UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

APPLE INC.,
Petitioner

v.

APEX BEAM TECHNOLOGIES LLC,
Patent Owner.

---

U.S. Patent No. 11,626,904

Case No. IPR2025-00904

---

**DECLARATION OF FRIEDHELM RODERMUND IN SUPPORT OF A PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 11,626,904**

# TABLE OF CONTENTS

Page

I. INTRODUCTION AND ENGAGEMENT ..... 1

II. BACKGROUND AND QUALIFICATIONS..... 4

III. SUMMARY OF MY OPINIONS ..... 8

IV. PUBLICATION OF 3GPP SPECIFICATIONS AND RELATED DOCUMENTS ..... 9

A. General Practices..... 9

B. Specific Documents ..... 24

1. TS 36.133 V13.2.0 ..... 24

2. TS 36.211 V13.0.0 ..... 31

3. TS 36.212 V13.0.0 ..... 37

4. TS 36.213 V13.0.0 ..... 44

5. TS 36.214 V13.0.0 ..... 50

6. TS 36.331 V13.0.0 ..... 56

V. AVAILABILITY FOR CROSS-EXAMINATION ..... 62

A. Right To Supplement ..... 63

B. Signature ..... 63

I, Friedhelm Rodermund, do hereby declare as follows:

## I. INTRODUCTION AND ENGAGEMENT

1. I have been retained in this matter by the Petitioner to provide testimony regarding the standard business practices of 3rd Generation Partnership Project ("3GPP") for record keeping and publishing technical specifications, change request proposals, reports, and other documents developed during the course of standards activities carried out by 3GPP and the European Telecommunications Standards Institute ("ETSI").

2. I have been asked to provide my opinions regarding the authenticity and dates of public accessibility of the following 3GPP documents:

- Version 13.2.0 of technical specification 3GPP TS 36.133 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements for support of radio resource management (Release 13)") (hereinafter "TS 36.133 V13.2.0") (EX1015).
- Version 13.0.0 of technical specification 3GPP TS 36.211 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and

Modulation (Release 13)") (hereinafter "TS 36.211 V13.0.0") (EX1019).

- Version 13.0.0 of technical specification 3GPP TS 36.212 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Multiplexing and channel coding (Release 13)") (hereinafter "TS 36.212 V13.0.0") (EX1020).
- Version 13.0.0 of technical specification 3GPP TS 36.213 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures (Release 13)") (hereinafter "TS 36.213 V13.0.0") (EX1021).
- Version 13.0.0 of technical specification 3GPP TS 36.214 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer; Measurements (Release 13)") (hereinafter "TS 36.214 V13.0.0") (EX1022).
- Version 13.0.0 of technical specification 3GPP TS 36.331 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 13)") (hereinafter "TS 36.331 V13.0.0") (EX1023).

3. As an ETSI Project Manager and Secretary, from June 1998 to December 2004, I have personal knowledge of 3GPP's standard business and records keeping practices. I continued following 3GPP's work ever since. Thus, based on my experience, personal knowledge, and review of 3GPP's business records, I am able to testify regarding the authenticity of certain documents published by 3GPP and the timing of their publication.

4. I am also knowledgeable about document management practices and the usage of email reflectors in 3GPP TSG RAN WG1, WG2 and WG4. This is due to the fact that all 3GPP working groups used the same document repository on ftp.3gpp.org and all working groups use the same email exploder tool. Thus, I'm able to testify regarding the availability and authenticity of any 3GPP documents.

5. I am being compensated for my time spent on this matter at my usual rate of €500 per hour. My fee is not contingent on the outcome of this or any matter, or on the content of any of the testimony I give in this declaration. I have no financial interest in the Petitioner.

6. I have been informed that Apex Beam Technologies, LLC ("Apex Beam Technologies" or "Patent Owner") is the current assignee of U.S. Patent No. 11,626,904 ("the '904 Patent") (Ex. 1001). I have no financial interest in the Patent Owner or the '904 patent.

7. In forming my opinions, I have considered the cited exhibits, including the exhibits identified in Appendix F, and my academic and professional training and experience in the field of wireless communications and standards development as described herein.

## II. BACKGROUND AND QUALIFICATIONS

8. I have more than 25 years of experience working with standards development organizations including 3GPP, ETSI, and the Open Mobile Alliance ("OMA"). I have particular experience with the development of standards related to cellular telecommunications, including the standards for the Universal Mobile Telecommunications System ("UMTS"), Long Term Evolution ("LTE"), and 5G, which are all standards developed by the 3GPP.

9. I attended the University of Technology Aachen in Aachen, Germany, where I performed graduate studies in Electrical Engineering with a focus on telecommunications technologies ("Dipl.-Ing. TH" degree). I also attended the University of Technology Trondheim in Trondheim, Norway, and completed my Diploma thesis, "Design of a dual processor computer for digital signal processing in power electronics," in 1993.

10. From December 1993 to June 1998, I worked at Mannesmann Mobilfunk as a System Engineer and Project Manager in Quality Assurance and Technical Standards. One of my responsibilities was to ensure by managing and

performing related test activities that cellular network equipment was compatible with the Global System for Mobile Communications ("GSM") standard developed by ETSI. During that time, I also started working as a standards delegate. I attended my first ETSI meeting in 1996 (although I was already following ETSI developments from 1992 during my studies).

11. From June 1998 to December 2004, I worked at ETSI as a project manager for various ETSI Special Mobile Group ("SMG") and 3GPP working groups. First, I served as a secretary of SMG4 "Data Services" and SMG8 "Base Stations Testing." Then, as a project manager with the ETSI Mobile Competence Center ("MCC"), I supported establishing 3GPP as the new international standards development organization for cellular telecommunications. One of my roles was acting as Secretary for 3GPP's Technical Specifications Group Terminals, Working Group ("T2"), the group which played a leading role in the creation of standards for Multimedia such as the Multimedia Messaging Service ("MMS").

12. Later, I was a secretary of the highest-level Technical Specifications Group Terminals which was besides other things responsible for the development of test specifications including tests for the radio interface.

13. I edited all technical specifications produced by my working groups and presented results to the parent body for approval. I attended all meetings (apart from some sub-working group meetings) and was also responsible for compiling meeting

reports, for handling all the meeting documents, and managing the work plan. It was also my role to guide the groups and to advise the chairmen regarding 3GPP working methods and procedures including document handling, and to make sure delegates were aware of their company's obligations under the 3GPP Intellectual Property Rights policy.

14. As part of my responsibilities at ETSI, I acted as a 3GPP custodian of records by personally managing 3GPP's public File Transfer Protocol (ftp) folders, which I used to make publicly accessible various 3GPP documents, including versions of 3GPP specifications, technical reports, liaison statements, change requests, contributions, agendas, meeting reports, and other 3GPP documents from my working groups. I am also knowledgeable about document management practices used in other working groups and within 3GPP in general with regard to making documents publicly accessible through the same public ftp server of 3GPP.

15. Since I left ETSI as a staff member in 2005, I have been continuously involved in standardization activities, including with OMA, ETSI, and 3GPP. Since 2017, I also have been attending the ETSI Intellectual Property Rights ("IPR") Special Committee, which is responsible for the maintenance of the ETSI IPR Policy.

16. After I left ETSI, I worked from January 2005 to October 2014 at Vodafone, first as a Project Manager for Mobile Broadcast Standards, and then as

Vice Chairman of the Device Management working group of the Open Mobile Alliance, and then as a Senior Standards Strategist, all with responsibilities as described on my curriculum vitae. At Vodafone, I was deeply involved in standards work with ETSI and 3GPP and other standards setting organizations, including as a delegate to 3GPP SA1 "Services." As part of my responsibilities, I attended selected 3GPP meetings, submitted documents to 3GPP, used 3GPP resources (including 3GPP's ftp server) extensively, and remained knowledgeable about 3GPP policies and procedures with regard to document management and public accessibility. I was also involved in the creation of patents, defense activities related to patent litigations, and patent evaluation, mostly in the context of standards development.

17. Since leaving Vodafone in 2014, I have performed consulting work regarding Internet of Things (IoT) and Machine to Machine (M2M) technology and standards, first at Friedhelm Rodermund Consulting and then as the Founder and Director of IOTECC GmbH. In connection with my work, I regularly deal with standards such as OMA's Lightweight M2M (LwM2M) and 3GPP's LTE, Narrowband IoT (NB-IoT) and 5G standards. And I have extensively used 3GPP resources and have remained knowledgeable about 3GPP policies and procedures with regard to document management and public accessibility.

18. I also provide consulting services related to patents, in particular around 3GPP Standard Essential Patents ("SEPs"), and I have worked as an expert witness

on a number of occasions. I continue to closely follow the maintenance of the ETSI IPR Policy as a delegate to the ETSI IPR Special Committee. Furthermore, I am conducting a seminar on SEPs and the Internet of Things at the Technical University of Ilmenau, Germany.

19. At the time of writing this declaration, I am following – including attending selected meetings – the following standards committees: ETSI oneM2M, ETSI IPR Special Committee, OMA, and 3GPP.

20. A copy of my curriculum vitae, which includes a detailed description of my experience and education, is attached as Appendix A. A list of litigation matters on which I have worked over the last five years is also included in my curriculum vitae.

## III. SUMMARY OF MY OPINIONS

21. It is my opinion that TS 36.133 V13.2.0 (EX1015) is a technical specification published by 3GPP and would have been publicly accessible through ftp.3gpp.org at least as of January 8, 2016.

22. It is my opinion that TS 36.211 V13.0.0 (EX1019) is a technical specification published by 3GPP and would have been publicly accessible through ftp.3gpp.org at least as of January 5, 2016.

23. It is my opinion that TS 36.212 V13.0.0 (EX1020) is a technical specification published by 3GPP and would have been publicly accessible through ftp.3gpp.org at least as of January 5, 2016.

24. It is my opinion that TS 36.213 V13.0.0 (EX1021) is a technical specification published by 3GPP and would have been publicly accessible through ftp.3gpp.org at least as of January 5, 2016.

25. It is my opinion that TS 36.214 V13.0.0 (EX1022) is a technical specification published by 3GPP and would have been publicly accessible through ftp.3gpp.org at least as of December 15, 2015.

26. It is my opinion that TS 36.331 V13.0.0 (EX1023) is a technical specification published by 3GPP and would have been publicly accessible through ftp.3gpp.org at least as of January 6, 2016.

## IV. PUBLICATION OF 3GPP SPECIFICATIONS AND RELATED DOCUMENTS

### A. General Practices

27. Unless otherwise noted, the foregoing and following is an accurate description of 3GPP general practices from 1998 to the present, including from December 2015 through December 2016, regardless of whether I use the present or past tense to describe those practices.

28. 3GPP was established in 1998 by a group of telecommunications standard development organizations from Japan, Korea, China, Europe, and the United States to jointly develop worldwide standards for mobile telecommunications. Today, 3GPP consists of seven partners: Association of Radio Industries and Businesses, Japan ("ARIB"), Alliance for Telecommunications Industry Solutions, USA ("ATIS"), China Communications Standards Association ("CCSA"), European Telecommunications Standards Institute ("ETSI"), Telecommunications Standards Development Society, India ("TSDSI"), Telecommunications Technology Association, Korea ("TTA"), and Telecommunication Technology Committee, Japan ("TTC"). In addition to being one of the founding partners, ETSI hosts the Mobile Competence Centre ("MCC"), which provides administrative and technical support for the day-to-day work of 3GPP. Furthermore, ETSI manages 3GPP's IT services such as the 3GPP website, ftp server, and email exploders.

29. 3GPP is the world's leading organization for developing and maintaining cellular telecommunications standards, which it has done since its foundation in 1998. As noted above and in my curriculum vitae, I began working for 3GPP, as part of my work at ETSI, the European-based organizational partner of 3GPP.

30. In the ordinary course of its regularly conducted business activities, and pursuant to its standard business practices, 3GPP publishes technical specifications, proposals, reports, and other documents related to the development of cellular telecommunications standards. Such documents are published for the purposes of discussion and establishment of industry standards for cellular telecommunications. This has been 3GPP's ordinary course of business since when I began working at ETSI in 1998.

31. In the ordinary course of 3GPP's regularly conducted business activities, and pursuant to its standard business practices, all draft technical specifications, proposals, reports, and other temporary documents to be discussed or considered in relation to 3GPP's telecommunications standards activities were, and continue to be, assigned a temporary document number and made publicly available, including on the ftp server associated with the 3GPP website, currently residing at ftp.3gpp.org. Such documents are referred to as "T-docs." Final versions of the technical specifications also were, and continue to be, publicly available from that same ftp server.

32. The names and the structure of 3GPP working groups, as of today, can be found at https://www.3gpp.org/3gpp-groups (reproduced below):

| TSG CT Core Network & Terminals | TSG RAN Radio Access Network | TSG SA Service & System Aspects |
|---|---|---|
| **CT WG1** User Equipment to Core Network protocols | **RAN WG1** Radio Layer 1 (Physical layer) | **SA WG1** Services |
| **CT WG3** Interworking with External Networks & Policy and Charging Control | **RAN WG2** Radio layer 2 and Radio layer 3 Radio Resource Control | **SA WG2** System Architecture and Services |
| **CT WG4** Core Network Protocols | **RAN WG3** UTRAN/E-UTRAN/NG-RAN architecture and related network interfaces | **SA WG3** Security and Privacy |
| **CT WG6** Smart Card Application Aspects | **RAN WG4** Radio Performance and Protocol Aspects | **SA WG4** Multimedia Codecs, Systems and Services |
| | **RAN WG5** Mobile terminal conformance testing | **SA WG5** Management, Orchestration and Charging |
| | **RAN AH1** ITU-R Ad Hoc | **SA WG6** Application Enablement and Critical Communication Applications |

33. Each Technical Specification Group (TSG) or Working Group adopts a structured numbering system for the documents associated with their meetings, and those systems typically follow a consistent numbering system as shown in the following example: xminnzzzz. The numbering system normally comprises five logical elements: (1) x: a single letter corresponding to the TSG; wherein in 2015/2016 x was one of R (Radio Access Network), C (Core and Terminals),

S (Service and System Aspects), or G (GSM/EDGE Radio Access Network); (2) m: a single character corresponding to the Working Group identity (typically 1, 2, 3, etc.) or, in the case of the TSG itself, the letter "P"; (3) i: normally the hyphen character "-"; (4) nn: the calendar year of the meeting to which the document was submitted; and (5) zzzz: a running number (some working groups use 5 digits).

34. In the ordinary course of 3GPP's regularly conducted business activities, and pursuant to its standard business practices, from December 1998 onwards, 3GPP published all of its T-docs and all final versions of its technical specifications on its ftp server, which has always been easily and publicly accessible from its website and currently resides at ftp.3gpp.org.

35. As early as December 1998, and including from December 2015 through December 2016, 3GPP's ftp server was freely accessible to the general public with no login, password, or membership requirement.

36. By 1999, at least 100 companies were members of 3GPP (848 companies by April 2025), ranging from Bosch to Ericsson to Nokia to Samsung and generally including those interested in the discussion, creation, and adoption of cellular telecommunications standards, including UMTS. Each of these companies typically delegated multiple individuals to regularly participate in 3GPP meetings. Further, pursuant to 3GPP's standard business practices, 3GPP working groups sent emails notifying these individuals as soon as new or additional documents had been

uploaded to 3GPP's ftp server. Thus, not only did the general public have access to the documents on the ftp server, but some of the most interested members of the public—those working to develop standards for cellular telecommunication or working to implement the standards—were personally informed of their availability by email. Based on my experience with 3GPP and the telecommunications industry, I would expect any person implementing a cellular network or device, e.g., an LTE network, to consult the corresponding specifications on the 3GPP ftp server, as well as other related documents. The whole purpose of 3GPP creating and making these specifications available was so that engineers and other individuals would have ready access to them when developing and implementing cellular networks and devices.

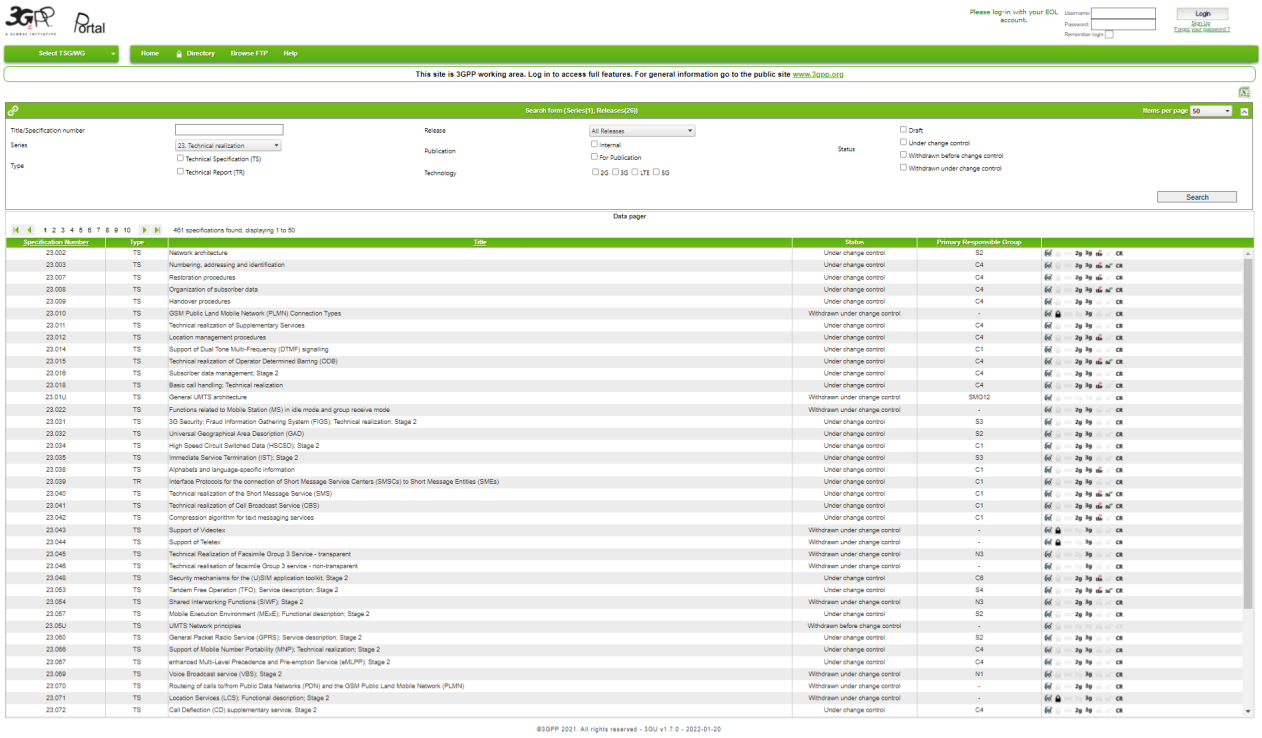
37. By June 1999, 3GPP's ftp server was well-known to persons in the cellular telecommunications industry as a source of public information regarding industry standards and technological advances.

38. 3GPP specifications bear a specification number consisting of four or five digits, e.g., 09.02 or 29.002. The first two digits define the specification series which are defined to group the different aspects of the 3GPP system into, e.g., requirements, service aspects, radio aspects codecs, security aspects, and test specifications. The series digits are followed by two additional digits for the 01 to 13 series or three further digits for the 21 to 55 series. The subjects of the individual

specification series are explained on 3GPP's website at https://www.3gpp.org/specifications-technologies/specifications-by-series, and reproduced below.

| Subject of specification series | 3G and beyond / GSM (R99 and later) | GSM only (Rel-4 and later) | GSM only (before Rel-4) |
|---|---|---|---|
| Requirements | 21 series | 41 series | 01 series |
| Service aspects ("stage 1") | 22 series | 42 series | 02 series |
| Technical realization ("stage 2") | 23 series | 43 series | 03 series |
| Signalling protocols ("stage 3") - user equipment to network | 24 series | 44 series | 04 series |
| Radio aspects | 25 series | 45 series | 05 series |
| CODECs | 26 series | 46 series | 06 series |
| Data | 27 series | 47 series (none exists) | 07 series |
| Signalling protocols ("stage 3") -(RSS-CN) and OAM&P and Charging (overflow from 32.-range) | 28 series | 48 series | 08 series |
| Signalling protocols ("stage 3") - intra-fixed-network | 29 series | 49 series | 09 series |
| Programme management | 30 series | 50 series | 10 series |
| Subscriber Identity Module (SIM / USIM), IC Cards. Test specs. | 31 series | 51 series | 11 series |
| OAM&P and Charging | 32 series | 52 series | 12 series |
| Access requirements and test specifications | | 13 series (1) | 13 series (1) |
| Security aspects | 33 series | (2) | (2) |
| UE and (U)SIM test specifications | 34 series | (2) | 11 series |
| Security algorithms (3) | 35 series | 55 series | (4) |
| LTE (Evolved UTRA), LTE-Advanced, LTE-Advanced Pro radio technology | 36 series | | |
| Multiple radio access technology aspects | 37 series | | |
| Radio technology beyond LTE | 38 series | | |

39. Following a link for a series (e.g., “23 series” link) leads to a 3GPP web page providing access to all specifications in a series, as shown by the screenshot below:




40. As another example of a series, the LTE radio standard is covered in the “36 series” and is further subdivided into separate sections or specifications. The LTE radio specification series starts at TS 36.101 and ends at TR 36.978. Excluding withdrawn specifications, the LTE standard consists of more than 250 specifications.

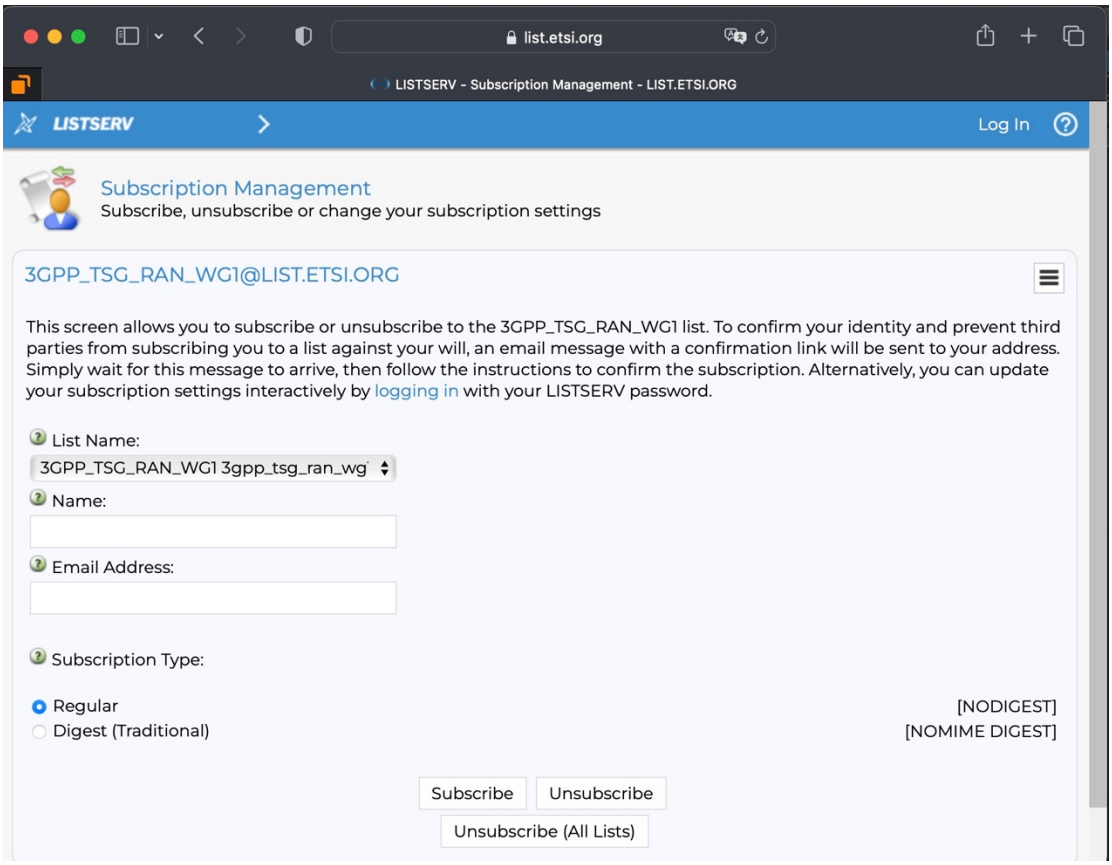
Each specification can span from a few pages to hundreds of pages. One full version of the LTE standard is massive, spanning tens of thousands of pages.

41. In the ordinary course of 3GPP's regularly conducted business activities, and pursuant to its standard business practices, T-docs are usually uploaded to 3GPP's ftp server and website before the meeting where they are to be discussed. Documents created or revised during the course of a meeting are normally uploaded at the latest during the week following the meeting (e.g., the meeting report of the meeting is usually published for review during the week following the meeting).

42. In the ordinary course of 3GPP's regularly conducted business activities, and pursuant to its standard business practices, 3GPP maintains archives that include different versions of the specifications, as well as email communications to its membership, including emails announcing the uploading of new or additional documents to 3GPP's ftp server. These archives are created at the time the emails are initially sent.

43. At least as early as July 1999, including from December 2015 through December 2016, all of 3GPP's email archives, including the dedicated email lists for the 3GPP TSG RAN Working Groups were freely accessible to the general public with no login, password, or membership requirement. E.g., the screenshot below represents the subscription page of the 3GPP TSG RAN WG1 email list as

of today demonstrating that this webpage is publicly available and that only email address and name have to be entered to join the email list. Alternatively, everyone interested is able to obtain a LISTSERV password for managing subscriptions interactively without email confirmations. According to my experience the subscription page looked very similar and provided the same functionality already in 1999 and certainly also in 2015-2016.



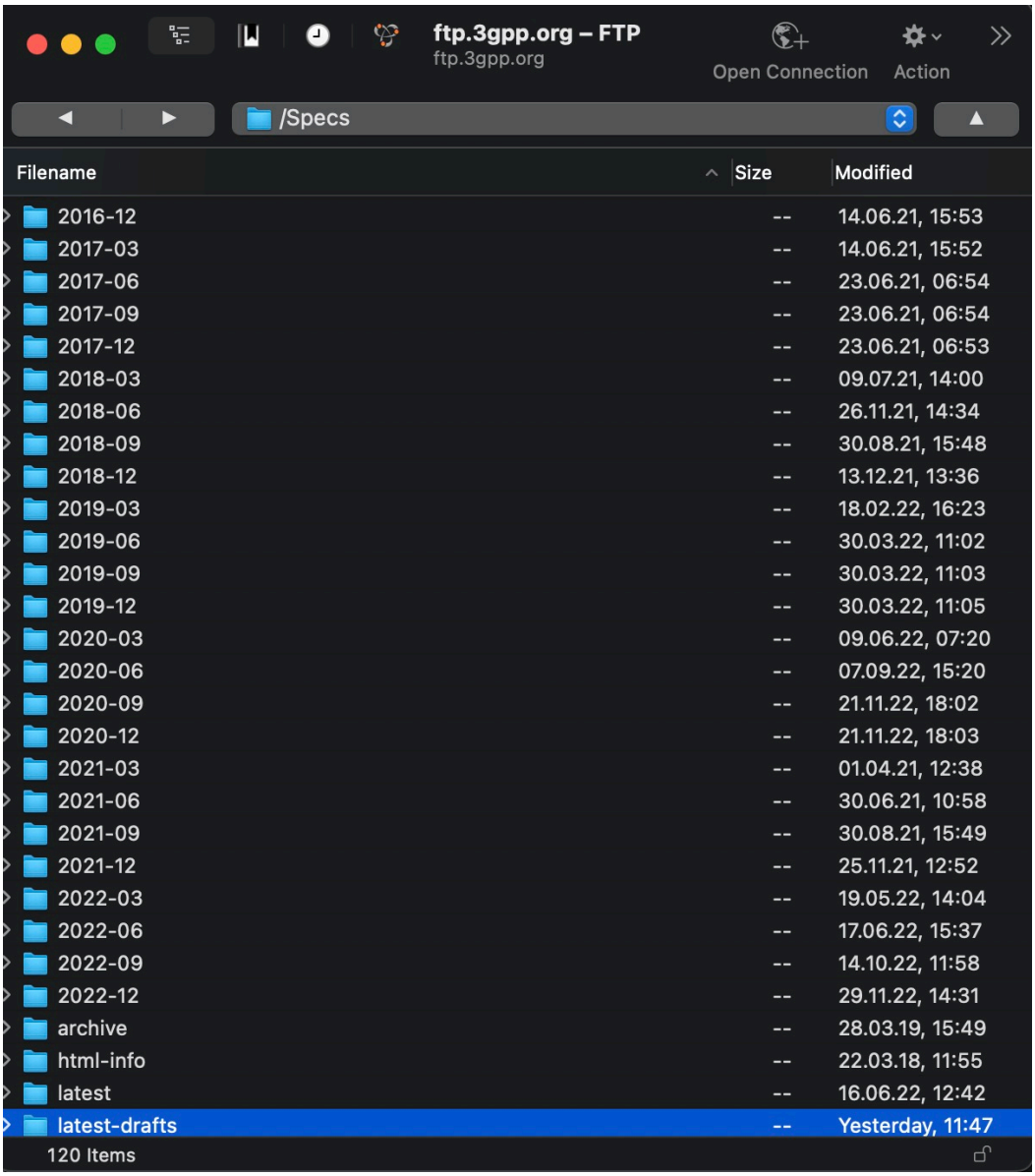

44. Each of 3GPP's member companies typically assigned one or more individuals to regularly participate in these email lists. Thus, not only did the general public have access to the emails in 3GPP's email archives, but some of the

most interested members of the public–those working to develop standards for cellular telecommunication–personally received copies of such emails through their participation in the email lists.

45. By June 1999, including from December 2015 through December 2016, 3GPP's email archives were well-known to persons in the cellular telecommunications industry as a source of public information and of technical specifications, proposals, meeting announcements, technical discussions and reports regarding industry standards and technological advances.

46. Based on my experience with 3GPP and the telecommunications industry, I would expect a person interested in the development of cellular standards, e.g., LTE or 5G, to consult the emails archives of the working groups and TSGs that person is interested in, and/or, to be subscribed to the corresponding email reflectors to receive any email notifications in real-time.

47. 3GPP specifications almost always are duplicated in at least two and sometime more locations on the ftp server. One location corresponds to a "snapshot" of the specifications corresponding to a particular plenary meeting cycle—for instance, the 2018-12 snapshot contains a snapshot of numerous specifications after the December 2018 3GPP plenary meetings. The second location is an "archive" that contains all versions over time for a given specification. The screenshot below shows an excerpt of the "Spec" folder at ftp.3gpp.org:



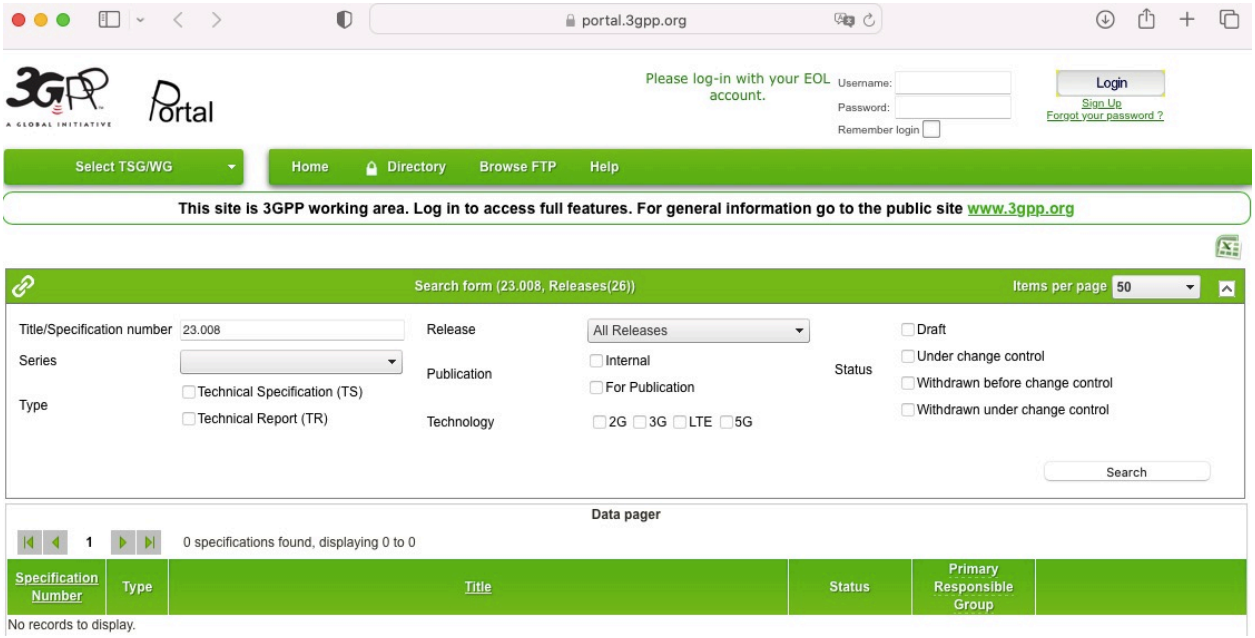

48. While 3GPP aims to upload the updated specifications to both locations at the same time, occasionally there may be a small difference in the upload date, and thus the date stamp, for the same specification uploaded to the two locations. Additionally, specifications which are not yet approved (so called "draft" specifications) are presented as T-docs at working group and at plenary meetings (as

soon as the working group decides to submit the specification to the plenary meeting for information or approval). In many cases, the T-docs are also distributed on the email exploder of the working group prior to the meeting, making the T-docs available to all those subscribed to the email distribution list.

49. The timestamp on 3GPP's ftp server shows the date when the document was uploaded the last time. Thus, the timestamp shows the latest possible date the document became publicly available and accessible on 3GPP's ftp server. The given document might have been available earlier and the original timestamp might have been overwritten because the document was uploaded again. According to my experience, this is something which happened occasionally. Thus, the ftp timestamp is reliable as the latest possible upload date but one cannot determine whether it represents the first upload of a document to the ftp server.

50. An additional means of accessing 3GPP documents including specifications is the 3GPP portal. *See* https://portal.3gpp.org/Specifications.aspx. 3GPP preserves the posted document indefinitely on its server for future reference. *Id.* As detailed below, the 3GPP website provides the date that a particular version of a technical specification was uploaded, using the date convention YYYY-MM-DD. The 3GPP portal also provides a login function to unlock full features, however, login is not required for searching and downloading technical specifications. Based on my personal experience, throughout the 2015-2016 timeframe, anyone interested

in a particular 3GPP specification could search the 3GPP portal to find and download the latest version of a technical specification using the 3GPP portal in substantially the same manner as they would today:




https://portal.3gpp.org/Specifications.aspx; *see, e.g.,* 2015 internet archive https://web.archive.org/web/20150924200802/https://portal.3gpp.org/.

51. 3GPP's working practice to store their documents on its ftp server, as described above, has not changed over time. Starting from the first 3GPP meetings in 1998 until present, all WGs and plenary meetings are represented by dedicated meeting folders on the ftp server. These meeting folders include the documents discussed at the meetings. Both the folders and the documents are accessible to the public. Almost every week, a new meeting folder with the respective documents is

added. In addition to the plenary and WG meeting folders, and some other folders, there is also the "Specs" folder, which holds all 3GPP specifications including the aforementioned "snapshot" and archive folders. Since the early days of 3GPP a new folder is added inside the "Specs" folder after each TSG plenary meeting to hold the latest versions of specifications approved at those TSG plenary meetings. This is still 3GPP's working practice today; thus, this practice has not changed over time.

52. 3GPP maintains a set of publicly accessible documents[1] providing further details on its way of working:

- 3GPP Working Procedures
- Vocabulary for 3GPP Specifications 3GPP TR 21.905
- Working Methods 3GPP TR 21.900
- Specification Drafting Rules 3GPP TR 21.801

## B. Specific Documents

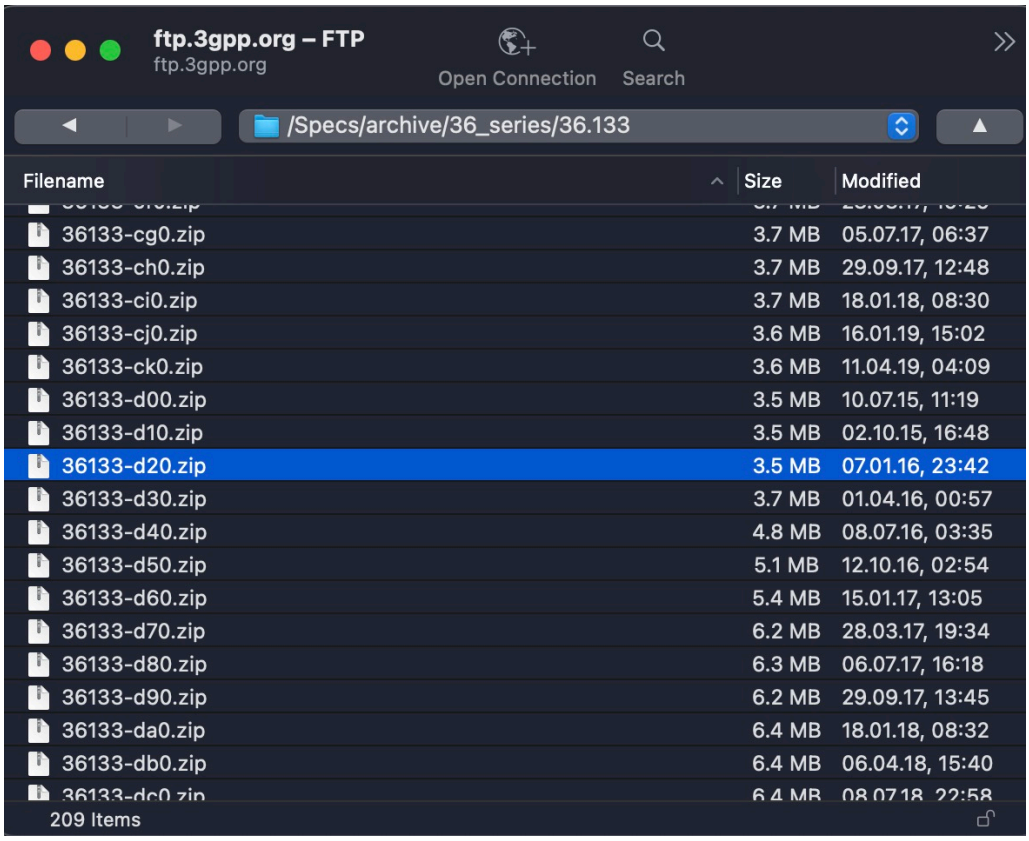
### 1. TS 36.133 V13.2.0

53. Based on my personal knowledge and my review of 3GPP's business records, I recognize EX1015 as a true and correct copy of version 13.2.0 of technical

[1] All available from https://www.3gpp.org/delegates-corner/3gpp-working-procedures.

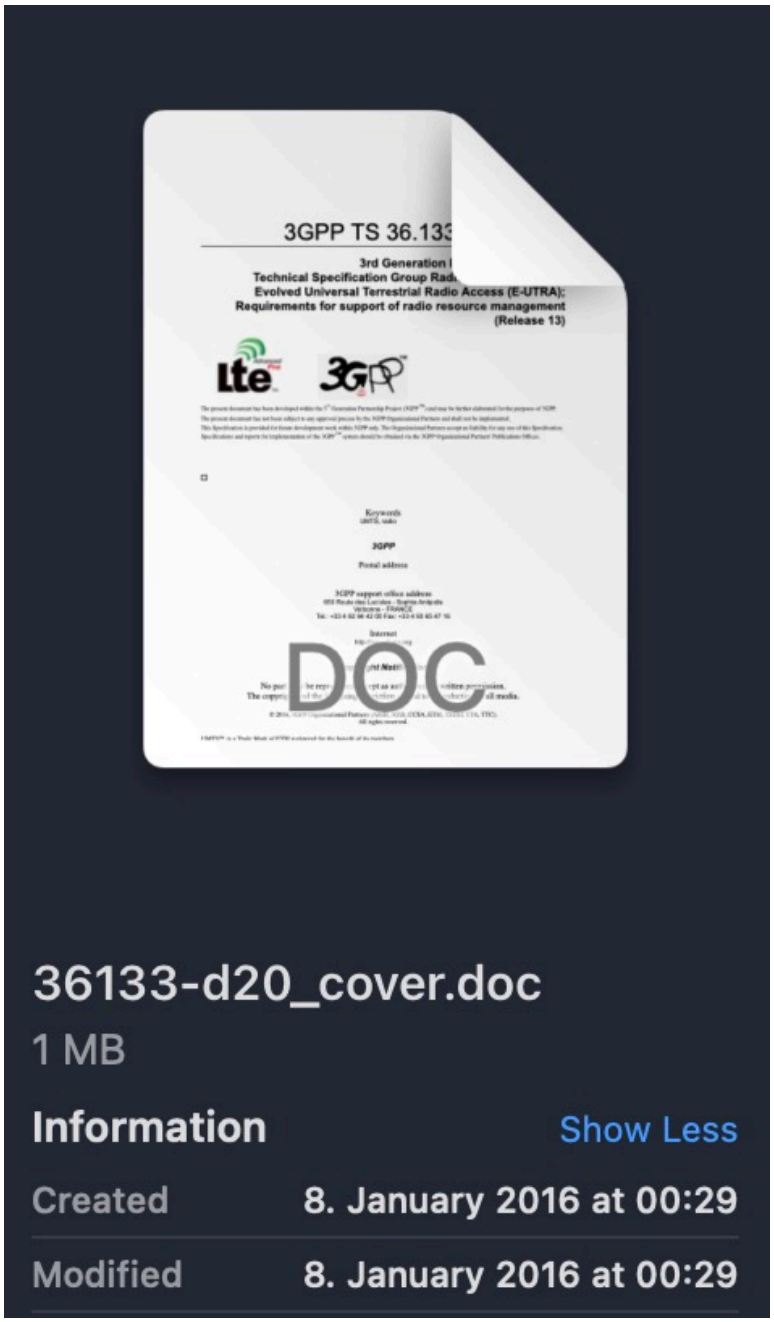
specification 3GPP TS 36.133 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements for support of radio resource management (Release 13)"), which shows on its cover page "2016-01" as the year (2016) and month (January) during which this document was released by 3GPP.

54. The document was published and freely available on 3GPP's ftp server by January 8, 2016, at the latest. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36133-d20.zip"), as maintained by the Internet Archive at https://web.archive.org/web/20160406192859/http://www.3gpp.org/ftp/Specs/2015-12/Rel-13/36_series/. The upload information is also shown on the date stamp for the present-day listing of the same document on the 3GPP ftp server at https://www.3gpp.org/ftp/Specs/archive/36_series/36.133, as shown by the screenshot below. This screenshot is from a different folder on the same 3GPP FTP server and shows the upload date as January 7, 2016:




55. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of "8. January 2016"[2], as shown in the screenshot below:

[2] The difference of the "Modified" date (January 8, 2016) and the upload date shown by the screenshot in paragraph 53 (January 7, 2016) can be explained by the file modification and upload happening shortly after midnight in a time zone 1 hour ahead of the FTP file server time which was still showing a time shortly before midnight.

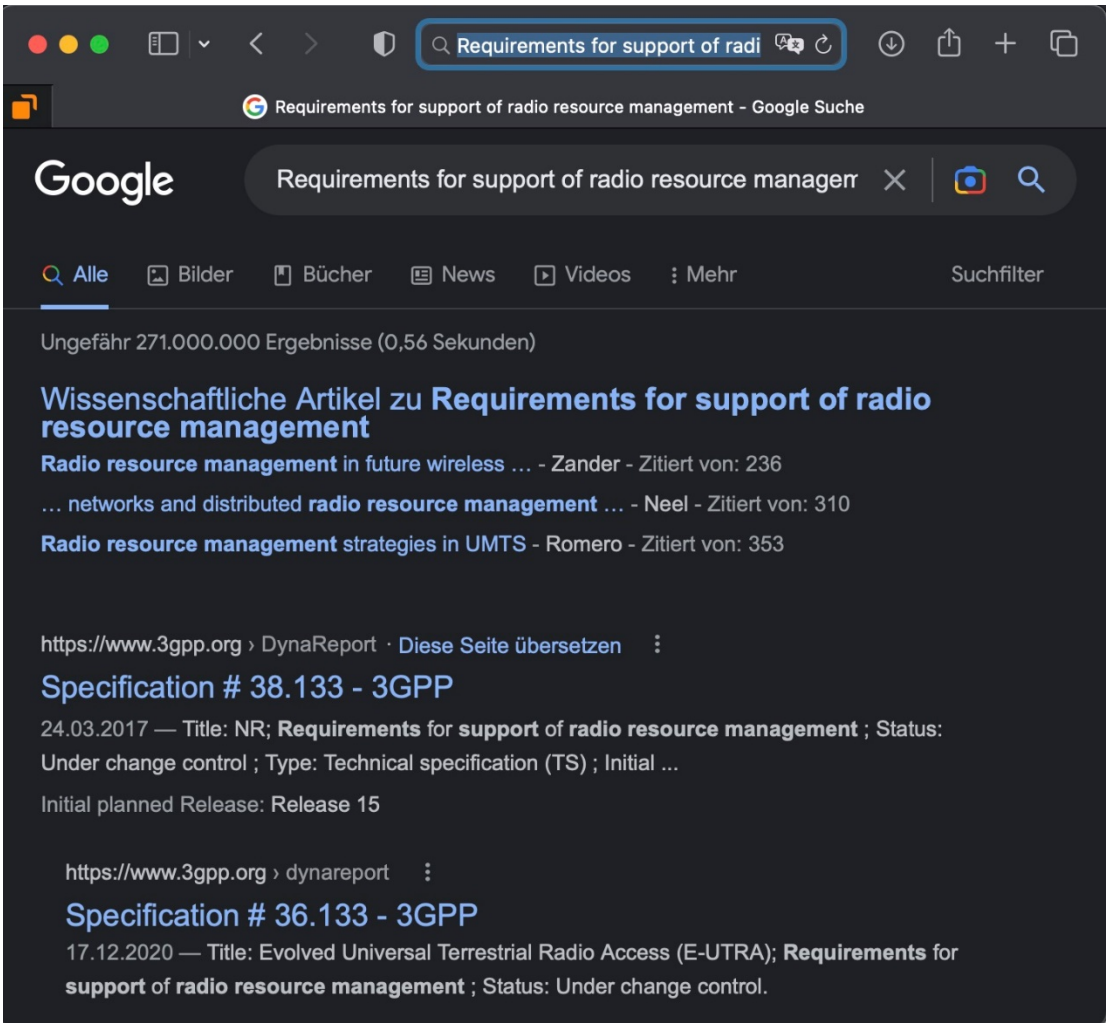



56. Thus, based on my personal knowledge and experience with ETSI's and 3GPP's standard business practices, this information tells me that this document was available to all 3GPP members and the general public by January 8, 2016, at the latest.

57. Furthermore, the availability of the new RAN4 specification versions which included TS 36.133 v13.2.0[3] was announced by the RAN WG4 secretary via the public 3GPP_TSG_RAN_WG4 email exploder on December 31, 2015, as shown in Appendix B. As of today, the 3GPP_TSG_RAN_WG4 email exploder has 961 subscribers at https://list.etsi.org/scripts/wa.exe?INDEX. According to my experience I would expect a similar or only slightly smaller number of subscribers around 2015-2016.

58. I believe that a person without prior knowledge of 3GPP and/or the technical specification (TS) number would have been able to also easily find the TS for download via internet search. For instance, a Google search for "Requirements for support of radio resource management" provides the TS number "36.133" as one of the top results as can be seen in the screenshot below:

[3] The list of RAN4 specifications can be found here: https://portal.3gpp.org/Specifications.aspx?q=1&tbid=373&SubTB=382&releases=all&draft=False&underCC=False&withACC=False&withBCC=False&numberNYA=False




59. Following the provided search result link "Specification # 36.133 – 3GPP" leads to a 3GPP web page offering under the tab "Versions" download links to all versions of TS 36.133 including version 13.2.0, as shown by the screenshot below:

portal.3gpp.org

Specification # 36.133

3GPP A GLOBAL INITIATIVE Portal

General | Versions | Responsibility | Related

Specification #: 36.133

| | | | |
|---|---|---|---|
| RAN#88-e | 13.19.0 | 2020-07-17 | ETSI TDoc CR |
| RAN#86 | 13.18.0 | 2020-01-12 | ETSI TDoc CR |
| RAN#85 | 13.17.0 | 2019-10-03 | ETSI TDoc CR |
| RAN#84 | 13.16.0 | 2019-07-03 | ETSI TDoc CR |
| RAN#83 | 13.15.0 | 2019-04-11 | ETSI TDoc CR |
| RAN#82 | 13.14.0 | 2019-01-16 | ETSI TDoc CR |
| RAN#81 | 13.13.0 | 2018-10-03 | ETSI TDoc CR |
| RAN#80 | 13.12.0 | 2018-07-08 | ETSI TDoc CR |
| RAN#79 | 13.11.0 | 2018-04-06 | ETSI TDoc CR |
| RAN#78 | 13.10.0 | 2018-01-18 | ETSI TDoc CR |
| RAN#77 | 13.9.0 | 2017-09-29 | ETSI TDoc CR |
| RAN#76 | 13.8.0 | 2017-07-06 | ETSI TDoc CR |
| RAN#75 | 13.7.0 | 2017-03-28 | ETSI TDoc CR |
| RAN#74 | 13.6.0 | 2017-01-15 | ETSI TDoc CR |
| RAN#73 | 13.5.0 | 2016-10-12 | ETSI TDoc CR |
| RAN#72 | 13.4.0 | 2016-07-08 | ETSI TDoc CR |
| RAN#71 | 13.3.0 | 2016-04-01 | ETSI TDoc CR |
| RAN#70 | 13.2.0 | 2016-01-08 | ETSI TDoc CR |
| RAN#69 | 13.1.0 | 2015-10-02 | ETSI TDoc CR |
| RAN#68 | 13.0.0 | 2015-07-10 | ETSI TDoc CR |

Exit

60. The above example search illustrates that it is very easy for an interested member of the public without prior knowledge of the TS number and even without prior knowledge of 3GPP to locate any version of TS 36.133, including version 13.2.0, for download.

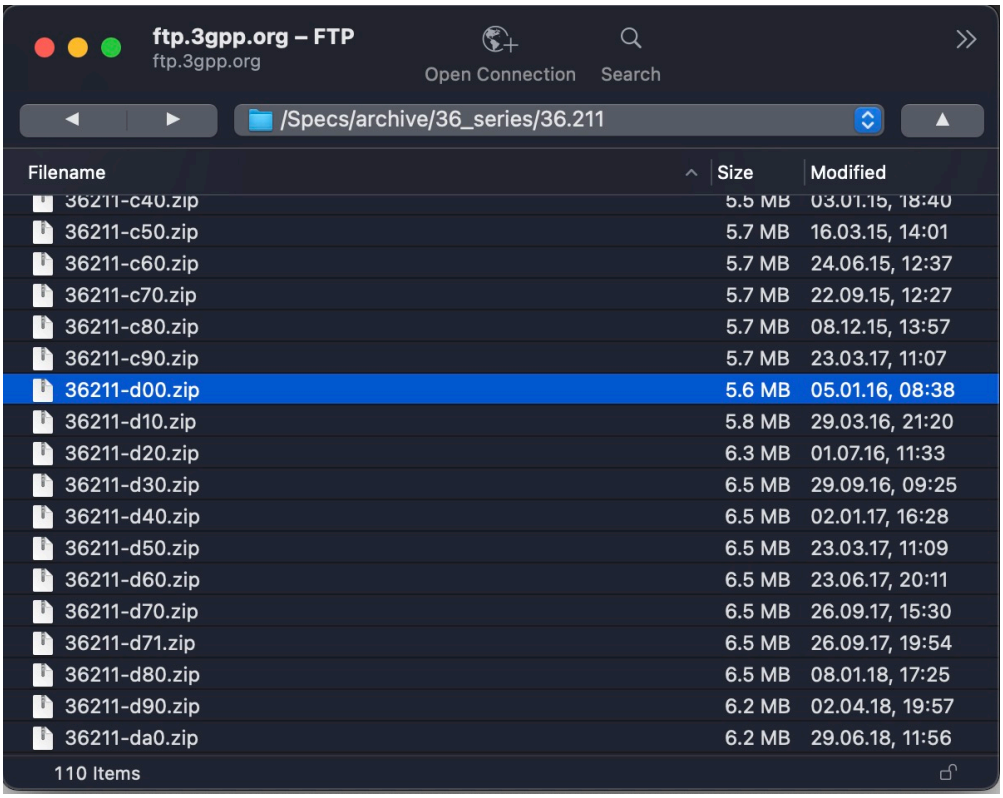
61. The above search was performed at the time of writing this report. According to my personal experience, similar searches done in 2016 or around that timeframe would have similarly provided the path to download version 13.2.0 of TS 36.133.

### 2. TS 36.211 V13.0.0

62. Based on my personal knowledge and my review of 3GPP's business records, I recognize EX1019 as a true and correct copy of version 13.0.0 of technical specification 3GPP TS 36.211 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation (Release 13)"), which shows on its cover page "2015-12" as the year (2015) and month (December) during which this document was released by 3GPP.

63. The document was published and freely available on 3GPP's ftp server by January 5, 2016. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36211-d00.zip"), as maintained

by the Internet Archive at https://web.archive.org/web/20160310094714/http://www.3gpp.org/ftp/specs/archive/36_series/36.211. This information is also shown on the date stamp for the present-day listing of the same document on the 3GPP ftp server at https://www.3gpp.org/ftp/Specs/archive/36_series/36.211, as shown by the screen shot below:




64. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of "5. January 2016", as shown in the screenshot below:

3GPP TS 36.211 V13.0.0 (2015-12)

*Technical Specification*

**3rd Generation Partnership Project;**
**Technical Specification Group Radio Access Network;**
**Evolved Universal Terrestrial Radio Access (E-UTRA);**
**Physical channels and modulation**
**(Release 13)**

Keywords
UMTS, radio, layer 1

**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.

© 2015, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
All rights reserved.

Contents

Foreword 7
1 Scope 8
2 References 8
3 Symbols and abbreviations 8
3.1 Symbols 8

36211-d00.doc
16,3 MB
Information Show Less
Created 5. January 2016 at 09:38
Modified 5. January 2016 at 09:38

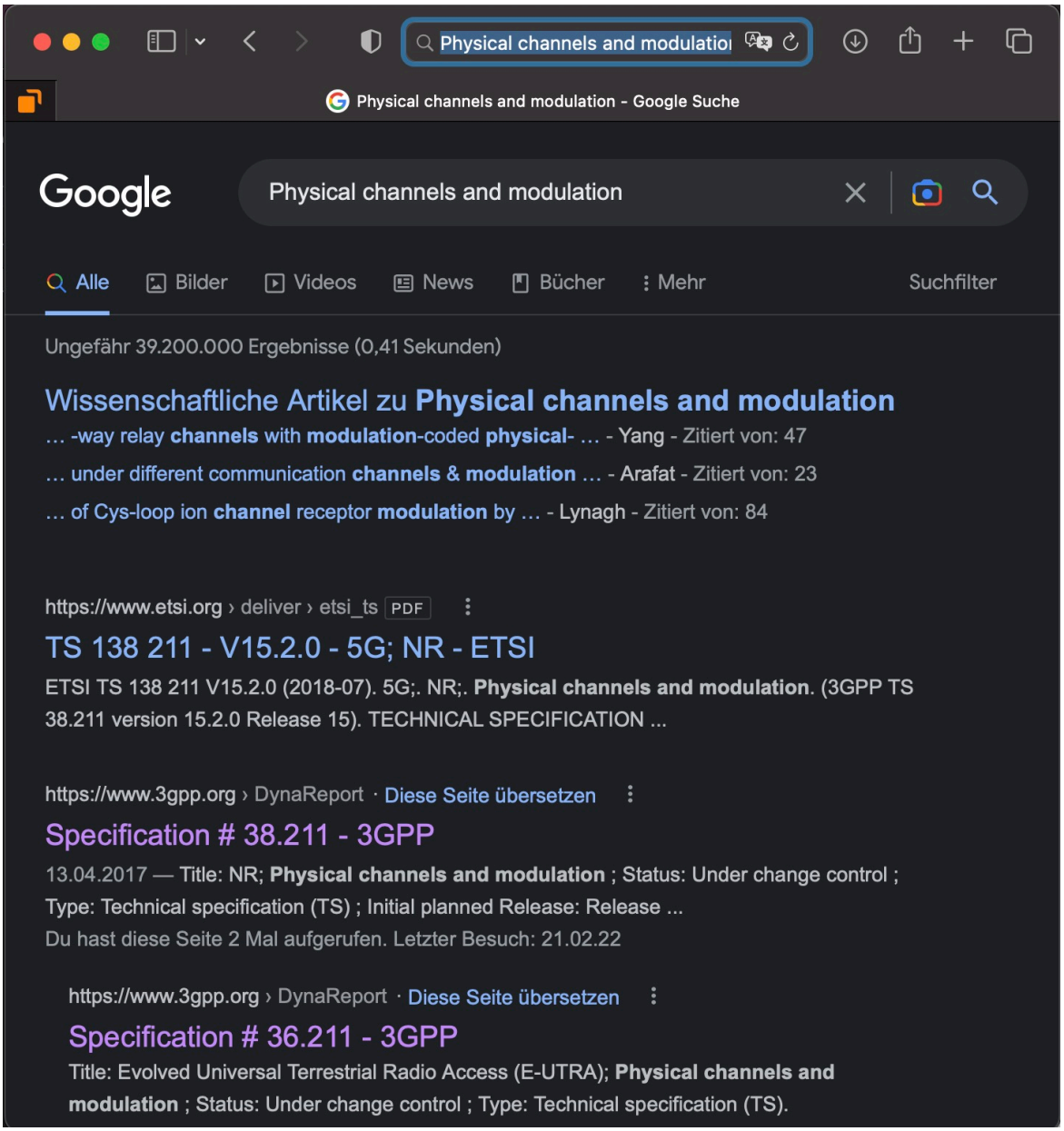
65. Thus, based on my personal knowledge and experience with ETSI's and 3GPP's standard business practices, this information tells me that this document

was available to all 3GPP members and the general public by January 5, 2016, at the latest.

66. Furthermore, the availability of the new RAN1 specification versions which included TS 36.211 v13.0.0[4] was announced by the RAN WG1 secretary via the public 3GPP_TSG_RAN_WG1 email exploder on December 17, 2015, as shown in Appendix C. As of today, the 3GPP_TSG_RAN_WG1 email exploder has 1500 subscribers at https://list.etsi.org/scripts/wa.exe?INDEX. According to my experience I would expect a similar or only slightly lower number of subscribers around 2015-2016.

67. I believe that a person without prior knowledge of 3GPP and/or the technical specification (TS) number would have been able to easily find the TS for download via internet search. For instance, a Google search for "Physical channels and modulation" provides the TS number "36.211" as one of the top results as can be seen in the screenshot below:

[4] The list of RAN1 specifications can be found here: https://portal.3gpp.org/Specifications.aspx?q=1&tbid=373&SubTB=379&releases=all&draft=False&underCC=False&withACC=False&withBCC=False&numberNYA=False




68. Following the provided search result link "Specification # 36.211 – 3GPP" leads to a 3GPP web page offering under the tab "Versions" download links to all versions of TS 36.211 including version 13.0.0, as shown by the screenshot below:

portal.3gpp.org

Specification # 36.211

3GPP Portal

General | Versions | Responsibility | Related

Specification #: 36.211

**Release 13**(Spec is UCC for this Release) **Latest Remark:**

| Meetings | Version | Upload date | Comment |
|---|---|---|---|
| RAN#86 | 13.13.0 | 2020-01-06 | |
| RAN#85 | 13.12.0 | 2019-09-28 | |
| RAN#84 | 13.11.0 | 2019-06-24 | |
| RAN#80 | 13.10.0 | 2018-06-29 | |
| RAN#79 | 13.9.0 | 2018-04-02 | |
| RAN#78 | 13.8.0 | 2018-01-08 | |
| RAN#77 | 13.7.1 | 2017-09-26 | MCC correction of indent issu... |
| RAN#77 | 13.7.0 | 2017-09-26 | |
| RAN#76 | 13.6.0 | 2017-06-23 | |
| RAN#75 | 13.5.0 | 2017-03-23 | |
| RAN#74 | 13.4.0 | 2017-01-02 | |
| RAN#73 | 13.3.0 | 2016-09-29 | |
| RAN#72 | 13.2.0 | 2016-07-01 | |
| RAN#71 | 13.1.0 | 2016-03-29 | |
| RAN#70 | 13.0.0 | 2016-01-06 | |

**Release 12**(Spec is UCC for this Release) **Latest Remark:** (2015-01-22) .

Exit

69. The above example search illustrates that it is very easy for an interested member of the public without prior knowledge of the TS number and even without prior knowledge of 3GPP to locate any version of TS 36.211, including version 13.0.0, for download.

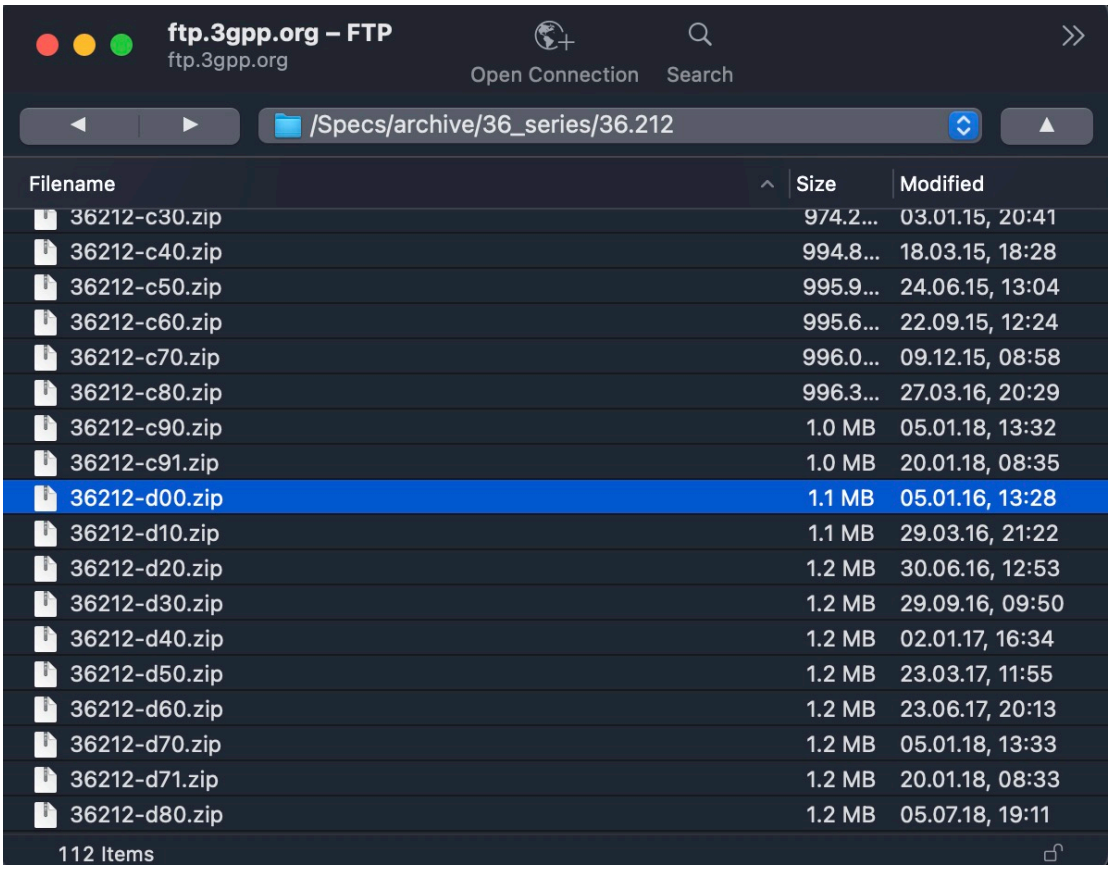
70. The above search was performed at the time of writing this report. According to my personal experience, similar searches done in 2016 or around that timeframe would have similarly provided the path to download version 13.0.0 of TS 36.211.

### 3. TS 36.212 V13.0.0

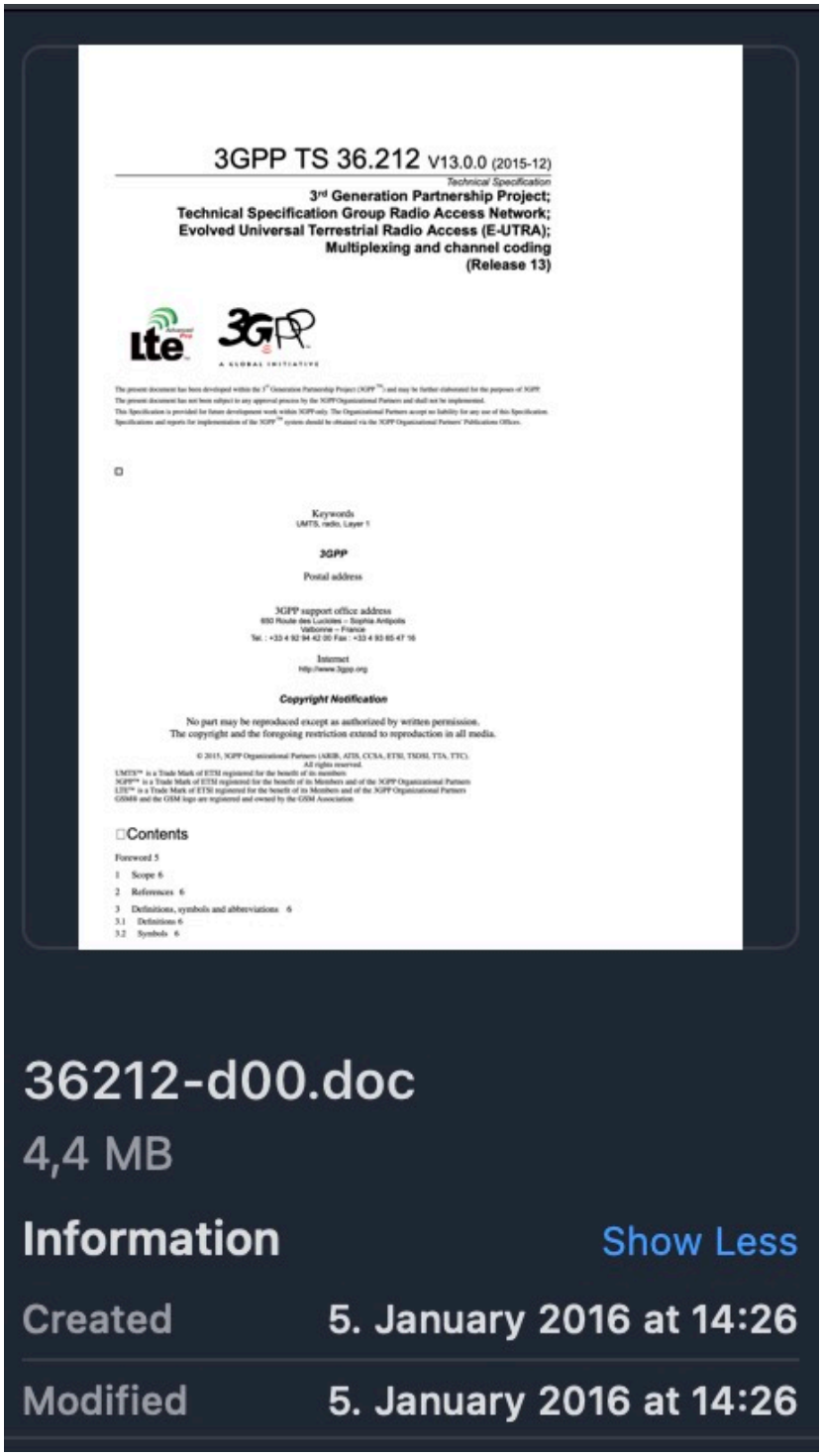
71. Based on my personal knowledge and my review of 3GPP's business records, I recognize EX1020 as a true and correct copy of version 13.0.0 of technical specification 3GPP TS 36.212 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Multiplexing and channel coding (Release 13)"), which shows on its cover page "2015-12" as the year (2015) and month (December) during which this document was released by 3GPP.

72. The document was published and freely available on 3GPP's ftp server by January 5, 2016. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36212-d00.zip"), as maintained by the Internet Archive at

https://web.archive.org/web/20160319183441/http://www.3gpp.org/ftp/specs/archive/36_series/36.212/. This information is also shown on the date stamp for the present-day listing of the same document on the 3GPP ftp server at https://www.3gpp.org/ftp/Specs/archive/36_series/36.212, as shown by the screen shot below:




73. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of "5. January 2016", as shown in the screenshot below:



3GPP TS 36.212 V13.0.0 (2015-12)

*Technical Specification*

**3rd Generation Partnership Project;**
**Technical Specification Group Radio Access Network;**
**Evolved Universal Terrestrial Radio Access (E-UTRA);**
**Multiplexing and channel coding**
**(Release 13)**

Keywords
UMTS, radio, Layer 1

**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.

© 2015, 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 5
1 Scope 6
2 References 6
3 Definitions, symbols and abbreviations 6
3.1 Definitions 6
3.2 Symbols 6

36212-d00.doc
4,4 MB
Information Show Less
Created 5. January 2016 at 14:26
Modified 5. January 2016 at 14:26

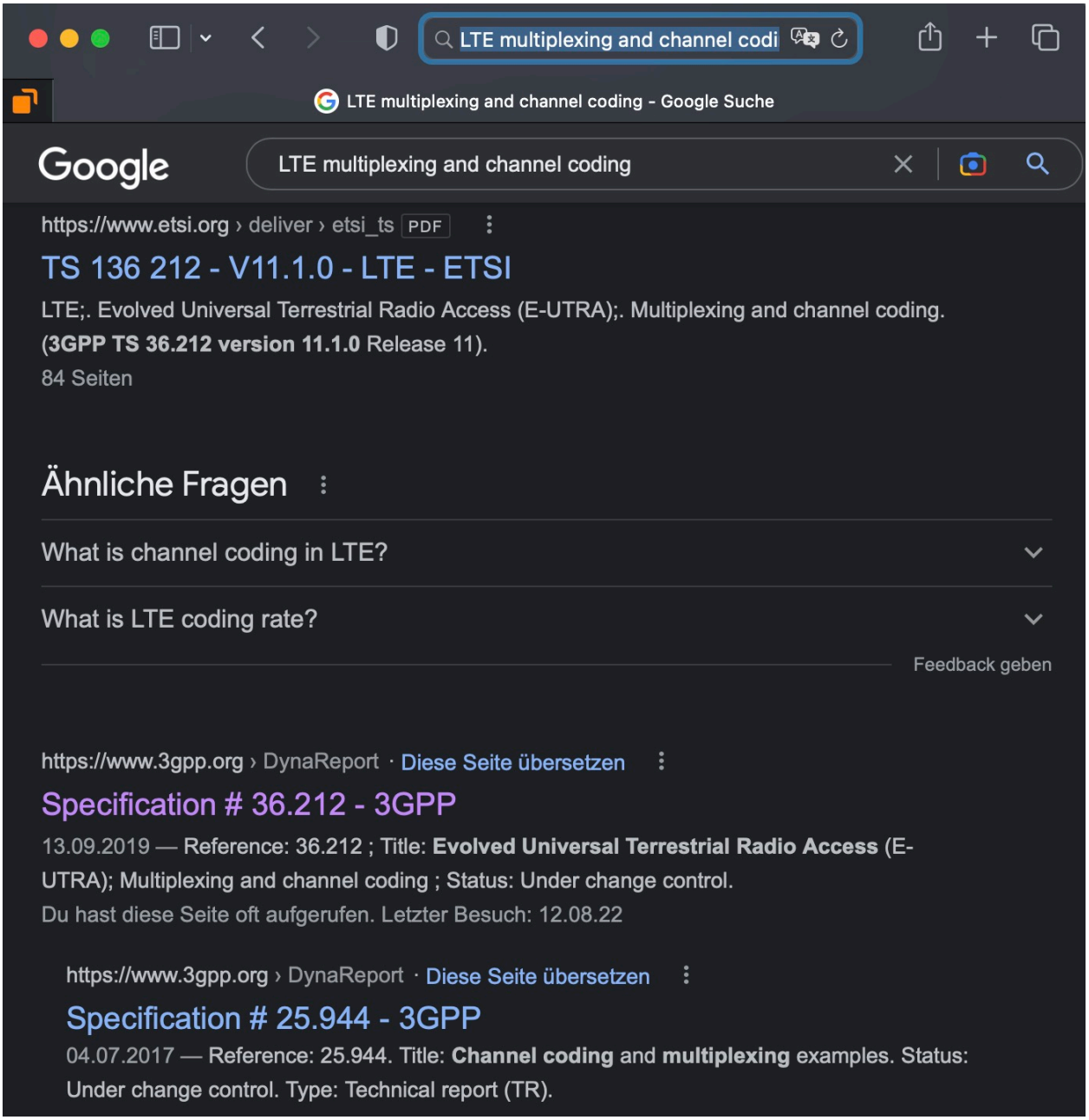
74. Thus, based on my personal knowledge and experience with ETSI's and 3GPP's standard business practices, this information tells me that this document was available to all 3GPP members and the general public by January 5, 2016, at the latest.

75. Furthermore, the availability of the new RAN1 specification versions which included TS 36.212 v13.0.0[5] was announced by the RAN WG1 secretary via the public 3GPP_TSG_RAN_WG1 email exploder on December 17, 2015, as shown in Appendix C. As of today, the 3GPP_TSG_RAN_WG1 email exploder has 1500 subscribers at https://list.etsi.org/scripts/wa.exe?INDEX. According to my experience I would expect a similar or only slightly smaller number of subscribers around 2015-2016.

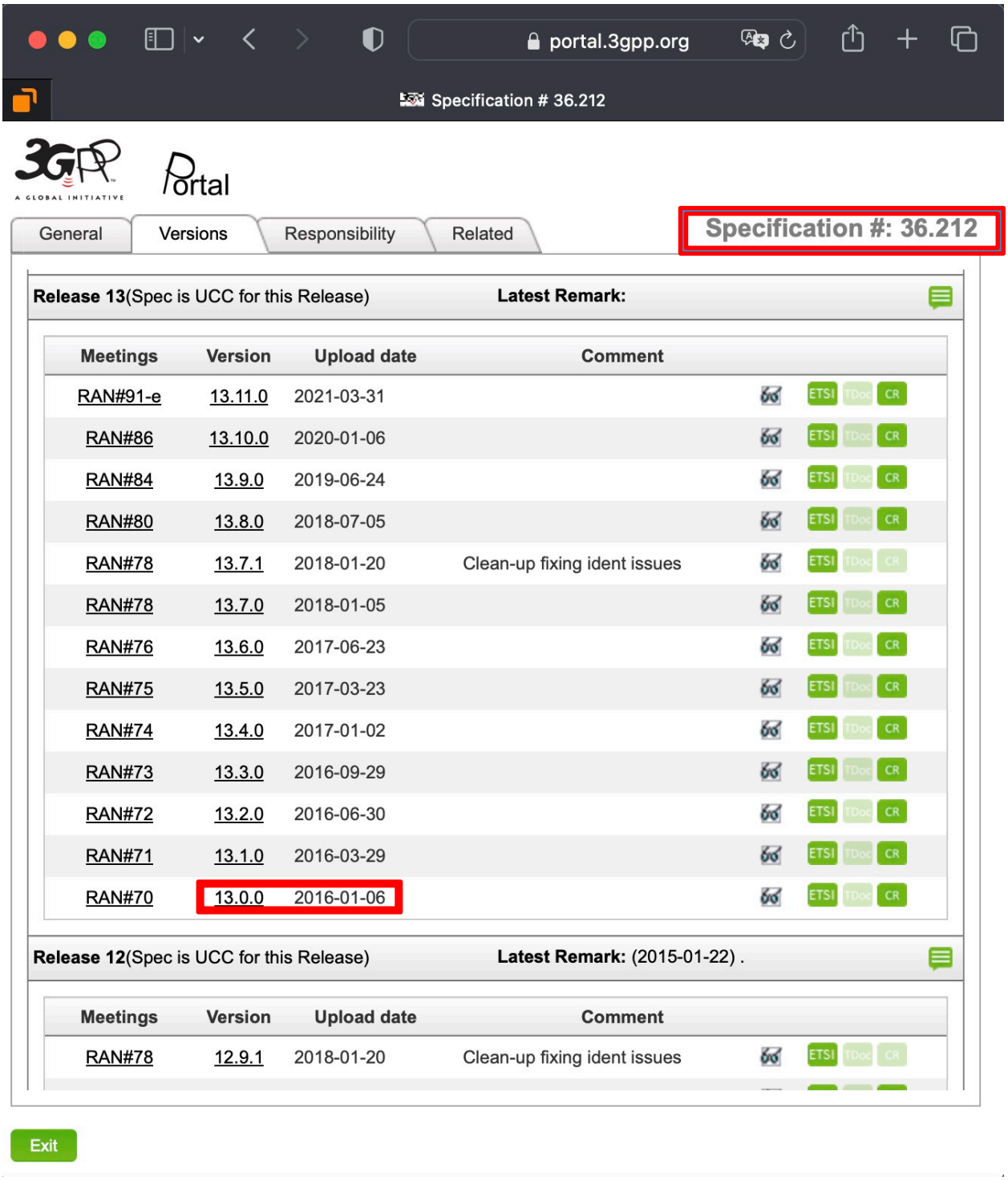
76. I believe that a person without prior knowledge of 3GPP and/or the technical specification (TS) number would have been able to easily find the TS for download via internet search. For instance, a Google search for "LTE multiplexing

[5] The list of RAN1 specifications can be found here: https://portal.3gpp.org/Specifications.aspx?q=1&tbid=373&SubTB=379&releases=all&draft=False&underCC=False&withACC=False&withBCC=False&numberNYA=False

and channel coding" provides the TS number "36.212" as one of the top results as can be seen in the screenshot below:



77. Following the provided search result link "Specification # 36.212 – 3GPP" leads to a 3GPP web page offering under the tab "Versions" download links to all versions of TS 36.212 including version 13.0.0, as shown by the screenshot below:




78. The above example search illustrates that it is very easy for an interested member of the public without prior knowledge of the TS number and even

without prior knowledge of 3GPP to locate any version of TS 36.212, including version 13.0.0, for download.

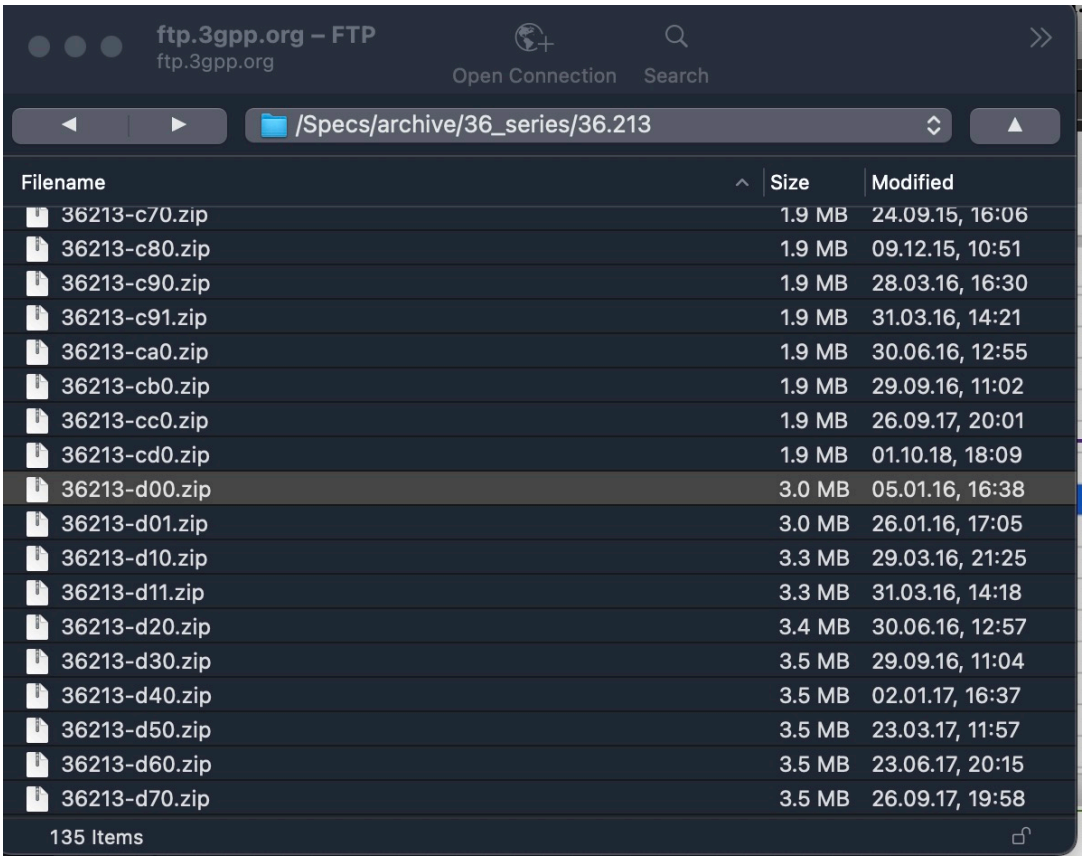
79. The above search was performed at the time of writing this report. According to my personal experience, similar searches done in 2016 or around that timeframe would have similarly provided the path to download version 13.0.0 of TS 36.212.

### 4. TS 36.213 V13.0.0

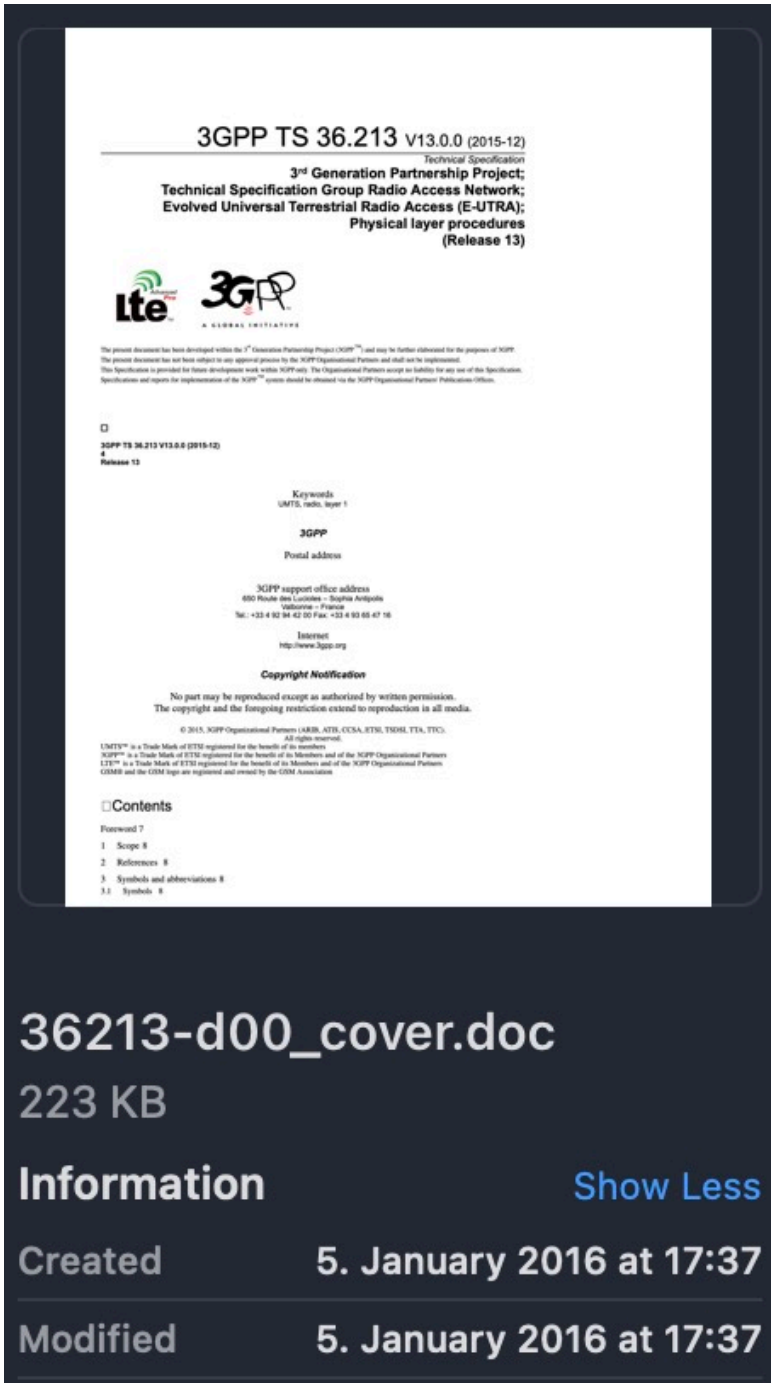
80. Based on my personal knowledge and my review of 3GPP's business records, I recognize EX1021 as a true and correct copy of version 13.0.0 of technical specification 3GPP TS 36.213 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures (Release 13)"), which shows on its cover page "2015-12" as the year (2015) and month (December) during which this document was released by 3GPP.

81. The document was published and freely available on 3GPP's ftp server by January 5, 2016. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36213-d00.zip"), as maintained by the Internet Archive at https://web.archive.org/web/20160318074415/http://www.3gpp.org:80/ftp/specs/archive/36_series/36.213. This information is also shown on the date stamp for the

present-day listing of the same document on the 3GPP ftp server at https://www.3gpp.org/ftp/Specs/archive/36_series/36.213, as shown by the screenshot below:




82. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of "5. January 2016", as shown in the screenshot below:



3GPP TS 36.213 V13.0.0 (2015-12)

*Technical Specification*

**3rd Generation Partnership Project;**
**Technical Specification Group Radio Access Network;**
**Evolved Universal Terrestrial Radio Access (E-UTRA);**
**Physical layer procedures**
**(Release 13)**

**3GPP TS 36.213 V13.0.0 (2015-12)**
**4**
**Release 13**

Keywords
UMTS, radio, layer 1

***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.

© 2015, 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 7
1 Scope 8
2 References 8
3 Symbols and abbreviations 8
3.1 Symbols 8

36213-d00_cover.doc
223 KB
Information Show Less
Created 5. January 2016 at 17:37
Modified 5. January 2016 at 17:37

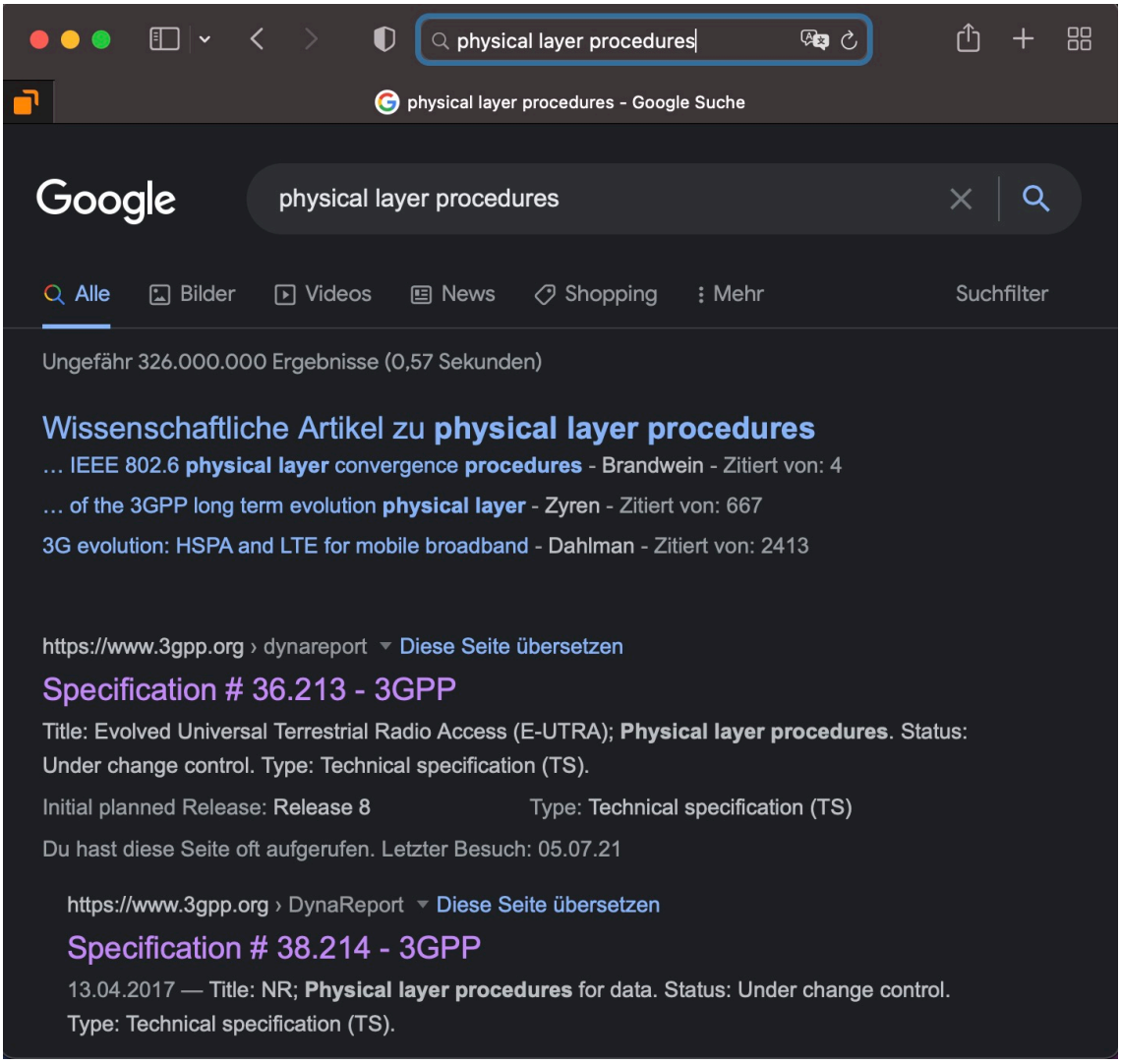
83. Thus, based on my personal knowledge and experience with ETSI's and 3GPP's standard business practices, this information tells me that this document was available to all 3GPP members and the general public by January 5, 2016, at the latest.

84. Furthermore, the availability of the new RAN1 specification versions which included TS 36.213 v13.0.0[6] was announced by the RAN WG1 secretary via the public 3GPP_TSG_RAN_WG1 email exploder on December 20, 2015, as shown in Appendix D. As of today, the 3GPP_TSG_RAN_WG1 email exploder has 1500 subscribers as can be seen at https://list.etsi.org/scripts/wa.exe?INDEX. According to my experience I would expect a similar or only slightly smaller number of subscribers around 2015-2016.

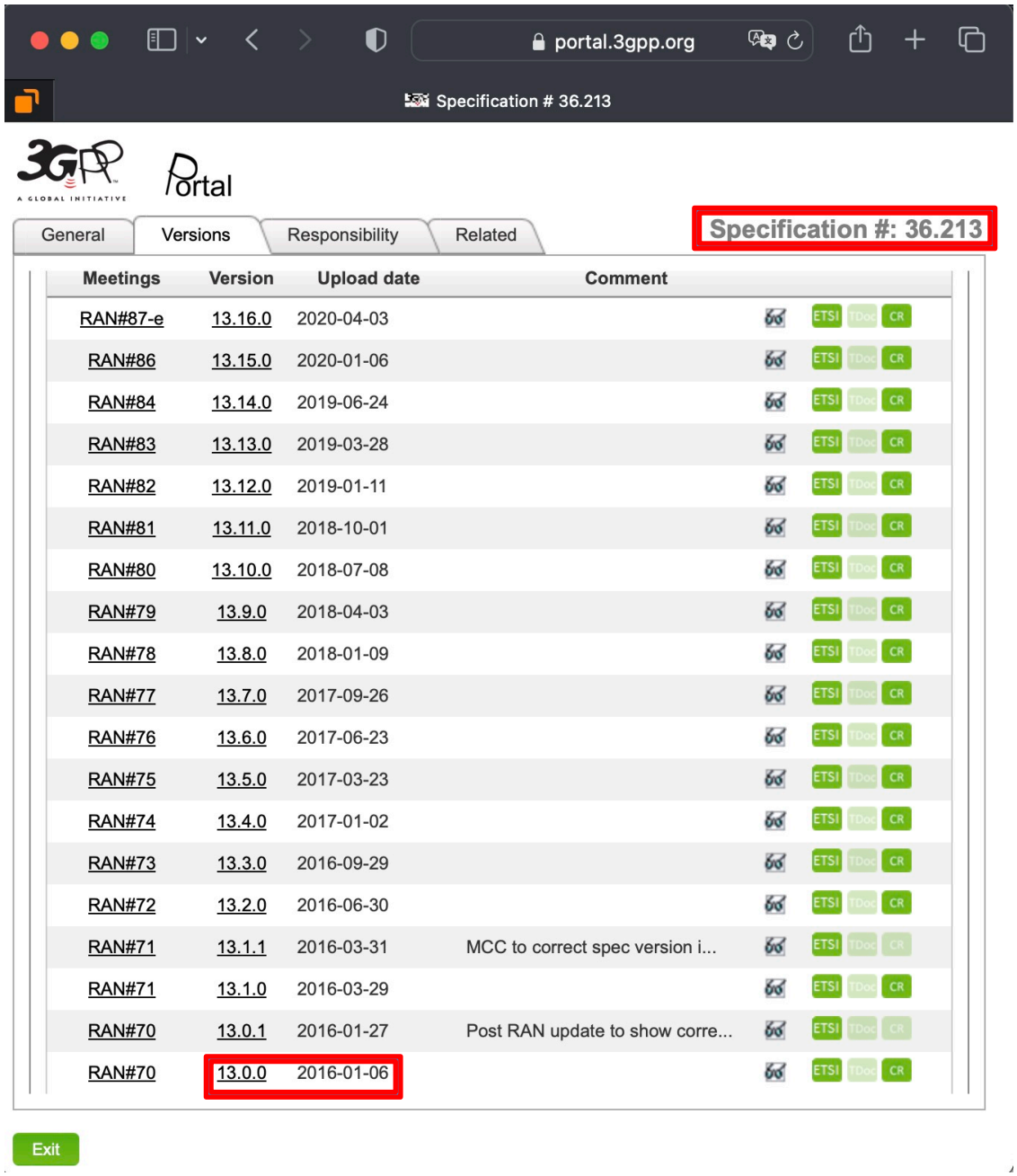
85. I believe that a person without prior knowledge of 3GPP and/or the technical specification (TS) number would have been able to easily find the TS for download via internet search. For instance, a Google search for "physical layer

[6] The list of RAN1 specifications can be found here: https://portal.3gpp.org/Specifications.aspx?q=1&tbid=373&SubTB=379&releases=all&draft=False&underCC=False&withACC=False&withBCC=False&numberNYA=False

procedures" provides the TS number "36.213" as one of the top results as can be seen in the screenshot below:




86. Following the provided search result link "Specification # 36.213 – 3GPP" leads to a 3GPP web page offering under the tab "Versions" download links to all versions of TS 36.213 including version 13.0.0, as shown by the screenshot below:




| Meetings | Version | Upload date | Comment |
|---|---|---|---|
| RAN#87-e | 13.16.0 | 2020-04-03 | |
| RAN#86 | 13.15.0 | 2020-01-06 | |
| RAN#84 | 13.14.0 | 2019-06-24 | |
| RAN#83 | 13.13.0 | 2019-03-28 | |
| RAN#82 | 13.12.0 | 2019-01-11 | |
| RAN#81 | 13.11.0 | 2018-10-01 | |
| RAN#80 | 13.10.0 | 2018-07-08 | |
| RAN#79 | 13.9.0 | 2018-04-03 | |
| RAN#78 | 13.8.0 | 2018-01-09 | |
| RAN#77 | 13.7.0 | 2017-09-26 | |
| RAN#76 | 13.6.0 | 2017-06-23 | |
| RAN#75 | 13.5.0 | 2017-03-23 | |
| RAN#74 | 13.4.0 | 2017-01-02 | |
| RAN#73 | 13.3.0 | 2016-09-29 | |
| RAN#72 | 13.2.0 | 2016-06-30 | |
| RAN#71 | 13.1.1 | 2016-03-31 | MCC to correct spec version i... |
| RAN#71 | 13.1.0 | 2016-03-29 | |
| RAN#70 | 13.0.1 | 2016-01-27 | Post RAN update to show corre... |
| RAN#70 | 13.0.0 | 2016-01-06 | |

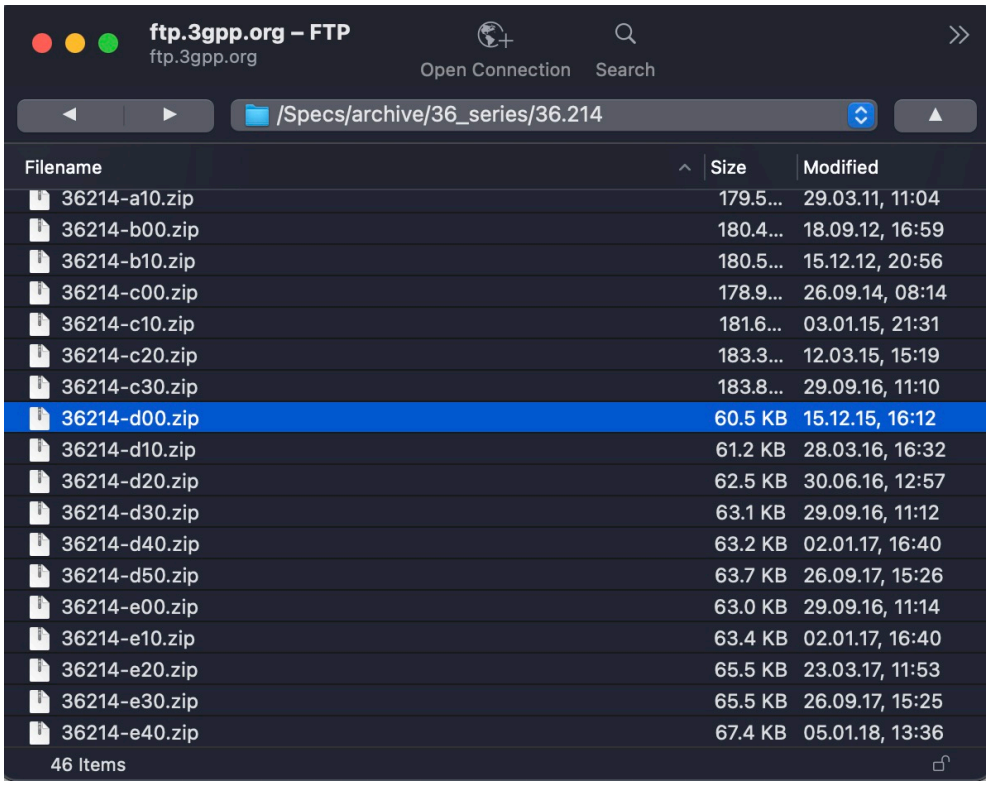
87. The above example search illustrates that it is very easy for an interested member of the public without prior knowledge of the TS number and even without prior knowledge of 3GPP to locate any version of TS 36.213, including version 13.0.0, for download.

88. The above search was performed at the time of writing this report. According to my personal experience, similar searches done in January 2016 or around that timeframe would have similarly provided the path to download version 13.0.0 of TS 36.213.

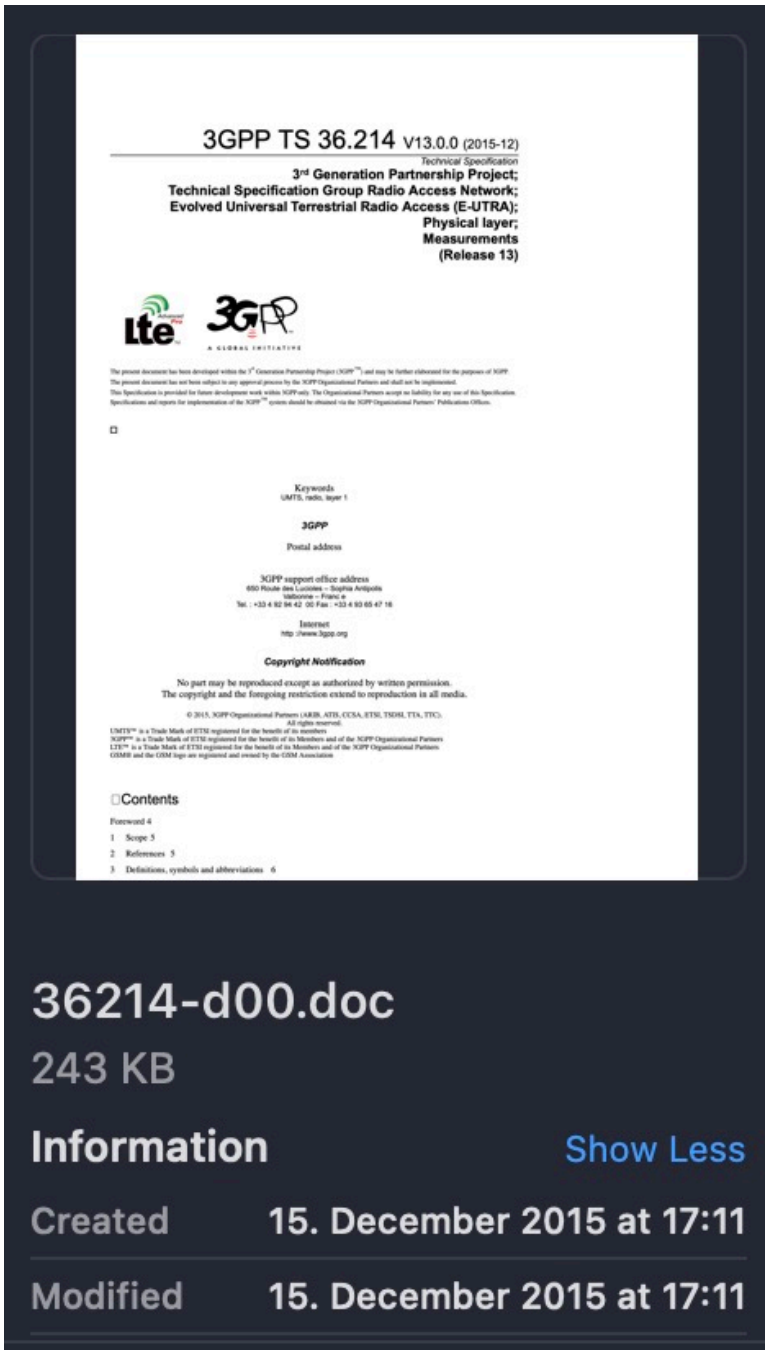
### 5. TS 36.214 V13.0.0

89. Based on my personal knowledge and my review of 3GPP's business records, I recognize EX1022 as a true and correct copy of version 13.0.0 of technical specification 3GPP TS 36.214 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer; Measurements (Release 13)"), which shows on its cover page "2015-12" as the year (2015) and month (December) during which this document was released by 3GPP.

90. The document was published and freely available on 3GPP's ftp server by December 15, 2015. This information is shown on the date stamp for the present-day listing of the same document on the 3GPP ftp server at https://www.3gpp.org/ftp/Specs/archive/36_series/36.214, as shown by the screenshot below:




91. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of “15. December 2015”, as shown in the screenshot below:



3GPP TS 36.214 V13.0.0 (2015-12)

*Technical Specification*

**3rd Generation Partnership Project;**
**Technical Specification Group Radio Access Network;**
**Evolved Universal Terrestrial Radio Access (E-UTRA);**
**Physical layer;**
**Measurements**
**(Release 13)**

Keywords
UMTS, radio, layer 1

***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.

© 2015, 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 4
1 Scope 5
2 References 5
3 Definitions, symbols and abbreviations 6

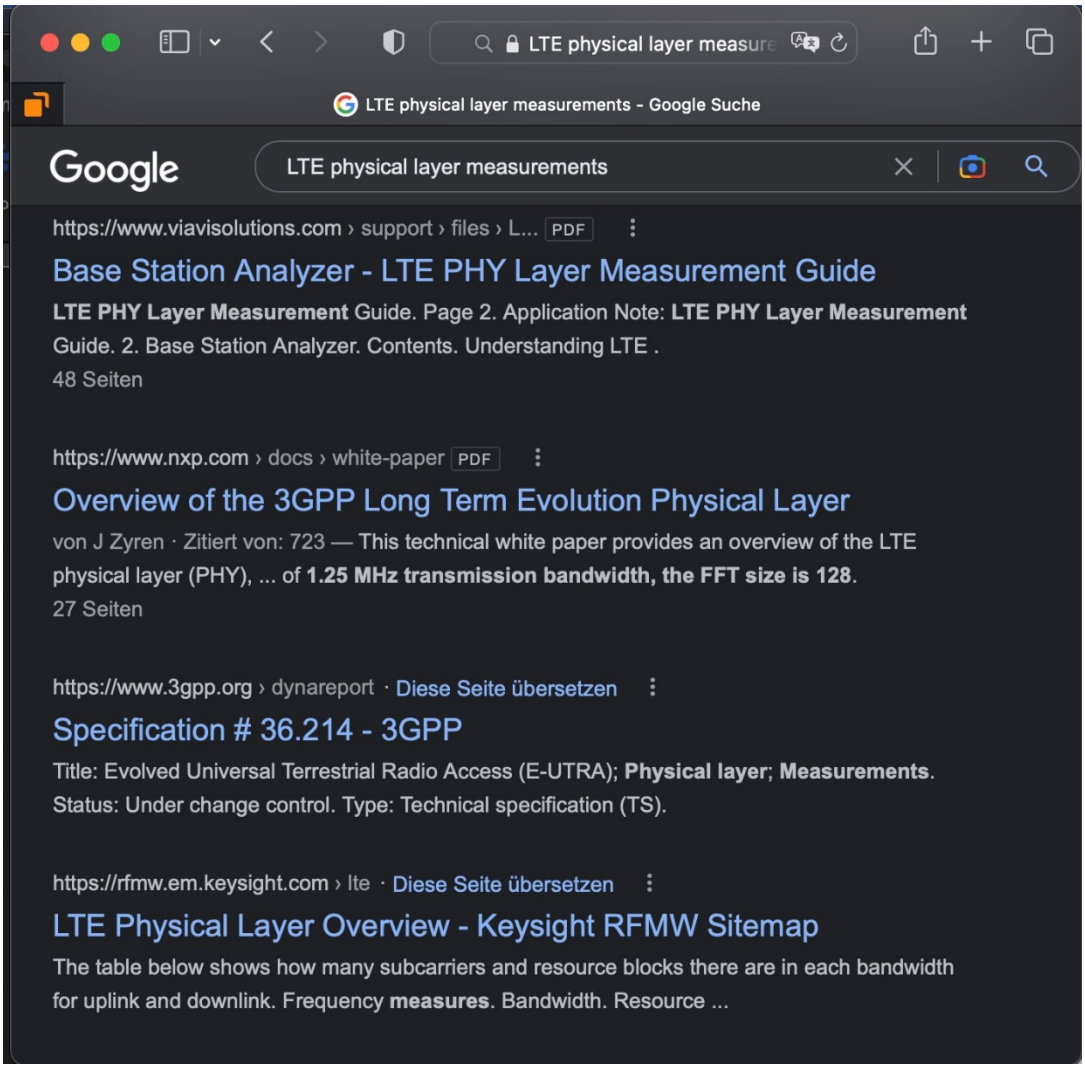
36214-d00.doc
243 KB
Information Show Less
Created 15. December 2015 at 17:11
Modified 15. December 2015 at 17:11

92. Thus, based on my personal knowledge and experience with ETSI's and 3GPP's standard business practices, this information tells me that this document was available to all 3GPP members and the general public by December 15, 2015, at the latest.

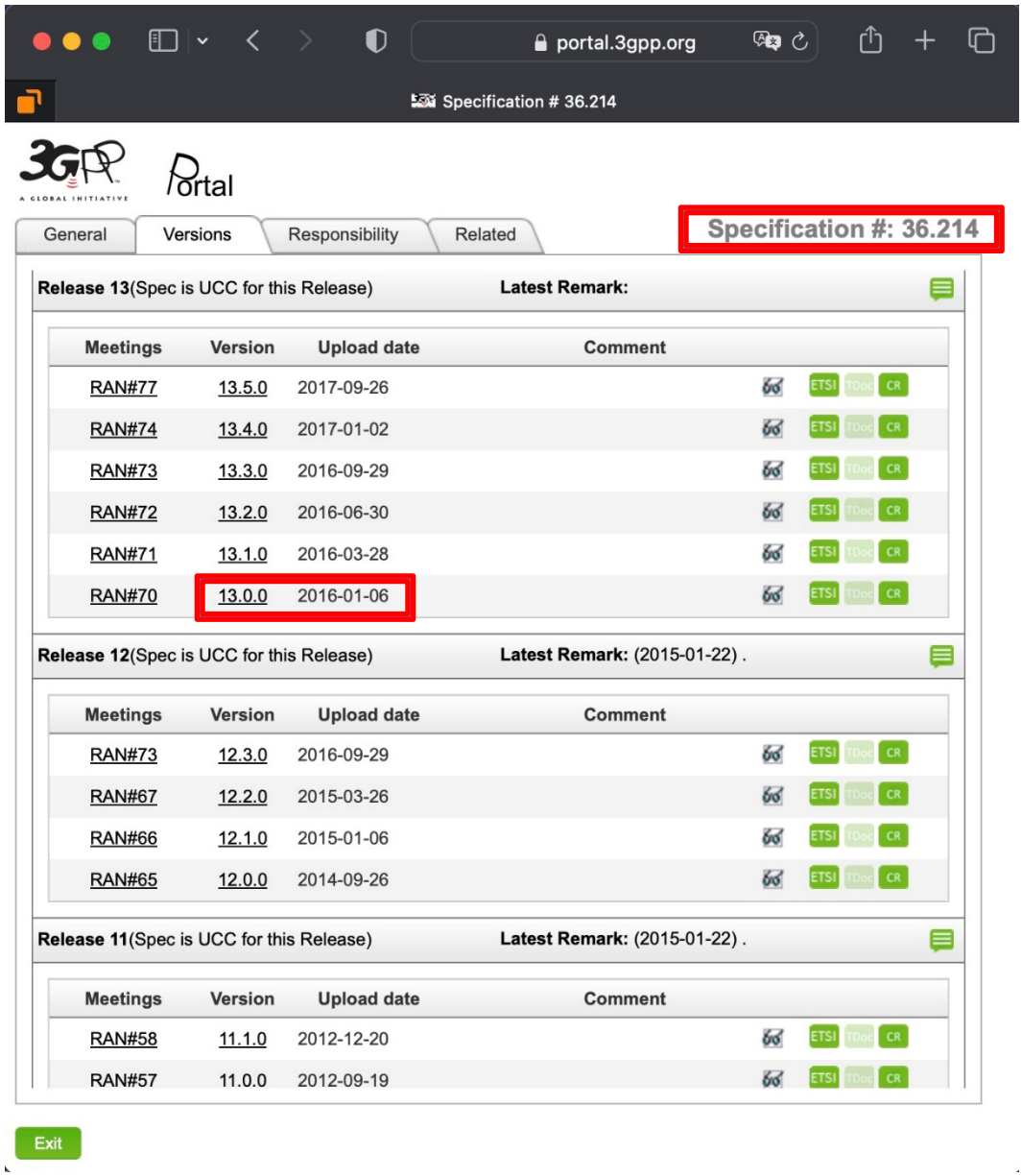
93. Furthermore, the availability of the new RAN1 specification versions which included TS 36.214 v13.0.0[7] was announced by the RAN WG1 secretary via the public 3GPP_TSG_RAN_WG1 email exploder on December 17, 2015, as shown in Appendix C. As of today, the 3GPP_TSG_RAN_WG1 email exploder has 1500 subscribers at https://list.etsi.org/scripts/wa.exe?INDEX. According to my experience I would expect a similar or only slightly smaller number of subscribers around 2015-2016.

94. I believe that a person without prior knowledge of 3GPP and/or the technical specification (TS) number would have been able to easily find the TS for download via internet search. For instance, a Google search for "LTE physical layer measurements" provides the TS number "36.214" as one of the top results as can be seen in the screenshot below:

[7] The list of RAN1 specifications can be found here: https://portal.3gpp.org/Specifications.aspx?q=1&tbid=373&SubTB=379&releases=all&draft=False&underCC=False&withACC=False&withBCC=False&numberNYA=False




95. Following the provided search result link "Specification # 36.214 – 3GPP" leads to a 3GPP web page offering under the tab "Versions" download links to all versions of TS 36.214 including version 13.0.0, as shown by the screenshot below:




96. The above example search illustrates that it is very easy for an interested member of the public without prior knowledge of the TS number and even without prior knowledge of 3GPP to locate any version of TS 36.214, including version 13.0.0, for download.

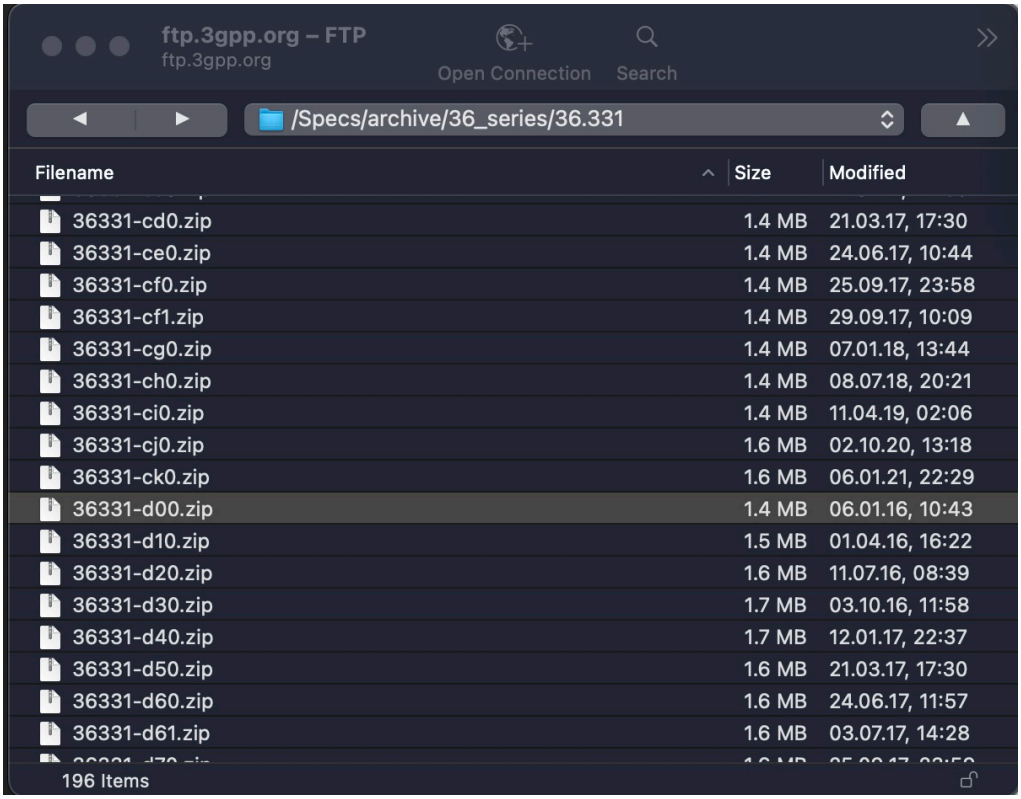
97. The above search was performed at the time of writing this report. According to my personal experience, similar searches done in January 2016 or around that timeframe would have similarly provided the path to download version 13.0.0 of TS 36.214.

### 6. TS 36.331 V13.0.0

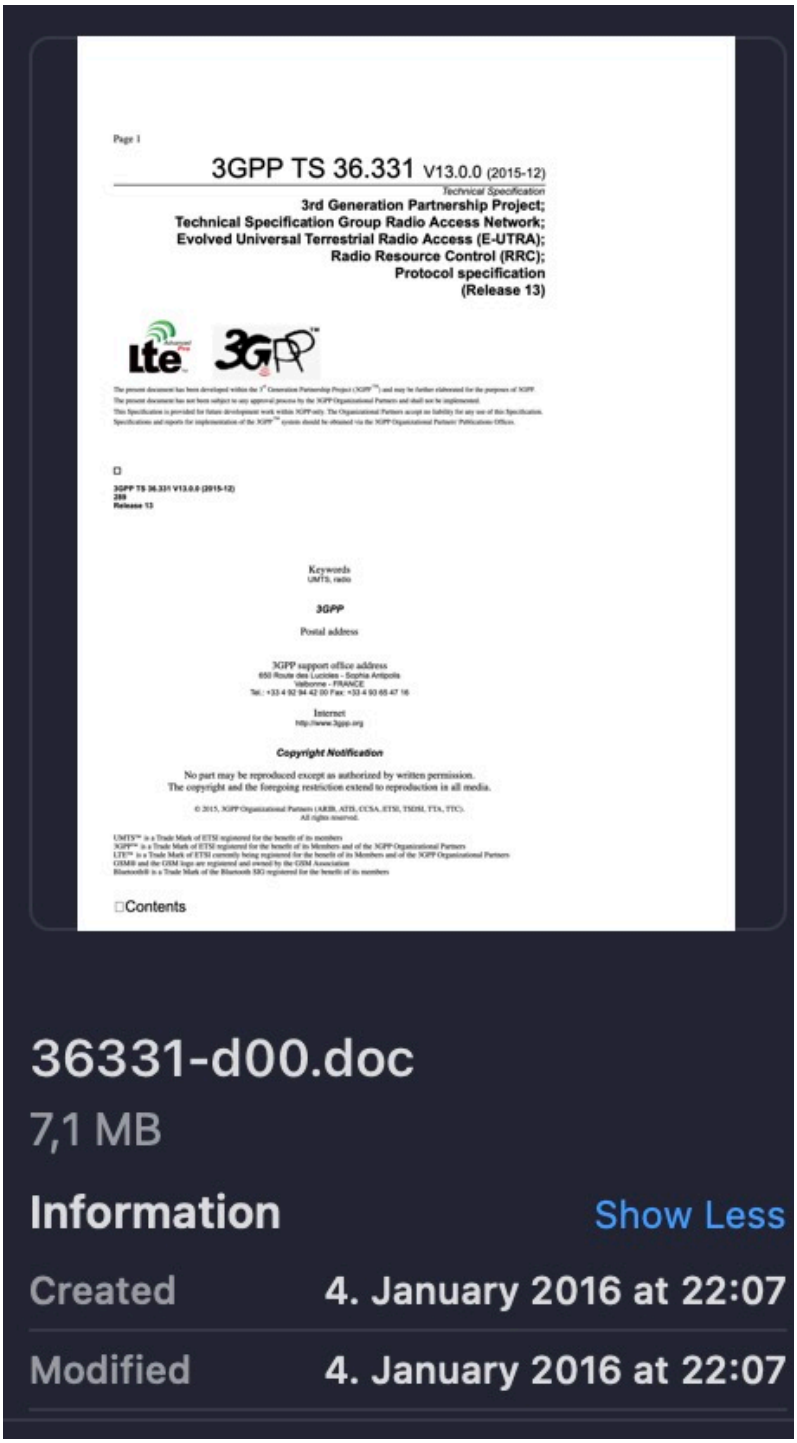
98. Based on my personal knowledge and my review of 3GPP's business records, I recognize EX1023 as a true and correct copy of version 13.0.0 of technical specification 3GPP TS 36.331 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 13)"), which shows on its cover page "2015-12" as the year (2015) and month (December) during which this document was released by 3GPP.

99. The document was published and freely available on 3GPP's ftp server by January 6, 2016. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36331-d00.zip"), as maintained by the Internet Archive at https://web.archive.org/web/20160306234408/http://www.3gpp.org:80/ftp/specs/archive/36_series/36.331. This information is also shown on the date stamp for the present-day listing of the same document on the 3GPP ftp server at

https://www.3gpp.org/ftp/Specs/archive/36_series/36.331, as shown by the screen shot below:




100. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of “4. January 2016”, as shown in the screen shot below:



Page 1

3GPP TS 36.331 V13.0.0 (2015-12)

*Technical Specification*

**3rd Generation Partnership Project;**
**Technical Specification Group Radio Access Network;**
**Evolved Universal Terrestrial Radio Access (E-UTRA);**
**Radio Resource Control (RRC);**
**Protocol specification**
**(Release 13)**

3GPP TS 36.331 V13.0.0 (2015-12)
289
Release 13

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.

© 2015, 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 currently being 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
Bluetooth® is a Trade Mark of the Bluetooth SIG registered for the benefit of its members

Contents

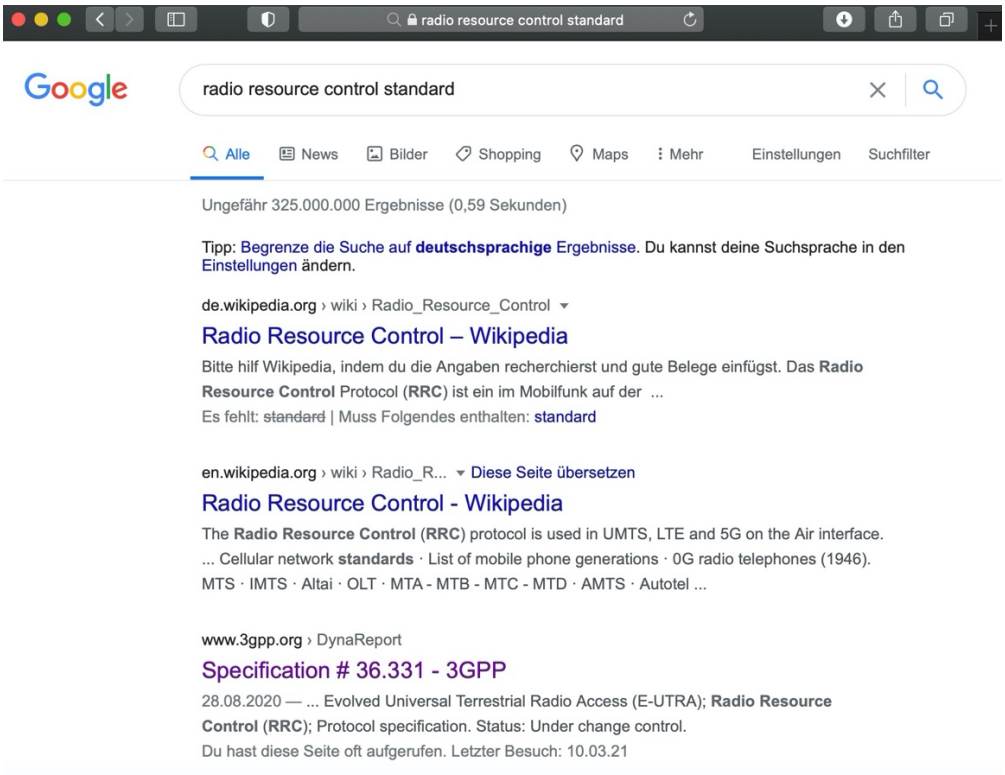
36331-d00.doc
7,1 MB
Information Show Less
Created 4. January 2016 at 22:07
Modified 4. January 2016 at 22:07

101. Thus, based on my personal knowledge and experience with ETSI's and 3GPP's standard business practices, this information tells me that this document

was available to all 3GPP members and the general public by January 6, 2016, at the latest.

102. Furthermore, the availability of the document was announced by the RAN WG2 secretary via the public 3GPP_TSG_RAN_WG2 email exploder on January 11, 2016, as shown in Appendix E. As of today, the 3GPP_TSG_RAN_WG2 email exploder has around 1100 subscribers as can be seen at https://list.etsi.org/. Based on my experience, I would expect around 1000 subscribers for the 3GPP_TSG_RAN_WG2 email exploder by 2015-2016.

103. I believe that a person without prior knowledge of 3GPP and/or the technical specification (TS) number would have been able to easily find the TS for download via internet search. For instance, a Google search for "radio resource control standard" provides the TS number "36.331" as one of the top results as can be seen in the screen shot below:




104. Following the provided search result link "Specification # 36.331 – 3GPP" leads to a 3GPP web page offering under the tab "Versions" download links to all versions of TS 36.331 including version 13.0.0, as shown by the screenshot below:

portal.3gpp.org

Specification # 36.331

3GPP Portal

General | Versions | Responsibility | Related

Specification #: 36.331

| | | | | |
|---|---|---|---|---|
| RAN#80 | 13.10.0 | 2018-07-10 | | CR |
| RAN#79 | 13.9.1 | 2018-04-03 | New version to fix ASN.1 form... | ETSI |
| RAN#79 | 13.9.0 | 2018-04-03 | | ETSI CR |
| RAN#78 | 13.8.1 | 2018-01-09 | Corrects an ASN.1 problem | ETSI |
| RAN#78 | 13.8.0 | 2018-01-08 | | ETSI CR |
| RAN#77 | 13.7.1 | 2017-09-29 | Reordering of fields in RRCCo... | ETSI |
| RAN#77 | 13.7.0 | 2017-09-25 | | ETSI CR |
| RAN#76 | 13.6.1 | 2017-07-03 | | ETSI |
| RAN#76 | 13.6.0 | 2017-06-24 | | ETSI CR |
| RAN#75 | 13.5.0 | 2017-03-21 | | ETSI CR |
| RAN#74 | 13.4.0 | 2017-01-12 | | ETSI CR |
| RAN#73 | 13.3.0 | 2016-10-03 | | ETSI CR |
| RAN#72 | 13.2.0 | 2016-07-11 | | ETSI CR |
| RAN#71 | 13.1.0 | 2016-04-01 | | ETSI CR |
| RAN#70 | 13.0.0 | 2016-01-07 | | ETSI CR |

**Release 12**(Spec is UCC for this Release) **Latest Remark:** (2015-01-22) .

| Meetings | Version | Upload date | Comment | |
|---|---|---|---|---|
| RAN#90-e | 12.20.0 | 2021-01-06 | | ETSI CR |

Exit

105. The above example search illustrates that it is very easy for an interested member of the public without prior knowledge of the TS number and even without prior knowledge of 3GPP to locate any version of TS 36.331, including version 13.0.0, for download.

106. The above search was performed at the time of writing this report. According to my personal experience, similar searches done in January 2016 or around that timeframe would have similarly provided the path to download version 13.0.0 of TS 36.331.

## V. AVAILABILITY FOR CROSS-EXAMINATION

107. In signing this declaration, I recognize that the declaration may be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross examination in the case and that cross examination will take place within the United States. If cross examination is required of me, I will cooperate to the best of my ability to appear for cross examination within the United States during the time allotted for cross examination.

**A. Right To Supplement**

108. I reserve the right to supplement my opinions in the future to respond to any arguments that the Patent Owner raises and to take into account new information as it becomes available to me.

**B. Signature**

109. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

110. I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 28, 2025

Friedhelm Rodermund

# Appendix A

# CURRICULUM VITAE

## I. PERSONAL DATA


Name: **Friedhelm RODERMUND**

Mailing address: Am Steiner Graben 18
56077 Koblenz, Germany

Phone: +49 172 2606489

Email: fred@iotecc.com


## II. PROFESSIONAL EXPERIENCE

**Summary**


Senior expert in telecommunications and Internet of Things (IoT) technology. 25 years of experience within the mobile communications industry, and several years in the IoT domain in various roles such as project management, technology innovation and evolution, standards development, technology strategy, patent creation and patent litigations, and development/introduction of new services.

Recognized standards expert who was actively involved in leading roles in the development of key standards for mobile telephony/data and service anablers across standards development organizations such as 3GPP, ETSI, GSMA, IETF, OMA, and oneM2M. Currently focussing on standards for the Internet of Things including ETSI and 3GPP standards such as 5G and 6G, and OMA Lightweight M2M (LwM2M).

Founder and director of IOTECC GmbH which provides consulting services around technologies and standards enabling the Internet of Things, and consulting and expert services related to patents for mobile telcommunications and IoT.


**01/2015 – present** **IOTECC GmbH** **Koblenz, Germany**

Founder and CEO

- Mobile telecommunications, Internet of Things (IoT) technology and standards consulting
- Telecommunications and IoT patent consulting
  - Consulting services around telecommunications and IoT patents in particular related to 3GPP, ETSI and OMA standards
  - State of the art/prior art research services related to patent filing e.g. for 5G and 6G
  - Prior art research, essentiality assessment, patent infringement analysis related to litigations and validity actions
  - Advising on IP strategy
  - Advising on Standards Development Organisations (SDO) e.g. ETSI and 3GPP working processes and IPR policy
  - Conducting seminar on Standards Essential Patents (SEPs) for the Internet of Things at the Technical University of Ilmenau, Germany
  - Experienced expert witness (please see section III for a list of supported actions)

**11/2014 – 12/2014** **Friedhelm Rodermund Consulting** **Koblenz, Germany**

Internet of Things (IoT) Consultant

- IoT standards development and introduction of new IoT services

**01/2011 – 10/2014 Vodafone Germany / Vodafone Group R&D Düsseldorf, Germany**

Senior Standards Strategist
- Representing Vodafone in various standardisation bodies
- Creating technical standards for the Internet of Things
- Work item lead, technical editor and key contributor of Open Mobile Alliance (OMA) "Lightweight M2M (LwM2M)" – the new standard for the Internet of Things
- Advising and supporting various IoT/M2M projects related to e.g. smart metering
- Advising on the introduction of new IoT/M2M technologies and services
- Leading Proof of Concepts of emerging technologies
- Involved in innovation projects
- Supporting the creation and protection of Intellectual Property

**01/2009 – 12/2010 Vodafone Germany Düsseldorf, Germany**

Vice Chairman Open Mobile Alliance (OMA) Device Management (DM)
- Responsible for Vodafone's Device Management standardisation
- As OMA DM Vice Chairman, co-leading the group, chairing committee meetings and web conferences, steering the technical direction, management of the different work items
- Editor of several specifications, rapporteur of various work items
- Support of projects for the introduction of device management
- Delegate to 3GPP SA1 with responsiblity for the introduction of MTC (machine type communications) related service/network requirements

**01/2005 – 12/2008 Vodafone Germany Düsseldorf, Germany**

Project Manager Mobile Broadcast Standards
- Responsible for Mobile Broadcast standardisation across different broadcast systems/standards bodies and across all Vodafone local operations
- Responsible for Mobile Broadcast standardisation strategy development and implementation
- Delegation Lead for the Open Mobile Alliance (OMA) BCAST working group
- Initiated and managed the BCAST device profile development in the BMCO Forum
- Leading the "Service Protection" (pay-TV) stream of the German DVB-H Consortium
- Filed several patents
- Supporting patent litigations and patent portfolio evaluation (various technical areas)

**04/2003 – 12/2003 GSM Association London, United Kingdom**

Member of the MMS Task Force
- Verification of the MMS operator interworking framework
- Supporting the definition and specification of the MMS functional evolution
- Acting as a "link" between 3GPP and GSMA in the area of MMS

**06/1998 – 12/2004 European Telecommunications Standards Institute (ETSI)**
**Sophia Antipolis, France**

01/2002 – 12/2004: Secretary 3GPP Technical Specifications Group *"Terminals"* and Terminals Working Group 2 *"Terminal Services and Capabilities"*

01/1999 – 12/2001: Secretary 3GPP Terminals Working Group 2 *"Terminal Services and Capabilities"* and GERAN 3 *"Base Station Testing"*

06/1998 – 03/1999: Secretary ETSI SMG4 *"Data Services"* and SMG8 *"Base Station Testing"*

- Supported the establishment of 3GPP (3rd Generation Partnership Project) as the leading standards organization for mobile telecommunications
- Project manager and secretary of TSG "Terminals" reponsbile for Terminal Conformance Testing, Terminal Services and Capabilities, Universal Subscriber Identity Module (USIM)
- Project manager and secretary of Terminals Working Group 2 "Terminal Services and Capabilities" that was responsible for Terminal Execution Environments, Messaging including Short Message Service (SMS), Cell Broadcast Service (CBS), Enhanced Messaging Service (EMS), Multimedia Messaging Service (MMS), Terminal Interfaces incl. AT-commands, Generic User Profile, Data Synchronization and others
- Establishment and management of the Work Plan and follow-up and report on the progress of the related work items
- Advising the chairmen and the standards groups on technical, procedural and political issues
- Editorship of various GSM and UMTS technical specifications
- Responsible for presenting the technical results of the working groups to the parent body
- Responsible for the communication with other standards bodies inside and outside 3GPP
- PR activities (articles, interviews)

**12/1993 – 06/1998 Mannesmann Mobilfunk GmbH Düsseldorf, Germany**

System Engineer and Project Manager in Quality Assurance and Technical Standards

- Leadership and management of acceptance test projects in the area of GSM Base Station Controller (BSC) and GSM Base Station (BTS) hardware and software.
- Leading project teams of around 15 people
- Responsible for the clearance of releasing new software/hardware into the network
- Supported Request for Quotations, supplier evaluation and pre-selection, project manager of System Verification as a central part of the supplier selection process.
- Representation of Mannesmann Mobilfunk to the ETSI standardization group "Standardization Technical Committee SMG3 System Architecture"
- Conduction of product and hardware development quality audits
- Representative of Mannesmann Mobilfunk in A-interface interoperability testing activities
- Member of BSS product planning group which was defining operator requirements for future BSS releases
- Development of process improvements for type acceptance

## III. LIST OF SUPPORTED PATENT LITIGATIONS AND VALIDITY ACTIONS

2024
Pantech Corporation v. Oppo Mobile Telecommunications Corp., Ltd.
Inter Partes Review matters
On behalf of Oppo
Counsel: Bayes PLLC
Role: Expert witness and consulting services

2024
Pantech Corp. et al. v. LG Electronics Inc. et al.
Civil Action No. 5:22-cv-00113-RWS-JBB (E.D.Tx.)
On behalf of LG Electronics
Counsel: Ropes & Gray LLP
Role: Expert witness and consulting services

2024
Ericsson v. Lenovo
Inter Partes Review matters
On behalf of Lenovo
Counsel: Kirkland & Ellis LLP
Role: Expert witness and consulting services

2024
Pantech Corp. et al. v. OnePlus Technology Co., Ltd.
Civil Action No. 5:22-cv-00069-RWS (E.D.Tx.)
On behalf of OnePlus
Counsel: Leydig, Voit & Mayer, Ltd.
Role: Expert witness and consulting services

2024
G+ Communications, LLC, v. Samsung Electronics Co., Ltd.
Civil Action No. 2:22-CV-78 (E.D.Tx.)
On behalf of Samsung
Counsel: Fish&Richardson P.C.
Role: Expert witness and consulting services

2023
Unified Patents, LLC v. Helios Streaming LLC
Inter Partes Review matters
On behalf of Unified Patents
Counsel: Akin
Role: Expert witness and consulting services

2023
Unified Patents, LLC v. SLS Manager Technologies
Inter Partes Review matters
On behalf of Unified Patents
Counsel: Unified Patents
Role: Expert witness and consulting services

2023
Headwater Research LLC v. Samsung Electronics Co., Ltd.
Inter Partes Review matters
On behalf of Samsung
Counsel: Fish&Richardson P.C.
Role: Expert witness and consulting services

2023

Pantech Corp. et al. v. LG Electronics Inc. et al.
Inter Partes Review matters
On behalf of LG Electronics
Counsel: Ropes & Gray LLP
Role: Expert witness and consulting services

2023

Apple Computer Trading (Shanghai) Co., Ltd, Apple Electronics Products Commerce (Beijing) Co., Ltd. v. Optis Cellular Technology LLC
Shenzhen, China, Intermediate People's Court
On behalf of Apple
Counsel: WilmerHale
Role: Expert witness and consulting services

2023

Huawei Technologies Co., Ltd. v. MediaTek Inc.
Inter Partes Review matters
On behalf of MediaTek
Counsel: Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P.
Role: Expert witness and consulting service

2023

Apex Beam Technologies LLC v. Samsung
Inter Partes Review matters
On behalf of Samsung
Counsel: Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P.
Role: Expert witness and consulting services

2022

Constellation Designs LLC v. LG Electronics, Inc.
Inter Partes Review matters
On behalf of LG Electronics
Counsel: Fish&Richardson P.C.
Role: Expert witness and consulting services

2022

Unified Patents, LLC v. Togail Technologies LTD.
Inter Partes Review matters
On behalf of Unified Patents
Counsel: Duane Morris LLP
Role: Expert witness and consulting services

2022

Ericsson v. Apple
Certain Mobile Telephones, Tablet Computers With Cellular Connectivity, And Smart Watches With Cellular Connectivity, Components Thereof, And Products Containing Same, Inv. No. 337-TA-1299 (U.S.I.T.C.)
On behalf of Apple
Counsel: WilmerHale
Role: Expert and consulting services

2022

Ericsson v. Apple
Civil Action No. 2:21-cv-376 (E.D.Tex.)
On behalf of Apple
Counsel: WilmerHale
Role: Expert and consulting services

2022

Intellectual Ventures II LLC v. Toyota Motor Cooperation.
Inter Partes Review matters
On behalf of Toyota

Counsel: Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P.
Role: Expert witness and consulting services

2022

Ericsson v. Apple
2nd Business Court, Rio de Janeiro, Brazil
On behalf of Apple
Counsel: WilmerHale
Role: Expert and consulting services

2022

Ericsson v. Apple
Civil Court, Bogotá, Columbia
On behalf of Apple
Counsel: WilmerHale
Role: Expert and consulting services

2022

Proven Networks LLC. v. NetApp Inc.
Inter Partes Review matters
On behalf of NetApp
Counsel: Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P., Ropes & Gray LLP
Role: Expert witness and consulting services

2022

Ericsson v. Apple
Inter Partes Review matters
On behalf of Apple
Counsel: Fish&Richardson, Erise IP
Role: Expert witness and consulting services

2021

AEGIS 11 LLC v. Hisense Company, Ltd. and Hisense USA Corporation
Inter Partes Review matters
On behalf of Hisense
Counsel: Orrik Herrington & Sutcliffe LLP
Role: Expert witness and consulting services

2021

Nokia v. Lenovo
Certain Electronic Devices, Including Computers, Tablet Computers, and Components and Modules Thereof, Inv. No. 337-TA-1208 (U.S.I.T.C.)
On behalf of Lenovo
Counsel: WilmerHale
Role: Expert witness and consulting services

2021

Optis Cellular Technology LLC et al. v. Apple
Claim No. HP-2019-000006 (High Court of Justice, Business and Property Courts of England and Wales)
On behalf of Apple
Counsel: WilmerHale
Role: Expert witness and consulting services

2021

Ericsson v. Samsung
Inter Partes Review matters
On behalf of Samsung
Counsel: Kirkland&Ellis LLP, Fish&Richardson
Role: Expert witness and consulting services

2020

Panoptis Patent Management LLC et al. v. Apple Inc.
Civil Action No. 2:19-cv-66 (E.D. Tex.)
On behalf of Apple
Counsel: WilmerHale
Role: Expert witness at bench trial

2020

Sol IP, LLC v. AT&T Mobility, LLC et al.
Civil Action No. 2:18-cv-526 (E.D. Tex.)
On behalf of AT&T, Verizon, Sprint
Counsel: Gibson Dunn
Role: Expert witness and consulting services

2020

Bell Northern Research LLC v. LG Electronics Inc. et al.
Civil Action No. 18-CV-2864-CAB-BLM (S.D. Cal.)
On behalf of LG Electronics Inc.
Counsel: Fish&Richardson
Role: Expert witness and consulting services

2019

Conversant Wireless Licensing S.a.r.l. v. LG Electronics Deutschland GmbH
Civil Action No. 7 O 3277/18 (Landgericht Munich, Germany)
On behalf of LG Electronics Deutschland GmbH
Counsel: Wildanger Kehrwald Graf von Schwerin & Partner mbB
Role: Expert witness and consulting services

2019

Bell Northern Research, LLC v. Huawei Device Co., Ltd, et al.
Civil Action No. 3:18-cv-01784-CAB-BLM
On behalf of Huawei
Counsel: Fish&Richardson
Role: Expert witness and consulting services

2019

Uniloc USA, Inc., et al. v. Samsung Electronics America, Inc. and Samsung Electronics Co. Ltd.
Civil Action Nos. 2:18-cv-00040-JRG, 2:18-cv-00041-JRG, 2:18-cv-00042-JRG and 2:18-cv-00044-JRG (United States District Court for the Eastern District of Texas)
On behalf of Samsung
Counsel: Greenberg Traurig
Role: Expert witness and consulting services

2019

Uniloc USA, Inc., et al. v. Huawei Device USA, Inc. et al.
Civil Action No. 2:18-cv- 00072-JRG-RSP (E.D. Tex.)
On behalf of Huawei
Counsel: McGuireWoods
Role: Expert witness and consulting services

2019

Microsoft Corporation v. Uniloc 2017 LLC
Inter Partes Review of U.S. Pat. No. 7,167,487
Inter Partes Review of U.S. Pat. No. 7,075,917
On behalf of Microsoft and on behalf of Apple as joinder petitioner
Counsel: Klarquist Sparkman (Microsoft), Erise IP (Apple)
Role: Expert witness and consulting services

2019

Qualcomm v. KFTC
South Korean Case, Seoul High Court
On behalf of intervenor Apple supporting the KFTC

Counsel: Boies Schiller Flexner
Role: Expert witness

2018/19
Evolved Wireless, LLC v. Apple, Inc.
Civil Action No. 1:15-cv-00542-JFB-SRF
On behalf of Apple
Counsel: DLA Piper
Role: Expert witness and consulting services

2018/19
Cisco Systems Inc. v. Traxcell Technologies
Inter Partes Review of Traxcell Technologies patents
On behalf of Cisco
Counsel: King&Spalding
Role: Expert witness and consulting services

2018/19
Qualcomm Inc. v. Apple Inc.
Civil Action No. 3:17- cv-02398-DMS-MDD (United States District Court for the Southern District of California)
Civil Action No. 3:17-cv-02402-WQH-MDD
Certain Mobile Electronic Devices and Radio Frequency and Processing Components Thereof (II), Inv. No. 337-TA-1093
Inter Partes Review of U.S. PATENT NO. 9,154,356
Cases IPR2019-00047, IPR2019-00048, IPR2019-00049, IPR2019-00128, IPR2019-00129
On behalf of Apple and Intel
Counsel: WilmerHale
Role: Expert witness and consulting services

2018/19
Apple Inc. v. Qualcomm Inc.
Civil Action No. 3:17-CV-00108-GPC-MDD (United States District Court for the Southern District of California)
On behalf of Apple
Counsel: Fish&Richardson, Boies Schiller Flexner
Role: Expert witness and consulting services

2018
3G Licensing, S.A. et al. v. LG Electronics Inc. et al
Inter Partes Review of U.S. Patent No. 7,995,091
On behalf of LG Electronics
Counsel: Fish&Richardson
Role: Expert witness

2017
Huawei Technologies Co. LTD. v. T-Mobile US, Inc. & T-Mobile USA, Inc.
E.D. Tex. Case Nos. 2:16-cv-00052-JRG-RSP; 2:16-cv-00055-JRG-RSP; 2:16-cv-00056-JRG-RSP; and 2:16-cv-00057-JRG-RSP
On behalf of T-Mobile
Counsel: Gibson Dunn
Role: Expert witness and consulting services

2016
Koninklijke KPN N.V. v. Samsung Electronics America, Inc. et al.
Civil Action No. 14-cv-1165
On behalf of Samsung Electronics
Counsel: Baker Botts
Role: Expert witness and consulting services

2016
SSH v. Sony

OLG Düsseldorf, Germany
On behalf of SSH
Counsel: Cohausz&Florack
Role: Technical expert support

2015/16
LG Electronics v. Core Wireless Licensing S.A.R.L.
Inter Parles Review of U.S. Patent No. 8,165,049
On behalf of LG Electronics
Counsel: Greenberg Traurig
Role: Expert witness

2015/16
Core Wireless Licensing S.A.R.L. v. LG Electronics Inc. and LG Electronics MobileComm U.S.A., Inc
Civil Action No. 2:14-cv-911 (lead case) and Civil Action No. 2:14-cv-912 (consolidated)
On behalf of LG Electronics
Counsel: Greenberg Traurig, Sidley Austin
Role: Expert witness

2015
Intellectual Ventures I LLC v. T-Mobile USA, Inc. & T-Mobile US, Inc.
D. Del. Case No. 1:13-cv-01632
Intellectual Ventures II LLC v. T-Mobile USA, Inc. & T-Mobile US, Inc.
D. Del. Case No. 1:13-cv-01633
On behalf of T-Mobile
Counsel: Gibson Dunn
Role: Technical expert support

## IV. EDUCATION

**10/1984 – 10/1993** **University of Technology Aachen** **Aachen, Germany**
Graduate of Electrical Engineering with a focus on telecommunications technologies (Dipl.-Ing. TH)

**10/1992 – 04/1993** **University of Technology Trondheim** **Trondheim, Norway**
Diploma Thesis "Design of a dual processor computer for digital signal processing in power electronics"

## V. LANGUAGES

German, English, French

## VI. PUBLICATIONS (selection)

- ”Unlocking the internet of things and driving the need for interoperability”, Global Telecoms Business, December 2013
- “The need for standardisation in the M2M services layer”, Global Telecoms Business, February 2014
- Co-authored white paper “Lightweight M2M: Enabling device management and applications for the internet of things”, Open Mobile Alliance, March 2014
- “Objects are a new way to create M2M applications”, Global Telecoms Business, April 2014
- “The need for standardisation in the M2M services layer”, M2M Now, July 2015

# Appendix B

LISTSERV friedhelm.rodermund@iotecc.com

Subscriber Options
LISTSERV Archives
Search Archives
Subscriptions
Preferences
Change Password
Log Out

3GPP_TSG_RAN_WG4 Archives
December 2015, Week 5

New in LISTSERV 17.0 ×

3GPP_TSG_RAN_WG4@LIST.ETSI.ORG

**Options:** Use Proportional Font
Show Text Part by Default
Show All Mail Headers

**Message:** [<< First] [< Prev] [Next >] [Last >>]
**Topic:** [<< First] [< Prev] [Next >] [Last >>]
**Author:** [<< First] [< Prev] [Next >] [Last >>]

**Subject:** Draft Specs: first set available
**From:** Issam Toufik <Issam.Toufik@ETSI.ORG>
**Reply To:** Issam Toufik <Issam.Toufik@ETSI.ORG>
**Date:** Thu, 31 Dec 2015 16:24:45 +0000
**Content-Type:** multipart/alternative
**Parts/Attachments:** text/plain (530 bytes) , text/html (2596 bytes)

Dear all,

A first set of the draft specs, following the implementation of CRs approved at RAN-70, are now available at:
ftp://ftp.3gpp.org/tsg_ran/WG4_Radio/Draft Specs/After_RAN_70

36-101(rel-12), 36.133(rel-12), 36.141(rel-11, rel-12, rel13) and 36.307 (rel-10, rel-11, rel-12, rel13) are the messing specs and will come later.

Please double check your CRs and if you have any comment sent to me no later than **Thursday 07 January 2016, 10:00am UTC**.

Best regards
Issam

ATOM RSS1 RSS2

LIST.ETSI.ORG

# Appendix C

3GPP_TSG_RAN_WG1 Archives
December 2015, Week 3

New in LISTSERV 17.0

3GPP_TSG_RAN_WG1@LIST.ETSI.ORG



**Subject:** [RAN1]: post plenary implemented specs
**From:** Patrick Merias <Patrick.Merias@ETSI.ORG>
**Reply To:** Patrick Merias <Patrick.Merias@ETSI.ORG>
**Date:** Thu, 17 Dec 2015 10:51:07 +0000
**Content-Type:** multipart/alternative
**Parts/Attachments:** text/plain (1191 bytes) , text/html (5 kB)

Dear all,

Draft versions of new RAN1 specs are visible at /tsg_ran/WG1_RL1/DRAFT
Note that 36.213 Rel-13 is not listed yet – I'm still working on it…

No major issues, some comments related to introducing LAA in 36.211

Section 6.9.2: one comment was left out - not included in the spec
Section 6.10.1.1: please check whether the pseudo-random sequence generator initialization is correct (the CR was introducing new equations without deleting the former ones)
Section 6.10.1.2: one comment was left out - not included in the spec
Section 6.10.5.1: please check whether the pseudo-random sequence generator initialization is correct (the CR was introducing new equations without deleting the former ones)

Note below Table 6.10.5.2-1: is a change on change introduced by CR0206r2 - implementation is aligned with CR0206r2

Note below Table 6.10.5.2-2: is a change on change introduced by CR0206r2 - implementation is aligned with CR0206r2, slightly modified to reflect the exact number of configurations - please check

BR
P

**Patrick Merias**
Mobile Competence Center
*Technical Officer*
mailto:patrick.merias@etsi.org
☏+33 (0)4.92.94.42.06

Please consider the environmental impact before printing this e-mail

# Appendix D

3GPP_TSG_RAN_WG1 Archives
December 2015, Week 3

New in LISTSERV 17.0

3GPP_TSG_RAN_WG1@LIST.ETSI.ORG



**Subject:** Re: [RAN1]: post plenary implemented specs
**From:** Patrick Merias <Patrick.Merias@ETSI.ORG>
**Reply To:** Patrick Merias <Patrick.Merias@ETSI.ORG>
**Date:** Sun, 20 Dec 2015 13:52:14 +0000
**Content-Type:** multipart/related
**Parts/Attachments:** text/plain (1974 bytes) , text/html (9 kB) , image001.png (9 kB) , image002.png (9 kB)

Dear all,

36.213 Rel-13 is now visible at /tsg_ran/WG1_RL1/DRAFT

Please check (CR0539r1 introducing eCA) under

8.6.1 Modulation order and redundancy version determination

Below "For $29 \le I_{MCS} \le 31$ the modulation order ($Q_m$) is determined as follows:"
Two sub-bullets present in the spec are removed in the CR without deleting change marks

8.6.2 Transport block size determination

Below "For $29 \le I_{MCS} \le 31$,"
Two sub-bullets present in the spec are removed in the CR without deleting change marks

BR
P

---

**From:** Patrick Merias [mailto:Patrick.Merias@ETSI.ORG]
**Sent:** den 17 december 2015 11:51
**To:** 3GPP_TSG_RAN_WG1@LIST.ETSI.ORG
**Subject:** [RAN1]: post plenary implemented specs

Dear all,

Draft versions of new RAN1 specs are visible at /tsg_ran/WG1_RL1/DRAFT
Note that 36.213 Rel-13 is not listed yet – I'm still working on it…

No major issues, some comments related to introducing LAA in 36.211

Section 6.9.2: one comment was left out - not included in the spec
Section 6.10.1.1: please check whether the pseudo-random sequence generator initialization is correct (the CR was introducing new equations without deleting the former ones)
Section 6.10.1.2: one comment was left out - not included in the spec
Section 6.10.5.1: please check whether the pseudo-random sequence generator initialization is correct (the CR was introducing new equations without deleting the former ones)

Note below Table 6.10.5.2-1: is a change on change introduced by CR0206r2 - implementation is aligned with CR0206r2

Note below Table 6.10.5.2-2: is a change on change introduced by CR0206r2 - implementation is aligned with CR0206r2, slightly modified to reflect the exact number of configurations - please check

BR
P

**Patrick Merias**
Mobile Competence Center
*Technical Officer*
mailto:patrick.merias@etsi.org
☏+33 (0)4.92.94.42.06

Please consider the environmental impact before printing this e-mail

# Appendix E

LISTSERV

friedhelm.rodermund@iotecc.com

- Subscriber Options
- LISTSERV Archives
- Search Archives
- Subscriptions
- Preferences
- Change Password
- Log Out

3GPP_TSG_RAN_WG2 Archives
January 2016, Week 2

New in LISTSERV 17.0

3GPP_TSG_RAN_WG2@LIST.ETSI.ORG

**Options:** Use Proportional Font
Show Text Part by Default
Show All Mail Headers

**Message:** [<< First] [< Prev] [Next >] [Last >>]
**Topic:** [<< First] [< Prev] [Next >] [Last >>]
**Author:** [<< First] [< Prev] [Next >] [Last >>]

**Subject:** CR implementation status after RAN #70 (7)
**From:** Yong-jun Chung <Yong-jun.Chung@ETSI.ORG>
**Reply To:** Yong-jun Chung <Yong-jun.Chung@ETSI.ORG>
**Date:** Mon, 11 Jan 2016 15:43:05 +0000
**Content-Type:** multipart/alternative
**Parts/Attachments:** text/plain (50 kB) , text/html (1 MB)

Dear all,

We have 9 further final drafts by rapporteurs' confirmation as followings:
25.304 REL-13, 25.319 REL-13, 36.300 REL-13, 36.305 REL-13, 36.306 REL-12/REL-13, 36.355 REL-13, 36.323 REL-13, 37.320 REL-13
Many thanks Jun, Hyung-Nam, Benoist, Masato, Ravi, SeungJune and Gosia.

Also, following update versions are newly introduced and used as final drafts:
- draft update 1: 36.305 REL-13, 36.306 REL-13, 36.355 REL-13
- draft update 2: 36.306 REL-12, 36.323 REL-13
- draft update 3: 36.300 REL-13

Best regards,
Yong-Jun

**Overview of RAN2 CR implementation after RAN #70 (Sitges): Status on 11.01.2016**

| spec | REL-8 | REL-9 | REL-10 | REL-11 | REL-12 | REL-13 | CRs | specs | rapporteur | email |
|---|---|---|---|---|---|---|---|---|---|---|
| 25.300 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 1 | David Ghetolaul (ALU) | david.ghetolaul@alcatel-lucent.com |
| 25.301 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.302 | 0 | 0 | 1 | 1 | 1 | 2 | 5 | 4 | David Ghetolaul (ALU) | david.ghetolaul@alcatel-lucent.com |
| 25.304 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 2 | Jun Chen (Huawei) | jun.chen@HUAWEI.COM |
| 25.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Simone Provvedi (Huawei) | simone.provvedi@huawei.com |
| 25.306 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.308 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Ravi Kuchibhotla (Motorola) | ravi.kuchibhotla@motorola.com |
| 25.319 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | Hyung-Nam Choi (Intel) | hyung-nam.choi@intel.com |
| 25.321 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Alexander Sayenko (Nokia) | alexander.sayenko@nokia.com |
| 25.331 | 0 | 0 | 0 | 1 | 8 | 13 | 22 | 3 | Mark Curran (Ericsson)<br>(ASN.1: Xudong Yang (Huawei) | mark.curran@ericsson.com<br>yangxudong@huawei.com |
| 25.993 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | David Ghetolaul (ALU) | david.ghetolaul@alcatel-lucent.com |
| 36.300 | 0 | 0 | 0 | 1 | 2 | 24 | 27 | 3 | Benoist Sebire (Nokia) | benoist.sebire@nokia.com |
| 36.302 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | David Ghetolaul (ALU) | david.ghetolaul@alcatel-lucent.com |
| 36.304 | 0 | 0 | 1 | 1 | 1 | 7 | 10 | 4 | Jarkko Koskela (Nokia) | jarkko.t.koskela@nokia.com |
| 36.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 36.306 | 0 | 0 | 1 | 1 | 8 | 5 | 15 | 4 | Ravi Kuchibhotla (Motorola) | ravi.kuchibhotla@motorola.com |
| 36.314 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Yi Guo (Huawei) | yi.guo@huawei.com |
| 36.321 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 2 | Magnus Stattin (Ericsson) | magnus.stattin@ericsson.com |
| 36.322 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Toru Uchino (NTT DoCoMo) | toru.uchino.fy@nttdocomo.com |
| 36.323 | 0 | 0 | 0 | 0 | 3 | 2 | 5 | 2 | Seung June Yi (LGE) | seungjune@lge.com |
| 36.331 | 0 | 0 | 4 | 4 | 26 | 12 | 46 | 4 | Himke van der Velde (Samsung) | himke.vandervelde@samsung.com |
| 36.355 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 37.320 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Malgorzata Tomala (Nokia Networks) | malgorzata.tomala@nokia.com |
| UTRA | 0 | 0 | 1 | 2 | 6 | 45 | 54 | 16 | | |
| LTE | 0 | 0 | 5 | 8 | 38 | 73 | 124 | 27 | | |
| total | 0 | 0 | 6 | 10 | 44 | 118 | 178 | 45 | | |

purple: spec not yet available
blue: draft spec version available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
yellow: updated draft spec available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
green: final "draft" spec version available (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_final_specs_after_RAN_70/)
as soon as rapporteur's ok is available
red: official spec available (see ftp://ftp.3gpp.org/Specs/2015-12)
X: e.g. CR clashes or CRs not based on latest spec version => special attention for review needed
All draft specs will be implemented with revision marks.

**CR implementation comments:**

.

36.300 REL-13 update 3:
- the final draft was already introduced based on update 2 version but update 3 version is produced for correcting editorial errors detected.
- following editorial errors, mainly style errors corrected and checked out with rapporteur. Thanks Benoist:
    - All body texts => normal
    - Useless space removed
    - Bullet level errors corrected
    - automatic bullet setting removed
    - wrong styles, 'normal + (Asian)', 'normal +', 'normal +after..', 'normal +justified...' changed to just 'normal' and same errors in bullet corrected
    - missing 'TS' before spec number added in 11.3
    - Wrong NOTE format corrected
    - other small errors corrected
- also, previous final draft was replaced with this version.

.

36.306 REL-12 update 2:
- in history table (Annex B) wrong CR number corrected with a note to inform. Thanks Hyung-Nam for spotting it.
- also, this version is used for a final draft and official version:

36.306 REL-13 update 1:
- in history table (Annex B) wrong CR number corrected according to the above changes for REL-12.
- following editorial corrections made:
    - missing 't' is added in the word 'suppored'.
    - in TS36.213 a space added between "TS" and "36.213".
    - in 36.321[4]. A space added between "36.321" and "[4]"
- also, this version is used for a final draft and official version.

36.306 REL-12 update 1:
- all corrections from Masato included: please see his email via the reflector. Thanks Masato.
- also, this version is used for a final draft and official version.

36.355 REL-13 update 1:
- all corrections from Masato included: please see his email via the reflector. Thanks Masato.
- additionally, a few of the acronyms are not alphabetical so they are corrected. Thanks Jerome foor spotting it.
- also, this version is used for a final draft and official version.

36.323 REL-13 update 2:
- all corrections from SeungJune included: please see his email via the reflector. Thanks SeungJune.
- also, this version is used for a final draft and official version.

Yong-Jun CHUNG, ETSI MCC
Yong-Jun.Chung@etsi.org

---

**From:** Yong-jun Chung
**Sent:** 06 January 2016 12:30 PM
**To:** Yong-jun Chung; 3GPP_TSG_RAN_WG2; 'Burbidge, Richard C'; 'Pani, Diana'; 'hunan@chinamobile.com'; 'david.bhatoolaul@alcatel-lucent.com'; 'martin.van.der.zee@ericsson.com'; 'jun.chen@HUAWEI.COM'; 'simone.provvedi@huawei.com'; 'ravi.kuchibhotla@motorola.com'; 'hyung-nam.choi@intel.com'; 'alexander.sayenko@nokia.com'; 'Mark Curran'; 'yangxudong@huawei.com'; 'benoist.sebire@nokia.com'; 'jarkko.t.koskela@nokia.com'; 'mkitazoe@QTI.QUALCOMM.COM'; 'yi.guo@huawei.com'; 'magnus.stattin@ericsson.com'; 'tooru.uchino.fv@nttdocomo.com'; 'seungjune@lge.com'; 'himke.vandervelde@samsung.com'; 'Tomala, Malgorzata (Nokia - PL/Wroclaw)'; 'Mattias Bergström A'; 'SeungJune Yi'; 'seungjune@lge.com'
**Cc:** 'Choi, Hyung-Nam'; 'Kai-Erik Sunell'; 'Hideaki Takahashi'; 'Kai-Erik Sunell'
**Subject:** CR implementation status after RAN #70 (6)

Dear all,

We have 5 further final drafts by rapporteurs' confirmation as followings:
25.301 REL-13, 25.306 REL-13, 36.300 REL-13, 36.314 REL-13 and 36.331 REL-13
Many thanks Martin, Benoist, Yi and Himke

Also, following update version is available for your review:
- draft update 2: 36.300 REL-13, 36.322 REL-13

Best regards,
Yong-Jun

**Overview of RAN2 CR implementation after RAN #70 (Stigec): Status on 06.01.2016**

| spec | REL-8 | REL-9 | REL-10 | REL-11 | REL-12 | REL-13 | CRs | specs | rapporteur | email |
|---|---|---|---|---|---|---|---|---|---|---|
| 25.300 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 1 | David Ghetsoleul (ALU) | david.ghetsoleul@alcatel-lucent.com |
| 25.301 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.302 | 0 | 0 | 1 | 1 | 1 | 2 | 5 | 4 | David Ghetsoleul (ALU) | david.ghetsoleul@alcatel-lucent.com |
| 25.304 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 2 | Jun Chen (Huawei) | jun.chen@HUAWEI.COM |
| 25.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Simone Provvedi (Huawei) | simone.provvedi@huawei.com |
| 25.306 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.308 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Ravi Kuchibhotla (Motorola) | ravi.kuchibhotla@motorola.com |
| 25.319 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | Hyung-Nam Choi (Intel) | hyung-nam.choi@intel.com |
| 25.321 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Alexander Sayenko (Nokia) | alexander.sayenko@nokia.com |
| 25.331 | 0 | 0 | 0 | 1 | 4 | 17X | 22 | 3 | Mark Curran (Ericsson) (ASN.1: Xudong Yang (Huawei) | mark.curran@ericsson.com yangxudong@huawei.com |
| 25.993 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | David Ghetsoleul (ALU) | david.ghetsoleul@alcatel-lucent.com |
| 36.300 | 0 | 0 | 0 | 1 | 2 | 24 | 27 | 3 | Benoist Sebire (Nokia) | benoist.sebire@nokia.com |
| 36.302 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | David Ghetsoleul (ALU) | david.ghetsoleul@alcatel-lucent.com |
| 36.304 | 0 | 0 | 1 | 1 | 1 | 7 | 10 | 4 | Jarkko Koskela (Nokia) | jarkko.t.koskela@nokia.com |
| 36.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Masato Kitazoe (Qualcomm) | mitazoe@QTI.QUALCOMM.COM |
| 36.306 | 0 | 0 | 1 | 1 | 5 | 8 | 15 | 4 | Ravi Kuchibhotla (Motorola) | ravi.kuchibhotla@motorola.com |
| 36.314 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Yi Guo (Huawei) | yi.guo@huawei.com |
| 36.321 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 2 | Magnus Stattin (Ericsson) | magnus.stattin@ericsson.com |
| 36.322 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Toru Uchino (NTT DoCoMo) | toru.uchino.fy@nttdocomo.com |
| 36.323 | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 2 | Seung June Yi (LGE) | seungjune@lge.com |
| 36.331 | 0 | 0 | 1 | 1 | 26 | 18X | 46 | 4 | Himke van der Velde (Samsung) | himke.vandervelde@samsung.com |
| 36.355 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | Masato Kitazoe (Qualcomm) | mitazoe@QTI.QUALCOMM.COM |
| 37.320 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Malgorzata Tomala (Nokia Networks) | malgorzata.tomala@nokia.com |
| UTRA | 0 | 0 | 1 | 2 | 6 | 45 | 54 | 18 | | |
| LTE | 0 | 0 | 5 | 8 | 38 | 73 | 124 | 27 | | |
| total | 0 | 0 | 6 | 10 | 44 | 118 | 178 | 45 | | |

purple: spec not yet available
blue: draft spec version available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
yellow: updated draft spec available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
green: final "draft" spec version available (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_final_specs_after_RAN_70/)
as soon as rapporteur's ok is available
red: official spec available (see ftp://ftp.3gpp.org/Specs/2015-12)
**X: e.g. CR clashes or CRs not based on latest spec version => special attention for review needed**
All draft specs will be implemented with revision marks.

**CR implementation comments:**

36.300 REL-13 update2:
- an extra space in Section 23.7b removed. Thanks Benoist for spotting it.
- some blue color texts in update1 version changed to black without change marks
- this update 2 version used as a final draft

36.322 REL-13 update2:
- additional editorial corrections made in 4.2.1.2.1 and 4.2.1.1.1. Thanks Toru.
- this update 2 version used as a final draft

Yong-Jun CHUNG, ETSI MCC
Yong-Jun.Chung@etsi.org

**From:** Yong-jun Chung
**Sent:** 04 January 2016 11:02 PM
**To:** 3GPP_TSG_RAN_WG2; 'Burbidge, Richard C'; 'Pani, Diana'; 'hunan@chinamobile.com'; 'david.bhatoolaul@alcatel-lucent.com'; 'martin.van.der.zee@ericsson.com'; 'jun.chen@HUAWEI.COM'; 'simone.provvedi@huawei.com'; 'ravi.kuchibhotla@motorola.com'; 'hyung-nam.choi@intel.com'; 'alexander.sayenko@nokia.com'; 'Mark Curran'; 'yangxudong@huawei.com'; 'benoist.sebire@nokia.com'; 'jarkko.t.koskela@nokia.com'; 'mkitazoe@QTI.QUALCOMM.COM'; 'yi.guo@huawei.com'; 'magnus.stattin@ericsson.com'; 'tooru.uchino.fv@nttdocomo.com'; 'seungjune@lge.com'; 'himke.vandervelde@samsung.com'; 'Tomala, Malgorzata (Nokia - PL/Wroclaw)'; 'Mattias Bergström A'; 'SeungJune YI'; 'seungjune@lge.com'
**Cc:** 'Choi, Hyung-Nam'; 'Kai-Erik Sunell'; 'Hideaki Takahashi'; 'Kai-Erik Sunell'
**Subject:** CR implementation status after RAN #70 (5)

Dear all,

We have 5 further final drafts by rapporteurs' confirmation as followings:
25.308 REL13, 25.321 REL-13, 25.331 REL-13 and 36.306 REL-10 and 11
Many thanks Ravi, Alex and Mark.

Also, following update and draft versions are available for your review:
- draft: 36.306 REL-12
- draft update 1: 25.302 REL-13, 36.300 REL-13, 36.306 REL-12, 36.314 REL-13, 36.322 REL-13, 36.323 REL-13, 37.320 REL-13
- draft update 2: 36.331 REL-13

Best regards,
Yong-Jun

**Overview of RAN2 CR implementation after RAN #70 (Sitges): Status on 04.01.2016**

| spec | REL-8 | REL-9 | REL-10 | REL-11 | REL-12 | REL-13 | CRs | specs | rapporteur | email |
|---|---|---|---|---|---|---|---|---|---|---|
| 25.300 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.301 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.302 | 0 | 0 | 1 | 1 | 1 | 2 | 5 | 4 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.304 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 2 | Jun Chen (Huawei) | jun.chen@HUAWEI.COM |
| 25.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Simone Provvedi (Huawei) | simone.provvedi@huawei.com |
| 25.306 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.308 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Ravi Kuchibhotla (Motorola) | ravi.kuchibhotla@motorola.com |
| 25.319 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | Hyung-Nam Choi (Intel) | hyung-nam.choi@intel.com |
| 25.321 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Alexander Sayenko (Nokia) | alexander.sayenko@nokia.com |
| 25.331 | 0 | 0 | 0 | 1 | 1 | 17X | 22 | 3 | Mark Curran (Ericsson)<br>(ASN.1: Xudong Yang (Huawei) | mark.curran@ericsson.com<br>yangxudong@huawei.com |
| 25.993 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.300 | 0 | 0 | 0 | 1 | 2 | 24 | 27 | 3 | Benoist Sebire (Nokia) | benoist.sebire@nokia.com |
| 36.302 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.304 | 0 | 0 | 1 | 1 | 1 | 7 | 10 | 4 | Jarkko Koskela (Nokia) | jarkko.t.koskela@nokia.com |
| 36.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 36.306 | 0 | 0 | 1 | 1 | 8 | 8 | 18 | 4 | Ravi Kuchibhotla (Motorola) | ravi.kuchibhotla@motorola.com |
| 36.314 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Yi Guo (Huawei) | yi.guo@huawei.com |
| 36.321 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 2 | Magnus Stattin (Ericsson) | magnus.stattin@ericsson.com |
| 36.322 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Toru Uchino (NTT DoCoMo) | tooru.uchino.fv@nttdocomo.com |
| 36.323 | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 2 | Seung June Yi (LGE) | seungjune@lge.com |
| 36.331 | 0 | 0 | 1 | 1 | 28 | 16X | 46 | 4 | Himke van der Velde (Samsung) | himke.vandervelde@samsung.com |
| 36.355 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 37.320 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Malgorzata Tomala (Nokia Networks) | malgorzata.tomala@nokia.com |
| UTRA | 0 | 0 | 1 | 2 | 6 | 45 | 54 | 18 | | |
| LTE | 0 | 0 | 5 | 8 | 38 | 73 | 124 | 27 | | |
| total | 0 | 0 | 6 | 10 | 44 | 118 | 178 | 45 | | |

purple: spec not yet available
blue: draft spec version available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
yellow: updated draft spec available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
green: final "draft" spec version available (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_final_specs_after_RAN_70/)
as soon as rapporteur's ok is available
red: official spec available (see ftp://ftp.3gpp.org/Specs/2015-12/)
**X: e.g. CR clashes or CRs not based on latest spec version => special attention for review needed**
All draft specs will be implemented with revision marks.

**CR Implementation comments:**

.

Common editorial work on CRs
- Style errors corrected
- Some highlight marks and colours in CRs not implemented (It's not allowed according to the draft rule.)
- Useless blanks and lines in CRs not implemented

36.306 REL-13:
- REL-13 draft is implemented based on 36.306 REL-12 update1 (v12.7.0)
- CR0301R1: new subclause 4.3.20.X => 4.3.20.3 and 4.3.20.4
- CR0305R2: new subclasues numbered:
  - 4.3.1.X => 4.3.1.5
  - 4.3.2.X => 4.3.2.3
  - 4.3.4.X1 to X7 => 4.3.4.42 to 48
  - 4.3.5.X1 to X3 => 4.3.5.17 to 19
  - 4.3.19.X => 4.3.19.3
- CR0308R1: new subclause 4.3.6.X => 4.3.6.13
- CR0311R1: new subclasue 4.3.6.x => 4.3.6.14
- CR0314: new subclasue 7.1.x => 7.1.4
- CR0319: new subclasue 4.3.2x => 4.3.23
- CR0322: new subclause 4.3.19.3 renumbered to 4.3.19.4

25.302 REL-13 update1:
- All coments from Alex included: please see separate email in the reflector.
- Thanks Alex.

36.300 REL-13 update1:
- All corrections from Benoist included: please see separate email in the reflector.
- Thanks Benoist.

36.306 REL-12 update1:
- All coments from Hyung-Nam included. Thanks Hyung-Nam.
  - : In 4.3.4.28 (tdd-FDD-CA-PCellDuplex-r12) *bandParametersUL* was set in italics and use straight quotes for "1"
  - : missed change from CR0315R1 implemented in 4.3.6.12 (rsrqOnAllSymbols-r12)
  - : In history table wrong RAN Tdoc number corrected

36.314 REL-13 update1:
- All coments from Yi included: please see separate email in the reflector.
- Thanks Yi.

36.322 REL-13 update1:
- All coments from Toru included: please see separate email in the reflector.
- Thanks Toru.

36.323 REL-13 update1:
- All coments from SeungJune included: please see separate email in the reflector.
- Thanks SeungJune.

37.320 REL-13 update1:
- All coments from Gosia included: please see separate email in the reflector.
- Thanks Gosia.

36.331 REL-13 update2:
- All corrections from Himke included: please see separate email in the reflector.
- Thanks Himke.

Yong-Jun CHUNG, ETSI MCC
Yong-jun.Chung@etsi.org

**From:** Yong-jun Chung
**Sent:** 28 December 2015 3:40 PM
**To:** 3GPP_TSG_RAN_WG2; 'Burbidge, Richard C'; 'Pani, Diana'; 'hunan@chinamobile.com'; 'david.bhatoolaul@alcatel-lucent.com'; 'martin.van.der.zee@ericsson.com'; 'jun.chen@HUAWEI.COM'; 'simone.provvedi@huawei.com'; 'ravi.kuchibhotla@motorola.com'; 'hyung-nam.choi@intel.com'; 'alexander.sayenko@nokia.com'; 'Mark Curran'; 'yangxudong@huawei.com'; 'benoist.sebire@nokia.com'; 'jarkko.t.koskela@nokia.com'; 'mkitazoe@QTI.QUALCOMM.COM'; 'yi.guo@huawei.com'; 'magnus.stattin@ericsson.com'; 'tooru.uchino.fv@nttdocomo.com'; 'seungjune@lge.com'; 'himke.vanderveide@samsung.com'; 'Tomala, Malgorzata (Nokia - PL/Wroclaw)'; 'Mattias Bergström A'; 'SeungJune YI'; 'seungjune@lge.com'
**Cc:** 'Choi, Hyung-Nam'; 'Kai-Erik Sunell'; 'Hideaki Takahashi'; 'Kai-Erik Sunell'
**Subject:** CR implementation status after RAN #70 (4)

Dear all,

We have 5 further final drafts by rapporteurs' confirmation as followings:
25.302 REL-10/11/12, 36.302 REL-12 and 36.331 REL-12
Many thanks David and Himke.

Also, following update and draft versions are available for your review:
- draft: 25.302 REL-13, 25.993 REL-13, 36.300 REL-13, 36.302 REL-13, 36.304 REL-13, 36.305 REL-13, 36.314 REL-13, 36.323 REL-13, 36.322 REL-13 and 37.320 REL-13
- draft update 1: 36.331 REL-13
- draft update 2: 25.321 REL-13

Best regards,
Yong-Jun

**Overview of RAN2 CR implementation after RAN #70 (Sitges): Status on 28.12.2015**

| spec | REL-8 | REL-9 | REL-10 | REL-11 | REL-12 | REL-13 | CRs | specs | rapporteur | email |
|---|---|---|---|---|---|---|---|---|---|---|
| 25.300 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.301 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.302 | 0 | 0 | 1 | 1 | 1 | 2 | 5 | 4 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.304 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 2 | Jun Chen (Huawei) | jun.chen@HUAWEI.COM |
| 25.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Simone Provvedi (Huawei) | simone.provvedi@huawei.com |
| 25.306 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.308 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Ravi Kuchibhotla (Motorola Mobility) | ravi.kuchibhotla@motorola.com |
| 25.319 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | Hyung-Nam Choi (Intel) | hyung-nam.choi@intel.com |
| 25.321 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Alexander Sayenko (NSN) | alexander.sayenko@nokia.com |
| 25.331 | 0 | 0 | 0 | 1 | 4 | 17X | 22 | 3 | Mark Curran (Ericsson) (ASN.1: Xudong Yang (Huawei) | mark.curran@ericsson.com yangxudong@huawei.com |
| 25.993 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.300 | 0 | 0 | 0 | 1 | 2 | 24 | 27 | 3 | Benoist Sebire (NSN) | benoist.sebire@nokia.com |
| 36.302 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.304 | 0 | 0 | 1 | 1 | 1 | 7 | 10 | 4 | Jarkko Koskela (Nokia) | jarkko.t.koskela@nokia.com |
| 36.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 36.306 | 0 | 0 | 1 | 1 | 6 | 8 | 16 | 4 | Ravi Kuchibhotla (Motorola Mobility) | ravi.kuchibhotla@motorola.com |
| 36.314 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Yi Guo (Huawei) | yi.guo@huawei.com |
| 36.321 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 2 | Magnus Stattin (Ericsson) | magnus.stattin@ericsson.com |
| 36.322 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Toru Uchino (NTT DoCoMo) | tooru.uchino.fv@nttdocomo.com |
| 36.323 | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 2 | Seung June Yi (LGE) | seungjune@lge.com |
| 36.331 | 0 | 0 | 9 | 8 | 20 | 16X | 46 | 4 | Himke van der Velde (Samsung) | himke.vandervelde@samsung.com |
| 36.355 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 37.320 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Malgorzata Tomala (Nokia Networks) | malgorzata.tomala@nokia.com |
| UTRA | 0 | 0 | 1 | 2 | 6 | 45 | 54 | 18 | | |
| LTE | 0 | 0 | 5 | 8 | 38 | 73 | 124 | 27 | | |
| total | 0 | 0 | 6 | 10 | 44 | 118 | 178 | 45 | | |

purple: spec not yet available
blue: draft spec version available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
yellow: updated draft spec available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
green: final "draft" spec version available (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_final_specs_after_RAN_70/)
as soon as rapporteur's ok is available
red: official spec available (see ftp://ftp.3gpp.org/Specs/2015-12/)
**X: e.g. CR clashes or CRs not based on latest spec version => special attention for review needed**
All draft specs will be implemented with revision marks.

**CR Implementation comments:**

Common editorial work on CRs
- Style errors corrected
- Some highlight marks and colours in CRs not implemented (It's not allowed according to the draft rule.)
- Useless blanks and lines in CRs not implemented

25.993 REL-13:
- new subclasues:

| | | |
|---|---|---|
| 7.1.aa => 145, | 7.4.aa => 33, | 7.5.aa => 41 |
| bb => 146, | bb => 34, | bb => 42 |
| cc => 147, | cc => 35, | cc => 43 |
| dd => 148, | dd => 36, | dd => 44 |
| ee => 149, | ee => 37 | |
| ff => 150, | ff => 38 | |
| gg => 151, | gg => 39 | |
| hh => 152, | hh => 40 | |
| ii => 153 | | |
| jj => 154 | | |
| kk => 155 | | |
| ll => 156 | | |

- Table & note format and style errors corrected
- numbering errors on 7.4.cc.1.1.2, 7.4.cc.1.1.3 and 7.4.cc.1.1.4 corrected

36.300 REL-13:
- acknowledgement of bluetooth trade mark added in second page by MCC since spec mentioned bluetooth.
- CR0728R11:
  - new reference [xx] => [53], new subclause 23.X => 23.12
- CR0772R6:
  - new subclauses 10.1.2.8.x1 => 10.1.2.8.7, 10.1.2.8.x2 => 10.1.2.8.8
- CR0779R5:
  - Figure number error corrected: Figure19.2.2.xx-1 => Figure 19.2.2.6-5
- CR0797R1:
  - new subclauses 10.1.2.8.x1 => 10.1.2.8.7, 10.1.2.8.x2 => 10.1.2.8.8
- CR0798R2:
  - new reference [xx] => [54], new subclasue 5.x => 5.7
- CR0799R1:
  - changes in abbreviation re-ordered
  - new subclasue 8.x => 8.4
  - editor's notes deleted since it's not allowed for CR implementation
- CR0800R3:
  - new subclause XX.3 => 22A.3,
  - style error on xx.3.1.1 corrected
  - editor's notes deleted since it's not allowed for CR implementation
- CR0801:
  - changes on RS-SINR in 5.1.8 is merged with CR0798R2
- CR0809R1:
  - new reference: [xx] => [55]
  - new clasues and relative subclasues: xx => 22A, YY => 22B
  - useless period/space removed
  - Figure number error corrected: Figure XX.1.3.2-1 => Figure 24.1.3.3-1
  - TS 36.xxx [xx] needs to be clarified in "The elementary procedures supported by the Xw-AP protocol are listed in TS 36.xxx [xx]".
  - style error on YY.2.2.12 corrected
- CR0814:
  - new subclasue: 19.2.2.x => 19.2.2.23
- CR0818:
  - new subclasues: 4.9.3.x => 4.9.3.3, 10.1.2.8.X => 10.1.2.8.9, 19.2.2.X => 19.2.2.24
- CR0819:
  - new subclasue: 4.9.3.x => 4.9.3.4
  - wrong figure numbers corrected: Figure 4.9.3.x-2 => 4.9.3.4-1, 4.9.3.x-3 => 4.9.3.4-2
- CR0820:
  - changes in 23.11.1 & 23.11.3 missed to delete texts with rev marks due to CR errors
  - those part highlighted with yellow marks for rapporteur's confirmation to delete.

36.302 REL-13
- CR0064R1:
  - new subclauses renumbered: 2.7 => 2.8, 2.8 => 2.9

36.321 REL-13
- CR0815R2:
  - bullet level error corrected in 5.7a
  - note that changes in table 6.2.1-1 clashed with CR0811R2
- CR0821R2:
  - note that changes in Table 7.1-1 clashed with CR0815R2

36.314 REL-13
- wrong style of table title corrected as an editorial work.
- CR0034R1:
  - wrong style in new subclauses title corrected: tab added
- CR0035:
  - new subclause: 4.1.x => 4.1.9
  - wrong bullet style corrected in 4.1.9

36.304 REL-13
- CR0278R2: new reference [xx] => [30]
- CR0281R3:
  new subclasue 5.2.4.z => 5.2.4.10
  bullet level errors corrected in 5.2.4.10.1
  note that redistrRange[i] in 5.2.4.10.1 is not shown in the CR
  (Please contact to me and provide the equation.)
- CR0286: new references [xx] =>31, [yy]=>[32]

36.305 REL-13
- new references renumbered [xx] => [29], [yy] => [30], [zz] => [31] and format corrected
- new (sub)clauses renumbered:
  4.3.w => 4.3.5, 4.3.x => 4.3.6, 4.3.y => 4.3.7, 4.3.z => 4.3.8
  8.w => 8.6, 8.x => 8.7, 8.y => 8.8, 8.z => 8.9

36.355 REL-13
- new references renumbered: [w] => [24], [x] => [25], [Y] => [26], and format errors corrected
- editor's note in 4.1.3 not implemented
- new subclasues: 6.5.xx => 6.5.4, 6.5.xy => 6.5.5, 6.5.xz => 6.5.6, 6.5.yy => 6.5.7

36.331 REL-13 update1
- all changes below from Himke and Kai-Erik by separate request included. Many thanks Himke and Kai-Erik.
- editorial works made: format/spcase error corrected, new subclasues referred from other specs renumbered, new surfix number fixed, wrong order of field description corrected
- 5.5.4.1: A CR merging issues solved: i.e. the CR on SINR changed the way we specify how a first report is triggered and the same approach now has to be applied for LAA (to be raised, as not obvious)
- NOTE number renumbered from note 0 to keep exist note number in 5.6.8.2 since CR1941R1 introduced a new note before note 1.
- SIB5: Merging of extensions, and placement at the end. Correction of IE referenced by non-critical extension field in v9e0. Also added some missing changes to field description changes (one was slightly modified compared to CR)
- CQI-ReportConfig: Merging of extensions
- CSI-Process: Merging of extensions. Also correction (compared to agreed CR) i.e. removal of redundant optional (highlighted)
- MAC-MainConfig: Merging of extensions. Also correction (compared to agreed CR) i.e. move of optional (highlighted)
- PhysicalConfigDedicated: Merging of extensions. For the SCell a duplicate Note that there seem to be some duplicate was removed (CQI-ReportConfig-v13xy). LAA moved to SCell version of IE
- PUCCH-Config: Added some field descriptions missing from R2-157135
- MeasResults: Merging of extensions. Merging issue of changes related B5C and SINR (see MeasResultServFreq-r13)
- ReportConfigEUTRA: Merging of extensions
- SL-CommConfig: correction (compared to agreed CR) i.e. addition of missing optional for ue-Selected extension (highlighted)
- SCG-ConfigInfo: Merging of extensions
- FGI 7: Editorial correction
- Several small ASN.1 errors
- Removal of comments about excel sheet on ASN.1 review

25.321 REL-13 update2
- all comments on error of figure 9.2.5.3a.1.2-2 caption from Alex included. Thanks Alex.

Yong-Jun CHUNG, ETSI MCC
Yong-jun.Chung@etsi.org

**From:** Yong-Jun Chung
**Sent:** 21 December 2015 3:26 PM
**To:** 3GPP_TSG_RAN_WG2; 'Burbidge, Richard C'; 'Pani, Diana'; 'hunan@chinamobile.com'; 'david.bhatoolaul@alcatel-lucent.com'; 'martin.van.der.zee@ericsson.com'; 'jun.chen@HUAWEI.COM'; 'simone.provvedi@huawei.com'; 'ravi.kuchibhotla@motorola.com'; 'hyung-nam.choi@intel.com'; 'alexander.sayenko@nokia.com'; 'Mark Curran'; 'yangxudong@huawei.com'; 'benoist.sebire@nokia.com'; 'jarkko.t.koskela@nokia.com'; 'mkitazoe@QTI.QUALCOMM.COM'; 'yi.guo@huawei.com'; 'magnus.stattin@ericsson.com'; 'tooru.uchino.fv@nttdocomo.com'; 'seungjune@lge.com'; 'himke.vandervelde@samsung.com'; 'Tomala, Malgorzata (Nokia - PL/Wroclaw)'; 'Mattias Bergström A'; 'SeungJune YI'
**Cc:** 'Choi, Hyung-Nam'; 'Kai-Erik Sunell'; 'Hideaki Takahashi'; 'Kai-Erik Sunell'
**Subject:** CR implementation status after RAN #70 (3)

Dear all,

We have 5 final drafts by rapporteurs' confirmation as followings:
25.306 REL-13, 25.331 REL-12, 36.321 REL-12 and 36.331 REL-10/11
Many thanks Simone, Mark, Matias and Himke.

Also, following update and draft versions are available for your review:
- draft: 36.331 REL-13
- draft update 1: 25.301 REL-13, 25.306 REL-13, 25.319 REL-13, 25.321 REL-13 and 25.331 REL-13
- draft update 2: 36.331 REL-12

Best regards,
Yong-Jun

**Overview of RAN2 CR implementation after RAN #70 (Sitges): Status on 21.12.2015**

| spec | REL-8 | REL-9 | REL-10 | REL-11 | REL-12 | REL-13 | CRs | specs | rapporteur | email |
|---|---|---|---|---|---|---|---|---|---|---|
| 25.300 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.301 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.302 | 0 | 0 | 1 | 1 | 1 | 2 | 5 | 4 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.304 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 2 | Jun Chen (Huawei) | jun.chen@HUAWEI.COM |
| 25.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Simone Provvedi (Huawei) | simone.provvedi@huawei.com |
| 25.306 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.308 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Ravi Kuchibhotla (Motorola Mobility) | ravi.kuchibhotla@motorola.com |
| 25.319 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | Hyung-Nam Choi (Intel) | hyung-nam.choi@intel.com |
| 25.321 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Alexander Sayenko (NSN) | alexander.sayenko@nokia.com |
| 25.331 | 0 | 0 | 0 | 1 | 4 | 17X | 22 | 3 | Mark Cumen (Ericsson) (ASN.1: Xudong Yang (Huawei) | mark.cumen@ericsson.com yangxudong@huawei.com |
| 25.993 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.300 | 0 | 0 | 0 | 1 | 2 | 24 | 27 | 3 | Benoist Sebire (NSN) | benoist.sebire@nokia.com |
| 36.302 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.304 | 0 | 0 | 4 | 4 | 1 | 1 | 10 | 4 | Jarkko Koskela (Nokia) | jarkko.t.koskela@nokia.com |
| 36.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 36.306 | 0 | 0 | 1 | 1 | 8 | 8 | 18 | 4 | Ravi Kuchibhotla (Motorola Mobility) | ravi.kuchibhotla@motorola.com |
| 36.314 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Yi Guo (Huawei) | yi.guo@huawei.com |
| 36.321 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 2 | Magnus Stattin (Ericsson) | magnus.stattin@ericsson.com |
| 36.322 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Toru Uchino (NTT DoCoMo) | toru.uchino.fu@nttdocomo.com |
| 36.323 | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 2 | Seung June Yi (LGE) | seungjune@lge.com |
| 36.331 | 0 | 0 | 9 | 8 | 20 | 18X | 46 | 4 | Himke van der Velde (Samsung) | himke.vandervelde@samsung.com |
| 36.355 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 37.320 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Malgorzata Tomala (Nokia Networks) | malgorzata.tomala@nokia.com |
| UTRA | 0 | 0 | 1 | 2 | 6 | 45 | 54 | 18 | | |
| LTE | 0 | 0 | 5 | 8 | 38 | 73 | 124 | 27 | | |
| total | 0 | 0 | 6 | 10 | 44 | 118 | 178 | 45 | | |

purple: spec not yet available
blue: draft spec version available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
yellow: updated draft spec available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
green: final "draft" spec version available (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_final_specs_after_RAN_70/)
as soon as rapporteur's ok is available
red: official spec available (see ftp://ftp.3gpp.org/Specs/2015-12)
**X: e.g. CR clashes or CRs not based on latest spec version => special attention for review needed**
All draft specs will be implemented with revision marks.

**CR implementation comments:**

.
Common editorial work on CRs:
- Style errors corrected
- Some highlight marks and colours in CRs not implemented (It's not allowed according to the draft rule.)
- Useless blanks and lines in CRs not implemented

25.301 REL-13 update1:
- the comment from Martin included: missing info in history table added. Thanks Martin.

.
25.306 REL-13 update1:
- all comment from Martin included. (please see separate email in the reflector). Thanks Martin.
- In section 4.5.4 the new "Additional Positioning method support List" moved the end after the capability "Support for SFN-SFN observed time difference type 2 measurement" and useless space in history table removed.
Also, AddPos IDs replaced with AddPos ID ("s" removed to be aligned with RRC definition). Thanks Hyung-Nam for spotting this.

25.319 REL-13 update1:
- all comment from Hyung-Nam included. (please see separate email in the reflector). Thanks Hyung-Nam.

.
25.321 REL-13 update1:
- all comment from Alex included. (please see separate email in the reflector). Thanks Alex.

.
25.331 REL-13 update1:
- all changes from Mark included. (please see separate email in the reflector). Thanks Mark.

.
36.331 REL-12 update2:
- error of SIB5 extensions in REL-12 is corrected. Thanks Himke, Kai-Erik and Hyung-Nam for spotting it.

.
36.331 REL-13:
- LTE-Advanced Pro logo added in the front
- CR1872R5: referenced subclause number from RAN1 spec not introduced. It will be added in the next update version and it would be appreciated if CR author provide them.
some wrong order of field descriptions relocated
- CR1936R2: new subclause numbered as 5.10.X => 5.10.10, 5.10.Y => 5.10.11
there is merging issue in UE-UTRA-Capability
- CR1939R3: new subclause (re)numbered as 5.2.2.X => 5.2.2.27, 5.X => 5.8a, 6.3.8 => 6.3.9
new timer T3xx => T370
G-RNTI in abbreviation relocated.
- CR1941R2: new reference numbered as [xx] => [71]
- CR1955R3: editorial errors in paging-v1130-IEs corrected
referenced subclause 5.2.4.z [4] of 36.304 numbered 5.2.4.10 which will be implemented in 36.304 REL-13
- CR1961R2: referenced TS 36.213 [23] table number in CSI-RS-ConfigNZP field descriptions introduced as 7.2.4-9 to 7.2.4-20
- CR1983R2: changes on NOTE 1 in 5.5.41 not implemented since it was removed by CR1920R1.
field description on laa-SCellsubframeConfig relocated.
- CR1984R1: new reference [71] => [72]
new timer T3xx => T308
new subclause 5.3.3.xx => 5.3.3.13
- CR1984R1: editorial errors in 5.3.2.3 corrected
- CR1957R3: new reference [71] => [73]

Yong-Jun CHUNG, ETSI MCC
Yong-Jun.Chung@etsi.org

**From:** Yong-jun Chung
**Sent:** 17 December 2015 10:18 AM
**To:** Yong-jun Chung; 3GPP_TSG_RAN_WG2; Burbidge, Richard C; Pani, Diana; hunan@chinamobile.com; david.bhatoolaul@alcatel-lucent.com; martin.van.der.zee@ericsson.com; jun.chen@HUAWEI.COM; simone.provvedi@huawei.com; ravi.kuchibhotla@motorola.com; hyung-nam.choi@intel.com; alexander.sayenko@nokia.com; Mark Curran; yangxudong@huawei.com; benoist.sebire@nokia.com; jarkko.t.koskela@nokia.com; mikitazoe@QTI.QUALCOMM.COM; yi.guo@huawei.com; magnus.stattin@ericsson.com; tooru.uchino.fv@nttdocomo.com; seungjune@lge.com; himke.vandervelde@samsung.com; Tomala, Malgorzata (Nokia - PL/Wroclaw); Mattias Bergström A; SeungJune Yi
**Cc:** Choi, Hyung-Nam; Kai-Erik Sunell; Hideaki Takahashi
**Subject:** CR implementation status after RAN #70 (2)

Dear all,

We have 9 final drafts as followings by rapporteurs' confirmation:
25.304 REL-12, 25.331 REL-11, 36.300 REL-11/12, 36.304 REL-9/10/11, 36.323 REL-12 and 36.355 REL-12
Many thanks Jun, Mark, Benoist, Jarkko, SeungJune and Masato.

Also, following updates and draft versions are available for your review:
- draft: 25.300 REL-13, 25.301 REL-13, 25.304 REL-13, 25.305 REL-13, 25.306 REL-13, 25.308 REL-13, 25.319 REL-13, 25.321 REL-13, 25.331 REL-13
- draft update 1: 25.331 REL-12, 36.321 REL-12, 36.331 REL-10/11/12

Best regards,
Yong-Jun

**Overview of RAN2 CR implementation after RAN #70 (Sitges): Status on 17.12.2015**

| spec | REL-8 | REL-9 | REL-10 | REL-11 | REL-12 | REL-13 | CRs | specs | rapporteur | email |
|---|---|---|---|---|---|---|---|---|---|---|
| 25.300 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.301 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.302 | 0 | 0 | 1 | 1 | 1 | 2 | 5 | 4 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.304 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 2 | Jun Chen (Huawei) | jun.chen@HUAWEI.COM |
| 25.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Simone Provvedi (Huawei) | simone.provvedi@huawei.com |
| 25.306 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.308 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Ravi Kuchibhotla (Motorola Mobility) | ravi.kuchibhotla@motorola.com |
| 25.319 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | Hyung-Nam Choi (Intel) | hyung-nam.choi@intel.com |
| 25.321 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Alexander Sayenko (NSN) | alexander.sayenko@nokia.com |
| 25.331 | 0 | 0 | 0 | 8 | 4 | 17X | 22 | 3 | Mark Curran (Ericsson) (ASN.1: Xudong Yang (Huawei)) | mark.curran@ericsson.com yangxudong@huawei.com |
| 25.993 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.300 | 0 | 0 | 0 | 1 | 2 | 24 | 27 | 3 | Benoist Sebire (NSN) | benoist.sebire@nokia.com |
| 36.302 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.304 | 0 | 0 | 1 | 1 | 1 | 1 | 10 | 4 | Jarkko Koskela (Nokia) | jarkko.t.koskela@nokia.com |
| 36.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Masato Kitazoe (Qualcomm) | mikitazoe@QTI.QUALCOMM.COM |
| 36.306 | 0 | 0 | 1 | 1 | 8 | 5 | 15 | 4 | Ravi Kuchibhotla (Motorola Mobility) | ravi.kuchibhotla@motorola.com |
| 36.314 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Yi Guo (Huawei) | yi.guo@huawei.com |
| 36.321 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 2 | Magnus Stattin (Ericsson) | magnus.stattin@ericsson.com |
| 36.322 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Toru Uchino (NTT DoCoMo) | toru.uchino.fv@nttdocomo.com |
| 36.323 | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 2 | Seung June Yi (LGE) | seungjune@lge.com |
| 36.331 | 0 | 0 | 3 | 5 | 20 | 18 | 46 | 4 | Himke van der Velde (Samsung) | himke.vandervelde@samsung.com |
| 36.355 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | Masato Kitazoe (Qualcomm) | mikitazoe@QTI.QUALCOMM.COM |
| 37.320 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Malgorzata Tomala (Nokia Networks) | malgorzata.tomala@nokia.com |
| UTRA | 0 | 0 | 1 | 2 | 6 | 45 | 54 | 18 | | |
| LTE | 0 | 0 | 5 | 8 | 38 | 73 | 124 | 27 | | |
| total | 0 | 0 | 6 | 10 | 44 | 118 | 178 | 45 | | |

purple: spec not yet available
blue: draft spec version available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
yellow: updated draft spec available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
green: final "draft" spec version available (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_final_specs_after_RAN_70/)
as soon as rapporteur's ok is available
red: official spec available (see ftp://ftp.3gpp.org/Specs/2015-12)
**X: e.g. CR clashes or CRs not based on latest spec version => special attention for review needed**
All draft specs will be implemented with revision marks.

**CR implementation comments:**

Common editorial work on CRs
- Style errors corrected
- Some highlight marks and colours in CRs not implemented (It's not allowed according to the draft rule.)
- Useless blanks and lines in CRs not implemented

25.300 REL-13
- CR0022R1: new clasue 1x introduced as 12
  : changes in changes implemented (Please remeber to clean-up since it is not allowed in CR)
  : Figure style is corrected (Figure number and title missed in the CR. Please correct it in the next meeting.)
- CR0025R1: new clasue xx introduced as 13
- CR0026R1: new subclasue xx.1 introduced as 13.2
- CR0027R1: new subclasue xx.1 introduced as 13.6
- CR0028R1: new subclasue xx.1 introduced as 13.3
- CR0029R1: new subclasue xx.1 introduced as 13.5
- CR0030R1: new subclasue xx.1 introduced as 13.4
- CR0031R1: new subclasue xx introduced as 14
- CR0032: new clasue xx introduced as 15
- CR0033R1: new clasue xx introduced as 16

24.305 REL-13
- CR0125R3: new references renumbered as [xx] => 32, [yy] => 33, [zz] => 34
  : in subclasue 4.3, editorial errors corrected
  : new subclasues renumbered as 4.3.w => 4.3.5, 4.3.x => 4.3.6, 4.3.y => 4.3.7
  : new clasues renumbered as w => 14, x=>15, y=>16, z=>17
  : in clasue 15, style errors corrected.
  : in subclasue 15.2 figure number errors on x.1-1 corrected to 15.2-1
  : table number x.1-2 corrected as 15.1.1 in 15.1
  : table number x.1-2 => 16.1-1 in 16.1
  : many format errors corrected
  : useless space removed

25.331 REL-13
- CRS793R1: new subclauses renumbered as 8.6.1.x => 8.6.1.4, 8.6.1.xa => 8.6.1.4.1, 8.6.1.xb => 8.6.1.4.2
- CRS797R1: editorial correction made in SIB-Type 2 ASN.1 aligned with REL-11
- CRS807R1: new subclasues renumbered: 8.6.4.x => 8.6.4.16, 10.3.8.x => 10.3.8.25, 10.3.8.y => 10.3.8.26
- CRS808R1: new subclasues renumbered: 8.6.3.x => 8.6.3.18, 13.4.x => 13.4.75
: changes on cellUpdateConfirm-r13 IEs not implemented due to duplication with CRS807R1
- CRS809R1: new subclasues renumbered: 8.6.3.x => 8.6.3.19, 10.3.3.1x => 10.3.3.1a, 13.4.x => 13.4.76
: ASN.1 changes duplicated with CRS807R1 are not implemented
CRS812R1: new subclasues renumbered:
: 8.6.4.x => 8.6.4.17, 10.3.8.x => 10.3.8.27, 13.4.x => 13.4.77
: ASN.1 changes duplicated with CRS807R1 are not implemented
CRS813R1: new subclasues renumbered: 8.5.x => 8.5.87, 13.4.x => 13.4.78
: ASN.1 changes duplicated with CRS807R1 are not implemented
CRS816R2: new subclasues renumbered: 8.1.1.6.2x => 8.1.1.6.25, 10.2.48.8.2x => 10.2.48.8.28, 10.x.y.z => 10.3.9b.5, 13.4.3x => 13.4.79
CRS818R1: new subclasues renumbered: 10.3.6.xxx => 10.3.6.153
: ASN.1 changes duplicated with other CR are not implemented
CRS819R2: new refences renumbered: [yy] => 89, [zz]=> 90
: ASN.1 changes duplicated with other CR are not implemented

25.331 REL-12 update1
- All changes from rapporteur (Marks) included (please see separate email in RAN2 reflector). Thanks Marks.

36.321 REL-12 update1
- All comments from Mattias (on behalf of rapporteur) included (please see separate email in RAN2 reflector). Thanks Mattias.

36.331 REL-10/REL-11/REL-12 update1
- All comments from Hyung-Nam and Himke included (please see separate email in RAN2 reflector). Thanks Hyung-Nam and Himke.
: Inconsistencies between REL-10/REL-11/REL-12 corrected under HandoverPreparationInformation-v920-IEs and HandoverPreparationInformation-v9j0-IEs
- Furthermore, the order of the SIB6 extensions in REL-12 are not consistent in REL-10/11 so it was corrected in REL-12. Thanks Kai-Erik for spotting it.

Yong-Jun CHUNG, ETSI MCC
Yong-Jun.Chung@etsi.org

**From:** Yong-Jun Chung
**Sent:** 11 December 2015 9:05 PM
**To:** 3GPP_TSG_RAN_WG2; 'Burbidge, Richard C'; 'Pani, Diana'; 'hunan@chinamobile.com'; 'david.bhatoolaul@alcatel-lucent.com'; 'martin.van.der.zee@ericsson.com'; 'jun.chen@HUAWEI.COM'; 'simone.provvedi@huawei.com'; 'ravi.kuchibhotla@motorola.com'; 'hyung-nam.choi@intel.com'; 'alexander.sayenko@nokia.com'; 'Mark Curran'; 'yangxudong@huawei.com'; 'benoist.sebire@nokia.com'; 'jarkko.t.koskela@nokia.com'; 'mkitazoe@QTI.QUALCOMM.COM'; 'yi.guo@huawei.com'; 'magnus.stattin@ericsson.com'; 'tooru.uchino.fv@nttdocomo.com'; 'seungjune@lge.com'; 'himke.vandervelde@samsung.com'; 'Tomala, Malgorzata (Nokia - PL/Wroclaw)'; 'Mattias Bergström A'; 'SeungJune Yi'
**Subject:** CR implementation status after RAN #70 (1)

Dear all,

RAN #70 has approved 178 CRs to 45 RAN2 specifications as indicated in the table below.
(RAN2 submitted 177 agreed/endorsed CRs and had 1Scompany contributions to RAN2 specs at RAN #70.)

A corresponding Excel list of all RAN2 and company CRs treated at RAN #70 is attached.
Also, all approved CRs are uploaded under
ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/
in one zip file.

Availability of draft specs ready for review after CR implementation will be announced on the RAN2 reflector.
Corresponding rapporteurs (as listed below) but also everyone else, e.g. CR authors,
are invited to review the CR implementation.

As you can see from the table below 21 of 45 draft specifications are available for review.
The earlier I get the review comments from the rapporteurs, the earlier I can provide the final versions.

Best regards,

Yong-Jun

**Overview of RAN2 CR implementation after RAN #70 (8figec): Status on 11.12.2015**

| spec | REL-8 | REL-9 | REL-10 | REL-11 | REL-12 | REL-13 | CRs | specs | rapporteur | email |
|---|---|---|---|---|---|---|---|---|---|---|
| 25.300 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.301 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.302 | 0 | 0 | 1 | 1 | 1 | 2 | 5 | 4 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 25.304 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 2 | Jun Chen (Huawei) | jun.chen@HUAWEI.COM |
| 25.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Simone Provvedi (Huawei) | simone.provvedi@huawei.com |
| 25.306 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | Martin van der Zee (Ericsson) | martin.van.der.zee@ericsson.com |
| 25.308 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Ravi Kuchibhotla (Motorola Mobility) | ravi.kuchibhotla@motorola.com |
| 25.319 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | Hyung-Nam Choi (Intel) | hyung-nam.choi@intel.com |
| 25.321 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Alexander Sayenko (NSN) | alexander.sayenko@nokia.com |
| 25.331 | 0 | 0 | 0 | 1 | 4 | 17 | 22 | 3 | Mark Curran (Ericsson) (ASN.1: Xudong Yang (Huawei) | mark.curran@ericsson.com yangxudong@huawei.com |
| 25.993 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.300 | 0 | 0 | 0 | 1 | 2 | 24 | 27 | 3 | Benoist Sebire (NSN) | benoist.sebire@nokia.com |
| 36.302 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | David Bhatoolaul (ALU) | david.bhatoolaul@alcatel-lucent.com |
| 36.304 | 0 | 0 | 1 | 1 | 1 | 7 | 10 | 4 | Jarkko Koskela (Nokia) | jarkko.t.koskela@nokia.com |
| 36.305 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 36.306 | 0 | 0 | 1 | 1 | 9 | 5 | 16 | 4 | Ravi Kuchibhotla (Motorola Mobility) | ravi.kuchibhotla@motorola.com |
| 36.314 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Yi Guo (Huawei) | yi.guo@huawei.com |
| 36.321 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 2 | Magnus Stattin (Ericsson) | magnus.stattin@ericsson.com |
| 36.322 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | Toru Uchino (NTT DoCoMo) | tooru.uchino.fv@nttdocomo.com |
| 36.323 | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 2 | Seung June Yi (LGE) | seungjune.yi@lge.com |
| 36.331 | 0 | 0 | 3 | 5 | 20 | 18 | 46 | 4 | Himke van der Velde (Samsung) | himke.vandervelde@samsung.com |
| 36.355 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | Masato Kitazoe (Qualcomm) | mkitazoe@QTI.QUALCOMM.COM |
| 37.320 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Malgorzata Tomala (Nokia Networks) | malgorzata.tomala@nokia.com |
| UTRA | 0 | 0 | 1 | 2 | 6 | 45 | 54 | 18 | | |
| LTE | 0 | 0 | 5 | 8 | 38 | 73 | 124 | 27 | | |
| total | 0 | 0 | 6 | 10 | 44 | 118 | 178 | 45 | | |

purple: draft spec not yet available
blue: draft spec version available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
yellow: updated draft spec available for review (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_draft_specs_after_RAN_70/)
green: final "draft" spec version available (see ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201512_final_specs_after_RAN_70/)
as soon as rapporteur's ok is available
red: official spec available (see ftp://ftp.3gpp.org/Specs/2015-12)
**X: e.g. CR clashes or CRs not based on latest spec version => special attention for review needed**

**CR implementation comments:**

Common editorial work on CRs
- Style errors corrected
- Some highlight marks and colours in CRs not implemented (It's not allowed according to the draft rule.)
- Useless blanks and lines in CRs not implemented

36.300 REL-11 & REL-12
- acknowledgement of bluetooth trade mark added in second page by MCC since spec mentioned bluetooth.

36.306 REL-10 & REL-11
- new subclause 4.3.5.xx introduced as 4.3.5.16 with "4.3.5.15 Void" for keeping consistency with REL-12

36.321 REL-12
- the changes in 6.2.4 from CR0802 & CR0805 merged.

36.331 REL-12
- this draft spec provided by rapporteur (Himke). Thanks a lot.
  : the changes in 5.3.3.2 from CR1928R1 (R2-156833) & CR1931R2 (R2-157133) merged
  : CR1927R2 (R2-157177): "UE" in 5.5.5 replaced with "The UE" as a editorial work.
  : some editorial corrections included
- acknowledgement of bluetooth trade mark added in second page by MCC since spec mentioned bluetooth.

Yong-Jun CHUNG, ETSI MCC
Yong-Jun.Chung@etsi.org

ATOM RSS1 RSS2

LIST.ETSI.ORG

# Appendix F

| Appendix | Description |
|---|---|
| A | Curriculum Vitae of Friedhelm Rodermund |
| B | Email sent via 3GPP_TSG_RAN_WG4 email exploder on December 31, 2015, announcing TS 36.133 v13.2.0 |
| C | Email sent via 3GPP_TSG_RAN_WG1 email exploder on December 17, 2015, announcing TS 36.211 v13.0.0 |
| D | Email sent via 3GPP_TSG_RAN_WG1 email exploder on December 20, 2015, announcing TS 36.213 v13.0.0 |
| E | Email sent via 3GPP_TSG_RAN_WG2 email exploder on January 11, 2016, announcing TS 36.331 v13.0.0 |
| F | List of Appendices |