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IN THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF TEXAS WACO DIVISION

PARKERVISION, INC.,

Plaintiff,

Case No. 6:20-cv-00108-ADA

v.

JURY TRIAL DEMANDED

INTEL CORPORATION,

Defendant.

PLAINTIFF PARKERVISION, INC.'S MOTION TO EXCLUDE CERTAIN EXPERT TESTIMONY OF DR. VIVEK SUBRAMANIAN

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I. DR. SUBRAMANIAN'S NON-INFRINGEMENT OPINIONS

To demonstrate non-infringement, Intel's expert, Dr. Subramanian, ran simulations of the Accused Chips. Instead of setting up simulations based on Intel schematics and documents to show how the Accused Chips *actually* work, Dr. Subramanian *intentionally* chose to set up simulations in a way that gave him the results that he wanted. This methodology is facially unreliable.

Indeed, Dr. Subramanian's methodology raises immediate suspicions. He *deviated* from Intel's schematics and documents, which showed the configuration and component values for the Accused Chips as well as how Intel set up its own simulations. In some cases, he justified his deviations with the *conclusory* assertion that the changes were merely a "simplification" of the actual circuitry. But in most cases, he justified his deviations by *blindly* relying on discussions he had with three former Intel engineers – which constitute undisclosed expert opinions regarding *their view/opinion* on how the simulations *should be* set up (not how Intel actually set up simulations when testing the Accused Chips).

Tellingly, the names of the engineers consulted and the content of those discussions was never memorialized in Dr. Subramanian's report. Conveniently, at his deposition, Dr. Subramanian no longer remembered the names of all of the engineers he spoke to, the details of these discussions, or who told him what. Even worse, Dr. Subramanian testified that engineers did *not* offer any documentary support for the deviations they suggested nor did Dr. Subramanian ask for such support. None of the engineers that advised Dr. Subramanian submitted their own expert reports, despite the fact that two of them were being paid by Intel for their roles in this litigation (they were apparently paid for their fact testimony).

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Dr. Subramanian relied on the advice of the undisclosed engineers even though he did not know whether those engineers had relevant knowledge to provide him. For example, for some of his deviations, he thought he received information from Dr. Christopher Hull. But, Dr. Hull testified he did *not* work on most of the Accused Chips. And, for the products Dr. Hull worked on, he did not work on the portions of those products for which he provided information to Dr. Subramanian. At bottom, Dr. Subramanian chose to ignore Intel schematics and documents and, instead, *blindly* rely on the undisclosed expert opinions of others and simply assumed their advice was sound.

Using this loose methodology gave Dr. Subramanian free reign to *add* components and use *his own* component values when setting up simulations. He could literally show the Accused Chips behave however he wanted them to behave. Such methodology is patently unreliable.

After the reliability of his analysis was called into question, and to cover up the lack of supporting facts for his simulations, at his deposition, Dr. Subramanian suggested that he had done other *–undisclosed* – simulations that led him to believe that his deviations would not affect his ultimate conclusions. Surprised by this claim, ParkerVision indicated that it would seek discovery of these simulations including metadata to show if, and when, they were actually conducted. Incredibly, Dr. Subramanian then recanted his claims of previous simulations and became unsure that such tests were ever conducted (or when).

All of the above indicate the fundamental unreliability of Dr. Subramanian's expert analysis. Dr. Subramanian should not be allowed to present an inherently unreliable analysis to *mislead* the jury by showing the Accused Chips operating in way that they do not actually operate. Any testimony of Dr. Subramanian regarding his simulations should be excluded.

A. Background

The Accused Chips are transceiver chips used in cellular devices, specifically Intel's SMARTi 4G, 4.5, 5, 6T, 7/7.1, and 8 chips. The claims are directed to the receiver side of the chips. In order to demonstrate infringement of various claim elements, ParkerVision's expert, Dr. Steer, provided 1000 pages of simulation results, setup, and related discussion for all Accused Chips based on (1) Intel chip schematics, (2) components values in Intel's schematics and firmware, (3) depositions of former Intel engineers (including 30b6 witnesses), and (4) Intel documents including Intel test benches that Intel used to setup their own chip simulations.

To rebut Dr. Steer's simulations, Intel's expert, Dr. Subramanian, performed his own simulations. But, unlike Dr. Steer, Dr. Subramanian *purposefully* set up simulations that did not faithfully replicate the Intel chips and component values as set forth in Intel schematics and documents. Instead, Dr. Subramanian chose to rely on the opinions of three former Intel engineers – what is tantamount to *undisclosed expert* testimony – as to how the simulated circuits *should be* set up and what component values should be used. These engineers did *not* provide Dr. Subramanian with any corroborating documents to support their opinions nor did Dr. Subramanian ask for such documents. And Dr. Subramanian does not appear to have confirmed that the engineers had relevant knowledge regarding the specific portions of the chips for which they provided opinions. Notably,

and, even when working at Intel, were not responsible for the portions of the Accused Chips for which they were providing their opinions to Dr. Subramanian.

Dr. Subramanian's expert report did not provide a description of what each engineer opined on or even disclose the names of the engineers from whom he received specific

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opinions.² And, at his deposition, Dr. Subramanian could not recall details of his conversations or who told him what. Thus, ParkerVision could not even test the veracity of the opinions upon which Dr. Subramanian relies.

When ParkerVision criticized Dr. Subramanian's simulations, Dr. Subramanian claimed that he conducted simulations that he purportedly performed prior to, but *withheld* from, his expert report. He then <u>recanted</u> his testimony related to the claimed prior simulations when faced with the prospect that ParkerVision would obtain discovery and metadata which could contradict the timing, conditions, or even existence of the purported simulations.

B. Legal standard

An expert witness may provide opinion testimony only if "(a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case." Fed. R. Evid. 702.

This Court has held that "Rule 26 requires an expert witness to disclose an expert report that contains 'a complete statement of all opinions the witness will express [in testimony] and the basis and reasons for them." *511 Techs., Inc. v. Microchip Tech. Inc.*, No. 6:20-cv-00245-ADA, Dkt. 241 at 9 (W.D. Tex. June 27, 2022) (citing *Rembrandt Vision Techs., L.P. v. Johnson & Johnson Vision Care, Inc.*, 725 F.3d 1377, 1381 (Fed. Cir. 2013).

An expert's unsupported conclusory assertion may be excluded as unreliable. *Matosky v. Manning*, 428 F. App'x 293, 298 (5th Cir. 2011) (district court did not abuse its discretion in

² At his deposition, Dr. Subramanian identified: 1) Dr. Christopher Hull, (2) Dr. Bernd-Ulrich Klepser (who he could not remember), and (3) Dr. Werner Schelmbauer.

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determining that the expert's conclusory assertion was unreliable and should be excluded); see also Kumho Tire Co. v. Carmichael, 526 U.S. 137, 147 (1999).

"Experts must undertake their own analyses and *may <u>not</u> blindly rely* on the opinions of others." *Ravgen, Inc. v. Labs. of Am. Holdings*, Case No. 6:20-cv-00969-ADA, ECF No. 230 at 3 (W.D. Tex. Oct. 4, 2022)³ (citing *Genband US LLC v. Metaswitch Networks Corp.*, No. 2:14- cv-00033-JRG-RSP, 2015 WL 12911530, at *2 (E.D. Tex. Sept. 30, 2015)).

C. Dr. Subramanian should be precluded from discussing his simulation at trial

The way in which Dr. Subramanian set up his simulations affected the results of those simulations, making them unreliable. As discussed below, Dr. Subramanian's testimony is not based on sufficient facts or data and it is the product of unreliable principles and methods.

Moreover, Dr. Subramanian has not reliably applied the principles and methods to the facts of the case. Thus, Dr. Subramanian should be precluded from discussing these opinions at trial.

There are three main problems with Dr. Subramanian's simulations: (1) based solely on undisclosed opinions of former Intel engineers, he included

; (2) based solely on <u>undisclosed</u> opinions of former Intel engineers, he made up component values that are different than those specifically shown in Intel schematics and documents; and (3) under the guise of "simplification," he failed to setup transistors the same way they are setup in Intel schematics and documents. Each of these problems individually change the nature of the circuits being simulated and affects Dr. Subramanian's simulation results, making them wholly unreliable. But when taken together, these issues compound

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³ Unless otherwise noted, all emphasis has been added.

themselves, making things even worse. In a nutshell, the simulations are misleading and do not show what is actually occurring in the Accused Chips.

1	Dr. Subramanian's inclusion of transmission lines for SMARTi 5, 6, and 8. When setting up his simulations for SMARTi 5, 6, and 8, Dr. Subramanian included a
	. See Ex. 1, Subramanian Rebuttal Report at n. 12; se
les Es	
iso Ex.	2 at 155:6-155:19.
ee Ex.	1 at p. 77, Appendix A at p. 109.
I	Or. Subramanian admitted that, other than for SMARTi 4G and 7, his simulations
ncluded	Ex. 2 at 156:7-
57:24.	168:2-169:2, 212:15-213:5. The characteristics of
,	

This change is significant because the patent claims require a "storage"
element/module/device, which the Court construed to be an element/module/device of an energy
transfer system that stores non-negligible amount of energy. Dr. Subramanian's entire argument
regarding this term is that
By doing so, he artificially added the very thing he says
demonstrates non-infringement knowing this would affect what his simulation results showed.
Indeed, when presented with the diagram (above left) at his deposition (showing inductor
L and capacitor C), he admitted that
. The sole basis for Dr. Subramanian's inclusion of a

). Finally, Dr. Subramanian admitted that
Realizing he had a problem, on day 2 of his deposition, Dr. Subramanian

E. Dr. Subramanian's use of made-up component values.

Dr. Subramanian further deviated from the actual Accused Chips, making his simulation even less reliable. Specifically, though Intel's schematics and documents provided the component values of the Accused Chips, Dr. Subramanian decided to ignore these values.

Instead, he relied on *undisclosed* opinions of the former Intel engineers to justify using *different* values. As with his other deviations, Dr. Subramanian could not clearly remember which engineer opined regarding the propriety of making this change or whether that engineer worked on the relevant portion of the chip. Dr. Subramanian straightforwardly admitted that

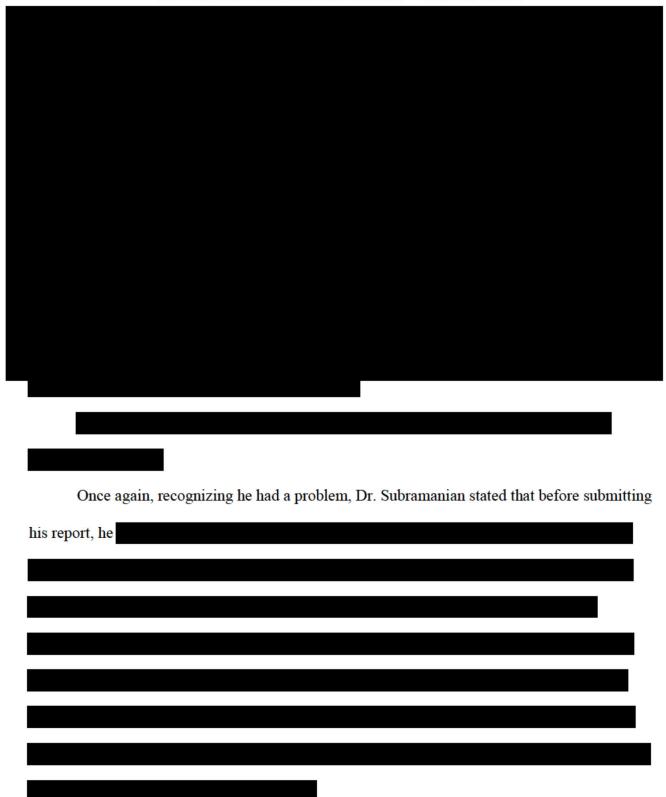


Ex. 1 at ¶276; see also Ex. 1, Appendix A at pp. 133-134.

These changes are significant because the patent claims are directed to an *energy transfer* system – a system that is transferring/storing energy from the RF signal and using that energy in a down-converted signal. Dr. Subramanian apparently altered the values in order to *minimize* energy transfer and storage in his simulation results. In other words, he did everything he could to inconspicuously affect energy storage/transfer.

RF signal amplitude (rf V): Dr. Subramanian provided

Using an RF signal with a lower signal amplitude results in less power/energy to start
with and, thus, less energy stored in/transferred through the Accused Chips.
RF source resistance (i.e., internal LNA Zout): Dr. Subramanian used a
As shown below,



After being informed that ParkerVision would seek metadata showing dates of

After being informed that I arker vision would seek metadata showing dates of
Using a lower source resistance, once again, results in less power/energy in the Accused
Chips and, thus, less energy stored in/transferred through the Accused Chips.
Mixer transistor width (Mixer W): Dr. Subramanian admitted that
Dr. Subramanian <u>admitted</u> that

Like the other deviations, Dr. Subramanian purposefully
Again, to shield himself from the effects of this known problem with his analysis, Dr.
Subramanian stated

Dr. Subramanian should not be able to <i>mislead</i> the jury with
<u>Transmission line inductance and resistance</u> : As discussed in Section I.D above, Dr.
Subramanian
Subramaman
F. Dr. Subramanian's setup of transistors.
Dr. Subramanian made his simulations even more unreliable based on
Intel documents clearly show that

CONFIDENTIAL – ATTORNEY EYES' ONLY OUTSIDE COUNSEL RESTRICTED – SCHEMATICS Ex. 10 at 921, 923. At his deposition, Dr. Subramanian admitted Dr. Subramanian admits that

Unbelievably, although he never mentions the proper setup in his expert report, Dr.
Subramanian testified that
G. Other issues affecting Dr. Subramanian's simulation results.
On top of all of this, Dr. Subramanian
H. Dr. Subramanian's undisclosed simulations.
After the problems with his analysis were identified at his deposition, as discussed above,
Dr. Subramanian testified that

·
In addition, Dr. Subramanian testified that, in response to criticism from Dr. Steer, he
As such, Dr. Subramanian should be precluded from testifying about
His methodology simply cannot be considered
reliable.

II. DR. SUBRAMANIAN'S INVALIDITY OPINIONS

Dr. Subramanian did not perform a proper invalidity analysis. Rather than performing a comparison between the asserted claims and the prior art as understood by a POSITA (as the law requires), Dr. Subramanian compared his view of ParkerVision's infringement theory (which he disagrees with) to the prior art. Such an analysis is impermissible and unreliable. Indeed, Dr.

⁶ Unsolicited, Intel provided only native files related to Dr. Subramanian's post-report simulations late in the evening the day before this motion was due.

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Subramanian admits that under a legally proper analysis, the prior art he relies upon does not disclose claim elements in the asserted claims. Thus, Dr. Subramanian's unreliable expert opinion regarding validity of the asserted claims should be excluded.

Dr. Subramanian's validity opinions should also be excluded because he declined to provide any simulations indicating the existence of claim elements in the prior art. He thought it necessary and important to run the simulations (discussed above in Section I) to make out his case (albeit manufactured through unreliable deviations) that claim elements were not present in the Accused Chips. Yet, when it came to invalidity, for which Intel has a higher burden of proof, Dr. Subramanian does not provide any equivalent simulations to show the claim elements are present in the prior art.

This dichotomy in methodology highlights that the unreliability of Dr. Subramanian's opinions regarding invalidity. Thus, Dr. Subramanian should be precluded from testifying as to the existence of claim elements in the prior art where he provided a simulation for the element for non-infringement but did not provide a corresponding simulation for invalidity.

A. Background

ParkerVision's expert, Dr. Steer, submitted an opinion that Intel's Accused Chips infringe various claims of U.S. Patent No. 6,580,902 (the "'902 patent"); 7,539,474 (the "'474 patent"); 8,588,725 (the "'725 patent"); 9,118,528 (the "'528 patent); 9,246,736 (the "'736 patent) and 9,444,673 (the "'673 patent").

Intel's expert, Dr. Subramanian, alleges the infringed claims are invalid in view of seven main prior art references: Razavi, Schultes, Traylor, BBA2, RF100, PMB 2407, and Tayloe.

Although Dr. Subramanian <u>disagrees</u> with Dr. Steer's theories, principles and methodologies regarding infringement, he bases his invalidity opinions on Dr. Steer's infringement theories.

B. Legal standard

Validity must be assessed from the perspective of a POSITA. Sundance, Inc. v. Demonte Fabricating Ltd., 550 F.3d 1356, 1363 (Fed. Cir. 2008); see also Genband US LLC v. Metaswitch Networks Corp., Case No. 2:14-cv-00033, 2015 U.S. Dist. LEXIS 17646, at *7-8 (E.D. Tex. Sept. 30, 2015).

"Experts must undertake their own analyses and may not blindly rely on the opinions of others." *Ravgen*, ECF No. 230 at 3 (W.D. Tex. Oct. 4, 2022) (citing *Genband US LLC v. Metaswitch Networks Corp.*, No. 2:14- cv-00033-JRG-RSP, 2015 WL 12911530, at *2 (E.D. Tex. Sept. 30, 2015)); *see also In re TMI Litig.*, 193 F.3d 613, 716 (3d Cir. 1999) (An expert's "failure to assess the validity of the opinions of the experts he relied upon together with his unblinking reliance on those experts' opinions, demonstrates that the methodology he used to formulate his opinion was flawed under Daubert as it was not calculated to produce reliable results.")).

Accordingly, an expert may <u>not</u> offer an opinion that he/she believes to be incorrect or unreliable. *Genband*, 2015 U.S. Dist. LEXIS 176746, at *7 "The expert must apply her expertise to "assess the validity" of each opinion she offers and endorse it." *Id.* "[I]f an expert disagrees with the principles and methods embodied in an adverse party's infringement theory, that expert is <u>not</u> permitted under Rule 702 to apply the adverse party's infringement theory to affirmatively conclude that the patent is invalid." *Id.* at *7-8; see also Metaswitch Networks Ltd. v. Genband US LLC, Case No. 2:14-cv-744-JRG-RSP, 2016 U.S. Dist. LEXIS 28289, at *18 (E.D. Tex. Mar. 7, 2016) ("This holding is premised on the fact that a party alleging invalidity must meet an affirmative burden of proof to show that the patent is invalid. A party cannot meet this burden by offering expert testimony that relies on an infringement analysis the expert

disagrees with.") "[I]f Expert A disagrees with the methodology employed by Expert B, then Expert A is not permitted to apply Expert B's methodology to arrive at conclusions she does not endorse." *Genband*, 2015 U.S. Dist. LEXIS 176746, at *8.

C. Dr. Subramanian should be precluded from testifying about invalidity.

In forming his opinions regarding invalidity, Dr. Subramanian focuses on Dr. Steer's infringement theories rather than comparing the claims of the asserted patents to the prior art as a POSITA would understand it.

In particular, Dr. Subramanian *disagrees* with Dr. Steer's theories, principles and methodologies regarding infringement. Yet, rather than providing his opinions based on how a POSITA *actually* understands the teachings of the prior art, Dr. Subramanian bases his invalidity position on ParkerVision's infringement theory. Notably, Dr. Subramanian references that his opinion is based on ParkerVision's theory of infringement over *1500 times*. Thus, the methodology Dr. Subramanian used to formulate his opinion is flawed under Daubert as it was not calculated to produce reliable result. *Genband*, 2015 U.S. Dist. LEXIS 176746, at *8.

For example, all of asserted claims (other than claim 5 of the '673 patent) require a "storage" element/module/device. Dr. Subramanian, however, does not believe that this element is found in any prior art references as would be understood by a POSITA. He admits this. Instead, Dr. Subramanian states that capacitors in the prior art meet this requirement *based on ParkerVision's infringement theory*. See e.g., Ex. 7 at ¶¶ 492, 493, 584, 643, 736, 764, 806 (Razavi); *id.* at ¶¶ 906, 909, 1003-1005, 1048, 1150, 1178, 1218 (Schultes); *id.* at ¶¶ 1280, 1281, 1410, 1455, 1458, 1549, 1577, 1617 (Traylor); *id.* at ¶¶ 1695, 1696, 1794, 1838, 1933, 1961, 1999 (BBA2); *id.* at ¶¶ 2066, 2068, 2069, 2157, 2158, 2205, 2297, 2325, 2365 (RF100); *id.* at ¶¶ 1999 (BBA2); *id.* at ¶¶ 2066, 2068, 2069, 2157, 2158, 2205, 2297, 2325, 2365 (RF100); *id.* at ¶¶

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2461, 2462, 2557, 2603, 2702, 2730, 2769 (PMB 2407); *id.* at ¶¶ 2857, 2858, 2974, 3023, 3119, 3147, 3189 (Tayloe).

Indeed, in order to demonstrate that the prior art includes a "storage" element/module/device that stores non-negligible amounts of energy as the Court construction requires, Dr. Subramanian relied only on a contorted reading of ParkerVision's final infringement contentions regarding how this requirement is met. *See* Ex. 8 at 593-598 (discussing Intel reinterpretation of ParkerVision's position). Dr. Subramanian then states that under ParkerVision infringement theory (although he disagrees with the theory), capacitors in the prior art would store non-negligible amounts of energy. But he does not analyze the relevant issue - whether a POSITA understands prior art capacitors store a non-negligible amounts of energy apart from ParkerVision infringement theory which he rejects. Even then, Dr. Subramanian bases his opinion on the unsupported conclusory assertion that capacitors in prior art reference store non-negligible amounts of energy merely because they are filters and work. *See e.g.*, Ex. 7 at ¶493. This is not reliable scientific analysis.

Moreover, all of the asserted claims require "sample," "sampling" or "sampling aperture." Dr. Subramanian also does <u>not</u> believe that Razavi, Schultes, BBA2, RF100, or PMB 2407 "sample," perform "sampling" or have "sampling apertures." He also admits this. Yet, Dr. Subramanian states that these elements are found in these references *under ParkerVision's* infringement theory. See e.g., Ex. 7 at ¶¶ 487, 1063 (Razavi); id. at ¶ 881 (Schultes); id. at ¶ 1688 (BBA2); id. at ¶ 2058 (RF100); id. at ¶ 2444 (PMB 2407). Likewise, Dr. Subramanian does <u>not</u> believe that Razavi, Schultes, Traylor, BBA2, RF100, or PMB 2407 have capacitors that "output[] a down-converted in-phase baseband signal portion of said modulated carrier signal." He also admits this. Instead, he states that this element is found in these references only *under*

ParkerVision's infringement theory. See e.g., Ex. 7 at ¶ 494 (Razavi), id. at ¶ 907 (Schultes), id. at ¶ 1282 (Traylor); id. at ¶ 1698 (BBA2); id. at ¶ 2067 (RF100); id. at ¶ 2462 (PMB 2407).

Dr. Subramanian may disagree with the principles and methods in Dr. Steer's infringement theory and he is permitted to criticize Dr. Steer's analysis. But, with respect to invalidity, Dr. Subramanian must compare the claims of the asserted patent as understood by a POSITA to the prior art. He declines to do that. In fact, he admits the if he does that, claim elements of the asserted patents are *not* disclosed in the prior art. Thus, the asserted claims are *valid*. Dr. Subramanian should not be permitted under Fed. R. Evid. 702 to apply Dr. Steer's infringement theory (which he disagrees with) to affirmatively conclude that the asserted claims are invalid when he admits that a proper invalidity analysis indicates that the claims are valid. Accordingly, given that all prior art references and all asserted claims are affected by Dr. Subramanian's flawed analysis, Dr. Subramanian opinions regarding invalidity of all asserted claim for all prior art references should be excluded.

D. Validity opinion that omits simulations should be excluded.

Given Dr. Subramanian's view that simulations were necessary to show non-infringement, he should have performed similar simulations to show the same elements in the prior art references he relies on. After all, Intel has an even *higher burden* to prove invalidity. Yet, other than with regard to Razavi capacitors charging and discharging energy, Dr. Subramanian failed to perform any simulations related to the prior art references.

As to his simulation of Razavi, Dr. Subramanian stated that he performed this simulation based on the way Dr. Steer set up his simulations of the Accused Chips. Dr. Subramanian testified, however, that he believes such a setup (following Dr. Steer's infringement setup) was *wrong*. Ex. 4 at 510:10-511:5 (when discussing using Dr. Steer's methodology for Razavi,

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stating that "I've already told you that I thought that methodology was wrong. So I have accepted, and in fact I'm starting from the assumption that I'm going to use that even though I think it's wrong, and then I'm using it. So to say it's okay for me to do it and not okay for him to do is not the right way to look at it. Because I am telling you it's not okay. But I did it here to do what he did.").

Dr. Subramanian should not be able to affirmatively present to the jury a setup which, in his view, would be unreliable and produce unreliable results. *See Genband*, 2015 U.S. Dist. LEXIS 176746, at *7-8 ("[I]f an expert disagrees with the principles and methods embodied in an adverse party's infringement theory, that expert is not permitted under Rule 702 to apply the adverse party's infringement theory to affirmatively conclude that the patent is invalid."); *see also Metaswitch*, 2016 U.S. Dist. LEXIS 28289, at *18.

Accordingly, with regard to prior art references, Dr. Subramanian should be precluded from testifying as to the existence of claim elements in the prior art where he provided a simulation for the element for non-infringement but did not provide a corresponding simulation for invalidity.

Dated: October 28, 2022 Respectfully submitted,

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