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Pinging into Evidence: The Implications of Historical Cell Site Location Information

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PINGING INTO EVIDENCE: THE IMPLICATIONS OF HISTORICAL
CELL SITE LOCATION INFORMATION

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I. INTRODUCTION

In November, 2015, Bobby Newman, at 22 years of age, was accused of strangling his ex-girlfriend and leaving her body in the woods near the New River Gorge. His ex-girlfriend, Shay Hendricks, was rumored to have dumped him a week prior to her death. The two went to college together in West Virginia and had both moved to Fayetteville, West Virginia, to begin working. When they moved together after college, Shay was a CPA in town and Bobby was a raft guide on the New River.

The main, most condemning evidence the government wanted to use against him at trial was his cell phone records. The government obtained from Verizon the call records of his cell phone from the day of the murder. The records contained incoming and outgoing calls, numbers, times, duration, and cell tower usage, or “pings.” Bobby told the investigating officers that at around 3:50 p.m. on the day of Shay’s death, he was at a store in town, shopping for groceries. However, the cell phone records show that a call made by his phone “pinged” off of a tower in an area northeast of town, in the vicinity of where Shay was found. When the investigating officer told Bobby that his cell phone was being used in the area at the time Shay was murdered, he denied it and claimed he was not there. The investigating officer was even more concerned when he found that Shay’s phone had connected with the same tower at 3:44 p.m. for approximately two seconds.

At the beginning of the 3:50 p.m. call from Bobby’s phone, the southwest sector of the tower (sector 4) was being used. During the call, however, the call switched over to sector 3, indicating to the investigating officer that Bobby was mobile while talking on the phone. At trial, the government called Special Agent William Shute of the FBI as an expert in historical cell site analysis. He testified that he examined the call records of the defendant and victim, along with the cell towers themselves, “to make sure the towers were in the same condition they were in at the time of the crime.” He performed practice calls, observing whether his own phone would reselect to the same tower as the

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1 This story is a hypothetical to represent what this Note displays: the need for a stricter standard in West Virginia on CSLI evidence being used in the courtroom.
2 Starting here, facts are loosely based on State v. Saltzman, 128 So. 3d 1060, 1068 (La. Ct. App. 2013).
3 Id.
4 Id. at 1069.
5 Id. at 1074.
6 Id.
7 Id.
8 Id. at 1075.
9 Id.
defendant’s and victim’s phones on the day of the murder.\textsuperscript{10} Agent Shute presented a PowerPoint presentation to the jury to “demonstrate the cell towers used as well as the range of the towers.”\textsuperscript{11}

Agent Shute testified that his depiction of the radio frequency of the towers was a very close representation of the actual cell site.\textsuperscript{12} He stated that the cellular signal he drew “represents . . . the furthest possible distance that the phone was most likely at during that time.”\textsuperscript{13} Further, Agent Shute said that even when a cell phone is in idle mode, it is sorting through the various cell sites, putting at the top of a “list” the cell site with the clearest signal.\textsuperscript{14} On this list are the cell sites to which the phone will connect when a call is engaged.\textsuperscript{15} Agent Shute testified that both cell towers to which Bobby’s phone connected could not be used while at the scene of the murder, but could be used within a one-half to five mile radius from the crime scene.\textsuperscript{16}

With this story in mind, this Note seeks to address the reliability and standard of admissibility of Historical Cell Site Location Information (“CSLI”). This Note argues that, with respect to Historical CSLI evidence being used at trial, West Virginia should adopt the \textit{Kumho Tire Co. v. Carmichael}\textsuperscript{17} standard when evaluating the admissibility of technical expert testimony as governed by West Virginia Rule of Evidence 702.\textsuperscript{18} Though a Historical CSLI question has never faced a West Virginia court, this Note seeks to instigate the discussion in West Virginia on this fast-growing issue, therefore promoting a heightened standard for Historical CSLI evidence in the courtroom.

Part II addresses background information regarding the different schools of thought surrounding Historical CSLI and admissibility standards for expert evidence in Federal and West Virginia courts. Part III analyzes federal and West Virginia case law regarding the standard of admissibility of Historical CSLI into the courtroom without a stricter examination. It further analyzes how a West Virginia court would decide this issue. Part IV concludes with the thesis of this Note: West Virginia should adopt the \textit{Kumho} evidentiary standard for Historical CSLI.\textsuperscript{19}

\textsuperscript{10} \textit{Id.}
\textsuperscript{11} \textit{Id.} at 1076.
\textsuperscript{12} \textit{Id.}
\textsuperscript{13} \textit{Id.}
\textsuperscript{14} \textit{Id.}
\textsuperscript{15} \textit{Id.}
\textsuperscript{16} \textit{Id.} at 1077.
\textsuperscript{17} 526 U.S. 137 (1999); see also infra Section II.B.3.
\textsuperscript{18} W. VA. R. EVID. 702.
\textsuperscript{19} \textit{Kumho}, 526 U.S. 137; see also discussion infra Section II.B.3.
In regards to Historical CSLI, West Virginia should adopt the *Kumho* standard when evaluating the admissibility of technical expert testimony as governed by West Virginia Rule of Evidence 702. Section II.A provides an overview of Historical CSLI. Court decisions, professors' "expert" opinions, journal articles, and other sources are discussed to illustrate the differing stances regarding the reliability of Historical CSLI. Section II.B describes the current federal law relating to expert evidence admissibility standards under Rule 702. Section II.C shows examples of parties using Historical CSLI in the courtroom under the current admissibility standards. Sections II.D and II.E discuss whether Historical CSLI is "junk science." Finally, Section II.F describes the current West Virginia admissibility standards for expert testimony in the courtroom and transitions into the Analysis section, where the Author further argues that West Virginia should adopt a stricter standard for the admissibility of technical expert testimony.

A. Historical Cell Site Location Information: What Is It?

Historical CSLI, as opposed to real-time location information, identifies physical cell sites to which a cell phone has sent, or from which it has received, radio signals. It also includes a record of when each signal was sent or received over a particular period of time. Each cell phone service provider places cell sites in locations throughout the coverage areas. When a person makes a call or sends a message on a cell phone, the phone connects to the cellular network through a cell site. This connection is made to a cell site that shares the strongest signal, which is usually the one nearest to the caller. If the caller changes location during a phone call, the cell site changes accordingly.

As soon as a cell phone connects to a network, the service provider stores information including the identification and the physical cell site to which the phone is connected. These bits of information are pieced together to form CSLI which will "approximate the whereabouts of the cell phone at the particular points in time in which transmissions are made."

20 United States v. Graham, 796 F.3d 332, 343 (4th Cir. 2015).
21 *Id.*
22 *Id.*
23 *Id.*
24 *Id.*
25 *Id.*
26 *Id.* (emphasis added). The key word mentioned here, which this Note discusses, is "approximate."
1. What Affects the Strength of a Cell Tower?

There are several factors that affect the strength of a cell tower, and, therefore, affect the reliability of geographical placement based solely on cell tower connections.\textsuperscript{27} Antennas and amplifiers are the transmitters through which a cellular network performs its connections.\textsuperscript{28} Antennas are “cell towers that transmit the signals over a wider area.”\textsuperscript{29} It is the strength of the signal transmitted via the cell tower that determines how well you can communicate via the cellphone.\textsuperscript{30} Several factors inhibit a cell phone’s connection strength and capabilities to connect to a tower—even if a cell phone tower is in the vicinity, the connection can be affected.\textsuperscript{31} Some factors that affect a cell phone connection to a tower are distance, cell size, interference, poor capacity planning, and lack of towers.\textsuperscript{32} These factors affect the reliability of Historical CSLI offered as expert evidence in the courtroom.\textsuperscript{33}

There can be an interference with the signal from a cell tower.\textsuperscript{34} “Cellular signals travel in a straight line and can only penetrate a limited number of obstacles.”\textsuperscript{35} Some major obstacles are “[t]rees, hills, buildings, tunnels, walls[,] etc.”\textsuperscript{36} Because there are fewer cell towers in rural areas, there can be a shortage of towers to which a caller in the area can connect.\textsuperscript{37} Cell towers are usually strewn in a honeycomb fashion, which provides the best coverage because if the caller moves out of range of the cell signal, the call switches over to a neighboring cell site.\textsuperscript{38} However, if there is a lack of towers, the option for a call to switch to another tower becomes an issue.\textsuperscript{39}

B. Federal Statutes, Rules of Evidence, and Case Law

In federal court, several statutes, rules of evidence, and cases govern the admissibility of this type of expert evidence. Under the Required Disclosure of

\begin{flushleft}
\begin{footnotesize}
\item\footnotesize{28} Id.
\item\footnotesize{29} Id.
\item\footnotesize{30} Id.
\item\footnotesize{31} Id.
\item\footnotesize{32} Id.
\item\footnotesize{33} Id.
\item\footnotesize{34} Id.
\item\footnotesize{35} Id.
\item\footnotesize{36} Id.
\item\footnotesize{37} Id.
\item\footnotesize{38} Id.
\item\footnotesize{39} Id.
\end{footnotesize}
\end{flushleft}
Customer Communications or Records, a government entity may obtain cell phone records from a cell phone provider by one of the following methods: (1) obtaining a warrant or court order by the court in which the case sits; (2) receiving the consent of the customer; (3) writing a request that shows the records are for an investigation regarding telemarketing fraud; or (4) showing a need for specific information when the entity already has a subpoena to do so. These requirements are only to obtain the records themselves, not the contents of the communications the customer sent and received.

In discussing the admissibility of Historical CSLI as technical expert evidence during trial under the current standards, a look at the Federal Rules of Evidence and the evolution of case law through the “trilogy” is crucial. The pertinent, primary federal rule is Federal Rule of Evidence 702, which governs expert testimony:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
(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.

This rule governs in federal court and was shaped by the following trilogy of cases.

1. The Daubert Standard

*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, the leading case on the admissibility standard for expert scientific testimony, involved the ingestion of the drug Bendectin by pregnant women and serious birth defects that followed. The plaintiffs sought to introduce evidence, via scientific expert testimony, that

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41 *Id.*
42 *FED. R. EVID.* 702.
43 *Id.*
46 *Id.* at 582.
Bendectin can cause birth defects. The standard for admissibility of expert scientific evidence at this time was the Frye v. United States standard: whether there is a general acceptance of the underlying principle in the pertinent scientific field.

The Court in Daubert threw out the Frye standard and replaced it with a new standard. The Court delineated several factors that judges should consider when determining whether to admit expert evidence under Federal Rule 702. The suggested factors enumerated by the United States Supreme Court include four prongs: "whether the theory or technique employed by the expert is generally accepted in the scientific community; whether it's been subjected to peer review and publication; whether it can be and has been tested; and whether the known or potential rate of error is acceptable."

The Court reasoned that scientific knowledge must be grounded on more than “subjective belief or unsupported speculation”; therefore, the admissibility requirements for this evidence should include a standard of reliability and not simply a relevance test. The Court provided the following example in describing its reasoning for adopting a more stringent standard than Frye and general relevance under Rule 702:

The study of the phases of the moon, for example, may provide valid scientific “knowledge” about whether a certain night was dark, and if darkness is a fact in issue, the knowledge will assist the trier of fact. However (absent credible grounds supporting such a link), evidence that the moon was full on a certain night will not assist the trier of fact in determining whether an individual was unusually likely to have behaved irrationally on that night. Rule 702’s “helpfulness” standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility.

After laying out the four factors, the Court went on to emphasize that Rule 702 was meant to be flexible in its application and that the focus of the trial judge’s inquiry “must be solely on principles and methodology, not on the conclusions that they generate.” The policy concerns outlined in this decision

47 Id. at 583.
48 293 F. 1013 (D.C. Cir. 1923).
49 Daubert, 509 U.S. at 583.
50 Id. at 587.
51 Daubert v. Merrell Dow Pharm., Inc., 43 F.3d 1311, 1316 (9th Cir. 1995).
52 Id. (citing Daubert 509 U.S. at 594).
53 Daubert, 509 U.S. at 590–91.
54 Id. at 591–92.
55 Id. at 594–95.
included steering juries away from “absurd and irrational pseudoscientific assertions.” The Court’s next visit on this topic was four years later, when it addressed the standard of review for such evidentiary rulings.

2. **Joiner: What Is the Appellate Court Standard of Review?**

In *General Electric Co. v. Joiner*, Respondent Joiner worked as an electrician starting in 1973, which required him to put his hands and arms into a mineral-oil dielectric fluid to repair breakage. The city of Thomasville, Georgia, later found that this fluid contained polychlorinated biphenyls (“PCBs”), which are detrimental to human health. Joiner fell sick with lung cancer in 1991. He sued, alleging that his exposure to the PCBs (in particular, the furans and dioxins) promoted his lung cancer. Joiner’s family had a history of lung cancer, and he had smoked for eight years. He argued, however, that the exposure to the PCBs accelerated the cancer.

Joiner produced experts in depositions who testified that “PCBs alone can promote cancer and that furans and dioxins can also promote cancer.” The district court ruled that the experts failed to show the connection between PCB exposure and development of cancer and that the expert testimony was inadmissible for the courtroom because it “did not rise above ‘subjective belief or unsupported speculation.’” The United States Supreme Court reversed the court of appeals, finding that the district court did not abuse its discretion in excluding the expert testimony.

The *Joiner* case outlined the standard of appellate review for evidentiary rulings. Because the “question of admissibility of expert testimony is not such an issue of fact,” it is reviewable by appellate courts under the abuse of discretion standard. Though the Court in this case solidified the standard of review for

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56 *Id.* at 595.
59 *Id.* at 139.
60 *Id.*
61 *Id.*
62 *Id.* at 139–40.
63 *Id.* at 139.
64 *Id.* at 139–40.
65 *Id.* at 140.
66 *Id.*
67 *Id.* at 146–47.
68 *Id.* at 142.
69 *Id.* at 143.
evidentiary rulings, the Court in 1999 expanded the Daubert admissibility standard to technical and other specialized knowledge.\textsuperscript{70}

3. \textit{Kumho Tire: Daubert Standard Expands to Technical and Other Specialized Knowledge}

\textit{Kumho Tire Co. v. Carmichael}\textsuperscript{71} addressed how the Daubert standard applies to expert testimony that is not scientific.\textsuperscript{72} The Supreme Court of the United States concluded that Daubert’s allocation of “gatekeeping” duties to trial judges applies to “testimony based on ‘technical’ and ‘other specialized’ knowledge” as well.\textsuperscript{73} In this case, a tire of a minivan blew out and caused an accident, killing one passenger and injuring others.\textsuperscript{74} The plaintiffs sued Kumho Tire and called an expert in “tire failure analysis” named Dennis Carlson, Jr.\textsuperscript{75} Carlson testified that a “defect in the tire at issue caused its tread to separate from its carcass.”\textsuperscript{76} The Court parsed out the issue in this case: “the reasonableness of using [the expert’s] approach, along with Carlson’s particular method of analyzing the data thereby obtained, to draw a conclusion regarding the particular matter to which the expert testimony was directly relevant.”\textsuperscript{77} The Court concluded that the trial court did not abuse its discretion in excluding the expert’s testimony by relying on the Daubert factors.\textsuperscript{78}

The Supreme Court reasoned that although Daubert applied only to scientific knowledge, Federal Rule 702 itself does not distinguish between “scientific,” “technical,” and “other specialized” knowledge.\textsuperscript{79} Because of this not-so-bright line, the Court reasoned that the connection between Daubert and technical expert testimony was not a wide leap.\textsuperscript{80} It went on to reason that the gatekeeping function that Daubert implemented upon scientific knowledge encompassed a general rationale that can easily apply to technical and other specialized knowledge.\textsuperscript{81} The Court pointed out that scientific, technical, and other specialized knowledge are intertwined. It reasoned that technical and other

\textsuperscript{70} See Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999).
\textsuperscript{71} 526 U.S. 137 (1999).
\textsuperscript{72} Id. at 141.
\textsuperscript{73} Id.
\textsuperscript{74} Id. at 142.
\textsuperscript{75} Id.
\textsuperscript{76} Id. at 154.
\textsuperscript{77} Id.
\textsuperscript{78} Id. at 158.
\textsuperscript{79} Id. at 147.
\textsuperscript{80} Id.
\textsuperscript{81} Id. at 148.
specialized knowledge rests upon scientific principles, like engineering. In essence, the Court recognized that the three types of knowledge listed in the rule are not mutually exclusive, and, therefore, they should be examined under one standard: the Daubert standard.

The Kumho Court further emphasized that the Daubert standard applying to other types of knowledge as listed in the rule is not a standard that is being forced upon trial judges; in fact, the Court set out to give trial judges the option to apply the Daubert factors to knowledge other than science. It reminded the parties that, just as it stated in Daubert, the Rule 702 inquiry is flexible:

[Daubert] made clear that its list of factors was meant to be helpful, not definitive. Indeed, those factors do not all necessarily apply even in every instance in which reliability of scientific testimony is challenged. It might not be surprising in a particular case, for example, that a claim made by a scientific witness has never been the subject of peer review, for the particular application at issue may never previously have interested any scientist. Nor, on the other hand, does the presence of Daubert’s general acceptance factor help show that an expert’s testimony is reliable where the discipline itself lacks reliability, as, for example, do theories grounded in any so-called generally accepted principles of astrology or necromancy.

Because of this established, yet loose, framework, the Court applied the Daubert factors to technical and other specialized knowledge by granting trial judges the gatekeeping function under Rule 702.

C. Historical CSLI in the Courtroom Using Expert Testimony

During the trial of Aaron Graham and Eric Jordan, in United States v. Graham, the Appellants “objected to proposed testimony regarding CSLI from a Sprint/Nextel records custodian and from an FBI agent who investigated the case.” They argued that the proposed testimony admitted by the government was an “impermissible expert opinion” because of unreliability and lack of

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82 Id.
83 Id. at 149.
84 Id. at 150.
85 Id. (citing Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 594 (1993)).
86 Id. at 151.
87 Id. at 158.
88 796 F.3d 332 (4th Cir. 2015).
89 Id. at 341.
precision. However, both the district court and Court of Appeals for the Fourth Circuit upheld the government’s lay testimony that the Historical CSLI gained against the Appellants was “precise enough, at minimum, to support reasonable inferences about [their] locations at specific points in time.” This evidence was ultimately used to establish the Appellants’ locations around the times of the robberies for which they were charged. Although the Fourth Circuit did hold that the government obtained the Historical CSLI through an unreasonable search under a separate Fourth Amendment issue, it affirmed the “district court’s denial of the suppression motion because, in obtaining the records, the government acted in good-faith reliance on the [Stored Communications Act] and the court orders issued under that statute.” This Fourth Circuit case is an example of how some courts use Historical CSLI to approximate the locations of people, generally. Next, the theory of granulization has not been widely adopted by many courts.

1. The Theory of Granulization

Although many believe that cell records are reliable if presented by experts in the courtroom, others, like United States District Judge Joan H. Lefkow and Michael Cherry, experts in historical cell site analysis, disagree. In United States v. Evans, the court discussed the reliability and admissibility of CSLI under Rule 702 and Daubert. In this case, Defendant Antonio Evans was charged with kidnapping and conspiracy. The evidence against Evans purported that “calls placed from defendant Antonio Evans’ cellphone could have come from his aunt’s house, where the victim was thought to have been held for ransom.” The court, however, held that the expert’s testimony on the cell phone evidence theory of “granulization” was unreliable. Because Special Agent Raschke (Raschke) offered little proof as to how granulization worked

90 Id.
91 Id. at 351.
92 Id. at 342–43.
93 Id. at 343.
94 See Mark Hansen, Prosecutors' Use of Mobile Phone Tracking Is 'Junk Science,' Critics Say, A.B.A. J. (June 1, 2013, 8:50 AM), http://www.abajournal.com/magazine/article/prosecutors_use_of_mobile_phone_tracking_is_junk_science_critics_say/.
96 See id. It should be noted that the court relies on the Kumho standard here as well, since it is technical expert testimony.
97 Hansen, supra note 94.
98 Id.
while assuring the court that he and other agents use this technique with zero percent error, Judge Lefkow did not allow admission of the evidence at issue.\textsuperscript{100}

Granulization, as explained by Raschke, is a theory that pinpoints the location of a cell phone by “identifying (1) the physical location of the cell sites used by the phone during the relevant time period; (2) the specific antenna used at each cell site; and (3) the direction of the antenna’s coverage.”\textsuperscript{101} Then, Raschke “estimate[d] the range of each antenna’s coverage based on the proximity of the tower to other towers in the region.”\textsuperscript{102} The angle of the antenna and its signal strength are key factors in determining whether a cell phone can connect in that specific area.\textsuperscript{103} Using his training and experience, Raschke asserted that he could establish where the coverage area of the tower overlapped with the coverage area of another and possibly place a person in that overlap.\textsuperscript{104}

Using the theory of granulization, Raschke “testified that he could estimate the general location of Evans’s cell phone during an 18 minute period (from 12:54 p.m. to 1:12 p.m.) on April 24, 2010, during which time Evans’s phone used two cell towers to place nine calls.”\textsuperscript{105} This general location of the phone “could have come from” the place where the victim was being held for ransom.\textsuperscript{106} The government succeeded in introducing maps Raschke created to show the location of cell towers that Evans’s phone used throughout the course of the crime.\textsuperscript{107}

The Evans court analyzed several factors that rendered Raschke’s granulization theory unreliable.\textsuperscript{108} First, when “determining the coverage overlap of the two towers used by Evans’s cell phone on August 24, 2010, [Raschke] assumed that Evans’s cell phone used the towers closest to it at the time of the calls.”\textsuperscript{109} There are many reasons why a phone does not connect to the nearest tower, including a building obstructing access and busy network traffic that reroutes the phone connection to a different tower.\textsuperscript{110} Because Raschke presented no scientific calculations that “[e]stimat[ed] the coverage area of radio frequency waves,” the court found that his conclusions lacked a necessary connection proving that his phone pinged off the nearest towers.\textsuperscript{111}

\begin{thebibliography}{9}
\bibitem{Hansen} Hansen, supra note 94.
\bibitem{Evans} Evans, 892 F. Supp. 2d at 952.
\bibitem{Id.} Id.
\bibitem{Id.} Id.
\bibitem{Id.} Id.
\bibitem{Id.} Id.
\bibitem{Id.} Id. (emphasis added).
\bibitem{Id.} Id. at 953.
\bibitem{Id.} Id. at 956–57.
\bibitem{Id.} Id. at 956.
\bibitem{Id.} Id.
\bibitem{Id.} Id.
\end{thebibliography}
Second, the Evans court found the granulization theory to be unreliable because it has never been tested by the scientific community. The court recalled the importance of the Daubert factor that requires the proffered scientific theory to be tested by the scientific method in order to be deemed reliable for its admission in the courtroom. This type of scrutiny is important because it “increases the likelihood that the substantive flaws in methodology will be detected.” Because the granulization theory “has not been subject to scientific testing or formal peer review and has not been generally accepted in the scientific community,” the Evans court found the theory to be unreliable and therefore excluded the testimony under Rule 702. Raschke’s testimony regarding how cellular networks operate, however, was admissible under Rule 702. Raschke simply was not permitted to apply the principles to the facts of the case.

D. Junk Science?

Michael Cherry, an expert in historical cell site analysis, calls cell tower tracking an “easily disproved technique” and “junk science.” He has stated, “No one who understands the relevant science would ever claim that data from a single cell tower can reliably be used to specify the location of a caller at the time a particular call is made.” Edward J. Imwinkelried, a law professor at University of California, Davis, said some of the current CSLI interpretation is “nonsense” and that it is not as foolproof as many wish to believe. Imwinkelried has argued that “records can tell you whether a [caller] who has denied being in the coverage area of a particular tower at a given time was lying,” but that these records cannot pinpoint the exact coverage area that the caller was in at that time. Imwinkelried and other experts on Historical CSLI have said “it takes GPS tracking or simultaneous ping information from at least three different locations to locate or track a caller and to determine his or her latitude and longitude.”

112 Id.
113 Id.
114 Id. (quoting Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 593 (1993)).
115 Evans, 892 F. Supp. 2d at 957.
116 Id. at 955.
117 Id.
118 Hansen, supra note 94.
119 Id.
120 Id.
121 Id.
122 Id.
123 Michael Cherry et al., Cell Tower Junk Science, 95 JUDICATURE 151 (2012).
In a few cases, the government has fought to introduce faulty cell tower evidence. For example, one Florida newspaper covered a case in which a jury returned a verdict of not guilty for a defendant who was accused of first-degree murder. Perhaps the jury was not persuaded by the state’s Historical CSLI evidence. The state’s expert witness gave a PowerPoint presentation showing that the “pings” off of each cell tower proved the defendant’s movements from Ocala to Miami, Florida, after the murder of his cousin. However, in the retrial of the case, the defense cross-examined the state’s expert who admitted that “other towers would pick up a call if there were tower updates or maintenance going on.” The expert could not testify that tower updates or maintenance was not happening at the time of the calls. The expert further testified on cross-examination that at least 20 different factors determine which tower connects to the caller, and he could not testify that the other factors were not in play at the time of the call. As this case demonstrates, “[j]uries are willing to listen to arguments about the limitations of cell tower tracking—and acquit.”

In a second case, the defendant was charged with seven crimes, facing 145 years in prison. The jury returned a verdict of not guilty, and among its findings was the conclusion that the cell tower evidence produced by the state was unreliable. The state had produced cell phone tower ping data against the defendant, purporting to show that the defendant left a trail between his home and the crime scene. The pings, however, were taken from single cell towers instead of multiple simultaneous tower connections which would more clearly pinpoint a location. The defense showed that “a cell phone call does not have to use the closest tower or the nearest tower” when the phone is connecting to a call. The defense expert explained to the jury that the most accurate way to pinpoint a person’s location is through Global Positional System ("GPS"), which uses satellites. The defense expert also reminded the jury that the Federal

124 Id.
126 Cherry et al., supra note 123, at 152; see also Lee, supra note 125.
127 Cherry et al., supra note 123, at 152.
128 Id.
129 Id.
130 Id.
131 Id.
132 Id.
133 Id.
134 Id.
135 Id.
136 Id.
Communications Commission ("FCC") requires all cell phones to contain GPS chips for 911 emergency purposes. The defense then argued that "[i]f the methodology proposed by the state was at all accurate, there would be no need for the government to require GPS chips in phones." The implications of using faulty Historic CSLI can be unnerving. In fact, the growing awareness regarding the preferred limitation on using this evidence in the courtroom had the opposite effect on the FBI in 2014: the FBI trained over 5,000 police investigators on the methodology. Though most cell towers have three antennas, the depiction of tower coverage areas differs significantly between law enforcement and cellular experts. Cell tower analysts “draw coverage areas as wedges radiating 120 degrees from each [and] say the range is general[ly] 1–2 miles.” In opposition to the wedge format, “[p]hone company coverage maps show that radio waves don’t behave uniformly” and that “[t]hey can be blocked by topography and other obstacles.” If blocked, the radio waves can “leak” outside of the 120-degree area. In addition to the mapping differences, cell phone experts say that “when a phone is in range of more than one tower, an algorithm chooses a tower based on factors such as signal strength, tariffs and traffic already using that tower.”

E. Not Junk Science?

In contrast, another court found an FBI Special Agent’s testimony regarding the “location of the cell towers, the sectors used for each call, and the general location where the cell phones must have been when they connected to each tower” to be a product of reliable principles and methods. In United States v. Jones, the defendant was charged with conspiracy to possess with the intent to distribute cocaine. The government obtained four months of the defendant’s Historic CSLI to track his movements.

137 Id.
138 Id.
140 Id.
141 Id.
142 Id.
143 Id.
144 Id.
147 Id. at 2.
148 Id.
Special Agent Scott Eicher compiled maps showing his cell site analysis of the defendant’s phone from the following two sources:

the call records of the cell phone companies that were produced pursuant to court orders, which identify the particular tower and sector the phones connected to at the beginning and end of each call; and (2) cell tower lists provided to law enforcement by the cell phone companies, which specify the location of their cell towers, including the GPS coordinates for each tower and the direction that the sectors point in for those towers.149

On the maps, Agent Eicher indicated (1) all of the cell towers in the area, (2) the cell towers to which the phones connected, and (3) “the specific 120 [degree] sector of the tower that was used for the call.”150 The court agreed that Agent Eicher’s testimony was based upon reliable methodology, citing other federal courts that also accept the use of phone location records for historical tracking purposes.151 The court also said that all “assumptions” Agent Eicher made about the signal strength from a given cell tower go toward the weight of his testimony, not its reliability.152

The Fifth Circuit ruled that another FBI Agent’s testimony of historical cell site analysis was reliable and, therefore, admissible evidence.153 This court said that it would consider the agent’s methodology reliable based on the following reasoning: (1) the agent had “extensive knowledge and experience” in the field, (2) the agent had used the technique over 100 times with zero percent error, (3) the agent had taught courses on this subject, and (4) the technique had been accepted in other federal courts as reliable.154

In United States v. Pembrook,155 a Michigan case, the court addressed whether a witness’s testimony satisfied the requirements of the expert evidence rule and Daubert.156 Testimony that contributes a “log showing that a particular phone connected to a particular tower at a particular time,” thus “inference that a phone was within that tower’s coverage area at that time,” has been found to be based upon reliable methods.157 In Pembrook, the defendants were on trial for two robberies and the crimes associated with those
The defense raised four arguments: (1) the government failed to provide details describing the bases and reasons for the expert's conclusion, which "deprived the Court of the ability to determine whether his methods are reliable;" (2) the expert's opinion was based on an untested theory—the "theory of granulization;" (3) the expert's testimony was not admissible as Rule 701 lay-witness testimony; and (4) the defense required additional discovery in order to cross-examine the witness at trial.  

First, the Pembrook court determined that Hess, the expert witness in the case, based his testimony on reliable methods. The court drew a distinction between Hess's theory and the theory of granulization as discussed in Evans. Unlike the expert in Evans, Hess was not attempting to place a particular cell phone at a particular pinpoint location (i.e. the defendant's aunt's basement). Instead, Hess's testimony showed four cell phones move from Philadelphia, Pennsylvania, to the Grand Rapids and West Bloomfield areas, and back to Philadelphia between April 21, 2014, and April 23, 2014. This testimony was offered to show the traveling pattern of the four phones, not the exact location of each, around the times the robberies were committed.  

The court, through its gatekeeping function, found Hess's methodology sufficient, reasoning that (1) each cell phone must connect to a cell tower for each phone call; (2) each cell tower is stationary and has a limited coverage area; and (3) the service provider records the connection to the cell tower—the phone, the time, and the tower. This method was introduced to the court by Hess in his "Basic Principles Utilized in Record Analysis."  

One issue the defendant raised with regard to the expert's testimony, however, was his source of information upon which he based his Basic Principles Utilized in Record Analysis. In particular, the defendant asserted the same argument that many other defendants maintain: simply because the phone connects to a certain tower does not mean that the phone connected to the closest one. Hess asserted that as a phone travels while a call is in session, the phone will choose a new tower based upon signal strength and the "neighbor list."

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158 Id. at 579.
159 Id. at 596.
160 Id. at 598.
161 Id. at 597.
162 Id.
163 Id.
164 Id.
165 Id. at 598.
166 Id.
167 Id.
168 Id.
169 Id.
The neighbor list is a list of specific towers that are controlled by the service provider, and Hess alleged that a phone would not randomly connect to a different (closer) tower unless it is on that list.\textsuperscript{170} Hess also emphasized that there are more cell towers in urban areas than in rural areas, and a cell tower usually spans three, 120-degree sectors.\textsuperscript{171}

The court agreed with the defendant that Hess did not adequately show the source of his reasoning and held that the government must “describe . . . the bases and reasons for [the expert’s] opinions.”\textsuperscript{172} The court ordered the government to submit a supplemental brief to its Rule 16 disclosure to explain Hess’s source.\textsuperscript{173}

\textbf{F. West Virginia Standard for the Admissibility of Expert Testimony}

In West Virginia, testimony by expert witnesses is governed by Rule 702 of the West Virginia Rules of Evidence:

(a) If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise.

(b) In addition to the requirements in subsection (a), expert testimony based on a novel scientific theory, principle, methodology, or procedure is admissible only if:

1. the testimony is based on sufficient facts or data;
2. the testimony is the product of reliable principles and methods; and
3. the expert has reliably applied the principles and methods to the facts of the case.\textsuperscript{174}

Essentially, Rule 702 as discussed in \textit{Daubert} “granted circuit judges the discretion and authority to determine whether scientific evidence is trustworthy, even if the technique involved has not yet won general scientific acclaim.”\textsuperscript{175} West Virginia follows this standard.\textsuperscript{176}

Until \textit{Daubert}, West Virginia used the \textit{Frye} test regarding expert testimony, which “excluded such innovative testimony unless the techniques involved had earned ‘general acceptance’ in the relevant scientific

\textsuperscript{170} \textit{Id.}
\textsuperscript{171} \textit{Id.}
\textsuperscript{172} \textit{Id.} (quoting \textit{FED. R. CRIM. P.} 16(a)(1)(G)).
\textsuperscript{173} \textit{Id.} at 599.
\textsuperscript{174} W. VA. R. EVID. 702.
\textsuperscript{175} Gentry v. Mangum, 466 S.E.2d 171, 180 (W. Va. 1995).
\textsuperscript{176} See \textit{id.}
community.\textsuperscript{177} The Frye test was ruled to be too rigid to fit the liberal intent of Rule 702, for both the federal and West Virginia rules.\textsuperscript{178} Now, in West Virginia, with regard to scientific testimony, a judge must give "a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology ... properly can be applied to the facts in issue."\textsuperscript{179}

1. **Daubert and Wilt**

In 1993, West Virginia adopted the *Daubert* standard for the admission of scientific expert testimony in the case *Wilt v. Buracker*.\textsuperscript{180} In this case, the court held:

[W]e believe that *Daubert* is directed at situations where the scientific or technical basis for the expert testimony cannot be judicially noticed and a hearing must be held to determine its reliability. We conclude that *Daubert*’s analysis of Federal Rule 702 should be followed in analyzing the admissibility of expert testimony under Rule 702 of the West Virginia Rules of Evidence. The trial court’s initial inquiry must consider whether the testimony is based on an assertion or inference derived from scientific methodology. Moreover, the testimony must be relevant to a fact at issue. Further assessment should then be made in regard to the expert testimony’s reliability by considering its underlying scientific methodology and reasoning. This includes an assessment of (a) whether the scientific theory and its conclusion can be and have been tested; (b) whether the scientific theory has been subjected to peer review and publication; (c) whether the scientific theory’s actual or potential rate of error is known; and (d) whether the scientific theory is generally accepted within the scientific community.\textsuperscript{181}

Though the *Daubert* standard is set in West Virginia for scientific evidence, the reliability of Historical CSLI has not yet been addressed in the West Virginia courts.\textsuperscript{182}

The Supreme Court of Appeals of West Virginia decided that, on appeal, "[w]hen a circuit court excludes expert testimony as unreliable under the

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\textsuperscript{177} *Id.* at 179.
\textsuperscript{178} *Id.*
\textsuperscript{179} *Id.* at 180 (quoting *Daubert v. Merrell Dow Pharm.*, Inc., 509 U.S. 579, 592–93 (1993)).
\textsuperscript{180} 443 S.E.2d 196, 196 (W. Va. 1993).
\textsuperscript{181} *Id.* at 203.
\textsuperscript{182} This Note addresses what the procedure should be in a West Virginia court if a party seeks to introduce Historical CSLI at trial.
\end{flushright}
We will review the circuit court’s method of conducting the analysis de novo.” The court also discussed its procedure for a trial court when determining the admissibility of scientific expert testimony:

When a trial court is called upon to determine the admissibility of scientific expert testimony, in deciding the “reliability” prong of admissibility the focus of the trial court’s inquiry is limited to determining whether the expert employed a methodology that is recognized in the scientific community for rendering an opinion on the subject under consideration. If the methodology is recognized in the scientific community, the court should then determine whether the expert correctly applied the methodology to render his or her opinion. If these two factors are satisfied, and the testimony has been found to be relevant, and the expert is qualified, the expert may testify at trial.

Evidentiary hearings ("Daubert/Wilt hearings") were implemented to determine whether an expert’s testimony will be admissible. The two-part test in determining whether the testimony will be admitted into evidence is: “(1) is the witness [qualified as] an expert; and, if so, (2) is the expert’s testimony relevant and reliable?”

In a restatement of the Gentry case, the court enumerated the two-step inquiry for determining who is an expert. “First, a circuit court must determine whether the proposed expert (a) meets the minimal educational or experiential qualifications (b) in a field that is relevant to the subject under investigation (c) which will assist the trier of fact.” The second prong requires the court to “determine that the expert’s area of expertise covers the particular opinion as to which the expert seeks to testify.”

Second, as the court stated in Wilt, West Virginia courts are to follow the Daubert factors when determining whether the scientific testimony is relevant and reliable. The goal of the procedures implemented by West Virginia courts is “not to decide whether the proffered evidence is right, but whether the science is valid enough to be reliable.” Courts are cautioned, however, “not to exclude

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184 Id. at Syl. Pt. 2.
185 Id. at 278.
186 Id. at 279.
187 Id.
188 Id. (quoting Gentry v. Magnum, 466 S.E.2d 171, 186 (W. Va. 1995)).
189 Id.
debatable scientific evidence without affording the proponent of the evidence adequate opportunity to defend its admissibility."

2. Watson: A Missed Opportunity

In Watson v. INCO Alloys International, Inc., the Supreme Court of Appeals of West Virginia addressed a question regarding the admissibility of technical expert testimony. Plaintiff Watson died as a result of a lifttruck accident—he was operating the lifttruck during employment for INCO Alloys when the lifttruck fell off a tractor trailer and crushed him. Mrs. Watson, the deceased’s wife, sued INCO Alloys. A professional engineer, John Sevart, was solicited to testify as an expert witness for Watson regarding a defective design of the lifttruck. The trial court excluded the testimony on the basis that it was classified as scientific and, therefore, must meet the requirements as set forth in Gentry. However, the Supreme Court of Appeals of West Virginia found that the trial court clearly erred in finding that the engineering testimony was scientific and subject to the Wilt/Daubert analysis of scientific testimony.

The court decided that the standard for the engineer’s testimony was a Rule 702(a) determination, which requires the expert’s knowledge to assist the trier of fact in understanding the evidence or fact in issue. The court also agreed with Mrs. Watson’s stance that “any argument regarding the methodology utilized by [the] expert in developing his opinions go[es] to the weight of his testimony and not its admissibility.” The Watson court restated that the first consideration regarding expert evidence is whether the testimony is “derived from the scientific methodology.” If it is, and if the evidence is relevant, then the next hurdle to overcome is a series of four requirements: whether the scientific theory (1) can be or has been tested; (2) has been peer reviewed; (3) has a known “actual or potential rate of error;” and (4) is “generally accepted within the scientific community.”

194 Id. at 296.
195 Id. at 297.
196 Id.
197 Id.
198 Id.
199 Id. at 302.
200 Id.; W. VA. R. EVID. 702(a).
201 Watson, 545 S.E.2d at 299.
202 Id.
203 Id. (quoting Wilt v. Buracker, 443 S.E.2d 196 (W. Va. 1993)).
The Supreme Court of Appeals of West Virginia found that the engineer's testimony was not scientific at all and, therefore, should not have been scrutinized under the hurdles set forth in Daubert and adopted by the court in Wilt. The court reiterated the standard for expert testimony in West Virginia by highlighting the three major requirements: "(1) the witness must be an expert; (2) the expert must testify to scientific, technical or specialized knowledge; and (3) the expert testimony must assist the trier of fact." Because Mr. Sevart's technical expert testimony was based on "his education, years of experience, review of over one thousand accidents involving the type of machinery herein involved, and his review of reports involving the instant accident," the court found that the testimony met the requirements under Rule 702(a) and was, therefore, admissible technical expert testimony.

III. ANALYSIS

West Virginia should adopt the Kumho standard when evaluating whether Historical CSLI evidence is admissible at trial under West Virginia Rule of Evidence 702. This Part provides an analysis of the law and Historical CSLI schools of thought as provided in the previous part. Section III.A discusses the implications of admitting Historical CSLI into the courtroom without a stricter examination. Section III.B unfolds the policies behind the federal case law discussed in Part II and their importance. Sections III.C & III.D discuss the current West Virginia treatment of expert technical evidence and what this would mean if a court were to answer a Historical CSLI question. Section III.E further discusses implications of this expert evidence on jury decisions. Section III.F provides supplemental questions a judge could ask before allowing Historical CSLI into the courtroom. Though West Virginia has yet to be confronted with a Historical CSLI case, it is a topic that is quickly growing and facing courts throughout our nation. It is only a matter of time until West Virginia is faced with this issue.

A. Implications of the Admission of Historical CSLI in West Virginia Courts

Before discussing the current standards of admissibility for technical evidence, it is important to recall the complexity of Historical CSLI. Aside from the fact that the reliability of this topic is highly disputed when it comes to using it as expert evidence in a courtroom, Historical CSLI and how cell

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204 Id.
205 Id. at 302 (quoting Gentry v. Magnum, 466 S.E.2d 171, 183 (W. Va. 1995)).
206 Id. at 300.
207 See supra Section II.A.
208 See supra Section II.D.
towers perform are difficult concepts to understand. For this reason, and because of West Virginia’s terrain, when the issue arises in a West Virginia court, the standard should be raised when a party is moving to admit expert witness testimony on cell tower evidence.

As stated in Section II.A.1, there are several factors that affect the strength of a cell tower. West Virginia’s topography is notoriously mountainous, which could seriously affect the connection of a cell phone to a cell tower and, therefore, the reliability of Historical CSLI as evidence. Since a mountain can affect the connection of a cell phone to the nearest cell tower, this is an important factor to consider when discussing the admissibility of Historical CSLI in a West Virginia court. In addition to the mountainous regions in West Virginia, the state also has a large amount of rural areas. A West Virginia court should be aware that rural areas also affect cell phone connections to cell towers because of a possible shortage of towers. These are a few reasons why the standard in West Virginia regarding admissibility of this evidence should be more stringent.

B. Policy and Reasoning of the Federal Cases Applied to Historical CSLI in West Virginia

It is important to acknowledge the primary policy concern underlying the Daubert opinion: to ensure that junk science and other unreliable scientific principles do not persuade a jury into making a misinformed decision. The United States Supreme Court set the standard for expert scientific testimony in Daubert to keep out of the courtroom expert opinions that are based upon “subjective belief or unsupported speculation.” In addition, the Court reasoned that the new standard breathes life into what Rule 702 already asked for: the requirement of a “valid scientific connection to the pertinent inquiry as a

209 See supra Section II.A.1. West Virginia’s highest point, which is also the highest peak in the Allegheny Mountains, is at Spruce Knob, sitting at 4,861 feet. West Virginia Legislature Kid’s Page: Fun Facts About West Virginia, W. VA. LEGISLATURE, http://www.legis.state.wv.us/educational/Kids_Page/fun_facts.cfm (last visited Oct. 11, 2017). West Virginia’s lowest point is the Potomac River, which sits at 247 feet above sea level at Harper’s Ferry. Id. West Virginia’s mountains are as wild and wonderful as ever. Let’s go Mountaineers!

210 See supra Section II.A.1; Clayton, supra note 27.


212 Clayton, supra note 27; see also supra Section II.A.1.

213 Clayton, supra note 27; see also supra Section II.A.1.

214 Clayton, supra note 27; see also supra Section II.A.1.


216 Id. at 599.
precondition to admissibility."\textsuperscript{217} In West Virginia, this same connection needs to be made between the methods and principles of Historical CSLI and the relevance before it is presented to a jury. This underlying purpose of keeping out unsupported speculation, in more than just scientific testimony, was carried through the United States Supreme Court’s decisions in \textit{Joiner} and \textit{Kumho}.\textsuperscript{218}

The Court’s decision in \textit{Joiner} provided that the standard of appellate review for evidentiary rulings is abuse of discretion.\textsuperscript{219} However, the Supreme Court of Appeals of West Virginia decided to review the exclusion of expert testimony under the \textit{de novo} standard.\textsuperscript{220} \textit{Kumho} acted as an expansion of the Court’s standard set forth in \textit{Daubert}.\textsuperscript{221} The expansion of \textit{Daubert}’s gatekeeping duties to non-scientific knowledge imposes upon the trial judge a duty to ensure the evidence the jury hears is reliable: the threshold balances both scientific and non-scientific expert witness testimony as equal.\textsuperscript{222} This threshold has become increasingly important for technical experts to meet because of the wide variety of specialties in the areas of technical and other specialized knowledge. The \textit{Kumho} decision in relation to Historical CSLI evidence was crucial because it suggested that the trial judge ensure the technical expert’s methods are reliable before jumping to conclude that the expert is reliable simply because he has an opinion that will assist the trier of fact.\textsuperscript{223}

Because Historical CSLI is a complex topic, as discussed in the previous Section, it is important for a trial judge to use this stricter gatekeeping function to parse out the method of the expert’s opinion in order to continue following \textit{Daubert}’s underlying policy: to keep out unsupported speculation.\textsuperscript{224} It is especially important for courts to seriously consider the methodology of expert testimony when dealing with Historical CSLI evidence not only because there are opposing views and different methodologies,\textsuperscript{225} but because a lay juror will likely rely more heavily on theories unfamiliar to him than simpler ones. Therefore, it logically follows that if a juror will heavily rely upon an expert regarding complex theories and technical data, then the data being testified to should be checked as far back as its underlying methods, which is what the

\textsuperscript{217} Id. at 592.
\textsuperscript{219} Joiner, 522 U.S. at 143.
\textsuperscript{221} Kumho, 526 U.S. at 141.
\textsuperscript{222} See discussion supra Section II.B.3.
\textsuperscript{223} Kumho, 526 U.S. at 141; see also discussion supra Section II.B.3.
\textsuperscript{224} Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 590 (1993); see also discussion supra Section II.B.
\textsuperscript{225} Some methodologies are considered reliable while others are not. See also discussion supra Sections II.D–E.
Kumho decision provides. Just as the Court decided in Daubert and Kumho, the standard for admissibility of expert evidence is a flexible inquiry; therefore, if a federal court were presented with a Historical CSLI issue, then the trial judge would have the ability to admit the evidence even if one of the Daubert factors were missing.

C. Query: What Would Happen in a West Virginia Court Under the Current Legal Standards?

West Virginia’s standard for the admissibility of expert evidence aligns with the federal standard only for scientific expert witness testimony as provided in Daubert. For scientific expert testimony, the line of inquiry a trial judge may use is found in Gentry. For expert testimony regarding technical and other specialized knowledge, the line of inquiry a trial judge may use is found in West Virginia Rule 702(a) and Watson.

For technical expert testimony, the standard in West Virginia is still a 702(a) inquiry, which is whether the expert’s knowledge would assist the trier of fact in understanding the evidence or fact in issue. This standard is basically a Rule 401 relevance standard and, thus, is a low threshold to meet. The key missing fact with this standard is the methodology of the expert’s opinion—the “how-did-you-get-there” inquiry.

In reading the Watson case, one cannot help but think that it would have been a good opportunity for the Supreme Court of Appeals of West Virginia to look to the United States Supreme Court’s Kumho case in deciding whether the engineer’s technical expert opinion would survive the gatekeeping standards just as the trial court had implemented. According to the Watson court, an engineer’s testimony will be considered “technical” testimony under Rule 702

226 Kumho, 526 U.S. at 141; see also discussion supra Section II.B.3; Harvey Brown & Melissa Davis, Eight Gates for Expert Witnesses: Fifteen Years Later, 52 HOUS. L. REV. 1, 33 n.190 (2014) (“The disparate expertise of the witness and the average juror tends to produce a natural inclination to accept the expert testimony as gospel . . . .”) (quoting Dunnington v. State, 740 S.W.2d 896, 898 (Tex. App. 1987).

227 See discussion supra Section II.B.3.

228 Wilt v. Buracker, 443 S.E.2d 196, 203 (W. Va. 1993); see also discussion supra Section II.F.1.

229 Gentry v. Mangum, 466 S.E.2d 171, 184 (W. Va. 1995).

230 Watson v. INCO Alloys Int’l Inc., 545 S.E.2d 294, 306 (W. Va. 2001); see also discussion supra Section II.F.2.

231 Watson, 545 S.E.2d at 306.

232 W. VA. R. EVID. 401 (“Evidence is relevant if: (a) it has any tendency to make a fact more or less probable than it would be without the evidence; and (b) the fact is of consequence in determining the action.”).

233 See discussion supra Section II.F.2.
even though the area of study is based upon scientific principles. Following this logic, it is likely an expert on cell phone tower evidence, like Historical CSLI, would also be considered a technical expert in a West Virginia court rather than a scientific expert.

The current West Virginia law regarding admissibility of technical and other specialized knowledge under Rule 702 is a low standard for admissibility, especially considering the weight juries give to experts who take the stand.235 The Watson court set forth a standard that, when analyzed through the lens of a lay juror, could bring a shocking outcome when the evidence being admitted is something as foreign as Historical CSLI.236 The fact that “any argument regarding the methodology utilized by [the] expert in developing his opinions go[es] to the weight of his testimony and not its admissibility” is absurd if the court itself will refrain from examining the methodology before admitting technical expert evidence under 702(a).237 How will the jury be required to examine the methodology of the expert’s testimony when it will be admitted by the court without having the same scrutiny?

D. What a West Virginia Court Should Do When Faced with a Historical CSLI Question

Because the Supreme Court of Appeals of West Virginia has not yet addressed the question presented by this Note, it is important to look to precedent in other jurisdictions for guidance. When a West Virginia court is presented with

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234 Watson, 545 S.E.2d at 302.
235 Brown & Davis, supra note 226; see also 4 Steven D. Penrod & Brian L. Cutler, Eyewitness Expert Testimony and Jury Decisionmaking, 52 LAW & CONTEMP. PROBS. 43, 54 (Autumn 1989).

A central tenet underlying the developing legal position on expert psychological testimony is that jurors are not fully aware of scientific knowledge about memory processes. It is assumed that jurors are not fully sensitive to the factors that influence eye witness memory . . . . If jurors are not adequately sensitive to factors that influence the accuracy of eye witness identifications, they cannot effectively evaluate eyewitness evidence.

Id. Though this Note does not discuss eyewitness evidence, this Article brings an interesting point. The same argument can be made for Historical CSLI expert testimony (or any expert testimony)—if a jury does not fully understand the factors that influence the expert’s testimony about the technical process to which he is testifying, the jury cannot adequately evaluate the expert’s testimony. Here, however, the argument is not being made that juries are incapable of understanding Historical CSLI when an expert is explaining the process. To be admitted into the courtroom, the “process” should be reviewed more heavily in West Virginia than a simple 702(a) standard in order to ensure it is reliable enough for the jury to make a determination of fact. In order to adequately understand the expert’s outcome and give weight to the testimony, there must be a connection between the underlying methods of what the evidence is and what it is purported to show at trial.

236 Watson, 545 S.E.2d at 299.
237 Id.
the question of whether Historical CSLI should be admitted into the courtroom under Rule 702, it should look to *Kumho* and its reasoning in adopting the *Daubert* standard for scientific testimony for technical and other specialized knowledge. 

Looking back to Bobby Newman’s case from Part I, if a West Virginia court heard the case, the standard for admissibility of the technical expert testimony would be *Watson* and 702(a). The trial judge would ask whether the expert’s testimony would assist the trier of fact in determining whether Bobby was near the scene of the murder (i.e. had something to do with Shay’s murder). This fact is determinative to the outcome of the case and is, therefore, extremely important. Because this fact, determined by the fact finder, is so crucial, the admissibility of the evidence that will help the fact finder make this decision should be scrutinized under a stricter standard than the 702(a) test, which boils down to a 401 relevance standard. Under current West Virginia law, the judge would skip the inquiry of whether the methods of the expert’s testimony are reliable. The question about the methodology of Agent Shute’s testimony regarding the cell tower evidence would go to its weight, not its admissibility. Because of this, the connection is missing: Will the testimony regarding the placement of Bobby’s phone during the times of the calls assist the trier of fact in determining a material issue in the case? Maybe. But how do we know if it will assist the trier of fact if it is not reliable enough for the jury to use when making the decision? Under current West Virginia law, this is unanswered in the realm of expert testimony for technical and other specialized knowledge. 

Following *Watson*, a court would likely find that Agent Shute is (1) an expert, (2) testifying to technical knowledge, and (3) providing testimony that will assist the trier of fact. The details regarding the cell records and Agent Shute’s opinion would likely be admitted to the jury without a strict inquiry. This means that the jury would hear the expert testify to the pings, that the cell records place Bobby within five miles of the crime scene, and Agent Shute’s opinion regarding how cell towers communicate. Agent Shute’s method of using his phone to test the cell towers and whether his phone would reselect to the same cell towers as did Bobby’s phone on the day of the murder would not be tested by the judge — this opinion would go straight to the jury for it to decide

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238 See discussion supra Section II.F.2.  
239 See discussion supra Part I.  
240 W. VA. R. EVID. 702(a), 401.  
241 *Watson*, 545 S.E.2d at 299; see also discussion supra Part I.  
242 *Watson*, 545 S.E.2d at 303 (quoting Gentry v. Mangum, 466 S.E.2d 171, 183 (W. Va. 1995)).  
243 W. VA. R. EVID. 702.  
244 See discussion supra Part I.
how much weight to give the evidence. However, West Virginia courts place weight on experts’ educational achievements and experience. Therefore, because Agent Shute is a special agent from the FBI, these credentials would likely pass the court’s examination.

E. In a Jurisdiction Where Kumho Is Adopted for Historical CSLI Expert Evidence, What Is the Outcome?

If West Virginia adopted Kumho to determine the admissibility of Historical CSLI expert evidence, a court would inquire further about Agent Shute’s testimony. A court would employ the following standard and look to the following factors before admitting Agent Shute’s technical expert witness testimony before the jury: (1) Is the witness an expert?; (2) Is the theory or technique relied upon by the expert generally accepted in the scientific community?; (3) Has it been subjected to peer review and publication?; (4) Has it been, or can it be, tested?; (5) Is the known or potential error rate acceptable?; and (5) Will it assist the trier of fact? This standard is more stringent for the admissibility of the expert testimony because it tests the underlying theory more than the current standard.

Following the Kumho standard, the trial judge would address several concerns regarding Agent Shute’s testimony. The judge would ask whether, on the day of the murder, Bobby’s phone acted in the same way as Agent Shute’s phone did by connecting to the same towers that Agent Shute’s phone did during his practice calls. The judge would question the reliability of the PowerPoint presentation demonstrating the range of the cell towers. Next, the judge would scrutinize the “list” a cell phone makes when sorting through cell sites. The judge would inquire whether there are factors that could affect the “strongest” tower also being the “closest.” The judge would further determine whether each of these things is generally accepted in the scientific community and that each has been subjected to peer review and publication. Each assertion listed above should have been, or can be, tested, and the potential error rate of each should be acceptable. If West Virginia adopts the Kumho standard for Historical CSLI, these inquiries would have to be determined by the trial judge before the admission of the expert witness testimony regarding the Historical CSLI evidence.

The outcome of adopting Kumho for Historical CSLI is more favorable to the West Virginia justice system because it requires the trial judge to engage the gatekeeping responsibility that is already in place for scientific expert

247 Id. at 147, 149–50.
248 Id. at 152.
testimony. The purpose of a gatekeeper is to ensure that juries hear reliable evidence. If a jury is to make a fact decision, how can we expect it to do so without deciding with reliable evidence? Because it is crucial for the evidence being heard by a jury to be reliable in order for it to make a decision based upon accurate facts, West Virginia courts should consider bolstering the threshold for this type of evidence.

Take, for example, a products liability case in West Virginia. The plaintiff calls an expert to show how a furnace is installed in a home. Most lay people do not know how to install this unit, but they are aware that many homes have a furnace, the filters need changed, and if there is a problem with a furnace, they call a heating and air repairer. However, with Historical CLSI and other complex technical or specialized knowledge, a juror would likely put more weight on the testimony. This was heavily argued by the petitioner in the amicus briefs filed in Kumho: “Among the ‘difficulties’ that Judge Hand noted were that an expert frequently ends up ‘confusing’ the jurors and effectively ‘take[s] the jury’s place if they believe him.” This shows the need for a higher standard for technical and other specialized knowledge like Historical CLSI.

In the petitioner’s brief, he went on to argue that “because experts often deal with esoteric matters of great complexity,” jurors frequently are incapable of ‘critically evaluating the bases for an expert’s testimony’ and too often give ‘unquestioning deference to expert opinion.” With this in mind, it makes sense to adopt the gatekeeping function for expert evidence other than scientific, which is exactly what the Court did in Kumho and what West Virginia courts should do so when faced with a Historical CLSI expert. The petitioner went on, pointing out that cross-examination and showing weakness in opposing expert testimony is ineffective. “Because of the expert’s ‘aura of infallibility,’ even when jurors have a ‘basis for questioning the expert’s reliability, [they] may be disinclined to do so.” Due to this “infallibility,” juries put more weight on expert evidence, which could be dangerous to a party if the evidence is not reliable. To protect parties to litigation and the system in general, West Virginia should consider the Kumho standard when evaluating an expert witness for Historical CLSI.


Id. at 52–53 (quoting C. WRIGHT & V. GOLD, FEDERAL PRACTICE AND PROCEDURE § 6262, at 182–83 (1997)).

See Kumho, 526 U.S. at 152.

Brief for Petitioner, supra note 250, at 54.

Id. (quoting C. WRIGHT & V. GOLD, FEDERAL PRACTICE AND PROCEDURE § 6262, at 183 (1997)).
F. Questions to Ask Regarding Reliability

The following questions could be helpful to a trial judge weighing the reliability of Historical CSLI for admissibility. How precise is CSLI in this particular setting? As mentioned above, geography and topography may affect how precise this data is. If the phone is in range of several towers when a caller makes a call, does it automatically connect with the tower that is the closest? As some data suggests, the closest tower is not always the tower to which a call connects. What extrinsic factors affect which tower a phone connects to? What records of Historical CSLI are stored by the service provider? Is Historical CSLI recorded when the data is being used for applications like Facebook, Email, etc.? A detailed record of this data would provide additional factors for the jury to sift through when determining whether this evidence can pinpoint the caller in a specific place. Is the phone equipped with the necessities that are required for tracking its historical location? In answering these questions, a West Virginia court is bound to discuss the reliability of Historical CSLI, which is a necessity under Daubert and Rule 702.

IV. CONCLUSION

West Virginia should adopt the Kumho standard when evaluating the admissibility of Historical CSLI evidence. As the current law stands, West Virginia fails to adequately protect parties by applying the minimal standard of Rule 702(a) and the Rule 401 relevance test to technical and other specialized knowledge. West Virginia courts, having adopted Daubert for scientific expert testimony, should examine Historical CSLI by adopting and using Kumho to scrutinize Historical CSLI under Rule 702. When a Historical CSLI question presents itself in West Virginia, the state’s adoption of Kumho would provide an additional safeguard to prevent the jury from hearing unreliable Historical CSLI evidence.

The Kumho standard for technical expert testimony, in placing the gatekeeping role in the hands of the trial judge, ensures that the parties will use reliable evidence in proving their case to the jury. Because it is crucial to the fact finder for all expert evidence to be thoroughly scanned and pronounced reliable,

256 See discussion supra Section III.A.
257 In re United States, 40 F. Supp. 3d at 93.
258 See discussion supra Section II.D.
259 In re United States, 40 F. Supp. 3d at 93.
260 Id.
261 Id.
262 Id.
using *Kumho*’s approach to Historical CSLI is the way to ensure the expert evidence is based upon reliable methods. Historical CSLI technical expert testimony should be relied upon by the trier of fact when (1) it is based upon “sufficient facts or data,” (2) it is a result of “reliable principles and methods,” and (3) those principles and methods were “reliably applied” to the facts of the case.\(^{263}\)

Though this Note barely touched on a policy argument, the reasoning surrounding a decision to adopt a stricter standard for Historical CSLI evidence falls in line with public policy. Since juries put more weight on expert testimony of which they have no prior knowledge and in which they have no experience, the gatekeeping role of the judge is important. Expert testimony regarding Historical CSLI evidence that is (1) tested, (2) subjected to peer review and publication, (3) accepted with a rate of error within the proper standards, and (4) generally accepted within the scientific community is the test that a West Virginia court should use when evaluating Historical CSLI expert testimony.

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\(^{263}\) W. VA. R. EVID. 702(b).

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