL-4_1 to OF-ISN-ME-RDEL-4_5), one per each potential source of unsuccessful download by the recipient, as specified in clause 4.7 and in consequence generate evidences as specified in test cases EVF-DOWNREC-002, EVF-DOWNREC-003, EVF-DOWNREC-004, EVF-DOWNREC-006, and EVF-DOWNREC-007.

5) For this test case the rejection reason is the fact that the attachment format is not accepted by the REM-MD. In consequence the evidence generated should be as specified in test case EVF-SUBACC-4.

6) For this test case the reason for not successful download by the recipient is the fact that the attachment format is not accepted. In consequence the DownloadNonDownload evidence generated should be as specified in test EVF-DOWNREC-005.

7) For this test case the rejection reason is the fact that the sender's signature is invalid. In consequence the evidence generated should be as specified in test case EVF-SUBACC-005.

8) For this test case the rejection reason is the fact that the sender's certificate is revoked or expired. In consequence the evidence generated should be as specified in test case EVF- SUBACC-006.

7.1.2.2 Testing flows with mandatory and optional sets of evidence

**Table 36: Testing submission of messages to one recipient.
Evidence set includes also optional ones: {SubAccRej, AccRejRec}**

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient stored by REM-MD		REM Message (notification) for recipients	Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set		
OF-ISN-MOE-ONER-1			One	Evidence	SubAccRej (+) AccRejRec (+) 2	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **acceptance** by recipient of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch
OF-ISN-MOE-ONER-2			One	Evidence	SubAccRej (+) AccRejRec (-) 3	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **rejection by recipient** of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch

1) The REM-MD Message submitted by the REM-MD to the recipient will contain the Introduction section and the Signature section. The Introduction section generated for this test case will be as specified in clause 4.2.1 test case SGF-INTR-001.

2) For this test case the accepts the REM Dispatch generated by the REM-MD. In consequence the AcceptanceRejectionByRecipient evidence generated for the sender should be as specified in clause 4.9 test case EVF-ACRECREC-001.

3) For this test case the recipient rejects the REM Dispatch generated by the REM-MD. In consequence the AcceptanceRejectionByRecipient evidence generated for the sender should be as specified in clause 4.9 test case EVF-ACRECREC-002.

**Table 37: Testing submission of messages to several recipients.
Evidence set includes also optional ones: {SubAccRej, AccRejRec}**

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient stored by REM-MD		REM Message (notification) for recipients	Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set		
OF-ISN-MOE-SEVR-1			One	Evidence	SubAccRej (+) AccRejRec (+) 2	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **acceptance by several recipients** of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch
OF-ISN-MOE-SEVR-1			One	Evidence	SubAccRej (+) AccRejRec (-) 3	Original Mess. Evidence	SubAccRej(+)	Introduction 1	Testing **rejection by several recipients** of one non signed message without attachments. REM-MD stores one REM Dispatch with the Or. Mess and Evidence for recipient's delegate. REM-MD generates and submits a REM-MD Message with a notification with details for downloading the aforementioned REM Dispatch

1) The REM-MD Message submitted by the REM-MD to the recipient will contain the Introduction section and the Signature section. The Introduction section generated for this test case will be as specified in clause 4.2.1 test case SGF-INTR-001.

2) For this test case each recipient accepts the REM Dispatch generated by the REM-MD. In consequence the AcceptanceRejectionByRecipient evidence generated for the sender should be as specified in clause 4.9 test case EVF-ACRECREC-001.

3) For this test case each recipient rejects the REM Dispatch generated by the REM-MD. In consequence the AcceptanceRejectionByRecipient evidence generated for the sender should be as specified in clause 4.9 test case EVF-ACRECREC-002.

7.2 Testing Object flows between REM-MD and Non REM System

The present clause defines test cases for situations where sender is subscribed to a REM-MD and the recipient(s) is(are) not subscribed to any REM-MD, or where the sender is not subscribed to any REM-MD and the recipient(s) is(are) subscribed to one REM-MD. The objects flow between one REM-MD and Non REM System. The present clause defines test cases for flows between a REM-MD operating with Store and Forward mode of operation and a Non REM System.

Table 38: Testing exchanging with Non REM Systems.
Evidence set: {SubAccRej,RelTNonREM, RecFNonREM}

Test identifier	Original Message			REM-MD Message for sender		REM Dispatch(es) for recipient(s)		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	Sections	Evidence set	
OF-SFTNR-MOE-ONER-1			one	Evidence	SubAccRej(+) RelTNonREM(+)	Original Mess. Evidence	SubAccRej(+)	Testing **successful forwarding** of one non signed message without attachments **to Regular e-mail**. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-SFTNR-MOE- ONER-2_x			One	Evidence	SubAccRej(+) RelTNonREM(-) 1			Testing **unsuccessful forwarding** of several non signed messages without attachments **to Regular e-mail**.
OF-SFTNR-MOE-SEVR-1			Three	Evidence	SubAccRej(+) RelTNonREM(+)	Original Mess.		Testing **successful forwarding** of several non signed messages without attachments **to Regular e-mail**. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipients
OF-SFFNR-MOE-ONER-1						Original Mess. Evidence 2	RecFNonREM(+)	Testing **successful reception** of one non signed message without attachments **from Regular e-mail**. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipient
OF-SFNR-MOE-SEVR-1						Original Mess. Evidence 3	RecFNonREM(+)	Testing successful reception of one non signed messages without attachments addressed to several recipients subscribed to the REM-MD, **from Regular e-mail**. REM-MD generating one REM Dispatch with the Or. Mess and Evidence for recipients

1) This row defines 3 test cases (OF-SFTNR-MO-ONER-2_1 to OF-SFTNR-MO-ONER-2_3), one per each potential source of unsuccessful forwarding to Non REM System, as specified in clause 4.10 and in consequence generate evidences as specified in test cases EVF-RELNREM-002, EVF-RELNREM-003 and EVF-RELNREM-004.

2) For this test case the message arrives to the REM-MD from Regular e-mail system addressed to one recipient who is subscribed to the REM-MD. The REM-MD generates a REM Dispatch that includes the Original Message and the ReceivedFromNonREMSystem evidence as specified in clause 4.11, test case EVF-RECNREM-001.

3) For this test case the message arrives to the REM-MD from Regular e-mail system addressed to three recipients who are subscribed to the REM-MD. The REM-MD generates for reach recipient a REM Dispatch that includes the Original Message and the ReceivedFromNonREMSystem evidence as specified in clause 4.11, test case EVF-RECNREM-001.

Table 39: Testing relaying to printing systems. Evidence set: {SubAccRej,RelTNonREM }

Test identifier	Original Message			REM-MD Message for sender		Purpose
	Signed	Attach	Recipient	Sections	Evidence set	
OF-SFTPR-MOE-ONER-1			one	Evidence	SubAccRej(+) RelTNonREM(+)	Testing **successful printing** of one non signed message without attachments.
OF-SFTPR-MOE- ONER -2_x			one	Evidence	SubAccRej(+) RelTNonREM(-) 1	Testing **unsuccessful printing** of several non signed messages without attachments **to Regular e-mail**.

This row defines 3 test cases (OF-SFTPR-MO-ONER-2_1 to OF-SFTPR-MO-ONER-2_3), one per each potential source of unsuccessful printing, as specified in clause 4.11 and in consequence generate evidences as specified in test cases EVF-RELNREM-005, EVF-RELNREM-006 and EVF-RELNREM-007.

7.3 Testing cross REM-MD REM Objects flows

The present clause defines test cases for situations where sender and recipient(s) are subscribed to different REM-MDs, which are part of the same REM-PD

Clause 7.3.1 defines test cases for REM-MDs that operate with the Store and Forward Mode of Operation.

Clause 7.3.2 defines test cases when the sender's REM-MD operates under the Store and Notify Mode of Operation (as described in TS 102 640-1 [i.1] clause 4.2.2 figure 3).

Clause 7.3.3 defines test cases when the recipient's REM-MD operates under the Store and Notify Mode of Operation (as described in TS 102 640-1 [i.1] clause 4.2.2 figure 4).

In the present clause, the test suite is specified using a tabular form. Each row of the tables specifies one test case. For each test case, the table incorporate mechanisms for indicating:

1) Details of the original message submitted by the sender (whether it is signed or not, whether there is one attachment or not and the number of recipients).

2) Details of the REM Objects generated by the REM-MD both for the sender and the recipient's REM-MD. These details are: to whom the REM Object is addressed, the list of present sections; and in case of evidence sections present, which evidence set appears, as well as whether each specific evidence signals success or failure.

3) Details of the REM Objects generated by the REM-MD for the recipient(s) if any, for the . These details are: the list of present sections; and in case of evidence sections present, which evidence set appears, as well as whether each specific evidence signals success or failure.

In addition to the acronyms identified in clause 4.4, the following acronyms are used in the tables of the clauses below:

- **SREM-MD:** Sender's REM-MD
- **RREM-MD:** Recipient's REM-MD
- **RelREMD:** RelayToREMMDAcceptanceRejection evidence
- **RelREMDF:** RelayToREMMDFailure evidence

Below follows an example of a table for defining this set of test cases

Table 40: Example of table for specifying test cases for testing intra REM-MD objects flows or between regular e-mail system and users subscribed to one REM-MD

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	To	Sections	Evidence set	

Column **Test identifier** indicates the identifier code for the test case specified in the row. The test identifiers for all these tests will follow the following pattern: OF-[SystemsImpliedAndOperationMode acronym(s)]-[Evidence set acronym]-[Recipient(s) acronym]-number, where:

- COF stands for "Objects Flow Cross REM-MD".
- [SystemsImpliedAndOperationMode acronym(s)] provides details of the systems implied in the flow and the mode of operation.
  - For the Store and Forward mode of operation, the acronyms used will be:
    - **SSFRS**, indicating that sender's and recipient's REM-MDs are both operating under Store and Forward mode of operation.
    - **SSN**, indicating that sender's REM-MD is operating under Store and Notify mode of operation.
    - **RSN**, indicating that recipient's REM-MD is operating under Store and Notify mode of operation.
- [Evidence set acronym]: provides details of the purpose of the testing flow: **DEL** is assigned to test cases devoted to test delivery or non delivery to the recipient(s) or recipient's delegate; **RACREC** is assigned to test cases devoted to test acceptance or rejection by the recipient(s) or recipient's delegate; **DOWN** is assigned to test cases devoted to test download by recipient(s) or recipient's delegate.
- [Recipient(s) acronym]: provides details about the number of recipients or whether the recipient has delegated reception: **ONER** stands for one recipient, **SEVR** stands for several recipients, **RDEL** stands for recipient's delegate.

Column **Original Message** indicates, through its three sub-columns, details about the original message, namely: whether it is signed or not, whether there is attachments to the body message or not, and the number of recipients.

Columns **SREM-MD.** This set of columns provide details of the REM Objects generated and sent or not generated but forwarded by the sender's REM-MD.

Columns **RREM-MD.** This set of columns provides details of the REM Objects generated and sent or not generated but forwarded by the recipient's REM-MD. Bo

Cells in sub-column **To** indicate to what entities the REM Object generated or forwarded by the corresponding REM-MD is addressed (sender, recipient, SREM-MD, RREM-MD). The number of entities identified in these cells may be more than one. If the REM Object is not generated by the REM-MD but just forwarded, there will be an **[F]** indication within the cell.

Cells in sub-column **Sections** indicate the sections present in the REM Object generated / forwarded (in this case there will be an **[F]** in the cell) by the REM-MD.

Cells in sub-columns **Evidence set** list the set of evidence present within the REM Object generated / forwarded by the REM-MD.

Column **Purpose of test case** provides details on the main purpose for defining the corresponding test case.

7.3.1 Sender's and Recipient's REM-MDs under Store and Forward Mode of Operation

Table 41: Testing delivery between two REM-MDs to one recipient

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	To	Sections	Evidence set	
COF-SSFRSF-DEL-ONER-1			One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Evidence	SubAccRej(+)	Testing **successful delivery** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay and delivery evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+) DelivNonDeliv(+)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+)				

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	To	Sections	Evidence set	
COF-SSFRSF-DEL-ONER-2		✓	One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Introduction	SubAccRej(+)	Testing **successful delivery** of one unsigned message. with one attachment. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay and delivery evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMD	Evidence	RelREMMD(+) DelivNonDeliv(+)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+)				
COF-SSFRSF-DEL-ONER-3	✓		One 1	RREM-MD Sender	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Introduction	SubAccRej(+)	Testing **successful delivery** of one signed message without attachments. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay and delivery evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+) DelivNonDeliv(+)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+)				
COF-SSFRSF-DEL-ONER-4_x			One 2	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(-)	Testing **relay rejection** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD generates **relay rejection** evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)				
				[F] Sender	Evidence	RelREMMD(-)				
COF-SSFRSF-DEL-ONER-5_x			One 3	RREM-MD	Or. Mess. Evidence	SubAccRej(+)				Testing **relay failure** of one unsigned message without attachments. SREM-MD generates acceptance evidence. SREM-MD also generates **relay failure** evidence after not being able to relay the original message to RREM-MD. Both evidences are sent to the sender.
				Sender	Evidence	RelREMMDF(-)				
COF-SSFRSF-DEL-ONER-6_x	✓		One 4	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(-)	Testing **relay rejection** of one signed message without attachments. SREM-MD generates acceptance evidence. RREM-MD generates **relay rejection** evidence. SREM-MD forwards them to sender.

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	To	Sections	Evidence set	
COF-SSFRSF-DEL-ONER-7_x			One 5	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+)	Testing **unsuccessful delivery** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD generates **relay acceptance** evidence. SREM-MD forwards them to sender. RREM-MD generates "negative" DeliveryNonDeliveryToRecipient evident, for the SREM-MD, which it forwards to the sender.
				[F] Sender	Evidence	RelREMMD(+)				
				[F] Sender	Evidence	DelivNonDeliv(-)	SREMMD	Evidence	DelivNonDeliv(-)	
COF-SSFRSF-DEL-ONER-8			One 6	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+)	Testing **unsuccessful delivery** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD generates **relay acceptance** evidence. SREM-MD forwards them to sender. SREM-MD generates "negative" DeliveryNonDeliveryToRecipient evident, after not hearing from the RREM-MD, which it sends to the sender.
				[F] Sender	Evidence	RelREMMD(+)				
				Sender	Evidence	DelivNonDeliv(-)				
COF-SSFRSF-DEL-ONER-9		✓	One 7	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+)	Testing **unsuccessful delivery** of one unsigned message with one attachment. SREM-MD generates acceptance evidence. RREM-MD generates **relay acceptance** evidence. SREM-MD forwards them to sender. RREM-MD generates "negative" DeliveryNonDeliveryToRecipient evident, for the SREM-MD, which it forwards to the sender.
				[F] Sender	Evidence	RelREMMD(+)				
				[F] Sender	Evidence	DelivNonDeliv(-)	SREMMD	Evidence	DelivNonDeliv(-)	

1) In this test case the sender's REM-MD generates a REM Dispatch for the recipient's REM-MD enclosing the Original Message and the SubmissionAcceptanceRejection Evidence. In addition to that, it also generates and submits to the sender the SubmissionAcceptanceRejection evidence. The recipient's REM-MD forwards this REM Dispatch to the recipient. In addition to that the recipient's REM-MD generates the RelayREMMDAcceptanceRejection evidence proving successful relay, and the DeliveryNonDeliveryToRecipient evidence (proving successful delivery to recipient's mailbox. These evidence are addressed to the sender's REM-MD. The sender's REM-MD forwards them to the sender. Below follows details on the evidences to be generated:

   a) SubmissionAcceptanceRejection as specified in clause 4.3 test case EVF-SUBACC-001.

   b) RelayREMMDAcceptanceRejection as specified in clause as specified in clause 4.5 test case EVF-RELACC-001.

   c) DeliveryNonDeliveryToRecipient as specified in clause 4.6 test case EVF-DELREC-001.

2) This row defines 3 test cases (COF-SSFRSF-ME-ONER-4_1 to COF-SSFRSF-ME-ONER-4_3), each one corresponding to one of the reasons for rejecting relay as specified in clause 4.4 test cases EVF- RELACC -002, EVF- RELACC -003 and EVF- RELACC -006 and in consequence, RelayREMDAcceptanceRejection evidence will be generated as specified in these test cases.

3) This row defines 4 test cases (COF-SSFRSF-ME-ONER-5_1 to COF-SSFRSF-ME-ONER-5_4), each one corresponding to one of the reasons for relay failure as specified in clause 4.5 test cases EVF-RELFA-001 to EVF-RELFA-004 and in consequence, RelayREMDFailure evidence will be generated as specified in these test cases.

4) This row defines 2 test cases (COF-SSFRSF-ME-ONER-6_1 and COF-SSFRSF-ME-ONER-6_2), each one corresponding to one of the reasons for rejecting relay as specified in clause 4.4 test cases EEVF-RELACC-005 and EVF-RELAC -006 and in consequence, RelayREMDAcceptanceRejection evidence will be generated as specified in these test cases.

5) This row defines 4 test cases (COF-SSFRSF-ME-ONER-7_1 to COF-SSFRSF-ME-ONER-7_3), each one corresponding to one of the reasons for rejecting relay as specified in clause 4.6 test cases EVF-DELREC-003, EVF-DELREC-004, EVF-DELREC-005 and EVF-DELREC-007; in consequence, DeliveryNonDeliveryToRecipient evidence will be generated as specified in these test cases.

6) This row defines a test case where the sender's REM-MD has to generate the negative DeliveryNonDeliveryToRecipient evidence due to the fact that it has not received any delivery information from recipient's REM-MD; in consequence this evidence has to be generated as specified in clause 4.6 test case EVF-DELREC-002.

7) This row defines a test case where the recipient's REM-MD has to generate the negative DeliveryNonDeliveryToRecipient evidence due to not acceptance of the attachment; in consequence this evidence has to be generated as specified in clause 4.6 test case EVF-DELREC-006.

Below follows a table defining test cases for testing flows between two REM-MDs resulting in delivery to recipient's delegate instead the recipient. The table is organized as follows:

- Column Test identifier as in previous tables.
- Column Reference Test case contains the test identifiers of the test cases on which the ones defined in the table are built.
- Column Changes from reference test case contains details of what is changed from the reference test cases (for instance that the original message is delivered to recipient's delegate instead the recipient).

- Column Purpose as in previous tables.

Table 42: Testing delivery between two REM-MDs to recipient's delegate

Test identifier	Reference Test case	Changes from reference test case	Purpose
COF-SSFRSF-DEL-RDEL-1	COF-SSFRSF-DEL-ONER-1	The message will be delivered to recipient's delegate 1	As reference test case but now the message is delivered to recipient's delegate
COF-SSFRSF-DEL-RDEL-2	COF-SSFRSF-DEL-ONER-2	The message will be delivered to recipient's delegate 1	As reference test case but now the message is delivered to recipient's delegate
COF-SSFRSF-DEL-RDEL-3	COF-SSFRSF-DEL-ONER-3	The message will be delivered to recipient's delegate 1	As reference test case but now the message is delivered to recipient's delegate
COF-SSFRSF-DEL-RDEL-4_x	COF-SSFRSF-DEL-ONER-4_X	It will be tried to deliver to recipient's delegate 1	As reference test case but now the it is tried to deliver the message to recipient's delegate
COF-SSFRSF-DEL-RDEL-5_x	COF-SSFRSF-DEL-ONER-5_x	It will be tried to deliver to recipient's delegate 1	As reference test case but now the it is tried to deliver the message to recipient's delegate
COF-SSFRSF-DEL-RDEL-6_x	COF-SSFRSF-DEL-ONER-6_x	It will be tried to deliver to recipient's delegate 1	As reference test case but now the it is tried to deliver the message to recipient's delegate
COF-SSFRSF-DEL-RDEL-7_x	COF-SSFRSF-DEL-ONER-7_x	It will be tried to deliver to recipient's delegate 1	As reference test case but now the it is tried to deliver the message to recipient's delegate
COF-SSFRSF-DEL-RDEL-8	COF-SSFRSF-DEL-ONER-8	It will be tried to deliver to recipient's delegate 1	As reference test case but now the it is tried to deliver the message to recipient's delegate
COF-SSFRSF-DEL-RDEL-9	COF-SSFRSF-DEL-ONER-9	It will be tried to deliver to recipient's delegate 1	As reference test case but now the it is tried to deliver the message to recipient's delegate

1) In all these test cases, the same sequence of operations will take place as in the corresponding reference test cases. Nevertheless, the evidence will have to incorporate details of the recipient's delegate.

Table 43: Testing delivery between two REM-MDs to several recipients

Test identifier	Reference Test case	Changes from reference test case	Purpose
COF-SSFRSF-DEL-SEVR-1	COF-SSFRSF-DEL-ONER-1	The message will be delivered to several recipients 1	As reference test case but now the message is delivered to several recipients
COF-SSFRSF-DEL-SEVR-2	COF-SSFRSF-DEL-ONER-2	The message will be delivered to several recipients 1	As reference test case but now the message is delivered to several recipients
COF-SSFRSF-DEL-SEVR-3	COF-SSFRSF-DEL-ONER-3	The message will be delivered to several recipients 1	As reference test case but now the message is delivered to several recipients
COF-SSFRSF-DEL-SEVR-4_x	COF-SSFRSF-DEL-ONER-4_X	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-SSFRSF-DEL-SEVR-5_x	COF-SSFRSF-DEL-ONER-5_x	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-SSFRSF-DEL-SEVR-6_x	COF-SSFRSF-DEL-ONER-6_x	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-SSFRSF-DEL-SEVR-7_x	COF-SSFRSF-DEL-ONER-7_x	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-SSFRSF-DEL-SEVR-8	COF-SSFRSF-DEL-ONER-8	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-SSFRSF-DEL-SEVR-9	COF-SSFRSF-DEL-ONER-9	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients

1) In all these test cases, the same sequence of operations will take place as in the corresponding reference test cases. Nevertheless, the evidence will have to incorporate details of all the recipients.

Table 44: Testing acceptance/rejection by a recipient in different REM-MD than sender

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	To	Sections	Evidence set	
COF-SSFRSF-RACREC-ONER-1			One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Evidence	SubAccRej(+)	Testing **acceptance by recipient** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay, delivery and acceptance by recipient evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)				
COF-SSFRSF-RACREC-ONER-2		✓	One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Introduction	SubAccRej(+)	Testing **acceptance by recipient** of one unsigned message with one attachment. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay, delivery and acceptance by recipient evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMD	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)				
COF-SSFRSF-RACREC-ONER-3	✓		One 1	RREM-MD Sender	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Introduction	SubAccRej(+)	Testing **acceptance by recipient** of one signed message without attachments. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay, delivery and acceptance by recipient evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)				

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	To	Sections	Evidence set	
COF-SSFRSF-RACREC-ONER-4			One 2	RREM-MD Sender	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Introduction	SubAccRej(+)	Testing **rejection by recipient** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay, delivery and rejection by recipient evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (-)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (-)				
COF-SSFRSF-RACREC-RDEL-1			One Delegate 3	RREM-MD Sender	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Introduction	SubAccRej(+)	Testing **acceptance by recipient's delegate** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay, delivery and acceptance by recipient's delegate evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)				
COF-SSFRSF-RACREC-SEVR-1			Three 4	RREM-MD Sender	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Or. Mess. Introduction	SubAccRej(+)	Testing **acceptance by several recipients** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD forwards it to recipient. It generates relay, delivery and acceptance by recipients evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	SREMMD	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)	
				[F] Sender	Evidence	RelREMMD(+) DelivNonDeliv(+) AccRejRec (+)				

1) In this test case the sender's REM-MD generates a REM Dispatch for the recipient's REM-MD enclosing the Original Message and the SubmissionAcceptanceRejection Evidence. In addition to that, it also generates and submits to the sender the SubmissionAcceptanceRejection evidence. The recipient's REM-MD forwards this REM Dispatch to the recipient. In addition to that the recipient's REM-MD generates the RelayREMMDAcceptanceRejection evidence proving successful relay, the DeliveryNonDeliveryToRecipient evidence (proving successful delivery to recipient's mailbox) and the AcceptanceRejectionByRecipient evidence once the recipient has accepted it. These evidence are addressed to the sender's REM-MD. The sender's REM-MD forwards them to the sender. Below follows details on the evidences to be generated:

   a) SubmissionAcceptanceRejection as specified in clause 4.3 test case EVF-SUBACC-001.

   b) RelayREMMDAcceptanceRejection as specified in clause as specified in clause 4.5 test case EVF-RELACC-001.

c) DeliveryNonDeliveryToRecipient as specified in clause 4.6 test case EVF-DELREC-001.

d) AcceptanceRejectionByRecipient as specified in clause 4.9 test case EVF-ACRECREC-001.

1) In this test case the "negative" AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-002. The rest of evidences will be as in previous bullet.

2) In this test case the AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-003. The rest of evidences will be as in bullet 1.

3) In this test case the AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-001. The rest of evidences will be as in bullet 1.

7.3.2 Recipient's REM-MD under Store and Notify Mode of Operation

Table 45: Testing download by one recipient

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	**Attach**	**Recipient**	**To**	**Sections**	**Evidence set**	**Sent [S] Stored [ST]**	**Sections**	**Evidence set**	
COF-RSN-DOWN-ONER-1			One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		Testing **successful download** by recipient of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to recipient. Once the recipient has downloaded the REM-MD Envelope with Or. Mess., it generates REM-MD Envelope with relay and download evidence for SREM-MD. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess Evidence	SubAccRej(+)	
				[F] Sender	Evidence	RelREMMD(+) DownNonDown (+)	**[S]** SREMMD	Evidence	RelREMMD(+) DownNonDown (+)	

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
COF-RSN-DOWN-ONER-2		✓	One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		Testing **successful download** by recipient of one unsigned message with one attachment. SREM-MD generates acceptance evidence. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to recipient. Once the recipient has downloaded the REM-MD Envelope with Or. Mess., it generates REM-MD Envelope with relay and download evidence for SREM-MD. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess Evidence	SubAccRej(+)	
				[F] Sender	Evidence	RelREMMD(+) DownNonDown (+)	**[S]** SREMMD	Evidence	RelREMMD(+) DownNonDown (+)	
COF-RSN-DOWN-ONER-3	✓		One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		Testing **successful download** by recipient of one signed message without attachments. SREM-MD
				Sender	Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess Evidence	SubAccRej(+)	

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	**Attach**	**Recipient**	**To**	**Sections**	**Evidence set**	**Sent [S] Stored [ST]**	**Sections**	**Evidence set**	
				[F] Sender	Evidence	RelREMMD(+) DownNonDown (+)	**[S]** SREMMD	Evidence	RelREMMD(+) DownNonDown (+)	
COF-RSN-D DOWN-ONER-4_x			One 2	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[S]** SREMMD	Evidence	RelREMMD(-)	Testing **relay rejection** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD generates **relay rejection** evidence. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)				
				[F] Sender	Evidence	RelREMMD(-)				
COF-RSN-DOWN-ONER-5_x			One 3	RREM-MD	Or. Mess. Evidence	SubAccRej(+)				Testing **relay failure** of one unsigned message without attachments. SREM-MD generates acceptance evidence. SREM-MD also generates **relay failure** evidence after not being able to relay the original message to RREM-MD. Both evidences are sent to the sender.
				Sender	Evidence	RelREMMDF(-)				
COF-RSN-DOWN-ONER-6_x	✓		One 4	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[S]** SREMMD	Evidence	RelREMMD(-)	Testing **relay rejection** of one signed message without attachments. SREM-MD generates acceptance evidence. RREM-MD generates **relay rejection** evidence. SREM-MD forwards them to sender.

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
COF-RSN-DOWN-ONER-7_x			One 5	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		Testing **unsuccessful download** by recipient of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to recipient. When this download fails or it is detected has not happened, it generates REM-MD Envelope with relay and negative download evidence for SREM-MD. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess Evidence	SubAccRej(+)	
				[F] Sender	Evidence	RelREMMD(+) DownNonDown (-)	**[S]** SREMMD	Evidence	RelREMMD(+) DownNonDown (-)	
COF-RSN-DOWN-ONER-8		✓	One 6	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		Testing **unsuccessful download** by recipient of one unsigned message with one attachment. SREM-MD generates acceptance evidence. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to recipient. When this download fails or it is detected has not happened, it generates REM-MD Envelope with relay and negative download evidence for SREM-MD. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess Evidence	SubAccRej(+)	
				[F] Sender	Evidence	RelREMMD(+) DownNonDown (-)	**[S]** SREMMD	Evidence	RelREMMD(+) DownNonDown (-)	

1) In this test case the sender's REM-MD generates a REM Dispatch for the recipient's REM-MD enclosing the Original Message and the SubmissionAcceptanceRejection Evidence. In addition to that, it also generates and submits to the sender the SubmissionAcceptanceRejection evidence. The recipient's REM-MD stores this REM Dispatch in its REM-MD Repository. It then generates a REM-MD Envelope enclosing an introduction section with a reference to the REM-MD Repository and sends it to the recipient. Once the recipient has downloaded what is stored in the REM-MD Repository, the recipient's REM-MD generates a REM-MD envelope with a DownloadNonDownloadByRecipient evidence and sends it to the sender's REM-MD, which, in turn, will forward it to the sender. Below follows details on the evidences to be generated:

   a) SubmissionAcceptanceRejection as specified in clause 4.3 test case EVF-SUBACC-001.

   b) RelayREMMDAcceptanceRejection as specified in clause as specified in clause 4.5 test case EVF-RELACC-001.

   c) DownloadNonDownloadByRecipient as specified in clause 4.7 test case EVF- DOWNREC-001.

2) This row defines 3 test cases (COF-RSN-ME-ONER-4_1 to COF-RSN-ME-ONER-4_3), each one corresponding to one of the reasons for rejecting relay as specified in clause 4.4 test cases EVF- RELACC -002, EVF- RELACC -003 and EVF- RELACC -006 and in consequence, RelayREMDAcceptanceRejection evidence will be generated as specified in these test cases.

3) This row defines 4 test cases (COF-RSN-ME-ONER-5_1 to COF-RSN-ME-ONER-5_4), each one corresponding to one of the reasons for relay failure as specified in clause 4.5 test cases EVF-RELFA-001 to EVF-RELFA-004 and in consequence, RelayREMDFailure evidence will be generated as specified in these test cases.

4) This row defines 2 test cases (COF-RSN-ME-ONER-6_1 and COF-RSN-ME-ONER-6_2), each one corresponding to one of the reasons for rejecting relay as specified in clause 4.4 test cases EEVF-RELACC-005 and EVF-RELAC -006 and in consequence, RelayREMDAcceptanceRejection evidence will be generated as specified in these test cases.

5) This row defines 5 test cases (COF-RSN-ME-ONER-7_1 to COF-RSN-ME-ONER-7_5), one per each potential source of non download by the recipient, as specified in clause 4.7 and in consequence generate evidences as specified in test cases EVF-DOWNREC-002, EVF-DOWNREC-003, EVF-DOWNREC-004, EVF-DOWNREC-005, EVF-DOWNREC-007and EVF-DOWNREC-008.

6) For this test case the reason for not delivery to the recipient is the fact that the attachment format is not accepted by the recipient. In consequence the DownloadNonDownloadByRecipient evidence generated should be as specified in clause 4.7 test case EVF-DOWNREC-006.

Table 46: Testing download by delegate's recipient

Test identifier	Reference Test case	Changes from reference test case	Purpose
COF-RSN-DOWN-RDEL-1	COF-RSN-DOWN-ONER-1	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-RSN-DOWN-RDEL-2	COF-RSN-DOWN-ONER-2	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-RSN-DOWN-RDEL-3	COF-RSN-DOWN-ONER-3	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-RSN-DOWN-RDEL-4_x	COF-RSN-DOWN-ONER-4_X	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-RSN-DOWN-RDEL-5_x	COF-RSN-DOWN-ONER-5_x	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-RSN-DOWN-RDEL-6_x	COF-RSN-DOWN-ONER-6_x	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-RSN-DOWN-RDEL-7_x	COF-RSN-DOWN-ONER-7_x	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-RSN-DOWN-RDEL-8	COF-RSN-DOWN-ONER-8	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate

1) In all these test cases, the same sequence of operations will take place as in the corresponding reference test cases. Nevertheless, the evidence will have to incorporate details of the recipient's delegate.

Table 47: Testing download by several recipients

Test identifier	Reference Test case	Changes from reference test case	Purpose
COF-RSN-DOWN-SEVR-1	COF-RSN-DOWN-ONER-1	The message will be downloaded by several recipients 1	As reference test case but now the message is downloaded by several recipients
COF-RSN-DOWN-SEVR-2	COF-RSN-DOWN-ONER-2	The message will be downloaded by several recipients 1	As reference test case but now the message is downloaded by several recipients
COF-RSN-DOWN-SEVR-3	COF-RSN-DOWN-ONER-3	The message will be downloaded by several recipients 1	As reference test case but now the message is downloaded by several recipients
COF-RSN-DOWN-SEVR-4_x	COF-RSN-DOWN-ONER-4_X	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-RSN-DOWN-SEVR-5_x	COF-RSN-DOWN-ONER-5_x	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-RSN-DOWN-SEVR-6_x	COF-RSN-DOWN-ONER-6_x	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-RSN-DOWN-SEVR-7_x	COF-RSN-DOWN-ONER-7_x	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients
COF-RSN-DOWN-SEVR-8	COF-RSN-DOWN-ONER-8	It will be tried to deliver to several recipients 1	As reference test case but now the it is tried to deliver the message to several recipients

1) In all these test cases, the same sequence of operations will take place as in the corresponding reference test cases. Nevertheless, the evidence will have to incorporate details of all the recipients.

Table 48: Testing acceptance/rejection by a recipient

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
COF-RSN-RACREC-ONER-1			One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	Testing **acceptance** by recipient of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to recipient. Once the recipient has accepted the REM-MD Envelope with Or. Mess., it generates REM-MD Envelope with relay and acceptance evidence for SREM-MD. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		
				[F] Sender	Evidence	RelREMMD(+) AccRejRec (+)	**[S]** SREMMD	Evidence	RelREMMD(+) AccRejRec (+)	
COF-RSN-RACREC-ONER-2		✓	One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	Testing **acceptance by recipient** of one unsigned message with one attachment. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to recipient. Once the recipient has accepted the REM-MD Envelope with Or. Mess., it generates REM-MD Envelope with relay and acceptance evidence for SREM-MD. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		
				[F] Sender	Evidence	RelREMMD(+) AccRejRec (+)	**[S]** SREMMD	Evidence	RelREMMD(+) AccRejRec (+)	
COF-RSN-RACREC-	✓		One 1	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	Testing **acceptance by recipient** of one signed

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	**Attach**	**Recipient**	**To**	**Sections**	**Evidence set**	**Sent [S] Stored [ST]**	**Sections**	**Evidence set**	
				Sender	Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		
				[F] Sender	Evidence	RelREMMD(+) AccRejRec (+)	**[S]** SREMMD	Evidence	RelREMMD(+) AccRejRec (+)	
COF-RSN-RACREC-ONER-4			One 2	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	Testing **rejection by recipient** of one unsigned message without attachments. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to recipient. Once the recipient has rejects the REM-MD Envelope with Or. Mess., it generates REM-MD Envelope with relay and rejection evidence for SREM-MD. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	**[S]** Recipient	Introduction		
				[F] Sender	Evidence	RelREMMD(+) AccRejRec (-)	**[S]** SREMMD	Evidence	RelREMMD(+) AccRejRec (-)	
COF-RSN-RACREC-ONER-5			One 3	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[ST]** Recipient's delegate	Or. Mess. Evidence	SubAccRej(+)	Testing **acceptance by recipient's delegate** of one unsigned message without

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
				Sender	Evidence	SubAccRej(+)	**[S]** Recipient's delegate	Introduction		
				[F] Sender	Evidence	RelREMMD(+) AccRejRec (+)	**[S]** SREMMD	Evidence	RelREMMD(+) AccRejRec (+)	
COF-RSN-RACREC-ONER-6			Three 4	RREM-MD	Or. Mess. Evidence	SubAccRej(+)	**[ST]** Recipient's delegate	Or. Mess. Evidence	SubAccRej(+)	Testing **acceptance by several recipients** of one unsigned message without attachments. SREM-MD generates acceptance evidence. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to recipient. Once the recipients have accepted the REM-MD Envelope with Or. Mess., it generates REM-MD Envelope with relay and acceptance evidence for SREM-MD. SREM-MD forwards them to sender.
				Sender	Evidence	SubAccRej(+)	**[S]** Recipient's delegate	Introduction		
				[F] Sender	Evidence	RelREMMD(+) AccRejRec (+)	**[S]** SREMMD	Evidence	RelREMMD(+) AccRejRec (+)	

1) In this test case the sender's REM-MD generates a REM Dispatch for the recipient's REM-MD enclosing the Original Message and the SubmissionAcceptanceRejection Evidence. In addition to that, it also generates and submits to the sender the SubmissionAcceptanceRejection evidence. The recipient's REM-MD stores this REM Dispatch in its REM-MD Repository. It then generates a REM-MD Envelope enclosing an introduction section with a reference to the REM-MD Repository and sends it to the recipient. Once the recipient has downloaded and accepted what is stored in the REM-MD Repository, the recipient's REM-MD generates a REM-MD envelope with a DownloadNonDownloadByRecipient evidence and sends it to the sender's REM-MD, which, in turn, will forward it to the sender. Below follows details on the evidences to be generated:

   a) SubmissionAcceptanceRejection as specified in clause 4.3 test case EVF-SUBACC-001.

   b) RelayREMMDAcceptanceRejection as specified in clause as specified in clause 4.5 test case EVF-RELACC-001.

   c) AcceptanceRejectionByRecipient as specified in clause 4.9 test case EVF-ACRECREC-001.

2) In this test case the "negative" AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-002. The rest of evidences will be as in previous bullet.

3) In this test case the AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-003. The rest of evidences will be as in bullet 1.

4) In this test case the AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-001. The rest of evidences will be as in bullet 1.

7.3.3 Sender's REM-MD under Store and Notify Mode of Operation

Table 49: Testing download by one recipient

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	**Attach**	**Recipient**	**To**	**Sections**	**Evidence set**	**Sent [S] Stored [ST]**	**Sections**	**Evidence set**	
COF-SSN-DOWN-ONER-1			One 1	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **successful download** by recipient of one unsigned message without attachments. SREM-MD generates acceptance evidence. SREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to RREM-MD, which forwards it to the recipient. Once the recipient has downloaded the REM-MD Envelope with Or. Mess., the SREM-MD generates REM-MD Envelope with download evidence for sender.
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				
				[S] Sender	Evidence	SubAccRej(+) DownNonDown (+)				

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
COF-SSN-DOWN-ONER-2		✓	One 1	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **successful download** by recipient of one unsigned message with one attachment. SREM-MD generates acceptance evidence. SREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to RREM-MD, which forwards it to the recipient. Once the recipient has downloaded the REM-MD Envelope with Or. Mess., the SREM-MD generates REM-MD Envelope with download evidence for sender.
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				
				[S] Sender	Evidence	SubAccRej(+) DownNonDown (+)				
COF-SSN-DOWN-ONER-3	✓		One 1	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **successful download** by recipient of one signed message without attachments. SREM-MD generates acceptance evidence. RREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to RREM-MD, which forwards it to the recipient. Once the recipient has downloaded the REM-MD Envelope with Or. Mess., the SREM-MD generates REM-MD Envelope with download evidence for sender.
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				
				[S] Sender	Evidence	SubAccRej(+) DownNonDown (+)				
COF-SSN-DOWN-ONER-4_x			One 2	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[S]** SREM-MD	Evidence	RelREMMD(-)	Testing **relay rejection** by RREM-MD of the REM-MD Envelope with a reference. SREM-MD generates
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
				[S] Sender	Evidence	SubAccRej(+) RelREMMD(-)				acceptance evidence. RREM-MD generates **relay rejection** evidence. SREM-MD forwards them to sender.
COF-RSN-DOWN-ONER-5_x			One 3	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)				Testing **relay failure** of the REM-MD Envelope with a reference. SREM-MD generates acceptance evidence. SREM-MD also generates **relay failure** evidence after not being able to relay the original message to RREM-MD. Both evidences are sent to the sender.
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				
				[S] Sender	Evidence	SubAccRej(+) RelREMMDF(-)				
COF-SSN-DOWN-ONER-6_x			One 4	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **unsuccessful download** by recipient of one unsigned message without attachments. SREM-MD generates acceptance evidence. SREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to RREM-MD, which forwards it to the recipient. The download by recipient is unsuccessful and then the SREM-MD generates the negative download evidence
				[S] RREM-MD	Introduction					
				[S] Sender	Evidence	SubAccRej(+) DownNonDown (-)				
COF-SSN-DOWN-ONER-7		✓	One 5	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **unsuccessful download** by recipient of one unsigned message with one attachment. SREM-MD
				[S] RREM-MD	Introduction					

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
				[S] Sender	Evidence	SubAccRej(+) DownNonDown (-)				generates acceptance evidence. SREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to RREM-MD, which forwards it to the recipient. The download by recipient is unsuccessful and then the SREM-MD generates the negative download evidence

1) In this test case the sender's REM-MD generates a REM Dispatch for the recipient's REM-MD enclosing a reference. It also stores a REM-MD Envelope enclosing the Original Message and the SubmissionAcceptanceRejection Evidence in its REM-MD Repository. The recipient's REM-MD forwards the reference to the recipient. Once the recipient has downloaded what is stored in the sender's REM-MD's REM-MD Repository, the sender's REM-MD generates a REM-MD envelope with a DownloadNonDownloadByRecipient evidence and sends it to the sender. Below follows details on the evidences to be generated:

   a) SubmissionAcceptanceRejection as specified in clause 4.3 test case EVF-SUBACC-001.

   b) RelayREMMDAcceptanceRejection as specified in clause as specified in clause 4.5 test case EVF-RELACC-001.

   c) DownloadNonDownloadByRecipient as specified in clause 4.7 test case EVF- DOWNREC-001.

2) This row defines 5 test cases (COF-RSN-ME-ONER-4_1 to COF-RSN-ME-ONER-4_5), each one corresponding to one of the reasons for rejecting relay (of REM-MD Envelope with the reference to the REM-MD envelope containing the original message) as specified in clause 4.4 test cases EVF- RELACC -002 to EVF-RELACC -006 and in consequence, RelayREMDAcceptanceRejection evidence will be generated as specified in these test cases.

3) This row defines 4 test cases (COF-RSN-ME-ONER-5_1 to COF-RSN-ME-ONER-5_4), each one corresponding to one of the reasons for relay failure of the REM-MD Envelope containing the reference to the REM-MD Envelope containing the original message, as specified in clause 4.5 test cases EVF-RELFA-001 to EVF-RELFA-004 and in consequence, RelayREMDFailure evidence will be generated as specified in these test cases.

4) This row defines 5 test cases (COF-RSN-ME-ONER-7_1 to COF-RSN-ME-ONER-7_5), one per each potential source of non download by the recipient, as specified in clause 4.7 and in consequence generate evidences as specified in test cases EVF-DOWNREC-002, EVF-DOWNREC-003, EVF-DOWNREC-004, EVF-DOWNREC-005, EVF-DOWNREC-007and EVF-DOWNREC-008.

5) For this test case the reason for unsuccessful download by the recipient is the fact that the attachment format is not accepted by the recipient. In consequence the DownloadNonDownloadByRecipient evidence generated should be as specified in clause 4.7 test case EVF-DOWNREC-006.

Table 50: Testing download by delegate's recipient

Test identifier	Reference Test case	Changes from reference test case	Purpose
COF-SSN-DOWN-RDEL-1	COF-SSN-DOWN-ONER-1	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-SSN-DOWN-RDEL-2	COF-SSN-DOWN-ONER-2	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-SSN-DOWN-RDEL-3	COF-SSN-DOWN-ONER-3	The message will be downloaded by recipient's delegate 1	As reference test case but now the message is downloaded by recipient's delegate
COF-SSN-DOWN-RDEL-4_x	COF-SSN-DOWN-ONER-4_X	The recipient's delegate tries to download the message 1	As reference test case but now the message is downloaded by recipient's delegate
COF-SSN-DOWN-RDEL-5_x	COF-SSN-DOWN-ONER-5_x	The recipient's delegate tries to download the message	As reference test case but now with recipient's delegate
COF-SSN-DOWN-RDEL-6_x	COF-SSN-DOWN-ONER-6_x	The recipient's delegate tries to download the message	As reference test case but now the message is downloaded by recipient's delegate
COF-SSN-DOWN-RDEL-7	COF-SSN-DOWN-ONER-7	The recipient's delegate tries to download the message	As reference test case but now the message is downloaded by recipient's delegate

1) In all these test cases, the same sequence of operations will take place as in the corresponding reference test cases. Nevertheless, the evidence will have to incorporate details of the recipient's delegate.

Table 51: Testing download by several recipients

Test identifier	Reference Test case	Changes from reference test case	Purpose
COF-SSN-DOWN-SEVR-1	COF-SSN-DOWN-ONER-1	The message will be downloaded by several recipients 1	As reference test case but now the message is downloaded by several recipients.
COF-SSN-DOWN-SEVR-2	COF-SSN-DOWN-ONER-2	The message will be downloaded by several recipients 1	As reference test case but now the message is downloaded by several recipients.
COF-SSN-DOWN-SEVR-3	COF-SSN-DOWN-ONER-3	The message will be downloaded by several recipients 1	As reference test case but now the message is downloaded by several recipients.
COF-SSN-DOWN-SEVR-4_x	COF-SSN-DOWN-ONER-4_X	Several recipients will try to download the message 1	As reference test case but now with several recipients.
COF-SSN-DOWN-SEVR-5_x	COF-SSN-DOWN-ONER-5_x	Several recipients will try to download the message 1	As reference test case but now with several recipients.
COF-SSN-DOWN-SEVR-6_x	COF-SSN-DOWN-ONER-6_x	Several recipients will try to download the message 1	As reference test case but now with several recipients.
COF-SSN-DOWN-SEVR-7	COF-SSN-DOWN-ONER-7	Several recipients will try to download the message 1	As reference test case but now with several recipients.

1) In all these test cases, the same sequence of operations will take place as in the corresponding reference test cases. Nevertheless, the evidence will have to incorporate details of all the recipients.

Table 52: Testing acceptance/rejection by a recipient

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
COF-SSN-RACREC-ONER-1			One 1	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **successful download** by recipient of one unsigned message without attachments. SREM-MD generates acceptance evidence. SREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to RREM-MD, which forwards it to the recipient. Once the recipient has accepted the REM-MD Envelope with Or. Mess., the SREM-MD generates REM-MD Envelope with download evidence for sender.
				[S] RREM-MD	Introduction					
				[S] Sender	Evidence	SubAccRej(+) AccRejRec (+)				
COF-SSN-RACREC-ONER-2		✓	One 1	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **successful download** by recipient of one unsigned message with one attachment. SREM-MD generates acceptance evidence. SREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to RREM-MD, which forwards it to the recipient. Once the recipient has accepted the REM-MD Envelope with Or. Mess., the SREM-MD generates REM-MD Envelope with download evidence for sender.
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				
				[S] Sender	Evidence	SubAccRej(+) AccRejRec (+)				
COF-SSN-RACREC-	✓		One 1	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **successful download** by recipient of

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				
				[S] Sender	Evidence	SubAccRej(+) AccRejRec (+)				
COF-SSN-RACREC-2			One	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **rejection by recipient** of one unsigned

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
				[S] RREM-MD	Introduction					
				[S] Sender	Evidence	SubAccRej(+) AccRejRec (-)				
COF-SSN-RACREC-RELD-1			One 3	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing **successful download by recipient's delegate** of one unsigned message without attachments. SREM-MD generates acceptance evidence. SREM-MD stores this. It generates a notification (REM-MD Envelope with Introduction section containing reference for download) and sends it to RREM-MD, which forwards it to the recipient. Once the recipient has accepted the REM-MD Envelope with Or. Mess., the SREM-MD generates REM-MD Envelope with download evidence for sender.
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				
				[S] Sender	Evidence	SubAccRej(+) AccRejRec (+)				
COF-SSN-RACREC-			One 4	**[ST]** Recipient	Or. Mess. Evidence	SubAccRej(+)	**[F]** Recipient	Introduction		Testing of **successful download by several**

Test identifier	Original Message			SREM-MD			RREM-MD			Purpose
	Signed	Attach	Recipient	To	Sections	Evidence set	Sent [S] Stored [ST]	Sections	Evidence set	
				[S] RREM-MD	Introduction Evidence	SubAccRej(+)				
				[S] Sender	Evidence	SubAccRej(+) AccRejRec (+)				

1) In this test case the sender's REM-MD generates a REM-MD envelope with a reference to the original message for the recipient's REM-MD. In addition to that, it sends to the sender the SubmissionAcceptanceRejection evidence and it stores the REM-MD envelope with the original message and the evidence of SubmissionAcceptance for the recipient in its REM-MD Repository. The recipient's REM-MD forwards the REM-MD Envelope with the reference to the recipient. Once the recipient has downloaded and accepted what is stored in the sender's REM-MD REM-MD Repository, the sender's REM-MD generates a REM-MD envelope with a positive AcceptanceRejectionByRecipient evidence and sends it to the sender. Below follows details on the evidences to be generated:

   a) SubmissionAcceptanceRejection as specified in clause 4.3 test case EVF-SUBACC-001.

   b) RelayREMMDAcceptanceRejection as specified in clause as specified in clause 4.5 test case EVF-RELACC-001.

   c) AcceptanceRejectionByRecipient as specified in clause 4.9 test case EVF-ACRECREC-001.

2) In this test case the "negative" AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-002. The rest of evidences will be as in previous bullet.

3) In this test case the AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-003. The rest of evidences will be as in bullet 1.

4) In this test case the AcceptanceRejectionByRecipient evidence generated will be as in clause 4.9 test case EVF-DELREC-001. The rest of evidences will be as in bullet 1.

6 Test Suite for REM-MD UPU PReM Interoperability Profile

The present clause defines a test suite for testing the REM-MD/UPU gateway specified in "REM-MD UPU interoperability profile".

Clause 6.1 defines test cases for testing scenario where the sender is subscribed to a REM-MD and the recipient is subscribed to a UPU's DO.

Clause 6.2 defines test cases for testing scenario where the sender is subscribed to a UPU's DO and the recipient is subscribed to a REM-MD.

6.1 Test cases for scenario where sender is subscribed to REM-MD

Below follows the format of the table used for defining the test cases.

Table 53: Example of table for testing REM-MD UPU PReM Interoperability Profile

Test identifier	REM-MD UPU Gateway								Test Purpose
	REM-MD side				UPU's DO side				
	Incoming		Outgoing		Incoming		Outgoing		
	Sections	Evidence	Sections	Evidence	Sections	Evidence	Sections	Evidence	
UPUG-REM2DO-ONER-DEL-1	Or. Mess.						Or. Mess.		
			Evidence	RelREMMD(+)	Evidence **[CF]**	E-DSP-ACC/REJ-DOD			
			Evidence	DellivNonDeliv(+)	Evidence **[CF]**	E-MSG-ADRDLV/NDL-DOD			

Column **Test identifier**: as in previous tables. The test identifier uses a number of new acronyms. "**UPUG**" stands for "UPU Gateway". "**REM2DO**" indicates the direction of the flow from sender to recipient, REM to UPU's DO in this case. "**DO2REM**" would indicate that the sender is subscribed to a UPU's DO and the recipient is subscribed to a REM-MD. The rest of the test identifier has been discussed before in clause 7.

The table provides details for the two sides of the gateway, i.e. the side that is directly interacting with the REM world (**REM-MD side** header) and the side that it directly interacting with UPU world (**UPU's DO side** header). In each side may appear incoming objects (**Incoming** header) and from each side there may be sent outgoing objects (**Outgoing** header). For each of these objects (be they incoming or outgoing) the table indicates what sections and what evidence (if any) contains (columns **Sections** and **Evidence** respectively).

Each test case provides details of the flow that suggests to test. Readers of the tables of this clause should proceed as indicated below:

1) Readers should start reading an individual test description from the upper left cells in **REM-MD side**/ **Incoming/Sections** and **REM-MD side**/ **Incoming/Evidence** cells. These cells provide detail of the REM-MD Envelope arrived to the gateway from the sender's REM-MD. In the example above, **REM-MD side**/ **Incoming/Sections** cell indicates that a REM-MD envelope with the section corresponding to the Original Message has arrived. **REM-MD side**/ **Incoming/Evidence** cell is empty as the REM-MD Envelope does not include Evidence section, otherwise it would contain the acronym for the evidence enclosed in the section.

2) After that readers should continue their reading with the details provided in the **UPU's DO side/Outgoing/Sections** and **UPU's DO side/Outgoing/Evidence** cells. These cells provide details of the outgoing object that the gateway, after processing the incoming message from REM-MD side, submits to the recipient's UPU's DO. In the example above, the gateway just envelopes the REM-MD Envelope within a SOAP message as specified in the TS 102 640 Part 6-1 and sends it to the recipient's DO.

3) After that, reading should continue with the flow that comes back from UPU domain to the REM domain. First, the table shows the details of the incoming object to the UPU's DO side of the gateway as arrived from the recipient's DO. These details are shown in **UPU's DO side/Incoming/Sections** and **UPU's DO side/Incoming/Evidence** cells. In the example above, the gateway receives via call-back function two evidences: E-DSP-ACC/REJ-DOD and E-MSG-ADRDLV/NDL-DOD. The table indicates this by including in the **UPU's DO side/Incoming/Sections "**Evidence **[C]**": this indicates that the object received contains an evidence section, and that it has arrived via call-back function. **UPU's DO side/Incoming/ Evidence** cell contains the acronym of the evidence in the incoming object. In this case, the gateway receives two objects with evidence via call-back function. This is the reason why there are two rows in the table.

4) Finally, the reading ends showing the details of the objects that the gateway generates and sends to sender's REM-MD, after receiving the aforementioned objects from recipient's DO. They are summarized in **REM-MD side/Outgoing/Sections** and **REM-MD side/Outgoing/Evidence** cells. The example above shows that the gateway generates two REM-MD Envelopes with one evidence each (**REM-MD side/Outgoing/Sections** cells in second and third rows); the first one contains a positive RelyaREMMDAcceptanceRejection evidence and the second one contains a positive DeliveryNonDeliveryToRecipient evidence (**REM-MD side/Outgoing /Evidence** cells in second and third rows).

**Table 54: Testing submission of messages to one recipient subscribed to a UPU's DO.
Evidence set includes delivery to/non delivery to and/or acceptance by/rejection by recipient**

Test identifier	REM-MD UPU Gateway								Test Purpose
	REM-MD side				UPU's DO side				
	Incoming		Outgoing		Incoming		Outgoing		
	Sections	Evidence	Sections	Evidence	Sections	Evidence	Sections	Evidence	
UPUG-REM2DO-ONER-DEL-1	Or. Mess.						Or. Mess.		Testing **successful delivery of one unsigned original message without any attachment** originated by a sender subscribed to REM-MD and addressed to a recipient subscribed to a UPU's DO. The SREM-MD sends to the gateway a REM-MD Envelope with the original message. The gateway encapsulates it in a SOAP message and sends it to recipient's DO. The recipient's DO produces the EFW-DSP-ACC-REJ-DOD successful evidence. Once the original message is delivered to the recipient and her DO generates the positive E-DSP-ACC-REJ-DOD and sends it to the gateway. In reaction the gateway generates positive RelREMMD and RetrNonRetr and sends them to the sender's REM-MD.
			Evidence	RelREMMD(+)	Evidence **[CF]**	E-DSP-ACC/REJ-DOD(+)			
			Evidence	RetrNonRetr (+)	Evidence **[CF]**	E-MSG-ADRDLV/NDL-DOD(+)			
UPUG-REM2DO -ONER-DEL-2	Or. Mess.+ attach 1						Or. Mess. + attach		Testing **successful delivery of one unsigned original message with one attachmen**t originated by a sender subscribed to REM-MD and addressed to a recipient subscribed to a UPU's DO. The SREM-MD sends to the gateway a REM-MD Envelope with the original message. The gateway encapsulates it in a SOAP message and sends it to recipient's DO. The recipient's DO produces the EFW-DSP-ACC-REJ-DOD successful evidence. Once the original message is delivered to the recipient and her DO generates the positive E-DSP-ACC-REJ-DOD and sends it to the
			Evidence	RelREMMD(+)	Evidence **[CF]**	E-DSP-ACC/REJ-DOD(+)			
			Evidence	RetrNonRetr (+)	Evidence **[CF]**	E-MSG-ADRDLV/NDL-DOD(+)			

Test identifier	REM-MD UPU Gateway								Test Purpose
	REM-MD side				UPU's DO side				
	Incoming		Outgoing		Incoming		Outgoing		
	Sections	Evidence	Sections	Evidence	Sections	Evidence	Sections	Evidence	
									gateway. In reaction the gateway generates positive RelREMMD and RetrNonRetr and sends them to the sender's REM-MD.
UPUG-REM2DO - ONER-DEL-3	Or. Mess.+ sign 2						Or. Mess. + sign		Testing **successful delivery** of one **signed original message without any attachmen**t originated by a sender subscribed to REM-MD and addressed to a recipient subscribed to a UPU's DO. The SREM-MD sends to the gateway a REM-MD Envelope with the original message. The gateway encapsulates it in a SOAP message and sends it to recipient's DO. The recipient's DO produces the EFW-DSP-ACC-REJ-DOD successful evidence. Once the original message is delivered to the recipient and her DO generates the positive E-DSP-ACC-REJ-DOD and sends it to the gateway. In reaction the gateway generates positive RelREMMD and RetrNonRetr and sends them to the sender's REM-MD.
			Evidence	RelREMMD(+)	Evidence **[CF]**	E-DSP-ACC/REJ-DOD(+)			
			Evidence	RetrNonRetr (+)	Evidence **[CF]**	E-MSG-ADRDLV/NDL-DOD(+)			
UPUG-OF-DEL-5_x	Or. Mess.						Or. Mess.		Testing **rejection by recipient's DO of one unsigned original message without any attachmen**t originated by a sender subscribed to REM-MD and addressed to a recipient subscribed to a UPU's DO. The SREM-MD sends to the gateway a REM-MD Envelope with the original message. The gateway encapsulates it in a SOAP message and sends it to recipient's DO. The recipient's DO rejects the envelope and generates the negative E-DSP-ACC/REJ-DOD evidence. This evidence arrived from UPU ‘s DO
			Evidence	RelREMMD(-)	Evidence **[C]**	E-DSP-ACC/REJ-DOD (-) 3			

Test identifier	REM-MD UPU Gateway								Test Purpose
	REM-MD side				UPU's DO side				
	Incoming		Outgoing		Incoming		Outgoing		
	Sections	Evidence	Sections	Evidence	Sections	Evidence	Sections	Evidence	
									to the gateway. In reaction, the gateway generates the negative RelREMMD evidence sends it to the sender's REM-MD.
UPUG-REM2DO - DEL-6_x	Or. Mess 2						Or. Mess.		Testing **unsuccessful delivery** of one **unsigned original message without any attachmen**t originated by a sender subscribed to REM-MD and addressed to a recipient subscribed to a UPU's DO. The SREM-MD sends to the gateway a REM-MD Envelope with the original message. The gateway encapsulates it in a SOAP message and sends it to recipient's DO. The recipient's DO accepts the message and generates the E-DSP-ACC/REJ-DOD positive evidence. Once he original message is unsuccessfully delivered to the recipient her DO generates the negative E-MSG-ADRDLV/NDL-DOD evidence. The gateway then generates the positive RelREMMD and the negative RetrNonRetr evidence and sends them to the sender's REM-MD.
			Evidence	RelREMMD(+)	Evidence	E-DSP-ACC/REJ-DOD (+)			
			Evidence	RetrNonRetr (-)	Evidence	E-MSG-ADRDLV/NDL-DOD (-) 4			
UPUG-REM2DO - DEL-6_x	Or. Mess 2						Or. Mess.		Testing **expiration of retrieval time by recipient of one unsigned original message without any attachmen**t originated by a sender subscribed to REM-MD and addressed to a recipient subscribed to a UPU's DO. The SREM-MD sends to the gateway a REM-MD Envelope with the original message. The gateway encapsulates it in a SOAP message and sends it to recipient's DO. The recipient's DO accepts the message and generates the E-DSP-ACC/REJ-
			Evidence	RelREMMD(+)	Evidence	E-DSP-ACC/REJ-DOD (+)			
			Evidence	RetrNonRetr (-)	Evidence	E-MSG-ADR-DLV/NDL-DOD (-) 4			

Test identifier	REM-MD UPU Gateway								Test Purpose
	REM-MD side				UPU's DO side				
	Incoming		Outgoing		Incoming		Outgoing		
	Sections	Evidence	Sections	Evidence	Sections	Evidence	Sections	Evidence	
									DOD positive evidence. Once the expiration time has passed without the original message being retrieved by the recipient her DO generates the negative E-MSG-ADR-EXP-DOD evidence. The gateway then generates the positive RelREMMD and the negative RetrNonRetr evidence and sends them to the sender's REM-MD.

1) The sender will generate an attachment to the original message.

2) The original message will be signed by the sender.

3) Several test cases may be specified each one dealing with a specific rejection cause by the recipient's DO according UPU PReM pecifications.

4) Several test cases may be specified each one dealing with a specific cause of failure in delivery to the recipient according UPU PReM specifications.

Test cases for situations for submitting the original message to several recipients would be added based on the ones specified in the table above. For them the codes would range from: UPUG- REM2DO -SEVR-DEL-1 to UPUG- REM2DO -SEVR-DEL-6_x. Details of the incoming to and outgoing from gateway flows in terms of dispatches enclosing original message and/or evidence, would remain unchanged.

6.2 Test cases for scenario where sender is subscribed to a UPU DO

The present clause specifies test cases for scenarios where the sender of the message is an entity subscribed to an UPU's DO and the recipient is subscribed to a REM-MD.

Table 55: Testing submission of messages to one recipient subscribed to a UPU's DO. Evidence set includes delivery to/non delivery to and/or acceptance by/rejection by recipient

Test identifier	REM-MD UPU Gateway								Test Purpose
	UPU's DO side				REM MD side				
	Incoming		Outgoing		Incoming		Outgoing		
	Sections	Evidence	Sections	Evidence	Sections	Evidence	Sections	Evidence	
UPUG-DO2REM-ONER-DEL-1	Or. Mess.						Or. Mess.		Testing **successful delivery of one unsigned original message without any attachmen**t originated by a sender subscribed to a DO and addressed to a recipient subscribed to a REM-MD. The sender's DO sends the original message to the gateway. The gateway forwards it to the recipient's REM-MD. The recipient's REM-MD generates the RelREMMD positive evidence. Once he original message is delivered to the recipient the recipient's REM-MD generates the positive DellivNonDeliv evidence. The gateway generates the E-MSG-ADRDLV/NDL-DOD positive evidence and sends it to the sender's DO.
					Evidence	RelREMMD(+)			
			Evidence	MSG-ADRDLV/NDL-DOD (+)	Evidence	DellivNonDeliv(+)			
UPUG-DO2REM-ONER-DEL-2	Or. Mess. + sign 1						Or. Mess.		Testing **successful delivery of one signed original message without any attachmen**t originated by a sender subscribed to a DO and addressed to a recipient subscribed to a REM-MD. The sender's DO sends the original message to the gateway. The gateway forwards it to the recipient's REM-MD. The recipient's REM-MD generates the RelREMMD positive evidence. Once he original message is retrieved by the recipient the recipient's REM-MD generates the positive RetrNonRetr evidence. The
					Evidence	RelREMMD(+)			
			Evidence	MSG-ADRDLV/NDL-DOD (+)	Evidence	RetrNonRetr (+)			

Test identifier	REM-MD UPU Gateway								Test Purpose
	UPU's DO side				REM MD side				
	Incoming		Outgoing		Incoming		Outgoing		
	Sections	Evidence	Sections	Evidence	Sections	Evidence	Sections	Evidence	
									gateway generates the E-MSG-ADRDLV/NDL-DOD positive evidence and sends it to the sender's DO.
UPUG-DO2REM-ONER-DEL-3	Or. Mess. + attach 2						Or. Mess.		Testing **successful delivery of one unsigned original message with one attachment** originated by a sender subscribed to a DO and addressed to a recipient subscribed to a REM-MD. The sender's DO sends the original message to the gateway. The gateway forwards it to the recipient's REM-MD. The recipient's REM-MD generates the RelREMMD positive evidence. Once he original message is delivered to the recipient the recipient's REM-MD generates the positive RetrNonRetr evidence. The gateway generates the E-MSG-ADRDLV/NDL-DOD positive evidence and sends it to the sender's DO.
			Evidence	MSG-ADRDLV/NDL-DOD (+)	Evidence	RelREMMD(+)			
					Evidence	RetrNonRetr (+)			
UPUG-DO2REM-ONER-DEL-4_x	Or. Mess. 3						Or. Mess.		Testing **rejection by recipient's REM-MD of one unsigned original message without any attachment** originated by a sender subscribed to a DO and addressed to a recipient subscribed to a REM-MD. The sender's DO sends the original message to the gateway. The gateway forwards it to the recipient's REM-MD. The recipient's REM-MD rejects the message. It generates a RelREMMD negative evidence. The gateway generates an E-DSP-ACC/REJ-DOD negative
			Evidence	E-DSP-ACC/REJ-DOD (-)	Evidence	RelREMMD(-)			

Test identifier	REM-MD UPU Gateway								Test Purpose
	UPU's DO side				REM MD side				
	Incoming		Outgoing		Incoming		Outgoing		
	Sections	Evidence	Sections	Evidence	Sections	Evidence	Sections	Evidence	
									evidence and sends it to the sender's DO.
UPUG-DO2REM-ONER-DEL-5_x	Or. Mess.						Or. Mess.		Testing **unsuccessful delivery of one unsigned original message without any attachmen**t originated by a sender subscribed to a DO and addressed to a recipient subscribed to a REM-MD. The sender's DO sends the original message to the gateway. The gateway forwards it to the recipient's REM-MD. The recipient's REM-MD generates the RelREMMD positive evidence. The expiration time for retrieval by recipient passes and the recipient's REM-MD sends back a RetrNonRetr negative evidence. The gateway generates a MSG-ADRDLV/NDL-DOD negative evidence and sends it to the sender's DO.
			Evidence	MSG-ADRDLV/NDL-DOD (-)	Evidence	RelREMMD(+)			
					Evidence	RetrNonRetr (-)			

1) The sender will generate an attachment to the original message.

2) The original message will be signed by the sender.

3) Several test cases may be specified each one dealing with a specific rejection cause by the recipient's DO according TS 102 640-2 [i.2].

Test cases for situations for submitting the original message to several recipients would be added based on the ones specified in the table above. For them the codes would range from: UPUG-DO2REM-SEVR-DEL-1 to UPUG-DO2REM-SEVR-DEL-5_x. Details of the incoming to and outgoing from gateway flows in terms of dispatches enclosing original message and/or evidence, would remain unchanged.

History

Document history		
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