

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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AMAZON.COM, INC. and AMAZON.COM SERVICES LLC,  
Petitioner

v.

INTERDIGITAL, INC.,  
Patent Owner.

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IPR2026-00195  
U.S. Patent No. 10,250,877

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**DECLARATION OF DR. CLIFFORD READER, PH.D.**

**Declaration**

I declare that all statements made herein on 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.

Date: \_\_\_\_\_

1/5/26

By: \_\_\_\_\_

*C. Reader*

Clifford Reader, Ph.D.

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I, Dr. Clifford Reader, do hereby declare:

1. I am making this declaration at the request of Amazon.com, Inc. and Amazon.com Services LLC in the matter of *Amazon.com, Inc. v. Interdigital, Inc.*, IPR2026-00195.

2. I am being compensated for my work in this matter at my standard hourly rate of \$850 for consulting services. My compensation in no way depends on the outcome of this proceeding or the content of my testimony.

3. In preparing this Declaration, I specifically considered the following materials, along with the exhibits that I cite throughout this declaration:

- (a) Thomas Wiegand et al., *WD3: Working Draft 3 of High-Efficiency Video Coding*, JCTVC-E603 v.8 (June 27, 2011) (“Wiegand”);
- (b) Thomas Davies, *Resolution switching for coding efficiency and resilience*, JCTVC-F158 v.4 (July 7, 2011) (“Davies”).

## **I. BACKGROUND AND QUALIFICATIONS**

4. I am a digital media consultant providing technical, business development and intellectual property consulting services in the areas of digital media including digital imaging, digital video, digital audio and digital speech. Applications include consumer audio and video transmission and storage, video, audio and speech compression, real-time video processing and display, digital

speech processing, image/video/audio systems architecture, and image/video/audio chip architecture. I have held this position since 2001 and have consulted for over 80 clients.

**A. Education**

5. I received my Doctoral degree in 1974 from the University of Sussex, England. My thesis was titled “Orthogonal Transform Coding of Still and Moving Pictures”. The research for my thesis was performed in residence at the Image Processing Institute, University of Southern California, Los Angeles.

6. I received my B. Eng. Degree with Honors in 1970 from the University of Liverpool, England, in the field of electronics.

**B. Work Experience**

7. From 1970 to 1973 I performed my graduate research in video compression. I was one of the first to perform a type of image coding (adaptive block transform coding) and the first to apply this type of coding to video. This is described in my thesis<sup>1</sup> and summarized in an SPIE paper<sup>2</sup>. These techniques underlie the

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<sup>1</sup> Reader C., “Orthogonal Transform Coding of Still and Moving Pictures”, U. Sussex, England, 1973.

<sup>2</sup> Reader C., “Intraframe and Interframe Adaptive Transform Coding”, SPIE Vol. 66, 1975.

audiovisual coding standards known as MPEG (Moving Picture Experts Group), H.26x, and virtually all other video compression schemes today.

8. From 1975 to 1981 I studied, designed and developed systems for military imaging systems including real-time image and video reconnaissance systems and battlefield management systems.

9. In the early 1980s I taught classes at Santa Clara University, California in digital signal processing and digital image processing.

10. From 1982 to 1989 I architected and led hardware and software engineering teams in the design of systems for real-time imaging for military, medical and earth resources applications.

11. From 1990 to 2001 I architected and led hardware and software engineering teams in the design of semiconductor chips and systems for real-time imaging in digital consumer audio/video applications, including videoconferencing (with speech coding), broadcast TV and DVD.

### **C. Standardization**

12. In 1990 I became an accredited delegate to the Moving Picture Experts Group – MPEG. I, and my team contributed to the technical work for all three parts of the standard – Systems, Video and Audio – and I participated in the management of MPEG.

13. I was Head of Delegation (HoD) to MPEG for the United States in 1991-1992, and Editor in Chief of the MPEG1 standard. I personally reviewed and edited all three parts of the standard in detail, and wrote much of the informative annex for the MPEG1 standard.

14. I chaired the implementation subcommittee that analyzed MPEG1 Audio (Levels I & II aka MUSICAM; Level III aka mp3), Dolby AC3 and other proposed audio compression algorithms including legacy algorithms for complexity and cost of implementation.

15. I was a co-founder of the MPEG4 standard and chaired the subcommittee from inception for 2-1/2 years, beginning in 1993, following which I chaired the MPEG4 Requirements subcommittee for a further 2 years. These subcommittees established many of the fundamental principles of the MPEG4 standard, including object-based coding, software-based implementation, and development of the bitstream as a syntactic language.<sup>3</sup> MPEG4 focused on audiovisual low bitrate coding, including low bitrate speech coding.

16. I was instrumental in establishing the work on Advanced Audio Coding (AAC).

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<sup>3</sup> Reader C, "MPEG4: Coding for Content, Interactivity, and Universal Accessibility", Optical Engineering, Vol. 35, No. 1, pp. 104-08, Jan. 1996.

17. I initiated the work in Synthetic-Natural Hybrid Coding (SNHC), and personally contributed to the work on compression of 3D graphics in the area of error resilient coding.

18. I was an invited expert to the H.264/MPEG4 Pt. 10 JVT standard development for which I contributed to and participated in multiple meetings in person.

19. I have chaired the AVS China IPR Subgroup for over 20 years and attend multiple meetings each year.

20. I have personally tracked the development of all the international standards since 1990 and have accessed all the documents related to the respective ISO and ITU committees.

#### **D. Intellectual Property Rights**

21. In 1993 I was hired by CableLabs to be the technical expert for establishing the MPEG Patent Pool (Now MPEGLA). In the course of creating a list of essential IP to practice the standard, I reviewed approximately 10,000 abstracts and 1,000 patents. This is summarized in a chapter of the MPEG book by Mitchell et al.<sup>4</sup>

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<sup>4</sup> “MPEG Video Compression Standard”, Edited by J. L. Mitchell et al., Chapter 16, “MPEG Patents”, pp.357-62.

22. In 2002 I was hired by 10 companies to evaluate the standards essential patent environment for the nascent H.264 standard. I was an invited expert to the Joint Video Team (JVT) established by ISO and ITU to develop the H.264 standard (Also denoted MPEG4 Pt. 10, AVC).

23. In 2003 I was hired to evaluate the standards essential patent environment for the nascent national China AVS standards.

24. In 2013 I was hired to evaluate the standards essential patent environment for the emerging AV1 standard

25. In 2017 I was hired to evaluate the standards essential patent environment for the H.265/HEVC standard.

26. I am the Co-Director of the China AVS Patent Pool Administration. I lead the negotiations for sub-licensing of the AVS standards.

27. I have performed expert consulting and expert witness work for patent holders and defendants in patent licensing negotiations and litigation.

**E. Curriculum Vitae**

28. Additional information concerning my professional publications and presentations in the field of digital video and cases in which I have served as an expert are set forth in my current Curriculum Vitae, a copy of which may be found at Ex-1006. This Curriculum Vitae lists many publications authored or co-authored by me; and lists the cases in which I have testified via depositions and trials.

## II. Legal Standards

29. I understand that 35 U.S.C. § 102 sets forth the requirements for a reference to be considered “prior art,” which can include among other things: patents and patent applications that were filed and/or published before the patent-at-issue’s priority date, *see, e.g.*, 35 U.S.C. § 102(b), (e), or “printed publications” that were published before the patent-at-issue’s priority date, *see, e.g.*, 35 U.S.C. § 102(a), (b).

30. I understand that for a reference to be considered a “printed publication” under § 102, it must have been disseminated and publicly accessible to at least the pertinent part of the public who would be interested in the subject matter to which the reference pertains. In other words, a POSITA exercising reasonable diligence must be able to locate it.

31. For instance, I understand that if a reference is indexed or cataloged in some way (e.g., by a library or industry group), or if research tools were provided, such that a POSITA exercising reasonable diligence could locate it, that may be sufficient to demonstrate the reference constitutes a “printed publication,” but simply e-mailing a document to a select group of individuals may not. But I also understand that whether a reference constitutes a printed publication depends on the facts of each particular case. I also understand that whether a reference qualifies as a printed publication does not require showing a member of the public actually located and read the reference.

### III. Brief Overview of the Standardization Process

32. Before addressing the prior art, it is worth providing an overview of the standardization process followed by standardization organizations such as the ITU-VCEG and ISO-MPEG – two of the dominant organizations in developing video-coding standards. In my opinion, a POSITA would have understood the general procedures of the standardization process, and a POSITA interested in video coding would have been following video-coding standards developments closely, as many in the industry did to ensure any product involving video coding would be compliant with the relevant standards as soon as the standard was published.

33. For context, the ITU is a “United Nations specialized agency for information and communication technologies (ICTs).” Ex-1046. The ITU is headquartered in Geneva. *Id.* The ITU’s Telecommunication Standardization Sector (“ITU-T”) facilitates the development of international standards, called ITU Recommendations, that help define a global infrastructure of information and communication technologies. *See* Ex-1051. Within ITU-T is a working group called the Video Coding Experts Group (“VCEG”), which focuses on standards for compression coding of video signals.

34. MPEG is a subcommittee under a joint venture between the International Organization for Standardization (“ISO”) and International Electrotechnical Commission (“IEC”), and, like the ITU VCEG, develops

“international standards for compression, decompression, processing, and coded representation of moving pictures.” Ex-1052.

35. Although I am not a member of the ITU, I have been accredited to ITU as an invited expert, I am aware of the ITU’s website – including as of the earliest possible priority date of the ’877 patent – the accuracy of the dates on the ITU’s website and the process for documents being uploaded to the ITU’s website. I am also intimately familiar with the MPEG’s website.

36. The ITU-VCEG’s and ISO-MPEG’s development of video coding standards generally comprises a two-stage process. In the first so-called competitive phase, the standards body conducts a requirements analysis to determine market need for a new standard and develops specific requirements for functionality and performance to meet those needs. The committee evaluates the evolving state of the art in relevant technologies to assess the degree to which a new standard would outperform a current standard. The standards body develops a call for proposals that typically includes a provision of test materials that will allow the proposals to be evaluated on equal terms, test procedures that lay out what each proponent must provide and how evaluation will be conducted, as well as written submission requirements to describe the proposed coding tools and complexity/cost of implementing such tools.

37. The proposals are received, evaluated, and ideally one is selected to be the foundation of the new standard. In practice, the foundation may comprise an amalgam of several proposals.

38. The second so-called collaborative phase then begins, with the establishment of a “working draft” of the standard, plus a “test model” and “reference software,” that will support a recursive development process over a succession of meetings. Although the final video coding standard will only normatively specify the coded data format and decoding process, the test model and reference software comprise an end-to-end encoding and decoding process, so that independent parties can conduct experiments that are directly comparable.

39. At each meeting, proponents can submit contributions that may comprise proposals for enhancing existing video coding tools or adding new tools. The proposals will generally include testing of the proposal by implementing it on the reference software and testing it with the test sequences. Other parties cross-check or validate each proposal by reading the description provided by the proponent and independently implementing the proposal on the reference software and testing it. This is facilitated by the uploading of such proposals before a meeting and of course open access to such documents. At the corresponding meeting, the standards body can review the proposal and test results from both the proponent and cross-checkers, and can decide whether or not to adopt the proposal into the draft standard.

If adopted, the proposed tool will be added to the working draft, test model and reference software. In this manner, the standard recursively advances toward maturity.

40. At meetings, the standards body may specify “core experiments” that describe in detail a particular problem or area of work where advancement is needed. Between meetings, the standards body may establish “ad hoc groups” – open to everyone – that may collaborate on specific developments, e.g., core experiments and exchange ideas via email.

41. At each meeting, the chairpersons develop a meeting report, published at the end of the meeting. The meeting report provides a summary and disposition of each contribution to the meeting, summaries of ad hoc group reports, results of core experiments, and administration activities, such as reminders of obligations under the IPR policy. In some cases an “AgendaWithNotes” running account of activities is created progressively during the meeting and is posted online.

42. The openness and timeliness of this process means that any interested person can track the development of the standard – even without attending the meetings. For example, semiconductor companies can have their research and product development departments port the reference software to their proprietary firmware environment after it is updated each meeting and simulate the nascent standard on their own chip development platform. In that way, the companies can

be prepared to release new chips supporting the new standard as soon after the final specification is frozen as possible.

#### **IV. The HEVC Working Documents Were Publicly Available**

43. I have been asked to provide my knowledge of the HEVC standardization process and public availability and accessibility of documents published by the Joint Collaborative Team on Video Coding (JCT-VC) responsible for developing the HEVC standard. Although I was not a member of the JCT-VC, as an interested participant in the field, I was aware of the HEVC standardization process, and was following its developments.

44. I was actively monitoring the development of not only the HEVC standard, including each document that was published to the JCT-VC website, but also the development of other standards through meetings of ISO/MPEG, ITU/VCEG and ISO/ITU JVT committees in the years leading up to the formation of JCT-VC in 2010.

45. I have personal knowledge regarding the procedures for publishing JCT-VC documents on the Internet, including in the 2010-2011 timeframe. I can therefore confirm that Wiegand (Ex-1009), Davies (Ex-1010), and other documents published as part of the JCT-VC's standardization process (such as Misra (Ex-1013) and Demircin (Ex-1063)) would have been publicly available and accessible with reasonable diligence as of the date provided on the JCT-VC website.

46. For background, the JCT-VC was created in 2010 to develop the next-generation video codec standard intended to supplant MPEG4/H.264, which was one of the standards I personally contributed to, as I mentioned above.

47. The JCT-VC was a joint venture between the International Telecommunication Union Telecommunications Standardization Sector (ITU-T), and the International Organization for Standardization (ISO) Moving Picture Experts Group (MPEG). *See, e.g.*, Wiegand, 12 (Forward), 13 (§0.1).

48. Based on my personal experience and recollection, those in the video-coding industry were closely monitoring the developments of the JCT-VC. In the years leading up to developing the H.265/HEVC standard within JCT-VC, a process to develop “KTAs” – key technology areas – was conducted with the standards bodies to both identify promising areas for improving the performance of existing video coding tools and develop new video coding tools. Broadly speaking, the decision to launch the development of a new standard was made when it was felt that the performance of the previous generation standard could be improved by approximately 50%. Then following the launch of the standardization process itself, interested parties such as myself tracked the progress of the development of the draft standard as it advanced from meeting to meeting. This open process was greatly facilitated by public availability of the associated documents, including the draft standard and reference software. For example, a company may not have been

actively attending meetings and contributing new proposals, but was developing products in-house that would implement the new standard or provide services employing the new standard, and by using the reference software from the standards body was ready to enter the market as soon as the standard was finalized.

49. I also am aware of an article published by the Institute of Electrical and Electronics Engineers (“IEEE”) – an authoritative source of technical information in many fields, including video-coding technologies – that announced the formation of JCT-VC in December 2010, and how meetings were already commencing. Ex-1037. Thus, readers of IEEE literature – of which there are many – would have known that JCT-VC’s standardization work was already under way as of 2010, and would have known to search out further information on the development of HEVC.

50. Based upon my personal experience with the MPEG4/H.264 standardization process, and my knowledge of the HEVC standardization process, I recognized that members of the JCT-VC met quarterly – beginning in April 2010 – to advance the HEVC standardization efforts. *See* Ex-1036. Each meeting was assigned a “Unique Serial Letter” to track (among other things) which documents were attributable to each meeting. *See id.* In other words, Meeting No. 1 was assigned the letter “A,” Meeting No. 2 was assigned the letter “B” and so on.

51. The “terms” which guided the JCT-VC were posted publicly on the ITU’s website in 2010, and can be found here: <https://www.itu.int/oth/T4601000001/en>. (Ex-1031).

52. According to those terms, before each meeting, JCT-VC members would upload proposals for incorporation into the standard to be considered at that meeting. *See, e.g.*, Ex-1031, 2 (“Every contribution document to a meeting of the JCT should be registered in the document registry and uploaded to the electronic archive several days in advance of the meeting, to ensure that it is available for review by other participants.”). These were also referred to as “input” documents. *See, e.g., id.*, 2. After each meeting, a Meeting Report would be issued, and a working draft of the standard would typically be published. *Id.*, 2, 4. These were also referred to as “output” documents. *See id.*, 2.

53. According to the JCT-VC terms, “the JCT will maintain a single document registry and an electronic archive that are distinct from those of the parent bodies,” but may be “linked to both the parent body web sites” (such as the ITU-T or MPEG websites), “and the parent bodies may ingest the JCT documents for their own reference and archival purposes.” *Id.*

54. The JCT-VC terms also declared that “all input and output documents of the JCT will be public.” *Id.*

55. The first report issued after the JCT-VC's first April 2010 meeting stated that all documents were being stored at an "FTP" (or "file transfer protocol" website: <http://ftp3.itu.int/av-arch/jctvc-site/>. Ex-1038, 3. This same website was used for all documents related to the second meeting. Ex-1039, 2. However, after the third meeting, the JCT-VC announced that it was migrating to "[a] new document distribution site <http://phenix.it-sudparis.eu/jct/>, which] became operational shortly before the [third] meeting and was exclusively used for distribution of all documents." Ex-1040, 2.<sup>5</sup> The JCT-VC explained that "[t]he new site allows a more automated process of document registration and download." *Id.* Each meeting report during the relevant timeframe<sup>6</sup> contained a similar statement identifying where the documents were being hosted. *See* Ex-1041, 2; Ex-1042, 2; Ex.1043, 3; Ex-1044, 3.

56. Based on my personal experience and recollection, I was aware of the JCT-VC document system from inception. I personally accessed documents at the JCT-VC website beginning in 2010 and routinely downloaded proposals, working drafts, and meeting reports from that website. I accessed these documents because

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<sup>5</sup> I also understand that the exact same website, including all JCT-VC documents and functionality is also available at a different internet address: [phenix.int-evry.fr/jct/](http://phenix.int-evry.fr/jct/). I have seen both websites used and cited by others.

<sup>6</sup> The relevant timeframe is from approximately 2010 when the JCT-VC's public efforts began, until what I understand to be the earliest possible priority date of the '877 Patent: January 13, 2012. *See* Ex-1001, Cover.

of my involvement in the MPEG4/H.264 standardization process, and the development of the HEVC standard was relevant to my area of study and consultation. Documents on the JCT-VC website were available without any restrictions, such as requiring an account or password.

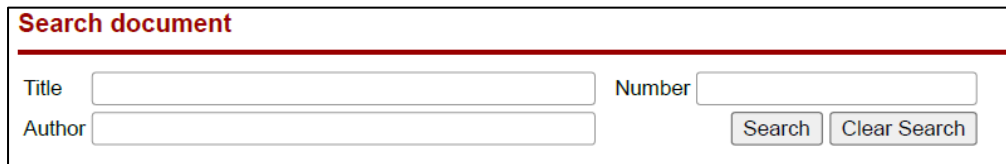
57. Leading up to the formation of JCT-VC and launch of the H.265/HEVC standardization work, I was accessing the documents of the VCEG standards body. It was there that the contributions and discussions of the KTAs that formed the basis for the new standard could be found.

58. Based on my personal experience and recollection, during the relevant timeframe, the documents on the JCT-VC website were organized by meeting. *See* Ex-1036. Once a meeting was selected from the menu, all of the input and output documents associated with that meeting were viewable, and included the document number, associated MPEG number (for the mirrored version on the MPEG website), the various upload dates (since many documents were revised and had multiple different versions), the title of the document, and the source. *See, e.g.*, Ex-1057 (Meeting 5); Ex-1060 (Meeting 6). All documents were downloadable. The website as it is presented today is consistent with my recollection of how it was presented during the relevant timeframe.

59. Moreover, I have never seen anything that would make me doubt the accuracy of the dates and timestamps of the JCT-VC documents shown on the JCT-

VC website. In fact, the third meeting report noted how “[r]egistration timestamps, initial upload timestamps, and final upload timestamps ... reflect activity on the new document site.” Ex-1040, 3; *see id.*, 2-3 (explaining an issue with the timeliness of certain uploads when migrating to the new website). It is my understanding that when a document is uploaded to the JCT-VC website, the “upload” date and time is automatically generated for each document.

60. Based on my personal experience and recollection, during the relevant timeframe, the JCT-VC website provided the ability to search the documents for each meeting for example by title and author.



The image shows a screenshot of a web form titled "Search document" in red text. Below the title is a horizontal red line. The form contains three input fields: "Title" (a wide text box), "Author" (a wide text box), and "Number" (a narrower text box). To the right of the "Number" field are two buttons: "Search" and "Clear Search".

*See, e.g.*, Ex-1057, 1 (showing search functionality by “Title,” “Author,” and “[Document] Number”). I understand that my recollection of the JCT-VC website’s search functionality is consistent with what others who were intimately involved in the JCT-VC process have testified to. Ex-1053, ¶¶ 183, 193 (explaining search functionality has stayed the same since 2011). Those interested in following the HEVC development (such as myself) could therefore utilize the search functionality and locate documents of interest at the time by searching for words that would be

expected in the title of a relevant document, or by searching the author (e.g., if they had been publishing papers on a particular topic of interest).

61. Utilizing the search functionality would have significantly narrowed down the results displayed on the website. For instance, in my opinion, one of the best resources to understand the current state of the HEVC standard at any given time was to review the Working Draft of the standard. This could be located, for instance, by searching terms such as “working draft” or “wd” in the “Title” search bar. If one were particularly interested in evaluating proposals for the HEVC’s deblocking filter, for example, one could search “deblock” to narrow the results. When searching Meeting No. 4, for instance, running a search for “deblock” reduces over 600 entries associated with this meeting to just 17 entries. *See* Ex-1055. It was thus fairly straightforward to decipher how particular proposals developed throughout the standardization process.

62. Furthermore, the meeting reports – in Microsoft Word format – each included the list of documents for that meeting, so downloading the meeting report provided a local copy for searching purposes. Specifically, each meeting report contained a section that indexed the proposals under consideration, and often provided a summary of the proposals’ contents. *See, e.g.,* Ex-1038, 5–37; Ex-1039, 5–57; Ex-1040, 8–121; Ex-1041, 11-131; Ex-1042, 12-163; Ex-1043, 12-177; Ex-1044, 13-236. For this reason, even if a particular document was titled generically,

conducting a text search in the meeting report would have identified particular documents of interest that could then be located on the JCT-VC website. The proposals were also cataloged in Annex A of each meeting report, which provided the titles and authors of each document, but not a summary of their contents. *See, e.g.,* Ex-1038, 47-55; Ex-1039, 65-70; Ex-1040, 123-52; Ex-1041, 143-70; Ex-1042, 175-207; Ex-1043, 191-253; Ex-1044, 238-301.



63. Based on my personal experience and recollection, once a particular document of relevance was located, two options were available. First, under the “JCT-VC number” heading, the JCT-VC number for a given document could be selected.

JCT-VC number	MPEG number	Created	First Upload	Last upload	Title	Source	Download ↓
<a href="#">JCTVC-E603</a>	m20271	2011-03-29 19:58:12	2011-03-30 12:22:15	2011-06-27 14:32:31	WD3: Working Draft 3 of High-Efficiency Video Coding	T. Wiegand, B. Bross, W.- J. Han, J.-R. Ohm, G. J. Sullivan	<a href="#">JCTVC-E603</a> ↓

*See, e.g.,* Ex-1057. This would cause the website to be redirected to a “Document Information” page that identified the different versions of the document that had been uploaded.

<b>Document</b>	<a href="#">JCTVC-E603</a> (version 1 - date 2011-03-30 12:22:15)
	<a href="#">JCTVC-E603</a> (version 2 - date 2011-04-06 18:49:03)
	<a href="#">JCTVC-E603</a> (version 3 - date 2011-05-01 16:46:24)
	<a href="#">JCTVC-E603</a> (version 4 - date 2011-05-09 19:05:39)
	<a href="#">JCTVC-E603</a> (version 5 - date 2011-05-20 03:15:57)
	<a href="#">JCTVC-E603</a> (version 6 - date 2011-06-13 04:23:14)
	<a href="#">JCTVC-E603</a> (version 7 - date 2011-06-15 23:20:50)
	<a href="#">JCTVC-E603</a> (version 8 - date 2011-06-27 14:32:31)
	<a href="#">upload document</a>

Ex-1045. The “Document Information” page identified when each version of the document was uploaded to the JCT-VC website. *See id.* Each version of the document could then be downloaded separately as needed. *See id.* Alternatively, under the “Download” heading, the JCT-VC number for that document could be selected, which would automatically download the most recent version of the document.

JCT-VC number	MPEG number	Created	First Upload	Last upload	Title	Source	Download 
<a href="#">JCTVC-E603</a>	m20271	2011-03-29 19:58:12	2011-03-30 12:22:15	2011-06-27 14:32:31	WD3: Working Draft 3 of High-Efficiency Video Coding	<a href="#">T. Wiegand,</a> <a href="#">B. Bross, W.-</a> <a href="#">J. Han, J.-R.</a> <a href="#">Ohm, G. J.</a> <a href="#">Sullivan</a>	<a href="#">JCTVC-E603</a> 

*See, e.g.,* Ex-1057.

64. Based on my personal experience and recollection, and as confirmed by the JCT-VC’s website, Wiegand (Ex-1009) and Davies (Ex-1010) (as well as other JCT-VC documents such as Misra (Ex-1013) and Demircin (Ex-1063)) were distributed and publicly available as of their 2011 upload dates displayed on the JCT-VC website. *See, e.g.,* Ex-1057 (showing first and last upload dates for documents for Meeting No. 5); Ex-1060 (same for Meeting No. 6); Ex-1045 (showing Wiegand uploaded on June 27, 2011); Ex-1050 (showing Davies uploaded on July 15, 2011). The copy of Wiegand at Ex-1009 and Davies at Ex-1010 are also true and correct copies of the documents distributed on the JCT-VC website and are substantially identical to the versions that I have in my personal archive, which I have attached as Appendix 1 (Wiegand) and Appendix 2 (Davies). Although I do not remember

exactly when I downloaded Wiegand and Davies, to the best of my recollection, it was many years ago. Once these documents were uploaded, they would have been accessible to anyone interested in finding them. Moreover, if I had been interested at the time, locating them would have been straightforward. For instance, I do specifically recall reviewing each meeting report, which chronicled the evolution of the Working Drafts (like Wiegand) and proposals under consideration throughout the development of the standard.

65. As I mentioned previously, I understand that the earliest possible priority date for the patent-at-issue here is January 2012. Ex-1001, Cover. As of that time, JCT-VC had held only seven meetings, and so I limited my search to the first seven meetings.

66. As I noted previously, although the meeting reports provide an overview of the state of the *development* of the standard and the proposals under consideration, the working drafts were what described the current state of the standard itself. Wiegand – which was the third working draft released by JCT-VC – therefore could have been located by searching each meeting for, e.g., “working draft” or “wd” on the JCT-VC website. *See, e.g.*, Ex-1059. When I performed a search for “working draft,” the first results appeared in Meeting No. 3, which is when the first working draft was published. I then repeated this search for Meeting Nos. 4–7, and each produced between one to two documents. The full title of each document

provided in the results then allowed me to locate the working draft that were published after each meeting through Meeting No. 7. *See id.* In my opinion, then, locating the different working drafts at the time would have not only been straightforward, but one of the natural starting points to investigate the ongoing development of the HEVC standard.

67. From there, if one were interested in locating proposals for particular topics under consideration for subsequent drafts of the standard, searching for those would have been straightforward as well. For instance, I had mentioned as an example searching for all proposals related to “deblocking.” If one were instead interested in, e.g., locating all proposals that discussed “adaptive resolution” (or switching resolutions of a video frame), one could search through the meetings using the term “resolution.” The first results of this search appear in Meeting No. 3, and show just five results. Ex-1054. Repeating this search for Meeting Nos. 4–7 each also produced a limited number of results: Meeting No. 4 had eight results, Ex-1056; Meeting No. 5 had none, Ex-1058; Meeting No. 6 had five results (Davies being one of them), Ex-1061; and Meeting No. 7 had twelve, Ex-1062. The relevance of each result in the search could then be determined by examining its full title. For instance, here, many results for “resolution” had to do with features other than “adaptive resolution,” and therefore could be ignored.

68. Furthermore, searching this way made it relatively easy to track developments for a particular proposal. For instance, searching “resolution” in Meeting No. 6 revealed not only Davies, but also a “Cross-check report for JCTVC-F158 [(Davies)] on resolution switching.” Ex-1061. That meant someone else had investigated and checked Davies’s proposal. And searching “resolution” for Meeting No. 7 showed further developments, such as that an adaptive-resolution proposal appears to have been submitted to an Ad Hoc Group (“AHG”), Ex-1062, for further consideration. Ex-1038, 2 (explaining Ad Hoc Groups). And the search also shows that as part of that AHG, others had submitted comments, Misra being one of them. Ex-1062.

69. Therefore, it was relatively easy to locate and track specific proposals on specific topics using JCT-VC’s built-in search feature. And in my opinion, those interested could have located Wiegand (Ex-1009), Davies (Ex-1010), and other documents published as part of the JCT-VC’s standardization process (such as Misra (Ex-1013) and Demircin (Ex-1063)) with reasonable diligence if inspired to search for their relevant topics.

## **V. Additional Remarks**

70. I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.