

# ETSI TS 103 969 V2.1.1 (2025-03)



**Intelligent Transport Systems (ITS);  
NR-V2X and LTE-V2X Access layer  
in the 5 GHz frequency band;  
Test Specification;  
Release 2**

---

**Reference**

DTS/ITS-00450

---

**Keywords**

ITS, radio measurements, testing

**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 - APE 7112B  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° w061004871

---

**Important notice**

The present document can be downloaded from the  
[ETSI Search & Browse Standards](#) application.

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format on [ETSI deliver](#) repository.

Users should be aware that the present document may be revised or have its status changed,  
this information is available in the [Milestones listing](#).

If you find errors in the present document, please send your comments to  
the relevant service listed under [Committee Support Staff](#).

If you find a security vulnerability in the present document, please report it through our  
[Coordinated Vulnerability Disclosure \(CVD\)](#) program.

---

**Notice of disclaimer & limitation of liability**

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

---

**Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2025.  
All rights reserved.

# Contents

Intellectual Property Rights .....	4
Foreword.....	4
Modal verbs terminology.....	4
1 Scope .....	5
2 References .....	5
2.1 Normative references .....	5
2.2 Informative references.....	6
3 Definition of terms, symbols and abbreviations.....	7
3.1 Terms.....	7
3.2 Symbols.....	7
3.3 Abbreviations .....	7
4 Protocol aspects.....	7
4.1 LTE-V2X .....	7
4.2 NR-V2X .....	7
5 Radio transmission and reception aspects .....	8
5.1 LTE-V2X .....	8
5.2 NR-V2X .....	8
6 Protection of DSRC tolling stations .....	8
<b>Annex A (normative): Mapping of core requirements to conformance tests for LTE-V2X .....</b>	<b>9</b>
A.0 General .....	9
A.1 PHY, MAC, RLC, PDCP, RRC and NAS layers.....	9
A.2 Transmission/reception of V2X communication over PC5.....	9
A.3 Congestion control .....	9
A.4 CEN DSRC protection .....	10
A.5 QoS management .....	10
A.6 PC5 parameter provisioning.....	10
A.7 Synchronization.....	10
<b>Annex B (normative): Mapping of core requirements to conformance tests for NR-V2X.....</b>	<b>11</b>
B.0 General .....	11
B.1 PHY, MAC, RLC, PDCP, SDAP, RRC and NAS layers.....	11
B.2 Transmission/reception of V2X communication over PC5.....	11
B.3 Congestion control .....	11
B.4 CEN DSRC protection .....	12
B.5 QoS management .....	12
B.6 PC5 parameter provisioning.....	12
B.7 Synchronization.....	12
<b>Annex C (informative): Status of V2X TTCN.....</b>	<b>13</b>
History .....	14

---

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the [ETSI IPR online database](#).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™**, **LTE™** and **5G™** logo are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

---

# Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Intelligent Transport Systems (ITS).

---

# 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 specifies the minimum requirements to demonstrate compliance with ETSI EN 303 798 [1].

---

## 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 in the ETSI docbox.

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 303 798](#): "Intelligent Transport Systems (ITS); LTE-V2X and NR-V2X Access layer specification for Intelligent Transport Systems operating in the 5 GHz frequency band; Release 2".
- [2] [ETSI TS 103 574](#): "Intelligent Transport Systems (ITS); Congestion Control Mechanisms for C-V2X PC5 interface; Access layer part; Release 2".
- [3] [ETSI TS 136 523-1](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part 1: Protocol conformance specification (3GPP TS 36.523-1)".
- [4] [ETSI TS 136 523-2](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part 2: Implementation Conformance Statement (ICS) proforma specification (3GPP TS 36.523-2 Release 16)".
- [5] [ETSI TS 136 523-3](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part 3: Test suites (3GPP TS 36.523-3)".
- [6] [ETSI TS 136 521-1](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Conformance testing (3GPP TS 36.521-1)".
- [7] [ETSI TS 136 521-2](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Implementation Conformance Statement (ICS) (3GPP TS 36.521-2)".
- [8] [ETSI TS 136 521-3](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 3: Radio Resource Management (RRM) conformance testing (3GPP TS 36.521-3)".
- [9] [ETSI TS 102 916-1](#): "Intelligent Transport Systems (ITS); Test specifications for the mitigation techniques to avoid interference between Cooperative ITS-G5 and TTT DSRC; Part 1: Protocol Implementation Conformance Statement (PICS)".
- [10] [ETSI TS 102 916-2](#): "Intelligent Transport Systems (ITS); Test specifications for the mitigation techniques to avoid interference between Cooperative ITS-G5 and TTT DSRC; Part 2: Test Suite Structure and Test Purposes (TSS & TP)".
- [11] [ETSI TS 138 523-1](#): "5G; 5GS; User Equipment (UE) conformance specification; Part 1: Protocol (3GPP TS 38.523-1)".

- [12] [ETSI TS 138 523-2](#): "5G; 5GS; User Equipment (UE) conformance specification; Part 2: Applicability of protocol test cases (3GPP TS 38.523-2)".
- [13] [ETSI TS 138 523-3](#): "5G; 5GS; User Equipment (UE) conformance specification; Part 3: Protocol Test Suites (3GPP TS 38.523-3)".
- [14] [ETSI TS 138 521-1](#): "5G; NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 standalone (3GPP TS 38.521-1)".
- [15] [ETSI TS 138 521-3](#): "5G; NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios (3GPP TS 38.521-3)".
- [16] [ETSI TS 138 508-2](#): "5GS; User Equipment (UE) conformance specification; Part 2: Common Implementation Conformance Statement (ICS) proforma (3GPP TS 38.508-2)".
- [17] [ETSI TS 137 324](#): "LTE; 5G; Evolved Universal Terrestrial Radio Access (E-UTRA) and NR; Service Data Adaptation Protocol (SDAP) specification (3GPP TS 37.324, Release 16)".
- [18] [ETSI TS 136 331](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (3GPP TS 36.331, Release 16)".
- [19] [ETSI TS 136 213](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures (3GPP TS 36.213, Release 16)".
- [20] [ETSI TS 138 331](#): "5G; NR; Radio Resource Control (RRC); Protocol specification (3GPP TS 38.331, Release 16)".
- [21] [ETSI TS 138 213](#): "5G; NR; Physical layer procedures for control (3GPP TS 38.213, Release 16)".

## 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 121 905: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Vocabulary for 3GPP Specifications (3GPP TR 21.905, Release 16)".
- [i.2] ETSI TS 124 385: "V2X services Management Object (MO) (3GPP TS 24.385, Release 16)".
- [i.3] ETSI TS 124 386: "User Equipment (UE) to V2X control function; protocol aspects; Stage 3 (3GPP TS 24.386, Release 16)".
- [i.4] ETSI TS 123 285: "Universal Mobile Telecommunications System (UMTS); Architecture enhancements for V2X services (3GPP TS 23.285, Release 16)".
- [i.5] ETSI TS 136 413: "LTE; Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP) (3GPP TS 36.413, Release 16)".
- [i.6] ETSI TS 136 414: "LTE; Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 data transport (3GPP TS 36.414 Release 16)".
- [i.7] ETSI TS 138 413: "5G; NG-RAN; NG Application Protocol (NGAP) (3GPP TS 38.413, Release 16)".
- [i.8] ETSI TS 138 414: "5G; NG-RAN; NG data transport (3GPP TS 38.414, Release 16)".

[i.9] ETSI TS 138 202: "5G; NR; Services provided by the physical layer (3GPP TS 38.202, Release 16)".

## 3 Definition of terms, symbols and abbreviations

### 3.1 Terms

For the purposes of the present document, the terms given in ETSI EN 303 798 [1] and ETSI TR 121 905 [i.1] apply.

### 3.2 Symbols

Void.

### 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 303 798 [1], ETSI TR 121 905 [i.1] and the following apply:

ATS	Abstract Test Suite
GCF	Global Certification Forum
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
PICS	Protocol Implementation Conformance Statement
PTCRB	PCS Type Certification Review Board
TP	Test Purposes
TSS	Test Suite Structure
TTCN	Testing and Test Control Notation
V2X	Vehicle to Everything

## 4 Protocol aspects

### 4.1 LTE-V2X

The supplier of an LTE-V2X implementation shall complete the Implementation Conformance Statement (ICS) in Annex A of ETSI TS 136 523-2 [4]. The parts of the Table A.4.4-1 of ETSI TS 136 523-2 [4] which are applicable to ETSI EN 303 798 [1] are items 148 to 157.

The protocol tests performed shall be as described in clauses 7.3.9.1 and 24.1 of ETSI TS 136 523-1 [3].

The ATS used shall be as specified in ETSI TS 136 523-3 [5].

**NOTE:** The supplier of an implementation may adhere to a certification regime, e.g. GCF. The status of the 3GPP RAN5 V2X test cases implemented in TTCN is shown in Annex C.

### 4.2 NR-V2X

The supplier of an NR-V2X implementation shall complete the Implementation Conformance Statement (ICS) in Annex A of ETSI TS 138 508-2 [16]. The items applicable to ETSI EN 303 798 [1] protocol aspects are Table A.4.3.7 rows 33 and 44, and Table A.4.4-2A.

**NOTE 1:** For NR, a combined ICS for radio and protocol (signalling) is used.

The protocol tests performed shall be as described in clauses 12 and 13 of ETSI TS 138 523-1 [11], and clause 4 of ETSI 138 523-2 [12].

The ATS used shall be as specified in ETSI TS 138 523-3 [13].

NOTE 2: The supplier of an implementation may adhere to a certification regime, e.g. GCF. The status of the 3GPP RAN5 V2X test cases implemented in TTCN is shown in Annex C.

---

## 5 Radio transmission and reception aspects

### 5.1 LTE-V2X

The supplier of an LTE-V2X implementation shall complete the Implementation Conformance Statement (ICS) in Annex A of ETSI TS 136 521-2 [7].

The items applicable to ETSI EN 303 798 [1] are in Tables A.4.3-4d, A.4.3-4da and A.4.3-4db.

The radio transmission and reception tests performed shall be as defined in ETSI TS 136 521-1 [6]. The measurement procedures shall be as defined in ETSI TS 136 521-3 [8].

### 5.2 NR-V2X

The supplier of an NR-V2X implementation shall complete the Implementation Conformance Statement (ICS) in Annex A of ETSI TS 138 508-2 [16]. The items applicable to ETSI EN 303 798 [1] radio aspects are Table A.4.1-1 item 3 and Table A.4.3.7 rows 33 and 44.

NOTE: For NR, a combined ICS for radio and protocol (signalling) is used.

The radio transmission and reception tests performed shall be as defined in the following clauses of ETSI TS 138 521-1[14]:

- 5.2E, 5.3E, 5.4E for Operating bands and Channel arrangement
- 6.2E, 6.3E, 6.4E, 6.5E for transmitter characteristics
- 7.3E, 7.6E, 7.7E, 7.8E for receiver characteristics
- A.7 for reference measurement channels.

The measurement procedures shall be as defined in ETSI TS 138 521-3 [15].

---

## 6 Protection of DSRC tolling stations

The following shall be applicable to both LTE-V2X and NR-V2X IUTs.

The supplier of an implementation shall complete the Protocol Implementation Conformance Statement (PICS) in Annex A of ETSI TS 102 916-1 [9] for Mode A.

The Test Suite Structure and Test Purposes (TSS&TP) used shall be as defined in ETSI TS 102 916-2 [10].



# Annex A (normative): Mapping of core requirements to conformance tests for LTE-V2X

## A.0 General

This annex maps the requirements in the core specification ETSI EN 303 798 [1] clause 5 to applicable tests.

## A.1 PHY, MAC, RLC, PDCP, RRC and NAS layers

For PHY, MAC, RLC, PDCP, RRC and NAS layers, the applicable tests shall be as specified in Table A.1.

**Table A.1: PHY, MAC, RLC, PDCP, RRC and NAS Layers requirements**

Item	Core requirements	Applicable tests
1	PHY (clause 5.1 of ETSI EN 303 798 [1])	ETSI TS 136 521-1 [6], clauses 7.4, 7.5 and 7.6
2	MAC (clause 5.2 of ETSI EN 303 798 [1])	ETSI TS 136 523-1 [3], clause 24.1
3	RLC (clause 5.3 of ETSI EN 303 798 [1])	ETSI TS 136 523-1 [3], clause 24.1
4	PDCP (clause 5.4 of ETSI EN 303 798 [1])	ETSI TS 136 523-1 [3], clause 7.3.9
5	RRC (clause 5.5 of ETSI EN 303 798 [1])	ETSI TS 136 523-1 [3], clause 24.1
6	NAS (clause 5.6 of ETSI EN 303 798 [1])	ETSI TS 136 523-1 [3], clause 24.1

## A.2 Transmission/reception of V2X communication over PC5

For transmission/reception of V2X communication over PC5, the applicable tests shall be as specified in Table A.2.

**Table A.2: TX/RX requirements for V2X communication over PC5**

Item	Core requirements	Applicable tests
1	Support of ETSI TS 124 385 [i.2].	ETSI TS 136 523-1 [3], clauses 24.1.15, 24.1.18, and 24.1.20
2	Support of ETSI TS 124 386 [i.3].	ETSI TS 136 523-1 [3], clauses 24.1.15, 24.1.18, and 24.1.20

## A.3 Congestion control

For congestion control, the applicable tests shall be as specified in Table A.3.

**Table A.3: Congestion control requirements**

Item	Core requirements	Applicable tests
1	IUT shall adapt its CR according to the measured Channel Busy Ratio (CBR) in order to comply with the required CR limit, as defined in ETSI TS 103 574 [2].	ETSI TS 136 523-1 [3], clauses 24.1.16 and 24.1.19

## A.4 CEN DSRC protection

For CEN DSRC protection, the applicable tests shall be as specified in Table A.4.

**Table A.4: CEN DSCR protection requirements**

Item	Core requirements	Applicable tests
1	IUT shall adjust its output power level to maximum 10 dBm e.i.r.p. If the ITS station is inside the protected zone, it shall fulfil the spurious emissions limit of maximum -65 dBm/MHz within 5 795 MHz to 5 815 MHz.	ETSI TS 102 916-1 [9], mode A

## A.5 QoS management

For QoS management, the applicable tests shall be as specified in Table A.5.

**Table A.5: QoS management requirements**

Item	Core requirements	Applicable tests
1	IUT shall (de)prioritizes a data packet according to its PPPP value in access layer as defined in ETSI TS 136 331 [18] and ETSI TS 136 213 [19].	ETSI TS 136 523-1 [3], clause 24.1.12

## A.6 PC5 parameter provisioning

For PC5 parameter provisioning, the applicable tests shall be as specified in Table A.6.

**Table A.6: PC5 parameter provisioning requirements**

Item	Core requirements	Applicable tests
1	PC5 parameters required provisioning parameters used by a UE to perform V2X Communication are as defined in ETSI TS 123 285 [i.4], ETSI TS 136 413 [i.5], ETSI TS 136 414 [i.6] and ETSI TS 103 574 [2]	ETSI TS 136 523-1 [3], clause 24.1

## A.7 Synchronization

For synchronization, the applicable tests shall be as specified in Table A.7.

**Table A.7: Synchronization requirements**

Item	Core requirements	Applicable tests
1	IUT shall synchronize with a synchronization reference in both time and frequency before communicating with other ITS stations using LTE-V2X	ETSI TS 136 523-1 [3], clause 24.1.5

## Annex B (normative): Mapping of core requirements to conformance tests for NR-V2X

### B.0 General

This annex maps the requirements in the core specification ETSI EN 303 798 [1] clause 6 to applicable tests.

### B.1 PHY, MAC, RLC, PDCP, SDAP, RRC and NAS layers

For PHY, MAC, RLC, PDCP, SDAP, RRC and NAS layers, the applicable tests shall be as specified in Table B.1.

**Table B.1: PHY, MAC, RLC, PDCP, SDAP, RRC and NAS Layers requirements**

Item	Core requirements	Applicable tests
1	PHY (clause 6.1 of ETSI EN 303 798 [1])	ETSI TS 138 521-1 [14], clauses 7.4, 7.5 and 7.6
2	MAC (clause 6.2 of ETSI EN 303 798 [1])	ETSI TS 138 523-1 [11], clauses 12.1.8 and 12.2.10
3	RLC (clause 6.3 of ETSI EN 303 798 [1])	ETSI TS 138 523-1 [11], clause 12.1.9
4	PDCP (clause 6.4 of ETSI EN 303 798 [1])	ETSI TS 138 523-1 [11], clause 12.1.10
5	SDAP (clause 5 of ETSI TS 137 324 [17])	ETSI TS 138 523-1 [11], clause 12.1.11
6	RRC (clause 6.5 of ETSI EN 303 798 [1])	ETSI TS 138 523-1 [11], clauses 12.1.1 to 12.1.7 and clauses 12.2.1 to 12.2.9
7	NAS (clause 6.6 of ETSI EN 303 798 [1])	ETSI TS 138 523-1 [11], clause 13

### B.2 Transmission/reception of V2X communication over PC5

For transmission/reception of V2X communication over PC5, the applicable tests shall be as specified in Table B.2.

**Table B.2: TX/RX requirements for V2X communication over PC5**

Item	Core requirements	Applicable tests
1	Support of clauses 5.3 and 6.3 of ETSI TS 138 202 [i.9].	ETSI TS 138 523-1 [11], clauses 12.1.1 to 12.1.10

### B.3 Congestion control

For congestion control, the applicable tests shall be as specified in Table B.3.

**Table B.3: Congestion control requirements**

Item	Core requirements	Applicable tests
1	IUT shall adapt its CR according to the measured Channel Busy Ratio (CBR) in order to comply with the required CR limit, as defined in ETSI TS 103 574 [2].	ETSI TS 138 523-1 [11], clause 12.2.3

## B.4 CEN DSRC protection

For CEN DSRC protection, the applicable tests shall be as specified in Table B.4.

**Table B.4: CEN DSCR protection requirements**

Item	Core requirements	Applicable tests
1	IUT shall adjust its output power level to maximum 10 dBm e.i.r.p. If the ITS station is inside the protected zone, it shall fulfil the spurious emissions limit of maximum -65 dBm/MHz within 5 795 MHz to 5 815 MHz.	ETSI TS 102 916-1 [9], mode A

## B.5 QoS management

For QoS management, the applicable tests shall be as specified in Table B.5.

**Table B.5: QoS management requirements**

Item	Core requirements	Applicable tests
1	IUT shall (de)prioritizes a data packet according to its PPPP value in access layer as defined in ETSI TS 138 331 [20] and ETSI TS 138 213 [21].	ETSI TS 138 523-1 [11], clause 12.1.11

## B.6 PC5 parameter provisioning

For PC5 parameter provisioning, the applicable tests shall be as specified in Table B.6.

**Table B.6: PC5 parameter provisioning requirements**

Item	Core requirements	Applicable tests
1	PC5 parameters required provisioning parameters used by a UE to perform V2X Communication are as defined in ETSI TS 123 285 [i.4], ETSI TS 138 413 [i.7], ETSI TS 138 414 [i.8] and ETSI TS 103 574 [2]	ETSI TS 138 523-1 [11], clause 12.1.1 and 12.2.1

## B.7 Synchronization

For synchronization, the applicable tests shall be as specified in Table B.7.

**Table B.7: Synchronization requirements**

Item	Core requirements	Applicable tests
1	IUT shall synchronize with a synchronization reference in both time and frequency before communicating with other ITS stations using NR-V2X	ETSI TS 138 523-1 [11], clauses 12.1.2 and 12.2.2

---

## Annex C (informative): Status of V2X TTCN

The status of V2X test cases implemented in TTCN can be found in the 3GPP RAN5 status reports.

To see the current status list, download the most recent version of the status report using the following URL:

- [https://www.3gpp.org/ftp/tsg\\_ran/WG5\\_Test\\_ex-T1/TTCN/Reporting/TTCN\\_status](https://www.3gpp.org/ftp/tsg_ran/WG5_Test_ex-T1/TTCN/Reporting/TTCN_status).

For LTE-V2X, select the "LTE\_TC\_status" tab and filter the "Feature" column for "V2V" and "V2X".

For NR-V2X, select the "5G\_TC\_status" tab and filter the "Feature" column for "Option 2 - V2X".

---

## History

<b>Document history</b>		
V2.1.1	March 2025	Publication