



**Electronic Signatures and Infrastructures (ESI);
Associated Signature Containers (ASiC) -
Testing Compliance and Interoperability;
Part 3: Test suites for testing interoperability of
ASiC containers other than baseline**

Reference

DTS/ESI-0019164-3

Keywords

ASiC, e-commerce, electronic signature,
interoperability, security, testing

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Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

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

The present document is part 3 of a multi-part deliverable covering Associated Signature Containers (ASiC) - Testing Conformance and Interoperability. Full details of the entire series can be found in part 1 [i.5].

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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1 Scope

The present document defines a number of test suites to assess the interoperability between implementations claiming conformance to ASiC building blocks defined in ETSI EN 319 162-1 [1] and additional containers defined in ETSI EN 319 162-2 [2].

These test suites are agnostic of the PKI infrastructure. Any PKI infrastructure can be used including the one based on EU Member States Trusted Lists.

2 References

2.1 Normative 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>.

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

- [1] ETSI EN 319 162-1: "Electronic Signatures and Infrastructures (ESI); Associated Signature Containers (ASiC); Part 1: Building blocks and ASiC baseline containers".
- [2] ETSI EN 319 162-2: "Electronic Signatures and Infrastructures (ESI); Associated Signature Containers (ASiC); Part 2: Additional ASiC containers".
- [3] IETF RFC 3161: "Internet X.509 Public Key Infrastructure Time-Stamp Protocol (TSP)".
- [4] Application Note: "APPNOTE.TXT - .ZIP File Format Specification", PKWARE® Inc., September 2012.
- [5] ETSI TS 119 124-3: "Electronic Signatures and Infrastructures (ESI); CAAdES digital signatures - Testing Conformance and Interoperability; Part 3: Test suites for testing interoperability of extended CAAdES signatures".
- [6] ETSI TS 119 134-3: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures - Testing Conformance and Interoperability; Part 3: Test suites for testing interoperability of extended XAdES signatures".
- [7] ETSI TS 119 134-2: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures - Testing Conformance and Interoperability; Part 2: Test suites for testing interoperability of XAdES baseline signatures".
- [8] IETF RFC 4998: "Evidence Record Syntax (ERS)".
- [9] IETF RFC 6283: "Extensible Markup Language Evidence Record Syntax (XMLERS)".

2.2 Informative 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.

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

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 TR 119 001: "Electronic Signatures and Infrastructures (ESI); The framework for standardization of signatures; Definitions and abbreviations".
- [i.2] ETSI TS 119 164-2: "Electronic Signatures and Infrastructures (ESI); Associated Signature Containers (ASiC) - Testing Compliance & Interoperability; Part 2: Test Suite for ASiC interoperability test events".
- [i.3] ETSI EN 319 122-2: "Electronic Signatures and Infrastructures (ESI); CAdES digital signatures; Part 2: Extended CAdES signatures".
- [i.4] ETSI EN 319 132-2: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures; Part 2: Extended XAdES signatures".
- [i.5] ETSI TR 119 164-1: "Electronic Signatures and Infrastructures (ESI); Associated Signature Containers (ASiC) - Testing Conformance and Interoperability; Part 1: Overview".
- [i.6] ETSI EN 319 102-1: "Electronic Signatures and Infrastructures (ESI); Procedures for Creation and Validation of AdES Digital Signatures; Part 1: Creation and Validation".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TR 119 001 [i.1] and the following apply:

negative test case: test case either for a container including signature(s) that are not extended CAdES signatures [i.3] or extended XAdES signatures [i.4] whose validation according to ETSI EN 319 102-1 [i.6] would not result in TOTAL_PASSED

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TR 119 001 [i.1] and the following apply:

CS	Container Structure
SC	Syntactical Conformance
STV	Signature Time-stamp token Value
TC	Test Case

4 ASiC additional container interoperability test specification overview

The present document complements ETSI TS 119 164-2 [i.2] (interoperability testing of ASiC baseline containers) by specifying test suites for interoperability testing of ASiC containers supporting specific requirements not supported by ASiC baseline containers but still complying with the ASiC building blocks specified in ETSI EN 319 162-1 [1]. This clause describes the overall approach used to specify test suites for interoperability testing of these additional containers.

In particular, the following extensions of ASiC baseline containers are considered:

- extend ASiC baseline containers allowing use of extended XAdES signatures (ETSI EN 319 122-2 [i.3]) and extended CAdES signatures (ETSI EN 319 132-2 [i.4]);
- additional containers specified in ETSI EN 319 162-2 [2].

The test suites define:

- extending ETSI TS 119 164-2 [i.2] with test cases defined for extended CAdES digital signatures defined in ETSI TS 119 124-3 [5] and test cases defined for extended XAdES digital signatures defined in ETSI TS 119 134-3 [6]; and
- defining test cases considering the additional container types specified in ETSI EN 319 162-2 [2].

5 Test suite for testing interoperability of ASiC-S containers

5.1 Introduction to testing ASiC-S containers

The test suite for testing interoperability of ASiC-S containers is specified in the next clauses as follows:

- a set of test cases common to all ASiC-S forms is specified in clause 5.2;
- a set of test cases for ASiC-S with extended CAdES signature (ETSI EN 319 122-2 [i.3]) is specified in clause 5.3;
- a set of test cases for ASiC-S with extended XAdES signature (ETSI EN 319 132-2 [i.4]) is specified in clause 5.4;
- a set of test cases for ASiC-S with time assertion (ETSI EN 319 162-2 [2], clause 4.2.1) is specified in clause 5.5.

5.2 Test cases common to all ASiC-S forms

The test cases common to all ASiC-S container forms are specified in Table 1.

Table 1: Test cases common to all ASiC-S baseline containers

TC ID	Description	Pass criteria	Interop. Level
ASiC-S/CS/1	This test case tests if the container ZIP format is correct.	The container content shall comply with the ZIP file format specification [4] and be successfully extracted.	Container Structure
ASiC-S/CS/2	Verify if the container format is identifiable.	The container file extension shall be as specified in ASiC [1], clause 4.3.3.1 item 2)	Container Structure

TC ID	Description	Pass criteria	Interop. Level
ASiC-S/CS/3	mimetype is set appropriately. Prerequisites: <ul style="list-style-type: none"> ASiC-S/BCS/1 and ASiC-S/BCS/2 passed; mimetype is present 	mimetype value shall comply with ASiC [1], clauses 4.3.3.1, item 1) and A.1.	Container Structure
ASiC-S/CS/4	This test case tests that one signature or one time assertion is present in the container.	A META-INF folder in the root folder shall be present and contain one file whose name shall comply with ASiC [1], clause 4.3.3.2 item 4.	Container Structure
ASiC-S/CS/5	Presence of the signed file.	A single file, in addition to the optional mimetype, shall be present in the root folder.	Container Structure

5.3 Test cases for ASiC-S containers with CAdES extended signatures

5.3.1 Positive test cases

The test cases for ASiC-S with CAdES containers shall be as specified in Table 2. The test cases specified in clause 5.2 and the presence of signature.p7s file ASiC [1], clause 4.3.3.2 item 3b) are a prerequisite.

A test suite for augmentation of extended CAdES signatures in an ASiC-S container can be defined by applying the augmentation test suites defined in ETSI TS 119 124-3 [5] as follows:

- a test suite for ASiC-S containers including a CAdES-E-BES or CAdES-E-T signature to be augmented to CAdES-E-C signature shall conform to ETSI TS 119 124-3 [5], clause 6.2;
- a test suite for ASiC-S containers including a CAdES-E-BES, CAdES-E-T or CAdES-E-C signature to be augmented to CAdES-E-X signatures shall conform to ETSI TS 119 124-3 [5], clause 6.3;
- a test suite for ASiC-S containers including a CAdES-E-BES, CAdES-E-T or CAdES-E-C signature to be augmented to CAdES-E-XL signatures shall conform to ETSI TS 119 124-3 [5], clause 6.4;
- a test suite for ASiC-S containers including a CAdES-E-BES, CAdES-E-T or CAdES-E-C signature to be augmented to CAdES-E-A signatures shall conform to ETSI TS 119 124-3 [5], clause 6.5.

The Test Case Identifier (TC-ID) for the augmentation of extended CAdES signatures shall be "ASiC-S/" followed by the TC-ID defined for the corresponding CAdES augmentation test case.

Table 2: Test cases for all ASiC-S container levels with extended CAdES signature

TC ID	Description	Pass criteria
ASiC-S/CAdES-E-BES	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAdES/BES/* test cases defined in the Test suites for testing interoperability of CAdES extended signatures ETSI TS 119 124-3 [5], clause 5.1.	All the CAdES/BES/* test cases in ASiC-S/CAdES-E-BES shall be passed according to the criteria specified in [5], clause 5.1.
ASiC-S/CAdES-E-EPES	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAdES/EPES/* test cases defined in the Test suites for testing interoperability of CAdES extended signatures ETSI TS 119 124-3 [5], clause 5.2.	All the CAdES/EPES/* test cases in ASiC-S/CAdES-E-EPES shall be passed according to the criteria specified in [5], clause 5.2.
ASiC-S/CAdES-E-T	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAdES/T/* test cases defined in the Test suites for testing interoperability of CAdES extended signatures ETSI TS 119 124-3 [5], clause 5.3.	All the CAdES/T/* test cases in ASiC-S/CAdES-E-T shall be passed according to the criteria specified in [5], clause 5.3.
ASiC-S/CAdES-E-C	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAdES/C/* test cases defined in the Test suites for testing interoperability of CAdES extended signatures ETSI TS 119 124-3 [5], clause 5.4.	All the CAdES/C/* test cases in ASiC-S/CAdES-E-C shall be passed according to the criteria specified in [5], clause 5.4.

TC ID	Description	Pass criteria
ASiC-S/CAAdES-E-X	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAAdES/X/* test cases defined in the Test suites for testing interoperability of CAAdES extended signatures ETSI TS 119 124-3 [5], clause 5.5.	All the CAAdES/X/* test cases in ASiC-S/CAAdES-E-X shall be passed according to the criteria specified in [5], clause 5.5.
ASiC-S/CAAdES-E-XL	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAAdES/XL/* test cases defined in the Test suites for testing interoperability of CAAdES extended signatures ETSI TS 119 124-3 [5], clause 5.6.	All the CAAdES/XL/* test cases in ASiC-S/CAAdES-E-XL shall be passed according to the criteria specified in [5], clause 5.6.
ASiC-S/CAAdES-E-A	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAAdES/A/* test cases defined in the Test suites for testing interoperability of CAAdES extended signatures ETSI TS 119 124-3 [5], clause 5.7.	All the CAAdES/A/* test cases in ASiC-S/CAAdES-E-A shall be passed according to the criteria specified in [5], clause 5.7.

5.3.2 Negative test cases

The test cases in this clause are specified in table 3 and have been defined according to ETSI TS 119 124-3 [5], clause 7.

Table 3: Negative test cases for ASiC-S containers with extended CAAdES signature

TC ID	Description	Pass criteria
ASiC-S/CAAdES-E-BESN	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAAdES/BESN/* test cases defined in the Test suites for testing interoperability of CAAdES extended signatures ETSI TS 119 124-3 [5], clause 7.2.	All the CAAdES/BESN/* test cases in ASiC-S/CAAdES-E-BESN shall be passed according to the criteria specified in [5], clause 7.2.
ASiC-S/CAAdES-E-EPESN	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAAdES/EPESN/* test cases defined in the Test suites for testing interoperability of CAAdES extended signatures ETSI TS 119 124-3 [5], clause 7.3.	All the CAAdES/EPESN/* test cases in ASiC-S/CAAdES-E-EPESN shall be passed according to the criteria specified in [5], clause 7.3.
ASiC-S/CAAdES-E-TN	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAAdES/TN/* test cases defined in the Test suites for testing interoperability of CAAdES extended signatures ETSI TS 119 124-3 [5], clause 7.4.	All the CAAdES/TN/* test cases in ASiC-S/CAAdES-E-TN shall be passed according to the criteria specified in [5], clause 7.4.
ASiC-S/CAAdES-E-AN	This group of test cases tests a set of ASiC-S container including each a signature created according to all the CAAdES/AN/* test cases defined in the Test suites for testing interoperability of CAAdES extended signatures ETSI TS 119 124-3 [5], clause 7.5.	All the CAAdES/AN/* test cases in ASiC-S/CAAdES-E-AN shall be passed according to the criteria specified in [5], clause 7.5.

5.4 Test cases for ASiC-S containers with extended XAdES signature

5.4.1 Positive test cases

The test cases for ASiC-S containers with advanced XAdES signature shall be as specified in Table 4. The test cases specified in clause 5.2 and the presence of signatures.xml file ASiC [1], clause 4.3.3.2 item 3c) are a prerequisite.

A test suite for augmentation of extended XAdES signatures in an ASiC-S container can be defined by applying the augmentation test suites defined in ETSI TS 119 134-3 [6] as follows:

- a test suite for ASiC-S containers including a XAdES-E-BES or XAdES-E-T signature to be augmented to XAdES-E-C signature shall conform to ETSI TS 119 134-3 [6], clause 6.2;

- a test suite for ASiC-S containers including a XAdES-E-BES or XAdES-E-T signature to be augmented to XAdES-E-X signatures shall conform to ETSI TS 119 134-3 [6], clause 6.3;
- a test suite for ASiC-S containers including a XAdES-E-BES, XAdES-E-T, XAdES-E-C or XAdES-E-X signature to be augmented to XAdES-E-X-L signatures shall conform to ETSI TS 119 134-3 [6], clause 6.4;
- a test suite for ASiC-S containers including a XAdES-E-BES, XAdES-E-T, XAdES-E-C, XAdES-E-X, XAdES-E-X-L signature to be augmented to XAdES-E-A signatures shall conform to ETSI TS 119 134-3 [6], clause 6.5.

The Test Case Identifier (TC-ID) for the augmentation of extended XAdES signatures shall be "ASiC-S/" followed by the TC-ID defined for the corresponding XAdES augmentation test case.

Table 4: Test cases for ASiC-S container with extended XAdES signature

TC ID	Description	Pass criteria
ASiC-S/XAdES-E-BES	This group of test cases tests a set of ASiC-S container including each a signature created according to all the XAdES/EBES/* test cases defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 5.2.	All the XAdES/EBES/* test cases in ASiC-S/XAdES-E-BES shall be passed according to the criteria specified in [6], clause 5.2.
ASiC-S/XAdES-E-EPES	This group of test cases tests a set of ASiC-S container including each a signature created according to all the XAdES/EEPES/* test cases defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 5.3.	All the XAdES/EEPES/* test cases in ASiC-S/XAdES-E-EPES shall be passed according to the criteria specified in [6], clause 5.3.
ASiC-S/XAdES-E-T	This group of test cases tests a set of ASiC-S container including each a signature created according to all the XAdES/ET/* test cases defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 5.4.	All the XAdES/ET/* test cases in ASiC-S/XAdES-E-T shall be passed according to the criteria specified in [6], clause 5.4.
ASiC-S/XAdES-E-C	This group of test cases tests a set of ASiC-S container including each a signature created according to all the XAdES/EC/* test cases defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 5.5.	All the XAdES/EC/* test cases in ASiC-S/XAdES-E-C shall be passed according to the criteria specified in [6], clause 5.5.
ASiC-S/XAdES-E-X	This group of test cases tests a set of ASiC-S container including each a signature created according to all the XAdES/EX/* test cases defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 5.6.	All the XAdES/EX/* test cases in ASiC-S/XAdES-E-X shall be passed according to the criteria specified in [6], clause 5.6.
ASiC-S/XAdES-E-XLong	This group of test cases tests a set of ASiC-S container including each a signature created according to all the XAdES/EXLong/* test cases defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 5.7.	All the XAdES/EXLong/* test cases in ASiC-S/XAdES-E-XLong shall be passed according to the criteria specified in [6], clause 5.7.
ASiC-S/XAdES-E-XL	This group of test cases tests a set of ASiC-S container including each a signature created according to all the XAdES/EXLong/* test cases defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 5.8.	All the XAdES/EXLong/* test cases in ASiC-S/XAdES-E-XL shall be passed according to the criteria specified in [6], clause 5.8.
ASiC-S/XAdES-E-A	This group of test cases tests a set of ASiC-S container including each a signature created according to all the XAdES/EA/* test cases defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 5.9.	All the XAdES/EA/* test cases in ASiC-S/XAdES-E-A shall be passed according to the criteria specified in [6], clause 5.9.

5.4.2 Negative test cases

The test cases in this clause are specified in table 5 and have been defined according to ETSI TS 119 134-3 [6], clause 7.

Table 5: Negative test cases for ASiC-S container with extended XAdES signatures

TC ID	Description	Pass criteria
ASiC-S/XAdES-N	This test case test an ASiC-S container including a signature generated from the XAdES/NB/4 test case defined in ETSI TS 119 134-2 [7], clause 7.2 that is not a XAdES signature.	The ASiC-S/XAdES-N shall be passed according to the criteria specified in 7.2 (negative validation).
ASiC-S/XAdES-E-BESN	This group of test cases tests a set of ASiC-S container, one for each test case specified below, including each: <ul style="list-style-type: none"> the test cases defined in ETSI TS 119 134-2 [7], clause 11.2 (except test case XAdES/BBN/8) a signature created for each XAdES/EBESN/* test case defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 7.3. 	All the XAdES/EBESN/* test cases in ASiC-S/XAdES-E-BESN shall be passed according to the criteria specified in [6], clause 7.3.
ASiC-S/XAdES-E-EPESN	This group of test cases tests a set of ASiC-S container, one for each test case specified below, including each: <ul style="list-style-type: none"> the test case XAdES/BBN/8 defined in ETSI TS 119 134-2 [7], clause 11.2, and a signature created for each XAdES/EEPES/* test case defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 7.4. 	All the XAdES/EEPES/* test cases in ASiC-S/XAdES-E-EPES shall be passed according to the criteria specified in [6], clause 7.4.
ASiC-S/XAdES-E-TN	This group of test cases tests a set of ASiC-S container, one for each test case specified below, including each: <ul style="list-style-type: none"> the test cases defined in ETSI TS 119 134-2 [7], clause 11.3, and a signature created for each XAdES/ETN/* test case defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 7.5. 	All the test cases in ASiC-S/XAdES-E-TN shall be passed according to the criteria specified in [6], clause 7.5.
ASiC-S/XAdES-E-AN	This group of test cases tests a set of ASiC-S container, one for each test case specified below, including each: <ul style="list-style-type: none"> the test cases defined in ETSI TS 119 134-2 [7], clause 11.4, and a signature created for each XAdES/EAN/* test case defined in the Test suites for testing interoperability of XAdES extended signatures ETSI TS 119 134-3 [6], clause 7.6. 	All the test cases in ASiC-S/XAdES-E-AN shall be passed according to the criteria specified in [6], clause 7.6.

5.5 Test cases for ASiC-S with Time assertion

5.5.1 Positive test cases

The test cases for ASiC-S containers with Time assertion shall be as specified in Table 6. The test cases specified in clause 5.2 and the presence of one time assertion file as specified in ASiC [1], clause 4.3.3.2, item 4) a), 4) d) or 4) e) are a prerequisite.

Table 6: Test cases for ASiC-S containers with time assertion

TC ID	Description	Pass criteria	Interop. Level
ASiC-S/T1	A valid time assertion is present and applied to the time-asserted file.	<ul style="list-style-type: none"> If timestamp.tst is present it shall contain a valid IETF RFC 3161 [3] time-stamp token that is verified correctly on the time-asserted file. If evidencerecord.ers is present it shall contain a valid ER in ERS [8] that is verified correctly on the time-asserted file. If evidencerecord.xml is present it shall contain a valid ER in XMLERS [9] that is verified correctly on the time-asserted file. 	Signature/time-stamp token conformance.
ASiC-S/TL/1	Test if ASiC-S with time-stamp token long term contains compliant time-stamp token metadata.	Data objects timestamp.tst, one or more *ASiCArchiveManifest*.xml conformant to clause A.4 of [1] and one or more *timestamp*.tst are present in the META-INF folder.	Syntactical Conformance.
ASiC-S/TL/2	Test that if *ASiCArchiveManifest*.xml files are present, for each one of them one related time-stamp token is present and that the file naming is correct. Prerequisite: ASiCArchiveManifest.xml is present.	Each *ASiCArchiveManifest*.xml (including ASiCArchiveManifest.xml) shall conform to ASiC [1], clause A.4 and in each *ASiCArchiveManifest*.xml the SigReference element points to a timestamp*.tst file in the META-INF folder according to ASiC [1], clause 4.3.4 item 2).	Syntactical Conformance.
ASiC-S/TL/3	Each *timestamp*.tst file referenced by an *ASiCArchiveManifest*.xml file contains a time-stamp token conformant to IETF RFC 3161 [3] applied to the *ASiCArchiveManifest*.xml file that references it.	Timestamp.tst contains a valid IETF RFC 3161 [3] time-stamp token that is verified correctly on the data object according to ASiC [1], clause 4.3.4 item 2).	Signature/time-stamp token conformance.
ASiC-S/TL/4	Correct *ASiCArchiveManifest*.xml chaining.	Each *ASiCArchiveManifest*.xml starting from ASiCArchiveManifest.xml shall comply with ASiC [1], clause A.7.	Signature/time-stamp token conformance.

5.5.2 Negative test cases

The negative test cases for ASiC-S containers with Time assertion shall be as specified in Table 7. The test cases specified in clause 5.2 and the presence of one time assertion file as specified in ASiC [1], clause 4.3.3.2, item 4) a), 4) d) or 4) e) are a prerequisite.

Table 7: Negative test cases for ASiC-S containers with time assertion

TC ID	Description	Pass criteria	Interop. Level
ASiC-S/TN/1	A valid time assertion is present and applied to the time-asserted file that is modified after the application of the time assertion.	<ul style="list-style-type: none"> If timestamp.tst is present it shall contain a valid IETF RFC 3161 [3] time-stamp token that fails the verification on the time-asserted file. If evidencerecord.ers is present it shall contain a valid ER in ERS [8] that fails the verification on the time-asserted file. If evidencerecord.xml is present it shall contain a valid ER in XMLERS [9] that fails the verification on the time-asserted file. 	Signature/time-stamp token conformance.
TC/ASiC-S/STV/LTN/1	The file ASiCArchiveManifest.xml is modified after the related time-stamp token has been generated. Prerequisite: ASiCArchiveManifest.xml is present.	The *timestamp*.tst pointed by ASiCArchiveManifest.xml contains a valid IETF RFC 3161 [3] time-stamp token that fails verification on ASiCArchiveManifest.xml.	Signature/time-stamp token conformance.

6 Test suite for testing interoperability of ASiC-E containers

6.1 Introduction to testing ASiC-E containers

The test suite for testing interoperability of ASiC-E containers is specified in the next clauses as follows:

- a set of test cases common to all ASiC-E forms is specified in clause 6.2;
- a set of test cases for ASiC-E with extended XAdES signature (ETSI EN 319 132-2 [i.4]) is specified in clause 6.3;
- a set of test cases for ASiC-E with CAdES signature or time assertion (ETSI EN 319 162-2 [2], clauses 4.3.1 and 4.3.2) is specified in clause 6.4.

6.2 Container structure test cases common to all ASiC-E forms

The test cases common to all ASiC-E container forms are specified in Table 8.

Table 8: Test cases common to all ASiC-E forms and levels

TC ID	Description	Pass criteria	Interop. Level
ASiC-E/CS/1	This test case tests if the container ZIP format is correct.	The container content shall comply with the ZIP file format specification [4] and be successfully extracted.	Container Structure.
ASiC-E/CS/2	Verify if the container format is identifiable.	The container file extension shall be as specified in ASiC [1], clauses 4.4.3.1 item 1) and 4.4.4.1 item 1).	Container Structure.
ASiC-E/CS/3	mimetype is set appropriately. Prerequisites: <ul style="list-style-type: none"> ASiC-E/CS/1 and ASiC-E/CS/2 passed; mimetype is present 	mimetype value shall comply with ASiC [1], clause A.1 and either with clauses 4.4.3.1, item 2) or 4.4.4.1, item 2).	Container Structure.

TC ID	Description	Pass criteria	Interop. Level
ASiC-E/CS/4	This test case tests that one or more signature or time assertion are present in the container.	A META-INF folder in the root folder shall be present and contain one or more files whose name shall comply with either: a) ASiC [1], clause 4.4.3.2 item 2) or b) ASiC [1], clause 4.4.4.2 item 2), 3) and 4) as applicable according to the requirements specified therein. Files whose name comply with ASiC [1], clause 4.4.3.2 items 4) and 5) may be present when item a) above applies.	Container Structure.

6.3 Testing ASiC-E with extended XAdES interoperability

6.3.1 Test cases for syntactical conformance

The test cases for testing the syntactical conformance of ASiC-E containers with XAdES extended signatures are specified in Table 9. The test cases specified in clause 6.2 are a prerequisite.

Table 9: Test cases for ASiC-E with XAdES syntactical conformance

TC ID	Description	Pass criteria
ASiC-E/XAdES-CSC/1	This test case tests that the signature files present in the container comply with the syntactical specifications.	The content of the " <code>*signatures*.xml</code> " files present in the META-INF folder shall comply with ASiC [1], clause 4.4.3.2 item 3).
ASiC-E/XAdES-CSC/2	If an evidence record is present the requirements in ASiC [1], clause 4.4.3.2 item 4) to ASiCEvidenceRecordManifest files apply. Prerequisite: one or more ASiCEvidenceRecordManifest file are present.	Each ASiCEvidenceRecordManifest file as defined in ASiC [1], clause 4.4.3.2 item 4) shall: a) contain one ASiCManifest element instance conformant to clause A.4; and b) reference in the SigReference element an ER file present in the container and named " <code>evidencerecord.ers</code> " if in ERS format; or " <code>evidencerecord.xml</code> " if in XMLERS format; c) fulfil the requirement that the <code>ds:DigestMethod</code> element matches the digest algorithm used to create the initial Archive Time-stamp protecting the first ReducedHashTree element.
ASiC-E/XAdES-CSC/3	If an evidence record is present the requirements in ASiC [1], clause 4.4.3.2 item 4) to Evidence Record files apply. Prerequisite: ASiC-E/ XAdES-CSC/2 passed.	The ER referenced by each ASiCEvidenceRecordManifest file shall apply to all the container files referenced by ASiCManifest with DataObjectReference elements.
ASiC-E/XAdES-CSC/4	If application specific files are present the requirements in ASiC [1], clause 4.4.3.2 item 5) apply. Prerequisite: " <code>container.xml</code> " or " <code>manifest.xml</code> " files are present.	If " <code>container.xml</code> " or " <code>manifest.xml</code> " file is present it shall comply with the relevant specifications identified in ASiC [1], clause 4.4.3.2 item 5).

6.3.2 Test cases for extended XAdES signatures

The execution of the test cases specified in clause 6.2 is a prerequisite to the execution of the test specified in the present clause.

The test cases for testing interoperability of XAdES signatures present in ASiC-E with extended XAdES signatures shall be as specified in clause 5.4 with the following additional requirements:

- 1) the "manifest.xml" file shall be present; and
- 2) each extended XAdES signature shall sign both "manifest.xml" and an arbitrary file present in the container, outside the META-INF folder.

6.4 Testing ASiC-E with CAdES - time assertion additional container interoperability

6.4.1 Test cases for ASiC-E with CAdES

The present clause is applicable to ASiC containers that:

- shall have passed the container structure test cases specified in clause 6.2 with the additional constraint that ASiC-E/CS/2 pass criteria shall be restricted to the file extension specified in ASiC [1] 4.4.4.1 item 1) a; and
- shall contain one or more "*signature*.p7s" signature files.

The test cases for testing ASiC-E with CAdES additional containers, specified in ETSI EN 319 162-2 [2], clause 4.3.1 shall be as specified in Table 10.

Table 10: Test cases for ASiC-E with CAdES

TC ID	Description	Pass criteria
ASiC-E/ACAdES/1	This test case tests that ASiCManifest files present in the container comply with the syntactical specifications.	For each "*signature*.p7s" signature file one ASiCManifest file shall be present in the META-INF folder that: <ol style="list-style-type: none"> a) shall comply with ASiC [1], clause 4.4.4.2 item 2); b) shall contain one ASiCManifest element instance conformant to clause A.4; and c) in the SigReference element shall reference the "*signature*.p7s" signature file.
ASiC-E/ACAdES/2	This test case validates the signature files present in the container and shall be repeated using all the test cases defined in clause 5.3.1 for positive test cases and 5.3.2 for negative test cases.	The "*signature*.p7s" signature file shall apply to the ASiCManifest file that references it and signature validation is positive or negative according to the type of testing. This test case is repeated using all the test cases defined in clause 5.3.1 for positive test cases and 5.3.2 for negative test cases.

TC ID	Description	Pass criteria
ASiC-E/ACAdES/3	If an evidence record is present the requirements in ASiC [1], clause 4.4.3.2 item 4) to ASiCEvidenceRecordManifest files apply. Prerequisite: one or more ASiCEvidenceRecordManifest file are present.	Each ASiCEvidenceRecordManifest file as defined in ASiC [1], clause 4.4.3.2 item 4) shall: a) contain one ASiCManifest element instance conformant to clause A.4; b) reference in the SigReference element an ER file present in the container and named "evidencerecord.ers" if in ERS format; or "evidencerecord.xml" if in XMLERS format; and c) fulfil the requirement that the ds:DigestMethod element matches the digest algorithm used to create the initial Archive Time-stamp protecting the first ReducedHashTree element.

6.4.2 Test cases for ASiC-E with time assertion

The present clause is applicable to ASiC containers that:

- shall have passed the container structure test cases specified in clause 6.2 with the additional constraint that ASiC-E/CS/2 pass criteria shall be restricted to the file extension specified in ASiC [1], clause 4.4.4.1 item 1) a); and
- shall contain one or more "*timestamp*.tst" or "*evidencerecord*.ers" or "*evidencerecord*.xml".

The test cases for testing ASiC-E containers with time assertion, specified in ETSI EN 319 162-2 [2], clauses 4.3.2 shall be as specified in Table 11.

Table 11: Test cases for ASiC-E with CAAdES

TC ID	Description	Pass criteria
ASiC-E/ATA/1	This test case tests that ASiCManifest files present in the container comply with the syntactical specifications. Prerequisite: one or more "*timestamp*.tst" file are present in the container.	For each "*timestamp*.tst" time-token file one ASiCManifest file shall be present in the META-INF folder that: a) shall comply with ASiC [1], clause 4.4.4.2 item 2); b) shall contain one ASiCManifest element instance conformant to clause A.4; and c) shall reference in the SigReference element a "*timestamp*.tst" time-stamp token file.
ASiC-E/ATA/2	This test case tests that each "*timestamp*.tst" time-token applies to the ASiCManifest file that reference it. Prerequisite: ASiC-E/ATA/1.	Each "*timestamp*.tst" time-stamp token applies to the ASiCManifest file that references it and is validated successfully
ASiC-E/ATA/3	This test case tests that if ASiCEvidenceRecordManifest files present in the container comply with the syntactical specifications. Prerequisite: one or more "*evidencerecord*.ers" or "*evidencerecord*.xml" file are present in the container.	For each "*evidencerecord*.ers" or "*evidencerecord*.xml" file one ASiCEvidenceRecordManifest file shall be present in the META-INF folder that: a) shall comply with ASiC [1], clause 4.4.4.2 item 2); b) shall contain one ASiCManifest element instance conformant to clause A.4; and c) shall reference in the SigReference element a "*evidencerecord*.ers" or "*evidencerecord*.xml" file.

TC ID	Description	Pass criteria
ASiC-E/ATA/4	This test case tests that each " <code>**evidencerecord*.ers</code> " or " <code>**evidencerecord*.xml</code> " file applies to the files referenced by the corresponding ASiCEvidenceRecordManifest file. Prerequisite: ASiC-E/ATA/3.	Each " <code>**evidencerecord*.ers</code> " or " <code>**evidencerecord*.xml</code> " file applies to the files referenced by the corresponding ASiCEvidenceRecordManifest file and is validated successfully.

History

Document history		
V1.1.1	June 2016	Publication