

United States Court of Appeals
for the Federal Circuit

WILLIS ELECTRIC CO., LTD.,
Plaintiff-Appellee

v.

POLYGROUP LTD. (MACAO COMMERCIAL
OFFSHORE), POLYGROUP MACAU LIMITED BVI,
POLYTREE (HK) CO. LTD., POLYGROUP
TRADING LTD.,
Defendants-Appellants

2024-2118

Appeal from the United States District Court for the
District of Minnesota in No. 0:15-cv-03443-JNE-DTS, Sen-
ior Judge Joan N. Ericksen.

Decided: February 17, 2026

MARK CHRISTOPHER FLEMING, Wilmer Cutler Pickering
Hale and Dorr LLP, Boston, MA, argued for plaintiff-appel-
lee. Also represented by NORA N. XU, Washington, DC;
PATRICK M. ARENZ, BRENDA L. JOLY, EMILY ELIZABETH
NILES, Robins Kaplan LLP, Minneapolis, MN.

J. MICHAEL JAKES, Finnegan, Henderson, Farabow,
Garrett & Dunner, LLP, Washington, DC, argued for de-
fendants-appellants. Also represented by RYAN VALENTINE

MCDONNELL, JASON LEE ROMRELL; RACHEL ZIMMERMAN
SCOBIE, Merchant & Gould P.C., Minneapolis, MN.

Before MOORE, *Chief Judge*, STARK, *Circuit Judge*, and
OETKEN, *District Judge*.¹

MOORE, *Chief Judge*.

Polygroup Ltd. (Macao Commercial Offshore), Polygroup Macau Limited BVI, Polytree (HK) Co. Ltd., and Polygroup Trading Ltd. (collectively, Polygroup) appeal an order from the United States District Court for the District of Minnesota denying Polygroup's motion for judgment as a matter of law (JMOL) of obviousness and for a new trial on damages. For the following reasons, we affirm.

BACKGROUND

Willis Electric Co., Ltd. (Willis) owns U.S. Patent No. 8,454,186, which relates to pre-lit artificial trees with decorative lighting. '186 patent at 1:14–18. The trees feature separable, modular trunk portions that are mechanically and electrically connectable to each other, providing electricity to the trees' attached lights at any rotational orientation. *Id.* at 1:14–18, 15:1–6, 15:45–59. The prior art required making separate mechanical and electrical connections when assembling pre-lit trees—first by mechanically joining the trunk sections, then by manually connecting electrical cords to power the lights. *Id.* at 1:47–56. The '186 patent, by contrast, teaches a single, integrated connection in which assembling the trunk sections establishes the mechanical and electrical connections

¹ The Honorable J. Paul Oetken, District Judge, United States District Court for the Southern District of New York, sitting by designation.

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simultaneously, allowing a tree to illuminate automatically without additional wiring steps. *Id.* at 2:54–62.

Only claim 15, which depends from independent claim 10, is at issue in this appeal. Claim 10 reads:

10. A lighted artificial tree, comprising:

a first tree portion including a first trunk portion, a first plurality of branches joined to the first trunk portion, and a first light string, the first trunk portion having a first trunk body and a trunk connector, at least a portion of the trunk connector housed within the first trunk body and electrically connected to the first light string;

a second tree portion including a second trunk portion, a second plurality of branches joined to the second trunk portion, and a second light string, the second trunk portion having a trunk body and a trunk connector, at least a portion of the trunk connector housed within the second trunk portion and electrically connected to the second light string; and

wherein the second tree portion is mechanically and electrically connectable to the first tree portion by coupling a lower end of the second trunk body to an upper end of the first trunk body along a common vertical axis at a rotational orientation of the first trunk portion relative the second trunk portion about the common vertical axis, thereby causing the trunk connector of the first trunk portion to make an electrical connection with the trunk connector of the second trunk portion within an interior of the lighted artificial tree, the electrical connection being made independent of the rotational orientation of the first trunk portion relative the second trunk portion about the common vertical axis.

Id. at 22:33–60.

Claim 15 reads:

15. The lighted artificial tree of claim 10, wherein the trunk connectors of the first and second tree portions form coaxial trunk connectors.

Id. at 23:8–10.

In August 2015, Willis sued Polygroup for infringing four patents, including “one or more claims” of the ’186 patent. J.A. 4000–07. Willis later amended its complaint to assert two more patents, accusing several Polygroup trees with “Quick Set”² features. J.A. 4008–14. In response, Polygroup filed sixteen petitions for *inter partes* review (IPR), three of which challenged, in relevant part, claims 1, 3–4, 6–11, 15–22, 25–26, and 28 of the ’186 patent.³ See J.A. 15134–41; J.A. 4056–57. The district court action was stayed pending IPR, and the Patent Trial and Appeal Board (Board) instituted review of the ’186 patent’s challenged claims. See J.A. 4132–35; J.A. 4136; J.A. 15002–61. The Board determined Polygroup had not proven any of the ’186 patent’s challenged claims unpatentable by preponderant evidence. J.A. 15002, 15061. On appeal, we affirmed the Board’s determination as to claim 15 of the ’186 patent but vacated and remanded as to all other challenged claims of the ’186 patent. *Polygroup Ltd. v. MCO*.

² Quick Set enables users to form simultaneous mechanical and electrical connections regardless of the tree’s orientation through an internal trunk-connection system. Polygroup Br. 14–15; Willis Br. 14.

³ Three of the four petitions challenging the ’186 patent were instituted and consolidated into a single petition. *Polygroup Ltd. v. Willis Elec. Co., Ltd.*, No. IPR2016-01610, 2020 WL 5985472, at *1 (P.T.A.B. Oct. 8, 2020). The remaining petition challenging claims 1–28 of the ’186 patent was not instituted. J.A. 15134.

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Willis Elec. Co., Ltd., 759 F. App'x 934, 943 (Fed. Cir. 2019). On remand, the Board determined claims 1, 3–4, 6, and 8–9 of the '186 patent were unpatentable and that the remaining challenged claims were not unpatentable. *Polygroup*, 2020 WL 5985472, at *1. Polygroup appealed the Board's decision declining to hold the remaining challenged claims unpatentable, and we reversed-in-part, holding claims 10–11, 16, 18–22, 25–26, and 28 are also unpatentable. *Polygroup Ltd. MCO v. Willis Elec. Co.*, No. 2021-1401, 2022 WL 1183332, at *4–5 (Fed. Cir. Apr. 20, 2022). Following these proceedings, only claims 7, 15, and 17 remained in the district court proceeding.

At the district court, Polygroup filed a *Daubert* motion to exclude the opinions of Willis' damages expert, Michele Riley, under Federal Rule of Evidence 702. J.A. 4208–18. The district court denied the motion. J.A. 64–68. Willis narrowed its case such that only claim 15 of the '186 patent was asserted at trial. J.A. 4626–27. The jury returned a verdict in favor of Willis, finding claim 15 infringed and not invalid. J.A. 197–202. The jury awarded Willis \$42,494,772 in damages. J.A. 201. Following the verdict, Polygroup moved for (1) JMOL that claim 15 is obvious, J.A. 15339–42, and (2) a new trial on damages, J.A. 15361–77. The district court denied Polygroup's motion, reasoning that (1) Polygroup was not entitled to JMOL because substantial evidence supported the jury's presumed fact findings underlying the district court's conclusion of nonobviousness, and that (2) Polygroup's challenges to Ms. Riley's methodology were properly left to the jury, which had not rendered a damages award so excessive to warrant a new trial. J.A. 31–33, 44. Polygroup appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

Polygroup argues we should: (1) reverse the district court's denial of JMOL of obviousness because no reasonable jury could conclude that claim 15 would not have been

obvious; or (2) in the alternative, vacate the judgment and remand for a new trial on damages because Ms. Riley's methodologically unsound approaches should have been excluded. We do not agree.

I. Denial of JMOL of Obviousness

Polygroup argues the district court legally erred in denying JMOL of obviousness because, in Polygroup's view, no reasonable jury could find that a skilled artisan would not have been motivated to modify the Loomis GKI Tree, a prior art product, to use coaxial barrel connectors.

We review the denial of JMOL under the law of the regional circuit, here the Eighth Circuit, which reviews such denials de novo. *Agrizap, Inc. v. Woodstream Corp.*, 520 F.3d 1337, 1341 (Fed. Cir. 2008); *Quiles v. Union Pac. R.R. Co.*, 4 F.4th 598, 604 (8th Cir. 2021). JMOL should be granted when “a party has been fully heard on an issue and the court finds that a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue.” *Quiles*, 4 F.4th at 604 (quoting Fed. R. Civ. P. 50). We review the district court's ultimate obviousness conclusion de novo and the jury's determination on underlying factual findings for substantial evidence. *Bos. Sci. Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 990 (Fed. Cir. 2009). Specifically, “[w]e first presume that the jury resolved the underlying factual disputes in favor of the verdict [] and leave those presumed findings undisturbed if they are supported by substantial evidence.” *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1356–57 (Fed. Cir. 2012) (quoting *Jurgens v. McKasy*, 927 F.2d 1552, 1557 (Fed. Cir. 1991)) (alterations in original). We then examine whether the obviousness conclusion is “correct in light of the presumed jury fact findings.” *Kinetic Concepts*, 688 F.3d at 1357 (quoting *Jurgens*, 927 F.2d at 1557).

Whether a patent is invalid as obvious depends on (1) the scope and content of the prior art; (2) the differences

between the claimed invention and the prior art; (3) the level of ordinary skill in the art; and (4) any relevant objective considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The *Graham* analysis is informed by the motivation-to-combine inquiry, which “implement[s] the Supreme Court’s recognition of ‘the importance of guarding against hindsight’ in evaluating obviousness. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006) (quoting *Alza Corp. v. Mylan Lab’ys, Inc.*, 464 F.3d 1286, 1290 (Fed. Cir. 2006)). “Whether a skilled artisan would have been motivated to combine prior art references is a question of fact.” *Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, 97 F.4th 882, 886 (Fed. Cir. 2024) (citing *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1364 (Fed. Cir. 2015)).

Polygroup argues a skilled artisan would have been motivated to combine the Loomis GKI Tree with coaxial barrel connectors as an obvious solution to the problem of powering LEDs in artificial trees, and no reasonable jury could find otherwise. Polygroup Br. 37–44. It asserts the Loomis GKI Tree teaches internal power, which would have put a skilled artisan on notice that integrating electrical connections into an artificial tree was feasible. Polygroup Br. 39; *see* J.A. 1814. Both experts agreed that coaxial barrel connectors, which a skilled artisan would have understood were “well-known” and “readily available,” taught how to power low-voltage LED lights. Polygroup Br. 38; J.A. 2654–55; J.A. 2292–94. And Polygroup maintains that both experts agreed the industry trended toward equipping artificial trees with low-voltage LED lights. Polygroup Br. 39; J.A. 2673; *see* J.A. 2329–31. Polygroup argues these factors would have indisputably motivated a skilled artisan to substitute the coaxial barrel connector for the then-standard, two-prong plug to power LED lights on artificial trees. Polygroup Br. 38–39.

As the district court concluded, substantial evidence supported the jury’s presumed factual finding that a skilled

artisan would not have been motivated to modify the Loomis GKI Tree to use coaxial connectors. J.A. 5–6. In the court’s view, Polygroup “fail[ed] to grapple with the specific design challenges posed by the [Loomis] GKI [T]ree” and “offer[ed] little concrete evidence” to show necessary design changes would have fallen within a skilled artisan’s capability. *Id.* The court noted Polygroup’s expert “did not directly address the impact of removing the [Loomis] GKI [T]ree’s alignment feature or provide any detailed explanation of how the connector housings could have been modified.” J.A. 6. Willis’ expert testified that configuring the Loomis GKI Tree with coaxial barrel connectors would have required numerous steps dispelling any motivation to combine, namely: (1) removing the Loomis GKI Tree’s notch-and-dimple features and plug-and-socket connectors; (2) removing the plug-and-socket connectors’ moldings; (3) redesigning the moldings to accommodate coaxial barrel connectors; and (4) replacing the plug-and-socket connectors with specially designed and fitted coaxial electrical contact sets. J.A. 2635; J.A. 4939; *see* J.A. 1522–23. A skilled artisan would not have considered using coaxial barrel connectors, according to Willis’ expert, because doing so would have “completely go[ne] away from the [Loomis GKI Tree’s] teachings” on using a notch-and-dimple feature to improve fixed-orientation trees.⁴ J.A. 2633–34, 2636. Willis’ expert also testified that, even as the industry trended toward LEDs, a skilled artisan would have had to select between “nearly an infinite

⁴ Evidence tending to show a prior art reference teaches away may also be “relevant to a finding regarding whether a skilled artisan would be motivated to combine” references to produce the claimed invention. *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1051 n.15 (Fed. Cir. 2016).

number” of plugs to power low-voltage LEDs. J.A. 2672, 2667–68.

Polygroup offers various reasons why a skilled artisan would have found the claimed invention obvious despite Willis’ above evidence suggesting the contrary. Our role is not to reweigh the evidence. We are narrowly tasked with determining whether substantial evidence supports the jury’s presumed factual finding on motivation to combine. *Kinetic Concepts*, 688 F.3d at 1356–57. Here, the jury evaluated Polygroup’s competing evidence and expert testimony—including that the Loomis GKI Tree taught internal power, that coaxial barrel connectors were commonly used to power LED lights, and that the industry trended toward using LED lights. J.A. 1814; J.A. 2654–55; J.A. 2673. The parties had an opportunity to cross-examine experts and highlight any perceived flaws in the evidence. See J.A. 1411–22; J.A. 2360–409. There is substantial evidence for the jury to have found that a skilled artisan would not have been motivated to make the claimed combination.⁵ The district court under these circumstances properly denied JMOL. We affirm the holding that claim 15 would not have been obvious.

II. Denial of Motion for a New Trial on Damages

We review the denial of a motion for a new trial on damages under the law of the regional circuit, here the Eighth Circuit, which reviews denial for abuse of discretion. *Exmark Mfg. Co. Inc. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1347 (Fed. Cir. 2018); *Blair v. Wills*, 420 F.3d 823, 829–30 (8th Cir. 2005). We review for an abuse of discretion the court’s evidentiary

⁵ Because there is substantial evidence for the jury’s finding that Polygroup failed to establish a motivation to combine, we need not address arguments regarding reasonable expectation of success or objective considerations.

rulings, including those related to the admissibility of damages-expert evidence. *Barrett v. Rhodia, Inc.*, 606 F.3d 975, 980 (8th Cir. 2010). To the extent the admissibility rulings depend on patent law standards governing the subject of the evidence, we apply our own circuit’s law— informed by other circuits’ decisions but not controlled by the law of the regional circuit (here, the Eighth Circuit)—in reviewing those rulings. *See Whitserve, LLC v. Comput. Packages, Inc.*, 694 F.3d 10, 31 (Fed. Cir. 2012) (applying Federal Circuit law to evaluate the admissibility of damages expert testimony in a patent case after acknowledging that “[w]hen reviewing damages in patent cases, we apply regional circuit law to procedural issues and Federal Circuit law to substantive and procedural issues pertaining to patent law”).

At trial, Willis’ expert, Ms. Riley, opined that there should be a reasonable royalty of \$5 per tree based on multiple methods, including an income-based apportionment (income approach), a market-based apportionment (market approach), and a *Georgia-Pacific* analysis.⁶ J.A. 1641–70. By contrast, Polygroup’s expert arrived at a reasonable royalty of \$0.25–\$0.35 per tree. J.A. 2135; J.A. 2512–13. The jury awarded approximately \$42.5 million, equating to \$4 per tree. J.A. 201; J.A. 27.

A. Scope of Recoverable Damages

In assessing a reasonable royalty, recoverable damages must be apportioned to reflect the value of the patented feature, rather than the value of the accused product as a whole. *Garretson v. Clark*, 111 U.S. 120, 121 (1884). A reasonable royalty is measured by the “value of what was

⁶ Ms. Riley calculated a royalty base on a per-tree basis because she opined Polygroup’s Quick Set Tree is the smallest salable unit. J.A. 65. Polygroup does not dispute that characterization. *Id.*; *see* J.A. 15194.

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taken . . . under 35 U.S.C. § 284.” *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014) (internal quotation marks and citation omitted). Proof of damages must be “carefully tie[d] . . . to the claimed invention’s footprint in the market place.” *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1327 (Fed. Cir. 2014) (quoting *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 869 (Fed. Cir. 2010)). In apportioning damages to the claimed invention, “it is improper to assume that a conventional element cannot be rendered more valuable by its use in combination with an invention.” *AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1338 (Fed. Cir. 2015). As a result, “[i]t is not the case that the value of all conventional elements must be subtracted from the value of the patented invention as a whole when assessing damages.” *Id.* at 1339.

As a threshold matter, the parties dispute how to understand the value of claim 15 in light of the fact that claim 10 was held unpatentable in the IPR. Polygroup argues that because the Board held claim 10 unpatentable, the added value of claim 15 is limited to the use of coaxial barrel connectors themselves. Polygroup Br. 50–51. Willis responds that the added value is correctly understood as value *attributable* to the coaxial barrel connectors of claim 15, which according to Willis, includes forming a simultaneous mechanical and electrical connection regardless of rotational orientation. Willis Br. 33–35. For the reasons explained below, we conclude there is substantial evidence supporting Willis’ view of the added value attributable to the coaxial barrel connectors of claim 15.

This court held that claim 10 was unpatentable on appeal from an IPR. *Polygroup*, 2022 WL 1183332, at *5. Polygroup argues that holding confirms the limitations recited by claim 10 are unpatented features for which Willis cannot recover damages in subsequent district court litigation. Polygroup Br. 50–51. As a result, Polygroup maintains Willis should have apportioned to the *incremental* value of claim 15 by removing any damages attributable to the

limitations claim 15 incorporated from claim 10. Under that theory, Willis' recoverable damages were limited to the use of coaxial barrel connectors themselves, and no more. We do not agree. As Willis notes, the cited IPR determination was subject to the broadest reasonable interpretation standard for claim construction, which resulted in a construction of claim 10 different from the one the district court reached under the *Phillips* standard. In particular, the district court construed claim 10 to require forming a *simultaneous* mechanical and electrical connection regardless of rotational orientation (i.e., doing so in one step), whereas the construction applicable in the IPR did not require this one-step functionality. *Compare* J.A. 63, *with Polygroup*, 2022 WL 1183332, at *4–5. Thus, neither the Board nor the district court found claim 10 unpatentable under the district court's construction. For at least this reason, the IPR determination does not preclude Willis from relying on the one-step functionality of claim 10 as part of the value attributable to the coaxial barrel connectors of claim 15.

Ultimately, the parties agree Ms. Riley should at least apportion to the added value attributable to the coaxial barrel connectors of claim 15. Polygroup Br. 50–51; Willis Br. 58–59. They disagree, however, on how that value should be understood. What value is attributable to the coaxial barrel connectors is a question of fact for the jury. *Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1296–99 (Fed. Cir. 2015). Here, Ms. Riley testified that she apportioned to the value claim 15 added to the invention as a whole, which is all the law requires. J.A. 1642; J.A. 1672–73; *AstraZeneca*, 782 F.3d at 1338. The jury credited that testimony in the face of competing evidence. J.A. 2458–60. Ms. Riley's testimony was substantial evidence supporting the jury's presumed fact finding that the value of the coaxial barrel connectors includes the formation of mechanical and electrical connections at the same time, regardless of rotational orientation. J.A. 1642;

J.A. 1672–73. With that in mind, we turn to Polygroup’s challenges to the admissibility of Willis’ expert testimony on damages, starting with the district court’s role in handling such disputes.

B. The District Court’s Gatekeeping Role

We recently clarified the scope of Rule 702 and the district court’s gatekeeping role in assessing the admissibility of expert testimony in *EcoFactor, Inc. v. Google LLC*, 137 F.4th 1333, 1338–40 (Fed. Cir. 2025). Federal Rule of Evidence 702 governs the admissibility of expert testimony. The rule states:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if the proponent demonstrates to the court that it is more likely than not that:

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert’s opinion reflects a reliable application of the principles and methods to the facts of the case.

Fed. R. Evid. 702 (2023).

As the Supreme Court explained in *Daubert*, Rule 702 assigns trial courts a “gatekeeping role” to ensure admitted expert testimony is relevant and reliable. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993). That role requires courts to evaluate whether an expert’s testimony

has “a reliable basis in the knowledge and experience of [the relevant] discipline,” particularly where the expert’s factual basis, methodology, or application is sufficiently called into question. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999) (alteration in original) (quoting *Daubert*, 509 U.S. at 592). Rule 702 was amended in 2023 to clarify that gatekeeping function, emphasizing that courts must exclude expert testimony when the proponent fails to establish the reliability requirements by a preponderance of the evidence. Fed. R. Evid. 702 advisory committee’s note to 2023 amendment.

At the same time, Rule 702 draws a critical distinction between admissibility, which is for the court, and weight and credibility, which are for the jury. *See* Fed. R. Evid. 104(a) (“The court must decide any preliminary question about whether a witness is qualified, a privilege exists, or evidence is admissible.”). As the Advisory Committee observed, many courts have incorrectly applied Rules 702 and 104(a) by holding that “the critical questions of the sufficiency of an expert’s basis, and the application of the expert’s methodology, are questions of weight and not admissibility.” Fed. R. Evid. 702 advisory committee’s note to 2023 amendment. We previously explained “the question of whether the expert is credible or the opinion is correct is generally a question for the fact finder, not the court.” *Summit 6*, 802 F.3d at 1296. When the credibility of an expert’s testimony is called into question, “[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof” remain the appropriate means to test “shaky but admissible evidence.” *Id.* (quoting *Daubert*, 509 U.S. at 596); *see also McCullock v. H.B. Fuller Co.*, 61 F.3d 1038, 1044 (2d Cir. 1995); *United States v. Morgan*, 45 F.4th 192, 201 (D.C. Cir. 2022); *Puga v. RCX Sols., Inc.*, 922 F.3d 285, 294 (5th Cir. 2019); *Engilis v. Monsanto Co.*, 151 F.4th 1040, 1050 (9th Cir. 2025).

The distinction is particularly important in the context of patent damages because estimating a reasonable royalty

“necessarily involves an element of approximation and uncertainty.” *EcoFactor*, 137 F.4th at 1340 (Fed. Cir. 2025) (citing *Unisplay, S.A. v. Am. Elec. Sign Co.*, 69 F.3d 512, 517 (Fed. Cir. 1995)); see *Del Mar Avionics, Inc. v. Quinton Instrument Co.*, 836 F.2d 1320, 1327 (Fed. Cir. 1987) (quoting *Story Parchment Co. v. Paterson Parchment Paper Co.*, 282 U.S. 555, 563 (1931)) (when calculating damages for patent infringement, it is sufficient to “show the extent of the damages as a matter of just and reasonable inference, although the result be only approximate”); *Faulkner v. Gibbs*, 199 F.2d 635, 639 (9th Cir. 1952) (“The property loss of a patentee from infringement . . . can only be determined by reasonable approximation.”); 60 Am. Jur. 2d Patents § 832 (“The determination of a reasonable royalty requires a consideration of all factors pertinent to the case rather than by use of a mathematical formula.”); Note, *Recovery in Patent Infringement Suits*, 60 Colum. L. Rev. 840, 849 (1960) (“The courts have recognized that a reasonable royalty is only an approximation of damages and is designed to be equitable to the particular parties before the court.”). For more than a hundred years, courts have recognized a reasonable royalty as an accepted measure of patent infringement damages, a principle codified in 35 U.S.C. § 284. See, e.g., *Dowagiac Mfg. Co. v. Minn. Moline Plow Co.*, 235 U.S. 641, 648 (1915); *Munger v. Firestone Tire & Rubber Co.*, 261 F. 921, 922 (2d Cir. 1919). Determining that royalty requires a jury to “find the royalty that would have been agreed to in a hypothetical negotiation between a willing licensee and willing licensors at the time infringement began.” *Fujifilm Corp. v. Benun*, 605 F.3d 1366, 1372 (Fed. Cir. 2010). That negotiation is inherently counterfactual: it requires envisioning licensing terms the parties would have agreed to in a world where no such agreement ever occurred. “The hypothetical negotiation is hypothetical not only because, in the typical case, no successful pre-infringement negotiation ever occurred, but also because the negotiation is constructed on hypothetical assumptions.” *Aqua Shield v. Inter Pool Cover Team*, 774 F.3d 766,

771 (Fed. Cir. 2014); *see also Panduit Corp. v. Stahlin Bros. Fibre Works*, 575 F.2d 1152, 1159 (6th Cir. 1978) (“Determination of a ‘reasonable royalty’ after infringement . . . rests on a legal fiction.”); *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1554 (Fed. Cir. 1995) (describing a reasonable royalty as “the result of a supposed meeting between the patentee and the infringer”). As such, the negotiation necessarily makes assumptions about market conditions, technological value, and bargaining positions that cannot be proven with mathematical certainty. *See Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970); *Whitserve*, 694 F.3d at 31 (noting “mathematical precision is not required”); *Faulkner*, 199 F.2d at 639 (“There is no mathematical formula for the determination of a reasonable royalty.”); Brian J. Love, *Patentee Overcompensation and the Entire Market Value Rule*, 60 Stan. L. Rev. 263, 267–68 (2007) (noting the “fictitious negotiation is notably distorted from reality” because “courts presume that the patent is valid and covers the infringer’s product” and “the very existence of the infringement suit proves that the parties were in fact not able to strike a bargain prior to infringement or at anytime afterwards.”). The resulting royalty is therefore not an exact measure, but an informed estimate designed to reflect the economic value attributable to the patented invention. *Cincinnati Car Co. v. N.Y. Rapid Transit Corp.*, 66 F.2d 592, 595 (2d Cir. 1933) (“The whole notion of a reasonable royalty is a device in aid of justice, by which that which is really incalculable shall be approximated It is no more impossible to estimate than the damages in many other torts, as for example, personal injuries with their accompanying pain.”).

Recognizing the uncertainty built into the reasonable royalty negotiation, our precedent has attempted to guide this hypothetical construct using the *Georgia-Pacific* factors. *See, e.g., Summit 6*, 802 F.3d at 1297–98; *i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 853 (Fed. Cir.

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2010), *aff'd*, 564 U.S. 91 (2011); *Micro Chem., Inc. v. Lextron, Inc.*, 317 F.3d 1387, 1393–94 (Fed. Cir. 2003). Those factors do not provide a formula; rather, they provide a structured framework for evaluating economic and commercial considerations relevant to the negotiation, including the importance of the patented technology, comparable licensing practices, and the advantages the invention provided over alternatives. *Georgia-Pacific*, 318 F. Supp. at 1120. The framework contemplates qualitative and quantitative evidence because the factors cannot generally be reduced to precise numerical values. *See id.*; *Whitserve*, 694 F.3d at 31. Consistent with 35 U.S.C. § 284, the hypothetical negotiation's goal is to arrive at a royalty that fairly captures the value of the claimed invention as the parties would have agreed upon had they successfully negotiated a licensing agreement. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324–25 (Fed. Cir. 2009).

When undertaking the fiction of the hypothetical negotiation, the record may support a range of reasonable outcomes sufficiently provable by any one of multiple reliable methods rather than a single correct figure. *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1315 (Fed. Cir. 2014). Damages experts may accordingly reach different reasonable royalty conclusions based on the same underlying facts. *See* Fed. R. Evid. 702 advisory committee's note to 2000 amendment ("[Rule 702] is broad enough to permit testimony that is the product of competing principles or methods in the same field of expertise."). That competing experts reached different royalty conclusions does not establish the unreliability of either analysis; disagreement alone, without a separate basis for finding unreliability, merely leaves the question of which analysis to credit to the jury. *See, e.g., S.E.C. v. Todd*, 642 F.3d 1207, 1217 (9th Cir. 2011) (quoting *Dorn v. Burlington N. Santa Fe R.R. Co.*, 397 F.3d 1183, 1196 (9th Cir. 2005)) ("If two contradictory expert witnesses can offer testimony that is reliable and helpful, both are admissible and it is the function of the

finder of fact, not the trial court, to determine which is the more trustworthy and credible.”); *Baugh v. Cuprum S.A. de C.V.*, 845 F.3d 838, 847 (7th Cir. 2017) (“Indeed, it is often the case that experts reach conflicting conclusions based on applying different but nevertheless reliable methodologies to a set of partially known facts.”); *United States v. Hodge*, 933 F.3d 468, 477 (5th Cir. 2019) (quoting Fed. R. Evid. 702 advisory committee’s note to 2000 amendment) (“Even when a court ‘rules that an expert’s testimony is reliable, this does not necessarily mean that contradictory expert testimony is unreliable.’”); *United States v. Mitchell*, 365 F.3d 215, 245 (3d Cir. 2004) (“Experts with diametrically opposed opinions may nonetheless both have good grounds for their views, and a district court may not make winners and losers through its choice of which side’s experts to admit, when all experts are qualified.”); 4 Weinstein’s Federal Evidence § 702.05[3] (2026) (“A trial court’s determination that the proffered testimony of one expert witness is reliable and helpful does not necessarily mean that the contradictory testimony of another witness, concerning the same subject matter but using a different methodology, is not also reliable and helpful.”).

C. Damages Methodology

Under 35 U.S.C. § 284, “[u]pon finding for the claimant 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” A damages award under this statute “must reflect the value attributable to the infringing features of the product, and no more.” *Commonwealth Sci. & Indus. Rsch. Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1301 (Fed. Cir. 2015) (quoting *Ericsson*, 773 F.3d at 1226). Where the accused product incorporates components beyond the patented technology, damages expert opinions must apportion, or separate, “the value of the allegedly infringing features from the value of all other features.” *Commonwealth Sci.*, 809 F.3d at 1301 (citing

VirnetX, 767 F.3d at 1329). When “multi-component products are accused of infringement, the royalty base should not be larger than the smallest salable unit embodying the patented invention.” *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 904 F.3d 965, 977 (Fed. Cir. 2018). Litigants routinely apportion to the smallest salable unit based on “the infringer’s projections of profit for the infringing product.” *Lucent Techs.*, 580 F.3d at 1324.

To arrive at her reasonable royalty, Ms. Riley employed two independent methods to determine a reasonable royalty range that a hypothetical licensor and licensee would have agreed to, then selected a specific reasonable royalty within that range using the *Georgia-Pacific* factors. Her first method, an income approach apportioned to claim 15, analyzed profit premiums associated with Willis’ One Plug Trees and Polygroup’s Quick Set Trees to arrive at a reasonable royalty range of \$4.30–\$20. J.A. 1643–52. Her second method, a market approach apportioned to claim 15, evaluated comparable licenses to arrive at a reasonable royalty range of \$2–\$5, which she combined with her income approach to arrive at an expanded reasonable royalty range of \$2–\$20. J.A. 1652–55. And finally, she applied the *Georgia-Pacific* factors to select the reasonable royalty within the apportionment-based reasonable royalty range, ultimately arriving at a \$5 reasonable royalty. J.A. 1655–70. Polygroup does not contend any of these approaches is categorically improper; rather, it argues that each was applied unreliably to the facts of the case.

The district court denied Polygroup’s motion for a new trial on damages, crediting Ms. Riley’s apportionment and *Georgia-Pacific* analyses. J.A. 21–27, 30–31. It held her damages opinion, “while not bulletproof, incorporated reliable apportionment methodologies and was grounded in sufficiently comparable licenses and financial data to provide a reasonable basis for the jury’s award.” J.A. 31. We see no abuse of discretion in the district court’s determinations on each point.

Polygroup argues that Ms. Riley's testimony should have been excluded because she did not adequately explain her methodology to the jury. *See, e.g.*, Polygroup Br. 51–53, 58–59. Those complaints conflate admissibility questions for the court with factual questions for the jury. Rule 702 requires district courts evaluating admissibility to exercise their gatekeeping role by determining whether the proponent of expert testimony has shown by preponderant evidence that the testimony is relevant and reliable. Fed. R. Evid. 702 advisory committee's note to 2023 amendment. As the gatekeeper, the district court has the exclusive role of assessing the reliability of the testimony based on the full breadth of information before it. Once a district court has determined the expert's methodology is reliable, challenged testimony does not become unreliable simply because a party believes an expert should have presented information to the jury differently. The district court assesses the reliability of the expert's methodology on the basis of all the evidence before the court, which, at the time of the motion for a new trial, included both Ms. Riley's testimony at trial and her expert report. Ultimately, the district court found no methodological flaw in Ms. Riley's damages analysis, underscoring that Polygroup's critiques went to how the jury might weigh the evidence, not whether the methodology satisfied Rule 702 in the first instance. J.A. 24, 26–27. For the reasons discussed below, we agree.

1. Income-Based Apportionment

Under her income approach, Ms. Riley calculated profits for both Willis' patented One Plug Trees and Polygroup's infringing Quick Set Trees to determine a reasonable royalty range. Calculating the upper bound of that range, Ms. Riley compared the profit margins on One Plug Trees with those of similar trees lacking the patented coaxial barrel connector to show Willis earned more from patented trees than non-patented trees. Specifically, she determined Willis' One Plug Trees earned a profit of \$24,

while non-One Plug Trees earned a profit of \$4, leading to an incremental profit premium for the One Plug Tree of \$20. J.A. 1644; J.A. 12979. Calculating the lower bound, Ms. Riley similarly compared Polygroup's Quick Set Trees having coaxial barrel connectors to those without such connectors, leading to an incremental profit premium of \$4.30. J.A. 1652. Accordingly, she determined \$4.30–\$20 was a reasonable royalty range under this approach. *Id.*

The district court upheld Ms. Riley's income approach because it "properly focused on the profits attributable to the One Plug feature that embodies the patented coaxial connector technology." J.A. 22–23. The court further found that Polygroup's criticisms of her approach went to the weight of her testimony rather than its admissibility. J.A. 24 (citing *Summit 6*, 802 F.3d at 1296). We agree.

a. One Plug Trees

Polygroup argues Ms. Riley's income approach improperly skewed the damages horizon for Willis' One Plug Trees and Polygroup's Quick Set Trees because she did not adequately apportion damages to the value of claim 15. Polygroup Br. 52–57. Starting with the One Plug Tree, Polygroup points out the district court agreed "not all One Plug trees practiced claim 15" because "some used non-coaxial connectors." J.A. 7. Polygroup argues this confirms One Plug Trees are not coextensive with coaxial connectors; they simply encompass the unpatented concept of an internally powered tree. Thus, to apportion correctly, Polygroup contends Ms. Riley should have compared One Plug Trees using coaxial connectors to those using two-prong plug connectors. Oral Arg. 12:17–27. Polygroup also argues Willis failed to present evidence showing customers favored One Plug Trees practicing claim 15 over otherwise identical trees equipped with non-coaxial connectors. Further compounding Ms. Riley's error, in Polygroup's view, is that many One Plug trees contained premium features non-One Plug trees lacked, leading to an artificially high

profit margin. According to Polygroup, these alleged defects in Ms. Riley's testimony collectively warranted exclusion. We do not agree.

Polygroup's premise that Ms. Riley failed to exclude non-coaxial One Plug Trees from her income analysis is contradicted by the record. Her expert report, which was before the district court, explains she filtered the One Plug data set to exclude models she concluded did not practice claim 15 (i.e., use non-coaxial connectors). J.A. 4486 n.9 ("Seven tree models branded as 'One Plug' and sold by Willis in 2012 did not fully embody the claims of the '186 and '187 patents due to their use of one-directional connectors. Therefore, these trees – for the purposes of this analysis – are not identified as 'One Plug Products.'"). Upon confronting this fact in oral argument, Polygroup did not continue to insist Ms. Riley used incorrect data at trial; instead, Polygroup argued it was improper for Ms. Riley not to expressly tell the jury how she filtered the data because it was a "relevant fact." Oral Arg. 52:02–58. But testimony based on correct underlying data is not rendered inadmissible merely because the expert could have described her characterization to the jury more precisely. Ms. Riley explained in her expert report that she did not include One Plug products unless they had coaxial connectors (and thus fell within claim 15). J.A. 4486 n.9. The jury did not have to be told what Ms. Riley meant by One Plug products—the judge was told, and it is the judge who assesses reliability. It was clear to the district court when assessing the reliability of Ms. Riley's methodology that Ms. Riley did not include in her analysis trees that fell outside the scope of claim 15. *Id.* We see no abuse of discretion in the district court allowing this testimony.

Polygroup's argument that Ms. Riley's failure to account for other high-end features commanding their own profit premiums renders her testimony unreliable fails for several reasons. Ms. Riley's expert report confirms premium features were not limited to One Plug Trees; certain

non-One Plug Trees included those features too. J.A. 4480–86 (listing sales to retailers of One Plug and non-One Plug Trees varying by shape, size, and color-changing capability, among other features). To account for this, Ms. Riley averaged prices across product lines when comparing profit margins for One Plug Trees with and without coaxial barrel connectors. And she presented those averages to the jury grouped by each year during the damages period. J.A. 12988. Whether averaging was the best approach is a matter on which reasonable minds could differ, but it does not undermine the reliability of her methodology to the point of exclusion. Rule 702 does not require a damages expert to account for every conceivable variation among products, nor does it demand mathematical exactness in an area necessarily involving “approximation and uncertainty.” *EcoFactor*, 137 F.4th at 1340 (citation omitted); *see i4i*, 598 F.3d at 855–56 (even crediting the argument that an expert “could have used other data in his calculations,” the “existence of other facts . . . does not mean that the facts used failed to meet the minimum standards of relevance or reliability”). Differences among products included in an income-based damages analysis, even if only minute, will frequently exist. No doubt Ms. Riley’s averaging could be challenged, but the district court did not err in holding that the appropriate avenue for such a challenge was cross-examination and competing evidence, not exclusion. *i4i*, 598 F.3d at 856 (holding that where the facts relied on by the expert “had a sufficient nexus to the relevant market, the parties, and the alleged infringement” even though “more (or different) data might have resulted in a ‘better’ or more ‘accurate’ estimate in the absolute sense, . . . [q]uestions about what facts are most relevant or reliable to calculating a reasonable royalty are for the jury”) (internal citations omitted).

When reasonable minds can differ about the methodology, we cannot say it was an abuse of discretion to allow the testimony. *See, e.g., City of Pomona v. SQM N. Am.*

Corp., 750 F.3d 1036, 1049 (9th Cir. 2014) (ruling that when an expert's application of a reasonable methodology was merely "shaky," it should not have been excluded, but rather admitted and subjected to attack by cross-examination and contrary evidence); *Summit 6*, 802 F.3d at 1296 (same). "Normally, failure to include variables will affect the analysis' probativeness, not its admissibility." *Bazemore v. Friday*, 478 U.S. 385, 400 (1986) (Brennan, J., concurring in part); *see also Barry v. DePuy Synthes Cos.*, 164 F.4th 896, 912 (Fed. Cir. 2026) (the challenges raised to "purported flaws" in an expert's methodology "go to the weight the jury might accord to that evidence and not to its admissibility"); *Sec'y, United States Dep't of Lab. v. E. Penn Mfg. Co., Inc.*, 123 F.4th 643, 651 (3d Cir. 2024) ("[D]espite any methodological flaws, Dr. Radwin's testimony was admissible . . . [because the] challenges [to] how he calculated and interpreted the results [came within the principle that] such a challenge ordinarily goes to the weight of the evidence, not to its admissibility.") (internal quotation marks omitted); *Karlo v. Pittsburgh Glass Works, LLC*, 849 F.3d 61, 83 (3d Cir. 2017) ("The question of whether a study's results were properly calculated or interpreted ordinarily goes to the weight of the evidence, not to its admissibility."). Whether Ms. Riley's averaging failed to adequately account for particular premium features goes to the weight to accord to her testimony, not its admissibility; "any failure . . . to control for certain variables" on the facts here is "best addressed by cross examination and not by exclusion." *ActiveVideo Networks, Inc. v. Verizon Commc'n*s, Inc., 694 F.3d 1312, 1333 (Fed. Cir. 2012). There was thus no abuse of discretion in the court allowing this testimony.

That is particularly so because Willis provided additional evidence that customers valued the One Plug Tree for its coaxial connectors as opposed to other features. For example, the sole inventor of the '186 patent testified that a retailer complained about the fixed-orientation design and "always want[ed] to have the coaxial design."

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J.A. 1569–70. A consumer testified One Plug’s coaxial connectors “drove sales” by making tree assembly easier. J.A. 2238–39. Another witness confirmed that One Plug Trees earned 20–30% higher profit margins than their non-One Plug counterparts, owing to the “presence or absence of the One Plug feature.” J.A. 2260–61. Ms. Riley testified that One Plug Tree sales eclipsed non-One Plug Tree sales over time, demonstrating the patented feature’s popularity among consumers. J.A. 1658–59. And Ms. Riley’s expert report cites customer feedback describing the two-prong Loomis GKI Tree as a “nightmare” to assemble. J.A. 4392 ¶ 274.

We see no abuse of discretion in admitting Ms. Riley’s testimony regarding her One Plug Tree income approach. Polygroup’s criticism of Ms. Riley’s approach and dataset presents matters of fact for the jury. The district court could properly find her opinion reliable despite the criticism.

b. Quick Set Trees

Polygroup argues Ms. Riley’s income approach directed to Quick Set Trees, which resulted in her opinion that these trees had a \$4.30 average profit margin, is equally unreliable. Polygroup Br. 54–57. Polygroup asserts she improperly relied on quotes, rather than Polygroup’s actual revenue or profit margin, to calculate an average incremental profit margin for the Quick Set Tree. *See* J.A. 1649. According to Polygroup, Ms. Riley failed to account for the fact that customers regularly negotiated the price downward, and in using an average, she inaccurately assumed trees of varying heights with different profit margins sold in equal amounts. *See* J.A. 2134, 2169–70. Polygroup claims that, like with her One Plug Tree analysis, Ms. Riley ignored the contribution of other features typically packaged with Quick Set Trees that would have increased profits for reasons unrelated to the coaxial connectors. *See* J.A. 1299–1300. Taken together, Polygroup argues

Ms. Riley's approaches failed to properly isolate the value of coaxial barrel connectors as opposed to other unpatented features, undermining the credibility and reliability of her apportionment.

Polygroup's criticisms of Ms. Riley's Quick Set Tree analysis concern how she modeled profitability, not whether her opinion rested on a factual premise the record affirmatively disproved. Polygroup faults Ms. Riley for relying on quoted prices rather than realized revenues or profit margins, but Ms. Riley testified Polygroup does not track transaction-level costs in a manner that would enable her to calculate actual profit margins for infringing Quick Set Trees. J.A. 1643–44. In the absence of such data, Ms. Riley reasonably relied on available pricing information as a proxy for profitability. J.A. 1649, 1651–52 (relying on an assessment of nearly 800 customers quotes for the Quick Set Trees); J.A. 4339–40 ¶¶ 143–46; J.A. 12832. Whether customer price quotes are an appropriate proxy for realized margins is a fact question for the jury, not a ground for exclusion under Rule 702. *See i4i*, 598 F.3d at 856. Similarly, the effect of customers' routine negotiation speaks to how closely Ms. Riley's estimates reflected actual realized prices, not to whether her methodology was fundamentally unreliable. In any event, Ms. Riley explained she accounted for this too. J.A. 1651 ("[C]ustomer negotiations go on all the time. And when Polygroup will quote its customers a price for the Quick Set Tree, we captured it and could determine the profitability that they were earning. . . .").

For the reasons already addressed, Polygroup's criticism of Ms. Riley's use of averages across products likewise did not prevent the district court from finding that her testimony was shown to be reliable and admitting it. J.A. 4341; J.A. 12832. Her failure to, for example, account for other features in particular Quick Set Trees does not render her testimony so methodologically flawed as to warrant exclusion. Reasonable minds may disagree on

whether the assumptions underlying her averaging methodology sufficiently approximate market reality, but that is a fact question for the jury, not a basis for excluding expert testimony altogether. *City of Pomona*, 750 F.3d at 1049; *Ferebee v. Chevron Chem. Co.*, 736 F.2d 1529, 1535 (D.C. Cir. 1984). Exploring such distinctions is entirely appropriate on cross-examination and goes ultimately to credibility, not admissibility. Ms. Riley's expert report, for example, relied upon 783 Polygroup price quotes to customers and subsequent negotiations with customers, which delineated between trees with the Quick Set feature and those without, demonstrating that there was a premium for the Quick Set feature which made her \$4.30 per tree approximation reasonable. J.A. 4340–41 (Ms. Riley's expert report detailing price premium for Polygroup trees with and without the Quick Set feature broken down by tree height); J.A. 15371–72 (relying upon Polygroup documents with price quotes, Ms. Riley testified that Polygroup offered to add the Quick Set feature for between \$3.83 and \$11.75 per tree based on tree height, and after subtracting the \$3.50/tree cost for the Quick Set feature, arrived at a Polygroup profit margin of \$0.35–\$8.25 per tree (again taking height into account)); J.A. 1674. “Where the methodology is reasonable and its data or evidence are sufficiently tied to the facts of the case, the gatekeeping role of the court is satisfied, and the inquiry on the correctness of the methodology and of the results produced thereunder belongs to the factfinder.” *Summit 6*, 802 F.3d at 1296.

Willis also presented evidence showing Ms. Riley sufficiently apportioned to the value of claim 15 and accounted for differences between Polygroup trees with and without the infringing Quick Set feature. For instance, Ms. Riley compared Quick Set Trees with coaxial barrel connectors against those without such connectors to derive her incremental profit premium. J.A. 1647–52; J.A. 4339–41 ¶¶ 143–46. She testified that Polygroup's own surveys showed customers were willing to pay more for the Quick

Set feature because they viewed it as appealing. J.A. 2144–46; J.A. 12829; J.A. 12802. She testified that Polygroup’s Quick Set Trees outsold non-Quick Set Trees. J.A. 1659; J.A. 12989. And Polygroup’s CEO testified that the Quick Set feature’s rotationally independent design marked a significant improvement over the Loomis GKI Tree’s fixed-orientation design because he “like[d] the fact that you can plug it in any direction and start the insertion in any direction.” J.A. 1732–33. This is apportionment to claim 15 as it is directly related to the advantages of coaxial connectors over fixed alignment—the enabling of rotational independence.

To the extent Polygroup disputes inferences Ms. Riley drew from that evidence, those disputes concern the weight of her testimony, not its admissibility. Polygroup’s objections to her Quick Set Tree analysis identify judgment calls, assumptions, and modeling choices in a domain of “approximation and uncertainty” that Polygroup believes should have been made differently. *EcoFactor*, 137 F.4th at 1340 (citation omitted). Those objections “go to the weight to be afforded the testimony and not its admissibility.” *ActiveVideo*, 694 F.3d at 1333. We cannot say, therefore, that the district court abused its discretion in admitting testimony regarding Ms. Riley’s Quick Set Tree income approach.

2. Market-Based Apportionment

Under her market approach, Ms. Riley examined five comparable licenses. J.A. 1652–53. First, a 2015 license between H.S. Craft and Willis providing a royalty of \$2 per tree. J.A. 4775–77. Second, a 2008 license between GKI and Loominocity with a 5% royalty rate. J.A. 4782–88. Third, a 2016 license between Boston Warehouse and Loominocity with a 5% royalty rate. J.A. 4796–808. Fourth, a 2015 license between Polygroup and Loominocity with a 5% royalty rate. J.A. 1654; *see* J.A. 12984. And finally, a 2016 license between Polygroup and Seasons Four

with a 5% royalty rate. J.A. 1654; *see* J.A. 12984. Applying those 5% royalty rates to Polygroup's average selling price of \$100 per tree, Ms. Riley arrived at a reasonable royalty of \$5 per tree. J.A. 1654.

Polygroup argues Ms. Riley's market approach is flawed, and her testimony should have been excluded because the licenses she relied upon are not comparable for a variety of reasons. Polygroup argues that the H.S. Craft license was "the most significant" to her analysis, yet Ms. Riley failed to account for the fact that, in addition to the '186 patent, the license included two other patents and five pending patent applications across three patent families. Even if that license were comparable, Polygroup points out that it included a royalty of only \$2 per tree, well below the verdict's \$4 per-unit royalty. The other licenses, according to Polygroup, were not comparable because they did not include rights to the '186 patent. Polygroup explains the master agreement between GKI and Loominocity included a 5% royalty rate for developing new products, not for improving existing products. J.A. 4782–88. Polygroup notes the two agreements between Polygroup and Mr. Loomis (or one of his companies) were not patent licenses, but rather concept option agreements that rewarded Mr. Loomis only for developing a new concept. J.A. 1686; *see* J.A. 12984. And finally, Polygroup highlights the 5% royalty rate in the agreement between Boston Warehouse and Loominocity reflected a continuation of an existing relationship on historical terms. J.A. 1856–57; J.A. 4796–808. These licenses cannot support a reliable market-based apportionment, according to Polygroup, because only the H.S. Craft agreement included rights to the '186 patent.

The district court determined Ms. Riley's market approach was reliable despite acknowledging "some doubts about the comparability of the licenses" she considered because her analysis was not so unreliable as to warrant

exclusion. J.A. 23, 31. We see no abuse of discretion in this conclusion.

As an initial matter, Polygroup's claim that Ms. Riley testified that the H.S. Craft license was "the most significant" to her analysis is not supported by the record.⁷ Instead, when asked which agreements were most significant to her analysis, she stated that she considered the H.S. Craft agreement and four other agreements important. J.A. 1653 (trial testimony); J.A. 4368 (expert report). At trial, Ms. Riley testified that the H.S. Craft license was a "little bit different." J.A. 1653. She explained that it was a short-term license ("less than two years") and not to a competitor. *Id.* To the extent Polygroup argues her testimony lacked sufficient detail, Ms. Riley's expert report accounted for those differences and others more fully in assessing license comparability.⁸ J.A. 4350–51 ¶¶ 169, 172. She explained the H.S. Craft license was short term, less than 2 years. J.A. 4350 ¶ 168. She explained H.S. Craft, unlike Polygroup, was a "friendly competitor" that typically marketed to a higher tier and therefore did not compete with Willis. *Id.* at ¶ 169. Polygroup, in contrast, was Willis' "largest competitor." J.A. 4351 ¶ 172. As a

⁷ To the extent that the district court identified the H.S. Craft license as the most significant, that characterization parroted Polygroup's language and is not supported by the record. J.A. 25.

⁸ We are reviewing the district court's denial of a motion for a new trial based upon its admission of Ms. Riley's testimony. The assessment of the reliability of her methodology includes everything before the district court, not just her testimony before the jury. In this way, the *Daubert* assessment differs from a challenge to the sufficiency of the evidence upon which a verdict was rendered, which would, in contrast, be based only upon the evidence presented at trial.

result, the report explained Willis risked losing a larger magnitude of sales from licensing its technology to its biggest competitor. *Id.* The report further explained that the H.S. Craft license was entered into while Polygroup's IPRs challenging the validity of Willis' One Plug patents artificially depressed the patents' value. J.A. 4350–51 ¶ 171. Finally, the report explained that the licensing rate was artificially depressed because Polygroup was selling lower-priced infringing trees without paying a royalty and because Willis could not afford to go after other infringers while in this dispute with Polygroup. J.A. 4351 ¶ 173. Ms. Riley explained that this weakened Willis' bargaining position with potential licensees at the time the H.S. Craft license was negotiated. *Id.* In light of these many differences, Ms. Riley opined that Willis would have demanded a higher royalty rate from Polygroup than the \$2 per tree rate in the H.S. Craft license. J.A. 4351 ¶¶ 169–173. Ms. Riley explained her assessment of the H.S. Craft license and many reasons that she thought that its \$2 per tree royalty was not the royalty that would have resulted from a hypothetical negotiation between Willis and Polygroup.

Polygroup did not cross-examine Ms. Riley on any of these points or attempt to show the additional patents, as opposed to the '186 patent, meaningfully drove the royalty rate reflected in the license. Where an expert identifies differences and the opposing party elects not to probe those differences, Rule 702 does not obligate the district court to exclude the testimony for lack of further elaboration. And while the license included a lower royalty than Ms. Riley ultimately proposed, she did not present that license as a controlling benchmark, but as one data point informing what she determined was a reasonable range. J.A. 1653.

To be sure, the district court acknowledged Ms. Riley could have provided more detail regarding why the H.S. Craft license reflected a \$2 rate despite covering additional patents. J.A. 25. The district court went on to explain:

The degree of comparability between license agreements and the hypothetical negotiation is a factual issue best resolved by the jury. Where, as here, the patentee's expert provides some explanation of why she viewed certain licenses as comparable, and the accused infringer has an opportunity to challenge that testimony through cross-examination and contrary evidence, the jury's damages award should not be disturbed simply because it rests in part on licenses that are not perfectly analogous. The Court cannot say that Ms. Riley's consideration of the H.S. Craft license and other agreements as guideposts for the hypothetical negotiation was so unreliable or prejudicial as to render the damages verdict improper.

J.A. 26–27 (internal citations omitted). We believe the district court struck the correct balance. This case is materially different from *EcoFactor*, where we held expert testimony unreliable because it was predicated on an inaccurate characterization of the licenses (i.e., that the licensees in that case had agreed upon the rate). *EcoFactor*, 137 F.4th at 1346 (holding that where “the relevant [record] evidence is contrary to a critical fact upon which the expert relied, the district court fails to fulfill its responsibility as gatekeeper by allowing the expert to testify at trial.”). The dispute here, in contrast, is one of fact over which reasonable minds can differ.

In her market approach, Ms. Riley relied on four other agreements as important, all of which applied a 5% rate (which according to Ms. Riley amounts to \$5 per tree). Although these agreements did not include the '186 patent, there was evidence that they included the comparable Loomis '042 patent or other technology closely related to the Loomis GKI Tree. *See, e.g.*, J.A. 4796–813 (licensing the '042 patent); J.A. 4782–86 (licensing Loominocity's “patent pending with respect to its illumination technique and technology”); J.A. 46 (“GKI[] produced and sold trees

embodying the technology described in the Loomis ['042] Patent"); J.A. 2371 (recognizing "the '042 patent which is the Loomis patent" as "go[ing] along with the GKI [T]ree"). Importantly, Polygroup does not dispute the '042 Loomis patent is comparable to the '186 patent. *See* Willis Br. 68–69 (citing J.A. 2525–26). In fact, Polygroup's own expert relied upon a license to the '042 patent as comparable. J.A. 2525–26. A market approach does not require perfect identity between licensed and asserted patents to be reliable; it requires a reasoned explanation of why the licensed technology is sufficiently similar to inform value. *VirnetX*, 767 F.3d at 1330 (quoting *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 79 (Fed. Cir. 2012)) ("[W]hen relying on licenses to prove a reasonable royalty . . . we have never required identity of circumstances."). Here, trial testimony and Ms. Riley's expert report provided such an explanation. J.A. 1837–45; J.A. 2534–37; J.A. 4353–57 ¶¶ 178–85. Even if Ms. Riley could have provided a "more fulsome explanation" on why these licenses were comparable, we agree with the district court that "the failure to do so in this case was not so egregious as to invalidate her analysis entirely." J.A. 25–26.

Overall, Ms. Riley's market approach relied on multiple agreements and served as one component of a broader apportionment framework, including her income approach. Polygroup's criticisms identify disagreements over license comparability, but the district court did not abuse its discretion when it concluded that those criticisms did not rise to a methodological flaw warranting exclusion in an inquiry "necessarily involv[ing] an element of approximation and uncertainty." *EcoFactor*, 137 F.4th at 1340 (citation omitted); *see also ActiveVideo*, 694 F.3d at 1333. Prior licenses are "almost never perfectly analogous to the infringement action." *Ericsson*, 773 F.3d at 1227. And while prior licenses "may cover more patents than are at issue in the action, . . . the fact that a license is not perfectly analogous generally goes to the weight of the evidence, not its

admissibility.” *Id.* With those principles in mind, we cannot conclude the district court abused its discretion in admitting Ms. Riley’s market approach testimony.

3. *Georgia-Pacific* Analysis

The hypothetical negotiation or “willing licensor-willing licensee” framework “attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began.” *Lucent Techs.*, 580 F.3d at 1324 (citing *Georgia-Pacific*, 318 F. Supp. at 1120). As a general matter, this is a sound approach, well supported by our precedent. *See, e.g., VLSI Tech. LLC v. Intel Corp.*, 87 F.4th 1332, 1345–46 (Fed. Cir. 2023); *Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, 807 F.3d 1283, 1303–04 (Fed. Cir. 2015); *Lucent Techs.*, 580 F.3d at 1324–25. A critical consideration in this analysis is the amount that the alleged infringer would agree to pay as a willing licensee. *Georgia-Pacific*, 318 F. Supp. at 1121; *Carnegie Mellon*, 807 F.3d at 1304 (“A key inquiry in the analysis is what it would have been worth to the defendant, as it saw things at the time, to obtain the authority to use the patented technology”). One important factor is “[t]he royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty.” *Georgia-Pacific*, 318 F. Supp. at 1120. “Actual licenses to the patented technology are highly probative as to what constitutes a reasonable royalty for those patent rights because such actual licenses most clearly reflect the economic value of the patented technology in the marketplace.” *LaserDynamics*, 694 F.3d at 79.

Ms. Riley testified that her income approach led her to conclude that the reasonable royalty range for Willis and Polygroup would have been \$4.30–\$20. J.A. 1652. Her market approach resulted in a reasonable royalty range of \$2–\$5, which she combined with her income approach to arrive at an expanded reasonable royalty range of \$2–\$20.

J.A. 1652–55. And finally, she applied the *Georgia-Pacific* factors to select the reasonable royalty within the apportionment-based reasonable royalty range, ultimately arriving at a \$5 reasonable royalty. J.A. 1655–70.

Ms. Riley testified that her *Georgia-Pacific* analysis considered all the factors but that she would emphasize only those she deemed most significant at trial. J.A. 1655–56. Specifically, she testified to Willis' and Polygroup's commercial relationship; the patented feature's commercial success and popularity; the percent of profit credited to the patented feature; the advantages of using the patented feature; and the character of Willis' embodiment of the patented feature. *See* J.A. 12986. She testified that, after calculating an apportionment-based reasonable royalty range, she used these factors to fine-tune her reasonable royalty to a single figure. She did so by applying upward or downward adjustments based on the outcome of each factor, indicating whether the reasonable royalty should fall higher or lower within her apportionment-based range. *See* J.A. 12996. Ultimately, she arrived at a reasonable royalty of \$5 per tree, which she then multiplied by a royalty base of 10,623,693 infringing trees to calculate a total reasonable royalty of \$53,118,465. J.A. 1669–70.

On appeal, Polygroup argues Ms. Riley's invocation of *Georgia-Pacific* does not save her unreliable apportionment baseline. It contends her analysis, which she admitted was limited to "qualitative factors," applied upward or downward pressure on the royalty rate without adequately explaining how much each factor contributed to her ultimate determination of a royalty rate. Relying on *Jiaxing Super Lighting Elec. Appliance, Co. v. CH Lighting Tech. Co., Ltd*, 146 F.4th 1098, 1112 (Fed. Cir. 2025),⁹ Polygroup

⁹ The language in *Jiaxing* cited by Polygroup was dicta. Our decision in *Jiaxing* did not conclude that the

asserts such a “purely qualitative discussion” cannot support a reasonable royalty award. Dkt. No. 35 at 1; Polygroup Reply 22. Neither Rule 702 nor our precedent imposes such a rule. *Micro Chem.*, 317 F.3d at 1393–94 (concluding an expert’s qualitative adjustments to the reasonable royalty without an assigned numerical value “did not run afoul of Rule 702”). The *Georgia-Pacific* analysis necessarily permits qualitative analysis because multiple factors—e.g., the parties’ commercial relationship (Factor 5), the advantages of the patented invention over the prior art (Factor 9), and the character of the patented embodiment (Factor 10)—do not lend themselves to mathematical precision, even in a hypothetical negotiation. *Georgia-Pacific*, 318 F. Supp. at 1120; *see Whitserve*, 694 F.3d at 31. It is sufficient for an economic expert to explain how qualitative considerations influence where a royalty should fall within an already-apportioned numerical range. *See, e.g.*, *Summit 6*, 802 F.3d at 1298 (holding reliable an expert’s analysis envisioning how qualitative *Georgia-Pacific* factors would have affected a bargain based on a quantitative royalty baseline); *i4i*, 598 F.3d at 853 (holding reliable an expert’s analysis that adjusted the baseline royalty using qualitative *Georgia-Pacific* factors). Estimating a reasonable royalty is an inexact art; we see no reason to try to convert it to an “exact science,” which would seem impossible to achieve. *Summit 6*, 802 F.3d at 1296. That impossibility is underscored by the reality that, for several decades, reasonable royalty opinions have rested on experts applying qualitative *Georgia-Pacific* factors within the hypothetical negotiation construct.

magnitude of each upward or downward movement pursuant to a *Georgia-Pacific* factor needed to be quantified. It focused on the need for the district court to provide a reviewable analysis, not on the merits of the damages expert’s methodology. *Jiaxing*, 146 F.4th at 1111–12.

Ultimately, Polygroup's objections go to how Ms. Riley weighed and explained the *Georgia-Pacific* factors, not to whether her methodology was reliable. Ms. Riley identified the factors she considered, explained their directional effect on the royalty, and anchored that analysis to an apportioned quantitative range. Under those circumstances, "the gatekeeping role of the court is satisfied, and the inquiry on the correctness of the methodology and of the results produced thereunder belongs to the factfinder." *Summit 6*, 802 F.3d at 1296. Polygroup was free to challenge Ms. Riley's conclusions through cross-examination and competing expert testimony before the jury. Rule 702 does not require the district court to exclude expert testimony simply because the expert's qualitative judgments in a field of "approximation and uncertainty" might, at least theoretically, have been more precisely quantified. *Eco-Factor*, 137 F.4th at 1340 (citation omitted). The district court did not abuse its discretion in admitting Ms. Riley's *Georgia-Pacific* analysis and allowing the jury to determine its weight.

CONCLUSION

We have considered Polygroup's remaining arguments and find them unpersuasive. Because denial of Polygroup's motion for JMOL of obviousness and for a new trial on damages was appropriate, we affirm.

AFFIRMED

COSTS

Costs to Willis.