DOCKET NO: 0111168-0241

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT: 6,466,568

INVENTOR: RAITH ET AL.

FILED: September 21, 1999 ISSUED: October 15, 2002

TITLE: MULTI-RATE RADIOCOMMUNICATION SYSTEMS AND TERMINALS

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF HARRY BIMS, PH.D.

I, Harry Bims, declare as follows:

General Background

1. My name is Harry Bims. I have been asked to offer opinions regarding whether the claims of U.S. Patent No. 6,466,568 (the '568 patent) are anticipated or would have been obvious in view of the prior art; and to review a petition requesting *Inter Partes* Review of the '568 patent ("Petition"), which I understand is being submitted at the same time as this declaration.

2. I received my B.S. in computer and systems engineering from Rensselaer Polytechnic Institute in 1985, my M.S. in electrical engineering from

Stanford University in 1988, and my Ph.D. in electrical engineering from Stanford University in 1993. Since receiving my doctorate, I have worked on a number of wireless and mobile technologies, including wireless pagers, wireless home LAN protocols, cellular products including 2.5G and 3G products, wireless network infrastructures based on the 802.11 wireless specification, and wireless networks in the 4G technology known as WiMAX, an implementation of 802.16.

3. I have been actively involved in the development of the 802.16 standards, which is a series of wireless broadband standards written by the Institute of Electrical and Electronics Engineers (IEEE), including as a vice-chair of the 802.16 working group, and chair of two task groups. Previously, I was the vice-chair and secretary of the IEEE 802.16h License Exempt Task Group.

4. I am currently working as both a technology consultant in the industry and an expert consultant for litigation matters.

5. I began my technical career in 1992 just before completing my Ph.D. as one of the first employees at Glenayre Technologies, where I worked until 1998. While at Glenayre, I designed and built a 4-channel wireless pager demonstration based on the ReFLEX wireless protocol developed by Motorola, which led to an award for Narrowband Personal Communications Service (PCS) development. I invented, designed, and built a two-way pager test system for the ReFLEX protocol that was deployed around the country for testing pagers. Additionally, I

co-developed a wireless application protocol for sending and receiving encrypted email messages over the paging channel, which was ultimately deployed for government agencies.

6. In 1999 I was a member of the technical staff at T-SPAN Systems Corporation LLC, where I designed a wireless home LAN protocol. In 1999 I also served as a technical leader to Gigabit Wireless, Inc., where I lead the Wireless Media Access Control (MAC) design group. My work at Gigabit Wireless involved analyzing competing wireless MAC protocol standards, creation of a proprietary MAC protocol specification document, simulation of the protocol, and ultimate implementation of the protocol in a prototype. I also participated in meetings for the 802.16 standards starting at about that time.

7. From 1999 to 2001 I served as the director of software architecture at Symmetry Communications Systems LLC, where I was responsible for the software architecture for their core products for the GPRS market. In 2001 I also worked as an entrepreneur in residence at the venture capital firm Bay Partners LLC, where I served as a technology expert to the partners of the firm on a range of wireless and networking subjects.

8. From 2001 to 2004 I founded my own company, AirFlow Networks, Inc. LLC, where I served as CEO and CTO. AirFlow Networks was involved with a wireless network infrastructure based on the 802.11 wireless specification.

9. From 2007 to 2009 I worked as a technology consultant to Apple, Inc., including participating in IEEE 802.16 standards meetings.

10. I am a named inventor on eighteen U.S. Patents that involve various aspects of wireless and mobile communications. Examples of my patents include U.S. Patent No. 6,788,658 entitled "Wireless communication system architecture having split MAC layer," which issued on September 7, 2004; and U.S. Patent No. 6,557,134 entitled "ARQ method for wireless communication," which issued on April 29, 2003. Additionally, I have authored or co-authored a number of articles in the fields of electrical engineering and computer science.

11. I have been a member or vice-chair of numerous associations, including the chair of the Silicon Valley Chapter of the IEEE Engineering Management Society, and vice-chair of the 802.16 Working Group of the IEEE 802 Standards Development Committee.

12. A copy of my latest *curriculum vitae* (CV) is attached as Appendix A.

13. I am being compensated at my normal consulting rate for my work. My compensation is not dependent on and in no way affects the substance of my statements in this Declaration.

14. I have no financial interest in Petitioner. I have been informed that Ericsson purports to own the '568 patent for which review is requested. I have no financial interest in Ericsson.

U.S. Patent No. 6,466,568

15. I have reviewed and understand the specification, claims, and file history of the '568 patent. I have been informed that the '568 patent claims priority to a prior U.S. Patent No. 5,987,019, filed October 16, 1996. I understand this means the '568 patent is considered to have been filed on October 16, 1996 for the purposes of determining whether a reference will qualify as prior art.

16. I am providing certain opinions based on the perspective of a person of ordinary skill in the art. I believe that a person of ordinary skill in the art for the '568 patent would be a person with a bachelor's or graduate degree in a relevant field, such as electrical or computer engineering or computer science, with some amount of work experience in communications.

17. I have reviewed and understand the overview of the '568 patent set out in Section IV of the Petition for *Inter Partes* Review. In my opinion, the overview accurately describes the '568 patent.

Technical Basis Underlying the Grounds of Rejections Set Forth in the Petition for *Inter Partes* Review of the '568 Patent

Claim Construction

18. I understand that the claims in an *inter partes* review should be given their "broadest reasonable construction in light of the specification" as commonly understood by a person of ordinary skill in the art.

19. I understand that a federal district court construed the phrase "a service type identifier which identifies a type of payload information" to mean "an identifier that identifies the type of information conveyed in the payload. Examples of types of information include, but are not limited to, video, voice, data, and multimedia."

20. I agree with this construction and with the reasons set out in Section III of the Petition, including my understanding of how a person of ordinary skill would understand the phrase. The file history further confirms this construction.

21. The Court also determined that the phrase "separate from said first field" required no construction.

22. I agree that the broadest reasonable construction of this phrase does not require construction. This view is consistent with the Patent Owner's statement in claim construction briefs that "the limitation merely clarifies that the

claim requires two distinct fields, i.e., the field with the payload information is not the same field as the service type identifier field." (*See* Petition Ex. 1012 at 17).

Prior Art

23. Based on my review, I believe at least five different pieces of prior art that were not before the Examiner during examination of the '568 patent (Morley, Sharma, Menand, Adams, and Padovani, Petition Exs. 1002, 1004, 1005, 1006 and 1007, respectively), each separately taught use of a "service type identifier" to identify the type of payload information, and each either anticipates or renders obvious the claims of the '568 patent. I review each piece of prior art below, and also attach charts with citations to portions of the prior art, and in some case, cites in addition to what is specifically mentioned here.

24. Claim 1 of the '568 patent reads as follows:

> 1. A communication station comprising:
>
> a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field; and

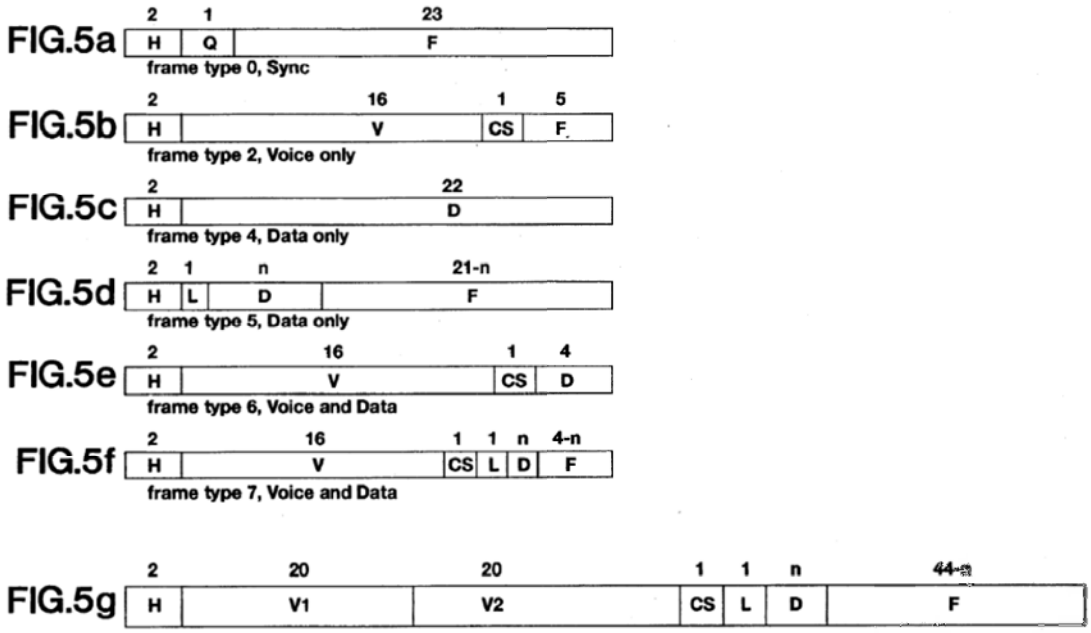
a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.

Ground 1: Morley Anticipates Challenged Claims 1-6

25. I have reviewed Morley, U.S. Patent No. 5,488,610, entitled "Communication System," filed Jul. 12, 1994, which claimed priority to European Patent Application No. 93306797, filed August 26, 1993 ("Morley", Ex. 1002). I understand Morley and it is my opinion that it enables the invention it describes.

26. In my opinion, Morley discloses the limitations of claims 1-6, and therefore anticipates claims 1-6 of the '568 patent.

27. Morley generally relates to a system that transmits more than one type of data, such as voice and data, using a multiplexer. (Morley, Abstract, Ex. 1002). The system can be a wired telephone system (*Id.* at Fig. 2), or a wireless system, such as a cellular GSM system (*Id.* at 99:40-46). The composite voice and data signal generated by the multiplexer is organized into frames, each containing a header and one or more voice frames and/or non-voice data. (*Id.* at 5:39-59) The frames are transmitted on an RS232 link between the mux and the modem. (*Id.*) Some possible mux frames are shown in Morley's Figures 5a-5g and described at 6:4-63.



28. These frames have a header that is used to identify the frame type, as shown in the table below:

Header Type	Frame Type	Header Value
0	Sync	0 × 19b3
1	Extend	0 × 007f
2	Voice Only	0 × 4ce6
3	Not Defined	0 × 0000
4	Data 0	0 × 34e9
5	Data 0*	0 × 3366
6	Voice + Data 0	0 × 2ad5
7	Voice + Data 0*	0 × 1e3c
8	Data 1	0 × 4b69
9	Data 1*	0 × 52da
10	Voice + Data 1	0 × 552a
11	Voice + Data 1*	0 × 61c3
12	Data 2	0 × 664c
13	Data 2*	0 × 7870
14	Voice + Data 2	0 × 078f
15	Voice + Data 2*	0 × 4b16

(*Id.* at 7:1-17; *see also* 6:22-23.) This header value is a service type identifier field that indicates whether the payload of the frame contains voice only, one of three different types of data (Data 0, Data 1, or Data 2), or some combination of these services. (*Id.* at 6:64-7:22) The receiving system uses this service type identifier

field to identify the type of payload information in the frame and to write the information to an appropriate buffer. (*Id.* at 10:19-22.)

29. Morley discloses all the limitations of claim 1. Morley discloses a communication station, such as PC 18 in Figure 2, for handling a composite voice and data signal. (Figure 2, PC 18, 3:33-38). Morley discloses a processor (e.g., processor 19, mux/demux 22, storage 20, and voice coder/decoder 24 in Figure 2; and NEC V40 microprocessor 52, and RAM 54 in Figure 9) that arranges data for transmission by forming mux frames that include voice and/or data in a payload. (*Id.* at 6:18-63.)

30. Morley discloses providing and transmitting "at least one first field" with a payload and "at least one second field" with the service type identifier that identifies the type of payload. The structure of possible mux frames, as shown in Figures 5a-5g, include voice only, three different types of data (Data 0, Data 1, or Data 2), or various combination of these services. (Morley, Figures 5a-5g; 6:4-7:30, Ex. 1002) Morley discloses that the mux frames include a header with a "frame type" that constitutes a service type identifier field that indicates whether the payload of the frame contains voice only, one of three different types of data (Data 0, Data 1, or Data 2), or some combination of these. (*Id.*) Voice and data are identified in the '568 patent as examples of service types.

31. Further, Morley discloses a high speed modem 26 as a transmitter for transmitting the first and second fields, e.g., with a V32 or V32bis full duplex modem, or using GSM. (*Id.* at Fig. 2, 3:58-61; 99:40-46).

32. Morley discloses that the invention described therein can have applications in radio communications, including GSM. (Morley, 99:40-46, Ex. 1002.) GSM is a well-known 2G cellular system that was implemented first in Europe and later elsewhere, including the United States. GSM inherently has a network of base stations and mobile stations that implement the GSM specifications in processors that are programmed to implement the protocols and mobile applications that reside on top of the protocols. The disclosure of GSM also inherently means transmitting at RF frequencies, e.g., at 800MHz, using a transmitter and a receiver. Thus, a mobile station would inherently include a processor and a transmitter for implementing GSM communications. *Id.*

33. Dependent claims 2-4 of the '568 patent recite:

> 2. The communication station of claim 1, wherein said processor is also for changing said type of payload information from a first type to a second type during a connection involving said communication station and adjusting a value of said service type identifier to correspond to the second type of information.

3. The communication station of claim 2, wherein said first type of information is one of video, voice and data and said second type of information is different one of video, voice and data.

4. The communication station of claim 1, wherein said information is multimedia information.

34. These claims thus disclose that the payload information can thus include multimedia information (claim 4); and that the packet types (and therefore the contents of the payload and the associated type identifier field) can be changed during a connection from one of voice, video, and data to another of voice, video and data (claims 2 and 3). Morley discloses that the "frame type transmitted by the multiplexer can change from frame to frame" (*Id.* at 99:32-34; see also Figures 5a-5g), and further discloses switching between voice and data frame buffers during a connection (*Id.* at 9:43-10:9), and therefore anticipates dependent claims 2-3. Morley further discloses transmitting voice and visual data, including textual input, drawings, stored images, or a mixture thereof, as claimed in dependent claims 3-4 of the '568 patent. Further, the voice and visual data can "remain in synchronization as perceived by the user" to provide a combined audio and visual experience (See *id.* at Figures 5a-5g, 1:3-8; 3:10-23, 6:4-7:17, Ex. 1002).

35. Dependent claim 5 recites that the communication station is a base station. As noted above, Morley discloses that the invention has "applications in radio communications," including GSM. (*Id.* at 99:40-46.)

36. It is inherent that GSM radio communications systems include base stations, and it is also known that base stations can receive data from mobile stations and retransmit data to other mobile stations. It is also inherent that GSM radio communications systems include mobile stations. Base stations and mobile stations in a GSM cellular system, or in other cellular systems, each have a processor for processing data to be sent, and a transmitter for sending data. That processor sends data that has been arranged in frames defined by the GSM protocol. (See, e.g., Mouly and Pautet, GSM, Ex. 1008, pp. 89-99).

37. Dependent claim 6 recites that the communication station is a mobile station. Morley discloses implementing its claimed "communication station" using GSM, which "is a mobile data service that offers 9600 bps asynchronous data at the DTE port of the GSM mobile." (*Id.* at 99:40-45.) Morley further discloses that its multiplexing scheme has "applications in radio communications." (*Id.*) Morley thus discloses that the communication station can be a mobile station.

Patent Owner's Prior Report Regarding Morley

38. I have reviewed portions of a rebuttal expert report that I understood was submitted by the Patent Owner (Ericsson) in the course of a litigation

("Report", Ex. 1010). The Report was supposed to rebut the assertion that Morley anticipated claims 1-5. I understood claim 6 was not at issue. The sole point of difference I see in the Patent Owner's Report is a statement in the Report that Morley does not disclose "a service type identifier which identifies a type of payload information" because the headers in Morley "merely specify whether data should be sent to the voice or data buffer." (Report, ¶ 61, Ex. 1010) I disagree. As the Report itself states, Morley's "header identifies the 'frame type,'" which can include voice only, three different types of data (Data 0, Data 1, or Data 2), or some combination of these. Morley also describes the transmission of frames whose type alternates between voice frames and data frames. (*Id.* at 9:43-10:9) The Morley reference discloses that the header type identifies the type of payload information (e.g., voice, data, or some combination of voice and data).

39. The Report argues that Morley teaches away from the '568 patent by requiring the receiver to contain specialized subsystems for receiving voice, audio, and data. (Report at ¶ 62, Ex. 1010) The Report suggests that this is a meaningful difference, but I see nothing in claim 1 that would require that the station cannot contain specialized subsystems for receiving voice, audio, and data. For example, claim 1 recites generally a "communication station," a "processor" and a "transmitter."

40. Further, I believe that the one portion of the '568 patent (Report at ¶ 62, fn.36, Ex. 1010) that is cited in the Report as teaching away from using specialized subsystems does not actually support that proposition. It reads:

> Accordingly, it would be desirable to provide techniques for transmitting information between remote stations and the system in radiocommunication networks that provide sufficient flexibility for the anticipated variety of information communication services described above, while also providing sufficient compatibility with existing technology so that equipment used by the existing consumer base will not become obsolete.

('568 patent at 2:56-64, Ex. 1001.)

41. In my opinion, one of ordinary skill in the art would not understand this section to exclude specialized subsystems for receiving voice, audio, and data, but would instead understand the cited language to simply address communicating different payloads at different data rates, such that when the type of payload is switched, the data rate is changed to reflect the new type of payload.

42. The Report does not separately identify any additional differences between Morley and any of claims 2-5. (Report at ¶ 62, Ex. 1010).

Ground 2: Morley Renders Claims 5-6 Obvious

43. Dependent claim 5 requires that the communication station be a base station, and dependent claim 6 requires that the communication station be a mobile station. If one were to disagree that the disclosure of GSM inherently includes a base station, a person of ordinary skill would have found it obvious to provide the protocol of Morley in a base station, as required by claim 5. Morley discloses the desirability of sending frames having multiple different types of data, such as voice and visual data. Morley further discloses that it is useful to have frame headers for identifying the data to the recipient. Morley then discloses that the invention can have applications in radio communications, including GSM. (Morley, 99:40-46, Ex. 1002) Transmission to and from a base station are inherent in GSM communications. It was also generally well-known in the art that radio communications devices include base stations, and that such communications would be sent via base stations. Base stations have processors for assembling data including populating fields, and transmitters for sending data. (See Mouly and Pautet, pp. 89-99, Ex. 1008). Thus, in my opinion, it would have been obvious to multiplex data in the manner of Morley, e.g., at Figures 5a-5g, and to transmit that data from a base station. Such transmission would be the application of the multiplexing technology of Morley with the suggestion of using GSM as disclosed by Morley, to a known use of base stations in a cellular system (an example of

which is the Padovani patent, Ex. 1007, which shows sending different types of data from mobile station to base station and base station to mobile station). One would have provided such a protocol in order to indicate to a recipient what type of data was being sent.

44. A person of ordinary skill would have found it obvious to implement the protocol of Morley in a mobile station. Morley discloses using GSM, which "is a mobile data service that offers 9600 bps asynchronous data at the DTE port of the GSM mobile." (Morley, 99:40-46, Ex. 1002) Morley further discloses that its multiplexing scheme has "applications in radio communications." (*Id.*) It would therefore have been obvious to one of skill in the art to use the techniques disclosed in Morley in a mobile station. Furthermore, Morley discloses the use of a PC, and it would have been obvious to provide as a mobile laptop. It would have been obvious to implement the protocol for multiplexing different types of data in a mobile device and providing an identifier, as is already suggested by Morley, and doing so would have been an obvious application of the technology of Morley with predictable results of allowing a mobile device to communicate different types of data while notifying a recipient of the type of data being sent.

Ground 3: Sharma Anticipates Challenged Claims 1-4 and 6

45. I have reviewed Sharma, U.S. Patent No. 5,500,859, entitled "Voice and Data Transmission System," filed Aug. 11, 1994 as a divisional of U.S. Patent

No. 5,452,289 filed on Jan. 8, 1993 ("Sharma", Petition Ex. 1014.) I believe Sharma enables the invention it describes. I believe Sharma discloses the limitations of claims 1-4 and 6, and therefore anticipates claims 1-4 and 6.

46. Sharma generally relates to computer assisted digital communications including data, fax, and digitized voice. (*Id.* at 1:10-12.) These are examples of the types of "services" identified in the '568 patent (see '568 patent, 2:17-29, Ex. 1001). Sharma discloses a packet protocol for communication over an RS232 link between a hardware component 20 and a personal computer (PC) 10 (Sharma, Figures 1 and 3, 5:63-6:22, 8:1-9:14, Ex. 1014). The protocol is used for transferring different types of information between the two devices such as the transfer of DATA, VOICE, and QUALIFIED information. (*Id.* at 18:46-22:30.) Each packet includes a synchronization character followed by an ID/LI character that specifies the packet type (e.g., DATA, VOICE and QUALIFIED) and the packet length, which is followed by the information to be sent. (*Id.* at 19:9-66.) Table 3 (below) illustrates the data packet byte structure:

TABLE 3

Data Packet Byte Structure

byte 1 = 01h (sync byte)
byte 2 = ID/LI (ID byte/length indicator)
bytes 3–127 = data (depending on LI)

01 SYNC	ID LI	data	data	data	data		data

(*Id.* at 19:66 – 20:14.)

Table 7 (below) shows the voice packet byte structure:

TABLE 7

Voice Packet Byte Structure

LI (length indicator) = 0
23 bytes of data

01 SYNC	00 ID	data	data	data	data		data

(*Id.*at 20:45-65.)

Table 9 (below) shows the byte structure of the qualified packet:

TABLE 9

Qualifier Packet Byte Structure

01 SYNC	85 ID	QUAL BYTE	data	data	data		data

(*Id.* at 21:8-32.)

47. Table 11 further identifies service type identifiers for video and also streaming audio, video, and data. (*Id.* at 21:59-22:11).

48. Sharma discloses the limitations of claim 1. Sharma discloses a communication station. (*Id.* at Figures 1 and 3, 5:63-6:22, 8:1-9:14, Ex. 1004) Sharma further discloses a personal computer 10 that inherently includes a processor to execute software and that constructs the packets with data that can contain data, voice, or qualified data. (*Id.* at 18:42-22:30) Each packet includes a synchronization character followed by an ID/LI (a service type identifier) that specifies the packet (service) type (e.g., DATA, VOICE and QUALIFIED) and the packet length, which is followed by the information to be sent (i.e., the payload).

(*Id.*) Sharma discloses an RS232 interface, and therefore one of ordinary skill in the art would have also understood Sharma to inherently disclose a transmitter for transmitting "at least one first field" and "at least one second field" on the RS232 serial interface. (See id. at Figure 3, 8:1-9:14).

49. Sharma's hardware component 20 includes DSPs 306 and 311 and other processing hardware. (*Id.* at Fig. 3; 2:51-56). The hardware component 20 and PC 10 operate in both directions, so operation of either of these devices would anticipate the claims. (*Id.* at 18:46-57).

50. Dependent claims 2-4, as set out above, recite that the payload information can include one of video, voice, data; multimedia information; and that the packet types (and therefore the contents of the payload and the associated type identifier field) can be changed during a connection. Sharma discloses the limitations of dependent claims 2-4 because Sharma discloses transmitting data, voice or qualified packets, as well as future extensions for video data or voice compression algorithm packets such as Codebook Excited Linear Predictive Coding (CELP) algorithm, GSM, RPE, VSELP, etc. (*Id.* at 18:43-22:30). Sharma discloses that the protocol allows mixing of different types of information into the data stream without having to physically switch modes of operation. (*Id.* at 18:58-64) Sharma therefore discloses changing the service type identifier to reflect the type of payload information during transmission.

51. Sharma discloses the subject matter of claim 4 (multi-media information). Sharma also discloses a "multi-media mail" function and a "show-and-tell" function, each of which allows multiple types of media to be sent, e.g., voice and graphics in a "combined package" or in a coordinated manner simultaneously. (Sharma, 2:21-26; 7:26-47; 11:23-35; 11:54-12:22).

52. Dependent claim 6 recites that the communication station is a mobile station. Sharma discloses that its system can be used with cellular technology, and that it provides a user with a "complete range of telecommunications functions of a modern office, be it stationary or mobile." (Sharma, 3:46-57.) These references to cellular technology thus disclose the Sharma system in mobile devices.

Ground 4: Sharma Renders Claims 5-6 Obvious

53. Dependent claim 5 recites that the communication station is a base station, and claim 6 recites that the communication system is a mobile station. A person of ordinary skill would have found it obvious to implement a protocol such as that in Sharma (Sharma, 18:42-22:57, Ex. 1004), with different types of data in payload fields and a field such as ID/LI for identifying the service type, in either a base station and/or a mobile station. Both base stations and mobile stations can have a need to send different types of data, and providing data with a protocol that has a payload and an identifier of that type of payload would be an obvious use of

the technology in a mobile or base station and would produce the predictable result of providing service type information to a recipient of the data.

54. Sharma discloses that the system could be used with cellular or satellite systems, and could be used as a mobile office (*Id.* at 3:32-57; 22:32-56), and therefore base stations could also receive and transmit such data. Further, Sharma discloses allowing for additional types of packets such as GSM packets. (*Id.* at 3:37-57; 19: 9-17; 22: 32-57). It was well-known that such GSM radio communications devices include base stations and mobile stations; Padovani (Ex. 1007) provides one example of how data of different types is sent from mobile station to base station, and from base station to mobile station. It therefore would have been obvious to one of skill in the art provide Sharma's communication protocol in a base station or in a mobile station, and doing so would have been nothing more than the use of a known element yielding predictable results.

Ground 5: Menand Anticipates Challenged Claims 1-6

55. I have reviewed Menand et al., U.S. Patent No. 5,548,532, entitled "Apparatus and Method for Formulating an Interactive TV Signal," filed Apr. 28, 1994 ("Menand", Petition Ex. 1004.) I believe that Menard enables the invention it describes. I believe that Menand discloses the limitations of claims 1-6, and therefore it anticipates claims 1-6.

56. Menand is generally related to formatting executable codes and data, defining interactive applications, with video and audio program material. (Menand Abstract, Ex. 1004.) The audio and video (AN) programs are segmented into transmission or transport packets, with audio transport packets identified by a first service identifier $SCID_{Ai}$, video transport packets identified by a second service identifier $SCID_{Vi}$, and code/data transport packets identified by a third service identifier $SCID_{Di}$. (*Id.* at 1:32-45.) Figure 11 (below) illustrates an exemplary form of the AVI packets:

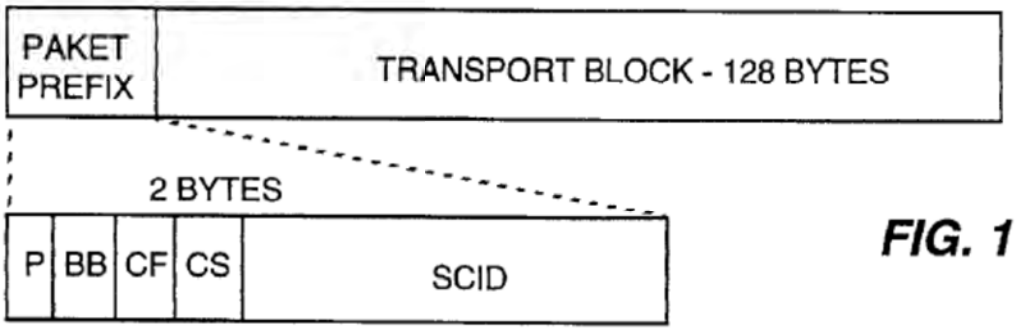


FIG. 11

Menand discloses that the packet prefix includes a twelve-bit field for the SCID. (*Id.* at 6:51-53.) The program controller of Menand assigns "respective SCID's for respective audio, video and interactive components of respective programs." (*Id.* at 2:49-51.)

57. Menand discloses the limitations of claim 1. Menand discloses a communication station composing a signal to be transmitted that includes, for example, video, audio, and interactive signals components. (Menand, Figure 1, 2:28-4:38, 7:35-53, Ex. 1005)

58. Menand discloses a processor in the form of a program controller (e.g., including program control 5, data packet former 14, video packet former 19, audio packet former 22, audio packet former 25, packet mux 16, Figure 1) that constructs AVI packets with a transport block that can contain audio, video, or interactive components (i.e., payload). (*Id.*) A program controller 20 is shown in Figure 1 as a laptop. Each AVI packet includes a packet prefix with an SCID (a service type identifier) that can be used to indicate whether the transport block of the AVI packet contains audio, video, or interactive components (payload). (*Id.* at Figures 1, 3, 4, and 10-11, 1:28-52, 2:28-67). Menand thus discloses transmitting "at least one first field" with a payload and "at least one second field" with a service type identifier for identifying the type of payload as claimed. Menard discloses a transmitter (modem) for transmitting these fields. (*Id.* at Figure 1, 2:28-45).

59. Dependent claims 2-4, as set out above, recite that the payload information can include video, voice, data, and multimedia information, and that the packet types (and therefore the contents of the payload and the associated type identifier field) can be changed during a connection. Menand discloses transmitting audio, video, or interactive multimedia component data in the AVI packet transport block. (*Id.* at Figures 10-11, 1:27-52, 2:28-3:39, Ex. 1005) Menand further discloses that the program controller forms an AVI program for

transmission by assigning an SCID for the associated audio, video, or interactive component data. (*Id.*). The way the data is transmitted in a time division multiplexed (TDM) manner further indicates the change from slot to slot. (*Id.* at Figure 10, 6:15-36). Menand therefore discloses changing the service type identifier to reflect the type of payload information during transmission.

60. Dependent claim 5 recites that the communication station is a base station. Menand discloses transmission generally, and provides as an example, over a satellite for interactive television using a transponder. (*Id.* at Figure 1, 1:5-23). Such satellite communications systems include base stations, and thus Menand discloses a base station.

61. Dependent claim 6 recites that the communication station is a mobile station. Figure 1 shows an interactive component source 10 as a (mobile) laptop and coupled to a data packet former 14, which in turn is coupled to a packet mux 16 and a channel mux 28 and to a modem (transmitter). Menand further discloses that the data packet former 14 can be included as part of the interactive component source 10. (Menand, 5:19-23) Thus, Menand discloses a mobile station.

Patent Owner's Prior Report Regarding Menand

62. I have reviewed the Patent Owner's Report (Ex. 1010) as it relates to Menard. The Report admits that Menand includes an SCID that identifies whether the AVI packet includes audio, video, or interactive component data, and therefore

this teaches the claimed requirement of "a service type identifier which identifies a type of payload information," as required by claim 1 of the '568 patent. (Report at ¶ 186, Ex. 1010)

63. The Report says that Menand teaches away from the '568 patent by requiring that the system hard code time slots to only contain one type of data. (Report at ¶ 191, Ex. 1010). The Report points to Figures. 8-10 of Menand to support this argument, but Figures. 8-10 simply "illustrate alternative packet multiplexing formats" to "provide packets according to a particular schedule." (Menand 5:41-43.) I do not see how this distinguishes the claims. Patent Owner seems to interpret Menand's disclosure of transmitting packets according to a schedule as using the time slots to identify the type of payload information. However, Patent Owner fails to cite to any support for this proposition. Menand has a clear disclosure of using different SCID identifier codes, which contradicts the Report, since Menand uses the SCID values to indicate the different types of packets, not time slots. (Menand, 1:27-45, Ex. 1005.)

64. As with Morley, the Report states that Menand teaches away from the '568 patent by showing specialized subsystems for receiving voice, audio, and data. (Report at¶ 193, Ex. 1010) As noted above, the single portion of the '568 patent that the Report cites to for excluding specialized subsystems does not support that proposition. Further, the Report does not identify any portion of the

'568 claims that mandates that the device cannot contain such specialized subsystems.

65. The Report does not make any additional arguments for patentability of dependent claims 3-5. (Report at ¶ 193, Ex. 1010) For dependent claim 2, the Report asserts that Menand teaches away from the '568 patent by requiring that a system hard code time slots to only contain one type of data. (Report at ¶ 194) As described above, Menand discloses using the SCID field to identify the different types of packets, not time slots.

Ground 6: Menand Renders Claims 5-6 as Obvious

66. A person of ordinary skill would have found it obvious to incorporate the disclosure, including the protocols, of Menand into a base station or a mobile station, as required by claims 5 and 6. Transmission of data between base stations and mobile stations was well-known in the art. Menand discloses formulating a signal to be transmitted from, for example, a satellite. (Menand, 2:22-24, Ex. 1005). It is well-known that such radio communications devices include base stations. Thus, a person of ordinary skill would have found it obvious to implement a protocol such as that described in Menand in a base station, and doing so would have been nothing more than the use of a known element yielding predictable results of allowing a system to send different types of data (as disclosed in Menand) with an identifier to tell the recipient what type of data is being sent.

67. A person of ordinary skill would also have found it obvious to include the disclosure of Menand in a mobile station as required in claim 6. It is well known to one of skill in the art that radio communications can include the use of a mobile station. In general, I believe it would have been obvious to implement Menand with any wireless system, not just a satellite. The system in Menand does not require any particular form of wireless communication. In the case of Menand, Figure 1 shows an interactive component source 10 as a (mobile) laptop and coupled to a data packet former 14, which in turn is coupled to a packet mux 16 and a channel mux 28 and to a modem (transmitter). Menand further discloses that the data packet former 14 can be included as part of the interactive component source 10. (Menand, 5:19-23). Further, it would therefore have been obvious to one of skill to implement the functionality of Menand in a mobile station if it has audio and video data to send, and doing so would have been the use of a known element yielding predictable results of allowing a device to send different types of data (as disclosed by Menand) to a recipient, for the purpose of identifying to the recipient what type of data is being sent..

Ground 7: Adams Renders Claims 1-6 Obvious

68. I have reviewed Adams et al., U.S. Patent No. 5,541,662, entitled "Content Programmer Control of Video and Data Display Using Associated Data,"

filed Sep. 30, 1994 ("Adams", Ex. 1005.). I understand Adams and believe it enables the invention it describes.

69. Adams generally relates to an interactive video system that receives packetized data streams, including video data streams, audio data streams, and associated data streams corresponding to the video data stream. (Adams, Abstract, Ex. 1006.) The interactive video system includes a satellite receiver 14, a cable television (CATV) receiver 16, or a television broadcast receiver 18. (*Id.* at Figure 1, 4:2-4.) The satellite receiver 14 enables reception of packetized digital data streams over a satellite link. (*Id.* at 3:65-4:6.)

70. The packetized digital data streams received by the satellite receiver 14 include video data packets, audio data packets, and associated data packets. (*Id.* 7:12-14.) For example, Adams' Figure 5, reproduced below, discloses a video packet 80, audio packet 82, and the associated data packet 84 each comprising a packet header and a packet payload. (*Id.* at 6:66-7:17.)

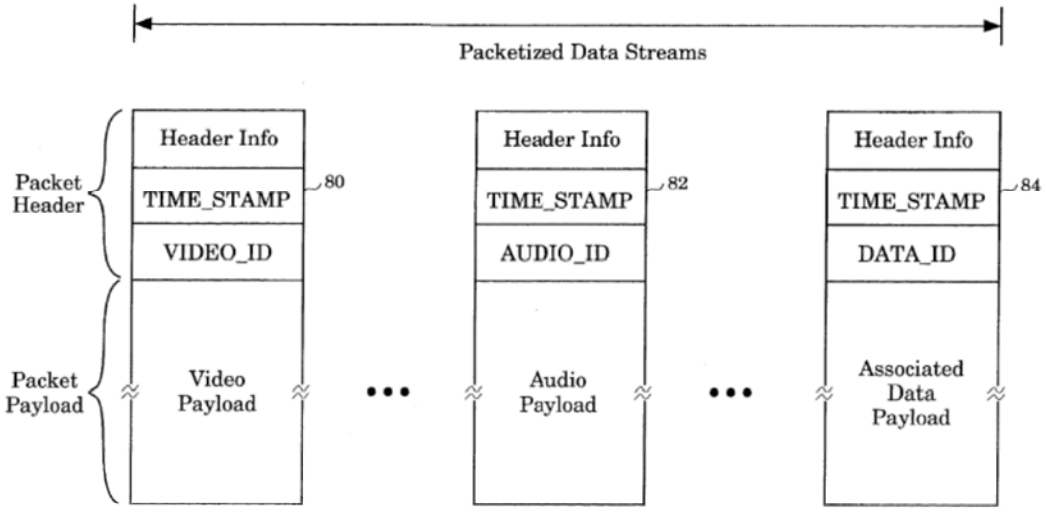


Figure 5

The video packet 80 includes a video payload that provides digital video data for display in the video display window 40. The video packet 80 is identified as a packet that carries video data by the video identifier (VIDEO__ID) in the packet header. The audio packet 82 includes an audio payload for transfer to the audio subsystem 64 to drive the speaker 24. The audio packet 82 is identified as a packet that carries audio data by the audio identifier (AUDIO__ID) in the packet header. The associated data packet 84 includes an associated data payload that specifies interactive video command and control functions for the computer system 10. The associated data packet 84 is identified as a packet that carries associated data by the associated data identifier (DATA__ID) in the packet header. (*Id.* at 7:22-40.)

71. The subject matter of claim 1 would have been obvious in view of Adams. Adams is focused on a receiver, while the claims are to a transmitting

device. However, one of ordinary skill in the art would have understood that the Adams reference implicitly teaches a communication station for transmitting packetized digital data streams, including the three types of payload, in Adams. Therefore it would have been obvious to provide a transmitter for sending the type of data that Adams receives.

72. Adams discloses receiving "at least one first field" in which payload information is disposed because in Adams each packet that is received includes an audio payload, a video payload, or a data payload. An object of the invention in Adams is to enable a content programmer to create a video display screen from a programming studio. (*Id.* at 2:21-23.) Because Adams discloses implementing a content programmer, it is obvious (if not inherent) that the communication station sending to Adams include a processor for arranging information for transmission. Adams also discloses receiving "at least one second field, separate from the first field" that identifies a type of payload information because Adams discloses that each video packet includes a packet header that includes an identifier that identifies whether audio, video, or data is carried in the packet payload. (*Id.* at Figures 3, 5, and 6, 6:7-58, 7:8-37). One of ordinary skill in the art would have understood the Adams reference to teach a transmitter for transmitting said at least one first field and said at least one second field on said radio channel.

73. Dependent claims 2-3 recite that the payload information can include video, voice, and data, and that the packet types (and therefore the contents of the payload and the associated type identifier field) can be changed during a connection. Adams discloses these elements. Adams discloses receiving audio, video, or other data in the packet payload, and determining which type of payload is being received. (Adams, .4:34-64; Figures 3, 5, 6, and 7; 7:9-37; Ex. 1006) Adams also discloses utilizing a different identifier depending on the type of payload – video, audio or data. (*Id.*) The different types of packets are all sent during one communication, and therefore they must switch from one type of packet to another, and therefore the service type identifier changes to reflect the type of payload information during transmission. These packets and their service type identifiers can change from one of voice, video, and data, to another of voice, video, and data.

74. If one contends that Adams does not satisfy the claim limitation of "wherein said processor is also for changing said type of payload information from a first type to a second type during a connection involving said communication station" and "adjusting a value of said service type identifier to correspond to the second type of information" (claim 2), a person of ordinary skill would have found it obvious to modify Adams to include a processor for changing the payload type during a transmission, and adjusting the identifier to reflect the changed payload

type. Using a processor to change the payload and associated identifier during transmission is well-known. For example, an object of Adams is to provide a video system that employs packetized digital data streams to provide a video stream, an audio stream and a command and control associated data stream.

75. Dependent claim 4 recites that the information is multimedia information. As indicated above, the data that is received includes audio, video, and other data, and is provided in such a manner to create a display with audio. (Adams, Figures 3, 5, 6, and 7; 2:21-39; 4:34-64; 7:9-37; Ex. 1006).

76. Dependent claim 5 recites that the communication station is a base station. Adams discloses transmission of packetized digital data streams over a satellite link, and thus the transmitter would typically be a base station. (*Id.* at Figure 1, 3:65-5:22). It is well-known in the art that such satellite communications devices include base stations. Adams also discloses communication of an analog or digital video signal over a coaxial transmission line. Transmission over a coaxial transmission line is typically by a head-end, or base station. Further, I believe it would have been obvious to provide Adams over almost any wireless system. Adams does not require any particular type of system, and thus could use systems like cellular systems with base stations. This would be the use of a known technique (of providing payloads and identifiers) applied to a known type of device

(base station) to yield the predictable result of allowing the base station to send content and identify the packets that make up the content.

77. Dependent claim 6 recites that the station is a mobile station. It would have been obvious to provide a protocol for sending voice, video, and data to a mobile station, as a mobile station (e.g., like the laptop in Menand) could create multiple types of content to be sent, and therefore it would have been obvious to provide the ability to identify what type of data was included in a packet to allow the packet to be processed appropriately. This would be the use of a known technique (of providing payloads and identifiers) applied to a known type of device (mobile) to yield the predictable result of allowing the mobile to send content and identify the packets that make up the content.

Patent Owner's Prior Report Regarding Adams

78. In the Patent Owner's Report (Ex. 1010), the Patent Owner did not raise the issue that Adams is directed to a receiver as opposed to a transmitter. (Report at ¶¶ 61-69, Ex. 1010). From this I would assume the Patent Owner accepted that the receiver in Adams would inherently work with a corresponding transmitter as stated above. The Report disputes whether Adams discloses the requirement of "a service type identifier which identifies a type of payload information" of claim 1. (Report at ¶ 64, Ex. 1010). As explained above, it does. The Report admits that "[w]hen a device in [Adams's] system receives a packet of

information, it checks an ID tag in the packet to determine which subsystem should receive the packet." (Report at ¶ 61, Ex. 1010) Moreover, the Report admits that Robert Adams, a named inventor of the Adams patent, explained that "the ID tags disclosed in this reference is a 'trivial technique' which has been known in the prior art." (*Id.*) This is not surprising, since sending different types of data and telling a recipient what type of data it is would seem to be a matter of common sense, as is suggested by the multiple references that disclose payloads and identifiers. Therefore, the Report admits that Adams disclosed using ID tags to identify the type of payload, and suggests that using such identifiers, like the service type identifier claimed in the '568 patent, was well known in the art.

79. The Report asserts that Adams teaches away from the '568 patent by requiring the receiver to contain specialized subsystems for receiving voice, audio, and data is incorrect. (Report at ¶ 65, Ex. 1010) As noted above, the single portion of the '568 patent that the Report cites for excluding specialized subsystems at 2:56-64 does not actually support the proposition, as explained above with reference to Morley and Menand. Moreover, Adams provides "a video system that employs packetized digital data streams to provide a video stream, an audio stream and a command and control associated data stream."

80. The Report did not argue that Adams does not satisfy the claim limitation of "a processor for arranging information for transmission including

providing at least one first field in which payload information is disposed" or "a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field" (claim 1).

81. Even if Adams does not disclose either of these limitations inherently, a person of ordinary skill would have found it obvious to include a processor for arranging the packetized digital data stream and a transmitter for transmitting the packetized digital data stream to the computer system. Using a processor to generate packetized digital data stream is well-known, and is further made obvious by Adams' disclosure of a content programmer that provides control over receivers. (Adams, 1:14-2:15, Ex. 1006) Further, Adams discloses that an object of the invention in Adams is to provide flexible content programming control in an interactive video system.

82. The Report does not make additional arguments for patentability of the dependent claims 2-5 (claim 6 was not at issue). (Report at ¶¶ 67-69, Ex. 1010)

Ground 8: Padovani Anticipates Claims 1-6

83. I have reviewed Padovani et al., U.S. Patent No. 6,659,569, entitled "Data Burst Randomizer," filed February 14, 1994 ("Padovani", Ex. 1007), which is a continuation of an application filed March 5, 1992. I understand Padovani and believe it enables the invention it describes.

84. Padovani relates to a communication system in which data is transmitted in data frames. (Padovani at Abstract; Ex. 1007). The described system is a CDMA cellular system (1:17-40). Figure 1 shows a mobile station including a microprocessor 18 and various other processing blocks to create frames for transmission over an antenna 60.

85. Different types of frames are shown in Figures 2a-2h with frames that include payload fields and other fields. The payloads can be voice traffic (Fig. 2a), secondary traffic (typically not voice) (Fig. 2e), and various other combinations and data rates. A header field with up to 4 bits indicates the type of data, i.e., and identifier of the service type. A header of "0" indicates primary traffic (voice); while a header of "111" indicates secondary (non-voice) traffic. (*Id.* at Figs. 2a and 2e; 7:8-32). In the case of data being sent at less than full rate, the data is repeated to maintain a constant code symbol rate. (See *Id.* at Table 1, end of column 4)

86. The disclosure is made primarily in the context of a mobile station, but the same type of data can be sent from a base station to a mobile station: "in base station to mobile station communications the data is repeated throughout the frame in a manner similar to that discussed above." (*Id.* at 27:5-8). That is, the same data is sent with the same frames, and is repeated in the same way.

87. The base stations send data to mobile stations in a similar way:

"Although the modulation is slightly different, i.e. data intended for each particular mobile station is encoded with a particular Walsh spreading code rather than symbol groups as in the mobile station transmission, the data is still convolutionally encoded, block interleaved, user PN scrambled and I and Q channel PN spread in a manner similar to the mobile station. The base station is also configured with a separate channel for communicating with a respective mobile station and also has separate control channels. However the basic teaching of the above techniques are applicable to either base station or mobile station communications." (*Id.* at 27:8-18).

88. In other words, there is a processor that similarly provides frames in fields with payloads and with headers that identify the type of data (service type) in a header that serves as a service type identifier field.

89. Padovani anticipates claim 1. Padovani discloses a processor (microprocessor 18 and other blocks for creating the frames) (Fig. 1). These frames include the claimed first field and second field – a payload field with data that can be voice or user data, and a header field that identifies the type of data (i.e., the service type identifier). Padovani has an RF transmitter 56 that receives data from the processor and transmits it.

90. Dependent claims 2-3 recite that the payload information can include video, voice, data; and that the packet types (and therefore the contents of the

payload and the associated type identifier field) can be changed during a connection. Padovani anticipates claims 2-3. Padovani can send one frame after another, with voice traffic in one, and data traffic in another (see Figs. 2a, 2d and 2e).

91. Padovani anticipates claim 4, which recites multimedia information. Padovani discloses both voice and other data can be sent one after the other and in the same frame. (Padovani, Figures 2a-2g; 6:66-7:33, Ex. 1007).

92. Padovani anticipates claims 5 and 6, which state that the communication station can be a base station or a mobile station. As noted above, the disclosure focuses on the mobile station (Fig. 1), but also indicates that similar processing is performed by base stations (Padovani at 27:5-18; Ex. 1007).

Ground 9: Padovani Renders Claim 4 as Obvious

93. To the extent claim 4 is not anticipated, it would have been obvious. Dependent claim 4 recites that the payload information can include multimedia information. A person of ordinary skill would have found it obvious to transmit multimedia information using the techniques described in Padovani because Padovani discloses transmitting voice and data together in a single packet in a Code Division Multiple Access (CDMA) communication system. (Padovani at Fig. 2c, 1:20-23, 2:25-27; Ex. 1007). Further, it was known to one of skill in the

art that multimedia information, such as digital video data, could be transmitted using a CDMA communication system. (Zehavi at 1:16-35; 5:26-29; Ex. 1017). Zehavi relates to the same technology as Padovani, and both are assigned to Qualcomm Inc., but Zehavi was filed later. To see this relationship, note that in Zehavi, Figure 1, there is a Data Burst Randomizer 30. This term – Data Block Randomizer – is the title of Padovani, and is a term used in CDMA. It would therefore have been obvious to one of skill to implement the functionality of Padovani to send multimedia information as expressly suggested by Zehavi. Doing so would modify a known device in an obvious way to yield the predictable results of providing video data and identifying the type of data that it is.

Availability for Cross-Examination

94. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross examination in the case and that cross examination will take place within the United States. If cross examination is required of me, I will appear for cross examination within the United States during the time allotted for cross examination.

Right to Supplement

95. I reserve the right to supplement my opinions in the future to respond to any arguments that Patentee raises and to take into account new information as it becomes available to me.

96. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: September 19, 2013

Harry Bims

U.S. Patent No. 6,466,568	Morley (Exs. 1002, 1003)
1 [pre] A communication station comprising:	Fig. 1; Morley 3:33-38 and Morley EP 3:51-54; Morley 99:40-45 and Morley EP 50:37-40; Morley 1:5-8 and Morley EP 2:3-5.
1 [a] a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and	Figs. 2, 5a-5g and 6; Morley 2:66 – 3:5 and Morley EP 3:26-31; Morley 3:34-35 and Morley EP 3:51-52; Morley 6:14–53 and Morley EP 5:44– 6:5; Morley 9:13-43 and Morley EP 8:14-32.
1 [b] providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field; and	Figs. 5a-5g; Morley 6:14 – 7:25 and Morley EP 5:44– 6:45.

U.S. Patent No. 6,466,568	Morley (Exs. 1002, 1003)
1 [c] a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.	Figs. 1 and 6; Morley 2:10-12 and Morley EP 2:45-46; Morley 2:66 – 3:3 and Morley EP 3:26-29; Morley 3:58-59 and Morley EP 4:9-10; Morley 5:39-41 and Morley EP 5:22-23; Morley 8:50-53 and Morley EP 7:50-53; Morley 99:40-45 and Morley EP 50:37-40.
2 The communication station of claim 1, wherein said processor is also for changing said type of payload information from a first type to a second type during a connection involving said communication station and adjusting a value of said service type identifier to correspond to the second type of information.	Morley 5:60-65 and Morley EP 5:33-36; Morley 6:9-13 and Morley EP 5:41-43; Morley 99:29-34 and Morley EP 50:30-33; Morley 9:13-43 and Morley EP 8:14-32.
3 The communication station of claim 2, wherein	*See* cites to claim 2 and

U.S. Patent No. 6,466,568	Morley (Exs. 1002, 1003)
said first type of information is one of video, voice and data and said second type of information is different one of video, voice and data.	Morley 3:10-23 and Morley EP 3:36-44.
4 The communication station of claim 1, wherein said information is multimedia information.	See claim 3, above.
5 The communication station of claim 1, wherein said communication station is a base station.	Morley 99:40-45 and Morley EP 50:37-40; Figs. 7 and 8; 9:43-10:28.
6 The communication station of claim 1, wherein said communication station is a mobile station.	See claim 5, above.

U.S. Patent No. 6,466,568	Sharma (Ex. 1004)
1 [pre] A communication station comprising:	1:10-12; 1:41-44; 1:57-63.
1 [a] a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and	Figs. 1 and 3; 1:44-46; 2:51-56; 3:5-7; 15:12-15; 15:28-31; 15:49-54; 16:46 – 17:3; 18:46-48; 19:9 - 20:14; 20:36-65; 20:66 – 21:31.
1 [b] providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field; and	19:9-20:14; 20:43-55; 21:5-20.
1 [c] a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.	Fig. 3; 1:56-63; 2:21-25; 2:51-56; 10:38-48; 18:46-48; 19:2-8.
2 The communication station of claim 1, wherein said processor is also for changing said type of payload information from a first type to a second	1:56-63; 2:21-25; 7:26-34; 18:46-48; 18:59-62.

U.S. Patent No. 6,466,568	Sharma (Ex. 1004)
type during a connection involving said communication station and adjusting a value of said service type identifier to correspond to the second type of information.	
3 The communication station of claim 2, wherein said first type of information is one of video, voice and data and said second type of information is different one of video, voice and data.	19:9-17; 19:28-29.
4 The communication station of claim 1, wherein said information is multimedia information.	2:21-25; 7:26-46; *see also* claim 3, above.
5 The communication station of claim 1, wherein said communication station is a base station.	*See, e.g.,* 3:46-57; 10:38-48; 18:42-22:57.
6 The communication station of claim 1, wherein said communication station is a mobile station.	3:46-57; 10:38-48; 18:42-22:57.

U.S. Patent No. 6,466,568	Menand (Ex. 1005)
1 [pre] A communication station comprising:	Fig. 1; Abstract; 1:5-8; 1:17-23; 2:22-28.
1 [a] a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and	1:25-52; 2:29-59; 3:1-12; 3:25-40; 5:19-30; 5:44-62; 6:48-51; 9:59-10:19.
1 [b] providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field; and	Figs. 4-6 and 11-13; Abstract; 1:32-50; 2:21-38; 2:46-59; 3:24-40; 4:47-64; 5:3-17; 6:48-7:34; 9:59-10:19.
1 [c] a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.	Abstract; Figs. 1 and 11; 1:5-8; 1:45-52; 2:36-45; 6:48-65; 10:24-39.
2 The communication station of claim 1, wherein said processor is also for changing said type of payload information from a first type to a second type during a connection involving said	Abstract; Figs. 4-6, 10-13; 1:30-50, 2:32-59, 3:24-55, 4:47-64, 5:3-17, 6:48-7:34.

U.S. Patent No. 6,466,568	Menand (Ex. 1005)
communication station and adjusting a value of said service type identifier to correspond to the second type of information.	
3 The communication station of claim 2, wherein said first type of information is one of video, voice and data and said second type of information is different one of video, voice and data.	Abstract; 1:5-8, 1:25-52, 2:28-59, 3:1-14, 5:31-43, 5:63-6:9; 9:59-10:19; Figure 10.
4 The communication station of claim 1, wherein said information is multimedia information.	*See* claim 3, above.
5 The communication station of claim 1, wherein said communication station is a base station.	1:5-8, 2:51-55, 3:48-50; *see* claims 1 and 3.
6 The communication station of claim 1, wherein said communication station is a mobile station.	*See* claim 5, above; *see also* Figure 1; 3:41-44.

U.S. Patent No. 6,466,568	Adams (Ex. 1006)
1 [pre] A communication station comprising:	Fig. 1; Abstract; 2:54-65, 3:33-36, 3:65-4:6, 4:9-14, 4:25-34, 6:7-26; 9:62-10:13.
1 [a] a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and	Figs. 3, 4, 5; 1:6-12, 2:19-29, 2:53-57, 4:5-14, 4:45-50, 5:23-30; 6:14-26, 6:43-58, 6:66-7:37, 8:32-44; 9:62-10:13.
1 [b] providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field; and	Fig. 5; 6:66-7:37; 9:62-10:13.
1 [c] a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.	Fig. 5; 6:66-7:37; 9:62-10:13.
2 The communication station of claim 1, wherein	Figs. 3, 5; 2:21-29; 4:5-24,

U.S. Patent No. 6,466,568	Adams (Ex. 1006)
said processor is also for changing said type of payload information from a first type to a second type during a connection involving said communication station and adjusting a value of said service type identifier to correspond to the second type of information.	6:42-58, 6:66-7:17, 7:22-40, 8:38-56, 9:11-18, 9:49-52; 9:62-10:13.
3 The communication station of claim 2, wherein said first type of information is one of video, voice and data and said second type of information is different one of video, voice and data.	2:53-65, 4:5-14, 6:42-58, 6:66-7:40.
4 The communication station of claim 1, wherein said information is multimedia information.	Fig. 8; 4:5-14, 6:42-58, 6:66-7:17-40, 9:11-23, 9:24-40, 9:49-52; 9:62-10:13.
5 The communication station of claim 1, wherein said communication station is a base station.	Figs. 1, 3; 3:33-36, 3:65-4:16, 4:25-44, 6:7-26.
6 The communication station of claim 1, wherein said communication station is a mobile station.	See claim 5, above.

U.S. Patent No. 6,466,568	Padovani (Ex. 1007)
1 [pre] A communication station comprising:	Fig. 1; Abstract; 2:38-43; 4:14-30; 27:5-19.
1 [a] a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and	Figs. 1, 2a-2h; 3:36-65; 5:39-45; 6:66-8:47; Table 1 at end of column 4.
1 [b] providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field; and	Figs. 1, 2a-2h; 6:66-8:47; Table 1 at end of column 4.
1 [c] a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.	Fig. 1; 1:17-40; 25:3-11; 27:5-19.
2 The communication station of claim 1, wherein said processor is also for changing said type of payload information from a first type to a second type during a connection involving said	Figs. 1, 2a-2h; 6:66-8:47.

U.S. Patent No. 6,466,568	Padovani (Ex. 1007)
communication station and adjusting a value of said service type identifier to correspond to the second type of information.	
3 The communication station of claim 2, wherein said first type of information is one of video, voice and data and said second type of information is different one of video, voice and data.	Figs. 1, 2a-2h; 6:66-8:47.
4 The communication station of claim 1, wherein said information is multimedia information.	Figs. 1, 2a-2h; 1:17-40; 2:25-27; 5:26-29; 6:66-8:47.
5 The communication station of claim 1, wherein said communication station is a base station.	Fig. 1; 1:17-40; 4:13-30; 14:14-51; 27:5-18.
6 The communication station of claim 1, wherein said communication station is a mobile station.	Fig. 1; 1:17-40; 4:13-30; 14:14-51; 27:5-18.

ATTACHMENT A

Dr. Harry V. Bims
1314 Chilco Street
Menlo Park, CA 94025
protocomm@att.net
650-283-4174

PROFESSIONAL SUMMARY

Harry Bims, PhD, EE, provides expert witness support services for telecommunications-related intellectual property litigation. These services include deposition and court testimony, expert reports, and infringement research, for patent, copyright, and trade secret litigation matters. He has 17+ years of telecommunications industry experience, and holds eighteen US patents in network architecture and chip design for wireless communications.

EMPLOYMENT HISTORY

12/2001 - 05/2004 **AirFlow Networks, Inc. LLC • Sunnyvale, California**

Position: *CEO/CTO & Founder*

As the sole founder of the company, created the original business plan, raised venture capital, and hired the core engineering team. Grew the company to 32 people and shipped products for revenue in the US and overseas. Nine patents on the core technology have issued. These patents, which relate to wireless network infrastructure based on the 802.11 specification, have been sold to Broadcom.

03/2001 - 12/2001 **Bay Partners LLC • Cupertino, California**

Position: *Entrepreneur in Residence*

Reported to the partners of this VC firm as a technology expert on a range of wireless and networking subjects. Reviewed business plans and participated in due diligence activities related to several startups seeking funding. Developed a business plan for a startup that builds network infrastructure for 802.11 enterprise networks.

09/1999 - 03/2001 **Symmetry Communications Systems LLC • San Jose, California**

Position: *Director, Software Architecture*

Reporting to the CEO, responsible for the software architecture of their core

SGSN and GGSN products for the GPRS market. Formulated a software technology roadmap, showing the evolution from 2.5G to 3G SGSN and GGSN products. Management responsibility for Firmware, Hardware, Performance, and Systems Engineering Groups. Provided management support of early field trials of the system on a global basis.

07/1999 - 09/1999 **T-SPAN Systems Corporation LLC • Palo Alto, California**

Position: *Member of Technical Staff*

Designed a wireless home LAN protocol for the company. Also designed and built a PC-based platform to demonstrate their technology. Company is now publicly traded as Atheros Communications.

07/1992 - 12/1998 **Glenayre Technologies-Wireless Access Group • San Jose, California**

Position: *Member of Technical Staff; Sr. Member of Technical Staff; Manager of NOC Systems*

Employee #6 at the company, which was acquired by Glenayre Technologies, Nov 1997. Designed and built a 4-channel ReFLEX50 pager demonstration in 1 week. Participated in early field trials and feasibility studies, culminating in a Pioneer's Preference license award from the FCC to SkyTel Corporation for Narrowband PCS development.

Invented, designed, and built from concept through full implementation, a patented two-way pager test system for the ReFLEX50 and ReFLEX25 protocols. This system was used throughout company operations for performance testing of the ReFLEX pager designs from Wireless Access, and Motorola. Over 16 systems were deployed around the country for manufacturing tests, engineering protocol tests, antenna tests, and pager repair tests.

The project required technical skills in PC hardware design, C++, object-oriented programming, signal processing techniques, NT device driver development, Win32 user interface development, real-time, multi-threaded control, and proficiency with wireless communications lab equipment. Three patents have been issued based on technical inventions in this capacity.

Co-developed a wireless application protocol for sending and receiving encrypted email messages over the paging channel. Led the project team that deployed a software encryption module based on this protocol for government agencies.

Protocomm Systems, LLC Consulting History

3/2007 – 10/2009 **Apple, Inc. • Cupertino, CA**

Position: *Technology Consultant*

Participating in IEEE 802.16 standards meetings as an affiliate of the client.

04/1999–07/1999 **Gigabit Wireless, Inc. • San Jose, California**

Position: *Technical Leader*

Technical leader for the Wireless MAC design group. Responsible for comparative analysis of competing wireless MAC protocol standards. Responsible for the creation of a proprietary MAC protocol specification document, simulation of the protocol, and implementation in a prototype. Participated in early 802.16 protocol standards. This company was acquired by Intel Corporation.

Bims Laboratories, LLC Consulting History

6/2009 – 7/2009 **Eastman Kodak Company • Rochester, NY**

Position: *Technology Consultant*

Providing technology assessment on certain wireless communication patents.

Technical Expert Witness Experience

4/2013 – Present **Client: Seyfarth Shaw LLP (representing Motorola Mobility LLC)**

Case: Hernandez v Motorola Solutions, Inc.

Case No. 12-cv-60930-JIC

Location: UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF FLORIDA

Testifying expert in this patent case involving mobile device testing systems.

Expert Reports:

3-1-13 Expert Report regarding Non-Infringement

Attorneys: For Plaintiff: Meltzer & Mathis

For Defendant: Seyfarth Shaw LLP

Status: Case ongoing

4/2013 – Present **Client: Kilpatrick Townsend & Stockton LLP (representing Google Inc. and Motorola Mobility LLC)**

Case: Fujifilm Corporation v. Motorola Mobility LLC

Case No. C12-03587 RS

Location: UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF CALIFORNIA

Testifying expert in this patent case involving mobile technology.

Attorneys: For Plaintiff: Morgan, Lewis & Bockius LLP

For Defendant: Kilpatrick Townsend & Stockton LLP

Status: Case ongoing

8/2012 – 4/2013 **Client: Paul Hastings LLP (representing Apple, Inc.)**

Case: SmartPhone Technologies, LLC v Research in Motion Corporation, et. al.

Case No. 6:10-cv-00074

Location: UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving 3GPP technology.

Expert Reports:

12-31-12 Appendix A to Rebuttal Expert Report of Dr. David Wilson

3-12-13 Appendix A to Supplemental Expert Report of Dr. David Wilson

Attorneys: For Plaintiff: Mintz Levin Cohn Ferris Glovsky and Popeo PC

For Defendant: Paul Hastings LLP

Status: Case settled

8/2012 – Present **Client: Reed & Scardino, LLP (representing EON Corp. IP Holdings, LLC)**

Case: EON Corp. IP Holdings, LLC v. Cantaloupe Systems, Inc., et. al.

Case No. 6:11-cv-00015

Location: UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving RF technology for WiFi networking.

Expert Reports:

2-15-13 Expert Report regarding Infringement

4-09-13 Videotaped deposition

Attorneys: For Plaintiff: Reed & Scardino, LLP

For Defendant: K&L GATES LLP

Status: Case ongoing

5/2012 – Present **Client: Reed & Scardino LLP (representing Eon Corp. IP Holdings)**

Case: Eon Corp. IP Holdings, LLC v. Landis+Gyr, Inc., et. al.

Case No. 6:09-cv-00317-LED-JDL

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving two-way wireless networks

Expert Report:

7-3-13 Expert Report regarding Infringement by Silver Spring Networks, Inc.

7-3-13 Expert Report regarding Infringement by Itron, Inc.

Attorneys: For Plaintiff: Reed & Scardino LLP

For Defendant:

Status: Case ongoing

2/2012 – Present **Client: Dewey & LeBoeuf LLP (representing Harris Corporation)**

Case: Harris Corporation v. Ruckus Wireless, Inc.

Case No. 6:11-cv-618-CEH-KRS

Location: UNITED STATES DISTRICT COURT FOR THE MIDDLE DISTRICT OF FLORIDA ORLANDO DIVISION

Testifying expert in this patent case involving RF technology for WiFi networking.

Expert Reports:

3-5-12 Expert Report regarding Infringement

4-6-12 Expert Report regarding Validity

Declarations:

5-30-12 Declaration ISO Claim Construction

Videotaped Deposition:

4-30-12

Attorneys: For Plaintiff: Dewey & LeBeouf LLP

For Defendant: Lewis and Roca LLP

Status: Case ongoing

2/2012 – Present **Client: Common-Interest-Group (representing Nokia, Huawei, ZTE)**

Case: InterDigital Communications LLC, et. al. v. Huawei Tech Co., LTD., et. al.

Certain Wireless Devices With 3G Capabilities and Components Thereof

U.S. Int'l Trade Commission Inv. No. 337-TA-800

Location: UNITED STATES INTERNATIONAL TRADE COMMISSION

Testifying expert in this patent case involving 3G wireless, WiFi, and WCDMA technology.

Expert Reports:

11-30-12 Expert Report regarding Non-infringement

7-31-12 Expert Report regarding Invalidity

11-19-10 Rebuttal Expert Report regarding Validity

12-6-10 Supplemental Expert Report regarding Infringement

Videotaped Deposition:

12-14-12, 12-15-12

ITC Trial testimony:

2-15-12 Non-infringement and Invalidity witness statements, live testimony

Attorneys: For Plaintiff: Latham & Watkins, LLP

For Defendant: Alston & Bird, Covington & Burling, Brinks Hofer

Status: Case ended at ITC hearing

3/2011 – 8/2011 **Client: Fish & Richardson P.C. (representing LG)**

Case: Sony v. LG Electronics, Inc., et. al.

Certain Mobile Telephones and Modems

U.S. Int'l Trade Commission Inv. No. 337-TA-758

Location: UNITED STATES INTERNATIONAL TRADE COMMISSION

Testifying expert in this patent case

Attorneys: For Plaintiff: Kenyon & Kenyon LLP

For Defendant: Fish & Richardson P.C.

Status: Case settled

9/2010 – 4/2011 **Client: Reed & Scardino LLP (representing Eon Corp. IP Holdings)**

Case: Eon Corp. IP Holdings, LLC v. Sensus USA, Inc., et. al.

Case No. 6:09-cv-116-LED-JDL

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving two-way wireless networks

Expert Report:

10-22-10 Expert Report regarding Infringement

11-7-10 Expert Report regarding Infringement

11-19-10 Rebuttal Expert Report regarding Validity

12-6-10 Supplemental Expert Report regarding Infringement

Declaration:

12-28-10, 1-18-11

Videotaped Deposition:

12-8-10, 2-3-11

Attorneys: For Plaintiff: Reed & Scardino LLP

For Defendant: Jones Day

Status: Case settled

8/2010 – Present **Client: Sidley Austin LLP (representing Research in Motion Limited)**

Case: SimpleAir, Inc. v. Research in Motion Limited and Research in Motion Corporation, et. al.

Case No. 2:09-cv-00289-CE

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving two-way wireless networks

Declaration:

11-5-13

Videotaped Deposition:

11-5-24

Attorneys: For Plaintiff: Dovel & Luner, LLP

For Defendant: Sidley Austin LLP

Status: Case ongoing

10/2009 – 2/2010 **Client: White & Case LLP (representing Marvell)**

Case: Marvell Semiconductor, Inc., et. al. v. Commonwealth Scientific Industrial Research Organisation

Case No. 6:07-CV-204 (LED)

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving wireless LAN protocols.

Expert Report:

11-24-09 Rebuttal Expert Report

Videotaped Deposition:

01-07-10

Attorneys: For Plaintiff: White & Case LLP

For Defendant: Townsend and Townsend and Crew LLP

Status: Case settled

9/2009 – 2/2010 **Client: Perkins Coie Brown & Bain PA (representing Intel)**

Case: Saxon Innovations, LLC v. Apple, Inc., et. al.

Case No. 6:08-cv-00265-LED

Location: UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving wireless technology.

Declarations:

12-04-09 Declaration Regarding Claim Construction

Videotaped Deposition:

01-19-10

Attorneys: For Plaintiff: Susman Godfrey LLP

For Defendant: Perkins Coie Brown & Bain LLP

Status: Case settled

8/2008 – 10/2009 **Client: Reed & Scardino LLP (representing Eon Corp. IP Holdings)**

Case: Eon Corp. IP Holdings, LLC v. Verizon Clinton Center Drive Corp., et. al.

Case No. 6:08-cv-00385

Location: UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving two-way wireless networks

Expert Report:

06-22-10 Expert Report
08-16-10 Supplemental Expert Report

Videotaped Depositions:
08-18-10, 08-26-10

Attorneys: For Plaintiff: Reed & Scardino LLP

For Defendant: Simpson Thacher & Bartlett LLP

Status: Case settled

4/2008 – 3/2009 **Client: McDermott, Will & Emery LLP (representing GE Licensing)**

Case: CIF Licensing, LLC d/b/a GE Licensing v. Agere Systems, Inc.

Case No. 07-170 (JJF)

Location: UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

Testifying expert in this patent case involving modem technology.

Expert Report:

09-05-08 Rebuttal Expert Report

Non-videotaped Depositions:
9-24-08, 9-26-08

Jury trial testimony:

2-04-09

Attorneys: For Plaintiff: McDermott, Will & Emery LLP

For Defendant: Townsend and Townsend and Crew LLP

Status: Jury award

2/2008 – 5/2010, 2/2011 – 4/2011 **Client: Simpson Thacher & Bartlett LLP (representing Cisco Systems, Inc.)**

Case: Commil USA, LLC v. Cisco Systems, Inc., et. al.

Case No. 2:07-CV-341-DF-CE

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

Testifying expert on invalidity regarding short range communication protocols.

Opening Expert Report

12-23-09

Videotaped Depositions:

02-09-10

Attorneys: For Plaintiff: Sayles Werbner

For Defendant: Simpson Thacher & Bartlett LLP

Status: Jury award for original trial and retrial

6/2007 – 4/2009 **Client: Common Interest Group of Co-Defendants**
11/2010 – 4/2012 **Client: Common Interest Group of Co-Defendants**

Case: Commonwealth Scientific and Industrial Research Organisation v. Toshiba America Information Systems, Inc., et. al.

Case No. 6:06-cv-00550-LED

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS TYLER DIVISION

Testifying expert in this patent case involving wireless LAN technology.

Declarations:

06-05-08 Regarding claim construction

12-17-08 Supporting opposition to summary judgment

04-05-09 Supporting motion for reconsideration

02-24-12 Supporting opposition to summary judgment

Expert Reports:

10-08-08 Rebuttal Expert Reports- Re: TI Chips, Re: Marvell Chips, Re: Airgo Chips, Re: Broadcom Chips, Re: Conexant Chips, Re: Ralink Chips, Re: Atheros Chips

01-27-12 Rebuttal Expert Reports- Re: TI Chips, Re: Broadcom Chips, Re: Ralink Chips, Re: Atheros Chips

Videotaped Depositions:
11-1-08, 11-2-08, 02-14-12

Attorneys: For Plaintiff: Townsend & Townsend LLP

For Defendant: Keker & Van Nest, LLP

Status: Case settled

10/2006 – 8/2009 **Client: Keker & Van Nest (representing Comcast Corporation)**

Case: Rembrandt Technologies, Inc. v. Comcast Corporation

Case No. 2-05CV-000443 (TJW)

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

Testifying expert in this patent case involving physical layer and data link layer communication protocols for cable networks.

Declaration:

01-10-07 Support of Claim Construction Brief

Videotaped Deposition:

12-22-06 Regarding claim construction opinions

Attorneys: For Plaintiff: McKool Smith

For Defendant: Keker & Van Nest

Status: Case settled

3/2007 – 5/2007 **Client: Niro, Scavone, Haller and Niro (representing MLR, LLC)**

Case: MLR, LLC v. Kyocera Wireless Corporation and Novatel Wireless, Inc.

Case No. 05-CV-0935 B (AJB)

Location: UNITED STATES DISTRICT COURT SOUTHERN DISTRICT OF CALIFORNIA

Testifying expert in this patent case involving cellular phone technology.

Expert Report:

04-20-07 Expert Report regarding infringement

Attorneys: For Plaintiff: Niro, Scavone, Haller, and Niro

For Defendant: Hogan & Hartson, LLP

Status: Case settled

6/2006 – 10/2006 **Client: Thompson & Knight (representing Ericsson, Inc.)**

Case: Fenner Investments, Ltd., v. Juniper Networks, Inc. et. al.
Case No. 2:05–CV–05 JDL

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

Testifying expert in this patent case involving wireless communications services.

Expert report regarding infringement and invalidity

5-23-06 Rebuttal expert report regarding infringement and invalidity

Attorneys: For Plaintiff: Fulbright & Jaworski

For Defendant Ericsson: Thompson & Knight

Status: Case settled

12/2003 – 5/2006 **Client: Howrey LLP/ Winston & Strawn LLP (representing McKesson Information Solutions, Inc.)**

Case: McKesson Information Solutions, Inc. vs. Bridge Medical, Inc.
Case No. CIV S-02-2669 FCD KJM

Location: UNITED STATES DISTRICT COURT EASTERN DISTRICT OF CALIFORNIA

Testifying expert in this patent case involving a patient on a patient identification and verification system that incorporates wireless technology.

Inequitable Conduct Trial live testimony:
5-04-06

Markman Hearing live testimony:
6-29/30-05

Videotaped Depositions:
2-14-04, 6-3-05

Declarations:
12-1-03 Dec. in support of MISI's Opening/Opposition re Claim Construction
12-24-04 Dec. in support of MISI's Motion for Preliminary Injunction
3-1-04 Dec. in support of Claim Construction
6-29-04 Dec. re meaning of "Communication"
7/15/05 Dec. in support of MISI's Opposition to Bridge's Motion for Summary Judgment

Attorneys: For Defendant: Morrison & Foerster

For Plaintiff: Howrey Simon, Winston & Strawn, Morgan Lewis

Status: Case closed.

07/2003–02/2006 **Client: Heller Ehrman LLP (representing Texas Instruments, Inc.)**

Case: Texas Instruments, Inc. and Stanford University vs. GlobespanVirata, Inc.

Provided discovery of evidence used at trial, concerning the structure and operation of Globespan's ADSL products, and supported litigators in depositions of Globespan engineers.

Attorneys: For Plaintiff: Heller Ehrman

For Defendant: Covington & Burling, LLP

Status: Jury award.

Patents

Patent Number	Date Issued	Title
8,189,538	May 29, 2012	Reconfiguration of a communication system
8,144,640	March 27, 2012	Location tracking in a wireless communication system using power levels of packets received by repeaters
8,064,380	November 22, 2011	Reconfiguration of a communication system
8,027,637	September 27, 2011	Single frequency wireless communication system
7,957,741	June 7, 2011	Token-based receiver diversity
7,876,704	January 25, 2011	Tunneling protocols for wireless communications
7,689,210	March 30, 2010	Plug-n-playable wireless communication system
7,672,274	March 2, 2010	Mobility support via routing
7,668,542	February 23, 2010	Token-based receiver diversity
7,515,557	Apr 7, 2009	Reconfiguration of a communication system
7,236,470	Jun 26, 2007	Tracking multiple interface connections by mobile stations
7,149,196	Dec 12, 2006	Location tracking in a wireless communication system using power levels of packets received by repeater
6,965,769	Nov 15, 2005	Testing Center

6,862,448	Mar 1, 2005	Token-based receiver diversity
6,788,658	Sep 7, 2004	Wireless communication system architecture having split MAC layer
6,760,318	Jul 6, 2004	Receiver diversity in a communication system
6,557,134	Apr 29, 2003	ARQ method for wireless communication
6,259,911	Jul 10, 2001	Network operations center hardware and software design

Education

Year	College/University	Degree
1993	Stanford University	PhD, Electrical Engineering Thesis: "Trellis Coding for Multi-Level, Partial-Response Continuous Phase Modulation with Precoding"
1988	Stanford University	MS, Electrical Engineering
1985	Rensselaer Polytechnic Institute	BS, Computer and Systems Engineering

Publications

Goldhamer, M., Grandblaise, D., Bims, H., Feng, S., Piggin, P., Sydor, J., and Wu, X. "Coexistence between 802.16 Systems Operating in Shared Bands", *Radio Resource Management in WiMAX,* John Wiley & Sons, 2009.

Bims, Harry. "Surveying the Wireless LANdscape. Or Why Large Wi-Fi Networks Require Good Planning." Xchange. [Online] Available http://www.xchangemag.com/articles/391supsys1.html, September 1, 2003.

Bims, Harry. "Building Voice-Ready Wireless LANs" Wireless Week. [Online] Available http://www.wirelessweek.com/article/CA319429.html?spacedesc=Departments, September 1, 2003.

Bims, Harry. "Enabling Voice over WLANs". White Paper. [Online] Available. **http://airflownetworks.com/solutions/pdf/vowlan_wp.pdf.** September 2003.

Bims, Harry. "Securing Enterprise WLANs". White Paper. [Online] Available. http://web.archive.org/web/20040303212529/airflownetworks.com/solutions/pdf/securing_wlans_wp.pdf. August 2003.

Bims, H. and Cioffi. J. "Trellis Coding for Full-Response CPM", *Third Generation Wireless Information Networks*, Kluwer Academic Publishers, 1992.

Bims, H. and Cioffi. J. "Trellis Coding for Full-Response CPM", *WINLAB WORKSHOP*, East Brunswick, NJ. October 18-19, 1990.

Bims, H. and Cioffi, J. "Trellis Coding for Partial-Response CPM", *1991 International Symposium on Information Theory*, Budapest, Hungary. June 24-28, 1991.

Bims, H. and Cioffi, J. "Trellis Coding with M-ary MSK Constraints", *GLOBECOM '89*, Dallas TX. Nov. 1989.

Professional Associations and Achievements

- Jan 2009 – Present Vice-Chair and Board of Directors, Menlo Park Chamber of Commerce
- Nov 2007 – Sep 2010 Vice-Chair and Secretary, IEEE 802.16h License Exempt Group
- Feb 2002 – Jan 2011 Member, City of Menlo Park Planning Commission (2006 Chairperson, 2005 Vice-Chairperson)
- Feb 2012 – Present Senior Member, IEEE
- Jan 2000 – Dec 2000 Chair, IEEE Engineering Management Society – Silicon Valley Chapter
- Jun 1985 - Jun 1991 AT&T Bell Laboratories Cooperative Research Fellow