

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG Electronics, Inc.,
Petitioner

v.

CONSTELLATION DESIGNS LLC,
Patent Owner

U.S. PATENT NO. 10,693,700

DECLARATION OF FRIEDHELM RODERMUND
IN SUPPORT OF A REQUEST FOR *INTER PARTES* REVIEW OF U.S.
PATENT NO. 10,693,700

TABLE OF CONTENTS

	Page
I. INTRODUCTION AND ENGAGEMENT	1
II. BACKGROUND AND QUALIFICATIONS.....	3
III. SUMMARY OF MY OPINIONS	8
IV. PUBLICATION OF ETSI SPECIFICATIONS AND RELATED DOCUMENTS	8
A. General Practices.....	8
B. Specific Documents	10
1. EN 300 744 V1.2.1	10
2. EN 302 307 V1.1.2	14
3. TS 102 006 V1.2.1	17
V. AVAILABILITY FOR CROSS-EXAMINATION	20
A. Right To Supplement	20
B. Signature	20

I, Friedhelm Rodermund, do hereby declare as follows:

I. INTRODUCTION AND ENGAGEMENT

1. I have been retained in this matter by Fish and Richardson, PC, counsel for LG Electronics, Inc., to provide testimony regarding the European Telecommunications Standards Institute's (ETSI) standard business practices for record keeping and publishing technical specifications during the course of standards activities carried out by 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 ETSI documents:

- ETSI EN 300 744 V1.2.1, which represents a European Standard with the title "Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television" (hereinafter "EN 300 744 V1.2.1") (LGE1005);
- ETSI EN 302 307 V1.1.2, which represents a European Standard with the title "Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other

broadband satellite applications” (hereinafter “EN 302 307 V1.1.2”) (LGE1009); and

- ETSI TS 102 006 V1.2.1, which represents a technical specification with the title “Digital Video Broadcasting (DVB); Specification for System Software Update in DVB Systems” (hereinafter “TS 102 006 V1.2.1”) (LGE1013)

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

4. I am being compensated for my time spent on this matter at my usual rate of €450 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 Requester.

5. I have been informed that Constellation Designs LLC (“Constellation Designs” or “Patent Owner”) is the current assignee of U.S. Patent No. 10,693,700

(“the ’700 Patent”). I have no financial interest in the Patent Owner or the ’700 Patent.

II. BACKGROUND AND QUALIFICATIONS

6. I have more than 25 years of experience working with standards development organizations including the Third Generation Partnership Project (“3GPP”), the European Telecommunications Standards Institute (“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 of which ETSI is an organizational partner. I have also followed and am following the work of other ETSI groups including the ETSI IPR Special Committee.

7. I attended the University of Technology Aachen in Aachen, Germany, where I obtained a graduate degree 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.

8. 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). From 1996 to 1998, I attended ETSI SMG3 (“system architecture”) as a delegate representing a German cellular network operator.

9. 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”).

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

11. 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 ETSI and 3GPP working methods and procedures including document handling, and to make sure delegates were aware of their company's obligations under the ETSI Intellectual Property Rights policy.

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

13. Since I left ETSI as a staff member in 2005, I have been continuously involved in standardization activities, including with Open Mobile Alliance, ETSI, and 3GPP. Since 2017, I also have been attending the ETSI IPR Special Committee, which is responsible for the maintenance of the ETSI IPR Policy.

14. 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. From 2005 to 2007, I was Vodafone project leader for DVB-H service protection and a delegate to OMA BCAST (broadcast) building service layer standards on top of DVB and 3GPP transport protocols. 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 and ETSI meetings, submitted documents, used 3GPP and ETSI resources extensively, and remained knowledgeable about 3GPP and ETSI 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.

15. 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), 3GPP's LTE, Narrowband IoT (NB-IoT) and 5G standards. Additionally, I follow other ETSI activities such as oneM2M and Mobile Edge Computing. I have extensively used ETSI resources and remain knowledgeable about ETSI policies and procedures with regard to document management and public accessibility.

16. I also provide consulting services related to patents, in particular around 3GPP Standard Essential Patents ("SEPs"), and I have been working 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.

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

18. 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

19. It is my opinion that EN 300 744 V1.2.1 (LGE1005) is an authentic ETSI document and would have been publicly accessible through www.etsi.org no later than February 2, 2000.

20. It is my opinion that EN 302 307 V1.1.2 (LGE1009) is an authentic ETSI document and would have been publicly accessible through www.etsi.org no later than June 12, 2006.

21. It is my opinion that TS 102 006 V1.2.1 (LGE1013) is an authentic ETSI document and would have been publicly accessible through www.etsi.org no later than October 31, 2002.

IV. PUBLICATION OF ETSI SPECIFICATIONS AND RELATED DOCUMENTS

A. General Practices

22. ETSI is a not-for-profit standards-development organization (“SDO”) that was founded in 1988. SDOs are also known as standard-setting organizations (“SSOs”). ETSI’s headquarters is in Sophia Antipolis, France.

23. ETSI was originally formed by the European Conference of Postal and Telecommunications Administrations in response to proposals from the European

Commission to meet European needs regarding telecommunication standards, but its standards are in fact used around the world. For example, ETSI developed the Global System for Mobile communication (“GSM”) standard, which was used in many countries outside Europe.

24. In the ordinary course of its regularly conducted business activities, and pursuant to its standard business practices, ETSI 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 telecommunications.

25. In the ordinary course of ETSI’s regularly conducted business activities, and pursuant to its standard business practices, draft technical specifications, proposals, reports, and other temporary documents to be discussed or considered in relation to ETSI’s telecommunications standards activities are made available at least to all individual ETSI members. Many of the documents produced, such as the final versions of the technical specifications, are also publicly available. Documents are shared typically via distribution by email or by sharing those documents on a website or server hosted by ETSI.

26. In the ordinary course of ETSI’s regularly conducted business activities, and pursuant to its standard business practices, ETSI publishes at least its draft technical specifications, and final versions of its technical specifications, and

contributions to ETSI meetings on its ftp server docbox.etsi.org. Once a document is loaded onto the ETSI ftp site, thousands of individuals who work in the telecommunications industry have access to that document. Further, it is the regular practice of the various ETSI working groups to provide notice to members that new or additional documents have been loaded onto the ftp server. In this way, not only have ETSI members (and the interested individuals) access to the documents, they are also informed of their availability.

27. Based on my knowledge, ETSI's web sites www.etsi.org and portal.etsi.org, and document server docbox.etsi.org were well known by persons in the telecommunications industry as a source information and of technical specifications, proposals, and reports regarding industry standards, standards development, and technological advances.

B. Specific Documents

1. EN 300 744 V1.2.1

28. Based on my personal knowledge and my review of 3GPP's business records, I recognize LGE1005 as a true and correct copy of version 1.2.1 of ETSI EN 300 744 ("Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television"). The document shows on its cover page "1999-07" as the year (1999) and month (July) during which this

document was released by ETSI. Furthermore, the History on the last page records the “Publication” as of “July 1999.”

29. ETSI maintains a Work Programme where it tracks the ETSI deliverables. The Work Programme for EN 300 744 can be accessed via the following link: <https://portal.etsi.org/webapp/WorkProgram>. As can be seen in the screenshot below in the fifth row, EN 300 744 V1.2.1 was published on “1999-07-23.”



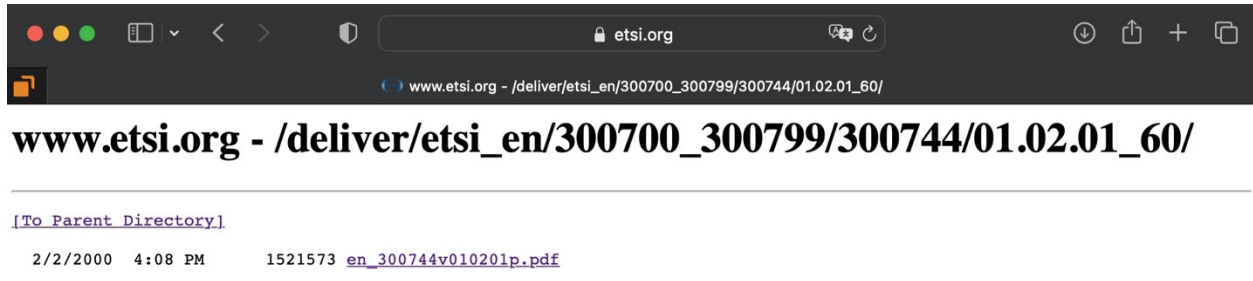
The screenshot shows a web browser window with the URL portal.etsi.org. The page title is "Work Programme - EWP on the Web - Query Result". The page content includes a header with "Work Programme" and "Version 2.3.3". Below the header, there are links for "Simple Search", "Advanced Search", "Pre-Defined Reports", and "Help". The main heading is "Work Items with ETSI Document Number of '300744'", with sub-links for "View As Work Item Plan" and "View As Work Item Progress Report". It indicates "Found 7 Items..." and "Displaying items 1 to 7 ...". The table below lists six items, with the fifth item (row 5) being the one of interest.

	IDENTIFICATION	TITLE	STATUS
1	Doc. Nb. EN 300 744 Ver. 1.6.2 Ref. REN/JTC-DVB-362 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television DVB-T	Published Current Status: Publication (2015-10-30)
2	Doc. Nb. EN 300 744 Ver. 1.6.1 Ref. REN/JTC-DVB-234 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television DVB-T	Published Current Status: Publication (2009-01-26)
3	Doc. Nb. EN 300 744 Ver. 1.5.1 Ref. REN/JTC-DVB-156 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television DVB-T	Published Current Status: Publication (2004-11-04)
4	Doc. Nb. EN 300 744 Ver. 1.4.1 Ref. REN/JTC-DVB-111 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television DVB-T	Published Current Status: Publication (2001-01-11)
5	Doc. Nb. EN 300 744 Ver. 1.2.1 Ref. REN/JTC-DVB-87 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television DVB-T	Published Current Status: Publication (1999-07-23)
6	Doc. Nb. EN 300 744 Ver. 1.1.2 Ref. REN/JTC-DVB-66 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television DVB-T	Published Current Status: Publication (1997-08-20)

30. The document was also published and made freely available from ETSI via the following link: https://www.etsi.org/deliver/etsi_en/300700_300799/300744/01.02.01_60/. The

LGE1017 - Declaration of Friedhelm Rodermund

web page is shown via the screenshot below indicating that the document was last uploaded to this location on February 2, 2000.



31. In addition, the document properties state a last modified date of “02.02.00.” Here is a screenshot showing those file details:

The screenshot shows a 'Document Properties' dialog box with two tabs: 'Description' and 'Advanced'. The 'Description' tab is active, displaying the following information:

- File: en_300744v010201p.pdf
- Title: EN 300 744 - V01.02.01 - Digital Video Broadcasting (DVB); Framing structure, chann
- Author: JTC
- Subject: EN 300 744 - V01.02.01
- Keywords: "DVB, digital, video, broadcasting, terrestrial, MPEG, TV, audio, data"
- Created: 23.07.99, 13:47:01
- Modified: 02.02.00, 17:08:10
- Application: PSCRIPT.DRV Version 4.0

The 'Advanced' tab is also visible, showing the following information:

- PDF Producer: Acrobat Distiller 3.02
- PDF Version: 1.3 (Acrobat 4.x)
- Location: /Users/friedhelmrodermund/Library/Mobile Documents/com~apple~CloudDoc...
- File Size: 1,45 MB (1.521.573 Bytes)
- Page Size: 8,26 x 11,69 in
- Number of Pages: 49
- Tagged PDF: No
- Fast Web View: Yes

At the bottom right of the dialog box are 'Cancel' and 'OK' buttons.

32. Thus, based on my personal knowledge and experience with ETSI's standard business practices, this information reveals that this document was available to all ETSI members and the general public by February 2, 2000, at the latest.

2. EN 302 307 V1.1.2

33. Based on my personal knowledge and my review of 3GPP's business records, I recognize LGE1009 as a true and correct copy of version 1.1.2 of ETSI EN 302 307 ("Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications"). The document shows on its cover page "2006-06" as the year (2006) and month (June) during which this document was released by ETSI. Furthermore, the History on the last page records the "Publication" as of "June 2006."

34. ETSI maintains a Work Programme where it tracks the ETSI deliverables. The Work Programme for EN 302 307 can be accessed via the following link: <https://portal.etsi.org/webapp/WorkProgram>. As can be seen in the screenshot below in the seventh row, EN 302 307 V1.1.2 was published on "2006-06-12."

LGE1017 - Declaration of Friedhelm Rodermund



portal.etsi.org

Work Programme - EWP on the Web - Query Result

[Simple Search](#) | [Advanced Search](#) | [Pre-Defined Reports](#) | [Help](#)

Work Items with ETSI Document Number of '302307' of Type 'EN'

[View As Work Item Plan](#) | [View As Work Item Progress Report](#)

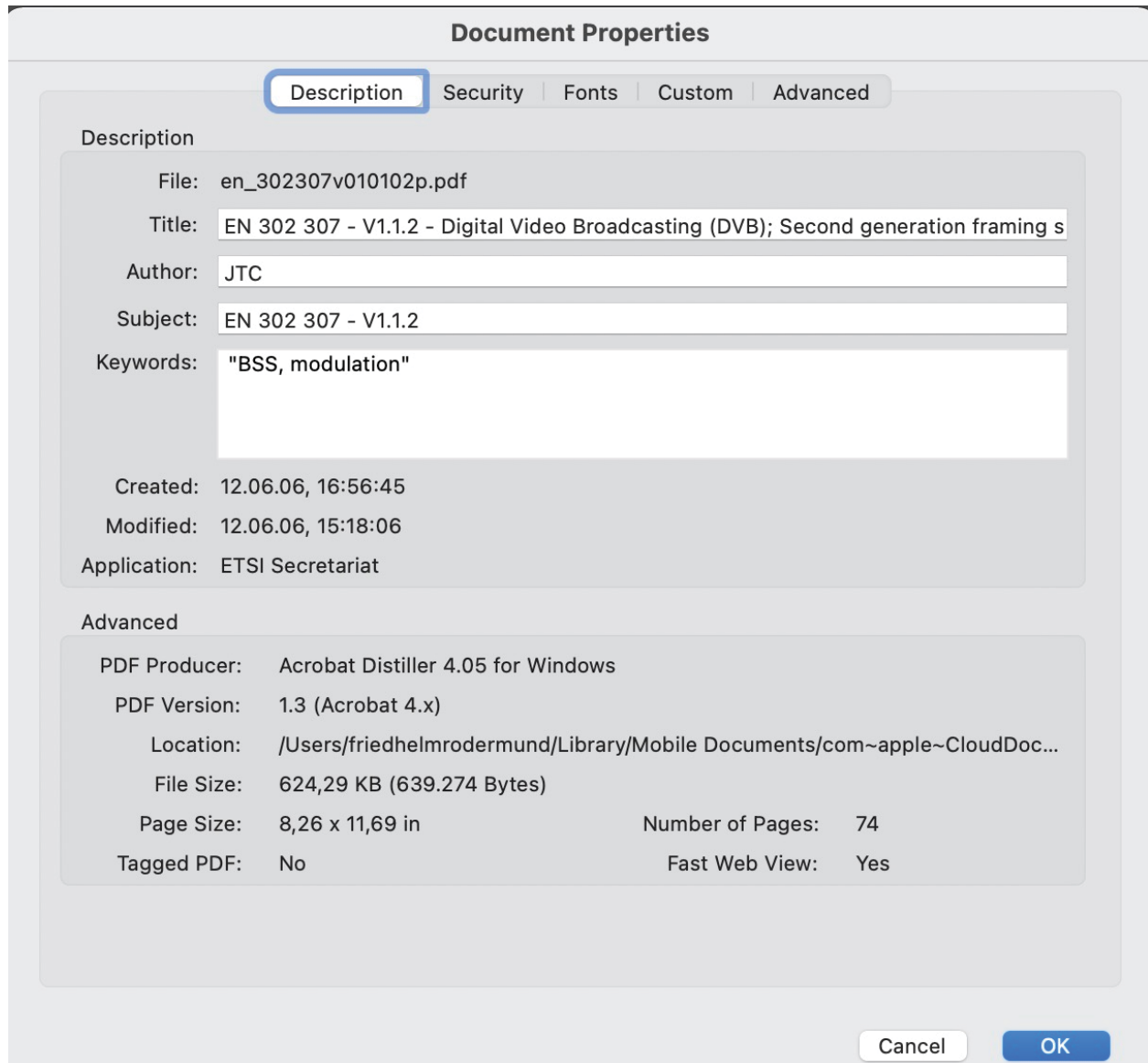
Found 8 items...
Displaying items 1 to 8 ...

	IDENTIFICATION	TITLE	STATUS
1	Doc. Nb. EN 302 307-2 Ver. 1.3.1 Ref. REN/JTC-DVB-395-2 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications; Part 2: DVB-S2 Extensions (DVB-S2X) DVB-S2X	Published Current Status: Publication (2021-07-28)
2	Doc. Nb. EN 302 307-2 Ver. 1.2.1 Ref. REN/JTC-DVB-388-2 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications; Part 2: DVB-S2 Extensions (DVB-S2X) DVB-S2X	Published Current Status: Publication (2020-08-07)
3	Doc. Nb. EN 302 307-2 Ver. 1.1.1 Ref. DEN/JTC-DVB-341-2 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications; Part 2: DVB-S2 Extensions (DVB-S2X) DVB-S2X	Published Current Status: Publication (2015-02-18)
4	Doc. Nb. EN 302 307-1 Ver. 1.4.1 Ref. REN/JTC-DVB-341-1 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications; Part 1: DVB-S2 DVB-S2	Published Current Status: Publication (2014-11-12)
5	Doc. Nb. EN 302 307 Ver. 1.3.1 Ref. REN/JTC-DVB-319 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications (DVB-S2) DVB-S2 wideband	Published Current Status: Publication (2013-03-08)
6	Doc. Nb. EN 302 307 Ver. 1.2.1 Ref. REN/JTC-DVB-238 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications (DVB-S2) DVB-S2	Published Current Status: Publication (2009-08-28)
7	Doc. Nb. EN 302 307 Ver. 1.1.2 Ref. REN/JTC-DVB-196 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications DVB-S2	Published Current Status: Publication (2006-06-12)

35. The document was also published and made freely available from ETSI via the following link:
https://www.etsi.org/deliver/etsi_en/302300_302399/302307/01.01.02_60/. The web page is shown via the screenshot below indicating that the document was last uploaded to this location on June 12, 2006.



36. In addition, the document properties state a last modified date of “12.06.06.” Here is a screenshot showing those file details:



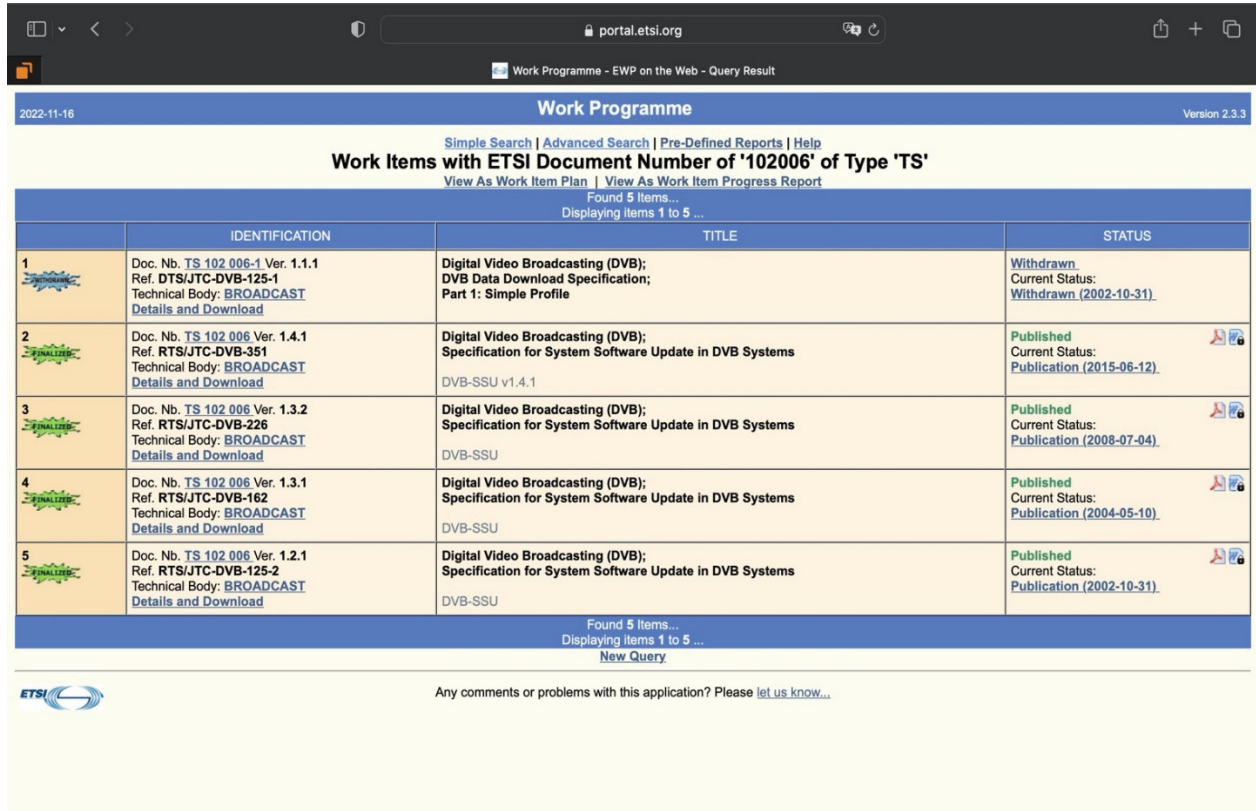
37. Thus, based on my personal knowledge and experience with ETSI's standard business practices, this information reveals that this document was available to all ETSI members and the general public by June 12, 2006, at the latest.

3. TS 102 006 V1.2.1

38. Based on my personal knowledge and my review of 3GPP's business records, I recognize LGE1013 as a true and correct copy of version 1.2.1 of ETSI TS 102 006 ("Digital Video Broadcasting (DVB); Specification for System Software Update in DVB Systems"). The document shows on its cover page "2002-10" as the year (2002) and month (October) during which this document was released by ETSI. Furthermore, the History on the last page records the "Publication" as of "October 2002".

39. ETSI maintains a Work Programme where it tracks all ETSI deliverables. The Work Programme for TS 102 006 can be accessed via the following link: <https://portal.etsi.org/webapp/WorkProgram>. As can be seen in the screenshot below in the fifth row, TS 102 006 V1.2.1 was published on "2002-10-31".

LGE1017 - Declaration of Friedhelm Rodermund



The screenshot shows the ETSI Work Programme website. The page title is "Work Programme" and the version is 2.3.3. The main heading is "Work Items with ETSI Document Number of '102006' of Type 'TS'". Below this, there are links for "Simple Search", "Advanced Search", "Pre-Defined Reports", and "Help". The page also includes links for "View As Work Item Plan" and "View As Work Item Progress Report". A table lists 5 items, each with an identification number, a title, and a status. The items are related to Digital Video Broadcasting (DVB) specifications for System Software Update in DVB Systems. The status of the items is "Published" or "Withdrawn".

	IDENTIFICATION	TITLE	STATUS
1	Doc. Nb. TS 102 006-1 Ver. 1.1.1 Ref. DTS/JTC-DVB-125-1 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); DVB Data Download Specification; Part 1: Simple Profile	Withdrawn Current Status: Withdrawn (2002-10-31)
2	Doc. Nb. TS 102 006 Ver. 1.4.1 Ref. RTS/JTC-DVB-351 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Specification for System Software Update in DVB Systems DVB-SSU v1.4.1	Published Current Status: Publication (2015-06-12)
3	Doc. Nb. TS 102 006 Ver. 1.3.2 Ref. RTS/JTC-DVB-226 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Specification for System Software Update in DVB Systems DVB-SSU	Published Current Status: Publication (2008-07-04)
4	Doc. Nb. TS 102 006 Ver. 1.3.1 Ref. RTS/JTC-DVB-162 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Specification for System Software Update in DVB Systems DVB-SSU	Published Current Status: Publication (2004-05-10)
5	Doc. Nb. TS 102 006 Ver. 1.2.1 Ref. RTS/JTC-DVB-125-2 Technical Body: BROADCAST Details and Download	Digital Video Broadcasting (DVB); Specification for System Software Update in DVB Systems DVB-SSU	Published Current Status: Publication (2002-10-31)

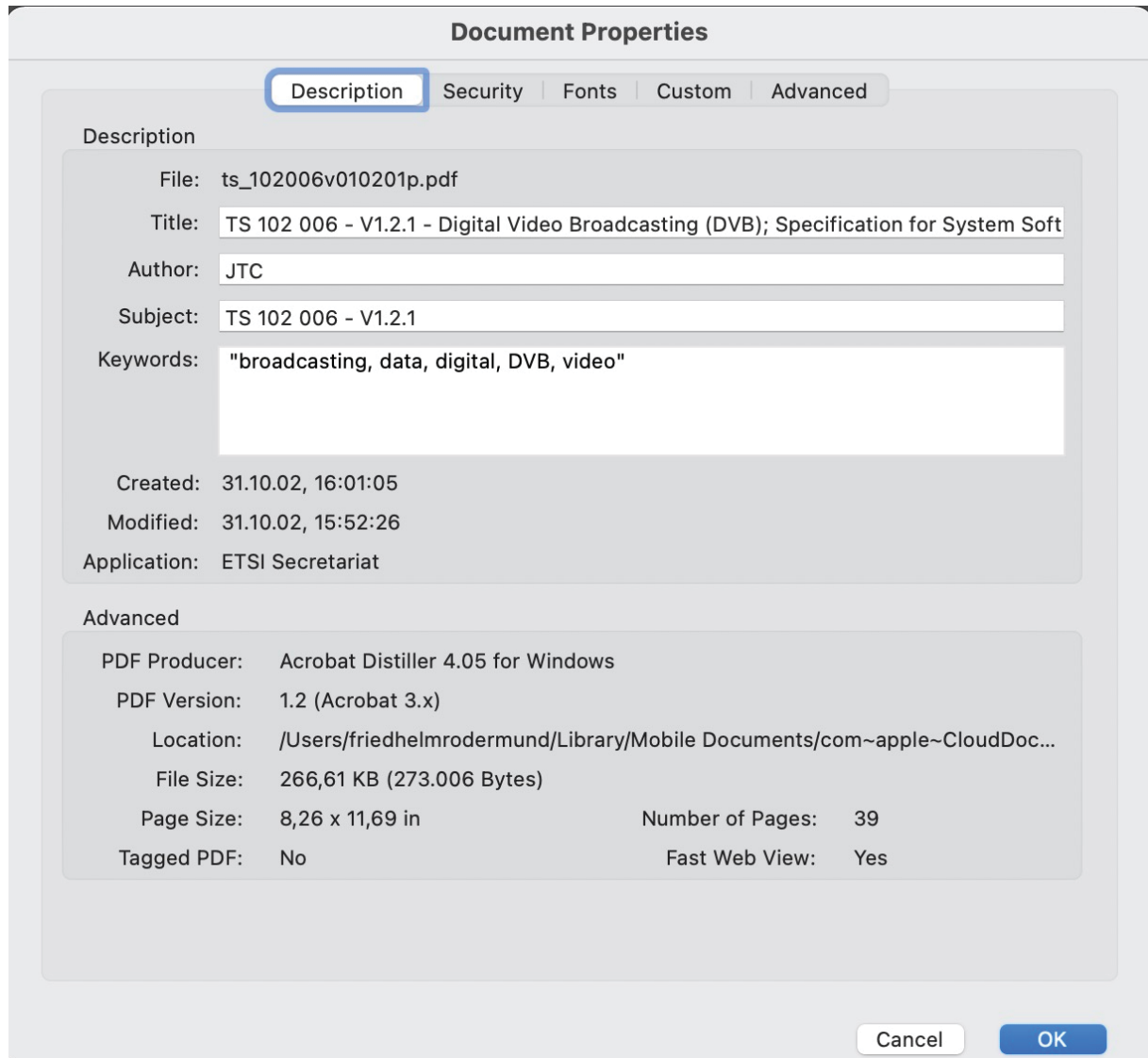
Found 5 Items...
Displaying items 1 to 5 ...
[New Query](#)

Any comments or problems with this application? Please [let us know...](#)

40. The document was also published and made freely available from ETSI via the following link: https://www.etsi.org/deliver/etsi_ts/102000_102099/102006/01.02.01_60/. The web page is shown via the screenshot below indicating that the document was last uploaded to this location on October 31, 2002.



41. In addition, the document properties state a last modified date of “31.10.02.” Here is a screenshot showing those file details:



42. Thus, based on my personal knowledge and experience with ETSI’s standard business practices, this information reveals that this document was available to all ETSI members and the general public by October 31, 2002, at the latest.

V. AVAILABILITY FOR CROSS-EXAMINATION

43. 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

44. 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

45. 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.

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

LGE1017 - Declaration of Friedhelm Rodermund

Dated: November 26, 2022

A handwritten signature in black ink, appearing to read 'F. Rodermund', written over a horizontal line.

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 enablers across standards development organizations such as 3GPP, ETSI, GSMA, IETF, OMA, and oneM2M. Currently focussing on standards for the Internet of Things.

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 creation e.g. for new 5G patents
 - Prior art research, essentiality assessment, patent infringement analysis related to litigations and validity actions
 - Advising on IP strategy
 - Advising on Standards Development Organisations (SDO) working processes and IPR policy
 - 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. automotive, smart metering, health, industry
 - 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”
- 01/1999 – 12/2001: Secretary 3GPP Terminals Working Group 2 “Terminal Services and Capabilities” and GERAN 3 “Base Station Testing”

CURRICULUM VITAE

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

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.
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

CURRICULUM VITAE

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

CURRICULUM VITAE

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

CURRICULUM VITAE

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 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**
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. RECENT PUBLICATIONS

CURRICULUM VITAE

- "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