IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AMAZON.COM, INC., AMAZON.COM SERVICES LLC,

Petitioner,

v.

NOKIA TECHNOLOGIES OY,

Patent Owner.

_____

Case No. IPR2024-00605

U.S. Patent 10,536,714

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DECLARATION OF DR. CLIFFORD READER

Amazon.com, Inc., Amazon.com Services LLC - Ex. 1050, Page 000001
IPR2024-00605 (Amazon.com, Inc., Amazon.com Services LLC v. Nokia Technologies Oy)

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.

Executed on April 4, 2024.

By:

C. Reader

Clifford Reader

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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 ("Petitioner").

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 this declaration, I explain the public availability of the following documents:

(a) Nakamura et al., "Unification of derivation process for merge mode and MVP," Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, 6th Meeting, JCTVC-F419 version 4 ("Nakamura") (including Ex-1007, Ex-1008, and Ex-1009), and

(b) Bross et al., "WD4: Working Draft 4 of High-Efficiency Video Coding," Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, 6th Meeting, Document JCTVC-F803 version 3 ("WD4") (Ex-1010).

I. Professional Background

A. Summary

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..

B. 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 Bachelor's of Engineering Degree with Honors in 1970 from the University of Liverpool, England, in the field of electronics.

C. 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

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described in my thesis[1] and summarized in an SPIE paper[2]. These techniques underlie the 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 realtime 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 realtime 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 realtime imaging in digital consumer audio/video applications, including videoconferencing (with speech coding), broadcast TV and DVD.

D. Standardization

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[1] Reader C., "Orthogonal Transform Coding of Still and Moving Pictures", U. Sussex,, England, 1973.
[2] Reader C., "Intraframe and Interframe Adaptive Transform Coding", SPIE Vol. 66, 1975.

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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

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development of the bitstream as a syntactic language[3]. 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).

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.

E. Intellectual Property

21. In 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

[3] Reader C, "MPEG4: Coding for Content, Interactivity, and Universal Accessibility", Optical Engineering, Vol. 35, No. 1, pp. 104-108, Jan 1996.

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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.4

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.

F. Curriculum Vitae

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[4] "MPEG Video Compression Standard", Edited by J. L. Mitchell et al, Chapter 16, "MPEG Patents", pp.357-362.

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 is attached as Appendix 1. 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. Brief Overview of the Standardization Process

29. Development of video coding standards has comprised 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 develop specific requirements for functionality and performance to meet those needs. The standards body develops a call for proposals, that typically includes 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, and written submission requirements to describe the proposed coding tools and the complexity/cost of implementing such tools.

30. 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.

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31. The second, so-called collaborative phase then begins, with 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. 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. At each meeting proponents can submit contributions that may comprise proposals for enhancing existing video coding tools or adding new tools. The proposals will include testing 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 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 decode 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.

32. At meetings, the standards body may specify "core experiments" that describe in detail a particular problem, or area of work where advancement is

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needed. Between meetings, the standards body may establish "ad hoc groups" – open to everyone – that may collaborate on specific developments and exchange ideas via email.

33. Eventually, the standards body will freeze the working draft and begin a process of verifying and editing to finalize the new standard.

34. Accreditation for attending standards meetings and participating in the development of standards is a process within the ISO and ITU that is open to everyone. I have been accredited as an MPEG expert at various times by the USA (including being Head of Delegation), Korean and Chinese National Bodies. I have been an invited expert (as an individual) to the ITU-T.

III. The JCT-VC Documents Were Publicly Available

35. 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. While I was not a member of the JCT-VC, as an interested member of the public and participant in the field of video coding, I was aware of the HEVC standardization process, and was following along with its developments.

36. I was actively monitoring the development of not only the HEVC standard, including each document that was published to the JCT-VC distribution

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website (http://phenix.int-evry.fr/jct/), 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.

37. 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 all of the documents would have been publicly available and accessible with reasonable diligence as of the date provided on the JCT-VC distribution website.

38. For background, the JCT-VC was a prominent standard-setting organization created in 2010 to develop the next-generation video codec standard, named High Efficiency Video Coding (HEVC) and later referred to as H.265. HEVC was intended to supplant the then-current MPEG4/H.264 standard, which was one of the standards I personally contributed to, as I mentioned above.

39. 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"). Ex-1027, 000001 ("Purpose").

40. 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

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process to develop "KTAs" – key technology areas – was conducted within 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 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, reference software, and proposals. 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.

41. The KTA process led ITU VCEG and ISO MPEG to formation of the joint development team JCT-VC, and an announcement of a call for proposals to develop the new standard in January 2010.[5] This announcement could be found on

[5] ITU - Telecommunications Standardization Sector STUDY GROUP 16 Question 6 Video Coding Experts Group (VCEG) 39th Meeting: Kyoto, Japan, 17-22 January, 2010, Document VCEG-AM91, Joint Call for Proposals on Video Compression Technology.

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the website for VCEG, which today is hosted here: https://www.itu.int/wftp3/av-arch/video-site/. Also at that meeting and listed on the VCEG website is the Terms of Reference "ToR" for the forthcoming joint committee with ISO/MPEG = JCT-VC.[6] Twenty seven proposals were received at the first meeting of JCT-VC in April, 2010.

42. 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 January 2010, and how meetings were already commencing.[7] 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.

43. 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 on a quarterly basis, beginning in

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[6] ITU - Telecommunications Standardization Sector STUDY GROUP 16 Question 6 Video Coding Experts Group (VCEG) 39th Meeting: Kyoto, Japan, 17-22 January, 2010, Document VCEG-AM90, Terms of Reference of the Joint Collaborative Team on Video Coding Standard Development.

[7] Special Section on the Joint Call for Proposals on High Efficiency Video Coding (HEVC), IEEE Trans. on CSVT, Vol. 20, No. 12, Dec. 2010.

April 2010, to advance the HEVC standardization efforts. Each meeting was assigned a "Unique Serial Letter" to track (among other things) which documents were attributable to each meeting. In other words, Meeting No. 1 was assigned the letter "A," Meeting No. 2 was assigned the letter "B" and so on. *See* Ex-1041 (listing JCT-VC meetings).

44. The ToR which guided the JCT-VC were also posted publicly on the ITU's website in 2010. Ex-1027. According to the ToR, before each meeting, JCT-VC members would upload proposals for incorporation into the standard to be considered at that meeting. *See, e.g.*, *id.*, 000002 ("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."). After each meeting, a Meeting Report would be issued, and a working draft of the standard would typically be published. *Id.*, 000002, 000004.

45. 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 bodies 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.*, 000002.

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46. The JCT-VC terms also declared that "all input and output documents of the JCT will be public." *Id.*, 000002.

47. After the third JCT-VC meeting that took place between October 7-15, 2010 in Guangzhou, China, the JCT-VC announced that it was uploading the JCT-VC meeting documents to the "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."[8] Ex-1040 (meeting report of the third JCT-VC meeting), 000002. The JCT-VC explained that the distribution website "allows a more automated process of document registration and download." *Id.*

48. In the 2010-2011 timeframe, the URL of the JCT-VC distribution site was known to the interested public, including for example people in the video coding industry. Meeting documents hosted on the site could be downloaded by anyone using a regular web browser right after they are uploaded. No credentials

[8] The same JCT-VC distribution website, including all JCT-VC documents and functionality, could be accessed using multiple URLs, including http://phenix.it-sudparis.eu/jct/ and http://phenix.int-evry.fr/jct/. Both URLs point to the same IP address, which means that they access the same server. This can be confirmed by running the commands "ping phenix.it-sudparis.eu" and "ping phenix.int-evry.fr," which resolve to the same IP address 157.159.160.224. I have seen both URLs used and cited by others. I have visited both URLs and believe that the observations in this declaration apply to both URLs. Based on my experience, I believe JCT-VC members and outsiders interested in video coding would be able to use either URL to visit the JCT-VC website and access JCT-VC documents. Both URLs were publicly accessible to anyone with Internet access.

(such as a username and a password) were required to access these documents. Based on my personal experience and recollection, those in the video-coding industry, even if not part of JCT-VC, were also monitoring the developments of the JCT-VC through the JCT-VC distribution website and were able to access the JCT-VC documents through this website themselves.

49. I was aware of the JCT-VC document system from inception. Despite being an outsider to JCT-VC, 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 of my involvement in the prior MPEGx and H.26x standardization processes, and the development of the HEVC standard was relevant to my area of study and consulting work. I was able to access and download JCT-VC documents without any restrictions or credentials. It is my understanding that other people in the video coding industry, even those outside the JCT-VC, were able to do the same.

50. As mentioned above, in the 2011 timeframe, the documents on the JCT-VC website were organized by meeting, as shown below:

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All Meetings

Number	Name	Start Date	End Date	Unique Serial Letter
40	Teleconference	2020-06-24	2020-07-01	AN
39	Teleconference	2020-04-18	2020-04-24	AM
38	Brussels	2020-01-10	2020-01-17	AL
37	Geneva	2019-10-04	2019-10-10	AK
36	Gothenburg	2019-07-06	2019-07-12	AJ
35	Geneva	2019-03-22	2019-03-27	AI
34	Marrakech	2019-01-12	2019-01-18	AH
33	Macao	2018-10-06	2018-10-12	AG
32	Ljubljana	2018-07-12	2018-07-18	AF
31	San Diego	2018-04-14	2018-04-20	AE
30	Gwangju	2018-01-20	2018-01-26	AD
29	Macau	2017-10-19	2017-10-25	AC
28	Torino	2017-07-15	2017-07-21	AB
27	Hobart	2017-03-31	2017-04-07	AA
26	Geneva	2017-01-12	2017-01-20	Z
25	Chengdu	2016-10-14	2016-10-21	Y
24	Geneva	2016-05-26	2016-06-01	X
23	San Diego	2016-02-19	2016-02-26	W
22	Geneva	2015-10-15	2015-10-21	V
21	Warsaw	2015-06-19	2015-06-26	U
20	Geneva	2015-02-10	2015-02-18	T
19	Strasbourg	2014-10-17	2014-10-24	S
18	Sapporo	2014-06-30	2014-07-09	R
17	Valencia	2014-03-27	2014-04-04	Q
16	San Jose	2014-01-09	2014-01-17	P
15	Geneva	2013-10-23	2013-11-01	O
14	Vienna	2013-07-25	2013-08-02	N
13	Incheon	2013-04-18	2013-04-26	M
12	Geneva	2013-01-14	2013-01-23	L
11	Shanghai	2012-10-10	2012-10-19	K
10	Stockholm	2012-07-11	2012-07-20	J
9	Geneva	2012-04-27	2012-05-07	I
8	San Jose	2012-02-01	2012-02-10	H
7	Geneva	2011-11-21	2011-11-30	G
6	Torino	2011-07-14	2011-07-22	F
5	Geneva	2011-03-16	2011-03-23	E
4	Daegu	2011-01-20	2011-01-28	D
3	Guangzhou	2010-10-07	2010-10-15	C
2	Geneva	2010-07-21	2010-07-28	B
1	Dresden	2010-04-15	2010-04-23	A

See Ex-1041, 000001-2. 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, the various upload dates (since many documents were revised and had multiple different versions), the title of the document, and the source. All documents were downloadable. For example, clicking the "Torino" link from the "All Meetings" page leads to the web page containing documents for the Torino meeting. Ex-1042 (document register of the 6th JCT-VC meeting that took place in Torino, Italy). The website as it is

presented today is consistent with my recollection of how it was presented in the 2011 timeframe.

JCT-VC DOCUMENT MANAGEMENT SYSTEM

▼ User
Login
Create new user
Contact
▼ JCT-VC
JCT-VC News
Next meeting
All meetings
JCT-VC Calendar

<Previous meeting | Meeting Organizer's web site | Register Document | Input document Template

Search document

Title | Number
Author | Search | Clear Search

Torino Meeting - Document Register

JCT-VC number	MPEG number	Created	First Upload	Last upload	Title	Source	Download
JCTVC-F001	m20785	2011-07-01 04:37:08	2011-07-21 08:33:20	2011-07-21 08:33:20	JCT-VC AHG report: Project management (AHG 1)	G. J. Sullivan, J.-R. Ohm (co-chairs)	JCTVC-F001
JCTVC-F002	m20454	2011-06-25 11:11:17	2011-07-13 22:08:25	2011-07-13 22:08:25	JCT-VC AHG report: HEVC Draft and Test Model editing (AHG 2)	K. McCann, T. Wiegand (co-chairs), B. Bross, W.-J. Han, J.-R. Ohm, S. Sekiguchi, G. J. Sullivan (vice-chairs)	JCTVC-F002
JCTVC-F003	m21333	2011-07-13 06:09:58	2011-08-11 20:46:06	2011-08-11 20:46:06	JCT-VC AHG report: Software development and HM software technical evaluation (AHG 3)	F. Bossen (chair), D. Flynn, K. Sühring (vice-chairs)	JCTVC-F003
JCTVC-F004	m21173	2011-07-08 23:29:53	2011-07-12 16:48:42	2011-07-12 16:48:42	JCT-VC AHG report: Slice support development and characterization (AHG 4)	R. Sjöberg (chair), Y. Chen, M. Horowitz, K. Kazui, A. Segall (vice-chairs)	JCTVC-F004
JCTVC-F005	m20788	2011-07-01 05:30:03	2011-07-13 21:58:38	2011-07-15 06:48:34	JCT-VC AHG report: spatial transforms (AHG 5)	P. Topiwala (chair), M. Budagavi, R. Cohen, R. Joshi (vice-chairs)	JCTVC-F005
JCTVC-F006	m21292	2011-07-12 04:49:45	2011-07-12 15:24:53	2011-07-14 12:02:21	JCT-VC AHG report: In-loop and post-processing filtering (AHG 6)	T. Yamakage (chair), K. Chono, Y. J. Chiu, I. S. Chong, M. Narroschke (vice-chairs)	JCTVC-F006
JCTVC-F007	m21341	2011-07-13 21:34:02	2011-07-13 22:23:27	2011-07-19 05:55:00	JCT-VC AHG report: Coding block structures (AHG 7)	K. Panusopone (chair), W. J. Han, T. K. Tan, T. Wiegand (vice-chairs)	JCTVC-F007
JCTVC-F008	m21205	2011-07-11 06:48:02	2011-07-11 07:23:05	2011-07-13 15:54:27	JCT-VC AHG report: Reference pictures memory compression (AHG 8)	K. Chono (chair), T. Chujoh, C. S. Lim, A. Tabatabai, M. Zhou (vice-chairs)	JCTVC-F008
JCTVC-F009	m21331	2011-07-13 04:23:49	2011-07-13 04:36:15	2011-07-13 12:17:30	JCT-VC AHG report: Entropy coding (AHG 9)	M. Budagavi (chair), G. Martin-Cocher, A. Segall, W. Wan (vice-chairs)	JCTVC-F009
JCTVC-F010	m21332	2011-07-13 04:37:52	2011-07-13 05:23:57	2011-07-13 05:23:57	JCT-VC AHG report: Quantization (AHG 10)	M. Budagavi (chair), M. Karczewicz, K. Sato, G. Martin-Cocher (vice-chairs)	JCTVC-F010
JCTVC-F011	m21352	2011-07-14 10:32:42	2011-07-14 10:32:58	2011-07-14 10:32:58	JCT-VC AHG report: Video test material selection (AHG 11)	T. Suzuki (chair)	JCTVC-F011
JCTVC-F012	m20451	2011-06-22 17:09:16	2011-06-22 18:16:11	2011-07-17 11:15:17	JCT-VC AHG report: Complexity assessment (AHG 12)	D. Alfonso (chair), J. Ridge, X. Wen (vice-chairs)	JCTVC-F012
JCTVC-F013	m21107	2011-07-06 08:50:48	2011-07-13 17:30:50	2011-07-16 09:31:58	JCT-VC AHG report: Screen content coding (AHG 13)	O. C. Au (chair), J. Xu, H. Yu (vice-chairs)	JCTVC-F013
JCTVC-F014	m21346	2011-07-13 23:09:10	2011-07-13 23:09:29	2011-07-13 23:09:29	JCT-VC AHG report: Loss robustness (AHG 14)	S. Wenger (chair)	JCTVC-F014
JCTVC-F015	m20998	2011-07-02 01:35:50	2011-07-14 09:31:28	2011-07-14 12:18:16	JCT-VC AHG report: High-level syntax (AHG 15)	Y.-K. Wang (chair), J. Boyce, Y. Chen, M. M. Hannuksela, K. Kazui, T. Schierl, R. Sjöberg, T. K. Tan, W. Wan (vice-chairs)	JCTVC-F015
JCTVC-F016	m21320	2011-07-12 17:58:07	2011-07-12 18:39:59	2011-07-14 15:55:10	JCT-VC AHG report: Decoder-side motion vector derivation (DMVD) (AHG 16)	Y.-J. Chiu (chair), E. Alshina, H. Yu (vice-chairs)	JCTVC-F016
JCTVC-F017	m20714	2011-06-30 20:32:52	2011-07-08 22:07:26	2011-07-08 22:07:26	JCT-VC AHG report: Scalable coding investigation (AHG 17)	J. Boyce (chair), J. Kang, K. Minoo, W. Wan, Y.-K. Wang (vice-chairs)	JCTVC-F017
JCTVC-F018	m20928	2011-07-01 16:50:22	2011-07-01 16:51:33	2011-07-01 17:35:43	JCT-VC AHG report: Weighted prediction (AHG 18)	P. Bordes, T. K. Tan (co-chairs)	JCTVC-F018
JCTVC-F019	m20767	2011-07-01 03:31:17	2011-07-01 03:32:22	2011-07-11 16:27:40	JCT-VC AHG report: Alternative LCU scan processing (AHG 19)	M. Horowitz (chair), F. Henry, A. Segall (vice-chairs)	JCTVC-F019
JCTVC-F020	m21351	2011-07-14 10:01:25	2011-07-14 12:06:27	2011-07-14 12:06:27	JCT-VC AHG report: Chroma format support (AHG 20)	D. Flynn, D. Hoang (co-chairs)	JCTVC-F020
JCTVC-F021	m21070	2011-07-04	2011-07-05	2011-07-14	CE1: Summary report of Core Experiment on Motion Data Storage	J. Jung, P. Onno, Y.-W. Huang (CE	JCTVC-F021

See Ex-1042.

51. Based on my personal experience and recollection, in the 2011 timeframe, the JCT-VC website provided the ability to search the documents for each meeting for example by title and author. *See* Ex-1042, 000001 (the "Search document" feature). 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). In addition, since the titles and authors of all meeting documents are listed in a single web page, those interested would have invoked the search functionality provided by common web browsers (e.g., by pressing Control-F) to identify documents whose titles and authors match the specified keywords.

52. Utilizing the search functionality would have significantly narrowed down the results displayed on the website. As I will explain below, people in the video coding industry would have easily located Nakamura and WD4 in the web page for the 6th JCT-VC meeting using the search functionalities in the 2011 timeframe.

53. Nakamura (version 4 of JCTVC-F419) features a descriptive title "[u]nification of derivation process for merge mode and MVP." If one were particularly interested in evaluating proposals related to the HEVC's merge mode and motion vector predictors (MVPs), it would have been natural to have searched for terms such as "merge mode" and "MVP" in the title or "Nakamura" in the author to narrow the results. Using the search function provided by either the JCT-VC distribution website or a web browser, searching for "merge mode" would have yielded only one entry for the Torino meeting, with the sole entry being

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JCTVC-F419 (including its version 4). *See* Ex-1043. Searching for "mvp" in the title field would have yielded 19 entries (in which one entry contains the term "MVP" twice), including JCTVC-F419 (including its version 4). *See* Ex-1044. Searching for "Nakamura" in the author field would have yielded 3 entries, also including JCTVC-F419 (including its version 4). *See* Ex-1049. It was therefore convenient in the 2011 timeframe for a person interested in video coding to locate Nakamura by searching for the relevant keywords under the meeting. The following screenshot shows searching for "Nakamura" in the Torino meeting page using a common web browser, which I believe would have worked in the same way in 2011.

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3 of 3 matches Contains nakamura Done

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JCTVC-F409	m20836	09:19:46	13:17:19	13:17:19	CE5: Crosscheck for Sharp's proposal (JCTVC-F390)	(Yonsei Univ.), J. Chen, J. Park (Samsung)	JCTVC-F409
JCTVC-F410	m20837	2011-07-01 09:22:48	2011-07-02 09:36:07	2011-07-12 18:30:03	CE2: Non-Square Quadtree Transform for symmetric motion partitions	Y. Yuan (Tsinghua), X. Zheng (HiSilicon), X. Peng (USTC), J. Xu (Microsoft), L. Liu (HiSilicon), Y. Wang, X. Cao (Tsinghua Univ.), C. Lai, J. Zheng (HiSilicon), Y. He (Tsinghua Univ.), H. Yu (Huawei)	JCTVC-F410
JCTVC-F411	m20838	2011-07-01 09:24:26	2011-07-04 08:20:05	2011-07-06 08:36:31	CE6.e: Cross-check of Intra Smoothing	G. Van Wallendael, S. Van Leuven, J. De Cock, R. Van de Walle (Ghent Univ.)	JCTVC-F411
JCTVC-F412	m20839	2011-07-01 09:26:43	2011-07-02 09:41:09	2011-07-12 18:31:42	CE2: Non-Square Quadtree Transform for symmetric and asymmetric motion partitions	Y. Yuan (Tsinghua), X. Zheng (HiSilicon), X. Peng (USTC), J. Xu (Microsoft), I.-K Kim (Samsung), L. Liu (HiSilicon), Y. Wang, X. Cao (Tsinghua Univ.), C. Lai, J. Zheng (HiSilicon), Y. He (Tsinghua Univ.), H. Yu (Huawei)	JCTVC-F412
JCTVC-F413	m20840	2011-07-01 09:27:24	2011-07-01 14:21:20	2011-07-06 08:37:08	CE6.c: Cross-check of Differential Coding of Intra Mode (DCIM)	G. Van Wallendael, S. Van Leuven, J. De Cock, R. Van de Walle (Ghent Univ.)	JCTVC-F413
JCTVC-F414	m20841	2011-07-01 09:32:51	2011-07-01 11:08:57	2011-07-16 11:04:41	Reference sample padding harmonization for intra DC mode	V. Wahadaniah, C. S. Lim (Panasonic), K. Chono, H. Aoki (NEC)	JCTVC-F414
JCTVC-F415	m20842	2011-07-01 09:32:56	2011-07-02 09:11:01	2011-07-02 09:11:01	CE2: Non-rectangular motion partitioning	X. Zheng (HiSilicon), H. Yu (Huawei), S. Li, Y. He (Tsinghua Univ.), P. Bordes (Technicolor)	JCTVC-F415
JCTVC-F416	m20843	2011-07-01 09:33:34	2011-07-01 09:40:03	2011-07-16 16:32:09	Intra Mode Coding considering MPM	C.-W. Seo, J.-K. Han, H.-K. Kim (Sejong Univ.), J. L. (SK telecom)	JCTVC-F416
JCTVC-F417	m20844	2011-07-01 09:48:07	2011-07-01 12:23:08	2011-07-16 19:15:29	Pixel Based Illumination Compensation	C.-W. Seo, J.-K. Han (Sejong Univ.), J. Lim (SK telecom)	JCTVC-F417
JCTVC-F418	m20845	2011-07-01 09:52:05	2011-07-08 17:57:09	2011-07-13 18:05:51	Joint Coding of CU splitting flag and inter modes based on HM 3.1	W. Zhang (ZTE)	JCTVC-F418
JCTVC-F419	m20847	2011-07-01 09:58:30	2011-07-01 19:30:06	2011-07-22 18:13:43	Unification of derivation process for merge mode and MVP	H. Nakamura, S. Fukushima, M. Nishitani (JVC Kenwood)	JCTVC-F419
JCTVC-F420	m20848	2011-07-01 09:59:56	2011-07-01 12:41:03	2011-07-11 06:50:06	CE4: Result of 2.3.d and 2.3.e	K. Sato (Sony)	JCTVC-F420
JCTVC-F421	m20849	2011-07-01 10:02:17	2011-07-01 12:41:54	2011-07-11 08:12:21	CE4: X-check of 2.2.b and 2.3.f	K. Sato (Sony)	JCTVC-F421
JCTVC-F422	m20850	2011-07-01 10:04:54	2011-07-01 12:42:39	2011-07-12 10:07:56	Improvement of delta-QP Coding	K. Kondo, K. Sato, J. Xu (Sony)	JCTVC-F422
JCTVC-F423	m20851	2011-07-01 10:06:43	2011-07-01 15:58:22	2011-07-16 07:47:24	Modified MVD coding for CABAC	H. Sasai, T. Nishi (Panasonic)	JCTVC-F423
JCTVC-F424	m20852	2011-07-01 10:06:48	2011-07-01 10:43:10	2011-07-01 10:43:10	CE9: Skip/Merge Simplification with Reduced Candidate Set (SP13)	Y. H. Tan, C. Yeo, Z. Li (I2R)	JCTVC-F424
JCTVC-F425	m20853	2011-07-01 10:07:14	2011-07-01 12:43:28	2011-07-11 08:16:03	CE1: Result of Test A2	K. Sato (Sony)	JCTVC-F425
JCTVC-F426	m20854	2011-07-01 10:09:12	2011-07-01 15:57:17	2011-07-16 13:03:31	Fixed probability coding for Intra mode	H. Sasai, T. Nishi (Panasonic)	JCTVC-F426
JCTVC-F427	m20855	2011-07-01 10:10:03	2011-07-01 12:45:48	2011-07-16 14:27:28	Consideration on Temporal Predictor	K. Sato (Sony)	JCTVC-F427
JCTVC-F428	m20857	2011-07-01 10:13:15	2011-07-11 04:10:28	2011-07-11 04:10:28	X-check of JCTVC-F395 by Sharp	Y. Morigami, K. Sato (Sony)	JCTVC-F428
JCTVC-F429	m20858	2011-07-01 10:13:51	2011-07-01 15:56:40	2011-07-21 09:57:27	Modified Context Derivation for neighboring dependency reduction	H. Sasai, T. Nishi (Panasonic)	JCTVC-F429
JCTVC-F430	m20860	2011-07-01 10:22:43	2011-07-09 03:36:14	2011-07-09 03:36:14	Crosscheck for Canon's proposal JCTVC-F269	M. Guo, X. Guo (MediaTek)	JCTVC-F430
JCTVC-F431	m20861	2011-07-01 10:23:42	2011-07-01 14:12:06	2011-07-16 16:56:48	Complexity Reduction of Chroma Intra Prediction by Reconstructed Luma Samples	K. Sato (Sony)	JCTVC-F431

54. As for WD4 (version 3 of JCTVC-F803 or Working Draft 4), in my view, 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. WD4 was an output working draft for the Torino meeting. *See* Ex-1010. WD4 could be located, for instance, by searching terms such "wd4," "wd," or "working draft" using the search functionality provided by either the JCT-VC distribution website or the browser. Searching for "wd4" would have yielded only one result for the Torino meeting, with the sole result being the Working Draft 4 (including its

version 3). *See* Ex-1045. Searching for "wd" would have yielded only three results, including the Working Draft 4 (including its version 3). *See* Ex-1046. It was therefore convenient in the 2011 timeframe for a person interested in video coding to locate WD4 under the meeting. The following screenshot shows searching for "working draft" in the Torino meeting page using a common web browser, which I believe would have worked in the same way in 2011.

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JCTVC-F763	m21418	2011-07-19 13:02:20	2011-07-21 08:00:36	2011-07-21 19:39:22	BoG report on review of deblocking filter related contributions	M. Zhou, A. Norkin (BoG coordinators)	JCTVC-F763
JCTVC-F764	m21419	2011-07-19 18:38:46	2011-07-20 16:44:08	2011-07-21 08:20:12	BoG report of CE3 MC interpolation filter	T. Suzuki (BoG coordinator)	JCTVC-F764
JCTVC-F765	m21420	2011-07-20 11:28:35	2011-07-20 11:30:16	2011-08-04 04:40:59	BoG report on intra mode coding with fixed number of MPM candidates	J. Chen (BoG coordinator)	JCTVC-F765
JCTVC-F766	m21421	2011-07-20 11:54:06	2011-07-20 11:55:17	2011-07-20 18:00:34	Additional results on Intra Mode Coding	E. Francois, N. Ouedraogo (Canon), J. Park (LGE), E. Maani, A. Tabatabai, C. Auyeung (Sony)	JCTVC-F766
JCTVC-F767	m21422	2011-07-20 12:40:43	2011-07-21 09:04:22	2011-07-21 11:50:27	BoG report on subjective viewing test for deblocking filter proposals	V. Baroncini, A. Norkin, M. Narroschke, B. Jeon (BoG coordinators)	JCTVC-F767
JCTVC-F768	m21423	2011-07-20 13:27:55	2011-07-20 15:47:25	2011-07-21 10:17:04	An observation of the subjective viewing test results for deblocking filter proposals	X. Guo, S. Lei (MediaTek)	JCTVC-F768
JCTVC-F769	m21424	2011-07-20 13:32:00	2011-07-20 13:36:00	2011-07-20 13:36:00	Cross Check of JCTVC-F712	D. Flynn (BBC)	JCTVC-F769
JCTVC-F770	m21425	2011-07-20 15:00:43	2011-07-20 15:04:14	2011-07-20 15:04:14	Results for SCC with Transform Skip Mode (JCTVC-F077)	M. Mrak, A. Gabriellini, D. Flynn (BBC)	JCTVC-F770
JCTVC-F771	m21426	2011-07-20 17:01:59	2011-07-21 10:04:20	2011-07-22 00:26:13	BoG Report on Screen Content Coding	O. C. Au, J. Xu, H. Yu (BoG coordinators)	JCTVC-F771
JCTVC-F772	m21427	2011-07-20 17:06:38	2011-07-21 08:01:33	2011-07-26 23:41:16	Report on subjective viewing test for configurations in JCTVC-F320	V. Sze (TI)	JCTVC-F772
JCTVC-F773	m21428	2011-07-21 00:58:46	2011-07-21 01:01:31	2011-07-21 19:50:11	Additional Performance Metric for Screen Content Coding	W. Gao (Huawei)	JCTVC-F773
JCTVC-F774	m21429	2011-07-21 10:17:00	2011-07-21 11:49:39	2011-07-21 11:49:39	Cross check of JCTVC-F405	G. Van der Auwera (Qualcomm)	JCTVC-F774
JCTVC-F800	m21451	2011-08-02 10:45:19	2011-11-18 02:20:38	2011-11-18 02:20:38	Meeting report of the sixth meeting of the Joint Collaborative Team on Video Coding (JCT-VC), Torino, IT, 14-22 July 2011	G. J. Sullivan, J.-R. Ohm (JCT-VC chairs)	JCTVC-F800
JCTVC-F802	m21450	2011-07-29 20:57:51	2011-10-04 20:32:17	2011-10-04 20:32:17	HM4: HEVC Test Model 4 Encoder Description	K. McCann, S. Sekiguci, B. Bross, W.-J. Han (Editors)	JCTVC-F802
JCTVC-F803	m21449	2011-07-28 11:38:31	2011-08-09 10:14:29	2011-11-20 18:51:47	WD4: Working Draft 4 of High-Efficiency Video Coding	B. Bross, W.-J. Han, J.-R. Ohm, G. J. Sullivan, T. Wiegand (Editors)	JCTVC-F803
JCTVC-F900	m21452	2011-08-09 00:18:51	2011-09-12 17:29:47	2011-09-12 17:29:47	Common test conditions and software reference configurations	F. Bossen (software & test condition coordinator)	JCTVC-F900
JCTVC-F901	m21444	2011-07-22 08:33:25	2011-07-22 08:36:31	2011-09-06 03:03:51	Description of Core Experiment 1: Entropy Coding	R. Joshi, E. Alshina, H. Sasai, H. Kirchhoffer, J. Lainema (CE coordinators)	JCTVC-F901
JCTVC-F902	m21441	2011-07-22 08:13:59	2011-07-22 08:42:53	2011-08-21 17:08:44	Description of Core Experiment 2: Motion Partitioning and OBMC	X. Zheng, I. S. Chong, I.-K. Kim (CE coordinators)	JCTVC-F902
JCTVC-F903	m21445	2011-07-22 09:02:55	2011-07-22 15:41:16	2011-08-22 00:59:25	CE3: Motion Compensation	T. Chujoh, E. Alshina (CE coordinators)	JCTVC-F903
JCTVC-F904	m21434	2011-07-21 15:24:41	2011-07-22 08:36:19	2011-08-31 08:38:00	Description of Core Experiment 4: Quantization	K. Sato, M. Budagavi, M. Coban, H. Aoki, X. Li (CE coordinators)	JCTVC-F904
JCTVC-F905	m21440	2011-07-22 07:04:39	2011-07-22 14:13:14	2011-08-21 16:27:59	Description of Core Experiment 5: CAVLC Entropy Coding Improvements	X. Wang, P. Wu, C.Y. Kim (CE coordinator)	JCTVC-F905
JCTVC-F906	m21442	2011-07-22 08:26:46	2011-07-22 11:35:59	2011-08-24 23:01:22	CE6: Intra Coding Improvements	A. Tabatabai, E. Francois, K. Chono, H. Yu, R. Joshi, J. Lainema (CE coordinators)	JCTVC-F906
JCTVC-F907	m21439	2011-07-22 00:57:50	2011-07-22 20:04:27	2011-08-27 00:07:31	Description of Core Experiment 7 (CE7): Additional Transforms	R. Cohen, C. Yeo, R. Joshi, F. Fernandes (CE coordinators)	JCTVC-F907
JCTVC-F908	m21446	2011-07-22 09:05:50	2011-07-22 09:08:12	2011-08-29 15:13:18	Description of Core Experiment 8 (CE8): Non-deblocking loop filtering	T. Yamakage, I. S. Chong, M. Narroschke (CE coordinators)	JCTVC-F908
JCTVC-F909	m21436	2011-07-21 19:20:53	2011-07-22 12:46:35	2011-08-24 10:41:56	Description of Core Experiment 9: MV Coding and Skip/Merge Operations	B. Bross, J. Jung, W.-J. Chien, I.-K. Kim, M. Zhou (CE coordinators)	JCTVC-F909
JCTVC-F910	m21433	2011-07-21 14:26:54	2011-07-21 14:28:44	2011-07-21 20:16:01	CE10: Core Transform Design	P. Topiwala, M. Budagavi, R. Joshi, A. Fuldseth, I. Kim (CE coordinators)	JCTVC-F910
[illegible]	[illegible]	2011-07-22 [illegible]	2011-07-23 [illegible]	2011-09-08 [illegible]	Description of Core Experiment (CE11): Coefficient scanning and [illegible]	V. Sze, J. Chen, T. Nguyen, K. [illegible]	[illegible]

55. Each JCT-VC meeting furthermore produces a Meeting Report after the meeting – in Microsoft Word format – that included the list of documents for

that meeting. Each Meeting Report contained a section that indexed the proposals under consideration, and often provided a summary of the proposal's contents. *See, e.g.*, Ex-1028 (meeting report for the Torino meeting). Nakamura and WD4 are both referenced in the Meeting Report. Ex-1028, 000001, 000098. The Meeting Reports reference and direct readers to the JCT-VC distribution website. Ex-1039, 000002; *id.*, 000002 ("The document distribution site http://phenix.it-sudparis.eu/jct/ was used for distribution of all documents."). The proposals were also cataloged in Annex A of each meeting report, which lists the title and authors of each document just like the JCT-VC distribution website. *See, e.g.*, Ex-1028, 000191-253. The following screenshot shows searching for "meeting report" in the Torino meeting page using a common web browser, which I believe would have worked in the same way in 2011.

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JCTVC-F761	m21414	2011-07-19 09:04:12	2011-07-19 12:16:28	2011-07-19 12:16:28	Cross verification for HHI's proposal JCTVC-F455 (part3)	H. Sasai, T. Nishi (Panasonic)	JCTVC-F761
JCTVC-F762	m21417	2011-07-19 10:33:18	2011-07-19 10:40:40	2011-07-20 00:02:32	Entropy Coders:□How many do we need in HEVC?	K. McCann (Samsung/ZetaCast)	JCTVC-F762
JCTVC-F763	m21418	2011-07-19 13:02:20	2011-07-21 08:00:36	2011-07-21 19:39:22	BoG report on review of deblocking filter related contributions	M. Zhou, A. Norkin (BoG coordinators)	JCTVC-F763
JCTVC-F764	m21419	2011-07-19 18:38:46	2011-07-20 16:44:08	2011-07-21 08:20:12	BoG report of CE3 MC interpolation filter	T. Suzuki (BoG coordinator)	JCTVC-F764
JCTVC-F765	m21420	2011-07-20 11:28:35	2011-07-20 11:30:16	2011-08-04 04:40:59	BoG report on intra mode coding with fixed number of MPM candidates	J. Chen (BoG coordinator)	JCTVC-F765
JCTVC-F766	m21421	2011-07-20 11:54:06	2011-07-20 11:55:17	2011-07-20 18:00:34	Additional results on Intra Mode Coding	E. Francois, N. Ouedraogo (Canon), J. Park (LGE), E. Maani, A. Tabatabai, C. Auyeung (Sony)	JCTVC-F766
JCTVC-F767	m21422	2011-07-20 12:40:43	2011-07-21 09:04:22	2011-07-21 11:50:27	BoG report on subjective viewing test for deblocking filter proposals	V. Baroncini, A. Norkin, M. Narroschke, B. Jeon (BoG coordinators)	JCTVC-F767
JCTVC-F768	m21423	2011-07-20 13:27:55	2011-07-20 15:47:25	2011-07-21 10:17:04	An observation of the subjective viewing test results for deblocking filter proposals	X. Guo, S. Lei (MediaTek)	JCTVC-F768
JCTVC-F769	m21424	2011-07-20 13:32:00	2011-07-20 13:36:00	2011-07-20 13:36:00	Cross Check of JCTVC-F712	D. Flynn (BBC)	JCTVC-F769
JCTVC-F770	m21425	2011-07-20 15:00:43	2011-07-20 15:04:14	2011-07-20 15:04:14	Results for SCC with Transform Skip Mode (JCTVC-F077)	M. Mrak, A. Gabriellini, D. Flynn (BBC)	JCTVC-F770
JCTVC-F771	m21426	2011-07-20 17:01:59	2011-07-21 10:04:20	2011-07-22 00:26:13	BoG Report on Screen Content Coding	O. C. Au, J. Xu, H. Yu (BoG coordinators)	JCTVC-F771
JCTVC-F772	m21427	2011-07-20 17:06:38	2011-07-21 08:01:33	2011-07-26 23:41:16	Report on subjective viewing test for configurations in JCTVC-F320	V. Sze (TI)	JCTVC-F772
JCTVC-F773	m21428	2011-07-21 00:58:46	2011-07-21 01:01:31	2011-07-21 19:50:11	Additional Performance Metric for Screen Content Coding	W. Gao (Huawei)	JCTVC-F773
JCTVC-F774	m21429	2011-07-21 10:17:00	2011-07-21 11:49:39	2011-07-21 11:49:39	Cross check of JCTVC-F405	G. Van der Auwera (Qualcomm)	JCTVC-F774
JCTVC-F800	m21451	2011-08-02 10:45:19	2011-11-18 02:20:38	2011-11-18 02:20:38	Meeting report of the sixth meeting of the Joint Collaborative Team on Video Coding (JCT-VC), Torino, IT, 14-22 July 2011	G. J. Sullivan, J.-R. Ohm (JCT-VC chairs)	JCTVC-F800
JCTVC-F802	m21450	2011-07-29 20:57:51	2011-10-04 20:32:17	2011-10-04 20:32:17	HM4: HEVC Test Model 4 Encoder Description	K. McCann, S. Sekiguci, B. Bross, W.-J. Han (Editors)	JCTVC-F802
JCTVC-F803	m21449	2011-07-28 11:38:31	2011-08-09 10:14:29	2011-11-20 18:51:47	WD4: Working Draft 4 of High-Efficiency Video Coding	B. Bross, W.-J. Han, J.-R. Ohm, G. J. Sullivan, T. Wiegand (Editors)	JCTVC-F803
JCTVC-F900	m21452	2011-08-09 00:18:51	2011-09-12 17:29:47	2011-09-12 17:29:47	Common test conditions and software reference configurations	F. Bossen (software & test condition coordinator)	JCTVC-F900

56. 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, which would cause the website to be redirected to a "Document Information" page that identified the different versions of the document that had been uploaded. *See, e.g.*, Ex-1047 (Nakamura page); Ex-1048 (WD4 page). The "Document Information" page identified when each version of the document was uploaded to the JCT-VC distribution website. As shown, Nakamura (version 4 of JCTVC-F419) was uploaded on July 22, 2011 (Ex-1047, 000001), while WD4 (version 3 of JCTVC-F803) was uploaded on September 8, 2011 (Ex-1048, 000001). Each version of the document could then be downloaded separately as needed.

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Preview document **JCTVC-F419** for **Torino** meeting (MPEG number m20847)

Document Information

Submitted by	Hiroya Nakamura	
Title	Unification of derivation process for merge mode and MVP	**Associated Resources**
Authors	H. Nakamura S. Fukushima M. Nishitani (JVC Kenwood)	
Organizations		
Abstract		
Related Contributions		
AhG		
Sub Group	JCT-VC	
Group	MPEG-H	
Standard		
Activity		
Document	JCTVC-F419 (version 1 - date 2011-07-01 19:30:06) JCTVC-F419 (version 2 - date 2011-07-16 08:21:24) JCTVC-F419 (version 3 - date 2011-07-17 13:27:20) JCTVC-F419 (version 4 - date 2011-07-22 18:13:43) upload document	

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Ex-1047 (annotation added).

Document Information

Submitted by	Benjamin Bross	
Title	WD4: Working Draft 4 of High-Efficiency Video Coding	**Associated Resources**
Authors	B. Bross W.-J. Han J.-R. Ohm G. J. Sullivan T. Wiegand (Editors)	
Organizations		
Abstract		
Related Contributions		
AhG		
Sub Group	JCT-VC	
Group	MPEG-H	
Standard		
Activity		
Document	The document was rejected by the Chair. JCTVC-F803 (version 2 - date 2011-08-09 20:57:27) JCTVC-F803 (version 3 - date 2011-09-08 19:00:16) JCTVC-F803 (version 4 - date 2011-10-04 13:26:19) JCTVC-F803 (version 5 - date 2011-10-08 03:43:19) JCTVC-F803 (version 6 - date 2011-10-22 05:04:49) JCTVC-F803 (version 7 - date 2011-10-28 11:51:18) JCTVC-F803 (version 8 - date 2011-11-20 18:51:47) upload document	

Comments

Attach file in comments: Choose File no file selected

Add Comments

Ex-1048 (annotation added).

57. Alternatively, under the "Download" heading in the meeting page, the JCT-VC number for that document could be clicked, which would automatically download the most recent version of the document. Therefore, an interested person would have clicked the link in the "Download" column and instantly downloaded Nakamura (version 4 of JCTVC-F419) on July 22, 2011. An interested person would have clicked the link to instantly download WD4 (version 3 of JCTVC-F803) on September 8, 2011.

58. Access to documents at each meeting was facilitated by an organization of the documents by document number. The first document, for example at the F Meeting (6th meeting in Torino, Italy), JCTVC-F001, was a report by the chairmen on the management of JCTVC. This was followed by the reports of ad hoc groups on work since the previous meeting, e.g., JCTVC-F002 – JCTVC-F020, and then followed by reports on Core Experiments conducted since the previous meeting, e.g., JCTVC-F021 – JCTVC-F032. Next, contributions made to the meeting by experts followed, e.g., JCTVC-F041 – JCTVC-F774. Then followed the output documents beginning in succession the Meeting Report, the Test Model and the Working Draft; e.g., JCTVC-F800, JCTVC-F802, JCTVC-F803. The next is a document JCTVC-F900 concerning the reference software, followed finally by descriptions of the Core Experiments going forward to the next meeting, e.g., JCTVC-F901 – JCTVC-F910.

59. For the web pages of the JCT-VC distribution website referenced in this declaration, I visited the JCT-VC distribution website and saved the web pages as PDFs. These PDFs are organized as Exhibits 1041 through 1049 that accompany this declaration.

IV. A POSITA Would Have Monitored JCT-VC Developments

60. I understand that the definition of a person of ordinary skill in the art (POSITA) in this proceeding is (1) a bachelor's degree in electrical engineering,

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computer engineering, computer science, or a comparable field of study such as physics, and (2) approximately two to three years of practical experience with video encoding/decoding. I understand that additional experience can substitute for the level of education, and vice-versa. I satisfy this definition of POSITA in the 2011 timeframe at least because I had a bachelor's degree in the field of electronics by 1970, with many years of experience in video encoding and decoding (more than three) by 2011, as explained in my professional background section. *Supra* §I.

61. Based on my experience, POSITAs interested in video coding, including those in the video coding industry, were monitoring the developments of the JCT-VC in the 2011 timeframe. POSITAs would, like I myself did, access the JCT-VC website and download JCT-VC documents to keep their knowledge up to date with the development of the field of the video coding.

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APPENDIX 1: CURRICULUM VITAE OF CLIFFORD READER

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Cliff Reader, Ph.D.

Expertise

- Real-time Processing and Display
- Video coding (MPEG-HEVC)
- Audio coding (MPEG-AAC)
- Imaging/Video Systems Architecture
- Imaging/Video Chip Architecture
- Videoconferencing
- Speech Processing
- Consumer audio/video
- Reconnaissance Imaging
- Medical Imaging

Professional Summary

Dr. Reader has over forty five years of work experience in digital imaging, digital video & audio and digital speech processing. In the 1970's and early 1980's, he was one of the leaders in the digital imaging field, performing extensive work in areas of compression, real-time processing, real-time display, image enhancement, and others. Applications included reconnaissance imaging, medical imaging, earth resources management and videoconferencing. This work anticipated much of the technology being used in contemporary consumer digital video systems. He has in-depth experience of the commercial history and when key parts of technology were first developed and published.

Dr. Reader's career includes technical work in areas of algorithm design, system design, and semiconductor chip design; and business development, marketing and sales work in areas of market analysis, product roadmap development and direct sales.

Dr. Reader has held many leadership roles in standards development: US Head of Delegation to MPEG (1991-1993); chief editor of the MPEG1 standard (1991-1993); instigator of the successful effort to make MPEG2 the market standard for digital TV over proprietary competitors in the US and national competitors in Europe and Japan (1992); MPEG4 Subcommittee Chairman (1993-1996); AVS (China) Subgroup Chairman (2003-Present). He is an expert in all major audio-video standards. MPEG audio (Layer I, II, mp3, AAC), Dolby AC3, MPEG video (1, 2, 4), H.264, Windows Media 9 (VC-1), H.265 (HEVC), AVS and AV1. He is also an expert in DVD standards, including formatting, navigation and authoring.

Dr. Reader has extensive experience in patent licensing and patent pools. He was the technical expert for developing the initial list of potentially essential patents for the first MPEGLA patent pool (MPEG2 video and systems). He is the Co-Director leading the pool formation and license negotiations for the AVS patent pools. Dr. Reader has experience in the valuation of patents and the acquisition and sale of patent portfolios.

Dr. Reader has authored over twenty technical papers, two book chapters and two patents in digital video processing, display, and compression. He taught digital signal processing and image processing at Santa Clara University in the early 1980s and is an Adjunct Professor at Peking University, Beijing, China.

Employment History

From: 2001 **Independent Consultant**
To: Present Escondido, CA

Provide technical and marketing consulting services in the areas of digital imaging, digital video, digital audio and speech including:

- consumer video
- real-time processing and display
- image and video & audio compression (specializing in standards)
- imaging/video systems architecture
- imaging/video chip architecture
- audio/video transmission, including optical & wireless networks

Over 80 clients including Apple, AT&T, Adobe, Broadcom, China Central TV, Chinese Academy of Sciences, Cisco, Comcast, DirecTV, Dish Network, Disney, EchoStar, ETRI, Facebook, Fujifilm, Gateway, GE, Google, Haier, Hisense, HP, Hulu, IBM, Intel, Johnson Controls, KAIST, Lenovo, LG, Matsushita, MediaTek, Microsoft, Motorola, Netflix, Nikon, Nokia, ON2, OPPO, Peloton, Philips, Quanta, Riverbed, Samsung, Sharp, Siemens, Sony, Starz, Sun Microsystems, Toshiba, TPV, Tyco, US Department of Justice, Verizon, Vimeo, Vizio, Wistron, Xiaomi, Yahoo, Zoran and ZTE.

<u>Personal database of patent analysis:</u>
-Evaluation of all the US patents in the MPEG2, H.264 and H.265 patent pools.
-Evaluation of the US patents and published applications underlying the H.264 and H.265 standards.
-Personal archive of over 2000 audiovisual patents.

<u>Personal database of audio and video prior art.</u>
-Virtually complete collection of all contributions to the H.26x and MPEGx families of standards from 1985 to today.
-Many hundreds of technical journal and conference articles documenting the first invention of key technologies.
-Work-in-progress book on the history of video compression.
-Historical collection of technical data from the earliest digital video, image processing and real-time image display systems in the 1970s and 1980s.

From: 1999 **nDSP Corporation**
To: 2001 Campbell, CA
Title: *Vice President of Marketing and Acting Vice President of Sales*

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Responsible for marketing and sales in a startup company providing high-quality video signal processors to TV manufacturers. Developed product specifications and roadmap. Built and managed sales and marketing team of 6 direct and contractor staff in the US and Japan to provide technical sales, sales support, application engineering, Marcomm and PR. Established distribution in China, Japan and throughout the Far East. Secured first sales as company moved into production phase with design wins in China, Japan and Europe. Initiated and secured major design wins in emerging Progressive DVD business, with production volumes beginning in 4Q00 at an annualized rate of $3.5M. Established strategic partnership with Pixelworks in LCD chip business. Pixelworks acquired nDSP in 2001.

From: 1997 **CagEnt Technologies, Inc. (wholly owned by Samsung)**
To: 1998 Santa Clara, CA
Position: *Vice President of Sales, Digital Video Products*
Responsible for a line of PC-based real-time MPEG2 and Dolby Digital encoders. Established distribution agreements for third-party DVD authoring software. Secured OEM contracts for the products. Built the sales channel worldwide. Built sales to break-even point in 9 months leading to sale of the product line.

From: 1993 **Samsung Semiconductor, Inc.**
To: 1997 San Jose, CA
Position: *Director of Marketing, Digital Media Products;*
Acting Director of Software Engineering
Developed business plans for digital audiovisual semiconductor chips. Managed team of over 50 software engineers in US and Korea for development of a media processor. Established strategic partnerships with Microsoft and IBM for media processor

From: 1990 **Cypress Semiconductor, Inc.**
To: 1993 San Jose, CA
Position: *Business Development Manager*
Founding member of new business unit chartered to develop a "video DSP". Jointly developed a complete business plan, and personally initiated and developed relationships with Philips, Sun Microsystems, Apple Computers and IBM. Chief architect for this early media DSP design, capable of complete MPEG1 decode in real time. (Fully validated by cycle-accurate simulation). Managed R&D team of 10 hardware and software engineers.

Head of US Delegation to MPEG, 1991 to 1992. Chief Editor of the MPEG1 standard. Technical Expert for establishing the

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MPEGLA Patent Licensing Pool.

From: 1988 **Sun Microsystems, Inc.**
To: 1990 Mountain View, CA
Position: *Program Manager*
Developed requirements and specifications for real-time imaging system. Managed a team of 20 engineers to develop the architecture and high-level design. Interfaced with two key customers – Philips Medical Systems and Lockheed. Developed design for single-board real-time medical and reconnaissance image display.

From: 1981 **International Imaging Systems, Zoran, Virtual Imaging**
To: 1988 Design and development of real-time image processing and display systems. Details available on request.

From: 1975 **Ford Aerospace & ESL (A Division of TRW)**
To: 1981 Details available on request.

Consulting History

Date 2023 **Intel**
To: Present
Duties: Consulting Expert

Date 2023 **Disney**
To: Present
Duties: Consulting Expert

Date 2023 **Samsung**
To: Present
Duties: Consultant

Date 2023 **Peloton**
To: Present
Duties: Consulting Expert in NEC matter

Date 2023 **Alps Alpine**
To: 2023
Duties: Consulting Expert in DivX matter

Date 2023 **Fish & Richardson**
To: Present
Duties: Consultant

Date	2023	**Oppo**
To:	Present	
	Duties:	Consulting Expert on speech processing in Nokia matter
Date	2022	**Samsung**
To:	2023	
	Duties:	Testifying Expert on speech processing in Jawbone matter
Date	2022	**Asus, Lenovo, MSI**
To:	2023	
	Duties:	Consulting Expert in VideoLabs matter
Date	2022	**Google**
To:	2023	
	Duties:	Consulting Expert on speech processing in Jawbone matter
Date	2022	**Starz**
To:	Present	
	Duties:	Consulting Expert in VideoLabs matter
Date	2022	**Meta Platforms (Facebook)**
To:	Present	
	Duties:	Consulting Expert in VideShare matter
Date	2022	**Oppo**
To:	Present	
	Duties:	Consulting Expert in InterDigital matter
Date	2022	**Apple**
To:	2023	
	Duties:	Consulting Expert on speech processing in Jawbone matter
Date	2021	**Verkada**
To:	2022	
	Duties:	Testifying Expert in Motorola Solutions matter
Date	2021	**Facebook**
To:	2022	
	Duties:	Consulting Expert in EyesMatch matter
Date	2021	**Videoconferencing company**
To:	2023	
	Duties:	Testifying Expert
Date	2021	**Canon**

To: 2022
Duties: Consulting Expert in WSOU Investments/Brazos Licensing matter.

Date 2021 **Axis**
Duties: Consulting Expert

Date 2021 **nVIDIA**
To: 2022
Duties: Consultant

Date 2020 **Xiaomi**
To: 2021
Duties: Consulting Expert in InterDigital matter

Date 2020 **LG**
To: 2021
Duties: Consulting Expert DivX matter

Date 2020 **Vizio**
To: 2023
Duties: Consulting Expert VDPP matter

Date 2020 **Netflix**
To: 2022
Duties: Consultant

Date 2020 **Oppo**
To: Present
Duties: Consultant

Date 2020 **IdeaHub**
To: Present
Duties: Preparation of declaration for Inter Partes Review proceedings. (Unified Patents matter)

Date 2019 **Google**
To: 2021
Duties: Preparation of declarations for Inter Partes Review proceedings (PMC matter)

Date 2019 **Google**
To: 2021
Duties: Consulting Expert (Multiple projects)

Date 2019 **LG**
To: 2020

Duties: Preparation of declarations for Inter Partes Review proceedings. (Uniloc matter)

Date 2019 To: 2021 **Klarquist, Sparkman**
Duties: Consulting Expert (Multiple projects)

Date 2019 To: 2021 **Netflix, Hulu**
Duties: Preparation of declarations for Inter Partes Review proceedings. (DivX matter)

Date 2019 **MediaTek**
Duties: Consulting Expert in American Patents matter

Date 2019 **AT&T**
Duties: Consulting Expert

Date 2019 To: 2021 **KAIST/KBS**
Duties: Consulting Expert for Inter Partes Review proceedings. (Unified Patents matter)

Date 2019 To: 2020 **Vimeo**
Duties: Preparation of declarations for Inter Partes Review proceedings. (BT matter)

Date 2019 **Apple**
Duties: Preparation of declarations for Inter Partes Review proceedings. (Red.com matter)

Date 2019 To: 2021 **Adobe**
Duties: Preparation of declarations for Inter Partes Review proceedings and consulting expert. (Realtime matter)

Date 2018 To: 2019 **Toshiba**
Duties: Testifying expert concerning valuation of essential patents for ATSC standards

Date 2018 **Hisense**
Duties: Analysis of essential patents for AAC standards

Date 2018 **HTC**

To: 2020
Duties: Analysis of essential patents for the H.265 standard

Date 2018 **Cisco**
To: 2020
Duties: Consulting expert in Realtime matter

Date 2017 **Dish Network**
To: 2023
Duties: Consulting expert in ClearPlay matter

Date 2017 **Apple**
To: 2019
Duties: Preparation of declarations for Inter Partes Review proceedings. (Uniloc matter)

Date 2017 **Dish Network**
To: 2020
Duties: Testifying expert in Realtime matter

Date 2017 **CustomPlay**
To: 2020
Duties: Preparation of declaration for summary judgment in Amazon case.

Date 2017 **Vizio, Funai, LG, MediaTek, MStar**
Duties: Testifying expert in Broadcom case.

Date 2017 **Apple**
Duties: Preparation of declarations for Inter Partes Review proceedings. (Nokia matter)

Date 2017 **Vizio**
Duties: Preparation of declarations for Inter Partes Review proceeding. (Lightside Technologies matter)

Date 2016 **Dell, Riverbed, EchoStar, Dish Network**
To: 2019
Duties: Testifying expert in Realtime matter

Date 2016 **Sharp, Vizio, ON**
To: 2018
Duties: Testifying expert in WiLAN matter

Date 2016 **Avid**
To: 2017
Duties: Testifying expert in Harmonic matter.

Date	2016	**Apple**
	Duties:	Testifying expert in PUMA matter.
Date	2016	**Vizio**
	Duties:	Testifying expert in PMC matter.
Date	2016	**US Dept. of Justice, Dept. of Homeland Security, DoD, FBI, NSA, & Others**
To:	2021	
	Duties:	Consulting expert in Discovery Patents (3rd Eye Surveillance) matter. Declarations in support of six Inter Partes Reviews.
Date	2015	**ST Micro**
To:	2016	
	Duties:	Consulting expert in Avago matter.
Date	2015	**AT&T**
	Duties:	Consulting expert in Raniere matter.
Date	2015	**Motorola**
To:	2016	
	Duties:	Consulting expert in PUMA matter.
Date	2015	**TPV**
To:	2016	
	Duties:	Consulting expert in Thomson licensing matter.
Date	2015	**Tyco (Exacq, Johnson Controls)**
To:	2019	
	Duties:	Consulting expert in JDS Technologies matter.
Date	2015	**Tyco**
	Duties:	Declaration in support of Inter Partes Review petition in Hawk Technology matter.
Date	2015	**Sceptre**
	Duties:	Expert reports in licensing matter concerning MPEGLA MPEG2 pool patents.
Date	2015	**Samsung**
	Duties:	Consultant and fact witness in case asserting Samsung patents of which I am a named inventor, against NVidia.
Date	2015	**Nissim**
To:	2016	

Duties: Consultant expert for patent holder in 20th Century Fox, MGM, and Paramount cases concerning patents related to DVD navigation. Testified at Markman hearings.

Date 2015 To: Present **Nikon**
Duties: Consultant.

Date 2015 **Humax**
Duties: Search and analysis of prior art.

Date 2015 **Apple**
Duties: Analysis of patent portfolio potentially essential for the H.264 standard.

Date 2014 To: 2018 **Haier**
Duties: Analysis of patent portfolios for smart consumer devices.

Date 2014 To: 2021 **Cisco**
Duties: Consultant.

Date 2014 To: 2015 **ZTE, Sony, LG, Samsung, Nokia, GoPro**
Duties: Consulting expert.

Date 2014 To: 2015 **Tyco**
Duties: Expert reports; declaration in support of Inter Partes Review in Trover matter.

Date 2013 **Humax**
Duties: Consultant.

Date 2014 To: 2015 **GE Licensing**
Duties: Consultant.

Date 2014 To: 2015 **HikVision & Axis**
Duties: Declaration in support of Inter Partes Review. Expert reports in Trover matter.

Date 2014 To: 2016 **Sharp**
Duties: Declaration in support of Inter Partes Review in Wi-Lan matter.

Date 2013 **InterDigital**
To: 2015
Duties: Consulting expert in support of licensing a patent portfolio.

Date 2013 **Apple**
Duties: Consulting expert in National Cheng Kung University matter.

Date 2013 **Acer, ASUS, TPV**
To: 2014
Duties: Testifying expert in Florida Atlantic University matter.

Date 2013 **Toshiba**
To: 2014
Duties: Testifying expert in WiLAN matter.

Date 2013 **Grass Valley Group**
Duties: Consulting expert for defense in FastVDO matter.

Date 2013 **TI**
To: Present
Duties: Consulting expert.

Date 2012 **Vizio**
Duties: Consulting expert in Innovus Prime matter.

Date 2012 **Haier & Shandong Provincial Government**
To: 2014
Duties: Foreign expert advisor for developing and acquiring patent portfolios for innovative consumer products. Development of a patent pool for patents essential to standards for wireless power.

Date 2012 **Vizio**
To: 2014
Duties: Consulting expert in MIT matter.

Date 2012 **Nokia**
To: 2013
Duties: Consulting expert.

Date 2012 **TPV & Vizio**
To: 2013
Duties: Testifying expert for defense in Hitachi matter.

Date 2012 **Samsung**
Duties: Consulting expert in Myport matter.

Date	2012	**Verizon Wireless (Cellco) & T-Mobile**
To:	2013	
	Duties:	Testifying expert for defense in Realtime Data matter.
Date	2011	**Apple**
	Duties:	Consulting expert in Technicolor matter.
Date	2012	**Microsoft**
To:	2014	
	Duties:	Consulting expert for plaintiff in Motorola matter.
Date	2012	**Apple & LG**
To:	2014	
	Duties:	Testifying expert for defense in MPT matter.
Date	2011	**Sanyo & Olympus**
	Duties:	Consulting expert for defense in FastVDO matter.
Date	2011	**Apple**
	Duties:	Consulting expert for defense in FastVDO matter.
Date	2011	**Sony**
	Duties:	Consulting expert for defense in FastVDO matter.
Date	2011	**Philips**
To:	2014	
	Duties:	Consulting expert for licensing essential patents.
Date	2011	**Apple**
	Duties:	Consulting expert for defense in MobileMediaIdeas matter.
Date	2011	**Video264Innovations**
	Duties:	Consulting expert.
Date	2011	**Nikon, Fujifilm & Panasonic**
	Duties:	Consulting expert for defense in FastVDO matter.
Date	2011	**Haier**
To:	2014	
	Duties:	Consultant for standards, patent pools and patent licensing.
Date	2011	**Susman Godfrey**
	Duties:	Consultant for patent analysis.
Date	2011	**Vizio**

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	Duties:	Testifying expert for defense in MPT matter.
Date	2011	**Tivo**
	Duties:	Consulting expert.
Date	2011	**Nikon**
To:	2013	
	Duties:	Consulting expert for defense in MPT matter.
Date	2011	**Broadcom**
	Duties:	Consulting expert.
Date	2010	**Lionsgate Entertainment**
	Duties:	Consulting expert in MPEG licensing matter.
Date	2010	**Verizon**
To:	2012	
	Duties:	Testifying expert for defense in ActiveVideo Networks matter.
Date	2010	**Lenovo**
To:	2011	
	Duties:	Consulting expert for defense in licensor matter.
Date	2010	**Sonic, Cyberlink & Joint Defense Team**
	Duties:	Consulting expert for defense in Mediostream licensor matter.
Date	2010	**Wistron**
To:	2011	
	Duties:	Consulting expert for defense in Toshiba licensor matter.
Date	2010	**Panasonic, Pioneer**
To:	2011	
	Duties:	Consulting expert for defense in VES licensor matter.
Date	2010	**Zoran**
To:	2011	
	Duties:	Technical analysis of patents potentially related to video coding standards.
Date	2010	**Intravisual**
To:	2015	
	Duties:	Consulting expert for patent licensing.
Date	2009	**Apple**
	Duties:	Technical analysis of patents potentially related to video coding standards.

Date	2009	**SanDisk**
	Duties:	Consulting expert re Audio and Video coding patents
Date	2009	**Lenovo**
To:	2011	
	Duties:	Consulting expert for defense in MPEGLA licensor matter.
Date	2009	**Polycom**
To:	2010	
	Duties:	Consulting expert for defense in MPT matter.
Date	2009	**DirecTV**
To:	2011	
	Duties:	Consulting expert for defense in MPT matter.
Date	2009	**EchoStar**
To:	2010	
	Duties:	Consulting expert for defense in MPT matter.
Date	2009	**Vizio**
	Duties:	Consulting expert for defense in Sony matter.
Date	2009	**Vizio**
To:	2010	
	Duties:	Consulting expert for defense in LG matter.
Date	2009	**Vizio, TPV, Amtran**
To:	2010	
	Duties:	Technical report & video presentation to US Customs on design issues related to Funai matter. Testified in ITC hearing, March 2010.
Date	2008	**Humax (Korea)**
To:	2009	
	Duties:	Audio patent and prior art review.
Date	2008	**IC Media (Canada)**
To:	2009	
	Duties:	Design of digital signage.
Date	2008	**AVS Patent Pool Administration (China)**
To:	Present	
	Duties:	Co-Director, leading license negotiations among domestic and multinational licensors.

Date	2008	**DirecTV**
	Duties:	Prior art search for DirecTV's appeal against Finisar.
Date	2008	**Pure Digital**
	Duties:	Prior art research and analysis.
Date	2008	**Wragge (UK)**
	Duties:	Prior art review for two video coding patents.
Date	2008	**Microsoft**
	Duties:	Extensive non-infringement analysis for patents asserted by Multimedia Patent Trust (MPT).
Date	2008	**iPotential**
To:	2010	
	Duties:	Technical analysis of patents potentially related to video coding standards.
Date	2008	**Alba (UK) aka Harvard Research**
To:	2009	
	Duties:	General education on essential patents, licensing, prior art related to the MPEG2 video standard.
Date	2008	**Philips (Holland)**
	Duties:	Review of patents for essentiality.
Date	2008	**Proview**
	Duties:	Prior art search for TV display features.
Date	2008	**Nissim**
To:	2014	
	Duties:	Consultant expert for plaintiff in Time-Warner case concerning patents related to DVD navigation.
Date	2008	**Comcast**
	Duties:	Technical analysis of MPEG2 systems, DSM-CC, and carousel operation in the cable TV network environment. Contribution to expert's report in Comcast's successful litigation against Finisar.
Date	2007	**Sun Microsystems**
To:	2009	
	Duties:	Chief architect of royalty-free video codec: OMS Video. Extensive supporting patent analysis and technical publication analysis for prior art review.
Date	2008	**SanDisk**

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Duties: Technical analysis of patents and prior art searching for audio coding.

Date 2008 **Stammberger (Munich)**
Duties: Technical analysis of patents potentially related to video coding standards.

Date 2008 **Trigem America Liquidating Trust**
Duties: Preparation of expert reports concerning litigation between Toshiba and Trigem.

Date 2007 **Susman-Godfrey**
Duties: Technical analysis of patents potentially related to video coding standards.

Date: 2007 **Wong-Cabello**
Duties: Technical analysis of patents potentially related to video coding standards.

Date: 2007 **Sisvel**
Duties: Technical assistance in licensing audio patents to a third party.

Date: 2007 **Quanta**
Duties: Technical assistance in litigation related to DVD.

Date: 2006 **CCTV (China Central TV)**
Duties: Technical analysis of patents potentially related to MPEG2, H.264, AVS and VC-1 video coding standards and MPEG-AAC and Dolby audio coding standards.

Date: 2006 **MediaTek**
Duties: Technical analysis of MediaTek patents potentially related to video coding standards.

Date: 2006 **Alcatel**
Duties: Technical analysis of Alcatel patents potentially related to video coding standards.

Date: 2006 **Motorola**
Duties: Analysis of technologies contributed to the H.264 standard.

Date: 2005 **Nokia**
Duties: Analysis of technologies contributed to the H.264 standard.

Date: 2005 **Avid**
Duties: Technical analysis of patents potentially related to coding standards.

Date: 2005 **IBM**
Duties: Analysis of technologies contributed to the H.264 standard.

Date: 2005 **HP**
Duties: Analysis of selected audio coding patents.

Date: 2005 **ComVentures**
Duties: Due diligence review of a start-up company in the video semiconductor business.

Date: 2005 **nVidia**
Duties: Prior art search for a set of third-party patents.

Date: 2004 **Microsoft**
Duties:
- Working with a major financial services company, developed a procurement model for managing licensing costs.
- Assisting development of non-infringement positions for a set of patents. (Not in suit).

From: 2004 **SAGEM (France)**
To: 2005
Duties: Technical analysis of potential infringement by SAGEM of a set of third-party patents.

From: 2004 **Polycom Inc.**
To: 2005
Duties: Technical analysis of Polycom patents potentially related to video coding standards.

From: 2004 **Sony Corp.**
To: 2006
Duties:
- Technical analysis of potential infringement by Sony of a set of third-party patents. The parties settled without litigation.
- Analysis of a third-party patent per Sony's direction.

Date: 2004 **On2 Inc**
Duties: Delivery of the comprehensive set of reports on IPR potentially related to the emerging H.264 standard.

Date: 2004 **Matsushita Avionics**
Duties: Technical analysis of potential infringement of Matsushita patents by a third party.

Date: 2004 **Connex Inc.**
Duties: Teaching the details of key complex algorithms in the H.264 standard.

Date: 2004 **DoCoMo (Japan)**
Duties: Delivery of the comprehensive set of reports on IPR potentially related to the emerging H.264 standard.

From: 2004 **DivX Inc.**
To: 2006
Duties: Analysis of technologies contributed to the H.264 standard

Date: 2004 **Cues, Inc**
Duties: Assisted evaluation of infringement by Cues' products of a patent asserted by a third party. The parties settled without litigation.

From: 2003 **GE Licensing**
To: 2004
Duties: Working with a major financial services company, developed a business, market and financial model for valuation of a portfolio of patents through their expiration.

From: 2003 **Institute of Computing Technology, Chinese Academy of Sciences**
To: Present
Duties:

- Preparation of IPR Report for IPR potentially related to the AVS Video standard. This effort involved review of over 2500 abstracts and over 450 patents.
- IPR Subgroup Chairman of AVS. Formed an IPR Experts group to establish a legal foundation for AVS IPR. This group comprised approximately 20 attorneys and business development managers from eight multinational companies representing the PC, consumer, semiconductor and communication industries. (Broadcom, IBM, Intel, Matsushita, Microsoft, Nokia, Sony, Sun Microsystems). The group drafted a member agreement, bylaws and a formal IPR policy governing licensing commitments, disclosure obligations, and protection of license holder rights. AVS Members approved these documents in September 2004.
- Co-Director of AVS Patent Pool. Leading the drafting and negotiation of patent pool management and licensing agreements.
- Adjunct Professor, supervising a graduate student project on deinterlacing algorithm development.

Date: 2003 **Yahoo**
Duties: Prior art search to provide background information per Yahoo's request.

Date: 2002 **Gateway, Inc.**
To: 2007
Duties: Extensive prior art search and assistance with claim construction in a litigation matter with Lucent Technologies.

From: 2002 **Apple Computer**
To: 2007

Duties:
- Technical analysis of Apple patents potentially related to H.264.
- Prior art search for various patents per Apple's request.

Date: 2002 **Siemens (Germany)**

Duties:
- Technical analysis of Siemens patents potentially related to H.264.
- Delivery of the comprehensive set of reports on IPR potentially related to the emerging H.264 standard.

Date: 2002 **JVT Committee (Apple, Cisco, Nokia, Polycom, Sun Microsystems, Tandberg, Teles, Texas Instruments, UBVideo, VideoLocus)**

Duties: Developed a comprehensive set of reports on IPR potentially related to the emerging H.264 standard. The reports included a technical review of legacy and new patents for video coding, and analysis of the patent statements provided by all companies whose contributions were adopted into H.264.

Date 2002 **Intervideo**

Duties: Advised on market opportunities in the emerging MPEG4 marketplace.

Date: 2001 **Proskauer Rose LLP**

Duties: Provided background support in MPEGLA's (successful) effort to license MPEG2 to the major PC manufacturers.

Date 2001 **Pixonics**

Duties: Developed marketing plan and marketing support materials for this incubator-stage company.

Date 2001 **Eltron, (Taiwan)**

Duties: Provided overview of the digital video semiconductor market.

Date 1999 **nDSP Corporation**

Duties: Drafted the sales and marketing plan for this early-stage company. Joined nDSP full-time.

Date: 1998 **IBM Corp.**

Duties: Assisted with participation in the ATSC DASE (datacasting) standard.

Date 1998 **Spruce Technologies**

Duties: Assisted with transition of Cagent MPEG encoder product after it was sold to Spruce.

From: 1997 **Samsung Advanced Institute of Technology**
To: 1999

	Duties:	Supported Samsung researchers in MPEG4 standard development. Led effort to provide error-resilient 3D-mesh coding.
Date	1997	**MPEGLA LLC**
	Duties:	Review of opportunity for an MPEG4 patent pool
From:	1993	**CableLabs**
To:	1994	
	Duties:	Teamed with a patent attorney to develop the initial essential patent list for MPEG2. Reviewed approximately 10,000 abstracts and 1,000 patents for the MPEG2 Video and MPEG2 Systems standards. This effort led to the MPEGLA patent pool.

Litigation Support Experience

Quinn Emanuel Urquhart & Sullivan, LLP, San Francisco, CA

Case	Motorola Solutions vs. Verkada, **Investigation No. 337-TA-1281**
Project:	Expert report, deposition and trial testimony on invalidity of Motorola patents.
Status:	Final determination found Verkada not infringed
Filed:	August, 2021
Location:	United States International Trade Commission, Washington DC

Orrick, Herrington & Sutcliffe, LLP, New York, NY

Case	ClearPlay vs. Dish Network & EchoStar Technologies, **Case No .: 2:14-cv-00191**
Project:	Expert report, deposition and trial testimony on invalidity of ClearPlay patents.
Status:	ClearPlay patents not infringed
Filed:	March 13, 2014
Location:	United States District Court for the District of Utah

Akin Gump, Fish & Richardson, Finnegan, Baker Hostetler, Washington, DC

Case	Broadcom vs. Vizio, LG, Funai, MediaTek, MStar, **Investigation No. 337-TA-1047**
Project:	Expert report and deposition on non-infringement of Broadcom's patent.
Status:	Final Determination in favor of Respondants.

Jones Day, Cleveland, OH

Case	Avid Technology vs. Harmonic, **Case No. C.A. No. 12-627-GMS**
Project:	Expert reports and deposition on infringement of Avid's patent.

Status: Parties settled before trial.

Haynes and Boone, Dallas, TX

Case Realtime vs. Riverbed, **Case No. 6:1S-CV-463-RWS-JDL**

Project: Expert report, deposition and trial testimony (E. District Texas) on invalidity of Realtime patent.

Status: Jury found Realtime patent invalid at trial.

Akin Gump, LLP, Irvine, CA

Case Personalized Media Communications "PMC" vs. TPV et al, **Case No. 2:15-cv-01366-JRG-RSP**

Project: Declaration in support of claim construction brief.

Status: Parties settled.

Feinberg, Day, LLP, Menlo Park, CA

Case Parthenon Unified Memory Architecture "PUMA" vs. Apple, **Case No. 9:12-cv-80701**

Project: Expert report and deposition concerning unified memory architecture.

Status: Trial stayed at request of PUMA. Parties settled.

Carey, Rodriguez, LLP, Miami

Case *Twentieth Century Fox Home Entertainment, LLC, Paramount Pictures Corp., vs. Nissim Corp., **Case No. 14-81349/813450-cv-MARRA**

Project: Expert witness for patent owner in counterclaims for infringement. Declaration and expert testimony at Markman Hearings concerning DVD standards essential patents.

Status: Parties settled before trial.

*Nissim asserted its patents against Twentieth Century Fox and Paramount. The latter filed a complaint seeking a declaratory judgment of non-infringement and invalidity.

TechKnowledge Law Group, Turner Boyd LLP & O'Melveny & Myers LLP, Los Angeles,

Case Florida Atlantic University Research Corporation vs. Acer, ASUS & TPV, **Case No. 9:12-cv-80701**

Project: Expert testimony at Markman Hearings concerning scan converter design. Expert reports and deposition testimony.

Status: Parties settled before trial.

Finnegan, Henderson, Farabow, Garrett & Dunner, LLP

Case WiLAN vs. Toshiba, **Case No. 1:12-Civ-23744**

Project: Expert reports & deposition testimony concerning digital television design.

Status: Parties settled before trial.

O'Melveny & Myers LLP, Los Angeles & Akin Gump LLP, Dallas

Case Hitachi vs. TPV, **Case No. 2:10-CV-260-JRG**
Project: Expert reports, depositions & trial testimony (E. District Texas) concerning digital television design.
Status: Jury found no infringement of Hitachi's patents by TPV and found Hitachi's patents invalid. (Partially reversed by JMOL)

Fish & Richardson P.C. San Diego
Case Multimedia Patent Trust vs. Apple & LG, **Case No. 10-cv-2618 H**
Project: Expert report, & deposition testimony concerning development of technology, standards and patents for video coding**.**
Status: Jury found no infringement of MPT's patents and found MPT's patents invalid.

Gibson Dunn LLP, Palo Alto
Case Realtime Data vs. Verizon Wireless & T-Mobile, **Case No. 6:10-cv-00493-LED**
Project: Expert reports, depositions and testifying expert in jury trial (E. District Texas) concerning infringement and validity of patents related to data transmission.
Status: Jury found no infringement of Realtime Data's patents by T-Mobile, and found Realtime Data's patents invalid.

O'Melveny & Myers LLP, San Francisco
Case MobileMediaIdeas vs. Apple, **Case No. 10-258-SLR**
Project: Expert reports and deposition, concerning infringement and validity of patents related to MPEG Audio Layer III ("mp3") coding.
Status: Trial bifurcated.

Jones Day, Cleveland
Case Multimedia Patent Trust Vs. Vizio, **Case No. 09-CV-0278-H (CAB)**
Project: Expert report, concerning infringement of patents related to H.264 video coding. (Slated for deposition and jury trial)
Status: Parties settled on the day before my deposition.

Kellog, Huber, et al, Washington, DC
Case Active Video Vs. Verizon, No. 2:10-cv-00248-RAJ-FBS; 2011
Project: Expert report, deposition and testifying expert in jury trial concerning infringement of patents related to video-on-demand
Status: Jury finding of infringement with significantly reduced damages and no finding of willful infringement.

Jones Day, Washington, DC
Case Funai Vs. Vizio, et al, ITC Investigation No. 337-TA-617; 2010
Project: Expert report, deposition and testifying expert in ITC hearing concerning infringement of a patent related to ATSC broadcast standards
Status: Parties settled after the hearing following reports adverse to complainant.

Wilson Sonsini, Goodrich and Rosati, Palo Alto, CA.

Case Project: Terayon vs. RGB Networks; 2007
Expert report for defendant in a contract dispute alleging violation of a non-compete agreement.

Status: Mediation hearing resolved the dispute to the satisfaction of both parties.

Wilmer Cutler Pickering Hale and Dorr, Boston, MA

Case Project: Qualcomm Inc. vs. Broadcom Corp. No. 05 CV 1958 B (BLM); 2007
Expert report and deposition on behalf of Broadcom against assertions of infringement of patents concerning video encoding and decoding, and on Qualcomm's compliance with the policies and procedures for IPR policy in the H.264 standards committee (JVT of ITU-ISO/IEC).

Status: Broadcom found not guilty of infringing Qualcomm's patents. The patents were determined to be not essential for implementing the H.264 standard. Qualcomm found guilty of inequitable behavior in the manner of their participation in the H.264 standards committee. Qualcomm's patents held unenforceable against H.264.

Greenberg Glusker Fields Claman Machtinger & Kinsella.

Case Project: DTS vs. MediaTek; 2005
Expert report for defendant in a contract dispute related to hacking into semiconductor chips to enable functionality for which a license fee was payable.

Status: Mediation hearing resolved the dispute to the satisfaction of both parties. The Mediator personally thanked me for the clarity of my report, which covered technical, business and licensing issues.

Arvay Finley Barristers, Victoria, BC, Canada.

Case Project: AVT Audio Visual Telecommunications vs. University of British Columbia; 2005
Expert report and testimony on behalf of AVT in a contract dispute related to mobile video communication including failure to disclose intellectual property.

Status: Arbitration hearing resulted in adverse ruling to AVT.

Thelen Reid & Priest, San Jose, CA.

Case Project: Toshiba Corp. vs. Trigem Computer Inc. & Trigem America Corp. Case No. CV-03-4558-GHK(AJWx); 2005
Expert report on behalf of Trigem regarding invalidity of patents relating to video and sub-picture data in multimedia computer systems.

Status: Suspended due to insolvency of Trigem.

Morrison & Foerster LLP, San Francisco, CA.

Amazon.com, Inc., Amazon.com Services LLC - Ex. 1050, Page 000053

Case	Tivo Inc. vs. Echostar Communications Corp., Echostar DBS Corp., Echostar Technologies Corp ,& EchoStar LLC, Case No. 2-04CV-01; 2005
Project:	Expert report and deposition on behalf of Echostar against assertions of infringement of a patent concerning personal video recorders (PVR).
Status:	Adverse ruling to Echostar.

Pinsent Curtis Biddle, Leeds, UK

Case	Thomson Licensing S.A. and Deutsche Thomson Brandt GmbH vs. Pace Micro Technology PLC. Case No. HC 2000 No. 1584; 2001
Project:	Expert report and slated to testify on behalf of Pace arguing invalidity of patent and defending against assertions infringement of a patent concerning interlaced video coding.
Status:	Parties agreed to settlement on the second day of trial. Settlement terms were very favorable to defendant, and shortly after the trial, Thomson joined the MPEGLA patent pool.

Education

1974	University of Sussex, England	Ph.D., Applied Sciences (EE/CS) Thesis on "Orthogonal Transform Coding of Still and Moving Pictures". All research performed in residence at the Image Processing Institute, USC Los Angeles, CA.
1970	University of Liverpool, England	Bachelor of Engineering with Honours, Physical Electronics

Publications (Partial List)

C Reader, "Orthogonal Transform Coding of Still and Moving Pictures", Ph.D. thesis, U. Sussex, England, 1973.

C. Reader, "Intraframe and Interframe Adaptive Transform Coding." SPIE Vol. 66, pp. 108-117, *Efficient Transmission of Pictorial Information* (1975).

C. Reader, W.H. Chen, "Local Retransmission of Compressed Imagery Data", SPIE Vol. 149 pp. 196-204, *Applications of Digital Image Processing* (1978).

L. Hubble, C. Reader, “State of the Art in Image Display Systems”, SPIE Vol. 199, pp 2-8, *Advances in Display Technology* (1979).

C. Reader, W. D. Flanagan, “Design Considerations for Real-Time Image Processing”, SPIE Vol. 180, *Real-Time Signal Processing II,* (1979).

C. Reader, L. Hubble, “Trends in Image Display Systems”, Proc. IEEE, Vol. 69, No. 5, pp. 606-614, (1981).

J. Adams, C. Patton, C. Reader, D. Zamora, “Hardware for Geometric Warping”, Electronic Imaging, April 1984.

Digital Image Processing Techniques (Computational Techniques), Michael P. Ekstrom (Editor), Chapter describing hardware for real-time image processing and display systems, Academic Press, 1984, pp. 289-360.

C. Reader, et al, “A New Architecture for Real-Time Image Processing,” SPIE Vol. 534, pp. 72-78, *Architectures and Algorithms for Digital Image Processing II* (1985).

B. Thacker, R. Rinaldi, C. Reader, “Multiwindow Displays of Text, Graphics and Images”, SPIE Vol. 757, pp. 104-110, *Methods of Handling and Processing Imagery* (1987).

Keynote opening speech at IEEE Conference on Image Processing, 1994.

C. Reader, “MPEG4: Coding for Content, Interactivity, and Universal Accessibility,” Optical Engineering, Vol. 35, No. 1 pp. 104-108 (1996).

C. Reader, P. Schirling, A. Puri, MPEG Tutorial paper at IEC – NCF/Infovision ’97.

O. Avaro, P.A. Chou, A. Eleftheriadis, C. Herpel, C. Reader, J. Signes, “The MPEG4 Systems and Description Languages: a Way Ahead in Audio Visual Information Representation”, Signal Processing: Image Communication, Vol. 9, No. 4, pp. 385-431 (1997).

C Reader, “What MPEG-4 means to me”, Sig. Proc.: Image Comm. 9(4): 467, 1997

MPEG Video Compression Standard, Edited by Mitchell, Pennebaker, Fogg, Le Gall. Chapman & Hall, 1997. Chapter describing the process of establishing the MPEGLA patent pool, Chapter 16, *MPEG Patents,* pp.357-362.

W Gao, C Reader, F Wu, Y He, L Yu, H Lu, S Yang, T Huang, X Pan, “AVS - The Chinese Next-Generation Video Coding Standard”, Proc. NAB Conf., 1994.

C Reader, “Origins of the performance of H.264/AVC: an account of the development of H.263 and H.264 coding tools”, SPIE Vol. 5909, pp59090W-1-8 Applications of Digital Image Processing XXVIII (2005).

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C Reader, “AVS Intellectual Property Rights (IPR) Policy, J. Comput. Sci. & Technol., Co. 21, No. 3 (May 2006).

Q Huang, W Gao, D Zhao, C Reader, “A Real-Time Video Deinterlacing Scheme for MPEG-2 to AVS Transcoding”, Advances in Multimedia Information Processing - PCM 2006, Vol. 4261/2006, Springer Berlin / Heidelberg.

W Gao, S Ma, C Reader, “An End-to-End Application System of AVS: AVS-IPTV in China”. PCM 2007: 50-57

C Reader, “Technical design & IPR analysis for royalty-free video codecs”. PCS 2010: 102-105

J Chen, F Xu, Y He, J D Villasenor, Y Han, Y Xu, Y Rong, C Reader, J Wen, “Efficient Video Coding Using Legacy Algorithmic Approaches”. IEEE Trans. Multimedia 14(1): 111-120 (2012)

W Gao, T Huang, C Reader, W Dou, X Chen, "IEEE Standards for Advanced Audio and Video Coding in Emerging Applications", Computer, vol.47, no. 5, pp. 81-83, May 2014.

Ma S, Huang T, Reader C, Gao W, AVS2-Making video coding smarter [Standards in a Nutshell], IEEE Signal Processing Magazine, vol. 32, no. 2, pp. 172 - 182, 2015.

Wang R, Huang T, Park S-H, Kim J-G, Jang E S, Reader C, Gao W, The MPEG Internet Video-Coding Standard [Standards in a Nutshell], IEEE Signal Processing Magazine, Vol. 33, No. 5, pp. 164-172, Sep. 2016.

Reader C, Patent Landscape for Royalty-Free Video Coding, SPIE Vol. 9971, Sep., 2016

Patents

Patent Number	Date Issued	Title
6,192,073	2000	Methods and apparatus for processing video data
5,845,112	2000	Method for performing dead-zone quantization in a single processor instruction.

Academic Positions

Taught “early bird” classes at Santa Clara University in Image Processing and Digital Signal Processing

Adjunct Professor of the National Engineering Laboratory for Video Technology, in the Computer Science Department at Peking University, Beijing, China.

Professional Associations and Achievements

- ISO/IEC Certificate of appreciation for development of the MPEG4 standard.
- Senior Member IEEE.
- Member SPIE.
- Member ACM.
- Member AES.
- Member SMPTE.

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APPENDIX 2: MATERIALS CONSIDERED

I have reviewed and considered each of the exhibits listed in the following table in drafting this Declaration.

Exhibit No.	Description
1007	Nakamura et al., "Unification of derivation process for merge mode and MVP," Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, 6th Meeting, Torino, Italy, Jul. 14-22, 2011, Document JCTVC-F419
1008	Nakamura et al., "WD description of JCTVC-F419 Proposal 1" for "Unification of derivation process for merge mode and MVP," Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, 6th Meeting, Torino, Italy, Jul. 14-22, 2011, Document JCTVC-F419
1009	Nakamura et al., "Unification of derivation process for merge mode and MVP" Presentation, Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, 6th Meeting, Torino, Italy, Jul. 14-22, 2011, Document JCTVC-F419
1010	Bross et al., "WD4: Working Draft 4 of High-Efficiency Video Coding," Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, 6th Meeting: Torino, IT, Jul. 14-22, 2011, Document JCTVC-F803 ("WD4")
1027	Terms of Reference of the Joint Collaborative Team on Video Coding Standard Development (https://www.itu.int/dms_pub/itu-t/oth/46/01/T46010000010001PDFE.pdf)
1028	Sullivan et al., "Meeting report of the sixth meeting of the Joint Collaborative Team on Video Coding (JCT-VC), Torino, IT, 14–22 July 2011," Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, 6th Meeting, Torino, Italy, Jul. 14-22, 2011, Document JCTVC-F800
1040	Sullivan et al., "Meeting report of the third meeting of the Joint Collaborative Team on Video Coding (JCT-VC), Guangzhou, CN, 7–15 October, 2010," Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC

Exhibit No.	Description
	JTC1/SC29/WG11, 3rd Meeting, Guangzhou China, Oct. 7-15, 2010, Document JCTVC-C400
1041	"All Meetings" web page (from the JCT-VC distribution site) (http://phenix.int-evry.fr/jct/doc_end_user/all_meeting.php)
1042	"Torino Meeting - Document Register" web page (from the JCT-VC distribution website) (http://phenix.int-evry.fr/jct/doc_end_user/current_meeting.php?id_meeting=149&search_id_group=1&search_sub_group=1)
1043	Search result page for "merge mode" originated from the "Torino Meeting - Document Register" web page (from the JCT-VC distribution website)
1044	Search result page for "MVP" originated from the "Torino Meeting - Document Register" web page (from the JCT-VC distribution website)
1045	Search result page for "wd4" originated from the "Torino Meeting - Document Register" web page (from the JCT-VC distribution website)
1046	Search result page for "wd" originated from the "Torino Meeting - Document Register" web page (from the JCT-VC distribution website)
1047	"Preview document JCTVC-F419 for Torino meeting" web page (http://phenix.int-evry.fr/jct/doc_end_user/current_document.php?id=2894)
1048	"Preview document JCTVC-F803 for Torino meeting" web page (http://phenix.int-evry.fr/jct/doc_end_user/current_document.php?id=3286)
1049	Search result page for "Nakamura" originated from the "Torino Meeting - Document Register" web page (from the JCT-VC distribution website)