

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION, ERICSSON INC.,
AND T-MOBILE USA, INC
Petitioners

v.

GENERAL ACCESS SOLUTIONS, LTD.,
Patent Owner

Case No. IPR2023-01416

U.S. Patent No. 6,947,477

DECLARATION OF CARL EKLUND

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I. INTRODUCTION

1. My name is Carl Eklund. I am currently employed by Nokia Corporation (“Nokia”) in Espoo, Finland.

2. I have personal knowledge of the facts contained in this Declaration, am of legal age, and am otherwise competent to testify.

3. Unless otherwise stated, the matters contained in this Declaration are of my own personal knowledge and, if called as a witness, I could and would testify completely and truthfully with regard to the matters set forth herein.

4. I am not being compensated for my time spent working on this matter other than my normal salary from Nokia. My compensation is not in any way tied to the content of this Declaration, or the outcome of this litigation. I have no other interests in this proceeding or with any of the parties.

II. BACKGROUND

5. I earned my Master of Science in Engineering Physics from Helsinki University of Technology in 1996.

6. I was employed at the Helsinki Institute of Physics as a researcher from 1994 to 1998. I served as a research and development engineer at Nokia Research Center from 1998 to 2007. After my time at Nokia Research Center, I also worked with Nokia in the network unit group and in product management. I now currently

work for Nokia as the Standards Strategy Lead in Nokia Mobile Networks Strategy and Technology. I have been in this position for the last three years.

7. I have extensive experience in the broadband wireless telecommunications industry. I am listed as an inventor on 14 patents and patent applications related to broadband wireless access and multimedia distribution in access networks. I co-authored the book “WirelessMAN®: Inside the IEEE 802.16™ Standard for Wireless Metropolitan Area Networks.”

8. From 1999 to approximately 2009, I was a member of IEEE 802.16’s Working Group on Broadband Wireless Access Standards. At the time Ex. 1006 was published in 2000, I served as the IEEE 802.16.1 MAC task group chair. My name is listed on page iii of Exhibit 1006. Ex. 1006.000003.

9. As task group chair, my position involved leading the task group in authoring standards for developing technology. I facilitated group discussion and offered leadership and guidance to the working group, serving as the contact person for technical questions about the developing standards work.

10. I personally reviewed all contributions and draft standards submitted to the task group and planned for their discussion at Working Group meetings. I also attended all the committee session meetings where these contributions and draft standards were discussed, along with other members of the 802.16 Working Group.

III. EXHIBIT 1006

11. Exhibit 1006 is a true and correct copy of the IEEE 802.16.1 Draft Standard, “Air Interface for Fixed Broadband Wireless Access Systems” (“WiMAX”). The header on the first page of Ex. 1006 states “IEEE 802.16.1-00/01r4, September 2000” and, at the bottom of that same page, states “Published August 2000.”¹ Ex. 1006.000001.

12. I have personal knowledge regarding Exhibit 1006 because, as discussed, I was the 802.16.1 MAC Task Group Chair. Ex. 1006.000003. I made contributions to the content of Exhibit 1006 and have personal knowledge about the development and publication of Exhibit 1006. *Id.*

13. Ex. 1006 was developed as part of IEEE 802.16’s Working Group on Broadband Wireless Access Standards. As discussed below, Ex. 1006 was publicly accessible to members of the public no later than September 29, 2000.

IV. THE IEEE AND ITS WORKING GROUPS

14. Unless otherwise noted, the following is a description applicable to the time period from 1999 through at least 2009, regardless of whether I use the present or past tense.

¹ I understand from Counsel that the existence of two dates, August 2000 and September 2000, on the cover of Ex. 1006 caused confusion as to the actual published date of the document. I believe this discrepancy can be attributed to a mere editorial error. As I discuss further below, Ex. 1006 was available on the Working Group website in September 2000.

15. The IEEE, Institute of Electrical and Electronics Engineers, is a professional association for electronics and electrical engineering. The IEEE Standards Association is an operating unit within the IEEE that develops global standards in a broad range of technical industries, including telecommunication.

16. Technical experts from all over the world participate in the development of IEEE standards. Both corporations and individuals can become members of the IEEE, though IEEE participation is open to everyone.

17. Each year, the IEEE Standards Association conducts over 200 standards ballots, whereby proposed standards are voted on for technical reliability and soundness. As of 2020, the IEEE had over 1,200 active standards, with over 650 standards under development.

18. The IEEE Standards Association consists of a number of Working Groups, each focused on the development of specific technological research areas ranging from robotics, to power and energy, to artificial intelligence, to consumer electronics, and so on. Working Groups work to create and write standards. *See* <https://sagroups.ieee.org/>.

19. The IEEE 802 LAN/MAN Working Group is one of the more notable groups associated with publishing standards related to telecommunication and access networks, with widely used networking standards for both wired (Ethernet, IEEE 802.3) and wireless (IEEE 802.11 and IEEE 802.16) networks.

V. DEVELOPMENT OF IEEE 802.16

20. Ex. 1024 is a printout of the webpage <https://www.ieee802.org/16/>. This webpage is home to all the work done by IEEE 802.16's Working Group. Individuals could find the 802.16 Working Group's webpage by searching for it on available search engines, such as Google, or by searching "802.16" on IEEE.org. From this webpage individuals could navigate to the developments of the 802.16 Working Group. In fact, I recall that I personally first became aware of and interested in the IEEE standards organization and associated Working Groups through discovery of the organization's work by searching on a search engine, such as Google.

21. Because a goal of the 802.16 Working Group was to encourage as much feedback on draft standards from interested parties as possible, I also recall that the Group often publicly marketed draft standards and standards for comment, like Ex. 1006, in order to drum up interest in the technology. Though I was not personally involved in these marketing endeavors, I remember that the chairman of 802.16 was very vocal about raising the profile of standards work at the IEEE and, in particular, the 802.16 Working Group.

22. Each Working Group webpage was updated and maintained by the Working Group Chair. The Chair for the 802.16 Working Group during the time Ex.

1006 was published was an individual named Roger Marks, who I worked closely with and knew personally. *See* Ex. 1024.000002.

23. None of IEEE 802.16's Working Group documents were password protected. Thus, anyone could access the developments of IEEE 802.16. And, as I mentioned above, the IEEE encouraged the public to view and comment on standards' documents and drafts under review.

24. IEEE 802.16 standards were developed via a series of meetings that we referred to as Sessions. 802.16 Working Group Sessions took place every few months at locations all over the world. The focus of each Session was to discuss contributions submitted to the group and review and approve proposals submitted for each draft standard.

25. In the spirit of openness, Working Group meeting agendas were distributed beforehand on the Working Group's website and the results of the group's deliberations were made publicly available at the end of each Session, usually through meeting minutes also published on the group website. *See* <https://sagroups.ieee.org/>.

VI. SESSION #9

26. Session #9 of the IEEE 802.16 Working Group on Broadband Wireless Access took place 11-15 September 2000 at the Denver Marriott Southeast in

Denver, Colorado, USA. I remember that I personally attended and participated in this meeting.

27. Ex. 1025 is a printout of the webpage <https://www.ieee802.org/16/meetings/mtg09/>. This webpage is page specific to Session #9. I am familiar with this webpage and its contents. This page contains a series of hyperlinks that lead to other pages and documents. Below is an annotated excerpt of Ex. 1025 that labels the hyperlinks to other exhibits discussed in this Declaration. For example, the Session #9 Report is Ex. 1028, the “new document list” is Ex. 1026 and the “Attendance List” is Ex. 1027.

802.16 Session #9

Session #9 of the IEEE 802.16 Working Group on Broadband Wireless Access took place 11-15 September 2000 at the Denver Marriott Southeast in Denver, Colorado, USA in conjunction with the IEEE Radio and Wireless Conference (RAWCON) (10-13 September).

Report
The Session #9 Report summarizes the results and has links to the minutes. Ex. 1028

New Session #9 Documents
The new document list includes documents received during the session and followup documents. Ex. 1026

Agenda
The session schedule is available.

Registration List
Check the Attendance List. Ex. 1027

Ex. 1025.000001 (annotated).

28. As mentioned above, Ex. 1026 (<https://www.ieee802.org/16/meetings/mtg09/docs.html>) is the 802.16 Session #9 Document List. This includes “documents received during the session and follow up documents.” *Id.*

29. I recall that, following the completion of Session #9, Ex. 1006 was drafted and made accessible to the public. This is confirmed by the Session #9 Document List (Ex. 1026). Below is an annotated excerpt of the Session #9 Document List (Ex. 1026) that labels the hyperlinks to other exhibits discussed in this Declaration. First, the hyperlink 802.16.1-00/01r4 is a link to Ex. 1006. Ex. 1026 indicates that Ex. 1006 was accessible on September 29, 2000. Second, the hyperlink 802.16.1-00/05r1 leads to Ex. 1031, which was also accessible on September 29, 2000.

802.16 Session #9 Document List

This list was updated on 27 September 2000. It includes all Session #9 documents except liaison letters and the updated 802.16.2 working document.

- [Session #9 Attendance list](#)
- [802.16.1pp-00/45](#)
Measurements and Models of a Power Amplifier Suitable for 802.16.1 ([Donald DeGroot](#))
- [802.16.1-00/01r4](#)
Air Interface for Fixed Broadband Wireless Access Systems (TG1, 00/09/29) **Ex. 1006**
- [802.16.1-00/04](#)
Comparison between TG3 Functional Requirements Document and TG1 proposed MAC (TG1 and TG3, 00/09/14)
- [802.16.1-00/05r1](#)
Working Group Review: Call for Comments on IEEE 802.16.1-00/01r4 (TG1, 00/09/29) **Ex. 1031**

Ex. 1026.000001 (annotated).

30. Ex. 1031 was a call for “Call for Comments on IEEE 802.16.1-00/01r4,” also published on the 802.16 Working Group webpage, as shown above. Ex. 1031. Put another way, the 802.16 Working Group announced to the public, through Ex. 1031, that Ex. 1006 was accessible and that the 802.16 Working Group wanted comments from any interested individuals in the industry on the contents of

Ex. 1006. *Id.* Ex. 1006's Call for Comments was sent on September 29, 2000. *Id.* This is consistent with the statement in the Session #9 Report (Ex. 1028), that the "802.16 approved TG1's request to conduct a Working Group Review of Revision 4 of its working document, in preparation for a Working Group Letter Ballot on the draft beginning at Session #10. The TG1 editorial team will incorporate its comment resolutions and initiate the 31-day Review by September 29." Ex. 1028. This is also consistent with the statements in Ex. 1006 that state: "This is an unapproved Task Group document being circulated for comment." Ex. 1006 at Ex.1006.00001-.00004.

31. Session #9 was attended by the individuals in Ex. 1027 (<https://www.ieee802.org/16/meetings/mtg09/reglist.html>). As shown below, Ex. 1027 confirms that I attended Session #9 and that I met the 75% presence requirement for participation credit.

26. *Brian Eidson, Conexant Systems, Inc., USA
27. *Carl Eklund, Nokia Research Center, FINLAND
28. *Hesham El-Damhougy, Western Multiplex, USA
29. David D. Falconer, Carleton University, CANADA

Ex. 1027.000001 (annotated). Ex. 1027 indicates that a total of 126 met the 75% presence requirement for participation credit.

32. I was also aware of many other individuals who were interested in the development of the 802.16 standard. For example, colleagues of mine at Nokia Research Center were following the development of the standard, even though they

did not physically attend working group meetings. I understand that many similarly situated and interested individuals, POSITAs, and member companies were also following 802.16's standard development. This is showcased by the over 20,000 downloads and over 500 comments received on Ex. 1006, which I discuss further below.

VII. SESSION #10

33. Session #10 of the IEEE 802.16 Working Group on Broadband Wireless Access took place on 6-9 November 2000 in Tampa, Florida, USA. I remember personally attending and participating in this meeting.

34. Ex. 1032 is a printout of the webpage <https://www.ieee802.org/16/meetings/mtg10/>. This webpage is page specific to Session #10. I am familiar with this webpage and its contents. This page contains a series of hyperlinks that lead to other pages and documents. Below is an annotated excerpt of Ex. 1032 that labels the hyperlinks to other exhibits discussed in this Declaration. For example, the link "Session #10 Report" is to Ex. 1029 and the hyperlink "attendance list" is to Ex. 1033.

802.16 Session #10

Session #10 (an 802.16 LMSC Plenary Session) of the IEEE 802.16 Working Group on Broadband Wireless Access took place on 6-10 November 2000 as part of the November IEEE 802 Plenary Meeting at the Hyatt Regency Tampa in Tampa, Florida, USA.

Report

The Session #10 Report summarizes the Session activity and includes links to the minutes.

Ex. 1029

Document List

The Session #10 document list indexes documents and contributions that were received during or after the Session.

Attendance List

The attendance list includes 211 people, 174 of whom received credit for having "participated" in the session.

Ex. 1033

Agenda

The schedule for the week is available.

Ex. 1032.000001 (annotated).

35. Session #10 was attended by the individuals listed in Ex. 1033 ([802.16: Session #10 Registration List \(ieee802.org\)](#)). As shown below, Ex. 1033 confirms that I attended Session #10 and that I met the 75% presence requirement for participation credit.

33. *Carl Bushue, Sprint, USA

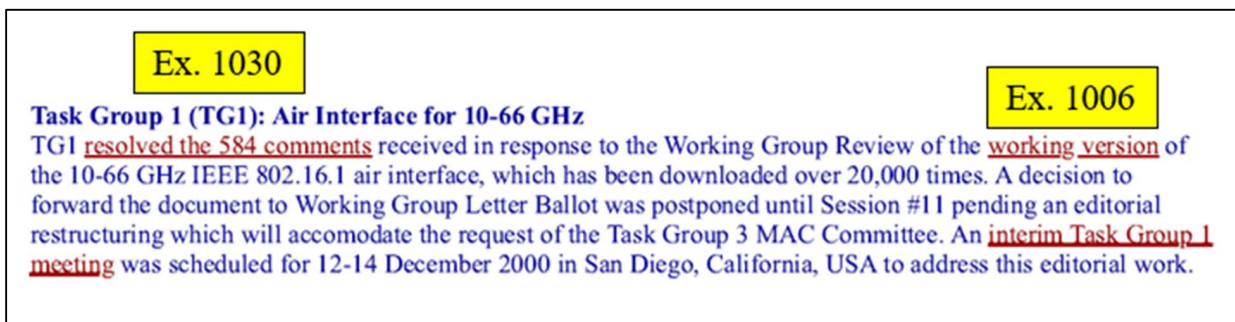
34. *Carl Eklund, Nokia Research Center, FINLAND

35. *Carl Scarpa, Hitachi America R&D, USA

Ex. 1033.000001 (annotated).

36. Ex. 1033 indicates that a total of 174 individuals met the 75% presence requirement for participation credit. I recall that this was a new record for participation. This is confirmed by Ex. 1029, which states "174 people attended during enough meeting intervals to receive credit for having "participated" in the session for membership purposes; this broke the previous record of 128." Ex. 1029.000001.

37. As mentioned above, Ex. 1029 (<https://www.ieee802.org/16/meetings/mtg10/report.html>) is the report on Session #10. Ex. 1029 states that, at the Session #10 meeting, “TG1 resolved the 584 comments received in response to the Working Group Review of the working version of the 10-66 GHz IEEE 802.16.1 air interface, which has been downloaded over 20,000 times.” *Id.* Below is an annotated excerpt of Ex. 1029 to explain the hyperlinks. The “working version” of the 10-66 GHz IEEE 802.16.1 air interface is a hyperlink to Ex. 1006. The “resolved the 584 comments” is a hyperlink to Ex. 1030. Thus, this confirms that by November 2000, Ex. 1006 had been commented on 584 times and downloaded 20,000 times. This also confirms that one of the focuses of Session #10 was to discuss Ex. 1006.



Ex. 1029.000001 (annotated).

38. Ex. 1030 contains the 584 comments received by TG1 regarding Ex. 1006. The comments confirm that individuals reviewed Ex. 1006 and provided feedback on Ex. 1006. For example, the excerpts below show comments from October 2000 that are plainly related to Ex. 1006.

Item Number: 158	Commentor Name: Varma Subir
Page Number: 58	
Line Number: 43	
Description of Edit: Replace the contents of Section 2.5 of the document 802161-00/01r4 by the contents of Section 4.1 of the document 802161c-00_11	Reason for Edit: See the contents of Sections 2.1 and 2.2 of the document 802161c-00_11
Date Received: 29/10/00	Date Resolved:
Comment Type: Technical	Resolution Status: rejected
Notes: Features are already supported through another mechanism more efficiently.	

Item Number: 203	Commentor Name: Varma Subir
Page Number: 74	
Line Number: 40	
Description of Edit: Add the row in Table 3 of Section 4.2 of the document 802161c-00_11 to Table 11 of the document 802161-00/01r4	Reason for Edit: See the contents of Section 2.2 of the document 802161c-00_11
Date Received: 29/10/00	Date Resolved:
Comment Type: Technical	Resolution Status: rejected
Notes: No specific ARQ mechanism has been agreed upon.	

Ex. 1030.000039; *see also* Ex. 1030.000050.

39. Ex. 1030 also shows that I personally submitted comments regarding

Ex. 1006. One example is below.

Item Number: 147	Commentor Name: Eklund Carl
Page Number: 53	
Line Number:	
Description of Edit: I think there is a problem with the initial IP connectivity establishment. The SS only has a temporary CID at the time. This CID is used to transport both management and transport PDUs (the DHCP request can be considered a transport PDU). How can we tell these apart? Do we need to tunnel these messages in MAC management message?	Reason for Edit:
Date Received: 29/10/00	Date Resolved:
Comment Type: General	Resolution Status: referred to group
Notes: A section describing the Management Functions must be created, and the Task Group will relocate messages to this area. A method for doing the manag	

Ex. 1030.000036; *see also* Ex. 1030.000039, 42, 43, 53, 56, 57, 59, 64, 68, 69, 74,

79, 80, 81, 110.

40. Thus, by November 2000 Ex. 1006 had been downloaded over 20,000 times (Ex. 1029) and the working group had resolved nearly 600 technical comments related to Ex. 1006 (Ex. 1030).

VIII. CONCLUSION

41. I hereby 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.

DATED: May 16, 2024

By:

A handwritten signature in black ink, appearing to read 'Carl Eklund', written over a light blue rectangular background.

Carl Eklund