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Technical Specification

**Universal Mobile Telecommunications System (UMTS);
LTE;
Universal Terrestrial Radio Access (UTRA)
and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC);
User Equipment (UE) conformance specification for UE
positioning;
Part 5: Test scenarios and assistance data
(3GPP TS 37.571-5 version 10.6.0 Release 10)**



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Foreword

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Introduction

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

3GPP TS 37. 571-1: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 1: Conformance test specification.

3GPP TS 37. 571-2: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 2: Protocol conformance.

3GPP TS 37. 571-3: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 3: Implementation Conformance Statement (ICS).

3GPP TS 37. 571-4: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 4: Test suites.

3GPP TS 37. 571-5: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 5: Test scenarios and assistance data.

1 Scope

The present document specifies the test scenarios and assistance data required for the conformance test for FDD or TDD mode of UTRA and E-UTRA 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) and Enhanced Cell ID (ECID).

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*.

- [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: "Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 1: Terminal conformance".
- [7] 3GPP TS 37.571-2: "Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 2: Protocol conformance".
- [8] 3GPP TS 36.355: "Evolved Universal Terrestrial Radio Access (E-UTRA); LTE Positioning Protocol (LPP)".
- [9] IS-GPS-200, Revision D, Navstar GPS Space Segment/Navigation User Interfaces, March 7th, 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), Draft 0, Galileo Joint Undertaking, May 23rd, 2006.
- [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".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1], TS 36.101 [2], 3GPP 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:

| | |
|--------|--|
| 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-GNSS | Assisted Global Navigation Satellite System |
| A-GPS | Assisted - Global Positioning System |
| AWGN | Additive White Gaussian Noise |
| C/A | Coarse/Acquisition |
| DUT | Device Under Test |
| ECEF | Earth Centred, Earth Fixed |
| E-UTRA | Evolved UMTS Terrestrial Radio Access |
| E-UTRAN | Evolved UMTS Terrestrial Radio Access Network |
| FDD | Frequency Division Duplex |
| FFS | For further study |
| 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 |
| IS | Interface Specification |
| LOS | Line Of Sight |
| LPP | LTE Positioning Protocol |
| PPM | Parts per million |
| QZSS | Quasi-Zenith Satellite System |
| RRC | Radio Resource Control |
| SBAS | Space Based Augmentation System |
| SS | System simulator |
| SV | Space Vehicle |
| SV ID | Space Vehicle Identification |
| TDD | Time Division Duplex |
| TTF | Time To First Fix |
| UE | User Equipment |
| WGS-84 | World Geodetic System 1984 |

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 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 and E-UTRA A-GNSS Signalling test cases defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclause 7.

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

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 or Annex B.

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 or Annex B. 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.

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].

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 for all UTRA Assisted GPS signalling tests defined in TS 37.571-2 [7] subclauses 6.1.1 to 6.1.3.

The satellite simulator (SS) shall generate the six satellite signals defined in subclause 5.1.2 and shall provide assistance data as defined in subclause 5.1.3.

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.

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

The information elements detailed below are fully defined in 3GPP 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 | | | |

5.1.3.2 Assistance Data Reference UE Position

Reference UE Position

| Information Element | Units | Value/remark |
|---------------------------|---------|-----------------------|
| Latitude sign | | 0 |
| Degrees Of Latitude | degrees | 3.56666666666667 10E1 |
| Degrees Of Longitude | degrees | 1.39750000000000 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 (see 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_{GD} | sec | See file: Navigation model.csv |
| t_{oc} | sec | See file: Navigation model.csv |
| af_2 | sec/sec ² | See file: Navigation model.csv |
| af_1 | sec/sec | See file: Navigation model.csv |
| af_0 | sec | See file: Navigation model.csv |
| C_{rs} | meters | See file: Navigation model.csv |
| Δn | semi-circles/sec | See file: Navigation model.csv |
| M_0 | semi-circles | See file: Navigation model.csv |
| C_{uc} | radians | See file: Navigation model.csv |
| E | - | See file: Navigation model.csv |
| C_{us} | radians | See file: Navigation model.csv |
| $(A)^{1/2}$ | meters ^{1/2} | See file: Navigation model.csv |
| t_{oe} | sec | See file: Navigation model.csv |
| Fit Interval Flag | | See file: Navigation model.csv |
| AODO | sec | See file: Navigation model.csv |
| C_{ic} | radians | See file: Navigation model.csv |
| OMEGA ₀ | semi-circles | See file: Navigation model.csv |
| C_{is} | radians | See file: Navigation model.csv |
| i_0 | semi-circles | See file: Navigation model.csv |
| C_{rc} | meters | See file: Navigation model.csv |
| ω | semi-circles | See file: Navigation model.csv |
| OMEGA _{dot} | semi-circles/sec | See file: Navigation model.csv |
| l_{dot} | semi-circles/sec | See file: Navigation model.csv |

5.1.3.4 Assistance Data Ionospheric Model

Ionospheric Model

| Information Element | Units | Value/remark |
|---------------------|--------------------------------|-----------------|
| α_0 | seconds | 4.6566129 10E-9 |
| α_1 | sec/semi-circle | 1.4901161 10E-8 |
| α_2 | sec/(semi-circle) ² | -5.96046 10E-8 |
| α_3 | sec/(semi-circle) ³ | -5.96046 10E-8 |
| β_0 | seconds | 79872 |
| β_1 | sec/semi-circle | 65536 |
| β_2 | sec/(semi-circle) ² | -65536 |
| β_3 | sec/(semi-circle) ³ | -393216 |

5.1.3.5 Assistance Data Almanac

Almanac (Fields occurring once per message)

| Information Element | Units | Value/remark | Release |
|---------------------------|-------|--------------|----------------|
| WN _a | 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_{0a} | sec | See file: Almanac.csv |
| δi | semi-circles | See file: Almanac.csv |
| OMEGADOT | semi-circles/sec | See file: Almanac.csv |
| SV Health | | See file: Almanac.csv |
| $A^{1/2}$ | meters ^{1/2} | See file: Almanac.csv |
| OMEGA ₀ | semi-circles | See file: Almanac.csv |
| M ₀ | semi-circles | See file: Almanac.csv |
| ω | semi-circles | See file: Almanac.csv |
| af ₀ | seconds | See file: Almanac.csv |
| af ₁ | sec/sec | See file: Almanac.csv |

5.1.3.6 Assistance Data Acquisition Assistance

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 |
| 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. | | | |

Satellite Information

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

GPS Acquisition Assist - Information Elements appearing once per satellite

| Information Element | Units | Value/remark | Release |
|---|---------|---|----------------|
| SatID | - | PRNs: 4, 6, 9, 10, 13, 22. | |
| Doppler (0 th order term) | Hz | Time varying. See file: Acquisition assist .csv (Note) | |
| Doppler (1 st order term) | Hz/s | Time varying. See file: Acquisition assist .csv (Note) | |
| Doppler Uncertainty | Hz | Time varying. See file: Acquisition assist .csv (Note) | |
| Code Phase | chips | Time varying. See file: Acquisition assist .csv (Note) | |
| Integer Code Phase | - | Time varying. See file: Acquisition assist .csv (Note) | |
| GPS Bit number | - | Time varying. See file: Acquisition assist .csv (Note) | |
| Code Phase Search Window | chips | Time varying. See file: Acquisition assist .csv (Note) | |
| Azimuth | Degrees | Time varying. See file: Acquisition assist .csv (Note) | |
| Elevation | Degrees | Time varying. See file: Acquisition assist .csv (Note) | |
| Azimuth LSB | Degrees | Time varying. Calculated from "Azimuth", see file: Acquisition assist .csv (Note) | Rel-10 onwards |
| Elevation LSB | Degrees | Time varying. Calculated from "Elevation", see file: Acquisition assist .csv (Note) | Rel-10 onwards |
| Note: Acquisition Assist Information Elements This field is "Time varying" and its value depends on the "current GPS TOW msec". The value of this field to be used shall be determined by taking the "current GPS TOW msec" value and selecting the field value in the Acquisition assist.csv file corresponding to the value of "current GPS TOW msec". | | | |

5.2 GPS Scenarios and Assistance Data for Assisted GPS Minimum Performance tests

5.2.1 General

This subclause defines the GPS scenarios and assistance data IEs which shall be available for use as specified in all UTRA A-GPS Minimum Performance test cases defined in TS 37.571-1 [6] subclause 5.

Subclauses 5.2.2 and 5.2.3 list the assistance data IEs required for minimum performance testing of UE-based mode, and subclauses 5.2.4 and 5.2.5 list the assistance data available for minimum performance testing of UE-assisted mode. Subclause 5.2.6 lists the values of the assistance data IE fields for all minimum performance testing.

The A-GPS minimum performance requirements are defined by assuming that all relevant and valid assistance data is received by the UE in order to perform GPS measurements and/or position calculation. This subclause does not include nor consider delays occurring in the various signalling interfaces of the network.

5.2.1.1 Satellite constellations and assistance data for A-GPS minimum performance testing

The satellite constellations for minimum performance testing shall consist of 24 satellites. Almanac assistance data shall be available for all these 24 satellites. At least 9 of the satellites shall be visible to the UE (that is above 5 degrees elevation with respect to the UE). Other assistance data shall be available for 9 of these visible satellites. In each test, signals are generated for only a sub-set of these satellites for which other assistance data is available. The number of satellites in this sub-set is specified in the test. The satellites in this sub-set shall all be above 15 degrees elevation with respect to the UE. The HDOP for the test shall be calculated using this sub-set of satellites. The selection of satellites for this sub-set shall be selected consistent with achieving the required HDOP for the test.

5.2.1.2 GPS Scenarios for A-GPS minimum performance testing

This subclause defines the GPS scenarios that shall be used for all Assisted GPS minimum performance tests defined in TS 37.571-1 [6] subclause 5.

The GPS scenarios achieve the required HDOP for the Test Cases and they also satisfy the requirement that for each test instance that the reference location shall change sufficiently such that the UE shall have to use the new assistance data.

The satellites to be simulated in each test case are specified in subclause 5.2.1.2.5.

The viable running time during which the scenario maintains the required HDOP or HDOPs is given. Once this time has been reached the scenario shall be restarted from its nominal start time.

5.2.1.2.1 GPS Scenario #1

The following GPS scenario #1 shall be used during the TTFF tests defined in TS 37.571-1 [6] subclauses 5.2 to 5.5. The assistance data specified in the following subclauses for GPS scenario #1 is consistent with this GPS scenario.

Yuma Almanac data: see file GPS 1 Yuma.txt in the GPS data perf zip file specified in Annex A.

UE location: the UE location is calculated as a random offset from the reference location using the method described in subclause 5.2.1.2.4. The reference location is: latitude: 33 degrees 45 minutes 0.019 seconds north, longitude: 84 degrees 23 minutes 0.011 seconds west, (Atlanta USA), height: = 300m.

Nominal start time: 22nd January 2005 (Saturday) 00:08:00.

Viable running time to maintain specified HDOP values: 19 minutes.

Visible satellites available for simulation and for which Assistance Data (other than Almanac) shall be generated: PRNs: 2, 6, 10, 17, 18, 21, 26, 29, 30.

Ionospheric model: see values in subclause 5.2.6.6.

Tropospheric model: STANAG with SRI equal to 324.8, as defined in STANAG 4294 [17].

5.2.1.2.2 GPS Scenario #2

The following GPS scenario #2 shall be used during the TTFF tests defined in TS 37.571-1 [6] subclauses 5.2 to 5.5. The assistance data specified in the following subclauses for GPS scenario #2 is consistent with this GPS scenario.

Yuma Almanac data: see file GPS 2 Yuma.txt in the GPS data perf zip file specified in Annex A.

UE location: the UE location is calculated as a random offset from the reference location using the method described in subclause 5.2.1.2.4. The reference location is: latitude: 37 degrees 48 minutes 59.988 seconds south, longitude: 144 degrees 58 minutes 0.013 seconds east, (Melbourne Australia), height: = 100m.

Nominal start time: 22nd January 2004 (Thursday) 00:08:00.

Viable running time to maintain specified HDOP values: 19 minutes.

Visible satellites available for simulation and for which Assistance Data (other than Almanac) shall be generated: PRNs: 3, 11, 14, 15, 18, 22, 23, 25, 31.

Ionospheric model: see values in subclause 5.2.6.6.

Tropospheric model: STANAG with SRI equal to 324.8, as defined in STANAG 4294 [17].

5.2.1.2.3 GPS Scenario #3

The following GPS scenario #3 shall be used during the Moving Scenario and Periodic Location test case defined in TS 37.571-1 [6] subclause 5.6. The assistance data specified in the following subclauses for GPS scenario #3 is consistent with this GPS scenario.

Yuma Almanac data: see file GPS 3 Yuma.txt in the GPS data perf zip file specified in Annex A.

UE location: the UE location is given as a trajectory as shown in Figure 5.6.1 of TS 37.571-1 [6]. The reference location is at the centre of the trajectory and is at: latitude: 37 degrees 48 minutes 59.988 seconds south, longitude: 144 degrees 58 minutes 0.013 seconds east, (Melbourne Australia), height: = 100m.

Start time: 22nd January 2004 (Thursday) 00:08:00.

Start location: at the point between I_{11} and I_{12} in Figure 5.6.1 of TS 37.571-1 [6], going in a clock-wise direction.

Visible satellites available for simulation and for which Assistance Data (other than Almanac) shall be generated: PRNs: 3, 11, 14, 15, 18, 22, 23, 25, 31.

Viable running time to maintain specified HDOP values: 19 minutes.

Ionospheric model: see values in subclause 5.2.6.6.

Tropospheric model: STANAG with SRI equal to 324.8, as defined in STANAG 4294 [17].

5.2.1.2.4 UE Location for TTFF test cases

This subclause defines the method for generating the random UE locations that are required to be used for the TTFF tests defined in TS 37.571-1 [6] subclauses 5.2 to 5.5.

For every Test Instance in each TTFF test case, the UE location shall be randomly selected to be within 3 km of the Reference Location. The Altitude of the UE shall be randomly selected between 0 m to 500 m above WGS-84 reference ellipsoid. These values shall have uniform random distributions.

The UE location is calculated as an offset from the Reference Location.

5.2.1.2.4.1 UE Location Offset

The UE location offset shall be calculated by selecting the next pair of random numbers, representing a pair of latitude and longitude offsets in degrees, from a standard uniform random number generator, with the following properties:

The ranges of the latitude and longitude offsets values shall be such that when translated onto the surface of the earth they shall lie within a 3km radius circle, centred on the Reference location specified for the GPS scenario under consideration. For the purposes of this calculation make the following assumptions:

- a) Over the 3km radius circle at the Reference location the earth is flat and the meridians and parallels form a rectangular grid
- b) The earth is spherical with a radius of 6371141m (equal to the WGS 84 value at 35 degrees latitude)

The resolution used for the latitude and longitude offsets values shall be 90/2E23 for the latitude offset values and 360/2E24 for the longitude offset values, representing the coding resolution in degrees specified in 3GPP TS 23.032 [19].

5.2.1.2.4.2 UE Altitude

The UE altitude value shall be calculated by selecting the next random number from a standard uniform random number generator, in the range 0 to 500, representing meters. The resolution used for the random number shall be 1, representing 1 meter.

5.2.1.2.5 Satellites to be simulated in each test case

The satellites to be simulated in each test case have been selected in order to achieve the required HDOP for that test case.

Satellites to be simulated

| Test case | PRNs GPS #1 | PRNs GPS #2 | PRNs GPS #3 |
|---------------------------------------|------------------------------|-------------------------------|-------------------|
| Sensitivity Coarse Time Assistance | 2, 6, 10, 17, 18, 21, 26, 29 | 3, 11, 14, 15, 22, 23, 25, 31 | - |
| Sensitivity Fine Time Assistance | 2, 6, 10, 17, 18, 21, 26, 29 | 3, 11, 14, 15, 22, 23, 25, 31 | - |
| Nominal Accuracy | 2, 6, 10, 17, 18, 21, 26, 29 | 3, 11, 14, 15, 22, 23, 25, 31 | - |
| Dynamic Range | 2, 6, 10, 17, 26, 29 | 3, 14, 15, 22, 25, 31 | - |
| Multi-Path scenario | 2, 6, 17, 21, 26 | 3, 14, 15, 22, 25 | - |
| Moving Scenario and Periodic location | - | - | 3, 14, 15, 22, 25 |

5.2.2 Information elements required for normal UE based testing

The following A-GPS assistance data IEs and fields shall be present for each test. Fields not specified shall not be present. The values of the fields are specified in subclause 5.2.6.

a) UE positioning GPS reference time IE

| Name of the IE | Fields of the IE | Release |
|----------------|--|----------------|
| Reference time | | |
| | GPS Week | |
| | GPS Week Cycle Number | Rel-10 onwards |
| | GPS TOW msec | |
| | UE Positioning GPS ReferenceTime Uncertainty | Rel-7 onwards |
| | GPS TOW Assist | |
| | SatID | |
| | TLM Message | |
| | TLM Reserved | |
| | Alert | |
| | Anti-Spoof | |

b) UE positioning GPS reference UE position IE

| Name of the IE | Fields of the IE |
|-----------------------|---|
| Reference UE position | Ellipsoid point with Altitude and uncertainty ellipsoid |

c) UE positioning GPS navigation model IE

| Name of the IE | Fields of the IE |
|------------------|---------------------------|
| Navigation Model | All satellite information |

d) UE positioning GPS ionospheric model IE

| Name of the IE | Fields of the IE |
|-------------------|------------------|
| Ionospheric Model | All |

5.2.3 Information elements required for UE based Sensitivity Fine Time Assistance test case

The A-GPS assistance data IEs and fields that shall be present for the Sensitivity Fine Time Assistance test case shall be those specified in subclause 5.2.2 with the following exception. Fields not specified shall not be present. The values of the fields are specified in subclause 5.2.6.

UE positioning GPS reference time IE

| Name of the IE | Fields of the IE | Release |
|----------------|--|---------------------------|
| Reference time | GPS Week | |
| | GPS Week Cycle Number | Rel-10 onwards |
| | GPS TOW msec | |
| | UTRAN GPS reference time | |
| | UTRAN GPS timing of cell frames | |
| | CHOICE mode | |
| | FDD | |
| | Primary CPICH Info | |
| | SFN | |
| | UE Positioning GPS ReferenceTime Uncertainty | Rel-7 onwards |
| | SFN-TOW Uncertainty | Not present Rel-7 onwards |
| | TUTRAN-GPS drift rate | |
| | GPS TOW Assist | |
| | SatID | |
| | TLM Message | |
| | TLM Reserved | |
| | Alert | |
| Anti-Spoof | | |

5.2.4 Information elements available for normal UE assisted testing

The following A-GPS assistance data IEs and fields shall be available for use in each test. Fields not specified shall not be present. The values of the fields are specified in subclause 5.2.6.

a) UE positioning GPS reference time IE

| Name of the IE | Fields of the IE | Release |
|----------------|--|----------------|
| Reference time | GPS Week | |
| | GPS Week Cycle Number | Rel-10 onwards |
| | GPS TOW msec | |
| | UE Positioning GPS ReferenceTime Uncertainty | Rel-7 onwards |
| | GPS TOW Assist | |
| | SatID | |
| | TLM Message | |
| | TLM Reserved | |
| | Alert | |
| | Anti-Spoof | |

b) UE positioning GPS reference UE position IE

| Name of the IE | Fields of the IE |
|-----------------------|---|
| Reference UE position | Ellipsoid point with Altitude and uncertainty ellipsoid |

c) UE positioning GPS almanac IE

| Name of the IE | Fields of the IE | Release |
|----------------|---------------------------|----------------|
| Almanac | | |
| | Almanac Reference Week | |
| | Complete Almanac Provided | Rel-10 onwards |
| | All Satellite information | |

d) UE positioning GPS navigation model IE

| Name of the IE | Fields of the IE |
|------------------|---------------------------|
| Navigation Model | All satellite information |

e) UE positioning GPS acquisition assistance IE

| Name of the IE | Fields of the IE | Release |
|------------------------|--|----------------|
| Acquisition Assistance | | |
| | GPS TOW msec | |
| | UE Positioning GPS ReferenceTime Uncertainty | Rel-7 onwards |
| | Satellite information | |
| | SatID | |
| | Doppler (0 th order term) | |
| | Extra Doppler | |
| | Doppler (1 st order term) | |
| | Doppler Uncertainty | |
| | Code Phase | |
| | Integer Code Phase | |
| | GPS Bit number | |
| | Code Phase Search Window | |
| | Azimuth and Elevation | |
| | Azimuth | |
| | Elevation | |
| | Azimuth LSB | Rel-10 onwards |
| | Elevation LSB | Rel-10 onwards |

5.2.5 Information elements available for UE assisted Sensitivity Fine Time Assistance test case

The A-GPS assistance data IEs and fields that shall be available for use for the Sensitivity Fine Time Assistance test case shall be those specified in subclause 5.2.4 with the following exceptions. Fields not specified shall not be present. The values of the fields are specified in subclause 5.2.6.

a) UE positioning GPS reference time IE

| Name of the IE | Fields of the IE | Release |
|----------------|--|---------------------------|
| Reference time | | |
| | GPS Week | |
| | GPS Week Cycle Number | Rel-10 onwards |
| | GPS TOW msec | |
| | UTRAN GPS reference time | |
| | UTRAN GPS timing of cell frames | |
| | CHOICE mode | |
| | FDD | |
| | Primary CPICH Info | |
| | SFN | |
| | UE Positioning GPS ReferenceTime Uncertainty | Rel-7 onwards |
| | SFN-TOW Uncertainty | Not present Rel-7 onwards |
| | TUTRAN-GPS drift rate | |
| | GPS TOW Assist | |

| | | |
|--|--------------|--|
| | SatID | |
| | TLM Message | |
| | TLM Reserved | |
| | Alert | |
| | Anti-Spoof | |

b) UE positioning GPS acquisition assistance IE

| Name of the IE | Fields of the IE | Release |
|------------------------|---|----------------|
| Acquisition Assistance | | |
| | GPS TOW msec | |
| | UTRAN GPS reference time | |
| | UTRAN GPS timing of cell frames | |
| | CHOICE mode | |
| | FDD | |
| | Primary CPICH Info | |
| | SFN | |
| | UE Positioning GPS ReferenceTime Uncertainty. | Rel-7 onwards |
| | Satellite information | |
| | SatID | |
| | Doppler (0 th order term) | |
| | Extra Doppler | |
| | Doppler (1 st order term) | |
| | Doppler Uncertainty | |
| | Code Phase | |
| | Integer Code Phase | |
| | GPS Bit number | |
| | Code Phase Search Window | |
| | Azimuth and Elevation | |
| | Azimuth | |
| | Elevation | |
| | Azimuth LSB | Rel-10 onwards |
| | Elevation LSB | Rel-10 onwards |

5.2.6 Contents of Information elements for A-GPS Minimum performance testing

5.2.6.1 General

This subclause defines the assistance data values that shall be used for all Assisted GPS minimum performance tests. It is given for GPS scenarios #1, #2 and #3 where it is different for each scenario; otherwise it is marked “All” where the same value is used for all scenarios.

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 with suffixes XX in the GPS data perf zip file specified in Annex A, where XX is 01, 02 and 03 for GPS scenarios #1, #2 and #3 respectively. 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” is specified and used in 80 ms increments. Interpolation between these values shall not be used.

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

The information elements detailed below are fully defined in 3GPP TS 25.331 [16]

5.2.6.2 IE Random Offset Values

This subclause defines the methods for generating the random offsets that are required to be applied to some assistance data IEs for certain tests.

5.2.6.2.1 GPS TOW msec

For every Test Instance in each TTFF test case, the IE GPS TOW msec shall have a random offset, relative to GPS system time, within the allowed error range of Coarse Time Assistance defined in the test case. This offset value shall have a uniform random distribution.

Note: For the Moving Scenario and Periodic Update Test Case the value of the IE GPS TOW msec shall be set to the nominal value, i.e. no offset shall be used.

The offset value shall be calculated by selecting the next random number from a standard uniform random number generator, in the range specified for the GPS Coarse Time assistance error range in the Test Requirements, Test parameters table for the test under consideration. The resolution used for the random number shall be 0.01, representing 10ms.

5.2.6.2.2 UTRAN GPS timing of cell frames

In addition, for every Fine Time Assistance Test Instance the IE UTRAN GPS timing of cell frames shall have a random offset, relative to the true value of the relationship between the two time references, within the allowed error range of Fine Time Assistance defined in the test case. This offset value shall have a uniform random distribution.

The offset value shall be calculated by selecting the next random number from a standard uniform random number generator with the following properties:

The range shall be the number of UMTS chips whose duration is less than the range specified for the GPS Fine Time assistance error range in the Test Requirements, Test parameters table for the test under consideration.

The resolution used for the random number shall be 1, representing 1 UMTS chip.

5.2.6.3 Assistance Data Reference Time

Contents of UE positioning GPS reference time IE

Reference Time (Fields occurring once per message)

| Information Element | Units | Value/remark GPS #1 | Value/remark GPS #2 | Value/remark GPS #3 |
|--|-------|--|--|---|
| GPS Week | weeks | 282 | 230 | 230 |
| GPS Week Cycle Number (Note 5) | | 1 | 1 | 1 |
| GPS TOW msec | msec | 518880000. Start time. Add number of ms as required. (Note 1) | 346080000. Start time. Add number of ms as required. (Note 1) | 346080000. Start time. Add number of ms as required. (Note 1) |
| UTRAN GPS reference time | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| UTRAN GPS timing of cell frames | | Note 2 | Note 2 | - |
| CHOICE mode | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | - |
| FDD | | - | - | - |
| Primary CPICH Info | | 100 | 100 | - |
| SFN | | Note 2 | Note 2 | - |
| UE Positioning GPS ReferenceTime Uncertainty. Note 3 | | For Sensitivity Fine Time Assistance test case: '51' (10.2uS). Otherwise: '125' (2.127s) | For Sensitivity Fine Time Assistance test case: '51' (10.2uS). Otherwise: '125' (2.127s) | '125' (2.127s) |
| SFN-TOW Uncertainty. Note 4 | | lessThan10. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | lessThan10. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| TUTRAN-GPS drift rate | | 0. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | 0. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| <p>Note 1: GPS TOW msec</p> <p>This is the value in ms of GPS TOW msec when the GPS scenario is initially started in the GPS simulator. For all TTF test cases, each time a GPS scenario is used, the GPS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.</p> <p>The actual value of GPS TOW msec to be used in the Reference Time IE (before the addition of the random offset, if applicable) 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. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.</p> <p>For all TTF test cases a random offset is then added to the value of GPS TOW msec as described in subclause 5.2.6.2</p> <p>Note 2: UTRAN GPS timing of cell frames and SFN</p> <p>The values of UTRAN GPS timing of cell frames (before the addition of the random offset) and SFN shall be calculated at the time the IE is required. The accuracy of the relationship between the two fields shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.</p> <p>A random offset is then added to the value of UTRAN GPS timing of cell frames as described in subclause 5.2.6.2</p> <p>Note 3: This IE only present for Rel-7 onwards.</p> <p>Note 4: This IE not present for Rel-7 onwards.</p> <p>Note 5: This IE is only present for Rel-10 onwards.</p> | | | | |

Satellite Information

| Information Element | Units | Value/remark GPS All |
|----------------------|-------|----------------------|
| Number of satellites | - | 9 |

Reference Time - GPS TOW Assist (Fields occurring once per satellite)

| Information Element | Units | Value/remark GPS #1 | Value/remark GPS #2 | Value/remark GPS #3 |
|---------------------|-------|--|---|---|
| SatID | | PRNs: 2, 6, 10, 17, 18, 21, 26, 29, 30 | PRNs: 3, 11, 14, 15, 18, 22, 23, 25, 31 | PRNs: 3, 11, 14, 15, 18, 22, 23, 25, 31 |

Reference Time - GPS TOW Assist (Fields occurring once per satellite)

| Information Element | Units | Value/remark GPS All |
|---------------------|------------|----------------------|
| TLM Message | Bit string | 10922 |
| TLM Reserved | Bit string | 2 |
| Alert | | 0 |
| Anti-Spoof | | 1 |

5.2.6.4 Assistance Data Reference UE Position

Contents of UE positioning GPS reference UE position IE

The uncertainty of the semi-major axis is 3 km. The uncertainty of the semi-minor axis is 3 km. The orientation of the major axis is 0 degrees. The uncertainty of the altitude information is 500 m. The confidence factor is 68%.

Reference UE Position

| Information Element | Units | Value/remark GPS #1 | Value/remark GPS #2 | Value/remark GPS #3 |
|---------------------------|---------|---------------------|---------------------|---------------------|
| Latitude sign | | 0 | 1 | 1 |
| Degrees of latitude | degrees | 33.750005 | 37.816663 | 37.816663 |
| Degrees of longitude | degrees | -84.383336 | 144.966670 | 144.966670 |
| Altitude Direction | | 0 | 0 | 0 |
| Altitude | m | 300 | 100 | 100 |
| Uncertainty semi-major | m | 3000 | 3000 | 3000 |
| Uncertainty semi-minor | m | 3000 | 3000 | 3000 |
| Orientation of major axis | degrees | 0 | 0 | 0 |
| Uncertainty altitude | m | 500 | 500 | 500 |
| Confidence | % | 68 | 68 | 68 |

5.2.6.5 Assistance Data Navigation Model

Contents of UE positioning GPS navigation model IE

Satellite Information

| Information Element | Units | Value/remark GPS All |
|----------------------|-------|----------------------|
| Number of satellites | - | 9 |

Navigation Model (Fields occurring once per satellite)

| Information Element | Units | Value/remark GPS #1 | Value/remark GPS #2 | Value/remark GPS #3 |
|---------------------|-------|--|---|---|
| SatID | - | PRNs: 2, 6, 10, 17, 18, 21, 26, 29, 30 | PRNs: 3, 11, 14, 15, 18, 22, 23, 25, 31 | PRNs: 3, 11, 14, 15, 18, 22, 23, 25, 31 |
| Satellite Status | | 0 (Note) | 0 (Note) | 0 (Note) |

Note: For consistency Satellite Status is also given in file: Navigation model XX.csv

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

| Information Element | Units | Value/remark GPS All |
|----------------------|-----------------------|-----------------------------------|
| C/A or P on L2 | | See file: Navigation model XX.csv |
| URA Index | | See file: Navigation model XX.csv |
| SV Health | | See file: Navigation model XX.csv |
| IODC | - | See file: Navigation model XX.csv |
| L2 P Data Flag | | See file: Navigation model XX.csv |
| SF 1 Reserved | - | See file: Navigation model XX.csv |
| T_{GD} | sec | See file: Navigation model XX.csv |
| t_{oc} | sec | See file: Navigation model XX.csv |
| af_2 | sec/sec ² | See file: Navigation model XX.csv |
| af_1 | sec/sec | See file: Navigation model XX.csv |
| af_0 | sec | See file: Navigation model XX.csv |
| C_{rs} | meters | See file: Navigation model XX.csv |
| Δn | semi-circles/sec | See file: Navigation model XX.csv |
| M_0 | semi-circles | See file: Navigation model XX.csv |
| C_{uc} | radians | See file: Navigation model XX.csv |
| e | - | See file: Navigation model XX.csv |
| C_{us} | radians | See file: Navigation model XX.csv |
| $(A)^{1/2}$ | meters ^{1/2} | See file: Navigation model XX.csv |
| t_{oe} | sec | See file: Navigation model XX.csv |
| Fit Interval Flag | | See file: Navigation model XX.csv |
| AODO | sec | See file: Navigation model XX.csv |
| C_{ic} | radians | See file: Navigation model XX.csv |
| OMEGA_0 | semi-circles | See file: Navigation model XX.csv |
| C_{is} | radians | See file: Navigation model XX.csv |
| i_0 | semi-circles | See file: Navigation model XX.csv |
| C_{rc} | meters | See file: Navigation model XX.csv |
| ω | semi-circles | See file: Navigation model XX.csv |
| OMEGA_{dot} | semi-circles/sec | See file: Navigation model XX.csv |
| $Idot$ | semi-circles/sec | See file: Navigation model XX.csv |

5.2.6.6 Assistance Data Ionospheric Model

Contents of UE positioning GPS ionospheric model IE

Ionospheric Model

| Information Element | Units | Value/remark GPS All |
|---------------------|--------------------------------|----------------------|
| α_0 | seconds | 4.6566129 10E-9 |
| α_1 | sec/semi-circle | 1.4901161 10E-8 |
| α_2 | sec/(semi-circle) ² | -5.96046 10E-8 |
| α_3 | sec/(semi-circle) ³ | -5.96046 10E-8 |
| β_0 | seconds | 79872 |
| β_1 | sec/semi-circle | 65536 |
| β_2 | sec/(semi-circle) ² | -65536 |
| β_3 | sec/(semi-circle) ³ | -393216 |

5.2.6.7 Assistance Data Almanac

Contents of UE positioning GPS almanac

Almanac (Field occurring once per message)

| Information Element | Units | Value/remark GPS #1 | Value/remark GPS #2 | Value/remark GPS #3 |
|---|-------|------------------------|------------------------|------------------------|
| WN _a | weeks | 27 | 230 | 230 |
| Complete Almanac Provided (Note 1) | | TRUE | TRUE | TRUE |
| Note 1: This IE is only present for Rel-10 onwards. | | | | |

Satellite Information

| Information Element | Units | Value/remark GPS All |
|----------------------|-------|-------------------------|
| Number of satellites | - | 24 |

Almanac (Fields occurring once per satellite)

| Information Element | Units | Value/remark GPS All |
|---------------------|-------|--------------------------|
| DataID | - | See file: Almanac XX.csv |

Almanac (Fields occurring once per satellite)

| Information Element | Units | Value/remark GPS #1 | Value/remark GPS #2 | Value/remark GPS #3 |
|---------------------|-------|--|---|---|
| SatID | - | PRNs: 1, 2, 4, 5, 6, 7, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 29, 30 | PRNs: 1, 2, 3, 4, 5, 6, 7, 8, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25, 27, 28, 30, 31 | PRNs: 1, 2, 3, 4, 5, 6, 7, 8, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25, 27, 28, 30, 31 |

Almanac (Fields occurring once per satellite)

| Information Element | Units | Value/remark GPS All |
|---------------------|-----------------------|--------------------------|
| e | dimensionless | See file: Almanac XX.csv |
| t _{oa} | sec | See file: Almanac XX.csv |
| δi | semi-circles | See file: Almanac XX.csv |
| OMEGADOT | semi-circles/sec | See file: Almanac XX.csv |
| SV Health | | See file: Almanac XX.csv |
| A ^{1/2} | meters ^{1/2} | See file: Almanac XX.csv |
| OMEGA ₀ | semi-circles | See file: Almanac XX.csv |
| M ₀ | semi-circles | See file: Almanac XX.csv |
| ω | semi-circles | See file: Almanac XX.csv |
| af ₀ | seconds | See file: Almanac XX.csv |
| af ₁ | sec/sec | See file: Almanac XX.csv |

5.2.6.8 Assistance Data Acquisition Assistance

Contents of UE positioning GPS acquisition assistance IE

GPS Acquisition Assistance (Fields occurring once per message)

| Information Element | Units | Value/remark GPS #1 | Value/remark GPS #2 | Value/remark GPS #3 |
|--|-------|--|--|--|
| GPS TOW msec | msec | 51888000 ms. Start time. Add number of ms as required. (Note 1) | 346080000 ms. Start time. Add number of ms as required. (Note 1) | 346080000 ms. Start time. Add number of ms as required. (Note 1) |
| UTRAN GPS reference time | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| UTRAN GPS timing of cell frames | | Note 2 | Note 2 | - |
| CHOICE mode | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | - |
| FDD | | - | - | - |
| Primary CPICH Info | | 100 | 100 | - |
| SFN | | Note 2 | Note 2 | - |
| UE Positioning GPS ReferenceTime Uncertainty. Note 3 | | For Sensitivity Fine Time Assistance test case: '51' (10.2uS). Otherwise: '125' (2.127s) | For Sensitivity Fine Time Assistance test case: '51' (10.2uS). Otherwise: '125' (2.127s) | '125' (2.127s) |
| <p>Note 1: GPS TOW msec</p> <p>This is the value in ms of GPS TOW msec when the GPS scenario is initially started in the GPS simulator. For all TTFF test cases, each time a GPS scenario is used, the GPS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.</p> <p>The actual value of GPS TOW msec to be used in the Acquisition Assistance IE (before the addition of the random offset, if applicable) 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. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.</p> <p>For all TTFF test cases a random offset is then added to the value of GPS TOW msec as described in subclause 5.2.6.2</p> <p>This "final GPS TOW msec" value is then also used to determine the value of the Acquisition Assistance Information Elements marked as "Time varying"</p> <p>Note 2: UTRAN GPS timing of cell frames and SFN.</p> <p>The values of UTRAN GPS timing of cell frames (before the addition of the random offset) and SFN shall be calculated at the time the IE is required. The accuracy of the relationship between the two fields shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.</p> <p>A random offset is then added to the value of UTRAN GPS timing of cell frames as described in subclause 5.2.6.2</p> <p>Note 3: This IE only present for Rel-7 onwards.</p> | | | | |

Satellite Information

| Information Element | Units | Value/remark GPS All |
|----------------------|-------|----------------------|
| Number of satellites | - | 9 |

GPS Acquisition Assistance (Fields occurring once per satellite)

| Information Element | Units | Value/remark GPS #1 | Value/remark GPS #2 | Value/remark GPS #3 |
|---------------------|-------|--|---|---|
| SatID | - | PRNs: 2, 6, 10, 17, 18, 21, 26, 29, 30 | PRNs: 3, 11, 14, 15, 18, 22, 23, 25, 31 | PRNs: 3, 11, 14, 15, 18, 22, 23, 25, 31 |

GPS Acquisition Assistance (Fields occurring once per satellite)

| Information Element | Units | Value/remark GPS All | Release |
|---|--------|---|----------------|
| Doppler (0 th order term) | Hz | Time varying. See file: Acquisition assist XX.csv (Note) | |
| Doppler (1 st order term) | Hz/sec | Time varying. See file: Acquisition assist XX.csv (Note) | |
| Doppler Uncertainty | Hz | Time varying. See file: Acquisition assist XX.csv (Note) | |
| Code Phase | chips | Time varying. See file: Acquisition assist XX.csv (Note) | |
| Integer Code Phase | - | Time varying. See file: Acquisition assist XX.csv (Note) | |
| GPS Bit number | - | Time varying. See file: Acquisition assist XX.csv (Note) | |
| Code Phase Search Window | chips | Time varying. See file: Acquisition assist XX.csv (Note) | |
| Azimuth | deg | Time varying. See file: Acquisition assist XX.csv (Note) | |
| Elevation | deg | Time varying. See file: Acquisition assist XX.csv (Note) | |
| Azimuth LSB | deg | Time varying. Calculated from "Azimuth", see file: Acquisition assist XX.csv (Note) | Rel-10 onwards |
| Elevation LSB | deg | Time varying. Calculated from "Elevation", see file: Acquisition assist XX.csv (Note) | Rel-10 onwards |
| Note: Acquisition Assistance Information Elements. This field is "Time varying" and its value depends on the "final GPS TOW msec" as described above. The value of this field to be used shall be determined by taking the "final GPS TOW msec" value and selecting the nearest field value in the Acquisition assist.csv file corresponding to the value of "final current GPS TOW msec". | | | |

6 GNSS information

6.1 GNSS Scenarios and Assistance Data for Assisted GNSS signalling tests

6.1.1 General

This subclause defines the GNSS scenario and the associated assistance data that shall be used for all UTRA and E-UTRA Assisted GNSS signalling tests defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclause 7.

In all cases the Assistance Data is given in the two necessary formats, RRC format for TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and LPP format for TS 37.571-2 [7] subclause 7. Other information is also given separately for TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclause 7 where it differs between the subclauses.

The satellite simulator (SS) shall generate all the UE supported GNSS satellite signals defined in subclause 6.1.2 and shall provide assistance data dependent on the UE capabilities defined in subclause 6.1.3.

The A-GNSS signalling test cases may include several sub-test cases dependent on the GNSS supported by the UE. Each sub-test case is identified by a Sub-Test Case Number as defined below. In some cases the detailed assistance data content defined in subclause 6.1.3 depends on the particular sub-test case.

Table 6.1.1-1: Sub-Test Case Number Definition for TS 37.571-2 subclauses 6.2.1 to 6.2.3

| Sub-Test Case Number | Supported GNSS |
|----------------------|---|
| 1 | UE supporting A-GLONASS only |
| 2 | UE supporting A-Galileo only |
| 3 | UE supporting A-GPS and Modernized GPS only |
| 4 | UE supporting A-GPS and A-GLONASS only |

Table 6.1.1-2: Sub-Test Case Number Definition for TS 37.571-2 subclause 7

| Sub-Test Case Number | Supported GNSS |
|---|--|
| 1 | UE supporting GNSS with A-GPS only |
| 2 | UE supporting GNSS with A-GLONASS only |
| 3 | UE supporting GNSS with A-Galileo only |
| 4 | UE supporting GNSS with A-GPS and A-GLONASS only |
| 7 | UE supporting GNSS ⁽¹⁾ and OTDOA |
| Note 1: Any GNSS of GPS, GLONASS, Galileo (FFS) | |

The term SV ID used in this subclause is defined as the satellite PRN for GPS and Galileo, and as the satellite Slot Number for GLONASS.

In this subclause all information for Galileo is for further study (FFS).

6.1.2 GNSS Scenario

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

- Yuma Almanac data: the required file(s) in the GNSS data sig zip file specified in Annex B are given below.

Table 6.1.2-1: Yuma Almanac data files for TS 37.571-2 subclauses 6.2.1 to 6.2.3

| Sub-Test Case Number | Yuma file(s) |
|----------------------|---|
| 1 | Sig GNSS 1-1 Yuma.txt |
| 2 | Sig GNSS 1-2 Yuma.txt |
| 3 | Sig GNSS 1-3 Yuma.txt |
| 4 | Sig GNSS 1-1 Yuma.txt and Sig GNSS 1-3 Yuma.txt |

Table 6.1.2-2: Yuma Almanac data files for TS 37.571-2 subclause 7

| Sub-Test Case Number | Yuma file(s) |
|----------------------|---|
| 1 | Sig GNSS 1-3 Yuma.txt |
| 2 | Sig GNSS 1-1 Yuma.txt |
| 3 | Sig GNSS 1-2 Yuma.txt |
| 4 | Sig GNSS 1-1 Yuma.txt and Sig GNSS 1-3 Yuma.txt |
| 7 | [FFS] |

- UE location and Reference location:

Static at latitude: 35 degrees 44 minutes 39.432 seconds north, longitude: 139 degrees 40 minutes 48.633 seconds east, (Tokyo Japan 2012), height: = 300m.

- Nominal start time:

1st January 2012 00:31:00 (GPS time).

- Visible satellites simulated are given below

Table 6.1.2-3: Satellites to be simulated for TS 37.571-2 subclauses 6.2.1 to 6.2.3

| Sub-Test Case Number | SV IDs of Satellites to be simulated |
|----------------------|--|
| 1 | 3, 4, 9, 10, 18, 20 |
| 2 | [FFS] |
| 3 | 1, 11, 17, 20, 23, 28 (Note) |
| 4 | GPS: 1, 17, 20, 28. GLONASS: 3, 10, 18, 20 |

Note: For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites.

Table 6.1.2-4: Satellites to be simulated for TS 37.571-2 subclause 7

| Sub-Test Case Number | SV IDs of Satellites to be simulated |
|----------------------|--|
| 1 | 1, 11, 17, 20, 23, 28 |
| 2 | 3, 4, 9, 10, 18, 20 |
| 3 | [FFS] |
| 4 | GPS: 1, 17, 20, 28. GLONASS: 3, 10, 18, 20 |
| 7 | [FFS] |

- Ionospheric model: see values in subclause 6.1.3
- The levels of the simulated satellites shall all be at -125dBm +/- 6dB

6.1.3 Assistance Data

This subclause defines the GNSS scenarios and assistance data IEs which shall be available for use as specified in all A-GNSS signalling test cases defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclause 7.

6.1.3.1 Default Assistance Data for TS 37.571-2 subclauses 6.2.1 to 6.2.3

The assistance data listed in subclause 6.1.3.1 are the assistance data elements pushed by the SS in some tests defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3. During the test the UE may request additional assistance data as specified in the tests and the SS shall then provide any other assistance data available as defined in subclause 6.1.3.

Table 6.1.3.1-1: GNSS assistance data to be provided to the UE

| GNSS Assistance Data IE to be provided to the UE | Mode used in test case | |
|--|-------------------------------------|-------------------------------------|
| | UE-based | UE-assisted |
| GPS reference time | Yes for sub-tests 3, 4 | Yes for sub-tests 3, 4 |
| GPS reference UE position | Yes for sub-tests 3, 4 | No |
| GPS navigation model | Yes for sub-tests 3, 4 | No |
| GPS ionospheric model | Yes for sub-tests 3, 4 | No |
| GPS UTC model | Yes for sub-test 4 | Yes for sub-test 4 |
| GPS acquisition assistance | No | Yes for sub-tests 3, 4 |
| GANSS reference time | Yes for sub-tests 1, 2 | Yes for sub-tests 1, 2 |
| GANSS reference UE position | Yes for sub-tests 1, 2 | No |
| GANSS ionospheric model | Yes for sub-test 2 | No |
| GANSS additional ionospheric model | Yes for sub-test 1 | No |
| GANSS Time Models | Yes for sub-test 4 | No |
| GANSS navigation model | Yes for sub-test 2 | No |
| GANSS additional navigation models | Yes for sub-tests 1, 4 | No |
| GANSS reference measurement information | No | Yes for sub-tests 1, 2, 4 |
| GANSS auxiliary information | Yes for sub-tests 1, 3, 4. Note. | Yes for sub-tests 1, 3, 4. Note. |

Note: Also if UE supports multiple signals per GNSS

6.1.3.2 Assistance Data values for TS 37.571-2 subclauses 6.2.1 to 6.2.3

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 GNSS data sig zip file specified in Annex B. 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.

Assistance data that is marked as “time varying” and the GPS TOW msec or GANSS TOD 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 or GANSS TOD and assistance data that is marked as “time varying” in the provided assistance data shall be within +/- 2 s relative to the GNSS time in the system simulator.

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

The information elements detailed below are fully defined in 3GPP TS 25.331 [16]

Assistance Data GPS Reference Time

GPS Reference Time (Fields occurring once per message)

| Information Element | Units | Value/remark | Release |
|--|-------|---|----------------|
| GPS Week | weeks | 1669 | |
| GPS Week Cycle Number | | 1 | Rel-10 onwards |
| GPS TOW msec | msec | 1860000 ms. Start time. Add integer number of 1 seconds as required. (Note) | |
| UE Positioning GPS Reference Time Uncertainty | | 125 (2.127 seconds) | |
| Note: GPS TOW msec This is the value of GPS TOW msec when the GNSS scenario is started in the GNSS 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 GNSS 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 6.1.3.2 | | | |

Assistance Data GPS Reference UE Position

GPS Reference UE Position

| Information Element | Units | Value/remark |
|---------------------------|---------|--------------|
| Latitude sign | | 0 |
| Degrees Of Latitude | degrees | 35.744287 |
| Degrees Of Longitude | degrees | 139.680176 |
| Altitude Direction | | 0 |
| Altitude | m | 300 |
| Uncertainty semi-major | m | 3000 |
| Uncertainty semi-minor | m | 3000 |
| Orientation of major axis | degrees | 0 |
| Uncertainty Altitude | m | 500 |
| Confidence | % | 68 |

Assistance Data GPS Navigation Model

Satellite Information

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

GPS Navigation Model (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|--|-------|-----------------------------|
| SatID | - | PRNs: 1, 11, 17, 20, 23, 28 |
| Satellite Status | | 0 (see note) |
| Note: For consistency Satellite Status is also given in file: Sig GPS Navigation model.csv | | |

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

| Information Element | Units | Value/remark |
|---------------------|-----------------------|--|
| C/A or P on L2 | | See file: Sig GPS Navigation model.csv |
| URA Index | | See file: Sig GPS Navigation model.csv |
| SV Health | | See file: Sig GPS Navigation model.csv |
| IODC | - | See file: Sig GPS Navigation model.csv |
| L2 P Data Flag | | See file: Sig GPS Navigation model.csv |
| SF 1 Reserved | - | See file: Sig GPS Navigation model.csv |
| SF 2 Reserved | - | See file: Sig GPS Navigation model.csv |
| SF 3 Reserved | - | See file: Sig GPS Navigation model.csv |
| SF 4 Reserved | - | See file: Sig GPS Navigation model.csv |
| T_{GD} | sec | See file: Sig GPS Navigation model.csv |
| t_{oc} | sec | See file: Sig GPS Navigation model.csv |
| af_2 | sec/sec ² | See file: Sig GPS Navigation model.csv |
| af_1 | sec/sec | See file: Sig GPS Navigation model.csv |
| af_0 | sec | See file: Sig GPS Navigation model.csv |
| C_{rs} | meters | See file: Sig GPS Navigation model.csv |
| Δn | semi-circles/sec | See file: Sig GPS Navigation model.csv |
| M_0 | semi-circles | See file: Sig GPS Navigation model.csv |
| C_{uc} | radians | See file: Sig GPS Navigation model.csv |
| e | - | See file: Sig GPS Navigation model.csv |
| C_{us} | radians | See file: Sig GPS Navigation model.csv |
| $(A)^{1/2}$ | meters ^{1/2} | See file: Sig GPS Navigation model.csv |
| t_{oe} | sec | See file: Sig GPS Navigation model.csv |
| Fit Interval Flag | | See file: Sig GPS Navigation model.csv |
| AODO | sec | See file: Sig GPS Navigation model.csv |
| C_{ic} | radians | See file: Sig GPS Navigation model.csv |
| OMEGA ₀ | semi-circles | See file: Sig GPS Navigation model.csv |
| C_{is} | radians | See file: Sig GPS Navigation model.csv |
| i_0 | semi-circles | See file: Sig GPS Navigation model.csv |
| C_{rc} | meters | See file: Sig GPS Navigation model.csv |
| ω | semi-circles | See file: Sig GPS Navigation model.csv |
| OMEGAdot | semi-circles/sec | See file: Sig GPS Navigation model.csv |
| Idot | semi-circles/sec | See file: Sig GPS Navigation model.csv |

Assistance Data GPS Ionospheric Model

GPS Ionospheric Model

| Information Element | Units | Value/remark |
|---------------------|--------------------------------|-----------------|
| α_0 | seconds | 4.6566129 10E-9 |
| α_1 | sec/semi-circle | 1.4901161 10E-8 |
| α_2 | sec/(semi-circle) ² | -5.96046 10E-8 |
| α_3 | sec/(semi-circle) ³ | -5.96046 10E-8 |
| β_0 | seconds | 79872 |
| β_1 | sec/semi-circle | 65536 |
| β_2 | sec/(semi-circle) ² | -65536 |
| β_3 | sec/(semi-circle) ³ | -393216 |

Assistance Data GPS UTC model

GPS UTC Model

| Information Element | Units | Value/remark |
|---------------------|---------|--------------|
| A_1 | sec/sec | 0 |
| A_0 | seconds | 0 |
| t_{ot} | seconds | 249856 |
| WN_t | weeks | 133 |
| Δt_{LS} | seconds | 15 |
| WN_{LSF} | weeks | 158 |
| DN | days | 7 |
| Δt_{LSF} | seconds | 16 |

Assistance Data GPS Almanac

GPS Almanac (Fields occurring once per message)

| Information Element | Units | Value/remark | Release |
|---------------------------|-------|--------------|----------------|
| WN_a | weeks | 1669 | |
| Complete Almanac Provided | | TRUE | Rel-10 onwards |

Satellite Information

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 31 |

GPS Almanac (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|---------------------|-----------------------|---|
| DataID | - | See file: Sig GPS Almanac.csv |
| SatID | - | PRNs: 1, 2, 3...21, 22, 23, 25, 26, 27...30, 31, 32 |
| e | dimensionless | See file: Sig GPS Almanac.csv |
| t_{oa} | sec | See file: Sig GPS Almanac.csv |
| δi | semi-circles | See file: Sig GPS Almanac.csv |
| OMEGADOT | semi-circles/sec | See file: Sig GPS Almanac.csv |
| SV Health | | See file: Sig GPS Almanac.csv |
| $A^{1/2}$ | meters ^{1/2} | See file: Sig GPS Almanac.csv |
| OMEGA ₀ | semi-circles | See file: Sig GPS Almanac.csv |
| M_0 | semi-circles | See file: Sig GPS Almanac.csv |
| ω | semi-circles | See file: Sig GPS Almanac.csv |
| af_0 | seconds | See file: Sig GPS Almanac.csv |
| af_1 | sec/sec | See file: Sig GPS Almanac.csv |

Assistance Data GPS Acquisition Assistance

GPS Acquisition Assist - Information Elements appearing once per message

| Information Element | Units | Value/remark |
|---|-------|---|
| GPS TOW msec | msec | 1860000 ms. Start time. Add integer number of 1 seconds as required. (Note) |
| UE Positioning GPS Reference Time Uncertainty | | 125 (2.127 seconds) |
| Note: GPS TOW msec This is the value of GPS TOW msec when the GNSS scenario is started in the GNSS 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 GNSS simulator to this value, rounded up to the next 1 second interval. | | |

Satellite Information

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

GPS Acquisition Assist - Information Elements appearing once per satellite

| Information Element | Units | Value/remark | Release |
|--|---------|--|----------------|
| SatID | - | PRNs: 1, 11, 17, 20, 23, 28. | |
| Doppler (0 th order term) | Hz | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| Doppler (1 st order term) | Hz/s | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| Doppler Uncertainty | Hz | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| Code Phase | chips | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| Integer Code Phase | - | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| GPS Bit number | - | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| Code Phase Search Window | chips | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| Azimuth | Degrees | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| Elevation | Degrees | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | |
| Azimuth LSB | Degrees | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | Rel-10 onwards |
| Elevation LSB | Degrees | Time varying. See file: Sig GPS Acquisition assist .csv (Note) | Rel-10 onwards |
| Note: This field is "Time varying" and its value depends on the "current GPS TOW msec". The value of this field to be used shall be determined by taking the "current GPS TOW msec" value and selecting the field value in the Sig GPS Acquisition assist.csv file corresponding to the value of "current GPS TOW msec". | | | |

Assistance Data GANSS reference time

GANSS reference time: sub-test 1

| Information Element | Units | Value/remark | Release |
|--|---------|--|----------------|
| GANSS Day | | 5845 | |
| GANSS Day Cycle Number | | 0 | Rel-10 onwards |
| GANSS TOD | Seconds | 12645 s. Start time. Add integer number of 1 seconds as required. (Note) | |
| GANSS TOD Uncertainty | | 125 (2.127 seconds) | |
| GANSS Time ID | | 2 (GLONASS) | |
| Note: GANSS TOD This is the value of GANSS TOD when the GNSS scenario is started in the GNSS simulator. The value of GANSS TOD 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 GNSS simulator to this value, rounded up to the next 1 second interval. This "current GANSS TOD" is then also used to determine the value of any other Information Elements marked as "Time varying" in subclause 6.1.3.3 | | | |

GANSS reference time: sub-test 2

| Information Element | Units | Value/remark | Release |
|--|---------|--|----------------|
| GANSS Day | | FFS | |
| GANSS Day Cycle Number | | FFS | Rel-10 onwards |
| GANSS TOD | Seconds | FFS. Start time. Add integer number of 1 seconds as required. (Note) | |
| GANSS TOD Uncertainty | | 125 (2.127 seconds) | |
| GANSS Time ID | | Not present (Galileo) | |
| Note: GANSS TOD This is the value of GANSS TOD when the GNSS scenario is started in the GNSS simulator. The value of GANSS TOD 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 GNSS simulator to this value, rounded up to the next 1 second interval. This "current GANSS TOD" is then also used to determine the value of any other Information Elements marked as "Time varying" in subclause 6.1.3.3 | | | |

Assistance Data GANSS reference UE position

GANSS reference UE position

| Information Element | Units | Value/remark |
|---------------------------|---------|--------------|
| Latitude sign | | 0 |
| Degrees Of Latitude | degrees | 37.744287 |
| Degrees Of Longitude | degrees | 139.680176 |
| Altitude Direction | | 0 |
| Altitude | m | 300 |
| Uncertainty semi-major | m | 3000 |
| Uncertainty semi-minor | m | 3000 |
| Orientation of major axis | degrees | 0 |
| Uncertainty Altitude | m | 500 |
| Confidence | % | 68 |

Assistance Data GANSS ionospheric model

GANSS ionospheric model.

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| a_{10} | | FFS |
| a_{11} | | FFS |
| a_{12} | | FFS |
| Storm Flag 1 | | 0 |
| Storm Flag 2 | | 0 |
| Storm Flag 3 | | 0 |
| Storm Flag 4 | | 0 |
| Storm Flag 5 | | 0 |

Assistance Data GANSS additional ionospheric model

GANSS additional ionospheric model

| Information Element | Units | Value/remark |
|---------------------|--------------------------------|-----------------|
| Data Id | | 00 |
| α_0 | Seconds | 4.6566129 10E-9 |
| α_1 | sec/semi-circle | 1.4901161 10E-8 |
| α_2 | sec/(semi-circle) ² | -5.96046 10E-8 |
| α_3 | sec/(semi-circle) ³ | -5.96046 10E-8 |
| β_0 | Seconds | 79872 |
| β_1 | sec/semi-circle | 65536 |

| | | |
|-----------|--------------------------------|---------|
| β_2 | sec/(semi-circle) ² | -65536 |
| β_3 | sec/(semi-circle) ³ | -393216 |

Assistance Data GANSS time model

GANSS time model

| Information Element | Units | Value/remark | Release |
|---------------------------------|---------|--------------|----------------|
| GANSS Time Model Reference Time | s | 1860 (s) | |
| T_{A0} | Seconds | 0 | |
| GNSS_TO_ID | | 0 (GPS) | |
| Delta_T | Seconds | 15 | Rel-10 onwards |

Assistance Data GANSS navigation model

GANSS navigation model

| Information Element | Units | Value/remark |
|--------------------------|-------|--------------|
| Non-Broadcast Indication | | Not present |

Satellite Information

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

Satellite Information (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|--|-------|--------------|
| SatID | | SV IDs: FFS |
| SV Health | | 0 (Note) |
| IOD | | FFS (Note) |
| Note: For consistency SV Health and IOD are also given in file: Sig GANSS Navigation model.csv | | |

GANSS Clock Model (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|-----------------------|----------------------|--|
| Satellite clock model | | |
| t_{oc} | seconds | See file: Sig GANSS Navigation model.csv |
| a_{f2} | sec/sec ² | See file: Sig GANSS Navigation model.csv |
| a_{f1} | sec/sec | See file: Sig GANSS Navigation model.csv |
| a_{f0} | sec | See file: Sig GANSS Navigation model.csv |
| T_{GD} | sec | See file: Sig GANSS Navigation model.csv |
| Model ID | | See file: Sig GANSS Navigation model.csv |

GANSS Orbit Model (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|---------------------|-----------------------|--|
| t_{oe} | seconds | See file: Sig GANSS Navigation model.csv |
| ω | semi-circles | See file: Sig GANSS Navigation model.csv |
| Δn | semi-circles/sec | See file: Sig GANSS Navigation model.csv |
| M_0 | semi-circles | See file: Sig GANSS Navigation model.csv |
| OMEGA $\dot{}$ | semi-circles/sec | See file: Sig GANSS Navigation model.csv |
| e | | See file: Sig GANSS Navigation model.csv |
| \dot{I} | semi-circles/sec | See file: Sig GANSS Navigation model.csv |
| \sqrt{A} | meters ^{1/2} | See file: Sig GANSS Navigation model.csv |
| i_0 | semi-circles | See file: Sig GANSS Navigation model.csv |
| OMEGA $_0$ | semi-circles | See file: Sig GANSS Navigation model.csv |
| C_{rs} | meters | See file: Sig GANSS Navigation model.csv |
| C_{is} | radians | See file: Sig GANSS Navigation model.csv |
| C_{us} | radians | See file: Sig GANSS Navigation model.csv |
| C_{rc} | meters | See file: Sig GANSS Navigation model.csv |
| C_{ic} | radians | See file: Sig GANSS Navigation model.csv |
| C_{uc} | radians | See file: Sig GANSS Navigation model.csv |

Assistance Data GANSS additional navigation models

GANSS additional navigation models

| Information Element | Units | Value/remark |
|--------------------------|-------|--------------|
| Non-Broadcast Indication | | Not present |

Satellite Information

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

Satellite Information (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|---|-------|-----------------------------------|
| SatID | | Slot Numbers: 3, 4, 9, 10, 18, 20 |
| SV Health | | 011110 (Note) |
| IOD | | 225 (Note) |
| Note: For consistency SV Health and IOD are also given in file: Sig GANSS Additional Navigation model.csv | | |

GANSS additional Clock Models (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|-------------------------------|---------|---|
| GLONASS Satellite Clock Model | | |
| $\tau_n(t_b)$ | seconds | See file: Sig GANSS Additional Navigation model.csv |
| $\gamma_n(t_b)$ | | See file: Sig GANSS Additional Navigation model.csv |
| $\Delta\tau_n$ | seconds | See file: Sig GANSS Additional Navigation model.csv |

GANSS additional orbit models (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|--|-----------------------------|---|
| GLONASS Earth-Centered, Earth-fixed Parameters | | |
| E_n | days | See file: Sig GANSS Additional Navigation model.csv |
| P1 | minutes | See file: Sig GANSS Additional Navigation model.csv |
| P2 | | See file: Sig GANSS Additional Navigation model.csv |
| M | | See file: Sig GANSS Additional Navigation model.csv |
| $x_n(t_b)$ | kilometers | See file: Sig GANSS Additional Navigation model.csv |
| $\dot{x}_n(t_b)$ | kilometers/sec | See file: Sig GANSS Additional Navigation model.csv |
| $\ddot{x}_n(t_b)$ | kilometers/sec ² | See file: Sig GANSS Additional Navigation model.csv |
| $y_n(t_b)$ | kilometers | See file: Sig GANSS Additional Navigation model.csv |
| $\dot{y}_n(t_b)$ | kilometers/sec | See file: Sig GANSS Additional Navigation model.csv |
| $\ddot{y}_n(t_b)$ | kilometers/sec ² | See file: Sig GANSS Additional Navigation model.csv |
| $z_n(t_b)$ | kilometers | See file: Sig GANSS Additional Navigation model.csv |
| $\dot{z}_n(t_b)$ | kilometers/sec | See file: Sig GANSS Additional Navigation model.csv |
| $\ddot{z}_n(t_b)$ | kilometers/sec ² | See file: Sig GANSS Additional Navigation model.csv |

Assistance Data GANSS reference measurement information

GANSS reference measurement information: sub-test 1, 4 (Fields occurring once per message)

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| GANSS Signal ID | | Not present |

Satellite Information

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

GANSS reference measurement information: sub-test 1, 4 (Fields occurring once per satellite)

| Information Element | Units | Value/remark | Release |
|---|------------------|---|----------------|
| SatID | | Slot Numbers: 3, 4, 9, 10, 18, 20 | |
| Doppler (0 th order term) | m/s | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | |
| Doppler (1 st order term) | m/s ² | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | |
| Doppler Uncertainty | m/s | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | |
| Code Phase | ms | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | |
| Integer Code Phase | ms | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | |
| Code Phase Search Window | | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | |
| Azimuth | Degrees | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | |
| Elevation | Degrees | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | |
| Azimuth LSB | Degrees | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | Rel-10 onwards |
| Elevation LSB | Degrees | Time varying. See file: Sig GANSS reference measurement information subtest1_4.csv (Note) | Rel-10 onwards |
| <p>Note: For sub-test 1: this field is "Time varying" and its value depends on the "current GANSS TOD". The value of this field to be used shall be determined by taking the "current GANSS TOD" value and selecting the field value in the Sig GANSS reference measurement information subtest1_4.csv file corresponding to the value of "current GANSS TOD". For sub-test 4: this field is "Time varying" and its value depends on the "current GPS TOW msec". The value of this field to be used shall be determined by taking the "current GPS TOW msec" value and selecting the field value in the Sig GANSS reference measurement information subtest1_4.csv file corresponding to the value of "current GPS TOW msec".</p> | | | |

GANSS reference measurement information: sub-test 2 (Fields occurring once per message)

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| GANSS Signal ID | | Not present |

Satellite Information

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

GANSS reference measurement information: sub-test 2 (Fields occurring once per satellite)

| Information Element | Units | Value/remark | Release |
|---|------------------|---|----------------|
| SatID | | SV IDs: FFS. | |
| Doppler (0 th order term) | m/s | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | |
| Doppler (1 st order term) | m/s ² | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | |
| Doppler Uncertainty | m/s | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | |
| Code Phase | ms | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | |
| Integer Code Phase | ms | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | |
| Code Phase Search Window | | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | |
| Azimuth | Degrees | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | |
| Elevation | Degrees | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | |
| Azimuth LSB | Degrees | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | Rel-10 onwards |
| Elevation LSB | Degrees | Time varying. See file: Sig GANSS reference measurement information subtest2.csv (Note) | Rel-10 onwards |
| Note: This field is "Time varying" and its value depends on the "current GANSS TOD". The value of this field to be used shall be determined by taking the "current GANSS TOD" value and selecting the field value in the Sig GANSS reference measurement information subtest2.csv file corresponding to the value of "current GANSS TOD". | | | |

Assistance Data GANSS almanac

GANSS almanac: sub-test 1, 4 (Fields occurring once per message)

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| Week Number | Weeks | N/A |

Satellite Information GLO-KP: sub-tests 1, 4

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 24 |

GANSS almanac: sub-test 1, 4 (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|---------------------|-------------------------------|--|
| N^A | Days | See file: Sig GANSS Almanac subtest1_4.csv |
| n^A | - | Slot Numbers: 1, 2, 322, 23, 24 |
| H_n^A | - | See file: Sig GANSS Almanac subtest1_4.csv |
| λ_n^A | semi-circles | See file: Sig GANSS Almanac subtest1_4.csv |
| $t_{\lambda n}^A$ | seconds | See file: Sig GANSS Almanac subtest1_4.csv |
| Δi_n^A | semi-circles | See file: Sig GANSS Almanac subtest1_4.csv |
| ΔT_n^A | sec/orbit period | See file: Sig GANSS Almanac subtest1_4.csv |
| $\Delta T_DOT_n^A$ | sec/orbit period ² | See file: Sig GANSS Almanac subtest1_4.csv |
| ε_n^A | | See file: Sig GANSS Almanac subtest1_4.csv |
| ω_n^A | semi-circles | See file: Sig GANSS Almanac subtest1_4.csv |
| τ_n^A | seconds | See file: Sig GANSS Almanac subtest1_4.csv |
| C_n^A | | See file: Sig GANSS Almanac subtest1_4.csv |
| M_n^A | | See file: Sig GANSS Almanac subtest1_4.csv |

GANSS almanac: sub-test 2 (Fields occurring once per message)

| Information Element | Units | Value/remark | Release |
|---------------------------|-------|--------------|----------------|
| Week Number | Weeks | FFS | |
| Complete Almanac Provided | | TRUE | Rel-10 onwards |

GANSS almanac: sub-test 2 (Field occurring once per message)

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| T_{oa} | | FFS |
| IOD_a | | FFS |

Satellite Information KP: sub-test 2

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 24 |

GANSS almanac: sub-test 2 (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|---------------------|-----------------------|--|
| SV ID | | SV IDs: FFS |
| e | | See file: Sig GANSS Almanac subtest2.csv |
| δi | semi-circles | See file: Sig GANSS Almanac subtest2.csv |
| OMEGADOT | semi-circles/sec | See file: Sig GANSS Almanac subtest2.csv |
| SV Health KP | | See file: Sig GANSS Almanac subtest2.csv |
| $\delta A^{1/2}$ | meters ^{1/2} | See file: Sig GANSS Almanac subtest2.csv |
| OMEGA ₀ | semi-circles | See file: Sig GANSS Almanac subtest2.csv |
| M_0 | semi-circles | See file: Sig GANSS Almanac subtest2.csv |
| ω | semi-circles | See file: Sig GANSS Almanac subtest2.csv |
| af_0 | Seconds | See file: Sig GANSS Almanac subtest2.csv |
| af_1 | sec/sec | See file: Sig GANSS Almanac subtest2.csv |

Assistance Data GANSS auxiliary information

GANSS auxiliary information: sub-test 1, 4 (Fields occurring once per message)

| Information Element | Units | Value/remark |
|---------------------|-------|-------------------|
| GANSS-ID-3 | | Present (GLONASS) |

Aux Info List: sub-test 1, 4

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

GANSS auxiliary information: sub-test 1, 4 (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|---------------------|-------|-----------------------------------|
| Sat ID | | Slot Numbers: 3, 4, 9, 10, 18, 20 |
| Signals Available | | G1 |
| Channel Number | | 5, 6, -2, -7, -3, 2 |

GANSS auxiliary information: sub-test 3 (Fields occurring once per message)

| Information Element | Units | Value/remark |
|---------------------|-------|--------------------------|
| GANSS-ID-1 | | Present (Modernized GPS) |

Aux Info List: sub-test 3

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| Number of satellites | - | 6 |

GNSS auxiliary information: sub-test 3 (Fields occurring once per satellite)

| Information Element | Units | Value/remark |
|---------------------|-------|---------------------------------------|
| Sat ID | | PRNs: 1, 11, 17, 20, 23, 28 |
| Signals Available | | L1C and others as supported by the UE |

Assistance Data GNSS ID

GNSS ID: sub-test 1, 4

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| GNSS ID | | 3 (GLONASS) |

GNSS ID: sub-test 2

| Information Element | Units | Value/remark |
|---------------------|-------|-----------------------|
| GNSS ID | | Not present (Galileo) |

GNSS ID: sub-test 3

| Information Element | Units | Value/remark |
|---------------------|-------|--------------------|
| GNSS ID | | 1 (Modernized GPS) |

6.1.3.3 Default Assistance Data for TS 37.571-2 subclause 7

This subclause defines the GNSS assistance data elements which shall be provided to the UE in certain tests in TS 37.571-2 [7] subclause 7 in the LPP Provide Assistance Data messages in the absence of a corresponding LPP Request Assistance Data message. The GNSS assistance data provided depends on the mode being used in the test case, the assistance data supported by the UE and the GNSS(s) supported by the UE. GNSS assistance data IEs not supported by the UE shall not be sent. GNSS assistance data IEs supported by the UE but not listed below shall not be sent.

Table 6.1.3.3-1: Default GNSS assistance data to be provided to the UE

| GNSS Assistance Data IE supported by UE | Mode used in test case | | |
|---|-------------------------------|--|--|
| | UE-based | UE-assisted. GNSS-Acquisition Assistance supported by UE | UE-assisted. GNSS-Acquisition Assistance not supported by UE |
| GNSS-Reference Time | Yes | Yes | Yes |
| GNSS-ReferenceLocation | Yes | No | Yes |
| GNSS-IonosphericModel | Yes | No | No |
| GNSS-TimeModelList | Yes for sub-test 4 | No | Yes for sub-test 4 |
| GNSS-NavigationModel | Yes | No | Yes |
| GNSS-AcquisitionAssistance | No | Yes | No |
| GNSS-Almanac | No | No | Yes |
| GNSS-UTC-Model | Yes for sub-test 4 | Yes for sub-test 4 | Yes for sub-test 4 |
| GNSS-AuxiliaryInformation | Yes for sub-tests 2, 4. Note. | Yes for sub-tests 2, 4. Note. | Yes for sub-tests 2, 4. Note. |
| Note: Also if UE supports multiple signals per GNSS | | | |

6.1.3.4 Assistance Data values for TS 37.571-2 subclause 7

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 GNSS data zip file specified in Annex B. These files specify the values to be used for each satellite, indexed by satellite SV ID, and, where applicable, the values to be used indexed by both time and satellite SV ID.

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

The accuracy of the gnss-TimeOfDay and assistance data that is marked as “time varying” in the provided assistance data shall be within +/- 2 s relative to the GNSS time in the system simulator.

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

The information elements detailed below are fully defined in 3GPP TS 36.355 [8]

GNSS REFERENCE TIME:

GNSS-ReferenceTime: sub-tests 1, 4

| Information Element | Units | Value/remark |
|---|-------|---|
| gnss-SystemTime | | |
| gnss-TimeID | | 0 (gps) |
| gnss-DayNumber | | 11683 |
| gnss-TimeOfDay | | 1860 s. Start time. Add integer number of 1 seconds as required. (Note) |
| gnss-TimeOfDayFrac-msec | | Not present |
| notificationOfLeapSecond | | Not present |
| gps-TOW-Assist | | |
| satelliteID | | PRNs: 1, 11, 17, 20, 23, 28. |
| tlmWord | | 10922 (for all PRNs) |
| antiSpooF | | 1 (for all PRNs) |
| alert | | 0 (for all PRNs) |
| tlmRsvdBits | | 2 (for all PRNs) |
| referenceTimeUnc | | '117' (2.274 seconds) |
| gnss-ReferenceTimeForCells | | Not present |
| Note: gnss-TimeOfDay This is the value of gnss-TimeOfDay when the GNSS scenario is started in the GNSS simulator. The value of gnss-TimeOfDay 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 GNSS simulator to this value, rounded up to the next 1 second interval. This “current gnss-TimeOfDay” is then also used to determine the value of any other Information Elements marked as “Time varying” in subclause 6.1.3.4. | | |

GNSS-ReferenceTime: sub-test 2

| Information Element | Units | Value/remark |
|---|-------|--|
| gnss-SystemTime | | |
| gnss-TimeID | | 4 (glonass) |
| gnss-DayNumber | | 5845 |
| gnss-TimeOfDay | | 12645 s. Start time. Add integer number of 1 seconds as required. (Note) |
| gnss-TimeOfDayFrac-msec | | Not present |
| notificationOfLeapSecond | | 00 |
| gps-TOW-Assist | | Not present |
| referenceTimeUnc | | '117' (2.274 seconds) |
| gnss-ReferenceTimeForCells | | Not present |
| Note: gnss-TimeOfDay This is the value of gnss-TimeOfDay when the GNSS scenario is started in the GNSS simulator. The value of gnss-TimeOfDay 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 GNSS simulator to this value, rounded up to the next 1 second interval. This “current gnss-TimeOfDay” is then also used to determine the value of any other Information Elements marked as “Time varying” in subclause 6.1.3.4. | | |

GNSS-ReferenceTime: sub-test 3

| Information Element | Units | Value/remark |
|---|-------|--|
| gnss-SystemTime | | |
| gnss-TimeID | | 3 (galileo) |
| gnss-DayNumber | | FFS |
| gnss-TimeOfDay | | FFS s. Start time. Add integer number of 1 seconds as required. (Note) |
| gnss-TimeOfDayFrac-msec | | Not present |
| notificationOfLeapSecond | | Not present |
| gps-TOW-Assist | | Not present |
| referenceTimeUnc | | '117' (2.274 seconds) |
| gnss-ReferenceTimeForCells | | Not present |
| Note: gnss-TimeOfDay This is the value of gnss-TimeOfDay when the GNSS scenario is started in the GNSS simulator. The value of gnss-TimeOfDay 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 GNSS simulator to this value, rounded up to the next 1 second interval. This "current gnss-TimeOfDay" is then also used to determine the value of any other Information Elements marked as "Time varying" in subclause 6.1.3.4. | | |

GNSS REFERENCE LOCATION:**GNSS-ReferenceLocation**

| Information Element | Units | Value/remark |
|----------------------|---------|--------------|
| threeDlocation | | |
| latitudeSign | | 0 |
| degreesLatitude | degrees | 35.744287 |
| degreesLongitude | degrees | 139.680176 |
| altitudeDirection | | 0 |
| altitude | m | 300 |
| uncertaintySemiMajor | m | 3000 |
| uncertaintySemiMinor | m | 3000 |
| orientationMajorAxis | degrees | 0 |
| uncertaintyAltitude | m | 500 |
| confidence | % | 68 |

GNSS IONOSPHERIC MODEL:**GNSS-IonosphericModel: sub-tests 1, 2, 4**

| Information Element | Units | Value/remark |
|---------------------|--------------------------------|-----------------|
| klobucharModel | | |
| dataID | | 00 |
| alfa0 | seconds | 4.6566129 10E-9 |
| alfa1 | sec/semi-circle | 1.4901161 10E-8 |
| alfa2 | sec/(semi-circle) ² | -5.96046 10E-8 |
| alfa3 | sec/(semi-circle) ³ | -5.96046 10E-8 |
| beta0 | seconds | 79872 |
| beta1 | sec/semi-circle | 65536 |
| beta2 | sec/(semi-circle) ² | -65536 |
| beta3 | sec/(semi-circle) ³ | -393216 |
| neQuickModel | | Not present |

GNSS-IonosphericModel: sub-test 3

| Information Element | Units | Value/remark |
|----------------------|-------|--------------|
| GNSS-IonospericModel | | |
| klobucharModel | | Not present |
| neQuickModel | | |
| ai0 | | FFS |
| ai1 | | FFS |
| ai2 | | FFS |
| ionoStormFlag1 | | 0 |
| ionoStormFlag2 | | 0 |
| ionoStormFlag3 | | 0 |
| ionoStormFlag4 | | 0 |
| ionoStormFlag5 | | 0 |

GNSS TIME MODEL:

GNSS-TimeModelList: sub-test 4

| Information Element | Units | Value/remark |
|-----------------------|---------|--------------|
| gnss-TimeModelRefTime | seconds | 1860 (s) |
| tA0 | | 0 |
| gnss-TO-ID | | 1 (GPS) |
| weekNumber | | 1669 |
| deltaT | | 15 |

GNSS NAVIGATION MODEL:

GNSS-NavigationModel: sub-test 1

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| nonBroadcastFlag | | 0 |
| gnss-SatelliteList | | (SIZE) 6 |

GNSS-NavModelSatelliteElement: sub-test 1

| Information Element | Units | Value/remark |
|---------------------|-------|--|
| svID | | PRNs: 1, 11, 17, 20, 23, 28 |
| svHealth | | 0 |
| iod | | 0 |
| gnss-ClockModel | | |
| nav-ClockModel | | |
| navToc | | See file: Sig GNSS Navigation Model subtest1.csv |
| navaf2 | | See file: Sig GNSS Navigation Model subtest1.csv |
| navaf1 | | See file: Sig GNSS Navigation Model subtest1.csv |
| navaf0 | | See file: Sig GNSS Navigation Model subtest1.csv |
| navTgd | | See file: Sig GNSS Navigation Model subtest1.csv |
| gnss-OrbitModel | | |
| nav-KeplerianSet | | |
| navURA | | See file: Sig GNSS Navigation Model subtest1.csv |
| navFitFlag | | See file: Sig GNSS Navigation Model subtest1.csv |
| navToe | | See file: Sig GNSS Navigation Model subtest1.csv |
| navOmega | | See file: Sig GNSS Navigation Model subtest1.csv |
| navDeltaN | | See file: Sig GNSS Navigation Model subtest1.csv |
| navM0 | | See file: Sig GNSS Navigation Model subtest1.csv |
| navOmegaADot | | See file: Sig GNSS Navigation Model subtest1.csv |
| navE | | See file: Sig GNSS Navigation Model subtest1.csv |
| navIDot | | See file: Sig GNSS Navigation Model subtest1.csv |
| navAPowerHalf | | See file: Sig GNSS Navigation Model subtest1.csv |
| navI0 | | See file: Sig GNSS Navigation Model subtest1.csv |
| navOmegaA0 | | See file: Sig GNSS Navigation Model subtest1.csv |
| navCrs | | See file: Sig GNSS Navigation Model subtest1.csv |
| navCis | | See file: Sig GNSS Navigation Model subtest1.csv |
| navCus | | See file: Sig GNSS Navigation Model subtest1.csv |
| navCrc | | See file: Sig GNSS Navigation Model subtest1.csv |
| navCic | | See file: Sig GNSS Navigation Model subtest1.csv |
| navCuc | | See file: Sig GNSS Navigation Model subtest1.csv |
| addNAVparam | | |
| ephemCodeOnL2 | | See file: Sig GNSS Navigation Model subtest1.csv |
| ephemL2Pflag | | See file: Sig GNSS Navigation Model subtest1.csv |
| reserved1 | | See file: Sig GNSS Navigation Model subtest1.csv |
| reserved2 | | See file: Sig GNSS Navigation Model subtest1.csv |
| reserved3 | | See file: Sig GNSS Navigation Model subtest1.csv |
| reserved4 | | See file: Sig GNSS Navigation Model subtest1.csv |
| ephemAODA | | See file: Sig GNSS Navigation Model subtest1.csv |

GNSS-NavigationModel: sub-test 2

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| nonBroadcastFlag | | 0 |
| gnss-SatelliteList | | (SIZE) 6 |

GNSS-NavModelSatelliteElement: sub-test 2

| Information Element | Units | Value/remark |
|---------------------|-------|--|
| svID | | Slot Numbers: 3, 4, 9, 10, 18, 20 |
| svHealth | | 01111000 |
| iod | | 225 |
| gnss-ClockModel | | |
| glonass-ClockModel | | |
| gloTau | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloGamma | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloDeltaTau | | See file: Sig GNSS Navigation Model subtest2.csv |
| gnss-OrbitModel | | |
| glonass-ECEF | | |
| gloEn | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloP1 | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloP2 | | See file: Sig GNSS Navigation Model subtest2.csv |
| glom | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloX | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloXdot | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloXdotdot | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloY | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloYdot | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloYdotdot | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloZ | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloZdot | | See file: Sig GNSS Navigation Model subtest2.csv |
| gloZdotdot | | See file: Sig GNSS Navigation Model subtest2.csv |

GNSS-NavigationModel: sub-test 3

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| nonBroadcastFlag | | 0 |
| gnss-SatelliteList | | (SIZE) 6 |

GNSS-NavModelSatelliteElement: sub-test 3

| Information Element | Units | Value/remark |
|------------------------|-------|--|
| svID | | SV IDs: FFS |
| svHealth | | 0 |
| iod | | FFS |
| gnss-ClockModel | | |
| standardClockModelList | | (SIZE) 1 |
| stanClockToc | | See file: Sig GNSS Navigation Model subtest3.csv |
| stanClockAF2 | | See file: Sig GNSS Navigation Model subtest3.csv |
| stanClockAF1 | | See file: Sig GNSS Navigation Model subtest3.csv |
| stanClockAF0 | | See file: Sig GNSS Navigation Model subtest3.csv |
| stanClockTgd | | See file: Sig GNSS Navigation Model subtest3.csv |
| gnss-OrbitModel | | |
| keplerianSet | | |
| keplerToe | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerW | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerDeltaN | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerM0 | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerOmegaDot | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerE | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerIDot | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerAPowerHalf | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerI0 | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerOmega0 | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerCrs | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerCis | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerCus | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerCrc | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerCic | | See file: Sig GNSS Navigation Model subtest3.csv |
| keplerCuc | | See file: Sig GNSS Navigation Model subtest3.csv |

GNSS-NavigationModel: sub-test 4

| Information Element | Units | Value/remark |
|------------------------|-------|--------------------------------------|
| GNSS-GenericAssistData | | (SIZE) 2 |
| gnss-ID | | 0 (gps) |
| GNSS-NavigationModel | | See GNSS-NavigationModel: sub-test 1 |
| gnss-ID | | 4 (glonass) |
| GNSS-NavigationModel | | See GNSS-NavigationModel: sub-test 2 |

GNSS ACQUISITION ASSISTANCE:

GNSS-AcquisitionAssistance: sub-test 1

| Information Element | Units | Value/remark |
|----------------------------|-------|----------------|
| GNSS-AcquisitionAssistance | | |
| gnss-SignalID | | 0 (GPS L1 C/A) |
| gnss-AcquisitionAssistList | | (SIZE) 6 |
| confidence-r10 | % | 98 |

GNSS-AcquisitionAssistElement: sub-test 1

| Information Element | Units | Value/remark |
|--|-------|---|
| svID | | PRNs: 1, 11, 17, 20, 23, 28. |
| doppler0 | | Time varying. See file: Sig GNSS Acquisition Assistance subtest1.csv (Note) |
| doppler1 | | Time varying. See file: Sig GNSS Acquisition Assistance subtest1.csv (Note) |
| dopplerUncertainty | | Time varying. See file: Sig GNSS Acquisition Assistance subtest1.csv (Note) |
| codePhase | | Time varying. See file: Sig GNSS Acquisition Assistance subtest1.csv (Note) |
| intCodePhase | | Time varying. See file: Sig GNSS Acquisition Assistance subtest1.csv (Note) |
| codePhaseSearchWindow | | Time varying. See file: Sig GNSS Acquisition Assistance subtest1.csv (Note) |
| azimuth | | Time varying. See file: Sig GNSS Acquisition Assistance subtest1.csv (Note) |
| elevation | | Time varying. See file: Sig GNSS Acquisition Assistance subtest1.csv (Note) |
| codePhase1023 | | Time varying. Calculated from "codePhase", see file: GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| dopplerUncertaintyExt-r10 | | Not present |
| Note: This field is "Time varying" and its value depends on the "current gnss-TimeOfDay". The value of this field to be used shall be determined by taking the "current gnss-TimeOfDay" value and selecting the field value in the Sig GNSS Acquisition Assistance subtestX.csv file corresponding to the value of "current gnss-TimeOfDay". | | |

GNSS-AcquisitionAssistance: sub-test 2

| Information Element | Units | Value/remark |
|----------------------------|-------|----------------|
| GNSS-AcquisitionAssistance | | |
| gnss-SignalID | | 0 (GLONASS G1) |
| gnss-AcquisitionAssistList | | (SIZE) 6 |
| confidence-r10 | % | 98 |

GNSS-AcquisitionAssistElement: sub-test 2

| Information Element | Units | Value/remark |
|--|-------|---|
| svID | | Slot Numbers: 3, 4, 9, 10, 18, 20 |
| doppler0 | | Time varying. See file: Sig GNSS Acquisition Assistance subtest2.csv (Note) |
| doppler1 | | Time varying. See file: Sig GNSS Acquisition Assistance subtest2.csv (Note) |
| dopplerUncertainty | | Time varying. See file: Sig GNSS Acquisition Assistance subtest2.csv (Note) |
| codePhase | | Time varying. See file: Sig GNSS Acquisition Assistance subtest2.csv (Note) |
| intCodePhase | | Time varying. See file: Sig GNSS Acquisition Assistance subtest2.csv (Note) |
| codePhaseSearchWindow | | Time varying. See file: Sig GNSS Acquisition Assistance subtest2.csv (Note) |
| azimuth | | Time varying. See file: Sig GNSS Acquisition Assistance subtest2.csv (Note) |
| elevation | | Time varying. See file: Sig GNSS Acquisition Assistance subtest2.csv (Note) |
| codePhase1023 | | Time varying. Calculated from "codePhase", see file: GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| dopplerUncertaintyExt-r10 | | Not present |
| Note: This field is "Time varying" and its value depends on the "current gnss-TimeOfDay". The value of this field to be used shall be determined by taking the "current gnss-TimeOfDay" value and selecting the field value in the Sig GNSS Acquisition Assistance subtestX.csv file corresponding to the value of "current gnss-TimeOfDay". | | |

GNSS-AcquisitionAssistance: sub-test 3

| Information Element | Units | Value/remark |
|----------------------------|-------|----------------|
| GNSS-AcquisitionAssistance | | |
| gnss-SignalID | | 0 (Galileo E1) |
| gnss-AcquisitionAssistList | | (SIZE) 6 |
| confidence-r10 | % | 98 |

GNSS-AcquisitionAssistElement: sub-test 3

| Information Element | Units | Value/remark |
|--|-------|---|
| svID | | SV IDs: FFS |
| doppler0 | | Time varying. See file: Sig GNSS Acquisition Assistance subtest3.csv (Note) |
| doppler1 | | Time varying. See file: Sig GNSS Acquisition Assistance subtest3.csv (Note) |
| dopplerUncertainty | | Time varying. See file: Sig GNSS Acquisition Assistance subtest3.csv (Note) |
| codePhase | | Time varying. See file: Sig GNSS Acquisition Assistance subtest3.csv (Note) |
| intCodePhase | | Time varying. See file: Sig GNSS Acquisition Assistance subtest3.csv (Note) |
| codePhaseSearchWindow | | Time varying. See file: Sig GNSS Acquisition Assistance subtest3.csv (Note) |
| azimuth | | Time varying. See file: Sig GNSS Acquisition Assistance subtest3.csv (Note) |
| elevation | | Time varying. See file: Sig GNSS Acquisition Assistance subtest3.csv (Note) |
| codePhase1023 | | Time varying. Calculated from "codePhase", see file: GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| dopplerUncertaintyExt-r10 | | Not present |
| Note: This field is "Time varying" and its value depends on the "current gnss-TimeOfDay". The value of this field to be used shall be determined by taking the "current gnss-TimeOfDay" value and selecting the field value in the Sig GNSS Acquisition Assistance subtestX.csv file corresponding to the value of "current gnss-TimeOfDay". | | |

GNSS-AcquisitionAssistance: sub-test 4

| Information Element | Units | Value/remark |
|----------------------------|-------|--|
| GNSS-GenericAssistData | | (SIZE) 2 |
| gnss-ID | | 0 (gps) |
| GNSS-AcquisitionAssistance | | See GNSS-AcquisitionAssistance: sub-test 1 |
| gnss-ID | | 4 (glonass) |
| GNSS-AcquisitionAssistance | | See GNSS-AcquisitionAssistance: sub-test 2 |

GNSS ALMANAC:

GNSS-Almanac: sub-test 1

| Information Element | Units | Value/remark |
|-------------------------|-------|--------------|
| GNSS-Almanac | | |
| weekNumber | | 1669 |
| toa | | 249856 |
| ioda | | Not present |
| completeAlmanacProvided | | 1 (TRUE) |
| gnss-AlmanacList | | (SIZE) 31 |

GNSS-AlmanacElement: sub-test 1

| Information Element | Units | Value/remark |
|----------------------|-------|--|
| keplerianNAV-Almanac | | |
| svID | | PRNs: 1, 2, 3 ...21, 22, 23, 25, 26, 27... 30, 31, 32 |
| navAlmE | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmDeltal | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmOMEGADOT | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmSVHealth | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmSqrtA | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmOMEGAo | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmOmega | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmMo | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmaf0 | | See file: Sig GNSS Almanac subtest1.csv |
| navAlmaf1 | | See file: Sig GNSS Almanac subtest1.csv |

GNSS-Almanac: sub-test 2

| Information Element | Units | Value/remark |
|-------------------------|-------|--------------|
| GNSS-Almanac | | |
| completeAlmanacProvided | | 1 (TRUE) |
| gnss-AlmanacList | | (SIZE) 24 |

GNSS-AlmanacElement: sub-test 2

| Information Element | Units | Value/remark |
|---------------------|-------|---|
| keplerianGLONASS | | |
| gloAlm-NA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmNA | | Slot Numbers: 1, 2, 322, 23, 24 |
| gloAlmHA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmLambdaA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmLambdaA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmDeltala | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmDeltaTA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmDeltaTdotA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmEpsilonA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmOmegaA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmTauA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmCA | | See file: Sig GNSS Almanac subtest2.csv |
| gloAlmMA | | See file: Sig GNSS Almanac subtest2.csv |

GNSS-Almanac: sub-test 3

| Information Element | Units | Value/remark |
|-------------------------|-------|--------------|
| GNSS-Almanac | | |
| weekNumber | | FFS |
| toa | | FFS |
| ioda | | FFS |
| completeAlmanacProvided | | 1 (TRUE) |
| gnss-AlmanacList | | (SIZE) 24 |

GNSS-AlmanacElement: sub-test 3

| Information Element | Units | Value/remark |
|----------------------|-------|---|
| keplerianAlmanacSet | | |
| svID | | SV IDs: FFS |
| kepAlmanacE | | See file: Sig GNSS Almanac subtest3.csv |
| kepAlmanacDeltaI | | See file: Sig GNSS Almanac subtest3.csv |
| kepAlmanacOmegaDot | | See file: Sig GNSS Almanac subtest3.csv |
| kepSVHealth | | See file: Sig GNSS Almanac subtest3.csv |
| kepAlmanacAPowerHalf | | See file: Sig GNSS Almanac subtest3.csv |
| kepAlmanacOmega0 | | See file: Sig GNSS Almanac subtest3.csv |
| kepAlmanacW | | See file: Sig GNSS Almanac subtest3.csv |
| kepAlmanacM0 | | See file: Sig GNSS Almanac subtest3.csv |
| kepAlmanacAF0 | | See file: Sig GNSS Almanac subtest3.csv |
| kepAlmanacAF1 | | See file: Sig GNSS Almanac subtest3.csv |

GNSS-Almanac: sub-test 4

| Information Element | Units | Value/remark |
|------------------------|-------|------------------------------|
| GNSS-GenericAssistData | | (SIZE) 2 |
| gnss-ID | | 0 (gps) |
| GNSS-Almanac | | See GNSS-Almanac: sub-test 1 |
| gnss-ID | | 4 (glonass) |
| GNSS-Almanac | | See GNSS-Almanac: sub-test 2 |

GNSS UTC MODEL:

GNSS-UTC-Model: sub-test 4

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| GNSS-UTC-Model | | |
| utcModel1 | | |

UTC-ModelSet1: sub-test 4

| Information Element | Units | Value/remark |
|---------------------|-------|--------------|
| gnss-Utc-A1 | | 0 |
| gnss-Utc-A0 | | 0 |
| gnss-Utc-Tot | | 249856 |
| gnss-Utc-WNt | | 133 |
| gnss-Utc-DeltaTIs | | 15 |
| gnss-Utc-WNIsf | | 158 |
| gnss-Utc-DN | | 7 |
| gnss-Utc-DeltaTIsf | | 16 |

GNSS AUXILIARY INFORMATION:

GNSS-AuxiliaryInformation: sub-test 1 if UE supports multiple GPS signals

| Information Element | Units | Value/remark |
|---------------------------|-------|---------------------------------------|
| GNSS-AuxiliaryInformation | | |
| gnss-ID-GPS | | (SIZE) 6 |
| svID | | PRNs: 1, 11, 17, 20, 23, 28. |
| signalsAvailable | | L1C and others as supported by the UE |

GNSS-AuxiliaryInformation: sub-test 2

| Information Element | Units | Value/remark |
|---------------------------|-------|-----------------------------------|
| GNSS-AuxiliaryInformation | | |
| gnss-ID-GLONASS | | (SIZE) 6 |
| svID | | Slot Numbers: 3, 4, 9, 10, 18, 20 |
| signalsAvailable | | G1 |
| channelNumber | | 5, 6, -2, -7, -3, 2 |

GNSS- AuxiliaryInformation: sub-test 4

| Information Element | Units | Value/remark |
|---------------------------|-------|--|
| GNSS-GenericAssistData | | (SIZE) 1, or 2 if UE supports multiple GPS signals |
| gnss-ID | | 0 (gps) if UE supports multiple GPS signals |
| GNSS-AuxiliaryInformation | | See GNSS-AuxiliaryInformation: sub-test 1 |
| gnss-ID | | 4 (glonass) |
| GNSS-AuxiliaryInformation | | See GNSS-AuxiliaryInformation: sub-test 2 |

GNSS GENERIC ASSISTANCE DATA

GNSS- GenericAssistData: sub-test 1

| Information Element | Units | Value/remark |
|------------------------|-------|--------------|
| GNSS-GenericAssistData | | (SIZE) 1 |
| gnss-ID | | 0 (gps) |

GNSS- GenericAssistData: sub-test 2

| Information Element | Units | Value/remark |
|------------------------|-------|--------------|
| GNSS-GenericAssistData | | (SIZE) 1 |
| gnss-ID | | 4 (glonass) |

GNSS- GenericAssistData: sub-test 3

| Information Element | Units | Value/remark |
|------------------------|-------|--------------|
| GNSS-GenericAssistData | | (SIZE) 1 |
| gnss-ID | | 3 (galileo) |

GNSS- GenericAssistData: sub-test 4

| Information Element | Units | Value/remark |
|------------------------|-------|--------------|
| GNSS-GenericAssistData | | (SIZE) 2 |
| gnss-ID | | 0 (gps) |
| gnss-ID | | 4 (glonass) |

6.2 GNSS Scenarios and Assistance Data for Assisted GNSS Minimum Performance tests

6.2.1 General

This subclause defines the GNSS scenarios and assistance data IEs which shall be available for use as specified in all UTRA and E-UTRA A-GNSS Minimum Performance test cases defined in TS 37.571-1 [6] subclauses 6 and 7.

Subclauses 6.2.2 and 6.2.3 list the assistance data IEs required for minimum performance testing of UE-based mode, and subclauses 6.2.4 and 6.2.5 list the assistance data available for minimum performance testing of UE-assisted mode. Subclause 6.2.7 lists the values of the assistance data IE fields for all minimum performance testing.

In all cases the Assistance Data is given in the two necessary formats, RRC format for TS 37.571-1 [6] subclause 6 and LPP format for TS 37.571-1 [6] subclause 7. Other information is also given separately for TS 37.571-1 [6] subclauses 6 and 7 where it differs between the subclauses.

The A-GNSS minimum performance requirements are defined by assuming that all relevant and valid assistance data is received by the UE in order to perform GNSS measurements and/or position calculation. This subclause does not include nor consider delays occurring in the various signalling interfaces of the network.

The term SV ID used in this subclause is defined as the satellite PRN for GPS, Modernized GPS and Galileo, and as the satellite Slot Number for GLONASS.

In this subclause all information for Galileo is for further study (FFS).

6.2.1.1 Satellite constellations and assistance data for A-GNSS minimum performance testing

For all Assisted GNSS minimum performance tests defined in TS 37.571-1 [6] subclause 6 and for Assisted GNSS minimum performance Sub-Test Case Numbers 2, 3, 4 and 5 defined in TS 37.571-1 [6] subclause 7, the satellite constellation shall consist of 24 satellites for GLONASS; 27 satellites for GPS, Modernized GPS and Galileo; 3 satellites for QZSS; and 2 satellites for SBAS. Almanac assistance data shall be available for all these satellites. At least 7 of the satellites per GPS, Modernized GPS, Galileo or GLONASS constellation shall be visible to the UE (that is, above 15 degrees elevation with respect to the UE). At least 1 of the satellites for QZSS shall be within 15 degrees of zenith; and at least 1 of the satellites for SBAS shall be visible to the UE. All other satellite specific assistance data shall be available for all visible satellites. In each test, signals are generated for only 6 satellites (or 7 if SBAS is included). The HDOP for the test shall be calculated using these satellites. The simulated satellites for GPS, Modernized GPS, Galileo and GLONASS shall be selected from the visible satellites for each constellation, consistent with achieving the required HDOP for the test.

For Assisted GNSS minimum performance Sub-Test Case Number 1 defined in TS 37.571-1 [6] subclause 7, the satellite constellations for minimum performance testing shall consist of 24 satellites. Almanac assistance data shall be available for all these 24 satellites. At least 9 of the satellites shall be visible to the UE (that is above 5 degrees elevation with respect to the UE). Other assistance data shall be available for 9 of these visible satellites. In each test, signals are generated for only a sub-set of these satellites for which other assistance data is available. The number of satellites in this sub-set is specified in the test. The satellites in this sub-set shall all be above 15 degrees elevation with respect to the UE. The HDOP for the test shall be calculated using this sub-set of satellites. The selection of satellites for this sub-set shall be selected consistent with achieving the required HDOP for the test.

6.2.1.2 GNSS Scenarios for A-GNSS minimum performance testing

This subclause defines the GNSS scenarios that shall be used for all Assisted GNSS minimum performance tests defined in TS 37.571-1 [6] subclauses 6 and 7.

The GNSS scenarios achieve the required HDOP for the Test Cases and they also satisfy the requirement that for each test instance the reference location shall change sufficiently such that the UE shall have to use the new assistance data.

The viable running time during which the scenario maintains the required HDOP or HDOPs is given. Once this time has been reached the scenario shall be restarted from its nominal start time.

The test cases include sub-test cases dependent on the GNSS supported by the UE. Each sub-test case is identified by a Sub-Test Case Number as defined below. For each GNSS scenario the parameters that vary with the sub-test are given for each sub-test.

Table 6.2.1.2-1: Sub-Test Case Number Definition for TS 37.571-1 subclause 6

| Sub-Test Case Number | Supported GNSS |
|----------------------|---|
| 1 | UE supporting A-GLONASS only |
| 2 | UE supporting A-Galileo only |
| 3 | UE supporting A-GPS and Modernized GPS only |
| 4 | UE supporting A-GPS and A-GLONASS only |

Table 6.2.1.2-2: Sub-Test Case Number Definition for TS 37.571-1 subclause 7

| Sub-Test Case Number | Supported GNSS |
|----------------------|---|
| 1 | UE supporting A-GPS L1C/A only |
| 2 | UE supporting A-GLONASS only |
| 3 | UE supporting A-Galileo only |
| 4 | UE supporting A-GPS and Modernized GPS only |
| 5 | UE supporting A-GPS and A-GLONASS only |

6.2.1.2.1 GNSS Scenario #1

The following GNSS scenario #1 shall be used during the TTFF tests defined in TS 37.571-1 [6] subclauses 6 and 7 with the exception of the Nominal Accuracy test. The assistance data specified in the following subclauses for GNSS scenario #1 is consistent with this GNSS scenario.

Yuma Almanac data: the required file(s) in the GNSS data perf zip file specified in Annex B are given below.

Table 6.2.1.2.1-1: Yuma Almanac data files for TS 37.571-1 subclause 6

| Sub-Test Case Number | Yuma file(s) |
|----------------------|---|
| 1 | Perf GNSS 1-1 Yuma.txt |
| 2 | Perf GNSS 1-2 Yuma.txt |
| 3 | Perf GNSS 1-3 Yuma.txt |
| 4 | Perf GNSS 1-1 Yuma.txt and Perf GNSS 1-3 Yuma.txt |

Table 6.2.1.2.1-2: Yuma Almanac data files for TS 37.571-1 subclause 7

| Sub-Test Case Number | Yuma file(s) |
|----------------------|---|
| 1 | Perf GNSS 1-3 Yuma.txt |
| 2 | Perf GNSS 1-1 Yuma.txt |
| 3 | Perf GNSS 1-2 Yuma.txt |
| 4 | Perf GNSS 1-3 Yuma.txt |
| 5 | Perf GNSS 1-1 Yuma.txt and Perf GNSS 1-3 Yuma.txt |

UE location: the UE location is calculated as a random offset from the reference location using the method described in subclause 6.2.1.2.6. The reference location is: latitude: 35 degrees 44 minutes 39.432 seconds north, longitude: 139 degrees 40 minutes 48.633 seconds east, (Tokyo Japan 2012), height: = 300m.

Nominal start time: 1st January 2012 00:31:00 (GPS time).

Viable running time to maintain specified HDOP values: 19 minutes.

Visible satellites available for simulation and for which Assistance Data (other than Almanac) shall be generated are given below.

Table 6.2.1.2.1-3: Visible satellites for TS 37.571-1 subclause 6

| Sub-Test Case Number | SV IDs of Visible satellites |
|----------------------|--|
| 1 | 3, 4, 5, 9, 10, 18, 19, 20 |
| 2 | [FFS] |
| 3 | 1, 4, 11, 17, 19, 20, 23, 28, 32 |
| 4 | GPS: 1, 4, 11, 17, 19, 20, 23, 28, 32. GLONASS: 3, 4, 5, 9, 10, 18, 19, 20 |

Table 6.2.1.2.1-4: Visible satellites for TS 37.571-1 subclause 7

| Sub-Test Case Number | SV IDs of Visible satellites |
|----------------------|--|
| 1 | 1, 4, 11, 17, 19, 20, 23, 28, 32 |
| 2 | 3, 4, 5, 9, 10, 18, 19, 20 |
| 3 | [FFS] |
| 4 | 1, 4, 11, 17, 19, 20, 23, 28, 32 |
| 5 | GPS: 1, 4, 11, 17, 19, 20, 23, 28, 32. GLONASS: 3, 4, 5, 9, 10, 18, 19, 20 |

The satellites to be simulated in each test case have been selected in order to achieve the required HDOP. They are defined below.

Table 6.2.1.2.1-5: Satellites to be simulated for TS 37.571-1 subclause 6

| Sub-Test Case Number | SV IDs of Satellites to be simulated |
|----------------------|--|
| 1 | 3, 4, 9, 10, 18, 20 |
| 2 | [FFS] |
| 3 | 1, 11, 17, 19, 23, 28 (Note) |
| 4 | GPS: 4, 17, 19. GLONASS: 3, 10, 20 |
| Note: | For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. |

Table 6.2.1.2.1-6: Satellites to be simulated for TS 37.571-1 subclause 7

| Sub-Test Case Number | SV IDs of Satellites to be simulated |
|----------------------|--|
| 1 | Test case dependant. See Table 6.2.1.2.1-7 |
| 2 | 3, 4, 9, 10, 18, 20 |
| 3 | [FFS] |
| 4 | 1, 11, 17, 19, 23, 28 (Note) |
| 5 | GPS: 4, 17, 19. GLONASS: 3, 10, 20 |
| Note: | For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. |

Table 6.2.1.2.1-7: Satellites to be simulated for TS 37.571-1 subclause 7, sub-test 1

| Test case | SV IDs of Satellites to be simulated |
|------------------------------------|--------------------------------------|
| Sensitivity Coarse Time Assistance | 1, 4, 11, 17, 19, 20, 23, 28 |
| Sensitivity Fine Time Assistance | 1, 4, 11, 17, 19, 20, 23, 28 |
| Nominal Accuracy | 1, 4, 11, 17, 19, 20, 23, 28 |
| Dynamic Range | 1, 11, 17, 19, 23, 28 |
| Multi-Path scenario | 1, 17, 19, 23, 28 |

Ionospheric model: see values in subclause 6.2.7.

Tropospheric model: STANAG with SRI equal to 324.8, as defined in STANAG 4294 [17].

6.2.1.2.2 GNSS Scenario #2

The following GNSS scenario #2 shall be used during the TTFF tests defined in TS 37.571-1 [6] subclauses 6 and 7 with the exception of the Nominal Accuracy test. The assistance data specified in the following subclauses for GNSS scenario #2 is consistent with this GNSS scenario.

Yuma Almanac data: the required file(s) in the GNSS data perf zip file specified in Annex B are below.

Table 6.2.1.2.2-1: Yuma Almanac data files for TS 37.571-1 subclause 6

| Sub-Test Case Number | Yuma file(s) |
|----------------------|---|
| 1 | Perf GNSS 2-1 Yuma.txt |
| 2 | Perf GNSS 2-2 Yuma.txt |
| 3 | Perf GNSS 2-3 Yuma.txt |
| 4 | Perf GNSS 2-1 Yuma.txt and Perf GNSS 2-3 Yuma.txt |

Table 6.2.1.2.2-2: Yuma Almanac data files for TS 37.571-1 subclause 7

| Sub-Test Case Number | Yuma file(s) |
|----------------------|---|
| 1 | Perf GNSS 2-3 Yuma.txt |
| 2 | Perf GNSS 2-1 Yuma.txt |
| 3 | Perf GNSS 2-2 Yuma.txt |
| 4 | Perf GNSS 2-3 Yuma.txt |
| 5 | Perf GNSS 2-1 Yuma.txt and Perf GNSS 2-3 Yuma.txt |

UE location: the UE location is calculated as a random offset from the reference location using the method described in subclause 6.2.1.2.6. The reference location is: latitude: 37 degrees 24 minutes 53.391 seconds north, longitude: 122 degrees 1 minutes 3.722 seconds west, (Sunnyvale, USA), height: = 50m.

Nominal start time: 1st June 2012, 00:01:00 (GPS time).

Viable running time to maintain specified HDOP values: 19 minutes.

Visible satellites available for simulation and for which Assistance Data (other than Almanac) shall be generated are given below.

Table 6.2.1.2.2-3: Visible satellites for TS 37.571-1 subclause 6

| Sub-Test Case Number | SV IDs of Visible satellites |
|----------------------|--|
| 1 | 1, 8, 9, 10, 16, 19, 20, 21 |
| 2 | [FFS] |
| 3 | 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| 4 | GPS: 1, 7, 8, 11, 15, 17, 26, 27, 28. GLONASS: 1, 8, 9, 10, 16, 19, 20, 21 |

Table 6.2.1.2.2-4: Visible satellites for TS 37.571-1 subclause 7

| Sub-Test Case Number | SV IDs of Visible satellites |
|----------------------|--|
| 1 | 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| 2 | 1, 8, 9, 10, 16, 19, 20, 21 |
| 3 | [FFS] |
| 4 | 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| 5 | GPS: 1, 7, 8, 11, 15, 17, 26, 27, 28. GLONASS: 1, 8, 9, 10, 16, 19, 20, 21 |

The satellites to be simulated in each test case have been selected in order to achieve the required HDOP. They are defined below.

Table 6.2.1.2.2-5: Satellites to be simulated for TS 37.571-1 subclause 6

| Sub-Test Case Number | SV IDs of Satellites to be simulated |
|--|--------------------------------------|
| 1 | 1, 8, 9, 10, 19, 20 |
| 2 | [FFS] |
| 3 | 1, 7, 8, 17, 27, 28 (Note) |
| 4 | GPS:1, 8, 26. GLONASS: 8, 10, 20 |
| Note: For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. | |

Table 6.2.1.2.2-6: Satellites to be simulated for TS 37.571-1 subclause 7

| Sub-Test Case Number | SV IDs of Satellites to be simulated |
|--|--|
| 1 | Test case dependant. See Table 6.2.1.2.2-7 |
| 2 | 1, 8, 9, 10, 19, 20 |
| 3 | [FFS] |
| 4 | 1, 7, 8, 17, 27, 28 (Note) |
| 5 | GPS:1, 8, 26. GLONASS: 8, 10, 20 |
| Note: For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. | |

Table 6.2.1.2.2-7: Satellites to be simulated for TS 37.571-1 subclause 7, sub-test 1

| Test case | SV IDs of Satellites to be simulated |
|------------------------------------|--------------------------------------|
| Sensitivity Coarse Time Assistance | 1, 7, 8, 15, 17, 26, 27, 28 |
| Sensitivity Fine Time Assistance | 1, 7, 8, 15, 17, 26, 27, 28 |
| Nominal Accuracy | 1, 7, 8, 15, 17, 26, 27, 28 |
| Dynamic Range | 1, 7, 8, 17, 27, 28 |
| Multi-Path scenario | 1, 7, 8, 17, 28 |

Ionospheric model: see values in subclause 6.2.7.

Tropospheric model: STANAG with SRI equal to 324.8, as defined in STANAG 4294 [17].

6.2.1.2.3 GNSS Scenario #3

The following GNSS scenario #3 shall be used during the Nominal Accuracy test defined in TS 37.571-1 [6] subclauses 6 and 7. The assistance data specified in the following subclauses for GNSS scenario #3 is consistent with this GNSS scenario.

The scenario used varies dependent on the SBAS supported by the UE and also whether QZSS is supported. The scenario to be used is defined below. Where more than one SBAS is supported use the scenario for MSAS if MSAS and QZSS are supported, otherwise use the scenario for the first supported SBAS in the list.

Table 6.2.1.2.3-1: Scenarios used for Scenario #3

| SBAS supported | Scenarios used | |
|----------------|---|------------------------------|
| | UE supports QZSS | UE does not support QZSS |
| None | GNSS Scenario #1 with QZSS Scenario #1 | GNSS Scenario #1 |
| WAAS | [FFS] | GNSS Scenario #2 with WAAS |
| EGNOS | [FFS] | GNSS Scenario #3A with EGNOS |
| MSAS | GNSS Scenario #1 with QZSS Scenario #1 and MSAS | GNSS Scenario #1 with MSAS |
| GAGAN | [FFS] | GNSS Scenario #3B with GAGAN |

6.2.1.2.3.1 GNSS Scenario #3A

[FFS]

6.2.1.2.3.2 GNSS Scenario #3B

[FFS]

6.2.1.2.3.3 QZSS Scenario #1

Yuma Almanac data: see file Perf QZSS 1 Yuma.txt in the GNSS data perf zip file specified in Annex B.

UE location: as for GNSS scenario #1.

Nominal start time: as for GNSS scenario #1.

Viable running time to maintain specified requirements: as for GNSS scenario #1.

Satellite meeting specified requirements to be used for simulation and for which Assistance Data (other than Almanac) shall be generated: PRN 193.

6.2.1.2.3.4 WAAS Scenario

Satellite positions: (PRN 135)133.0 degrees west, height: 35786037.417m, (PRN 138)107.3 degrees west, height: 35786037.417m.

UE location: as for related GNSS scenario.

Satellite used for simulation: PRN 135.

6.2.1.2.3.5 EGNOS Scenario

Satellite positions: (PRN 120)15.5 degrees west, height: 35786037.417m, (PRN 124) 21.5 degrees west, height: 35786037.417m.

UE location: as for related GNSS scenario.

Satellite used for simulation: PRN 120.

6.2.1.2.3.6 MSAS Scenario

Satellite positions: (PRN 129)140.0 degrees east, height: 35786037.417m, (PRN 137)145 degrees east, height: 35786037.417m

UE location: as for related GNSS scenario.

Satellite used for simulation: PRN 129.

6.2.1.2.3.7 GAGAN Scenario

[FFS]

6.2.1.2.4 GNSS Scenario #4

The following GNSS scenario #4 shall be used during the Nominal Accuracy test defined in TS 37.571-1 [6] subclauses 6 and 7. The assistance data specified in the following subclauses for GNSS scenario #4 is consistent with this GNSS scenario.

The scenario used varies dependent on the SBAS supported by the UE and also whether QZSS is supported. The scenario to be used is defined below. Where more than one SBAS is supported use the scenario for MSAS if MSAS and QZSS are supported, otherwise use the scenario for the first supported SBAS in the list.

Table 6.2.1.2.4-1: Scenarios used for Scenario #4

| SBAS supported | Scenarios used | |
|----------------|--|------------------------------|
| | UE supports QZSS | UE does not support QZSS |
| None | GNSS Scenario #4D with QZSS Scenario #2 | GNSS Scenario #2 |
| WAAS | [FFS] | GNSS Scenario #4C with WAAS |
| EGNOS | [FFS] | GNSS Scenario #4A with EGNOS |
| MSAS | GNSS Scenario #4D with QZSS Scenario #2 and MSAS | GNSS Scenario #4D with MSAS |
| GAGAN | [FFS] | GNSS Scenario #4B with GAGAN |

6.2.1.2.4.1 GNSS Scenario #4A

[FFS]

6.2.1.2.4.2 GNSS Scenario #4B

[FFS]

6.2.1.2.4.3 GNSS Scenario #4C

[FFS]

6.2.1.2.4.4 GNSS Scenario #4D

[FFS]

6.2.1.2.4.5 QZSS Scenario #2

Yuma Almanac data: see file Perf QZSS 2 Yuma.txt in the GNSS data perf zip file specified in Annex B.

UE location: as for GNSS scenario #4D.

Nominal start time: as for GNSS scenario #4D.

Viable running time to maintain specified requirements: as for GNSS scenario #4D.

Satellite meeting specified requirements to be used for simulation and for which Assistance Data (other than Almanac) shall be generated: PRN [FFS].

6.2.1.2.4.6 WAAS Scenario

Satellite positions: (PRN 135)133.0 degrees west, height: 35786037.417m, (PRN 138)107.3 degrees west, height: 35786037.417m.

UE location: as for related GNSS scenario.

Satellite used for simulation: PRN 138.

6.2.1.2.4.7 EGNOS Scenario

Satellite positions: (PRN 120)15.5 degrees west, height: 35786037.417m, (PRN 124) 21.5 degrees west, height: 35786037.417m.

UE location: as for related GNSS scenario.

Satellite used for simulation: PRN 124.

6.2.1.2.4.8 MSAS Scenario

Satellite positions: (PRN 129)140.0 degrees east, height: 35786037.417m, (PRN 137)145 degrees east, height: 35786037.417m.

UE location: as for related GNSS scenario.

Satellite used for simulation: PRN 137.

6.2.1.2.4.9 GAGAN Scenario

[FFS]

6.2.1.2.5 GNSS Scenario #5

The following GNSS scenario #5 shall be used during the Moving Scenario and Periodic Update test cases defined in TS 37.571-1 [6] subclauses 6 and 7. The assistance data specified in the following subclauses for GNSS scenario #5 is consistent with this GNSS scenario.

Yuma Almanac data: the required file(s) in the GNSS data perf zip file specified in Annex B are below.

Table 6.2.1.2.5-1: Yuma Almanac data files for TS 37.571-1 subclause 6

| Sub-Test Case Number | Yuma file(s) |
|----------------------|---|
| 1 | Perf GNSS 5-1 Yuma.txt |
| 2 | Perf GNSS 5-2 Yuma.txt |
| 3 | Perf GNSS 5-3 Yuma.txt |
| 4 | Perf GNSS 5-1 Yuma.txt and Perf GNSS 5-3 Yuma.txt |

Table 6.2.1.2.5-2: Yuma Almanac data files for TS 37.571-1 subclause 7

| Sub-Test Case Number | Yuma file(s) |
|----------------------|---|
| 1 | Perf GNSS 5-3 Yuma.txt |
| 2 | Perf GNSS 5-1 Yuma.txt |
| 3 | Perf GNSS 5-2 Yuma.txt |
| 4 | Perf GNSS 5-3 Yuma.txt |
| 5 | Perf GNSS 5-1 Yuma.txt and Perf GNSS 5-3 Yuma.txt |

UE location: the UE location is given as a trajectory as shown in Figure 6.6.1 and Figure 7.1 of TS 37.571-1 [6]. The reference location is at the centre of the trajectory and is at: latitude: 37 degrees 24 minutes 53.391 seconds north, longitude: 122 degrees 1 minutes 3.722 seconds west, (Sunnyvale, USA), height: = 50m.

Start location: at the point between I_{11} and I_{12} in Figure 6.6.1 and Figure 7.1 of TS 37.571-1 [6], going in a clock-wise direction.

Nominal start time: 1st June 2012, 00:01:00 (GPS time).

Viable running time to maintain specified HDOP values: 20 minutes.

Visible satellites available for simulation and for which Assistance Data (other than Almanac) shall be generated are given below.

Table 6.2.1.2.5-3: Visible satellites for TS 37.571-1 subclause 6

| Sub-Test Case Number | SV IDs of Visible satellites |
|----------------------|--|
| 1 | 1, 8, 9, 10, 16, 19, 20, 21 |
| 2 | [FFS] |
| 3 | 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| 4 | GPS: 1, 7, 8, 11, 15, 17, 26, 27, 28. GLONASS: 1, 8, 9, 10, 16, 19, 20, 21 |

Table 6.2.1.2.5-4: Visible satellites for TS 37.571-1 subclause 7

| Sub-Test Case Number | SV IDs of Visible satellites |
|----------------------|--|
| 1 | 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| 2 | 1, 8, 9, 10, 16, 19, 20, 21 |
| 3 | [FFS] |
| 4 | 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| 5 | GPS: 1, 7, 8, 11, 15, 17, 26, 27, 28. GLONASS: 1, 8, 9, 10, 16, 19, 20, 21 |

The satellites to be simulated in each test case have been selected in order to achieve the required HDOP. They are defined below.

Table 6.2.1.2.5-5: Satellites to be simulated for TS 37.571-1 subclause 6

| Sub-Test Case Number | SV IDs of Satellites to be simulated |
|--|--------------------------------------|
| 1 | 1, 8, 9, 10, 19, 20 |
| 2 | [FFS] |
| 3 | 1, 7, 8, 17, 27, 28 (Note) |
| 4 | GPS:1, 8, 26. GLONASS: 8, 10, 20 |
| Note: For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. | |

Table 6.2.1.2.5-6: Satellites to be simulated for TS 37.571-1 subclause 7

| Sub-Test Case Number | SV IDs of Satellites to be simulated |
|--|--------------------------------------|
| 1 | 7, 8, 17, 27, 28 |
| 2 | 1, 8, 9, 10, 19, 20 |
| 3 | [FFS] |
| 4 | 1, 7, 8, 17, 27, 28 (Note) |
| 5 | GPS:1, 8, 26. GLONASS: 8, 10, 20 |
| Note: For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. | |

Ionospheric model: see values in subclause 6.2.7.

Tropospheric model: STANAG with SRI equal to 324.8, as defined in STANAG 4294 [17].

6.2.1.2.6 UE Location for TTFF test cases

This subclause defines the method for generating the random UE locations that are required to be used for the TTFF tests defined in TS 37.571-1 [6] subclauses 6 and 7.

For every Test Instance in each TTFF test case, the UE location shall be randomly selected to be within 3 km of the Reference Location. The Altitude of the UE shall be randomly selected between 0 m to 500 m above WGS-84 reference ellipsoid. These values shall have uniform random distributions.

The UE location is calculated as an offset from the Reference Location.

6.2.1.2.6.1 UE Location Offset

The UE location offset shall be calculated by selecting the next pair of random numbers, representing a pair of latitude and longitude offsets in degrees, from a standard uniform random number generator, with the following properties:

The ranges of the latitude and longitude offsets values shall be such that when translated onto the surface of the earth they shall lie within a 3km radius circle, centred on the Reference location specified for the GNSS scenario under consideration. For the purposes of this calculation make the following assumptions:

- a) Over the 3km radius circle at the Reference location the earth is flat and the meridians and parallels form a rectangular grid
- b) The earth is spherical with a radius of 6371141m (equal to the WGS 84 value at 35 degrees latitude)

The resolution used for the latitude and longitude offsets values shall be $90/2E23$ for the latitude offset values and $360/2E24$ for the longitude offset values, representing the coding resolution in degrees specified in 3GPP TS 23.032.

6.2.1.2.6.2 UE Altitude

The UE altitude value shall be calculated by selecting the next random number from a standard uniform random number generator, in the range 0 to 500, representing meters. The resolution used for the random number shall be 1, representing 1 meter.

6.2.2 Information elements required for normal UE based testing for TS 37.571-1 subclause 6

The following A-GPS and A-GANSS assistance data IEs and fields shall be present for each test as appropriate for the GNSS(s) used during the test. Fields not specified shall not be present. The values of the fields are specified in subclause 6.2.7.

The information elements are given with reference to 3GPP TS 25.331 [34], where the details are defined.

a) GPS Reference Time IE

| Fields of the IE | Release |
|--|----------------|
| GPS Week | |
| GPS Week Cycle Number | Rel-10 onwards |
| GPS TOW msec | |
| UE Positioning GPS ReferenceTime Uncertainty | |
| GPS TOW Assist | |
| SatID | |
| TLM Message | |
| TLM Reserved | |
| Alert | |
| Anti-Spoof | |

b) GANSS Reference Time IE

| Fields of the IE | Release |
|------------------------|----------------|
| GANSS Day | |
| GANSS Day Cycle Number | Rel-10 onwards |
| GANSS TOD | |
| GANSS TOD Uncertainty | |
| GANSS Time ID | |

c) GANSS Time Model IE This information element is only required for multi system tests.

| Fields of the IE | Release |
|--|----------------|
| GANSS Time Model Reference Time | |
| T_{A0} | |
| GNSS_TOD_ID For each GNSS included in the test. | |
| Delta_T | Rel-10 onwards |

d) GPS Reference UE Position IE

| Fields of the IE |
|---|
| Ellipsoid point with Altitude and uncertainty ellipsoid |

e) GANSS Reference UE Position IE

| Fields of the IE |
|---|
| Ellipsoid point with Altitude and uncertainty ellipsoid |

f) GPS Navigation Model IE

| Fields of the IE |
|---------------------------|
| All satellite information |

g) GANSS Navigation Model IE

| Fields of the IE |
|---------------------------|
| All satellite information |

| GANSS | Clock and Orbit Model Choice |
|---------|------------------------------|
| Galileo | Model-1 |

h) GANSS Additional Navigation Model IE

| Fields of the IE |
|---------------------------|
| All satellite information |

| GANSS | Clock and Orbit Model Choice |
|---------------------|------------------------------|
| Modernized GPS | Model-3 |
| GLONASS | Model-4 |
| QZSS QZS-L1 | Model-2 |
| QZSS QZS-L1C/L2C/L5 | Model-3 |
| SBAS | Model-5 |

i) GPS Ionospheric Model IE

| Fields of the IE |
|------------------|
| All |

j) GANSS Ionospheric Model IE

| Fields of the IE |
|------------------|
| All |

k) GANSS Additional Ionospheric Model IE

| Fields of the IE |
|------------------|
| All |

l) GPS UTC Model IE

| Fields of the IE |
|------------------|
| All |

m) GANSS Auxiliary Information IE

| Fields of the IE |
|-----------------------------|
| GANSS Auxiliary Information |

6.2.3 Information elements required for UE based Sensitivity Fine Time Assistance test case for TS 37.571-1 subclause 6

The A-GPS and A-GANSS assistance data IEs and fields that shall be present for the Sensitivity Fine Time Assistance test case shall be those specified in subclause 6.2.2 with the following exception. Fields not specified shall not be present. The values of the fields are specified in subclause 6.2.7.

a) GPS Reference Time IE

| Fields of the IE | Release |
|--|----------------|
| GPS Week | |
| GPS Week Cycle Number | Rel-10 onwards |
| GPS TOW msec | |
| UTRAN GPS reference time | |
| UTRAN GPS timing of cell frames | |
| CHOICE mode | |
| FDD | |
| Primary CPICH Info | |
| SFN | |
| UE Positioning GPS ReferenceTime Uncertainty | |
| TUTRAN-GPS drift rate | |
| GPS TOW Assist | |
| SatID | |
| TLM Message | |
| TLM Reserved | |
| Alert | |
| Anti spoof | |

b) GANSS Reference Time IE

| Fields of the IE | Release |
|-----------------------------------|----------------|
| GANSS Day | |
| GANSS Day Cycle Number | Rel-10 onwards |
| GANSS TOD | |
| GANSS TOD Uncertainty | |
| GANSS Time ID | |
| UTRAN GANSS reference time | |
| UTRAN GANSS timing of cell frames | |
| CHOICE mode | |
| FDD | |
| Primary CPICH Info | |
| SFN | |
| TUTRAN-GANSS drift rate | |

6.2.4 Information elements available for normal UE assisted testing for TS 37.571-1 subclause 6

The following A-GPS and A-GANSS assistance data IEs and fields shall be present for each test as appropriate for the GNSS(s) used during the test. Fields not specified shall not be present. The values of the fields are specified in subclause 6.2.7.

a) GPS Reference Time IE

| Fields of the IE | Release |
|------------------|---------|
| GPS Week | |

| | |
|--|----------------|
| GPS Week Cycle Number | Rel-10 onwards |
| GPS TOW msec | |
| UE Positioning GPS ReferenceTime Uncertainty | |
| GPS TOW Assist | |
| SatID | |
| TLM Message | |
| TLM Reserved | |
| Alert | |
| Anti-Spoof | |

b) GANSS Reference Time IE

| Fields of the IE | Release |
|------------------------|----------------|
| GANSS Day | |
| GANSS Day Cycle Number | Rel-10 onwards |
| GANSS TOD | |
| GANSS TOD Uncertainty | |
| GANSS Time ID | |

c) GANSS Time Model IE This information element is only required for multi system tests.

| Fields of the IE | Release |
|--|----------------|
| GANSS Time Model Reference Time | |
| T_{A0} | |
| GNSS_TOD_ID For each GNSS included in the test. | |
| Delta_T | Rel-10 onwards |

d) GPS Reference UE Position IE

| Fields of the IE |
|---|
| Ellipsoid point with Altitude and uncertainty ellipsoid |

e) GANSS Reference UE Position IE

| Fields of the IE |
|---|
| Ellipsoid point with Altitude and uncertainty ellipsoid |

f) GPS Almanac IE

| Fields of the IE | Release |
|---------------------------|----------------|
| Almanac Reference Week | |
| Complete Almanac Provided | Rel-10 onwards |
| All Satellite information | |

g) GANSS Almanac IE

| Fields of the IE |
|---------------------|
| GANSS Almanac Model |

| GANSS | Almanac Model Choice |
|---------------------|----------------------|
| Galileo | Model-1 |
| Modernized GPS | Model-3,4 |
| GLONASS | Model-5 |
| QZSS QZS-L1 | Model-2 |
| QZSS QZS-L1C/L2C/L5 | Model-3,4 |
| SBAS | Model-6 |

h) GPS Navigation Model IE

| Fields of the IE |
|---------------------------|
| All satellite information |

i) GANSS Navigation Model IE

| Fields of the IE |
|---------------------------|
| All satellite information |

| GANSS | Clock and Orbit Model Choice |
|---------------------|------------------------------|
| Galileo | Model-1 |
| Modernized GPS | Model-3 |
| GLONASS | Model-4 |
| QZSS QZS-L1 | Model-2 |
| QZSS QZS-L1C/L2C/L5 | Model-3 |
| SBAS | Model-5 |

j) GPS Acquisition Assistance IE

| Fields of the IE | Release |
|--|----------------|
| GPS TOW msec | |
| UE Positioning GPS ReferenceTime Uncertainty | |
| Satellite information | |
| SatID | |
| Doppler (0 th order term) | |
| Extra Doppler | |
| Doppler (1 st order term) | |
| Doppler Uncertainty | |
| Code Phase | |
| Integer Code Phase | |
| GPS Bit number | |
| Code Phase Search Window | |
| Azimuth and Elevation | |
| Azimuth | |
| Elevation | |
| Azimuth LSB | Rel-10 onwards |
| Elevation LSB | Rel-10 onwards |

k) GANSS Reference Measurement Information IE

| Fields of the IE | Release |
|--------------------------------------|---------|
| Satellite information | |
| SatID | |
| Doppler (0 th order term) | |
| Extra Doppler | |
| Doppler (1 st order term) | |
| Doppler Uncertainty | |
| Code Phase | |

| | |
|--------------------------|----------------|
| Integer Code Phase | |
| Code Phase Search Window | |
| Azimuth and Elevation | |
| Azimuth | |
| Elevation | |
| Azimuth LSB | Rel-10 onwards |
| Elevation LSB | Rel-10 onwards |

l) GANSS Auxiliary Information IE

| Fields of the IE |
|-----------------------------|
| GANSS Auxiliary Information |

m) GPS UTC Model IE

| Fields of the IE |
|------------------|
| GPS UTC Model |

6.2.5 Information elements available for UE assisted Sensitivity Fine Time Assistance test case for TS 37.571-1 subclause 6

The A-GPS and A-GANSS assistance data IEs and fields that shall be available for use for the Sensitivity Fine Time Assistance test case shall be those specified in subclause 6.2.4 with the following exceptions. Fields not specified shall not be present. The values of the fields are specified in subclause 6.2.7.

a) GPS Reference Time IE

| Fields of the IE | Release |
|--|----------------|
| GPS Week | |
| GPS Week Cycle Number | Rel-10 onwards |
| GPS TOW msec | |
| UTRAN GPS reference time | |
| UTRAN GPS timing of cell frames | |
| CHOICE mode | |
| FDD | |
| Primary CPICH Info | |
| SFN | |
| UE Positioning GPS ReferenceTime Uncertainty | |
| TUTRAN-GPS drift rate | |
| GPS TOW Assist | |
| SatID | |
| TLM Message | |
| TLM Reserved | |

b) GANSS Reference Time IE

| Fields of the IE | Release |
|-----------------------------------|----------------|
| GANSS Day | |
| GANSS Day Cycle Number | Rel-10 onwards |
| GANSS TOD | |
| GANSS TOD Uncertainty | |
| GANSS Time ID | |
| UTRAN GANSS timing of cell frames | |
| CHOICE mode | |
| FDD | |
| Primary CPICH Info | |
| SFN | |
| TUTRAN-GANSS drift rate | |

c) GPS Acquisition Assistance IE

| Fields of the IE | Release |
|---|----------------|
| GPS TOW msec | |
| UTRAN GPS reference time | |
| UTRAN GPS timing of cell frames | |
| CHOICE mode | |
| FDD | |
| Primary CPICH Info | |
| SFN | |
| UE Positioning GPS ReferenceTime Uncertainty | |
| Satellite information | |
| SatID | |
| Doppler (0 th order term) | |
| Extra Doppler | |
| Doppler (1 st order term) | |
| Doppler Uncertainty | |
| Code Phase | |
| Integer Code Phase | |
| GPS Bit number | |
| Code Phase Search Window | |
| Azimuth and Elevation | |
| Azimuth | |
| Elevation | |
| Azimuth LSB | Rel-10 onwards |
| Elevation LSB | Rel-10 onwards |

6.2.6 Information elements available for A-GNSS test cases in TS 37.571-1 subclause 7

The following A-GNSS assistance data elements shall be provided to the UE in the tests. The assistance data provided depends on the mode being used in the test case, the assistance data supported by the UE and the GNSSs supported by the UE. Assistance data IEs not supported by the UE shall not be sent. Assistance data IEs supported by the UE but not listed below shall not be sent. The values of the fields are specified in subclause 6.2.7.

The information elements are given with reference to 3GPP TS 36.355 [8], where the details are defined.

Assistance Data to be provided to the UE for A-GNSS test cases in TS 37.571-1 subclause 7

| Assistance Data IE supported by UE | Mode used in test case | | |
|--|----------------------------------|---|---|
| | UE-based | UE-assisted, GNSS-AcquisitionAssistance supported by UE | UE-assisted, GNSS-AcquisitionAssistance not supported by UE |
| GNSS-Reference Time | Yes | Yes | Yes |
| GNSS-ReferenceLocation | Yes | No | Yes |
| GNSS-IonosphericModel | Yes | No | No |
| GNSS-TimeModelList | Yes for sub-test 5 | No | Yes for sub-test 5 |
| GNSS-NavigationModel | Yes | No | Yes |
| GNSS-AcquisitionAssistance | No | Yes | No |
| GNSS-Almanac | No | No | Yes |
| GNSS-UTC-Model | Yes for sub-test 5 | Yes for sub-test 5 | Yes for sub-test 5 |
| GNSS-AuxiliaryInformation | Yes for sub-tests 2, 4, 5. Note. | Yes for sub-tests 2, 4, 5. Note. | Yes for sub-tests 2, 4, 5. Note. |
| Note: Also if UE supports multiple signals per GNSS. | | | |

a) GNSS- Reference Time IE

GNSS- Reference Time IE

| Information Element | All tests except Sensitivity Fine Time Assistance | Sensitivity Fine Time Assistance test |
|--|---|---------------------------------------|
| GNSS-ReferenceTime | | |
| gnss-SystemTime | | |
| gnss-TimeID | Yes | Yes |
| gnss-DayNumber | Yes | Yes |
| gnss-TimeOfDay | Yes | Yes |
| gnss-TimeOfDayFrac-msec | Yes | Yes |
| notificationOfLeapSecond | Yes if gnss-TimeID = 'glonass' | Yes if gnss-TimeID = 'glonass' |
| gps-TOW-Assist | Yes if gnss-TimeID = 'gps' | Yes if gnss-TimeID = 'gps' |
| referenceTimeUnc | Yes | No |
| gnss-ReferenceTimeForOneCell | No | Yes |
| networkTime | | Yes |
| secondsFromFrameStructureStart | | Yes |
| fractionalSecondsFromFrameStructureStart | | Yes |
| frameDrift | | Yes |
| cellID | | Yes |
| physCellId | | Yes |
| cellGlobalIdEUTRA | | Yes |
| earfcn | | Yes |
| referenceTimeUnc | | Yes |

b) **GNSS-ReferenceLocation IE****GNSS-ReferenceLocation IE**

| Name of the IE | Fields of the IE |
|------------------------|------------------|
| GNSS-ReferenceLocation | threeDlocation |

c) **GNSS-IonosphericModel IE****GNSS-IonosphericModel IE**

| Name of the IE | Fields of the IE |
|---|--------------------------------------|
| GNSS-IonosphericModel | KlobucharModelParameter |
| | NeQuickModelParameter ⁽¹⁾ |
| Note 1: Only required if GNSSs supported include Galileo. | |

d) **GNSS-TimeModelList IE** This information element is only required for multi system tests.**GNSS-TimeModelList IE**

| Name of the IE | Fields of the IE |
|--------------------|---|
| GNSS-TimeModelList | |
| | gnss-TO-ID For each GNSS included in the test. |
| | deltaT |

e) **GNSS-NavigationModel IE**

GNSS-NavigationModel IE

| Name of the IE | Fields of the IE |
|----------------------|------------------|
| GNSS-NavigationModel | |

GNSS Clock and Orbit Model Choices

| GNSS | Clock and Orbit Model Choice |
|---------------------|------------------------------|
| GPS | Model-2 |
| Modernized GPS | Model-3 |
| GLONASS | Model-4 |
| QZSS QZS-L1 | Model-2 |
| QZSS QZS-L1C/L2C/L5 | Model-3 |
| SBAS | Model-5 |
| Galileo | Model-1 |

f) **GNSS-AcquisitionAssistance IE****GNSS-AcquisitionAssistance IE**

| Name of the IE | Fields of the IE |
|----------------------------|------------------|
| GNSS-AcquisitionAssistance | |

g) **GNSS-Almanac IE****GNSS-Almanac IE**

| Name of the IE | Fields of the IE |
|----------------|------------------|
| GNSS-Almanac | |

GNSS Almanac Choices

| GNSS | Almanac Model Choice |
|---------------------|----------------------|
| GPS | Model-2 |
| Modernized GPS | Model-3,4 |
| GLONASS | Model-5 |
| QZSS QZS-L1 | Model-2 |
| QZSS QZS-L1C/L2C/L5 | Model-3,4 |
| SBAS | Model-6 |
| Galileo | Model-1 |

h) **GNSS-UTC-Model IE****GNSS-UTC-Model IE**

| Name of the IE | Fields of the IE |
|----------------|------------------|
| GNSS-UTC-Model | |

GNSS UTC Model Choices

| GNSS | UTC Model Choice |
|---------------------|------------------|
| GPS | Model-1 |
| Modernized GPS | Model-2 |
| GLONASS | Model-3 |
| QZSS QZS-L1 | Model-1 |
| QZSS QZS-L1C/L2C/L5 | Model-2 |
| SBAS | Model-4 |
| Galileo | Model-1 |

i) **GNSS-AuxiliaryInformation IE****GNSS-AuxiliaryInformation IE**

| Name of the IE | Fields of the IE |
|---------------------------|------------------|
| GNSS-AuxiliaryInformation | |

6.2.7 Contents of Information elements for A-GNSS Minimum performance testing

6.2.7.1 General

This subclause defines the assistance data values that shall be used for all Assisted GNSS minimum performance tests defined in TS 37.571-1 [6] subclauses 6 and 7. It is given for GNSS scenarios #1, #2, #3, #4 and #5 and QZSS Scenarios #1 and #2, where it is different for each scenario; otherwise it is marked “All” where the same value is used for all scenarios.

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 GNSS data perf zip file specified in Annex B. 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.

Assistance data that is marked as “time varying” is specified and used in 80ms increments. Interpolation between these values shall not be used.

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

6.2.7.2 IE Random Offset Values

This subclause defines the methods for generating the random offsets that are required to be applied to some assistance data IEs for certain tests defined in TS 37.571-1 [6] subclauses 6 and 7.

6.2.7.2.1 GNSS TOW

For every Test Instance in each TTF test case, the IE GPS TOW msec or GANSS TOD or gnss-TimeofDay plus gnss-TimeofDayFrac-msec shall have a random offset, relative to GNSS system time, within the allowed error range of Coarse Time Assistance defined in the test case. This offset value shall have a uniform random distribution.

The offset value shall be calculated by selecting the next random number from a standard uniform random number generator, in the range specified for the GNSS Coarse Time assistance error range in the Test Requirements, Test parameters table for the test under consideration. The resolution used for the random number shall be 0.01, representing 10ms.

6.2.7.2.2 GNSS/cellular time offset

In addition, for every Fine Time Assistance Test Instance the IE UTRAN GPS timing of cell frames or the UTRAN GANSS timing of cell frames or fractionalSecondsFromFrameStructureStart shall have a random offset, relative to the true value of the relationship between the two time references, within the allowed error range of Fine Time Assistance defined in the test case. This offset value shall have a uniform random distribution.

The offset value shall be calculated by selecting the next random number from a standard uniform random number generator with the following properties:

For UTRAN GPS timing of cell frames the range shall be the number of UMTS chips whose duration is less than the range specified for the GNSS Fine Time assistance error range in the Test Requirements, Test parameters table for the test under consideration. For UTRAN GANSS timing of cell frames or fractionalSecondsFromFrameStructureStart the range shall be the range specified for the GNSS Fine Time assistance error range in the Test Requirements, Test parameters table for the test under consideration.

For UTRAN GPS timing of cell frames the resolution used for the random number shall be 1, representing 1 UMTS bit. For UTRAN GANSS timing of cell frames or fractionalSecondsFromFrameStructureStart the resolution used for the random number shall be 1 μ s.

6.2.7.3 Contents of Information elements for A-GNSS Minimum performance testing in TS 37.571-1 subclause 6

Assistance Data Reference Time

Contents of UE positioning GPS reference time (sub-tests 3 and 4)

Reference Time (Fields occurring once per message)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|--|-------|--|--|--|
| GPS Week | Weeks | 1669 | 1690 | 1690 |
| GPS Week Cycle Number (Note 3) | | 1 | 1 | 1 |
| GPS TOW msec | msec | 1860000 ms. Start time. Add number of ms as required. (Note 1) | 432060000 ms. Start time. Add number of ms as required. (Note 1) | 432060000 ms. Start time. Add number of ms as required. (Note 1) |
| UTRAN GPS reference time | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| UTRAN GPS timing of cell frames | | Note 2 | Note 2 | - |
| CHOICE mode | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | - |
| FDD | | - | - | - |
| Primary CPICH Info | | 100 | 100 | - |
| SFN | | Note 2 | Note 2 | - |
| UE Positioning GPS ReferenceTime Uncertainty | | For Sensitivity Fine Time Assistance test case: '51' (10.2uS). Otherwise: '125' (2.127s) | For Sensitivity Fine Time Assistance test case: '51' (10.2uS). Otherwise: '125' (2.127s) | '125' (2.127s) |
| TUTRAN-GPS drift rate | | 0. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | 0. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |

Note 1: GPS TOW msec

This is the value in ms of GPS TOW msec when the GPS scenario is initially started in the GNSS simulator. For all TTFF test cases, each time a GPS scenario is used, the GPS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.

The actual value of GPS TOW msec to be used in the Reference Time IE (before the addition of the random offset, if applicable) shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GNSS simulator to this value. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.

For all TTFF test cases a random offset is then added to the value of GPS TOW msec as described in subclause 6.2.7.2.

Note 2: UTRAN GPS timing of cell frames and SFN.

The values of UTRAN GPS timing of cell frames (before the addition of the random offset) and SFN shall be calculated at the time the IE is required. The accuracy of the relationship between the two fields shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.

A random offset is then added to the value of UTRAN GPS timing of cell frames as described in subclause 6.2.7.2.

Note 3: This IE is only present for Rel-10 onwards.

Satellite Information

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | 9 | 9 | 9 |

Reference Time - GPS TOW Assist (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---------------------------------------|---------------------------------------|
| SatID | | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |

Reference Time - GPS TOW Assist (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS All |
|---------------------|------------|-----------------------|
| TLM Message | Bit string | 10922 |
| TLM Reserved | Bit string | 2 |
| Alert | Boolean | 0 |
| Anti-Spoof | Boolean | 1 |

Contents of UE positioning GANSS reference time (sub-tests 1 and 2)

GANSS reference time: sub-test 1

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|-----------------------------------|---------|---|---|----------------------------|
| GANSS Day | days | 5845 | 5997 | 5997 |
| GANSS Day Cycle Number (Note 3) | | 0 | 0 | 0 |
| GANSS TOD | seconds | 12645 Start time. (Note 1) | 10845 Start time. (Note 1) | 10845 Start time. (Note 1) |
| GANSS TOD Uncertainty | | 125 (2.127 seconds) | 125 (2.127 seconds) | 125 (2.127 seconds) |
| GANSS Time ID | | 2 (GLONASS) | 2 (GLONASS) | 2 (GLONASS) |
| UTRAN GANSS reference time | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| UTRAN GANSS timing of cell frames | | Note 2 | Note 2 | - |
| CHOICE mode | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | - |
| FDD | | - | - | - |
| Primary CPICH Info | | 100 | 100 | - |
| SFN | | Note 2 | Note 2 | - |
| TUTRAN-GANSS drift rate | | 0. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | 0. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |

Note 1: GANSS TOD

This is the value in seconds of GANSS TOD when the GNSS scenario is initially started in the GNSS simulator. For all TTFF test cases, each time a GNSS scenario is used, the GNSS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.

The actual value of GANSS TOD to be used in the Reference Time IE (before the addition of the random offset, if applicable) shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GNSS simulator to this value. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1[6], shall be met.

For all TTFF test cases a random offset is then added to the value of GANSS TOD as described in subclause 6.2.7.2.

Note 2: UTRAN GANSS timing of cell frames and SFN.

The values of UTRAN GANSS timing of cell frames (before the addition of the random offset) and SFN shall be calculated at the time the IE is required. The accuracy of the relationship between the two fields shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.

A random offset is then added to the value of UTRAN GPS timing of cell frames as described in subclause 6.2.7.2.

Note 3: This IE is only present for Rel-10 onwards.

GANSS reference time: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|-----------------------------------|---------|---|---|---------------------------|
| GANSS Day | days | FFS | FFS | FFS |
| GANSS Day Cycle Number (Note 3) | | FFS | FFS | FFS |
| GANSS TOD | seconds | FFS. Start time. (Note 1) | FFS. Start time. (Note 1) | FFS. Start time. (Note 1) |
| GANSS TOD Uncertainty | | 125 (2.127 seconds) | 125 (2.127 seconds) | 125 (2.127 seconds) |
| GANSS Time ID | | Not present (Galileo) | Not present (Galileo) | Not present (Galileo) |
| UTRAN GANSS reference time | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| UTRAN GANSS timing of cell frames | | Note 2 | Note 2 | - |
| CHOICE mode | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | - |
| FDD | | - | - | - |
| Primary CPICH Info | | 100 | 100 | - |
| SFN | | Note 2 | Note 2 | - |
| TUTRAN-GANSS drift rate | | 0. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | 0. Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |

Note 1: GANSS TOD

This is the value in seconds of GANSS TOD when the GNSS scenario is initially started in the GNSS simulator. For all TTFB test cases, each time a GNSS scenario is used, the GNSS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.

The actual value of GANSS TOD to be used in the Reference Time IE (before the addition of the random offset, if applicable) shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GNSS simulator to this value. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.

For all TTFB test cases a random offset is then added to the value of GANSS TOD as described in subclause 6.2.7.2.

Note 2: UTRAN GANSS timing of cell frames and SFN.

The values of UTRAN GANSS timing of cell frames (before the addition of the random offset) and SFN shall be calculated at the time the IE is required. The accuracy of the relationship between the two fields shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.

A random offset is then added to the value of UTRAN GPS timing of cell frames as described in subclause 6.2.7.2.

Note 3: This IE is only present for Rel-10 onwards.

Assistance Data Time Model

Contents of UE positioning GANSS time model (sub-test 4)

GANSS time model

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---|---------|----------------------|----------------------|----------------------|
| GANSS Time Model Reference Time | | 1860 (s) | 432060 (s) | 432060 (s) |
| T _{A0} | seconds | 0 | 0 | 0 |
| GNSS_TOD_ID | | 0 (GPS) | 0 (GPS) | 0 (GPS) |
| Delta_T (Note 1) | seconds | 15 | 15 | 15 |
| Note 1: This IE is only present for Rel-10 onwards. | | | | |

Assistance Data Reference UE Position

The uncertainty of the semi-major axis is 3 km. The uncertainty of the semi-minor axis is 3 km. The orientation of the major axis is 0 degrees. The uncertainty of the altitude information is 500 m. The confidence factor is 68%.

Contents of UE positioning GPS reference UE position (sub-tests 3 and 4)

GPS reference UE position

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------------|---------|----------------------|----------------------|----------------------|
| Latitude sign | | 0 | 0 | 0 |
| Degrees of latitude | degrees | 35.744287 | 37.414831 | 37.414831 |
| Degrees of longitude | degrees | 139.680176 | -122.017701 | -122.017701 |
| Altitude Direction | | 0 | 0 | 0 |
| Altitude | m | 300 | 50 | 50 |
| Uncertainty semi-major | m | 3000 | 3000 | 3000 |
| Uncertainty semi-minor | m | 3000 | 3000 | 3000 |
| Orientation of major axis | degrees | 0 | 0 | 0 |
| Uncertainty altitude | m | 500 | 500 | 500 |
| Confidence | % | 68 | 68 | 68 |

Contents of UE positioning GANSS reference UE position (sub-tests 1 and 2)

GANSS reference UE position

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|------------------------|---------|----------------------|----------------------|----------------------|
| Latitude sign | | 0 | 0 | 0 |
| Degrees Of Latitude | degrees | 35.744287 | 37.414831 | 37.414831 |
| Degrees Of Longitude | degrees | 139.680176 | -122.017701 | -122.017701 |
| Altitude Direction | | 0 | 0 | 0 |
| Altitude | m | 300 | 50 | 50 |
| Uncertainty semi-major | m | 3000 | 3000 | 3000 |
| Uncertainty semi-minor | m | 3000 | 3000 | 3000 |

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------------|---------|----------------------|----------------------|----------------------|
| Orientation of major axis | degrees | 0 | 0 | 0 |
| Uncertainty Altitude | m | 500 | 500 | 500 |
| Confidence | % | 68 | 68 | 68 |

Assistance Data Navigation Model

Contents of UE positioning GPS navigation model (sub-tests 3 and 4)

Satellite Information

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | 9 | 9 | 9 |

GPS Navigation Model (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|--|---------|--|---------------------------------------|---------------------------------------|
| SatID | - | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| Satellite Status | Boolean | 0 (Note) | 0 (Note) | 0 (Note) |
| Note: For consistency Satellite Status is also given in file: Perf GPS Navigation model XX.csv | | | | |

GPS Ephemeris and Clock Correction parameters (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS All |
|---------------------|-----------------------|--|
| C/A or P on L2 | Boolean | See file: Perf GPS Navigation model XX.csv |
| URA Index | Boolean | See file: Perf GPS Navigation model XX.csv |
| SV Health | Boolean | See file: Perf GPS Navigation model XX.csv |
| IODC | - | See file: Perf GPS Navigation model XX.csv |
| L2 P Data Flag | Boolean | See file: Perf GPS Navigation model XX.csv |
| SF 1 Reserved | - | See file: Perf GPS Navigation model XX.csv |
| SF 2 Reserved | - | See file: Perf GPS Navigation model XX.csv |
| SF 3 Reserved | - | See file: Perf GPS Navigation model XX.csv |
| SF 4 Reserved | - | See file: Perf GPS Navigation model XX.csv |
| T _{GD} | Sec | See file: Perf GPS Navigation model XX.csv |
| t _{oc} | Sec | See file: Perf GPS Navigation model XX.csv |
| af ₂ | sec/sec ² | See file: Perf GPS Navigation model XX.csv |
| af ₁ | sec/sec | See file: Perf GPS Navigation model XX.csv |
| af ₀ | Sec | See file: Perf GPS Navigation model XX.csv |
| C _{rs} | Meters | See file: Perf GPS Navigation model XX.csv |
| Δn | semi-circles/sec | See file: Perf GPS Navigation model XX.csv |
| M ₀ | semi-circles | See file: Perf GPS Navigation model XX.csv |
| C _{uc} | Radians | See file: Perf GPS Navigation model XX.csv |
| E | - | See file: Perf GPS Navigation model XX.csv |
| C _{us} | Radians | See file: Perf GPS Navigation model XX.csv |
| (A) ^{1/2} | meters ^{1/2} | See file: Perf GPS Navigation model XX.csv |
| t _{oe} | Sec | See file: Perf GPS Navigation model XX.csv |
| Fit Interval Flag | Boolean | See file: Perf GPS Navigation model XX.csv |
| AODO | Sec | See file: Perf GPS Navigation model XX.csv |
| C _{ic} | Radians | See file: Perf GPS Navigation model XX.csv |
| OMEGA ₀ | semi-circles | See file: Perf GPS Navigation model XX.csv |
| C _{is} | Radians | See file: Perf GPS Navigation model XX.csv |
| i ₀ | semi-circles | See file: Perf GPS Navigation model XX.csv |
| C _{rc} | Meters | See file: Perf GPS Navigation model XX.csv |
| ω | semi-circles | See file: Perf GPS Navigation model XX.csv |
| OMEGAdot | semi-circles/sec | See file: Perf GPS Navigation model XX.csv |
| Idot | semi-circles/sec | See file: Perf GPS Navigation model XX.csv |

Contents of UE positioning GANSS navigation model (sub-test 2)

GANSS navigation model

| Information Element | Units | Value/remark GNSS All |
|--------------------------|-------|-----------------------|
| Non-Broadcast Indication | - | Not present |

Satellite Information

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | FFS | FFS | FFS |

GANSS navigation model (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| SatID | - | FFS | FFS | FFS |
| SV Health | | 0 (Note) | 0 (Note) | 0 (Note) |
| IOD | | FFS (Note) | FFS (Note) | FFS (Note) |

Note: For consistency SV Health and IOD are also given in file: Perf Galileo Navigation model XX.csv

GANSS Clock Model (Fields occurring once per satellite)**Galileo Satellite clock model ("Model 1")**

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|--|
| toc | | See file: Perf Galileo Navigation model XX.csv |
| af2 | | See file: Perf Galileo Navigation model XX.csv |
| af1 | | See file: Perf Galileo Navigation model XX.csv |
| af0 | | See file: Perf Galileo Navigation model XX.csv |
| TGD | | See file: Perf Galileo Navigation model XX.csv |

GANSS Orbit Model (Fields occurring once per satellite)**Galileo orbit model: Keplerian Parameters ("Model 1")**

| Information Element | Units | Value/remark GNSS All |
|----------------------|-------|--|
| toe | | See file: Perf Galileo Navigation model XX.csv |
| ω | | See file: Perf Galileo Navigation model XX.csv |
| Δn | | See file: Perf Galileo Navigation model XX.csv |
| M0 | | See file: Perf Galileo Navigation model XX.csv |
| OMEGA _{dot} | | See file: Perf Galileo Navigation model XX.csv |
| e | | See file: Perf Galileo Navigation model XX.csv |
| ldot | | See file: Perf Galileo Navigation model XX.csv |
| sqrtA | | See file: Perf Galileo Navigation model XX.csv |
| i0 | | See file: Perf Galileo Navigation model XX.csv |
| OMEGA0 | | See file: Perf Galileo Navigation model XX.csv |
| Crs | | See file: Perf Galileo Navigation model XX.csv |
| Cis | | See file: Perf Galileo Navigation model XX.csv |
| Cus | | See file: Perf Galileo Navigation model XX.csv |
| Crc | | See file: Perf Galileo Navigation model XX.csv |
| Cic | | See file: Perf Galileo Navigation model XX.csv |
| Cuc | | See file: Perf Galileo Navigation model XX.csv |

Contents of UE positioning GANSS additional navigation models (sub-tests 1 and 4)

GANSS additional navigation models

| Information Element | Units | Value/remark GNSS All |
|--------------------------|-------|-----------------------|
| Non-Broadcast Indication | - | Not present |

Satellite Information

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | 8 | 8 | 8 |

GANSS additional navigation models (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---|---|
| SatID | - | Slot Numbers: 3, 4, 5, 9, 10, 18, 19, 20 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 |
| SV Health | | 011110 (Note) | 011110 (Note) | 011110 (Note) |
| IOD | | 225 (Note) | 195 (Note) | 195 (Note) |

Note: For consistency SV Health and IOD are also given in file: Perf GLONASS Navigation model XX.csv

GANSS additional clock models (Fields occurring once per satellite)

GLONASS Satellite Clock Model ("Model 4")

| Information Element | Units | Value/remark GNSS All |
|---------------------|---------|--|
| $\tau_n(t_b)$ | Seconds | See file: Perf GLONASS Navigation model XX.csv |
| $\gamma_n(t_b)$ | | See file: Perf GLONASS Navigation model XX.csv |
| $\Delta\tau_n$ | Seconds | See file: Perf GLONASS Navigation model XX.csv |

GANSS additional orbit models (Fields occurring once per satellite)

GLONASS Earth-Centered, Earth-fixed Parameters ("Model 4")

| Information Element | Units | Value/remark GNSS All |
|---------------------|---------------------|--|
| E_n | Days | See file: Perf GLONASS Navigation model XX.csv |
| P1 | Minutes | See file: Perf GLONASS Navigation model XX.csv |
| P2 | | See file: Perf GLONASS Navigation model XX.csv |
| M | | See file: Perf GLONASS Navigation model XX.csv |
| $x_n(t_b)$ | Km | See file: Perf GLONASS Navigation model XX.csv |
| $\dot{x}_n(t_b)$ | km/sec | See file: Perf GLONASS Navigation model XX.csv |
| $\ddot{x}_n(t_b)$ | km/sec ² | See file: Perf GLONASS Navigation model XX.csv |
| $y_n(t_b)$ | Km | See file: Perf GLONASS Navigation model XX.csv |
| $\dot{y}_n(t_b)$ | km/sec | See file: Perf GLONASS Navigation model XX.csv |
| $\ddot{y}_n(t_b)$ | km/sec ² | See file: Perf GLONASS Navigation model XX.csv |
| $z_n(t_b)$ | Km | See file: Perf GLONASS Navigation model XX.csv |
| $\dot{z}_n(t_b)$ | km/sec | See file: Perf GLONASS Navigation model XX.csv |
| $\ddot{z}_n(t_b)$ | km/sec ² | See file: Perf GLONASS Navigation model XX.csv |

Assistance Data Ionospheric Model

Contents of UE positioning GPS ionospheric model (sub-tests 3 and 4)

| GPS Ionospheric Model Information Element | Units | Value/remark GNSS All |
|---|--------------------------------|-----------------------|
| α_0 | Seconds | 4.6566129 10E-9 |
| α_1 | sec/semi-circle | 1.4901161 10E-8 |
| α_2 | sec/(semi-circle) ² | -5.96046 10E-8 |
| α_3 | sec/(semi-circle) ³ | -5.96046 10E-8 |
| β_0 | Seconds | 79872 |
| β_1 | sec/semi-circle | 65536 |
| β_2 | sec/(semi-circle) ² | -65536 |
| β_3 | sec/(semi-circle) ³ | -393216 |

Contents of UE positioning GANSS ionospheric model (sub-test 2)

GANSS ionospheric model

| Information Element | Units | Value/remark GNSS All |
|---------------------------------------|-------|-----------------------|
| a_{i0} | | FFS |
| a_{i1} | | FFS |
| a_{i2} | | FFS |
| GANSS Ionosphere Regional Storm Flags | | |
| Storm Flag 1 | | 0 |
| Storm Flag 2 | | 0 |
| Storm Flag 3 | | 0 |
| Storm Flag 4 | | 0 |
| Storm Flag 5 | | 0 |

Contents of UE positioning GANSS additional ionospheric model (sub-test 1)

GANSS additional ionospheric model

| Information Element | Units | Value/remark GNSS All |
|---------------------|--------------------------------|-----------------------|
| Data Id | | 00 |
| α_0 | Seconds | 4.6566129 10E-9 |
| α_1 | sec/semi-circle | 1.4901161 10E-8 |
| α_2 | sec/(semi-circle) ² | -5.96046 10E-8 |
| α_3 | sec/(semi-circle) ³ | -5.96046 10E-8 |
| β_0 | Seconds | 79872 |
| β_1 | sec/semi-circle | 65536 |
| β_2 | sec/(semi-circle) ² | -65536 |
| β_3 | sec/(semi-circle) ³ | -393216 |

Assistance Data Almanac

Contents of UE positioning GPS almanac (sub-tests 3 and 4)

GPS Almanac (Field occurring once per message)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|------------------------------------|-------|----------------------|----------------------|----------------------|
| WN _a | Weeks | 1669 | 1691 | 1691 |
| Complete Almanac Provided (Note 1) | | TRUE | TRUE | TRUE |

Note 1: This IE is only present for Rel-10 onwards.

Satellite Information

| Information Element | Units | Value/remark GNSS All |
|----------------------|-------|-----------------------|
| Number of satellites | - | 27 |

GPS Almanac (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|-----------------------------------|
| DataID | - | See file: Perf GPS Almanac XX.csv |

GPS Almanac (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|--|--|
| SatID | - | PRNs: 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 32 | PRNs: 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 30 | PRNs: 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 30 |

GPS Almanac (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS All |
|---------------------|-----------------------|-----------------------------------|
| e | Dimensionless | See file: Perf GPS Almanac XX.csv |
| t _{oa} | Sec | See file: Perf GPS Almanac XX.csv |
| δi | semi-circles | See file: Perf GPS Almanac XX.csv |
| OMEGADOT | semi-circles/sec | See file: Perf GPS Almanac XX.csv |
| SV Health | Boolean | See file: Perf GPS Almanac XX.csv |
| A ^{1/2} | meters ^{1/2} | See file: Perf GPS Almanac XX.csv |
| OMEGA ₀ | semi-circles | See file: Perf GPS Almanac XX.csv |
| M ₀ | semi-circles | See file: Perf GPS Almanac XX.csv |
| ω | semi-circles | See file: Perf GPS Almanac XX.csv |
| af ₀ | Seconds | See file: Perf GPS Almanac XX.csv |
| af ₁ | sec/sec | See file: Perf GPS Almanac XX.csv |

Contents of UE positioning GANSS almanac (sub-tests 1, 2 and 4)

GANSS almanac: sub-tests 1, 4 (Field occurring once per message)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---|-------|----------------------|----------------------|----------------------|
| Week Number | Weeks | N/A | N/A | N/A |
| Complete Almanac Provided (Note 1) | | TRUE | TRUE | TRUE |
| Note 1: This IE is only present for Rel-10 onwards. | | | | |

Satellite Information GLO-KP: sub-tests 1, 4

| Information Element | Units | Value/remark GNSS All |
|----------------------|-------|-----------------------|
| Number of satellites | - | 24 |

GANSS almanac: sub-tests 1, 4 (Fields occurring once per satellite)**GLONASS Keplerian Parameters ("Model 5")**

| Information Element | Units | Value/remark GNSS All |
|-----------------------------|------------------|---------------------------------------|
| N^A | Days | See file: Perf GLONASS Almanac XX.csv |
| n^A | - | Slot Numbers: 1, 2, 322, 23, 24 |
| H_n^A | - | See file: Perf GLONASS Almanac XX.csv |
| λ_n^A | semi-circles | See file: Perf GLONASS Almanac XX.csv |
| $t_{\lambda,n}^A$ | Seconds | See file: Perf GLONASS Almanac XX.csv |
| Δi_n^A | semi-circles | See file: Perf GLONASS Almanac XX.csv |
| ΔT_n^A | sec/orbit-period | See file: Perf GLONASS Almanac XX.csv |
| $\Delta T_{\text{DOT}_n^A}$ | sec/orbit-period | See file: Perf GLONASS Almanac XX.csv |
| ε_n^A | dimensionless | See file: Perf GLONASS Almanac XX.csv |
| ω_n^A | semi-circles | See file: Perf GLONASS Almanac XX.csv |
| τ_n^A | Seconds | See file: Perf GLONASS Almanac XX.csv |
| C_n^A | dimensionless | See file: Perf GLONASS Almanac XX.csv |
| M_n^A | dimensionless | See file: Perf GLONASS Almanac XX.csv |

GANSS almanac: sub-test 2 (Field occurring once per message)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---|-------|----------------------|----------------------|----------------------|
| Week Number | Weeks | FFS | FFS | FFS |
| Complete Almanac Provided (Note 1) | | TRUE | TRUE | TRUE |
| Note 1: This IE is only present for Rel-10 onwards. | | | | |

GANSS almanac: sub-test 2 (Field occurring once per message)**Galileo Keplerian Parameters (“Model 1”)**

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| T_{oa} | | FFS | FFS | FFS |
| IOD_a | | FFS | FFS | FFS |

Satellite Information KP: sub-test 2

| Information Element | Units | Value/remark GNSS All |
|----------------------|-------|-----------------------|
| Number of satellites | - | 27 |

GANSS almanac: sub-test 2 (Fields occurring once per satellite)**Galileo Keplerian Parameters (“Model 1”)**

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| SV ID | - | FFS | FFS | FFS |

GANSS almanac: sub-test 2 (Fields occurring once per satellite)**Galileo Keplerian Parameters (“Model 1”)**

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------------------------|---------------------------------------|
| E | - | See file: Perf Galileo Almanac XX.csv |
| δ_i | semi-circles | See file: Perf Galileo Almanac XX.csv |
| OMEGADOT | semi-circles/sec | See file: Perf Galileo Almanac XX.csv |
| SV Health KP | - | See file: Perf Galileo Almanac XX.csv |
| $\delta A^{1/2}$ | (meters) ^{1/2} | See file: Perf Galileo Almanac XX.csv |
| OMEGA ₀ | semi-circles | See file: Perf Galileo Almanac XX.csv |
| M ₀ | semi-circles | See file: Perf Galileo Almanac XX.csv |
| ω | semi-circles | See file: Perf Galileo Almanac XX.csv |
| af ₀ | Seconds | See file: Perf Galileo Almanac XX.csv |
| af ₁ | sec/sec | See file: Perf Galileo Almanac XX.csv |

Assistance Data UTC Model

Contents of UE positioning GPS UTC model (sub-test 4)

GPS UTC model

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|---------|----------------------|----------------------|----------------------|
| A ₁ | sec/sec | 0 | 0 | 0 |
| A ₀ | Seconds | 0 | 0 | 0 |
| t _{tot} | Seconds | 249856 | 77824 | 77824 |
| WN _t | Weeks | 133 | 155 | 155 |
| Δt_{LS} | Seconds | 15 | 15 | 15 |
| WN _{LSF} | Weeks | 158 | 158 | 158 |
| DN | Days | 7 | 7 | 7 |
| Δt_{LSF} | Seconds | 16 | 16 | 16 |

Assistance Data Acquisition Assistance and Reference Measurement Information

Contents of UE positioning GPS acquisition assistance (sub-tests 3 and 4)

GPS Acquisition Assistance (Fields occurring once per message)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|--|-------|--|--|---|
| GPS TOW msec | msec | 1860000 ms. Start time. Add number of ms as required. (Note 1) | 432060000 ms. Start time. Add number of ms as required. (Note 1) | 432060000ms. Start time. Add number of ms as required. (Note 1) |
| UTRAN GPS reference time | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| UTRAN GPS timing of cell frames | | Note 2 | Note 2 | - |
| CHOICE mode | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | - |
| FDD | | - | - | - |
| Primary CPICH Info | | 100 | 100 | - |
| SFN | | Note 2 | Note 2 | - |
| UE Positioning GPS ReferenceTime Uncertainty | | For Sensitivity Fine Time Assistance test case: '51' (10.2uS). Otherwise: '125' (2.127s) | For Sensitivity Fine Time Assistance test case: '51' (10.2uS). Otherwise: '125' (2.127s) | '125' (2.127s) |

Note 1: GPS TOW msec
This is the value in ms of GPS TOW msec when the GPS scenario is initially started in the GNSS simulator. For all TTFF test cases, each time a GPS scenario is used, the GPS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.
The actual value of GPS TOW msec to be used in the Acquisition Assistance IE (before the addition of the random offset, if applicable) shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GNSS simulator to this value. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.
For all TTFF test cases a random offset is then added to the value of GPS TOW msec as described in subclause 6.2.7.2.
This "final GPS TOW msec" value is then also used to determine the value of the Acquisition Assistance Information Elements marked as "Time varying".

Note 2: UTRAN GPS timing of cell frames and SFN
The values of UTRAN GPS timing of cell frames (before the addition of the random offset) and SFN shall be calculated at the time the IE is required. The accuracy of the relationship between the two fields shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.
A random offset is then added to the value of UTRAN GPS timing of cell frames as described in subclause 6.2.7.2

Satellite Information

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | 9 | 9 | 9 |

GPS Acquisition Assistance (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---------------------------------------|---------------------------------------|
| SatID | - | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |

GPS Acquisition Assistance (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS All | Release |
|---|--------|---|----------------|
| Doppler (0 th order term) | Hz | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| Doppler (1 st order term) | Hz/sec | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| Doppler Uncertainty | Hz | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| Code Phase | Chips | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| Integer Code Phase | - | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| GPS Bit number | - | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| Code Phase Search Window | Chips | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| Azimuth | Deg | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| Elevation | Deg | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | |
| Azimuth LSB | Deg | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | Rel-10 onwards |
| Elevation LSB | Deg | Time varying. See file: Perf GPS Acquisition assist XX.csv (Note) | Rel-10 onwards |
| Note: Acquisition Assistance Information Elements This field is "Time varying" and its value depends on the "final GPS TOW msec" as described above. The value of this field to be used shall be determined by taking the "final GPS TOW msec" value and selecting the nearest field value in the Perf GPS Acquisition assist.csv file corresponding to the value of "final current GPS TOW msec". | | | |

Contents of UE positioning GANSS reference measurement information (sub-tests 1, 2 and 4)

GANSS reference measurement information: sub-test 1, 4 (Fields occurring once per message)

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|-----------------------|
| GANSS Signal ID | | Not present |

Satellite Information: sub-test 1, 4

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | 8 | 8 | 8 |

GANSS reference measurement information: sub-test 1, 4 (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---|---|
| SatID | - | Slot Numbers: 3, 4, 5, 9, 10, 18, 19, 20 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 |

GANSS reference measurement information: sub-test 1, 4 (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS All | Release |
|--|------------------|---|----------------|
| Doppler (0 th order term) | m/s | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | |
| Doppler (1 st order term) | m/s ² | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | |
| Doppler Uncertainty | m/s | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | |
| Code Phase | ms | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | |
| Integer Code Phase | ms | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | |
| Code Phase Search Window | | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | |
| Azimuth | Degrees | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | |
| Elevation | Degrees | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | |
| Azimuth LSB | Degrees | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | Rel-10 onwards |
| Elevation LSB | Degrees | Time varying. See file: Perf GANSS reference measurement information subtest1_4_XX.csv (Note) | Rel-10 onwards |
| <p>Note: For sub-test 1: this field is "Time varying" and its value depends on the "current GANSS TOD". The value of this field to be used shall be determined by taking the "current GANSS TOD" value and selecting the field value in the Perf GANSS reference measurement information subtest1_4.csv file corresponding to the value of "current GANSS TOD".</p> <p>For sub-test 4: this field is "Time varying" and its value depends on the "current GPS TOW msec". The value of this field to be used shall be determined by taking the "current GPS TOW msec" value and selecting the field value in the Perf GANSS reference measurement information subtest1_4.csv file corresponding to the value of "current GPS TOW msec".</p> | | | |

GANSS reference measurement information: sub-test 2 (Fields occurring once per message)

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|-----------------------|
| GANSS Signal ID | | Not present |

Satellite Information: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | FFS | FFS | FFS |

GANSS reference measurement information: sub-test 2 (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| SatID | - | FFS | FFS | FFS |

GANSS reference measurement information: sub-test 2 (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS All | Release |
|--|------------------|---|----------------|
| Doppler (0 th order term) | m/s | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | |
| Doppler (1 st order term) | m/s ² | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | |
| Doppler Uncertainty | m/s | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | |
| Code Phase | ms | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | |
| Integer Code Phase | ms | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | |
| Code Phase Search Window | | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | |
| Azimuth | Degrees | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | |
| Elevation | Degrees | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | |
| Azimuth LSB | Degrees | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | Rel-10 onwards |
| Elevation LSB | Degrees | Time varying. See file: Perf GANSS reference measurement information subtest2 XX.csv (Note) | Rel-10 onwards |
| Note: This field is "Time varying" and its value depends on the "current GANSS TOD". The value of this field to be used shall be determined by taking the "current GANSS TOD" value and selecting the field value in the Perf GANSS reference measurement information subtest2.csv file corresponding to the value of "current GANSS TOD". | | | |

Assistance Data Auxiliary Information

Contents of UE positioning GANSS auxiliary information (sub-tests 1, 3 and 4)

GANSS auxiliary information: sub-test 1, 4 (Fields occurring once per message)

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|-----------------------|
| GANSS-ID-3 | | Present (GLONASS) |

Aux Info List: sub-test 1, 4

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | 8 | 8 | 8 |

GANSS auxiliary information: sub-test 1, 4 (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---|---|
| SatID | - | Slot Numbers: 3, 4, 5, 9, 10, 18, 19, 20 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 |
| Signals Available | - | 10000000 (G1) | 10000000 (G1) | 10000000 (G1) |
| Channel number | - | 5, 6, 1, -2, -7, -3, 3, 2 | 1, 6, -2, -7, -1, 3, 2, 4 | 1, 6, -2, -7, -1, 3, 2, 4 |

GANSS auxiliary information: sub-test 3 (Fields occurring once per message)

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|--------------------------|
| GANSS-ID-1 | | Present (Modernized GPS) |

Aux Info List: sub-test 3

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|----------------------|----------------------|----------------------|
| Number of satellites | - | 9 | 9 | 9 |

GNSS auxiliary information: sub-test 3 (Fields occurring once per satellite)

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---------------------------------------|---------------------------------------|
| SatID | - | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| Signals Available | - | L1C and others as supported by the UE | L1C and others as supported by the UE | L1C and others as supported by the UE |

Assistance Data GNSS ID

Contents of GNSS ID

GNSS ID: sub-test 1, 4

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|-----------------------|
| GNSS ID | | 3 (GLONASS) |

GNSS ID: sub-test 2

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|-----------------------|
| GNSS ID | | Not present (Galileo) |

GNSS ID: sub-test 3

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|-----------------------|
| GNSS ID | | 1 (Modernized GPS) |

6.2.7.4 Contents of Information elements for A-GNSS Minimum performance testing in TS 37.571-1 subclause 7

GNSS REFERENCE TIME:

GNSS-ReferenceTime: sub-tests 1, 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|--|-------|---|---|---------------------------------------|
| gnss-SystemTime | | | | |
| gnss-TimeID | | 0 (gps) | 0 (gps) | 0 (gps) |
| gnss-DayNumber | days | 11683 | 11835 | 11835 |
| gnss-TimeOfDay | s | 1860s. Start time. (Note 1) | 60s. Start time. (Note 1) | 60s. Start time. (Note 1) |
| gnss-TimeOfDayFrac-msec | ms | 0 (Note 1) | 0 (Note 1) | 0 (Note 1) |
| notificationOfLeapSecond | | Not present | Not present | Not present |
| gps-TOW-Assist | | | | |
| satelliteID | | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| tImWord | | 10922 (for all PRNs) | 10922 (for all PRNs) | 10922 (for all PRNs) |
| antiSpooF | | 1 (for all PRNs) | 1 (for all PRNs) | 1 (for all PRNs) |
| alErT | | 0 (for all PRNs) | 0 (for all PRNs) | 0 (for all PRNs) |
| tImRsvdBits | | 2 (for all PRNs) | 2 (for all PRNs) | 2 (for all PRNs) |
| referenceTimeUnc | | '117' (2.274 seconds) Absent for Sensitivity Fine Time Assistance test case. Present otherwise | '117' (2.274 seconds) Absent for Sensitivity Fine Time Assistance test case. Present otherwise | '117' (2.274 seconds) |
| gnss-ReferenceTimeForCells | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| GNSS-ReferenceTimeForOneCell | | | | |
| networkTime | | | | |
| secondsFromFrameStructureStart | s | Note 2 | Note 2 | |
| fractionalSecondsFromFrameStructureStart | 250ns | Note 2 | Note 2 | |
| frameDrift | | 0 | 0 | |
| cellID | | | | |
| CHOICE eUTRA | | | | |
| physCellId | | 0 | 0 | |
| cellGlobalIdEUTRA | | '0000 0000'B | '0000 0000'B | |
| earfcn | | Note 3 | Note 3 | |
| referenceTimeUnc | | '24' (11.11us) | '24' (11.11us) | |

Note 1: gnss-TimeOfDay and gnss-TimeOfDayFrac-msec.

This is the value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec when the GNSS scenario is initially started in the GNSS simulator. For all TTFF test cases, each time a GNSS scenario is used, the GNSS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.

The actual value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec to be used in the Reference Time IE (before the addition of the random offset, if applicable) shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GNSS simulator to this value. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.

For all TTFF test cases a random offset is then added to the value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec as described in subclause 6.2.7.2.

Note 2: secondsFromFrameStructureStart and fractionalSecondsFromFrameStructureStart.

The values of secondsFromFrameStructureStart and fractionalSecondsFromFrameStructureStart (before the addition of the random offset) shall be calculated at the time the IE is required. The accuracy of the values used shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of 37.571-1 [6], shall be met.

A random offset is then added to the value of secondsFromFrameStructureStart and

fractionalSecondsFromFrameStructureStart as described in subclause 6.2.7.2.
 Note 3: earfcn is defined in TS 36.508 [20] subclause 4.3.1 for the frequency band under test (see TS 37.571-1 [6] subclause 4.1.1)

GNSS-ReferenceTime: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|--|-------|--|--|----------------------------------|
| gnss-SystemTime | | | | |
| gnss-TimeID | | 4 (glonass) | 4 (glonass) | 4 (glonass) |
| gnss-DayNumber | days | 5845 | 5997 | 5997 |
| gnss-TimeOfDay | s | 12645 s. Start time. (Note 1) | 10845 s. Start time. (Note 1) | 10845 s. Start time. (Note 1) |
| gnss-TimeOfDayFrac-msec | ms | 0 (Note 1) | 0 (Note 1) | 0 (Note 1) |
| notificationOfLeapSecond | | 00 | 00 | 00 |
| gps-TOW-Assist | | Not present | Not present | Not present |
| referenceTimeUnc | | '117' (2.274 seconds) Absent for Sensitivity Fine Time Assistance test case. Present otherwise | '117' (2.274 seconds) Absent for Sensitivity Fine Time Assistance test case. Present otherwise | '117' (2.274 seconds) |
| gnss-ReferenceTimeForCells | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| GNSS-ReferenceTimeForOneCell networkTime | | | | |
| secondsFromFrameStructure Start | s | Note 2 | Note 2 | |
| fractionalSecondsFromFrame StructureStart | 250ns | Note 2 | Note 2 | |
| frameDrift | | 0 | 0 | |
| cellID | | | | |
| CHOICE eUTRA | | | | |
| physCellId | | 0 | 0 | |
| cellGlobalIdEUTRA | | '0000 0000'B | '0000 0000'B | |
| earfcn | | Note 3 | Note 3 | |
| referenceTimeUnc | | '24' (11.11us) | '24' (11.11us) | |

Note 1: gnss-TimeOfDay and gnss-TimeOfDayFrac-msec

This is the value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec when the GNSS scenario is initially started in the GNSS simulator. For all TTFF test cases, each time a GNSS scenario is used, the GNSS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.

The actual value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec to be used in the Reference Time IE (before the addition of the random offset, if applicable) shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GNSS simulator to this value. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.

For all TTFF test cases a random offset is then added to the value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec as described in subclause 6.2.7.2.

Note 2: secondsFromFrameStructureStart and fractionalSecondsFromFrameStructureStart.

The values of secondsFromFrameStructureStart and fractionalSecondsFromFrameStructureStart (before the addition of the random offset) shall be calculated at the time the IE is required. The accuracy of the values used shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of 37.571-1 [6], shall be met.

A random offset is then added to the value of secondsFromFrameStructureStart and fractionalSecondsFromFrameStructureStart as described in subclause 6.2.7.2.

Note 3: earfcn is defined in TS 36.508 [20] subclause 4.3.1 for the frequency band under test (see TS 37.571-1 [6] subclause 4.1.1)

GNSS-ReferenceTime: sub-test 3

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|--|-------|---|---|-----------------------------|
| gnss-SystemTime | | | | |
| gnss-TimeID | | 3 (galileo) | 3 (galileo) | 3 (galileo) |
| gnss-DayNumber | | FFS | FFS | FFS |
| gnss-TimeOfDay | | FFS s. Start time. (Note 1) | FFS s. Start time. (Note 1) | FFS s. Start time. (Note 1) |
| gnss-TimeOfDayFrac-msec | | 0 (Note 1) | 0 (Note 1) | 0 (Note 1) |
| notificationOfLeapSecond | | Not present | Not present | Not present |
| gps-TOW-Assist | | Not present | Not present | Not present |
| referenceTimeUnc | | '117' (2.274 seconds) Absent for Sensitivity Fine Time Assistance test case. Present otherwise | '117' (2.274 seconds) Absent for Sensitivity Fine Time Assistance test case. Present otherwise | '117' (2.274 seconds) |
| gnss-ReferenceTimeForCells | | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| GNSS-ReferenceTimeForOneCell networkTime | | | | |
| secondsFromFrameStructureStart | s | Note 2 | Note 2 | |
| fractionalSecondsFromFrameStructureStart | 250ns | Note 2 | Note 2 | |
| frameDrift | | 0 | 0 | |
| cellID | | | | |
| CHOICE eUTRA | | | | |
| physCellId | | 0 | 0 | |
| cellGlobalIdEUTRA | | '0000 0000'B | '0000 0000'B | |
| earfcn | | Note 3 | Note 3 | |
| referenceTimeUnc | | '24' (11.11us) | '24' (11.11us) | |

Note 1: gnss-TimeOfDay and gnss-TimeOfDayFrac-msec

This is the value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec when the GNSS scenario is initially started in the GNSS simulator. For all TTFB test cases, each time a GNSS scenario is used, the GNSS start time shall be advanced by 120 seconds from the value last used so that, at the time the fix is made, it is at least 2 minutes later than the previous fix made with that scenario.

The actual value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec to be used in the Reference Time IE (before the addition of the random offset, if applicable) shall be calculated at the time the IE is required by adding the elapsed time since the time the scenario was started in the GNSS simulator to this value. The accuracy shall be such that the Maximum Test System Uncertainty for Coarse Time Assistance, specified in Table C.1.2 of TS 37.571-1 [6], shall be met.

For all TTFB test cases a random offset is then added to the value of gnss-TimeOfDay and gnss-TimeOfDayFrac-msec as described in subclause 6.2.7.2.

Note 2: secondsFromFrameStructureStart and fractionalSecondsFromFrameStructureStart.

The values of secondsFromFrameStructureStart and fractionalSecondsFromFrameStructureStart (before the addition of the random offset) shall be calculated at the time the IE is required. The accuracy of the values used shall be such that the Maximum Test System Uncertainty for Fine Time Assistance, specified in Table C.1.2 of 37.571-1 [6], shall be met.

A random offset is then added to the value of secondsFromFrameStructureStart and fractionalSecondsFromFrameStructureStart as described in subclause 6.2.7.2.

Note 3: earfcn is defined in TS 36.508 [20] subclause 4.3.1 for the frequency band under test (see TS 37.571-1 [6] subclause 4.1.1)

GNSS REFERENCE LOCATION:

GNSS-ReferenceLocation

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|---------|----------------------|----------------------|----------------------|
| threeDlocation | | | | |
| latitudeSign | | 0 | 0 | 0 |
| degreesLatitude | degrees | 35.744287 | 37.414831 | 37.414831 |
| degreesLongitude | degrees | 139.680176 | -122.017701 | -122.017701 |
| altitudeDirection | | 0 | 0 | 0 |
| altitude | m | 300 | 50 | 50 |
| uncertaintySemiMajor | m | 3000 | 3000 | 3000 |
| uncertaintySemiMinor | m | 3000 | 3000 | 3000 |
| orientationMajorAxis | degrees | 0 | 0 | 0 |
| uncertaintyAltitude | m | 500 | 500 | 500 |
| confidence | % | 68 | 68 | 68 |

GNSS IONOSPHERIC MODEL:

GNSS-IonosphericModel: sub-tests 1, 2, 4, 5

| Information Element | Units | Value/remark GNSS All |
|---------------------|--------------------------------|-----------------------|
| klobucharModel | | |
| dataID | | 00 |
| alfa0 | Seconds | 4.6566129 10E-9 |
| alfa1 | sec/semi-circle | 1.4901161 10E-8 |
| alfa2 | sec/(semi-circle) ² | -5.96046 10E-8 |
| alfa3 | sec/(semi-circle) ³ | -5.96046 10E-8 |
| beta0 | Seconds | 79872 |
| beta1 | sec/semi-circle | 65536 |
| beta2 | sec/(semi-circle) ² | -65536 |
| beta3 | sec/(semi-circle) ³ | -393216 |
| neQuickModel | | Not present |

GNSS-IonosphericModel: sub-test 3

| Information Element | Units | Value/remark GNSS All |
|----------------------|-------|-----------------------|
| GNSS-IonospericModel | | |
| klobucharModel | | Not present |
| neQuickModel | | |
| ai0 | | FFS |
| ai1 | | FFS |
| ai2 | | FFS |
| ionoStormFlag1 | | 0 |
| ionoStormFlag2 | | 0 |
| ionoStormFlag3 | | 0 |
| ionoStormFlag4 | | 0 |
| ionoStormFlag5 | | 0 |

GNSS TIME MODEL LIST:

GNSS-TimeModelList: sub-test 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|-----------------------|-------|----------------------|----------------------|----------------------|
| gnss-TimeModelRefTime | | 1860 (s) | 432060 (s) | 432060 (s) |
| tA0 | | 0 | 0 | 0 |
| gnss-TO-ID | | 1 (GPS) | 1 (GPS) | 1 (GPS) |
| weekNumber | | 1669 | 1690 | 1690 |
| deltaT | | 15 | 15 | 15 |

GNSS NAVIGATION MODEL:

GNSS-NavigationModel: sub-test 1

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| nonBroadcastFlag | | 0 | 0 | 0 |
| gnss-SatelliteList | | (SIZE) 9 | (SIZE) 9 | (SIZE) 9 |

GNSS-NavModelSatelliteElement: sub-test 1

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---------------------------------------|---------------------------------------|
| svID | | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| svHealth | | 0 | 0 | 0 |
| iod | | 0 | 0 | 0 |

GNSS-NavModelSatelliteElement: sub-test 1

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|--|
| gnss-ClockModel | | |
| nav-ClockModel | | |
| navToc | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navaf2 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navaf1 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navaf0 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navTgd | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| gnss-OrbitModel | | |
| nav-KeplerianSet | | |
| navURA | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navFitFlag | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navToe | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navOmega | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navDeltaN | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navM0 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navOmegaADot | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navE | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navIDot | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navAPowerHalf | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navI0 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navOmegaA0 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navCrs | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navCis | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navCus | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navCrc | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navCic | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| navCuc | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| addNAVparam | | |
| ephemCodeOnL2 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| ephemL2Pflag | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| reserved1 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| reserved2 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| reserved3 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| reserved4 | | See file: Perf GNSS Navigation Model subtest1 XX.csv |
| ephemAODA | | See file: Perf GNSS Navigation Model subtest1 XX.csv |

GNSS-NavigationModel: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| nonBroadcastFlag | | 0 | 0 | 0 |
| gnss-SatelliteList | | (SIZE) 8 | (SIZE) 8 | (SIZE) 8 |

GNSS-NavModelSatelliteElement: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---|---|
| svID | | Slot Numbers: 3, 4, 5, 9, 10, 18, 19, 20 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 |
| svHealth | | 01111000 | 01111000 | 01111000 |
| iod | | 225 | 195 | 195 |

GNSS-NavModelSatelliteElement: sub-test 2

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|--|
| gnss-ClockModel | | |
| glonass-ClockModel | | |
| gloTau | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloGamma | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloDeltaTau | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gnss-OrbitModel | | |
| glonass-ECEF | | |
| gloEn | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloP1 | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloP2 | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| glom | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloX | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloXdot | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloXdotdot | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloY | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloYdot | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloYdotdot | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloZ | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloZdot | | See file: Perf GNSS Navigation Model subtest2 XX.csv |
| gloZdotdot | | See file: Perf GNSS Navigation Model subtest2 XX.csv |

GNSS-NavModelSatelliteElement: sub-test 3

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| nonBroadcastFlag | | 0 | 0 | 0 |
| gnss-SatelliteList | | (SIZE) FFS | (SIZE) FFS | (SIZE) FFS |

GNSS-NavModelSatelliteElement: sub-test 3

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| svID | | FFS | FFS | FFS |
| svHealth | | 0 | 0 | 0 |
| iod | | FFS | FFS | FFS |

GNSS-NavModelSatelliteElement: sub-test 3

| Information Element | Units | Value/remark GNSS All |
|------------------------|-------|--|
| gnss-ClockModel | | |
| standardClockModelList | | (SIZE) 1 |
| stanClockToc | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| stanClockAF2 | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| stanClockAF1 | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| stanClockAF0 | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| stanClockTgd | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| gnss-OrbitModel | | |
| keplerianSet | | |
| keplerToe | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerW | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerDeltaN | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerM0 | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerOmegaDot | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerE | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerIDot | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerAPowerHalf | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerI0 | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerOmega0 | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerCrs | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerCis | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerCus | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerCrc | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerCic | | See file: Perf GNSS Navigation Model subtest3 XX.csv |
| keplerCuc | | See file: Perf GNSS Navigation Model subtest3 XX.csv |

GNSS-NavigationModel: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|------------------------|-------|--------------------------------------|
| GNSS-GenericAssistData | | (SIZE) 2 |
| gnss-ID | | 0 (gps) |
| GNSS-NavigationModel | | See GNSS-NavigationModel: sub-test 5 |
| gnss-ID | | 4 (glonass) |
| GNSS-NavigationModel | | See GNSS-NavigationModel: sub-test 2 |

GNSS-NavigationModel: sub-test 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| nonBroadcastFlag | | 0 | 0 | 0 |
| gnss-SatelliteList | | (SIZE) 9 | (SIZE) 9 | (SIZE) 9 |

GNSS-NavModelSatelliteElement: sub-test 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|---|--|--|
| svID | | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| svHealth | | 0 | 0 | 0 |
| iod | | 0 | 0 | 0 |

GNSS-NavModelSatelliteElement: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|--|
| gnss-ClockModel | | |
| nav-ClockModel | | |
| navToc | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navaf2 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navaf1 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navaf0 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navTgd | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| gnss-OrbitModel | | |
| nav-KeplerianSet | | |
| navURA | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navFitFlag | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navToe | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navOmega | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navDeltaN | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navM0 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navOmegaADot | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navE | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navIDot | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navAPowerHalf | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navI0 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navOmegaA0 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navCrs | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navCis | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navCus | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navCrc | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navCic | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| navCuc | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| addNAVparam | | |
| ephemCodeOnL2 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| ephemL2Pflag | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| reserved1 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| reserved2 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| reserved3 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| reserved4 | | See file: Perf GNSS Navigation Model subtest5 XX.csv |
| ephemAODA | | See file: Perf GNSS Navigation Model subtest5 XX.csv |

GNSS ACQUISITION ASSISTANCE:

GNSS-AcquisitionAssistance: sub-test 1

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-AcquisitionAssistance | | | | |
| gnss-SignalID | | 0 (GPS L1 C/A) | 0 (GPS L1 C/A) | 0 (GPS L1 C/A) |
| gnss-AcquisitionAssistList | | (SIZE) 9 | (SIZE) 9 | (SIZE) 9 |
| confidence-r10 | % | 98 | 98 | 98 |

GNSS-AcquisitionAssistElement: sub-test 1

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|---|--|--|
| svID | | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |

GNSS-AcquisitionAssistElement: sub-test 1

| Information Element | Units | Value/remark GNSS All |
|---|-------|---|
| doppler0 | | Time varying. See file: Perf GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| doppler1 | | Time varying. See file: Perf GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| dopplerUncertainty | | Time varying. See file: Perf GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| codePhase | | Time varying. See file: Perf GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| intCodePhase | | Time varying. See file: Perf GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| codePhaseSearchWindow | | Time varying. See file: Perf GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| azimuth | | Time varying. See file: Perf GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| elevation | | Time varying. See file: Perf GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| codePhase1023 | | Time varying. Calculated from "codePhase", see file: GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| dopplerUncertaintyExt-r10 | | Not present |
| Note: This field is "Time varying" and its value depends on the "current gnss-TimeOfDay". The value of this field to be used shall be determined by taking the "current gnss-TimeOfDay" value and selecting the field value in the Perf GNSS Acquisition Assistance subtestX.csv file corresponding to the value of "current gnss-TimeOfDay". | | |

GNSS-AcquisitionAssistance: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-AcquisitionAssistance | | | | |
| gnss-SignalID | | 0 (GLONASS G1) | 0 (GLONASS G1) | 0 (GLONASS G1) |
| gnss-AcquisitionAssistList | | (SIZE) 8 | (SIZE) 8 | (SIZE) 8 |
| confidence-r10 | % | 98 | 98 | 98 |

GNSS-AcquisitionAssistElement: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---|---|
| svID | | Slot Numbers: 3, 4, 5, 9, 10, 18, 19, 20 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 |

GNSS-AcquisitionAssistElement: sub-test 2

| Information Element | Units | Value/remark GNSS All |
|---|-------|---|
| doppler0 | | Time varying. See file: Perf GNSS Acquisition Assistance subtest2 XX.csv (Note) |
| doppler1 | | Time varying. See file: Perf GNSS Acquisition Assistance subtest2 XX.csv (Note) |
| dopplerUncertainty | | Time varying. See file: Perf GNSS Acquisition Assistance subtest2 XX.csv (Note) |
| codePhase | | Time varying. See file: Perf GNSS Acquisition Assistance subtest2 XX.csv (Note) |
| intCodePhase | | Time varying. See file: Perf GNSS Acquisition Assistance subtest2 XX.csv (Note) |
| codePhaseSearchWindow | | Time varying. See file: Perf GNSS Acquisition Assistance subtest2 XX.csv (Note) |
| azimuth | | Time varying. See file: Perf GNSS Acquisition Assistance subtest2 XX.csv (Note) |
| elevation | | Time varying. See file: Perf GNSS Acquisition Assistance subtest2 XX.csv (Note) |
| codePhase1023 | | Time varying. Calculated from "codePhase", see file: GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| dopplerUncertaintyExt-r10 | | Not present |
| Note: This field is "Time varying" and its value depends on the "current gnss-TimeOfDay". The value of this field to be used shall be determined by taking the "current gnss-TimeOfDay" value and selecting the field value in the Perf GNSS Acquisition Assistance subtestX.csv file corresponding to the value of "current gnss-TimeOfDay". | | |

GNSS-AcquisitionAssistance: sub-test 3

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-AcquisitionAssistance | | | | |
| gnss-SignalID | | 0 (Galileo E1) | 0 (Galileo E1) | 0 (Galileo E1) |
| gnss-AcquisitionAssistList | | (SIZE) FFS | (SIZE) FFS | (SIZE) FFS |
| confidence-r10 | % | 98 | 98 | 98 |

GNSS-AcquisitionAssistElement: sub-test 3

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| svID | | SV IDs: FFS | SV IDs: FFS | SV IDs: FFS |

GNSS-AcquisitionAssistElement: sub-test 3

| Information Element | Units | Value/remark GNSS All |
|---|-------|---|
| doppler0 | | Time varying. See file: Perf GNSS Acquisition Assistance subtest3 XX.csv (Note) |
| doppler1 | | Time varying. See file: Perf GNSS Acquisition Assistance subtest3 XX.csv (Note) |
| dopplerUncertainty | | Time varying. See file: Perf GNSS Acquisition Assistance subtest3 XX.csv (Note) |
| codePhase | | Time varying. See file: Perf GNSS Acquisition Assistance subtest3 XX.csv (Note) |
| intCodePhase | | Time varying. See file: Perf GNSS Acquisition Assistance subtest3 XX.csv (Note) |
| codePhaseSearchWindow | | Time varying. See file: Perf GNSS Acquisition Assistance subtest3 XX.csv (Note) |
| azimuth | | Time varying. See file: Perf GNSS Acquisition Assistance subtest3 XX.csv (Note) |
| elevation | | Time varying. See file: Perf GNSS Acquisition Assistance subtest3 XX.csv (Note) |
| codePhase1023 | | Time varying. Calculated from "codePhase", see file: GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| dopplerUncertaintyExt-r10 | | Not present |
| Note: This field is "Time varying" and its value depends on the "current gnss-TimeOfDay". The value of this field to be used shall be determined by taking the "current gnss-TimeOfDay" value and selecting the field value in the Perf GNSS Acquisition Assistance subtestX.csv file corresponding to the value of "current gnss-TimeOfDay". | | |

GNSS-AcquisitionAssistance: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|----------------------------|-------|--|
| GNSS-GenericAssistData | | (SIZE) 2 |
| gnss-ID | | 0 (gps) |
| GNSS-AcquisitionAssistance | | See GNSS-AcquisitionAssistance: sub-test 5 |
| gnss-ID | | 4 (glonass) |
| GNSS-AcquisitionAssistance | | See GNSS-AcquisitionAssistance: sub-test 2 |

GNSS-AcquisitionAssistance: sub-test 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-AcquisitionAssistance | | | | |
| gnss-SignalID | | 0 (GPS L1 C/A) | 0 (GPS L1 C/A) | 0 (GPS L1 C/A) |
| gnss-AcquisitionAssistList | | (SIZE) 9 | (SIZE) 9 | (SIZE) 9 |
| confidence-r10 | % | 98 | 98 | 98 |

GNSS-AcquisitionAssistElement: sub-test 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---------------------------------------|---------------------------------------|
| svID | | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |

GNSS-AcquisitionAssistElement: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|---|-------|---|
| doppler0 | | Time varying. See file: Perf GNSS Acquisition Assistance subtest5 XX.csv (Note) |
| doppler1 | | Time varying. See file: Perf GNSS Acquisition Assistance subtest5 XX.csv (Note) |
| dopplerUncertainty | | Time varying. See file: Perf GNSS Acquisition Assistance subtest5 XX.csv (Note) |
| codePhase | | Time varying. See file: Perf GNSS Acquisition Assistance subtest5 XX.csv (Note) |
| intCodePhase | | Time varying. See file: Perf GNSS Acquisition Assistance subtest5 XX.csv (Note) |
| codePhaseSearchWindow | | Time varying. See file: Perf GNSS Acquisition Assistance subtest5 XX.csv (Note) |
| azimuth | | Time varying. See file: Perf GNSS Acquisition Assistance subtest5 XX.csv (Note) |
| elevation | | Time varying. See file: Perf GNSS Acquisition Assistance subtest5 XX.csv (Note) |
| codePhase1023 | | Time varying. Calculated from "codePhase", see file: GNSS Acquisition Assistance subtest1 XX.csv (Note) |
| dopplerUncertaintyExt-r10 | | Not present |
| Note: This field is "Time varying" and its value depends on the "current gnss-TimeOfDay". The value of this field to be used shall be determined by taking the "current gnss-TimeOfDay" value and selecting the field value in the Perf GNSS Acquisition Assistance subtestX.csv file corresponding to the value of "current gnss-TimeOfDay". | | |

GNSS ALMANAC:

GNSS-Almanac: sub-test 1

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|-------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-Almanac | | | | |
| weekNumber | | 1669 | 1691 | 1691 |
| toa | | 249856 | 77824 | 77824 |
| ioda | | Not present | Not present | Not present |
| completeAlmanacProvided | | 1 (TRUE) | 1 (TRUE) | 1 (TRUE) |
| gnss-AlmanacList | | (SIZE) 24 | (SIZE) 24 | (SIZE) 24 |

GNSS-AlmanacElement: sub-test 1

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|---|---|---|
| keplerianNAV-Almanac | | | | |
| sVID | | PRNs: 1, 4, 5, 6, 7, 8, 9, 10, 11, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 32 | PRNs: 1, 2, 3, 5, 6, 7, 8, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 26, 27, 28, 30 | PRNs: 1, 2, 3, 5, 6, 7, 8, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 26, 27, 28, 30 |

GNSS-AlmanacElement: sub-test 1

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|---|
| navAlmE | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmDeltal | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmOMEGADOT | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmSVHealth | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmSqrtA | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmOMEGAo | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmOmega | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmMo | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmaf0 | | See file: Perf GNSS Almanac subtest1 XX.csv |
| navAlmaf1 | | See file: Perf GNSS Almanac subtest1 XX.csv |

GNSS-Almanac: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|-------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-Almanac | | | | |
| completeAlmanacProvided | | 1 (TRUE) | 1 (TRUE) | 1 (TRUE) |
| gnss-AlmanacList | | (SIZE) 24 | (SIZE) 24 | (SIZE) 24 |

GNSS-AlmanacElement: sub-test 2

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|---|
| keplerianGLONASS | | |
| gloAlm-NA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmNA | | Slot Numbers: 1, 2, 322, 23, 24 |
| gloAlmHA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmLambdaA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmIlambdaA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmDeltala | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmDeltaTA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmDeltaTdotA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmEpsilonA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmOmegaA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmTauA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmCA | | See file: Perf GNSS Almanac subtest2 XX.csv |
| gloAlmMA | | See file: Perf GNSS Almanac subtest2 XX.csv |

GNSS-Almanac: sub-test 3

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|-------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-Almanac | | | | |
| weekNumber | | FFS | FFS | FFS |
| toa | | FFS | FFS | FFS |
| iota | | Not present | Not present | Not present |
| completeAlmanacProvided | | 1 (TRUE) | 1 (TRUE) | 1 (TRUE) |
| gnss-AlmanacList | | (SIZE) 27 | (SIZE) 27 | (SIZE) 27 |

GNSS-Almanac: sub-test 3

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| keplerianAlmanacSet | | | | |
| svID | | SV IDs: FFS | SV IDs: FFS | SV IDs: FFS |

GNSS-AlmanacElement: sub-test 3

| Information Element | Units | Value/remark GNSS All |
|----------------------|-------|---|
| kepAlmanacE | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepAlmanacDeltaI | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepAlmanacOmegaDot | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepSVHealth | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepAlmanacAPowerHalf | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepAlmanacOmega0 | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepAlmanacW | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepAlmanacM0 | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepAlmanacAF0 | | See file: Perf GNSS Almanac subtest3 XX.csv |
| kepAlmanacAF1 | | See file: Perf GNSS Almanac subtest3 XX.csv |

GNSS-Almanac: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|------------------------|-------|------------------------------|
| GNSS-GenericAssistData | | (SIZE) 2 |
| gnss-ID | | 0 (gps) |
| GNSS-Almanac | | See GNSS-Almanac: sub-test 5 |
| gnss-ID | | 4 (glonass) |
| GNSS-Almanac | | See GNSS-Almanac: sub-test 2 |

GNSS-Almanac: sub-test 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|-------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-Almanac | | | | |
| weekNumber | | 1669 | 1691 | 1691 |
| toa | | 249856 | 77824 | 77824 |
| iota | | Not present | Not present | Not present |
| completeAlmanacProvided | | 1 (TRUE) | 1 (TRUE) | 1 (TRUE) |
| gnss-AlmanacList | | (SIZE) 27 | (SIZE) 27 | (SIZE) 27 |

GNSS-AlmanacElement: sub-test 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|----------------------|-------|--|--|--|
| keplerianNAV-Almanac | | | | |
| sVID | | PRNs: 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 32 | PRNs: 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 30 | PRNs: 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 30 |

GNSS-AlmanacElement: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|---|
| navAlmE | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmDeltal | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmOMEGADOT | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmSVHealth | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmSqrtA | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmOMEGAo | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmOmega | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmMo | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmaf0 | | See file: Perf GNSS Almanac subtest5 XX.csv |
| navAlmaf1 | | See file: Perf GNSS Almanac subtest5 XX.csv |

GNSS UTC MODEL:

GNSS-UTC-Model: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|---------------------|-------|-----------------------|
| GNSS-UTC-Model | | |
| utcModel1 | | |

UTC-ModelSet1: sub-test 5

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|----------------------|----------------------|----------------------|
| gnss-Utc-A1 | | 0 | 0 | 0 |
| gnss-Utc-A0 | | 0 | 0 | 0 |
| gnss-Utc-Tot | | 249856 | 77824 | 77824 |
| gnss-Utc-WNt | | 133 | 155 | 155 |
| gnss-Utc-DeltaTIs | | 15 | 15 | 15 |
| gnss-Utc-WNIsf | | 158 | 158 | 158 |
| gnss-Utc-DN | | 7 | 7 | 7 |
| gnss-Utc-DeltaTIsf | | 16 | 16 | 16 |

GNSS AUXILIARY INFORMATION:

GNSS-AuxiliaryInformation: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-AuxiliaryInformation | | | | |
| gnss-ID-GLONASS | | (SIZE) 8 | (SIZE) 8 | (SIZE) 8 |

GNSS-ID-GLONASS-SatElement: sub-test 2

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---|---|
| svID | | Slot Numbers: 3, 4, 5, 9, 10, 18, 19, 20 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 | Slot Numbers: 1, 8, 9, 10, 16, 19, 20, 21 |
| signalsAvailable | | G1 | G1 | G1 |
| channelNumber | | 5, 6, 1, -2, -7, -3, 3, 2 | 1, 6, -2, -7, -1, 3, 2, 4 | 1, 6, -2, -7, -1, 3, 2, 4 |

GNSS-AuxiliaryInformation: sub-test 4

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------------|-------|----------------------|----------------------|----------------------|
| GNSS-AuxiliaryInformation | | | | |
| gnss-ID-GPS | | (SIZE) 9 | (SIZE) 9 | (SIZE) 9 |

GNSS-ID-GPS-SatElement: sub-test 4

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
|---------------------|-------|--|---------------------------------------|---------------------------------------|
| svID | | PRNs: 1, 4, 11, 17, 19, 20, 23, 28, 32 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 | PRNs: 1, 7, 8, 11, 15, 17, 26, 27, 28 |
| signalsAvailable | | L1C and others as supported by the UE | L1C and others as supported by the UE | L1C and others as supported by the UE |

GNSS- AuxiliaryInformation: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|---------------------------|-------|--|
| GNSS-GenericAssistData | | (SIZE) 1, or 2 if UE supports multiple GPS signals |
| gnss-ID | | 0 (gps) if UE supports multiple GPS signals |
| GNSS-AuxiliaryInformation | | See GNSS-AuxiliaryInformation: sub-test 4 |
| gnss-ID | | 4 (glonass) |
| GNSS-AuxiliaryInformation | | See GNSS-AuxiliaryInformation: sub-test 2 |

GNSS GENERIC ASSISTANCE DATA

GNSS- GenericAssistData: sub-test 1

| Information Element | Units | Value/remark GNSS All |
|------------------------|-------|-----------------------|
| GNSS-GenericAssistData | | (SIZE) 1 |
| gnss-ID | | 0 (gps) |

GNSS- GenericAssistData: sub-test 2

| Information Element | Units | Value/remark GNSS All |
|------------------------|-------|-----------------------|
| GNSS-GenericAssistData | | (SIZE) 1 |
| gnss-ID | | 4 (glonass) |

GNSS- GenericAssistData: sub-test 3

| Information Element | Units | Value/remark GNSS All |
|------------------------|-------|-----------------------|
| GNSS-GenericAssistData | | (SIZE) 1 |
| gnss-ID | | 3 (galileo) |

GNSS- GenericAssistData: sub-test 5

| Information Element | Units | Value/remark GNSS All |
|------------------------|-------|-----------------------|
| GNSS-GenericAssistData | | (SIZE) 2 |
| gnss-ID | | 0 (gps) |
| gnss-ID | | 4 (glonass) |

7 OTDOA

7.1 OTDOA Assistance data for OTDOA signalling tests

7.1.1 General

The OTDOA assistance data that shall be used for the OTDOA signalling tests is defined in TS 37.571-2 [7].

7.2 OTDOA Assistance data for OTDOA measurement tests

7.2.1 General

This subclause defines the OTDOA assistance data that shall be used for the OTDOA measurement tests defined in TS 37.571-1 [6].

7.2.2 OTDOA Assistance Data

This subclause defines the OTDOA assistance data elements which shall be provided to the UE in the OTDOA measurement tests defined in TS 37.571-1 [6].

OTDOA REFERENCE CELL INFO:

OTDOA-ReferenceCellInfo for test cases 9.1.1, 9.1.2, 9.2.1 and 9.2.2

| Information Element | Value/remark | Comment |
|--------------------------|--|--|
| OTDOA-ReferenceCellInfo | | Cell 1 |
| physCellId | 0 | Set according to sub-clause 4.7.1 and Table 9.1.1.4.1-1, Table 9.1.2.4.1-1, Table 9.2.1.4.1-1 and Table 9.2.2.4.1-1 in TS 37.571-1 [6] |
| cellGlobalId | '0000 0000'B | |
| earfcnRef | Not present | Same as the serving cell |
| antennaPortConfig | Not present | Same as the serving cell |
| cpLength | Normal | |
| prsInfo SEQUENCE | | |
| prs-Bandwidth | n50 | |
| prs-ConfigurationIndex | Test case 9.1.1: 171 Test case 9.1.2: 174 Test case 9.2.1: 181 Test case 9.2.2: 184 | |
| numDL-Frames | sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | Test cases 9.1.1 and 9.1.2: '1111 0000' Test cases 9.2.1 and 9.2.2: '11111111 00000000' | |

OTDOA-ReferenceCellInfo for test cases 9.1.3 and 9.1.4

| Information Element | Value/remark | Comment |
|--------------------------|---|--|
| OTDOA-ReferenceCellInfo | | Cell 1 |
| physCellId | 0 | Set according to sub-clause 4.7.1 and Table 9.1.3.4.1-1 and Table 9.1.4.4.1-1 in TS 37.571-1 [6] |
| cellGlobalId | '0000 0000'B | |
| earfcnRef | Not present | Same as the serving cell |
| antennaPortConfig | Not present | Same as the serving cell |
| cpLength | Normal | |
| prsInfo SEQUENCE | | |
| prs-Bandwidth | Test 1, 2: n6 Test 3, 4: n50 | |
| prs-ConfigurationIndex | Test case 9.1.3: 2 Test case 9.1.4: Test, 1, 2: 9, Test 3, 4: 14 | |
| numDL-Frames | Test, 1, 2: sf-6 Test 3, 4: sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | '1111 0000' | |

OTDOA-ReferenceCellInfo for test cases 9.2.4 and 9.2.5

| Information Element | Value/remark | Comment |
|--------------------------|--|--|
| OTDOA-ReferenceCellInfo | | Cell 1 |
| physCellId | 0 | Set according to sub-clause 4.7.1 and Table 9.2.4.4.1-1 and Table 9.2.5.4.1-1 in TS 37.571-1 [6] |
| cellGlobalId | '0000 0000'B | |
| earfcnRef | Not present | Same as the serving cell |
| antennaPortConfig | Not present | Same as the serving cell |
| cpLength | Normal | |
| prsInfo SEQUENCE | | |
| prs-Bandwidth | Test 1: n6 Test 2: n50 | |
| prs-ConfigurationIndex | Test case 9.2.4: 2 Test case 9.2.5: 5 | |
| numDL-Frames | Test,1: sf-6 Test 2: sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | '1111 0000' | |

OTDOA NEIGHBOUR CELL INFO LIST:

OTDOA-NeighbourCellInfoList for test cases 9.1.1, 9.1.2, 9.2.1 and 9.2.2

| Information Element | Value/remark | Comment |
|--|--|---|
| OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(1)) OF SEQUENCE | | |
| SEQUENCE (SIZE(15)) OF SEQUENCE | Sequence contains 15 instances of the following data. | |
| physCellId | See tables of Sequence data values below | |
| cellGlobalId | See tables of Sequence data values below | |
| earfcn | Test case 9.1.1: Not present Test case 9.1.2: Not present Test case 9.2.1: 2 Test case 9.2.2: 2 | Test cases 9.1.1 and 9.1.2: same as for the reference cell |
| cpLength | Not present | Same as for the reference cell |
| prsInfo | | |
| prs-Bandwidth | n50 | |
| prs-ConfigurationIndex | Test case 9.1.1: 171 Test case 9.1.2: 174 Test case 9.2.1: 171 Test case 9.2.2: 174 | |
| numDL-Frames | sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | See tables of Sequence data values below | |
| antennaPortConfig | Not present | Same as for the reference cell |
| slotNumberOffset | Test case 9.1.1: Not present Test case 9.1.2: Not present Test case 9.2.1: 0 Test case 9.2.2: 0 | Test cases 9.1.1 and 9.1.2: slot timing is the same as for reference cell |
| prs-SubframeOffset | Test case 9.1.1: Not present Test case 9.1.2: Not present Test case 9.2.1: 310 Test case 9.2.2: 310 | |
| expectedRSTD | See tables of Sequence data values below | |
| expectedRSTD-Uncertainty | 51 | About 5 μ s |

Sequence data values for 15 instances of sequence for test cases 9.1.1 and 9.1.2

| Cell | Value physCellId | Value cellGlobalId | Value po8-r9 | Value expectedRSTD | Comment |
|------------|------------------|--------------------|--------------|--------------------|---------|
| Cell 2 | 6 (Note 1) | '0000 0110'B | '0000 1111' | 8222 | Note 2 |
| Cell 3 | 12 (Note 1) | '0000 1100'B | '1111 0000' | 8222 | Note 3 |
| Dummy cell | 1 | '0000 0001'B | '0000 1111' | 8253 | Note 4 |
| Dummy cell | 2 | '0000 0010'B | '1111 0000' | 8221 | Note 4 |
| Dummy cell | 3 | '0000 0011'B | '0000 1111' | 8211 | Note 4 |
| Dummy cell | 8 | '0000 1000'B | '1111 0000' | 8233 | Note 4 |
| Dummy cell | 10 | '0000 1010'B | '1111 0000' | 8226 | Note 4 |
| Dummy cell | 11 | '0000 1011'B | '0000 1111' | 8232 | Note 4 |
| Dummy cell | 16 | '0001 0000'B | '1111 0000' | 8223 | Note 4 |
| Dummy cell | 111 | '0110 1111'B | '0000 1111' | 8236 | Note 4 |
| Dummy cell | 118 | '0111 0110'B | '0000 1111' | 8223 | Note 4 |
| Dummy cell | 119 | '0111 0111'B | '1111 0000' | 8221 | Note 4 |
| Dummy cell | 120 | '0111 1000'B | '0000 1111' | 8223 | Note 4 |
| Dummy cell | 122 | '0111 1010'B | '1111 0000' | 8243 | Note 4 |
| Dummy cell | 125 | '0111 1101'B | '0000 1111' | 8253 | Note 4 |

Note 1: Set according to sub-clause 4.7.1 and Table 9.1.1.4.1-1 and Table 9.1.2.4.1-1 in TS 37.571-1 [6]
Note 2: Data for cell 2 is used at a random position in the first 7 instances of the sequence
Note 3: Data for cell 3 is used at a random position in the final 8 instances of the sequence
Note 4: Data for this cell is used at any position in the 15 instances of the sequence

Sequence data values for 15 instances of sequence for test cases 9.2.1 and 9.2.2

| Cell | Value physCellId | Value cellGlobalId | Value po8-r9 | Value expectedRSTD | Comment |
|------------|------------------|--------------------|------------------------|--------------------|---------|
| Cell 2 | 6 (Note 1) | '0000 0110'B | '00000000 11111111' | 8222 | Note 2 |
| Cell 3 | 12 (Note 1) | '0000 1100'B | '11111111 00000000' | 8222 | Note 3 |
| Dummy cell | 1 | '0000 0001'B | '00000000 11111111' | 8253 | Note 4 |
| Dummy cell | 2 | '0000 0010'B | '11111111 00000000' | 8221 | Note 4 |
| Dummy cell | 3 | '0000 0011'B | '00000000 11111111' | 8211 | Note 4 |
| Dummy cell | 8 | '0000 1000'B | '11111111 00000000' | 8233 | Note 4 |
| Dummy cell | 10 | '0000 1010'B | '00000000 11111111' | 8226 | Note 4 |
| Dummy cell | 11 | '0000 1011'B | '11111111 00000000' | 8232 | Note 4 |
| Dummy cell | 16 | '0001 0000'B | '00000000 11111111' | 8223 | Note 4 |
| Dummy cell | 111 | '0110 1111'B | '11111111 00000000' | 8236 | Note 4 |
| Dummy cell | 118 | '0111 0110'B | '00000000 11111111' | 8223 | Note 4 |
| Dummy cell | 119 | '0111 0111'B | '11111111 00000000' | 8221 | Note 4 |
| Dummy cell | 120 | '0111 1000'B | '00000000 11111111' | 8223 | Note 4 |
| Dummy cell | 122 | '0111 1010'B | '11111111 00000000' | 8243 | Note 4 |
| Dummy cell | 125 | '0111 1101'B | '00000000 11111111' | 8253 | Note 4 |

Note 1: Set according to sub-clause 4.7.1 and Table 9.2.1.4.1-1 and Table 9.2.2.4.1-1 in TS 37.571-1 [6]
Note 2: Data for cell 2 is used at a random position in the first 7 instances of the sequence
Note 3: Data for cell 3 is used at a random position in the final 8 instances of the sequence
Note 4: Data for this cell is used at any position in the 15 instances of the sequence

OTDOA-NeighbourCellInfoList for test cases 9.1.3 and 9.1.4

| Information Element | Value/remark | Comment |
|--|--|---|
| OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(1)) OF SEQUENCE | | |
| SEQUENCE (SIZE(15)) OF SEQUENCE | Sequence contains 15 instances of the following data. | |
| physCellId | See table of Sequence data values below | |
| cellGlobalId | See table of Sequence data values below | |
| earfcn | Not present | Same as for the reference cell |
| cpLength | Not present | Same as for the reference cell |
| prsInfo | | |
| prs-Bandwidth | Test 1, 2: n6 Test 3, 4: n50 | |
| prs-ConfigurationIndex | Test case 9.1.3: 2 Test case 9.1.4: Test, 1, 2: 9, Test 3, 4: 14 | |
| numDL-Frames | Test, 1, 2: sf-6 Test 3, 4: sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | See table of Sequence data values below | |
| antennaPortConfig | Not present | Same as for the reference cell |
| slotNumberOffset | Not present | Slot timing is the same as for reference cell |
| prs-SubframeOffset | Not present | |
| expectedRSTD | See table of Sequence data values below | |
| expectedRSTD-Uncertainty | 51 | About 5 μ s |

OTDOA-NeighbourCellInfoList for test cases 9.2.4 and 9.2.5

| Information Element | Value/remark | Comment |
|--|---|---|
| OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(1)) OF SEQUENCE | | |
| SEQUENCE (SIZE(15)) OF SEQUENCE | Sequence contains 15 instances of the following data. | |
| physCellId | See table of Sequence data values below | |
| cellGlobalId | See table of Sequence data values below | |
| earfcn | 2 | |
| cpLength | Not present | Same as for the reference cell |
| prsInfo | | |
| prs-Bandwidth | Test 1: n6 Test 2: n50 | |
| prs-ConfigurationIndex | Test case 9.2.4: Test, 1: 15, Test 2: 12 Test case 9.2.5: 15 | |
| numDL-Frames | Test, 1: sf-6 Test 2: sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | See table of Sequence data values below | |
| antennaPortConfig | Not present | Same as for the reference cell |
| slotNumberOffset | Not present | Slot timing is the same as for reference cell |
| prs-SubframeOffset | Test, 1: 13 Test 2: 10 | |
| expectedRSTD | See table of Sequence data values below | |
| expectedRSTD-Uncertainty | 51 | About 5 μ s |

Sequence data values for 15 instances of sequence for test cases 9.1.3 and 9.1.4

| Cell | Value physCellId | Value cellGlobalId | Value po8-r9 | Value expectedRSTD | Comment |
|--|--|--|--------------|--|---------|
| Cell 2 | Test 1: 6 Test 2: 7 Test 3: 6 Test 4: 9 (Note) | Test 1: '0000 0110'B Test 2: '0000 0111'B Test 3: '0000 0110'B Test 4: '0000 1001'B | '1111 0000' | Test 1: 8222 Test 2: 8192 Test 3: 8192 Test 4: 8161 | |
| Dummy cell | 1 | '0000 0001'B | '0000 1111' | 8253 | |
| Dummy cell | 2 | '0000 0010'B | '1111 0000' | 8221 | |
| Dummy cell | 3 | '0000 0011'B | '0000 1111' | 8211 | |
| Dummy cell | 8 | '0000 1000'B | '1111 0000' | 8233 | |
| Dummy cell | 10 | '0000 1010'B | '1111 0000' | 8226 | |
| Dummy cell | 11 | '0000 1011'B | '0000 1111' | 8232 | |
| Dummy cell | 16 | '0001 0000'B | '1111 0000' | 8223 | |
| Dummy cell | 111 | '0110 1111'B | '0000 1111' | 8236 | |
| Dummy cell | 118 | '0111 0110'B | '0000 1111' | 8223 | |
| Dummy cell | 119 | '0111 0111'B | '1111 0000' | 8221 | |
| Dummy cell | 120 | '0111 1000'B | '0000 1111' | 8223 | |
| Dummy cell | 122 | '0111 1010'B | '1111 0000' | 8243 | |
| Dummy cell | 125 | '0111 1101'B | '0000 1111' | 8253 | |
| Dummy cell | 126 | '0111 1110'B | '1111 0000' | 8257 | |
| Note: Set according to sub-clause 4.7.1 and Table 9.1.3.4.1-1 and Table 9.1.4.4.1-1 in TS 37.571-1 [6] | | | | | |

Sequence data values for 15 instances of sequence for test cases 9.2.4 and 9.2.5

| Cell | Value physCellId | Value cellGlobalId | Value po8-r9 | Value expectedRSTD | Comment |
|--|------------------|--------------------|--------------|--------------------|---------|
| Cell 2 | 1 (Note) | '0000 0001'B | '1111 0000' | 8222 | |
| Dummy cell | 6 | '0000 0110'B | '0000 1111' | 8253 | |
| Dummy cell | 2 | '0000 0010'B | '1111 0000' | 8221 | |
| Dummy cell | 3 | '0000 0011'B | '0000 1111' | 8211 | |
| Dummy cell | 8 | '0000 1000'B | '1111 0000' | 8233 | |
| Dummy cell | 10 | '0000 1010'B | '1111 0000' | 8226 | |
| Dummy cell | 11 | '0000 1011'B | '0000 1111' | 8232 | |
| Dummy cell | 16 | '0001 0000'B | '1111 0000' | 8223 | |
| Dummy cell | 111 | '0110 1111'B | '0000 1111' | 8236 | |
| Dummy cell | 118 | '0111 0110'B | '0000 1111' | 8223 | |
| Dummy cell | 119 | '0111 0111'B | '1111 0000' | 8221 | |
| Dummy cell | 120 | '0111 1000'B | '0000 1111' | 8223 | |
| Dummy cell | 122 | '0111 1010'B | '1111 0000' | 8243 | |
| Dummy cell | 125 | '0111 1101'B | '0000 1111' | 8253 | |
| Dummy cell | 126 | '0111 1110'B | '1111 0000' | 8257 | |
| Note: Set according to sub-clause 4.7.1 and Table 9.2.4.4.1-1 and Table 9.2.5.4.1-1 in TS 37.571-1 [6] | | | | | |

7.3 OTDOA Assistance data for OTDOA measurement tests for Carrier Aggregation

7.3.1 General

This subclause defines the OTDOA assistance data that shall be used for the OTDOA measurement tests for Carrier aggregation defined in TS 37.571-1 [6].

7.3.2 OTDOA Assistance Data

This subclause defines the OTDOA assistance data elements which shall be provided to the UE in the OTDOA measurement tests for Carrier Aggregation defined in TS 37.571-1 [6].

OTDOA REFERENCE CELL INFO:

OTDOA-ReferenceCellInfo for test cases 10.1, 10.1A, 10.2 and 10.2A

| Information Element | Value/remark | Comment |
|--------------------------|---|--|
| OTDOA-ReferenceCellInfo | | Cell 2 |
| physCellId | 6 | Set according to sub-clause 4.7.1 and Table 10.1.4.1-1 and Table 10.2.4.1-1 in TS 37.571-1 [6] |
| cellGlobalId | '0000 0110'B | |
| earfcnRef | 2 | SCC |
| antennaPortConfig | Not present | Same as the serving cell |
| cpLength | Normal | |
| prsInfo SEQUENCE | | |
| prs-Bandwidth | Test cases 10.1, 10.2: n50 Test cases 10.1A, 10.2A: n100 | |
| prs-ConfigurationIndex | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | |
| numDL-Frames | sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | Test 1: '00001111' Test 2: '0000000011111111' | |

OTDOA-ReferenceCellInfo for test cases 10.3, 10.3A, 10.4 and 10.4A

| Information Element | Value/remark | Comment |
|--------------------------|---|--|
| OTDOA-ReferenceCellInfo | | Cell 2 |
| physCellId | 7 | Set according to sub-clause 4.7.1 and Table 10.3.4.1-1 and Table 10.4.4.1-1 in TS 37.571-1 [6] |
| cellGlobalId | '0000 0111'B | |
| earfcnRef | 2 | |
| antennaPortConfig | Not present | Same as the serving cell |
| cpLength | Normal | |
| prsInfo SEQUENCE | | |
| prs-Bandwidth | Test cases 10.3, 10.4: n50 Test cases 10.3A, 10.4A: n100 | |
| prs-ConfigurationIndex | Test cases 10.3, 10.3A: 2 Test cases 10.4, 10.4A: 5 | |
| numDL-Frames | sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | '1111 0000' | |

OTDOA NEIGHBOUR CELL INFO LIST:

OTDOA-NeighbourCellInfoList for test cases 10.1, 10.1A, 10.2 and 10.2A, Test 1

| Information Element | Value/remark | Comment |
|--|---|--------------------------------------|
| OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(1)) OF SEQUENCE | | |
| SEQUENCE (SIZE(15)) OF SEQUENCE | Sequence contains 15 instances of the following data. | |
| physCellId | See table of Sequence data values below | |
| cellGlobalId | See table of Sequence data values below | |
| earfcn | Not present | Same as for the reference cell (SCC) |
| cpLength | Not present | Same as for the reference cell |
| prsInfo | | |
| prs-Bandwidth | Test cases 10.1, 10.2: n50 Test cases 10.1A, 10.2A: n100 | |
| prs-ConfigurationIndex | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | |
| numDL-Frames | sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | See table of Sequence data values below | |
| antennaPortConfig | Not present | Same as for the reference cell |
| slotNumberOffset | 0 | |
| prs-SubframeOffset | 0 | |
| expectedRSTD | See table of Sequence data values below | |
| expectedRSTD-Uncertainty | 51 | About 5 μ s |

Sequence data values for 15 instances of sequence for test cases 10.1, 10.1A, 10.2 and 10.2A, Test 1

| Cell | Value physCellId | Value cellGlobalId | Value po8-r9 | Value expectedRSTD | Comment |
|--|------------------|--------------------|--------------|--------------------|---------|
| Cell 3 | 12 (Note 1) | '0000 1100'B | '1111 0000' | 8192 | Note 2 |
| Dummy cell | 1 | '0000 0001'B | '0000 1111' | 8253 | Note 3 |
| Dummy cell | 2 | '0000 0010'B | '1111 0000' | 8221 | Note 3 |
| Dummy cell | 3 | '0000 0011'B | '0000 1111' | 8211 | Note 3 |
| Dummy cell | 8 | '0000 1000'B | '1111 0000' | 8233 | Note 3 |
| Dummy cell | 10 | '0000 1010'B | '1111 0000' | 8226 | Note 3 |
| Dummy cell | 11 | '0000 1011'B | '0000 1111' | 8232 | Note 3 |
| Dummy cell | 16 | '0001 0000'B | '1111 0000' | 8223 | Note 3 |
| Dummy cell | 111 | '0110 1111'B | '0000 1111' | 8236 | Note 3 |
| Dummy cell | 118 | '0111 0110'B | '0000 1111' | 8223 | Note 3 |
| Dummy cell | 119 | '0111 0111'B | '1111 0000' | 8221 | Note 3 |
| Dummy cell | 120 | '0111 1000'B | '0000 1111' | 8223 | Note 3 |
| Dummy cell | 122 | '0111 1010'B | '1111 0000' | 8243 | Note 3 |
| Dummy cell | 125 | '0111 1101'B | '0000 1111' | 8253 | Note 3 |
| Dummy cell | 127 | '0111 1111'B | '1111 0000' | 8243 | Note 3 |
| Note 1: Set according to sub-clause 4.7.1 and Table 10.1.4.1-1 and Table 10.2.4.1-1 in TS 37.571-1 [6] | | | | | |
| Note 2: Data for cell 3 is used at a random position in the last 8 instances of the sequence | | | | | |
| Note 3: Data for this cell is used at any position in the 15 instances of the sequence | | | | | |

OTDOA-NeighbourCellInfoList for test cases 10.1, 10.1A, 10.2 and 10.2A, Test 2

| Information Element | Value/remark | Comment |
|--|---|----------------------------------|
| OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(1)) OF SEQUENCE | | |
| SEQUENCE (SIZE(15)) OF SEQUENCE | Sequence contains 15 instances of the following data. | |
| physCellId | See table of Sequence data values below | |
| cellGlobalId | See table of Sequence data values below | |
| earfcn | See table of Sequence data values below | earfcn 1 is PCC, earfcn 2 is SCC |
| cpLength | Not present | Same as for the reference cell |
| prsInfo | | |
| prs-Bandwidth | Test cases 10.1, 10.2: n50 Test cases 10.1A, 10.2A: n100 | |
| prs-ConfigurationIndex | See table of Sequence data values below | |
| numDL-Frames | sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | See table of Sequence data values below | |
| antennaPortConfig | Not present | Same as for the reference cell |
| slotNumberOffset | 0 | |
| prs-SubframeOffset | See table of Sequence data values below | |
| expectedRSTD | See table of Sequence data values below | |
| expectedRSTD-Uncertainty | 51 | About 5 μ s |

Sequence data values for 15 instances of sequence for test cases 10.1, 10.1A, 10.2 and 10.2A, Test 2

| Cell | Value phys CellId | Value cellGlobalId | Value earfcn | Value prs-ConfigurationIndex | Value po8-r9 | Value prs-Subframe Offset | Value expected RSTD | Comment |
|------------|-------------------|--------------------|--------------|--|------------------------|---------------------------|---------------------|---------|
| Cell 1 | 0 (Note 1) | '0000 0000'B | 1 | Test cases 10.1, 10.1A: 171 Test cases 10.2, 10.2A: 174 | '11111111 00000000' | 310 | 8222 | Note 2 |
| Cell 3 | 12 (Note 1) | '0000 1100'B | 2 | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | '11111111 00000000' | 0 | 8192 | Note 3 |
| Dummy cell | 1 | '0000 0001'B | 1 | Test cases 10.1, 10.1A: 171 Test cases 10.2, 10.2A: 174 | '00000000 11111111' | 310 | 8253 | Note 4 |
| Dummy cell | 2 | '0000 0010'B | 2 | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | '11111111 00000000' | 0 | 8221 | Note 4 |
| Dummy cell | 3 | '0000 0011'B | 1 | Test cases 10.1, 10.1A: 171 Test cases 10.2, 10.2A: 174 | '00000000 11111111' | 310 | 8211 | Note 4 |
| Dummy cell | 8 | '0000 1000'B | 2 | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | '11111111 00000000' | 0 | 8233 | Note 4 |
| Dummy cell | 10 | '0000 1010'B | 1 | Test cases 10.1, 10.1A: 171 Test cases 10.2, 10.2A: 174 | '00000000 11111111' | 310 | 8226 | Note 4 |
| Dummy cell | 11 | '0000 1011'B | 2 | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | '11111111 00000000' | 0 | 8232 | Note 4 |
| Dummy cell | 16 | '0001 0000'B | 1 | Test cases 10.1, 10.1A: 171 Test cases 10.2, 10.2A: 174 | '00000000 11111111' | 310 | 8223 | Note 4 |
| Dummy cell | 111 | '0110 1111'B | 2 | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | '11111111 00000000' | 0 | 8236 | Note 4 |
| Dummy cell | 118 | '0111 0110'B | 1 | Test cases 10.1, 10.1A: 171 Test cases 10.2, 10.2A: 174 | '00000000 11111111' | 310 | 8223 | Note 4 |
| Dummy cell | 119 | '0111 0111'B | 2 | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | '11111111 00000000' | 0 | 8221 | Note 4 |
| Dummy cell | 120 | '0111 1000'B | 1 | Test cases 10.1, 10.1A: 171 Test cases 10.2, 10.2A: 174 | '00000000 11111111' | 310 | 8223 | Note 4 |
| Dummy cell | 122 | '0111 1010'B | 2 | Test cases 10.1, 10.1A: 181 Test cases 10.2, 10.2A: 184 | '11111111 00000000' | 0 | 8243 | Note 4 |
| Dummy cell | 125 | '0111 1101'B | 1 | Test cases 10.1, 10.1A: 171 Test cases 10.2, 10.2A: 174 | '00000000 11111111' | 310 | 8253 | Note 4 |

Note 1: Set according to sub-clause 4.7.1 and Table 10.1.4.1-1 and Table 10.2.4.1-1 in TS 37.571-1 [6]
 Note 2: Data for cell 1 is used at a random position in the first 7 instances of the sequence
 Note 3: Data for cell 3 is used at a random position in the last 8 instances of the sequence
 Note 4: Data for this cell is used at any position in the 15 instances of the sequence

OTDOA-NeighbourCellInfoList for test cases 10.3, 10.3A, 10.4 and 10.4A

| Information Element | Value/remark | Comment |
|--|---|---|
| OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(1)) OF SEQUENCE | | |
| SEQUENCE (SIZE(15)) OF SEQUENCE | Sequence contains 15 instances of the following data. | |
| physCellId | See table of Sequence data values below | |
| cellGlobalId | See table of Sequence data values below | |
| earfcn | Not present | Same as for the reference cell |
| cpLength | Not present | Same as for the reference cell |
| prsInfo | | |
| Prs-Bandwidth | Test cases 10.3, 10.4: n50 Test cases 10.3A, 10.4A: n100 | |
| prs-ConfigurationIndex | Test cases 10.3, 10.3A: 2 Test cases 10.4, 10.4A: 5 | |
| numDL-Frames | sf-1 | |
| prs-MutingInfo-r9 CHOICE | | |
| po8-r9 | See table of Sequence data values below | |
| antennaPortConfig | Not present | Same as for the reference cell |
| slotNumberOffset | Not present | Slot timing is the same as for reference cell |
| prs-SubframeOffset | Not present | |
| expectedRSTD | See table of Sequence data values below | |
| expectedRSTD-Uncertainty | 51 | About 5 µs |

Sequence data values for 15 instances of sequence for test cases 10.3, 10.3A, 10.4 and 10.4A

| Cell | Value physCellId | Value cellGlobalId | Value po8-r9 | Value expectedRSTD | Comment |
|------------|------------------|--------------------|--------------|--------------------|---------|
| Cell 3 | 10 (Note) | '0000 1010'B | '1111 0000' | 8222 | |
| Dummy cell | 1 | '0000 0001'B | '0000 1111' | 8253 | |
| Dummy cell | 2 | '0000 0010'B | '1111 0000' | 8221 | |
| Dummy cell | 3 | '0000 0011'B | '0000 1111' | 8211 | |
| Dummy cell | 8 | '0000 1000'B | '1111 0000' | 8233 | |
| Dummy cell | 9 | '0000 1001'B | '1111 0000' | 8226 | |
| Dummy cell | 11 | '0000 1011'B | '0000 1111' | 8232 | |
| Dummy cell | 16 | '0001 0000'B | '1111 0000' | 8223 | |
| Dummy cell | 111 | '0110 1111'B | '0000 1111' | 8236 | |
| Dummy cell | 118 | '0111 0110'B | '0000 1111' | 8223 | |
| Dummy cell | 119 | '0111 0111'B | '1111 0000' | 8221 | |
| Dummy cell | 120 | '0111 1000'B | '0000 1111' | 8223 | |
| Dummy cell | 122 | '0111 1010'B | '1111 0000' | 8243 | |
| Dummy cell | 125 | '0111 1101'B | '0000 1111' | 8253 | |
| Dummy cell | 126 | '0111 1110'B | '1111 0000' | 8257 | |

Note: Set according to sub-clause 4.7.1 and Table 10.3.4.1-1 and Table 10.4.4.1-1 in TS 37.571-1 [6]

Annex A (normative): GPS data files

A.1 GPS data files for signalling tests

The GPS data files for use in GPS signalling tests defined in TS 37.571-2 [7] subclauses 6.1.1 to 6.1.3 are contained in archive GPS_Data_Sig_V4.zip which accompanies this document.

A.2 GPS data files for Minimum Performance tests

The GPS data files for use in GPS Minimum Performance tests defined in TS 37.571-1 [6] subclause 5 are contained in archive GPS_Data_Perf_V7.zip which accompanies this document. The different scenarios are designated with suffixes XX in the zip file, where XX is 01, 02, 03 etc. for scenarios #1, #2, #3 etc.

Annex B (normative): GNSS data files

B.1 GNSS data files for signalling tests

The GNSS data files for use in GNSS signalling tests defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclause 7 are contained in archive GNSS_Data_Sig_V7.zip which accompanies the present document.

Editor's note: there are currently two sets of the file Sig GANSS reference measurement information subtest1_4.csv supplied in GNSS_Data_Sig_V7.zip, Sig GANSS reference measurement information subtest1_4_set1.csv and Sig GANSS reference measurement information subtest1_4_set2.csv. Either set can be used for testing.

B.2 GNSS data files for Minimum Performance tests

The GNSS data files for use in GNSS Minimum Performance tests defined in TS 37.571-1 [6] subclauses 6 and 7 are contained in archive GNSS_Data_Perf_V7.zip which accompanies the present document. The different scenarios are designated with suffixes XX in the zip file, where XX is 01, 02, 03 etc. for scenarios #1, #2, #3 etc.

Editor's note: there are currently two sets of the files Perf GANSS reference measurement information subtest1_4 01.csv and Perf GANSS reference measurement information subtest1_4 02.csv supplied in GNSS_Data_Perf_V7.zip, designated _set1 and _set2. Either set can be used for testing.

Annex C (informative): Change history

| Date | TSG # | TSG Doc. | CR | Rev | Subject/Comment | Old | New |
|---------|-------------|-----------|------|-----|--|--------|--------|
| 2010-08 | RAN5#48 | R5-104318 | | | Initial draft created as TS 36.571-5 | | 0.0.0 |
| 2010-11 | RAN5#49 | R5-106146 | | | Initial draft created from TS 36.571-5 with minor updates | 0.0.0 | 0.1.0 |
| 2010-11 | RAN5#49 | R5-106615 | | | Editor's notes added | 0.1.0 | 0.1.1 |
| 2010-11 | RAN5#49 | R5-106614 | | | Version 1.0.0 prepared for presentation to RAN Plenary | 0.1.1 | 1.0.0 |
| 2011-05 | RAN5#51 | R5-112807 | | | Version 1.1.0 with additional values and editorial changes | 1.0.0 | 1.1.0 |
| 2011-08 | RAN5#52 | R5-113136 | | | Additional values and editorial changes | 1.1.0 | - |
| 2011-08 | RAN5#52 | R5-113137 | | | Version 2.0.0 prepared for presentation to RAN Plenary | 1.1.0 | 2.0.0 |
| 2011-09 | RAN#53 | RP-111127 | | | v2.0.0 approved at RAN#53 and raised to v9.0.0 with no change | 2.0.0 | 9.0.0 |
| 2011-12 | RAN5#53 | R5-115203 | 0001 | - | Removal of editor's notes on OTDOA values | 9.0.0 | 9.1.0 |
| 2011-12 | RAN5#53 | R5-115204 | 0002 | - | Correction of references | 9.0.0 | 9.1.0 |
| 2012-03 | RAN5#54 | R5-120085 | 0003 | - | OTDOA reference corrections | 9.1.0 | 9.2.0 |
| 2012-03 | RAN5#54 | R5-120086 | 0004 | - | Update references | 9.1.0 | 9.2.0 |
| 2012-03 | RAN5#54 | R5-120092 | 0005 | - | OTDOA parameter corrections | 9.1.0 | 9.2.0 |
| 2012-06 | RAN5#55 | R5-121136 | 0006 | - | Corrections to GPS Almanac data file | 9.2.0 | 9.3.0 |
| 2012-06 | RAN5#55 | R5-121137 | 0007 | - | Removal of OTDOA data for signalling test cases | 9.2.0 | 9.3.0 |
| 2012-06 | RAN5#55 | R5-121249 | 0008 | - | LBS: Corrections to gnss-SystemTime message | 9.2.0 | 9.3.0 |
| 2012-06 | RAN5#55 | R5-121853 | 0009 | - | Additions and corrections to GNSS data | 9.2.0 | 9.3.0 |
| 2012-06 | RAN5#55 | R5-121910 | 0010 | - | Additions and corrections to GNSS data | 9.2.0 | 9.3.0 |
| 2012-06 | RAN5#55 | R5-121911 | 0011 | - | Reduction in size of GPS data file | 9.2.0 | 9.3.0 |
| 2012-06 | RAN5#55 | - | - | - | Upgraded to v10.0.0 with no change. | 9.3.0 | 10.0.0 |
| 2012-09 | RAN5#56 | R5-123097 | 0012 | - | Addition of missing Assistance Data | 10.0.0 | 10.1.0 |
| 2012-09 | RAN5#56 | R5-123699 | 0013 | - | Addition of Rel-10 Information Elements | 10.0.0 | 10.1.0 |
| 2012-09 | RAN5#56 | R5-123914 | 0014 | - | Addition of missing Assistance Data | 10.0.0 | 10.1.0 |
| 2012-12 | RAN5#57 | R5-125577 | 0015 | - | Correction to Reference UE Position value | 10.1.0 | 10.2.0 |
| 2012-12 | RAN5#57 | R5-125779 | 0017 | - | LBS Sig: Corrections to GLONASS acquisition assistance data | 10.1.0 | 10.2.0 |
| 2012-12 | RAN5#57 | R5-125780 | 0018 | - | LBS Sig: Corrections to GNSS assistance data | 10.1.0 | 10.2.0 |
| 2012-12 | RAN5#57 | R5-125849 | 0019 | - | LBS Perf: Correction of coordinates for GNSS Scenario #2 and #5 | 10.1.0 | 10.2.0 |
| 2012-12 | RAN5#57 | R5-125850 | 0020 | - | LBS Perf: Corrections to GNSS assistance data | 10.1.0 | 10.2.0 |
| 2012-12 | RAN5#57 | R5-125917 | 0021 | - | LBS Perf: Corrections to GLONASS acquisition assistance data | 10.1.0 | 10.2.0 |
| 2012-12 | RAN5#56 bis | R5-124122 | 0022 | - | OTDOA data for new test cases 10.1 - 10.4 for RSTD for Carrier Aggregation | 10.1.0 | 10.2.0 |
| 2013-03 | RAN5#58 | R5-130118 | 0023 | - | Addition of Rel-10 IEs | 10.2.0 | 10.3.0 |
| 2013-03 | RAN5#58 | R5-130119 | 0024 | - | Addition of Rel-10 IEs | 10.2.0 | 10.3.0 |
| 2013-03 | RAN5#58 | R5-130122 | 0025 | - | Change of file names for assistance data | 10.2.0 | 10.3.0 |
| 2013-03 | RAN5#58 | R5-130123 | 0026 | - | Change of file names for assistance data | 10.2.0 | 10.3.0 |
| 2013-03 | RAN5#58 | R5-130529 | 0027 | - | Correction to GPS assistance data | 10.2.0 | 10.3.0 |
| 2013-03 | RAN5#58 | R5-130689 | 0028 | - | Correction to GLONASS assistance data | 10.2.0 | 10.3.0 |
| 2013-03 | RAN5#58 | R5-130690 | 0029 | - | Correction to GPS assistance data | 10.2.0 | 10.3.0 |
| 2013-03 | RAN5#58 | R5-130960 | 0030 | - | Correction to GLONASS assistance data | 10.2.0 | 10.3.0 |
| 2013-06 | RAN5#59 | R5-131103 | 0031 | - | Additional OTDOA assistance data for new inter-frequency tests | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131108 | 0032 | - | Correction to GLONASS ToD | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131329 | 0033 | - | Correction to available GNSS assistance data elements for signalling tests | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131330 | 0034 | - | Addition of missing Rel-10 IE | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131509 | 0035 | - | Corrections to UTC Model assistance data values | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131511 | 0036 | - | Corrections and clarifications to use of UTC Model and Auxiliary Information | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131948 | 0037 | - | OTDOA assistance data alignment with RAN 4 | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131949 | 0038 | - | Corrections to UTC Model assistance data values | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131997 | 0039 | - | LBS Perf: Introduction of GLONASS acquisition assistance data | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-131998 | 0040 | - | Addition of GLONASS Acquisition Assistance data | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-132060 | 0041 | - | Addition of GLONASS Acquisition Assistance data | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-132061 | 0042 | - | LBS Sig: Introduction of GLONASS acquisition assistance data | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-132100 | 0043 | - | Corrections and clarifications to use of UTC Model and Auxiliary Information | 10.3.0 | 10.4.0 |
| 2013-06 | RAN5#59 | R5-132101 | 0044 | - | Correction to GLONASS SV Health value in data file | 10.3.0 | 10.4.0 |
| 2013-09 | RAN5#60 | R5-133177 | 0045 | - | Removal of old Assistance Data files | 10.4.0 | 10.5.0 |
| 2013-09 | RAN5#60 | R5-133179 | 0046 | - | Addition of missing Assistance Data files | 10.4.0 | 10.5.0 |
| 2013-09 | RAN5#60 | R5-133180 | 0047 | - | Correction of Doppler 1 values for RRC | 10.4.0 | 10.5.0 |
| 2013-09 | RAN5#60 | R5-133341 | 0048 | - | Change of SV for GNSS Scenario #2 for Multi-path test | 10.4.0 | 10.5.0 |
| 2013-09 | RAN5#60 | R5-133487 | 0050 | - | Correction of Doppler 1 values for RRC | 10.4.0 | 10.5.0 |
| 2013-09 | RAN5#60 | R5-133488 | 0051 | - | Correction of Doppler values for LPP | 10.4.0 | 10.5.0 |
| 2013-09 | RAN5#60 | R5-133726 | 0052 | - | Correction of Doppler values for LPP | 10.4.0 | 10.5.0 |
| 2013-12 | RAN5#61 | R5-134206 | 0053 | - | Correction to GPS Almanac WNa value for scenarios #2 and #5 | 10.5.0 | 10.6.0 |

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|---------|---------|-----------|------|---|---|--------|--------|
| 2013-12 | RAN5#61 | R5-134251 | 0054 | - | Correction of OmegaA0 value for SV1 in scenario #1 | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-134257 | 0055 | - | Deletion of FFS and Editor's note in clause 6.2.7 | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-134357 | 0057 | - | Correction to GLONASS Navigation Model for scenario #2 and #5 | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-134443 | 0058 | - | LBS Perf: Corrections to the headers of GPS acquisition assistance data files | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-134444 | 0059 | - | LBS Sig: Corrections to the headers of GPS acquisition assistance data files | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-134851 | 0060 | - | Addition of OTDOA Assistance Data for new 20MHz CA test cases | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-134912 | 0061 | - | Correction of OmegaA0 value for SV1 | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-134913 | 0062 | - | Correction to GNSS Navigation Model (sub-test 1) | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-135064 | 0063 | - | LBS Perf: Corrections to the GNSS acquisition assistance data - CR 1 | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-135065 | 0064 | - | LBS Perf: Corrections to the GNSS acquisition assistance data - CR 2 | 10.5.0 | 10.6.0 |
| 2013-12 | RAN5#61 | R5-135072 | 0065 | - | LBS Sig: Corrections to the GNSS acquisition assistance data | 10.5.0 | 10.6.0 |

History

| Document history | | |
|-------------------------|--------------|-------------|
| V10.0.0 | July 2012 | Publication |
| V10.1.0 | October 2012 | Publication |
| V10.2.0 | January 2013 | Publication |
| V10.3.0 | April 2013 | Publication |
| V10.4.0 | July 2013 | Publication |
| V10.5.0 | October 2013 | Publication |
| V10.6.0 | January 2014 | Publication |