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TECHNICAL SPECIFICATION

Universal Mobile Telecommunications System (UMTS);
LTE;
5G;
User Equipment (UE)
conformance specification for UE positioning;
Part 5: Test scenarios and assistance data
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Contents

Foreword

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Introduction

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

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

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

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

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

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

1 Scope

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

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

2 References

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

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

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 36.101: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception".

[3] Void

[4] Void

[5] Void

[6] 3GPP TS 37.571-1: “User Equipment (UE) conformance specification for UE positioning; Part 1: Terminal conformance”.

[7] 3GPP TS 37.571-2: “User Equipment (UE) conformance specification for UE positioning; Part 2: Protocol conformance”.

[8] 3GPP TS 37.355: " LTE Positioning Protocol (LPP)".

[9] IS-GPS-200, Revision D, Navstar GPS Space Segment/Navigation User Interfaces, March 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), Issue 1.2, February 2014, European Union.

[14] Global Navigation Satellite System GLONASS Interface Control Document, Version 5.1, 2008.

[15] Specification for the Wide Area Augmentation System (WAAS), US Department of Transportation, Federal Aviation Administration, DTFA01-96-C-00025, 2001.

[16] 3GPP TS 25.331: “Radio Resource Control (RRC); Protocol specification”

[17] STANAG 4294: NATO STANAG 4294. Navstar Global Positioning System (GPS) System Characteristics.

[18] 3GPP TS 36.104: "Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception".

[19] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".

[20] 3GPP TS 36.508: "Common test environments for User Equipment (UE) conformance testing".

[21] ATIS-0500027: "Recommendations for Establishing Wide Scale Indoor Location Performance", May 2015.

[22] IEEE 802.11, Part 11: "Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".

[23] Bluetooth Special Interest Group (SIG): “Bluetooth Core Specification v4.2”, December 2014.

[24] 3GPP TS 38.508-1: "User Equipment (UE) conformance specification; Part 1: Common test environment".

[25] BDS-SIS-ICD-B1I-3.0: "BeiDou Navigation Satellite System Signal In Space Interface Control Document Open Service Signal B1I (Version 3.0)", China Satellite Navigation Office, December 2019.

[26] BDS-SIS-ICD-B1C-1.0: "BeiDou Navigation Satellite System Signal In Space Interface Control Document Open Service Signal B1C (Version 1.0)", December 2017.

[27] BDS-SIS-ICD-B2a-1.0: "BeiDou Navigation Satellite System Signal In Space Interface Control Document Open Service Signal B2a (Version 1.0)", December, 2017.

[28] BDS-SIS-ICD-B3I-1.0: "BeiDou Navigation Satellite System Signal In Space Interface Control Document Open Service Signal B3I (Version 1.0)", February, 2018.

[29] 3GPP TS 38.355: "NR; Sidelink Positioning Protocol (SLPP); Protocol specification".

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

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

3.2 Symbols

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

B1I BeiDou B1I navigation signal with carrier frequency of 1561.098 MHz.
B1C BeiDou B1C navigation signal with carrier frequency of 1575.420 MHz.

B2a BeiDou B2a navigation signal with carrier frequency of 1176.450 MHz.
B3I BeiDou B3I navigation signal with carrier frequency of 1268.520 MHz.
E1 Galileo E1 navigation signal with carrier frequency of 1575.420 MHz.
E5 Galileo E5 navigation signal with carrier frequency of 1191.795 MHz.
E6 Galileo E6 navigation signal with carrier frequency of 1278.750 MHz.
G1 GLONASS navigation signal in the L1 sub-bands with carrier frequencies 1602 MHz ± k × 562.5 kHz.
G2 GLONASS navigation signal in the L2 sub-bands with carrier frequencies 1246 MHz ± k × 437.5 kHz.
k GLONASS channel number, k = -7…13.
L1 C/A GPS or QZSS L1 navigation signal carrying the Coarse/Acquisition code with carrier frequency of 1575.420 MHz.
L1C GPS or QZSS L1 Civil navigation signal with carrier frequency of 1575.420 MHz.
L2C GPS or QZSS L2 Civil navigation signal with carrier frequency of 1227.600 MHz.
L5 GPS or QZSS L5 navigation signal with carrier frequency of 1176.450 MHz.

3.3 Abbreviations

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

A-Galileo Assisted-Galileo
A-GANSS Assisted- Galileo and Additional Navigation Satellite Systems
A-GLONASS Assisted- GLObal'naya NAvigatsionnaya Sputnikovaya Sistema (English: Global Navigation Satellite System)
A-GNSS Assisted Global Navigation Satellite System
A-GPS Assisted - Global Positioning System
AP Access Point
AWGN Additive White Gaussian Noise
BDS BeiDou Navigation Satellite System
C/A Coarse/Acquisition
DL-AoD Downlink Angle-of-Departure
DL-PRS Downlink Positioning Reference Signal
DL-TDOA Downlink Time Difference Of Arrival
DUT Device Under Test
ECEF Earth Centred, Earth Fixed
ENB Evolved Node B
EN-DC E-UTRA-NR Dual Connectivity
E-UTRA Evolved UMTS Terrestrial Radio Access
E-UTRAN Evolved UMTS Terrestrial Radio Access Network
FDD Frequency Division Duplex
FFS For further study
GANSS Galileo and Additional Navigation Satellite Systems
GEO Geostationary Earth Orbit
GLONASS GLObal'naya NAvigatsionnaya Sputnikovaya Sistema (English: Global Navigation Satellite System)
GNSS Global Navigation Satellite System
GPS Global Positioning System
GSS GNSS System Simulator
HDOP Horizontal Dilution Of Precision
ICD Interface Control Document
ICS Implementation Conformance Statement
IS Interface Specification
LOS Line Of Sight
LPP LTE Positioning Protocol
MBS Metropolitan Beacon System
Multi-RTT Multi-Round Trip Time
NE-DC NR-E-UTRA Dual Connectivity
NGEN-DC NG-RAN E-UTRA-NR Dual Connectivity
NR E-CID NR Enhanced Cell ID (positioning method)
NG-RAN NextGen Radio Access Network

NR	New Radio
NR-DC	NR-NR Dual Connectivity
PPM	Parts per million
PRS	Positioning Reference Signal
QZSS	Quasi-Zenith Satellite System
RRC	Radio Resource Control
SBAS	Space Based Augmentation System
SCC	Secondary Component Carrier
SFN	System Frame Number
SL-AoA	Sidelink Angle-of-Arrival
SL-PRS	Sidelink Positioning Reference Signal
SL-PRS-RSRP	Sidelink PRS Reference Signal Received Power
SL-PRS-RSRPP	Sidelink PRS Reference Signal Received Path Power
SL-RSTD	Sidelink Reference Signal Time Difference
SL-RTOA	Sidelink Relative Time of Arrival
SL-RTT	Sidelink Round Trip Time
SL-TDOA	Sidelink Time Difference Of Arrival
SL-TOA	Sidelink Time Of Arrival
SLPP	Sidelink Positioning Protocol
SS	System simulator
SV	Space Vehicle
SV ID	Space Vehicle Identification
TDD	Time Division Duplex
TOD	Time Of Day
TOW	Time of Week TTFF Time To First Fix
UE	User Equipment
UTRA	Universal Terrestrial Radio Access
UTRAN	Universal Terrestrial Radio Access Network
WAAS	Wide Area Augmentation System
WGS-84	World Geodetic System 1984
WLAN	Wireless Local Area Network

4 General

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

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

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

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

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

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

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

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

For subclause 5, where the assistance data is fixed or is not required on a per-satellite basis, then it is defined in the following subclauses. Where assistance data is required on a per-satellite basis, or where the values of the data also vary with time then it is specified in comma-separated-variable files in the appropriate data file specified in Annex A. These

files specify the values to be used for each satellite, indexed by satellite PRN or SV ID, and, where applicable, the values to be used indexed by both time and satellite PRN or SV ID.

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

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

4.2 OTDOA assistance data

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

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

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

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

4.3 MBS scenario and assistance data

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

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

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

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

4.4 WLAN scenario and assistance data

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

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

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

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

4.5 Bluetooth scenario data

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

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

4.6 DL-TDOA scenario data

The following subclause 11 defines the DL-TDOA scenario for the test cases as follows:

Subclause 11.1.2: scenario data for DL-TDOA performance test cases defined in TS 37.571-1 [6].

Subclause 11.2: common scenario data for DL-TDOA performance test cases defined in TS 37.571-1 [6] and signalling test cases defined in TS 37.571-2 [7].

4.7 DL-AoD scenario data

The following subclause 12 defines the DL-AoD scenario for the test cases as follows:

Subclause 12.1: common scenario data for DL-AoD performance test cases defined in TS 37.571-1 [6] and signalling test cases defined in TS 37.571-2 [7].

4.8 SL-TDOA scenario data

The following subclause 13 defines the SL-TDOA scenario for the test cases as follows:

Subclauses 13.1 and 13.2: common scenario data for SL-TDOA performance test cases defined in TS 37.571-1 [6] and signalling test cases defined in TS 37.571-2 [7].

4.9 SL-RTT scenario data

The following subclause 14 defines the SL-RTT scenario for the test cases as follows:

Subclause 14.1: common scenario data for SL-RTT performance test cases defined in TS 37.571-1 [6] and signalling test cases defined in TS 37.571-2 [7].

4.10 SL-AoA scenario data

The following subclause 15 defines the SL-AoA scenario for the test cases as follows:

Subclause 15.1: common scenario data for SL-AoA performance test cases defined in TS 37.571-1 [6] and signalling test cases defined in TS 37.571-2 [7].

4.11 SL-TOA scenario data

The following subclause 16 defines the SL-TOA scenario for the test cases as follows:

Subclause 16.1: common scenario data for SL-TOA performance test cases defined in TS 37.571-1 [6] and signalling test cases defined in TS 37.571-2 [7].

5 GPS information

5.1 GPS Scenario and Assistance data for Assisted GPS signalling tests

5.1.1 General

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

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

5.1.2 GPS Scenario

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

- Yuma Almanac data: see file Tokyo Yuma.txt in the GPS data sig zip file specified in Annex A
- UE location and Reference location: static at latitude: 35 degrees 40 minutes north, longitude: 139 degrees 45 minutes east, (Tokyo) height: = 50m

- Start time: 12th September 2003 21:30:00
- Visible satellites simulated: PRNs: 4, 6, 9, 10, 13, 22.
- Ionospheric model: see values in subclause 5.1.3.4
- The levels of the simulated satellites shall all be at -125dBm +/- 6dB

5.1.3 Assistance Data

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

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

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

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

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

5.1.3.1 Assistance Data Reference Time

Reference Time

Reference Time (Fields occurring once per message)

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

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

Information Element	Units	Value/remark
Confidence	%	68

5.1.3.3 Assistance Data Navigation Model

Satellite Information

Information Element	Units	Value/remark
Number of satellites	-	6

Navigation Model (Fields occurring once per satellite)

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

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

Information Element	Units	Value/remark
C/A or P on L2		See file: Navigation model.csv
URA Index		See file: Navigation model.csv
SV Health		See file: Navigation model.csv
IODC	-	See file: Navigation model.csv
L2 P Data Flag		See file: Navigation model.csv
SF 1 Reserved	-	See file: Navigation model.csv
T_{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
OMEGAdot	semi-circles/sec	See file: Navigation model.csv
Idot	semi-circles/sec	See file: Navigation model.csv

5.1.3.4 Assistance Data Ionospheric Model

Ionospheric Model

Information Element	Units	Value/remark
α_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_{oa}	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. In the case that the (hardware) GPS simulator is switched off or not present then the value of GPS TOW msec given above may be used.			

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 l_{11} and l_{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 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 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

Note 1: GPS TOW msec

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.

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.

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

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 5.2.6.2

Note 3: This IE only present for Rel-7 onwards.

Note 4: This IE not present for Rel-7 onwards.

Note 5: This IE is only present for Rel-10 onwards.

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
OMEGAdot	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)

Note 1: GPS TOW msec

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.

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.

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

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 5.2.6.2

Note 3: This IE only present for Rel-7 onwards.

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 (0th order term)	Hz	Time varying. See file: Acquisition assist XX.csv (Note)	
Doppler (1st 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 where required for UTRA, E-UTRA and NR Assisted GNSS signalling tests defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclauses 7 and 9.

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] subclauses 7 and 9. Other information is also given separately for TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclauses 7 and 9 where it differs between the subclauses.

The satellite simulator shall generate all the UE supported GNSS satellite signals defined in subclause 6.1.2 and/or shall provide assistance data dependent on the UE capabilities defined in subclause 6.1.3. Note that some tests require assistance data to be provided even though satellite signals are not required.

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
8	UE supporting A-GPS and A-Galileo only
9	UE supporting A-BDS only
10	UE supporting A-GPS and A-BDS only

Table 6.1.1-2: Sub-Test Case Number Definition for TS 37.571-2 subclauses 7 and 9

Sub-Test Case Number	Supported GNSS
1	Void
2	Void
3	Void
4	Void
7	UE supporting GNSS(1) and OTDOA
8	Void
9	Void
10	Void
15	UE supporting GNSS(1)
25	UE supporting GNSS(1) (Rel-15 onwards)
Note 1: The GNSS combination of GPS, GLONASS, Galileo or BDS supported by the UE	

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

6.1.2 GNSS Scenario

Table 6.1.2-0: Void

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

- Rinex navigation data files: the required file(s) in the GNSS orbital data sig zip file specified in Annex B are given below.

Table 6.1.2-1: Rinex navigation data files for TS 37.571-2 subclauses 6.2.1 to 6.2.3

Sub-Test Case Number	Rinex navigation datafile(s)
1	Sig GNSS GLONASS 2020_9_17 Rinex.txt
2	Sig GNSS Galileo 2020_9_17 Rinex.txt
3	Sig GNSS GPS 2020_9_17 Rinex.txt
4	Sig GNSS GPS 2020_9_17 Rinex.txt and Sig GNSS GLONASS 2020_9_17 Rinex.txt
8	Sig GNSS GPS 2020_9_17 Rinex.txt and Sig GNSS Galileo 2020_9_17 Rinex.txt
9	Sig GNSS BDS-2 2020_9_17 Rinex.txt or Sig GNSS BDS-3 2020_9_17 Rinex.txt (1)
10	Sig GNSS GPS 2020_9_17 Rinex.txt and Sig GNSS BDS-2 2020_9_17 Rinex.txt or Sig GNSS BDS-3 2020_9_17 Rinex.txt (1)
Note 1: If pc_BDS2_only = TRUE, the rinex files for BDS-2 shall be used. If pc_BDS2_only = FALSE, the rinex files for BDS-3 shall be used.	

Table 6.1.2-2: Rinex navigation data files for TS 37.571-2 subclauses 7 and 9

Sub-Test Case Number	GNSS supported by the UE	Rinex navigation datafile(s) (1)
7	[FFS]	[FFS]
15, 25	GPS	Sig GNSS GPS 2020_9_17 Rinex.txt
	GLONASS	Sig GNSS GLONASS 2020_9_17 Rinex.txt
	Galileo	Sig GNSS Galileo 2020_9_17 Rinex.txt
	BDS	Sig GNSS BDS-2 2020_9_17 Rinex.txt or Sig GNSS BDS-3 2020_9_17 Rinex.txt (2)

Note 1: Where the UE supports more than one GNSS then all the relevant Rinex navigation data files are used
Note 2: If pc_BDS2_only = TRUE, the rinex files for BDS-2 shall be used. If pc_BDS2_only = FALSE, the rinex files for BDS-3 shall be used.

- 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), height: = 300m.

- Nominal start time: 17th September 2020 23:40:00 (GPS time).

- The visible satellites available for simulation and for which Assistance Data (other than Almanac) shall be generated are given in Table 6.1.2-2A.

Table 6.1.2-2A: SV IDs of Visible satellites

GNSS	SV IDs of Visible satellites
GPS	3, 4, 6, 17, 19, 28
GLONASS	3, 4, 5, 10, 18, 19
Galileo	3, 5, 13, 15, 21, 27
BDS	1, 2, 6, 7, 11, 12 (BDS-2) or 38, 40, 42, 43, 59, 60 (BDS-3) (1)
Note 1: If pc_BDS2_only = TRUE, the SV IDs for BDS-2 shall be used. If pc_BDS2_only = FALSE, the SV IDs for BDS-3 shall be used.	

- For BDS, the satellite types are given in Table 6.1.2-2B

Table 6.1.2-2B: BDS satellite types

BDS Satellite type	SV IDs of Satellites
GEO	59, 60, 1, 2
IGSO	38, 40, 6, 7
MEO	42, 43, 11, 12

- The visible satellites to be simulated in each sub-test case are given in Table 6.1.2-3 and Table 6.1.2-4

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, 5, 10, 18, 19 (GLONASS)
2	3, 5, 13, 15, 21, 27 (Galileo)
3	3, 4, 6, 17, 19, 28 (GPS) (1)
4	GPS: 3, 4, 6, 28. GLONASS: 5, 16, 18, 19.
8	GPS: 3, 4, 6, 28. Galileo: 3, 5, 13, 21.
9	1, 2, 6, 7, 11, 12 (BDS-2) or 38, 40, 42, 43, 59, 60 (BDS-3) (2)
10	GPS: 3, 4, 6, 28. BDS: 1, 2, 6, 7 (BDS-2) or 38, 40, 59, 60 (BDS-3). (2)
Note 1: For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. Note 2: If pc_BDS2_only = TRUE, the SV IDs for BDS-2 shall be used. If pc_BDS2_only = FALSE, the SV IDs for BDS-3 shall be used.	

Table 6.1.2-4: Satellites to be simulated for TS 37.571-2 subclauses 7 and 9

Sub-Test Case Number	GNSS supported by the UE	SV IDs of Satellites to be simulated
7	[FFS]	[FFS]
15, 25 (1)	GPS	3, 4, 6, 17, 19, 28
	GLONASS	3, 4, 5, 10, 18, 19
	Galileo	3, 5, 13, 15, 21, 27
	BDS	1, 2, 6, 7, 11, 12 (BDS-2) or 38, 40, 42, 43, 59, 60 (BDS-3) (2)
Note 1: For this sub-test the satellite simulator shall generate all the GNSS signals supported by the UE for all the simulated satellites. Note 2: If pc_BDS2_only = TRUE, the SV IDs for BDS-2 shall be used. If pc_BDS2_only = FALSE, the SV IDs for BDS-3 shall be used.		

Tables 6.1.2-5..8: Void

6.1.3 Assistance Data

This subclause defines the GNSS scenarios and assistance data IEs which shall be available for use where required in A-GNSS signalling test cases defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclauses 7 and 9.

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, 8, 10	Yes for sub-tests 3, 4, 8, 10
GPS reference UE position	Yes for sub-tests 3, 4, 8, 10	No
GPS navigation model	Yes for sub-tests 3, 4, 8, 10	No
GPS ionospheric model	Yes for sub-tests 3, 4, 8, 10	No
GPS UTC model	Yes for sub-tests 4, 8	Yes for sub-tests 4, 8
GPS acquisition assistance	No	Yes for sub-tests 3, 4, 8, 10
GANSS reference time	Yes for sub-tests 1, 2, 9	Yes for sub-tests 1, 2, 9
GANSS reference UE position	Yes for sub-tests 1, 2, 9	No
GANSS ionospheric model	Yes for sub-tests 2, 8	No
GANSS additional ionospheric model	Yes for sub-tests 1, 9, 10	No
GANSS Time Models	Yes for sub-tests 4, 8, 10	No
GANSS navigation model	Yes for sub-tests 2, 8	No
GANSS additional navigation models	Yes for sub-tests 1, 4, 9, 10	No
GANSS reference measurement information	No	Yes for sub-tests 1, 2, 4, 8, 9, 10
GANSS auxiliary information	Yes for sub-tests 1, 4 (for GLONASS). Yes for sub-test 3 (for multiple GPS signals). Yes for sub-tests 4, 8, 10 if the UE supports multiple GPS signals	Yes for sub-tests 1, 4 (for GLONASS). Yes for sub-test 3 (for multiple GPS signals). Yes for sub-tests 4, 8, 10 if the UE supports multiple GPS signals

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

Assistance data that is marked as “time varying” and the GPS TOW msec or GANSS TOD field are created and used in 1 second increments.

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. In the case that assistance data is required but satellite signals are not required then this clause does not apply.

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

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

6.1.3.2.1 Assistance Data GPS Reference Time

GPS Reference Time (Fields occurring once per message)

Information Element	Units	Value/remark	Release
GPS Week	weeks	Derived from data in clause 6.1.2	
GPS Week Cycle Number		Derived from data in clause 6.1.2	Rel-10 onwards
GPS TOW msec	msec	Start time is derived from data in clause 6.1.2. 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. In the case that the (hardware) GPS simulator is switched off or not present then the value of GPS TOW msec given above may be used.			

6.1.3.2.2 Assistance Data GPS Reference UE Position

GPS Reference UE Position

Information Element	Units	Value/remark
Latitude sign		Derived from data in clause 6.1.2
Degrees Of Latitude	degrees	Derived from data in clause 6.1.2
Degrees Of Longitude	degrees	Derived from data in clause 6.1.2
Altitude Direction		Derived from data in clause 6.1.2
Altitude	m	Derived from data in clause 6.1.2
Uncertainty semi-major	m	3000
Uncertainty semi-minor	m	3000
Orientation of major axis	degrees	0
Uncertainty Altitude	m	500
Confidence	%	68

6.1.3.2.3 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	-	Derived from data in clause 6.1.2
Satellite Status		0

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

Derived from data in clause 6.1.2

6.1.3.2.4 Assistance Data GPS Ionospheric Model

GPS Ionospheric Model

Derived from data in clause 6.1.2

6.1.3.2.5 Assistance Data GPS UTC model

GPS UTC Model

Derived from data in clause 6.1.2 and the following information:

A1: 0

A0: 0

6.1.3.2.6 Assistance Data GPS Almanac

GPS Almanac (Fields occurring once per message)

Information Element	Units	Value/remark	Release
WN_a	weeks	Derived from data in clause 6.1.2	
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)

FFS

6.1.3.2.7 Assistance Data GPS Acquisition Assistance

GPS Acquisition Assist - Information Elements appearing once per message

Information Element	Units	Value/remark
GPS TOW msec	msec	Start time is derived from data in clause 6.1.2. 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. In the case that the (hardware) GPS simulator is switched off or not present then the value of GPS TOW msec given above may be used.		

Satellite Information

Information Element	Units	Value/remark
Number of satellites	-	6

GPS Acquisition Assist - Information Elements appearing once per satellite

These fields are time varying (see clause 6.1.3.2) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

6.1.3.2.8 Assistance Data GANSS reference time

GANSS reference time: sub-test 1

Information Element	Units	Value/remark	Release
GANSS Day		Derived from data in clause 6.1.2	
GANSS Day Cycle Number		Derived from data in clause 6.1.2	Rel-10 onwards
GANSS TOD	Seconds	Start time is derived from data in clause 6.1.2. 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. In the case that the (hardware) GNSS simulator is switched off or not present then the value of GANSS TOD given above may be used.			

GANSS reference time: sub-test 2

Information Element	Units	Value/remark	Release
GANSS Day		Derived from data in clause 6.1.2	
GANSS Day Cycle Number		Derived from data in clause 6.1.2	Rel-10 onwards
GANSS TOD	Seconds	Start time is derived from data in clause 6.1.2. 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. In the case that the (hardware) GNSS simulator is switched off or not present then the value of GANSS TOD given above may be used.			

GANSS reference time: sub-test 9

Information Element	Units	Value/remark	Release
GANSS Day		Derived from data in clause 6.1.2	
GANSS Day Cycle Number		Derived from data in clause 6.1.2	Rel-12 onwards
GANSS TOD	Seconds	Start time is derived from data in clause 6.1.2. Add integer number of 1 second as required. (Note)	
GANSS TOD Uncertainty		125 (2.127 seconds)	
GANSS Time ID		3 (BDS system time)	
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. In the case that the (hardware) GNSS simulator is switched off or not present then the value of GANSS TOD given above may be used.			

6.1.3.2.9 Assistance Data GANSS reference UE position

GANSS reference UE position

Information Element	Units	Value/remark
Latitude sign		Derived from data in clause 6.1.2
Degrees Of Latitude	degrees	Derived from data in clause 6.1.2
Degrees Of Longitude	degrees	Derived from data in clause 6.1.2
Altitude Direction		Derived from data in clause 6.1.2
Altitude	m	Derived from data in clause 6.1.2
Uncertainty semi-major	m	3000
Uncertainty semi-minor	m	3000
Orientation of major axis	degrees	0
Uncertainty Altitude	m	500
Confidence	%	68

6.1.3.2.10 Assistance Data GANSS ionospheric model

Derived from data in clause 6.1.2

6.1.3.2.11 Assistance Data GANSS additional ionospheric model

GANSS additional ionospheric model (QZSS)

Derived from data in clause 6.1.2 and the following information:

Data Id: 00

GANSS additional ionospheric model (BDS)

Derived from data in clause 6.1.2 and the following information:

Data Id: 01

6.1.3.2.12 Assistance Data GANSS time model

GANSS time model (GLONASS)

Information Element	Units	Value/remark	Release
GANSS Time Model Reference Time	s	Derived from data in clause 6.1.2	
T_{A0}	Seconds	0	
GNSS_TO_ID		0 (GPS)	
Delta_T	Seconds	Derived from data in clause 6.1.2	Rel-10 onwards

GANSS time model (Galileo)

Information Element	Units	Value/remark	Release
GANSS Time Model Reference Time	s	Derived from data in clause 6.1.2	
T_{A0}	Seconds	0	
GNSS_TO_ID		0 (GPS)	
Delta_T	Seconds	Derived from data in clause 6.1.2	Rel-10 onwards

GANSS time model (BDS)

Information Element	Units	Value/remark	Release
GANSS Time Model Reference Time	s	Derived from data in clause 6.1.2	
T_{A0}	Seconds	0	
GNSS_TO_ID		0 (GPS)	
Delta_T	Seconds	Derived from data in clause 6.1.2	Rel-12 onwards

6.1.3.2.13 Assistance Data GANSS navigation model

GANSS navigation model (Galileo)

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

Satellite Information (Galileo)

Information Element	Units	Value/remark
Number of satellites	-	6

Satellite Information (Fields occurring once per satellite) (Galileo)

Information Element	Units	Value/remark
SatID		Derived from data in clause 6.1.2
SV Health		0
IOD		Derived from data in clause 6.1.2

GANSS Clock Model (Fields occurring once per satellite) (Galileo)

GANSS Clock Model: Satellite clock model (Model 1)

Derived from data in clause 6.1.2

GANSS Orbit Model (Fields occurring once per satellite) (Galileo)

GANSS Orbit Model: Keplerian Parameters (Model 1)

Derived from data in clause 6.1.2

6.1.3.2.14 Assistance Data GANSS additional navigation models

GANSS additional navigation models (GLONASS)

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

Satellite Information (GLONASS)

Information Element	Units	Value/remark
Number of satellites	-	6

Satellite Information (Fields occurring once per satellite) (GLONASS)

Information Element	Units	Value/remark
SatID		Derived from data in clause 6.1.2
SV Health		000000
IOD		Derived from data in clause 6.1.2

GANSS additional Clock Models (Fields occurring once per satellite) (GLONASS)

GANSS additional clock models: GLONASS Satellite Clock Model (Model 4)

Derived from data in clause 6.1.2

GANSS additional orbit models (Fields occurring once per satellite) (GLONASS)

GANSS additional orbit models: GLONASS Earth-Centered, Earth-fixed Parameters (Model 4)

Derived from data in clause 6.1.2

GANSS additional navigation model (BDS)

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

Satellite Information (BDS)

Information Element	Units	Value/remark
Number of satellites	-	6

Satellite Information (Fields occurring once per satellite) (BDS)

Information Element	Units	Value/remark
SatID		Derived from data in clause 6.1.2
SV Health		0
IOD		Derived from data in clause 6.1.2

GANSS additional Clock Model (Fields occurring once per satellite) (BDS)

GANSS additional clock models: BDS Satellite Clock Model (Model 6)

Derived from data in clause 6.1.2

GANSS additional Orbit Models (Fields occurring once per satellite) (BDS)

GANSS additional orbit models: BDS Keplerian Parameters (Model 6)

Derived from data in clause 6.1.2

6.1.3.2.15 Assistance Data GANSS reference measurement information

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

These fields are time varying (see clause 6.1.3.2) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GANSS reference measurement information: sub-tests 2 and 8 (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-tests 2 and 8 (Fields occurring once per satellite)

These fields are time varying (see clause 6.1.3.2) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GANSS reference measurement information: sub-tests 9 and 10 (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-tests 9 and 10 (Fields occurring once per satellite)

These fields are time varying (see clause 6.1.3.2) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

6.1.3.2.16 Assistance Data GANSS almanac

GANSS almanac: sub-tests 1 and 4 (Fields occurring once per message)

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

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

Information Element	Units	Value/remark
Number of satellites	-	24

GANSS almanac: sub-tests 1 and 4 (Fields occurring once per satellite)

GLONASS Keplerian Parameters (Model 5)

FFS

GANSS almanac: sub-tests 2 and 8 (Fields occurring once per message)

Information Element	Units	Value/remark	Release
Week Number	Weeks	Derived from data in clause 6.1.2	
Complete Almanac Provided		TRUE	Rel-10 onwards

GANSS almanac: sub-tests 2 and 8 (Field occurring once per message)

Information Element	Units	Value/remark
T_{oa}		Derived from data in clause 6.1.2
IOD_a		Derived from data in clause 6.1.2

Satellite Information KP: sub-tests 2 and 8

Information Element	Units	Value/remark
Number of satellites	-	29

GANSS almanac: sub-tests 2 and 8 (Fields occurring once per satellite)

Keplerian parameters (Model 1)

FFS

GANSS almanac: sub-tests 9 and 10 (Fields occurring once per message)

Information Element	Units	Value/remark	Release
Week Number	Weeks	Derived from data in clause 6.1.2	
Complete Almanac Provided		TRUE	Rel-12 onwards

GANSS almanac: sub-tests 9 and 10 (Field occurring once per message)

Information Element	Units	Value/remark
T_{oa}		Derived from data in clause 6.1.2
IOD_a		Not present

Satellite Information BDS-KP: sub-tests 9 and 10

Information Element	Units	Value/remark
Number of satellites	-	30

GANSS almanac: sub-tests 9 and 10 (Fields occurring once per satellite)

BDS Keplerian Parameters (Model 7)

FFS

6.1.3.2.17 Assistance Data GANSS auxiliary information

GANSS auxiliary information (Fields occurring once per message) (GLONASS)

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

Aux Info List (GLONASS)

Information Element	Units	Value/remark
Number of satellites	-	6

GANSS auxiliary information (Fields occurring once per satellite) (GLONASS)

Information Element	Units	Value/remark
Sat ID		Derived from data in clause 6.1.2
Signals Available		G1
Channel Number		Derived from data in clause 6.1.2

GANSS auxiliary information (Fields occurring once per message) (multiple GPS signals)

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

Aux Info List (multiple GPS signals)

Information Element	Units	Value/remark
Number of satellites	-	6

GANSS auxiliary information (Fields occurring once per satellite) (multiple GPS signals)

Information Element	Units	Value/remark
Sat ID		Derived from data in clause 6.1.2
Signals Available		As supported by the UE

6.1.3.2.18 Assistance Data GANSS ID

GANSS ID: sub-tests 1 and 4

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

GANSS ID: sub-tests 2 and 8

Information Element	Units	Value/remark
GANSS ID		Not present (Galileo)

GANSS ID: sub-test 3

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

GANSS ID: sub-tests 9 and 10

Information Element	Units	Value/remark
GANSS ID		4 (BDS)

6.1.3.3 Default Assistance Data for TS 37.571-2 subclauses 7 and 9

This subclause defines the GNSS assistance data elements which shall be provided to the UE in certain tests in TS 37.571-2 [7] subclauses 7 and 9 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 the UE	Mode used in test case		
	UE-based	UE-assisted. GNSS-Acquisition Assistance supported by the UE	UE-assisted. GNSS-Acquisition Assistance not supported by the UE
GNSS-Reference Time	Yes	Yes	Yes
GNSS-ReferenceLocation	Yes	No	Yes
GNSS-IonosphericModel	Yes	No	No
GNSS-TimeModelList	Yes(1)	No	Yes(1)
GNSS-NavigationModel	Yes	No	Yes
GNSS-AcquisitionAssistance	No	Yes	No
GNSS-Almanac	No	No	Yes
GNSS-UTC-Model	Yes(2)	Yes(2)	Yes(2
GNSS-AuxiliaryInformation	Yes(3)	Yes(3)	Yes(3)
Note1: Only if more than one GNSS supported by the UE Note2: Only if GLONASS and at least one other GNSS supported by the UE. Note3: Only if GLONASS supported by the UE, and/or if the UE supports multiple GPS signals and/or if BDS B1C and/or BDS B2a supported by the UE.			

6.1.3.4 Assistance Data values for TS 37.571-2 subclauses 7 and 9

Assistance data that is marked as “time varying” and the gnss-TimeOfDay field are created and used in 1 second increments.

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. In the case that assistance data is required but satellite signals are not required then this clause does not apply.

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

The information elements detailed below are fully defined in TS 37.355 [8].

6.1.3.4.1 GNSS REFERENCE TIME:

GNSS-ReferenceTime: If GPS supported by the UE

Information Element	Units	Value/remark
gnss-SystemTime		
gnss-TimeID		0 (gps)
gnss-DayNumber		Derived from data in clause 6.1.2
gnss-TimeOfDay		Start time is derived from data in clause 6.1.2. Add integer number of 1 seconds as required. (Note)
gnss-TimeOfDayFrac-msec		Not present
notificationOfLeapSecond		Not present
gps-TOW-Assist		
satelliteID		Derived from data in clause 6.1.2
tlmWord		Derived from data in clause 6.1.2
antiSpoof		1 (for all PRNs)
alert		0 (for all PRNs)
tlmRsvdBits		Derived from data in clause 6.1.2
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. In the case that the (hardware) GNSS simulator is switched off or not present then the value of gnss-TimeOfDay given above may be used.		

GNSS-ReferenceTime: If GLONASS is the only GNSS supported by the UE

Information Element	Units	Value/remark
gnss-SystemTime		
gnss-TimeID		4 (glonass)
gnss-DayNumber		Derived from data in clause 6.1.2
gnss-TimeOfDay		Start time is derived from data in clause 6.1.2. 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. In the case that the (hardware) GNSS simulator is switched off or not present then the value of gnss-TimeOfDay given above may be used.		

GNSS-ReferenceTime: If Galileo is the only GNSS supported by the UE

Information Element	Units	Value/remark
gnss-SystemTime		
gnss-TimeID		3 (galileo)
gnss-DayNumber		Derived from data in clause 6.1.2
gnss-TimeOfDay		Start time is derived from data in clause 6.1.2. 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. In the case that the (hardware) GNSS simulator is switched off or not present then the value of gnss-TimeOfDay given above may be used.		

GNSS-ReferenceTime: If BDS is the only GNSS supported by the UE

Information Element	Units	Value/remark
gnss-SystemTime		
gnss-TimeID		5 (bds)
gnss-DayNumber		Derived from data in clause 6.1.2
gnss-TimeOfDay		Start time is derived from data in clause 6.1.2. 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. In the case that the (hardware) GNSS simulator is switched off or not present then the value of gnss-TimeOfDay given above may be used.		

6.1.3.4.2 GNSS REFERENCE LOCATION:

GNSS-ReferenceLocation

Information Element	Units	Value/remark
threeDlocation		Derived from data in clause 6.1.2
latitudeSign		Derived from data in clause 6.1.2
degreesLatitude	degrees	Derived from data in clause 6.1.2
degreesLongitude	degrees	Derived from data in clause 6.1.2
altitudeDirection		Derived from data in clause 6.1.2
altitude	m	Derived from data in clause 6.1.2
uncertaintySemiMajor	m	3000
uncertaintySemiMinor	m	3000
orientationMajorAxis	degrees	0
uncertaintyAltitude	m	500
confidence	%	68

6.1.3.4.3 GNSS IONOSPHERIC MODEL:

GNSS-IonosphericModel (Klobuchar Model): If GPS or GLONASS or BDS B1I or BDS B3I supported by the UE

Derived from data in clause 6.1.2 and the following information:

dataID: 00

neQuickModel: not present unless Galileo is also supported by the UE

klobucharModel2: not present unless BDS B1C or BDS B2a is also supported by the UE

GNSS-IonosphericModel (NeQuick Model): If Galileo supported by the UE

Derived from data in clause 6.1.2 and the following information:

klobucharModel: not present unless GPS or GLONASS or BDS B1I or BDS B3I is also supported by the UE

klobucharModel2: not present unless BDS B1C or BDS B2a is also supported by the UE

GNSS-IonosphericModel (Klobuchar2 Model): If BDS B1C or BDS B2a supported by the UE

Derived from data in clause 6.1.2 and the following information:

klobucharModel: not present unless GPS or GLONASS or BDS B1I or BDS B3I is also supported by the UE

neQuickModel: not present unless Galileo is also supported by the UE

6.1.3.4.4 GNSS TIME MODEL:

GNSS-TimeModelList: If GLONASS and GPS supported by the UE

Information Element	Units	Value/remark
gnss-TimeModelRefTime	seconds	Derived from data in clause 6.1.2
tA0		0
gnss-TO-ID		1 (GPS)
weekNumber		Derived from data in clause 6.1.2
deltaT		Derived from data in clause 6.1.2

GNSS-TimeModelList: If Galileo and GPS supported by the UE

Information Element	Units	Value/remark
gnss-TimeModelRefTime	Seconds	Derived from data in clause 6.1.2
tA0		0
gnss-TO-ID		1 (GPS)
weekNumber		Derived from data in clause 6.1.2
deltaT		Derived from data in clause 6.1.2

GNSS-TimeModelList: If BDS and GPS supported by the UE

Information Element	Units	Value/remark
gnss-TimeModelRefTime	seconds	Derived from data in clause 6.1.2
tA0		0
gnss-TO-ID		1 (GPS)
weekNumber		Derived from data in clause 6.1.2
deltaT		Derived from data in clause 6.1.2

6.1.3.4.5 GNSS NAVIGATION MODEL:

GNSS-NavigationModel (Model-2): If GPS supported by the UE

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

GNSS-NavModelSatelliteElement (Model-2): If GPS supported by the UE

Derived from data in clause 6.1.2 and the following information:

GNSS-ClockModel: nav-ClockModel, Model-2

GNSS-OrbitModel: nav-KeplerianSet, Model-2

Note: in the case that the UE supports Modernized GPS then the UE may also support the GNSS-NavigationModel (Model-3), however in this case the GNSS-NavigationModel (Model-2) for GPS shall still be used.

GNSS-NavigationModel (Model-4): If GLONASS supported by the UE

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

GNSS-NavModelSatelliteElement (Model-4): If GLONASS supported by the UE

Derived from data in clause 6.1.2 and the following information:

svHealth: 00000000

GNSS-ClockModel: glonass-ClockModel, Model-4

GNSS-OrbitModel: glonass-ECEF, Model-4

GNSS-NavigationModel (Model-1): If Galileo supported by the UE

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

GNSS-NavModelSatelliteElement (Model-1): If Galileo supported by the UE

Derived from data in clause 6.1.2 and the following information:

svHealth: 0

GNSS-ClockModel: standardClockModelList, Model-1.

standardClockModelList: (SIZE) 1 if the UE supports only Galileo E1, (SIZE) 2 if the UE supports multiple Galileo signals.

StandardClockModelElement (I/NAV):

- stanClockTgd: Not present if the UE supports multiple Galileo signals.
- stanModelID: 0 (I/NAV). Present only if the UE supports multiple Galileo signals

StandardClockModelElement (F/NAV): Present only if the UE supports multiple Galileo signals

- stanClockTgd: Not present
- stanModelID: 1 (F/NAV)

GNSS-OrbitModel: keplerianSet, Model-1

GNSS-NavigationModel (Model-6): If BDS supported by the UE

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

GNSS-NavModelSatelliteElement (Model-6): If BDS supported by the UE

Derived from data in clause 6.1.2 and the following information:

svHealth: 0

GNSS-ClockModel: BDS-ClockModel-r12, Model-6

GNSS-OrbitModel: BDS-KeplerianSet-r12, Model-6

Note: in the case that the UE supports BDS B1C or BDS B2a then the UE may also support the GNSS-NavigationModel (Model-7), however in this case the GNSS-NavigationModel (Model-6) for BDS shall still be used.

6.1.3.4.6 GNSS ACQUISITION ASSISTANCE:

In the case that the UE only supports GPS L1 C/A for GPS then the GNSS-AcquisitionAssistance (GPS L1 C/A) shall be used for GPS.

In the case that the UE supports Modernized GPS then the GNSS-AcquisitionAssistance to be used for GPS depends on the GNSS-AcquisitionAssistance(s) supported by the UE for GPS. The possible GNSS-AcquisitionAssistances are as follows:

GNSS-AcquisitionAssistance (GPS L1 C/A)

GNSS-AcquisitionAssistance (Modernized GPS L5)

The GNSS-AcquisitionAssistance to be used shall be determined by the PICs pc_GNSS_AcquAssist_GPS_L1CA and pc_GNSS_AcquAssist_GPS_L5, in the case that both GNSS-AcquisitionAssistances are supported by the UE then the GNSS-AcquisitionAssistance (GPS L1 C/A) shall be used.

GNSS-AcquisitionAssistance (GPS L1 C/A)

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

GNSS-AcquisitionAssistElement (GPS L1 C/A)

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance (Modernized GPS L5)

Information Element	Units	Value/remark
GNSS-AcquisitionAssistance		
gnss-SignalID		3 (GPS L5)
gnss-AcquisitionAssistList		(SIZE) 6
confidence-r10	%	98

GNSS-AcquisitionAssistElement (Modernized GPS L5)

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance: If GLONASS supported by the UE

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

GNSS-AcquisitionAssistElement: If GLONASS supported by the UE

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

In the case that the UE only supports Galileo E1 for Galileo then the GNSS-AcquisitionAssistance (Galileo E1) shall be used for Galileo.

In the case that the UE supports more than one Galileo signal then the GNSS-AcquisitionAssistance to be used for Galileo depends on the GNSS-AcquisitionAssistance(s) supported by the UE for Galileo. The possible GNSS-AcquisitionAssistances are as follows:

GNSS-AcquisitionAssistance (Galileo E1)

GNSS-AcquisitionAssistance (Galileo E5A)

The GNSS-AcquisitionAssistance to be used shall be determined by the PICs pc_GNSS_AcquAssist_Galileo_E1 and pc_GNSS_AcquAssist_Galileo_E5A, in the case that both GNSS-AcquisitionAssistances are supported by the UE then the GNSS-AcquisitionAssistance (Galileo E1) shall be used.

GNSS-AcquisitionAssistance (Galileo E1)

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

GNSS-AcquisitionAssistElement (Galileo E1)

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance (Galileo E5A)

Information Element	Units	Value/remark
GNSS-AcquisitionAssistance		
gnss-SignalID		1 (Galileo E5A)
gnss-AcquisitionAssistList		(SIZE) 6
confidence-r10	%	98

GNSS-AcquisitionAssistElement (Galileo E5A)

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

In the case that the UE only supports BDS B1I for BDS then the GNSS-AcquisitionAssistance (BDS B1I) shall be used for BDS.

In the case that the UE supports more than one BDS signal then the GNSS-AcquisitionAssistance to be used for BDS depends on the GNSS-AcquisitionAssistance(s) supported by the UE for BDS. The possible GNSS-AcquisitionAssistances are as follows:

GNSS-AcquisitionAssistance (BDS B1I)

GNSS-AcquisitionAssistance (BDS B1C)

GNSS-AcquisitionAssistance (BDS B2a)

GNSS-AcquisitionAssistance (BDS B3I)

The GNSS-AcquisitionAssistance to be used shall be determined by the PICs pc_GNSS_AcquAssist_BDS_B1I, pc_GNSS_AcquAssist_BDS_B1C, pc_GNSS_AcquAssist_BDS_B2a and pc_GNSS_AcquAssist_BDS_B3I in the case that multiple GNSS-AcquisitionAssistances are supported by any supported UE then the GNSS-AcquisitionAssistance may be used.

GNSS-AcquisitionAssistance (BDS B1I)

Information Element	Units	Value/remark
GNSS-AcquisitionAssistance		
gnss-SignalID		0 (BDS B1I)
gnss-AcquisitionAssistList		(SIZE) 6
confidence-r10	%	98

GNSS-AcquisitionAssistElement (BDS B1I)

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance (BDS B1C)

Information Element	Units	Value/remark
GNSS-AcquisitionAssistance		
gnss-SignalID		9 (BDS B1C)
gnss-AcquisitionAssistList		(SIZE) 6
confidence-r10	%	98

GNSS-AcquisitionAssistElement (BDS B1C)

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance (BDS B2a)

Information Element	Units	Value/remark
GNSS-AcquisitionAssistance		
gnss-SignalID		12 (BDS B2a)
gnss-AcquisitionAssistList		(SIZE) 6
confidence-r10	%	98

GNSS-AcquisitionAssistElement (BDS B2a)

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance (BDS B3I)

Information Element	Units	Value/remark
GNSS-AcquisitionAssistance		
gnss-SignalID		3 (BDS B3I)
gnss-AcquisitionAssistList		(SIZE) 6
confidence-r10	%	98

GNSS-AcquisitionAssistElement (BDS B3I)

These fields are time varying (see clause 6.1.3.4) and are derived from data in clause 6.1.2 and the following information:

Doppler uncertainty: 2.5 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

6.1.3.4.7 GNSS ALMANAC:

GNSS-Almanac (Model-2): If GPS supported by the UE

Information Element	Units	Value/remark
GNSS-Almanac		
weekNumber		Derived from data in clause 6.1.2
toa		Derived from data in clause 6.1.2
ioda		Not present
completeAlmanacProvided		1 (TRUE)
gnss-AlmanacList		(SIZE) 31

GNSS-AlmanacElement (Model-2): If GPS supported by the UE

FFS

GNSS-AlmanacElement:keplerianNAV-Almanac (Model-2)

Note: in the case that the UE supports Modernized GPS then the UE may also support the GNSS-Almanac (Model-3) and/or GNSS-Almanac (Model-4), however in this case the GNSS-Almanac (Model-2) for GPS shall still be used.

GNSS-Almanac (Model-5): If GLONASS supported by the UE

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

GNSS-AlmanacElement (Model-5): If GLONASS supported by the UE

FFS

GNSS-AlmanacElement: keplerianGLONASS (Model-5)

GNSS-Almanac (Model-1): If Galileo supported by the UE

Information Element	Units	Value/remark
GNSS-Almanac		
weekNumber		Derived from data in clause 6.1.2
toa		Derived from data in clause 6.1.2
ioda		0
completeAlmanacProvided		1 (TRUE)
gnss-AlmanacList		(SIZE) 29

GNSS-AlmanacElement (Model-1): If Galileo supported by the UE

FFS

GNSS-AlmanacElement: keplerianAlmanacSet (Model-1)

kepSV-StatusFNAV: 0. Present only if the UE supports multiple Galileo signals.

GNSS-Almanac (Model-7): If BDS supported by the UE

Information Element	Units	Value/remark
GNSS-Almanac		
weekNumber		Derived from data in clause 6.1.2
toa		Derived from data in clause 6.1.2
ioda		Not present
completeAlmanacProvided		1 (TRUE)
gnss-AlmanacList		(SIZE) 30

GNSS-AlmanacElement (Model-7): If BDS supported by the UE

FFS

GNSS-AlmanacElement: BDS-AlmanacSet-r12 (Model-7)

Note: in the case that the UE supports BDS B1C or BDS B2a then the UE may also support the GNSS-Almanac (Model-3) and/or GNSS-Almanac (Model-4), however in this case the GNSS-Almanac (Model-7) for BDS shall still be used.

6.1.3.4.8 GNSS UTC MODEL:

GNSS-UTC-Model: If both GPS and GLONASS supported by the UE

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

UTC-ModelSet1: If both GPS and GLONASS supported by the UE

Information Element	Units	Value/remark
gnss-Utc-A1		0
gnss-Utc-A0		0
gnss-Utc-Tot		Derived from data in clause 6.1.2
gnss-Utc-WNt		Derived from data in clause 6.1.2
gnss-Utc-DeltaTls		Derived from data in clause 6.1.2
gnss-Utc-WNlsf		Derived from data in clause 6.1.2
gnss-Utc-DN		Derived from data in clause 6.1.2
gnss-Utc-DeltaTlsf		Derived from data in clause 6.1.2

6.1.3.4.9 GNSS AUXILIARY INFORMATION:

GNSS-AuxiliaryInformation: If multiple or BDS B2a GPS signals supported by the UE

Information Element	Units	Value/remark
GNSS-AuxiliaryInformation		
gnss-ID-GPS		(SIZE) 6
svID		Derived from data in clause 6.1.2
signalsAvailable		As supported by the UE

GNSS-AuxiliaryInformation: If GLONASS supported by the UE

Information Element	Units	Value/remark
GNSS-AuxiliaryInformation		
gnss-ID-GLONASS		(SIZE) 6
svID		Derived from data in clause 6.1.2
signalsAvailable		G1
channelNumber		Derived from data in clause 6.1.2

GNSS-AuxiliaryInformation: If BDS B1C supported by the UE

Information Element	Units	Value/remark
GNSS-AuxiliaryInformation		
gnss-ID-BDS-r16		(SIZE) 6
svID-r16		Derived from data in clause 6.1.2
satType-r16		Derived from data in clause 6.1.2

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

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] subclauses 7 and 13. Other information is also given separately for TS 37.571-1 [6] subclauses 6, 7 and 13 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, as Code Number for Galileo, as the satellite Slot Number for GLONASS and as the Ranging Code Number for BDS.

As an alternative, the contents of clause 6.2 in version 16.5.0 of this current specification may be used until September 2023.

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 all Assisted GNSS minimum performance Sub-Test Case Numbers except Number 1 defined in TS 37.571-1 [6] subclauses 7 and 13, the satellite constellation shall consist of 24 satellites for GLONASS; 27 satellites for GPS/Modernized GPS and Galileo; 5 GEO, 3 IGSO and 27 MEO Satellites for BDS; 4 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, GLONASS or BDS 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, GLONASS and BDS 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] subclauses 7 and 13, 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, 7 and 13.

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
2	UE supporting A-Galileo
3	UE supporting A-GPS and Modernized GPS
4	UE supporting A-GPS and A-GLONASS
8	UE supporting A-GPS and A-Galileo
9	UE supporting A-BDS
10	UE supporting A-GPS and A-BDS

Table 6.2.1.2-2: Sub-Test Case Number Definition for TS 37.571-1 subclauses 7 and 13

Sub-Test Case Number	Supported GNSS
1	UE supporting A-GPS L1 C/A
2	UE supporting A-GLONASS
3	UE supporting A-Galileo
4	UE supporting A-GPS and Modernized GPS
5	UE supporting A-GPS and A-GLONASS (Note)
8	UE supporting A-GPS and A-Galileo (Note)
9	UE supporting A-BDS
10	UE supporting A-GPS and A-BDS (Note)
11	UE supporting A-GPS and A-GLONASS and A-BDS (Note)
12	UE supporting A-GPS and A-Galileo and A-GLONASS (Note)
13	UE supporting A-GPS and A-Galileo and A-BDS (Note)
14	UE supporting A-GPS and A-QZSS
15	UE supporting A-GPS and A-NAVIC
Note: "GPS" here means GPS L1 C/A, Modernized GPS, or both, dependent on UE capabilities.	

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, 7 and 13 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.

Rinex navigation data files: the required file(s) in the GNSS orbital data perf zip file specified in Annex B are given below.

Table 6.2.1.2.1-1: Rinex navigation data files for TS 37.571-1 subclause 6

Sub-Test Case Number	Rinex navigation datafile(s)
1	Perf GNSS GLONASS 2020_9_17 Rinex.txt
2	Perf GNSS Galileo 2020_9_17 Rinex.txt
3	Perf GNSS GPS 2020_9_17 Rinex.txt
4	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS GLONASS 2020_9_17 Rinex.txt
8	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS Galileo 2020_9_17 Rinex.txt
9	Perf GNSS BDS 2020_9_17 Rinex.txt
10	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt

Table 6.2.1.2.1-2: Rinex navigation data files for TS 37.571-1 subclauses 7 and 13

Sub-Test Case Number	Rinex navigation datafile(s)
1	Perf GNSS GPS 2020_9_17 Rinex.txt
2	Perf GNSS GLONASS 2020_9_17 Rinex.txt
3	Perf GNSS Galileo 2020_9_17 Rinex.txt
4	Perf GNSS GPS 2020_9_17 Rinex.txt
5	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS GLONASS 2020_9_17 Rinex.txt
8	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS Galileo 2020_9_17 Rinex.txt
9	Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt
10	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt
11	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS GLONASS 2020_9_17 Rinex.txt and Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt
12	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS Galileo 2020_9_17 Rinex.txt and Perf GNSS GLONASS 2020_9_17 Rinex.txt
13	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS Galileo 2020_9_17 Rinex.txt and Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt
14	Perf GNSS GPS 2020_9_17 Rinex.txt, Perf GNSS QZSS 2020_9_17 Rinex.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), height: = 300m.

Nominal start time: 17th September 2020 23:40:00 (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, 10, 16, 18, 19, 20 (GLONASS)
2	3, 5, 13, 15, 21, 27, 30 (Galileo)
3	3, 4, 6, 9, 11, 17, 19, 22, 28 (GPS)
4	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. GLONASS: 3, 4, 5, 10, 16, 18, 19, 20.
8	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. Galileo: 3, 5, 13, 15, 21, 27, 30.
9	21, 23, 28, 33, 34, 37, 6, 7, 11, 12, 2, 1 (BDS-2) or 21, 23, 28, 33, 34, 37, 38, 40, 42, 43, 59, 60 (BDS-3)
10	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. BDS: 21, 23, 28, 33, 34, 37, 38, 40, 42, 43, 59, 60.

Table 6.2.1.2.1-4: Visible satellites for TS 37.571-1 subclauses 7 and 13

Sub-Test Case Number	SV IDs of Visible satellites
1	3, 4, 6, 9, 11, 17, 19, 22, 28 (GPS)
2	3, 4, 5, 10, 16, 18, 19, 20 (GLONASS)
3	3, 5, 13, 15, 21, 27, 30 (Galileo)
4	3, 4, 6, 9, 11, 17, 19, 22, 28 (GPS)
5	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. GLONASS: 3, 4, 5, 10, 16, 18, 19, 20.
8	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. Galileo: 3, 5, 13, 15, 21, 27, 30.
9	21, 23, 28, 33, 34, 37, 6, 7, 11, 12, 2, 1 (BDS-2) or 21, 23, 28, 33, 34, 37, 38, 40, 42, 43, 59, 60 (BDS-3)
10	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. BDS-2: 21, 23, 28, 33, 34, 37, 6, 7, 11, 12, 2, 1 or BDS-3: 21, 23, 28, 33, 34, 37, 38, 40, 42, 43, 59, 60.
11	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. GLONASS: 3, 4, 5, 10, 16, 18, 19, 20. BDS-2: 21, 23, 28, 33, 34, 37, 6, 7, 11, 12, 2, 1 or BDS-3: 21, 23, 28, 33, 34, 37, 38, 40, 42, 43, 59, 60.
12	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. Galileo: 3, 5, 13, 15, 21, 27, 30. GLONASS: 3, 4, 5, 10, 16, 18, 19, 20.
13	GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. Galileo: 3, 5, 13, 15, 21, 27, 30. BDS-2: 21, 23, 28, 33, 34, 37, 6, 7, 11, 12, 2, 1 or BDS-3: 21, 23, 28, 33, 34, 37, 38, 40, 42, 43, 59, 60.
14	3, 4, 6, 9, 11, 17, 19, 22, 28 (GPS), PRN 193, 194, 195, 199 (QZSS)

For BDS, the satellite types are given in Table 6.2.1.2.1-4A

Table 6.2.1.2.1-4A: BDS satellite types

Satellite type	SV IDs of Satellites
GEO	59, 60
IGSO	38, 40
MEO	21, 23, 28, 33, 34, 37, 42, 43

The satellites to be simulated in each sub-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, 5, 10, 18, 19 (GLONASS)
2	3, 5, 13, 15, 21, 27 (Galileo)
3	3, 4, 6, 17, 19, 22 (GPS)
4	GPS: 3, 4, 28. GLONASS: 4, 10, 20.
8	GPS: 3, 4, 28. Galileo: 3, 5, 21.
9	28, 7, 11, 12, 2, 1 (BDS-2) or 28, 40, 42, 43, 59, 60 (BDS-3)
10	GPS: 3, 4, 28. BDS: 38, 59, 60.
Note: The satellite simulator shall generate all the GPS, Galileo and BDS 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 subclauses 7 and 13

Sub-Test Case Number	SV IDs of Satellites to be simulated (Note 1)
1	Test case dependant. See Table 6.2.1.2.1-7
2	3, 4, 5, 10, 18, 19 (GLONASS)
3	3, 5, 13, 15, 21, 27 (Galileo)
4	3, 4, 6, 17, 19, 22 (GPS)
5	GPS: 3, 4, 28. GLONASS: 4, 10, 20.
8	GPS: 3, 4, 28. Galileo: 3, 5, 21.
9	28, 7, 11, 12, 33, 34 (BDS-2) or 28, 40, 42, 43, 33, 34 (BDS-3)
10	GPS: 3, 4, 28. BDS-2: 28, 34, 1 or BDS-3: 28, 34, 60.
11	GPS: 3, 4, 28. GLONASS: 5, 18, 19. BDS-2: 28, 34, 1or BDS-3: 28, 34, 60. (Note 2)
12	GPS: 3, 4, 28. Galileo: 3, 5, 21. GLONASS: 5, 18, 19. (Note 2)
13	GPS: 3, 4, 28. Galileo: 3, 5, 21. BDS-2: 28, 34, 1 or BDS-3: 28, 34, 60. (Note 2)
14	3, 4, 6, 17, 19, 22 (GPS), PRN 193, 194, 195 (QZSS)

Note 1: The satellite simulator shall generate all the GPS, Galileo and BDS signals supported by the UE for all the simulated satellites.
Note 2: Only one of the following satellites shall be selected (by the device manufacturer): GPS SV ID 3, GLONASS SV ID 5, BDS-2 SV ID 1 or BDS-3 SV ID 60 or Galileo SV ID 3

Table 6.2.1.2.1-7: Satellites to be simulated for TS 37.571-1 subclauses 7 and 13, sub-test 1

Test case	SV IDs of Satellites to be simulated
Sensitivity Coarse Time Assistance	3, 4, 6, 11, 17, 19, 22, 28
Sensitivity Fine Time Assistance	3, 4, 6, 11, 17,19, 22, 28
Nominal Accuracy	3, 4, 6, 11, 17, 19, 22, 28
Dynamic Range	3, 4, 6, 17, 19, 22
Multi-Path scenario	3, 4, 6, 17, 22

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, 7 and 13 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.

Rinex navigation data files: the required file(s) in the GNSS orbital data perf zip file specified in Annex B are below.

Table 6.2.1.2.2-1: Rinex navigation data files for TS 37.571-1 subclause 6

Sub-Test Case Number	Rinex navigation datafile(s)
1	Perf GNSS GLONASS 2020_9_17 Rinex.txt
2	Perf GNSS Galileo 2020_9_17 Rinex.txt
3	Perf GNSS GPS 2020_9_17 Rinex.txt
4	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS GLONASS 2020_9_17 Rinex.txt
8	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS Galileo 2020_9_17 Rinex.txt
9	Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt
10	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt

Table 6.2.1.2.2-2: Rinex navigation data files for TS 37.571-1 subclauses 7 and 13

Sub-Test Case Number	Rinex navigation data file(s)
1	Perf GNSS GPS 2020_9_17 Rinex.txt
2	Perf GNSS GLONASS 2020_9_17 Rinex.txt
3	Perf GNSS Galileo 2020_9_17 Rinex.txt
4	Perf GNSS GPS 2020_9_17 Rinex.txt
5	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS GLONASS 2020_9_17 Rinex.txt
8	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS Galileo 2020_9_17 Rinex.txt
9	Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt
10	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt
11	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS GLONASS 2020_9_17 Rinex.txt and Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.txt
12	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS Galileo 2020_9_17 Rinex.txt and Perf GNSS GLONASS 2020_9_17 Rinex.txt
13	Perf GNSS GPS 2020_9_17 Rinex.txt and Perf GNSS Galileo 2020_9_17 Rinex.txt and Perf GNSS BDS-2 2020_9_17 Rinex.txt or Perf GNSS BDS-3 2020_9_17 Rinex.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: 17th September 2020 23:40:00 (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	2, 3, 11, 12, 13, 17, 18, 19 (GLONASS)
2	3, 4, 5, 9, 15, 31, 36 (Galileo)
3	1, 3, 4, 10, 11, 21, 22, 25, 31, 32 (GPS)
4	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. GLONASS: 2, 3, 11, 12, 13, 17, 18, 19
8	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. Galileo: 3, 4, 5, 9, 15, 31, 36.
9	21, 22, 26, 34, 36, 11, 12, 13, 14 (BDS-2) or 21, 22, 26, 34, 36, 42, 43, 44, 45 (BDS-3)
10	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. BDS: 21, 22, 26, 34, 36, 42, 43, 44, 45

Table 6.2.1.2.2-4: Visible satellites for TS 37.571-1 subclauses 7 and 13

Sub-Test Case Number	SV IDs of Visible satellites
1	1, 3, 4, 11, 21, 22, 25, 31, 32 (GPS)
2	2, 3, 11, 12, 13, 17, 18, 19 (GLONASS)
3	3, 4, 5, 9, 15, 31, 36 (Galileo)
4	1, 3, 4, 10, 11, 21, 22, 25, 31, 32 (GPS)
5	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. GLONASS: 2, 3, 11, 12, 13, 17, 18, 19
8	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. Galileo: 3, 4, 5, 9, 15, 31, 36.
9	21, 22, 26, 34, 36, 11, 12, 13, 14 (BDS-2) or 21, 22, 26, 34, 36, 42, 43, 44, 45 (BDS-3)
10	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. BDS-2: 21, 22, 26, 34, 36, 11, 12, 13, 14 or BDS-3: 21, 22, 26, 34, 36, 42, 43, 44, 45.
11	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. GLONASS: 2, 3, 11, 12, 13, 17, 18, 19. BDS-2: 21, 22, 26, 34, 36, 11, 12, 13, 14 or BDS-3: 21, 22, 26, 34, 36, 42, 43, 44, 45.
12	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. Galileo: 1, 3, 4, 5, 9, 15, 31. GLONASS: 2, 3, 11, 12, 13, 17, 18, 19.
13	GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. Galileo: 3, 4, 5, 9, 15, 31, 36. BDS-2: 21, 22, 26, 34, 36, 11, 12, 13, 14 or BDS-3: 21, 22, 26, 34, 36, 42, 43, 44, 45.

For BDS, the satellite types are given in Table 6.2.1.2.2-4A

Table 6.2.1.2.2-4A: BDS satellite types

Satellite type	SV IDs of Satellites
GEO	
IGSO	
MEO	21, 22, 26, 34, 36, 42, 43, 44, 45

The satellites to be simulated in each sub-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	2, 3, 12, 13, 17, 18 (GLONASS)
2	4, 5, 9, 15, 31, 36 (Galileo)
3	1, 3, 4, 11, 21, 22, 31, 32 (GPS)
4	GPS: 21, 22, 32. GLONASS: 2, 13, 18
8	GPS: 21, 22, 32. Galileo: 4, 5, 9.
9	21, 34, 11, 12, 13, 14 (BDS-2) or 21, 34, 42, 43, 44, 45 (BDS-3)
10	GPS: 21, 22, 32. BDS: 21, 44, 45.
Note: The satellite simulator shall generate all the GPS, Galileo and BDS 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 subclauses 7 and 13

Sub-Test Case Number	SV IDs of Satellites to be simulated (Note 1)
1	Test case dependant. See Table 6.2.1.2.2-7
2	2, 3, 12, 13, 17, 18 (GLONASS)
3	4, 5, 9, 15, 31, 36 (Galileo)
4	1, 3, 4, 11, 21, 22, 31, 32 (GPS)
5	GPS: 21, 22, 32. GLONASS: 2, 13, 18
8	GPS: 21, 22, 32. Galileo: 4, 5, 9.
9	21, 34, 11, 12, 36, 14 (BDS-2) or 21, 34, 42, 43, 36, 45 (BDS-3)
10	GPS: 21, 22, 32. BDS-2: 21, 34, 14 or BDS-3: 21, 34, 45.
11	GPS: 21, 22, 32. GLONASS: 2, 13, 18 or BDS-2: 21, 13, 12. BDS-3: 21, 44, 43. (Note 2)
12	GPS: 21, 22, 32. Galileo: 4, 5, 9. GLONASS: 2, 13, 18. (Note 2)
13	GPS: 21, 22, 32. Galileo: 4, 5, 9. BDS-2: 21, 13, 14 or BDS-3: 21, 44, 45. (Note 2)
Note 1: The satellite simulator shall generate all the GPS, Galileo and BDS signals supported by the UE for all the simulated satellites. Note 2: Only one of the following satellites shall be selected (by the device manufacturer): GPS SV ID 22, GLONASS SV ID 2, BDS-2 SV ID 13 or BDS-3 SV ID 44 or Galileo SV ID 9.	

Table 6.2.1.2.2-7: Satellites to be simulated for TS 37.571-1 subclauses 7 and 13, sub-test 1

Test case	SV IDs of Satellites to be simulated
Sensitivity Coarse Time Assistance	1, 3, 4, 11, 21, 22, 31, 32
Sensitivity Fine Time Assistance	1, 3, 4, 11, 21, 22, 31, 32
Nominal Accuracy	1, 3, 4, 11, 21, 22, 31, 32
Dynamic Range	1, 3, 4, 11, 21, 31
Multi-Path scenario	1, 3, 11, 21, 31

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, 7 and 13. 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

Almanac data: Sig GNSS NAVIC 2020_9_17 Almanac.txt

Ephemeris data: Ephemeris data: Sig GNSS GPS 2020_9_17 Rinex.rnx, Sig GNSS GLONASS 2020_9_17 Rinex.rnx, Sig GNSS GALILEO 2020_9_17 Rinex.rnx, Sig GNSS BDS 2020_9_17 Rinex.rnx, Sig GNSS NAVIC 2020_9_17 Rinex.rnx

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: 10 degrees 44 minutes 0 seconds north, longitude: 79 degrees 40 minutes 0 seconds east, (Sigar India), height:= 300m.

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:

Navic: PRN: 4, 6, 9.

GPS: PRN: 2, 19, 28

Galileo: tbd

Glonass: tbd

Beidou: tbd

Scenario 3B has the following subtest and is intended to serve NAVIC and GAGAN:

Subtest 15

6.2.1.2.3.3 QZSS Scenario #1

Almanac data: Sig GNSS QZSS 2020_9_17 Almanac.txt.

Ephemeris data: Sig GNSS QZSS 2020_9_17 Rinex.rnx.

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, 194, 195, 199.

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

Satellite positions: (PRN 127)55.0 degrees east, height: 35786037.417m, (PRN 128)83 degrees east, height: 35786037.417m, (PRN 132)93.5 degrees east, height: 35786037.417m

UE location: as for related GNSS scenario.

Satellite used for simulation: PRN 128.

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, 7 and 13. 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

Almanac data: Sig GNSS NAVIC 2020_9_17 Almanac.txt

Ephemeris data: Ephemeris data: Sig GNSS GPS 2020_9_17 Rinex.rnx, Sig GNSS GLONASS 2020_9_17 Rinex.rnx, Sig GNSS GALILEO 2020_9_17 Rinex.rnx, Sig GNSS BDS 2020_9_17 Rinex.rnx, Sig GNSS NAVIC 2020_9_17 Rinex.rnx

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: 3 degrees 56 minutes 31.668 seconds north, longitude: 73 degrees 29 minutes 26.0376 seconds east, (Maledives), height: 50m.

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:

Navic: PRN: 4, 6, 9

GPS: PRN: 2, 19, 28

Galileo: tbd

Glonass: tbd

Beidou: tbd

Scenario 4B has the following subtest and is intended to serve NAVIC and GAGAN:

Subtest 15

6.2.1.2.4.3 GNSS Scenario #4C

[FFS]

6.2.1.2.4.4 GNSS Scenario #4D

Almanac data: FFS.

Ephemeris data: Sig GNSS GPS 2020_9_17 Rinex.rnx, Sig GNSS GLONASS 2020_9_17 Rinex.rnx, Sig GNSS GALILEO 2020_9_17 Rinex.rnx, Sig GNSS BDS 2020_9_17 Rinex.rnx

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: 34 degrees 59 minutes 20.1818 seconds north, longitude: 135 degrees 45 minutes 34.884 seconds east, (Kyoto, Japan), height: = 50m.

Nominal start time: as for GNSS scenario #1.

Scenario 4D has the following subtest and is intended to serve QZSS:

Subtest 14

Visible satellites: as for GNSS scenario #1.

Simulated satellites: as for GNSS scenario #1.

6.2.1.2.4.5 QZSS Scenario #2

Almanac data: Sig GNSS QZSS 2020_9_17 Almanac.txt.

Ephemeris data: Sig GNSS QZSS 2020_9_17 Rinex.rnx

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 193, 194, 195, 199

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

Satellite positions: (PRN 127)55.0 degrees east, height: 35786037.417m, (PRN 128)83 degrees east, height: 35786037.417m, (PRN 132)93.5 degrees east, height: 35786037.417m

UE location: as for related GNSS scenario.

Satellite used for simulation: PRN 128.

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, 7 and 13. The assistance data specified in the following subclauses for GNSS scenario #5 is consistent with this GNSS scenario.

GNSS scenario #5 is as GNSS scenario #2 except as detailed below.

Table 6.2.1.2.5-1: Void

Table 6.2.1.2.5-2: Void

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 as GNSS scenario #2.

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

Table 6.2.1.2.5-3: Void

Table 6.2.1.2.5-4: Void

Table 6.2.1.2.5-5: Void

Table 6.2.1.2.5-6: Satellites to be simulated for TS 37.571-1 subclauses 7 and 13

Sub-Test Case Number	SV IDs of Satellites to be simulated
1	1, 3, 11, 21, 31
2	As Table 6.2.1.2.2-6
3	As Table 6.2.1.2.2-6
4	As Table 6.2.1.2.2-6
5	As Table 6.2.1.2.2-6
8	As Table 6.2.1.2.2-6
9	As Table 6.2.1.2.2-6
10	As Table 6.2.1.2.2-6
11	As Table 6.2.1.2.2-6
12	As Table 6.2.1.2.2-6
13	As Table 6.2.1.2.2-6
Note: The satellite simulator shall generate all the GPS, Galileo and BDS signals supported by the UE for all the simulated satellites.	

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, 7 and 13.

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 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 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 multiGNSS 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 C/A	Model-2
QZSS QZS-L1C/L2C/L5	Model-3
SBAS	Model-5
BDS	Model-6

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	
TDD: cell parameters id	
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	
TDD: cell parameters id	
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 multiGNSS 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 C/A	Model-2
QZSS QZS-L1C/L2C/L5	Model-3,4
SBAS	Model-6
BDS	Model-7

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 C/A	Model-2
QZSS QZS-L1C/L2C/L5	Model-3
SBAS	Model-5
BDS	Model-6

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	
TDD: cell parameters id	
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	
TDD: cell parameters id	
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	
TDD: cell parameters id	

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 subclauses 7 and 13

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 TS 37.355 [8], where the details are defined.

Table 6.2.6-1: Assistance Data to be provided to the UE for A-GNSS test cases in TS 37.571-1 subclauses 7 and 13

Assistance Data IE supported by the UE	Mode used in test case		
	UE-based	**UE-assisted, GNSS-AcquisitionAssistance supported by the UE**	**UE-assisted, GNSS-AcquisitionAssistance not supported by the UE**
GNSS-Reference Time	Yes	Yes	Yes
GNSS-ReferenceLocation	Yes	No	Yes
GNSS-IonosphericModel	Yes	No	No
GNSS-TimeModelList	Yes for sub-tests 5, 8, 10, 11, 12 and 13	No	Yes for sub-tests 5, 8, 10, 11, 12 and 13
GNSS-NavigationModel	Yes	No	Yes
GNSS-AcquisitionAssistance	No	Yes	No
GNSS-Almanac	No	No	Yes
GNSS-UTC-Model	Yes for sub-tests 5, 11 and 12	Yes for sub-tests 5, 11 and 12	Yes for sub-tests 5, 11 and 12
GNSS-AuxiliaryInformation	Yes for sub-tests 2, 5, 11 and 12 (for GLONASS). Yes for sub-test 4 (for multiple GPS signals). Yes for sub-tests 9, 10, 11 and 13 if the UE supports BDS B1C or BDS B2a.Yes for sub-tests 5, 8, 10, 11, 12 and, 13 if the UE supports multiple GPS signals	Yes for sub-tests 2, 5, 11 and 12 (for GLONASS). Yes for sub-test 4 (for multiple GPS signals). Yes for sub-tests 9, 10, 11 and 13 if the UE supports BDS B1C or BDS B2a. Yes for sub-tests 5, 8, 10, 11, 12 and 13 if the UE supports multiple GPS signals	Yes for sub-tests 2, 4, 5, 11 and 12 (for GLONASS). Yes for sub-test 4 (for multiple GPS signals). Yes for sub-tests 9, 10, 11 and 13 if the UE supports BDS B1C or BDS B2a. Yes for sub-tests 5, 8, 10, 11, 12 and 13 if the UE supports multiple GPS signals

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 if TS 37.571-1 subclause 7, or subclause 13 Test Configuration A
cellGlobalIdEUTRA		Yes if TS 37.571-1 subclause 7, or subclause 13 Test Configuration A
earfcn/earfcn-v9a0		Yes if TS 37.571-1 subclause 7, or subclause 13 Test Configuration A
nrPhysCellId-r15		Yes if TS 37.571-1 subclause 13 Test Configuration B
nrCellGlobalID-r15		Yes if TS 37.571-1 subclause 13 Test Configuration B
nrARFCN-r15		Yes if TS 37.571-1 subclause 13 Test Configuration B
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(3)
	KlobucharModel2Parameter(2)
	NeQuickModelParameter(1)
Note 1: Only required if GNSSs supported include Galileo. Note 2: Only required if GNSSs or BDS B2asupported include BDS B1C. Note 3: In the case of BDS, or BDS B3I only required if BDS B1I supported.	

d) **GNSS-TimeModelList IE** This information element is only required for multiGNSS 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 L1 C/A	Model-2
Modernized GPS	Model-3
GLONASS	Model-4
QZSS QZS-L1 C/A	Model-2
QZSS QZS-L1C/L2C/L5	Model-3
SBAS	Model-5
Galileo	Model-1
BDS B1I/B3I	Model-6
BDS B1C/B2a	Model-7

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 L1 C/A	Model-2
Modernized GPS	Model-3,4
GLONASS	Model-5
QZSS QZS-L1 C/A	Model-2
QZSS QZS-L1C/L2C/L5	Model-3,4
SBAS	Model-6
Galileo	Model-1
BDS B1I/B3I	Model-7
BDS B1C/B2a	Model-3, 4

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 L1 C/A	Model-1
Modernized GPS	Model-2
GLONASS	Model-3
QZSS QZS-L1 C/A	Model-1
QZSS QZS-L1C/L2C/L5	Model-2
SBAS	Model-4
Galileo	Model-1
BDS B1I	Model-5
BDS B1C/B2a	Model-2

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, 7 and 13. 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.

Assistance data that is marked as "time varying" is created and used in 80ms increments.

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, 7 and 13.

6.2.7.2.1 GNSS TOW

For every Test Instance in each TTFF 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 1us.

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

6.2.7.3.1 Assistance Data Reference Time

Contents of UE positioning GPS reference time (sub-tests 3, 4, 8 and 10)

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	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
GPS Week Cycle Number (Rel-10 onwards)		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
GPS TOW msec	msec	Start time derived from data in clause 6.2.1.2. Add number of ms as required. (Note 1)	Start time derived from data in clause 6.2.1.2. Add number of ms as required. (Note 1)	Start time derived from data in clause 6.2.1.2. 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	-
TDD: cell parameters id		0	0	
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.

Satellite Information

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
Number of satellites	-	9	10	10

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		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

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

Information Element	Units	Value/remark GNSS All
TLM Message	Bit string	Derived from data in clause 6.2.1.2
TLM Reserved	Bit string	Derived from data in clause 6.2.1.2
Alert	Boolean	0
Anti-Spoof	Boolean	1

Contents of UE positioning GANSS reference time (sub-tests 1, 2, and 9)

GANSS reference time: sub-test 1

formation Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
ANSS Day	days	Derived from data in clause 6.2.1.25844	Derived from data in clause 6.2.1.25996	Derived from data in clause 6.2.1.25996
ANSS Day Cycle umber (Rel-10 onwards)		Derived from data in clause 6.2.1.20	Derived from data in clause 6.2.1.20	Derived from data in clause 6.2.1.20
ANSS TOD	seconds	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)
ANSS TOD Uncertainty		125 (2.127 seconds)	125 (2.127 seconds)	125 (2.127 seconds)
ANSS Time ID		2 (GLONASS)	2 (GLONASS)	2 (GLONASS)
TRAN GANSS reference ne		Present for Sensitivity Fine Time Assistance test case. Absent otherwise	Present for Sensitivity Fine Time Assistance test case. Absent otherwise	Absent
TRAN GANSS timing of ll frames		Note 2	Note 2	-
HOICE mode		Present for Sensitivity Fine Time Assistance test case. Absent otherwise	Present for Sensitivity Fine Time Assistance test case. Absent otherwise	-
D: Primary CPICH Info		100	100	-
D: cell parameters id		0	0	
FN		Note 2	Note 2	-
JTRAN-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

ote 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.

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

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

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

GANSS reference time: sub-test 2

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GANSS Day	days	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
GANSS Day Cycle Number (Rel-10 onwards)		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
GANSS TOD	seconds	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (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	-
TDD: cell parameters id		0	0	
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.

GANSS reference time: sub-test 9

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GANSS Day	days	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
GANSS Day Cycle Number (Rel-10 onwards)		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
GANSS TOD	seconds	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)
GANSS TOD Uncertainty		125 (2.127 seconds)	125 (2.127 seconds)	125 (2.127 seconds)
GANSS Time ID		3 (BDS system time)	3 (BDS system time)	3 (BDS system time)
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	-
TDD: cell parameters id		0	0	
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.

6.2.7.3.2 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		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
T_{A0}	seconds	0	0	0
GNSS_TOD_ID		0 (GPS)	0 (GPS)	0 (GPS)
Delta_T (Rel-10 onwards)	seconds	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

Contents of UE positioning GANSS time model (sub-tests 8 and 10)

GANSS time model: sub-test 8

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GANSS Time Model Reference Time		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
T_{A0}	seconds	0	0	0
GNSS_TOD_ID		0 (GPS)	0 (GPS)	0 (GPS)
Delta_T (Rel-10 onwards)	seconds	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS time model: sub-test 10

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GANSS Time Model Reference Time		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
T_{A0}	seconds	0	0	0
GNSS_TOD_ID		0 (GPS)	0 (GPS)	0 (GPS)
Delta_T (Rel-10 onwards)	seconds	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

6.2.7.3.3 Assistance Data Reference UE Position

Contents of UE positioning GPS reference UE position (sub-tests 3, 4, 8 and 10)

Derived from data in clause 6.2.1.2 and the following information:

Uncertainty of the semi-major axis: 3 km.

Uncertainty of the semi-minor axis: 3 km.

Orientation of the major axis: 0 degrees.

Uncertainty of the altitude information: 500 m.

Confidence factor: 68%.

Contents of UE positioning GANSS reference UE position (sub-tests 1, 2 and 9)

GANSS reference UE position

Derived from data in clause 6.2.1.2 and the following information:

Uncertainty of the semi-major axis: 3 km.

Uncertainty of the semi-minor axis: 3 km.

Orientation of the major axis: 0 degrees.

Uncertainty of the altitude information: 500 m.

Confidence factor: 68%.

6.2.7.3.4 Assistance Data Navigation Model

Contents of UE positioning GPS navigation model (sub-tests 3, 4, 8 and 10)

Satellite Information

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
Number of satellites	-	9	10	10

GPS Navigation Model (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
Satellite Status	Boolean	0	0	0

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

Derived from data in clause 6.2.1.2

Contents of UE positioning GANSS navigation model (sub-tests 2 and 8)

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	-	7	7	7

GANSS navigation model (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
SV Health		0	0	0
IOD		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS Clock Model (Fields occurring once per satellite)

Galileo Satellite clock model (“Model 1”)

Derived from data in clause 6.2.1.2

GANSS Orbit Model (Fields occurring once per satellite)

Galileo orbit model: Keplerian Parameters (“Model 1”)

Derived from data in clause 6.2.1.2

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	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
SV Health		000000	000000	000000
IOD		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS additional clock models (Fields occurring once per satellite)

GLONASS Satellite Clock Model (“Model 4”)

Derived from data in clause 6.2.1.2

GANSS additional orbit models (Fields occurring once per satellite)

GLONASS Earth-Centered, Earth-fixed Parameters (“Model 4”)

Derived from data in clause 6.2.1.2

Contents of UE positioning GANSS additional navigation model (sub-tests 9 and 10)

GANSS additional 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	-	12	9	9

GANSS additional navigation model (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
SV Health		0	0	0
IOD		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS additional Clock Model (Fields occurring once per satellite)

BDS Satellite clock model (“Model 6”)

Derived from data in clause 6.2.1.2

GANSS additional Orbit Model (Fields occurring once per satellite)

BDS orbit model: BDS Keplerian Parameters (“Model 6”)

Derived from data in clause 6.2.1.2

6.2.7.3.5 Assistance Data Ionospheric Model

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

GPS ionospheric model

Derived from data in clause 6.2.1.2

Contents of UE positioning GANSS ionospheric model (sub-tests 2 and 8)

GANSS ionospheric model

Derived from data in clause 6.2.1.2

Contents of UE positioning GANSS additional ionospheric model (sub-tests 1, 9 and 10)

GANSS additional ionospheric model (QZSS)

Derived from data in clause 6.2.1.2 and the following information:

DataId: 00

GANSS additional ionospheric model (BDS)

Derived from data in clause 6.2.1.2 and the following information:

DataId: 01

6.2.7.3.6 Assistance Data Almanac

Contents of UE positioning GPS almanac (sub-tests 3, 4, 8 and 10)

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	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
Complete Almanac Provided (Rel-10 onwards)		TRUE	TRUE	TRUE

Satellite Information

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

GPS Almanac (Fields occurring once per satellite)

FFS

Contents of UE positioning GANSS almanac (sub-tests 1, 2, 4, 8, 9, and 10)

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 (Rel-10 onwards)		TRUE	TRUE	TRUE

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

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

GANSS almanac: sub-tests 1 and 4 (Fields occurring once per satellite)

GLONASS Keplerian Parameters (“Model 5”)

FFS

GANSS almanac: sub-tests 2 and 8 (Field occurring once per message)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
Week Number	Weeks	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
Complete Almanac Provided (Rel-10 onwards)		TRUE	TRUE	TRUE

GANSS almanac: sub-tests 2 and 8 (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}		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
IOD_a		0	0	0

Satellite Information KP: sub-tests 2 and 8

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

GANSS almanac: sub-tests 2 and 8 (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	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS almanac: sub-tests 2 and 8 (Fields occurring once per satellite)

Galileo Keplerian Parameters ("Model 1")

FFS

GANSS almanac: sub-tests 9 and 10 (Field occurring once per message)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
Week Number	Weeks	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
Complete Almanac Provided (Rel-10 onwards)		TRUE	TRUE	TRUE

GANSS almanac: sub-tests 9 and 10 (Field occurring once per message)

BDS Keplerian Parameters ("Model 7")

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
T_{oa}		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
IOD_a		Not present	Not present	Not present

Satellite Information KP: sub-tests 9 and 10

Information Element	Units	Value/remark GNSS All
Number of satellites	-	35

GANSS almanac: sub-tests 9 and 10 (Fields occurring once per satellite)

BDS Keplerian Parameters ("Model 7")

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SV ID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS almanac: sub-tests 9 and 10 (Fields occurring once per satellite)

BDS Keplerian Parameters ("Model 7")

FFS

6.2.7.3.7 Assistance Data UTC Model

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

GPS UTC model

Derived from data in clause 6.2.1.2 and the following information:

A1: 0

A0: 0

6.2.7.3.8 Assistance Data Acquisition Assistance and Reference Measurement Information

Contents of UE positioning GPS acquisition assistance (sub-tests 3, 4, 8 and 10)

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	Start time derived from data in clause 6.2.1.2. Add number of ms as required. (Note 1)	Start time derived from data in clause 6.2.1.2. Add number of ms as required. (Note 1)	Start time derived from data in clause 6.2.1.2. 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	-
TDD: cell parameters id		0	0	
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	10	10

GPS Acquisition Assistance (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GPS Acquisition Assistance (Fields occurring once per satellite)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty.

Contents of UE positioning GANSS reference measurement information (sub-tests 1, 2, 4, 8, 9, and 10)

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

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

Satellite Information: sub-tests 1 and 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-tests 1 and 4 (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

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

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GANSS reference measurement information: sub-tests 2 and 8 (Fields occurring once per message)

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

Satellite Information: sub-tests 2 and 8

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
Number of satellites	-	7	7	7

GANSS reference measurement information: sub-tests 2 and 8 (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS reference measurement information: sub-tests 2 and 8 (Fields occurring once per satellite)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GANSS reference measurement information: sub-tests 9 and 10 (Fields occurring once per message)

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

Satellite Information: sub-tests 9 and 10

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
Number of satellites	-	12	9	9

GANSS reference measurement information: sub-tests 9 and 10 (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS reference measurement information: sub-tests 9 and 10 (Fields occurring once per satellite)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

6.2.7.3.9 Assistance Data Auxiliary Information

Contents of UE positioning GANSS auxiliary information (sub-tests 1, 3, 4, 8 and 10)

GANSS auxiliary information: sub-tests 1 and 4 (Fields occurring once per message)

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

Aux Info List: sub-tests 1 and 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-tests 1 and 4 (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
Signals Available	-	10000000 (G1)	10000000 (G1)	10000000 (G1)
Channel number	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GANSS auxiliary information: sub-tests 3, 4, 8 and 10 (Fields occurring once per message)

Information Element	Units	Value/remark GNSS All
GANSS-ID-1		Sub-test 3: present (Modernized GPS), sub-tests 4, 8 and 10 if the UE supports multiple GPS signals: present (Modernized GPS)

Aux Info List: sub-tests 3 and 4, 8, 10

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
Number of satellites	-	9	10	10

GANSS auxiliary information: sub-tests 3 and 4, 8, 10 (Fields occurring once per satellite)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
SatID	-	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
Signals Available	-	As supported by the UE	As supported by the UE	As supported by the UE

6.2.7.3.10 Assistance Data GANSS ID

Contents of GANSS ID (sub-tests 1, 2, 3, 4, 8, 9 and 10)

GANSS ID: sub-tests 1 and 4

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

GANSS ID: sub-tests 2 and 8

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

GANSS ID: sub-test 3

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

GANSS ID: sub-tests 9 and 10

Information Element	Units	Value/remark GNSS All
GANSS ID		4 (BDS)

6.2.7.4 Contents of Information elements for A-GNSS Minimum performance testing in TS 37.571-1 subclauses 7 and 13

6.2.7.4.1 GNSS REFERENCE TIME:

GNSS-ReferenceTime (GPS): sub-tests 1, 4, 5, 8, 10, 11, 12 and 13

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	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
gnss-TimeOfDay	s	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (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		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
tlmWord		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
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)
tlmRsvdBits		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
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		For TS 37.571-1 subclause 7, or subclause 13 Test Configuration A	For TS 37.571-1 subclause 7, or subclause 13 Test Configuration A	
physCellId		0	0	
cellGlobalIdEUTRA		'0000 0000'B	'0000 0000'B	
earfcn/earfcn-v9a0		Note 3	Note 3	
CHOICE nr-r15		For TS 37.571-1 subclause 13 Test Configuration B	For TS 37.571-1 subclause 13 Test Configuration B	
nrPhysCellId-r15		0	0	
nrCellGlobalID-r15		'0000 0000'B	'0000 0000'B	
nrARFCN-r15		Note 4	Note 4	
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/earfcn-v9a0 is defined in TS 36.508 [20] subclause 4.3.1 for the frequency band under test (see TS 37.571-1 [6] subclause 4.4.1)
Note 4: nrARFCN is defined in TS 38.508-1 [24] subclause 6.2.3 for the frequency band under test (see TS 37.571-1 [6] subclause 4.12.1)

GNSS-ReferenceTime (GLONASS): 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	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
gnss-TimeOfDay	s	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (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				
secondsFromFrameStructureStart	s	Note 2	Note 2	
fractionalSecondsFromFrameStructureStart	250ns	Note 2	Note 2	
frameDrift		0	0	
cellID				
CHOICE eUTRA		For TS 37.571-1 subclause 7, or subclause 13 Test Configuration A	For TS 37.571-1 subclause 7, or subclause 13 Test Configuration A	
physCellId		0	0	
cellGlobalIdEUTRA		'0000 0000'B	'0000 0000'B	
earfcn/earfcn-v9a0		Note 3	Note 3	
CHOICE nr-r15		For TS 37.571-1 subclause 13 Test Configuration B	For TS 37.571-1 subclause 13 Test Configuration B	
nrPhysCellId-r15		0	0	
nrCellGlobalID-r15		'0000 0000'B	'0000 0000'B	
nrARFCN-r15		Note 4	Note 4	
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/earfcn-v9a0 is defined in TS 36.508 [20] subclause 4.3.1 for the frequency band under test (see TS 37.571-1 [6] subclause 4.4.1)
Note 4: nrARFCN is defined in TS 38.508-1 [24] subclause 6.2.3 for the frequency band under test (see TS 37.571-1 [6] subclause 4.12.1)

GNSS-ReferenceTime (Galileo): 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		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
gnss-TimeOfDay		Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (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		For TS 37.571-1 subclause 7, or subclause 13 Test Configuration A	For TS 37.571-1 subclause 7, or subclause 13 Test Configuration A	
physCellId		0	0	
cellGlobalIdEUTRA		'0000 0000'B	'0000 0000'B	
earfcn/earfcn-v9a0		Note 3	Note 3	
CHOICE nr-r15		For TS 37.571-1 subclause 13 Test Configuration B	For TS 37.571-1 subclause 13 Test Configuration B	
nrPhysCellId-r15		0	0	
nrCellGlobalID-r15		'0000 0000'B	'0000 0000'B	
nrARFCN-r15		Note 4	Note 4	
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/earfcn-v9a0 is defined in TS 36.508 [20] subclause 4.3.1 for the frequency band under test (see TS 37.571-1 [6] subclause 4.4.1)
Note 4: nrARFCN is defined in TS 38.508-1 [24] subclause 6.2.3 for the frequency band under test (see TS 37.571-1 [6] subclause 4.12.1)

GNSS-ReferenceTime (BDS): sub-test 9

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
gnss-SystemTime				
gnss-TimeID		5 (bds)	5 (bds)	5 (bds)
gnss-DayNumber	days	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
gnss-TimeOfDay	s	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (Note 1)	Start time derived from data in clause 6.2.1.2. (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		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		For TS 37.571-1 subclause 7, or subclause 13 Test Configuration A	For TS 37.571-1 subclause 7, or subclause 13 Test Configuration A	
physCellId		0	0	
cellGlobalIdEUTRA		'0000 0000'B	'0000 0000'B	
earfcn/earfcn-v9a0		Note 3	Note 3	
CHOICE nr-r15		For TS 37.571-1 subclause 13 Test Configuration B	For TS 37.571-1 subclause 13 Test Configuration B	
nrPhysCellId-r15		0	0	
nrCellGlobalID-r15		'0000 0000'B	'0000 0000'B	
nrARFCN-r15		Note 4	Note 4	
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/earfcn-v9a0 is defined in TS 36.508 [20] subclause 4.3.1 for the frequency band under test (see TS 37.571-1 [6] subclause 4.4.1)
Note 4: nrARFCN is defined in TS 38.508-1 [24] subclause 6.2.3 for the frequency band under test (see TS 37.571-1 [6] subclause 4.12.1)

6.2.7.4.2 GNSS REFERENCE LOCATION:

GNSS-ReferenceLocation

Derived from data in clause 6.2.1.2 and the following information:

Uncertainty of the semi-major axis: 3 km.

Uncertainty of the semi-minor axis: 3 km.

Orientation of the major axis: 0 degrees.

Uncertainty of the altitude information: 500 m.

Confidence factor: 68%.

6.2.7.4.3 GNSS IONOSPHERIC MODEL:

GNSS-IonosphericModel (Klobuchar Model): sub-tests 1, 2, 4 and 5

Derived from data in clause 6.2.1.2 and the following information:

dataID: 00

neQuickModel: not present

klobucharModel2: not present

GNSS-IonosphericModel (NeQuick Model): sub-test 3

Derived from data in clause 6.2.1.2 and the following information:

klobucharModel: not present

klobucharModel2: not present

GNSS-IonosphericModel (Klobuchar2 Model)

Derived from data in clause 6.2.1.2 and the following information:

klobucharModel: not present

neQuickModel: not present

GNSS-IonosphericModel: sub-tests 8 and 12

Information Element	Units	Value/remark GNSS All
GNSS-IonosphericModel		
klobucharModel		See values for GNSS-IonosphericModel (Klobuchar)
neQuickModel		See values for GNSS-IonosphericModel (NeQuick)
klobucharModel2		Not present

GNSS-IonosphericModel: sub-tests 9, 10 and 11

Information Element	Units	Value/remark GNSS All
GNSS-IonosphericModel		
klobucharModel		If BDS B1I or BDS B3I supported. See values for GNSS-IonosphericModel (Klobuchar)
neQuickModel		Not present
klobucharModel2		If BDS B1C or BDS B2a supported. See values for GNSS-IonosphericModel (Klobuchar2)

GNSS-IonosphericModel: sub-test 13

Information Element	Units	Value/remark GNSS All
GNSS-IonosphericModel		
klobucharModel		If BDS B1I or BDS B3I supported. See values for GNSS-IonosphericModel (Klobuchar)
neQuickModel		See values for GNSS-IonosphericModel (NeQuick)
klobucharModel2		If BDS B1C or BDS B2a supported. See values for GNSS-IonosphericModel (Klobuchar2)

6.2.7.4.4 GNSS TIME MODEL LIST:

GNSS-TimeModelList (GPS – GLONASS): sub-test 5

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
gnss-TimeModelRefTime		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
tA0		0	0	0
gnss-TO-ID		1 (GPS)	1 (GPS)	1 (GPS)
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
deltaT		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-TimeModelList (GPS – Galileo): sub-test 8

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
gnss-TimeModelRefTime		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
tA0		0	0	0
gnss-TO-ID		1 (GPS)	1 (GPS)	1 (GPS)
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
deltaT		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-TimeModelList (GPS – BDS): sub-test 10

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
gnss-TimeModelRefTime		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
tA0		0	0	0
gnss-TO-ID		1 (GPS)	1 (GPS)	1 (GPS)
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
deltaT		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-TimeModelList: sub-test 11

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		4 (glonass)
GNSS-TimeModelList		See GNSS-TimeModelList (GPS – GLONASS)
gnss-ID		5 (bds)
GNSS-TimeModelList		See GNSS-TimeModelList (GPS – BDS)

GNSS-TimeModelList: sub-test 12

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		3 (galileo)
GNSS- TimeModelList		See GNSS-TimeModelList (GPS – Galileo)
gnss-ID		4 (glonass)
GNSS- TimeModelList		See GNSS-TimeModelList (GPS – GLONASS)

GNSS-TimeModelList: sub-test 13

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		3 (galileo)
GNSS- TimeModelList		See GNSS-TimeModelList (GPS – Galileo)
gnss-ID		5 (bds)
GNSS- TimeModelList		See GNSS-TimeModelList (GPS – BDS)

6.2.7.4.5 GNSS NAVIGATION MODEL:

GNSS-NavigationModel (GPS L1 C/A only): 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 (GPS L1 C/A only): sub-test 1

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
svHealth		0	0	0
iod		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-NavModelSatelliteElement (GPS L1 C/A only): sub-test 1

Derived from data in clause 6.2.1.2 and the following information:

GNSS-ClockModel: nav-ClockModel, Model-2

GNSS-OrbitModel: nav-KeplerianSet, Model-2

GNSS-NavigationModel (GLONASS): 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 (GLONASS): sub-test 2

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
svHealth		00000000	00000000	00000000
iod		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-NavModelSatelliteElement (GLONASS): sub-test 2

Derived from data in clause 6.2.1.2 and the following information:

GNSS-ClockModel: glonass-ClockModel, Model-4

GNSS-OrbitModel: glonass-ECEF, Model-4

GNSS-NavigationModel (Galileo): 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) 7	(SIZE) 7	(SIZE) 7

GNSS-NavModelSatelliteElement (Galileo): sub-test 3

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
svHealth		0	0	0
iod		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-NavModelSatelliteElement (Galileo): sub-test 3

Derived from data in clause 6.2.1.2 and the following information:

GNSS-ClockModel: standardClockModelList, Model-1.

standardClockModelList: (SIZE) 1 if the UE supports only Galileo E1, (SIZE) 2 if the UE supports multiple Galileo signals.

StandardClockModelElement (I/NAV):

- stanClockTgd: Not present if the UE supports multiple Galileo signals.
- stanModelID: 0 (I/NAV). Present only if the UE supports multiple Galileo signals

StandardClockModelElement (F/NAV): Present only if the UE supports multiple Galileo signals

- stanClockTgd: Not present
- stanModelID: 1 (F/NAV)

GNSS-OrbitModel: keplerianSet, Model-1

GNSS-NavigationModel: sub-test 4

The GNSS-NavigationModel(s) to be used depends on the GNSS-NavigationModel(s) supported by the UE. The allowed NavigationModels are as follows:

GNSS-NavigationModel (GPS)

GNSS-NavigationModel (Modernized GPS)

GNSS-NavigationModel (Modernized GPS)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
nonBroadcastFlag		0	0	0
gnss-SatelliteList		(SIZE) 9	(SIZE) 10	(SIZE) 10

GNSS-NavModelSatelliteElement (Modernized GPS)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
svHealth		0	0	0
iod		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-NavModelSatelliteElement (Modernized GPS)

Derived from data in clause 6.2.1.2 and the following information:

GNSS-ClockModel: cnav-ClockModel, Model-3

GNSS-OrbitModel: cnav-KeplerianSet, Model-3

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 (GPS) and/or GNSS-NavigationModel (Modernized GPS) depending on GNSS-NavigationModel supported by the UE
gnss-ID		4 (glonass)
GNSS-NavigationModel		See GNSS-NavigationModel (GLONASS)

GNSS-NavigationModel (GPS)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
nonBroadcastFlag		0	0	0
gnss-SatelliteList		(SIZE) 9	(SIZE) 10	(SIZE) 10

GNSS-NavModelSatelliteElement (GPS)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
svHealth		0	0	0
iod		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-NavModelSatelliteElement (GPS)

Derived from data in clause 6.2.1.2 and the following information:

GNSS-ClockModel: nav-ClockModel, Model-2

GNSS-OrbitModel: nav-KeplerianSet, Model-2

GNSS-NavigationModel: sub-test 8

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		0 (gps)
GNSS-NavigationModel		See GNSS-NavigationModel (GPS) and/or GNSS-NavigationModel (Modernized GPS) depending on GNSS-NavigationModel supported by the UE
gnss-ID		3 (galileo)
GNSS-NavigationModel		See GNSS-NavigationModel (Galileo)

GNSS-NavigationModel: sub-test 9

The GNSS-NavigationModel(s) to be used depends on the GNSS-NavigationModel(s) supported by the UE. The allowed NavigationModels are as follows:

GNSS-NavigationModel (BDS B1I or BDS B3I)

GNSS-NavigationModel (BDS B1C or BDS B2a)

GNSS-NavigationModel (BDS B1I or BDS B3I)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
nonBroadcastFlag		0	0	0
gnss-SatelliteList		(SIZE) 12	(SIZE) 9	(SIZE) 9

GNSS-NavModelSatelliteElement (BDS B1I or BDS B3I)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
svHealth		0	0	0
iod		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-NavModelSatelliteElement (BDS B1I or BDS B3I)

Derived from data in clause 6.2.1.2 and the following information:

GNSS-ClockModel: BDS-ClockModel-r12, Model-6

GNSS-OrbitModel: BDS-KeplerianSet-r12, Model-6

GNSS-NavigationModel (BDS B1C or BDS B2a)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
nonBroadcastFlag		0	0	0
gnss-SatelliteList		(SIZE) 12	(SIZE) 9	(SIZE) 9

GNSS-NavModelSatelliteElement (BDS B1C or BDS B2a)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
svHealth		0	0	0
iod		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-NavModelSatelliteElement (BDS B1C or BDS B2a)

Derived from data in clause 6.2.1.2 and the following information:

GNSS-ClockModel: bds-ClockModel2-r16, Model-7

GNSS-OrbitModel: bds-KeplerianSet2-r16, Model-7

GNSS-NavigationModel: sub-test 10

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		0 (gps)
GNSS-NavigationModel		See GNSS-NavigationModel (GPS) and/or GNSS-NavigationModel (Modernized GPS) depending on GNSS-NavigationModel supported by the UE
gnss-ID		5 (bds)
GNSS-NavigationModel		See GNSS-NavigationModel (BDS B1I or BDS B3I) and/or GNSS-NavigationModel (BDS B1C or BDS B2a) depending on GNSS-NavigationModel supported by the UE

GNSS-NavigationModel: sub-test 11

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-NavigationModel		See GNSS-NavigationModel (GPS) and/or GNSS-NavigationModel (Modernized GPS) depending on GNSS-NavigationModel supported by the UE
gnss-ID		4 (glonass)
GNSS-NavigationModel		See GNSS-NavigationModel (GLONASS)
gnss-ID		5 (bds)
GNSS-NavigationModel		See GNSS-NavigationModel (BDS B1I or BDS B3I) and/or GNSS-NavigationModel (BDS B1C or BDS B2a) depending on GNSS-NavigationModel supported by the UE

GNSS-NavigationModel: sub-test 12

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-NavigationModel		See GNSS-NavigationModel (GPS) and/or GNSS-NavigationModel (Modernized GPS) depending on GNSS-NavigationModel supported by the UE
gnss-ID		3 (galileo)
GNSS-NavigationModel		See GNSS-NavigationModel (Galileo)
gnss-ID		4 (glonass)
GNSS-NavigationModel		See GNSS-NavigationModel (GLONASS)

GNSS-NavigationModel: sub-test 13

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-NavigationModel		See GNSS-NavigationModel (GPS) and/or GNSS-NavigationModel (Modernized GPS) depending on GNSS-NavigationModel supported by the UE
gnss-ID		3 (galileo)
GNSS-NavigationModel		See GNSS-NavigationModel (Galileo)
gnss-ID		5 (bds)
GNSS-NavigationModel		See GNSS-NavigationModel (BDS B1I or BDS B3I) and/or GNSS-NavigationModel (BDS B1C or BDS B2a) depending on GNSS-NavigationModel supported by the UE

6.2.7.4.6 GNSS ACQUISITION ASSISTANCE:

GNSS-AcquisitionAssistance (GPS L1 C/A only): 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 (GPS L1 C/A only): sub-test 1

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AcquisitionAssistElement (GPS L1 C/A only): sub-test 1

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance (GLONASS): 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 (GLONASS): sub-test 2

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AcquisitionAssistElement (GLONASS): sub-test 2

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance: sub-test 3

The GNSS-AcquisitionAssistance(s) to be used depends on the GNSS-AcquisitionAssistance(s) supported by the UE. The allowed GNSS-AcquisitionAssistances are as follows:

GNSS-AcquisitionAssistance (Galileo E1)

GNSS-AcquisitionAssistance (Galileo E5A)

Data for other Galileo signals are FFS

GNSS-AcquisitionAssistance (Galileo E1)

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) 7	(SIZE) 7	(SIZE) 7
confidence-r10	%	98	98	98

GNSS-AcquisitionAssistElement (Galileo E1)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AcquisitionAssistElement (Galileo E1)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance (Galileo E5A)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-AcquisitionAssistance				
gnss-SignalID		1 (Galileo E5A)	1 (Galileo E5A)	1 (Galileo E5A)
gnss-AcquisitionAssistList		(SIZE) 7	(SIZE) 7	(SIZE) 7
confidence-r10	%	98	98	98

GNSS-AcquisitionAssistElement (Galileo E5A)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AcquisitionAssistElement (Galileo E5A)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance: sub-test 4

The GNSS-AcquisitionAssistance(s) to be used depends on the GNSS-AcquisitionAssistance(s) supported by the UE. The allowed GNSS-AcquisitionAssistances are as follows:

GNSS-AcquisitionAssistance (GPS L1 C/A)

GNSS-AcquisitionAssistance (Modernized GPS L5)

Data for other GPS signals are FFS

GNSS-AcquisitionAssistance (Modernized GPS L5)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-AcquisitionAssistance				
gnss-SignalID		3 (GPS L5)	3 (GPS L5)	3 (GPS L5)
gnss-AcquisitionAssistList		(SIZE) 9	(SIZE) 10	(SIZE) 10
confidence-r10	%	98	98	98

GNSS-AcquisitionAssistElement (Modernized GPS L5)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AcquisitionAssistElement (Modernized GPS L5)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

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 (GPS L1 C/A) and/or GNSS-AcquisitionAssistance (Modernized GPS L5) depending on GNSS-AcquisitionAssistance supported by the UE
gnss-ID		4 (glonass)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (GLONASS)

GNSS-AcquisitionAssistance (GPS L1 C/A)

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) 10	(SIZE) 10
confidence-r10	%	98	98	98

GNSS-AcquisitionAssistElement (GPS L1 C/A)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AcquisitionAssistElement (GPS L1 C/A)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance: sub-test 8

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		0 (gps)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (GPS L1 C/A) and/or GNSS-AcquisitionAssistance (Modernized GPS L5) depending on GNSS-AcquisitionAssistance supported by the UE
gnss-ID		3 (galileo)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (Galileo E1) and/or GNSS-AcquisitionAssistance (Galileo E5A) depending on GNSS-AcquisitionAssistance supported by the UE

GNSS-AcquisitionAssistance: sub-test 9

The GNSS-AcquisitionAssistance(s) to be used depends on the GNSS-AcquisitionAssistance(s) supported by the UE. The allowed GNSS-AcquisitionAssistances are as follows:

GNSS-AcquisitionAssistance (BDS B1I or BDS B3I)

GNSS-AcquisitionAssistance (BDS B1C or BDS B2a)

GNSS-AcquisitionAssistElement (BDS B1I or BDS B3I)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AcquisitionAssistElement (BDS B1I or BDS B3I)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistElement (BDS B1C or BDS B2a)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AcquisitionAssistElement (BDS B1C or BDS B2a)

These fields are time varying (see clause 6.2.7.1) and are derived from data in clause 6.2.1.2 and the following information:

Doppler uncertainty: 40 m/s

Code Phase Search Window: derived for each satellite using a 3 km radius UE position uncertainty

GNSS-AcquisitionAssistance: sub-test 10

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		0 (gps)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (GPS L1 C/A) and/or GNSS-AcquisitionAssistance (Modernized GPS L5) depending on GNSS-AcquisitionAssistance supported by the UE
gnss-ID		5 (bds)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (BDS B1I or BDS B3I) and/or GNSS-AcquisitionAssistance (BDS B1C or BDS B2a) depending on GNSS-AcquisitionAssistance supported by the UE

GNSS-AcquisitionAssistance: sub-test 11

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (GPS L1 C/A) and/or GNSS-AcquisitionAssistance (Modernized GPS L5) depending on GNSS-AcquisitionAssistance supported by the UE
gnss-ID		4 (glonass)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (GLONASS)
gnss-ID		5 (bds)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (BDS B1I or BDS B23I) and/or GNSS-AcquisitionAssistance (BDS B1C or BDS B2a) depending on GNSS-AcquisitionAssistance supported by the UE

GNSS-AcquisitionAssistance: sub-test 12

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (GPS L1 C/A) and/or GNSS-AcquisitionAssistance (Modernized GPS L5) depending on GNSS-AcquisitionAssistance supported by the UE
gnss-ID		3 (galileo)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (Galileo E1) and/or GNSS-AcquisitionAssistance (Galileo E5A) depending on GNSS-AcquisitionAssistance supported by the UE
gnss-ID		4 (glonass)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (GLONASS)

GNSS-AcquisitionAssistance: sub-test 13

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (GPS L1 C/A) and/or GNSS-AcquisitionAssistance (Modernized GPS L5) depending on GNSS-AcquisitionAssistance supported by the UE
gnss-ID		3 (galileo)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (Galileo E1) and/or GNSS-AcquisitionAssistance (Galileo E5A) depending on GNSS-AcquisitionAssistance supported by the UE
gnss-ID		5 (bds)
GNSS-AcquisitionAssistance		See GNSS-AcquisitionAssistance (BDS B1I or BDS B3I) and/or GNSS-AcquisitionAssistance (BDS B1C or BDS B2a) depending on GNSS-AcquisitionAssistance supported by the UE

6.2.7.4.7 GNSS ALMANAC:

GNSS-Almanac (GPS L1 C/A only): sub-test 1

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-Almanac				
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
toa		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
ioda		Not present	Not present	Not present
completeAlmanacProvided		1 (TRUE)	1 (TRUE)	1 (TRUE)
gnss-AlmanacList		(SIZE) 24	(SIZE) 24	(SIZE) 24

GNSS-AlmanacElement (GPS L1 C/A only): sub-test 1

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
keplerianNAV-Almanac		Model-2	Model-2	Model-2
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AlmanacElement (GPS L1 C/A only): sub-test 1

FFS

GNSS-Almanac (GLONASS): 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 (GLONASS): sub-test 2

FFS

GNSS-AlmanacElement: keplerianGLONASS (Model-5)

GNSS-Almanac (Galileo): sub-test 3

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-Almanac				
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
toa		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
ioda		0	0	0
completeAlmanacProvided		1 (TRUE)	1 (TRUE)	1 (TRUE)
gnss-AlmanacList		(SIZE) 27	(SIZE) 27	(SIZE) 27

GNSS-Almanac (Galileo): sub-test 3

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
keplerianAlmanacSet		Model-1	Model-1	Model-1
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AlmanacElement (Galileo): sub-test 3

FFS

kepSV-StatusFNAV: 0. Present only if the UE supports multiple Galileo signals

GNSS-Almanac: sub-test 4

The GNSS-Almanac(s) to be used depends on the GNSS-Almanac(s) supported by the UE. The allowed GNSS-Almanacs are as follows:

GNSS-Almanac (GPS)

GNSS-Almanac (Modernized GPS Reduced)

GNSS-Almanac (Modernized GPS Midi)

GNSS-Almanac (Modernized GPS Reduced)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-Almanac				
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
toa		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
ioda		Not present	Not present	Not present
completeAlmanacProvided		1 (TRUE)	1 (TRUE)	1 (TRUE)
gnss-AlmanacList		(SIZE) 27	(SIZE) 27	(SIZE) 27

GNSS-AlmanacElement (Modernized GPS Reduced)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
keplerianReducedAlmanac		Model-3	Model-3	Model-3
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AlmanacElement (Modernized GPS Reduced)

FFS

GNSS-Almanac (Modernized GPS Midi)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-Almanac				
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
toa		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
ioda		Not present	Not present	Not present
completeAlmanacProvided		1 (TRUE)	1 (TRUE)	1 (TRUE)
gnss-AlmanacList		(SIZE) 27	(SIZE) 27	(SIZE) 27

GNSS-AlmanacElement (Modernized GPS Midi)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
keplerianMidiAlmanac		Model-4	Model-4	Model-4
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AlmanacElement (Modernized GPS Midi)

FFS

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 (GPS) and/or GNSS-Almanac (Modernized GPS Reduced) and/or GNSS-Almanac (Modernized GPS Midi) depending on GNSS-Almanac supported by the UE
gnss-ID		4 (glonass)
GNSS-Almanac		See GNSS-Almanac (GLONASS)

GNSS-Almanac (GPS)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-Almanac				
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
toa		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
ioda		Not present	Not present	Not present
completeAlmanacProvided		1 (TRUE)	1 (TRUE)	1 (TRUE)
gnss-AlmanacList		(SIZE) 27	(SIZE) 27	(SIZE) 27

GNSS-AlmanacElement (GPS)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
keplerianNAV-Almanac		Model-2	Model-2	Model-2
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AlmanacElement (GPS)

FFS

GNSS-Almanac: sub-test 8

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		0 (gps)
GNSS-Almanac		See GNSS-Almanac (GPS) and/or GNSS-Almanac (Modernized GPS Reduced) and/or GNSS-Almanac (Modernized GPS Midi) depending on GNSS-Almanac supported by the UE
gnss-ID		3 (galileo)
GNSS-Almanac		See GNSS-Almanac (Galileo)

GNSS-Almanac: sub-test 9

The GNSS-Almanac(s) to be used depends on the GNSS-Almanac(s) supported by the UE. The allowed GNSS-Almanacs are as follows:

GNSS-Almanac (BDS B1I/B3I)

GNSS-Almanac (BDS B1C/B2a Reduced)

GNSS-Almanac (BDS B1C/B2a Midi)

GNSS-Almanac (BDS B1I/B3I)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-Almanac				
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
toa		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
ioda		Not present	Not present	Not present
completeAlmanacProvided		1 (TRUE)	1 (TRUE)	1 (TRUE)
gnss-AlmanacList		(SIZE) 35	(SIZE) 35	(SIZE) 35

GNSS-AlmanacElement (BDS B1I/B3I)

FFS

GNSS-AlmanacElement: BDS-AlmanacSet-r12 (Model-7)

GNSS-Almanac (BDS B1C/B2a Reduced)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-Almanac				
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
toa		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
ioda		Not present	Not present	Not present
completeAlmanacProvided		1 (TRUE)	1 (TRUE)	1 (TRUE)
gnss-AlmanacList		(SIZE) 35	(SIZE) 35	(SIZE) 35

GNSS-AlmanacElement (BDS B1C/B2a Reduced)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
keplerianReducedAlmanac		Model-3	Model-3	Model-3
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AlmanacElement (BDS B1C/B2a Reduced)

FFS

GNSS-Almanac (BDS B1C/B2a Midi)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-Almanac				
weekNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
toa		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
ioda		Not present	Not present	Not present
completeAlmanacProvided		1 (TRUE)	1 (TRUE)	1 (TRUE)
gnss-AlmanacList		(SIZE) 35	(SIZE) 35	(SIZE) 35

GNSS-AlmanacElement (BDS B1C/B2a Midi)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
keplerianMidiAlmanac		Model-4	Model-4	Model-4
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AlmanacElement (BDS B1C/B2a Midi)

FFS

GNSS-Almanac: sub-test 10

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 2
gnss-ID		0 (gps)
GNSS-Almanac		See GNSS-Almanac (GPS) and/or GNSS-Almanac (Modernized GPS Reduced) and/or GNSS-Almanac (Modernized GPS Midi) depending on GNSS-Almanac supported by the UE
gnss-ID		5 (bds)
GNSS-Almanac		See GNSS-Almanac (BDS B1I/B3I) and/or GNSS-Almanac (BDS B1C/B2a Reduced) and/or GNSS-Almanac (BDS B1C/B2a Midi) depending on GNSS-Almanac supported by the UE

GNSS-Almanac: sub-test 11

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-Almanac		See GNSS-Almanac (GPS) and/or GNSS-Almanac (Modernized GPS Reduced) and/or GNSS-Almanac (Modernized GPS Midi) depending on GNSS-Almanac supported by the UE
gnss-ID		4 (glonass)
GNSS-Almanac		See GNSS-Almanac (GLONASS)
gnss-ID		5 (bds)
GNSS-Almanac		See GNSS-Almanac (BDS B1I/B3I) and/or GNSS-Almanac (BDS B1C/B2a Reduced) and/or GNSS-Almanac (BDS B1C/B2a Midi) depending on GNSS-Almanac supported by the UE

GNSS-Almanac: sub-test 12

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-Almanac		See GNSS-Almanac (GPS) and/or GNSS-Almanac (Modernized GPS Reduced) and/or GNSS-Almanac (Modernized GPS Midi) depending on GNSS-Almanac supported by the UE
gnss-ID		3 (galileo)
GNSS-Almanac		See GNSS-Almanac (Galileo)
gnss-ID		4 (glonass)
GNSS-Almanac		See GNSS-Almanac (GLONASS)

GNSS-Almanac: sub-test 13

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 3
gnss-ID		0 (gps)
GNSS-Almanac		See GNSS-Almanac (GPS) and/or GNSS-Almanac (Modernized GPS Reduced) and/or GNSS-Almanac (Modernized GPS Midi) depending on GNSS-Almanac supported by the UE
gnss-ID		3 (galileo)
GNSS-Almanac		See GNSS-Almanac (Galileo)
gnss-ID		5 (bds)
GNSS-Almanac		See GNSS-Almanac (BDS B1I/B3I) and/or GNSS-Almanac (BDS B1C/B2a Reduced) and/or GNSS-Almanac (BDS B1C/B2a Midi) depending on GNSS-Almanac supported by the UE

6.2.7.4.8 GNSS UTC MODEL:

GNSS-UTC-Model: sub-tests 5, 11 and 12

Information Element	Units	Value/remark GNSS All
GNSS-UTC-Model		
utcModel1		Model-1

UTC-ModelSet1: sub-tests 5, 11 and 12

Derived from data in clause 6.2.1.2 and the following information:

gnss-Utc-A1: 0

gnss-Utc-A0: 0

6.2.7.4.9 GNSS AUXILIARY INFORMATION:

GNSS-AuxiliaryInformation (GLONASS): 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 (GLONASS): sub-test 2

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
signalsAvailable		G1	G1	G1
channelNumber		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AuxiliaryInformation (Modernized GPS): 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) 10	(SIZE) 10

GNSS-ID-GPS-SatElement (Modernized GPS): sub-test 4

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
signalsAvailable		As supported by the UE	As supported by the UE	As supported by the UE

GNSS-AuxiliaryInformation: sub-test 8

GNSS-AuxiliaryInformation is used only if multiple GPS signals supported by the UE.

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 1 if UE supports multiple GPS signals
gnss-ID		0 (gps) if UE supports multiple GPS signals
GNSS-AuxiliaryInformation		See GNSS-AuxiliaryInformation (Modernized GPS)

GNSS-AuxiliaryInformation: sub-test 9

GNSS-AuxiliaryInformation is used only if BDS B1C or BDS B2a is supported by the UE.

GNSS-AuxiliaryInformation (BDS B1C or BDS B2a)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
GNSS-AuxiliaryInformation				
gnss-ID-BDS-r16		(SIZE) 12	(SIZE) 9	(SIZE) 9

GNSS-ID-BDS-SatElement-r16 (BDS B1C or BDS B2a)

Information Element	Units	Value/remark GNSS #1	Value/remark GNSS #2	Value/remark GNSS #5
svID-r16		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2
satType-r16		Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2	Derived from data in clause 6.2.1.2

GNSS-AuxiliaryInformation: sub-tests 5 and 12

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 (Modernized GPS)
gnss-ID		4 (glonass)
GNSS-AuxiliaryInformation		See GNSS-AuxiliaryInformation (GLONASS)

GNSS-AuxiliaryInformation: sub-tests 10 and 13

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 1 if UE supports multiple GPS signals or BDS B1C or BDS B2a, or 2 if UE supports multiple GPS signals and BDS B1C/BDS B2a
gnss-ID		0 (gps) if UE supports multiple GPS signals
GNSS-AuxiliaryInformation		See GNSS-AuxiliaryInformation (Modernized GPS)
gnss-ID		5 (bds) if UE supports BDS B1C or BDS B2a
GNSS-AuxiliaryInformation		See GNSS-AuxiliaryInformation (BDS B1C or BDS B2a)

GNSS-AuxiliaryInformation: sub-test 11

Information Element	Units	Value/remark GNSS All
GNSS-GenericAssistData		(SIZE) 1, or 2 if UE supports multiple GPS signals or BDS B1C or BDS B2a, or 3 if UE supports multiple GPS signals and BDS B1C or BDS B2a
gnss-ID		0 (gps) if UE supports multiple GPS signals
GNSS-AuxiliaryInformation		See GNSS-AuxiliaryInformation (Modernized GPS)
gnss-ID		4 (glonass)
GNSS-AuxiliaryInformation		See GNSS-AuxiliaryInformation (GLONASS)
gnss-ID		5 (bds) if UE supports BDS B1C or BDS B2a
GNSS-AuxiliaryInformation		See GNSS-AuxiliaryInformation (BDS B1C or BDS B2a)

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:

Table 7.2.2-1: OTDOA-ReferenceCellInfo for test cases 9.1.1, 9.1.1A, 9.1.2, 9.1.2A, 9.2.1, 9.2.1A, 9.2.2 and 9.2.2A

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	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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, 9.1.1A: 171 Test case 9.1.2, 9.1.2A: 174 Test case 9.2.1, 9.2.1A: 181 Test case 9.2.2, 9.2.2A: 184	
numDL-Frames	sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	Test cases 9.1.1 and 9.1.2: ‘1111 0000’	
po16-r9	Test cases 9.1.1A, 9.1.2A, 9.2.1 and 9.2.2: ‘11111111 00000000’	
po32-v1420	Test cases 9.2.1A, 9.2.2A: ‘11111111111111110000000000000000’	LPP Rel-14

Table 7.2.2-2: OTDOA-ReferenceCellInfo for test cases 9.1.3, 9.1.3A, 9.1.4 and 9.1.4A

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	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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 cases 9.1.3, 9.1.3A: Test 1, 2: 12, Test 3, 4: 2 Test cases 9.1.4, 9.1.4A: Test 1, 2: 9, Test 3, 4: 14	
numDL-Frames	Test1, 2: sf-6 Test 3, 4: sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	Test cases 9.1.3, 9.1.4: ‘1111 0000’	
po16-r9	Test cases 9.1.3A, 9.1.4A: ‘1111111100000000’	

Table 7.2.2-3: OTDOA-ReferenceCellInfo for test cases 9.2.4, 9.2.4A, 9.2.5 and 9.2.5A

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	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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 cases 9.2.4, 9.2.4A: Test 1: 12, Test 2: 2 Test cases 9.2.5, 9.2.5A: Test 1: 15, Test 2: 4	
numDL-Frames	Test1: sf-6 Test 2: sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	Test cases 9.2.4, 9.2.5: ‘1111 0000’	
po16-r9	Test cases 9.2.4A, 9.2.5A: ‘1111111100000000’	

OTDOA NEIGHBOUR CELL INFO LIST:

Table 7.2.2-4: OTDOA-NeighbourCellInfoList for test cases 9.1.1, 9.1.1A, 9.1.2, 9.1.2A, 9.2.1, 9.2.1A, 9.2.2 and 9.2.2A

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	For values of cellidentity see tables of Sequence data values below	
earfcn	Test case 9.1.1, 9.1.1A: Not present Test case 9.1.2, 9.1.2A: Not present Test case 9.2.1, 9.2.1A: 2 Test case 9.2.2, 9.2.2A: 2	Test cases 9.1.1, 9.1.1A, 9.1.2 and 9.1.2A: 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, 9.1.1A: 171 Test case 9.1.2, 9.1.2A: 174 Test case 9.2.1, 9.2.1A: 171 Test case 9.2.2, 9.2.2A: 174	
numDL-Frames	sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	See tables of Sequence data values below	
po16-r9	See tables of Sequence data values below	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	Test case 9.1.1, 9.1.1A: Not present Test case 9.1.2, 9.1.2A: Not present Test case 9.2.1, 9.2.1A: 0 Test case 9.2.2, 9.2.2A: 0	Test cases 9.1.1, 9.1.1A, 9.1.2 and 9.1.2A: slot timing is the same as for reference cell
prs-SubframeOffset	Test case 9.1.1, 9.1.1A: Not present Test case 9.1.2, 9.1.2A: Not present Test case 9.2.1, 9.2.1A: 310 Test case 9.2.2, 9.2.2A: 310	
expectedRSTD	See tables of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 μs

Table 7.2.2-5: Sequence data values for 15 instances of sequence for test cases 9.1.1, 9.1.1A, 9.1.2 and 9.1.2A

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9 Test Cases 9.1.1, 9.1.2	Value po16-r9 Test Cases 9.1.1A, 9.1.2A	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity				
Cell 2	6 (Note 1)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘0000 1111’	‘00000000 11111111’	8222	Note 2
Cell 3	12 (Note 1)	'0000 0000 0000 0000 0010'B	‘0000 1100’B	‘1111 0000’	‘11111111 00000000’	8222	Note 3
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘0000 1111’	‘00000000 11111111’	8162	Note 4
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	‘11111111 00000000’	8218	Note 4
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	‘00000000 11111111’	8211	Note 4
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	‘11111111 00000000’	8175	Note 4
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	‘00000000 11111111’	8190	Note 4
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘0000 1111’	‘11111111 00000000’	8200	Note 4
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	‘00000000 11111111’	8182	Note 4
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	‘11111111 00000000’	8207	Note 4
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	‘00000000 11111111’	8182	Note 4
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘1111 0000’	‘11111111 00000000’	8218	Note 4
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	‘00000000 11111111’	8182	Note 4
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	‘11111111 00000000’	8192	Note 4
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	‘00000000 11111111’	8162	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

Table 7.2.2-6: Sequence data values for 15 instances of sequence for test cases 9.2.1, 9.2.1A, 9.2.2 and 9.2.2A

Cell	Value physCell Id	Value cellidentity (E-UTRAN Cell Identity)		Value po16-r9 Test Cases 9.2.1, 9.2.2	Value po32-v14.20 Test Cases 9.2.1A, 9.2.2A	Value expected RSTD	Comment
		Value eNB ID	Value Cell Identity				
Cell 2	6 (Note 1)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘00000000 11111111’	‘0000000000000000 1111111111111111’	8172	Note 2
Cell 3	12 (Note 1)	'0000 0000 0000 0000 0010'B	‘0000 1100’B	‘11111111 00000000’	‘1111111111111111 0000000000000000’	8212	Note 3
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘00000000 11111111’	‘0000000000000000 1111111111111111’	8162	Note 4
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘11111111 00000000’	‘1111111111111111 0000000000000000’	8218	Note 4
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘00000000 11111111’	‘0000000000000000 1111111111111111’	8211	Note 4
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘11111111 00000000’	‘1111111111111111 0000000000000000’	8175	Note 4
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘00000000 11111111’	‘0000000000000000 1111111111111111’	8190	Note 4
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘11111111 00000000’	‘1111111111111111 0000000000000000’	8200	Note 4
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘00000000 11111111’	‘0000000000000000 1111111111111111’	8182	Note 4
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘11111111 00000000’	‘1111111111111111 0000000000000000’	8207	Note 4
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘00000000 11111111’	‘0000000000000000 1111111111111111’	8182	Note 4
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘11111111 00000000’	‘1111111111111111 0000000000000000’	8218	Note 4
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘00000000 11111111’	‘0000000000000000 1111111111111111’	8182	Note 4
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘11111111 00000000’	‘1111111111111111 0000000000000000’	8192	Note 4
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘00000000 11111111’	‘0000000000000000 1111111111111111’	8162	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

Table 7.2.2-7: OTDOA-NeighbourCellInfoList for test cases 9.1.3, 9.1.3A, 9.1.4 and 9.1.4A

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	For values of cellidentity 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 cases 9.1.3, 9.1.3A: Test 1, 2: 12, Test 3, 4: 2 Test cases 9.1.4, 9.1.4A: 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 µs

Table 7.2.2-8: OTDOA-NeighbourCellInfoList for test cases 9.2.4, 9.2.4A, 9.2.5 and 9.2.5A

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	For values of cellidentity 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 cases 9.2.4, 9.2.4A: Test1: 19, Test 2: 12 Test cases 9.2.5, 9.2.5A: Test 1: 35, Test 2: 14	
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 cases 9.2.4, 9.2.4A: Test 1: 7,Test 2: 10 Test cases 9.2.5, 9.2.5A: Test 1: 20, Test 2: 10	
expectedRSTD	See table of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.2.2-9: Sequence data values for 15 instances of sequence for test cases 9.1.3, 9.1.3A, 9.1.4 and 9.1.4A

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9 Test cases 9.1.3, 9.1.4	Value po16-r9 Test cases 9.1.3A, 9.1.4A	Value expected RSTD	Comment
		Value eNB ID	Value Cell Identity				
Cell 2 (Test 1)	6 (Note)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘1111 0000’	‘11111111 00000000’	8202	
Cell 2 (Test 2)	7 (Note)	'0000 0000 0000 0000 0110'B	‘0000 0111’B	‘1111 0000’	‘11111111 00000000’	8182	
Cell 2 (Test 3)	6 (Note)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘1111 0000’	‘11111111 00000000’	8182	
Cell 2 (Test 4)	9 (Note)	'0000 0000 0000 0000 0100'B	‘0000 1001’B	‘1111 0000’	‘11111111 00000000’	8202	
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘0000 1111’	‘00000000 11111111’	8162	
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	‘11111111 00000000’	8218	
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	‘00000000 11111111’	8211	
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	‘11111111 00000000’	8175	
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	‘11111111 00000000’	8190	
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘0000 1111’	‘00000000 11111111’	8200	
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	‘11111111 00000000’	8182	
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	‘00000000 11111111’	8207	
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	‘00000000 11111111’	8182	
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘1111 0000’	‘11111111 00000000’	8218	
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	‘00000000 11111111’	8182	
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	‘11111111 00000000’	8192	
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	‘00000000 11111111’	8162	
Dummy cell	126	'0000 0000 0000 0000 1100'B	‘0111 1110’B	‘1111 0000’	‘11111111 00000000’	8208	
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]							

Table 7.2.2-10: Sequence data values for 15 instances of sequence for test cases 9.2.4, 9.2.4A, 9.2.5 and 9.2.5A

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9 Test cases 9.2.4, 9.2.5	Value po16-r9 Test cases 9.2.4A, 9.2.5A	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity				
Cell 2	1 (Note)	'0000 0000 0000 0000 0001'B	'0000 0001'B	'1111 0000'	'11111111 00000000'	8202	
Dummy cell	6	'0000 0000 0000 0000 0100'B	'0000 0110'B	'0000 1111'	'11111111 00000000'	8162	
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	'1111 0000'	'11111111 00000000'	8218	
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	'0000 1111'	'00000000 11111111'	8211	
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	'1111 0000'	'11111111 00000000'	8175	
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	'1111 0000'	'11111111 00000000'	8190	
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	'0000 1111'	'00000000 11111111'	8200	
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	'1111 0000'	'11111111 00000000'	8182	
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	'0000 1111'	'00000000 11111111'	8207	
Dummy cell	118	'0000 0000 0000 0000 1111'B	'0111 0110'B	'0000 1111'	'00000000 11111111'	8182	
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	'1111 0000'	'11111111 00000000'	8218	
Dummy cell	120	'0000 0000 0000 0000 1111'B	'0111 1000'B	'0000 1111'	'00000000 11111111'	8182	
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	'1111 0000'	'11111111 00000000'	8192	
Dummy cell	125	'0000 0000 0000 0000 1011'B	'0111 1101'B	'0000 1111'	'00000000 11111111'	8162	
Dummy cell	126	'0000 0000 0000 0000 1100'B	'0111 1110'B	'1111 0000'	'11111111 00000000'	8208	
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:

Table 7.3.2-1: OTDOA-ReferenceCellInfo for test cases 10.1, 10.1A, 10.1B, 10.1C, 10.2, 10.2A, 10.2B, 10.2C, 10.2D

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	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0100'B Cell Identity: ‘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, 10.2D: n50 Test cases 10.1A, 10.2A: n100 Test cases 10.1B, 10.1C, 10.2B, 10.2C: n25	
prs-ConfigurationIndex	Test cases 10.1, 10.1A, 10.1B,10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	
numDL-Frames	sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	Test 1: ‘00001111’	
po16-r9	Test 2: ‘0000000011111111’	

Table 7.3.2-2: OTDOA-ReferenceCellInfo for test cases 10.3, 10.3A, 10.3A_1, 10.3B, 10.3C, 10.4, 10.4A, 10.4A_1, 10.4B, 10.4C, 10.4D

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	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0110'B Cell Identity: '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, 10.4D: n50 Test cases 10.3A, 10.3A_1, 10.4A, 10.4A_1: n100 Test cases 10.3B, 10.3C, 10.4B, 10.4C: n25	
prs-ConfigurationIndex	Test cases 10.3, 10.3A, 10.3A_1, 10.3B, 10.3C: 2 Test cases 10.4, 10.4A, 10.4A_1, 10.4B, 10.4C, 10.4D: 14	
numDL-Frames	Test cases 10.3, 10.3A, 10.3A_1, 10.4, 10.4A, 10.4A_1, 10.4D: sf-1 Test cases 10.3B, 10.3C, 10.4B, 10.4C: sf-2	
prs-MutingInfo-r9 CHOICE		
po8-r9	'1111 0000'	

Table 7.3.2-3: OTDOA-ReferenceCellInfo for test cases 10.5, 10.6

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 3
physCellId	6	Set according to sub-clause 4.7.1 and Table 10.5.4.1-1 and Table 10.6.4.1-1 in TS 37.571-1 [6]
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0010'B Cell Identity: '0000 0110'B	
earfcnRef	3	SCC2
antennaPortConfig	Not present	Same as the serving cell
cpLength	Normal	
prsInfo SEQUENCE		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	Test case 10.5: 191 Test case 10.6: 194	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	Test 1: '11110000'	
po16-r9	Test 2: '1111111100000000'	

Table 7.3.2-4: OTDOA-ReferenceCellInfo for test cases 10.7, 10.8

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 3
physCellId	7	Set according to sub-clause 4.7.1 and Table 10.7.4.1-1 and Table 10.8.4.1-1 in TS 37.571-1 [6]
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0010'B Cell Identity: ‘0000 00111’B	
earfcnRef	3	SCC2
antennaPortConfig	Not present	Same as the serving cell
cpLength	Normal	
prsInfo SEQUENCE		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	191	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	‘1111 0000’	

OTDOA NEIGHBOUR CELL INFO LIST:

Table 7.3.2-5: OTDOA-NeighbourCellInfoList for test cases 10.1, 10.1A, 10.1B, 10.1C, 10.2, 10.2A, 10.2B, 10.2C, 10.2D, 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 in Table 7.3.2-6	
cellGlobalId	For values of cellidentity see table of Sequence data values below in Table 7.3.2-6	
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, 10.2D: n50 Test cases 10.1A, 10.2A: n100 Test cases 10.1B, 10.1C, 10.2B, 10.2C: n25	
prs-ConfigurationIndex	Test cases 10.1, 10.1A, 10.1B, 10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	
numDL-Frames	sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	See table of Sequence data values below in Table 7.3.2-6	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	0	
prs-SubframeOffset	0	
expectedRSTD	See table of Sequence data values below in Table 7.3.2-6	
expectedRSTD-Uncertainty	51	About 5 μs

Table 7.3.2-6: Sequence data values for 15 instances of sequence for test cases 10.1, 10.1A, 10.1B, 10.1C, 10.2, 10.2A, 10.2B, 10.2C, 10.2D, Test 1

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expected RSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 3	12 (Note 1)	'0000 0000 0000 0000 0010'B	‘0000 1100’B	‘1111 0000’	8212	Note 2
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘0000 1111’	8162	Note 3
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	8218	Note 3
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	8211	Note 3
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	8175	Note 3
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	8190	Note 3
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘0000 1111’	8200	Note 3
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	8182	Note 3
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	8207	Note 3
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	8182	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘1111 0000’	8218	Note 3
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	8182	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	8192	Note 3
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	8162	Note 3
Dummy cell	127	'0000 0000 0000 0000 1100'B	‘0111 1111’B	‘1111 0000’	8192	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						

Table 7.3.2-7: OTDOA-NeighbourCellInfoList for test cases 10.1, 10.1A, 10.1B, 10.1C, 10.2, 10.2A, 10.2B, 10.2C, 10.2D, Test 2

Information Element	Value/remark	Comment
OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(2)) OF SEQUENCE		
SEQUENCE (SIZE(8)) OF SEQUENCE	Sequence contains 8 instances of the following data.	
physCellId	See table of Sequence data values for sequence 1 below in Table 7.3.2-8	
cellGlobalId	For values of cellidentity see table of Sequence data values for sequence 1 below in Table 7.3.2-8	
earfcn	1	earfcn 1 is PCC
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth	Test cases 10.1, 10.2, 10.1C, 10.2C: n50 Test cases 10.1A, 10.2A, 10.2D: n100 Test cases 10.1B, 10.2B: n25	
prs-ConfigurationIndex	See table of Sequence data values for sequence 1 below in Table 7.3.2-8	
numDL-Frames	sf-1	
prs-MutingInfo-r9 CHOICE		
po16-r9	See table of Sequence data values for sequence 1 below in Table 7.3.2-8	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	0	
prs-SubframeOffset	See table of Sequence data values for sequence 1 below in Table 7.3.2-8	
expectedRSTD	See table of Sequence data values for sequence 1 below in Table 7.3.2-8	
expectedRSTD-Uncertainty	51	About 5 µs
SEQUENCE (SIZE(7)) OF SEQUENCE	Sequence contains 7 instances of the following data.	
physCellId	See table of Sequence data values for sequence 2 below in Table 7.3.2-9	
cellGlobalId	For values of cellidentity see table of Sequence data values for sequence 2 below in Table 7.3.2-9	
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, 10.2D: n50 Test cases 10.1A, 10.2A: n100 Test cases 10.1B, 10.1C, 10.2B, 10.2C: n25	
prs-ConfigurationIndex	See table of Sequence data values for sequence 2 below in Table 7.3.2-9	
numDL-Frames	sf-1	
prs-MutingInfo-r9 CHOICE		
po16-r9	See table of Sequence data values for sequence 2 below in Table 7.3.2-9	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	0	

prs-SubframeOffset	See table of Sequence data values for sequence 2 below in Table 7.3.2-9	
expectedRSTD	See table of Sequence data values for sequence 2 below in Table 7.3.2-9	
expectedRSTD-Uncertainty	51	About 5 μs

Table 7.3.2-8: Sequence data values for 8 instances of sequence for sequence 1 for test cases 10.1, 10.1A, 10.1B, 10.1C, 10.2, 10.2A, 10.2B, 10.2C, 10.2D, Test 2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value prs-ConfigurationIndex	Value po16-r9	Value prs-SubframeOffset	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity					
Cell 1	0 (Note 1)	'0000 0000 0000 0000 0001'B	‘0000 0000’B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 171 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 174	‘11111111 00000000’	310	8172	Note 2
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 171 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 174	‘00000000 11111111’	310	8162	Note 4
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 171 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 174	‘00000000 11111111’	310	8211	Note 4
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 171 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 174	‘00000000 11111111’	310	8190	Note 4
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 171 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 174	‘00000000 11111111’	310	8182	Note 4
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 171 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 174	‘00000000 11111111’	310	8182	Note 4
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 171 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 174	‘00000000 11111111’	310	8182	Note 4
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 171 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 174	‘00000000 11111111’	310	8162	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: Void Note 4: Data for this cell is used at any position in the 8 instances of the sequence								

Table 7.3.2-9: Sequence data values for 7 instances of sequence for sequence 2 for test cases 10.1, 10.1A, 10.1B, 10.1C, 10.2, 10.2A, 10.2B, 10.2C, 10.2D, Test 2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value prs-ConfigurationIndex	Value po16-r9	Value prs-SubframeOffset	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity					
Cell 3	12 (Note 1)	'0000 0000 0000 0000 0010'B	‘0000 1100’B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	‘11111111 00000000’	0	8212	Note 3
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	‘11111111 00000000’	0	8218	Note 4
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	‘11111111 00000000’	0	8175	Note 4
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	‘11111111 00000000’	0	8200	Note 4
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	‘11111111 00000000’	0	8207	Note 4
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	‘11111111 00000000’	0	8218	Note 4
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	Test cases 10.1, 10.1A, 10.1B, 10.1C: 181 Test cases 10.2, 10.2A, 10.2B, 10.2C, 10.2D: 184	‘11111111 00000000’	0	8192	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: Void
Note 3: Data for Cell 3 is used at a random position in the 7 instances of the sequence
Note 4: Data for this cell is used at any position in the 7 instances of the sequence

Table 7.3.2-10: OTDOA-NeighbourCellInfoList for test cases 10.3, 10.3A, 10.3A_1, 10.3B, 10.3C, 10.4, 10.4A, 10.4A_1, 10.4B, 10.4C, 10.4D

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 in Table 7.3.2-11	
cellGlobalId	For values of cellidentity see table of Sequence data values below in Table 7.3.2-11	
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, 10.4D: n50 Test cases 10.3A, 10.3A_1, 10.4A, 10.4A_1: n100 Test cases 10.3B, 10.3C, 10.4B, 10.4C: n25	
prs-ConfigurationIndex	Test cases 10.3, 10.3A, 10.3A_1, 10.3B, 10.3C: 2 Test cases 10.4, 10.4A, 10.4A_1, 10.4B, 10.4C, 10.4D: 14	
numDL-Frames	Test cases 10.3, 10.3A, 10.3A_1, 10.4, 10.4A, 10.4A_1, 10.4D: sf-1 Test cases 10.3B, 10.3C, 10.4B, 10.4C: sf-2	
prs-MutingInfo-r9 CHOICE		
po8-r9	See table of Sequence data values below in Table 7.3.2-11	
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 in Table 7.3.2-11	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.3.2-11: Sequence data values for 15 instances of sequence for test cases 10.3, 10.3A, 10.3A_1, 10.3B, 10.3C, 10.4, 10.4A, 10.4A_1, 10.4B, 10.4C, 10.4D

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 3	10 (Note)	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	8172	
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘0000 1111’	8162	
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	8218	
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	8211	
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	8175	
Dummy cell	9	'0000 0000 0000 0000 0100'B	'0000 1001'B	‘1111 0000’	8190	
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘0000 1111’	8200	
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	8182	
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	8207	
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	8182	
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘1111 0000’	8218	
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	8182	
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	8192	
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	8162	
Dummy cell	126	'0000 0000 0000 0000 1100'B	‘0111 1110’B	‘1111 0000’	8208	
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]						

Table 7.3.2-12: OTDOA-NeighbourCellInfoList for test cases 10.5, 10.6, 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 in Table 7.3.2-13	
cellGlobalId	For values of cellidentity see table of Sequence data values below in Table 7.3.2-13	
earfcn	Not present	Same as for the reference cell (SCC2)
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	Test case 10.5: 191 Test case 10.6: 194	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	See table of Sequence data values below in Table 7.3.2-13	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	0	
prs-SubframeOffset	0	
expectedRSTD	See table of Sequence data values below in Table 7.3.2-13	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.3.2-13: Sequence data values for 15 instances of sequence for test cases 10.5, 10.6, Test 1

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 4	12 (Note 1)	'0000 0000 0000 0000 0010'B	‘0000 1100’B	‘00001111’	8212	Note 2
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘0000 1111’	8162	Note 3
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	8218	Note 3
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	8211	Note 3
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	8175	Note 3
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	8190	Note 3
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘0000 1111’	8200	Note 3
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	8182	Note 3
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	8207	Note 3
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	8182	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘1111 0000’	8218	Note 3
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	8182	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	8192	Note 3
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	8162	Note 3
Dummy cell	127	'0000 0000 0000 0000 1100'B	‘0111 1111’B	‘1111 0000’	8192	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 10.5.4.1-1 and Table 10.6.4.1-1 in TS 37.571-1 [6] Note 2: Data for Cell 4 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						

Table 7.3.2-14: OTDOA-NeighbourCellInfoList for test cases 10.5, 10.6, Test 2

Information Element	Value/remark	Comment
OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(3)) OF SEQUENCE		
SEQUENCE (SIZE(4)) OF SEQUENCE	Sequence contains 4 instances of the following data.	
physCellId	See table of Sequence data values for sequence 1 below in Table 7.3.2-15	
cellGlobalId	For values of cellidentity see table of Sequence data values for sequence 1 below in Table 7.3.2-15	
earfcn	1	PCC
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	See table of Sequence data values for sequence 1 below in Table 7.3.2-15	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po16-r9	See table of Sequence data values for sequence 1 below in Table 7.3.2-15	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	0	
prs-SubframeOffset	310	
expectedRSTD	See table of Sequence data values for sequence 1 below in Table 7.3.2-15	
expectedRSTD-Uncertainty	51	About 5 µs
SEQUENCE (SIZE(4)) OF SEQUENCE	Sequence contains 4 instances of the following data.	
physCellId	See table of Sequence data values for sequence 2 below in Table 7.3.2-16	
cellGlobalId	For values of cellidentity see table of Sequence data values for sequence 2 below in Table 7.3.2-16	
earfcn	2	SCC1
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	See table of Sequence data values for sequence 2 below in Table 7.3.2-16	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po16-r9	See table of Sequence data values for sequence 2 below in Table 7.3.2-16	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	0	
prs-SubframeOffset	320	
expectedRSTD	See table of Sequence data values for sequence 2 below in Table 7.3.2-16	
expectedRSTD-Uncertainty	51	About 5 µs

SEQUENCE (SIZE(7)) OF SEQUENCE	Sequence contains 7 instances of the following data.	
physCellId	See table of Sequence data values for sequence 3 below in Table 7.3.2-17	
cellGlobalId	For values of cellidentity see table of Sequence data values for sequence 3 below in Table 7.3.2-17	
earfcn	Not present	Same as for the reference cell (SCC2)
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	See table of Sequence data values for sequence 3 below in Table 7.3.2-17	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po16-r9	See table of Sequence data values for sequence 3 below in Table 7.3.2-17	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	0	
prs-SubframeOffset	Not present	
expectedRSTD	See table of Sequence data values for sequence 3 below in Table 7.3.2-17	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.3.2-15: Sequence data values for 4 instances of sequence for sequence 1 for test cases 10.5, 10.6, Test 2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value prs-ConfigurationIndex	Value po16-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity				
Cell 1	0 (Note 1)	'0000 0000 0000 0000 0001'B	‘0000 0000’B	Test cases 10.5: 171 Test cases 10.6: 174	‘11111111 00000000’	8172	Note 2
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	Test cases 10.5: 171 Test cases 10.6: 174	‘00000000 11111111’	8182	Note 3
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	Test cases 10.5: 171 Test cases 10.6: 174	‘00000000 11111111’	8182	Note 3
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	Test cases 10.5: 171 Test cases 10.6: 174	‘00000000 11111111’	8162	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 10.5.4.1-1 and Table 10.6.4.1-1 in TS 37.571-1 [6] Note 2: Data for Cell 1 is used at a random position in the 4 instances of the sequence Note 3: Data for this cell is used at any position in the 4 instances of the sequence							

Table 7.3.2-16: Sequence data values for 4 instances of sequence for sequence 2 for test cases 10.5, 10.6, Test 2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value prs-ConfigurationIndex	Value po16-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity				
Cell 2	3 (Note 1)	'0000 0000 0000 0000 0010'B	'0000 0011'B	Test cases 10.5: 181 Test cases 10.6: 184	'0000000011 111111'	8212	Note 2
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	Test cases 10.5: 181 Test cases 10.6: 184	'11111111 00000000'	8207	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	Test cases 10.5: 181 Test cases 10.6: 184	'11111111 00000000'	8218	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	Test cases 10.5: 181 Test cases 10.6: 184	'11111111 00000000'	8192	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 10.5.4.1-1 and Table 10.6.4.1-1 in TS 37.571-1 [6] Note 2: Data for Cell 2 is used at a random position in the 4 instances of the sequence Note 3: Data for this cell is used at any position in the 4 instances of the sequence							

Table 7.3.2-17: Sequence data values for 7 instances of sequence for sequence 3 for test cases 10.5, 10.6, Test 2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value prs-ConfigurationIndex	Value po16-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity				
Cell 4	12 (Note 1)	'0000 0000 0000 0000 0010'B	'0000 1100'B	Test cases 10.5: 191 Test cases 10.6: 194	'0000000011 111111'	8212	Note 2
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	Test cases 10.5: 191 Test cases 10.6: 194	'11111111 00000000'	8218	Note 3
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	Test cases 10.5: 191 Test cases 10.6: 194	'11111111 00000000'	8175	Note 3
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	Test cases 10.5: 191 Test cases 10.6: 194	'11111111 00000000'	8200	Note 3
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	Test cases 10.5: 191 Test cases 10.6: 194	'11111111 00000000'	8207	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	Test cases 10.5: 191 Test cases 10.6: 194	'11111111 00000000'	8218	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	Test cases 10.5: 191 Test cases 10.6: 194	'11111111 00000000'	8192	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 10.5.4.1-1 and Table 10.6.4.1-1 in TS 37.571-1 [6] Note 2: Data for Cell 4 is used at a random position in the 7 instances of the sequence Note 3: Data for this cell is used at any position in the 7 instances of the sequence							

Table 7.3.2-18: OTDOA-NeighbourCellInfoList for test cases 10.7, 10.8

Information Element	Value/remark	Comment
OTDOA-NeighbourCellInfoList ::= SEQUENCE (SIZE(3)) OF SEQUENCE		
SEQUENCE (SIZE(4)) OF SEQUENCE	Sequence contains 4 instances of the following data.	
physCellId	See table of Sequence data values for sequence 1 below in Table 7.3.2-19	
cellGlobalId	For values of cellidentity see table of Sequence data values for sequence 1 below in Table 7.3.2-19	
earfcn	1	PCC
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	171	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	See table of Sequence data values for sequence 1 below in Table 7.3.2-19	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	Not present	Slot timing is the same as for reference cell
prs-SubframeOffset	310	
expectedRSTD	See table of Sequence data values for sequence 1 below in Table 7.3.2-19	
expectedRSTD-Uncertainty	51	About 5 µs
SEQUENCE (SIZE(4)) OF SEQUENCE	Sequence contains 4 instances of the following data.	
physCellId	See table of Sequence data values for sequence 2 below in Table 7.3.2-20	
cellGlobalId	For values of cellidentity see table of Sequence data values for sequence 2 below in Table 7.3.2-20	
earfcn	2	SCC1
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	181	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	See table of Sequence data values for sequence 2 below in Table 7.3.2-20	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	Not present	Slot timing is the same as for reference cell
prs-SubframeOffset	320	
expectedRSTD	See table of Sequence data values for sequence 2 below in Table 7.3.2-20	
expectedRSTD-Uncertainty	51	About 5 µs
SEQUENCE (SIZE(7)) OF SEQUENCE	Sequence contains 7 instances of the following data.	

physCellId	See table of Sequence data values for sequence 3 below in Table 7.3.2-21	
cellGlobalId	For values of cellidentity see table of Sequence data values for sequence 3 below in Table 7.3.2-21	
earfcn	Not present	Same as for the reference cell (SCC2)
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth (prs-Bandwidth depends on selected channel bandwidth)	5MHz: n25 10MHz: n50 20MHz: n100	
prs-ConfigurationIndex	191	
numDL-Frames (numDL-Frames depends on selected channel bandwidth)	5MHz: sf-2 10MHz: sf-1 20MHz:sf-1	
prs-MutingInfo-r9 CHOICE		
po8-r9	See table of Sequence data values for sequence 3 below in Table 7.3.2-21	
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 for sequence 3 below in Table 7.3.2-21	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.3.2-19: Sequence data values for 4 instances of sequence for sequence 1 for test cases 10.7, 10.8

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 1	0 (Note 1)	'0000 0000 0000 0000 0001'B	'0000 0000'B	‘1111 0000’	8172	Note 2
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘0000 1111’	8175	Note 3
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	8182	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘0000 1111’	8218	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 10.7.4.1-1 and Table 10.8.4.1-1 in TS 37.571-1 [6] Note 2: Data for this cell is used at a random position in the 4 instances of the sequence Note 3: Data for this cell is used at any position in the 4 instances of the sequence						

Table 7.3.2-20: Sequence data values for 4 instances of sequence for sequence 2 for test cases 10.7, 10.8

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 2	3 (Note 1)	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘1111 0000’	8192	Note 2
Dummy cell	9	'0000 0000 0000 0000 0100'B	'0000 1001'B	‘0000 1111’	8190	Note 3
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘1111 0000’	8207	Note 3
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	8182	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 10.7.4.1-1 and Table 10.8.4.1-1 in TS 37.571-1 [6] Note 2: Data for this cell is used at a random position in the 4 instances of the sequence Note 3: Data for this cell is used at any position in the 4 instances of the sequence						

Table 7.3.2-21: Sequence data values for 7 instances of sequence for sequence 3 for test cases 10.7, 10.8

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 4	10 (Note 1)	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	8212	Note 2
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘0000 1111’	8211	Note 3
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘1111 0000’	8200	Note 3
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	8182	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	8192	Note 3
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	8162	Note 3
Dummy cell	126	'0000 0000 0000 0000 1100'B	‘0111 1110’B	‘1111 0000’	8208	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 10.7.4.1-1 and Table 10.8.4.1-1 in TS 37.571-1 [6] Note 2: Data for Cell 4 is used at a random position in the 7 instances of the sequence Note 3: Data for this cell is used at any position in the 7 instances of the sequence						

7.4 OTDOA Assistance data for NB-IOT OTDOA measurement tests

7.4.1 General

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

7.4.2 OTDOA Assistance Data

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

OTDOA REFERENCE CELL INFO NB:

Table 7.4.2-1: OTDOA-ReferenceCellInfoNB-r14 for test cases 9.5.1, 9.5.2, 9.5.3, 9.6.1, 9.6.2 and 9.6.3

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfoNB-r14		Cell 2
physCellIdNB-r14	0	Set according to sub-clause 4.7.1 and Table 9.5.1.4.1-1 and Table 9.5.2.4.1-1 in TS 37.571-1 [6]
cellGlobalIdNB-r14	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '0000 0000'B	
carrierFreqRef-r14	Not present	Same as the serving cell
earfcn-r14	Not present	Same as the serving cell
eutra-NumCRS-Ports-r14	ports1-or-2	
otdoa-SIB1-NB-repetitions-r14	Not present	Same as the serving cell
nprsInfo-r14 SEQUENCE {		
operationModeInfoNPRS-r14	inband	
nprs-carrier-r14	Not present	inband
nprsSequenceInfo-r14	130	If LTE Donor Cell is 10 MHz
nprsSequenceInfo-r14	54	If LTE Donor Cell is 5 MHz
nprsID-r14	Not present	Inband Same PCI
partA-r14 SEQUENCE {		
nprsBitmap-r14 CHOICE {		
subframePattern10-r14	'0111001110'	
}		
}		
partB-r14 SEQUENCE {		
nprs-Period-r14	ms1280	
nprs-startSF-r14	zero	
nprs-numSF-r14	sf640	
nprs-MutingInfoB-r14 CHOICE {		
po8-r14	For Tests 9.5.1, 9.5.2 and 9.5.3: '1111 0000'	
po16-r14	For Tests 9.6.1, 9.6.2 and 9.6.3: '11111111 00000000'	
}		
}		
...}		

OTDOA NEIGHBOUR CELL INFO NB:

Table 7.4.2-2: OTDOA-NeighbourCellInfoListNB-r14 for test cases 9.5.1 and 9.5.2

Information Element	Value/remark	Comment
OTDOA-NeighbourCellInfoListNB-r14::= SEQUENCE (SIZE(1)) OF SEQUENCE		
SEQUENCE (SIZE(15)) OF SEQUENCE {	Sequence contains 15 instances of the following data.	
physCellIdNB-r14	See Sequence data values in Table 7.4.2-3	
cellGlobalIdNB-r14	For values of cellidentity see tables of Sequence data values in Table 7.4.2-3	
carrierFreq-r14	Not present	Same as for the reference cell
earfcn-r14	See comment	Use *ARFCN-ValueEUTRA* of the reference cell
eutra-NumCRS-Ports-r14	Not present	Same as for the reference cell
otdoa-SIB1-NB-repetitions-r14	Not present	Same as for the reference cell
nprsInfo-r14	Not present	Same as for the reference cell
nprs-slotNumberOffset-r14	Not present	Same as for the reference cell
nprs-SFN-Offset-r14	Not present	Same as for the reference cell
nprs-SubframeOffset-r14	Not present	Same as for the reference cell
expectedRSTD-r14	See Sequence data values in Table 7.4.2-3	
expectedRSTD-Uncertainty-r14	51	
prsNeighbourCellIndex-r14	Not present	
}		

Table 7.4.2-2a: OTDOA-NeighbourCellInfoListNB-r14 for test case 9.5.3

Information Element	Value/remark	Comment
OTDOA-NeighbourCellInfoListNB-r14::= SEQUENCE (SIZE(1)) OF SEQUENCE		
SEQUENCE (SIZE(15)) OF SEQUENCE {	Sequence contains 15 instances of the following data.	
physCellIdNB-r14	See Sequence data values in Table 7.4.2-3	
cellGlobalIdNB-r14	For values of cellidentity see tables of Sequence data values in Table 7.4.2-3	
carrierFreq-r14	Not present	Same as for the reference cell
earfcn-r14	See comment	Use *ARFCN-ValueEUTRA* of the reference cell
eutra-NumCRS-Ports-r14	Not present	Same as for the reference cell
otdoa-SIB1-NB-repetitions-r14	Not present	Same as for the reference cell
nprsInfo-r14	NCell 3: Not present NCell 2: See below	NCell 3: Same as for the reference cell
nprsInfo-r14 SEQUENCE {		NCell 2: different mutting pattern
operationModeInfoNPRS-r14	inband	
nprs-carrier-r14	Not present	inband
nprsSequenceInfo-r14	130	If LTE Donor Cell is 10 MHz
nprsSequenceInfo-r14	54	If LTE Donor Cell is 5 MHz
nprsID-r14	Not present	Inband Same PCI
partA-r14 SEQUENCE {		
nprsBitmap-r14 CHOICE {		
subframePattern10-r14	'0111001110'	
}		
}		
partB-r14 SEQUENCE {		
nprs-Period-r14	ms1280	
nprs-startSF-r14	zero	
nprs-numSF-r14	sf640	
nprs-MutingInfoB-r14 CHOICE {		
po8-r14	See Sequence data values in Table 7.4.2-3a	
}		
}		
nprs-slotNumberOffset-r14	Not present	Same as for the reference cell
nprs-SFN-Offset-r14	Not present	Same as for the reference cell
nprs-SubframeOffset-r14	Not present	Same as for the reference cell
expectedRSTD-r14	See Sequence data values in Table 7.4.2-3	
expectedRSTD-Uncertainty-r14	51	
prsNeighbourCellIndex-r14	Not present	
}		

Table 7.4.2-3: Sequence data values for 15 instances of sequence for test cases 9.5.1 and 9.5.2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD-r14	Comment
		Value eNB ID	Value Cell Identity			
Ncell 2	1 (Note 1)	'0000 0000 0000 0000 0001'B	'0000 0001'B	'1111 0000'	8222	Note 2
Dummy cell	12	'0000 0000 0000 0000 0010'B	'0000 1100'B	'1111 0000'	8222	Note 3
Dummy cell	6	'0000 0000 0000 0000 0100'B	'0000 0110'B	'1111 0000'	8162	Note 3
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	'1111 0000'	8218	Note 3
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	'1111 0000'	8211	Note 3
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	'1111 0000'	8175	Note 3
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	'1111 0000'	8190	Note 3
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	'1111 0000'	8200	Note 3
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	'1111 0000'	8182	Note 3
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	'1111 0000'	8207	Note 3
Dummy cell	118	'0000 0000 0000 0000 1111'B	'0111 0110'B	'1111 0000'	8182	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	'1111 0000'	8218	Note 3
Dummy cell	120	'0000 0000 0000 0000 1111'B	'0111 1000'B	'1111 0000'	8182	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	'1111 0000'	8192	Note 3
Dummy cell	125	'0000 0000 0000 0000 1011'B	'0111 1101'B	'1111 0000'	8162	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 9.5.1.4.1-1 and Table 9.5.2.4.1-1 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 this cell is used at any position in the 15 instances of the sequence						

Table 7.4.2-3a: Sequence data values for 15 instances of sequence for test cases 9.5.3

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD-r14	Comment
		Value eNB ID	Value Cell Identity			
Ncell 2	1 (Note 1)	'0000 0000 0000 0000 0001'B	'0000 0001'B	'1111 0000'	8222	Note 2
Ncell 3	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	'0000 1111'	8222	Note 4
Dummy cell	6	'0000 0000 0000 0000 0100'B	'0000 0110'B	'1111 0000'	8162	Note 3
Dummy cell	12	'0000 0000 0000 0000 0010'B	'0000 1100'B	'0000 1111'	8218	Note 3
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	'1111 0000'	8211	Note 3
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	'0000 1111'	8175	Note 3
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	'1111 0000'	8190	Note 3
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	'0000 1111'	8200	Note 3
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	'1111 0000'	8182	Note 3
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	'0000 1111'	8207	Note 3
Dummy cell	118	'0000 0000 0000 0000 1111'B	'0111 0110'B	'1111 0000'	8182	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	'0000 1111'	8218	Note 3
Dummy cell	120	'0000 0000 0000 0000 1111'B	'0111 1000'B	'1111 0000'	8182	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	'0000 1111'	8192	Note 3
Dummy cell	125	'0000 0000 0000 0000 1011'B	'0111 1101'B	'1111 0000'	8162	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 9.5.1.4.1-1 and Table 9.5.2.4.1-1 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 this cell is used at any position in the 15 instances of the sequence Note 4: Data for cell 3 is used at a random position in the second 7 instances of the sequence						

Table 7.4.2-4: OTDOA-NeighbourCellInfoListNB-r14 for test cases 9.6.1, 9.6.2 and 9.6.3

Information Element	Value/remark	Comment
OTDOA-NeighbourCellInfoListNB-r14::= SEQUENCE (SIZE(1)) OF SEQUENCE		
SEQUENCE (SIZE(15)) OF SEQUENCE {	Sequence contains 15 instances of the following data.	
physCellIdNB-r14	See Sequence data values in Table 7.4.2-5 and Table 7.4.2-5a	
cellGlobalIdNB-r14	For values of cellidentity see tables of Sequence data values in Table 7.4.2-5 and Table 7.4.2-5a	
carrierFreq-NB-r14 SEQUENCE {		
carrierFreq-r14	See comment	This field specifies the ARFCN applicable for the NB-IoT carrier frequency as defined in TS 36.101 [2], Table 5.7.3-1.
carrierFreqOffset-r14	See comment	This field specifies the offset of the NB-IoT channel number to EARFCN as defined in TS 36.101 [2]
}		
earfcn-r14	See comment	Use *ARFCN-ValueEUTRA-r14* of the reference cell
eutra-NumCRS-Ports-r14	Not present	Same as for the reference cell
otdoa-SIB1-NB-repetitions-r14	Not present	Same as for the reference cell
nprsInfo-r14 SEQUENCE {		
operationModeInfoNPRS-r14	inband	
nprs-carrier-r14	Not present	Inband
nprsSequenceInfo-r14	135	If LTE Donor Cell is 10 MHz
nprsSequenceInfo-r14	59	If LTE Donor Cell is 5 MHz
nprsID-r14	Not present	Inband Same PCI
partA-r14 SEQUENCE {		
nprsBitmap-r14 CHOICE {		
subframePattern10-r14	‘0111001110’	
}		
}		
partB-r14 SEQUENCE {		
nprs-Period-r14	ms1290	
nprs-startSF-r14	zero	
nprs-numSF-r14	sf640	
nprs-MutingInfoB-r14 CHOICE {		
po16-r14	See Sequence data values in Table 7.4.2-5 and Table 7.4.2-5a	
}		
}		
nprs-slotNumberOffset-r14	0	
nprs-SFN-Offset-r14	0	
nprs-SubframeOffset-r14	640	
expectedRSTD-r14	See Sequence data values in Table 7.4.2-5 and Table 7.4.2-5a	
expectedRSTD-Uncertainty-r14	51	
prsNeighbourCellIndex-r14	Not present	
}		

Table 7.4.2-5: Sequence data values for 15 instances of sequence for test cases 9.6.1 and 9.6.2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po16-r9	Value expectedRSTD-r14	Comment
		Value eNB ID	Value Cell Identity			
Ncell 2	1 (Note 1)	'0000 0000 0000 0000 0001'B	'0000 0001'B	'11111111 00000000'	8222	Note 2
Dummy cell	12	'0000 0000 0000 0000 0010'B	'0000 1100'B	'11111111 00000000'	8222	Note 3
Dummy cell	6	'0000 0000 0000 0000 0100'B	'0000 0110'B	'00000000 11111111'	8162	Note 3
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	'11111111 00000000'	8218	Note 3
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	'00000000 11111111'	8211	Note 3
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	'11111111 00000000'	8175	Note 3
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	'11111111 00000000'	8190	Note 3
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	'00000000 11111111'	8200	Note 3
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	'11111111 00000000'	8182	Note 3
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	'00000000 11111111'	8207	Note 3
Dummy cell	118	'0000 0000 0000 0000 1111'B	'0111 0110'B	'00000000 11111111'	8182	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	'11111111 00000000'	8218	Note 3
Dummy cell	120	'0000 0000 0000 0000 1111'B	'0111 1000'B	'00000000 11111111'	8182	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	'11111111 00000000'	8192	Note 3
Dummy cell	125	'0000 0000 0000 0000 1011'B	'0111 1101'B	'00000000 11111111'	8162	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 9.6.1.4.1-1 and Table 9.6.2.4.1-1 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 this cell is used at any position in the 15 instances of the sequence						

Table 7.4.2-5a: Sequence data values for 15 instances of sequence for test case 9.6.3

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po16-r9	Value expectedRSTD-r14	Comment
		Value eNB ID	Value Cell Identity			
Ncell 2	1 (Note 1)	'0000 0000 0000 0000 0001'B	'0000 0001'B	'11111111 00000000'	TBD	Note 2
Ncell 3	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	'00000000 11111111'	TBD	Note 4
Dummy cell	6	'0000 0000 0000 0000 0100'B	'0000 0110'B	'00000000 11111111'	8162	Note 3
Dummy cell	12	'0000 0000 0000 0000 0010'B	'0000 1100'B	'11111111 00000000'	8218	Note 3
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	'00000000 11111111'	8211	Note 3
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	'11111111 00000000'	8175	Note 3
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	'11111111 00000000'	8190	Note 3
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	'00000000 11111111'	8200	Note 3
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	'11111111 00000000'	8182	Note 3
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	'00000000 11111111'	8207	Note 3
Dummy cell	118	'0000 0000 0000 0000 1111'B	'0111 0110'B	'00000000 11111111'	8182	Note 3
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	'11111111 00000000'	8218	Note 3
Dummy cell	120	'0000 0000 0000 0000 1111'B	'0111 1000'B	'00000000 11111111'	8182	Note 3
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	'11111111 00000000'	8192	Note 3
Dummy cell	125	'0000 0000 0000 0000 1011'B	'0111 1101'B	'00000000 11111111'	8162	Note 3
Note 1: Set according to sub-clause 4.7.1 and Table 9.6.1.4.1-1 and Table 9.6.2.4.1-1 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 this cell is used at any position in the 15 instances of the sequence Note 4: Data for cell 3 is used at a random position in the second 7 instances of the sequence						

7.5 OTDOA Assistance data for eMTC OTDOA measurement tests

7.5.1 General

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

7.5.2 OTDOA Assistance Data

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

OTDOA REFERENCE CELL INFO:

Table 7.5.2-1: OTDOA-ReferenceCellInfo for eMTC intra-frequency RSTD reporting delay test cases 9.3.1.1 to 9.3.6.2

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 1
physCellId	0	Set according to sub-clause 4.7.1 and Table 9.3.x.y.4.1-1 in TS 37.571-1 [6], where x and y represent part of the test case number
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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	FDD and HD-FDD tests: 311 TDD tests: 304	
numDL-Frames	Test 1: sf-6 Test 2, tests 9.3.1.2, 9.3.2.2 and 9.3.3.2: sf-2 Test 2, tests 9.3.4.2, 9.3.5.2 and 9.3.6.2: sf-4	
prs-MutingInfo-r9 CHOICE		
po8-r9	‘1111 0000’	

Table 7.5.2-2: OTDOA-ReferenceCellInfo for eMTC intra-frequency RSTD reporting accuracy test cases 9.3.7.1 to 9.3.12.2

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 1
physCellId	0	Set according to sub-clause 4.7.1 and Table 9.3.x.y.4.1-1 1 in TS 37.571-1 [6], where x and y represent part of the test case number
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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	FDD and HD-FDD tests: 151 TDD tests: 154	
numDL-Frames	Test 1, Test 2: sf-6 Test 3, Test 4, tests 9.3.7.2, 9.3.8.2 and 9.3.9.2: sf-2 Test 3, Test 4, tests 9.3.10.2, 9.3.11.2 and 9.3.12.2: sf-4	
prs-MutingInfo-r9 CHOICE		
po8-r9	‘1111 0000’	

Table 7.5.2-3: OTDOA-ReferenceCellInfo for eMTC inter-frequency RSTD reporting delay test cases 9.4.1.1 to 9.4.6.2

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 1
physCellId	0	Set according to sub-clause 4.7.1 and Table 9.4.x.y.4.1-1 in TS 37.571-1 [6], where x and y represent part of the test case number
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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	FDD and HD-FDD tests: 142 TDD tests: 304	
numDL-Frames	Test 1: sf-4 Test 2, tests 9.4.1.2, 9.4.2.2 and 9.4.3.2: sf-2 Test 2, tests 9.4.4.2, 9.4.5.2 and 9.4.6.2: sf-4	
prs-MutingInfo-r9 CHOICE		
po8-r9	‘11111111 00000000’	

Table 7.5.2-4: OTDOA-ReferenceCellInfo for eMTC inter-frequency RSTD reporting accuracy test cases 9.4.7.1 to 9.4.12.2

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 1
physCellId	0	Set according to sub-clause 4.7.1 and Table 9.4.x.y.4.1-1 1 in TS 37.571-1 [6], where x and y represent part of the test case number
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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	142	
numDL-Frames	Test 1: sf-4 Test 2: sf-2	
prs-MutingInfo-r9 CHOICE		
po8-r9	‘1111 0000’	

OTDOA NEIGHBOUR CELL INFO LIST:

Table 7.5.2-5: OTDOA-NeighbourCellInfoList for eMTC intra-frequency RSTD reporting delay test cases 9.3.1.1 to 9.3.6.2

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	For values of cellidentity see tables 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	n50	
prs-ConfigurationIndex	FDD, HD-FDD: 311 TDD: 304	
numDL-Frames	Test 1: sf-6 Test 2, tests 9.3.1.2, 9.3.2.2 and 9.3.3.2: sf-2 Test 2, tests 9.3.4.2, 9.3.5.2 and 9.3.6.2: sf-4	
prs-MutingInfo-r9 CHOICE		
po8-r9	See tables of Sequence data values below	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	Not present	Same as for reference cell
prs-SubframeOffset	Not present	
expectedRSTD	See tables of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.5.2-6: Sequence data values for 15 instances of sequence for eMTC intra-frequency RSTD reporting delay test cases 9.3.1.1 to 9.3.6.2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 2	6 (Note 1)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘0000 1111’	8222	Note 2
Cell 3	12 (Note 1)	'0000 0000 0000 0000 0010'B	‘0000 1100’B	‘1111 0000’	8222	Note 3
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘0000 1111’	8162	Note 4
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	8218	Note 4
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	8211	Note 4
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	8175	Note 4
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	8190	Note 4
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘0000 1111’	8200	Note 4
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	8182	Note 4
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	8207	Note 4
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	8182	Note 4
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘1111 0000’	8218	Note 4
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	8182	Note 4
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	8192	Note 4
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	8162	Note 4

Note 1: Set according to sub-clause 4.7.1 and Table 9.3.x.y.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

Table 7.5.2-7: OTDOA-NeighbourCellInfoList for eMTC intra-frequency RSTD reporting accuracy test cases 9.3.7.1 to 9.3.12.2

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	For values of cellidentity 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	n50	
prs-ConfigurationIndex	FDD and HD-FDD tests: 151 TDD tests: 154	
numDL-Frames	Test 1, 2: sf-6 Test 3, Test 4, tests 9.3.7.2, 9.3.8.2 and 9.3.9.2: sf-2 Test 3, Test 4, tests 9.3.10.2, 9.3.11.2 and 9.3.12.2: sf-4	
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

Table 7.5.2-8: Sequence data values for 15 instances of sequence for eMTC intra-frequency RSTD reporting accuracy test cases 9.3.7.1 to 9.3.12.2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 2 (Test 1)	6 (Note)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘1111 0000’	8202	
Cell 2 (Test 2)	7 (Note)	'0000 0000 0000 0000 0110'B	‘0000 0111’B	‘1111 0000’	8182	
Cell 2 (Test 3)	6 (Note)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘1111 0000’	8182	
Cell 2 (Test 4)	9 (Note)	'0000 0000 0000 0000 0100'B	‘0000 1001’B	‘1111 0000’	8202	
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘0000 1111’	8162	
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	8218	
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	8211	
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	8175	
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	8190	
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘0000 1111’	8200	
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	8182	
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	8207	
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	8182	
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘1111 0000’	8218	
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	8182	
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	8192	
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	8162	
Dummy cell	126	'0000 0000 0000 0000 1100'B	‘0111 1110’B	‘1111 0000’	8208	
Note: Set according to sub-clause 4.7.1 and Table 9.3.x.y.4.1-1 in TS 37.571-1 [6]						

Table 7.5.2-9: OTDOA-NeighbourCellInfoList for eMTC inter-frequency RSTD reporting delay test cases 9.4.1.1 to 9.4.6.2

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	For values of cellidentity see tables of Sequence data values below	
earfcn	2	
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth	n50	
prs-ConfigurationIndex	152	
numDL-Frames	Test 1: sf-4 Test 2, tests 9.4.1.2, 9.4.2.2 and 9.4.3.2: sf-2 Test 2, tests 9.4.4.2, 9.4.5.2 and 9.4.6.2: sf-4	
prs-MutingInfo-r9 CHOICE		
po16-r9	See tables of Sequence data values below	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	0	
prs-SubframeOffset	10	
expectedRSTD	See tables of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 μs

Table 7.5.2-10: Sequence data values for 15 instances of sequence for eMTC inter-frequency RSTD reporting delay test cases 9.4.1.1 to 9.4.6.2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po16-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 2	6 (Note 1)	'0000 0000 0000 0000 0100'B	'0000 0110'B	'00000000 11111111'	8222	Note 2
Cell 3	12 (Note 1)	'0000 0000 0000 0000 0010'B	'0000 1100'B	'11111111 00000000'	8222	Note 3
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	'00000000 11111111'	8162	Note 4
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	'11111111 00000000'	8218	Note 4
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	'00000000 11111111'	8211	Note 4
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	'11111111 00000000'	8175	Note 4
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	'00000000 11111111'	8190	Note 4
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	'11111111 00000000'	8200	Note 4
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	'00000000 11111111'	8182	Note 4
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	'11111111 00000000'	8207	Note 4
Dummy cell	118	'0000 0000 0000 0000 1111'B	'0111 0110'B	'00000000 11111111'	8182	Note 4
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	'11111111 00000000'	8218	Note 4
Dummy cell	120	'0000 0000 0000 0000 1111'B	'0111 1000'B	'00000000 11111111'	8182	Note 4
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	'11111111 00000000'	8192	Note 4
Dummy cell	125	'0000 0000 0000 0000 1011'B	'0111 1101'B	'00000000 11111111'	8162	Note 4

Note 1: Set according to sub-clause 4.7.1 and Table 9.3.x.y.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

Table 7.5.2-11: OTDOA-NeighbourCellInfoList for eMTC inter-frequency RSTD reporting accuracy test cases 9.4.7.1 to 9.4.12.2

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	For values of cellidentity see table of Sequence data values below	
earfcn	2	
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth	n50	
prs-ConfigurationIndex	152	
numDL-Frames	Test 1: sf-4 Test 2: sf-2	
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	10	
expectedRSTD	See table of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 μs

Table 7.5.2-12: Sequence data values for 15 instances of sequence for eMTC inter-frequency RSTD reporting accuracy test cases 9.4.7.1 to 9.4.12.2

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 2 (Test 1)	6 (Note)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘1111 0000’	8202	
Cell 2 (Test 2)	6 (Note)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘1111 0000’	8182	
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘1111 0000’	8162	
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	8218	
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	8211	
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	8175	
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘0000 1111’	8190	
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘1111 0000’	8200	
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	8182	
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	8207	
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘1111 0000’	8182	
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘0000 1111’	8218	
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	8182	
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	8192	
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	8162	
Dummy cell	126	'0000 0000 0000 0000 1100'B	‘0111 1110’B	‘1111 0000’	8208	
Note: Set according to sub-clause 4.7.1 and Table 9.4.x.y.4.1-1 in TS 37.571-1 [6]						

OTDOA REFERENCE CELL INFO:

Table 7.5.2-13: OTDOA-ReferenceCellInfo for eMTC intra-frequency RSTD reporting delay test cases 9.3.13 to 9.3.15

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 1
physCellId	0	Set according to sub-clause 4.7.1 and Table 9.3.x.4.1-1 in TS 37.571-1 [6], where x represents part of the test case number
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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	n6	
prs-ConfigurationIndex	FDD and HD-FDD tests: 311 TDD tests: 304	
add-numDL-Frames	sf-12	UE with *additional-prs-config* capability
	sf-20	UE with *densePrsConfig* capability
prs-MutingInfo-r9 CHOICE		
po8-r9	‘1111 0000’	

Table 7.5.2-14: OTDOA-ReferenceCellInfo for eMTC intra-frequency RSTD reporting delay test cases 9.3.16 to 9.3.18

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 1
physCellId	0	Set according to sub-clause 4.7.1 and Table 9.3.x.4.1-1 in TS 37.571-1 [6], where x represents part of the test case number
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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: n25	
prs-ConfigurationIndex	FDD and HD-FDD tests: 311 TDD tests: 304	
add-numDL-Frames	Test 1: sf-30 Test 2: sf-8	UE with *additional-prs-config* capability
	Test 1: sf-40 Test 2: sf-10	UE with *densePrsConfig* capability
prs-MutingInfo-r9 CHOICE		
po8-r9	‘1111 0000’	

OTDOA NEIGHBOUR CELL INFO LIST:

Table 7.5.2-15: OTDOA-NeighbourCellInfoList for eMTC intra-frequency RSTD reporting delay test cases 9.3.13 to 9.3.15

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	For values of cellidentity see tables 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	n6	
prs-ConfigurationIndex	FDD, HD-FDD: 311 TDD: 304	
add-numDL-Frames	sf-12	UE with *additional-prs-config* capability
	sf-20	UE with *densePrsConfig* capability
prs-MutingInfo-r9 CHOICE		
po8-r9	See tables of Sequence data values below	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	Not present	Same as for reference cell
prs-SubframeOffset	Not present	
expectedRSTD	See tables of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.5.2-16: OTDOA-NeighbourCellInfoList for eMTC intra-frequency RSTD reporting delay test cases 9.3.16 to 9.3.18

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	For values of cellidentity see tables 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: n6 Test 2: n25	
prs-ConfigurationIndex	FDD, HD-FDD: 311 TDD: 304	
add-numDL-Frames	Test 1: sf-30 Test 2: sf-8	UE with *additional-prs-config* capability
	Test 1: sf-40 Test 2: sf-10	UE with *densePrsConfig* capability
prs-MutingInfo-r9 CHOICE		
po8-r9	See tables of Sequence data values below	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	Not present	Same as for reference cell
prs-SubframeOffset	Not present	
expectedRSTD	See tables of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.5.2-17: Sequence data values for 15 instances of sequence for eMTC intra-frequency RSTD reporting delay test cases 9.3.13 to 9.3.18

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po8-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 2	6 (Note 1)	'0000 0000 0000 0000 0100'B	‘0000 0110’B	‘0000 1111’	8222	Note 2
Cell 3	12 (Note 1)	'0000 0000 0000 0000 0010'B	‘0000 1100’B	‘1111 0000’	8222	Note 3
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	‘0000 1111’	8162	Note 4
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	‘1111 0000’	8218	Note 4
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	‘0000 1111’	8211	Note 4
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	‘1111 0000’	8175	Note 4
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	‘1111 0000’	8190	Note 4
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	‘0000 1111’	8200	Note 4
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	‘1111 0000’	8182	Note 4
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	‘0000 1111’	8207	Note 4
Dummy cell	118	'0000 0000 0000 0000 1111'B	‘0111 0110’B	‘0000 1111’	8182	Note 4
Dummy cell	119	'0000 0000 0000 0000 1110'B	‘0111 0111’B	‘1111 0000’	8218	Note 4
Dummy cell	120	'0000 0000 0000 0000 1111'B	‘0111 1000’B	‘0000 1111’	8182	Note 4
Dummy cell	122	'0000 0000 0000 0000 1010'B	‘0111 1010’B	‘1111 0000’	8192	Note 4
Dummy cell	125	'0000 0000 0000 0000 1011'B	‘0111 1101’B	‘0000 1111’	8162	Note 4

Note 1: Set according to sub-clause 4.7.1 and Table 9.3.x.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 REFERENCE CELL INFO:

Table 7.5.2-18: OTDOA-ReferenceCellInfo for eMTC inter-frequency RSTD reporting delay test cases 9.4.13 to 9.4.15

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 1
physCellId	0	Set according to sub-clause 4.7.1 and Table 9.3.x.4.1-1 in TS 37.571-1 [6], where x represents part of the test case number
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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	FDD and HD-FDD tests: 232 TDD tests: 212	
add-numDL-Frames	sf-12	UE with *additional-prs-config* capability
	sf-20	UE with *densePrsConfig* capability
prs-MutingInfo-r9 CHOICE		
po16-r9	‘11111111 00000000’	

Table 7.5.2-19: OTDOA-ReferenceCellInfo for eMTC inter-frequency RSTD reporting delay test cases 9.4.16 to 9.4.18

Information Element	Value/remark	Comment
OTDOA-ReferenceCellInfo		Cell 1
physCellId	0	Set according to sub-clause 4.7.1 and Table 9.3.x.4.1-1 in TS 37.571-1 [6], where x represents part of the test case number
cellGlobalId	cellidentity (E-UTRAN Cell Identity): eNB ID: '0000 0000 0000 0000 0001'B Cell Identity: '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	FDD and HD-FDD tests: 232 TDD tests: 532	
add-numDL-Frames	Test 1: sf-30 Test 2: sf-8	UE with *additional-prs-config* capability
	Test 1: sf-40 Test 2: sf-10	UE with *densePrsConfig* capability
prs-MutingInfo-r9 CHOICE		
po16-r9	‘11111111 00000000’	

OTDOA NEIGHBOUR CELL INFO LIST:

Table 7.5.2-20: OTDOA-NeighbourCellInfoList for eMTC inter-frequency RSTD reporting delay test cases 9.4.13 to 9.4.15

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	For values of cellidentity see tables of Sequence data values below	
earfcn	2	
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth	n50	
prs-ConfigurationIndex	252	
add-numDL-Frames	sf-12	UE with *additional-prs-config* capability
	sf-20	UE with *densePrsConfig* capability
prs-MutingInfo-r9 CHOICE		
po16-r9	See tables of Sequence data values below	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	Not present	Same as for reference cell
prs-SubframeOffset	Not present	
expectedRSTD	See tables of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 µs

Table 7.5.2-21: OTDOA-NeighbourCellInfoList for eMTC inter-frequency RSTD reporting delay test cases 9.4.16 to 9.4.18

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	For values of cellidentity see tables of Sequence data values below	
earfcn	2	
cpLength	Not present	Same as for the reference cell
prsInfo		
prs-Bandwidth	n50	
prs-ConfigurationIndex	FDD, HD-FDD: 312 TDD: 612	
add-numDL-Frames	Test 1: sf-30 Test 2: sf-8	UE with *additional-prs-config* capability
	Test 1: sf-40 Test 2: sf-10	UE with *densePrsConfig* capability

prs-MutingInfo-r9 CHOICE		
po8-r9	See tables of Sequence data values below	
antennaPortConfig	Not present	Same as for the reference cell
slotNumberOffset	Not present	Same as for reference cell
prs-SubframeOffset	Not present	
expectedRSTD	See tables of Sequence data values below	
expectedRSTD-Uncertainty	51	About 5 μs

Table 7.5.2-22: Sequence data values for 15 instances of sequence for eMTC inter-frequency RSTD reporting delay test cases 9.4.13 to 9.4.18

Cell	Value physCellId	Value cellidentity (E-UTRAN Cell Identity)		Value po16-r9	Value expectedRSTD	Comment
		Value eNB ID	Value Cell Identity			
Cell 2	6 (Note 1)	'0000 0000 0000 0000 0100'B	'0000 0110'B	'00000000 11111111'	8212	Note 2
Cell 3	12 (Note 1)	'0000 0000 0000 0000 0010'B	'0000 1100'B	'11111111 00000000'	8172	Note 3
Dummy cell	1	'0000 0000 0000 0000 0001'B	'0000 0001'B	'00000000 11111111'	8162	Note 4
Dummy cell	2	'0000 0000 0000 0000 0001'B	'0000 0010'B	'11111111 00000000'	8218	Note 4
Dummy cell	3	'0000 0000 0000 0000 0010'B	'0000 0011'B	'00000000 11111111'	8211	Note 4
Dummy cell	8	'0000 0000 0000 0000 0010'B	'0000 1000'B	'11111111 00000000'	8175	Note 4
Dummy cell	10	'0000 0000 0000 0000 0101'B	'0000 1010'B	'11111111 00000000'	8190	Note 4
Dummy cell	11	'0000 0000 0000 0000 0110'B	'0000 1011'B	'00000000 11111111'	8200	Note 4
Dummy cell	16	'0000 0000 0000 0000 0010'B	'0001 0000'B	'11111111 00000000'	8182	Note 4
Dummy cell	111	'0000 0000 0000 0000 1100'B	'0110 1111'B	'00000000 11111111'	8207	Note 4
Dummy cell	118	'0000 0000 0000 0000 1111'B	'0111 0110'B	'00000000 11111111'	8182	Note 4
Dummy cell	119	'0000 0000 0000 0000 1110'B	'0111 0111'B	'11111111 00000000'	8218	Note 4
Dummy cell	120	'0000 0000 0000 0000 1111'B	'0111 1000'B	'00000000 11111111'	8182	Note 4
Dummy cell	122	'0000 0000 0000 0000 1010'B	'0111 1010'B	'11111111 00000000'	8192	Note 4
Dummy cell	125	'0000 0000 0000 0000 1011'B	'0111 1101'B	'00000000 11111111'	8162	Note 4
Note 1: Set according to sub-clause 4.7.1 and Table 9.4.x.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						

8 MBS information

8.1 Scenario for MBS signalling tests

8.1.1 Introduction

This clause defines the Metropolitan Beacon System (MBS) scenario that shall be used where required for E-UTRA and NR MBS signalling tests defined in TS 37.571-2 [7] clauses 7 and 9.

The beacon simulator shall generate all the UE supported MBS beacon signals defined in subclause 8.1.2.

The MBS sub-test case is identified by a Sub-Test Case Number 12 for Rel-13 only, Sub-Test Case Number 16 for Rel-14 onwards and Sub-Test Case Number 23 for Rel-16 onwards as defined in Table 8.1.1-1.

Table 8.1.1-1: Sub-Test Case Number Definition for TS 37.571-2 clauses 7 and 9

Sub-Test Case Number	Supported Positioning Method
12	UE supporting MBS (Rel-13 only)
16	UE supporting MBS (Rel-14 onwards)
23	UE supporting MBS (Rel-16 onwards)
NOTE: Metropolitan Beacon System (MBS) is a specific type of Terrestrial Beacon System (TBS) [21]	

8.1.2 MBS Signalling Scenario

The following MBS scenario shall be used:

- Simulated UE location for Rel-13 only: not applicable, for Rel-14 onwards: Latitude: 37.787528º, Longitude: -122.4033713º, Altitude: 13 m

- The levels of the simulated beacons shall all be at the power levels shown in Table 8.1.2-1 +/- 6dB

Table 8.1.2-1: General test parameters for the beacons to be simulated for TS 37.571-2 clauses 7 and 9

Parameter	Unit	Value	Comment
Number of Beacons		4	Beacons 1 to 4. Transmitted in the first four consecutive beacon slots in the MBS beacon transmission period. Other slots contain no simulated beacons.
Centre Frequency	MHz	925.977	
RF Channel		AWGN	
MBS Beacon Configuration		TB1 (2 MHz)	For details see [21]
MBS Packet Type		Type 2	For details see [21]
Beacon PN Code	Integer	Chosen for each beacon from the PN code list for TB1	Each of the 4 beacons uses a different PN code. For details see [21]
Transmit power	dBm	-90	

Table 8.1.2-2: MBS Beacon Payload fields and code phase delay for the beacons to be simulated for TS 37.571-2 clauses 7 and 9

Beacon	MBS Tx ID [21]	Slot Index [21]	All Other fields [21]	Code phase delay (ms)
1	Equal to Slot number	Equal to Slot number	min value (bit_value = 0)	0
2	Equal to Slot number	Equal to Slot number	min value (bit_value = 0)	0
3	Equal to Slot number	Equal to Slot number	min value (bit_value = 0)	0
4	Equal to Slot number	Equal to Slot number	min value (bit_value = 0)	0
Note: bit_value is the conversion of the binary number represented by the corresponding bits in the payload to decimal.				

8.2 Scenario for MBS performance tests

The Metropolitan Beacon System (MBS) scenario that shall be used for E-UTRA and NR MBS performance tests is defined in TS 37.571-1 [6] clause 11.

8.3 MBS Assistance Data (Release 14 onwards)

8.3.1 Introduction

This subclause defines the Metropolitan Beacon System (MBS) Assistance Data that shall be used where required for the MBS measurement tests defined in TS 37.571-1 [6] clause 11 and E-UTRA and NR MBS signalling tests defined in TS 37.571-2 [7] clauses 7 and 9.

8.3.2 MBS Almanac Assistance Data for signalling tests

MBS almanac assistance data is used in the MBS UE-based signalling tests as indicated in TS 37.571-2 [7]. The following fields shall be included in the MBS almanac assistance data (MBS-AlmanacAssistance-r14).

Table 8.3.2-1: MBS-AlmanacAssistance-r14 values

Information Element	Units	Value/remark	Release
transmitterID-r14	Integer	Any value 0 to 32777	Rel-14 onwards
transmitterLatitude-r14	degrees	See Table 8.3.2-2	Rel-14 onwards
transmitterLongitude-r14	degrees	See Table 8.3.2-2	Rel-14 onwards
transmitterAltitude-r14	meters	See Table 8.3.2-2	Rel-14 onwards
timeCorrection-r14	ns	See Table 8.3.2-2	Rel-14 onwards

Table 8.3.2-2: MBS-AlmanacAssistance-r14 beacon details

Beacon number	Latitude	Longitude	Altitude	Time Correction
Beacon 1	37.78670	-122.40324	92.22	0
Beacon 2	37.79132	-122.39822	130.79	0
Beacon 3	37.78915	-122.40676	52.49	0
Beacon 4	37.78554	-122.39800	66.70	0

8.3.3 MBS Acquisition Assistance Data for signalling and measurement tests

MBS acquisition assistance data is used in the MBS signalling tests as indicated in TS 37.571-2 [7] clauses 7 and 9 and the MBS measurement tests as indicated in TS 37.571-1 [6] clause 11. The following fields shall be included in the MBS acquisition assistance data (MBS-AcquisitionAssistance-r14).

Table 8.3.3-1: MBS-AcquisitionAssistance-r14 values

Information Element	Units	Value/remark	Release
transmitterID-r14	Integer	Any value 0 to 32777	Rel-14 onwards
mbsConfiguration-r14		tb1 for TB1 beacon parameters and tb2 for TB2 beacon parameters	Rel-14 onwards
pnCodeIndex-r14	Integer	Any value 1 to 128	Rel-14 onwards
freq-r14	Hz	925977000 for tb1 or 924442000 for tb2	Rel-14 onwards

9 WLAN information

9.1 WLAN Scenario for WLAN signalling tests

This clause defines the WLAN scenario that shall be used where required for E-UTRA and NR WLAN signalling tests defined in TS 37.571-2 [7] subclauses 7 and 9.

The WLAN simulator shall generate the UE supported WLAN signals defined in subclause 9.1.1.

The WLAN sub-test case is identified by a Sub-Test Case Number 11 for Rel-13 only and Sub-Test Case Number 17 for Rel-14 onwards as defined in Table 9.1-1.

Table 9.1-1: Sub-Test Case Number Definition for TS 37.571-2 subclauses 7 and 9

Sub-Test Case Number	Supported Positioning Method
11	UE supporting WLAN (Rel-13 only)
17	UE supporting WLAN (Rel-14 onwards)

9.1.1 WLAN Signalling Scenario

The following WLAN scenario defined in Table 9.1.1-1 shall be used.

Simulated UE location for Rel-13 only: not applicable, for Rel-14 onwards: Latitude: 37.787528º, Longitude: -122.4033713.

The level of the simulated AP shall be at the power level shown in Table 9.1.1-1 +/- 6dB.

Table 9.1.1-1: General test parameters for the WLAN APs to be simulated for TS 37.571-2 clauses 7 and 9

Parameter	Unit	Value	Comment
Number of WLAN APs		1	
AP Channel Frequency	MHz	Any supported by the UE	
RF Channel		AWGN	
AP BSSID		Any suitable value	For details see [22]
Other parameters		Any suitable value	For details see [22]

9.2 Scenario for WLAN performance tests

The WLAN scenario that shall be used for E-UTRA and NR WLAN performance tests is defined in TS 37.571-1 [6] clause 12.

9.3 WLAN Assistance Data (Release 14 onwards)

9.3.1 Introduction

This subclause defines the WLAN Assistance Data that shall be used where required for the E-UTRA and NR WLAN signalling tests defined in TS 37.571-2 [7] clauses 7 and 9.

9.3.2 WLAN data set

Table 9.3.2-1 defines the fields and values that shall be included in the WLAN data set (WLAN-DataSet-r14) where required.

Table 9.3.2-1: WLAN-DataSet-r14

Information Element	Value/remark	Comment	Condition
wlan-AP-List-r14 SEQUENCE (SIZE(4) OF SEQUENCE {	4 entries		
wlan-AP-Identifier-r14[1]	As defined in Table 9.3.2-2	WLAN AP 1	
wlan-AP-Location-r14[1]	As defined in Table 9.3.2-3	WLAN AP 1	
wlan-AP-Identifier-r14[2]	As defined in Table 9.3.2-2	WLAN AP 2	
wlan-AP-Location-r14[2]	As defined in Table 9.3.2-3	WLAN AP 2	
wlan-AP-Identifier-r14[3]	As defined in Table 9.3.2-2	WLAN AP 3	
wlan-AP-Location-r14[3]	As defined in Table 9.3.2-3	WLAN AP 3	
wlan-AP-Identifier-r14[4]	As defined in Table 9.3.2-2	WLAN AP 4	
wlan-AP-Location-r14[4]	As defined in Table 9.3.2-3	WLAN AP 4	
}			
supportedChannels-11a-r14	Not present		
supportedChannels-11bg-r14	Not present		

Table 9.3.2-2: wlan-AP-Identifier-r14 values

WLAN AP number	bssid-r13
AP 1	Any suitable value
AP 2	Any suitable value
AP 3	Any suitable value
AP 4	Any suitable value

Table 9.3.2-3: wlan-AP-Location-r14 values

WLAN AP number	latitudeUncertainty-r14	latitude-r14	longitudeUncertainty-r14	longitude-r14	datum-r14
AP 1	18 (~0.001)	37.78670	18 (~0.001)	-122.40324	1 (WGS-84)
AP 2	18 (~0.001)	37.79132	18 (~0.001)	-122.39822	1 (WGS-84)
AP 3	18 (~0.001)	37.78915	18 (~0.001)	-122.40676	1 (WGS-84)
AP 4	18 (~0.001)	37.78554	18 (~0.001)	-122.39800	1 (WGS-84)
Note: For all WLAN APs IEs altitudeUncertainty-r14 and altitude-r14 are not present					

10 Bluetooth information

10.1 Bluetooth Scenario for Bluetooth signalling tests

This clause defines the Bluetooth scenario that shall be used where required for E-UTRA and NR Bluetooth signalling tests defined in TS 37.571-2 [7] subclauses 7 and 9.

The Bluetooth simulator shall generate the Bluetooth signals defined in subclause 10.1.1.

The Bluetooth sub-test case is identified by a Sub-Test Case Number 13 as defined in Table 10.1-1.

Table 10.1-1: Sub-Test Case Number Definition for TS 37.571-2 subclauses 7 and 9

Sub-Test Case Number	Supported Positioning Method
13	UE supporting Bluetooth

10.1.1 Bluetooth Signalling Scenario

The following Bluetooth scenario defined in Table 10.1.1-1 shall be used.

The level of the simulated beacon shall be at the power level shown in Table 10.1.1-1 +/- 6dB.

Table 10.1.1-1: General test parameters for the Bluetooth beacons to be simulated for TS 37.571-2 clauses 7 and 9

Parameter	Unit	Value	Comment
Number of Bluetooth beacons		1	
Transmit power	dBm	-60	
RF Channel		AWGN	
Public address of Bluetooth beacon		Any suitable value	For details see [23]
Other Bluetooth beacon parameters		Any suitable value	For details see [23]

11 DL-TDOA information

11.1 DL-TDOA Assistance data for DL-TDOA measurement tests

11.1.1 General

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

11.1.2 DL-TDOA Assistance Data

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

Table 11.1.2-1: Void

Table 11.1.2-2: Void

Table 11.1.2-3: Void

Table 11.1.2-4: NR PRS-Assistance Data perTRP configuration for test cases 14.2.1, 14.2.2, 15.2.1, 15.2.2, 16.2.1

Derivation Path: TS 37.355 [8] clause 6.4.3		
Information Element	**Value/remark**	**Comment**
NR-DL-PRS-AssistanceDataPerTRP-r16[2] SEQUENCE {		
dl-PRS-ID-r16	3	Test Cases 14.2.1, 14.2.2: Dummy cell 2, Test Cases 15.2.1, 15.2.2, 16.2.1, 16.2.2
	2	Dummy cell 1, Test Cases 15.2.1, 15.2.2, 16.2.1, 16.2.2
nr-PhysCellID-r16	As specified in Table 11.1.2-7	
nr-CellGlobalID-r16	As specified in Table 11.1.2-7	
nr-ARFCN-r16	Same as 1st Cell present in current Frequency Layer	
nr-DL-PRS-SFN0-Offset-r16 SEQUENCE {		
sfn-Offset-r16	Same as 1st Cell present in current Frequency Layer	
integerSubframeOffset-r16	Same as 1st Cell present in current Frequency Layer	
}		
nr-DL-PRS-ExpectedRSTD-r16	0	Test Cases 14.2.1, 14.2.2 Dummy cell 1, Test Cases 15.2.1, 15.2.2, 16.2.1, 16.2.2
	23	Dummy cell 2, Test Cases 15.2.1, 15.2.2, 16.2.1, 16.2.2
nr-DL-PRS-ExpectedRSTD-Uncertainty-r16	39	Test Cases 14.2.1, 14.2.2, 15.2.1, 15.2.2, 16.2.1
	154	Test Case 16.2.2
nr-DL-PRS-Info-r16	As specified in Table 11.1.2-5	Test Cases 14.2.1, 14.2.2, 15.2.1, 15.2.2
	As specified in Table 11.1.2-6	Test Cases 16.2.1, 16.2.2
}		

Table 11.1.2-5: NR-DL-PRS-Info for test cases 14.2.1, 14.2.2, 15.2.1, 15.2.2

Derivation Path: TS 37.355 [8] clause 6.4.3		
Information Element	**Value/remark**	**Comment**
NR-DL-PRS-Info-r16 ::= SEQUENCE {		
nr-DL-PRS-ResourceSetList-r16 SEQUENCE (SIZE (1..nrMaxSetsPerTrp-r16)) OF NR-DL-PRS-ResourceSet-r16 {	Same as 1st Cell present in current Frequency Layer	
NR-DL-PRS-ResourceSet-r16[1] SEQUENCE {		
nr-DL-PRS-ResourceSetID-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-Periodicity-and-ResourceSetSlotOffset-r16 CHOICE {		
scs15-r16 CHOICE {		
n160-r16	Same as 1st Cell present in current Frequency Layer	
}		
scs30-r16 CHOICE {		
n320-r16	Same as 1st Cell present in current Frequency Layer	
}		
dl-PRS-ResourceRepetitionFactor-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-ResourceTimeGap-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-NumSymbols-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-MutingOption1-r16 SEQUENCE {		
dl-prs-MutingBitRepetitionFactor-r16	Same as 1st Cell present in current Frequency Layer	
nr-option1-muting-r16 CHOICE {		
po2-r16	01	Test Cases 14.2.1, 14.2.2 Dummy cell 2, Test Cases 15.2.1, 15.2.2
	10	Dummy cell 1, Test Cases 15.2.1, 15.2.2
}		
}		
dl-PRS-MutingOption2-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-ResourcePower-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-ResourceList-r16 SEQUENCE (SIZE (1..nrMaxResourcesPerSet-r16)) OF NR-DL-PRSResource-r16 {	Same as 1st Cell present in current Frequency Layer	
NR-DL-PRS-Resource-r16[1] SEQUENCE {		
nr-DL-PRS-ResourceID-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-SequenceID-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-CombSizeN-AndReOffset-r16 CHOICE {		
n2-r16	1	In 1st Cell present in current Frequency Layer *dl-PRS-CombSizeN-AndReOffset-r16* is n2-r16

n4-r16	1	In 1st Cell present in current Frequency Layer *dl-PRS-CombSizeN-AndReOffset-r16* is n4-r16
}		
dl-PRS-ResourceSlotOffset-r16	Same as 1st Cell present in current Frequency Layer	Test Cases 14.2.1, 14.2.2 15.2.1, 15.2.2
dl-PRS-ResourceSymbolOffset-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-QCL-Info-r16	Same as 1st Cell present in current Frequency Layer	
}		
}		
}		
}		
}		

Table 11.1.2-6: NR-DL-PRS-Info for test cases 16.2.1, 16.2.2

Derivation Path: TS 37.355 [8] clause 6.4.3		
Information Element	**Value/remark**	**Comment**
NR-DL-PRS-Info-r16 ::= SEQUENCE {		
nr-DL-PRS-ResourceSetList-r16 SEQUENCE (SIZE (1..nrMaxSetsPerTrp-r16)) OF NR-DL-PRSResourceSet-r16 {	Same as 1st Cell present in current Frequency Layer	
NR-DL-PRS-ResourceSet-r16[1] SEQUENCE {		
nr-DL-PRS-ResourceSetID-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-Periodicity-and-ResourceSetSlotOffset-r16 CHOICE {		
scs15-r16 CHOICE {		
n160-r16	Same as 1st Cell present in current Frequency Layer	
}		
scs30-r16 CHOICE {		
n320-r16	Same as 1st Cell present in current Frequency Layer	
}		
dl-PRS-ResourceRepetitionFactor-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-ResourceTimeGap-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-NumSymbols-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-MutingOption1-r16 SEQUENCE {		
dl-prs-MutingBitRepetitionFactor-r16	Same as 1st Cell present in current Frequency Layer	
nr-option1-muting-r16 CHOICE {		
po2-r16	01	Dummy cell 1, Test Cases 16.2.1, 16.2.2
	10	Dummy cell 2, Test Cases 16.2.1, 16.2.2
}		
}		
dl-PRS-MutingOption2-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-ResourcePower-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-ResourceList-r16 SEQUENCE (SIZE (1..nrMaxResourcesPerSet-r16)) OF NR-DL-PRSResource-r16 {	Same as 1st Cell present in current Frequency Layer	
NR-DL-PRS-Resource-r16[1] SEQUENCE {		
nr-DL-PRS-ResourceID-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-SequenceID-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-CombSizeN-AndReOffset-r16 CHOICE {		
n2-r16	0	In 1st Cell present in current Frequency Layer *dl-PRS-CombSizeN-AndReOffset-r16* is n2-r16
n4-r16	0	In 1st Cell present in current Frequency Layer *dl-PRS-CombSizeN-AndReOffset-r16* is n4-r16
}		

	0	Dummy cell 2, Test Cases 16.2.1, 16.2.2
	2	Dummy cell 1, Test Cases 16.2.1, 16.2.2
dl-PRS-ResourceSlotOffset-r16		
dl-PRS-ResourceSymbolOffset-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-QCL-Info-r16	Same as 1st Cell present in current Frequency Layer	
}		
NR-DL-PRS-Resource-r16[2] SEQUENCE {		
nr-DL-PRS-ResourceID-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-SequenceID-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-CombSizeN-AndReOffset-r16 CHOICE {		
n2-r16	1	In 1st Cell present in current Frequency Layer *dl-PRS-CombSizeN-AndReOffset-r16* is n2-r16
n4-r16	1	In 1st Cell present in current Frequency Layer *dl-PRS-CombSizeN-AndReOffset-r16* is n4-r16
}		
	0	Dummy cell 2, Test Cases 16.2.1, 16.2.2
	2	Dummy cell 1, Test Cases 16.2.1, 16.2.2
dl-PRS-ResourceSlotOffset-r16		
dl-PRS-ResourceSymbolOffset-r16	Same as 1st Cell present in current Frequency Layer	
dl-PRS-QCL-Info-r16	Same as 1st Cell present in current Frequency Layer	
}		
}		
}		
}		

Table 11.1.2-7: Sequence data values for test cases 14.2.1, 14.2.2, 15.2.1, 15.2.2, 16.2.1, 16.2.2

Cell	Value phys CellId	Value cellidentity		PFL per Test Case		Comment
		Value gNB ID	Value Cell Identity	Add to 1st Frequency Layer	Add to 2nd Frequency Layer	
Dummy cell	2	'00 0000 0000 0000 0000 0000 0001'B	'00 0000 0010'B	14.2.1, 15.2.1, 15.2.2, 16.2.1, 16.2.2:	14.2.2	
Dummy cell	3	'00 0000 0000 0000 0000 0000 0010'B	'00 0000 0011'B	15.2.1, 16.2.1	15.2.2, 16.2.2:	

11.2 ReferencePoint and RelativeLocation

This subclause defines the reference point and relative location information elements which shall be provided to the UE in the UE-based DL-TDOA measurement tests defined in TS 37.571-1 [6] and signalling tests defined in TS 37.571-2 [7].

Table 11.2-1: ReferencePoint

Derivation Path: 37.355 clause 6.4.3			
Information Element	**Value/remark**	**Comment**	**Condition**
ReferencePoint-r16 ::= SEQUENCE {			
referencePointGeographicLocation-r16 CHOICE {			
ha-location3D-r16 SEQUENCE {			
degreesLatitude-r15	852891909	35.744287	
degreesLongitude-r15	1666449411	139.680176	
altitude-r15	38400	300 m	
uncertaintySemiMajor-r15	2		
uncertaintySemiMinor-r15	2		
orientationMajorAxis-r15	0		
horizontalConfidence-r15	68		
uncertaintyAltitude-r15	2		
verticalConfidence-r15	68		
}			
}			
}			

Table 11.2-2: RelativeLocation for NR Cell 2

Derivation Path: 37.355 clause 6.4.3			
Information Element	**Value/remark**	**Comment**	**Condition**
RelativeLocation-r16 ::= SEQUENCE {			
milli-arc-second-units-r16	mas30		
height-units-r16	m		
delta-latitude-r16 SEQUENCE {			
delta-Latitude-r16	250		
coarse-delta-Latitude-r16	0		
}			
delta-longitude-r16 SEQUENCE {			
delta-Longitude-r16	250		
coarse-delta-Longitude-r16	0		
}			
delta-height-r16 SEQUENCE {			
delta-Height-r16	0		
coarse-delta-Height-r16	0		
}			
locationUNC-r16 SEQUENCE {			
horizontalUncertainty-r16	2		
horizontalConfidence-r16	68		
verticalUncertainty-r16	2		
verticalConfidence-r16	68		
}			
}			

Table 11.2-3: RelativeLocation for NR Cell 3

Derivation Path: 37.355 clause 6.4.3			
Information Element	**Value/remark**	**Comment**	**Condition**
RelativeLocation-r16 ::= SEQUENCE {			
milli-arc-second-units-r16	mas30		
height-units-r16	m		
delta-latitude-r16 SEQUENCE {			
delta-Latitude-r16	250		
coarse-delta-Latitude-r16	0		
}			
delta-longitude-r16 SEQUENCE {			
delta-Longitude-r16	250		
coarse-delta-Longitude-r16	0		
}			
delta-height-r16 SEQUENCE {			
delta-Height-r16	0		
coarse-delta-Height-r16	0		
}			
locationUNC-r16 SEQUENCE {			
horizontalUncertainty-r16	2		
horizontalConfidence-r16	68		
verticalUncertainty-r16	2		
verticalConfidence-r16	68		
}			
}			

12 DL-AoD information

12.1 ReferencePoint and RelativeLocation

The reference point and relative location information elements which shall be provided to the UE in the UE-based DL-AoD measurement tests defined in TS 37.571-1 [6] and signalling tests defined in TS 37.571-2 [7] are the same as those defined in clause 11.2.

13 SL-TDOA information

13.1 Anchor UE Location Information

This subclause defines the anchor UE location information information elements which shall be provided to the UE in the SL RSTD measurement tests defined in TS 37.571-1 [6] and the SL-TDOA signalling tests defined in TS 37.571-2 [7].

Table 13.1-1: AnchorLocationCoordinates for NR-SS-UE1

Derivation Path: 38.355 clause 6.6			
Information Element	**Value/remark**	**Comment**	**Condition**
AnchorLocationCoordinates :: CHOICE {			
ellipsoidPointWithAltitudeAndUncertaintyEllipsoid SEQUENCE {			
latitudeSign	north		
degreesLatitude	3331609	35.744287	
degreesLongitude	6509568	139.680176	
altitudeDirection	height		
altitude	300	300 m	
uncertaintySemiMajor	1		
uncertaintySemiMinor	1		
orientationMajorAxis	0		
uncertaintyAltitude	1		
confidence	68		
}			
}			

Table 13.1-2: AnchorLocationCoordinates for NR-SS-UE2

Derivation Path: 38.355 clause 6.6			
Information Element	**Value/remark**	**Comment**	**Condition**
AnchorLocationCoordinates :: CHOICE {			
ellipsoidPointWithAltitudeAndUncertaintyEllipsoid SEQUENCE {			
latitudeSign	north		
degreesLatitude	3331803	35.746370	
degreesLongitude	6509665	139.682259	
altitudeDirection	height		
altitude	300	300 m	
uncertaintySemiMajor	1		
uncertaintySemiMinor	1		
orientationMajorAxis	0		
uncertaintyAltitude	1		
confidence	68		
}			
}			

Table 13.1-3: AnchorLocationCoordinates for NR-SS-UE3

Derivation Path: 38.355 clause 6.6			
Information Element	**Value/remark**	**Comment**	**Condition**
AnchorLocationCoordinates :: CHOICE {			
ellipsoidPointWithAltitudeAndUncertaintyEllipsoid SEQUENCE {			
latitudeSign	north		
degreesLatitude	3331803	35.746370	
degreesLongitude	6509665	139.682259	
altitudeDirection	height		
altitude	300	300 m	
uncertaintySemiMajor	1		
uncertaintySemiMinor	1		
orientationMajorAxis	0		
uncertaintyAltitude	1		
confidence	68		
}			
}			

13.2 Relative Location

This subclause defines the relative location information elements which shall be provided to the UE in the SL RSTD measurement tests defined in TS 37.571-1 [6] and the SL-TDOA signalling tests defined in TS 37.571-2 [7].

Table 13.2-1: RelativeLocation for ARP

Derivation Path: 38.355 clause 6.6			
Information Element	**Value/remark**	**Comment**	**Condition**
RelativeLocation ::= SEQUENCE {			
milliArcSecondUnits	mas30		
heightUnits	m		
deltaLatitude SEQUENCE {			
deltaLatitude	0		
coarseDeltaLatitude	0		
}			
deltaLongitude SEQUENCE {			
deltaLongitude	0		
coarseDeltaLongitude	0		
}			
deltaHeight SEQUENCE {			
deltaHeight	0		
coarseDeltaHeight	0		
}			
locationUNC SEQUENCE {			
horizontalUncertainty	1		
horizontalConfidence	68		
verticalUncertainty	1		
verticalConfidence	68		
}			
}			

14 SL-RTT information

14.1 Anchor UE Location Information and Relative Location

The anchor UE location information and ARP relative location information elements which shall be provided to the UE in the SL Rx-Tx time difference measurement tests defined in TS 37.571-1 [6] and SL-RTT signalling tests defined in TS 37.571-2 [7] are the same as those defined in clause 13.

15 SL-AoA information

15.1 Anchor UE Location Information and Relative Location

The anchor UE location information and ARP relative location information elements which shall be provided to the UE in the SL-PRS-RSRP measurement tests defined in TS 37.571-1 [6] and SL-AoA signalling tests defined in TS 37.571-2 [7] are the same as those defined in clause 13.

16 SL-TOA information

16.1 Anchor UE Location Information and Relative Location

The anchor UE location information and ARP relative location information elements which shall be provided to the UE in the SL RTOA measurement tests defined in TS 37.571-1 [6] and SL-TOA signalling tests defined in TS 37.571-2 [7] are the same as those defined in clause 13.

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_V7.zip which accompanies this document.

The acquisition assistance data files contained in the archive are recommended but not mandatory.

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_V10.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.

The acquisition assistance data files contained in the archive are recommended but not mandatory.

Annex B (normative): GNSS data files

B.1 GNSS data files for signalling tests

The GNSS orbital data files for use in GNSS signalling tests defined in TS 37.571-2 [7] subclauses 6.2.1 to 6.2.3 and subclauses 7 and 9 are contained in archive GNSS_Orbital_Data_Sig_V3.zip which accompanies the present document.

B.2 GNSS data files for Minimum Performance tests

The GNSS orbital data files for use in GNSS Minimum Performance tests defined in TS 37.571-1 [6] subclauses 6, 7 and 13 are contained in archive GNSS_Orbital_Data_Perf_V3.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.

B.3 GNSS data files for aerial tests

The GNSS data files for use in GNSS signalling tests using the scenario defined in TS 36.508 [20] subclause 4.12 are contained in archive GNSS_Data_Aerial_V1.zip which accompanies the present document.

The data files contained in the archive are recommended but not mandatory.

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
2014-03	RAN5#62	R5-140198	0066	-	Adjustment of SV IDs of Satellites to be simulated	10.6.0	10.7.0
2014-03	RAN5#62	R5-140377	0067	-	LBS Perf: Update of headers of some GNSS acquisition assistance data files	10.6.0	10.7.0
2014-03	RAN5#62	R5-140378	0068	-	LBS Sig: Removal of redundant inappropriate files from GNSS_Data_Sig_V7.zip file	10.6.0	10.7.0
2014-03	RAN5#62	R5-140383	0069	-	LBS Perf: Introducing Ephemeris files in Rinex format	10.6.0	10.7.0
2014-03	RAN5#62	R5-140384	0070	-	LBS Sig: Introducing Ephemeris files in Rinex format	10.6.0	10.7.0
2014-03	RAN5#62	R5-140794	0071	-	LBS Sig: Clarification on usage of acquisition assistance files	10.6.0	10.7.0
2014-03	RAN5#62	R5-140795	0072	-	LBS Sig: Changing the name of Almanac files not in Yuma format	10.6.0	10.7.0
2014-03	RAN5#62	R5-140873	0073	-	LBS Perf: Clarification on usage of acquisition assistance files	10.6.0	10.7.0
2014-03	RAN5#62	R5-140874	0074	-	LBS Perf: Changing the name of Almanac files not in Yuma format	10.6.0	10.7.0
2014-03	RAN5#62	R5-140879	0075	-	Corrections to GLONASS GANSS Day and gnss-DayNumber values	10.6.0	10.7.0
2014-03	RAN5#62	R5-140900	0076	-	Corrections to GLONASS GANSS Day and gnss-DayNumber values	10.6.0	10.7.0
2014-03	RAN5#62	R5-141034	0077	-	RSTD value updates	10.6.0	10.7.0
2014-06	RAN5#63	R5-142097	0078	-	Corrections to prs-MutingInfo	10.7.0	10.8.0
2014-06	RAN5#63	R5-142249	0079	-	Correction to T_lamda_n_A values for scenario #1	10.7.0	10.8.0
2014-06	RAN5#63	R5-142250	0080	-	Correction to T_lamda_n_A values	10.7.0	10.8.0
2014-06	RAN5#63	R5-142252	0081	-	Clarification of use of satellite simulator	10.7.0	10.8.0
2014-06	RAN5#63	R5-142884	0082	-	LBS Sig: Correction of FT values in GLONASS scenarios and RINEX file update	10.7.0	10.8.0
2014-06	RAN5#63	R5-142885	0083	-	LBS Sig: Moving some .rnx files to the right .zip file	10.7.0	10.8.0
2014-06	RAN5#63	R5-143110	0084	-	LBS Perf: Moving some .rnx files to the right .zip file	10.7.0	10.8.0
2014-06	RAN5#63	R5-143128	0085	-	LBS Perf: Correction of FT values in GLONASS scenarios and RINEX file update	10.7.0	10.8.0
2014-09	RAN5#64	R5-144133	0086	-	LBS Perf: Adding missing information for QZSS	10.8.0	10.9.0
2014-09	RAN5#64	R5-144135	0087	-	LBS Perf: Adding missing files for QZSS	10.8.0	10.9.0
2014-09	RAN5#64	R5-144136	0088	-	LBS Sig: Adding missing files for QZSS	10.8.0	10.9.0
2014-09	RAN5#64	R5-144139	0091	-	LBS Perf: Adding missing files for Galileo	10.8.0	10.9.0
2014-09	RAN5#64	R5-144140	0092	-	LBS Sig: Adding missing files for Galileo	10.8.0	10.9.0
2014-09	RAN5#64	R5-144793	0089	-	LBS Perf: Adding missing information for Galileo and introduction of Galileo hybrid-subtest	10.8.0	10.9.0
2014-09	RAN5#64	R5-144795	0090	-	LBS Sig: Adding missing information for Galileo and introduction of Galileo hybrid-subtest	10.8.0	10.9.0
2014-09	RAN5#64	R5-144872	0097	-	Updates OTDOA Neighbour Cell Info List	10.8.0	10.9.0
2014-12	RAN5#65	R5-145101	0102	-	LBS Perf: Adding missing information for Galileo	10.9.0	10.10.0
2014-12	RAN5#65	R5-145102	0103	-	LBS Sig: Adding missing information for Galileo	10.9.0	10.10.0
2014-12	RAN5#65	R5-145135	0104	-	Clarification to OTDOA Assistance Data	10.9.0	10.10.0
2014-12	RAN5#65	R5-145136	0105	-	Update Galileo ICD reference	10.9.0	10.10.0
2014-12	RAN5#65	-	-	-	Raised to v11.0.0 with no change	10.10.0	11.0.0
2014-12	RAN5#65	R5-145978	0098	-	LBS Perf: Adding test scenarios for Beidou	11.0.0	12.0.0
2014-12	RAN5#65	R5-145098	0099	-	LBS Sig: Adding test scenarios for Beidou	11.0.0	12.0.0
2014-12	RAN5#65	R5-145099	0100	-	LBS Perf: Adding data files for Beidou	11.0.0	12.0.0
2014-12	RAN5#65	R5-145100	0101	-	LBS Sig: Adding data files for Beidou	11.0.0	12.0.0
2014-12	RAN5#65	R5-145895	0106	-	Addition of Editor's Note concerning missing data for TDD in sections 5.2 and 6.2	11.0.0	12.0.0
2015-03	RAN5#66	R5-150052	0107	-	Updates to expectedRSTD values following changes in RAN 4	12.0.0	12.1.0
2015-03	RAN5#66	R5-150106	0108	-	Change Nprs value in tests 10.3B, 10.3C, 10.4B, 10.4C	12.0.0	12.1.0
2015-03	RAN5#66	R5-150237	0109	-	LBS Perf: Correction to simulated BDS satellites	12.0.0	12.1.0
2015-03	RAN5#66	R5-150839	0110	-	Missing Abbreviations in Specification	12.0.0	12.1.0

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2015-03	RAN5#66	R5-150840	0111	-	Missing OTDOA CA Test Cases	12.0.0	12.1.0
2015-03	RAN5#66	R5-150891	0112	-	Abbreviation Corrections for BDS in 37.571-5	12.0.0	12.1.0
2015-06	RAN5#67	R5-151069	0113	-	Add TDD to A-GNSS Assistance Data	12.1.0	12.2.0
2015-06	RAN5#67	R5-151091	0114	-	Missing RSTD new tests for 10.2D and 10.4D	12.1.0	12.2.0
2015-06	RAN5#67	R5-151910	0117	1	Corrections to the Ionospheric Model of BDS	12.1.0	12.2.0
2015-09	RAN5#68	R5-153108	0118	-	Corrections to UTC Model and Time Model	12.2.0	12.3.0
2015-09	RAN5#68	R5-153109	0119	-	Update to Galileo Assistance Data IEs	12.2.0	12.3.0
2015-09	RAN5#68	R5-153112	0120	-	Corrections to UTC Model	12.2.0	12.3.0
2015-09	RAN5#68	R5-153113	0121	-	Update to Galileo Assistance Data IEs	12.2.0	12.3.0
2015-09	RAN5#68	R5-153150	0122	-	Missing RSTD information for multiple test cases	12.2.0	12.3.0
2015-09	RAN5#68	R5-153151	0123	-	Missing BDS reference in the A-GNSS Minimum Performance Testing	12.2.0	12.3.0
2015-09	RAN5#68	R5-153664	0126	-	Update of Galileo OS SIS ICD reference	12.2.0	12.3.0
2015-09	RAN5#68	R5-153791	0124	1	Corrections to BDS Clock Model and Navigation Model for SIG tests	12.2.0	12.3.0
2015-09	RAN5#68	R5-153866	0127	1	Corrections to BDS Clock Model and Navigation Model for Perf tests	12.2.0	12.3.0
2015-09	RAN#69	-	-	-	update of the "non-specific references" in section 2 according to the approved R5-153582 and an action point on ETSI MCC	12.2.0	12.3.0
2015-12	RAN#70	R5-155185	0131	-	Values for two new 3 DL CA RSTD Measurement Accuracy test cases	12.3.0	12.4.0
2015-12	RAN#70	R5-155877	0130	1	Values for two new 3 DL CA RSTD Measurement Reporting Delay test cases	12.3.0	12.4.0
2015-12	RAN#70	R5-156186	0133	2	LBS-Sig: Corrections to A-BDS navigation files	12.3.0	12.4.0
2015-12	RAN#70	R5-156187	0132	2	LBS-Perf: Corrections to A-BDS navigation files	12.3.0	12.4.0
2016-03	RAN#71	R5-160173	0136	-	LBS Perf: Correction of assistance data files for A-BDS scenario 1	12.4.0	12.5.0
2016-03	RAN#71	R5-160174	0137	-	LBS Sig: Correction of assistance data files for A-BDS	12.4.0	12.5.0
2016-03	RAN#71	R5-160899	0138	1	LBS Perf: Correction of assistance data files for A-GALILEO scenario 1	12.4.0	12.5.0
2016-03	RAN#71	R5-160973	0140	1	LBS Sig: Correction of assistance data files for A-GALILEO	12.4.0	12.5.0
2016-03	RAN#71	R5-161000	0139	1	LBS Perf: Correction of assistance data files for A-GALILEO scenario 2	12.4.0	12.5.0
2016-09	RAN#73	R5-165088	0145	-	Correction of BDS Almanac di values for geostationary satellites	12.5.0	12.6.0
2016-09	RAN#73	R5-165089	0146	-	Correction of BDS Almanac di values for geostationary satellites	12.5.0	12.6.0
2016-09	RAN#73	R5-165994	0147	1	Aligning GNSS and GPS UE reference position	12.5.0	12.6.0
2016-09	RAN#73	R5-165998	0149	1	Addition of Indoor Positioning Enhancements (MBS) (protocol)	12.6.0	13.0.0
2016-12	RAN#74	R5-168470	0150	-	Add WLAN signalling sub-test and references for Indoor Positioning	13.0.0	13.1.0
2016-12	RAN#74	R5-169095	0156	1	LBS-Sig: correction of the URA value and rinex file format for BDS	13.0.0	13.1.0
2016-12	RAN#74	R5-169096	0157	1	LBS-Sig: correction of the rinex file format for GLONASS	13.0.0	13.1.0
2016-12	RAN#74	R5-169097	0158	1	LBS-Sig: correction of the rinex file for GPS	13.0.0	13.1.0
2016-12	RAN#74	R5-169098	0159	1	LBS-Sig: correction of the rinex file for Galileo	13.0.0	13.1.0
2016-12	RAN#74	R5-169099	0160	1	LBS-Sig: correction of the QZSS scenario	13.0.0	13.1.0
2016-12	RAN#74	R5-169642	0151	1	LBS-Perf: correction of the URA value and rinex file format for BDS	13.0.0	13.1.0
2016-12	RAN#74	R5-169643	0152	1	LBS-Perf: correction of the rinex file format for GLONASS	13.0.0	13.1.0

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2016-12	RAN#74	R5-169644	0153	1	LBS-Perf: correction of the rinex file for GPS	13.0.0	13.1.0
2016-12	RAN#74	R5-169645	0154	1	LBS-Perf: correction of the rinex file for Galileo	13.0.0	13.1.0
2016-12	RAN#74	R5-169646	0155	1	LBS-Perf: correction of the QZSS scenario	13.0.0	13.1.0
2017-03	RAN#75	R5-170739	0161	-	Add Bluetooth signalling subtests and references	13.1.0	13.2.0
2017-03	RAN#75	R5-171907	0162	1	Correction OTDOA Assistance Data for 3CC test cases	13.1.0	13.2.0
2017-03	RAN#75	-	-	-	Administrative release upgrade to match the release of 3GPP TS 37.571-1 which was upgraded at RAN#74 to Rel-14 due to Rel-14 relevant CR(s)	13.2.0	14.0.0
2017-06	RAN#76	R5-172181	0165	-	Add clarification of Sub-test clause for minimum performance tests	14.0.0	14.1.0
2017-06	RAN#76	R5-172966	0164	1	Merge GNSS sub-tests into one sub-test	14.0.0	14.1.0
2017-06	RAN#76	R5-172969	0167	1	Introduction of MBS Assistance Data for Signalling and Measurement Tests	14.0.0	14.1.0
2017-06	RAN#76	R5-173415	0166	2	Add Sub-tests for A-GPS, A-GLONASS and A-BDS for GNSS	14.0.0	14.1.0
2017-09	RAN#77	R5-174586	0171	1	Correction of the Fit Validity Interval and SV32 health for GPS RNX files - Signalling	14.1.0	14.2.0
2017-09	RAN#77	R5-175121	0170	1	Correction of the Fit Validity Interval and SV32 health for GPS RNX files - Performance	14.1.0	14.2.0
2017-12	RAN#78	-	-	-	Administrative release upgrade to match the release of 3GPP TS 37.571-1 which was upgraded at RAN#78 to Rel-15 due to Rel-15 relevant CR(s)	14.2.0	15.0.0
2018-03	RAN#79	R5-180315	0174	-	Assistance Data for OTDOA Cat1bis	15.0.0	15.1.0
2018-03	RAN#79	R5-180316	0175	-	Assistance Data for OTDOA NB-IOT	15.0.0	15.1.0
2018-03	RAN#79	R5-181346	0176	1	Added MBS, WLAN, and Bluetooth assistance data	15.0.0	15.1.0
2018-06	RAN#80	R5-182230	0177	-	Assistance data updates for OTDOA NB-IOT	15.1.0	15.2.0
2018-09	RAN#81	R5-184029	0180	-	Addition of missing assistance data for the Galileo E5A signal for LTE minimum performance sub-tests 3 and 8	15.2.0	15.3.0
2018-09	RAN#81	R5-184030	0181	-	Addition of missing assistance data for modernized GPS and the GPS L5 signal for the LTE signalling tests	15.2.0	15.3.0
2018-09	RAN#81	R5-184036	0182	-	Addition of missing assistance data for the Galileo E5A signal for LTE signalling tests	15.2.0	15.3.0
2018-09	RAN#81	R5-184191	0185	-	Editorial - Updates, corrections and clarifications to specification	15.2.0	15.3.0
2018-09	RAN#81	R5-185420	0184	1	Addition of Assistance Data for OTDOA eMTC tests	15.2.0	15.3.0
2018-09	RAN#81	R5-185421	0179	1	Addition of missing assistance data for modernized GPS and the GPS L5 signal for LTE minimum performance sub-test 4	15.2.0	15.3.0
2018-12	RAN#82	R5-186624	0186	-	Correction of implementation errors from R5-184028	15.3.0	15.4.0
2018-12	RAN#82	R5-186625	0187	-	Correction of GNSS-IonosphericModel sub-tests list	15.3.0	15.4.0
2018-12	RAN#82	R5-186626	0188	-	Clarification of notes for Galileo signal information	15.3.0	15.4.0
2018-12	RAN#82	R5-186627	0189	-	Clarification of use of Modernized GPS for Minimum Performance test cases	15.3.0	15.4.0
2018-12	RAN#82	R5-186628	0190	-	Clarification of use of Assistance Data for Galileo and Modernized GPS signalling test cases	15.3.0	15.4.0
2018-12	RAN#82	R5-186629	0191	-	Addition of information for two missing Minimum Performance triple-GNSS test cases	15.3.0	15.4.0
2018-12	RAN#82	R5-186630	0192	-	Addition of NR signalling background information	15.3.0	15.4.0
2018-12	RAN#82	R5-187183	0193	-	Correction to number of almanac elements for Galileo	15.3.0	15.4.0
2018-12	RAN#82	R5-187468	0194	-	Editorial Changes for TS 37.571-5	15.3.0	15.4.0
2019-03	RAN#83	R5-191127	0195	-	Addition of general NR information for minimum performance	15.4.0	15.5.0
2019-03	RAN#83	-	-	-	Administrative release upgrade to match the release of TS 37.571-1 which was upgraded at RAN#83 to Rel-16 due to a Rel-16 relevant CR	15.5.0	16.0.0
2019-06	RAN#84	R5-195011	0198	-	Addition of information for A-GNSS Minimum Performance tests for NR	16.0.0	16.1.0
2019-06	RAN#84	R5-195087	0197	1	Add SVIDs for subtests 12 and 13	16.0.0	16.1.0
2019-12	RAN#86	R5-198969	0200	1	Addition GNSS scenarios for Aerial testing	16.1.0	16.2.0
2020-03	RAN#87	R5-201015	0201	1	Editorial changes to TS 37.571-X titles to remove references to individual RATs	16.2.0	16.3.0
2021-03	RAN#90	R5-211340	0205	1	Addition of support for BDS B1C signal	16.3.0	16.4.0
2021-03	RAN#90	R5-211516	0203	1	Corrections for support of multiple GPS signals	16.3.0	16.4.0
2021-03	RAN#90	R5-211812	0206	1	Addition of support for BDS B1C signal	16.3.0	16.4.0
2021-03	RAN#90	R5-211848	0204	1	Corrections for support of multiple signals in a GNSS	16.3.0	16.4.0
2021-06	RAN#92	R5-213141	0207	-	Add assistance data for OTDOA feMTC	16.4.0	16.5.0
2021-09	RAN#93	R5-215711	0209	1	Introduction of updated GNSS scenarios	16.5.0	16.6.0
2021-09	RAN#93	R5-216006	0208	1	Introduction of updated GNSS scenarios	16.5.0	16.6.0

Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2021-12	RAN#94	R5-217135	0212	-	Update GNSS scenarios for multi-GNSS	16.6.0	16.7.0
2021-12	RAN#94	R5-217257	0214	-	Include satellite SVIDs for 2012 GNSS scenario	16.6.0	16.7.0
2021-12	RAN#94	R5-218291	0213	1	Add assistance data for OTDOA feMTC	16.6.0	16.7.0
2022-06	RAN#96	R5-222521	0215	-	Addition of QZSS to the updated GNSS scenarios	16.7.0	16.8.0
2022-09	RAN#97	R5-225742	0216	1	Assistance data for TC 14.2.1 and 14.3.1	16.8.0	16.9.0
2022-09	RAN#97	R5-225838	0217	1	Corrections to the GNSS scenarios	16.8.0	16.9.0
2022-12	RAN#98	R5-227880	0218	1	Assistance data for 14.2.2	16.9.0	16.10.0
2023-03	RAN#99	-	-	-	Administrative release upgrade to match the release of TS 37.571-1 which was upgraded at RAN#99 to Rel-17 due to a Rel-16 relevant CR	16.10.0	17.0.0
2023-06	RAN#100	R5-232437	0221	-	Corrections to A-GPS + A-GLO test scenario	17.0.0	17.1.0
2023-06	RAN#100	R5-233682	0222	1	Addition A-GNSS mininimum performance test scenarios for RNSS	17.0.0	17.1.0
2023-09	RAN#101	R5-234190	0223	-	Missing changes for GNSS Scenario 2 for performance tests	17.1.0	17.2.0
2023-09	RAN#101	R5-234222	0224	-	Introduction of R16 NR Positioning Support default test conditions in TS 37.571-5	17.1.0	17.2.0
2023-09	RAN#101	R5-235934	0225	1	Correction to Beidou satellite simulation for subtests 9, 10, 11 and 13 of TS 37.571-1, section 7 and 13.	17.1.0	17.2.0
2023-12	RAN#102	R5-237783	0226	1	GNSS Scenario 1 - BDS satellites alignment in table 6.2.1.2.1-6	17.2.0	17.3.0
2024-03	RAN#103	R5-240554	0230	-	Removal of deprecated signalling GNSS scenarios	17.3.0	17.4.0
2024-03	RAN#103	R5-241577	0227	1	Introduction of BDS B2a and B3I signal default test conditions in TS 37.571-5	17.3.0	17.4.0
2024-03	RAN#103	R5-241916	0228	1	Introduction of BDS B2a and B3I performance default test conditions in TS 37.571-5	17.3.0	17.4.0
2024-03	RAN#103	R5-241917	0229	1	Corrected CellIdentity for DL-TDOA measurement period test	17.3.0	17.4.0
2024-06	RAN#104	R5-242484	0231	-	Change the GNSS-AcquisitionAssistance IE description for BDS signals	17.4.0	17.5.0
2024-09	RAN#105	R5-245610	0232	1	Change the GNSS-AcquisitionAssistance IE description for BDS signals	17.5.0	17.6.0
2024-09	RAN#105	R5-245981	0233	1	Corrections to BDS SV IDs	17.5.0	17.6.0
2024-12	RAN#106	R5-247329	0236	-	Corrections to BDS SV IDs for Signalling scenarios	17.6.0	17.7.0
2024-12	RAN#106	-	-	-	Administrative release upgrade to match the release of TS 37.571-2 which was upgraded at RAN#106 to Rel-18 due to Rel-18 relevant CRs	17.7.0	18.0.0
2025-09	RAN#109	R5-255013	0237	1	Addition of sidelink positioning related information and assistance data	18.0.0	18.1.0
2025-12	RAN#110	R5-255699	0238	-	Addition general description of SLPP positioning methods scenario data	18.1.0	18.2.0
2025-12	RAN#110	R5-255716	0239	-	Correction of DL-TDOA Assistance data	18.1.0	18.2.0

History

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V18.0.0	February 2025	Publication
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