incomplete that they could not be used without undue difficulty.

[10] Contrary to Mukand's argument, the deficiencies in its responses were not limited to a discrete category of information. As Commerce noted, Mukand assigned the "same amount of conversion costs per kilogram of bar produced, irrespective of the final size of the product produced." J.A. 1604. Mukand thus premised all of its production cost data on the assumption that product size is not a significant cost factor—an assumption it failed to support. In general, use of partial facts available is not appropriate when the missing information is core to the antidumping analysis and leaves little room for the substitution of partial facts without undue difficulty.[12] Without cost data broken down by product size, Commerce was unable to differentiate between different types of steel bar products and could not calculate an accurate constructed value for any of Mukand's products. We therefore hold that Commerce's reliance on total AFA is supported by substantial evidence.

III

For the reasons set forth above, we affirm the decision of the Trade Court.

AFFIRMED

12. *See Shanghai Taoen Int'l Co. v. United States,* 360 F.Supp.2d 1339, 1348 n. 13 (Ct. Int'l Trade 2005).

VIRNETX, INC., Plaintiff–Appellee,

and

Science Applications International Corporation, Plaintiff–Appellee,

v.

CISCO SYSTEMS, INC., Defendant,

and

Apple Inc., Defendant–Appellant.

No. 2013–1489.

United States Court of Appeals, Federal Circuit.

Sept. 16, 2014.

Background: Patentee brought action against mobile phone manufacturer, alleging infringement of patents describing method of transparently creating virtual private network (VPN) between client computer and target computer and patents disclosing secure domain name service. The United States District Court for the Eastern District of Texas, Leonard Davis, Chief Judge, 2009 WL 2370727 and 2012 WL 3135639, construed the claims, and then denied manufacturer's post-trial motions after jury returned verdict in patentee's favor 925 F.Supp.2d 816. Manufacturer appealed.

Holdings: The Court of Appeals, Prost, Chief Judge, held that:

(1) term "domain name" meant name corresponding to Internet Protocol (IP) address;

(2) term "secure communication link" meant direct communication link that provided data security and anonymity;

(3) substantial evidence supported jury verdict that accused product met "direct communication" limitation;

(4) accused feature in mobile phone manufacturer's product met "determining whether" limitation;

(5) substantial evidence supported jury's finding that feature in accused product created "VPN" or "secure channel" that extended from client to target computer;

(6) security provided by accused system that included encryption on insecure paths but otherwise relied on security provided by private networks was not equivalent to "encrypted channel";

(7) patentee could not rely on entire market value of multi-component product containing several non-infringing features with no relation to patented feature to approximate reasonable royalty base; and

(8) evidence relying on 50-50 starting point based on bargaining solution theorem was not admissible.

Affirmed in part, reversed in part, vacated in part, and remanded.

1. Patents ⚿324.5

Patent claim construction is a question of law that is reviewed de novo.

2. Patents ⚿165(3), 167(1)

The process of construing a patent claim term begins with the words of the claims themselves; however, the claims must be read in view of the specification, of which they are a part.

3. Patents ⚿165(5)

The patent claim differentiation doctrine disfavors reading a limitation from a dependent claim into an independent claim.

4. Patents ⚿159

Although courts are permitted to consider extrinsic evidence like expert testimony, dictionaries, and treatises when construing a patent claim term, such evidence is generally of less significance than the intrinsic record.

5. Patents ⚿101(2)

Term "domain name," in patents that disclosed domain name service (DNS) system that resolved domain names and facilitates establishing secure communication links, meant name corresponding to Internet Protocol (IP) address.

6. Patents ⚿101(2)

Term "secure communication link," in patents that disclosed domain name service (DNS) system that resolved domain names and facilitates establishing secure communication links, meant direct communication link that provided data security and anonymity.

7. Courts ⚿96(7)

In a patent case, the Court of Appeals for the Federal Circuit reviews the denial of a motion for judgment as a matter of law (JMOL) or a new trial under the law of the regional circuit.

8. Federal Courts ⚿3602

The Fifth Circuit requires that a jury's determination must be upheld if it is supported by substantial evidence.

9. Patents ⚿312(6)

Substantial evidence supported jury verdict that accused product met "direct communication" limitation in patents disclosing secure domain name service; each claim required some indication that domain name service system supported establishing secure communication link, relay server created two separate communications, network address translators (NAT) used by accused products did not impede direct

communication but operated like routers or firewalls, and NAT router still allowed for "end-to-end communication between the two devices" because it merely translated addresses from public address space to private address space, but did not terminate the connection.

10. Patents ⚿235(2)

Accused feature in mobile phone manufacturer's product met "determining whether" limitation of patents generally describing method of transparently creating virtual private network (VPN) between client computer and target computer, since manufacturer's accused feature could be configured to infringe based on manufacturer's internal documents and source code and "determining whether" step could be performed by comparing requested domain name against list of domain names; while feature could initiate VPN connections with unsecure websites, feature was not intended to be used in that manner and there was no requirement in claims for verification of security of requested website or server.

11. Patents ⚿312(6)

Substantial evidence supported jury's finding that feature in accused product created "VPN" or "secure channel" that extended from client to target computer and thus literally infringed claim of patent that required creating "secure channel" "between" client and secure server; path extending from virtual private network (VPN) server to target computer, i.e., within private network, would be secure and anonymous owing to protection provided by private network, paths beyond VPN server could be rendered secure and anonymous by means of "physical security" present in private corporate networks, and patentee did not have to prove that accused product did not have any non-infringing modes of operation.

12. Patents ⚿237

Security provided by accused system that included encryption on insecure paths but otherwise relied on security provided by private networks was not equivalent to "encrypted channel" required by claim in patent that generally described method of transparently creating virtual private network (VPN) between client computer and target computer, and thus accused product did not infringe under equivalents doctrine; "security" of private network could not be equated with "encryption" provided by VPN server because encryption was narrower, more specific requirement than security, according to patent.

13. Patents ⚿237

To find infringement under the equivalents doctrine, any differences between the claimed invention and the accused product must be insubstantial; insubstantiality may be determined by whether the accused device performs substantially the same function in substantially the same way to obtain substantially the same result as the patent claim limitation.

14. Patents ⚿314(5)

Under the equivalents doctrine, whether an accused device performs substantially the same function in substantially the same way to obtain substantially the same result as the patent claim limitation is a question of fact.

15. Patents ⚿237

"Vitiation" is not an exception to the doctrine of equivalents, but instead is a legal determination that the evidence in a patent suit is such that no reasonable jury could determine two elements to be equivalent.

16. Patents ⚿112.5

A party challenging the validity of a patent must establish invalidity by clear and convincing evidence.

17. Patents ⚿324.55(4)

Anticipation in a patent case is a factual question that is reviewed for substantial evidence.

18. Patents ⚿72(1)

A patent claim is anticipated only if each and every element is found within a single prior art reference, arranged as claimed.

19. Patents ⚿62(1)

Substantial evidence supported finding that patents generally describing method of transparently creating a virtual private network (VPN) between a client computer and a target computer and patents disclosing secure domain name service were not invalid as anticipated; patent owner presented evidence and testimony that prior publication failed to disclose several claim limitations including, "secure communication link," "virtual private network," "a DNS proxy server," "an encrypted channel," and "secure channel." 35 U.S.C.A. § 102(a).

20. Evidence ⚿146

District court would not have abused its discretion in finding that probative value of evidence that mobile phone manufacturer initiated re-examinations of patents generally describing method of transparently creating a virtual private network (VPN) between client computer and target computer and patents disclosing secure domain name service was substantially outweighed by risk of unfair prejudice to patentee, confusion with invalidity on the merits, or misleading jury, thereby justifying exclusion in patent infringement action. Fed.Rules Evid.Rule 403, 28 U.S.C.A.

21. Courts ⚿96(7)

In a patent case, regional circuit law is applied to evidentiary issues.

22. Federal Courts ⚿3598(5)

The Fifth Circuit reviews a district court's exclusion of relevant evidence on the basis that its probative value is substantially outweighed by danger of unfair prejudice for clear abuse of discretion resulting in substantial prejudice. Fed. Rules Evid.Rule 403, 28 U.S.C.A.

23. Patents ⚿318(4.1)

Patentee could not rely on entire market value of multi-component product containing several non-infringing features with no relation to patented feature to approximate base for reasonable royalty that manufacturer of accused products would have been willing to offer to pay to patentee during hypothetical negotiation, without attempting to apportion value attributable to patented features. 35 U.S.C.A. § 284.

24. Patents ⚿319(1)

The most common method for determining a reasonable royalty is the hypothetical negotiation approach, which attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before patent infringement began. 35 U.S.C.A. § 284.

25. Patents ⚿319(1)

In a patent case, a reasonable royalty may be a lump-sum payment not calculated on a per unit basis, but it may also be, and often is, a running payment that varies with the number of infringing units; in that event, it generally has two prongs: a royalty base and a royalty rate. 35 U.S.C.A. § 284.

26. Patents ⚿319(1)

Whatever the form of the royalty, a patentee must take care to seek only those damages attributable to the infringing features. 35 U.S.C.A. § 284.

27. Patents ⚿318(4.1)

When patent claims are drawn to an individual component of a multi-component product, it is the exception, not the rule, that damages may be based upon the value of the multi-component product; in the absence of a showing that the patented feature creates the basis for customer demand or substantially creates the value of the component parts, principles of apportionment apply. 35 U.S.C.A. § 284.

28. Patents ⚿319(1)

When determining a reasonable royalty in a patent case, absolute precision is not required when assigning value to a feature that may not have ever been individually sold; this process may involve some degree of approximation and uncertainty. 35 U.S.C.A. § 284.

29. Evidence ⚿555.9

Testimony of patentee's damages expert that relied on entire value of accused devices and computers as "smallest salable units" without attempting to apportion value attributable to patented features was not admissible to approximate base for reasonable royalty that manufacturer of accused products would have been willing to offer to pay to patentee during hypothetical negotiation, for failure to comport with settled principles of apportionment; where smallest salable unit was multi-component product containing non-infringing features with no relation to patented feature, patentee had to demonstrate that patented features drove demand for accused products. 35 U.S.C.A. § 284; Fed. Rules Evid.Rule 702, 28 U.S.C.A.

30. Evidence ⚿555.2

The admissibility of expert testimony is governed by the Federal Rules of Evidence and the principles laid out in *Daubert v. Merrell Dow Pharmaceuticals*. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

31. Evidence ⚿555.2

A district court's "gatekeeping obligation" applies to all types of expert testimony. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

32. Evidence ⚿555.9

While questions regarding which facts are most relevant for calculating a reasonable royalty in a patent case are properly left to the jury, a critical prerequisite is that the underlying methodology be sound. 35 U.S.C.A. § 284; Fed.Rules Evid.Rule 702, 28 U.S.C.A.

33. Patents ⚿319(1)

When calculating a reasonable royalty, a patentee's obligation to apportion damages only to the patented features does not end with the identification of the smallest salable unit if that unit still contains significant unpatented features. 35 U.S.C.A. § 284.

34. Patents ⚿318(4.1)

When calculating a reasonable royalty in a patent case, there is no necessity-based exception to the entire market value rule; a patentee must be reasonable, though may be approximate, when seeking to identify a patent-practicing unit, tangible or intangible, with a close relation to the patented feature. 35 U.S.C.A. § 284.

35. Patents ⚿319(1)

Patentee must apportion the royalty down to a reasonable estimate of the value of its claimed technology, or else establish that its patented technology drove demand for the entire product. 35 U.S.C.A. § 284.

36. Evidence ⚿555.9

District court did not abuse its discretion in patent case by permitting testimony from damages expert regarding proper royalty rate based on allegedly comparable licenses; four licenses related to actual patents-in-suit and others were drawn to re-

lated technology, and differences were presented to jury to allow jury to fully evaluate relevance of licenses. 35 U.S.C.A. § 284.

37. Patents ⚿319(1)

When relying on licenses to prove a reasonable royalty, alleging a loose or vague comparability between different technologies or licenses does not suffice. 35 U.S.C.A. § 284.

38. Evidence ⚿555.9

Evidence relying on 50-50 starting point based on bargaining solution theorem was not admissible under *Daubert* to approximate reasonable royalty rate that manufacturer of accused product would have been willing to offer to pay to patentee during hypothetical negotiation, since patentee did not sufficiently show how premises of theorem actually applied to specific facts of case at hand. 35 U.S.C.A. § 284; Fed.Rules Evid.Rule 702, 28 U.S.C.A.

39. Patents ⚿319(1)

A patentee may not balance out an unreasonably high royalty base simply by asserting a low enough royalty rate.

Patents ⚿328(2)

6,502,135, 7,418,504, 7,490,151, 7,921,211. Valid and Infringed.

William F. Lee, Wilmer Cutler Pickering Hale and Dorr, LLP, of Boston, MA, argued for defendant-appellant. With him on the brief were Mark C. Fleming, Lauren B. Fletcher, and Rebecca Bact, of Boston, MA, and Jonathan G. Cedarbaum, Brittany Blueitt Amadi, and Leah Litman, of Washington, DC. Of counsel on the brief was Danny L. Williams, Williams, Morgan & Amerson, P.C., of Houston, TX.

J. Michael Jakes, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, of Washington, DC, argued for plaintiffs-appellees. With him on the brief for Virnetx, Inc. were Kara F. Stoll and Srikala Atluri, of Washington, DC, and Benjamin R. Schlesinger, of Atlanta, GA. Of counsel on the brief were Bradley W. Caldwell, Jason D. Cassady, and John Austin Curry, Caldwell, Cassady & Curry, of Dallas, TX. On the brief for Science Applications International Corporation were Donald Urrabazo, Arturo Padilla, and Ronald Wielkopolski, Urrabazo Law, P.C., of Los Angeles, CA; and Andy Tindel, Mann, Tindel & Thompson, of Tyler, TX.

Before PROST,* Chief Judge and CHEN, Circuit Judge.**

PROST, Chief Judge.

Apple Inc. appeals from a final judgment of the U.S. District Court for the Eastern District of Texas, in which a jury found that Apple infringed U.S. Patent Nos. 6,502,135 ("'135 patent"), 7,418,504 ("'504 patent"), 7,490,151 ("'151 patent"), and 7,921,211 ("'211 patent"). The jury further found that none of the infringed claims were invalid and awarded damages to plaintiffs-appellees VirnetX, Inc. and Science Applications International Corporation ("SAIC") in the amount of $368,160,000.

For the reasons that follow, we affirm the jury's findings that none of the asserted claims are invalid and that many of the asserted claims of the '135 and '151 patents are infringed by Apple's VPN On

* Sharon Prost assumed the position of Chief Judge on May 31, 2014.

** Randall R. Rader, who retired from the position of Circuit Judge on June 30, 2014, did not participate in this decision.

Demand product. We also affirm the district court's exclusion of evidence relating to the reexamination of the patents-in-suit. However, we reverse the jury's finding that the VPN On Demand product infringes claim 1 of the '151 patent under the doctrine of equivalents. We also reverse the district court's construction of the claim term "secure communication link" in the '504 and '211 patents and remand for further proceedings to determine whether the FaceTime feature infringes those patents under the correct claim construction. Finally, we vacate the jury's damages award and remand for further proceedings consistent with this opinion.

Background

The patents at issue claim technology for providing security over networks such as the Internet. The patents assert priority to applications filed in the 1990s, originally assigned to SAIC. VirnetX, a Nevada-based software development and licensing enterprise, acquired the patents from SAIC in 2006.

I. The '504 and '211 Patents and FaceTime

The '504 and '211 patents share a common specification disclosing a domain name service ("DNS") system that resolves domain names and facilitates establishing "secure communication links." '504 patent col. 55 ll. 49–50. In one embodiment, an application on the client computer sends a query including the domain name to a "secure domain name service," which contains a database of secure domain names and corresponding secure network addresses. *Id.* at col. 50 ll. 54–57, col. 51 ll. 11–19, col. 51 ll. 29–32. This allows a user to establish a secure communication link between a client computer and a secure target network address. *Id.* at col. 51 ll. 34–40.

Representative claim 1 of the '504 patent recites:

> 1. A system for providing a domain name service for establishing a secure communication link, the system comprising:
>
> a domain name service system configured to be connected to a communication network, to store a plurality of domain names and corresponding network addresses, to receive a query for a network address, and to comprise an indication that the domain name service system supports establishing a secure communication link.

Id. at col. 55 ll. 49–56.

Before the district court, VirnetX accused Apple of infringement based on its "FaceTime" feature. Specifically, VirnetX accused Apple's servers that run FaceTime on Apple's iPhone, iPod, iPad (collectively, "iOS devices"), and Mac computers of infringing claims 1, 2, 5, 16, 21, and 27 of the '504 patent as well as claims 36, 37, 47, and 51 of the '211 patent. In operation, FaceTime allows secure video calling between select Apple devices. J.A. 1443. To use FaceTime, a caller enters an intended recipient's e-mail address or telephone number into the caller's device (e.g., iPhone). J.A. 1451–52. An invitation is then sent to Apple's FaceTime server, which forwards the invitation to a network address translator ("NAT") which, in turn, readdresses the invitation and sends it on to the receiving device. J.A. 1821, 1824–25. The recipient may then accept or decline the call. J.A. 1453. If accepted, FaceTime servers establish a secure FaceTime call. J.A. 1453. Once connected, the devices transmit audio/video data as packets across the secure communication path without passing through the FaceTime server. J.A. 1820, 1825.

II. The '135 and '151 Patents and VPN On Demand

A conventional DNS resolves domain names (e.g., "Yahoo.com") into Internet Protocol ("IP") addresses. *See* '135 patent col. 37 ll. 22–27. A user's web browser then utilizes the IP address to request a website. *Id.* at col. 37 ll. 24–29.

The '135 and '151 patents share a common specification disclosing a system in which, instead of a conventional DNS receiving the request, a DNS proxy intercepts it and determines whether the request is for a secure site. *Id.* at col. 38 ll. 23–25. If the proxy determines that a request is for a secure site, the system automatically initiates a virtual private network ("VPN") between the proxy and the secure site. *Id.* at col. 38 ll. 30–33. If the browser determines that the request was for a non-secure website, then the DNS proxy forwards the request to a conventional DNS for resolution. *Id.* at col. 38 ll. 43–47.

Representative claim 1 of the '135 patent recites:

> 1. A method of transparently creating a virtual private network (VPN) between a client computer and a target computer, comprising the steps of:
>
> (1) generating from the client computer a Domain Name Service (DNS) request that requests an IP address corresponding to a domain name associated with the target computer;
>
> (2) determining whether the DNS request transmitted in step (1) is requesting access to a secure web site; and
>
> (3) in response to determining that the DNS request in step (2) is requesting access to a secure target web site, automatically initiating the VPN between the client computer and the target computer.

Id. at col. 47 ll. 20–32.

Claims 1 and 13 of the '151 patent are similar to claim 1 of the '135 patent except that they recite initiating an "encrypted channel" and creating a "secure channel," respectively, instead of creating a "VPN." '151 patent col. 46 ll. 55–67, col. 48 ll. 18–29.

Before the district court, VirnetX accused Apple's iPhone, iPad, and iPod Touch of infringing claims 1, 3, 7, and 8 of the '135 patent and claims 1 and 13 of the '151 patent because they include a feature called "VPN On Demand." When a user enters a domain name into the browser of an iOS device, a DNS request is generated. J.A. 1393–94. VPN On Demand receives the request and checks a list of domain names for which a VPN connection should be established, known as a "configuration file." J.A. 1377. If the entered domain name matches a domain name in the configuration file, VPN On Demand contacts a VPN server to authenticate the user and, if successful, automatically establishes a VPN between the user's browser and the target computer with which the requested domain name is associated. J.A. 1377–78, 1396–98.

III. Five–Day Jury Trial and Post–Trial Motions

On August 11, 2010, VirnetX filed this infringement action, alleging that Apple's FaceTime servers infringe certain claims of the '504 and '211 patents, and that Apple's VPN On Demand feature infringes certain claims of the '135 and '151 patents. Apple responded that FaceTime and VPN On Demand do not infringe, and that the asserted claims were invalid as anticipated by a 1996 publication by Takahiro Kiuchi et al. ("Kiuchi").

On April 25, 2012, the district court construed disputed claim terms, and a jury trial commenced on October 31, 2012. After a five-day trial, the jury returned its verdict, finding all of the asserted claims valid and infringed. The jury awarded VirnetX $368,160,000 in reasonable royalty damages. Apple moved for judgment as a matter of law ("JMOL") or, alternatively, for a new trial or remittitur. On February 26, 2013, the district court denied Apple's motions. *VirnetX, Inc. v. Apple Inc.*, 925 F.Supp.2d 816 (E.D.Tex.2013).

Apple now appeals the denial of its post-trial motion for JMOL or a new trial. This court has jurisdiction under 28 U.S.C. § 1295(a)(1).

Discussion

I. Claim Construction

On appeal, Apple argues that the district court erred in construing the terms "domain name" and "secure communication link," both recited in the '504 and '211 patents. For the reasons that follow, we affirm the construction of "domain name" and reverse the construction of "secure communication link."

[1–4] Claim construction is a question of law that we review de novo. *Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp.*, 744 F.3d 1272, 1276–77 (Fed. Cir.2014) (en banc); *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed.Cir. 1998) (en banc). The process of construing a claim term begins with the words of the claims themselves. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed.Cir. 2005) (en banc). However, the claims "must be read in view of the specification, of which they are a part." *Phillips*, 415 F.3d at 1315 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed.Cir.1995) (en banc), *aff'd* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996)). Additionally, the doctrine of claim differentiation disfavors reading a limitation from a dependent claim into an independent claim. *See InterDigital Commc'ns, LLC v. Int'l Trade Comm'n*, 690 F.3d 1318, 1324 (Fed.Cir.2012). Although courts are permitted to consider extrinsic evidence like expert testimony, dictionaries, and treatises, such evidence is generally of less significance than the intrinsic record. *Phillips*, 415 F.3d at 1317 (citing *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed.Cir.2004)).

A. "Domain Name"

[5] The district court construed "domain name" as "a name corresponding to an IP address." Memorandum Opinion & Order at 16, *VirnetX, Inc. v. Cisco Sys. Inc.*, No. 6:10–cv–416 (E.D.Tex. Apr. 25, 2012), ECF No. 266 ("*Claim Construction Order*"). Apple argues, as it did below, that the proper construction is "a hierarchical sequence of words in decreasing order of specificity that corresponds to a numerical IP address." Apple insists that its construction represents the plain and ordinary meaning of the term, relying primarily on a technical dictionary definition and several examples in the specification (e.g., "Yahoo.com"). We disagree. Intrinsic evidence supports the district court's construction of "domain name." The specification of the '504 and '211 patents suggests the use of the invention for secure communications between application programs like "video conferencing, e-mail, word processing programs, telephony, and the like." '504 patent col. 21 ll. 27–29. The disclosure of such applications demonstrates that the inventors did not intend to limit "domain name" to the particular formatting limitations of websites sought by Apple, i.e., a top-level domain, second-level domain, and host name.

Additionally, fundamental principles of claim differentiation disfavor reading Apple's hierarchical limitation into the independent claims. Dependent claims in both patents require that "at least one" of the domain names stored by the system comprise a top-level domain name. *See, e.g.,* '504 patent col. 55 ll. 57–59 ("The system of claim 1, wherein at least one of the plurality of domain names comprises a top-level domain name."); '211 patent col. 57 ll. 47–50 ("The non-transitory machine-readable medium of claim 36, wherein the instructions comprise code for storing the plurality of domain names and corresponding network addresses including at least one top-level domain name."). The specific limitation of hierarchical formatting in the dependent claims strongly suggests that the independent claims contemplate domain names both with *and without* the hierarchical format exemplified by "Yahoo.com." *See InterDigital,* 690 F.3d at 1324 ("The doctrine of claim differentiation is at its strongest . . . 'where the limitation that is sought to be "read into" an independent claim already appears in a dependent claim.' " (quoting *Liebel–Flarsheim Co. v. Medrad, Inc.,* 358 F.3d 898, 910 (Fed.Cir.2004))).

Such intrinsic evidence is not outweighed by the extrinsic evidence of one dictionary definition. This is particularly true here, where the dictionary definition seems to contemplate web addresses on the Internet, while the specification makes clear that the claim term in question is not so limited. *See* J.A. 6139–40. Thus, we affirm the district court's construction of the term "domain name" as "a name corresponding to an IP address."

B. "Secure Communication Link"

[6] The district court construed "secure communication link" as "a direct communication link that provides data security." *Claim Construction Order* at 13. Apple argues that this term should be construed consistent with "VPN," which the district court construed to require not only data security but also anonymity.[1]

As an initial matter, we note that there is no dispute that the word "secure" does not have a plain and ordinary meaning in this context, and so must be defined by reference to the specification. *See* Oral Arg. 31:50–32:40, *available at* http://www.cafc.uscourts.gov/oral-argument-recordings/13-1489/all (acknowledgement by VirnetX's counsel that construction of "secure" requires consideration of the specification).

Moreover, we agree with Apple that, when read in light of the entire specification, the term "secure communication link" requires anonymity. Indeed, the addition of anonymity is presented as one of the primary inventive contributions of the patent. For example, the Background of the Invention states that "[a] tremendous variety of methods have been proposed and implemented to provide security *and anonymity* for communications over the Internet." '504 patent col. 1 ll. 32–35 (emphasis added). It goes on to define these two concepts as counterpart safeguards against eavesdropping that could occur while two computer terminals communicate over the Internet. *Id.* at col. 1 ll. 38–54. Security in this context refers to protection of data itself, to preserve the secrecy of its contents, while anonymity refers to preventing an eavesdropper from discovering the

1. The district court construed VPN to mean "a network of computers which privately and directly communicate with each other by encrypting traffic on insecure paths between the computers where the communication is both secure and anonymous." *Claim Construction Order* at 8.

identity of a participating terminal. *Id.* at col. 1 ll. 40–54.

Having thus framed the problem, the patent (as expected) proposes a solution. Specifically, the Summary of the Invention begins by explaining how the invention improves security by using a "two-layer encryption format" known as the Tunneled Agile Routing Protocol, or TARP. *Id.* at col. 3 ll. 14–17. First, an "inner layer" secures the data itself, *id.* at col. 4 ll. 5–7, and then a second "outer layer" conceals the data's "true destination," *id.* at col. 3 ll. 34–35. The fact that the Summary of the Invention gives primacy to these attributes strongly indicates that the invention requires more than just data security. *See, e.g., C.R. Bard,* 388 F.3d at 864 (giving particular weight to statements in the Summary of the Invention because "[s]tatements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term").

Consistent with this emphasis, the Detailed Description states that "the message payload is embedded behind an inner layer of encryption" and "[e]ach TARP packet's true destination is concealed behind an outer layer of encryption." ′504 patent col. 9 ll. 60–61, col. 11 ll. 2–4. The concealment requirement appears throughout the specification and is implicated in every embodiment associated with the "two-layer encryption" or TARP VPN. The fact that anonymity is "repeatedly and consistently" used to characterize the invention strongly suggests that it should be read as part of the claim. *See Eon–Net LP v. Flagstar Bancorp.,* 653 F.3d 1314, 1321–23 (Fed.Cir. 2011).

VirnetX attempts to rebut this suggestion by pointing to a single place in the specification where a "secure communication path" is referred to as providing only security, without anonymity. *See* ′504 patent col. 39 ll. 24–35. But that disclosure relates to the "conventional architecture" of the prior art that suffers precisely because it "hamper[s] anonymous communications on the Internet." *Id.* at col. 39 ll. 24, 32–33. And indeed, the specification goes on to explain how the invention solves that very problem by setting up a VPN, which requires anonymity. *Id.* at col. 39 ll. 46–62.

VirnetX also argues that the specification teaches that different users have "different needs" such that some users need data security while, in other cases, "it *may* be desired" to also have anonymity. Appellee's Br. 48 (citing ′504 patent col. 1 ll. 33–52). Thus, VirnetX insists, the TARP protocol (with its requirement of anonymity) is but one type of "secure communication link," and does not limit the construction of that term. To be sure, the specification mechanically prefaces most passages with the phrase "according to one aspect of the present invention." *See, e.g.,* ′504 patent col. 6 l. 36. But the Background and Summary of the Invention clearly identify the TARP protocol as a key part of the novel solution to the specific problem identified in the prior art. Unsurprisingly, therefore, VirnetX has not identified even a single embodiment that provides data security but not anonymity.

Moreover, in several instances the specification appears to use the terms "secure communication link" and "VPN" interchangeably, suggesting that the inventors intended the disputed term to encompass the anonymity provided by a VPN. *See Nystrom v. Trex Co.,* 424 F.3d 1136, 1143 (Fed.Cir.2005) ("Different terms or phrases in separate claims may be construed to cover the same subject matter where the written description and prosecution history indicate that such a reading of the terms or phrases is proper."). For example, it

states that "[w]hen software module 3309 is being installed or when the user is offline, the user can optionally specify that all communication links established over computer network 3302 are *secure communication links.* Thus, anytime that a communication link is established, the link is a *VPN* link." '504 patent col. 52 ll. 15–19 (emphases added). Similarly, in the very next paragraph the specification states that "a user at computer 3301 can optionally select a *secure communication link* through proxy computer 3315. Accordingly, computer 3301 can establish a *VPN* communication link 3323 with secure server computer 3320 through proxy computer 3315." *Id.* at col. 52 ll. 25–29 (emphases added). In both of these instances, the specification equates the term "secure communication link" with a "VPN." The only counter-example VirnetX can point to is an instance where the specification states, in relation to one aspect of the invention, that "[t]he secure communication link is a virtual private network communication link over the computer network." *Id.* at col. 6 ll. 61–63. But equating the two terms with respect to one aspect of the present invention is a far cry from expressly divorcing those terms elsewhere, particularly in the absence of any embodiment or disclosure that does so.

Thus, we reverse the district court's claim construction and conclude that the term "secure communication link" as used in the '504 and '211 patents requires anonymity. Accordingly, the term should be construed as "a direct communication link that provides data security *and anonymity.*"

II. Infringement

[7, 8] We review the denial of a motion for JMOL or a new trial under the law of the regional circuit. *Verizon Servs. Corp. v. Cox Fibernet Va., Inc.,* 602 F.3d 1325, 1331 (Fed.Cir.2010). The Fifth Circuit requires that a jury's determination must be upheld if it is supported by substantial evidence. *ClearValue, Inc. v. Pearl River Polymers, Inc.,* 668 F.3d 1340, 1343 (Fed. Cir.2012) (citing *Med. Care Am., Inc. v. Nat'l Union Fire Ins. Co.,* 341 F.3d 415, 420 (5th Cir.2003)).

A. '504 and '211 Patents

[9] Apple argues that there was not substantial evidence to support the jury's verdict that its FaceTime servers infringe the asserted claims of the '504 and '211 patents. Apple insists that FaceTime does not infringe the "secure communication link" claim term for two reasons: first, because when properly construed it requires anonymity, which the FaceTime servers do not provide, and second, because they do not provide "direct" communication, as required by the district court's claim construction.

With respect to the first argument, we have now construed the disputed claim term so as to require anonymity. *See supra* at 1319. However, the jury was not presented with the question of whether FaceTime infringes the asserted claims under a construction requiring anonymity. Thus, we remand for further proceedings to determine whether Apple's FaceTime servers provide anonymity.

With respect to the second argument, Apple argues that FaceTime servers do not provide "direct" communication because the communications are addressed to a NAT, rather than to the receiving device. Appellant's Br. 43. The district court concluded that there was substantial evidence to support the jury's finding that the NAT routers used by FaceTime do not impede direct communication, *VirnetX,* 925 F.Supp.2d at 831, and we agree. As the district court noted, VirnetX's expert testified that the NAT routers still allow for

"end-to-end communication between the two devices," J.A. 1565, because they merely translate addresses from the public address space to the private address space, but do not terminate the connection. J.A. 1465, 1536–37. Even Apple's expert admitted that the connection does not stop at the NAT routers. J.A.1984.

Apple argues that this testimony cannot support a finding of infringement because it is inconsistent with the court's claim construction that required "direct addressability." Appellant's Br. 43–45. But the district court considered this argument and disagreed, noting that its claim construction expressly provided that "routers, firewalls, and similar servers ... do not impede 'direct' communication," and VirnetX presented evidence that NATs operate like routers or firewalls. *VirnetX,* 925 F.Supp.2d at 831.

Thus, we do not think the district court erred in finding that there was substantial evidence on which the jury could have relied to reach its finding of infringement on this element.

B. '135 and '151 Patents

Apple also argues that there was not substantial evidence to support the jury's verdict that its VPN On Demand product infringed the asserted claims of the '135 and '151 patents for several reasons, discussed in turn below.

1. "Determining Whether"

[10] Apple argues that its VPN On Demand feature does not infringe the asserted claims of the '135 and '151 patents because it does not "determine whether" a requested domain name is a secure website or server. Instead, Apple insists that it merely determines whether the requested website is listed in the user-created "configuration file" and initiates a VPN connection for any domain name on that list, regardless of whether or not it is secure. In response, VirnetX argues that there was substantial evidence demonstrating that the VPN On Demand system is designed and intended to be used only for accessing secure private networks. We agree with VirnetX.

Here, the evidence presented at trial supports the conclusion that Apple's VPN On Demand product infringes the asserted claim limitation in its normal configuration. In particular, VirnetX's expert testified that Apple's technical design documents and internal technical presentations relating to the VPN On Demand system (many of which are confidential and cannot be quoted here) make clear that a VPN connection should only be established for private web addresses. Thus, regardless of whether a user could misconfigure the list by entering public domain names, Apple's planning documents, internal emails, and presentations all explained that VPN On Demand's primary use is to connect users to secure sites using a VPN. That is all that is required. *See Hilgraeve Corp. v. Symantec Corp.,* 265 F.3d 1336, 1343 (Fed. Cir.2001).

Moreover, this description of the VPN On Demand feature is consistent with how the claimed functionality is described in the specification. For example, in one embodiment, the DNS proxy determines whether a request is for a secure site by checking the domain name against a table or list of domain names. '135 patent col. 38 ll. 23–30. In other words, the proxy identifies a request for "access to a secure site ... by reference to an internal table of such sites." *Id.* That is precisely how the VPN On Demand feature operates.

We therefore conclude that the jury's finding that the VPN On Demand product infringes the "determining whether" limi-

tation was supported by substantial evidence.

2. "Between"

a. Literal Infringement of Claim 1 of the '135 Patent and Claim 13 of the '151 Patent

[11] Claim 1 of the '135 patent requires creating a "VPN" "between" the client and a target computer. '135 patent col. 47 ll. 20–22. Similarly, claim 13 of the '151 patent requires creating a "secure channel" "between" the client and the secure server. '151 patent col. 48 ll. 28–29. For both claims, the district court construed "between" to mean "extending from" the client to the target computer. *Claim Construction Order* at 26.

Apple argues that its VPN On Demand product fails to meet this limitation because it only secures communications between the iPhone and the VPN server, but not between the VPN server and the target computer. VirnetX responds that Apple's product is intended to be used with private networks, which are generally configured to be both secure and anonymous. In other words, VirnetX argues that the secure channel between the VPN server and the target computer is provided by the target computer itself. After considering the record as a whole, we conclude that there was substantial evidence to support the jury's verdict of infringement on this limitation.

At trial, VirnetX presented evidence and testimony to the jury that "the virtual private network extend[s] from the client computer to the target computer ... because it's encrypted on the insecure paths, and it's secure within the corporate network." J.A. 1400–01. VirnetX's expert testified that one of ordinary skill would understand that the path extending from the VPN server to the target computer, i.e., within the private network, would be secure and anonymous owing to protection provided by the private network. J.A. 1080 ("That network is secure, because it's been physically secured; and it also has what's called a firewall between its network and the public network. So it keeps the bad guys out."); J.A. 1379 ("If that's a private network of the company that they've set up behind a VPN server, the company would have configured that to be secure."); J.A. 1396 ("[T]hese are ... private networks that are not to be accessed by others. They require authorization for access."). The jury also heard testimony that while in some situations traffic could be unsecured behind the VPN server, J.A. 1997–98, this scenario would be "atypical." J.A.1992–93. For example, VirnetX presented evidence to the jury that Apple itself advertised that VPN On Demand is designed to connect with "private corporate networks" and "works with a variety of authentication methods." J.A. 20001. And, more to the point, the jury heard that the "private corporate networks" to which VPN On Demand is intended to connect employ security measures including VPN servers, VPN authentication servers, proxy servers, and firewalls which regulate access to private resources and prevent unauthorized users from breaching. J.A. 1080, 1379, 1401.

Apple argues that this finding of infringement necessarily rests on a series of "assumptions" about how all private networks operate in order to conclude that VPN On Demand is "typically" configured to operate in the manner accused of infringement. Appellant's Br. 30–31. However, VirnetX's expert relied on Apple's own internal technical documentation, product specifications, and marketing presentations, several of which describe specific security measures used by the private networks to which VPN On Demand is *intended* to connect. This evidence dem-

onstrates not only that VPN On Demand *may* be configured to interact with private networks, but that this was apparently Apple's primary objective. Apple would have VirnetX prove that VPN On Demand has no non-infringing modes of operation. But, as noted above, VirnetX bears no such burden. *See supra* at 1320–21; *see also z4 Techs., Inc. v. Microsoft Corp.,* 507 F.3d 1340, 1350 (Fed.Cir.2007) ("[I]nfringement is not avoided merely because a non-infringing mode of operation is possible."). We cannot agree that the jury's finding lacks substantial evidence because VirnetX did not specifically disprove that VPN On Demand can, in atypical situations, establish a VPN with insecure networks.

Apple also responds that this evidence is insufficient because VirnetX's expert testified that VPN On Demand only encrypts communications between the iPhone and the VPN server—by implication leaving the path from the VPN server to the target unencrypted. Appellant's Br. 29 (quoting J.A. 1392). However, the district court's construction of "VPN" does not require that traffic on a secure path be encrypted. Rather, the construction only requires encryption of traffic "on insecure paths." *Claim Construction Order* at 8. Moreover, as indicated by the '135 patent, encryption is just one possible way to address data security. '135 patent col. 1 ll. 38–39 ("Data security is *usually* tackled using some form of data encryption." (emphasis added)). And VirnetX provided substantial evidence for the jury to conclude that paths beyond the VPN server may be rendered secure and anonymous by means of "physical security" present in the private corporate networks connected to by VPN On Demand. *See, e.g.,* J.A. 1401.

Accordingly, we conclude that the jury's finding that the VPN On Demand feature creates a "VPN" or a "secure channel" that extends from the client to the target computer was supported by substantial evidence. We therefore affirm the district court's denial of JMOL as to claim 1 of the '135 patent and claim 13 of the '151 patent.

b. Infringement of Claim 1 of the '151 Patent Under the Doctrine of Equivalents

[12] Claim 1 of the '151 patent is similar to claim 13 except that it requires initiating an "encrypted channel"—rather than a "secure channel"—"between" the client and the secure server. '151 patent col. 46 ll. 66–67. With respect to infringement, VirnetX conceded that VPN On Demand does not literally practice this limitation because the private network between the VPN server and the target is "not necessarily encrypted" from end to end. J.A. 1420–21. Rather, VirnetX asserted that VPN On Demand infringes under the doctrine of equivalents because the difference between secure communication via encryption and secure communication in general is insubstantial. J.A. 1421–24. Apple argues that VirnetX's theory of equivalents is legally insufficient because it vitiates the "encrypted channel" element. Appellant's Br. 32–33.

[13–15] To find infringement under the doctrine of equivalents, any differences between the claimed invention and the accused product must be insubstantial. *See Graver Tank & Mfg. Co. v. Linde Air Prods. Co.,* 339 U.S. 605, 608, 70 S.Ct. 854, 94 L.Ed. 1097 (1950). Insubstantiality may be determined by whether the accused device performs substantially the same function in substantially the same way to obtain substantially the same result as the claim limitation. *Crown Packaging Tech., Inc. v. Rexam Beverage Can Co.,* 559 F.3d 1308, 1312 (Fed.Cir.2009). This is a question of fact. *Anchor Wall Sys.,*

Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1313 (Fed.Cir.2003). Vitiation is not an exception to the doctrine of equivalents. *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1356 (Fed.Cir.2012). Rather, it is a legal determination that "the evidence is such that no reasonable jury could determine two elements to be equivalent." *Id.* (citation omitted).

After considering the record as a whole, we conclude that the evidence presented at trial does not support the jury's finding of infringement under the doctrine of equivalents. VirnetX's expert testified that VPN On Demand (a) performs substantially the same function because it secures the communication between the client and the secure server, (b) does so in substantially the same way by protecting data through encryption on insecure paths that are vulnerable to eavesdroppers, and (c) achieves substantially the same result of successfully protecting the entire communication path from potential eavesdroppers. *See* J.A. 1424.

Notably, in explaining the "way" that VPN On Demand secures communications, the expert did *not* testify that VPN On Demand provides encryption on the allegedly *secure* pathway between the VPN server and the private network, but only on the *insecure* portion of the pathway. Thus, his testimony effectively equates the "security" of the private network with the "encryption" provided by the VPN server. But the patent consistently differentiates between "security" and "encryption." Both the claims and the specification of the '151 patent make clear that encryption is a narrower, more specific requirement than security. For example, the specification states that encryption is just one possible way to address data security. '151 patent col. 1 ll. 49–50 ("Data security is *usually* tackled using some form of data encryption." (emphasis added)). Additionally, one of the primary differences between the steps performed in claim 1 of the '151 patent and the steps performed in claim 13 is that claim 13 requires creating a "secure" channel, while claim 1 specifically requires that the channel be "encrypted."

In light of these distinctions in the patent itself, the jury's implicit finding that VPN On Demand achieves the result of protecting communications from eavesdropping in "substantially the same way" as contemplated by the "encrypted channel" claim limitation was not supported by VirnetX's expert's testimony. *See Crown Packaging*, 559 F.3d at 1312. No reasonable jury could have determined that the security provided by the VPN On Demand system—which includes encryption on the insecure paths but otherwise relies on the security provided by private networks—is equivalent to the "encrypted channel" required by claim 1 of the '151 patent. The district court's denial of JMOL as to that claim must therefore be reversed.

III. Invalidity

[16–18] A party challenging the validity of a patent must establish invalidity by clear and convincing evidence. *See Microsoft Corp. v. i4i Ltd. P'ship*, —— U.S. ——, 131 S.Ct. 2238, 2242, 180 L.Ed.2d 131 (2011). Anticipation is a factual question that we review for substantial evidence. *SynQor, Inc. v. Artesyn Techs., Inc.*, 709 F.3d 1365, 1373 (Fed.Cir.2013). A claim is anticipated only if each and every element is found within a single prior art reference, arranged as claimed. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed.Cir.2008).

[19] Apple argues that the asserted claims are anticipated by the Kiuchi reference. However, we conclude that the jury heard substantial evidence that at least one element of each asserted claim was missing from that reference. With respect

to the '135, '504, and '211 patents, the jury heard evidence that Kiuchi's proxy servers at least do not teach "direct communication" between a client and target computer, which is sufficient to defeat a claim of anticipation. J.A. 2343–44. Specifically, the jury heard expert testimony that Kiuchi's client-side and server-side proxies terminate the connection, process information, and create a new connection—actions that are not "direct" within the meaning of the asserted claims. J.A. 2334–35. VirnetX distinguished such proxy activities from the operation of NAT routers which—unlike proxy servers in the prior art-do not terminate the connection.

Additionally, with respect to the '151 patent, there was substantial evidence to support VirnetX's argument that Kiuchi fails to disclose the requirement that the DNS request be "sent by a client." '151 patent col. 46 l. 57. Apple argued that the "client-side proxy" of Kiuchi meets the "client" limitation, but there was evidence that the "client" of Kiuchi is actually a web browser, a component that is distinguishable from the client-side proxy. *See* J.A. 2341. Thus, the district court did not err in denying Apple's JMOL motion with respect to invalidity.

IV. Exclusion of Evidence

[20] At trial, to prove induced infringement, VirnetX attempted to show that Apple knew or was willfully blind to the fact that its customers' use of its products would infringe valid patent claims. In defense, Apple sought to inform the jury that, after learning of VirnetX's allegations, Apple initiated reexaminations against the asserted patents. Apple's requests for reexamination resulted in initial rejections of the asserted claims at the United States Patent and Trademark Office ("PTO"). Apple offered these rejections as evidence of Apple's reasonably-held belief that the patents were invalid. The district court, however, excluded this proffer, concluding that such non-final actions in pending reexaminations would be "highly prejudicial evidence that risks misleading the jury." *VirnetX,* 925 F.Supp.2d at 842.

[21, 22] We apply regional circuit law to evidentiary issues. The Fifth Circuit reviews a district court's exclusion of evidence under Federal Rule of Evidence 403 for "clear abuse of discretion" resulting in substantial prejudice. *Wellogix, Inc. v. Accenture, L.L.P.,* 716 F.3d 867, 882 (5th Cir.2013). In this case, we cannot say that the district court abused its discretion in excluding this evidence.

Apple asserts that the rejections are relevant because they establish its good faith belief that the asserted claims are invalid, thereby negating the requisite intent for inducement. Appellant's Br. 50 (citing *Commil USA, LLC v. Cisco Sys., Inc.,* 720 F.3d 1361, 1368–69 (Fed.Cir. 2013)). As an initial matter, we note that this court's precedent has often warned of the limited value of actions by the PTO when used for such purposes. *See, e.g., Hoechst Celanese Corp. v. BP Chems. Ltd.,* 78 F.3d 1575, 1584 (Fed.Cir.1996) ("[G]rant by the examiner of a request for reexamination is not probative of unpatentability."); *Acoustical Design, Inc. v. Control Elecs. Co.,* 932 F.2d 939, 942 (Fed.Cir. 1991) ("[I]nitial rejection by the [PTO] . . . hardly justifies a good faith belief in the invalidity of the claims."). However, in this case we need not decide whether our opinion in *Commil* justifies reliance on reexamination evidence to establish a good faith belief of invalidity. Instead, we conclude that, regardless of the evidence's relevance to a fact at issue at trial, the district court would still not have abused its discretion in finding that the probative value was substantially outweighed by the

risk of unfair prejudice to the patentee, confusion with invalidity (on the merits), or misleading the jury, thereby justifying exclusion under Federal Rule of Evidence 403. *See, e.g., SynQor,* 709 F.3d at 1380 (finding no abuse of discretion for excluding non-final reexamination evidence as being "confusing and more prejudicial than probative"); *Callaway Golf Co. v. Acushnet Co.,* 576 F.3d 1331, 1342–43 (Fed.Cir. 2009) (finding the probative value of a copending reexamination marginal and the effect likely to be highly prejudicial). Thus, we affirm the district court's exclusion of this evidence.

V. Damages

[23] At trial, VirnetX's damages expert, Mr. Roy Weinstein, provided three reasonable royalty theories, which the district court admitted over Apple's challenges under *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993).

Weinstein's first approach began with the lowest sale price of each model of the accused iOS devices containing the accused features. J.A. 1616–23. Weinstein then applied a 1% royalty rate to the base, derived from a VirnetX policy of seeking to license its patents for at least 1–2% of the entire value of products sold and several allegedly comparable licenses. J.A. 1595, 1613–14. This theory yielded a $708 million demand, consisting of $566 million for products including both FaceTime and VPN On Demand, and $142 million for those including only VPN On Demand. J.A. 1622–24, 1644.

Weinstein also offered a second damages theory, regarding FaceTime alone, relying on a mathematical theorem proved by John Nash, a mathematician who proved a number of results in game theory that have become important in economics and other fields. J.A. 1628–29. Nash was a co-winner of the 1994 Nobel Prize in Economics for some of this work, though not the theorem at issue here—published as "The Bargaining Problem" in 18 *Econometrica* 155–62 (Apr.1950). Like other mathematical theorems, this theorem states a number of premises and establishes a conclusion that follows from those premises. In particular, under the conditions stated in the premises, where two persons bargain over a matter, there is a "solution" to the negotiation problem satisfying stated conditions on a desirable result (bargain). That solution—in which "each bargainer get[s] the same money profit," *id.* at 162—has come to be called the Nash Bargaining Solution.

Weinstein, invoking the Nash Bargaining Solution, testified that "the parties [would have] split between themselves the incremental or additional profits that are associated with the use of the patented technology." J.A. 1630. Weinstein derived the profits associated with FaceTime from the revenue generated by the addition of a "front-facing" camera on Apple's mobile devices. Without examining the applicability to this case of all the preconditions for the Nash Bargaining Solution, he invoked the Solution as suggesting a 50/50 split of those profits, and then modified that result by 10%, explaining that VirnetX would have received only 45% of the profit because of its weaker bargaining position, leaving 55% for Apple. J.A. 1633, 1709. This calculation amounted to $588 million in damages for infringement by FaceTime. J.A. 1633–38.

Finally, Weinstein offered yet another theory for FaceTime, again relying on the Nash Bargaining Solution. This time, he claimed that FaceTime "drove sales" for Apple iOS products. J.A. 1639. Weinstein extrapolated from a customer survey to assert that 18% of all iOS device sales would not have occurred without the addi-

tion of FaceTime. J.A. 1641. From that figure, he determined the amount of Apple's profits that he believed were attributable to the FaceTime feature, and apportioned 45% of the profits to VirnetX, consistent with his previous application of the Nash theory. Using this approach, Weinstein arrived at damages of $5.13 per unit, totaling $606 million in damages for FaceTime. J.A. 1643.

Ultimately, the jury awarded VirnetX $368 million in damages. Apple now challenges each of Weinstein's damages theories, as well as the district court's jury instruction on damages. For the reasons stated below, we vacate the jury's damages award and remand for further proceedings consistent with this opinion.

A. Jury Instruction

[24, 25] Upon a finding of infringement, "the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer." 35 U.S.C. § 284. The most common method for determining a reasonable royalty is the hypothetical negotiation approach, which "attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began." *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed.Cir.2009). A reasonable royalty may be a lump-sum payment not calculated on a per unit basis, but it may also be, and often is, a running payment that varies with the number of infringing units. In that event, it generally has two prongs: a royalty base and a royalty rate.

[26] No matter what the form of the royalty, a patentee must take care to seek only those damages attributable to the infringing features. Indeed, the Supreme Court long ago observed that a patentee must in every case give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.

Garretson v. Clark, 111 U.S. 120, 121, 4 S.Ct. 291, 28 L.Ed. 371 (1884).

[27] Thus, when claims are drawn to an individual component of a multi-component product, it is the exception, not the rule, that damages may be based upon the value of the multi-component product. *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67–68 (Fed.Cir.2012). Indeed, we recently reaffirmed that "[a] patentee may assess damages based on the entire market value of the accused product *only where* the patented feature creates the basis for customer demand or substantially creates the value of the component parts." *Versata Software, Inc. v. SAP Am., Inc.*, 717 F.3d 1255, 1268 (Fed.Cir. 2013) (emphasis added) (quoting *SynQor*, 709 F.3d at 1383). In the absence of such a showing, principles of apportionment apply.

These strict requirements limiting the entire market value exception ensure that a reasonable royalty "does not overreach and encompass components not covered by the patent." *LaserDynamics*, 694 F.3d at 70; *see also Garretson*, 111 U.S. at 121, 4 S.Ct. 291 ("[T]he patentee must show in what particulars his improvement has added to the usefulness of the machine or contrivance."). Thus, "[i]t is not enough to

merely show that the [patented feature] is viewed as valuable, important, or even essential to the use of the [overall product]." *LaserDynamics*, 694 F.3d at 68. Instead, this court has consistently held that "a reasonable royalty analysis requires a court to . . . carefully tie proof of damages to the claimed invention's footprint in the market place." *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 869 (Fed.Cir.2010); *see also Cornell Univ. v. Hewlett–Packard Co.*, 609 F.Supp.2d 279, 285 (N.D.N.Y. 2009) ("The entire market value rule indeed permits damages on technology beyond the scope of the claimed invention, but only upon proof that damages on the unpatented components or technology is necessary to fully compensate for infringement of the patented invention."). Additionally, we have also cautioned against reliance on the entire market value of the accused products because it "cannot help but skew the damages horizon for the jury, regardless of the contribution of the patented component to this revenue." *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1320 (Fed.Cir.2011).

Apple argues that the district court misstated this law on the entire market value rule in its jury instruction. The district court instructed the jury as follows:

> In determining a royalty base, you should not use the value of the entire apparatus or product unless either: (1) the patented feature creates the basis for the customers' demand for the product, or the patented feature substantially creates the value of the other component parts of the product; or (2) the product in question constitutes the smallest saleable unit containing the patented feature.

J.A. 2515–16. Apple argues that this instruction inappropriately created a second exception that would allow a patentee to rely on the entire market value of a multi-component product so long as that product is the smallest salable unit containing the patented feature.

We agree with Apple that the district court's instruction misstates our law. To be sure, we have previously permitted patentees to base royalties on the "smallest salable patent-practicing unit." *LaserDynamics*, 694 F.3d at 67. However, the instruction mistakenly suggests that when the smallest salable unit is used as the royalty base, there is necessarily no further constraint on the selection of the base. That is wrong. For one thing, the fundamental concern about skewing the damages horizon—of using a base that misleadingly suggests an inappropriate range—does not disappear simply because the smallest salable unit is used.

Moreover, the smallest salable unit approach was intended to produce a royalty base much more closely tied to the claimed invention than the entire market value of the accused products. Indeed, that language first arose in the *Cornell* case, where the district court noted that, rather than pursuing a "royalty base claim encompassing a product with significant non-infringing components," the patentee should have based its damages on "the smallest salable infringing unit *with close relation to the claimed invention.*" 609 F.Supp.2d at 287–88 (emphasis added). In other words, the requirement that a patentee identify damages associated with the smallest salable patent-practicing unit is simply a step toward meeting the requirement of apportionment. Where the smallest salable unit is, in fact, a multi-component product containing several non-infringing features with no relation to the patented feature (as VirnetX claims it was here), the patentee must do more to estimate what portion of the value of that product is attributable to the patented technology. To hold otherwise would per-

mit the entire market value exception to swallow the rule of apportionment.[2]

[28] In reaching this conclusion, we are cognizant of the difficulty that patentees may face in assigning value to a feature that may not have ever been individually sold. However, we note that we have never required absolute precision in this task; on the contrary, it is well-understood that this process may involve some degree of approximation and uncertainty. *See generally Unisplay, S.A. v. Am. Elec. Sign Co.,* 69 F.3d 512, 517 (Fed.Cir.1995).

We conclude that the district court's jury instruction regarding the entire market value rule was legally erroneous. Moreover, that error cannot be considered harmless, as VirnetX's expert relied on the entire value of the iOS devices as the "smallest salable units," without attempting to apportion the value attributable to the VPN On Demand and FaceTime features. Thus, it is clear that the jury's verdict was tainted by the erroneous jury instruction.

B. Weinstein's First Approach: Royalty Base

[29] In addition to the erroneous jury instruction, Apple argues that the testimony of VirnetX's expert on the proper royalty base should have been excluded because it relied on the entire market value of Apple's products without demonstrating that the patented features drove the demand for those products. For similar reasons to those stated above, we agree.

[30–32] The admissibility of expert testimony is governed by the Federal Rules of Evidence and the principles laid out in *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993). The district court's "gatekeeping obligation" applies to all types of expert testimony. *Kumho Tire Co. v. Carmichael,* 526 U.S. 137, 147, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999). While questions regarding which facts are most relevant for calculating a reasonable royalty are properly left to the jury, a critical prerequisite is that the underlying methodology be sound. Here, it was not, and the district court should have exercised its gatekeeping authority to ensure that only theories comporting with settled principles of apportionment were allowed to reach the jury.

Under Weinstein's first damages theory, he undisputedly based his calculations on the entire cost of the iOS devices, ranging in value from $199 for the iPod Touch to $649 for the iPhone 4S. Weinstein used the base price at which each product was sold, excluding only charges for additional memory sold separately. He called this the smallest salable unit. However, when asked whether this "remove[d] features that aren't accused in this case," Weinstein answered as follows:

> To the extent that the products that we're talking about here contain additional features, like additional memory, for instance, *that Apple was charging for,* by using the lowest saleable unit, I'm doing as much as I can to remove payments for those features . . . .

J.A. 1620 (emphasis added). This testimony confirms that Weinstein did not even attempt to subtract any other unpatented elements from the base, which therefore included various features indisputably not claimed by VirnetX, e.g., touchscreen, camera, processor, speaker, and microphone, to name but a few. J.A. 1143–44.

2. As, indeed, it did in this case, where VirnetX effectively relied on the entire market value of the iOS devices without showing that the patented features drove demand for those devices, simply by asserting that they were the smallest salable units.

VirnetX defends Weinstein's approach by insisting that "software creates the largest share of the product's value" for these popular iOS products. Appellee's Br. 60. But this misses the point. Whether "viewed as valuable, important, or even essential," the patented feature must be separated. *LaserDynamics,* 694 F.3d at 68. Weinstein made no attempt to separate software from hardware, much less to separate the FaceTime software from other valuable software components.

[33] Indeed, the record supports Apple's contention that Weinstein could have apportioned a smaller per unit figure for FaceTime; namely, for the use of FaceTime on Mac computers he used a royalty base of $29—the cost of the software upgrade. J.A. 1619. And he used an even *lower* estimate to represent the patentable contributions to iOS devices in his application of the Nash Bargaining Solution, calculating incremental revenues due to FaceTime at $15 per iOS device. J.A. 1634–36. The only reason Weinstein gave for not using the $29 as the base for other iOS products was that Apple does not actually charge separately for FaceTime on those devices. J.A. 1673–74. But, as explained above, a patentee's obligation to apportion damages only to the patented features does not end with the identification of the smallest salable unit if that unit still contains significant unpatented features.[3]

[34] Thus, VirnetX cannot simply hide behind Apple's sales model to avoid the task of apportionment. This court rejects the excuse that "practical and economic necessity compelled [the patentee] to base its royalty on the price of an entire [device]." *LaserDynamics,* 694 F.3d at 69. There is no "necessity-based exception to the entire market value rule." *Id.* at 70. On the contrary, a patentee must be reasonable (though may be approximate) when seeking to identify a patent-practicing unit, tangible or intangible, with a close relation to the patented feature.

[35] In the end, VirnetX should have identified a patent-practicing feature with a sufficiently close relation to the claimed functionality. The law requires patentees to apportion the royalty down to a reasonable estimate of the value of its claimed technology, or else establish that its patented technology drove demand for the entire product. VirnetX did neither. As we noted in *LaserDynamics:*

> Whether called "product value apportionment" or anything else, the fact remains that the royalty was expressly calculated as a percentage of the entire market value of a [multi-component product] rather than a patent-practicing [component] alone. This, by definition, is an application of the entire market value rule.

Id. at 68. In calculating the royalty base, Weinstein did not even try to link demand for the accused device to the patented feature, and failed to apportion value between the patented features and the vast number of non-patented features contained in the accused products. Because Weinstein did not "carefully tie proof of damages to the claimed invention's footprint in the market place," *Uniloc,* 632 F.3d at 1317 (quoting *ResQNet,* 594 F.3d at 869), his testimony on the royalty base under this approach was inadmissible and should have been excluded.

C. Weinstein's First Approach: Royalty Rate

[36] In addition to challenging Weinstein's testimony with respect to the royal-

3. Because Apple has not challenged it, we offer no opinion on whether the $29 software upgrade is itself so closely related to the patented feature that VirnetX may rely on its entire value in determining the proper royalty base for the FaceTime feature.

ty base, Apple argues that his testimony with respect to the royalty rate should also have been excluded.

After determining the royalty base, Weinstein applied a 1% royalty rate, based on six allegedly comparable licenses, as well as his understanding that VirnetX had a "policy" of licensing its patents for 1–2%. Apple argues that the licenses on which Weinstein relied were not sufficiently comparable to the license that would have resulted from the hypothetical negotiation. In particular, Apple points out that two of the licenses predated the patents-in-suit. Both of those agreements related to technology leading to the claimed invention, and one contained a software license in addition to a license for various patent applications. Apple further complains that three of the other licenses were entered into in 2012, a full three years after the date of the "hypothetical negotiation," set in June 2009. Apple argues that at the time those licenses were entered into, VirnetX was in a much better financial position (and therefore a better bargaining position) than it was in 2009. Finally, Apple notes that the sixth license covered sixty-eight VirnetX patents, and was therefore much broader than the license to four patents Apple would be seeking in the hypothetical negotiation. It also equated to a 0.24% royalty rate, which is significantly lower than the 1–2% rate Weinstein testified VirnetX would accept.

[37] We have held that in attempting to establish a reasonable royalty, the "licenses relied on by the patentee in proving damages [must be] sufficiently comparable to the hypothetical license at issue in suit." *Lucent*, 580 F.3d at 1325. "When relying on licenses to prove a reasonable royalty, alleging a loose or vague comparability between different technologies or licenses does not suffice." *LaserDynamics*, 694 F.3d at 79. However, we have never required identity of circumstances; on the contrary, we have long acknowledged that "any reasonable royalty analysis 'necessarily involves an element of approximation and uncertainty.' " *Lucent*, 580 F.3d at 1325 (quoting *Unisplay*, 69 F.3d at 517). Thus, we have cautioned that "district courts performing reasonable royalty calculations [must] exercise vigilance when considering past licenses to technologies *other* than the patent in suit," *ResQNet*, 594 F.3d at 869, and "must account for differences in the technologies and economic circumstances of the contracting parties," *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1211 (Fed.Cir.2010).

With those principles in mind, we conclude that the district court here did not abuse its discretion in permitting Weinstein to rely on the six challenged licenses. To begin with, four of those licenses did indeed relate to the actual patents-in-suit, while the others were drawn to related technology. Moreover, all of the other differences that Apple complains of were presented to the jury, allowing the jury to fully evaluate the relevance of the licenses. *See* J.A. 1600, 1650, 1678–82. No more is required in these circumstances.

Our case law does not compel a contrary result. In *ResQNet*, we faulted the district court for relying on licenses with "no relationship to the claimed invention," nor even a "discernible link to the claimed technology." 594 F.3d at 870. And in *Lucent*, we rejected reliance on licenses from "vastly different situation[s]" or where the subject matter of certain agreements was not even ascertainable from the evidence presented at trial. 580 F.3d at 1327–28. The licenses in this case—though not immune from challenge—bear a closer relationship to the hypothetical negotiation that would have occurred.

This case is therefore much more akin to the circumstances in *Finjan* and *ActiveVi-*

deo Networks, Inc. v. Verizon Communications, Inc., 694 F.3d 1312 (Fed.Cir.2012). In *Finjan*, there were several differences between the single license relied upon and the hypothetical negotiation, most notably that Finjan did not compete with the licensee as it did with the defendant in the case, and that the license involved a lump sum rather than a running royalty. 626 F.3d at 1212. Nevertheless, we affirmed the damages award based on that license because "[those] differences permitted the jury to properly discount the . . . license." *Id.* And in *ActiveVideo*, the damages expert relied on two agreements, one of which post-dated the hypothetical negotiations by two years, did not involve the patents-in-suit, and did not cover the technologies in the case, while the other agreement covered both patents *and* software services. 694 F.3d at 1333. Nevertheless, we concluded that the "degree of comparability" of the license agreements was "[a] factual issue[ ] best addressed by cross examination and not by exclusion." *Id.* Similarly, here, though there were undoubtedly differences between the licenses at issue and the circumstances of the hypothetical negotiation, "[t]he jury was entitled to hear the expert testimony and decide for itself what to accept or reject." *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 856 (Fed.Cir.2010), *aff'd* —— U.S. ——, 131 S.Ct. 2238, 180 L.Ed.2d 131 (2011).

Thus, we do not believe the district court abused its discretion by permitting Weinstein's testimony regarding the proper royalty rate based on these allegedly comparable licenses.

D. Weinstein's Second and Third Approaches: Nash Bargaining Solution

[38] Weinstein also offered two other estimates of the damages attributable to the FaceTime feature. Both of these estimates relied on the Nash Bargaining Solution. Weinstein began by determining "incremental or additional profits that are associated with the use of the patented technology." J.A. 1630. Weinstein used two different methods to estimate the incremental profits associated with the FaceTime feature. First, he used the front-facing camera as a proxy for the FaceTime feature, and calculated the profits that he believed were attributable to the addition of the front-facing camera to certain Apple products. And second, he relied on customer surveys to assert that 18% of iOS device sales would not have occurred but for the inclusion of FaceTime, and determined the profits attributable to those sales.

Having thus purported to determine those profits, Weinstein then testified about how the parties would split those incremental profits. To do this, he began with the assumption that each party would take 50% of the incremental profits, invoking the Nash Bargaining Solution, and then adjusted that split based on "the relative bargaining power of the two entities." J.A. 1632.

Apple challenges both steps of Weinstein's analysis. First, Apple insists that Weinstein did not adequately isolate the incremental profits attributable to the patented technology under either approach. And second, Apple argues that the invocation of a 50/50 starting point based on the Nash Bargaining Solution is akin to the "25 percent rule of thumb" that we rejected in *Uniloc* as being insufficiently grounded in the specific facts of the case. Because we agree with Apple on the second point, we need not reach the first.

In recent years, numerous district courts have confronted experts' invocations of the Nash Bargaining Solution as a model for reasonable royalty damages, with

varying results. *Compare Robocast, Inc. v. Microsoft Corp.,* No. 10–1055, 2014 WL 350062 (D.Del. Jan. 29, 2014) (excluding expert testimony based on Nash Bargaining Solution because it was not sufficiently tied to the facts of the case); *Dynetix Design Solutions, Inc. v. Synopsys, Inc.,* No. 11–5973, 2013 WL 4538210, at *4–5 (N.D.Cal. Aug. 22, 2013) (excluding expert testimony on royalty rate that began from a starting point of a 50/50 split because the expert's methodology was "indistinguishable from 25% rule"); *Oracle Am., Inc. v. Google Inc.,* 798 F.Supp.2d 1111, 1119–21 (N.D.Cal.2011) (excluding testimony based on Nash Bargaining Solution because it "would invite a miscarriage of justice by clothing a fifty-percent assumption in an impenetrable façade of mathematics") *with Mformation Techs., Inc. v. Research in Motion Ltd.,* No. 08–4990, 2012 WL 1142537, at *3 n. 19 (N.D.Cal. Mar. 29, 2012) (declining to exclude Weinstein's testimony based on Nash Bargaining Solution because he used it only "as a check" in addition to the *Georgia–Pacific* analysis, rather than in lieu of it); *Gen–Probe Inc. v. Becton Dickinson & Co.,* No. 09–2319, 2012 WL 9335913, at *3 (S.D.Cal. Nov. 26, 2012) (permitting testimony based on Nash Bargaining Solution because calculation was sufficiently tied to the facts of the case, "including the competitive environment and Gen–Probe's policy of exploiting its own patents"); *Sanofi–Aventis Deutschland Gmbh v. Glenmark Pharms. Inc., USA,* No. 07–5855, 2011 WL 383861, at *12–13 (D.N.J. Feb. 3, 2011) (determining that expert's testimony asserting a 50/50 profit split was based on the specific facts of the case); *Amakua Dev. LLC v. Warner,* No. 05–3082, 2007 WL 2028186, at *20 (N.D.Ill. July 10, 2007) (permitting reliance on Nash because the "[d]efendants ha[d] not challenged the reliability of Nash's theories, and the assessment of whether the theory persuasively can be applied in the context of this case is for the jury").

For the reasons that follow, we agree with the courts that have rejected invocations of the Nash theorem without sufficiently establishing that the premises of the theorem actually apply to the facts of the case at hand. The use here was just such an inappropriate "rule of thumb."

Previously, damages experts often relied on the "25 percent rule of thumb" in determining a reasonable royalty rate in a hypothetical negotiation. That rule hypothesized that 25% of the value of the infringing product would remain with the patentee, while the remaining 75% would go to the licensee. In *Uniloc,* however, we held the "25 percent rule of thumb" to be inadmissible "because it fails to tie a reasonable royalty base to the facts of the case at issue." 632 F.3d at 1315. In so doing, we noted that the rule did not differentiate between different industries, technologies, or parties. *Id.* at 1317. Rather, it assumed the same 25/75 royalty split regardless of the size of the patent portfolio in question or the value of the patented technology. *Id.* The problem was that the 25% rule made too crude a generalization about a vastly more complicated world.

The problem with Weinstein's use of the Nash Bargaining Solution, though somewhat different, is related, and just as fatal to the soundness of the testimony. The Nash theorem arrives at a result that follows from a certain set of premises. It itself asserts nothing about what situations in the real world fit those premises. Anyone seeking to invoke the theorem as applicable to a particular situation must establish that fit, because the 50/50 profit-split result is proven by the theorem only on those premises. Weinstein did not do so. This was an essential failing in invoking the Solution. Moreover, we do not

believe that the reliability of this methodology is saved by Weinstein's attempts to account for the unique facts of the case in deviating from the 50/50 starting point. As we noted in *Uniloc:*

> It is of no moment that the 25 percent rule of thumb is offered merely as a starting point to which the *Georgia–Pacific [Corp. v. U.S. Plywood Corp.,* 318 F.Supp. 1116 (S.D.N.Y.1970)] factors are then applied to bring the rate up or down. Beginning from a fundamentally flawed premise and adjusting it based on legitimate considerations specific to the facts of the case nevertheless results in a fundamentally flawed conclusion.

632 F.3d at 1317. Indeed, Weinstein's thin attempts to explain his 10% deviation from the 50/50 baseline in this case demonstrates how this methodology is subject to abuse. His only testimony on the matter was that although he "considered other splits," he ultimately determined that a 10% deviation—resulting in a 45/55 split—was appropriate "to reflect the fact that Apple would have additional bargaining power over VirnetX back in ... 2009." JA. 1708–09. Such conclusory assertions cannot form the basis of a jury's verdict. *See Gen. Elec. Co. v. Joiner,* 522 U.S. 136, 146, 118 S.Ct. 512, 139 L.Ed.2d 508 (1997) (noting that where an expert considers relevant material but fails to provide an opinion explaining how that material leads to his conclusion, "[a] court may conclude that there is simply too great an analytical gap between the data and the opinion proffered").

[39] More importantly, even if an expert could identify all of the factors that would cause negotiating parties to deviate from the 50/50 baseline in a particular case, the use of this methodology would nevertheless run the significant risk of inappropriately skewing the jury's verdict. This same concern underlies our rule that a patentee may not balance out an unreasonably high royalty base simply by asserting a low enough royalty rate. *See Uniloc,* 632 F.3d at 1320. Although the result of that equation would be mathematically sound if properly applied by the jury, there is concern that the high royalty base would cause the jury to deviate upward from the proper outcome. *Id.* Thus, in *Uniloc,* we noted that "[t]he disclosure that a company has made $19 billion dollars in revenue from an infringing product cannot help but skew the damages horizon for the jury, regardless of the contribution of the patented component to this revenue." *Id.* Similarly, here, the use of a 50/50 starting point—itself unjustified by evidence about the particular facts—provides a baseline from which juries might hesitate to stray, even if the evidence supported a radically different split.

Even the 25% rule had its share of support in the literature, which had observed that, at least as an anecdotal matter, a 25% royalty rate was a common starting point—and not far off from a common end point—of licensing negotiations across numerous industries. *See Uniloc,* 632 F.3d at 1313 (citing Robert Goldscheider, John Jarosz and Carla Mulhern, *Use of the 25 Per Cent Rule in Valuing IP,* 37 *les Nouvelles* 123, 132–33 (Dec. 2002); Stephen A. Degnan & Corwin Horton, *A Survey of Licensed Royalties,* 32 *les Nouvelles* 91, 95 (June 1997)). Nevertheless, we rejected it, insisting on testimony tied to the particular facts. The same insistence is vital here.

We note that the Nash Bargaining Solution does offer at least one noticeable improvement over the 25% rule: where the 25% rule was applied to the entire profits associated with the allegedly infringing product, the Nash theory focuses only on the *incremental* profits earned by the infringer from the use of the asserted pat-

ents. But while we commend parties for using a theory that more appropriately (and narrowly) defines the universe of profits to be split, the suggestion that those profits be split on a 50/50 basis—even when adjusted to account for certain individual circumstances—is insufficiently tied to the facts of the case, and cannot be supported.

For each of the reasons stated above, we vacate the damages award and remand for further proceedings consistent with this opinion.

AFFIRMED–IN–PART, REVERSED–IN–PART, VACATED–IN–PART and REMANDED

COSTS

Each party shall bear its own costs.

G. David JANG, M.D., Plaintiff–Respondent,

v.

BOSTON SCIENTIFIC CORPORATION and Scimed Life Systems, Inc., Defendants–Petitioners.

No. 2014–134.

United States Court of Appeals, Federal Circuit.

Sept. 16, 2014.

Background: Inventor brought action against manufacturers, as the assignees of a patent, alleging breach of a contract that governed the assignment of the patents. The United States District Court for the Central District of California, Virginia Anne Phillips, J., entered consent judgment. The inventor appealed. The Court of Appeals, Dyk, Circuit Judge, 532 F.3d 1330, vacated and remanded. The District Court, Phillips, J., entered revised consent judgment and revised stipulated summary judgment order. The inventor appealed. The Court of Appeals, Linn, Circuit Judge, 493 Fed.Appx. 70, reversed in part, vacated in part, and remanded. On remand, the District Court, Phillips, J., denied the manufacturers' motion for summary judgment, and certified questions for interlocutory appeal.

Holdings: The Court of Appeals, Linn, Circuit Judge, held that:

(1) the Court had subject matter jurisdiction over the appeal, and

(2) the Court would decline to exercise jurisdiction over the interlocutory appeal.

Petition denied.

1. Federal Courts ⇨3906

A state-law breach of contract action concerning royalties owed for the assignment of patents involved a patent issue that was necessarily raised, actually disputed, substantial, and capable of resolution in federal court without disrupting the federal-state balance approved by Congress, as required for the Court of Appeals for the Federal Circuit to exercise exclusive jurisdiction over an interlocutory appeal from the Central District of California, even though the patents had been found to be invalid by the United States Patent and Trademark Office (PTO) on ex parte reexamination, where the reexamination occurred after the breach of contract claim was filed. 28 U.S.C.A. §§ 1292(b), 1295(a)(1), 1338(a).

2. Federal Courts ⇨2076

Subject matter jurisdiction in diversity cases is determined on the facts as they existed at the time the claim was filed.