

No. 22-1755

**In The
United States Court of Appeals
for the Federal Circuit**

PARKERVISION, INC.,

Appellant,

v.

QUALCOMM INCORPORATED, QUALCOMM ATHEROS, INC.,

Appellees.

Appeals from the United States District Court for the Middle District of Florida,
Case No. 6:14-cv-00687-PGB-KRS, the Honorable Paul G. Byron.

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U.S. Patent No. 6,091,940

22. An apparatus for communicating comprising:
- (a) a transmitting subsystem comprising:
 - (1) a switch module having a first input connected to a bias signal, a control input connected to a control signal, and an output generating a periodic signal, wherein said control signal is an oscillating signal, said control signal causing said switch module to gate said bias signal, said periodic signal having an amplitude that is a function of said bias signal, and said periodic signal being a harmonically rich signal comprised of a plurality of harmonics, and
 - (2) a filter to accept said harmonically rich signal and to output one or more desired harmonics from said plurality of harmonics; and
 - (b) a receiving subsystem.
24. The apparatus of claim 22, wherein said receiving subsystem comprises:
an aliasing module, further comprising:
- (1) a universal frequency translation (UFT) module, said UFT module aliasing an electromagnetic signal according to an aliasing signal having an aliasing rate to down-convert said electromagnetic signal, and transferring energy from said electromagnetic signal at said aliasing rate;
 - (2) a signal generator generating said aliasing signal, said aliasing signal comprising a plurality of pulses having non-negligible apertures; and
 - (3) a storage device storing energy from said UFT module.
25. A method of communicating, comprising the steps of:
- (1) shaping an oscillating signal to create a string of pulses that is a function of said oscillating signal;
 - (2) gating a reference signal at a rate that is a function of said string of pulses to create a periodic signal having a plurality of harmonics, said reference

signal being a function of an information signal, and at least one of said plurality of harmonics being a desired harmonic; and

(3) outputting said periodic signal, said periodic signal having an amplitude that is a function of said reference signal.

U.S. Patent No. 7,218,907

1. A method for down-converting an electromagnetic signal, comprising:

Periodically coupling an electromagnetic signal that includes a carrier signal to an energy storage device and a load, wherein the periodic couplings occur at a rate less than twice the frequency of the carrier signal;

Providing, during the periodic couplings, energy from the electromagnetic signal to the energy storage device, thereby changing an amount of energy stored by the energy storage device;

Providing, during the periodic couplings, energy from the electromagnetic signal to the load; and

Providing, between the periodic couplings, energy from the energy storage device to the load, thereby changing the amount of energy stored by the energy storage device;

Whereby the energy provided to the load forms a down-converted signal.

CERTIFICATE OF INTEREST

Case Number	22-1755
Short Case Caption	ParkerVision, Inc. v. Qualcomm Incorporated
Filing Party/Entity	ParkerVision, Inc.

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I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.

Date August 18, 2022

Signature: /s/ Joel L. Thollander

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<p>1. Represented Entities. Fed. Cir. R. 47.4(a)(1).</p>	<p>2. Real Party in Interest. Fed. Cir. R. 47.4(a)(2).</p>	<p>3. Parent Corporations and Stockholders. Fed. Cir. R. 47.4(a)(3).</p>
<p>Provide the full names of all entities represented by undersigned counsel in this case.</p>	<p>Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities.</p> <p><input checked="" type="checkbox"/> None/Not Applicable</p>	<p>Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities.</p> <p><input checked="" type="checkbox"/> None/Not Applicable</p>
<p>ParkerVision, Inc.</p>	<p>None.</p>	<p>None.</p>

ADDITIONAL PAGES ATTACHED

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

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5. Related Cases. Provide the case titles and numbers of any case known to be pending in this court or any other court or agency that will directly affect or be directly affected by this court’s decision in the pending appeal. Do not include the originating case number(s). Fed. Cir. R. 47.4(a)(5). See also Fed. Cir. R. 47.5(b).

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6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

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STATEMENT OF RELATED CASES

No appeal from this case was previously before this or any other court. In 2015, this Court decided an appeal from a patent infringement case between ParkerVision and Qualcomm involving patents and claims different from those at issue here, including representative claims from U.S. Patent No. 6,061,551 (the “551 patent”). *ParkerVision, Inc. v. Qualcomm Inc.*, 621 F. App’x 1009 (Fed. Cir. 2015) (unpublished) (“*ParkerVision I*”). In 2018, this Court decided an appeal from an inter partes review (“IPR”) determination from the Patent Trial and Appeal Board (the “Board”) affirming the validity of certain claims of U.S. Patent No. 6,091,940 (the “940 patent”)—one of the patents at issue here. *ParkerVision, Inc. v. Qualcomm Inc.*, 903 F.3d 1354 (Fed. Cir. 2018) (the “940 patent IPR”). Counsel for ParkerVision know of no other cases pending in this or any other court that will directly affect or be affected by the Court’s decision in this appeal.

STATEMENT OF JURISDICTION

The district court had subject matter jurisdiction over this patent-infringement action under 28 U.S.C. §§ 1331 and 1338. This Court has jurisdiction over the appeal under 28 U.S.C. § 1295(a)(1). The appeal is timely under FED. R. APP. P. 4(a)(1)(A) because the final judgment was entered in the district court on March 23, 2022 (Appx1), and the notice of appeal was filed on April 20, 2022 (Appx2140).

STATEMENT OF THE ISSUES

This Court has addressed disputes between ParkerVision and Qualcomm twice before. The first time, it affirmed a judgment that Qualcomm’s accused products were not infringed by representative receiver claims of the ’551 patent—because the switches in Qualcomm’s accused products performed down-conversion. The second time, it affirmed a Board judgment that Qualcomm had failed to show invalid certain transmitter claims of the ’940 patent. In this litigation, ParkerVision asserted the same ’940 patent transmitter claims, as well as receiver claims from the ’940 patent and from U.S. Patent No. 7,218,907 (the “’907 patent”) that are markedly different from the claims of the ’551 patent—the receiver claims at issue here, critically, recite down-conversion by switches. The district court filed an initial order recognizing this dispositive difference in claim scope. But the court reversed course as trial approached and found, without analyzing the claims or distinguishing its prior order, that assertions of switch-down-conversion infringement in this case were

precluded by this Court's affirmance of non-infringement in *ParkerVision I*. The district court subsequently granted summary judgment on all claims.

ParkerVision's issues presented include the following:

(1) Whether the district court erred in precluding ParkerVision from asserting infringement of the receiver claims in this case claims based on *ParkerVision I*, when (a) the switch-down-conversion claims of the '940 and '907 patents are dispositively different from the claims of the '551 patent in *ParkerVision I*; (b) the district court recognized the dispositive differences in an earlier order; and (c) in the later order reversing course and issuing summary judgment on collateral estoppel, the court neither analyzed the claims nor acknowledged its prior order.

(2) Whether the district court further erred in precluding ParkerVision from offering arguments defending the validity of the '940 patent transmitter claims based on the Board's judgment in the '940 patent IPR, when (a) the Board's judgment meant those claims are valid; (b) the controlling statute requires applying estoppel against (IPR loser) Qualcomm, not (IPR winner) ParkerVision; and (c) Qualcomm lost on a lower burden of proof in the '940 patent IPR.

(3) Whether the district court abused its discretion in striking expert testimony on particular claim elements based on the expert's decision not to create and run an indisputably *less* reliable, self-generated simulation, but to rely instead on indisputably *more* reliable evidence produced by Qualcomm—including

Qualcomm’s schematics and design reviews showing the results of Qualcomm’s own simulations as to those elements—and further when: (a) as to the “harmonically rich signal” element, a Qualcomm engineer who worked on the accused circuits testified that they output signals with a “spew” of harmonics; (b) as to the “gating” element, a Qualcomm engineer who worked on the circuits testified that they contain gates that open and close; and (c) as to the “non-negligible energy” element, this Court held in *ParkerVision I* that no expert-generated simulation is necessary.

STATEMENT OF THE CASE

A. Preliminary Statement.

In 2019, at ParkerVision’s urging, the district court ordered Qualcomm to file an early summary judgment motion on the potential collateral estoppel impact of *ParkerVision I*. As the court explained, “the unique posture of this case renders [the early motion] an appropriate vehicle for determining whether the parties should invest energy and expense litigating the infringement allegations arising from” the asserted claims. Appx10329. After considering the parties’ arguments, the district court found the claims in this litigation dispositively different from the claims in *ParkerVision I*. In critical part, the claims in the prior litigation were not infringed when down-conversion was performed by switches. Appx10329-10332; *see also ParkerVision I*, 621 F. App’x. at 1012. The claims in this litigation recite down-conversion by switches. The ’940 patent receiver claims require “one or more

switch[es]’ (the UFT module)” to down-convert. Appx6080, Appx61475. The ’907 patent receiver claims likewise recite switches that down-convert, where “all of the energy provided to the load comes from the switch-down-converted signal.” Appx10344. Recognizing the critical difference in claim scope, the district court denied Qualcomm’s motion in early 2020 and set the parties on the path for trial.

As the trial date approached in 2022, Qualcomm filed another summary judgment motion on the same grounds, as well as over a dozen other potentially case-dispositive motions and arguments—some supported with only a few sentences of discussion. At the hearing addressing those motions, the district court indicated that something had changed, and it was no longer interested in overseeing this patent trial: “We all know the jury isn’t going to follow 99 percent of what you all are talking about in this trial. Right? We all know that. They’re going to come up with a rough idea of who deserves to win, but the nuances of a patent case, there’s no way a jury understands this ... which is why this shouldn’t be tried to a jury, in my opinion. They will never understand. This should be PTAB 100 percent. We should be out of it, but that’s how it is.” Appx61009-61010.

Orders issued after the hearing ensured that the district court would be out of it. The court accepted Qualcomm’s arguments and granted its motions virtually across the board, leaving nothing left to try to the jury. Among those rulings, the court granted summary judgment on the asserted receiver claims based on collateral

estoppel from *ParkerVision I*. The court offered no explanation for its departure from the 2020 order nor any analysis of the claims at issue—it effectively presumed that claims from different patents, with different language and different limitations, are the same. That was legal error. The court also found that collateral estoppel applied *against* ParkerVision based on the judgments *affirming* ParkerVision’s claims in the ’940 patent IPR—effectively holding that ParkerVision, as the winner of that IPR, was estopped from defending its winning judgment. That was legal error. The court also struck testimony of ParkerVision’s infringement expert because he relied on (indisputably) *more* reliable evidence of Qualcomm’s own schematics, simulations, and admissions regarding the design and operation of its circuits, rather than on—what would have been—(indisputably) *less* reliable evidence of self-generated simulations. There was no dispute that the evidence relied upon by ParkerVision’s expert, including critical admissions from experienced Qualcomm engineers, was reliable. Even so, the court struck that testimony, and on that basis, granted summary judgment on the asserted transmitter claims. This abuse of discretion turned the *Daubert* standard on its head.

In its orders disposing of this litigation, the district court ruled for Qualcomm and against ParkerVision on more issues than ParkerVision can reasonably raise in this appeal. ParkerVision thus evaluated the orders carefully, and has elected to bring

only these three overarching issues, each of which will be relevant in any remand for a jury trial. Such a remand is appropriate and necessary.

B. ParkerVision’s Pioneering Technologies.

Wireless technologies involve, at a high level, up-conversion and down-conversion of electromagnetic signals. Up-conversion is performed by transmitters, down-conversion is performed by receivers. A device that does both is a transceiver. Appx116, Appx1715. Wireless communications make use of two kinds of signals: some designed to contain information, others to transport it. Appx116. Information-bearing signals, sometimes referred to as baseband signals, are low, near-zero frequency signals generated from sources of information (*e.g.*, digital data consisting of 1s and 0s). Appx116, Appx1433. These low-frequency signals do not travel far through space. Appx1715. Carrier signals, by contrast, are higher-frequency electromagnetic signals that can travel much farther. Appx1715.

Wireless transmitters send information using carrier signals. Transmitters “modulate” carrier signals with information-bearing signals and then “up-convert” the carrier signals to increase their frequency before sending. Appx116. Wireless receivers rely on the inverse processes of down-conversion and demodulation. They receive higher-frequency information-bearing signals and “down-convert” those signals to decrease their frequency. Receivers then “demodulate” the signals to extract the desired information. Appx1715. This demodulation typically involves

processing and shaping the down-converted or baseband signal at different points in the receiving circuitry. Appx119, Appx10078-10079.

ParkerVision began its pioneering work in wireless technologies 1989, with a product called “CameraMan”—a radio-controlled camera that tracks the person controlling it with a device (*e.g.*, a microphone), so that person can simultaneously film and participate in the events being filmed. Appx44135. CameraMan relied on wireless receivers and transmitters to receive and send signals to the device controlling its movements. Appx44135-44136. It was a commercial success; adopted by news broadcasters, awarded an Emmy, it generated over \$100 million in revenue. But it was large and expensive. To develop a smaller, budget-friendly CameraMan, ParkerVision investigated alternative receiver and transmitter designs.

David Sorrells, a ParkerVision engineer, led these investigations. Appx44136. Sorrells explored existing receivers and transmitters and found none satisfactory. Then-existing receivers were too large (*e.g.*, superheterodyne receivers) or performed poorly (*e.g.*, voltage samplers). ParkerVision also wanted a high-performing transmitter to complement the receiver. Sorrells and his team then experimented with circuit components to develop novel receivers and transmitters.

One starting point for ParkerVision’s receivers was the concept of sampling, a departure from continuous-time analog down-conversion. Appx44107. Sampling uses switches that open and close at determined rates to “sample” and lower the

frequency of received signals. Appx44107-44111. Conventional techniques (*e.g.*, voltage sampling) minimized the sampling period and the amount of current flowing to the output of the circuit. Appx44107-44109. Sorrells and his team succeeded in developing high-performing receivers by taking an historically counter-intuitive approach and going in the opposite direction, increasing the sample period and the current flowing to the outputs of their circuits. Appx44109-44111. And they extended these efforts to develop high-performing transmitters, including through a focus on aperture generators. Appx45450.

ParkerVision described its receiver and transmitter designs as “energy transfer sampling” technologies, sometimes marketed as “direct2data.” Appx44136-44138. ParkerVision realized early on that these technologies had potential far beyond a smaller, budget-friendly CameraMan—they could displace the analog up- and down-conversion techniques prevalent in wireless communications since the early 1900s. ParkerVision thus filed for and obtained a number of patents, each with claims covering distinct up- and down-conversion inventions. Appx44141-44142.

1. The '551 Patent.

The claims of the '551 patent, for example—which are not asserted here—recite an “apparatus for down-converting a carrier signal” including, among other elements, “a switch module ... and a storage module coupled to said switch module; wherein said storage module receives non-negligible amounts of energy transferred

from a carrier signal ... wherein a lower frequency signal is generated from the transferred energy.” *ParkerVision I*, 621 F. App’x. at 1011-12. This Court found that these claims were not infringed by products that use mixer switches to down-convert. *See id.* at 1013 (“Qualcomm contends that the mixer [switches] alone down-converts the carrier signal into the baseband signal.”).

2. The ’940 Patent.

The ’940 patent is unrelated to the ’551 patent. And in sharp contrast to the claims of the ’551 patent, the receiver claims of the ’940 patent recite switch down-conversion. Claim 24, for example, recites “an aliasing module” comprising:

- (1) a universal frequency translation (UFT) module, said UFT module aliasing an electromagnetic signal according to an aliasing signal having an aliasing rate to down-convert said electromagnetic signal, and transferring energy from said electromagnetic signal at said aliasing rate;
- (2) a signal generator generating said aliasing signal, said aliasing signal comprising a plurality of pulses having non-negligible apertures; and
- (3) a storage device storing energy from said UFT module.

Appx150.

These claims have no “generating” limitation like those in the ’551 patent, and they recite down-conversion by the UFT module, which is the switch. Appx60806 (identifying the UFT module as “one or more switch[es]”). Indeed, the name of the UFT module itself makes clear that it is providing universal frequency translation—down-converting the frequency of the signal. The storage device (or

capacitor) in these claims simply stores the switch-down-converted “energy from said UFT module.” Appx150. The ’940 patent also recites transmitter claims reciting an apparatus and method for up-converting signals. Appx150.

3. The ’907 Patent.

The ’907 patent is a continuation of another continuation-in-part of the ’551 patent. Appx168. But it was granted with no terminal disclaimer, and its 256-page specification discloses numerous distinct inventions. Appx168-425. Those claimed in the ’907 patent require down-conversion by switches. Claim 1 recites:

A method for down-converting an electromagnetic signal, comprising:

[1] Periodically coupling an electromagnetic signal that includes a carrier signal to an energy storage device and a load, wherein the periodic couplings occur at a rate less than twice the frequency of the carrier signal;

[2] Providing, during the periodic couplings, energy from the electromagnetic signal to the energy storage device, thereby changing an amount of energy stored by the energy storage device;

[3] Providing, during the periodic couplings, energy from the electromagnetic signal to the load; and

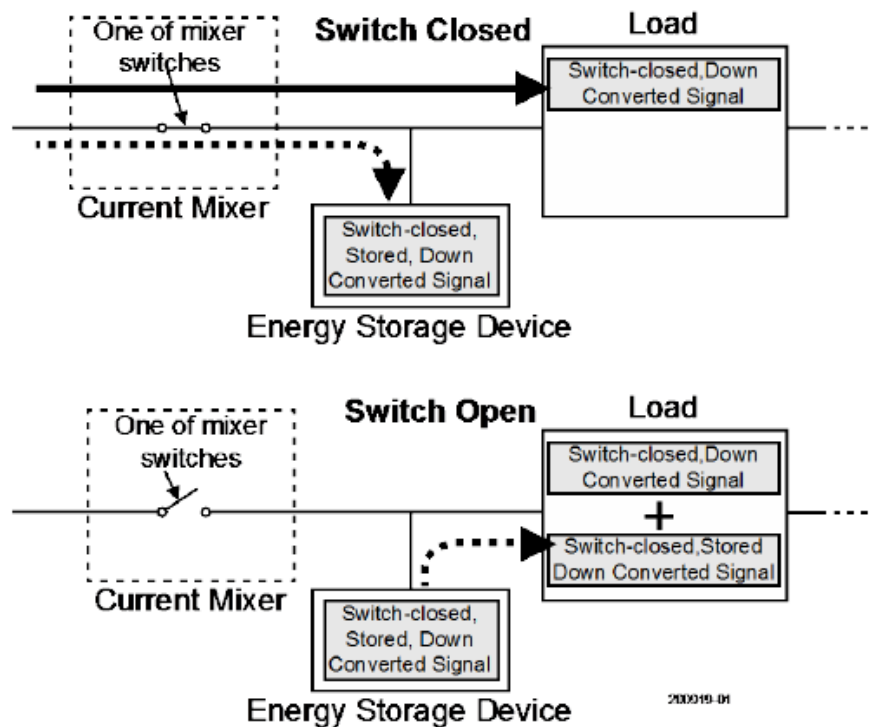
[4] Providing, between the periodic couplings, energy from the energy storage device to the load, thereby changing the amount of energy stored by the energy storage device;

[5] Whereby the energy provided to the load forms a down-converted signal.

Appx424-425 (bracketed numbers added).

In this method claim, which recites a process that occurs over time, only the periodic coupling in step [1] changes the frequency of the signal. As ParkerVision’s

expert explained, a mixer “uses a switch or switches to couple,” and “[f]requency down-conversion occurs when the switches in the mixers open and close.” Appx44111, Appx44117. Down-conversion is thus accomplished by the switch. Appx44111-44112. This is confirmed by step [3], which recites—again in sharp contrast to the claims of the ’551 patent—“energy that is provided to the load (during periodic couplings) from the electromagnetic signal without passing through the energy storage device.” Appx10343-10344. It is further confirmed by step [2] in light of step [3], which makes clear that, “during the periodic couplings,” the same switch-down-converted energy is being provided *both* to the energy storage device *and* directly to the load. ParkerVision’s expert illustrated this with a diagram:



Appx44112. As ParkerVision’s expert explained, and the court recognized in its initial order finding no estoppel, in “the ’907 claims, all of the energy provided to the load comes from the switch-down-converted signal. ... Because the switch-down-converted signal is a down-converted signal, so too is the signal shaped in the load as a result of receiving energy from the switch-down-converted signal.” Appx10344. The claim recites, in other words, a signal that is formed through samples of already down-converted energy. Appx424-425.

C. Qualcomm’s Interest in ParkerVision’s Technologies.

ParkerVision and Qualcomm began licensing discussions in 1998, while ParkerVision’s patent applications were pending. Appx44142. These discussions spanned several years, and generated two non-disclosure agreements. Appx44142-44159, Appx44151, Appx44158. Sorrells visited Qualcomm’s facilities several times, explaining and demonstrating ParkerVision’s receiver and transmitter technologies. Appx44151-44154. ParkerVision provided Qualcomm with prototype chips and demonstration boards for testing. Appx44148, Appx44158-44159.

After testing ParkerVision’s prototype receivers and transmitters, Qualcomm praised ParkerVision and its new technologies in internal discussions. Appx44142-44144, Appx44148. Qualcomm’s employees asserted that ParkerVision’s inventions would improve cost savings, profitability, and market position—and enthused that ParkerVision’s prototype represented the “holy grail” for this kind of technology.

Appx44142, Appx44144, Appx44435. Qualcomm did not share this positive feedback with ParkerVision, instructing its engineers to withhold this information to maximize Qualcomm's bargaining position. Appx44144, Appx44149.

The licensing discussions fell apart after the parties could not agree on the terms of an agreement, including price. Appx44156-44157.

D. The History of Litigation Between the Parties.

In 2004, shortly after the expiration of the parties' non-disclosure agreement, Qualcomm decided—internally, and without notice to ParkerVision—to implement ParkerVision's technologies in its new products. Appx44159 (reflecting Qualcomm's intention to adopt ParkerVision's approach).

Some years later, Sorrells read a Qualcomm white paper describing techniques like those he had explained to Qualcomm. Sorrells voiced concerns, and ParkerVision began investigating Qualcomm's potential infringement. ParkerVision spent hundreds of thousands of dollars on tear-downs and x-ray imaging as part of that investigation. After concluding that Qualcomm was infringing, ParkerVision filed its first complaint in July 2011, in the Middle District of Florida.

The case was assigned to Judge Roy B. Dalton, Jr. One of the principal disputes at trial turned on the role that switches and capacitors played in down-converting and “generating a lower frequency signal.” *See ParkerVision Inc. v. Qualcomm Inc.*, 621 F. App'x 1009, 1012 (Fed. Cir. 2015) (unpublished)

(“*ParkerVision I*”). ParkerVision’s expert testified that “the mixer-capacitor combination” in Qualcomm’s accused products satisfied this “generating limitation” found in the asserted claims. *Id.* at 1013. Qualcomm contended that the “mixer alone”—which Qualcomm identified as switches—accomplished down-conversion in the accused products. *Id.* In October 2013, a unanimous jury awarded ParkerVision \$172.7 million in damages, which was a sum within the range of the parties’ offers and counter-offers during their initial negotiations. In December 2013, Qualcomm filed renewed motions for judgment as a matter of law (“JMOL”).

In May 2014, ParkerVision filed its original complaint in this case, alleging infringement of patents not asserted in *ParkerVision I*. Appx2141-2142, Appx2200. In the first litigation, Qualcomm characterized its products as down-converting with switches. ParkerVision had additional patents with claims that recited down-conversion by switches, and had disclosed that approach to Qualcomm during the parties’ negotiations. To protect its intellectual property, ParkerVision asserted switch-down-conversion claims in this follow-on suit, including such claims from the ’940 and ’907 patents. This case was initially assigned to Judge Charlene Edwards Honeywell and later reassigned to Judge Paul G. Byron.

One month later, in June 2014, Judge Dalton granted JMOL in *ParkerVision I*. This Court affirmed the judgment of non-infringement in July 2015. 621 F. App’x. 1009. The judgment effectively turned on the switch-down-conversion issue. While

ParkerVision alleged that a “mixer-capacitor combination satisfie[d] the generating limitation” in the *ParkerVision I* claims, Qualcomm contended that the “mixer alone”—switches—accomplished down-conversion in the accused products. *Id.* at 1013. This Court noted that, “for ParkerVision to prevail under its infringement theory, it was required to show that the baseband signal”—a down-converted signal—“is generated from the energy stored in the capacitors.” *Id.* But, the Court found, ParkerVision’s expert admitted that a down-converted baseband signal in the accused products “already exists before the capacitor.” *Id.* at 1014. This meant “that Qualcomm products obtained the baseband signal from ‘somewhere other than’ the energy stored in the capacitors, precluding a finding of infringement” under the “generating limitation” in the representative claims at issue. *See id.*

In November 2014, after JMOL was granted in *ParkerVision I*, Qualcomm moved to transfer this case to Judge Dalton in light of the “overlapping nature of the two cases.” Appx2572, Appx2574. The district court denied Qualcomm’s motion, noting among other things that this case involves patents and claims “that were not addressed in *ParkerVision I*.” Appx2684. After that motion was denied, ParkerVision filed another action on different patents along with a complaint to the International Trade Commission. Appx5705. Qualcomm, in turn, filed multiple IPRs, some against claims of the ’940 patent. Appx5705. On the parties’ agreement, the district court granted a stay that would allow it “to consider the impact of the

IPRs.” Appx5705, Appx5738. Those IPRs failed to invalidate the claims in suit, and the Board determined that “Qualcomm failed to prove by a preponderance of the evidence” that claims 25, 26, 368, and 369 of the ’940 patent are unpatentable. *ParkerVision, Inc. v. Qualcomm Inc.*, 903 F.3d 1354, 1357, 1363 (Fed. Cir. 2018). This Court affirmed the Board’s determination that Qualcomm failed to show, under a preponderance of the evidence standard, that these claims are unpatentable. *Id.*

E. The District Court Finds No Collateral Estoppel.

When the stay was lifted, the district court held a hearing at which the parties discussed, among other things, the benefits of resolving any potential collateral estoppel disputes “as quickly as possible.” Appx5984, Appx5951, Appx5958-5959. The court instructed the parties to meet and confer on “a briefing schedule to address whether any patents and claims brought in the instant litigation are affected by *ParkerVision I*.” Appx5989. It thereafter imposed deadlines for briefing on the preclusive “[e]ffect, if any, of *ParkerVision I* on” this case. Appx6099.

Qualcomm filed its motion for summary judgment based on collateral estoppel from *ParkerVision I* in the fall of 2019 (Appx9597), arguing that the ’907 patent claims include “the same concept” as the claims in the prior litigation (Appx9624). Qualcomm did not argue, at that time, that *ParkerVision I* had any preclusive effect on the claims of the ’940 patent—which recite switch modules that “down-convert [the] electromagnetic signal.” Appx150 (claim 24).

ParkerVision noted in response that the Patent Office issued the claims of the '907 patent as distinct inventions from those in *ParkerVision I*. Appx10074-10075. And ParkerVision explained that collateral estoppel does not apply because the '907 patent claims are not “substantially the same” as those in the prior case. Appx10073-10074. The representative claims in *ParkerVision I* required a down-converted signal “generated from the energy stored in the capacitors.” 621 F. App'x. 1013. And this Court found fatal to the allegations of infringement in that case an expert admission that, in the accused circuits, a down-converted baseband signal “already exists before the capacitor.” *Id.* at 1014. The '907 patent claims recite the periodic coupling of switches that down-converts an electromagnetic signal and sends a portion of the down-converted signal directly to the load. Appx425 (claim 1). That down-converted signal thus exists before the capacitor. Appx44111-44113. These claims “track the *ParkerVision I* explanation of the accused circuitry as involving switches that can themselves generate a down-converted signal.” Appx1078-1079.

The district court, crediting this analysis, denied Qualcomm's motion. Appx10327. Declining to apply collateral estoppel, the court confirmed that the parties should continue to “invest energy and expense litigating the infringement allegations arising from the” claims asserted in this litigation. Appx10329.

The parties did so.

F. The District Court Reverses Course and Grants Summary Judgment.

Nevertheless, as trial approached Qualcomm filed another summary judgment motion raising numerous issues—including the same issue of collateral estoppel, although adding arguments relating to claims of the '940 patent. Appx34227. It also filed a motion to strike the testimony of ParkerVision's expert witnesses on a variety of issues. Appx32120. These *Daubert*-related issues, some of which were supported with only a few sentences of discussion (Appx32128-32152), included old arguments on the purported collateral estoppel effects *ParkerVision I*, new arguments on the purported collateral estoppel effects of the '940 patent IPR, and arguments for the necessity of an expert-generated simulation that were inconsistent with positions Qualcomm had taken earlier in the litigation (Appx34227-34259).

Back in 2015, at a discovery hearing before the magistrate judge, Qualcomm and its senior director of engineering assured the court that there was no need to run any independent simulation to accurately understand how the accused products work. Appx5058. Indeed, Qualcomm's senior director of engineering testified under oath that Qualcomm's schematics and design reviews were all that anyone needed to accurately determine how Qualcomm's products work. Appx5057-5058. In 2022, as trial approached, Qualcomm took the opposite position. Now it argued that ParkerVision's infringement testimony should be excluded, and summary judgment then granted, because "ParkerVision's experts needed to run" independent

simulations (Appx32146), and that such self-generated “[s]imulations were required to have a reliable basis for understanding how the accused devices work and whether they satisfy the claim limitations” (Appx32144).

Qualcomm was not alone in changing course. In 2020, the district court encouraged the parties to continue litigating toward a trial. Appx10329. But at the hearing on these motions in 2022, the court indicated that it was no longer interested in overseeing a patent trial: “[T]his shouldn’t be tried to a jury, in my opinion. They will never understand. This should be PTAB 100 percent. We should be out of it, but that’s how it is.” Appx61010, Appx60974 (“You’re dealing with a nonpatent lawyer. Thank God.”). The court’s questions further indicated an intent to dispose of the litigation without the need to try patent claims to any jury. Appx61035 (“So let’s assume collateral estoppel applies. What’s the affect here? What exactly is out, which patents, which claims?”), Appx60994 (“Does this eliminate claims 24 and 331 of ’940 and 1 and 10 of ’907[?]”). And that is what the court did, issuing orders that removed disputed questions of fact from the jury’s consideration.

The district court credited none of ParkerVision’s positions and granted none of its motions.¹ Qualcomm was awarded a clean sweep. Among other things, the court granted Qualcomm’s motions for collateral estoppel based on *ParkerVision I*

¹ The court further criticized ParkerVision for “only us[ing] 20 of the 25 pages allotted to its response.” Appx44 (n.24). The court’s local rules, however, allot 25 pages to a motion, but only 20 pages to a response. M.D. FLA. LOCAL RULE 3.01(b).

and the Board’s judgment in the ’940 patent IPR, as well as Qualcomm’s motions to strike testimony of ParkerVision’s expert for the expert’s reliance on Qualcomm’s own design documents, testimony, and simulations, rather than on some self-generated simulation. Appx7-9, Appx26, Appx32-40. And having granted those motions for estoppel and to strike, the district court then granted summary judgment on all claims asserted in the litigation. Appx7-10.

This appeal followed.

SUMMARY OF THE ARGUMENT

(1) The district court erred in applying collateral estoppel based on *ParkerVision I*. That litigation involved claims from patents not asserted here. The differing claims asserted there contained a “generating” limitation the Court found dispositive of non-infringement. This “generating” limitation, Qualcomm argued and the Court agreed, was not infringed when switches accomplished down-conversion. *ParkerVision I*, 621 F. App’x. at 1012-16. The claims here do not recite a “generating” limitation and, in further and critical contrast to the claims in *ParkerVision I*, they are switch-down-conversion claims. These claims *can* be infringed by circuitry “involving switches that can themselves generate a down-converted signal” (Appx10078)—just like the circuitry described in *ParkerVision I*. As a matter of law, there is no identity of the infringement issues between this case and *ParkerVision I*, and thus there is no collateral estoppel.

To ensure the parties did not waste resources litigating estopped claims, the district court considered this issue in December 2019. And it agreed with ParkerVision’s analysis that the claims here, unlike those in *ParkerVision I*, recite switches that down-convert. The court denied Qualcomm’s estoppel-based motion for summary judgment in January 2020 on the ground that the claims in this case are different in scope from the claims in *ParkerVision*. In its summary judgment order in March 2022, however, the district court made an about-face on this estoppel issue—without acknowledging its prior law-of-the-case order, and without engaging in any new analysis of the claims on which it now granted summary judgment.

The district court did cite to charts in the report of Qualcomm’s expert as purported support for its presumption that the claims in this case have the same scope as the claims in *ParkerVision I*. But determining relative claim scope involves a question of law for the court, not a question of fact for experts. And anyway, the charts in Qualcomm’s expert reports are nothing more than tables with claims printed side-by-side. Reading those claims side-by-side confirms they are dispositively different in scope. The district court erred in presuming otherwise, and its summary judgment on that ground should be reversed.

(2) The district court also erred in applying collateral estoppel based on the Board’s decision (affirmed by this Court) in the ’940 patent IPR. According to the district court, *Qualcomm’s failure* (as the losing petitioner) to invalidate claims in

the '940 patent IPR triggered collateral estoppel *against ParkerVision* (as the winning patent owner) with respect to Qualcomm's arguments in this litigation *on the same prior art*, alleging invalidity of *the same winning patent claims*. In effect, the district court precluded ParkerVision from presenting evidence defending the validity of these '940 patent claims based on judgments from the Board and this Court affirming the validity of those claims. This was legal error.

(a) To start, IPRs are governed by a statutory estoppel provision. That provision holds, in turn, that when patent claims survive an IPR, estoppel works *against the losing petitioner*, not *the winning patent owner*. 35 U.S.C. § 315(e). The district court's order turns the statutory estoppel rules upside down. (b) Putting the controlling statute aside, it is clear that judge-made collateral estoppel applies only to issues that are critical and necessary to the *judgment* at issue. The only issue critical and necessary to the Board's *judgment* that *Qualcomm failed to carry its preponderance burden to show invalidity* cannot possibly be of any help to Qualcomm's invalidity arguments in this litigation. (c) It is black-letter law that a "party who has carried the burden of establishing an issue by a preponderance of the evidence is not entitled to assert preclusion in a later action that requires proof of the same issue by a higher standard." 18 *Charles Alan Wright & Arthur R. Miller, FEDERAL PRACTICE & PROCEDURE* § 4422 (3d ed. 1998). That holds here. The Board

evaluated facts under a preponderance standard, and Qualcomm must meet a clear-and-convincing standard for any fact supporting a judgment of invalidity in this case.

(3) The district court also abused its discretion in striking the testimony of ParkerVision’s infringement expert as to three distinct elements: (a) “harmonically rich signal”; (b) “gating” and “switch modules”²; and (c) “non-negligible energy.”

There was no dispute as to the reliability of the evidence ParkerVision’s expert relied on in forming his opinions on these elements. Qualcomm’s senior director of engineering testified under oath that nothing more than Qualcomm’s schematics and design reviews were necessary to determine the accurate operation of the accused circuits. Appx5057-5058. And Qualcomm’s counsel doubled-down: “[s]chematics and technical documents are the type of documents ... that experts in the field would reasonably consider in evaluating the operation of a circuit. That’s undisputed.” Appx61095. ParkerVision’s expert based his opinions on this same—admittedly reliable—evidence: Qualcomm’s own “design review documents, testing review documents, schematics, and [Qualcomm’s] simulations in conjunction with mathematical analysis.” Appx33. In addition to that evidence, ParkerVision’s expert considered testimony of the Qualcomm engineers responsible for the accused circuits *admitting* that the recited elements are present in the circuits. Admissions,

² “Gating” and “switch modules” are separate limitations from different claims. Appx150 (claims 22, 25). Nevertheless, the district court treated them as equivalent for purposes of its *Daubert* analysis (Appx37-39); this brief does the same.

for example, that the accused circuits output a signal with “a whole spew of harmonics” (Appx40), and contain gates that open and close (Appx61329-61330).

The district court appeared to recognize that the testimony of ParkerVision’s expert was based on the best evidence about the accused circuits, from the best sources for such evidence: the Qualcomm engineers who design and operate the circuits. Nevertheless, the court faulted ParkerVision’s expert for electing not to go beyond this *most* reliable evidence with some self-generated simulation of those circuits—a simulation that would have been open to a “garbage in, garbage out” attack from Qualcomm. Appx40083. The district court thus excluded testimony of ParkerVision’s infringement expert for its reliance on documents with relevance and accuracy that could not be disputed, rather than on newly created simulations with parameters that would be vigorously contested by Qualcomm. That turned the *Daubert* standard upside down. The order striking this testimony, as well as the grant of summary judgment flowing from that order, should also be reversed.

ARGUMENT

A. Standard of Review.

“[T]he district court’s ruling on a motion for summary judgment” is reviewed “*de novo*, applying the same legal standards that bound the district court.” *Hendrix v. Evenflo Co.*, 609 F.3d 1183, 1191 (11th Cir. 2010); *see also Charles Mach. Works,*

Inc. v. Vermeer Mfg. Co., 723 F.3d 1376, 1378 (Fed. Cir. 2013) (“We review a grant of summary judgment under the law of the regional circuit.”).

The district court’s “application of issue preclusion, also known as collateral estoppel,” is also reviewed “*de novo*.” *Shell Petroleum, Inc. v. United States*, 319 F.3d 1334, 1338 (Fed. Cir. 2003); *Soverain Software LLC v. Victoria’s Secret Direct Brand Mgmt., LLC*, 778 F.3d 1311, 1314 (Fed. Cir. 2015) (“whether to apply collateral estoppel is a question of law”). This Court applies “the law of the regional circuit to the general procedural question of whether issue preclusion applies,” but applies its own “precedent to questions involving substantive issues of patent law, issues of issue preclusion that implicate substantive patent law issues, or issues of issue preclusion that implicate the scope of [this Court’s] own previous decisions.” *Soverain*, 778 F.3d at 1314; *see also Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1341 n.1 (Fed. Cir. 2012) (“[T]he question whether a particular claim in a patent case is the same as or separate from another claim has special application to patent cases, therefore we apply our own law to that issue.”); *Voter Verified, Inc. v. Election Sys. & Software LLC*, 887 F.3d 1376, 1382-83 (Fed. Cir. 2018).

The district court’s “exclusion of expert testimony” is reviewed “for abuse of discretion,” giving the district court “considerable leeway” in “the execution of its duty.” *Hendrix*, 609 F.3d at 1191; *see also Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1201, 1225 (Fed. Cir. 2014) (“We review decisions on ... the admission of expert

testimony under the law of the regional circuit.”). Even so, “review under an abuse of discretion standard does entail review, and granting considerable leeway is not the same thing as abdicating appellate responsibility.” *United States v. Brown*, 415 F.3d 1257, 1266 (11th Cir. 2005). An abuse of discretion occurs “where the district court applies the wrong law, follows the wrong procedure, bases its decision on clearly erroneous facts, or commits a clear error in judgment.” *Id.* In these circumstances, “the district court has not properly fulfilled its role as gatekeeper.” *Id.* At bottom, the “gatekeeper role under *Daubert* is not intended to supplant the adversary system or the role of the jury.” *Quiet Tech. DC-8, Inc. v. Hurel-Dubois UK Ltd.*, 326 F.3d 1333, 1341 (11th Cir. 2003).

B. The District Court Erred in Applying Collateral Estoppel to the Receiver Claims in the '940 and '907 Patents.

The district court granted summary judgment on the receiver claims—claims 24 and 331 of the '940 patent and claims 1 and 10 of the '907 patent—based on an application of collateral estoppel from *ParkerVision I*. Appx7-9. That was error.

Collateral estoppel raises a question of law this Court reviews without deference, “and requires a showing of all four of the following elements:”

(1) the issue at stake must be identical to the one involved in the prior litigation; (2) the issue must have been actually litigated in the prior suit; (3) the determination of the issue in the prior litigation must have been a critical and necessary part of the judgment in that action; and (4) the party against whom the earlier decision is asserted must have had a full and fair opportunity to litigate the issue in the earlier proceeding.

Voter Verified, 887 F.3d at 1382-83 (citing *CSX Transp., Inc. v. Brotherhood of Maintenance of Way Employees*, 327 F.3d 1309, 1317 (11th Cir. 2003)). With respect to the receiver claims, the analysis starts and ends at the first element.

The “issue at stake” is Qualcomm’s alleged infringement of four asserted claims from the ’940 and ’907 patents. Appx7. Because none of these claims (and neither of those patents) were asserted in *ParkerVision I*, and thus their alleged infringement was not “involved in the prior litigation,” *Voter Verified*, 887 F.3d at 1382-83, Qualcomm can show the required “identity of the issues” only if each of the asserted claims “contains the same ... limitation, in the same context, that [this Court] found dispositive of non-infringement” in *ParkerVision I*. See *Aspex Eyewear, Inc. v. Zenni Optical LLC*, 713 F.3d 1377, 1381 (Fed. Cir. 2013); see also *Nestlé USA, Inc. v. Steuben Foods, Inc.*, 884 F.3d 1350, 1351-52 (Fed. Cir. 2018) (applying collateral estoppel where new and old claims used the same claim language, supported by “identical lexicography,” and neither party “pointed to any material difference” between the claims); *Comair Rotron, Inc. v. Nippon Densan Corp.*, 49 F.3d 1535, 1539 (Fed. Cir. 1995) (“separate patents describe ‘separate and distinct [inventions],’ ... and it cannot be presumed that related patents rise and fall together”); *Ohio Willow Wood Co. v. Alps South, LLC*, 735 F.3d 1333, 1342 (Fed. Cir. 2013) (asking whether “the differences between the unadjudicated patent claims and adjudicated patent claims do not materially alter the question of invalidity”).

The receiver claims here do not contain the same “generating” limitation, in the same context, that this Court found dispositive of non-infringement in *ParkerVision I*. Instead, there are differences between the claims that materially alter the question of infringement resolved in the prior litigation. The required identity of the issues is thus missing, and applying collateral estoppel is inappropriate. *Aspex Eyewear*, 713 F.3d at 1381; *Ohio Willow Wood*, 735 F.3d at 1342.

1. There is no identity of issues—the receiver claims here are dispositively different from those in *ParkerVision I*.

The patents-in-suit are technologically complex. But the critical distinction between the claims here and those in *ParkerVision I* is straightforward: the claims in *ParkerVision I* were found not infringed because Qualcomm’s products used switches to down-convert. 621 F. App’x. at 1012-13. The claims here recite down-conversion by switches. Appx150, Appx425, Appx10078, Appx44111-44113.

Claim 23 of U.S. Patent No. 6,061,551 (the “’551 patent”) was representative of the claims in the prior litigation (“representative claim 23”). *ParkerVision I*, 621 F. App’x. at 1011. That claim recited an “apparatus for down-converting a carrier signal” including, among other elements, “a switch module ... and a storage module coupled to said switch module; wherein said storage module receives non-negligible amounts of energy transferred from a carrier signal ... wherein a lower frequency signal is generated from the transferred energy.” *Id.* at 1011-12.

The infringement question addressed in *ParkerVision I* turned on the “generating” limitation, which the parties agreed was “present in each asserted claim.” *Id.* at 1012. As the Court explained, the “testimony of ParkerVision’s witnesses makes clear that, in order to generate the [down-converted] baseband signal according to” the invention in representative claim 23, “electric current from the carrier signal first flows into the storage capacitor and is accumulated there as energy. When that energy is discharged to the rest of the circuit, a baseband signal ‘following the capacitor’ is created.” *ParkerVision I*, 621 F. App’x. at 1016; *see also id.* at 1014 (“the current that has gone into the capacitor is then what is generating the baseband signal”). But, the Court found, ParkerVision’s expert “admitted that the [down-converted] baseband signal in the accused products has already been created before the signal reaches the identified capacitors.” *Id.* at 1013; *see also id.* at 1016 (“the accused products do not require an electric current from the carrier signal to go in and out of the storage capacitors to create the baseband signal”). This admission, the Court held, was “fatal” to ParkerVision’s allegations that the accused products met the “generating” limitation in those claims. *Id.* at 1016.

The receiver claims of the ’940 and ’907 patents do not recite the same “generating” limitation, but do recite down-conversion by switches. These claims thus do not raise the same issue of infringement resolved in *ParkerVision I*.

a. The '940 patent receiver claims are materially different from the claims in *ParkerVision I*.

The receiver claims of the unrelated '940 patent are switch-down-conversion claims. Unlike the claims in the prior litigation, the '940 patent claims “do not require an electric current from the carrier signal to go in and out of the storage capacitors to create the baseband signal.” *See id.*; Appx150, Appx163. Claim 24 of the '940 patent depends from claim 22. Claim 22 recites an “apparatus for communicating” that includes both a “transmitting subsystem” and a “receiving subsystem.” Appx150 (claim 22). Claim 24 then further describes the “receiving subsystem” as including “an aliasing module” which further includes, in relevant part, “a universal frequency translation (UFT) module” that “down-convert[s]” an “electromagnetic signal.” Appx150 (claim 24), Appx163 (claim 331 depending from claim 24). In addition to the down-converting UFT module, claim 24 also includes “a storage device storing energy from said UFT module.” Appx150.

The “UFT module” is one or more switches in the accused products. Appx60806 (describing the “‘one or more switch’ (the UFT module) theory of infringement”). Thus, in these claims, as in the accused products described in *ParkerVision I*, the switch down-converts. The storage device recited in the '940 patent receiver claims plays only one role: storing the already down-converted “energy from said UFT module.” Appx150. This is consistent with the operation of the accused products as litigated and resolved in *ParkerVision I*, 621 F. App'x. at

1012-16. The switch-down-conversion '940 patent claims thus do not recite the “generating” limitation in *ParkerVision I*, and the question of infringement here is critically different from the question of infringement resolved in the prior litigation. Appx150, Appx163, Appx61607-61609, Appx48565-48576.

There should be little dispute on this point, and in its original estoppel motion in 2019, Qualcomm did not argue that *ParkerVision I* had any preclusive effect on the '940 patent receiver claims. Appx9597-9626. The district court appeared to understand this at the hearing, briefly acknowledging the dispositive point that the '940 patent claims require the UFT module to down-convert. Appx61609. But the court offered no substantive analysis of these claims in its order granting summary judgment on collateral estoppel. Appx7-8.

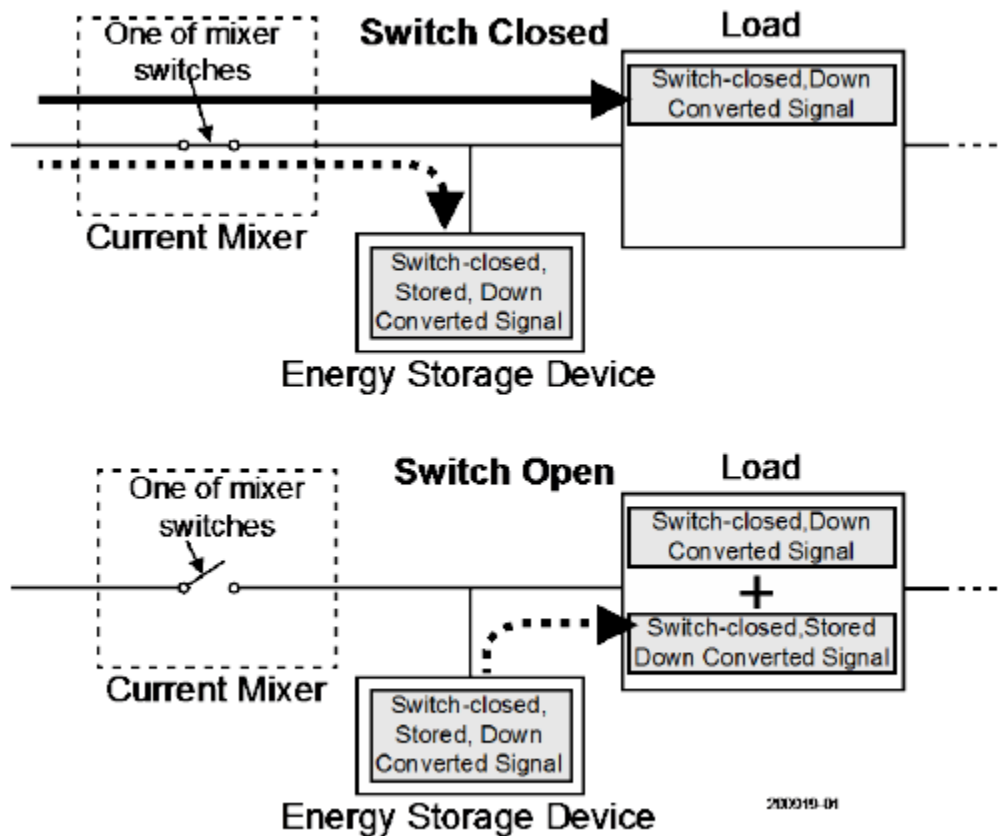
b. The '907 patent receiver claims are materially different from the claims in *ParkerVision I*.

The receiver claims of the '907 patent are also switch-down-conversion claims. These method claims recite periodically coupling and uncoupling an electromagnetic signal—*e.g.*, with a switch—at a frequency less than twice that of the carrier signal, and in further critical part, “[p]roviding, during the periodic couplings, energy from the electromagnetic signal to the load ... [w]hereby the energy provided to the load forms a down-converted signal.” Appx425 (claim 1). These claims recite down-converted electric current that flows directly to the load—and thus, as matter of law and logic, could only have been down-converted at the

switch. Appx424-425, Appx10077, Appx415 (111:11, 31-33) (describing switch-down-conversion designs). This switch-down-converted signal recited in the '907 patent claims is consistent with this Court's description of the mixers in the accused products in *ParkerVision I*, 621 F. App'x. at 1013-15. Appx10077.

Of course, signals do not disappear after down-conversion. A switch-down-converted signal is typically processed on the way to extracting the information it bears, shaping the down-converted signal at different points in the receiving circuitry. Appx10078. The patents have many examples, such as the signals shown in Figures 57E and 57F. Appx248, Appx403 (87:28-38). The '907 patent claims cover and include this type of post-down-conversion processing. The load receives energy from two sources—(1) directly from the electromagnetic signal during the periodic couplings and (2) from the energy storage device between the period couplings—both of which emanate from switch-down-converted signals generated by periodically coupling and uncoupling an electromagnetic signal at a frequency less than twice that of the carrier signal. Appx10079.

ParkerVision's expert offered an illustrating diagram of this process:



Appx44112. The presence of the solid arrow, and the fact that it represents a switch-down-converted signal, is reflected in the recited claim limitations: “[p]roviding, during the periodic couplings, energy from the electromagnetic signal to the load ... [w]hereby the energy provided to the load forms a down-converted signal.” Appx425. Indeed, the claim limitations make clear that, as the diagram reflects, “during the period couplings,” the same switch-down-converted energy is being provided *both* to the energy storage device *and* directly to the load.” *Supra* pp. 10-12. Thus, in these “claims, all of the energy provided to the load comes from the switch-down-converted signal.” Appx10344.

ParkerVision I cannot bar infringement of the '907 patent claims because these claims describe systems that use switches to down-convert signals. Indeed, the presence of a switch-down-converted signal in the accused products, as found in *ParkerVision I*, does not suggest non-infringement. It suggests the *opposite*. Because the switch-down-converted signal generated by Qualcomm's "double-balanced mixer" is a down-converted signal, so too is the signal formed in the load—just as recited in the '907 patent claims. Appx10344.

In *ParkerVision I*, this Court found that the "generating limitation" in the claims there "preclud[ed] a finding of infringement" because the "admission that the double-balanced mixer creates the baseband signal before that signal reaches the identified capacitors mean[t] that Qualcomm products obtained the baseband signal from 'somewhere other than' the energy stored in the capacitors." 621 F. App'x. at 1014. In the '907 patent claims, the switch down-converts the baseband signal before it reaches the capacitors, and, when the switch is closed, that down-converted signal is provided directly to the load. The signal is thus obtained "from 'somewhere other than' the energy stored in the capacitors." *Id.* In further contrast to the "generating" limitation in the *ParkerVision I* claims, the '907 patent claims simply recite that the "energy provided to the load [from the periodic couplings of a switch] forms" a down-converted signal. Appx425. The claim recites, that is, a signal that is formed through samples of already down-converted energy.

Nothing in *ParkerVision I* precludes a finding of infringement in this case. Appx10077-10078, Appx10091, Appx61598-61603, Appx61607.

Significantly, the Patent Office agreed that the '907 patent claims are different from the claims in *ParkerVision I*. The '907 patent is a continuation patent that descends from the '551 patent at issue in *ParkerVision I*. But the '907 patent was issued without any rejection for obviousness-type double patenting—reflecting the Patent Office's view, acknowledged by the district court, that the claims in the '907 patent are different in scope from those in the '551 patent. Appx10335.

The receiver claims of both the '940 and '907 patents thus raise questions of infringement that were neither addressed nor resolved in the prior litigation. As a matter of law, therefore, there is no “identity of the issues” sufficient to justify application of collateral estoppel in this case based on *ParkerVision I*.

2. The district court's application of collateral estoppel based on *ParkerVision I* is unsupported and incorrect.

Because collateral estoppel raises a legal question to be answered *de novo* by this Court, the district court's analysis and conclusion that estoppel applies receives no weight in this appeal. It can bear little weight, in any event.

(a) To start, the district court's summary judgment order contained *no analysis* of the actual language found in any of the receiver claims of the '940 or '907 patents. *None*. Appx7-9. The district court simply posited that the receiver claims “at issue here have the same requirements as the claims in *ParkerVision I*, including the

‘generating limitation.’” Appx7. That was error. As a matter of law, these “separate patents” are presumed to “describe separate and distinct inventions.” *Comair Rotron*, 49 F.3d at 1539. The contrary conclusion that separate patents describe the same invention, with the same requirements, thus requires substantive analytical support. *See id.*; *cf. TecSec, Inc. v. Adobe Sys.*, 658 F. App’x. 570, 586 (Fed. Cir. 2016) (unpublished) (rejecting a district court’s conclusion “that the scope of ... claims was identical without analysis” and explaining that determining “relative claim scope” is “not an easy issue admitting of such a cursory conclusion”).

The district court did give some indication of its thought processes at the hearing. *See* Appx61010 (“[T]his shouldn’t be tried to a jury, in my opinion. They will never understand. This should be PTAB 100 percent. We should be out of it, but that’s how it is.”), Appx61035 (“So let’s assume collateral estoppel applies. What’s the affect here? What exactly is out, which patents, which claims?”), Appx60994 (“Does this eliminate claims 24 and 331 of ’940 and 1 and 10 of ’907[?]”). But its summary judgment order offered no analysis of the receiver claims in the ’940 and ’907 patents that the court found indistinguishable—as a matter of claim scope, as a matter of law—from the claims in *ParkerVision I*. Appx7-9.

(b) When the district court *did* analyze receiver claims with an eye toward collateral estoppel, it found the claims here materially different from those in *ParkerVision I*. In 2019, at ParkerVision’s urging, the district court ordered

Qualcomm to file an early motion for summary judgment on collateral estoppel. The court explained that “the unique posture of this case renders [Qualcomm’s early] motion ... an appropriate vehicle for determining whether the parties should invest energy and expense litigating the infringement allegations arising from the receiver” claims of the ’907 patent, on which Qualcomm moved. Appx10329.

After examining the claims, the parties’ contentions, and the record evidence, the district court denied Qualcomm’s motion in January 2020. The court recognized the dispositive differences between the claims of the ’907 patent and the claims in *ParkerVision I*: in contrast to the claims in the prior litigation, the receiver claims of the ’907 patent require “a ‘down-converted signal’ formed in a load using energy taken directly from the electromagnetic signal, without charging and discharging a capacitor.” Appx10343, Appx10077-10078, Appx10091. While the court framed its denial of Qualcomm’s motion in standard summary judgment terms—finding “a material issue of fact precluding summary judgment as to the ’907 patent” (Appx10344)—the issues decided, relating to claim scope and application of collateral estoppel, are issues of law based on claim language in the ’907 patent. And that claim language did not change between the court’s decision in 2020 and its subsequent summary judgment order in 2022. Appx61592-61593.

The district court’s 2022 summary judgment order was not only silent as to the claim language; it was also silent as to the 2020 order. Appx7-9. That was also

error, as the prior order was law of the case. Appx10343-10345. This doctrine “posits that when a court decides upon a rule of law, that decision should continue to govern the same issues in subsequent stages of the same case.” *Arizona v. California*, 460 U.S. 605, 618 (1983); *Magwood v. Jones*, 472 F. Supp. 2d 1333, 1338-39 (11th Cir. 2007). The rule “promotes the finality and efficiency of the judicial process” by “protecting against the agitation of settled issues,” and is applicable “until final judgment in the case.” 18 MOORE’S FEDERAL PRACTICE - CIVIL § 134.20 (2022). The rule also “directs a court’s discretion,” *Arizona*, 460 U.S. at 618, and the district court abused that discretion in failing even to acknowledge its 2020 order—particularly where that order was issued for the purpose of promoting the finality and efficiency of the judicial process, and to ensure that the parties did not continue to “invest energy and expense litigating ... infringement allegations” that might later be found estopped based on *ParkerVision I*. Appx10329, Appx10343-10344.

(c) Rather than undertaking an analysis of claim scope in its 2022 order, the district court simply credited the opinion of Qualcomm’s expert that the receiver claims “at issue here have the same requirements as the claims in *ParkerVision I*, including the ‘generating limitation.’” Appx7. This was a multi-layered error.

Questions of claim scope—and the determination that claims “have the same requirements,” including the same “generating” limitation (Appx7)—are questions of law for the court, not for the jury, nor for an expert offering opinions on factual

issues to be resolved by the jury. *Markman v. Westview Instruments*, 517 U.S. 370, 391 (1996); *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 325-26 (2015); *ArcelorMittal Atlantique et Lorraine v. AK Steel Corp.*, 908 F.3d 1267, 1274 (Fed. Cir. 2018). And there was no question of any technical language for which extrinsic evidence might help to “establish a usage of trade or locality.” *Teva*, 574 U.S. at 326. The district court thus was not free to abdicate its own responsibility to determine “whether a particular claim in a patent case is the same as or separate from another claim” in a prior patent case. *See Aspex Eyewear*, 672 F.3d at 1341 n.1.

In any event, the fact-based opinions that the district court appeared to credit provide no support for the court’s conclusion. Instead, the portions of the reports cited—principally “charts” purporting to “show the parallels between certain claims asserted in *ParkerVision I* and various claims asserted in this litigation” (Appx49082)—*confirm the dispositive differences* between the claims here and those in the prior case. Appx7 (citing Appx49082-49103, Appx50444-50461, Appx50497-50500). With respect to the ’940 patent receiver claims, for example, Qualcomm’s expert report included “a chart of claims 24 and 331 of the ’940 Patent against claim 23 of the ’551 Patent” from *ParkerVision I*:

‘551 Patent, claim 23	‘940 Patent, claims 24 and 331
An apparatus for down-converting a carrier signal to a lower frequency signal, comprising:	The apparatus of claim 22, wherein said receiving subsystem comprises: an aliasing module, further comprising:
<p>an energy transfer signal generator; a switch module controlled by said energy transfer signal generator; and a storage module coupled to said switch module; wherein said storage module receives non-negligible amounts of energy transferred from a carrier signal at an aliasing rate that is substantially equal to a frequency of the carrier signal plus or minus a frequency of the lower frequency signal, divided by n where n represents a harmonic or sub-harmonic of the carrier signal, wherein a lower frequency signal is generated from the transferred energy.</p>	<p>(1) a universal frequency translation (UFT) module, said UFT module aliasing an electromagnetic signal according to an aliasing signal having an aliasing rate to down-convert said electromagnetic signal, and transferring energy from said electromagnetic signal at said aliasing rate; (2) a signal generator generating said aliasing signal, said aliasing signal comprising a plurality of pulses having non-negligible apertures; and (3) a storage device storing energy from said UFT module.</p> <p>Claim 331: The apparatus of claim 24, wherein: said signal generator generates an energy transfer signal comprising a string of pulses, said string of pulses controlling opening and closing of a switch to transfer energy from said electromagnetic signal.</p>

Appx49099 (¶ 823). Qualcomm’s expert offered no analysis addressing this chart, or the numerous plain-language differences between the limitations in the respective claims: just the chart with claims printed side-by-side. And reading the claims side-by-side highlights their differences. Even the color scheme chosen by Qualcomm’s expert indicates that, in the ’940 patent claims, the switch down-converts the signal (in purple) before the signal is sent to the storage device (in blue)—just as in the accused products. *ParkerVision I*, 621 F. App’x. at 1012-16.

Qualcomm’s expert reports fared no better with respect to the ’907 patent claims. They included a similar chart comparing representative claim 23 of the ’551 patent against claims 1 and 10 of the ’907 patent. But in the space next to the critical

claim element in the '907 patent claims—the element on which the district court had based its denial of Qualcomm’s estoppel motion in 2020—the chart left a blank:

‘551 Patent, claim 23	‘907 Patent, claim 1
...	
	providing, during the periodic couplings, energy from the electromagnetic signal to the load; and
<u>wherein a lower frequency signal is</u>	<u>providing, between the periodic couplings,</u>

Appx49083 (excerpted from ¶ 805). Again, Qualcomm’s expert offered no analysis addressing this chart, nor any explanation of its gap on the very element the district court had found dispositive in the prior summary judgment order.

This was highlighted at the hearing (Appx61603-61607, Appx61616-61618), and the district court acknowledged the significance of the argument: “the '907 requires switches to down-convert, which would eliminate the problem with *ParkerVision I*, which is the capacitor doing the down-converting.” Appx61609. But the court did not address the issue in its order. Appx7-9.

(d) The district court did find significant, however, that ParkerVision’s infringement report included no similar charts “compar[ing] claims or elements from the *ParkerVision I* patents to the [r]eceiver [c]laims at issue in this case.” Appx8. Based on this lack of competing expert-created charts, the district court found Qualcomm’s expert opinion “unrebutted,” and “no material dispute over whether the claims at issue here are materially similar to those in *ParkerVision I*.” Appx8.

This reflects another multi-layered error. (1) The district court had already decided the estoppel issue, which decision was law of the case. (2) The question of relative claim scope is one of law for the court, not one of fact subject to a battle of the experts. (3) There was no need for competing charts, as the charts in Qualcomm’s reports confirmed the claims were *not* of the same scope. (4) It would have been improper for ParkerVision’s infringement report to chart claims from *ParkerVision I*—there was no allegation of infringement on those claims, and the infringement report was properly confined to opinions that ParkerVision’s expert intended to offer to the jury. (5) Even so, there *was* an expert affidavit from ParkerVision’s expert in the record directly addressing this issue. Appx10091. (6) Further, ParkerVision’s expert report *did* contain substantial explanation regarding how and why the receiver claims in this case differed from the invention in *ParkerVision I*, including how these claims recite down-conversion by switches. Appx44111-44113, Appx61598-61607.

The district court plainly erred in finding “no material dispute over whether the claims at issue here are materially similar to those in *ParkerVision I*.” Appx8.

(e) The final step in the district court’s brief analysis was its assertion that “ParkerVision’s expert conceded that the patents-at-issue require the production of a lower-frequency signal using energy that has been transferred from a higher-frequency signal into a storage medium.” Appx8 (citing Appx42088). But in the same deposition passage cited by the court, ParkerVision’s expert explained that

“‘[d]own-converting’ means we’re going to a lower-frequency signal,” which happens when energy is transferred “from the electromagnetic signal at the aliasing rate”—that is, by the switch. Appx42088. That a portion of this energy is transferred into a storage medium does not suggest that the receiver claims here are the same as the receiver claims in *ParkerVision I*. And again, claim scope is a legal question. Fact-based deposition testimony from an infringement expert cannot show that plainly different elements with plainly different language have the same scope.

Nothing in the district court’s order, or in any fact-based expert dispute ginned up by Qualcomm’s counsel, suggests that the receiver claims of the ’940 and ’907 patents contain “the same [claim] limitation, in the same context, that [this Court] found dispositive of non-infringement” in *ParkerVision I*. See *Aspex Eyewear*, 713 F.3d at 1381; *Comair Rotron*, 49 F.3d at 1539. Reversal is appropriate.

C. The District Court Erred in Applying Collateral Estoppel to the Transmitter Claims in the ’940 Patent.

The district court also improperly applied collateral estoppel against ParkerVision based on the IPR proceeding that *affirmed the continuing validity* of “certain method claims of the ’940 patent”—including independent claim 25 and dependent claims 26, 368, and 369 of the ’940 patent, asserted as the “transmitter claims” here. Appx26, Appx150, Appx164; *ParkerVision*, 903 F.3d at 1357.

The district court noted that, in “the instant case, [Qualcomm] asserted prior art reference[s] to invalidate” the transmitter claims of the ’940 patent. Appx26. And

in the '940 patent IPR, the court reasoned, the “Board made factual findings concerning the teachings of the [same] prior art, and those findings were critical and necessary to the Board’s judgment that Qualcomm failed to carry the burden of proving invalidity.” Appx26. Thus, according to the district court, *Qualcomm’s failure* (as the losing petitioner) to invalidate claims in the '940 patent IPR triggered collateral estoppel *against ParkerVision* (as the winning patent owner) with respect to Qualcomm’s arguments in this litigation *on the same prior art*, alleging invalidity *of the same winning patent claims*. Appx26. And the district court granted Qualcomm’s motion “to strike opinions that have been estopped by” the '940 patent IPR on this basis. Appx34. In effect, the court precluded ParkerVision from presenting evidence defending the validity of these claims based on a judgment affirming their validity. That was legal error for a number of reasons.

(1) The Supreme Court’s decision in *B&B Hardware* holds that a statutory estoppel provision necessarily trumps application of judge-made estoppel, and IPRs are governed by a statutory estoppel provision. *See B&B Hardware, Inc. v. Hargis Indus.*, 575 U.S. 138, 148 (2015) (noting the priority of any “statutory purpose” for the application of estoppel); 35 U.S.C. § 315 (providing statutory rules for estoppel relating to IPRs). That statutory provision holds, in turn, that once an IPR results in a final written decision, *the petitioner*—Qualcomm—is estopped from arguing that “the claim is invalid on any ground that the petitioner raised or reasonably could

have raised during” that IPR. *Id.* § 315(e); *see also Cal. Inst. of Tech. v. Broadcom Ltd.*, 25 F.4th 976, 991 (Fed. Cir. 2022) (affirming decision barring former petitioners from subsequently raising invalidity challenges based on prior art references that were or reasonably could have been included in the IPR petition).

But the district court held that, following ParkerVision’s success in the ’940 patent IPR, ParkerVision as *the patent owner* was estopped from defending against Qualcomm’s arguments that the claim was invalid under *the same prior art references* asserted in the IPR. Appx26. This turned the controlling estoppel rules upside down. The Board’s judgment that the method claims of the ’940 patent survived meant that estoppel applied to preclude *Qualcomm* from arguing for invalidity of those claims on the same grounds; it did not preclude *ParkerVision* from defending against allegations of invalidity on the same grounds.³ *See Cal. Inst. of Tech.*, 25 F.4th at 991. That is, the Board’s judgment did not preclude ParkerVision from defending the results of the Board’s judgment. Appx26, Appx54773-54779, Appx61624. The district court erred in concluding otherwise.

(2) Even putting the controlling statutory estoppel provision aside, the district court’s application of judge-made collateral estoppel was fatally flawed.

³ ParkerVision filed a summary judgment motion on statutory estoppel, also argued at the hearing. The district court did not address it in its orders disposing of the case.

Under the court’s cited authority, collateral estoppel only applies as to issues that are *critical and necessary* to the *judgment* at issue. Appx24; *see also CSX*, 327 F.3d at 1317; *Voter Verified*, 887 F.3d at 1382-83. The only fact-finding *critical and necessary* to the *judgment* that Qualcomm “failed to carry [its] burden”—and that the method claims of the ’940 patent were not shown to be unpatentable—was the finding that there was no evidence that “a person of ordinary skill in the art would have any reason to’ operate [the prior art] with inputs that would produce the required ‘plurality of harmonics.’” *ParkerVision*, 903 F.3d at 1363. None of the Board’s other findings regarding the prior art were critical and necessary to its judgment upholding the transmitter claims of the ’940 patent: the Board could have assumed without deciding all of those factual issues and still have reached the same judgment. Thus, none of the other “factual findings concerning the teachings of the prior art” (Appx26) could have triggered collateral estoppel.

(3) Collateral estoppel is further subject to well-known exceptions, one of which involves circumstances present here: there is no estoppel on an issue when the first action requires proof only by a preponderance of the evidence on that issue, and the later action requires proof by clear and convincing evidence. *See B&B Hardware*, 575 U.S. 138, 154 (“[I]ssues are not identical if the second action involves application of a different legal standard, even though the factual setting of both suits may be the same.”); *see also id.* at 148 (explaining that the Court

“regularly turns to the Restatement (Second) of Judgments” for statements of “the ordinary elements” of and “well-known exceptions” to issue preclusion); RESTATEMENT (SECOND) OF JUDGMENTS § 28(4) (1982) (identifying one such well-known exception as arising when the party seeking preclusion in the second action “has a significantly heavier burden than he had in the first action”). Indeed, it is black-letter law that a “party who has carried the burden of establishing an issue by a preponderance of the evidence is not entitled to assert preclusion in a later action that requires proof of the same issue by a higher standard.” 18 *Charles Alan Wright & Arthur R. Miller*, FEDERAL PRACTICE & PROCEDURE § 4422 (3d ed. 1998).

Under these authorities, any “factual findings concerning the teachings of the prior art” made by the Board under the preponderance burden applicable in the ’940 patent IPR (*see* 35 U.S.C. § 316(e)) do not entitle Qualcomm to assert preclusion as to those findings in this litigation—which requires proof of any issue supporting invalidity by clear and convincing evidence (*see Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91, 95 (2011)). The district court acknowledged that “the burden of proof before the [Board] is lower than the burden [Qualcomm carries] at trial proving invalidity.” Appx26. Nevertheless, “[a]s for factual findings regarding the teachings of prior art references where the Board found Qualcomm failed to prove invalidity,” the district court concluded that “there is no rational basis for disregarding the Board’s determination, affirmed on appeal, simply because the finding is as to an

element of the defense.” Appx26. The “rational basis” for this estoppel rule is found in *i4i*, *B&B Hardware*, the Restatement, and *Wright & Miller*—the fact that a litigant met a preponderance burden in one case does not excuse the litigant from the need to meet a higher clear-and-convincing burden in another case.

The district court erred in concluding otherwise, and its order granting Qualcomm’s motion for application of collateral estoppel against ParkerVision, based on ParkerVision’s win in the ’940 patent IPR (Appx34), should be vacated.⁴

D. The District Court Erred in Striking Admittedly Reliable Testimony Based Solely on the Absence Of a Self-Generated Simulation.

The transmitter claims of the ’940 patent require a “harmonically rich signal,” which the parties agreed means a “signal comprised of a plurality of harmonics.” Appx9, Appx150.⁵ The district court granted summary judgment on those transmitter claims on the ground that it had “struck the opinion of ParkerVision’s expert ... on whether the accused products have a harmonically rich signal,” and that left the contrary opinion of Qualcomm’s expert “unrebutted.” Appx9-10. In that

⁴ This district court’s summary judgment order did not rely on this particular application of collateral estoppel. But ParkerVision raises the issue here to ensure that it will not be bound by this erroneous legal determination on any remand.

⁵ The district court identified independent claims 22 and 25 as the asserted transmitter claims of the ’940 patent. Appx9. The asserted transmitter claims also include dependent claims 26, 368, and 369 of the ’940 patent. Appx150, Appx164. But the additional elements in those independent claims played no role in the district court’s summary judgment order, and they are not relevant to any issue on appeal.

underlying order, issued two weeks earlier, the district court granted Qualcomm’s motion to strike the testimony of ParkerVision’s infringement expert as to three claim terms on the ground that ParkerVision’s expert could not reliably testify that those elements were present in the accused products without having first performed a self-generated simulation. Appx32-40. That holding was an abuse of discretion, as it reflects a misapplication of controlling law. Both the underlying order and the summary judgment resting on it should be reversed.

1. The testimony struck by the district court was based—without question—on the *most* reliable sources of evidence.

The *Daubert* gate-keeping function ensures that expert testimony is “supported by appropriate validation—*i.e.*, ‘good grounds,’ based on what is known.” *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 590 (1993). Experts should employ “in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). Reliable expert testimony will also be “sufficiently tied to the facts of the case.” *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1315 (Fed. Cir. 2011). While there is no requirement for “general acceptance” of the expert’s approach, general acceptance will suffice to render the expert’s testimony admissible. *See Daubert*, 509 U.S. at 588, 590.

The accused products in this case are Qualcomm circuits, and ParkerVision’s infringement expert opines that the recited claim elements are present in the design

and operation of those circuits, including, as relevant here, “harmonically rich signal[s],” “gating” and “switch module[s],” and storage devices that store “non-negligible energy.” Appx36-40, Appx48545-48579, Appx51073-51085.

There is no dispute as to what constitutes “good grounds” for determining whether elements are present in the design and operation of a circuit. Engineers and experts analyzing circuits regularly consider circuit schematics; review documents reflecting the results of simulations performed by those who engineered and designed the circuits; testimony of the engineers and designers responsible for the circuits; and, where relevant, mathematical calculations based on standard formulas used by the circuit designers and engineers. Appx33, Appx35, Appx4911-4912, Appx4916, Appx5057-5058, Appx48482-48383, Appx50486. As Qualcomm’s counsel assured the district court, “[s]chematics and technical documents are the type of documents ... that experts in the field would reasonably consider in evaluating the operation of a circuit. That’s undisputed.” Appx61095.

In opining on the presence of the three claim elements at issue, ParkerVision’s infringement expert reasonably considered all of this evidence—unquestionably the best and most reliable evidence available, generated by and for the Qualcomm engineers who design, test, and operate the accused circuits.

(a) Harmonically rich signal. To determine whether the accused circuits satisfy the “harmonically rich signal” claim element, ParkerVision’s expert

considered, among other admittedly reliable evidence, Qualcomm’s “design review documents, testing review documents, schematics, and [Qualcomm’s] simulations in conjunction with mathematical analysis.” Appx33, Appx44079-44083, Appx48386-48387, Appx51523, Appx51614, Appx51745, Appx61332-61335. This evidence included a Qualcomm test review document addressing the simulation results of a harmonic test (Appx51614); a Qualcomm design review document describing harmonics in the accused products (Appx51745); and a figure from a paper published by Qualcomm’s expert reflecting the presence of a plurality of harmonics (Appx44080). To top it off, the opinion was buttressed by the admission of a Qualcomm engineer, in deposition, that the signal put out by the accused products includes “a whole spew of harmonics.” Appx40, Appx51523.

It is hard to conceive of more reliable evidence regarding the design and operation of a circuit than the admission of an engineer responsible for the design and operation of the circuit. Appx51523. Indeed, it was the admission of a testifying witness regarding the operation of the accused circuit—an admission more equivocal than this one—that was found dispositive in *ParkerVision I*, 621 F. App’x. at 1016. As Qualcomm’s counsel put it in this case, “[o]nce you have the design documents and those admissions, there’s nothing left really to simulate.” Appx4912. “End of story.” Appx4916. Another Qualcomm witness, its senior director of engineering,

testified under oath that the evidence ParkerVision's expert relied upon would have been sufficient *even without* the admission. Appx5057-5058.

There can be no substantial dispute that the evidence relied upon by ParkerVision's expert to find a "plurality of harmonics" in the accused products constituted "'good grounds,' based on what is known" about those products, from those who know most about those products. *See Daubert*, 509 U.S. at 590.

(b) Gating and switch modules. In the same order, and for the same reasons, the district court struck ParkerVision's expert testimony on the presence of the claimed "gating" and "switch module" elements in Qualcomm's accused circuits. Appx37-39. "Switch module" was construed as "device with an input and output that can take two states, open and closed, as dictated by an independent control input." Appx10386. And "gating" was construed as "changing between the open and closed states of a device that can take two states, open and closed, as dictated by an independent control input." Appx10392. In short, these are relatively straightforward circuit elements, easily identified on any schematic: switches that open and close.

To determine whether the accused circuits satisfy the "gating" and "switch module" claim elements, ParkerVision's expert considered, again, Qualcomm's circuit schematics, design and test review documents, and the admissions at deposition of a Qualcomm engineer. As the district court noted, ParkerVision's expert "report contains numerous references to gating, and he identifies switches on

schematics which he contends perform[] the gating function.” Appx38, Appx48386, Appx51334-51336, Appx51363, Appx61329-61330. The design documents further confirmed that the accused elements operate as switches. Appx51363. And a Qualcomm engineer confirmed in deposition that the accused circuits contain gates that take the required open and closed states. Appx38, Appx61329-61330.

Again, there can be no substantial dispute that the evidence relied upon by ParkerVision’s expert to find “switch module[s]” and “gating” in the accused products constituted “‘good grounds,’ based on what is known” about those products, from those who know most about them. *See Daubert*, 509 U.S. at 590.

(c) Non-negligible energy. Also in the same order, and for the same reasons, the district court struck the testimony of ParkerVision’s expert that the accused circuits store “non-negligible energy” in the identified storage devices. Appx36-37. There is no dispute that measuring the amount of energy in a storage device is accomplished with a standard mathematical calculation, and ParkerVision’s expert applied that mathematical calculation using “information provided by Qualcomm schematics” to show the amount of “energy stored on the capacitor” in the accused products. Appx37, Appx48387, Appx50113, Appx61095-61103.

The district court recognized all of this. Appx37, Appx61319. Nevertheless, it reasoned that, in *ParkerVision I*, this Court applied a construction of “non-negligible amounts of energy” as energy in “amounts that are distinguishable from

noise.” Appx36-37. And, the district court concluded, a noise-added simulation was required to show energy in amounts “distinguishable from noise.” Appx37. But in the prior litigation, this Court held that a “noise-added simulation” *was not required* to show “non-negligible amounts of energy,” or energy in amounts “distinguishable from noise.” *ParkerVision I*, 621 F. App’x. at 1019. And that was in the context of invalidity, in which Qualcomm bore the higher clear-and-convincing burden of proof. *See id.* The result could hardly be different here, where ParkerVision bears the lower preponderance burden of proof.

To preclude the testimony of ParkerVision’s expert on this claim element, the district court would have had to find something unreliable about the standard mathematical models employed by the expert, or the Qualcomm schematics on which the math was based. *See Daubert*, 509 U.S. at 590. But Qualcomm proffered no such arguments, and the court made no such findings.

2. The district court abused its discretion in striking this testimony for failing to rely on a *less* reliable, self-generated simulation.

Notwithstanding the concession of Qualcomm’s counsel that it was “undisputed” that ParkerVision’s infringement expert relied on the “the type of documents” that “experts in the field” consider when “evaluating the operation of a circuit” (Appx61095), and notwithstanding the further admission of Qualcomm’s own engineers that the accused circuits satisfy the harmonics- and switch-related limitations at issue (Appx51523, Appx61109-61110), the district court struck the

testimony of ParkerVision’s expert on ground that he did not further test his document- and admission-based opinions with some newly created, self-generated simulation (Appx36-40). This clearly misapplied controlling law.

This Court has long held that, when an expert has relied upon documents “of the type relied upon by experts,” there is no need for the expert to do any self-generated testing of the accused products. *Monsanto Co. v. David*, 516 F.3d 1009, 1014-16 (Fed. Cir. 2008); *see also Data Line Corp. v. Micro Techs., Inc.*, 813 F.2d 1196, 1200-01 (Fed. Cir. 1987). *ParkerVision I* further demonstrates that an expert-created simulation is not required—even to meet a clear-and-convincing burden—when the record indicates that such a simulation “is not the only way to ascertain” the presence of the limitation. 621 F. App’x. at 1019. *ParkerVision I* confirmed that was true for “non-negligible energy.” *See id.* But it is equally true, if not more so, for the “switch module” and “harmonically rich signal” elements, whose presence is supported by admissions from the Qualcomm engineers who design, test, and operate the accused circuits. Appx38, Appx40, Appx51523, Appx61329-61330.

The district court’s order flies in the face of these authorities. It also contravenes the substantial line of precedent from this Court holding that, because expert testimony must be “sufficiently tied to the facts of the case,” reliance on evidence coming directly from the parties is generally superior to reliance on models and theories generated by the experts themselves, which may begin “from a

fundamentally flawed premise,” and thus lead to a “fundamentally flawed conclusion.” *See Uniloc*, 632 F.3d at 1315; *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009). Indeed, ParkerVision’s expert elected to rely on Qualcomm’s own schematics, design documents, and admissions—and *not* to perform a self-generated simulation—precisely to avoid this potential problem.

The district court recognized, quoting from a circuit design textbook, that simulations can be “necessary to accurately predict detailed circuit behavior.” Appx35 (citing Appx40083). “On the other hand,” as the textbook further explains, “circuit simulation is notoriously prone to errors: *garbage in, garbage out (GIGO)*.” Appx40083. “The simulator accepts the model of reality provided by” the person generating the simulation—that model is called a test bench—and “it is very easy to create a model that is inaccurate or incomplete.” Appx40083. A simulation is less likely to be error-prone, therefore, and more likely to be accurate and complete, if it is generated by “the designer” of the circuit. Appx40083; *see also* Appx35 (citing Appx39964), Appx39964-39965 (explaining how circuit designers “turn to computer simulation methods to confirm the design’s performance,” and then “iterate using the simulation results to improve the circuit’s performance”).

The results of simulations generated by the designers of the accused Qualcomm circuits are reflected in the design and test reviews relied upon by ParkerVision’s expert. Appx33, Appx61320. Those simulations may or may not be

perfectly accurate. But at least they were generated with Qualcomm's own test benches. ParkerVision's expert considered whether to generate his own simulations, but, as he testified, the "test benches" provided to ParkerVision by Qualcomm were "horrible" (Appx32-33, Appx61098)—so he would have had to make a best guess as to many of the inputs, and create his own "model of reality" to be accepted by the simulator (Appx40083). Realizing that any such simulation would be subject to a "garbage in, garbage out" attack (*see* Appx40083, Appx3469), ParkerVision's expert reasonably elected to rely on the evidence that was more clearly reliable, and more closely tied to the facts of the case: Qualcomm's own schematics, design and test reviews, and the deposition testimony of Qualcomm's engineers.

There should be no dispute on this point. Qualcomm's senior director of engineering assured the district court that there was no need to do an independent simulation to accurately understand how the accused products work. Appx5058. Indeed, he testified under oath that Qualcomm's own schematics and design reviews produced in this case—which contain the results of Qualcomm's simulations—were all that any expert would need to accurately determine how the accused products work. Appx5057-5058. ParkerVision's expert relied on those materials. Appx33.

The district court never suggested that the Qualcomm-generated materials on which ParkerVision's expert relied were unreliable. And the court appeared to recognize that *Daubert* imposes no requirement for self-generated simulations.

Appx61319. Nevertheless, it suggested that ParkerVision's expert should have created his own simulations because, at a discovery hearing before a magistrate judge in 2015, ParkerVision indicated that simulations were "feasibl[e]" and could be "importan[t]." Appx33-36. This turns the significance of that hearing on its head.

In May 2015, ParkerVision moved for production of Qualcomm's schematics in native format, rather than PDF, because the electronic versions would be easier to navigate, contain relevant metadata, and facilitate circuit simulations. Appx4828-4831. *ParkerVision I* was pending at that time, and there were disputes in that case regarding the significance and reliability of self-generated simulations. Appx3469, Appx4834. Both sides were set to offer witnesses at the 2015 hearing, and in providing background on what the magistrate would "hear about today," counsel for ParkerVision explained that, "during the course of designing a circuit, it sometimes happens that the engineer thought that it would work a certain way and it doesn't work that way ... it's really not possible to test the actual performance of a circuit in one of these computer chips without simulation." Appx33-34, Appx4831.

Of course, this statement does not suggest that a simulation is necessary to prove the presence of the particular claim elements at issue. Any engineering student can identify a gate from a circuit schematic. Qualcomm's engineers testified that the accused products output a plurality of harmonics. And this Court has held that a noise-added simulation is not necessary to find non-negligible energy. The statement

at the hearing was about the importance of simulation in general. And critically, the Qualcomm circuits *have been simulated*, and those simulations are reflected in the design review documents that—during the same hearing—Qualcomm’s witness testified would provide an accurate understanding of how the accused products work without the need to do any further independent simulation. Appx5058.

ParkerVision made its consistent position clear at the hearing: expert-generated simulations are “not essential. We can still prove our case without” them. Appx5093. Qualcomm effectively took the same position. Appx5093 (“[T]he way simulations become relevant here at all is if [ParkerVision] decide[s] they want to challenge the accuracy of numbers that are in our design review document[s]. That’s what it is all about.”), *see also* Appx4911-4912 (“Once you have the design documents and those admissions, there’s nothing left really to simulate.”). And the magistrate judge, noting the parties’ positions that ParkerVision “maybe didn’t even need simulations” (Appx5098), denied ParkerVision’s motion (Appx5100).

The arguments, testimony, and ruling from that 2015 hearing thus *undermine* the court’s 2022 order. To the extent that there is any issue of judicial estoppel arising from the 2015 hearing, it is that Qualcomm should be estopped from taking any position that is inconsistent with its position there—that expert-generated simulations are *not* necessary (Appx4911-4912, Appx5057-5058, Appx5093)—

upon which the magistrate judge based its decision denying ParkerVision's motion for native-format production. Appx5100.

As a final note, the district court's *Daubert* analysis was also replete with references crediting statements in the report of Qualcomm's expert. Appx37 ("Dr. Razavi is correct"); Appx38 ("However, Dr. Razavi notes in his rebuttal report"); Appx38 ("Dr. Razavi observes in his rebuttal report"); Appx39 ("Dr. Razavi states that Dr. Steer fails to show...."); Appx40 ("Dr. [Razavi] opines in his rebuttal report"). *Daubert*, however, provides no opportunity to credit the testimony of one expert over another: the "gatekeeper role under *Daubert* is not intended to supplant the adversary system or the role of the jury." *Quiet Tech. DC-8*, 326 F.3d at 1341. And "this kind of disagreement between experts ordinarily goes to the credibility of expert testimony, not its admissibility, and is the province of the jury." *Tampa Bay Water v. HDR Eng'g, Inc.*, 731 F.3d 1171, 1185 (11th Cir. 2013). Critically, on the question actually decided by the district court—whether ParkerVision's expert relied on the type of documents "that experts in the field would reasonably consider in evaluating the operation of a circuit"—both Qualcomm and its expert agreed that he did. "That's undisputed." Appx61095.

CONCLUSION

The Court should reverse the judgment and reverse or vacate the underlying orders on summary judgment, collateral estoppel, and *Daubert*, and remand.

Respectfully submitted,

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