



**Electronic Signatures and Infrastructures(ESI);
XAdES digital signatures -
Testing Conformance and Interoperability;
Part 3: Test suites for testing interoperability of extended
XAdES signatures**

Reference

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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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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 XAdES digital signatures - Testing Conformance and Interoperability. Full details of the entire series can be found in part 1 [i.1].

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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document defines a number of test suites to assess the interoperability between implementations claiming conformance to extended XAdES signatures as specified in ETSI EN 319 132-2 [2].

The present document defines test suites for each level defined in ETSI EN 319 132-2 [2].

Test suites also cover augmentation of extended XAdES signatures and negative test cases.

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>.

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 necessary for the application of the present document.

- [1] ETSI EN 319 132-1: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures; Part 1: Building blocks and XAdES baseline signatures".
- [2] ETSI EN 319 132-2: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures; Part 2: extended XAdES signatures".
- [3] ETSI TS 119 134-2: "Electronic Signatures and Infrastructures (ESI); XAdES digital signature - Testing Conformance and Interoperability; Part 2: Test suites for testing Interoperability of XAdES baseline signatures".

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 119 134-1: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures - Testing Conformance and Interoperability; Part 1: Introduction".
- [i.2] ETSI TR 119 001: "Electronic Signatures and Infrastructures (ESI); The framework for standardization of signatures; Definitions and abbreviations".
- [i.3] ETSI TR 119 000: "Electronic Signatures and Infrastructures (ESI); The framework for standardization of signatures: overview".

[i.4] 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, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TR 119 001 [i.2] and the following apply:

negative test case: test case either for a signature that is not an extended XAdES signature, or for a signature whose validation according to ETSI EN 319 102-1 [i.4] 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.2] and the following apply:

CA	Certification Authority
CRL	Certificate Revocation List
OCSP	Online Certificate Status Provider
TSA	Time-Stamping Authority

4 Overview

This clause describes the overall approach used throughout the present document to specify test suites for extended XAdES signatures as specified in ETSI EN 319 132-2 [2].

ETSI EN 319 132-2 [2] defines eight different levels of extended XAdES signatures.

The test suites are defined with different layers reflecting the levels of XAdES signatures specified in ETSI EN 319 132-2 [2]. Below follows an overview.

The test suites for testing interoperability of extended XAdES signatures include:

- XAdES-E-BES signatures test cases;
- XAdES-E-EPES signatures test cases;
- XAdES-E-T signatures test cases;
- XAdES-E-C test cases;
- XAdES-E-X test cases;
- XAdES-E-X Long test cases; and
- XAdES-E-A signatures.

The test suites including negative test cases for extended XAdES signatures include:

- Negative test cases for XAdES-E-BES signatures;
- Negative test cases for XAdES-E-EPES signatures;
- Negative test cases for XAdES-E-T signatures; and
- Negative test cases for XAdES-E-A signatures.

The test suites for testing augmentation of extended XAdES signatures include:

- Augmentation to XAdES-E-C signatures;
- Augmentation to XAdES-E-X signatures;
- Augmentation to XAdES-E-XL signatures; and
- Augmentation to XAdES-E-A signatures.

Certain XAdES extended signatures are also XAdES baseline signatures. In consequence, the present document defines test suites for testing interoperability of extended XAdES signatures that include certain test cases already defined in ETSI TS 119 134-2 [3].

Table 1 shows the prefixes used throughout the present document to refer to specific elements in the XAdES signature associated to the URIs of the corresponding namespaces.

Table 1: Prefixes used

XML Namespace URI	Prefix
http://www.w3.org/2000/09/xmldsig#	ds
http://uri.etsi.org/01903/v1.3.2#	xades
http://uri.etsi.org/01903/v1.4.1#	xadesv141

5 Test suites for testing interoperability of extended XAdES signatures

5.1 Introduction

Clause 5 presents a test suite for testing interoperability of extended XAdES signatures as specified in in ETSI EN 319 132-2 [2].

5.2 Testing interoperability of XAdES-E-BES signatures

This clause presents a test suite for testing interoperability of XAdES-E-BES signatures as specified in in ETSI EN 319 132-2 [2].

The test suite for testing interoperability XAdES-E-BES signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in ETSI TS 119 134-2 [3], clause 5, Table 2 and the test cases defined in Table 2.

Table 2: Test cases for XAdES-E-BES not covered in ETSI TS 119 134-2 [3] clause 5

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EBES/1	<p>XAdES-E-BES signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the <code>xades:QualifyingProperties</code> container.</p> <p>NOTE: This test case allows testing how applications process XAdES-E-BES signatures that do not incorporate the <code>xades:SigningCertificateV2</code>.</p>	Positive validation.	<ul style="list-style-type: none"> • No <code>xades:QualifyingProperties</code> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature
XAdES/EBES/2	<p>XAdES-E-BES signature signing one data object (a text file) and the <code>xades:SignedProperties</code> element.</p> <p>Incorporates the <code>xades:SigningCertificateV2</code> qualifying property.</p>	Positive validation.	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code>
XAdES/EBES/3	<p>XAdES-E-BES signature signing two data objects, the <code>xades:SignedProperties</code> container, and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>Incorporates the <code>xades:SigningTime</code> qualifying property.</p> <p>Incorporates one <code>xades:DataObjectFormat</code> for one of the signed data objects.</p> <p>Incorporates one <code>xades:CommitmentTypeIndication</code> qualifying property expressing a commitment for one of the signed data objects.</p> <p>Incorporates one <code>xades:SignatureProductionPlaceV2</code> qualifying property.</p> <p>Incorporates one X509 Attribute certificate and one signed assertion within the <code>xades:SignerRoleV2</code> qualifying property.</p> <p>Incorporates the <code>xades:SignatureProductionPlaceV2</code> qualifying property.</p> <p>Incorporates one <code>xades:CounterSignature</code> qualifying property.</p> <p>Incorporates one <code>xades:IndividualDataTimeStamp</code> encapsulating a time-stamp token that time-stamps one of the signed data objects as specified in ETSI EN 319 132-1 [1] generated by a TSA that is within the same hierarchy as the signing certificate of the signature.</p>	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SigningTime</code> • <code>xades:DataObjectFormat</code> • <code>xades:CommitmentTypeIndication</code> (with one <code>xades:ObjectReference</code> element) • <code>xades:SignatureProductionPlaceV2</code> • <code>xades:SignerRoleV2</code> (with one <code>xades:SignedAssertion</code> element and with one <code>CertifiedRole/X509AttributeCertificate</code>) • <code>xades:CounterSignature</code> • <code>xades:IndividualDataObjectTimeStamp</code>

5.3 Test-suite for testing interoperability of XAdES-E-EPES signatures

This clause defines one test suite for testing interoperability of XAdES-E-EPES signatures.

The test suite for testing interoperability XAdES-E-EPES signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in ETSI TS 119 134-2 [3], clause 5, Table 3 and the test cases defined in Table 3.

Table 3: Test cases for XAdES-E-EPES signatures not covered in ETSI TS 119 134-2 [3] clause 5

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EEPES/1	<p>XAdES-E-EPES signature signing one data object (a text file), the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature, and the <code>xades:SignedProperties</code> container.</p> <p>The signature does not incorporate the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>Incorporates one <code>xades:SignaturePolicyIdentifier</code> qualifying property containing a <code>xades:SignaturePolicyHash</code> element and the following qualifiers: <code>xades:SPURI</code>, and <code>xades:UserNotice</code>.</p>	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignaturePolicyIdentifier</code> (with <code>xades:SignaturePolicyHash</code> element and <code>xades:SPURI</code> and <code>xades:UserNotice</code> qualifiers)
XAdES/EEPES/2	<p>XAdES-E-EPES signature signing one data object (a text file), the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature, and the <code>xades:SignedProperties</code> container.</p> <p>The signature does not incorporate the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>Incorporates one <code>xades:SignaturePolicyIdentifier</code> qualifying property containing a <code>xades:SignaturePolicyHash</code> element and the following qualifiers: <code>xades:SPURI</code>, and <code>xadesv141:SPDocSpecification</code>. This last qualifier specifies how to compute the digest value of the signature policy document.</p> <p>NOTE: At the time the present document was produced no technical specification within ETSI TR 119 000 [i.3] was available specifying a syntax for defining a signature policy. The test case is nevertheless incorporated in order it can be used when such specification(s) are produced.</p>	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignaturePolicyIdentifier</code> (with <code>xades:SignaturePolicyHash</code> element and <code>xades:SPURI</code> and <code>xadesv141:SPDocSpecification</code> qualifiers)
XAdES/EEPES/3	<p>XAdES-E-EPES signature signing one data object (a text file), the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature, and the <code>xades:SignedProperties</code> container.</p> <p>The signature does not incorporate the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>Incorporates one <code>xades:SignaturePolicyIdentifier</code> qualifying property containing a <code>xades:SignaturePolicyHash</code> element and the following qualifiers: <code>xades:SPURI</code>, and <code>xades:UserNotice</code>.</p> <p>Incorporates one <code>xadesv141:SignaturePolicyStore</code> qualifying property containing a <code>xadesv141:SignaturePolicyDocument</code> element.</p>	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignaturePolicyIdentifier</code> (with <code>xades:SignaturePolicyHash</code> element and <code>xades:SPURI</code> and <code>xades:UserNotice</code> qualifiers) • <code>xadesv141:SignaturePolicyStore</code> (with <code>xadesv141:SignaturePolicyDocument</code> element)

5.4 Test-suite for testing interoperability of XAdES-E-T signatures

This clause defines one test suite for testing interoperability of XAdES-E-T signatures.

The test suite for testing interoperability XAdES-E-T signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in ETSI TS 119 134-2 [3], clause 6 and the test cases defined in Table 4.

Table 4: Test cases for XAdES-E-T signatures that are not covered in ETSI TS 119 134-2 [3] clause 6

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/ET/1	XAdES signature as specified in test case XAdES/EBES/1 with the incorporation of a <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token generated by a TSA that is within the same hierarchy as the signing certificate of the signature.	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token)
XAdES/ET/2	XAdES-E-T signature signing one data object (text file) and the <code>xades:IndividualDataObjectsTimeStamp</code> container. It incorporates the <code>xades:SigningCertificateV2</code> qualifying property. It incorporates a <code>xades:SignatureTimeStamp</code> qualifying property encapsulating TWO time-stamp tokens. One of them is generated by a TSA1 that is within the same hierarchy as the signing certificate of the signature. The other is generated by a TSA2 that is not within the hierarchy of the signing certificate of the signature.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (with two time-stamp tokens generated by TSA1 and TSA2)
XAdES/ET/3	XAdES signature as specified in test case XAdES/EBES/1 with the incorporations mentioned below. Incorporates one <code>xades:IndividualDataObjectsTimeStamp</code> encapsulating a time-stamp token that time-stamps one of the signed data objects as specified in ETSI EN 319 132-1 [1]. Incorporates a <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token. The two time-stamps are generated by the same TSA that is within the same hierarchy as the signing certificate of the signature.	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:IndividualDataObjectsTimeStamp</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token)
XAdES/ET/4	XAdES signature as specified in test case XAdES/EBES/1 with the incorporations mentioned below. Incorporates two <code>xades:SignatureTimeStamp</code> qualifying properties, each one encapsulating one time-stamp token generated by different TSAs. These TSAs are within different trust hierarchies. NOTE: This will allow to define test cases for having different <code>xadesv141:TimeStampValidationData</code> qualifying properties associated to different <code>xades:SignatureTimeStamp</code> qualifying properties	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token generated by one TSA1) • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token generated by a TSA2 different from the previous one, within a different trust hierarchy)

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/ET/5	XAdES signature as specified in test case XAdES/EBES/3 with the incorporations mentioned below. Incorporates one <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token generated by a TSA that is within the same hierarchy as the signing certificate of the signature.	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SigningTime</code> • <code>xades:DataObjectFormat</code> • <code>xades:CommitmentTypeIndication</code> (with one <code>xades:ObjectReference</code> element) • <code>xades:SignatureProductionPlaceV2</code> • <code>xades:SignerRoleV2</code> (with one <code>xades:SignedAssertion</code> element and with one <code>CertifiedRole/X509AttributeCertificate</code>) • <code>xades:CounterSignature</code> • <code>xades:IndividualDataObjectTimeStamp</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token)

5.5 Test-suite for testing interoperability of XAdES-E-C signatures

This clause defines one test suite for testing interoperability of XAdES-E-C signatures.

The test suite for testing interoperability XAdES-E-C signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in Table 5.

Table 5: Test cases for XAdES-E-C signatures

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EC/1	<p>XAdES-E-C signature signing one data object (a text file) and the <code>xades:SignedProperties</code> container.</p> <p>It incorporates the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>It incorporates the <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token generated by a TSA that is within the same hierarchy as the signing certificate of the signature.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefs</code> qualifying property, containing references to CRLs.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to CRLs)
XAdES/EC/2	<p>XAdES-E-C signature signing one data object (a text file) and the <code>xades:SignedProperties</code> container.</p> <p>It incorporates the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>It incorporates the <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token generated by a TSA that is within the same hierarchy as the signing certificate of the signature.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefs</code> qualifying property, containing references to OCSP responses.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses)
XAdES/EC/3	<p>XAdES-E-C signature signing one data object (a text file) and the <code>xades:SignedProperties</code> container.</p> <p>It incorporates one X509 Attribute certificate and one signed assertion within the <code>xades:SignerRoleV2</code> qualifying property.</p> <p>It incorporates the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>It incorporates the <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token generated by a TSA that is within the same hierarchy as the signing certificate of the signature.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xadesv141:AttributeCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefs</code> qualifying property, containing references to CRLs.</p> <p>It incorporates the <code>xades:AttributeRevocationRefs</code> qualifying property, containing references to CRLs.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignerRoleV2</code> with one <code>CertifiedRole/X509AttributeCertificate</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to CRLs) • <code>xades:AttributeRevocationRefs</code> (with references to CRLs)

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EC/4	<p>XAdES-E-C signature signing one data object (a text file) and the <code>xades:SignedProperties</code> container.</p> <p>Incorporates one X509 Attribute certificate and one signed assertion within the <code>xades:SignerRoleV2</code> qualifying property.</p> <p>It incorporates the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>It incorporates the <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token generated by a TSA that is within the same hierarchy as the signing certificate of the signature.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xadesv141:AttributeCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefs</code> qualifying property, containing references to OCSP responses.</p> <p>It incorporates the <code>xades:AttributeRevocationRefs</code> qualifying property, containing references to OCSP responses.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignerRoleV2</code> with one <code>CertifiedRole/X509AttributeCertificate</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xades:AttributeRevocationRefs</code> (with references to OCSP responses)
XAdES/EC/5	<p>XAdES-E-C signature signing two data objects and the <code>xades:SignedProperties</code> container.</p> <p>Incorporates one <code>xades:DataObjectFormat</code> qualifying properties on one of the signed data objects.</p> <p>Incorporates one <code>xades:CommitmentTypeIndication</code> qualifying property expressing a commitment for one of the signed data objects.</p> <p>Incorporates one <code>xades:SignatureProductionPlaceV2</code> qualifying property.</p> <p>Incorporates one X509 Attribute certificate within the <code>xades:SignerRoleV2</code> qualifying property.</p> <p>Incorporates one <code>xades:CounterSignature</code> qualifying property.</p> <p>Incorporates one <code>xades:IndividualDataObjectsTimeStamp</code> encapsulating a time-stamp token that time-stamps one of the signed data objects as specified in ETSI EN 319 132-1 [1] generated by a TSA1 that is within the same hierarchy as the signing certificate of the signature.</p> <p>Incorporates one <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token generated by TSA1.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xadesv141:AttributeCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefs</code> qualifying property, containing references to OCSP responses.</p> <p>It incorporates the <code>xades:AttributeRevocationRefs</code> qualifying property, containing references to OCSP responses.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SigningTime</code> • <code>xades:DataObjectFormat</code> • <code>xades:CommitmentTypeIndication</code> (with one <code>xades:ObjectReference</code> element) • <code>xades:SignatureProductionPlaceV2</code> • <code>xades:SignerRoleV2</code> (with one <code>CertifiedRole/X509AttributeCertificate</code> • <code>xades:CounterSignature</code> • <code>xades:IndividualDataObjectTimeStamp</code> (generated by a TSA1) • <code>xades:SignatureTimeStamp</code> (generated by a TSA1) • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xades:AttributeRevocationRefs</code> (with references to OCSP responses)

5.6 Test-suite for testing interoperability of XAdES-E-X signatures

This clause defines one test suite for testing interoperability of XAdES-E-X signatures.

The test suite for testing interoperability XAdES-E-X signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in Table 6.

Table 6: Test cases for XAdES-E-X signatures

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EX/1	XAdES-E-C signature as specified in test case XAdES/EC/1 with the incorporations indicated below. It incorporates the <code>xadesv141:RefsOnlyTimeStampV2</code> qualifying property.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to CRLs) • <code>xadesv141:RefsOnlyTimeStampV2</code>
XAdES/EX/2	XAdES-E-C signature as specified in test case XAdES/EC/2 with the incorporations indicated below. It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>SigAndRefsTimeStampV2</code>
XAdES/EX/3	XAdES-E-C signature as specified in test case XAdES/EC/3 with the incorporations indicated below. It incorporates the <code>xadesv141:RefsOnlyTimeStampV2</code> qualifying property.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignerRoleV2</code> with one <code>CertifiedRole/X509AttributeCertificate</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to CRLs) • <code>xades:AttributeRevocationRefs</code> (with references to CRLs) • <code>xadesv141:RefsOnlyTimeStampV2</code>
XAdES/EX/4	XAdES-E-C signature as specified in test case XAdES/EC/4 with the incorporations indicated below. It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignerRoleV2</code> with one <code>CertifiedRole/X509AttributeCertificate</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xades:AttributeRevocationRefs</code> (with references to OCSP responses) • <code>xadesv141:SigAndRefsTimeStampV2</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EX/5	XAdES-E-C signature as specified in test case XAdES/EC/5 with the incorporations indicated below. It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SigningTime</code> • <code>xades:DataObjectFormat</code> • <code>xades:CommitmentTypeIndication</code> (with one <code>xades:ObjectReference</code> element) • <code>xades:SignatureProductionPlaceV2</code> • <code>xades:SignerRoleV2</code> (with one <code>CertifiedRole/X509AttributeCertificate</code>) • <code>xades:CounterSignature</code> • <code>xades:IndividualDataObjectTimeStamp</code> (generated by a TSA1) • <code>xades:SignatureTimeStamp</code> (generated by a TSA1) • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xades:AttributeRevocationRefs</code> (with references to OCSP responses) • <code>xadesv141:SigAndRefsTimeStampV2</code>

5.7 Test-suite for testing interoperability of XAdES-E-X-Long signatures

This clause defines one test suite for testing interoperability of XAdES-E-X-Long signatures.

The test suite for testing interoperability of XAdES-E-X-Long signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in ETSI TS 119 134-2 [3], clause 7 and the test cases defined in Table 7.

Table 7: Test cases for XAdES-E-X-Long signatures not covered in ETSI TS 119 134-2 [3], clause 7

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EXLong/1	<p>XAdES-E-X-Long signature signing one data object (text file) and the ds:KeyInfo element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the xades:SigningCertificateV2 qualifying property.</p> <p>Incorporates a xades:SignatureTimeStamp qualifying property encapsulating one time-stamp token generated by a TSA within the same hierarchy as the signature signing certificate.</p> <p>Incorporates a xadesv141:TimeStampValidationData with the validation data required for validating the time-stamp token within xades:SignatureTimeStamp and that is not incorporated elsewhere in the signature. The revocation data are CRLs.</p> <p>Incorporates a xades:CertificateValues qualifying property.</p> <p>Incorporates a xades:RevocationValues qualifying property containing CRLs.</p>	Positive validation	<ul style="list-style-type: none"> • ds:KeyInfo with signing certificate of the signature • ds:KeyInfo is also signed by the signature • xades:SignatureTimeStamp (encapsulating one time-stamp token) • xadesv141:TimeStampValidationData • xades:CertificateValues • xades:RevocationValues (with OCSP responses)
XAdES/EXLong/2	<p>XAdES-E-X-Long signature signing two data objects, the xades:SignedProperties container, and the ds:KeyInfo element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the xades:SigningCertificateV2 qualifying property.</p> <p>Incorporates one X509 Attribute certificate and one signed assertion within the xades:SignerRoleV2 qualifying property.</p> <p>Incorporates a xades:SignatureTimeStamp qualifying property encapsulating one time-stamp token generated by a TSA within the same hierarchy as the signature signing certificate.</p> <p>Incorporates a xadesv141:TimeStampValidationData with the validation data required for validating the time-stamp token within xades:SignatureTimeStamp and that is not present elsewhere in the signature. The revocation data are CRLs.</p> <p>Incorporates a xades:CertificateValues qualifying property.</p> <p>Incorporates a xades:RevocationValues qualifying property containing CRLs</p> <p>Incorporates a xades:AttrAuthoritiesCertValues qualifying property with certificates required for validating the X509 Attribute certificate not incorporated elsewhere in the signature.</p> <p>Incorporates a xades:AttributeRevocationValues qualifying property containing validation material (CRLs) required for validating the X509 Attribute certificate not incorporated elsewhere in the signature.</p>	Positive validation	<ul style="list-style-type: none"> • ds:KeyInfo with signing certificate of the signature • ds:KeyInfo is also signed by the signature • xades:SignerRoleV2 with one CertifiedRole/X509AttributeCertificate • xades:SignatureTimeStamp (encapsulating one time-stamp token) • xadesv141:TimeStampValidationData • xades:CertificateValues • xades:RevocationValues (with CRLs) • xades:AttrAuthoritiesCertValues • xades:AttributeRevocationValues (with CRLs)

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EXLong/3	<p>XAdES-E-X-Long signature signing two data objects, the <code>xades:SignedProperties</code> container, and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature. The signature does not incorporate the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>Incorporates one <code>xades:SigningTime</code> qualifying property.</p> <p>Incorporates one <code>xades:DataObjectFormat</code> qualifying property associated to one of the signed data objects.</p> <p>Incorporates one <code>xades:IndividualDataObjectsTimeStamp</code> encapsulating a time-stamp token that time-stamps one of the signed data objects as specified in ETSI EN 319 132-1 [1] within a different hierarchy than the signature signing certificate.</p> <p>Incorporates a <code>xades:SignatureTimeStamp</code> qualifying property encapsulating one time-stamp token generated by one TSA2 within a different hierarchy than the signature signing certificate and the TSA1.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within <code>xades:IndividualDataObjectsTimeStamp</code> and that is not incorporated elsewhere in the signature. The revocation data are OCSF responses.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within <code>xades:SignatureTimeStamp</code> and that is not incorporated elsewhere in the signature. The revocation data are OCSF responses.</p> <p>Incorporates a <code>xades:CertificateValues</code> qualifying property.</p> <p>Incorporates a <code>xades:RevocationValues</code> qualifying property containing OCSF responses.</p>	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SigningTime</code> • <code>xades:DataObjectFormat</code> • <code>xades:IndividualDataObjectsTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> (with OCSF responses)

5.8 Test-suite for testing interoperability of XAdES-E-X-L signatures

This clause defines one test suite for testing interoperability of XAdES-E-X-L signatures.

The test suite for testing interoperability XAdES-E-X-L signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in Table 8.

Table 8: Test cases for XAdES-E-X-L signatures

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EXL/1	XAdES-E-X signature as specified in test case XAdES/EX/1 with the incorporations indicated below. It incorporates the <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within <code>xades:SignatureTimeStamp</code> and that is not incorporated elsewhere in the signature. It incorporates the <code>xades:CertificateValues</code> qualifying property. It incorporates the <code>xades:RevocationValues</code> qualifying property.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to CRLs) • <code>xadesv141:RefsOnlyTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code>
XAdES/EXL/2	XAdES-E-X signature as specified in test case XAdES/EX/2 with the incorporations indicated below. It incorporates the <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within <code>xades:SignatureTimeStamp</code> and that is not incorporated elsewhere in the signature. It incorporates the <code>xades:CertificateValues</code> qualifying property. It incorporates the <code>xades:RevocationValues</code> qualifying property.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code>
XAdES/EXL/3	XAdES-E-X signature as specified in test case XAdES/EX/3 with the incorporations indicated below. It incorporates the <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within <code>xades:SignatureTimeStamp</code> and that is not incorporated elsewhere in the signature. It incorporates the <code>xades:CertificateValues</code> qualifying property. It incorporates the <code>xades:RevocationValues</code> qualifying property. It incorporates the <code>xades:AttrAuthoritiesCertValues</code> qualifying property. It incorporates the <code>xades:AttributeRevocationValues</code> qualifying property.	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to CRLs) • <code>xadesv141:RefsOnlyTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xades:AttrAuthoritiesCertValues</code> • <code>xades:AttributeRevocationValues</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EXL/4	<p>XAdES-E-X signature as specified in test case XAdES/EX/4 with the incorporations indicated below.</p> <p>It incorporates the <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within <code>xades:SignatureTimeStamp</code> and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property.</p> <p>It incorporates the <code>xades:AttrAuthoritiesCertValues</code> qualifying property.</p> <p>It incorporates the <code>xades:AttributeRevocationValues</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xades:AttrAuthoritiesCertValues</code> • <code>xades:AttributeRevocationValues</code>
XAdES/EXL/5	<p>XAdES-E-X signature as specified in test case XAdES/EX/5 with the incorporations indicated below.</p> <p>It incorporates the <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within <code>xades:IndividualDataObjectsTimeStamp</code> and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within <code>xades:SignatureTimeStamp</code> and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property.</p> <p>It incorporates the <code>xades:AttrAuthoritiesCertValues</code> qualifying property.</p> <p>It incorporates the <code>xades:AttributeRevocationValues</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SigningTime</code> • <code>xades:DataObjectFormat</code> • <code>xades:CommitmentTypeIndication</code> (with one <code>xades:ObjectReference</code> element) • <code>xades:SignatureProductionPlaceV2</code> • <code>xades:SignerRoleV2</code> (with one <code>CertifiedRole/X509AttributeCertificate</code>) • <code>xades:CounterSignature</code> • <code>xades:IndividualDataObjectTimeStamp</code> (generated by a TSA1) • <code>xadesv141:TimeStampValidationData</code> • <code>xades:SignatureTimeStamp</code> (generated by a TSA1) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xades:AttributeRevocationRefs</code> (with references to OCSP responses) • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xades:AttrAuthoritiesCertValues</code> • <code>xades:AttributeRevocationValues</code>

5.9 Test-suite for testing interoperability of XAdES-E-A signatures

This clause defines one test suite for testing interoperability of XAdES-E-A signatures.

The test suite for testing interoperability XAdES-E-A signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in ETSI TS 119 134-2 [3], clause 8 and the test cases defined in Table 9.

Table 9: Test cases for XAdES-E-A signatures not covered in ETSI TS 119 134-2 [3], clause 8

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EA/1	<p>XAdES-E-X-Long signature as specified in test case XAdES/EXLong/1 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> (with OCSP responses) • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/EA/2	<p>XAdES-E-A signature as specified in test case XAdES/EA/1 with the incorporations listed below.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xadesv141:ArchiveTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature. The revocation data are CRLs</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> (with OCSP responses) • <code>xadesv141:ArchiveTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/EA/3	<p>XAdES-E-X-L signature as specified in test case XAdES/EXL/1 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to CRLs) • <code>xadesv141:RefsOnlyTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EA/4	<p>XAdES-E-X-L signature as specified in test case XAdES/EXL/2 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/EA/5	<p>XAdES-E-X-L signature as specified in test case XAdES/EXL/3 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to CRLs) • <code>xadesv141:RefsOnlyTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xades:AttrAuthoritiesCertValues</code> • <code>xades:AttributeRevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/EA/6	<p>XAdES-E-X-L signature as specified in test case XAdES/EXL/4 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xades:AttrAuthoritiesCertValues</code> • <code>xades:AttributeRevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EA/7	<p>XAdES-E-X-L signature as specified in test case XAdES/EXL/5 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SigningTime</code> • <code>xades:DataObjectFormat</code> • <code>xades:CommitmentTypeIndication</code> (with one <code>xades:ObjectReference</code> element) • <code>xades:SignatureProductionPlaceV2</code> • <code>xades:SignerRoleV2</code> (with one <code>CertifiedRole/X509AttributeCertificate</code>) • <code>xades:CounterSignature</code> • <code>xades:IndividualDataObjectTimeStamp</code> (generated by a TSA1) • <code>xadesv141:TimeStampValidationData</code> • <code>xades:SignatureTimeStamp</code> (generated by a TSA1) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSF responses) • <code>xades:AttributeRevocationRefs</code> (with references to OCSF responses) • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xades:AttrAuthoritiesCertValues</code> • <code>xades:AttributeRevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EA/8	<p>XAdES-E-A signature as specified in test case XAdES/EA/6 with the incorporations listed below.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xadesv141:ArchiveTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates a second <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by a TSA2 that is not within the hierarchy of the signing certificate of the signature.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (generated by TSA1) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSP responses) • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xades:AttrAuthoritiesCertValues</code> • <code>xades:AttributeRevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code> (generated by TSA1) • <code>xadesv141:ArchiveTimeStamp</code> (generated by TSA2)

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EA/9	<p>XAdES-E-A signature as specified in test case XAdES/EA/7 with the incorporations listed below.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xadesv141:ArchiveTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates a second <code>xadesv141:ArchiveTimeStamp</code> qualifying property encapsulating a time-stamp token generated by a TSA2 that is not within the hierarchy of the signing certificate of the signature.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SigningTime</code> • <code>xades:DataObjectFormat</code> • <code>xades:CommitmentTypeIndication</code> (with one <code>xades:ObjectReference</code> element) • <code>xades:SignatureProductionPlaceV2</code> • <code>xades:SignerRoleV2</code> (with one <code>CertifiedRole/X509AttributeCertificate</code>) • <code>xades:CounterSignature</code> • <code>xades:IndividualDataObjectTimeStamp</code> (generated by a TSA1) • <code>xadesv141:TimeStampValidationData</code> • <code>xades:SignatureTimeStamp</code> (generated by a TSA1) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xadesv141:AttributeCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> (with references to OCSF responses) • <code>xades:AttributeRevocationRefs</code> (with references to OCSF responses) • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xades:AttrAuthoritiesCertValues</code> • <code>xades:AttributeRevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code> (generated by a TSA1) • <code>xadesv141:ArchiveTimeStamp</code> (generated by a TSA2)

6 Test-suite for augmentation of extended XAdES signatures

6.1 Introduction

This clause describes the so called augmentation tests cases. For running them a certain signer generates an extended XAdES signature of a certain level. After that a verifier validates the signature and augments it to a higher level by adding a number of unsigned qualifying properties. Finally, a third entity validates the augmented signature.

6.2 Augmentation to XAdES-E-C signatures

This clause defines a test suite for augmenting XAdES-E-BES and XAdES-E-T signatures to XAdES-E-C signatures.

The test suite is formed by the test cases defined in Table 10.

Table 10: Test cases for augmentation to XAdES-E-C signatures

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/AUGC/1	<p>Augments XAdES-E-BES signature specified in test case XAdES/EBES/2 with the incorporations listed below.</p> <p>It incorporates the <code>xades:SignatureTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xadesv:CompleteRevocationRefs</code> qualifying property (with OCSP responses).</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSP responses
XAdES/AUGC/2	<p>Augments XAdES-E-T signature specified in test case XAdES/ET/2 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xadesv:CompleteRevocationRefs</code> qualifying property (with OCSP responses).</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSP responses

6.3 Augmentation to XAdES-E-X signatures

This clause defines a test suite for augmenting XAdES-E-BES, XAdES-E-T, and XAdES-E-C signatures to XAdES-E-X signatures.

The test suite is formed by the test cases defined in Table 11.

Table 11: Test cases for augmentation to XAdES-E-X signatures

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/AUGX/1	<p>Augments XAdES-E-BES signature specified in test case XAdES/EBES/2 with the incorporations listed below.</p> <p>It incorporates the <code>xades:SignatureTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefs</code> qualifying property with OCSP responses.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSP responses • <code>xadesv141:SigAndRefsTimeStampV2</code>
XAdES/AUGX/2	<p>Augments XAdES-E-T signature specified in test case XAdES/ET/2 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefsV2</code> qualifying property with OCSP responses.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSP responses • <code>xadesv141:SigAndRefsTimeStampV2</code>
XAdES/AUGX/3	<p>Augments XAdES-E-C signature specified in test case XAdES/EC/2 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSP responses • <code>xadesv141:SigAndRefsTimeStampV2</code>

6.4 Augmentation to XAdES-E-X-L signatures

This clause defines a test suite for augmenting XAdES-E-BES, XAdES-E-T, XAdES-E-C, and XAdES-E-X signatures to XAdES-E-X-L.

The test suite is formed by the test cases defined in Table 12.

Table 12: Test cases for augmentation to XAdES-E-X-L signatures

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/AUGXL/1	<p>Augments XAdES-E-BES signature specified in test case XAdES/EBES/2 with the incorporations listed below.</p> <p>It incorporates the <code>xades:SignatureTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xades:SignatureTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefs</code> qualifying property with OCSF responses.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property with OCSF responses.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code>
XAdES/AUGXL/2	<p>Augments XAdES-E-T signature specified in test case XAdES/ET/2 with the incorporations listed below.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xades:SignatureTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xadesv:CompleteRevocationRefs</code> qualifying property. It incorporates the <code>xadesv:CompleteRevocationRefs</code> qualifying property with OCSF responses.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property with OCSF responses.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/AUGXL/3	<p>Augments XAdES-E-C signature specified in test case XAdES/EC/2 with the incorporations listed below.</p> <p>It incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xades:SignatureTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property with OCSF responses.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code>
XAdES/AUGXL/4	<p>Augments XAdES-E-X signature specified in test case XAdES/EX/2 with the incorporations listed below.</p> <p>It incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xades:SignatureTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property with OCSF responses.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code>

6.3 Augmentation to XAdES-E-A signatures

This clause defines a test suite for augmenting XAdES-E-BES, XAdES-E-T, XAdES-E-C, XAdES-E-X, and XAdES-E-X-L signatures to XAdES-E-A.

The test suite is formed by the test cases defined in Table 13.

Table 13: Test cases for augmentation to XAdES-E-A signatures

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/AUGA/1	<p>Augments XAdES-E-BES signature specified in test case XAdES/EBES/2 with the incorporations listed below.</p> <p>It incorporates the <code>xades:SignatureTimeStamp</code> qualifying property encapsulating a time-stamp token generated by the same TSA as the one that generated the time-stamp token encapsulated within the <code>xades:SignatureTimeStamp</code> qualifying property.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xades:SignatureTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CompleteRevocationRefs</code> qualifying property with OCSF responses.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property with OCSF responses.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/AUGA/2	<p>Augments XAdES-E-T signature specified in test case XAdES/ET/2 with the incorporations listed below.</p> <p>Incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xades:SignatureTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xadesv141:CompleteCertificateRefsV2</code> qualifying property.</p> <p>It incorporates the <code>xadesv:CompleteRevocationRefs</code> qualifying property. It incorporates the <code>xadesv:CompleteRevocationRefs</code> qualifying property with OCSF responses.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property with OCSF responses.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/AUGA/3	<p>Augments XAdES-E-C signature specified in test case XAdES/EC/2 with the incorporations listed below.</p> <p>It incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xades:SignatureTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property with OCSF responses.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/AUGA/4	<p>Augments XAdES-E-X signature specified in test case XAdES/EX/2 with the incorporations listed below.</p> <p>It incorporates a <code>xadesv141:TimeStampValidationData</code> with the validation data required for validating the time-stamp token within the first <code>xades:SignatureTimeStamp</code> qualifying property and that is not incorporated elsewhere in the signature.</p> <p>It incorporates the <code>xades:CertificateValues</code> qualifying property.</p> <p>It incorporates the <code>xades:RevocationValues</code> qualifying property with OCSF responses.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/AUGA/5	<p>Augments XAdES-E-X-L signature specified in test case XAdES/EXL/2 with the incorporations listed below.</p> <p>It incorporates the <code>xadesv141:ArchiveTimeStamp</code> qualifying property.</p>	Positive validation	<ul style="list-style-type: none"> • <code>xades:SigningCertificateV2</code> • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> with OCSF responses • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> • <code>xadesv141:ArchiveTimeStamp</code>

7 Test suites with negative test cases

7.1 Introduction

The present clause define a number of negative test cases for extended XAdES signatures.

The present clause distinguishes two different types of negative test cases:

- 1) Test cases leading to valid signatures that nevertheless, are not XAdES signatures.
- 2) Test cases leading to extended XAdES signatures whose validation according to ETSI EN 319 102-1 [i.4] would not result in TOTAL_PASSED.

7.2 Test cases generating non XAdES signatures

The test case XAdES/NB/4 defined in ETSI TS 119 134-2 [3] clause 10.2 generates a XML signature that is not a XAdES signature.

7.3 Test cases for XAdES-E-BES signatures

This clause defines a test suite of negative test cases for XAdES-E-BES signatures.

The test suite of negative test cases for XAdES-E-BES signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in ETSI TS 119 134-2 [3], clause 10.3 (except test case XAdES/BBN/8, which is a test case for a XAdES-E-EPES signature) and the test cases defined in Table 14.

Table 14: Negative test cases for XAdES-E-BES signatures not covered in ETSI TS 119 134-2 [3] clause 10.3

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EBESN/1	<p>XAdES-E-BES signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the <code>xades:QualifyingProperties</code> container.</p> <p>The digest value of one of the <code>ds:Reference</code> children of <code>ds:SignedInfo</code> is wrong.</p>	Negative validation.	<ul style="list-style-type: none"> • No <code>xades:QualifyingProperties</code> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature
XAdES/EBESN/2	<p>XAdES-E-BES signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the <code>xades:QualifyingProperties</code> container.</p> <p>The signing certificate of the signature is not trusted.</p>	Negative validation.	<ul style="list-style-type: none"> • No <code>xades:QualifyingProperties</code> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature
XAdES/EBESN/3	<p>XAdES-E-BES signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the <code>xades:QualifyingProperties</code> container.</p> <p>The signing certificate of the signature is expired.</p>	Negative validation.	<ul style="list-style-type: none"> • No <code>xades:QualifyingProperties</code> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature
XAdES/EBESN/4	<p>XAdES-E-BES signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the <code>xades:QualifyingProperties</code> container.</p> <p>The signing certificate of the signature is revoked.</p>	Negative validation.	<ul style="list-style-type: none"> • No <code>xades:QualifyingProperties</code> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature
XAdES/EBESN/5	<p>XAdES-E-BES signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>The signature does not incorporate the <code>xades:QualifyingProperties</code> container.</p> <p>The signing certificate of the signature is issued by a CA whose certificate is revoked.</p>	Negative validation.	<ul style="list-style-type: none"> • No <code>xades:QualifyingProperties</code> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature

7.4 Test cases generating non valid XAdES-E-EPES signatures

This clause defines a test suite of negative test cases for XAdES-E-EPES signatures.

The test suite of negative test cases for XAdES-E-EPES signatures as specified in ETSI EN 319 132-2 [2] shall include the test case XAdES/BBN/8 defined in ETSI TS 119 134-2 [3], clause 10.3 and the test cases defined in Table 15.

Table 15: Test cases generating non valid XAdES-E-EPES not covered in ETSI TS 119 134-2 [3], clause 10.3

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/EEPEsn/1	XAdES-E-EPES signature signing one data object (a text file) and the ds:KeyInfo element, which includes the signing certificate of the signature. It incorporates a xades:SignaturePolicyIdentifier qualifying property. The digest value within the xades:SigPolicyHash element is wrong.	Negative validation.	<ul style="list-style-type: none"> • ds:KeyInfo with signing certificate of the signature • ds:KeyInfo is also signed by the signature • xades:SigningPolicyIdentifier with wrong xades:SigPolicyHash

7.5 Test cases generating non valid XAdES-E-T signatures

This clause defines a test suite of negative test cases for XAdES-E-T signatures.

The test suite of negative test cases for XAdES-E-T signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in ETSI TS 119 134-2 [3], clause 10.4 and the test cases defined in Table 16.

Table 16: Test cases generating non valid XAdES-E-T signatures not covered in ETSI TS 119 134-2 [3], clause 10.4

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/ETN/1	XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature. It does not contain the <code>xades:SigningCertificateV2</code> qualifying property. The digest value of one of the <code>ds:Reference</code> children of <code>ds:SignedInfo</code> is wrong.	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • digest value of one <code>ds:Reference</code> is wrong
XAdES/ETN/2	XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature. It does not contain the <code>xades:SigningCertificateV2</code> qualifying property. The value within the <code>ds:SignatureValue</code> is wrong.	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • value in one <code>ds:SignatureValue</code> is wrong
XAdES/ETN/3	XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature. It does not contain the <code>xades:SigningCertificateV2</code> qualifying property. The signing certificate of the signature was expired at the time indicated within the time-stamp token encapsulated by <code>xades:SignatureTimeStamp</code> qualifying property.	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code>
XAdES/ETN/4	XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature. It does not contain the <code>xades:SigningCertificateV2</code> qualifying property. The signing certificate of the signature was revoked at the time indicated within the time-stamp token encapsulated by <code>xades:SignatureTimeStamp</code> qualifying property.	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code>
XAdES/ETN/5	XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature. It does not contain the <code>xades:SigningCertificateV2</code> qualifying property. The signing certificate of the signature is issued by a CA whose certificate signature was revoked at the time indicated within the time-stamp token encapsulated by <code>xades:SignatureTimeStamp</code> qualifying property.	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/ETN/6	<p>XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>It does not contain the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>The signing certificate of the time-stamp token encapsulated by <code>xades:SignatureTimeStamp</code> qualifying property is not trusted.</p>	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code>
XAdES/ETN/7	<p>XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>It does not contain the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>The signing certificate of the time-stamp token encapsulated by <code>xades:SignatureTimeStamp</code> qualifying property was expired at the time indicated within its time-stamp token .</p>	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code>
XAdES/ETN/8	<p>XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>It does not contain the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>The signing certificate of the time-stamp token encapsulated by <code>xades:SignatureTimeStamp</code> qualifying property was revoked at the time indicated within its time-stamp token .</p>	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code>
XAdES/ETN/9	<p>XAdES-E-T signature signing one data object (a text file) and the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature.</p> <p>It does not contain the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>The message imprint in the time-stamp token encapsulated by <code>xades:SignatureTimeStamp</code> qualifying property is wrong.</p>	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code>

7.6 Test cases generating non valid XAdES-E-A signatures

This clause defines a test suite of negative test cases for XAdES-E-A signatures.

The test suite of negative test cases for XAdES-E-A signatures as specified in ETSI EN 319 132-2 [2] shall include the test cases defined in ETSI TS 119 134-2 [3], clause 10.5 and the test cases defined in Table 17.

Table 17: Test cases generating non valid XAdES-E-A signatures not covered in ETSI TS 119 134-2 [3] clause 10.5

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/BLTAN/1	<p>XAdES-E-A signature signing one data object (a text file), the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature, and the <code>xades:SignedProperties</code> container.</p> <p>It does not contain the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>The time indicated within the time-stamp token encapsulated by <code>xades:SignatureTimeStamp</code> qualifying property is posterior to the time indicated within the time-stamp token encapsulated by <code>xadesv141:ArchiveTimeStamp</code>.</p>	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> (with CRLs) • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/BLTAN/2	<p>XAdES-E-A signature signing one data object (a text file), the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature, and the <code>xades:SignedProperties</code> container.</p> <p>It does not contain the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>The message imprint within the time-stamp token encapsulated by <code>xadesv141:ArchiveTimeStamp</code> qualifying property is wrong.</p>	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> (with CRLs) • <code>xadesv141:ArchiveTimeStamp</code>
XAdES/BLTAN/3	<p>XAdES-E-A signature signing one data object (a text file), the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature, and the <code>xades:SignedProperties</code> container.</p> <p>It does not contain the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>The time indicated within the time-stamp token encapsulated by <code>xadesv141:SigAndRefsTimeStampV2</code> qualifying property is posterior to the time indicated within the time-stamp token encapsulated by <code>xadesv141:ArchiveTimeStamp</code>.</p>	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> • <code>xadesv141:SigAndRefsTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> (with OCSP responses) • <code>xadesv141:ArchiveTimeStamp</code>

TC ID	Description	Pass criteria	Signature qualifying properties
XAdES/BLTAN/4	<p>XAdES-E-A signature signing one data object (a text file), the <code>ds:KeyInfo</code> element, which includes the signing certificate of the signature, and the <code>xades:SignedProperties</code> container.</p> <p>It does not contain the <code>xades:SigningCertificateV2</code> qualifying property.</p> <p>The time indicated within the time-stamp token encapsulated by <code>xadesv141:RefsOnlyTimeStampV2</code> qualifying property is posterior to the time indicated within the time-stamp token encapsulated by <code>xadesv141:ArchiveTimeStamp</code>.</p>	Negative validation	<ul style="list-style-type: none"> • <code>ds:KeyInfo</code> with signing certificate of the signature • <code>ds:KeyInfo</code> is also signed by the signature • <code>xades:SignatureTimeStamp</code> (encapsulating one time-stamp token) • <code>xadesv141:TimeStampValidationData</code> • <code>xadesv141:CompleteCertificateRefsV2</code> • <code>xades:CompleteRevocationRefs</code> • <code>xadesv141:RefsOnlyTimeStampV2</code> • <code>xades:CertificateValues</code> • <code>xades:RevocationValues</code> (with) • <code>xadesv141:ArchiveTimeStamp</code>

History

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