

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. 10,912,081

Case No. IPR2025-00896

DECLARATION OF FRIEDHELM RODERMUND
IN SUPPORT OF A PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 10,912,081

TABLE OF CONTENTS

	Page
I. INTRODUCTION AND ENGAGEMENT	1
II. BACKGROUND AND QUALIFICATIONS.....	3
III. SUMMARY OF MY OPINIONS	8
IV. PUBLICATION OF 3GPP SPECIFICATIONS AND RELATED DOCUMENTS	9
A. General Practices.....	9
B. Specific Documents	22
1. TS 36.201 V14.1.0	22
2. TS 36.211 V14.2.0	29
3. TS 36.212 V14.2.0	35
4. TS 36.213 V14.2.0	41
5. TS 36.331 V14.2.2	47
V. AVAILABILITY FOR CROSS-EXAMINATION	53
A. Right To Supplement	53
B. Signature	53

Declaration of Friedhelm Rodermund

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 14.1.0 of technical specification 3GPP TS 36.201 (“Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); LTE physical layer; General description (Release 14)”) (hereinafter “TS 36.201 V14.1.0”, APPLE-1024).
- Version 14.2.0 of technical specification 3GPP TS 36.211 (“Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and

Declaration of Friedhelm Rodermund

modulation (Release 14)”) (hereinafter “TS 36.211 V14.2.0”, APPLE-1025).

- Version 14.2.0 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 14)”) (hereinafter “TS 36.212 V14.2.0”, APPLE-1026).
- Version 14.2.0 of technical specification 3GPP TS 36.213 (“Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures (Release 14)”) (hereinafter “TS 36.213 V14.2.0”, APPLE-1027).
- Version 14.2.2 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 14)”) (hereinafter “TS 36.331 V14.2.2”, APPLE-1028).

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

Declaration of Friedhelm Rodermund

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 by 3GPP working groups. 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. 10,912,081 ("the '081 Patent") (Ex. 1001). I have no financial interest in the Patent Owner or the '081 patent.

II. **BACKGROUND AND QUALIFICATIONS**

7. I have more than 20 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

Declaration of Friedhelm Rodermund

Telecommunications System (“UMTS”), Long Term Evolution (“LTE”), and 5G, which are all standards developed by the 3GPP.

8. 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.

9. 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).

10. 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

Declaration of Friedhelm Rodermund

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”).

11. 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.

12. 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.

13. 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

Declaration of Friedhelm Rodermund

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.

14. 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.

15. 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

Declaration of Friedhelm Rodermund

also involved in the creation of patents, defense activities related to patent litigations, and patent evaluation, mostly in the context of standards development.

16. 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.

17. 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.

18. 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.

Declaration of Friedhelm Rodermund

19. 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

20. It is my opinion that “TS 36.201 V14.1.0” (APPLE-1024) is an authentic 3GPP specification and would have been publicly accessible through ftp.3gpp.org no later than March 23, 2017.

21. It is my opinion that “TS 36.211 V14.2.0” (APPLE-1025) is an authentic 3GPP specification and would have been publicly accessible through ftp.3gpp.org no later than March 23, 2017.

22. It is my opinion that “TS 36.212 V14.2.0” (APPLE-1026) is an authentic 3GPP specification and would have been publicly accessible through ftp.3gpp.org no later than March 23, 2017.

23. It is my opinion that “TS 36.213 v14.2.0” (APPLE-1027) is an authentic 3GPP specification and would have been publicly accessible through ftp.3gpp.org no later than March 23, 2017.

24. It is my opinion that “TS 36.331 V14.2.2” (APPLE-1027) is an authentic 3GPP specification and would have been publicly accessible through ftp.3gpp.org no later than April 20, 2017.

IV. PUBLICATION OF 3GPP SPECIFICATIONS AND RELATED DOCUMENTS

A. General Practices

25. Unless otherwise noted, the foregoing and following is an accurate description of 3GPP general practices from 1998 to the present, including in 2017, regardless of whether I use the present or past tense to describe those practices.

26. 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

Declaration of Friedhelm Rodermund

3GPP. Furthermore, ETSI manages 3GPP's IT services such as the 3GPP website, ftp server, and email exploders.

27. 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.

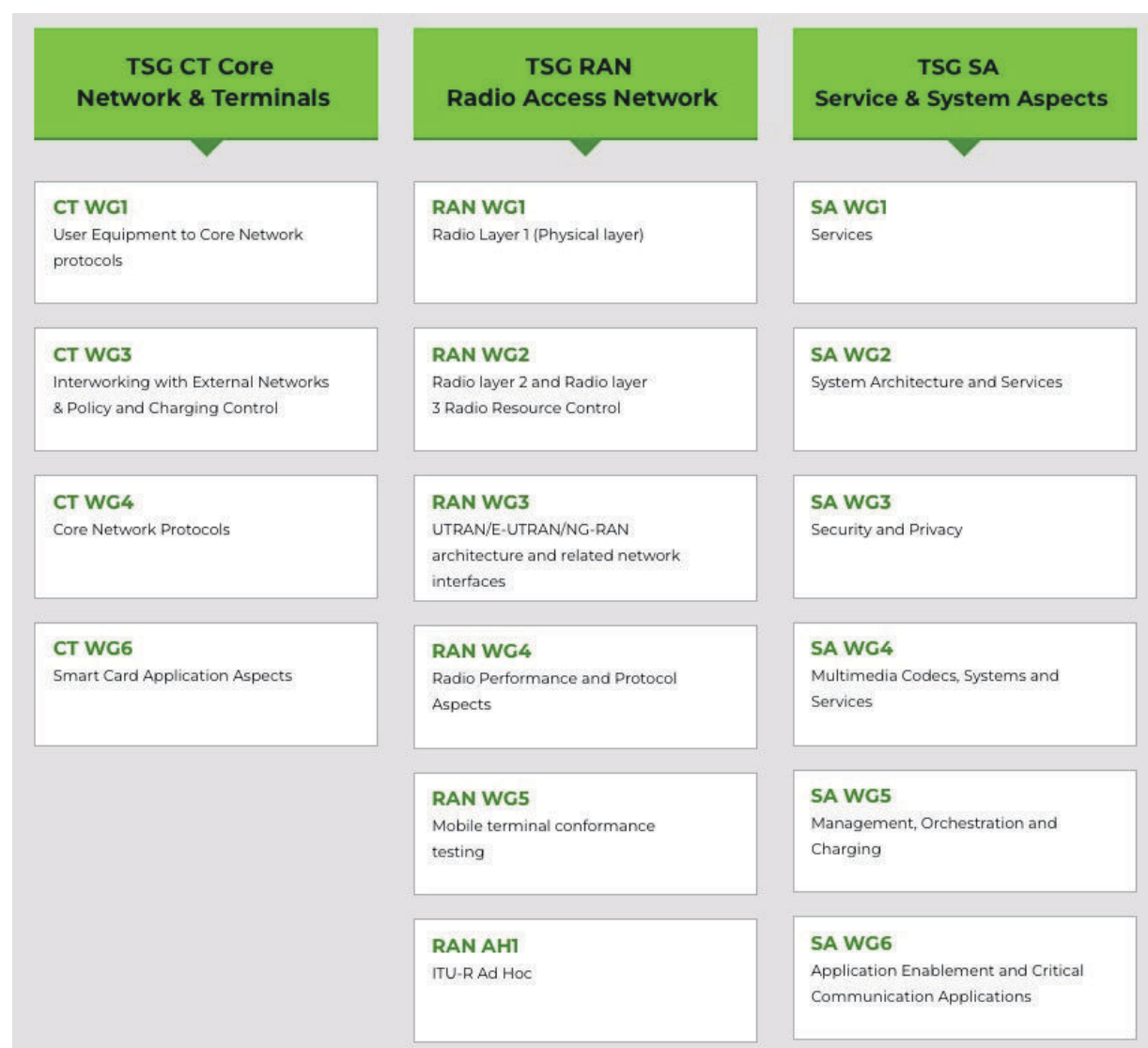
28. In the ordinary course of its regularly conducted business activities, and pursuant to its standard business practices, 3GPP publishes technical specifications, proposals, reports, and other documents related to the development of cellular telecommunications standards. Such documents are published 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.

29. 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

Declaration of Friedhelm Rodermund

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.

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



Declaration of Friedhelm Rodermund

31. 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: xminnnzzzz. The numbering system normally comprises five logical elements: (1) x: a single letter corresponding to the TSG; wherein in 2007/2008 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).

32. 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](ftp://ftp.3gpp.org).

33. As early as December 1998, including in 2017, 3GPP’s ftp server was freely accessible to the general public with no login, password, or membership requirement.

Declaration of Friedhelm Rodermund

34. By 1999, at least 100 companies were members of 3GPP (719 companies by December 2020), 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 or 5G 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.

Declaration of Friedhelm Rodermund

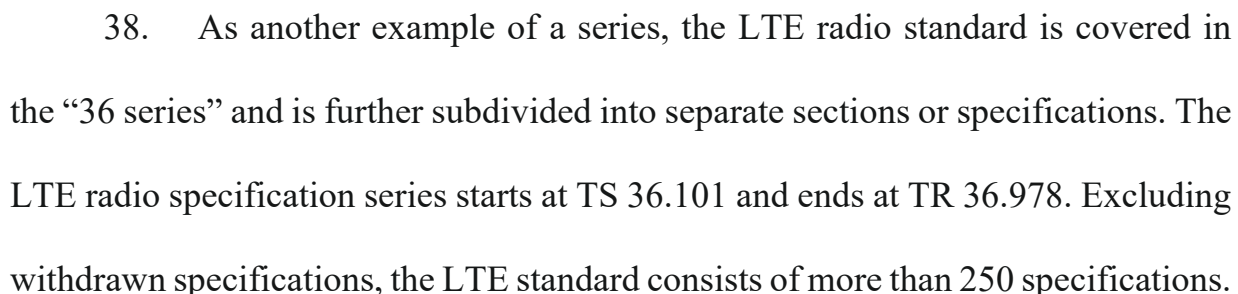
35. By June 1999, 3GPP's ftp server was well-known to persons in the cellular telecommunications industry as a source of public information regarding industry standards and technological advances.

36. 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.

Declaration of Friedhelm Rodermund

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		

37. 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:



Declaration of Friedhelm Rodermund

39. As another example of a series, the 5G New Radio (NR) standard is covered in the “38 series” and is further subdivided into separate sections or specifications. Selecting the “38 series” link on website shown in paragraph 33 leads to the 3GPP portal (portal.3gpp.org) page for all of the 38 series technical specifications.¹ These 5G NR specifications start at TS 38.101 and end at TR 38.921. Excluding withdrawn specifications, the 5G NR standard consists of more than 140 specifications.

40. Each LTE or 5G specification can span from a few pages to hundreds of pages. One full version of the LTE or 5G standard is massive, spanning tens of thousands of pages across the particular series of technical specifications.

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).

1

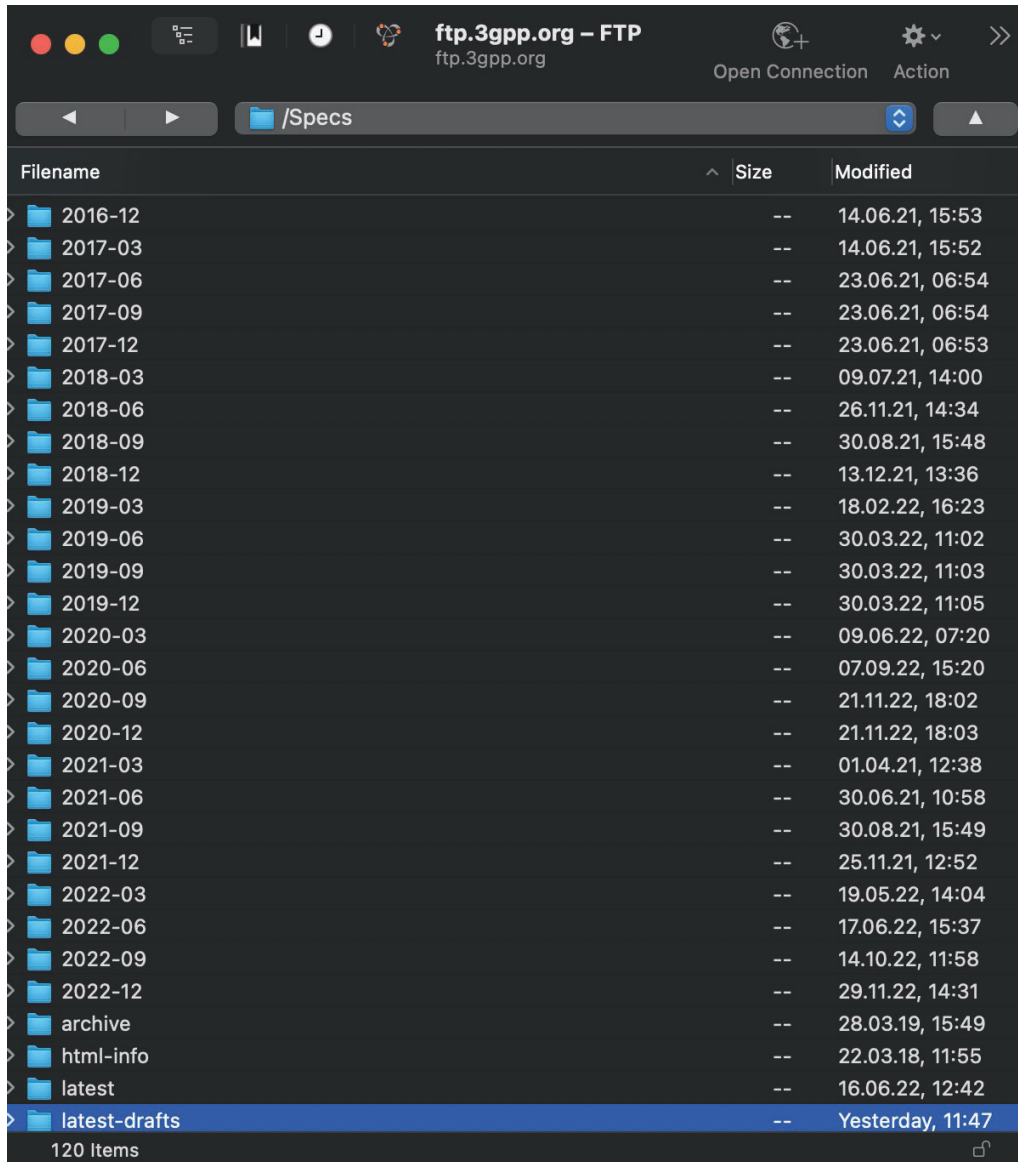
<https://portal.3gpp.org/Specifications.aspx?q=1&series=45&releases=all&draft=False&underCC=False&withACC=False&withBCC=False&numberNYA=False>

Declaration of Friedhelm Rodermund

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. 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>:

Declaration of Friedhelm Rodermund



Filename	Size	Modified
> 2016-12	--	14.06.21, 15:53
> 2017-03	--	14.06.21, 15:52
> 2017-06	--	23.06.21, 06:54
> 2017-09	--	23.06.21, 06:54
> 2017-12	--	23.06.21, 06:53
> 2018-03	--	09.07.21, 14:00
> 2018-06	--	26.11.21, 14:34
> 2018-09	--	30.08.21, 15:48
> 2018-12	--	13.12.21, 13:36
> 2019-03	--	18.02.22, 16:23
> 2019-06	--	30.03.22, 11:02
> 2019-09	--	30.03.22, 11:03
> 2019-12	--	30.03.22, 11:05
> 2020-03	--	09.06.22, 07:20
> 2020-06	--	07.09.22, 15:20
> 2020-09	--	21.11.22, 18:02
> 2020-12	--	21.11.22, 18:03
> 2021-03	--	01.04.21, 12:38
> 2021-06	--	30.06.21, 10:58
> 2021-09	--	30.08.21, 15:49
> 2021-12	--	25.11.21, 12:52
> 2022-03	--	19.05.22, 14:04
> 2022-06	--	17.06.22, 15:37
> 2022-09	--	14.10.22, 11:58
> 2022-12	--	29.11.22, 14:31
> archive	--	28.03.19, 15:49
> html-info	--	22.03.18, 11:55
> latest	--	16.06.22, 12:42
> latest-drafts	--	Yesterday, 11:47

120 Items

44. 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

Declaration of Friedhelm Rodermund

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.

45. 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.

46. An additional means of accessing 3GPP documents including T-docs and 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

Declaration of Friedhelm Rodermund

experience, throughout the 2017 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:

The screenshot shows the 3GPP Portal website. At the top, there is a navigation bar with the 3GPP logo and the word "Portal". Below the logo, there is a login section with fields for "Username" and "Password", and a "Login" button. A message above the login fields says "Please log-in with your EOL account." Below the login section, there is a green navigation bar with links for "Home", "Directory", "Browse FTP", and "Help". Below this bar, there is a message: "This site is 3GPP working area. Log in to access full features. For general information go to the public site www.3gpp.org". Below the message, there is a search form with various filters. The search form includes a "Search form (23.008, Releases(26))" header. The filters include "Title/Specification number" (23.008), "Release" (All Releases), "Series" (dropdown), "Publication" (Internal, For Publication), "Status" (Draft, Under change control, Withdrawn before change control, Withdrawn under change control), "Type" (Technical Specification (TS), Technical Report (TR)), and "Technology" (2G, 3G, LTE, 5G). Below the search form, there is a "Data pager" section showing "0 specifications found, displaying 0 to 0". Below the data pager, there is a table with columns: "Specification Number", "Type", "Title", "Status", and "Primary Responsible Group". The table is empty, and a message below it says "No records to display."

<https://portal.3gpp.org/Specifications.aspx>; see, e.g., 2015 internet archive

<https://web.archive.org/web/20150924200802/https://portal.3gpp.org/>.

47. 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

Declaration of Friedhelm Rodermund

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.

48. 3GPP maintains a set of publicly accessible documents² 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 36.201 V14.1.0

49. Based on my personal knowledge and my review of 3GPP’s business records, I recognize APPLE-1024 as a true and correct copy of version 14.1.0 of technical specification 3GPP TS 36.201 (“Technical Specification Group Radio

² All available from <https://www.3gpp.org/delegates-corner/3gpp-working-procedures>

Declaration of Friedhelm Rodermund

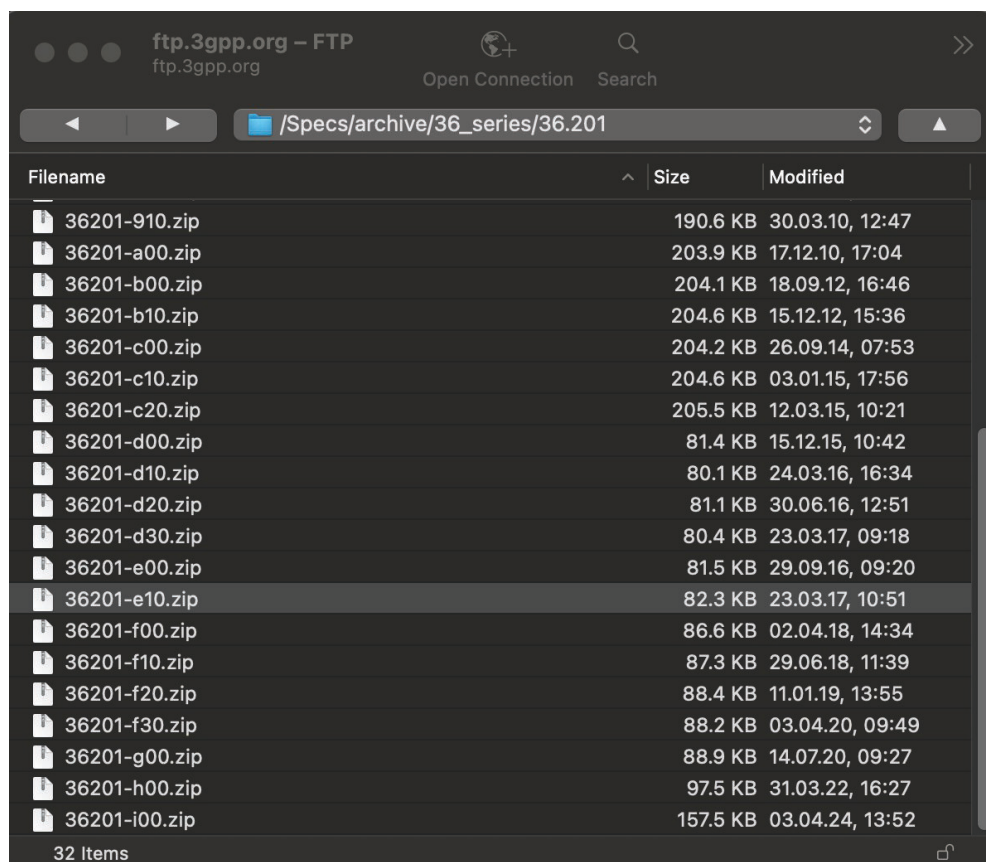
Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); LTE physical layer (Release 14)”), which shows on its cover page “2017-03” as the year (2017) and month (March) during which this document was released by 3GPP.

50. The document was published and freely available on 3GPP’s ftp server by March 23, 2017. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file (“36201-e10.zip”), as maintained by the Internet Archive at

https://web.archive.org/web/20171103153312/http://www.3gpp.org/ftp/specs/archive/36_series/36.201/. 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/36.201/, as shown by the screenshot below:

Declaration of Friedhelm Rodermund

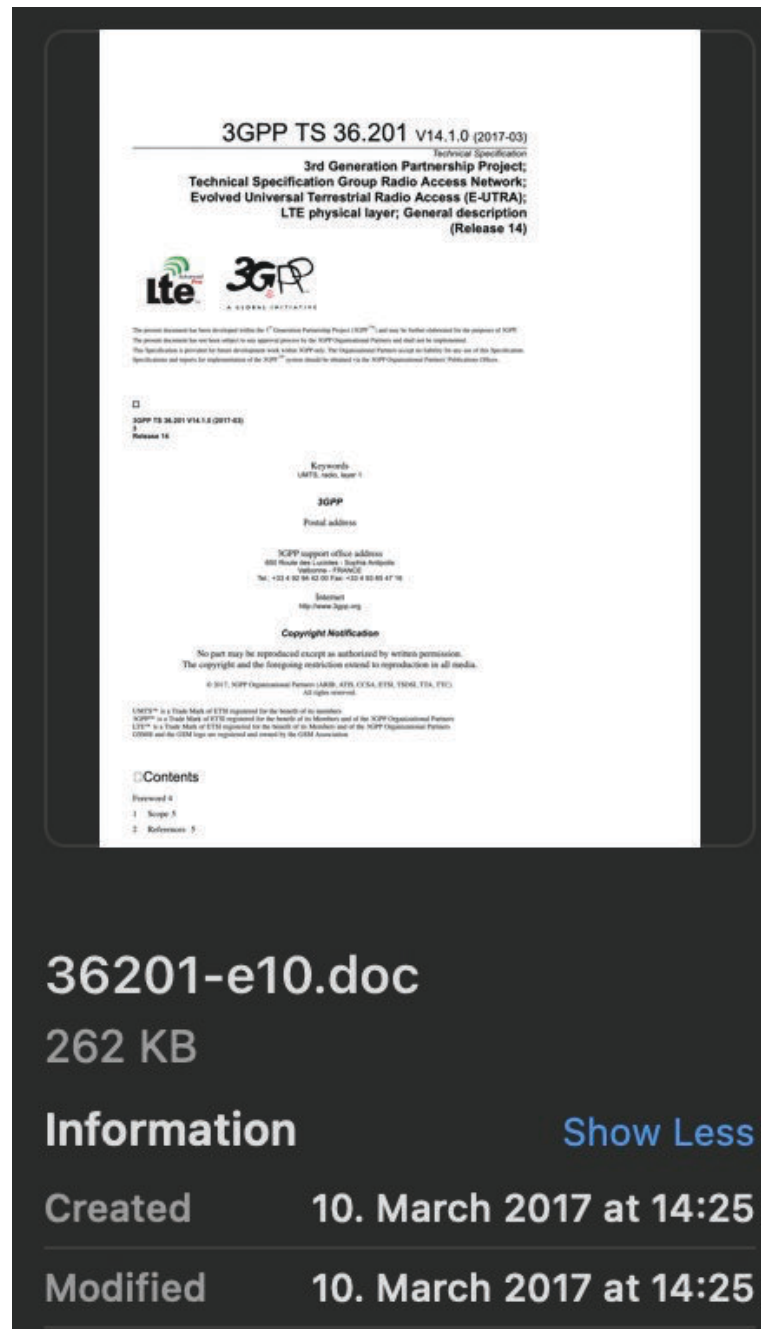


The screenshot shows an FTP client window titled 'ftp.3gpp.org - FTP'. The address bar displays the path '/Specs/archive/36_series/36.201'. Below the address bar is a table with three columns: 'Filename', 'Size', and 'Modified'. The table lists 32 zip files, with the file '36201-e10.zip' highlighted. The status bar at the bottom indicates '32 Items'.

Filename	Size	Modified
36201-910.zip	190.6 KB	30.03.10, 12:47
36201-a00.zip	203.9 KB	17.12.10, 17:04
36201-b00.zip	204.1 KB	18.09.12, 16:46
36201-b10.zip	204.6 KB	15.12.12, 15:36
36201-c00.zip	204.2 KB	26.09.14, 07:53
36201-c10.zip	204.6 KB	03.01.15, 17:56
36201-c20.zip	205.5 KB	12.03.15, 10:21
36201-d00.zip	81.4 KB	15.12.15, 10:42
36201-d10.zip	80.1 KB	24.03.16, 16:34
36201-d20.zip	81.1 KB	30.06.16, 12:51
36201-d30.zip	80.4 KB	23.03.17, 09:18
36201-e00.zip	81.5 KB	29.09.16, 09:20
36201-e10.zip	82.3 KB	23.03.17, 10:51
36201-f00.zip	86.6 KB	02.04.18, 14:34
36201-f10.zip	87.3 KB	29.06.18, 11:39
36201-f20.zip	88.4 KB	11.01.19, 13:55
36201-f30.zip	88.2 KB	03.04.20, 09:49
36201-g00.zip	88.9 KB	14.07.20, 09:27
36201-h00.zip	97.5 KB	31.03.22, 16:27
36201-i00.zip	157.5 KB	03.04.24, 13:52

51. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of “10. March 2017”, as shown in the screenshot below:

Declaration of Friedhelm Rodermund

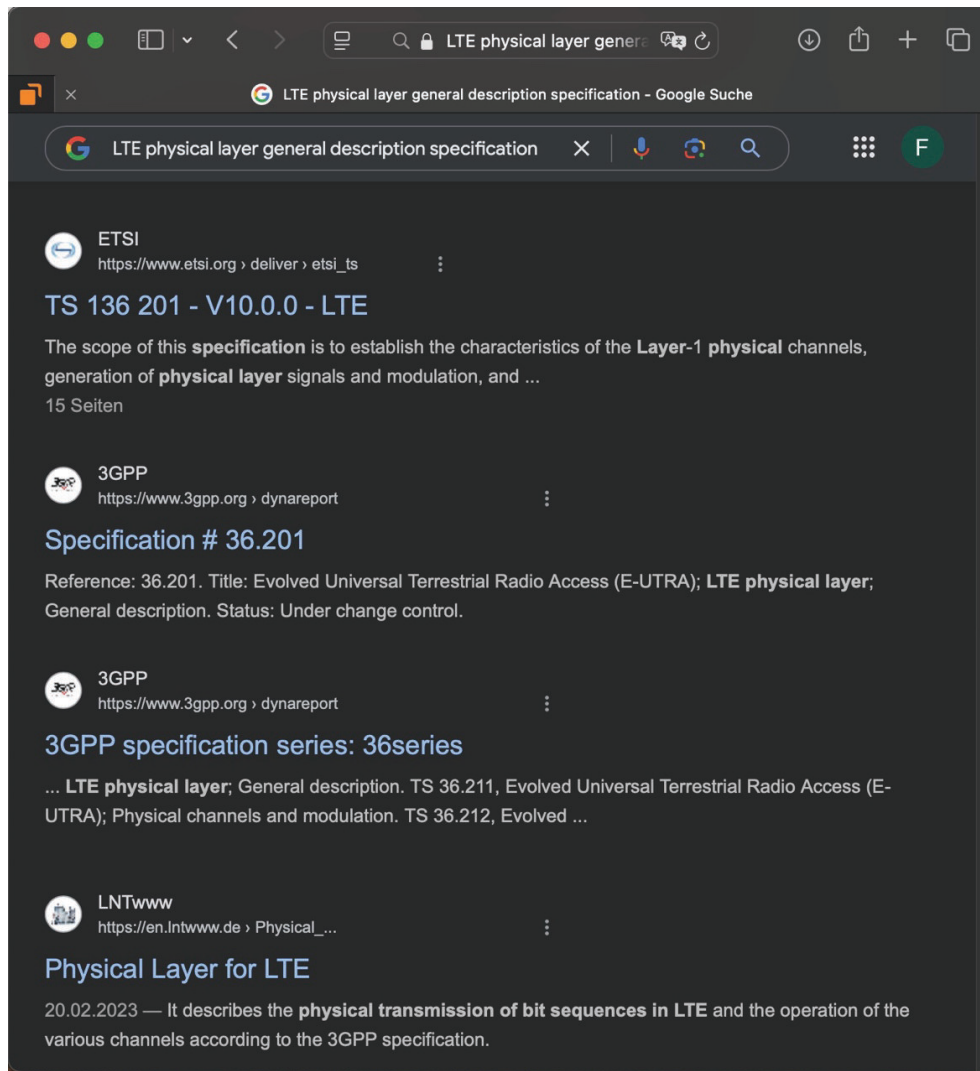


Declaration of Friedhelm Rodermund

52. 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 March 23, 2017, at the latest.

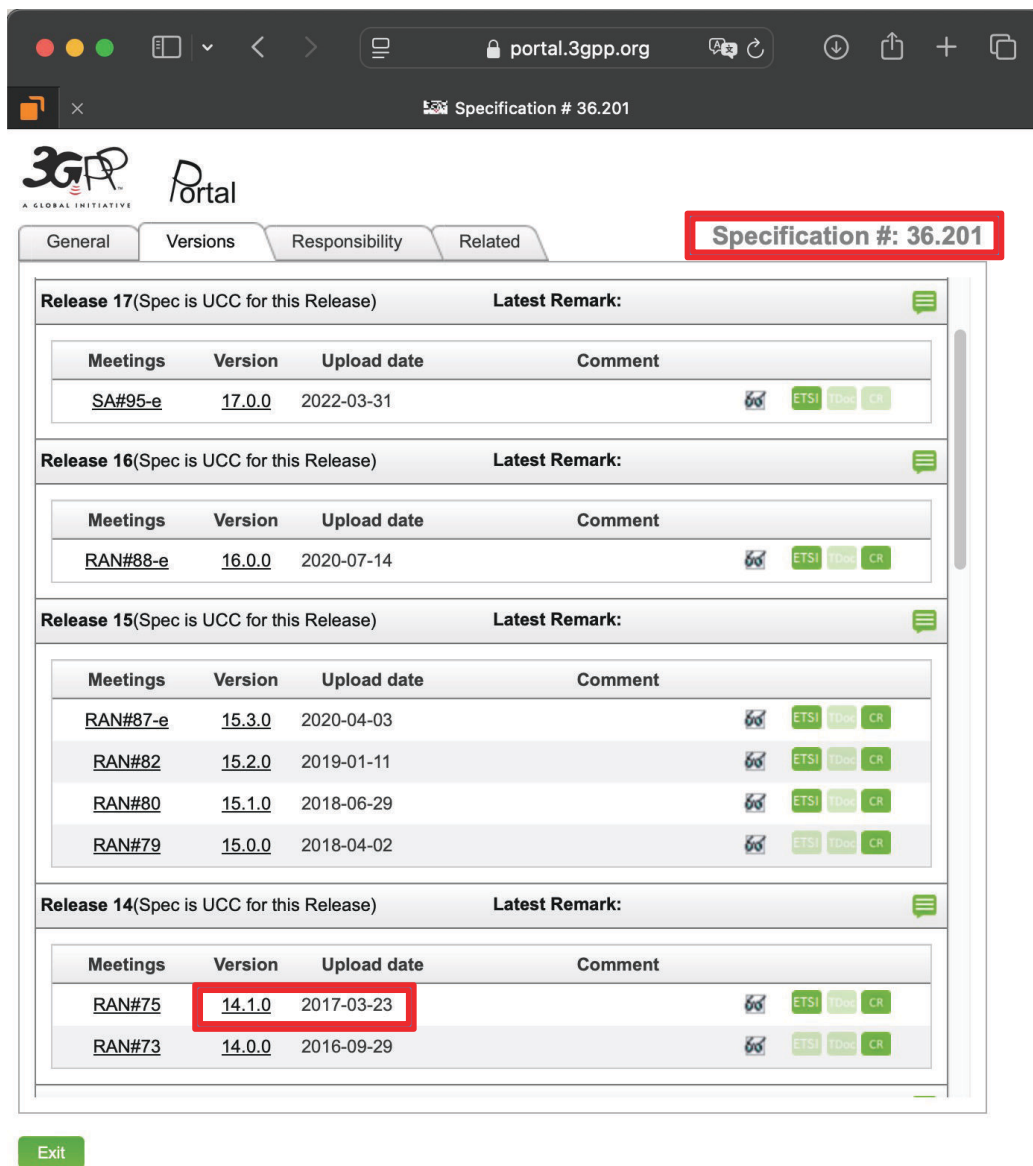
53. I believe that a person without prior knowledge of 3GPP and/or the technical specification (TS) number would have been able to easily find the TS for download via internet search. For instance, a Google search for "LTE physical layer general description specification" provides the TS number "36.201" as one of the top results as can be seen in the screenshot below:

Declaration of Friedhelm Rodermund



54. Following the provided search result link “Specification # 36.201” leads to a 3GPP web page offering under the tab “Versions” download links to all versions of TS 36.201 including version 14.1.0, as shown by the screenshot below:

Declaration of Friedhelm Rodermund



The screenshot shows the 3GPP Portal interface for Specification # 36.201. The 'Versions' tab is selected, and the page displays a list of releases from 14 to 17. Each release entry includes a table of meetings and versions. The version 14.1.0 is highlighted with a red box.

Release	Meeting	Version	Upload date	Comment
Release 17 (Spec is UCC for this Release)	SA#95-e	17.0.0	2022-03-31	ETSI TDoc CR
	Latest Remark:			
Release 16 (Spec is UCC for this Release)	RAN#88-e	16.0.0	2020-07-14	ETSI TDoc CR
	Latest Remark:			
Release 15 (Spec is UCC for this Release)	RAN#87-e	15.3.0	2020-04-03	ETSI TDoc CR
	RAN#82	15.2.0	2019-01-11	ETSI TDoc CR
	RAN#80	15.1.0	2018-06-29	ETSI TDoc CR
	RAN#79	15.0.0	2018-04-02	ETSI TDoc CR
	Latest Remark:			
Release 14 (Spec is UCC for this Release)	RAN#75	14.1.0	2017-03-23	ETSI TDoc CR
	RAN#73	14.0.0	2016-09-29	ETSI TDoc CR
	Latest Remark:			

Exit

55. 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 36.201, including version 14.1.0, for download.

Declaration of Friedhelm Rodermund

56. The above search was performed near the time of writing this report. According to my personal experience, similar searches done in March 2017 or around that timeframe would have similarly provided the path to download version 14.1.0 of TS 36.201.

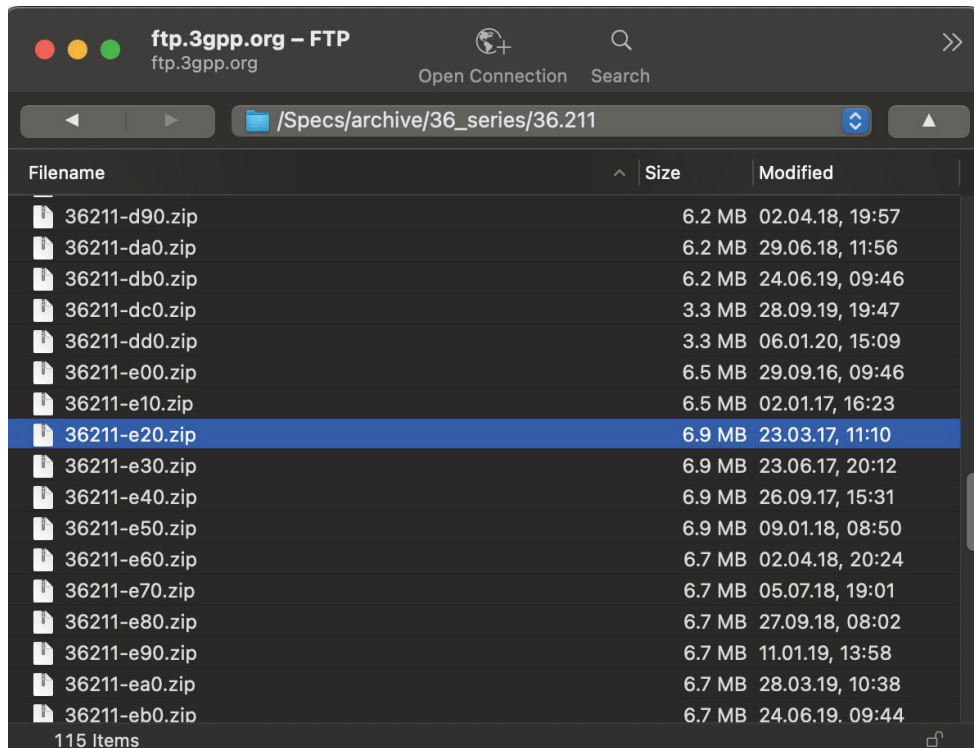
2. TS 36.211 V14.2.0

57. Based on my personal knowledge and my review of 3GPP's business records, I recognize APPLE-1025 as a true and correct copy of version 14.2.0 of technical specification 3GPP TS 36.211 ("3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation (Release 14)"), which shows on its cover page "2017-03" as the year (2017) and month (March) during which this document was released by 3GPP.

58. The document was published and freely available on 3GPP's ftp server by March 23, 2017. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36211-e20.zip"), as maintained by the Internet Archive at https://web.archive.org/web/20170509091547/http://www.3gpp.org:80/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

Declaration of Friedhelm Rodermund

https://www.3gpp.org/ftp/Specs/archive/36_series/36.211, as shown by the screenshot below:



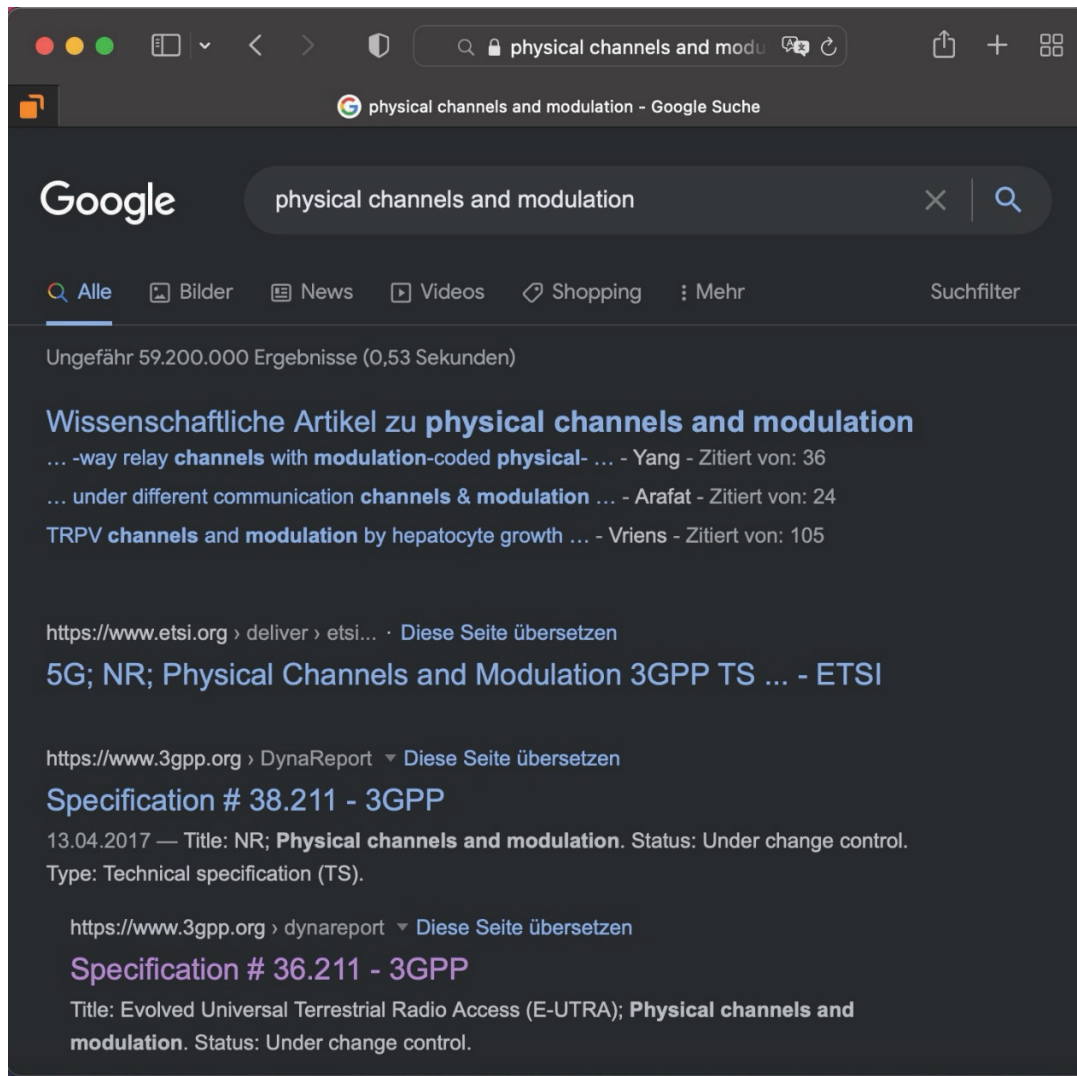
59. In addition, metadata information for the downloaded and extracted specification files states a last Modified dates of “23. March 2017”, as shown in the screenshot below:

60. This last modified date is well aligned with the March 23, 2017, upload date of the document, and the standard business practice among 3GPP officers to upload documents shortly after completing them.

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61. 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 March 23, 2017, at the latest.

62. 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:



63. 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 14.2.0, as shown by the screenshot below:

Declaration of Friedhelm Rodermund

The screenshot shows the 3GPP Portal interface for Specification # 36.211. The browser address bar shows 'portal.3gpp.org'. The page has tabs for 'General', 'Versions', 'Responsibility', and 'Related'. The 'Versions' tab is active, showing a table of versions for Release 14. The table has columns for Meetings, Version, Upload date, and Comment. The version 14.2.0 is highlighted with a red box. The 'Exit' button is visible at the bottom left.

Meetings	Version	Upload date	Comment
RAN#88-e	14.15.0	2020-07-14	
RAN#87-e	14.14.0	2020-04-03	
RAN#86	14.13.1	2020-01-15	MCC clean-up to fix clause nu...
RAN#86	14.13.0	2020-01-06	
RAN#85	14.12.0	2019-09-28	
RAN#84	14.11.0	2019-06-24	
RAN#83	14.10.0	2019-03-28	
RAN#82	14.9.0	2019-01-11	
RAN#81	14.8.0	2018-09-27	
RAN#80	14.7.0	2018-07-05	
RAN#79	14.6.0	2018-04-02	
RAN#78	14.5.0	2018-01-09	
RAN#77	14.4.0	2017-09-26	
RAN#76	14.3.0	2017-06-23	
RAN#75	14.2.0	2017-03-23	
RAN#74	14.1.0	2017-01-02	
RAN#73	14.0.0	2016-09-29	

64. 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 14.2.0, for download.

Declaration of Friedhelm Rodermund

65. The above search was performed near the time of writing this report. According to my personal experience, similar searches done in March 2017 or around that timeframe would have similarly provided the path to download version 14.2.0 of TS 36.211.

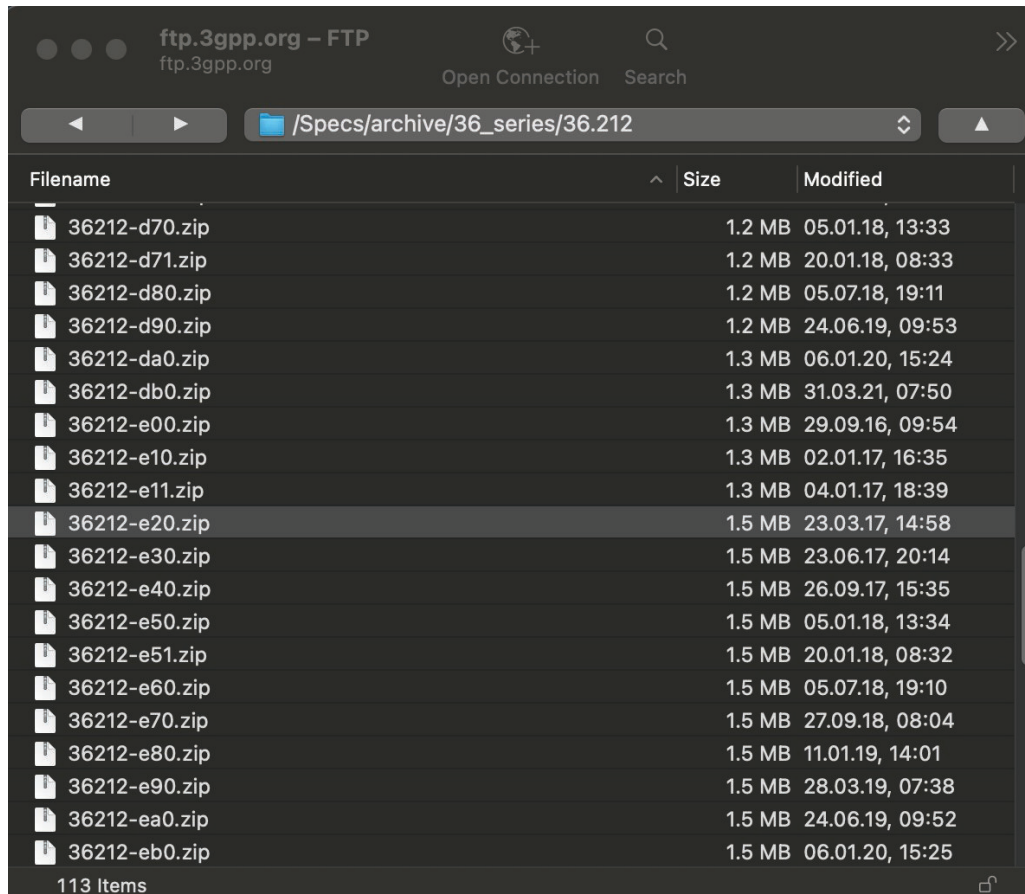
3. TS 36.212 V14.2.0

66. Based on my personal knowledge and my review of 3GPP's business records, I recognize APPLE-1026 as a true and correct copy of version 14.2.0 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 14)"), which shows on its cover page "2017-03" as the year (2017) and month (March) during which this document was released by 3GPP.

67. The document was published and freely available on 3GPP's ftp server by March 23, 2017. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36212-e20.zip"), as maintained by the Internet Archive at https://web.archive.org/web/20170506030955/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

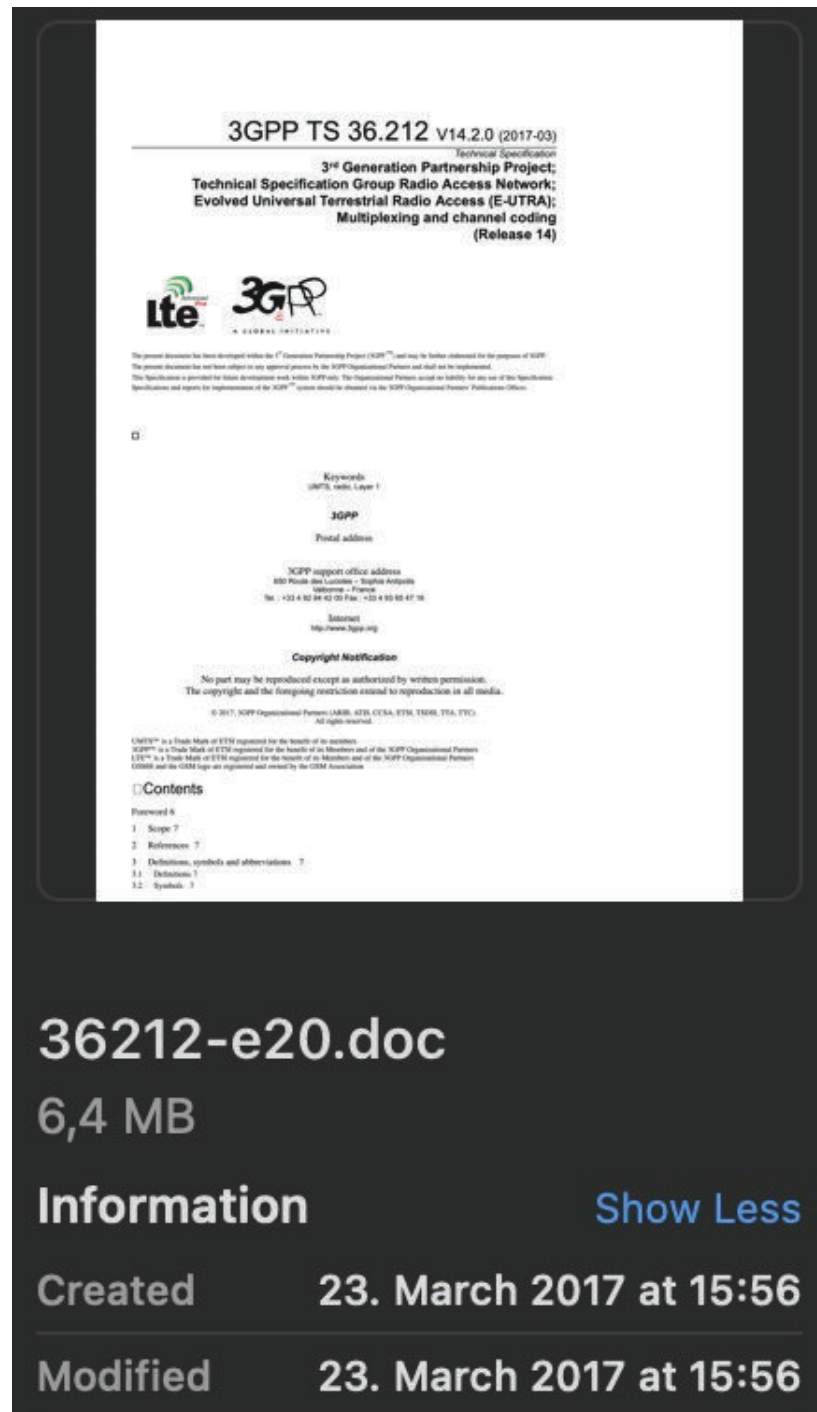
Declaration of Friedhelm Rodermund

https://www.3gpp.org/ftp/Specs/archive/36_series/36.212, as shown by the screenshot below:



68. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of “23. March 2017”, as shown in the screenshot below:

Declaration of Friedhelm Rodermund

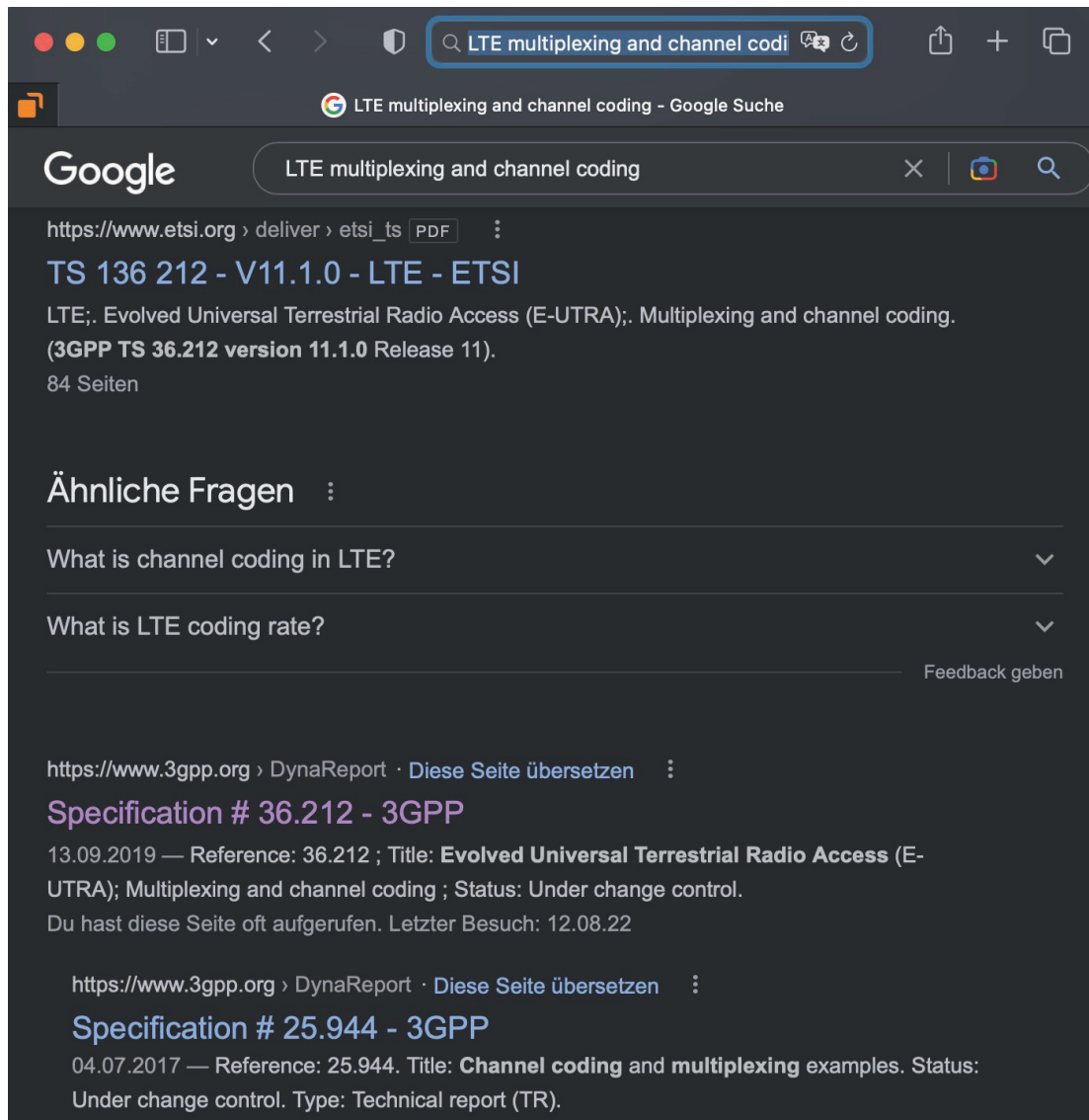


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69. This last modified date is well aligned with the March 23, 2017, upload date of the document, and the standard business practice among 3GPP officers to upload documents shortly after completing them.

70. 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 March 23, 2017, at the latest.

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



72. 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 14.2.0, as shown by the screenshot below:

Declaration of Friedhelm Rodermund

The screenshot shows the 3GPP Portal website for Specification # 36.212. The page has a navigation bar with tabs: General, Versions, Responsibility, and Related. The 'Specifications # 36.212' tab is highlighted. Below the navigation bar, there is a section for 'Release 14 (Spec is UCC for this Release)' with a 'Latest Remark:' link. A table lists the versions of the specification, including the meeting number, version number, upload date, and comment. The version 14.2.0 is highlighted in red.

Meetings	Version	Upload date	Comment
RAN#92-e	14.16.0	2021-06-30	
RAN#91-e	14.15.0	2021-03-31	
RAN#89-e	14.14.0	2020-10-01	
RAN#88-e	14.13.0	2020-07-14	
RAN#87-e	14.12.0	2020-04-03	
RAN#86	14.11.0	2020-01-06	
RAN#84	14.10.0	2019-06-24	
RAN#83	14.9.0	2019-03-28	
RAN#82	14.8.0	2019-01-11	
RAN#81	14.7.0	2018-09-27	
RAN#80	14.6.0	2018-07-05	
RAN#78	14.5.1	2018-01-20	Clean-up fixing indent issues
RAN#78	14.5.0	2018-01-05	
RAN#77	14.4.0	2017-09-26	
RAN#76	14.3.0	2017-06-23	
RAN#75	14.2.0	2017-03-23	
RAN#74	14.1.1	2017-01-04	MCC clean-up to correct corru...

73. 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 14.2.0, for download.

74. The above search was performed near the time of writing this report. According to my personal experience, similar searches done in 2017 or around that timeframe would have similarly provided the path to download version 14.2.0 of TS 36.212.

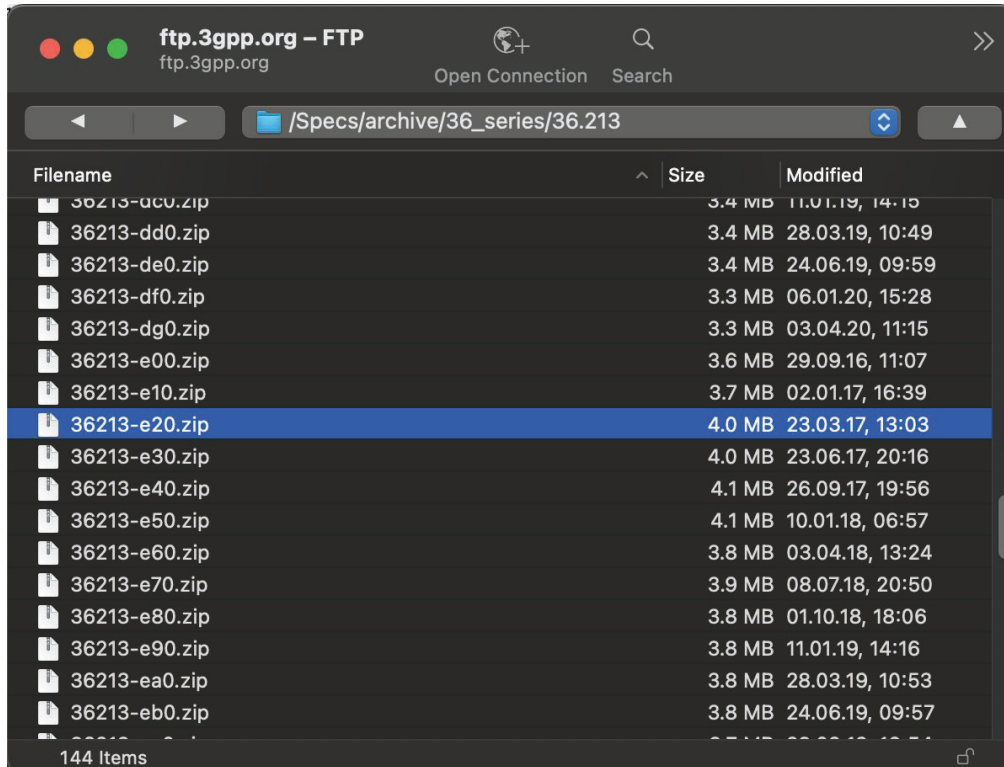
4. **TS 36.213 V14.2.0**

75. Based on my personal knowledge and my review of 3GPP's business records, I recognize APPLE-1027 as a true and correct copy of version 14.2.0 of technical specification 3GPP TS 36.213 ("Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures (Release 14)"), which shows on its cover page "2017-03" as the year (2017) and month (March) during which this document was released by 3GPP.

76. The document was published and freely available on 3GPP's ftp server by March 23, 2017. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36213-e20.zip"), as maintained by the Internet Archive at https://web.archive.org/web/20170603184031/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

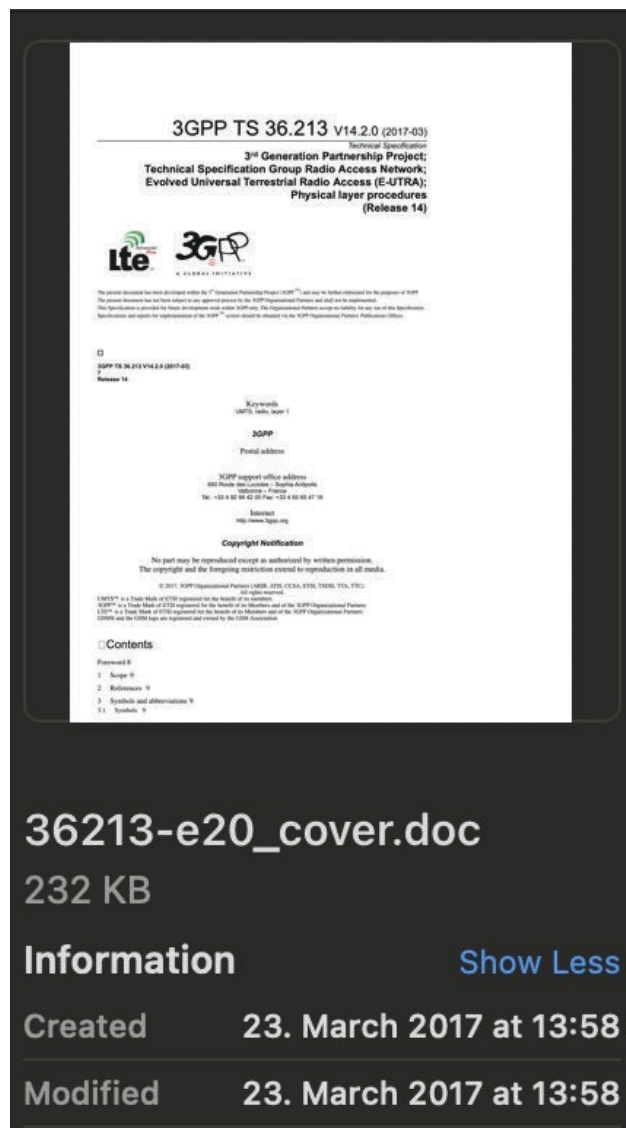
Declaration of Friedhelm Rodermund

https://www.3gpp.org/ftp/Specs/archive/36_series/36.213, as shown by the screenshot below:



77. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of “23. March 2017”, as shown in the screenshot below:

Declaration of Friedhelm Rodermund



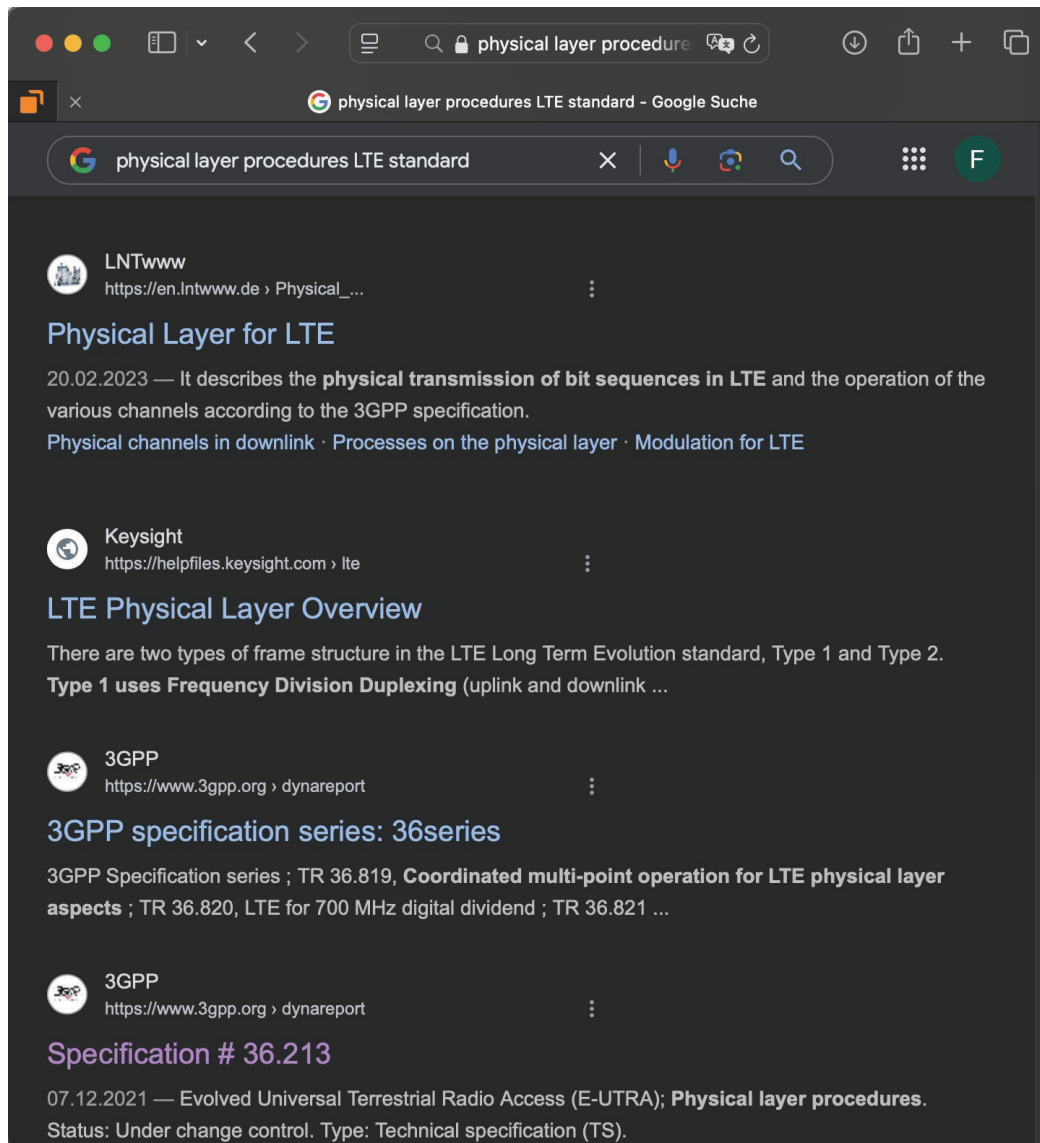
78. This last modified date is well aligned with the March 23, 2017, upload date of the document, and the standard business practice among 3GPP officers to upload documents shortly after completing them.

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

Declaration of Friedhelm Rodermund

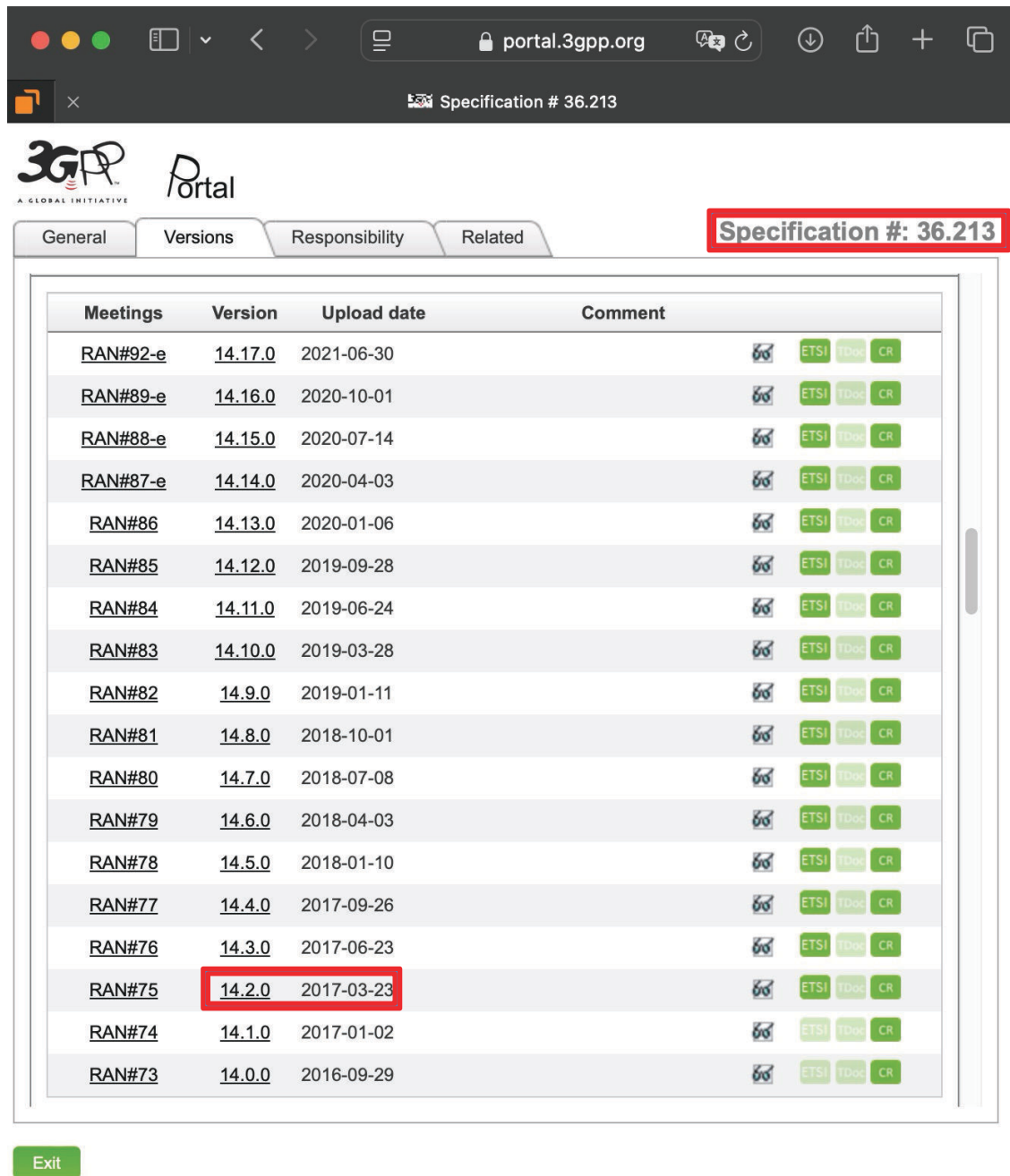
was available to all 3GPP members and the general public by March 23, 2017, at the latest.

80. 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 procedures LTE standard” provides the TS number “36.213” as one of the top results as can be seen in the screenshot below:



81. Following the provided search result link “Specification # 36.213” leads to a 3GPP web page offering under the tab “Versions” download links to all versions of TS 36.213 including version 14.2.0, as shown by the screenshot below:

Declaration of Friedhelm Rodermund



The screenshot shows the 3GPP Portal website. The browser address bar displays "portal.3gpp.org". The page title is "Specification # 36.213". The navigation tabs are "General", "Versions", "Responsibility", and "Related". The "Versions" tab is selected. A red box highlights the text "Specification #: 36.213". Below the tabs is a table with the following columns: "Meetings", "Version", "Upload date", and "Comment". The table lists various RAN meetings and their corresponding versions and upload dates. The version "14.2.0" is highlighted in red.

Meetings	Version	Upload date	Comment
RAN#92-e	14.17.0	2021-06-30	 ETSI TDoc CR
RAN#89-e	14.16.0	2020-10-01	 ETSI TDoc CR
RAN#88-e	14.15.0	2020-07-14	 ETSI TDoc CR
RAN#87-e	14.14.0	2020-04-03	 ETSI TDoc CR
RAN#86	14.13.0	2020-01-06	 ETSI TDoc CR
RAN#85	14.12.0	2019-09-28	 ETSI TDoc CR
RAN#84	14.11.0	2019-06-24	 ETSI TDoc CR
RAN#83	14.10.0	2019-03-28	 ETSI TDoc CR
RAN#82	14.9.0	2019-01-11	 ETSI TDoc CR
RAN#81	14.8.0	2018-10-01	 ETSI TDoc CR
RAN#80	14.7.0	2018-07-08	 ETSI TDoc CR
RAN#79	14.6.0	2018-04-03	 ETSI TDoc CR
RAN#78	14.5.0	2018-01-10	 ETSI TDoc CR
RAN#77	14.4.0	2017-09-26	 ETSI TDoc CR
RAN#76	14.3.0	2017-06-23	 ETSI TDoc CR
RAN#75	14.2.0	2017-03-23	 ETSI TDoc CR
RAN#74	14.1.0	2017-01-02	 ETSI TDoc CR
RAN#73	14.0.0	2016-09-29	 ETSI TDoc CR

Exit

82. 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 14.2.0, for download.

83. The above search was performed near the time of writing this report. According to my personal experience, similar searches done in March 2017 or around that timeframe would have similarly provided the path to download version 14.2.0 of TS 36.213.

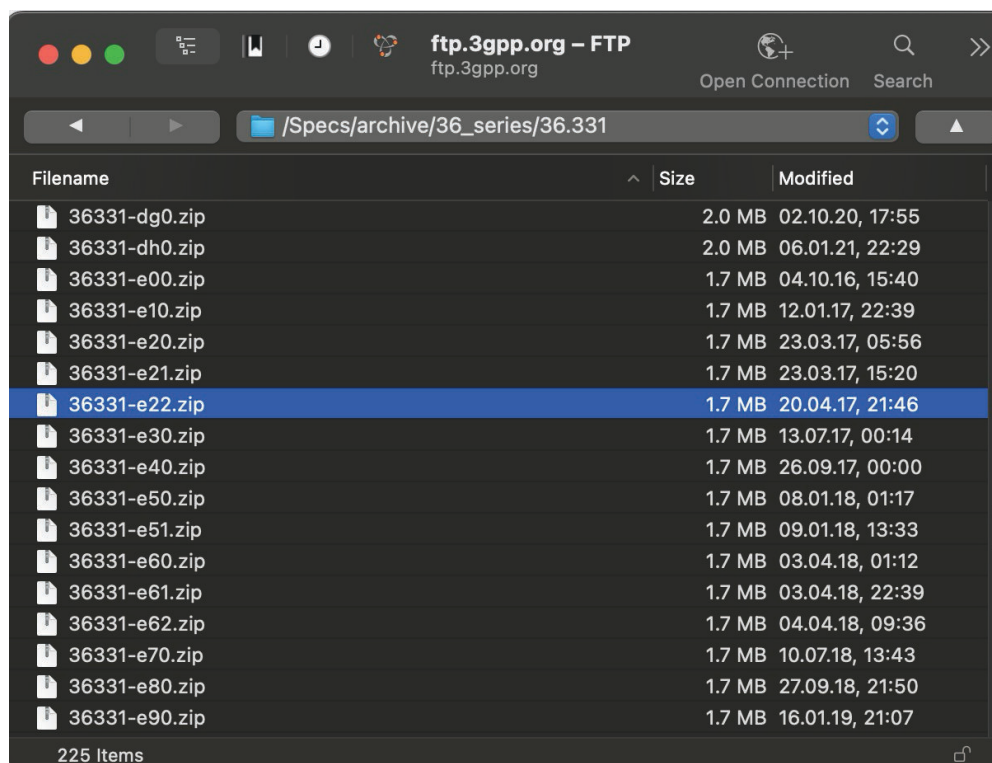
5. TS 36.331 V14.2.2

84. Based on my personal knowledge and my review of 3GPP's business records, I recognize APPLE-1028 as a true and correct copy of version 14.2.2 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 14)"), which shows on its cover page "2017-04" as the year (2017) and month (April) during which this document was released by 3GPP.

85. The document was published and freely available on 3GPP's ftp server by April 20, 2017. This is confirmed by the date stamp shown on the historic 3GPP ftp server for the corresponding downloadable file ("36331-e22.zip"), as maintained by the Internet Archive at https://web.archive.org/web/20170509031729/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

Declaration of Friedhelm Rodermund

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



86. In addition, metadata information for the downloaded and extracted specification file states a last Modified date of “20. April 2017”, as shown in the screenshot below:

Declaration of Friedhelm Rodermund

Page 1

3GPP TS 36.331 V14.2.2 (2017-04)

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 14)



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

3GPP TS 36.331 V14.2.2 (2017-04)
41
Release 14

Keywords
RRC, radio

3GPP

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Contents

36331-e22.doc

9,5 MB

Information [Show Less](#)

Created 20. April 2017 at 23:42

Modified 20. April 2017 at 23:42

87. This last modified date is well aligned with the April 20, 2017, upload date of the document, and the standard business practice among 3GPP officers to upload documents shortly after completing them.

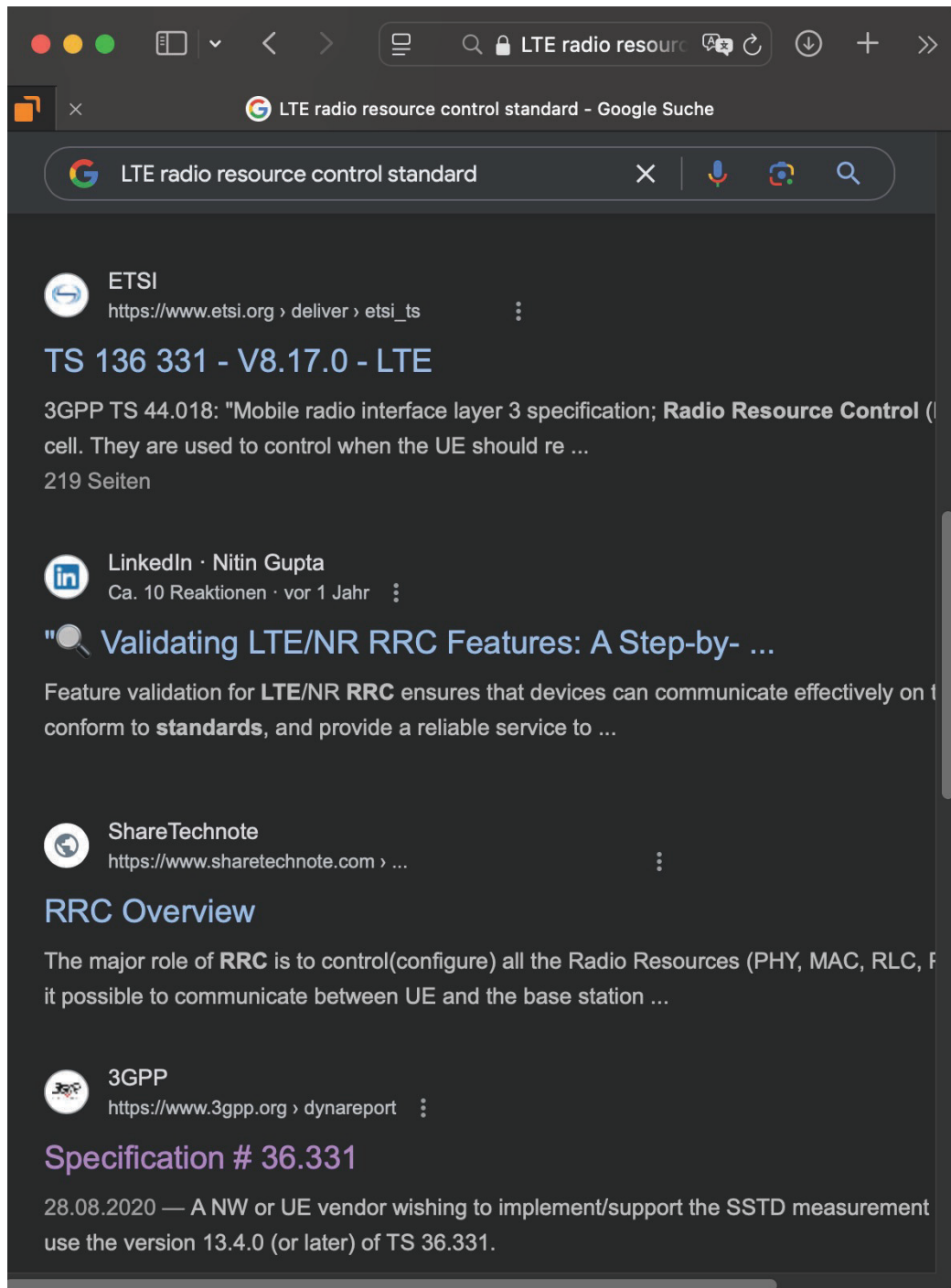
49

51

Declaration of Friedhelm Rodermund

88. 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 April 20, 2017, at the latest.

89. 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 radio resource control standard" provides the TS number "36.331" as one of the top results as can be seen in the screenshot below:



90. Following the provided search result link “Specification # 36.331” leads to a 3GPP web page offering under the tab “Versions” download links to all versions of TS 36.331 including version 14.2.2, as shown by the screenshot below:

Declaration of Friedhelm Rodermund

portal.3gpp.org Specification # 36.331

3GPP Portal

General Versions Responsibility Related

Specification #: 36.331

RAN#	Version	Upload date	Comment	ETSI	TDG	CR
RAN#79	14.6.0	2018-04-03				
RAN#78	14.5.1	2018-01-09	A NB-IoT UE or network vendor...			
RAN#78	14.5.0	2018-01-08				
RAN#77	14.4.0	2017-09-26				
RAN#76	14.3.0	2017-07-13				
RAN#75	14.2.2	2017-04-20				
RAN#75	14.2.1	2017-03-23				
RAN#75	14.2.0	2017-03-23				
RAN#74	14.1.0	2017-01-12				
RAN#73	14.0.0	2016-10-04				

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

Meetings	Version	Upload date	Comment	ETSI	TDG	CR
RAN#90-e	13.17.0	2021-01-06				
RAN#89-e	13.16.0	2020-10-02				
RAN#86	13.15.0	2020-01-08				
RAN#84	13.14.0	2019-06-29				
RAN#83	13.13.0	2019-04-11				
RAN#82	13.12.0	2019-01-16				
RAN#81	13.11.0	2018-09-27				

Exit

91. 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 14.2.2, for download.

Declaration of Friedhelm Rodermund

92. The above search was performed near the time of writing this report. According to my personal experience, similar searches done in April 2017 or around that timeframe would have similarly provided the path to download version 14.2.2 of TS 36.331.

V. **AVAILABILITY FOR CROSS-EXAMINATION**

93. 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**

94. 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**

95. 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

Declaration of Friedhelm Rodermund

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.

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

Dated: April 23, 2025

A handwritten signature in cursive script, appearing to read 'F. Rodermund', written in black ink.

Friedhelm Rodermund

CURRICULUM VITAE

I. PERSONAL DATA

Name: **Friedhelm RODERMUND**

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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 enablers 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 telecommunications 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

CURRICULUM VITAE

- 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 responsibility 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"

CURRICULUM VITAE

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” responsible 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

CURRICULUM VITAE

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

CURRICULUM VITAE

- 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

CURRICULUM VITAE

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

CURRICULUM VITAE

- 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

CURRICULUM VITAE

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

CURRICULUM VITAE

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 Partes 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 |
| | <u>Graduate of Electrical Engineering with a focus on telecommunications technologies (Dipl.-Ing. TH)</u> | |
| 10/1992 – 04/1993 | University of Technology Trondheim | Trondheim, Norway |
| | <u>Diploma Thesis "Design of a dual processor computer for digital signal processing in power electronics"</u> | |

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

3GPP_TSG_RAN_WG2 Archives
July 2017, Week 2

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Topic: [<< First] [< Prev] [Next >] [Last >>]

Author: [<< First] [< Prev] [Next >] [Last >>]

Subject: RAN2 CR implementation status, v9
From: Juha Korhonen <Juha.Korhonen@ETSI.ORG>
Reply To: Juha Korhonen <Juha.Korhonen@ETSI.ORG>
Date: Thu, 13 Jul 2017 09:24:44 +0000
Content-Type: multipart/alternative
Parts/Attachments: text/plain (1177 bytes) , text/html (29 kB)

Dear All,

I have now uploaded the final version of 36331-e30.
Thank you for all the reviewers for your comments !
This closes the post-RAN#76 CR implementation period.

BR,
Juha

Overview of RAN2 CR implementation status after RAN#76 - 13.07.2017

spec	REL-12	REL-13	REL-14	CRs	rapporteur
25.300	0	0	1	1	Amaan Ali (Nokia)
25.306	1	1	1	3	Cecilia Eklöf (Ericsson)
25.331	0	0	5 (v2)	5	Ritesh Shreevastav (Ericsson)
36.300	0	4 (2)	19 (v3)	23	Tero Henttonen (Nokia)
36.302	0	1	4 (v2)	5	Chunli Wu (Nokia)
36.304	0	1	4	5	Jarkko Koskela (Nokia)
36.305	0	0	1	1	Masato Kitazoe (Qualcomm)
36.306	2	3	23	28	Ravi Kuchibhotla (Motorola)
36.321	0	5 (v2)	18 (v2)	23	Mats Folke (Ericsson)
36.323	0	1	3	4	Seung June Yi (LGE)
36.331	2 (v2)	21 (v3)	81 (v3)	104	Himke van der Velde (Samsung)
36.355	0	0	9 (v3)	9	Masato Kitazoe (Qualcomm)
36.361	0	0	1	1	Tero Henttonen (Nokia)
total	5	37	170	212	

blue: draft spec is available for review
yellow: updated draft spec (based on review comments) is available for review
green: the final version is uploaded and available via 3GU and ftp.

The draft specifications for review are available here:
ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Specifications/201706_draft_specs_after_RAN_76/

All draft specs will be implemented with revision marks.

ATOM RSSI RSS2