



**Universal Mobile Telecommunications System (UMTS);  
LTE;  
User Equipment (UE)  
conformance specification for UE positioning;  
Part 5: Test scenarios and assistance data  
(3GPP TS 37.571-5 version 16.6.0 Release 16)**



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Reference

RTS/TSGR-0537571-5vg60

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Keywords

5G,LTE,UMTS

**ETSI**

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# Foreword

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# Introduction

## iTeh STANDARD PREVIEW

The present document is part 5 of a multi-part TS:

3GPP TS 37. 571-1: User Equipment (UE) conformance specification for UE positioning; Part 1: Conformance test specification.

3GPP TS 37. 571-2: User Equipment (UE) conformance specification for UE positioning; Part 2: Protocol conformance.

3GPP TS 37. 571-3: User Equipment (UE) conformance specification for UE positioning; Part 3: Implementation Conformance Statement (ICS).

3GPP TS 37. 571-4: User Equipment (UE) conformance specification for UE positioning; Part 4: Test suites.

**3GPP TS 37. 571-5: User Equipment (UE) conformance specification for UE positioning; Part 5: Test scenarios and assistance data.**

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# 1 Scope

The present document specifies the test scenarios and assistance data required for the conformance and minimum performance tests for FDD or TDD mode of UTRA, E-UTRA and NR for the User Equipment (UE) that supports one or more of the defined positioning methods. For UTRA these are Assisted Global Positioning System (A-GPS) and Assisted Global Navigation Satellite System (A-GNSS). For E-UTRA these are A-GNSS, Observed Time Difference of Arrival (OTDOA), Enhanced Cell ID (ECID), Wireless Local Area Network (WLAN), Metropolitan Beacon Systems (MBS) and Bluetooth. For NR these are A-GNSS, Observed Time Difference of Arrival (LTE) (OTDOA (LTE)), Enhanced Cell ID (LTE) (ECID (LTE)), Wireless Local Area Network (WLAN), Metropolitan Beacon Systems (MBS) and Bluetooth.

The present documents also specifies the GNSS scenario files for the test scenarios defined in TS 36.508 for V2X and aerial testing.

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# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document unless the context in which the reference is made suggests a different Release is relevant (information on the applicable release in a particular context can be found in e.g. test case title, description or applicability, message description or content).

- ETSI TS 137 571-5 V16.6.0 (2021-10)  
527697651bdb/etsi-ts-137-571-5-v16-6-0-2021-10
- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 36.101: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception".
- [3] Void
- [4] Void
- [5] Void
- [6] 3GPP TS 37.571-1: "User Equipment (UE) conformance specification for UE positioning; Part 1: Terminal conformance".
- [7] 3GPP TS 37.571-2: "User Equipment (UE) conformance specification for UE positioning; Part 2: Protocol conformance".
- [8] 3GPP TS 37.355: " LTE Positioning Protocol (LPP)".
- [9] IS-GPS-200, Revision D, Navstar GPS Space Segment/Navigation User Interfaces, March 7<sup>th</sup>, 2006.
- [10] IS-GPS-705, Navstar GPS Space Segment/User Segment L5 Interfaces, September 22, 2005.
- [11] IS-GPS-800, Navstar GPS Space Segment/User Segment L1C Interfaces, September 4, 2008.
- [12] IS-QZSS, Quasi Zenith Satellite System Navigation Service Interface Specifications for QZSS, Ver.1.1, July 31, 2009.
- [13] Galileo OS Signal in Space ICD (OS SIS ICD), Issue 1.2, February 2014, European Union.
- [14] Global Navigation Satellite System GLONASS Interface Control Document, Version 5.1, 2008.



- [15] Specification for the Wide Area Augmentation System (WAAS), US Department of Transportation, Federal Aviation Administration, DTFA01-96-C-00025, 2001.
- [16] 3GPP TS 25.331: "Radio Resource Control (RRC); Protocol specification"
- [17] STANAG 4294: NATO STANAG 4294. Navstar Global Positioning System (GPS) System Characteristics.
- [18] 3GPP TS 36.104: "Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception".
- [19] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".
- [20] 3GPP TS 36.508: "Common test environments for User Equipment (UE) conformance testing".
- [21] ATIS-0500027: "Recommendations for Establishing Wide Scale Indoor Location Performance", May 2015.
- [22] IEEE 802.11, Part 11: "Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".
- [23] Bluetooth Special Interest Group (SIG): "Bluetooth Core Specification v4.2", December 2014.
- [24] 3GPP TS 38.508-1: "User Equipment (UE) conformance specification; Part 1: Common test environment".
- [25] BDS-SIS-ICD-B1I-3.0: "BeiDou Navigation Satellite System Signal In Space Interface Control Document Open Service Signal B1I (Version 3.0)", China Satellite Navigation Office, December 2019.
- [26] BDS-SIS-ICD-B1C-1.0: "BeiDou Navigation Satellite System Signal In Space Interface Control Document Open Service Signal B1C (Version 1.0)", December 2017.

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## 3 Definitions, symbols and abbreviations

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### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1], TS 36.101 [2], TS 36.104 [18] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

**Horizontal Dilution Of Precision (HDOP):** measure of position determination accuracy that is a function of the geometrical layout of the satellites used for the fix, relative to the receiver antenna

### 3.2 Symbols

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

B1I	BeiDou B1I navigation signal with carrier frequency of 1561.098 MHz.
B1C	BeiDou B1C navigation signal with carrier frequency of 1575.420 MHz.
E1	Galileo E1 navigation signal with carrier frequency of 1575.420 MHz.
E5	Galileo E5 navigation signal with carrier frequency of 1191.795 MHz.
E6	Galileo E6 navigation signal with carrier frequency of 1278.750 MHz.
G1	GLONASS navigation signal in the L1 sub-bands with carrier frequencies $1602 \text{ MHz} \pm k \times 562.5 \text{ kHz}$ .
G2	GLONASS navigation signal in the L2 sub-bands with carrier frequencies $1246 \text{ MHz} \pm k \times 437.5 \text{ kHz}$ .
k	GLONASS channel number, $k = -7 \dots 13$ .
L1 C/A	GPS or QZSS L1 navigation signal carrying the Coarse/Acquisition code with carrier frequency of 1575.420 MHz.

L1C	GPS or QZSS L1 Civil navigation signal with carrier frequency of 1575.420 MHz.
L2C	GPS or QZSS L2 Civil navigation signal with carrier frequency of 1227.600 MHz.
L5	GPS or QZSS L5 navigation signal with carrier frequency of 1176.450 MHz.

### 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

A-Galileo	Assisted-Galileo
A-GANSS	Assisted- Galileo and Additional Navigation Satellite Systems
A-GLONASS	Assisted- GLObal'naya NAVigatsionnaya Sputnikovaya Sistema (English: Global Navigation Satellite System)
A-GNSS	Assisted Global Navigation Satellite System
A-GPS	Assisted - Global Positioning System
AP	Access Point
AWGN	Additive White Gaussian Noise
BDS	BeiDou Navigation Satellite System
C/A	Coarse/Acquisition
DUT	Device Under Test
ECEF	Earth Centred, Earth Fixed
ENB	Evolved Node B
EN-DC	E-UTRA-NR Dual Connectivity
E-UTRA	Evolved UMTS Terrestrial Radio Access
E-UTRAN	Evolved UMTS Terrestrial Radio Access Network
FDD	Frequency Division Duplex
FFS	For further study
GANSS	Galileo and Additional Navigation Satellite Systems
GEO	Geostationary Earth Orbit
GLONASS	GLObal'naya NAVigatsionnaya Sputnikovaya Sistema (English: Global Navigation Satellite System)
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GSS	GNSS System Simulator
HDOP	Horizontal Dilution Of Precision
ICD	Interface Control Document
ICS	Implementation Conformance Statement
IS	Interface Specification
LOS	Line Of Sight
LPP	LTE Positioning Protocol
MBS	Metropolitan Beacon System
NE-DC	NR-E-UTRA Dual Connectivity
NGEN-DC	NG-RAN E-UTRA-NR Dual Connectivity
NG-RAN	NextGen Radio Access Network
NR	New Radio
NR-DC	NR-NR Dual Connectivity
PPM	Parts per million
PRS	Positioning Reference Signal
QZSS	Quasi-Zenith Satellite System
RRC	Radio Resource Control
SBAS	Space Based Augmentation System
SCC	Secondary Component Carrier
SFN	System Frame Number
SS	System simulator
SV	Space Vehicle
SV ID	Space Vehicle Identification
TDD	Time Division Duplex
TOD	Time Of Day
TOW	Time of Week TTF Time To First Fix
UE	User Equipment
UTRA	Universal Terrestrial Radio Access

UTRAN	Universal Terrestrial Radio Access Network
WAAS	Wide Area Augmentation System
WGS-84	World Geodetic System 1984
WLAN	Wireless Local Area Network

---

## 4 General

### 4.1 GPS and GNSS orbital model information, assistance data and assistance data files

The following subclauses 5 and 6 define the GPS and GNSS orbital model information, the assistance data and the assistance data files (subclause 5 only) for the test cases as follows:

Subclause 5.1: data for UTRA A-GPS Signalling test cases defined in TS 37.571-2 [7] subclauses 6.1.1 to 6.1.3.

Subclause 5.2: data for UTRA A-GPS Minimum Performance test cases defined in TS 37.571-1 [6] subclause 5.

Subclause 6.1: data for UTRA, E-UTRA and NR A-GNSS Signalling test cases defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclauses 7 and 9.

Subclause 6.2: data for UTRA, E-UTRA and NR A-GNSS Minimum Performance test cases defined in TS 37.571-1 [6] subclauses 6, 7 and 13.

For subclause 5 the orbital model information is defined and where appropriate is given in Yuma format in .txt files for each scenario in the appropriate data file specified in Annex A.

For subclause 6 the orbital model information is defined and where appropriate is given in Rinex navigation data file format for each scenario in the appropriate data file specified in Annex B.

For subclause 5, where the assistance data is fixed or is not required on a per-satellite basis, then it is defined in the following subclauses. Where assistance data is required on a per-satellite basis, or where the values of the data also vary with time then it is specified in comma-separated-variable files in the appropriate data file specified in Annex A. These files specify the values to be used for each satellite, indexed by satellite PRN or SV ID, and, where applicable, the values to be used indexed by both time and satellite PRN or SV ID.

For subclause 6, the assistance data is defined in the following subclauses.

For the aerial GNSS scenarios defined in TS 36.508 [20], the orbital model information is defined and where appropriate is given in Yuma format in .txt files for each scenario in the appropriate data file specified in Annex B.

### 4.2 OTDOA assistance data

The following subclause 7 defines the OTDOA assistance data for the test cases as follows:

Subclause 7.1: data for OTDOA Signalling test cases defined in TS 37.571-2 [7].

Subclause 7.2: data for OTDOA Measurement test cases defined in TS 37.571-1 [6].

Subclause 7.3: data for OTDOA Measurement test cases for Carrier Aggregation defined in TS 37.571-1 [6].

### 4.3 MBS scenario and assistance data

The following subclause 8 defines the MBS scenario and assistance data for the test cases as follows:

Subclause 8.1: scenario data for MBS signalling test cases defined in TS 37.571-2 [7].

Subclause 8.2: scenario data for MBS performance test cases defined in TS 37.571-1 [6].

Subclause 8.3: assistance data for MBS performance test cases defined in TS 37.571-1 [6] and signalling test cases defined in TS 37.571-2 [7].

## 4.4 WLAN scenario and assistance data

The following subclause 9 defines the WLAN scenario and assistance data for the test cases as follows:

Subclause 9.1: scenario data for WLAN signalling test cases defined in TS 37.571-2 [7].

Subclause 9.2: scenario data for WLAN performance test cases defined in TS 37.571-1 [6].

Subclause 9.3: assistance data for WLAN signalling test cases defined in TS 37.571-2 [7].

## 4.5 Bluetooth scenario data

The following subclause 10 defines the Bluetooth scenario for the test cases as follows:

Subclause 10.1: scenario data for Bluetooth signalling test cases defined in TS 37.571-2 [7].

---

# 5 GPS information

## 5.1 GPS Scenario and Assistance data for Assisted GPS signalling tests

### 5.1.1 General

This subclause defines the GPS scenario and the associated assistance data that shall be used where required for UTRA Assisted GPS signalling tests defined in TS 37.571-2 [7] subclauses 6.1.1 to 6.1.3.

The satellite simulator shall generate the six satellite signals defined in subclause 5.1.2 and/or shall provide assistance data as defined in subclause 5.1.3. Note that some tests require assistance data to be provided even though satellite signals are not required.

### 5.1.2 GPS Scenario

The following GPS scenario shall be used. The assistance data specified in the following subclauses is consistent with this GPS scenario:

- Yuma Almanac data: see file Tokyo Yuma.txt in the GPS data sig zip file specified in Annex A
- UE location and Reference location: static at latitude: 35 degrees 40 minutes north, longitude: 139 degrees 45 minutes east, (Tokyo) height: = 50m
- Start time: 12th September 2003 21:30:00
- Visible satellites simulated: PRNs: 4, 6, 9, 10, 13, 22.
- Ionospheric model: see values in subclause 5.1.3.4
- The levels of the simulated satellites shall all be at -125dBm +/- 6dB

### 5.1.3 Assistance Data

Where assistance data is required on a per-satellite basis, or where the values of the data also varies with time it is specified in comma-separated-variable files in the GPS data sig zip file specified in Annex A. These files specify the values to be used for each satellite, indexed by satellite PRN, and, where applicable, the values to be used indexed by both time and satellite PRN.

Assistance data that is marked as “time varying” and the GPS TOW msec field are only specified and used in 1 second increments. Interpolation between these values shall not be used.

The accuracy of the GPS TOW msec and assistance data that is marked as “time varying” in the provided assistance data shall be within +/- 2 s relative to the GPS time in the system simulator. In the case that assistance data is required but satellite signals are not required then this clause does not apply.

Assistance data Information Elements and fields that are not specified shall not be used.

The information elements detailed below are fully defined in TS 25.331 [16]

### 5.1.3.1 Assistance Data Reference Time

Reference Time

#### Reference Time (Fields occurring once per message)

Information Element	Units	Value/remark	Release
GPS Week	weeks	211	
GPS Week Cycle Number		1	Rel-10 onwards
GPS TOW msec	msec	509400 s. Start time. Add integer number of 1 seconds as required. (Note)	
UE Positioning GPS ReferenceTime Uncertainty		125 (2.127 seconds)	Rel-7 onwards
Note: GPS TOW msec This is the value of GPS TOW msec when the GPS scenario is started in the GPS simulator. The value of GPS TOW msec to be used in the Reference Time IE shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GPS simulator to this value, rounded up to the next 1 second interval. This “current GPS TOW msec” is then also used to determine the value of any other Information Elements marked as “Time varying” in subclause 5.1.3. In the case that the (hardware) GPS simulator is switched off or not present then the value of GPS TOW msec given above may be used.			

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### 5.1.3.2 Assistance Data Reference UE Position

ETSI TS 137 571-5 V16.6.0 (2021-10)  
<https://standards.iteh.ai/catalog/standards/sist/f349377f-f6f7-4c04-85dd-527697651bdb/etsi-ts-137-571-5-v16-6-0-2021-10>  
**Reference UE Position**

Information Element	Units	Value/remark
Latitude sign		0
Degrees Of Latitude	degrees	3.566666666666667 10E1
Degrees Of Longitude	degrees	1.397500000000000 10E2
Altitude Direction		0
Altitude	m	50
Uncertainty semi-major	m	3000
Uncertainty semi-minor	m	3000
Orientation of major axis	degrees	0
Uncertainty Altitude	m	500
Confidence	%	68

### 5.1.3.3 Assistance Data Navigation Model

#### Satellite Information

Information Element	Units	Value/remark
Number of satellites	-	6

**Navigation Model (Fields occurring once per satellite)**

Information Element	Units	Value/remark
SatID	-	PRNs: 4, 6, 9, 10, 13, 22.
Satellite Status		0 (Note)
Note: For consistency Satellite Status is also given in file: Navigation model.csv		

**Ephemeris and Clock correction Information Elements (Fields occurring once per satellite)**

Information Element	Units	Value/remark
C/A or P on L2		See file: Navigation model.csv
URA Index		See file: Navigation model.csv
SV Health		See file: Navigation model.csv
IODC	-	See file: Navigation model.csv
L2 P Data Flag		See file: Navigation model.csv
SF 1 Reserved	-	See file: Navigation model.csv
T <sub>GD</sub>	sec	See file: Navigation model.csv
t <sub>oc</sub>	sec	See file: Navigation model.csv
af <sub>2</sub>	sec/sec <sup>2</sup>	See file: Navigation model.csv
af <sub>1</sub>	sec/sec	See file: Navigation model.csv
af <sub>0</sub>	sec	See file: Navigation model.csv
C <sub>rs</sub>	meters	See file: Navigation model.csv
Δn	semi-circles/sec	See file: Navigation model.csv
M <sub>0</sub>	semi-circles	See file: Navigation model.csv
C <sub>uc</sub>	radians	See file: Navigation model.csv
E	radians	See file: Navigation model.csv
C <sub>us</sub>	radians	See file: Navigation model.csv
(A) <sup>1/2</sup>	meters <sup>1/2</sup>	See file: Navigation model.csv
t <sub>oe</sub>	sec	See file: Navigation model.csv
Fit Interval Flag		See file: Navigation model.csv
AODO	sec	See file: Navigation model.csv
C <sub>ic</sub>	radians	See file: Navigation model.csv
OMEGA <sub>0</sub>	semi-circles	See file: Navigation model.csv
C <sub>is</sub>	radians	See file: Navigation model.csv
i <sub>0</sub>	semi-circles	See file: Navigation model.csv
C <sub>rc</sub>	meters	See file: Navigation model.csv
ω	semi-circles	See file: Navigation model.csv
OMEGA <sub>dot</sub>	semi-circles/sec	See file: Navigation model.csv
Idot	semi-circles/sec	See file: Navigation model.csv

**5.1.3.4 Assistance Data Ionospheric Model****Ionospheric Model**

Information Element	Units	Value/remark
α <sub>0</sub>	seconds	4.6566129 10E-9
α <sub>1</sub>	sec/semi-circle	1.4901161 10E-8
α <sub>2</sub>	sec/(semi-circle) <sup>2</sup>	-5.96046 10E-8
α <sub>3</sub>	sec/(semi-circle) <sup>3</sup>	-5.96046 10E-8
β <sub>0</sub>	seconds	79872
β <sub>1</sub>	sec/semi-circle	65536
β <sub>2</sub>	sec/(semi-circle) <sup>2</sup>	-65536
β <sub>3</sub>	sec/(semi-circle) <sup>3</sup>	-393216

## 5.1.3.5 Assistance Data Almanac

**Almanac (Fields occurring once per message)**

Information Element	Units	Value/remark	Release
WN <sub>a</sub>	weeks	212	
Complete Almanac Provided		TRUE	Rel-10 onwards

**Satellite Information**

Information Element	Units	Value/remark
Number of satellites	-	24

**Almanac (Fields occurring once per satellite)**

Information Element	Units	Value/remark
DataID	-	See file: Almanac.csv
SatID	-	PRNs: 1 to 24
e	dimensionless	See file: Almanac.csv
t <sub>0a</sub>	sec	See file: Almanac.csv
δ <sub>i</sub>	semi-circles	See file: Almanac.csv
OMEGADOT	semi-circles/sec	See file: Almanac.csv
SV Health		See file: Almanac.csv
A <sup>1/2</sup>	meters <sup>1/2</sup>	See file: Almanac.csv
OMEGA <sub>0</sub>	semi-circles	See file: Almanac.csv
M <sub>0</sub>	semi-circles	See file: Almanac.csv
ω	semi-circles	See file: Almanac.csv
af <sub>0</sub>	seconds	See file: Almanac.csv
af <sub>1</sub>	sec/sec	See file: Almanac.csv

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## 5.1.3.6 Assistance Data Acquisition Assistance

<https://standards.iteh.ai/catalog/standards/sist/f349377f-f6f7-4c04-85dd-527697651bdb/etsi-ts-137-571-5-v16-6-0-2021-10>

**GPS Acquisition Assist - Information Elements appearing once per message**

Information Element	Units	Value/remark	Release
GPS TOW msec	msec	509400 s. Start time. Add integer number of 1 seconds as required. (Note)	
UE Positioning GPS ReferenceTime Uncertainty		125 (2.127 seconds)	Rel-7 onwards
<p>Note: GPS TOW msec This is the value of GPS TOW msec when the GPS scenario is started in the GPS simulator. The value of GPS TOW msec to be used in the Acquisition Assistance IE shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GPS simulator to this value, rounded up to the next 1 second interval. In the case that the (hardware) GPS simulator is switched off or not present then the value of GPS TOW msec given above may be used.</p>			

**Satellite Information**

Information Element	Units	Value/remark
Number of satellites	-	6