3GPP TS 37.571-5 V16.9.0 (2022-09)

Technical Specification

3rd Generation Partnership Project;

Technical Specification Group Radio Access Network;

User Equipment (UE) conformance specification for UE positioning;

Part 5: Test scenarios and assistance data

(Release 16)



The present document has been developed within the 3rd Generation Partnership Project (3GPP TM) and may be further elaborated for the purposes of 3GPP.   
The present document has not been subject to any approval process by the 3GPPOrganizational Partners and shall not be implemented.   
This Specification is provided for future development work within 3GPPonly. The Organizational Partners accept no liability for any use of this Specification.  
Specifications and reports for implementation of the 3GPP TM system should be obtained via the 3GPP Organizational Partners' Publications Offices.

Keywords

UMTS, radio

***3GPP***

Postal address

3GPP support office address

650 Route des Lucioles - Sophia Antipolis

Valbonne - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet

http://www.3gpp.org

***Copyright Notification***

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

All rights reserved.

UMTS™ is a Trade Mark of ETSI registered for the benefit of its members

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners  
LTE™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners

GSM® and the GSM logo are registered and owned by the GSM Association

Contents

Foreword 6

Introduction 6

1 Scope 7

2 References 7

3 Definitions, symbols and abbreviations 8

3.1 Definitions 8

3.2 Symbols 8

3.3 Abbreviations 9

4 General 10

4.1 GPS and GNSS orbital model information, assistance data and assistance data files 10

4.2 OTDOA assistance data 10

4.3 MBS scenario and assistance data 10

4.4 WLAN scenario and assistance data 11

4.5 Bluetooth scenario data 11

5 GPS information 11

5.1 GPS Scenario and Assistance data for Assisted GPS signalling tests 11

5.1.1 General 11

5.1.2 GPS Scenario 11

5.1.3 Assistance Data 11

5.1.3.1 Assistance Data Reference Time 12

5.1.3.2 Assistance Data Reference UE Position 12

5.1.3.3 Assistance Data Navigation Model 12

5.1.3.4 Assistance Data Ionospheric Model 13

5.1.3.5 Assistance Data Almanac 14

5.1.3.6 Assistance Data Acquisition Assistance 14

5.2 GPS Scenarios and Assistance Data for Assisted GPS Minimum Performance tests 15

5.2.1 General 15

5.2.1.1 Satellite constellations and assistance data for A-GPS minimum performance testing 15

5.2.1.2 GPS Scenarios for A-GPS minimum performance testing 16

5.2.1.2.1 GPS Scenario #1 16

5.2.1.2.2 GPS Scenario #2 16

5.2.1.2.3 GPS Scenario #3 16

5.2.1.2.4 UE Location for TTFF test cases 17

5.2.1.2.4.1 UE Location Offset 17

5.2.1.2.4.2 UE Altitude 17

5.2.1.2.5 Satellites to be simulated in each test case 17

5.2.2 Information elements required for normal UE based testing 18

5.2.3 Information elements required for UE based Sensitivity Fine Time Assistance test case 19

5.2.4 Information elements available for normal UE assisted testing 19

5.2.5 Information elements available for UE assisted Sensitivity Fine Time Assistance test case 20

5.2.6 Contents of Information elements for A-GPS Minimum performance testing 21

5.2.6.1 General 21

5.2.6.2 IE Random Offset Values 21

5.2.6.2.1 GPS TOW msec 22

5.2.6.2.2 UTRAN GPS timing of cell frames 22

5.2.6.3 Assistance Data Reference Time 22

5.2.6.4 Assistance Data Reference UE Position 24

5.2.6.5 Assistance Data Navigation Model 24

5.2.6.6 Assistance Data Ionospheric Model 25

5.2.6.7 Assistance Data Almanac 26

5.2.6.8 Assistance Data Acquisition Assistance 26

6 GNSS information 28

6.1 GNSS Scenarios and Assistance Data for Assisted GNSS signalling tests 28

6.1.1 General 28

6.1.2 GNSS Scenario 29

6.1.3 Assistance Data 32

6.1.3.1 Default Assistance Data for TS 37.571-2 subclauses 6.2.1 to 6.2.3 32

6.1.3.2 Assistance Data values for TS 37.571-2 subclauses 6.2.1 to 6.2.3 32

6.1.3.3 Default Assistance Data for TS 37.571-2 subclauses 7 and 9 42

6.1.3.4 Assistance Data values for TS 37.571-2 subclauses 7 and 9 42

6.2 GNSS Scenarios and Assistance Data for Assisted GNSS Minimum Performance tests 52

6.2.1 General 52

6.2.1.1 Satellite constellations and assistance data for A-GNSS minimum performance testing 53

6.2.1.2 GNSS Scenarios for A-GNSS minimum performance testing 53

6.2.1.2.1 GNSS Scenario #1 54

6.2.1.2.2 GNSS Scenario #2 56

6.2.1.2.3 GNSS Scenario #3 59

6.2.1.2.3.1 GNSS Scenario #3A 59

6.2.1.2.3.2 GNSS Scenario #3B 60

6.2.1.2.3.3 QZSS Scenario #1 60

6.2.1.2.3.4 WAAS Scenario 60

6.2.1.2.3.5 EGNOS Scenario 60

6.2.1.2.3.6 MSAS Scenario 60

6.2.1.2.3.7 GAGAN Scenario 60

6.2.1.2.4 GNSS Scenario #4 60

6.2.1.2.4.1 GNSS Scenario #4A 61

6.2.1.2.4.2 GNSS Scenario #4B 61

6.2.1.2.4.3 GNSS Scenario #4C 61

6.2.1.2.4.4 GNSS Scenario #4D 61

6.2.1.2.4.5 QZSS Scenario #2 61

6.2.1.2.4.6 WAAS Scenario 61

6.2.1.2.4.7 EGNOS Scenario 61

6.2.1.2.4.8 MSAS Scenario 61

6.2.1.2.4.9 GAGAN Scenario 62

6.2.1.2.5 GNSS Scenario #5 62

6.2.1.2.6 UE Location for TTFF test cases 62

6.2.1.2.6.1 UE Location Offset 63

6.2.1.2.6.2 UE Altitude 63

6.2.2 Information elements required for normal UE based testing for TS 37.571-1 subclause 6 63

6.2.3 Information elements required for UE based Sensitivity Fine Time Assistance test case for TS 37.571-1 subclause 6 65

6.2.4 Information elements available for normal UE assisted testing for TS 37.571-1 subclause 6 66

6.2.5 Information elements available for UE assisted Sensitivity Fine Time Assistance test case for TS 37.571-1 subclause 6 68

6.2.6 Information elements available for A-GNSS test cases in TS 37.571-1 subclauses 7 and 13 69

6.2.7 Contents of Information elements for A-GNSS Minimum performance testing 73

6.2.7.1 General 73

6.2.7.2 IE Random Offset Values 73

6.2.7.2.1 GNSS TOW 74

6.2.7.2.2 GNSS/cellular time offset 74

6.2.7.3 Contents of Information elements for A-GNSS Minimum performance testing in TS 37.571-1 subclause 6 75

FFS 86

6.2.7.4 Contents of Information elements for A-GNSS Minimum performance testing in TS 37.571-1 subclauses 7 and 13 91

7 OTDOA 117

7.1 OTDOA Assistance data for OTDOA signalling tests 117

7.1.1 General 117

7.2 OTDOA Assistance data for OTDOA measurement tests 117

7.2.1 General 117

7.2.2 OTDOA Assistance Data 117

7.3 OTDOA Assistance data for OTDOA measurement tests for Carrier Aggregation 126

7.3.1 General 126

7.3.2 OTDOA Assistance Data 126

7.4 OTDOA Assistance data for NB-IOT OTDOA measurement tests 146

7.4.1 General 146

7.4.2 OTDOA Assistance Data 146

7.5 OTDOA Assistance data for eMTC OTDOA measurement tests 153

7.5.1 General 153

7.5.2 OTDOA Assistance Data 154

8 MBS information 170

8.1 Scenario for MBS signalling tests 170

8.1.1 Introduction 170

8.1.2 MBS Signalling Scenario 171

8.2 Scenario for MBS performance tests 172

8.3 MBS Assistance Data (Release 14 onwards) 172

8.3.1 Introduction 172

8.3.2 MBS Almanac Assistance Data for signalling tests 172

8.3.3 MBS Acquisition Assistance Data for signalling and measurement tests 172

9 WLAN information 173

9.1 WLAN Scenario for WLAN signalling tests 173

9.1.1 WLAN Signalling Scenario 173

9.2 Scenario for WLAN performance tests 173

9.3 WLAN Assistance Data (Release 14 onwards) 173

9.3.1 Introduction 173

9.3.2 WLAN data set 174

10 Bluetooth information 174

10.1 Bluetooth Scenario for Bluetooth signalling tests 174

10.1.1 Bluetooth Signalling Scenario 175

Annex A (normative): GPS data files 175

A.1 GPS data files for signalling tests 175

A.2 GPS data files for Minimum Performance tests 175

Annex B (normative): GNSS data files 176

B.1 GNSS data files for signalling tests 176

B.2 GNSS data files for Minimum Performance tests 176

B.3 GNSS data files for aerial tests 176

Annex C (informative): Change history 177

# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

# 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) and Bluetooth.

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

# 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.

# 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.

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

DUT Device Under Test

ECEF Earth Centred, Earth Fixed

ENB Evolved Node B

EN-DC E-UTRA-NR Dual Connectivity

E-UTRA Evolved UMTS Terrestrial Radio Access

E-UTRAN Evolved UMTS Terrestrial Radio Access Network

FDD Frequency Division Duplex

FFS For further study

GANSS Galileo and Additional Navigation Satellite Systems

GEO Geostationary Earth Orbit

GLONASS GLObal'naya NAvigatsionnaya Sputnikovaya Sistema (English: Global Navigation Satellite System)

GNSS Global Navigation Satellite System

GPS Global Positioning System

GSS GNSS System Simulator

HDOP Horizontal Dilution Of Precision

ICD Interface Control Document

ICS Implementation Conformance Statement

IS Interface Specification

LOS Line Of Sight

LPP LTE Positioning Protocol

MBS Metropolitan Beacon System

NE-DC NR-E-UTRA Dual Connectivity

NGEN-DC NG-RAN E-UTRA-NR Dual Connectivity

NG-RAN NextGen Radio Access Network

NR New Radio

NR-DC NR-NR Dual Connectivity

PPM Parts per million

PRS Positioning Reference Signal

QZSS Quasi-Zenith Satellite System

RRC Radio Resource Control

SBAS Space Based Augmentation System

SCC Secondary Component Carrier

SFN System Frame Number

SS System simulator

SV Space Vehicle

SV ID Space Vehicle Identification

TDD Time Division Duplex

TOD Time Of Day

TOW Time of Week 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].

# 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 |
| 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 |
| TGD | sec | See file: Navigation model.csv |
| toc | sec | See file: Navigation model.csv |
| af2 | sec/sec2 | See file: Navigation model.csv |
| af1 | sec/sec | See file: Navigation model.csv |
| af0 | sec | See file: Navigation model.csv |
| Crs | meters | See file: Navigation model.csv |
| Δn | semi-circles/sec | See file: Navigation model.csv |
| M0 | semi-circles | See file: Navigation model.csv |
| Cuc | radians | See file: Navigation model.csv |
| E | - | See file: Navigation model.csv |
| Cus | radians | See file: Navigation model.csv |
| (A)1/2 | meters1/2 | See file: Navigation model.csv |
| toe | sec | See file: Navigation model.csv |
| Fit Interval Flag |  | See file: Navigation model.csv |
| AODO | sec | See file: Navigation model.csv |
| Cic | radians | See file: Navigation model.csv |
| OMEGA0 | semi-circles | See file: Navigation model.csv |
| Cis | radians | See file: Navigation model.csv |
| i0 | semi-circles | See file: Navigation model.csv |
| Crc | 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 |
| α0 | seconds | 4.6566129 10E-9 |
| α1 | sec/semi-circle | 1.4901161 10E-8 |
| α2 | sec/(semi-circle)2 | -5.96046 10E-8 |
| α3 | sec/(semi-circle)3 | -5.96046 10E-8 |
| β0 | seconds | 79872 |
| β1 | sec/semi-circle | 65536 |
| β2 | sec/(semi-circle)2 | -65536 |
| β3 | sec/(semi-circle)3 | -393216 |

#### 5.1.3.5 Assistance Data Almanac

Almanac (Fields occurring once per message)

|  |  |  |  |
| --- | --- | --- | --- |
| Information Element | Units | Value/remark | Release |
| WNa | 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 |
| toa | 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 |
| A1/2 | meters1/2 | See file: Almanac.csv |
| OMEGA0 | semi-circles | See file: Almanac.csv |
| M0 | semi-circles | See file: Almanac.csv |
| ω | semi-circles | See file: Almanac.csv |
| af0 | seconds | See file: Almanac.csv |
| af1 | 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 (0th order term) | Hz | Time varying. See file: Acquisition assist .csv (Note) |  |
| Doppler (1storder 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 l11 and l12 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 (0th order term) |  |
|  | Extra Doppler |  |
|  | Doppler (1st 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 (0th order term) |  |
|  | Extra Doppler |  |
|  | Doppler (1st 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 |
| TGD | sec | See file: Navigation model XX.csv |
| toc | sec | See file: Navigation model XX.csv |
| af2 | sec/sec2 | See file: Navigation model XX.csv |
| af1 | sec/sec | See file: Navigation model XX.csv |
| af0 | sec | See file: Navigation model XX.csv |
| Crs | meters | See file: Navigation model XX.csv |
| Δn | semi-circles/sec | See file: Navigation model XX.csv |
| M0 | semi-circles | See file: Navigation model XX.csv |
| Cuc | radians | See file: Navigation model XX.csv |
| e | - | See file: Navigation model XX.csv |
| Cus | radians | See file: Navigation model XX.csv |
| (A)1/2 | meters1/2 | See file: Navigation model XX.csv |
| toe | sec | See file: Navigation model XX.csv |
| Fit Interval Flag |  | See file: Navigation model XX.csv |
| AODO | sec | See file: Navigation model XX.csv |
| Cic | radians | See file: Navigation model XX.csv |
| OMEGA0 | semi-circles | See file: Navigation model XX.csv |
| Cis | radians | See file: Navigation model XX.csv |
| i0 | semi-circles | See file: Navigation model XX.csv |
| Crc | 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 |
| α0 | seconds | 4.6566129 10E-9 |
| α1 | sec/semi-circle | 1.4901161 10E-8 |
| α2 | sec/(semi-circle)2 | -5.96046 10E-8 |
| α3 | sec/(semi-circle)3 | -5.96046 10E-8 |
| β0 | seconds | 79872 |
| β1 | sec/semi-circle | 65536 |
| β2 | sec/(semi-circle)2 | -65536 |
| β3 | 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 |
| WNa | 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 |
| toa | 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 |
| A1/2 | meters1/2 | See file: Almanac XX.csv |
| OMEGA0 | semi-circles | See file: Almanac XX.csv |
| M0 | semi-circles | See file: Almanac XX.csv |
| ω | semi-circles | See file: Almanac XX.csv |
| af0 | seconds | See file: Almanac XX.csv |
| af1 | 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) |
| 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: GNSS Scenarios to be used

|  |  |
| --- | --- |
| Scenarios | Condition |
| GNSS scenarios from 2020 with the navigation data files defined in Table 6.1.2-1 and Table 6.1.2-2 and the SV IDs defined in Tables 6.1.2-2A to 6.1.2-4 | px\_GnssScenario2012 = FALSE |
| GNSS scenarios from 2012 with the navigation data files defined in Table 6.1.2-5 and Table 6.1.2-6 and the SV IDs defined in Table 6.1.2-7 and Table 6.1.2-8 | px\_GnssScenario2012 = TRUE |
| Note: the GNSS scenarios from 2012 may be used until September 2023. | |

If px\_GnssScenario2012 = FALSE, 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 2020\_9\_17 Rinex.txt |
| 10 | Sig GNSS GPS 2020\_9\_17 Rinex.txt and Sig GNSS BDS 2020\_9\_17 Rinex.txt |

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 | 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 2020\_9\_17 Rinex.txt |
| Note 1: Where the UE supports more than one GNSS then all the relevant Rinex navigation data files are 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 | 38, 40, 42, 43, 59, 60 |

- 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 |
| IGSO | 38, 40 |
| MEO | 42, 43 |

- 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) (Note) |
| 4 | GPS: 3, 4, 6, 28. GLONASS: 5, 16, 18, 19. |
| 8 | GPS: 3, 4, 6, 28. Galileo: 3, 5, 13, 21. |
| 9 | 38, 40, 42, 43, 59, 60 (BDS) |
| 10 | GPS: 3, 4, 6, 28. BDS: 38, 40, 59, 60. |
| Note: For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. | |

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

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

If px\_GnssScenario2012 = TRUE, the following GNSS scenario shall be used. The assistance data specified in the following subclauses is consistent with this GNSS scenario:

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

Table 6.1.2-5: Yuma / AGL Almanac data files for TS 37.571-2 subclauses 6.2.1 to 6.2.3

|  |  |
| --- | --- |
| Sub-Test Case Number | Yuma / AGL file(s) |
| 1 | Sig GNSS 1-1 AGL.txt |
| 2 | Sig GNSS 1-2 Yuma.txt |
| 3 | Sig GNSS 1-3 Yuma.txt |
| 4 | Sig GNSS 1-3 Yuma.txt and Sig GNSS 1-1 AGL.txt |
| 8 | Sig GNSS 1-3 Yuma.txt and Sig GNSS 1-2 Yuma.txt |
| 9 | Sig GNSS 1-9 Yuma.txt |
| 10 | Sig GNSS 1-3 Yuma.txt and Sig GNSS 1-9 Yuma.txt |

Table 6.1.2-6: Yuma / AGL Almanac data files for TS 37.571-2 subclauses 7 and 9

|  |  |  |
| --- | --- | --- |
| Sub-Test Case Number | GNSS supported by the UE | Yuma / AGL file(s) (1) |
| 7 | [FFS] | [FFS] |
| 15 | GPS | Sig GNSS 1-3 Yuma.txt |
| GLONASS | Sig GNSS 1-1 AGL.txt |
| Galileo | Sig GNSS 1-2 Yuma.txt |
| BDS | Sig GNSS 1-9 Yuma.txt |
| Note 1: Where the UE supports more than one GNSS then all the relevant Yuma / AGL data files are 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 2012), height: = 300m.

- Nominal start time:

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

- Visible satellites simulated are given below

Table 6.1.2-7: Satellites to be simulated for TS 37.571-2 subclauses 6.2.1 to 6.2.3

|  |  |
| --- | --- |
| Sub-Test Case Number | SV IDs of Satellites to be simulated |
| 1 | 3, 4, 9, 10, 18, 20 |
| 2 | 5, 10, 11, 18, 19, 20 |
| 3 | 1, 11, 17, 20, 23, 28 (Note) |
| 4 | GPS: 1, 17, 20, 28. GLONASS: 3, 10, 18, 20 |
| 8 | GPS: 1, 17, 20, 28. Galileo: 5, 10, 11, 18. |
| 9 | 1, 2, 7, 18, 21, 27 |
| 10 | GPS: 1, 17, 20, 28. BDS: 1, 7, 18, 21. |
| Note: For this sub-test the satellite simulator shall generate all the GPS signals supported by the UE for all the simulated satellites. | |

Table 6.1.2-8: 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 (Note) | GPS | 1, 11, 17, 20, 23, 28 |
| GLONASS | 3,4,9,10,18,20 |
| Galileo | 5,10,11,18,19,20 |
| BDS | 1,2,7,18,21,27 |
| Note: For this sub-test the satellite simulator shall generate all the GNSS signals supported by the UE for all the simulated satellites. | | |

- Ionospheric model: see values in subclause 6.1.3

- The levels of the simulated satellites shall all be at -125dBm +/- 6dB

### 6.1.3 Assistance Data

This subclause defines the GNSS scenarios and assistance data IEs which shall be available for use 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 |
| WNa | 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 |  |
| TA0 | 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 |  |
| TA0 | 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 |  |
| TA0 | 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 |
| Toa |  | Derived from data in clause 6.1.2 |
| IODa |  | 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 |
| Toa |  | Derived from data in clause 6.1.2 |
| IODa |  | 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 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 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 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 is also supported by the UE

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

GNSS-IonosphericModel (Klobuchar2 Model): If BDS B1C 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 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 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)

The GNSS-AcquisitionAssistance to be used shall be determined by the PICs pc\_GNSS\_AcquAssist\_BDS\_B1I and pc\_GNSS\_AcquAssist\_BDS\_B1C, in the case that both GNSS-AcquisitionAssistances are supported by the UE then the GNSS-AcquisitionAssistance (BDS B1I) shall 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 |  | FFS |
| 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

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 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 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 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 6.2.1.2-2: 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 only |
| 2 | UE supporting A-GLONASS only |
| 3 | UE supporting A-Galileo only |
| 4 | UE supporting A-GPS and Modernized GPS only |
| 5 | UE supporting A-GPS and A-GLONASS only (Note) |
| 8 | UE supporting A-GPS and A-Galileo only (Note) |
| 9 | UE supporting A-BDS only |
| 10 | UE supporting A-GPS and A-BDS only (Note) |
| 11 | UE supporting A-GPS and A-GLONASS and A-BDS only (Note) |
| 12 | UE supporting A-GPS and A-Galileo and A-GLONASS only (Note) |
| 13 | UE supporting A-GPS and A-Galileo and A-BDS only (Note) |
| 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 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 2020\_9\_17 Rinex.txt |
| 10 | Perf GNSS GPS 2020\_9\_17 Rinex.txt and Perf GNSS BDS 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 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 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, 38, 40, 42, 43, 59, 60 (BDS) |
| 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, 38, 40, 42, 43, 59, 60 (BDS) |
| 10 | GPS: 3, 4, 6, 9, 11, 17, 19, 22, 28. BDS: 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: 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: 21, 23, 28, 33, 34, 37, 38, 40, 42, 43, 59, 60. |

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: 5, 18, 19. |
| 8 | GPS: 3, 4, 28. Galileo: 3, 5, 21. |
| 9 | 28, 40, 42, 43, 59, 60 (BDS) |
| 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: 5, 18, 19. |
| 8 | GPS: 3, 4, 28. Galileo: 3, 5, 21. |
| 9 | 28, 40, 42, 43, 59, 60 (BDS) |
| 10 | GPS: 3, 4, 28. BDS: 38, 59, 60. |
| 11 | GPS: 3, 4, 28. GLONASS: 5, 18, 19. BDS: 38, 59, 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: 38, 59, 60. (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 3, GLONASS SV ID 5, BDS 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 2-1 AGL.txt |
| 2 | Perf GNSS 2-2 Yuma.txt |
| 3 | Perf GNSS GPS 2020\_9\_17 Rinex.txt |
| 4 | Perf GNSS 2-3 Yuma.txt and Perf GNSS GLONASS 2020\_9\_17 Rinex.txt |
| 8 | Perf GNSS 2-3 Yuma.txt and Perf GNSS Galileo 2020\_9\_17 Rinex.txt |
| 9 | Perf GNSS 2-9 Yuma.txt |
| 10 | Perf GNSS GPS 2020\_9\_17 Rinex.txt and Perf GNSS 2-9 Yuma.txt |

Table 6.2.1.2.2-2: Yuma / AGL Almanac data files for TS 37.571-1 subclauses 7 and 13

|  |  |
| --- | --- |
| Sub-Test Case Number | Yuma / AGL file(s) |
| 1 | Perf GNSS GPS 2020\_9\_17 Rinex.txt |
| 2 | Perf GNSS GLONASS 2020\_9\_17 Rinex.txt |
| 3 | Perf GNSS 2-2 Yuma.txt |
| 4 | Perf GNSS GPS 2020\_9\_17 Rinex.txt |
| 5 | Perf GNSS 2-3 Yuma.txt and Perf GNSS 2-1 AGL.txt |
| 8 | Perf GNSS 2-3 Yuma.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 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 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 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, 42, 43, 44, 45 (BDS) |
| 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, 42, 43, 44, 45 (BDS) |
| 10 | GPS: 1, 3, 4, 10, 11, 21, 22, 25, 31, 32. BDS: 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: 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: 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, 42, 43, 44, 45 (BDS) |
| 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, 42, 43, 44, 45 (BDS) |
| 10 | GPS: 21, 22, 32. BDS: 21, 44, 45. |
| 11 | GPS: 21, 22, 32. GLONASS: 2, 13, 18. BDS: 21, 44, 45. (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: 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 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: 2, 3, 5, 6, 9.

GPS: PRN: 2, 19, 28

Galileo: tbd

Glonass: tbd

Beidou: tbd

###### 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: 2, 3, 5, 6, 9

GPS: PRN: 2, 19, 28

Galileo: tbd

Glonass: tbd

Beidou: tbd

###### 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.

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 l11 and l12 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 |  |
| TA0 |  |
| 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 |  |
| TA0 |  |
| 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 (0th order term) |  |
| Extra Doppler |  |
| Doppler (1st 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 (0th order term) |  |
| Extra Doppler |  |
| Doppler (1st 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 (0th order term) |  |
| Extra Doppler |  |
| Doppler (1st 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.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. 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. 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 supported include BDS B1C.  Note 3: In the case of BDS, 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 | | Model-6 | |
| BDS B1C | | 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 | | Model-7 | |
| BDS B1C | | 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 | | 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

| Information Element | Units | Value/remark GNSS #1 | Value/remark GNSS #2 | Value/remark GNSS #5 |
| --- | --- | --- | --- | --- |
| GANSS Day | days | Derived from data in clause 6.2.1.25844 | Derived from data in clause 6.2.1.25996 | Derived from data in clause 6.2.1.25996 |
| GANSS Day Cycle Number (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 |
| 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 |  | 2 (GLONASS) | 2 (GLONASS) | 2 (GLONASS) |
| UTRAN GANSS reference time |  | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Absent |
| UTRAN GANSS timing of cell frames |  | Note 2 | Note 2 | - |
| CHOICE mode |  | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | Present for Sensitivity Fine Time Assistance test case. Absent otherwise | - |
| FDD: Primary CPICH Info |  | 100 | 100 | - |
| 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 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 |
| TA0 | 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 |
| TA0 | 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 |
| TA0 | 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 |
| WNa | 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 |
| 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 |

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 |
| 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 |

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 supported. See values for GNSS-IonosphericModel (Klobuchar) |
| neQuickModel |  | Not present |
| klobucharModel2 |  | If BDS B1C 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 supported. See values for GNSS-IonosphericModel (Klobuchar) |
| neQuickModel |  | See values for GNSS-IonosphericModel (NeQuick) |
| klobucharModel2 |  | If BDS B1C 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)

GNSS-NavigationModel (BDS B1C)

GNSS-NavigationModel (BDS B1I)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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)

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)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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)

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) and/or GNSS-NavigationModel (BDS B1C) 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) and/or GNSS-NavigationModel (BDS B1C) 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) and/or GNSS-NavigationModel (BDS B1C) 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)

GNSS-AcquisitionAssistance (BDS B1C)

GNSS-AcquisitionAssistElement (BDS B1I)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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)

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)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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)

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) and/or GNSS-AcquisitionAssistance (BDS B1C) 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) and/or GNSS-AcquisitionAssistance (BDS B1C) 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) and/or GNSS-AcquisitionAssistance (BDS B1C) 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)

GNSS-Almanac (BDS B1C Reduced)

GNSS-Almanac (BDS B1C Midi)

GNSS-Almanac (BDS B1I)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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)

FFS

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

GNSS-Almanac (BDS B1C 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 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 Reduced)

FFS

GNSS-Almanac (BDS B1C 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 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 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) and/or GNSS-Almanac (BDS B1C Reduced) and/or GNSS-Almanac (BDS B1C 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) and/or GNSS-Almanac (BDS B1C Reduced) and/or GNSS-Almanac (BDS B1C 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) and/or GNSS-Almanac (BDS B1C Reduced) and/or GNSS-Almanac (BDS B1C 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 is supported by the UE.

GNSS-AuxiliaryInformation (BDS B1C)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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 2 if UE supports multiple GPS signals and BDS B1C |
| 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 |
| GNSS-AuxiliaryInformation |  | See GNSS-AuxiliaryInformation (BDS B1C) |

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 3 if UE supports multiple GPS signals and BDS B1C |
| 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 |
| GNSS-AuxiliaryInformation |  | See GNSS-AuxiliaryInformation (BDS B1C) |

# 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 s |

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 physCellId | 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 expectedRSTD | 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 s |

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 s |

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 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’ | ‘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 s |

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 expectedRSTD | 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 s |
| 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 s |

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 s |

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 s |

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 s |
| 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 s |
| 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 s |

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 | ‘0000000011111111’ | 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 | ‘0000000011111111’ | 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 s |
| 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 s |
| 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 s |

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 s |

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 s |

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 s |

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 s |

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 s |

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 s |

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 ms |

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 ms |

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 and Sub-Test Case Number 16 for Rel-14 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) |
| 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: -122.40337 13º, 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 11.1.2-3: Sequence data values for 15 instances of sequence for test case 14.2.1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Cell | Value physCellId | Value cellidentity (E-UTRAN Cell Identity) | | Value PRS muting info | Value PRS RE offset | Value expectedRSTD | Comment |
| Value eNB ID | Value Cell Identity |
| Dummy cell | 1 | '0000 0000 0000 0000 0001'B | '0000 0001'B | ‘01’ | 0 | 0 |  |
| Dummy cell | 2 | '0000 0000 0000 0000 0001'B | '0000 0010'B | ‘10’ | 1 | 23 |  |
| Dummy cell | 7 | '0000 0000 0000 0000 0010'B | '0000 0011'B | ‘01’ | 0 | 46 |  |
| Dummy cell | 8 | '0000 0000 0000 0000 0010'B | '0000 1000'B | ‘10’ | 1 | 0 |  |
| Dummy cell | 10 | '0000 0000 0000 0000 0101'B | '0000 1010'B | ‘01’ | 0 | 23 |  |
| Dummy cell | 11 | '0000 0000 0000 0000 0110'B | '0000 1011'B | ‘10’ | 1 | 15 |  |
| Dummy cell | 16 | '0000 0000 0000 0000 0010'B | '0001 0000'B | ‘01’ | 0 | 0 |  |
| Dummy cell | 111 | '0000 0000 0000 0000 1100'B | '0110 1111'B | ‘10’ | 1 | 23 |  |
| Dummy cell | 118 | '0000 0000 0000 0000 1111'B | ‘0111 0110’B | ‘01’ | 0 | 0 |  |
| Dummy cell | 119 | '0000 0000 0000 0000 1110'B | ‘0111 0111’B | ‘10’ | 1 | 46 |  |
| Dummy cell | 120 | '0000 0000 0000 0000 1111'B | ‘0111 1000’B | ‘01’ | 0 | 0 |  |
| Dummy cell | 122 | '0000 0000 0000 0000 1010'B | ‘0111 1010’B | ‘10’ | 1 | 23 |  |
| Dummy cell | 125 | '0000 0000 0000 0000 1011'B | ‘0111 1101’B | ‘01’ | 0 | 23 |  |

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 archives GNSS\_Orbital\_Data\_Sig\_V1.zip and GNSS\_Data\_Sig\_V17.zip which accompanies the present document.

GNSS\_Orbital\_Data\_Sig\_V1.zip includes the orbital data for the scenarios defined in Tables 6.1.2-1 and 6.1.2-2, while GNSS\_Data\_Sig\_V17.zip includes the orbital data for the scenarios defined in Tables 6.1.2-5 and 6.1.2-6.

## 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\_V1.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#56bis | 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 |
| 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 |
| 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 |
| 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 |
| 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 |