

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VANGUARD PRODUCTS GROUP, INC., D/B/A VANGUARD PROTEX  
GLOBAL

Petitioner

v.

INVUE SECURITY PRODUCTS, INC.

Patent Owner

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Case No.: IPR2020-00069  
U.S. Patent No. 10,043,358

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**DECLARATION OF THOMAS L. BLACKBURN  
IN SUPPORT OF PATENT OWNER'S PRELIMINARY RESPONSE**

**EXHIBIT 2001**

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I, Thomas L. Blackburn, do hereby make the following declaration:

**I. INTRODUCTION**

1. I have personal knowledge of the facts stated in this declaration. If called to testify under oath, I could and would testify to these facts.

2. I have been retained by Patent Owner InVue Security Products, Inc. (“InVue”) as a subject matter expert in the present *Inter-Partes* Review (“IPR”) of U.S. Patent No. 10,043,358 (“the ‘358 patent”) before the Patent Trial & Appeal Board at the U.S. Patent and Trademark Office (IPR2020-00069).

3. I am being compensated in this matter at my standard consulting rate of \$575 per hour. My compensation in this matter is not in any way dependent upon the outcome of this proceeding or upon any particular opinion that I provide in this declaration or that I may provide at any point during this proceeding.

4. I understand that this declaration is being presented as part of InVue’s Patent Owner Preliminary Response to Petitioner Vanguard Product Group, Inc.’s (“Vanguard”) Petition requesting *inter partes* review of the ‘358 patent. I have been informed that, if a review of the ‘358 patent is instituted, InVue will have the opportunity to present a Patent Owner Response thereafter. I reserve the right to supplement my opinions, as well as the bases for my opinions, expressed in this declaration in light of additional materials, including evidence that may be

provided to me after submission of this declaration.

## **II. QUALIFICATIONS AND EXPERIENCE**

5. I am a U.S. citizen, currently residing in San Jose, California. I earned my Bachelor of Science in Electrical Engineering from San Jose State University, located in San Jose, California, in 1971. I also pursued graduate work in Engineering and Business through satellite classes from Santa Clara University (1972) and Stanford University (1972-1977).

6. I am a named inventor on more than thirty-five (35) U.S. and International patents.

7. From 2005 to 2009, I consulted for Echelon Inc., designing smart meters, including wireless components, power supplies, alarm systems and testing equipment for power supply and power management.

8. My professional activities and services have also focused on mobile, cellular, Bluetooth wireless technologies, optical communication including fiber optics, GPS, DSL, & ADSL, wireless and wired technologies, forensics, electronic discovery, markets, standards, spectrum, regulations, networks and services. I have also taught seminars on mobile, cellular, and fixed wireless technologies.

9. The following list also provides relevant examples of where my professional activities and services have focused:

- Network security systems
- Cell phone design
- Cellular phones, Handsets, Smartphones and PDA's including operating systems, SMS Messaging, MMS, WAP, Web Browsers, filters and access control
- Computer and laptop designs
- Wi-Fi and Bluetooth devices
- Alarm systems including mechanical housings, communications links, alarm sensors, LED indicators, speakers, microphones and sensor pads.
- Power supplies, power & charger adaptors / smart universal power adaptors / smart tips / Mophie
- Microprocessor design & implementations
- Cable design

10. A more comprehensive listing of my experience and work history is attached hereto as Appendix A.

### **III. LEGAL PRINCIPLES**

11. I am not an attorney, nor have I independently researched the law on the issue of patent validity. Attorneys for the Patent Owner explained certain legal principles to me that I have relied upon in forming my opinions set forth in this declaration.

12. I have been asked to provide my opinions regarding the validity of the ‘358 patent in light of the arguments and evidence offered by Petitioner and John “Jack” Figh, Jr., identified by Petitioner as its expert, as it relates to certain issues of claim construction and obviousness as further set forth herein.

13. I have been informed by counsel that in an *Inter Partes* Review, the petitioner bears the burden of proving unpatentability by a preponderance of the evidence.

14. I have been further informed that patents and other publications that are publicly available even one day before the “effective filing date” of the ‘358 patent are considered “prior art” to the patent. I have been informed that, in certain circumstances, the effective filing date for a patent may be earlier than the patent’s filing date. Although I do not have any reason to believe that this distinction has any particular relevance in the circumstances of this proceeding, I have been told for the purposes of this declaration in connection with the Patent Owner’s Preliminary Response to assume that the effective filing date for the ‘358 patent is that which the Petitioner uses – i.e. February 19, 2016 (Petition at 3). I understand that, in assuming this date as the effective filing date, I am also establishing the time at which the state of the art is measured.

15. I understand that Petitioner has alleged in its Petition that claims 1-3, 16-20, 23, 28 and 29 of the ‘358 patent are invalid as obvious in view of various

combinations of references. With regard to the question of obviousness, I have been informed that this requires an assessment of whether the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art.

16. I have been further informed that a determination of obviousness involves consideration of: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the relevant art; and (4) objective indicia of non-obviousness.

17. I have reviewed the various combinations of prior art asserted in the Petition. As part of doing so, I understand from counsel that it is important to examine the motivation or reasons that one of ordinary skill would or would not combine those elements and whether there would be a reasonable expectation of success in making the combination. I am informed and understand that the reason to select and combine features may be found in the prior art, in the nature of any need or problem in the field addressed by the patent, in the knowledge of a person of ordinary skill in the art, or in the common sense or the ordinary level of creativity exhibited by a person of ordinary skill in the art as of the effective filing date. I further understand that the reason need not be expressed or explicitly disclosed in a given prior art reference.

18. In contrast, I have been informed that if there is no motivation or reason to combine disclosures from different prior art references, if there is no reasonable expectation of success in the combination, or if the prior art provides information that would have taught away from the combination or otherwise expressed doubt regarding the likelihood of success of the combination, then the patent claim is not obvious.

19. I am further informed and understand that it is impermissible to employ hindsight by merely reconstructing the subject matter of the patent from prior art references without a reasonable rationale justifying the combination of elements from the prior art. My understanding is that the claimed invention is not to be used as a template to guide the obviousness analysis, but that the obviousness inquiry must focus on what a person of ordinary skill in the art would have understood prior to the effective filing date of the patent at issue.

#### **IV. MATERIALS CONSIDERED**

20. As part of my investigation and preparing this declaration, I considered the '358 patent, the Petition for *Inter Partes* Review in this proceeding and its exhibits, the file history of the '358 patent and its parent application (resulting in U.S. Patent No. 9,928,704), the publications set forth in appendices to this declaration, any other references cited herein, and my extensive experience in the field of alarm systems, power supplies, sensors, cables, LED, mechanical



housings and fiber optics. I reserve the right to consider additional materials that may be brought to my attention during the course of this proceeding.

**V. CLAIM CONSTRUCTION UNDER 37 C.F.R. 42.104(B)(3)**

**A. Level of Ordinary Skill in the Art**

21. I believe a person of ordinary skill in the art (“POSA”) as of the effective filing date of the ‘358 patent would have at least a Bachelor of Science degree in electrical engineering, mechanical engineering, materials science, or some equivalent level of education and at least some knowledge or experience with security devices, including alarms and sensors, the powering of electronic devices, and at least some knowledge or experience with applications using optical communication technology.

22. I have reviewed the level of ordinary skill in the art asserted by the Petitioner and disagree to the extent it would not require at least some knowledge or experience with the powering of electronic devices or applications using optical communication technology. The subject matter of the claims challenged by Petitioner relates to both the powering of electronic devices (e.g., claim 1) and optical communication technology (e.g., claim 23). Some of the references asserted as prior art by the Petitioner also relate to the powering of electronic devices (e.g., VPG-1004 “Grant”) and to optical communication technology (e.g., VPG-1008 “Vogt”).

**B. Claim Construction**

23. I am informed and understand that the claims of the ‘358 patent are to be construed according to the ordinary and customary meaning as would be understood by a POSA and the prosecution history of the patent.

24. I have considered construction of the claim term “auxiliary device of the article of merchandise” as that term is used in the ‘358 patent. In its written description, the ‘358 patent states that a base “may be configured to electrically connect to an auxiliary device, such as, for example, an auxiliary device for the item of merchandise 14 on display (e.g., a stylus, speaker, keyboard, Bluetooth device, etc.).” VPG-1001 at 5:48-52. A POSA would understand that each of these examples are devices that are intended for use or functioning with the article of merchandise that is being secured. These examples indicate to a POSA that, as used in the ‘358 patent, “auxiliary devices of the article of merchandise” are not just devices that can be used at the same time as the article of merchandise nor devices required for use of the article of merchandise. Instead, as “of the article of merchandise” implies, auxiliary devices are devices that are specifically designed to be used by the customer with the article of merchandise. This is further illuminated by claim 10, which refers to an auxiliary device as comprising “a stylus, speaker, a keyboard or a Bluetooth device each configured to operate with the article of merchandise.” (Emphasis added). And column 6, lines 6-8 of the

‘358 patent indicate: “[T]he auxiliary port 45 allows an auxiliary device to be displayed and used by a prospective customer in connection with an item of merchandise.” (Emphasis added).

25. Accordingly, I believe a POSA would understand the ordinary customary meaning of “auxiliary device of the article of merchandise” as a “device specifically designed to be used by the customer with the article of merchandise.”

26. I have considered, and disagree with, Petitioner’s construction of “auxiliary device of the article of merchandise,” which Petitioner would construe as “an electronic device complementary to the article of merchandise.” In my opinion, the Petitioner has simply attempted to substitute “complementary” for “auxiliary” because “complementary” is a word that appears in one of the prior art references (Wheeler / VPG-1006) that Petitioner wants to combine.

“Complementary” does not appear in the ‘358 patent nor its prosecution history in connection with “auxiliary device.” Definitions of the word “complementary” suggest it means something that is required for completeness. Appendix B (dictionary definitions including “serving to fill out or complete” and “mutually supplying each other’s lack”). However, as set forth above, the examples of auxiliary devices provided in the ‘358 patent (“a stylus, speaker, keyboard, Bluetooth device, etc.”) do not fit with these definitions. For example, where the item of merchandise is a mobile phone, the phone and keyboard can be used

together but such do not mutually supply some deficiency in each other nor is a keyboard necessarily required for use of a mobile phone or vice versa.

27. I may consider other constructions proposed by the Petitioner should an *inter partes* review of the ‘358 be instituted by the Patent Trial and Appeal Board.

## **VI. THE PETITION FAILS TO ESTABLISH THE OBVIOUSNESS OF ANY OF THE CHALLENGED CLAIMS**

28. Having reviewed the petition and other materials as indicated above, in my opinion, the Petitioner has failed to establish the obviousness of any of the challenged claims for at least the following reasons.

### **A. Grounds 1 and 2 – Grant and Marszalek**

29. In Grounds 1 and 2, for its assertion of obviousness, Petitioner relies on a combination that includes Marszalek (VPG-1005), Wheeler (VPG-1006), and Grant (VPG-1004) as supposedly teaching claim 1’s requirement of a base that “transfers power to the auxiliary port for powering the auxiliary device.” Petition at 27. According to the Petitioner, the combination of Marszalek and Wheeler provides a base that delivers power to a peripheral sensor that is attached to an auxiliary device. *Id.* Then, Petitioner asserts that Grant teaches that “power can be transferred from a sensor to an electronic device to which the sensor is attached using an adapter cable.” *Id.* According to Petitioner it would then be “obvious to

use an adapter cable to electrically connect the peripheral sensor to the auxiliary device to enable power transfer from the base to the auxiliary device.” *Id.* at 28. In short, Petitioner asserts that a POSA would use Grant’s adapter cable to connect between an auxiliary device and the peripheral sensor of Marszalek in order to provide power to the auxiliary device.

30. I disagree because, as I will explain further, Marszalek’s peripheral sensor is not provided with power for transferring to, or powering, an auxiliary device.

31. As illustrated in FIG. 1, Marszalek indicates an article 12 may be tethered to main body of alarm apparatus 2 with a peripheral tether cable 18. VPG-1005 at 11:13-14.

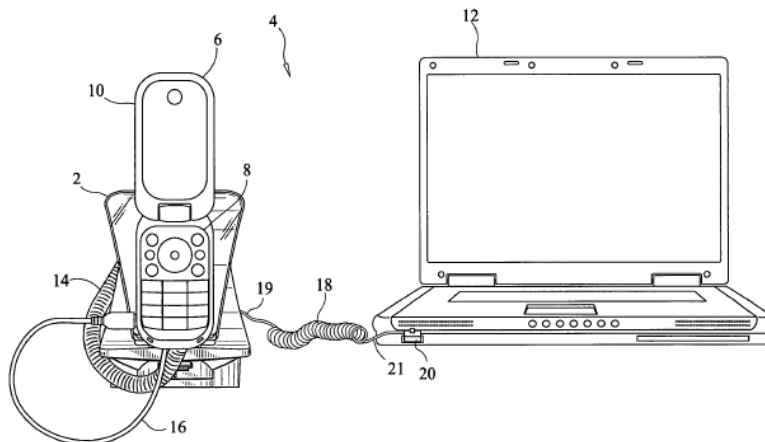


FIG. 1

32. Marszalek indicates that one end 21 of peripheral tether cable 18 “may have a peripheral sensor 20 that may be attached to the article 12.” VPG-

1005 at 11:18-20. The peripheral sensor 20 may have an LED to indicate its status.

*Id.* at 11:22-23. Marszalek states that “peripheral tether cable 18 may communicate power and/or data between the main body 36 and the peripheral sensor 20.”

33. However, Marszalek contains no disclosure expressly or even implicitly indicating to a POSA that either peripheral tether cable 18 or peripheral sensor 20 are supplying power to article 12. To the contrary, FIG. 1 shows peripheral sensor 20 is simply “attached” to the front of article 12 – i.e. a laptop computer, which typically does not have a power connection along the front. Additionally, peripheral sensor 20 is not described or shown as having a port for connecting to article 12 and is not otherwise described as being electrically connected with article 12.

34. Moreover, Marszalek also does not teach to a POSA that peripheral sensor 20 is even supplied with power that would be sufficient for use with article 12 or that peripheral tether cable 18 carries power sufficient for use with article 12. A POSA would understand that the power requirements for a laptop would be much different than for peripheral sensor 20. Specifically, the voltages and amperages for a peripheral device such as a laptop would substantially exceed that required for peripheral sensor 20 – even if peripheral sensor 20 is equipped with an LED or a plunger switch. For example, a laptop computer when either operating

from AC power or local battery requires an input power of typically 20W to 60W. On the other hand, a sensor device such as Marszalek's that is used for security purposes would only require an input power of typically 0.1 W to power the LED. Thus, a 60W requirement for the peripheral device would be about 600 times that required for an LED, which in turn would require a proper power supply and peripheral tether cable – none of which is taught by Marszalek. Thus, in my opinion, Marszalek contains no disclosure teaching a POSA that peripheral cable 18 or peripheral sensor 20 are equipped to provide power to article 12, which would have a significantly different power requirement than peripheral sensor 20.

35. In addition, a POSA would understand that different auxiliary devices (e.g., a speaker vs. another Bluetooth device) will have significantly different power requirements. Marszalek contains no disclosure of power to the peripheral sensor for any of these devices – much less a way of adjusting for these different requirements for different auxiliary devices.

36. As such, in my opinion, even if Grant teaches power can be transferred from a sensor to an electronic device as Petitioner asserts (Petition at 27-28), such is inconsequential because a POSA would understand that Marszalek's peripheral sensor is not provided with power for transferring to an auxiliary device in the first place. Accordingly, a POSA would not make this combination of Grant and Marszalek asserted in the Petition. For this same reason,

I am also of the opinion a POSA would not have a reasonable expectation of success in combining Grant with Marszalek's peripheral sensor because, again, Marszalek's peripheral sensor is not provided with power for transferring to an auxiliary device in the first place.

37. Grounds 1 and 2 (which challenge claims 1-3, 16-18, 19, 20, 23, 28, and 29) rely on this faulty combination of Marszalek and Grant. Accordingly, I conclude that Petitioner has failed to establish the obviousness of claims 1-3, 16-18, 19, 20, 23, 28, and 29.

**B. Grounds 3 and 4 – Brenner and Marszalek**

38. Grounds 3 and 4 (which challenge claims 1-3, 16, 18, 19, 20, 23, 28, and 29) rely on the same faulty understanding of Marszalek – but in combination with an adapter cable from Brenner (VPG-1007) instead of from Grant. More particularly, for Grounds 3 and 4, Petitioner relies on a combination that includes Marszalek (VPG-1005), Wheeler (VPG-1006), and Brenner (VPG-1007) as supposedly teaching claim 1's requirement of a base that "transfers power to the auxiliary port for powering the auxiliary device." Petition at 62.

39. According to the Petitioner, the combination of Marszalek and Wheeler provides a base that delivers power to a peripheral sensor that is attached to an auxiliary device. *Id.* Then, Petitioner asserts that Brenner teaches that "power can be transferred from a sensor to an electronic device to which the sensor



is attached using an adapter cable.” *Id.* According to Petitioner it would then “be obvious to use an adapter cable to electrically connect the peripheral sensor to the auxiliary device to enable power transfer from the base to the auxiliary device.” *Id.* at 62-63. So here, Petitioner asserts that Brenner indicates an adapter cable can be used to connect between an auxiliary device and the peripheral sensor of Marszalek in order to provide power to the auxiliary device.

40. Similar to the reasons I set forth above with respect to Grounds 1 and 2, I also disagree here with the Petition because, as I will explain further, Marszalek’s peripheral sensor is not provided with power for transferring to an auxiliary device.

41. Again, as illustrated in FIG. 1, Marszalek indicates an article 12 may be tethered to main body of alarm apparatus 2 with a peripheral tether cable 18. VPG-1005 at 11:13-14.

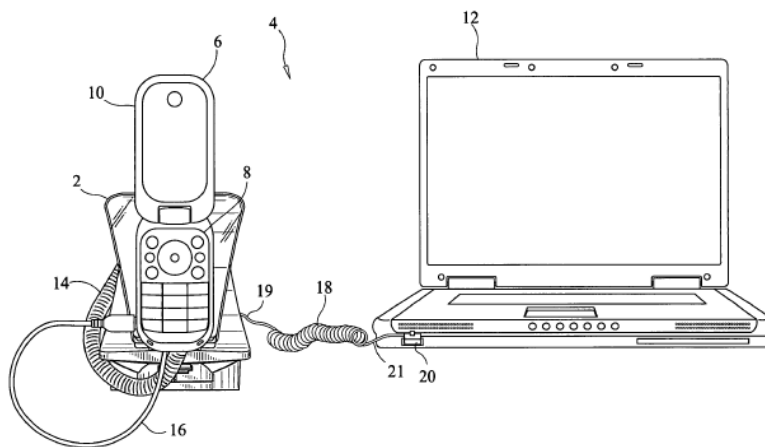


FIG. 1

42. Marszalek indicates that one end 21 of peripheral tether cable 18 “may have a peripheral sensor 20 that may be attached to the article 12.” VPG-1005 at 11:18-20. The peripheral sensor 20 may have an LED to indicate its status. Id. at 11:22-23. Marszalek states that “peripheral tether cable 18 may communicate power and/or data between the main body 36 and the peripheral sensor 20.”

43. However, Marszalek contains no disclosure expressly or even implicitly indicating that either peripheral tether cable 18 or peripheral sensor 20 are supplying power to article 12. To the contrary, FIG. 1 shows peripheral sensor 20 is simply “attached” to the front of article 12 – i.e. a laptop computer, which typically does not have a power connection along the front. Additionally, peripheral sensor 20 is not described or shown as having a port for connecting to article 12 and is not otherwise described as being electrically connected with article 12.

44. Moreover, Marszalek also does not teach to a POSA that peripheral sensor 20 is even supplied with power that would be sufficient for use with article 12 or that peripheral tether cable 18 carries power sufficient for use with article 12. A POSA would understand that the power requirements for a laptop would be different than for peripheral sensor 20. Specifically, the voltages and amperages for a peripheral device such as a laptop would substantially exceed that required

for peripheral sensor 20 – even if sensor 20 is equipped with an LED or a plunger switch. For example, a laptop computer when either operating from AC power or local battery requires an input power of typically 20W to 60W. On the other hand, a sensor device with an LED such as Marszalek's that is used for security purposes only requires an input power of typically 0.1 W. As set forth earlier, a 60W requirement for the peripheral device would be about 600 times that required for an LED, which in turn would require a proper power supply and peripheral tether cable – none of which is taught by Marszalek. A POSA would not understand Marszalek as containing any disclosure indicating that peripheral sensor 20 or cable 18 are equipped to provide power to article 12, which would have a significantly different power requirement than peripheral sensor 20.

45. As stated previously, different auxiliary devices (e.g., a speaker vs. another Bluetooth device) will likely have significantly different power requirements. Marszalek contains no disclosure of power to the peripheral sensor for any of these devices – much less a way of adjusting for these different requirements for different auxiliary devices.

46. Therefore, in my opinion, even if Brenner teaches power can be transferred from a sensor to electronic device as Petitioner asserts (Petition at 62), such is inconsequential because a POSA would understand that Marszalek's peripheral sensor is not provided with power for transferring to an auxiliary device

in the first place. Accordingly, a POSA would not have a reason to make the combination of Marszalek and Brenner as asserted in the Petition. For the same reason, a POSA would not have a reasonable expectation of success in combining Brenner with Marszalek's peripheral sensor because Marszalek's peripheral sensor is not provided with power for transferring to an auxiliary device.

47. Grounds 3 and 4 (which challenge claims 1-3, 16, 18, 19, 20, 23, 28, and 29) rely on this faulty combination of Marszalek and Brenner. Accordingly, I conclude that Petitioner has failed to establish the obviousness of claims 1-3, 16, 18, 19, 20, 23, 28, and 29.

## **VII. CONCLUSION**

48. For the reasons set forth above, in my opinion the Petition fails to demonstrate that any of the challenged claims of the '358 patent are obvious.

I hereby declare, under penalty of perjury, that all statements made herein based on my own personal knowledge are true and that all statements based on information and belief are believed to be true. I have been warned, and I do understand, that willful false statements and the like are punishable by fine, imprisonment, or both under 18 U.S.C. § 1001, and may jeopardize the validity of the '358 patent involved in this proceeding.

DATE: 01/23/20

SIGNATURE: Thomas L. Blackburn  
Thomas Blackburn

# **APPENDIX A**

**ATS Expert Witness Services**  
**408-828-9000**  
[gina@expertsonexperts.com](mailto:gina@expertsonexperts.com)

## **Thomas L. Blackburn**

**Thomas Blackburn** is a noted technologist, product developer, consultant, patent analyst, educator, and expert witness, specializing in mobile, cellular, Bluetooth wireless technologies, GPS technologies, network security systems, wired technologies and networks, phones, standards, services, and systems. Mr. Blackburn has over thirty years of experience in the field of electrical, industrial, RF and telecommunications engineering. He has worked for private organizations and has been a founder of several successful start-up telecommunications companies. Mr. Blackburn holds over 35 US and International Patents in the telecommunications field.

Since 1996, his professional activities and services have focused exclusively on mobile, cellular, Blue-Tooth wireless technologies, DSL, ADSL, GPS, A-GPS, wireless and wired technologies, network security systems, forensics, electronic discovery, markets, standards, spectrum, regulations, networks and services. He has taught seminars on mobile, cellular and fixed wireless technologies. He has served as a plaintiff and defendant expert witness on a wide spectrum of civil, criminal and business matters/litigation involving wired and wireless technologies, electronic discovery, communications products and services.

As a patent analyst, he has assisted many leading law firms in defending against or asserting claims of patent infringement and patent validity. This patent work has encompassed Wi-Fi/WLAN standards, Bluetooth standards, DSL standards, all generations of standards for GSM, UMTS, LTE, and CDMA2000 cellular standards, including GSM/3GPP, ETSI, OMA, WAP, CT-2 / DECT / COMS.

He has written many expert reports for non-infringement, infringement, invalidity and validity. He has given depositions and has testifying experience. He has performed due diligence on patents in the early stages of infringement. He has testified at deposition or at a jury trial over 20 times. He has opined on many IPR's – reviewing cited prior art for invalidity.

As a cellular forensic analyst, he has worked closely with private attorneys and Public Defenders in analyzing call detail records and has opined on cell phone location after performing cell site and CDR analysis. He has testified at deposition or at a jury trial 25 times.

As an electronic discovery expert, he has worked closely with private attorneys in determining the transmission and receipt of critical documents such as DMCA notices, contracts, agreements and other legal documents using email, FAX and other transmissions media.

Mr. Blackburn's expertise in cellular, mobile, networks, GPS, DSL & ADSL, wired and wireless communications encompasses the following areas:

### **Computer, Cellular/Mobile, GPS and Wireless Technologies**

- 2G, 3G and 4G mobile networks
- Location based services – GPS, A-GPS, Wi-Fi
- SMS/MMS Standards & Protocols
- Network security systems
- Cordless Telephone Standards
- Cell phone design
- Auto-dialer design
- GPS designs
- GPS devices – data analysis & tracking
- Cellular phones, Handsets, Smartphones and PDA's including operating systems, SMS Messaging, MMS, WAP, Web Browsers, filters and access control
- Mobile & Wireless VoIP
- Interstate & International Calling Standards – Billing, Access Charges
- Bluetooth devices
- Alarm systems, mechanical housings, communications links
- Fax transmissions- Copyright DMCA notices
- Wired technologies – DSL, ADSL2+, VDSL
- Power & charger adaptors / smart universal power adaptors / smart tips / Mophie
- E-cigarette design, failure analysis, battery explosion
- Microprocessor design & implementations
- Multiple Access Technologies - CDMA, TDMA, FDMA, DSSS
- Network Standards
  - GSM, GPRS & EDGE
  - HSDPA, HSUPA, HSPA+
  - iDEN
  - IS-95, CDMA2000, EV-DO
  - IS-54, IS-136
  - CT-2 / DECT / COMS Standards for Cordless Telephones
  - IMT-2000
  - LTE (Long Term Evolution)
  - WCDMA/UMTS
  - Wi-Fi
  - DSL

### **Patent Infringement for Wired and Wireless Technologies**

- Due diligence on patent claims
- Patent infringement/non-infringement analysis
- IPR Cases



- Patent validity/invalidity analysis & prior art search and opinions
- Claim charts & proof packages
- Technology evolutions
- Expert reports
- Testify

## **Work History**

### **GTE (General Telephone & Electronics) *Advanced Development Group* 1972 – 1985**

State of the art telephony designs, coin & pay phone designs – over 25 US & International Patents  
International telephone standards, designs

### **Go Digital Telecommunications – Engineering Director / Founder 1996 – 2006**

State of the art telephony designs – DSL, ADSL, HDSL – 3 US Patents  
Network security and alarm system design

### **Consultant / Expert Witness (05/1985 – Present)**

Expert witness & testify, Intellectual Property support services including reverse engineering of hardware & software, copyright & patent claims analysis, research, prior art searches. Cellular systems, GPS, Location Bases Systems, DSL, ADSL telephone designs, copper cable systems / design, fiber optic systems, Internet Access systems DSP systems, FPGA architectures.

Electronic Product Design and development including audio/video system design, digital & analog design, microcontroller development, power supply design, e-cigarette failure analysis.

### **Consulting Clients:**

#### **Hawg Wired Inc. 1997 – 2010**

Provided consulting services for Audio System design for motorcycle systems

#### **Echelon Inc. 2005 - 2009**

Provided consulting services for Electricity Smart Meter, Lighting fixture & iLON Internet Server, power supply testing, NEBS Level 4 testing. Power supply design w/ power management. Cellular designs. Network security and alarm system design

#### **E/O Networks 1988 - 1990**

Provided consulting services regarding VoIP, FTTH (Fiber-to-the-Home) specifications and design. Network Management design. – Patent & copyright reviews.

#### **Raychem 1989 - 1996**

Provided consulting services regarding DSL /HDSL systems design. Cable specification & design

#### **Raynet 1988 - 1992**

Provided consulting services regarding FTTH (Fiber-to-the-Home) specifications and design. Network Management design – copyright of CD manual for electrical appliances

**Able Telecommunications 1987 - 1989**

Provided consulting services regarding channel bank & line card design.

**International Compliance & Approvals, Inc.**

Provided consulting services regarding testing telecommunications systems per UL / Telecordia

**Evotech – 1985 - 1995**

Provided consulting services regarding systems designs for both commercial & industrial applications. Cell phone designs, navigation devices (GPS), medical devices.

**Major expert case areas he has worked on include:**

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- Patent Infringement / Claim Elements - Review, comparison and analysis, prior art and discovery
- Patent Infringement / Validity and Invalidity reports, depositions, testify
- IPR cases
- Cell phone call records analysis, tracking analysis, GPS, A-GPS
- Multi-channel ADSL systems using DSL (gSHDSL) transport technology
- Twisted copper cable design / specification for DSL / ADSL2+ transport, 10/100 Mbit
- Cell phone memory analysis (Smart card, SIM, hard drive) for deleted messages, video, pictures
- 911 & E911 liability, compliance and regulatory issues, equipment failure and maintenance
- Cell Phone design (hardware & mechanical) – patent infringement
- FCC Standards & Regulations – Interstate, International calling
- FCC Tariffs, Access Charges, LATA calls
- Design Standards: 3GPP, ETSI, ITU; Wi-Fi Standards 802.11b/g/n
- Networks including UMTS, GSM, TDMA, CDMA, EV-DO, GPRS, FOMA, wireless IP, etc.
- Services including SMS, EMS, MMS, VoIP, SS7, Wi-Fi, email, instant messaging, etc.
- Protocols including SMS, EMS, MMS, HSDPA, WAP, TCP/IP, UDP, etc.
- 800 MHZ Radio System architecture, design, audits and failure analysis – Repeater systems
- Cisco servers, routers; network switch architectures; packet switch routing
- Consumer product analysis, forensic testing, reverse engineering, BOM review, construction
- analysis – computers, TV Desk Top units, Auto-dialers, wireless devices, Headphones, e-cigarette.
- Determine cost and sales price for products – Insurance claims, thief, ebay
- Power system analysis / high voltage failures / proper grounding analysis
- Consumer product analysis for proper design / construction & assembly per UL
- Cable liability case involving cable installation procedures
- UL safety testing, NEBS, IEC62052/53, IEC60601 (Medical), IEC61000 & RBOC lab testing
- Class Action Lawsuits
- Computer / laptop analysis – records monitoring
- FAX, email using IP
- GPS devices – design, data analysis, data recovery
- Location Based Systems
- Laptop design, keypads, battery, battery chargers
- Bluetooth devices
- Audio headset testing & verification of operation (Boise, ear buds for cell phones).
- DSP & FPGA desktop / plug-in architecture design and reverse engineering
- Fiber Optic system design & failure analysis – network management design

- PC Power Supply (AT, ATX & Brick-laptop), power management, market surveys & analysis
- 20W – 50W power supply designs w/ power management, line powered systems

## **Education**

<u>Year</u>	<u>College/University</u>	<u>Degree</u>
1972-77	Stanford University (Satellite classes @ GTE)	Graduate work in Engineering and Business – non accredited
1972	Santa Clara University (Satellite classes)	Graduate work in Engineering and Business – non accredited
1971	San Jose State University, San Jose, CA	BS w/distinction, Electrical Engineering GPA 3.25

## **Patents Awarded - 37**

US Patent # 3,766,414	Issued Oct. 16, 1973
US Patent # 3,781,482	Issued Dec. 25, 1973
US Patent # 4,012,688	Issued Mar. 15, 1977
US Patent # 4,048,576	Issued Sept.13, 1977
US Patent # 4,145,665	Issued Mar. 20, 1979
US Patent # 4,170,722	Issued Oct. 09, 1979
US Patent # 4,205,275	Issued May. 27, 1980
US Patent # 4,240,024	Issued Dec. 16, 1980
US Patent # 4,405,903	Issued Sept.20, 1983
US Patent # 4,439,634	Issued Mar. 27, 1984
US Patent # 4,536,871	Issued Aug. 20, 1985
US Patent # 4,580,260	Issued Apr. 01, 1986
US Patent # 4,583,220	Issued Apr. 15, 1986
US Patent # 4,591,855	Issued May. 27, 1986
US Patent # 4,633,459	Issued Dec. 30, 1986
US Patent # 4,642,426	Issued Feb. 10, 1987
US Patent # 4,658,395	Issued Apr. 14, 1987
US Patent # 5,691,718	Issued Nov. 25, 1997
US Patent # 6,556,638	Issued Apr. 29, 2003
US Patent # 6,567,522	Issued May. 20, 2003
US Patent # 7,023,877	Issues April 04, 2006

International Patent # WO 96/41441      Issued Dec. 19, 1996

Canadian Patent # 961,097	Issued Jan. 14, 1975
Canadian Patent # 991,765	Issued June. 22, 1976
Canadian Patent # 1,107,824	Issued Aug. 25, 1981
Canadian Patent # 1,123,068	Issued May. 04, 1982
Canadian Patent # 1,123,924	Issued May. 18, 1982
Canadian Patent # 1,132,200	Issued Sept. 21, 1982
Canadian Patent # 1,132,592	Issued Oct. 12, 1982
Canadian Patent # 1,137,178	Issued Dec. 07, 1982
Canadian Patent # 1,165,409	Issued Apr. 10, 1984
Canadian Patent # 1,190,681	Issued July 16, 1985
Canadian Patent # 2,223,977	Issued Dec. 19, 1996

European Patent #EP0872067 Issued Oct. 21, 1998  
 Australian Patent # AU6038096 Issued Dec. 30, 1996  
 South Africa Patent # ZA9604841 Issued Dec. 08, 1997  
 Argentina Patent # A002206 Issued Jan. 07, 1998

## **Focus Groups**

Nichols Research – PC Power Supplies – Market analysis and surveys, oscilloscopes, semiconductors, cell phone architectures, microprocessors, routers, patents.

## **Publications and Presentations (Lectures, Teaching Classes)**

- IEEE Journal –Articles regarding electronics and telecommunications devices (1975 – 1982) – Co-author with Jim Stewart, Neal Zelmer (GTE Lenkurt Inc.)
- Presentations at IEEE & NEC conventions and meetings. Presentations at Public Defenders Office's
- Articles for Quarterly Newsletters – Forensis Group, Consolidated

## **Professional Associations and Achievements**

- IEEE 1972 – 1985- currently not a member
- 1999 “Super Star” award for superior telecommunications design

## **Patent Cases in the past 7-10 years**

Case	Solaredge Technologies v. SMA Solar Technology DEFENDANT <b>2019 Active</b>  <b>Patent # 8,922,048 IPR # IPR2020-00021</b>	
Client	<div> Michael Kucher  <a href="mailto:mkucher@slatermatsil.com">mkucher@slatermatsil.com</a>   <b>Slater Matsil, LLP</b>  <b>17950 Preston Road, Suite 1000</b>  <b>Dallas, Texas 75252</b>  <b>(972) 707-9023</b> </div> <div> Thomas Eschweiler  <a href="mailto:TEschweiler@epiplaw.com">TEschweiler@epiplaw.com</a>   <b>Eschweiler &amp; Potachnik, LLC</b>  <b>629 Euclid Ave., Suite 1000</b>  <b>Cleveland, Ohio 44114</b>  <b>(216) 502-0600</b> </div>	
Subject Matter	System, Apparatus and Methods – PV Sub-Generator Box & PV Inverter for a PV System IPR	
Cause	PTAB Issue	
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Prior art patent searches</li> <li>• Summary in support of validity</li> </ul>	

Case	<b>Smart Meter Tech. v. Duke Energy    PLAINTIFF    2017 - 2018</b> <b>ITRON, Inc. v. Smart Meter Technologies    (IPR)    DEFENDANT</b>  <b>Patent # 7,058,524                      IPR# IPR2017-01199</b>
Client	Rick Sanchez <a href="mailto:rsanchez@whitakerchalk.com">rsanchez@whitakerchalk.com</a>  <b>Whitaker Chalk Swindle &amp; Schwarz PLLC</b> <b>301 Commerce Street, Suite 3500</b> <b>Fort Worth, TX 76102-4186</b>
Subject Matter	Smart Meter technology Power Supply Power line communication – cellular, Wi-F-, PLC
Cause	PTAB Issue
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Claim terms</li> <li>• Prior art references</li> <li>• Wrote IPR declaration</li> </ul>

Case	<b>TCL v. Ericsson        DEFENDANT    2016 Closed</b>  <b>International Pub. # WO 99/46949                      IPR # IPR 2015-01772</b>
Client	<b>Lisa Mandrusiak</b> <a href="mailto:lmandrusiak@oblon.com">lmandrusiak@oblon.com</a>  Oblon, McClelland, Maier & Neustadt, LLP 1940 Duke Street, Alexandria, Virginia  Direct: 703.412.6492
Subject Matter	Location Servers, databases, GPS, A-GPS; UMTS, LTE 3GPP Messages Position updating method, user preferences, determinations
Cause	PTAB Issue
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Prior art references</li> <li>• IPR analysis and rebuttal</li> <li>• Wrote (3) IPR declarations</li> </ul>

Case	<b>Muzik, et al. v. Perkins Coie</b> <b>DEFENDANT 2019 Active</b>
Client	<p>Andrew D. Cohen  <a href="mailto:acohen@pbwt.com">acohen@pbwt.com</a></p> <p><b>Patterson Belknap Webb &amp; Tyler LLP</b>  <b>1133 Avenue of the Americas</b>  <b>New York, NY 10036-6710</b>  <b>(212) 336-2605</b></p>
Subject Matter	System, Apparatus and Methods – Short message commands for a remote or wearable device.
Cause	Patent Infringement
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Prior art patent searches</li> </ul>

Case	<b>Local Intelligence, LLC v. HTC America, Inc. et al</b> <b>PLAINTIFF 2018 Active</b>
Client	<p>Nicole D. Galli  <a href="mailto:ndgalli@ndgallilaw.com">ndgalli@ndgallilaw.com</a></p> <p><b>Law Offices of N.D. Galli LLC</b>  <b>2 Penn Center Plaza, Suite 910</b>  <b>1500 JFK Blvd</b>  <b>Philadelphia, PA 19102</b></p>
Subject Matter	System, apparatus and methods for refreshing a display of a telephone
Cause	Patent Infringement

Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Claim terms / claim construction / extrinsic evidence</li> <li>• Declaration in support of claim construction briefing</li> </ul>
Case	<b>Mobility Workx, LLC v. T-Mobile, et. al    PLAINTIFF    2018</b>
Client	David Skeels <a href="mailto:dskeels@whitakerchalk.com">dskeels@whitakerchalk.com</a>  <b>Whitaker Chalk Swindle &amp; Schwarz PLLC</b> <b>301 Commerce Street, Suite 3500</b> <b>Fort Worth, TX 76102-4186</b>
Subject Matter	System, apparatus and methods for proactive allocation of wireless communication resources (Handover procedures)
Cause	Patent Infringement
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Claim terms / claim construction / extrinsic evidence</li> <li>• Declaration in support of claim construction briefing</li> </ul>

Case	<b>NIC v. Newport Trial Group</b> <b>PLAINTIFF</b> <b>2017</b>
Client	<b>James M. Sabovich</b> <b>Callahan &amp; Blaine</b> <b>3 Hutton Centre Drive</b> <b>Ninth Floor</b> <b>Santa Ana, CA 92707</b>
Subject Matter	Location servers, databases, GPS, UMTS, LTE 3GPP messages Cell phone data records Cell site location sites
Cause	Declaration for accuracy and reliability of phone records

Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of records</li> <li>• Wrote declaration</li> </ul>
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Case	<b>Nokia Corp. v. Huawei Tech. Co. Ltd.      PLAINTIFF    2016 Closed</b>
Client	<b>Scott Stevens</b> <a href="mailto:Scott.Stevens@alston.com">Scott.Stevens@alston.com</a>  Alston & Bird LLP 1201 W. Peachtree Street, Atlanta, Georgia 30309 (404) 881-7000
Subject Matter	Cellular handover technologies Inter-RAT & idle mode relocation Handover to non-3GPP
Cause	Infringement
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Claim terms</li> <li>• Prior art references</li> </ul>

Case	<b>COMARCO WIRELESS TECHNOLOGIES, INC. v. Apple Inc.      PLAINTIFF</b> <b>2015 Closed</b>
Client	<b>Charles Quinn- (Charles Quinn; Ethan R. Fitzpatrick; Glen M Diehl)</b> <a href="mailto:CQuinn@grahamcurtin.com">CQuinn@grahamcurtin.com</a>  Charles Quinn; Ethan R. Fitzpatrick; Glen M Diehl GRAHAM CURTIN PA 4 Headquarters Plaza Morristown, NJ 07962-1991
Subject Matter	Charging adaptors and smart cables.
Cause	Infringement of patent for smart cables



Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Prior art references</li> <li>• IPR analysis and rebuttal</li> </ul>
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Case	<b>Core Wireless v. Apple Inc. PLAINTIFF 2014 Closed</b>
Client	<b>Dino Hadzibegovic - (Bunsow De Mory Smith &amp; Allison LLP)</b> <a href="mailto:dhadzibegovic@bdiplaw.com">dhadzibegovic@bdiplaw.com</a> <b>Bunsow De Mory Smith &amp; Allison LLP</b> 55 Francisco Street, Suite 600 San Francisco, CA 94133 (415) 426-4735
Subject Matter	Protocols and standards – 3GPP / OMA GSM, UMTS, LTE Quality measurement report protocol (QoS parameters); Dynamic configurations Handoff / handover procedures
Cause	Infringement of patent for data transmission
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Prior art references</li> <li>• Claim construction</li> <li>• Validity charts / reports</li> <li>• Infringement reports</li> </ul>

Case	<b>Skyhook v. Google PLAINTIFF 2014 Settled</b>
Client	<b>Paul Ehrlich – Tensegrity Law Group LLP</b> <a href="mailto:paul.ehrlich@tensegritylawgroup.com">paul.ehrlich@tensegritylawgroup.com</a> <b>TENSEGRITY LAW GROUP LLP</b> 555 Twin Dolphin Drive, Suite 360 Redwood Shores, CA 94065 650-802-6045 (phone) 650-802-6001 (fax)
Subject Matter	Location based system and applications – GPS, A-GPS, Wi-Fi; server location Storage tracking system. Blue-Tooth. Wi-Fi servers, databases
Cause	Infringement of patent

Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Prior art references</li> <li>• Claim construction</li> <li>• Validity charts / reports</li> <li>• Infringement reports</li> </ul>
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Case	<b>BookIT v. Google</b> PLAINTIFF <b>2014 Closed</b>
Client	<b>Annie Huang – Robins, Kaplan, Miller &amp; Ciresi</b> <a href="mailto:ahuang@rkmc.com">ahuang@rkmc.com</a>  <b>Robins, Kaplan, Miller &amp; Ciresi</b> <b>601 Lexington Ave.</b> New York, NY 10022 (212) 980-7438
Subject Matter	SMS network architecture and system, location servers and databases Booking systems
Cause	Infringement of patent
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Prior art references</li> <li>• Claim construction</li> <li>• Validity charts / reports</li> <li>• Infringement reports</li> </ul>

Case	<b>SmartPhone Technologies, Inc. v. HTC Corp.</b> PLAINTIFF <b>2013 Settled</b>
Client	<b>Ed Nelson- (Nelson Bumgardner Casto– Intellectual Property Litigation)</b> <a href="mailto:enelson@nbclaw.net">enelson@nbclaw.net</a> ; <a href="mailto:tcecil@nbclaw.net">tcecil@nbclaw.net</a>  <b>Nelson Bumgardner Casto</b> 3131 W. 7 <sup>th</sup> Street, Suite 300 Fort Worth, Texas 76107 (817) 806-3812
Subject Matter	Telephony functionality of smartphone; synchronization of computers Alternative network links; Managing phone calls on a PDA; Data exchange between computers Handset functionality
Cause	Infringement of patents

Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents and review of Nokia patent portfolio</li> <li>• Prior art references</li> <li>• Claim construction</li> <li>• Validity charts / reports</li> <li>• Infringement reports</li> </ul>
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Case	<b>SmartPhone Technologies, Inc. v. RIM Corp PLAINTIFF 2013 Settled</b>
Client	<b>James C. Hall – (Hays Bostock Cronin LLC)</b>  <b>Hays Bostock Cronin LLC</b> 300 Brickstone Square Suite 900 Andover, MA 01810
Subject Matter	Protocols and standards – 3GPP / OMA GSM, UMTS Synchronization methods, communications methods, paging methods Telephony functionality of smartphone; Handset functionality
Cause	Infringement of patents
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents and review of Nokia patent portfolio</li> <li>• Prior art references</li> <li>• Claim construction</li> <li>• Validity charts / reports</li> </ul>

Case	<b>Netairus Technologies, LLC v. Apple Inc. PLAINTIFF 2013 Closed</b>
Client	<b>Marc Lorelli - (Law Firm –Brooks Kushman P.C.)</b>  <a href="mailto:mlorelli@brookskushman.com">mlorelli@brookskushman.com</a>  <b>Brooks Kushman P.C.</b> 1000 Town Center Drive, 22 <sup>nd</sup> Floor Southfield, MI 48075-1238 (248) 358-4400
Subject Matter	Protocols and standards – 3GPP / OMA GSM, UMTS UTRAN Wireless handset communications system SMS content; Web-based applications
Cause	Infringement of patent for data transmission / power of transmission

<b>Work Product/Service Provided</b>	<ul style="list-style-type: none"> <li>• Technical analysis of related patents and cellular / Wi-Fi networks</li> <li>• Expert report on infringement</li> <li>• Expert report on validity</li> <li>• Deposition scheduled</li> </ul>
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Case	<b>Netairus Technologies, LLC v. Apple Inc.      PLAINTIFF    2013 Closed</b>
Client	<b>Mark D. Roth - (Orum &amp; Roth, LLC)</b> <a href="mailto:markdroth@gmail.com">markdroth@gmail.com</a>  <b>ORUM &amp; ROTH, LLC</b> 53 West Jackson Blvd. Suite 620 Chicago, Il 60604 312-922-6262
Subject Matter	Protocols and standards – 3GPP / OMA    GSM, UMTS    UTRAN Wireless handset communications system SMS Content; Web- based applications
Cause	Infringement of patent for data transmission / power of transmission
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents and cellular / Wi-Fi networks</li> <li>• Expert report on infringement</li> <li>• Expert report on validity</li> <li>• Deposition - Nov 3, 2011</li> <li>• Re-exam of patent → Found valid → 2<sup>nd</sup> deposition Aug 15, 2013</li> <li>• Testified in court – Infringement and validity – Dec. 2013</li> </ul>

Case	<b>2-Way Computing v. Sprint      PLAINTIFF    2010 Closed</b>
Client	<b>Christina McCullough- (Knobbe Martens – Intellectual Property Law)</b> <a href="mailto:christina.mccullough@kmob.com">christina.mccullough@kmob.com</a>  <b>Knobbe Martens</b> 1420 Fifth Avenue, Suite 3600 Seattle, WA 98101
Subject Matter	Protocols and standards – 3GPP / OMA Computer station audio communications – Blue-Tooth, Wi-Fi.
Cause	Infringement of patent

Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Claim construction</li> </ul>
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Case	<b>Plant Eq. (Cassidian Communications) v Intrado PLAINTIFF 2012 Closed</b>
Client	<b>Matt Greinert - (Dewey &amp; LeBoeuf)</b> <a href="mailto:mgreinert@dl.com">mgreinert@dl.com</a> <b>Dewey &amp; LeBoeuf</b> One Montgomery Street, Suite 3500 San Francisco, CA 94104 (415) 951-1100
Subject Matter	Protocols and standards – 3GPP / OMA Emergency systems - 911
Cause	Infringement of patent
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Review of infringing products</li> <li>• Claim construction</li> </ul>

Case	<b>KARL v. Purple Tree Technologies , Inc. DEFENDANT 2012 Closed</b>
Client	<b>Richard Brophy- (Armstrong Teasdale, LLP– Intellectual Property Litigation)</b> <b>Armstrong Teasdale LLP</b> 7700 Forsyth Blvd. Suite 1800 St. Louis, MO 63105
Subject Matter	Patent Infringement Transmission technologies – CDMA/ UMTS
Cause	Infringement of patent

Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> <li>• Review of infringing products</li> <li>• Review routers/servers, security, backup files</li> <li>• Prior art review / Claim construction</li> </ul>
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Case	<b>Barry Rosen v. Global Net Access DEFENDANT</b> <b>2012 Jury Trial - Closed</b>
Client	<b>Jeffrey Cohen– Cohen &amp; Richardson, P.C.</b>  <b>Jeffrey Cohen</b> Cohen & Richardson, P.C. 2321 Rosecrans Ave., Suite 4210 El Segundo, CA 90245
Subject Matter	Copyright infringement
Cause	Infringement of copyright pictures
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related media and technology</li> <li>• Review routers/servers, security measures, backup files</li> <li>• Industry analysis of transmission means</li> <li>• Expert report</li> <li>• Deposition August 31, 2011</li> <li>• Trial testimony August 01, 2012</li> </ul>

Case	<b>Motorola Mobility, Inc. v. Apple Inc. PLAINTIFF</b> <b>2012 Closed</b>
Client	<b>Quinn Emanuel Urquhart &amp; Sullivan, LLP</b>  500 W. Madison Street, Suite 2450 Chicago, Illinois 60661-2510 (312) 463-2961
Subject Matter	Protocols and standards – network
Cause	Infringement of patent

Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> </ul>
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Case	<b>Microsoft Corp. v. Motorola Mobility, Inc. DEFENDANT 2012 Closed</b>
Client	<b>Tim Whitfield – (Powell Gilbert, LLP)</b>  Powell Gilbert, LLP 85 Fleet Street London, UK +44 20 3040 8032
Subject Matter	Protocols and standards – network
Cause	Infringement of patent
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents</li> </ul>

Case	<b>Cellular Trace LLC v. AT&amp;T, T-Mobile et al PLAINTIFF 2010 – 2011 Settled</b>
Client	<b>Decker Cammack Esq. (Law Firm – Nelson Bumgardner Casto, P.C.)</b> <a href="mailto:dcammack@nbclaw.net">dcammack@nbclaw.net</a>  <b>Nelson Bumgardner Casto, P.C.</b> 3131 West 7 <sup>th</sup> St. Suite 300 Fort Worth, TX 76112 (817) 377-3490
Subject Matter	Protocols and standards – 3GPP / OMA SMS, MMS messaging techniques WAP messages
Cause	Infringement of patent(s) for SMS messaging technology

Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents and SMS messaging protocols</li> <li>• Review of SMS,WAP, MMS standards</li> <li>• Expert report of infringement / validity</li> <li>• Analysis / testing of infringing cell phone products</li> </ul>
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Case	<b>Cellular Trace LLC v. Metro PCS    PLAINTIFF    2010 – 2011   Settled</b>
Client	<b>Decker Cammack Esq. (Law Firm – Nelson Bumgardner Casto, P.C.)</b> <a href="mailto:dcammack@nbclaw.net">dcammack@nbclaw.net</a>  <b>Nelson Bumgardner Casto, P.C.</b> 3131 West 7 <sup>th</sup> St. Suite 300 Fort Worth, TX 76112 (817) 377-3490
Subject Matter	Protocols and standards – 3GPP / OMA SMS, MMS messaging techniques WAP messages
Cause	Infringement of patent(s) for SMS messaging technology
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents and SMS messaging protocols</li> <li>• Review of SMS,WAP, MMS standards</li> <li>• Expert report of infringement / validity</li> <li>• Analysis / testing of infringing cell phone products</li> </ul>

Case	<b>U.S. Pat 7,209,950 Due Diligence    PLAINTIFF    2011 Closed</b>
Client	<b>Michell S. Rosenfeld (Pluritas –Experts in Transacting IP)</b>  mitch@pluritas.com  <b>Pluritas –Experts in Transacting IP</b> 201 California Street – Suite 650 San Francisco, CA 94111
Subject Matter	Inter-carrier SMS/MMS reformatting



Cause	Possible infringement of patent
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of patent and technology</li> <li>• Technical report</li> </ul>

Case	<b>Wi-LAN, Inc. v. Westell Technologies, Inc. et al. DEFENDANT 2009-2010 Settled</b>
Client	<b>Michael Spillner- Partner (Law Firm – Orrick, Herrington &amp; Sutcliffe LLP)</b> <a href="mailto:mspillner@orrick.com">mspillner@orrick.com</a>  <b>Orrick</b> 1000 Marsh Road Menlo Park, CA 94025 (650) 614-7400
Subject Matter	ADSL line powered product (L0, L2,L3 Techniques)
Cause	Infringement of patent for DSL, ADSL technologies
Work Product/Service Provided	<ul style="list-style-type: none"> <li>• Technical analysis of related patents and DSL, ADSL technology</li> <li>• Industry analysis of products</li> <li>• Prior art searches</li> <li>• Claims analysis / claim charts</li> <li>• Expert report of invalidity</li> </ul>

## **Non-Patent Cases in the past 7 years**

### **Cell Phone Forensics – GPS, CDR Analysis and Mapping (Criminal Cases)**

- Over 35 cases involving criminal activity – robbery, murder
- Testified in court or deposition over 20 times
- Use of GPS / A-GPS to track cellular devices

### **Cell Phone Forensics – GPS, CDR Analysis & Mapping (Non-Criminal Cases)**

- Over 20 cases involving lawsuits, car accidents, harassment, divorce
- Testified in court or deposition over 10 times
- Use of GPS / A-GPS to track cellular devices

### **Other Cases (Involving Cell Phones, computers, desktop devices)**

- Over 15 cases involving Class Action Lawsuits (Apple Inc.), liability cases (fires, accidents), manufacturing, counterfeit product analysis

**PacBell v. Phase 3** – Liability case involving telecommunications cables – Defendant

**PacBell v. Griffith** – Liability case involving telecommunications cables – Defendant

**PacBell v. Pile Foundation** - Liability case involving telecommunications cables – Defendant

**Verizon v. Community CentralEnergy** – Case involving liability for cable damage / installation / design – Defendant

**Auburn Lake Trail POA v. R&S Gates** – POA suing R&S Gates for faulty telephone equipment installation.

**Defendant Forward v. Sansonic** – Manufacturing case involving testing, design review of TV Desk Top products

**Defendant John Fieldman v. ATT** – E911 failure resulting in death and destructive fire. Repeater equipment failure

**Class Action Lawsuit (Apple Inc.)** - defective Apple iPod earbuds & headsets (testing & analysis) – Plaintiff

**M2 Enterprises** – involving analysis of BOISE headphones (determine if counterfeit)

**Nokia Siemens Networks v. CarrierComm** – involving analyzing microwave IDU / ODU and performance

**Rosen v. GNAX** – Electronic discovery issue using FAX and email transmissions – Defendant

**Sleek Audio v. Curtis Jackson** – Smart headsets – WiFi, Defendant alleged to have copied the Plaintiff's design

- **Miles v. Matsushige** – Water damage to electronic equipment – replacement value analysis – Defendant

**Pacific Bell v. Tupent** – Damage to electrical splice box – estimate of repair for insurance co. – Defendant

**Whizz Systems v. KK Builders** – Damage to AMS Antenna Measurement System from water leak - Defendant

**Class Action Lawsuit (Apple Inc.)** - defective Apple iPhone touchscreen components (testing & analysis) - Plaintiff

## **Testified in court or deposition over 20 times**

### **Testimony in Court and Depositions – Civil, Cell Phone Forensics and Patent Cases**

<b>People v. Jay Hee Yi</b>	<b>Defendant</b>	<b>Testify in Court</b>	<b>2012</b>
<b>People v. Gardea</b>	<b>Defendant</b>	<b>Testify in Court</b>	<b>2012</b>
<b>Barry Rosen v. GNAX</b>	<b>Defendant</b>	<b>Testify in Court</b>	<b>2012</b>
<b>People v. Wheeler</b>	<b>Defendant</b>	<b>Testify in Court</b>	<b>2012</b>
<b>Soriano v. USAA</b>	<b>Defendant</b>	<b>Deposition</b>	<b>2012</b>
<b>Sleek Audio v. Curtis Jackson</b>	<b>Plaintiff</b>	<b>Deposition</b>	<b>2012</b>
<b>People v. Theron Shakir</b>	<b>Defendant</b>	<b>Testify in Court</b>	<b>2013</b>
<b>Smartphone v. HTC</b>	<b>Plaintiff</b>	<b>Deposition</b>	<b>2013</b>
<b>Smartphone v. Apple</b>	<b>Plaintiff</b>	<b>Deposition</b>	<b>2013</b>
<b>Smartphone v. LG</b>	<b>Plaintiff</b>	<b>Deposition</b>	<b>2013</b>

People v. Givens	Defendant	Testify in Court	2013
People v. Gardea (Re-trial)	Defendant	Testify in Court	2013
People v. Jay Hee Yi (Re-trial)	Defendant	Testify in Court	2013
Netairus Technologies, LLC v. Apple Inc. (Re-exam)	Plaintiff	Deposition 2nd	2013
Netairus Technologies, LLC v. Apple Inc. (Re-exam)	Plaintiff	Testify in Court	2013
Lacy v. Empire Trucking	Defendant	Deposition	2014
Fujikawa v. City of San Jose	Plaintiff	Testify in Court	2014
Kassel v. Kassel	Plaintiff	Deposition	2014
Kassel v. Kassel	Plaintiff	Testify in Court	2014
People v. Michael Garvey	Defendant	Testify in Court	2014
Skyhook Wireless, Inc. v. Google, Inc.	Plaintiff	Deposition	2014
Lacy v. Empire Trucking	Defendant	Testify in Court	2015
Co. of PA. v. Frank Malone	Defendant	Testify in Court	2015
State of Florida v. Gibson	Defendant	Testify in Court (No Jury)	2016
TCL v. Ericsson	Defendant	Deposition	2016
People v. Anthony Galindo	Defendant	Testify in Court	2016
People v. Paz	Defendant	Testify in Court	2016
People v. Lamont Archie	Defendant	Testify in Court	2017
People v. Sean Roque	Defendant	Testify in Court	2017
People v. Adam Nersesyan	Defendant	Testify in Court	2017
People v. Jamel Freeman	Defendant	Testify in Court	2017
People v. Robert Tillis	Defendant	Testify in Court	2017
Itron v. Smartmeter (IPR Case)	Defendant	Deposition	2018
Apple Class Action	Plaintiff	Deposition	2018
People v. Ruben Maciel	Defendant	Testify in Court	2018
People v. Ngov	Defendant	Testify in Court	2018
Mobility Workx v. T-Mobile	Plaintiff	Deposition	2018
People v. Darren King	Defendant	Testify in Court	2019
GE Chang v. Nancy Lew	Defendant	Deposition	2019
Schall v. Suzuki Motors	Defendant	Deposition	2019
Apple Class Action	Plaintiff	Deposition	2019
Lime Scooter v. City of San Diego	Plaintiff	Testify at Hearing	2019

## **APPENDIX B**



WEBSTER'S  
New  
Collegiate  
Dictionary

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Collegiate  
Dictionary

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competitor ● compliment

**com-plet-i-tor** \kəm-'pet-ət-ər\ *n*: one that competes: as **a**: RIVAL  
**b**: one selling or buying goods or services in the same market as another **c**: an organism that lives in competition with another

**com-pli-a-tion** \kəm-pə-'li-ā-shən also -'pi-\ *n*: 1: the act or process of compiling **2**: something compiled (a ~ of statistics)

**com-pile** \kəm-'pi-(ə)\ *vt* **com-plied**; **com-piling** [ME *compien*, fr. MF *compiler*, fr. L *compiolare* to plunder] **1**: to collect into a volume **2**: to compile out of materials from other documents

**com-piler** \kəm-'pi-lər\ *n*: 1: one that compiles **2**: a computer program that translates instructions written in a higher-level symbolic language (as COBOL) into machine language

**com-plate-nance** \kəm-'plās-'n(t)ə\ *n*: 1: calm or secure satisfaction with one's self or lot: SELF-SATISFACTION **2 obs**: COMPLAISANCE **3**: UNCONCERN (~ about inflation — N. H. Jacoby) — **com-**

**pla-cen-cy** \-'n-sē\ *n*, *pl* **-cies** **1**: COMPLACENCE: esp: self-satisfaction accompanied by unawareness of actual dangers or deficiencies **2**: an instance of complacency (a book which broke up . . . theological complacencies — Times Lit. Supp.)

**com-pla-cent** \kəm-'plās-'n(t)əd\ *adj* [L *complacent*, *complacens*, prp. of *complacere* to please greatly, fr. *com-* + *placere* to please — more at PLEASE] **1**: SELF-SATISFIED (a ~ smile) **2**: COMPLAISANT **3**: UNCONCERNED (~ about inflation — N. H. Jacoby) — **com-**

**plain-ly** *adv*

**com-plain** \kəm-'plān\ *vi* [ME *compleynen*, fr. MF *complaindre*, fr. (assumed) VL *complangere*, fr. L *com-* + *plangere* to lament — more at PLAINT] **1**: to express grief, pain, or discontent **2**: to make a formal accusation or charge — **com-plain-er** *n* — **com-**

**plain-ing-ly** \-'plā-niŋ-lē\ *adv*

**com-plain-ant** \kəm-'plā-nənt\ *n*: the party who makes the complaint in a legal action or proceeding

**com-plaint** \kəm-'plānt\ *n* [ME *compleynte*, fr. MF *complainte*, fr. OF, fr. *complaindre*] **1**: expression of grief, pain, or resentment **2 a**: something that is the cause or subject of protest or outcry **b**: a bodily ailment or disease **3**: a formal allegation against a party

**com-plai-sance** \kəm-'plās-'n(t)s, -'plāz-, kām-'plā-'zən(t)s, -'plā-, -'ziant(t)s\ *n*: disposition to please or comply: AFFABILITY

**com-plai-sant** \-'nt, -'zant, -'ziant\ *adj* [F, fr. MF, fr. prp. of *complaire* to gratify, acquiesce, fr. *com-* + *plaire* to please greatly] **1**: marked by an inclination to please or oblige **2**: tending to consent to others' wishes *syn* see AMIABLE *ant* contrary, perverse — **com-plai-sant-ly** *adv*

**com-pleat** \kəm-'plēt\ *adj* [archaic variant of *complete* in *The Compleat Angler* (1653) by Izaak Walton] **COMPLETE** **3** (the ~ conductor, experienced in opera as well as in the symphonic repertoire — Winthrop Sargeant)

**com-plex-ed** \kəm-'plek-təd\ *adj* [irreg. fr. *complexion*] **1**: having a specified facial complexion (a tall, thin man, fairly dark ~ — E. J. Kahn)

**com-ple-ment** \kəm-'plā-mənt\ *n* [ME, fr. L *complementum*, fr. *complere*] **1 a**: something that fills up, completes, or makes perfect **b**: the quantity or number required to make a thing complete (he had the usual ~ of eyes and ears — Francis Parkman); *specif*: the whole force or personnel of a ship **c**: one of two mutually completing parts: COUNTERPART **2 a**: an angle or arc that when added to a given angle or arc equals a right angle **b**: the set of all elements that do not belong to a given set and are contained in a given set **c**: a number that when added to another number of the same sign yields zero if the significant digit farthest to the left is discarded **3**: the interval in music required with a given interval to complete the octave **4**: an added word or expression by which a predication is made complete (*president and beautiful* in "they elected him president" and "he thought her beautiful" are ~s) **5**: the molalible substance in normal blood serum and plasma that in combination with antibodies causes the destruction of bacteria, foreign blood corpuscles, and other antigens

**2 com-ple-ment** \-'mənt\ *vt* **1**: to be complementary to **2 a**: COMPLEMENT *vi*, *obs*: to exchange formal courtesies

**com-ple-men-tal** \kəm-'plā-mənt-'l\ *adj* **1**: relating to or being a complement **2 obs**: KERAMENOUS, COMPLIMENTARY

**com-ple-men-tar-i-ty** \kəm-'plā-mənt-'(r)ə-, -mənt-\ *n*: the quality or state of being complementary

**com-ple-men-ta-ry** \kəm-'plā-mənt-'ə-rē, -'men-trē\ *adj* **1**: serving to fill out or complete **2**: mutually supplying each other **3**: relating to or constituting one of a pair of contrasting colors that produce a neutral color when combined in suitable proportions **4**: of or relating to the precise pairing of purine and pyrimidine bases between strands of DNA and sometimes RNA such that the structure of one strand determines the other — **com-**

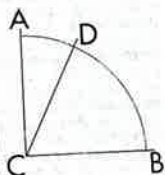
**ple-men-ta-ri-ly** \-'men-trā-lē, -(r)ə-men-trē-'lē, -'ment-'ə-rā-lē\ *adv*

**com-ple-men-ta-ri-ness** \-'ment-'ə-rē-nəs, -'men-trē-'nəs\ *n*: complementarity

**complementary angles** *n pl*: two angles whose sum is 90 degrees

**com-ple-men-ta-tion** \kəm-'plā-mənt-'tā-shən, -mənt-\ *n*: 1: determination of the complement of a given mathematical set **2**: determination of normal phenotype in an individual heterozygous for two closely related mutations with one on each homologous chromosome and at a slightly different position

**complement fixation** *n*: the absorption of complement to product of the union of an antibody and the antigen for which specific when added to a mixture of such antibody and antigen



complement 2a:  $ACB$   
 right angle;  $ACD$   
 complement of  $DCB$   
 (and vice versa);  $AD$   
 complement of  $DB$   
 (and vice versa)

**cate**: including modifiers, complements, or objects  
to an end: CONCLUDED ( $\sim$  period of time) 3: highly p  
( $\sim$  artist) 4 a: fully carried out: THOROUGH ( $\sim$  p  
tion) b: TOTAL ABSOLUTE ( $\sim$  silence) *syn see FULL* a  
plete — **com-pletely adv** — **complete-ness n** — com  
\ˈplēt-iv/ *adj*

**2 complete v** **com-plet-ed; com-plet-ing** 1: to bring t  
and esp. into a perfected state ( $\sim$  a painting) 2 a:  
whole or perfect (its song  $\sim$ s the charm of this bird) b:  
the end of ( $\sim$  rousing chorus  $\sim$ s the show) c: EXECUTE  
( $\sim$  a contract) 3: to carry out ( $\sim$  forward pass) successf  
**complex fertilizer n**: a fertilizer that contains the th  
plant nutrients nitrogen, phosphoric acid, and potash  
**com-ple-tion** \kəm-ˈplē-shən/ *n* 1: the act or process of  
ing 2: the quality or state of being complete

**1 complex** \kə-mˈpleks, kəm-, ˈkām-/ *adj* [L *complexus*,  
complexi to embrace, comprise (a multitude of objects),  
plicere to braid — more at PLY] 1 a: composed of t  
parts: COMPOSITE b (1) of a word: having a bound to  
or both of its immediate constituents (*unmanly* is a w  
of a sentence: consisting of a main clause and one or m  
dinate clauses 2: hard to separate, analyze, or solve  
**p-lex-i-ty adv** — **com-plex-ness n**  
*syn* COMPLEX, COMPLICATED, INTRICATE, INVOLVED, KN  
meaning element : having confusingly interrelated p  
simple

**2 complex** \ˈkām-pleks/ *n* 1: a whole made up of com  
interrelated parts ( $\sim$  of university buildings) ( $\sim$  a  
programs) (the military-industrial  $\sim$ ) 2 a: a group  
traits relating to a single activity (as hunting), process  
flint), or culture unit b (1) : a group of repressed  
memories that exerts a dominating influence upon the  
(2) : an exaggerated reaction to a subject or situation  
of obviously related units of which the degree and na  
relationship is imperfectly known 3: a complex sub  
coordination complex) in which the constituents are  
mately associated than in a simple mixture

**3 complex** /like v/ *vt* 1: to make complex or into a c  
: CHELATE — **com-plex-a-tion** \kām-plek-sā-shən, kām-  
**complex fraction n**: a fraction with a fraction or mi  
in the numerator or denominator or both — compare s  
TION

**com-plex-ion** \kəm-ˈplek-shən/ *n* [ME, fr. MF, fr. ML *com-*  
*plexio*, fr. L combination, fr. *complexus*, pp.] 1: the  
tion of the hot, cold, moist, and dry qualities held  
physiology to determine the quality of a body 2 a:  
ual complex of ways of thinking or feeling b: a com  
tudes and inclinations 3: the hue or appearance of  
esp. of the face (a dark  $\sim$ ) 4: overall aspect or im  
changing the  $\sim$  of the legislative branch — Trevor Ar  
**com-plex-ion-al** \-shənəl, -shən-tl/ *adj* — **con-**  
\-shən-dl/ *adj*

**com-plex-i-ty** \kəm-ˈplek-sət-ē, kām-/ *n, pl -ties* 1: t  
state of being complex 2: something complex (the  
of today's society — John J. Gallagher)

**complex number n**: a number of the form  $a + b\sqrt{-1}$   
b are real numbers

**com-plex-o-me-tr-y** \kām-plek-säm-ə-trē, kām-/ *n*  
technique involving the use of a transforming agent  
the titrant — **com-plex-o-met-ric** (\kām-plek-sə-m-  
/*adj*

**complex plane n**: a plane whose points are identifi  
complex numbers

**com-pli-ance** \kəm-ˈpli-ən(t)s/ *n* 1: the act or proce  
ing to a desire, demand, or proposal or to coercion  
tion to yield to others 3 a: the ability of an objec  
tually when a force is applied: FLEXIBILITY b: the  
to move a phonograph stylus a given distance

**com-pli-an-cy** \-ən-sē/ *n*: COMPLIANCE

**com-pli-ant** \-ənt/ *adj*: ready or disposed to compl  
— **com-pli-ant-ly adv**

**com-pli-ca-cy** \ˈkām-pli-kə-se/ *n, pl -cies* [Compli  
quality or state of being complicated 2: somethin  
licated

**1 com-plicate** \ˈkām-plə-kāt/ *vb -cat-ed; -cat-ing v*  
bine esp. in an involved or inextricable manner 2:  
plex or difficult 3: INVOLVE esp.: to cause to be m  
severe (a virus disease complicated by bacterial inf  
more complicated

**2 com-pli-cate** \-pli-kāt/ *adj* [L *complicatus*, pp. of  
fold together, fr. *com-* + *plicare* to fold — more at  
PLEX, INTRICATE 2: CONDUPPLICATE

**com-pli-cat-ed** \ˈkām-plə-kāt-əd/ *adj* 1: consistin  
cately combined 2: difficult to analyze, underst  
*syn see* COMPLEX *ant* simple — **com-pli-cat-ed-ly**  
**-cat-ed-ness n**

**com-pli-ca-tion** \ˈkām-plə-ˈkā-shən/ *n* 1 a: CO  
CACY: specif.: a situation or a detail of character o  
main thread of a plot b: a making difficult, involv  
c: a complex or intricate feature or element d:  
or issue often appearing unexpectedly and changin  
methods, or attitudes 2: a secondary disease or  
oping in the course of a primary disease

**com-plate** \ˈkām-plas, ˈkām-/ *n* [ME, fr. MF, fr. L  
plex, fr. L *com-* + *plicare* to fold] archaic: ASSOCIA  
**com-pli-ci-ty** \kəm-ˈplis-ət-ē, -plis-tē/ *n, pl -ties* 1  
participation in or as if in a wrongful act 2: an  
plicity