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TECHNICAL SPECIFICATION

Universal Mobile Telecommunications System (UMTS); LTE; User Equipment (UE) conformance specification for UE positioning; Part 4: Test suites (3GPP TS 37.571-4 version 14.5.0 Release 14)

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Contents

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:

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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 4 of a multi-part conformance test specification. The specification contains a TTCN design frame work and the detailed test specifications in TTCN for the UE:

- A-GPS at the UTRA Uu interface in TTCN-2;

- A-GNSS at the UTRA Uu interface in TTCN-3;

- LTE positioning at the LTE-Uu interface in TTCN-3.

The present document is part 4 of a multi-parts TS:

- 3GPP TS 37.571-1: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 1: Terminal conformance.

- 3GPP TS 37.571-2: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 2: Protocol conformance.

- 3GPP TS 37.571-3: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 3: Implementation Conformance Statement (ICS).

- **3GPP TS 37.571-4: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 4: Test suites.**

- 3GPP TS 37.571-5: Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 5: Test scenarios and assistance data.

1 Scope

The present document specifies the protocol and signalling conformance testing in TTCN for the UE:

- A-GPS at the UTRA Uu interface;

- LTE positioning at the LTE-Uu interface;

- A-GNSS at the UTRA Uu interface.

The following TTCN test specification and design considerations can be found in the present document:

- Test system architecture;

- Test models and ASP definitions;

- Test methods and usage of communication ports definitions;

- Test configurations;

- Design principles and assumptions;

- TTCN styles and conventions;

- Partial PIXIT proforma;

- Test suites in TTCN-2 and TTCN-3;

- The Test Suites designed and implemented in the present document are based on the test specifications in prose in 3GPP TS 37.571-2 [3];

- The applicability of the individual test cases is specified in the test ICS proforma specification in 3GPP TS 37.571-3 [4].

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] to [23] (void)

[24] 3GPP TS 37.571-4 Release 15: "Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification for UE positioning; Part 4: Test suites"

3 Definitions, symbols and abbreviations

Void

4 A-GPS system architecture and test model

The requirements of the present document are provided in 3GPP TS 37.571-4 Release 15 [24].

5 to 9 Void

Annex A to D: Void

Annex E (informative):
Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2011-06	RAN5#51	R5-112203	-	-	Initial proposal for A-GNSS		0.0.1
2011-09	RAN5#52	R5-113037	-	-	Introduced positioning test model	0.0.1	0.1.0
2011-11	RAN5#53	R5-115106	-	-	Imported A-GPS test model from 3GPP TS 34.123-3	0.1.0	1.0.0
2011-12	RAN#54	RP-111627	-	-	Presentation of V1.0.0	0.1.0	1.0.0
2012-05	RAN5#55	R5-121083	-	-	Presentation of V1.1.0	1.0.0	1.1.0
2012-06	RAN#56	RP-120614	-	-	Presentation of V2.0.0	1.0.0	2.0.0
2012-06	RAN#56		-	-	Editorial corrections and formattings.	2.0.0	9.0.0
2012-06	RAN#56		-	-	Raised to v10.0.0 with no change.	9.0.0	10.0.0
2012-09	RAN#57	R5-123690	0001	-	37571-4: Routine maintenance and updates	10.0.0	10.1.0
2013-06	RAN#60	R5-131136	0003	-	37571-4: Routine maintenance and updates	10.1.0	10.2.0
2013-06	RAN#60	R5s130125	0004	-	Addition of EUTRA UE Positioning test case 7.1.1	10.1.0	10.2.0
2013-06	RAN#60	R5s130145	0005	-	Addition of EUTRA UE Positioning test case 7.3.1.1	10.1.0	10.2.0
2013-06	RAN#60	R5s130147	0006	-	Addition of EUTRA UE Positioning test case 7.3.2.1	10.1.0	10.2.0
2013-06	RAN#60	R5s130149	0007	-	Addition of EUTRA UE Positioning test case 7.3.2.2	10.1.0	10.2.0
2013-06	RAN#60	R5s130151	0008	-	Addition of EUTRA UE Positioning test case 7.3.2.3	10.1.0	10.2.0
2013-06	RAN#60	R5s130153	0009	-	Addition of EUTRA UE Positioning test case 7.3.5.1_6s	10.1.0	10.2.0
2013-06	RAN#60	R5s130155	0010	-	Addition of EUTRA UE Positioning test case 7.3.5.1_5s	10.1.0	10.2.0
2013-06	RAN#60	R5s130157	0011	-	Addition of EUTRA UE Positioning test case 7.3.4.2_5s	10.1.0	10.2.0
2013-06	RAN#60	R5s130159	0012	-	Addition of EUTRA UE Positioning test case 7.3.4.2_6s	10.1.0	10.2.0
2013-06	RAN#60	R5s130288	0013	-	Addition of EUTRA UE Positioning test case 7.3.4.4_5s	10.1.0	10.2.0
2013-06	RAN#60	R5s130290	0014	-	Addition of EUTRA UE Positioning test case 7.3.5.1_1s	10.1.0	10.2.0
2013-06	RAN#60	RP-130616	0015	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.1.0	10.2.0
2013-09	RAN#61	R5s130421	0016	-	Correction to EUTRA UE Positioning test cases 7.3.4.2.5s and 7.3.4.4.5s	10.2.0	10.3.0
2013-09	RAN#61	R5s130457	0017	-	Correction to EUTRA UE Positioning test case 7.3.5.1.1s	10.2.0	10.3.0
2013-09	RAN#61	R5s130468	0018	-	Correction to EUTRA UE Positioning test cases 7.3.1.1	10.2.0	10.3.0
2013-09	RAN#61	RP-131167	0019	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.2.0	10.3.0
2013-12	RAN#62	R5s130618	0020	-	Addition of EUTRA UE Positioning test case 7.3.4.1_1s	10.3.0	10.4.0
2013-12	RAN#62	R5s130627	0021	-	Addition of EUTRA UE Positioning test case 7.3.4.3_1s	10.3.0	10.4.0
2013-12	RAN#62	RP-131871	0022	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.3.0	10.4.0
2014-03	RAN#63	R5-140326	0023	-	A-GNSS ASN.1 reference	10.4.0	10.5.0
2014-03	RAN#63	R5s130913	0024	-	Correction to function fl_TC_7_3_5_1_GNSS_TestBody	10.4.0	10.5.0
2014-03	RAN#63	R5s130914	0025	-	Correction to svID values in AcquisitionAssist and AuxiliaryInformation	10.4.0	10.5.0
2014-03	RAN#63	R5s131009	0026	-	Addition of EUTRA UE Positioning test case 7.3.5.1_2s	10.4.0	10.5.0
2014-03	RAN#63	R5s131011	0027	-	Addition of EUTRA UE Positioning test case 7.3.5.1_4s	10.4.0	10.5.0
2014-03	RAN#63	RP-140316	0028	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.4.0	10.5.0
2014-06	RAN#64	R5s140086	0029	-	Addition of EUTRA UE Positioning test case 7.2.1.1	10.5.0	10.6.0
2014-06	RAN#64	R5s140088	0030	-	Addition of EUTRA UE Positioning test case 7.2.1.2	10.5.0	10.6.0
2014-06	RAN#64	R5s140090	0031	-	Addition of EUTRA UE Positioning test case 7.2.1.3	10.5.0	10.6.0

					Change history		
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2014-06	RAN#64	R5s140242	0032	-	Correction to LTE UE Positioning test case 7.3.5.1	10.5.0	10.6.0
2014-06	RAN#64	R5s140253	0033	-	Addition of EUTRA UE Positioning test case 7.3.4.4.1s	10.5.0	10.6.0
2014-06	RAN#64	R5s140255	0034	-	Addition of EUTRA UE Positioning test case 7.3.4.2.1s	10.5.0	10.6.0
2014-06	RAN#64	R5s140257	0035	-	Correction to LTE UE Positioning test case 7.3.4.3.1s	10.5.0	10.6.0
2014-06	RAN#64	R5s140316	0036	-	Addition of UTRAN UE Positioning test case 6.2.3.3	10.5.0	10.6.0
2014-06	RAN#64	R5s140318	0037	-	Addition of UTRAN UE Positioning test case 6.2.3.4	10.5.0	10.6.0
2014-06	RAN#64	R5s140320	0038	-	Addition of UTRAN UE Positioning test case 6.2.3.5	10.5.0	10.6.0
2014-06	RAN#64	R5s140433	0039	-	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.4.3.4s	10.5.0	10.6.0
2014-06	RAN#64	R5s140435	0040	-	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.4.4.4s	10.5.0	10.6.0
2014-06	RAN#64	RP-140825	0041	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.5.0	10.6.0
2014-06	RAN#64	R5s140086	0029	-	Addition of EUTRA UE Positioning test case 7.2.1.1	10.5.0	10.6.0
2014-06	RAN#64	R5s140088	0030	-	Addition of EUTRA UE Positioning test case 7.2.1.2	10.5.0	10.6.0
2014-06	RAN#64	R5s140090	0031	-	Addition of EUTRA UE Positioning test case 7.2.1.3	10.5.0	10.6.0
2014-09	RAN#65	R5-144256	0042	-	Routine maintenance and updates	10.6.0	10.7.0
2014-12	RAN#66	R5s140739	0043	-	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.4.2.4s	10.7.0	10.8.0
2014-12	RAN#66	R5s140777	0044	-	Usage of <MULTIPLE_CNF> in UpperTesterFunctions	10.7.0	10.8.0
2014-12	RAN#66	RP-142067	0045	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.7.0	10.8.0
2015-03	RAN#67	R5s141359	0047	-	Correction of errors in implementation of positioning CRs	10.8.0	10.9.0
2015-03	RAN#67	R5s150027	0048	-	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.4.1.4s	10.8.0	10.9.0
2015-03	RAN#67	RP-150336	0049	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.8.0	10.9.0
2015-03	RAN#67	-	-	-	upgraded to Rel-11 with no change	10.9.0	11.0.0
2015-03	RAN#67	R5-150735	0046	-	Addition of BeiDou Test Model	11.0.0	12.0.0
2015-06	RAN#68	RP-150897	0050	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	12.0.0	12.1.0
2015-06	RAN#68	R5s150013	0051	-	Addition of UTRAN UE Positioning test case 6.2.3.2.4s	12.0.0	12.1.0
2015-06	RAN#68	R5s150222	0052	-	Correction to POS ATS in TTCN-3 delivery 15wk10	12.0.0	12.1.0
2015-06	RAN#68	R5s150331	0053	-	Rel-12 baseline upgrade for POS Test Suite	12.0.0	12.1.0
2015-06	RAN#68	R5s150343	0054	-	Corrections to UTRAN UE Positioning functions	12.0.0	12.1.0
2015-06	RAN#68	R5s150344	0055	-	Correction to LTE UE Positioning test cases 7.3.5.1.5s and 7.5.1	12.0.0	12.1.0
2015-06	RAN#68	R5s150345	0056	-	Correction to GLONASS LPP test cases	12.0.0	12.1.0
2015-06	RAN#68	R5s150353	0057	-	Improvement of function f_POS_CheckGnssSupportList	12.0.0	12.1.0
2015-06	RAN#68	R5s150404	0058	-	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.3.1	12.0.0	12.1.0
2015-06	RAN#68	R5s150439	0059	-	Correction to selection of Assistance Data for sub-test 4	12.0.0	12.1.0

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2015-09	RAN#69	RP-151421	0060	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	12.1.0	12.2.0
2015-09	RAN#69	R5s150011	0061	-	Addition of UTRAN UE Positioning test case 6.2.1.1.4s	12.1.0	12.2.0
2015-09	RAN#69	R5s150589	0062	-	Correction to EUTRA Positioning functions	12.1.0	12.2.0
2015-09	RAN#69	R5s150590	0063	-	Correction to Upper Tester modules	12.1.0	12.2.0
2015-09	RAN#69	R5s150706	0064	-	Addition of UTRAN UE Positioning test case 6.2.2.1.4s	12.1.0	12.2.0
2015-09	RAN#69	R5s150708	0065	-	Addition of UTRAN UE Positioning test case 6.2.2.3.4s	12.1.0	12.2.0
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	12.1.0	12.2.0
2015-12	RAN#70	R5s150710	0068	-	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.4.2.7s	12.2.0	12.3.0
2015-12	RAN#70	R5s150712	0069	-	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.4.4.7s	12.2.0	12.3.0
2015-12	RAN#70	R5s150805	0070	-	Correction to POS capability check procedure	12.2.0	12.3.0
2015-12	RAN#70	R5s150911	0071	-	Code improvements in Positioning test cases	12.2.0	12.3.0
2015-12	RAN#70	RP-151697	0072	-	CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	12.2.0	12.3.0
2016-03	RAN#71	R5s151010	0073	-	Correction to POS type definition in ATS_15wk38	12.3.0	12.4.0
2016-06	RAN#72	R5s160479	0074	1	Correction to LTE Positioning test cases	12.4.0	12.5.0
2016-06	RAN#72	R5s160480	0075	1	Correction to UTRA Positioning test cases	12.4.0	12.5.0
2016-09	RAN#73	R5s160713	0076	-	Rel-13 baseline upgrade for POS Test Suite	12.5.0	13.0.0
2016-12	RAN#74	-	-	-	updated to deliver latest TTCN	13.0.0	13.1.0
2017-03	RAN#75	R5-171531	0082	-	Indoor Positioning: Introduction of Test Model	13.1.0	13.2.0
2017-03	RAN#75	R5s170127	0078	1	Correction to GCF WI-166 EUTRA UE Positioning test case 7.3.4.4.7s	13.1.0	13.2.0
2017-03	RAN#75	R5s170128	0079	1	Correction to function f_POS_CheckCapabilities() for OTDOA	13.1.0	13.2.0
2017-03	RAN#75	R5s170186 /RP-170104	0084		Update ASP changes due to inclusion of iPOS in 37.571-4 (prose), Annex D	13.1.0	13.2.0
2017-06	RAN#76	R5s170311	0085	-	Addition of LTE UE Positioning test case 7.3.4.1.10s	13.2.0	13.3.0
2017-06	RAN#76	R5s170313	0086	-	Addition of LTE UE Positioning test case 7.3.4.3.10s	13.2.0	13.3.0
2017-06	RAN#76	R5s170363	0087	-	Aligning name of PICS used in TTCN to the TS 37.571-3 definition	13.2.0	13.3.0
2017-06	RAN#76	R5s170383	0083	1	Corrections to UE Positioning test cases	13.2.0	13.3.0
2017-06	RAN#76	R5s170416	0088	-	Update of TC list in 37.571-4 (prose), Annex A, due to merging of GNSS subtest	13.2.0	13.3.0
2017-09	RAN#77	R5s170630	0089	1	Correction to function 'f_POS_CheckGnssSupportList'	13.3.0	13.4.0
2017-09	RAN#77	R5s170599	0090		Rel-14 baseline upgrade for POS Test Suite	13.4.0	14.0.0
2017-09	RAN#77	R5-173663	0091	-	Indoor Positioning Enhancements: Introduction of Test Model	13.4.0	14.0.0
2017-12	RAN#78	R5-176982	0093	1	GNSS Test Model updates for V2X	14.0.0	14.1.0
2017-12	RAN#78	R5s170860	0092	1	Correction to UE Positioning test case 7.3.1.1	14.0.0	14.1.0
2018-03	RAN#79	R5-180677	0099	-	Routine maintenance for TS 37.571-4	14.1.0	14.2.0

Change history								
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**		**Old**	**New**
2018-03	RAN#79	R5s180081	0094	1	Correction to EUTRA release information for UE Positioning TCs		14.1.0	14.2.0
2018-03	RAN#79	R5s180113	0095	1	Addition of LTE UE Positioning test case 7.3.4.2.15s (BDS)		14.1.0	14.2.0
2018-03	RAN#79	R5s180114	0096	1	Addition of LTE UE Positioning test case 7.3.4.4.15s (BDS)		14.1.0	14.2.0
2018-03	RAN#79	R5s180115	0097	1	Addition of LTE UE Positioning test case 7.3.5.1.15s (BDS)		14.1.0	14.2.0
2018-06	RAN#80	R5-182292	0102	-	V2X: Test Model updates		14.2.0	14.3.0
2018-06	RAN#80	R5s180327	0101	1	Correction / improvement to UE Positioning TCs 7.2.2.1 + 7.2.2.2		14.2.0	14.3.0
2018-12	RAN#82	R5s180569	0105	-	Correction to number of almanac elements for Galileo		14.3.0	14.4.0
2020-03	RAN#87	R5-200077	0117	-	Removal of technical content in 37.571-4 v14.4.0 and substitution with pointer to the next Release		14.4.0	14.5.0

History

Document history		
V14.0.0	October 2017	Publication
V14.1.0	January 2018	Publication
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