SYLLABUS

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State v. Roberson Burney (A-14-22) (086966)

Argued March 27, 2023 -- Decided August 2, 2023

PIERRE-LOUIS, J., writing for the Court.

In this appeal, the Court considers whether it was cumulative error for the trial court to admit two pieces of evidence: expert testimony that defendant Roberson Burney's cell phone was likely near a crime scene based on a "rule of thumb" approximation for cell tower ranges in the area, and a first-time in-court identification of defendant by a witness who had previously identified another person as the perpetrator in a photo lineup.

On December 25, 2015, Rosette Martinez was at home with her daughter, Samantha, and Samantha's friend, when she heard footsteps coming up the stairs. She testified that a man opened the door and stated, "I'm here for your dad, George," leading her to believe he was there to fix something at the house. Martinez believed she recognized the intruder as someone who had recently done contracting work on their house. He then pulled out a "long gun," instructed the women to lay face down, tied their hands behind their backs, and began to rifle through possessions. At some point during the robbery, the women heard the intruder's phone ring and announce a "[c]all from" a name. Samantha testified that she heard the intruder's phone announce an "incoming text" message from a name she did not recognize, but the message was not read aloud. All three women testified that they heard clicking noises that indicated to them that the intruder was taking pictures with his phone. After the intruder left, the women untied themselves and called 911 at approximately 8:15 p.m.

The victims described the intruder and his clothes to the police. A detective spoke to Rosette's parents; they provided the name and business card of the contractor, Mark Burney, who had worked on their house a few weeks prior to the robbery. Mark Burney is defendant's brother, and he stated that defendant had been working with him at Rosette Martinez's home.

On December 26, Rosette Martinez misidentified a filler photo in a photo array with 90 percent certainty. She declined to make an identification during a second photo array, which included a photo of defendant, on December 28.

The day after the robbery, Martinez noticed that among the bags in the stairway to her apartment, there was a Costco bag she did not recognize. That bag was later found to have defendant's DNA on it.

On December 29, police visited defendant. While questioning him, a detective sent a text message to defendant's phone, which gave an audible voice announcement of a "text message received" from the detective's phone number and read the message out loud. The detective then obtained a warrant and arrested defendant. Police collected his clothing, which matched the victims' description. Defendant's cell phone records showed that he received a text message while the robbery was in progress. Additionally, defendant's phone included several blurry, dark pictures taken at 8:03 p.m. on December 25. Police also found several photographs of a "Princess" brand watch on defendant's cell phone captured in the days after the robbery, and four web searches for "Princess" watches.

On January 21, 2016, Martinez returned to the police station. A detective told her that defendant had been arrested for the robbery and that police seized his cell phone, which contained pictures of jewelry and a watch. The detective showed her one of the pictures of the watch, and she identified it as hers. She later provided the box for the watch, containing additional watch bands, to prove the watch was hers.

Defendant was indicted on several counts. Prior to trial, defense counsel moved to exclude testimony by the State's expert, Federal Bureau of Investigation Special Agent Ajit David, and any first-time in-court identification of defendant by any of the victims. The trial court denied both motions.

At trial, Rosette Martinez identified defendant as the intruder for the first time, pointing him out in the courtroom. And Special Agent David gave his expert opinion that the cell towers in the area had an approximate coverage radius of about one mile -- an estimate that reflected his "rule of thumb" for the area, which he stated was a "good approximation" based on his training and experience. Based on that "rule of thumb," he placed defendant's cell phone at or near the crime scene at the time of the robbery, emphasizing that it was "highly, highly unlike[ly]" that a cell tower defendant's phone had pinged at 8:02 p.m. did not cover the crime scene. Defendant was convicted of robbery and other offenses.

The Appellate Division affirmed as to both Special Agent David's testimony and the first-time in-court identification. 471 N.J. Super. 297, 304-05 (App. Div. 2022). The Court granted certification. 252 N.J. 134 (2022).

HELD: The trial court erred in admitting both the testimony placing defendant's phone at or near the crime scene and the first-time in-court identification. Those errors, in combination, deprived defendant of a fair trial.

1. Across the nation, state and federal courts have accepted expert testimony about cell site analysis for the purpose of placing a cell phone within a "general area" at a particular time. Unlike the more precise location data provided by a Global Positioning System (GPS), cell site analysis simply confirms that the phone was somewhere within the coverage radius of the cell tower during the recorded activity. The Seventh Circuit, concerned that a "jury may overestimate the quality of the information provided by" cell site analysis, has admonished that "[t]he admission of historical cell-site evidence that overpromises on the technique's precision -- or fails to account adequately for its potential flaws -- may well be an abuse of discretion." United States v. Hill, 818 F.3d 289, 299 (7th Cir. 2016). Under New Jersey case law, when an expert grounds testimony in personal views, rather than objective facts, the net opinion rule requires the exclusion of such unsupported views. In circumstances similar to this case, the Northern District of Illinois held that the testifying expert's estimates of the ranges of different cell towers were unreliable because they were based solely on the expert's training and experience. United States v. Evans, 892 F. Supp. 2d 949, 956 (N.D. Ill. 2012). (pp. 27-31)

2. Special Agent David testified that a one-mile radius was a "good approximation" as to the coverage area for the relevant cell tower. He did not testify that such approximation is common practice in cell tower analysis. And he candidly admitted that he did not consider any of the factors that can affect coverage listed in the Court's opinion. By Special Agent David's own admission, he determined the tower range "just based on [his] training and experience." And the State offered no outside evidence to support the range. That "rule of thumb" testimony constitutes an improper net opinion because it was unsupported by any factual evidence or other data. The Court does not suggest that, to be admissible, expert testimony must consider all of the factors listed. However, the testimony here was based on nothing more than personal experience, and the trial court erred in allowing it. (pp. 31-33)

3. The admissibility of Rosette Martinez's first-time in-court identification is controlled by the Court's holding today in State v. Watson, ___ N.J. ___ (2023). Although the dictates of Watson were not in effect at the time of the present trial, "[w]ith or without the benefit" of the ruling in Watson, "the nature of the identification in this case raises concerns." See id. at ___ (slip op. at 33). The identification procedure here was highly suggestive. By telling Martinez defendant's name, informing her that he had been arrested for the robbery, and showing her pictures of the watch found on his phone, the detective impermissibly influenced and tainted any future identification by her. Additionally, the layout of the courtroom, as Martinez admitted, tipped her off as to where defendant was seated. Furthermore, there was no "good reason" to allow the first-time in-court identification here. Martinez did not know defendant well prior to the robbery, see id. at ___ (slip op. at 29-30), and she was unable to identify defendant -- and indeed identified a different person in a filler photograph with 90 percent certainty -- when

she viewed the photo arrays. There was no basis for an in-court identification under the circumstances. In Watson, the Court directed that prosecutors must disclose "anything discussed with a witness during trial preparation that relates to an upcoming in-court identification" under Rule 3:11. Id. at ___ (slip op. at 31). Because comments like those made in this case about the defendant's identity and evidence that purportedly links the defendant to the crime could well make an in-court identification highly suggestive, the Court directs that such information be disclosed under Rule 3:11 as well. The Court also explains that, in situations like what occurred here, the State must complete a photo display witness statement form. The circumstances of Rosette Martinez's in-court identification were highly suggestive, and therefore, the identification should have been excluded. (pp. 33-38)

4. An appellate court may reverse a trial court's judgment if the cumulative effect of a series of errors is so great as to deprive a defendant of a fair trial. Here, the trial court allowed the jury to hear two significant pieces of unreliable evidence that purportedly connected defendant to the robbery: Special Agent David's testimony placing defendant's phone at or near the crime scene and Rosette Martinez's first-time in-court identification that defendant was the intruder. The State stressed the credibility of both pieces of evidence in summation, and Martinez's testimony -- as the only witness who identified defendant as the intruder -- could have had a serious impact on the jury's perception of defendant's guilt or innocence in conjunction with Special Agent David's testimony. The due process concerns raised by the likelihood of misidentification in Martinez's testimony magnify the harmfulness of the trial court's error. Balancing the other evidence presented by the State against the force of the improperly admitted evidence, the Court finds that the cumulative error impacted and prejudiced the fairness of defendant's trial. Therefore, defendant's conviction and sentence must be vacated and a new trial granted. At a retrial, the State may not ask Rosette Martinez to identify defendant again. (pp. 38-41)

REVERSED and REMANDED for a new trial.

JUSTICE SOLOMON, dissenting, agrees that the trial court erred in admitting the disputed testimony by Special Agent David and Rosette Martinez's first-time in court-identification but expresses the view that those errors are harmless in light of the sheer volume of competent evidence against defendant -- most notably his DNA on the Costco shopping bag found at the scene, the photographs of Martinez's unique watch on his phone, and the corresponding testimony about the intruder's text message alerts and the taking of photographs.

CHIEF JUSTICE RABNER; JUSTICES WAINER APTER and FASCIALE; and JUDGE SABATINO (temporarily assigned) join in JUSTICE PIERRE-LOUIS's opinion. JUSTICE SOLOMON filed a dissent, in which JUSTICE PATTERSON joins.

SUPREME COURT OF NEW JERSEY

A-14 September Term 2022

086966

State of New Jersey,

Plaintiff-Respondent,

v.

Roberson Burney, a/k/a Robert Burney, John Burney, Robin Burney, and Michael Langford,

Defendant-Appellant.

On certification to the Superior Court, Appellate Division, whose opinion is reported at 471 N.J. Super. 297 (App. Div. 2022).

Argued	Decided
March 27, 2023	August 2, 2023

Cody T. Mason, Deputy Public Defender II, argued the cause for appellant (Joseph E. Krakora, Public Defender, attorney; Cody T. Mason, of counsel and on the briefs, and Stephen W. Kirsch, Designated Counsel, on the briefs).

Lucille M. Rosano, Special Deputy Attorney General/Acting Assistant Prosecutor, argued the cause for respondent (Theodore N. Stephens, II, Acting Essex County Prosecutor, attorney; Lucille M. Rosano, of counsel and on the briefs).

Ethan Kisch argued the cause for amici curiae American Civil Liberties Union of New Jersey, Association of

Criminal Defense Lawyers of New Jersey, and The Innocence Project, Inc. (Gibbons, attorneys; Ethan Kisch and Lawrence S. Lustberg, on the brief).

Lauren Bonfiglio, Deputy Attorney General, argued the cause for amicus curiae Attorney General of New Jersey (Matthew J. Platkin, Attorney General, attorney; Lauren Bonfiglio, of counsel and on the brief).

JUSTICE PIERRE-LOUIS delivered the opinion of the Court.

In this appeal, we must determine whether it was cumulative error for the trial court to admit two pieces of evidence: expert testimony that defendant's cell phone was likely near a crime scene based on a "rule of thumb" approximation for cell tower ranges in the area, and a first-time in-court identification of defendant by a witness who had previously identified another person as the perpetrator in a photo lineup.

Defendant Roberson Burney was convicted of robbery and assault, among other charges, and sentenced to an extended term of life imprisonment without parole. The charges stemmed from an armed robbery at Rosette Martinez's home. In the days immediately following the home invasion, Rosette[1] was shown two photo arrays, the second of which included a photo of defendant. Rosette misidentified a filler photo in the first photo array with 90

[1] Because multiple witnesses and victims share the same surname, we use their first names to avoid confusion. We intend no disrespect in doing so.

percent certainty and declined to make an identification during the second photo array. One month later, detectives invited Rosette back to the police station and informed her that they had arrested defendant for the robbery of her home.

At trial, the State's expert, Federal Bureau of Investigation (FBI) Special Agent Ajit David, used defendant's cell phone records to create maps showing the cell towers with which defendant's phone made contact on the night of the robbery. Special Agent David gave his expert opinion that the cell towers in the area had an approximate coverage range with a radius of about one mile. That estimated radius was based solely on Special Agent David's "rule of thumb" for the area -- a "good approximation" based on his training and experience. Special Agent David relied on that approximation to place defendant's cell phone at or near the crime scene at the time of the robbery.

Prior to trial, defense counsel moved to exclude both Special Agent David's expert testimony and any first-time in-court identification of defendant by any of the victims. Defense counsel argued that Special Agent David's one-mile approximation was unreliable because it was based on nothing more than his personal experience. Defense counsel further argued that any in-court identification by Rosette was tainted by the detectives' highly suggestive conduct of telling Rosette defendant's name and sharing other

details of the investigation. The trial court denied both motions, thereby allowing Special Agent David to testify as to his one-mile approximation and Rosette to identify defendant as the intruder for the first time at trial.

The Appellate Division affirmed on both issues, holding that the trial court did not abuse its discretion in permitting Special Agent David's expert testimony or Rosette's first-time in-court identification. The court found that Special Agent David's estimated one-mile coverage range was well supported by his knowledge, skill, experience, and training. And although the Appellate Division noted that it was suggestive for police to tell Rosette defendant's name prior to her in-court identification, the court concluded that any weakness in the identification was "fully presented to the jury through skillful cross-examination" and adequate jury instructions.

For the reasons stated below, we find that the trial court erred in admitting both pieces of evidence. Those errors, in combination, deprived defendant of a fair trial. We therefore reverse and remand this matter for a new trial.

I.

A.

We rely on the testimony elicited at trial for the following summary.

On the evening of December 25, 2015, an armed robbery occurred at Rosette's two-family home in Bloomfield. Rosette was with her daughter, Samantha, and Samantha's friend, Taffy Camacho, when she heard footsteps coming up the stairs to her door. Rosette testified that a man opened the door and stated, "I'm here for your dad, George," leading her to believe he was there to fix something at the house. Rosette believed she recognized the intruder as someone who had recently done contracting work on their house. He then pulled out a "long gun" and ordered the women down the hall into Rosette's bedroom, following behind them.

The intruder instructed the women to lay face down and tied their hands behind their backs with telephone cords and scarves. He asked where the money and gold were, and Rosette responded that she "d[id]n't have anything." The man then began rifling through Rosette's drawers, jewelry, and pocketbooks. Throughout the duration of the robbery, the man ordered: "[h]eads down," "eyes down," "don't look at me," and "shut up."

At some point during the robbery, the women heard the intruder's phone go off. Rosette heard the intruder's phone ring and announce a "[c]all from" a name she did not recognize. Thereafter, Rosette testified that the intruder "talk[ed] to somebody." Samantha testified that she heard the intruder's phone announce an "incoming text" message from a name she did not recognize, but

the message was not read aloud. Samantha also testified that the intruder answered a call at one point. Camacho testified that she heard the intruder's phone announce an "incoming message." All three women testified that they heard clicking noises that indicated to them that the intruder was taking pictures with his phone.

After approximately fifteen to twenty minutes, the intruder told the women to give him a few minutes to leave, and no one would get hurt. After the women heard the intruder walk down the steps to the porch and leave, they untied themselves and called 911 at approximately 8:15 p.m.

Officers Leonard Antinozzi and Anna Ruiz of the Bloomfield Police Department responded to the 911 call and spoke with the victims, as well as Rosette's parents, who lived on the first floor. Rosette's parents did not see or hear anything related to the robbery. The victims described the intruder as a 5'8" to 5'9" tall, slender, Black man between the ages of forty and sixty. Rosette and Samantha recalled that the man wore a black beanie and dark clothes, and that his face was uncovered. Rosette reported that the intruder stole jewelry, two Amazon Kindles, and credit cards.

During the 911 call, Rosette told the dispatcher that the man "worked at our house," and told Officer Antinozzi the same. Rosette initially told Officer Antinozzi that upon entering the house, the intruder said, "I'm here to do work

on the house." In her formal statement to Bloomfield Police Detective Jeffrey Alfonso on the evening of the robbery, Rosette reported that the intruder told her "I am here to fix something for your father," who had hired the contractors. Rosette later testified that the intruder "said he's from Tyrone" -- her father's caretaker who referred the contractors to him. Samantha testified that the intruder said that he "knew Tyrone, and he was [there] for my grandpa or something like that." Camacho recalled the intruder saying something about "plumbing."

After taking the victims' statements, Detective Alfonso re-canvassed the scene and spoke to Rosette's parents. They provided the name and business card of the contractor, Mark Burney, who had worked on their house a few weeks prior to the robbery. Mark has five brothers: defendant, John, Cornelius, Tyrone,[2] and Christopher. Detective Alfonso contacted Mark, who told the detective that defendant had been working with him at Rosette's home.

Rosette testified that she had seen defendant on two prior occasions. Rosette stated that her father hired Mark in October or November 2015 to repair their porch roof, and defendant had assisted his brother by cleaning the porch windows. Mark's son had also assisted with the work at Rosette's

[2] There are two individuals in this matter named Tyrone, Tyrone Burney and Tyrone the caretaker.

house. Rosette testified that she briefly spoke to defendant when she handed him some cleaning supplies. And Rosette testified that a few weeks before the robbery, defendant rang her doorbell and asked if her father was home. Rosette responded that her parents were not home and to come back later.

On December 26, police showed Rosette a photo array that included a photo of defendant's brother Cornelius. Rosette identified a "filler" photo (a photo of a person unrelated to the investigation) with "at least 90" percent certainty. On December 28, police showed Rosette a second array, which included a photograph of defendant. Rosette declined to choose a photograph in that array. Specifically with regard to defendant, Rosette did not select his photograph -- number five in the array -- stating, "that's not his nose." As the photo array concluded, Rosette asked detectives about "the other picture the other day" that she identified.

Police also showed Samantha two photo arrays, neither of which included a photograph of defendant. The first photo array included a photo of Cornelius, and Samantha declined to make an identification. The second photo array included a photo of Tyrone Burney, and Samantha identified a filler photo. Camacho was also shown the array with a photo of Tyrone Burney, and she similarly identified a filler photo with 80 percent certainty.

The day after the robbery, Rosette noticed that among the bags in the stairway to her apartment, there was a Costco bag she did not recognize. Detective Alfonso returned to the residence to collect the evidence, which was later tested. The Costco bag was found to have defendant's DNA on it. The bag appeared in a photograph taken by the Crime Scene Unit on the date of the crime, but no witness could testify as to how long it had been on the stairway.

On December 29, Bloomfield police detectives visited defendant at University Hospital in Newark. Detective Alfonso had obtained defendant's location and phone number from his brother Mark. Defendant was at the hospital receiving treatment unrelated to the offense. While questioning defendant, Detective Alfonso used his police-issued phone to send a text message, "hello," to defendant's phone. Defendant's phone gave an audible voice announcement of a "text message received" from Detective Alfonso's phone number, and it read the message out loud. Detective Alfonso testified that he sent the text message as a test based on Samantha's report that the intruder received a text message during the robbery and his phone announced the incoming text.

Detective Alfonso then obtained a telephonic arrest warrant and arrested defendant at the hospital. At the time of his arrest, defendant was 6'1", 198 pounds, and fifty-seven years old. Upon defendant's arrest, police collected

defendant's clothing -- a black knit wool hat, a winter jacket, and a maroon-colored jacket -- which matched the victims' description of the intruder's clothing.

After obtaining a communications data warrant and search warrant, police obtained defendant's cell phone records, which showed that defendant received a text message at 8:02 p.m. on December 25 while the robbery was in progress. The next "event" -- text message or phone call -- on defendant's phone did not occur until 8:22 p.m. that night. Additionally, defendant's phone included several blurry, dark pictures taken at 8:03 p.m. on December 25. Police also found several photographs of a "Princess" brand watch on defendant's cell phone captured in the days after the robbery between December 26 and December 29, and four web search results for "Princess" watches performed on December 26 and 28.

On January 21, 2016, Rosette returned to the police station. A detective told Rosette that defendant had been arrested for the robbery of her home and that police seized defendant's cell phone, which contained pictures of jewelry and a watch. The detective then showed Rosette one of the pictures of the watch, and she identified it as her watch. Rosette testified that her watch had a black band, clear rhinestones around it, and a "Princess" engraving on the

inside. Rosette later provided Detective Alfonso with the black box for the watch, containing additional watch bands, to prove that the watch was hers.

The police did not find usable fingerprints on any items known to be touched by the intruder. The items used to tie up the victims were collected but were not submitted for DNA analysis. The police never recovered any of the stolen items or the gun.

B.

On April 28, 2016, an Essex County grand jury charged defendant with first-degree robbery, second-degree burglary, fourth-degree aggravated assault, third-degree criminal restraint, third-degree unlawful possession of a weapon, second-degree possession of a weapon for an unlawful purpose, third-degree burglary, and third-degree theft.

Before trial, defendant moved to suppress his statements to police at University Hospital, arguing that the police interrogators failed to properly advise him of his Miranda[3] rights. The trial court agreed and suppressed defendant's statements from the State's case-in-chief; the court found, however, that because defendant's statements were made voluntarily, they

[3] Miranda v. Arizona, 384 U.S. 436 (1966).

could be used for impeachment purposes if defendant chose to testify at trial. Ultimately, defendant elected not to testify.

Defendant also moved to bar the State's expert witness, Special Agent David, a member of the FBI's Cellular Analysis Survey Team (CAST), from testifying that on December 25, 2015, at 8:02 p.m., defendant's phone "pinged," or was in contact with, a cell tower with an approximate one-mile coverage area that included the crime scene. Defendant argued that Special Agent David's testimony was unreliable because he presented no evidence to support his general "rule of thumb" that the pinged cell tower had an approximate one-mile coverage area.

On July 6, 2017, the court held a Frye[4] hearing to determine the admissibility of Special Agent David's testimony. Special Agent David was qualified as an expert in historical cell site analysis, which he explained "is the use of cell phone companies' business records to approximate[5] where a user may have been at a particular time of interest."

[4] Frye v. United States, 293 F. 1013 (D.C. Cir. 1923).

[5] According to Special Agent David's testimony, historical cell site analysis cannot pinpoint a cell phone user's exact or real-time location; rather, it is utilized to approximate the prior location of a device based on the cell towers the device used at the time.

Special Agent David testified at the Frye hearing that he obtained defendant's phone records from Sprint, which cataloged the date and time of calls and text messages, the cell towers and sectors[6] that the phone used, and the locations of those towers. Based on this information, Special Agent David created maps depicting the towers pinged by defendant's phone on the evening of December 25, and which sectors defendant's phone utilized. Special Agent David plotted the cell towers and drew two lines -- 120-degree pie-shaped wedges -- extending from each of the cell towers' pinged sectors. Critically, Special Agent David testified that each of the lines had an approximate length of one mile, with the space in between them representing his estimated coverage area of the cell tower's sector.

Special Agent David opined that the towers likely had this one-mile range based on a "rule of thumb" for towers in the area. When asked how he determined the length of the two lines or "arms" that comprised the 120-degree coverage area for the cell towers, he explained:

> So . . . the length that was used for these arms is, again, an estimate and these are one mile, which is a rule of thumb for this particular technology and this particular

[6] Special Agent David testified that typically, cell towers are divided into three sectors, with each sector covering around 120 degrees and overlapping slightly to prevent dropped calls. The particular sector a phone utilized generally reveals the cardinal direction the phone was oriented towards when it pinged the cell tower.

> frequency in this particular area. So just based on my training and experience, one mile is a good estimate of the tower range for Sprint in this area. It's also further kind of supported by the location of the adjacent towers. We can infer, based on how the network is laid out and the fact that Sprint has designed this to avoid coverage gaps, that the tower needs to extend out to a certain distance that obviously doesn't cross over other towers, but that provides enough overlap between adjacent sectors so that there's no drops, no call drops, no dead zones in between. So just using a one-mile approximation, which has been a good approximation in my experience in this area.

With this foundation, Special Agent David testified that on December 25 at 8:02 p.m., defendant's phone used a tower in Orange, the "Parkway Tower," to receive a text message. Using his maps, Special Agent David gave his opinion that the Parkway Tower's coverage radius "would reasonably include the crime scene." Special Agent David acknowledged that the crime scene is slightly less than one mile from the Parkway Tower and is at the "outer boundary" of his estimated coverage area. Special Agent David also acknowledged, however, that two other cell towers were closer to, and within range of, the crime scene.[7]

[7] Earlier in the hearing, Special Agent David noted, "in an area like this part of Essex [County]," where the home invasion occurred, "which is relatively flat, [the strongest signal] will generally be the closest tower." Special Agent David did not map out the specific orientations of the cell towers' sectors closer to the crime scene, so he did not determine which cell tower had the "clearest[,] strongest signal." Special Agent David testified that "the cleanest

Special Agent David testified that he did not test the actual range of the Parkway Tower. The agent further noted that a tower's range and coverage area can be affected by many factors, including the height of the antenna, surrounding terrain and buildings, signal frequency, transmitter and phone power ratings, and antenna direction, but he did not offer measurements or data as to those specific factors when testifying as to his estimated range for the Parkway Tower. Special Agent David similarly did not measure the actual coverage area of the Parkway Tower through either "drive testing"[8] or "propagation maps."[9]

Defense counsel argued that Special Agent David's testimony regarding the range of the cell towers in question, and the Parkway Tower specifically, was not sufficiently reliable under Frye because Special Agent David used a "rule of thumb" and did not "look at the specific tower data for any of these

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and clearest signal propagates from" the "azimuth of the cell site," that is, the direct center of the 120-degree wedge.

[8] "Drive testing" measures "the actual coverage area of a particular cell site" through use of "a scanner that scans all of the radio frequencies in a particular area." Special Agent David testified that he had performed drive testing in the past.

[9] "Propagation maps" are used to estimate the range of a tower more precisely "based upon things like terrain, altitude, density of interference, [and the presence of] other towers." Special Agent David testified that he had never calculated or created a propagation map.

towers" or review the Parkway Tower's height or power rating -- all factors the agent testified can affect the tower's range. Defense counsel argued that based on Special Agent David's "general one-mile rule of thumb," it is "entirely possible that the crime scene falls outside the range of [the Parkway Tower]."

The trial court admitted Special Agent David's testimony, concluding that cell site analysis testimony "is sufficiently reliable based upon its general acceptance by the courts and other jurisdictions." The court determined that Special Agent David's testimony was clear that he was only approximating the cell phone's location and not testifying as to its specific location. The court gave no independent consideration as to Special Agent David's methodology.

On November 22, 2017, defendant moved in limine to preclude the State from eliciting an in-court identification from any of the victims. Defendant argued that Rosette could not make a reliable identification because police had impermissibly tainted any future identification by showing her the photos of a Princess watch, telling her they were from defendant's phone, telling her defendant's name, and telling her that defendant had been arrested for the robbery. The trial court denied the motion, reasoning that defendant's concerns could be addressed through cross-examination and proper jury charges.

On February 7, 2018, the jury trial began. Prior to Rosette's testimony, defense counsel requested that a contemporaneous Henderson[10] charge be given to the jury, in the event that Rosette identified defendant in-court for the first time. The judge reserved his decision. At the end of her direct testimony, Rosette identified defendant as the intruder for the first time, pointing him out in the courtroom. Defense counsel immediately renewed the request for a Henderson charge to be given before cross-examination. The judge denied the request, but made the following announcement to the jury:

> Members of the [j]ury, before we start cross-examination what I just want to advise you is with regard to all matters that are before you, it's ultimately your determination of the evidence in the case. With regard to identification, I'm going to give you detailed instructions on various factors that you can consider and identification. As you heard testimony Ms. Martinez just identified the defendant in this case as being the one who perpetrated the crime and you've heard she previously viewed photographs where she wasn't able to make an identification. So with regard to the identification process and the various factors that you can consider, I'm going to give you detailed instructions about that at the conclusion of the case, all right?

On cross-examination, Rosette confirmed that she "concluded they arrested the right guy" after detectives showed her the photograph of the watch

[10] State v. Henderson, 208 N.J. 208 (2011).

from defendant's phone. She also testified that she knew defendant was the suspect based on where he was sitting in the courtroom.

Special Agent David's trial testimony was consistent with his pretrial testimony. He emphasized to the jury that it was "highly, highly unlike[ly]" that the Parkway Tower did not cover the crime scene based on the tower's approximated coverage distance. On cross-examination, Special Agent David testified for the first time that the Parkway Tower "is mounted on the top of a high-rise apartment building with a clear line of sight to [the crime scene]" -- but again did not provide measurements as to the height of the tower, nor did he provide data as to the other factors that could have influenced the estimated coverage area and range of the Parkway Tower.

After Special Agent David's trial testimony, defense counsel raised a separate objection, arguing that Special Agent David's one-mile "rule of thumb" opinion was an impermissible "net opinion" -- an opinion without an underlying justification. The court disagreed, finding that Special Agent David "gave an approximation based upon his training, expertise, and experience."

After the State rested, defense counsel proposed three additions to the model jury instruction on in-court identifications. The court offered a "compromise," and read the charge to the jury as follows:

> The State has presented testimony of Rosette Martinez, who identified Roberson Burney. You will recall that this witness identified the defendant in court on February 12th, 2018 as the person who committed the crimes charged in the indictment.
>
> . . . .
>
> You may also consider that Rosette Martinez did not identify Roberson Burney during the photo array procedure that was conducted on December 28th, 2015.

The charge otherwise followed the model jury instruction.

On March 1, 2018, the jury acquitted defendant on the third-degree unlawful possession of a weapon charge and convicted him of the remaining charges. On August 31, 2018, defendant was sentenced to an extended term of life without parole pursuant to N.J.S.A. 2C:43-7.1 (the persistent offenders statute) on the first-degree robbery and second-degree possession charges, and concurrent terms on the remaining charges.

C.

Defendant appealed his conviction, arguing that the trial court erred in permitting: (1) Special Agent David's expert testimony on the Parkway Tower's approximate one-mile coverage range; (2) Rosette's first-time in-court identification; and (3) defendant's hospital-bed statements for impeachment purposes. State v. Burney, 471 N.J. Super. 297, 304 (App. Div.

2022). The Appellate Division affirmed defendant's conviction and sentence but remanded on the Miranda issue. Id. at 304-05.

The Appellate Division held that the trial court did not abuse its discretion in permitting Special Agent David's expert testimony, reasoning that the "estimate of a one-mile range of coverage was well-supported by his knowledge, skill, experience, and training, as well as by the Relevant Locations maps included in his expert report." Id. at 320. The court determined that Special Agent David's maps "clearly indicate that most towers in that area were approximately one mile or further apart," so the one-mile range was therefore "well-supported by factual evidence in the record." Id. at 322. The court explained that "[i]t was for the jury to decide whether [Special Agent David's] testimony was credible and how much weight to give it." Id. at 320.

The Appellate Division also held that the trial court did not abuse its discretion in allowing Rosette's first-time in-court identification. Id. at 329-30. First, the court asserted "[t]he record is clear that Rosette had interacted with defendant on two occasions prior to the robbery" and that she recognized defendant during the course of the robbery as someone who had done repair work on her house. Id. at 329. Based on those prior interactions, the court found that Rosette's identification could have been "based on an independent

recollection of defendant." Ibid. The appellate court next found that the officers' conduct -- telling Rosette defendant's name, informing her that he had been arrested for the robbery, and asking her to view photos extracted from his phone -- was suggestive and could have impacted her in-court identification, but it ultimately concluded that any unreliability in her identification was "fully presented to the jury through skillful cross-examination" and appropriate jury instructions. Id. at 329-30. Thus, the court held that defendant failed to meet the high standard required for suppression. Id. at 330.

The Appellate Division added that, alternatively, any theoretical error resulting from admitting Rosette's in-court identification was harmless in light "of the overwhelming evidence that defendant was the robber." Ibid. The court determined "that even if the in-court identification had been suppressed, Rosette would still have identified her watch from the photographs stored on defendant's cell phone."[11] Ibid.

[11] We note that the Appellate Division's decision incorrectly stated that the photos of the Princess watch found on defendant's phone were taken at the time of the robbery. The trial record makes clear that the pictures of the Princess watch were not taken the night of the robbery; rather, they were taken in the days after the robbery. The pictures found on defendant's phone taken on the night of the robbery were dark and blurry.

On the Miranda issue, which is not before this Court, the Appellate Division held that the trial court's findings, without the benefit of an expert medical witness, were inadequate to support its conclusion that defendant's hospital-bed statements were made voluntarily and thus could be used for impeachment purposes. Id. at 305, 316. The Appellate Division remanded for a new suppression hearing and directed the State to present expert testimony concerning defendant's medical condition at the time of the interrogation and the impact his medical condition had on the voluntariness of his statements to police. Id. at 318. If, on remand, the State failed to prove beyond a reasonable doubt that defendant's admissions were voluntary, the Appellate Division ordered that defendant's convictions be reversed, and he must be granted a new trial. Id. at 318-19.

We granted defendant's petition for certification on the issues unrelated to the remand. 252 N.J. 134 (2022). We also granted the joint application of the American Civil Liberties Union of New Jersey, the Association of Criminal Defense Lawyers of New Jersey, and the Innocence Project, Inc. (collectively, defense amici) and the application of the Attorney General to appear as amici curiae.

II.

A.

Defendant argues that the decisions of the trial court and the Appellate Division should be reversed because the trial court permitted the jury to hear two key pieces of unreliable evidence: (1) Special Agent David's expert testimony that the Parkway Tower's range would likely "include the crime scene" based on his one-mile "rule of thumb," and (2) Rosette's first-time in-court identification. Defendant contends those errors were clearly capable of affecting the jury's verdict because the State placed substantial weight on that unreliable evidence during trial.

Defendant argues the State failed to prove that Special Agent David's testimony has a clearly reliable scientific basis, particularly because the expert did not explain his methodology in arriving at the one-mile range. Defendant further argues that the agent's testimony, and the conclusions drawn from it, constitute an improper net opinion.

Defendant next argues that Rosette's in-court identification should have been excluded because it was the result of unduly suggestive procedures by the police and because Rosette did not have a sufficiently reliable basis for her identification independent of the detectives' suggestive conduct, given that her two prior interactions with defendant were very brief.

The defense amici support defendant's position and argue that both the cell tower and the identification testimony were improperly admitted, each requiring reversal. The defense amici submit that Special Agent David's one-mile "rule of thumb" range is unreliable because the State did not prove his approach is an accepted method in the relevant scientific community. The defense amici argue that Rosette's first-time in-court identification should have been excluded given the substantial likelihood that the detectives' highly suggestive out-of-court conduct would result in irreparable misidentification. Defense amici also ask this Court to apply the Henderson framework to this context to bar all first-time in-court identifications, arguing that such identifications are extremely suggestive and unreliable.

B.

The State argues that the decisions of the trial court and Appellate Division to admit the expert and identification testimony should be affirmed. The State contends that Special Agent David's expert testimony regarding the approximate one-mile range of the Parkway Tower is sufficiently reliable, and thus not an improper net opinion, because using cell site analysis to determine an approximate location of a cell phone is generally accepted in the scientific community and Special Agent David's opinion was based on his "training and expertise." Alternatively, the State argues that if there was error in admitting

this testimony, any "error was harmless considering the State's overwhelming evidence establishing defendant's presence in the house during the robbery."

The State also argues that Rosette's first-time in-court identification of defendant as the perpetrator was sufficiently reliable because she had two prior face-to-face interactions with defendant shortly before the robbery. The State asserts that defendant's allegation of suggestiveness fails to meet the high standard required for suppression.

The Attorney General echoes the State's arguments and asks this Court to affirm the Appellate Division's decision. The Attorney General adds that most in-court identifications should be admitted because instances of suggestiveness can be effectively addressed by cross-examination and proper jury instructions, as was done here.

III.

A.

Appellate courts generally "defer to a trial court's evidentiary ruling absent an abuse of discretion." State v. Garcia, 245 N.J. 412, 430 (2021). "A court abuses its discretion when its 'decision is made without a rational explanation, inexplicably departed from established policies, or rested on an impermissible basis.'" State v. Chavies, 247 N.J. 245, 257 (2021) (quoting State v. R.Y., 242 N.J. 48, 65 (2020) (internal quotation omitted)). "[A]

functional approach to abuse of discretion examines whether there are good reasons for an appellate court to defer to the particular decision at issue." R.Y., 242 N.J. at 65 (alteration in original) (quoting Flagg v. Essex Cnty. Prosecutor, 171 N.J. 561, 571 (2002)).

The abuse of discretion standard governs the evidentiary issues before us, which we will consider in turn. See Pomerantz Paper Corp. v. New Cmty. Corp., 207 N.J. 344, 371 (2011) (reviewing admissibility of expert testimony on net opinion grounds for abuse of discretion).

B.

We first address whether the trial court erred in permitting Special Agent David to testify that the Parkway Tower had an approximate one-mile coverage radius based on a "rule of thumb" for towers in the area.

1.

We briefly discuss the manner in which cell phones function and the relationship between cell phones, cell towers, and cell site analysis. Basic cell phones "operate[] like a scanning radio" and "use radio waves to communicate between a user's handset and a telephone network." State v. Earls, 214 N.J. 564, 576 (2013). "To connect with the local telephone network, the Internet, or other wireless networks, cell-phone providers maintain an extensive network of cell sites, or radio base stations, in the geographic areas they

serve." Ibid. When a cell phone user places a call or sends a text message, the phone generally "connects to the cell site with the strongest signal." Aaron Blank, The Limitations and Admissibility of Using Historical Cellular Site Data to Track the Location of a Cellular Phone, 18 Rich. J.L. & Tech. 3, 6 (2011). The proximity of the user to the cell site is a significant factor in determining which cell tower has the strongest signal; however, other relevant "factors include the towers' technical aspects, including geography and topography, the angle, number, and directions of the antennas on the sites, the technical characteristics of the relevant phone, and 'environmental and geographical factors.'" United States v. Hill, 818 F.3d 289, 295-96 (7th Cir. 2016) (quoting Blank, 18 Rich. J.L. & Tech. at 5, 7).

"Historical cell-site analysis uses cell phone records and cell tower locations to determine, within some range of error, a cell phone's location at a particular time." Id. at 295. Across the nation, state and federal courts have accepted expert testimony about cell site analysis for the purpose of placing a cell phone within a "general area" at a particular time. See, e.g., id. at 298; United States v. Baker, 58 F.4th 1109, 1125 (9th Cir. 2023); United States v. Jones, 918 F. Supp. 2d 1, 4 (D.D.C. 2013); United States v. Medley, 312 F. Supp. 3d 493, 499-502 (D. Md. 2018), aff'd 34 F.4th 326, 337-38 (4th Cir. 2022); Holbrook v. Commonwealth, 525 S.W.3d 73, 80-82 (Ky. 2017). Unlike

the more precise location data provided by a Global Positioning System (GPS), cell site analysis simply confirms that the phone was somewhere within the coverage radius of the cell tower during the recorded activity. See James Beck et al., The Use of Global Positioning (GPS) and Cell Tower Evidence to Establish a Person's Location -- Part II, 49 Crim. L. Bull. 637 (2013).

In Hill, the Seventh Circuit, concerned that a "jury may overestimate the quality of the information provided by" cell site analysis, admonished that "[t]he admission of historical cell-site evidence that overpromises on the technique's precision -- or fails to account adequately for its potential flaws -- may well be an abuse of discretion." 818 F.3d at 299. In that case, the testifying expert used cell site analysis to trace the whereabouts of the defendant's phone over the span of two days, with the implication that the phone was in the general area of the Credit Union the day it was robbed. Id. at 297-98. The agent did not testify as to the cell tower's specific range, and he admitted on cross that he did not know any of the particular characteristics of the tower. Id. at 298. The Seventh Circuit found that because the agent "emphasized that [the defendant]'s cell phone's use of a cell site did not mean that [the defendant] was right at that tower or at any particular spot near that tower," "[t]his disclaimer saves his testimony" that the phone was in the general area of the cell site. Ibid.

2.

N.J.R.E. 702 and N.J.R.E. 703 govern the admissibility of expert testimony. Townsend v. Pierre, 221 N.J. 36, 53 (2015).

> Expert testimony must be offered by one who is "qualified as an expert by knowledge, skill, experience, training, or education" to offer a "scientific, technical, or . . . specialized" opinion that will assist the trier of fact, see N.J.R.E. 702, and the opinion must be based on facts or data of the type identified by and found acceptable under N.J.R.E. 703.
>
> [Pomerantz Paper Corp., 207 N.J. at 372 (omission in original).]

"[A] court must ensure that the proffered expert does not offer a mere net opinion." Ibid. The net opinion rule, a corollary of N.J.R.E. 703, "forbids the admission into evidence of an expert's conclusions that are not supported by factual evidence or other data." Townsend, 221 N.J. at 53-54 (quoting Polzo v. County of Essex, 196 N.J. 569, 583 (2008)). "The rule requires that an expert 'give the why and wherefore' that supports the opinion, 'rather than a mere conclusion.'" Id. at 54 (quoting Borough of Saddle River v. 66 E. Allendale, LLC, 216 N.J. 115, 144 (2013)); see also Pomerantz Paper Corp., 207 N.J. at 372.

This Court has previously held that when an expert grounds testimony in personal views, rather than objective facts, the net opinion rule requires the

exclusion of such unsupported views. Pomerantz Paper Corp., 207 N.J. at 372-74; see also Alpine Country Club v. Borough of Demarest, 354 N.J. Super. 387, 395-96 (App. Div. 2002) (rejecting an expert's personal "rule of thumb" approach to fair market value). In Pomerantz Paper Corp., we concluded that although the expert "opined at some length about his experiences and his impressions" at trial, his essential testimony as to "acceptable markups in sales" was based on his personal views. 207 N.J. at 373-74. We found that, because his testimony "lack[ed] any suggestion about the expert's support for the conclusions that he intended to offer," the trial court erred in permitting the expert to testify. Ibid.; see also Townsend, 221 N.J. at 57 (holding an expert's testimony was inadmissible net opinion, noting the expert "took no measurements" and "did not apply his engineering expertise to present empirical evidence" supporting his contentions).

Under circumstances more similar to the case before us, the Northern District of Illinois held that the testifying expert's estimates of the ranges of different cell towers were unreliable because they were based solely on the expert's training and experience. United States v. Evans, 892 F. Supp. 2d 949, 956 (N.D. Ill. 2012). The court determined that "[e]stimating the coverage area of radio frequency waves [of a cell tower] requires more than just training and experience, . . . it requires scientific calculations that take into account

factors that can affect coverage." Ibid. Because the expert in that case "presented no scientific calculations," "did not consider a variety of relevant factors," and did not have his methodology assessed by the relevant scientific community, the court found the expert testimony inadmissible. Id. at 956-57.

3.

In the present case, defendant maintains that the State failed to prove Special Agent David's "rule of thumb" opinion is reliable and argues it is therefore an improper net opinion. Defendant does not challenge all forms of cell site analysis, nor does he challenge Special Agent David's qualifications. Rather, defendant asserts that Special Agent David failed to offer factual evidence or data to support his conclusion that the Parkway Tower has an approximate coverage area of one mile, which just barely places Rosette's home within the tower's estimated range.

At trial, Special Agent David testified that, based on his training and experience, a one-mile radius for the Parkway Tower was a "good approximation" as to its coverage area. Special Agent David did not testify that such approximation is common practice in cell tower analysis, or that his one-mile "rule of thumb" had been used by any other agent or radio frequency engineer. Additionally, Special Agent David candidly admitted that he did not review the height of the Parkway Tower, did not review its rated power, did

not calculate the estimated absorption of radio energy by nearby buildings or hills, did not review the specific angle of the tower's antenna, and did not review any diagnostic data from the tower on December 25. Special Agent David similarly did not perform any tests of the Parkway Tower's area of signal coverage. By Special Agent David's own admission, he determined the tower range "just based on [his] training and experience." And the State offered no outside evidence to support the range of the Parkway Tower.

With his rule of thumb, Special Agent David created a map to illustrate the coverage area for the Parkway Tower. When asked on cross-examination whether it was possible that Rosette's home could fall outside the Parkway Tower's actual coverage area, Special Agent David responded that though possible, it was "highly, highly unlike[ly]." Given the lack of data to support the agent's approximation of the cell tower's coverage area, Special Agent David's testimony failed to account adequately for the potential flaws in his "rule of thumb" opinion. See Hill, 818 F.3d at 299.

We agree with defendant that Special Agent David's "rule of thumb" testimony constitutes an improper net opinion because it was unsupported by any factual evidence or other data. We do not suggest that, to be admissible, expert testimony must consider all of the factors listed above. However, because the testimony was based on nothing more than Special Agent David's

personal experience, the trial court erred in allowing the jury to hear this testimony.

C.

We now turn to the admissibility of Rosette's first-time in-court identification. Our holding today in State v. Watson, ___ N.J. ___ (2023) (slip op. at 1) controls in this matter.

In Watson, the witness, who previously misidentified another person's photograph as the perpetrator in a pretrial photo array, learned from the prosecutor prior to trial that the defendant was going to be seated at the defense table. Id. at ___ (slip op. at 7-8). At trial, the witness identified the defendant for the first time, in court, with 80 percent certainty. Id. at ___ (slip op. at 7).

In reversing defendant's conviction, we held that "first-time in-court identifications can be conducted only when there is 'good reason' for them," in order "[t]o avoid unduly suggestive identifications of defendants in court that may trigger serious due process concerns under the State Constitution." Id. at ___ (slip op. at 29). We delineated several examples that could constitute "good reasons" to permit a first-time in-court identification, including when an eyewitness is familiar with the defendant from before the crime occurred, when domestic violence victims seek to identify their assailants, when

"[f]riends or associates, among others," seek to identify a defendant that "they have known for some time," and when an officer, who arrested the individual, is called to confirm the defendant is that same person. Id. at ___ (slip op. at 29-30).

This Court held, however, that the better practice is for the State to conduct appropriate identification procedures prior to trial to avoid the unduly suggestive nature of in-court identifications. Id. at ___ (slip op. at 30). Additionally, "if a witness fails to make a positive identification at an earlier procedure, the State must show that the proposed, upcoming in-court identification would be more reliable and would 'pose[] little risk of misidentification despite its suggestiveness.'" Id. at ___ (slip op. at 30) (alteration in original) (quoting Commonwealth v. Collins, 21 N.E.3d 528, 536-37 (Mass. 2014)).

To ensure orderly proceedings, we outlined in Watson the required procedures for first-time in-court identifications going forward. Id. at ___ (slip op. at 30-31). First, "the State must file a motion in limine if it intends to conduct a first-time in-court identification," which will give the defendant advance notice and the opportunity to oppose the identification procedure prior to trial. Id. at ___ (slip op. at 30). At the hearing on the motion, the court will determine whether "good reason" exists to allow the first-time in-court

identification. Id. at ___ (slip op. at 31). Second, prosecutors must disclose in writing any comments made to a witness during trial preparation that potentially relate to the in-court identification, including whether prosecutors told the witness that the defendant would be in the courtroom or where the defendant would be seated. Id. at ___ (slip op. at 31). Lastly, any hearing on the admissibility of an in-court identification should be held and the issue should be resolved before the start of trial. Id. at ___ (slip op. at 31).

In the present matter, one day after the crime occurred, Rosette misidentified a filler photograph with 90 percent certainty during the December 26 identification procedure. Two days later, during the December 28 identification procedure -- in which Rosette reviewed an array that included a photograph of defendant -- she did not identify anyone. On January 21, a detective told Rosette defendant's name; showed her photos of a watch she identified as hers and said that the photos were from defendant's phone; and informed her that defendant had been arrested for the robbery of her home. On cross-examination at trial, Rosette even testified that she "concluded they arrested the right guy" after detectives showed her the photograph of the watch and she stated that she knew defendant was the suspect based on where he was sitting in the courtroom.

Although the dictates of Watson were not in effect at the time of the present trial, "[w]ith or without the benefit" of this Court's ruling in Watson today, "the nature of the identification in this case raises concerns." See id. at ___ (slip op. at 33). The identification procedure here was highly suggestive. By telling Rosette defendant's name, informing her that defendant had been arrested for the robbery, and showing her pictures of the watch found on defendant's phone, the detective impermissibly influenced and tainted any future identification by Rosette. Additionally, the layout of the courtroom, as Rosette admitted, tipped her off as to where defendant was seated in the courtroom.

Furthermore, there was no "good reason" to allow the first-time in-court identification here. Rosette did not know defendant well prior to the robbery. See id. at ___ (slip op. at 29-30). She testified that she briefly interacted with defendant on two prior occasions, and she was unable to identify defendant -- and indeed identified a different person in a filler photograph with 90 percent certainty -- when she viewed the photo arrays. There was no basis for an in-court identification under the circumstances.

For reasons unexplained in the record, a photo display witness statement form was not filled out regarding Rosette's misidentification. Based on the absence of a photo display form, the State and the Attorney General contend

that Rosette did not identify anyone in this photo array, notwithstanding her video-recorded statement during the photo lineup that she was 90 percent certain the perpetrator was the person in the filler photo. Their argument is unavailing; if Rosette had identified defendant -- instead of a filler photo -- with 90 percent certainty, the State would certainly treat that as an identification regardless of whether the photo display form was filled out. In situations like what occurred here, the State must complete a photo display form.

In this case, investigators revealed certain evidence to Rosette. In particular, they told her defendant's name and showed her photos from defendant's phone of a watch she said was hers. In Watson, we directed that prosecutors must disclose "anything discussed with a witness during trial preparation that relates to an upcoming in-court identification" -- for example, whether the defendant will be in the courtroom or where the defendant will be seated -- under Rule 3:11. Id. at ___ (slip op. at 31). Because comments about the defendant's identity and about evidence that purportedly links the defendant to the crime could well make an in-court identification highly suggestive, we direct that such information be disclosed under Rule 3:11 as well.

As we articulated in Watson, going forward, if a witness fails to make a positive identification prior to trial, the State must show that an in-court

identification would be more reliable than the failed pretrial identification, taking into consideration the suggestiveness of being in the courtroom. Id. at ___ (slip op. at 30). As this Court noted in Henderson, "[m]emory decay 'is irreversible'; memories never improve" with time. 208 N.J. at 267. There is no reason to think that Rosette's memory had improved such that she could give a reliable first-time identification in court, over two years after the crime occurred, despite failing to identify defendant as the perpetrator three days after the home invasion.

The circumstances of Rosette's in-court identification were highly suggestive, and therefore, the identification should have been excluded.

IV.

An appellate court may reverse a trial court's judgment if the cumulative effect of a series of errors is so great as to deprive a defendant of a fair trial. Pellicer v. Saint Barnabas Hosp., 200 N.J. 22, 53 (2009). Cumulative error analysis does not "simply entail[] counting mistakes, because even a large number of errors, if inconsequential, may not operate to create an injustice." Id. at 55. Rather, "the predicate for relief for cumulative error must be that the probable effect of the cumulative error was to render the underlying trial unfair." State v. Wakefield, 190 N.J. 397, 538 (2007). "[I]f the combined effect of multiple errors deprives a party of a fair trial, an appellate court

should order a new trial." Torres v. Pabon, 225 N.J. 167, 191 (2016) (discussing Pellicer, 200 N.J. at 55-57).

In the present matter, the trial court allowed the jury to hear two significant pieces of unreliable evidence that purportedly connected defendant to the robbery: Special Agent David's testimony placing defendant's phone at or near the crime scene and Rosette's first-time in-court identification that defendant was the intruder. During closing arguments, the prosecutor encouraged the jury to rely on Special Agent David's testimony, stating it was "the most credible" testimony of the witnesses, as he was a qualified expert and certified FBI CAST agent. The State again showed the jury Special Agent David's maps during summation -- including the illustration of the 8:02 p.m. pinged Parkway Tower, with the tower's arms extending approximately one mile each -- which placed the marked crime scene within the tower's estimated coverage area. The State emphasized, with the maps on display, that Special Agent David's testimony reliably confirmed that defendant's phone pinged the approximate area of the crime scene at the time of the invasion.

The State also articulated during summation that Rosette's in-person identification was credible, because "a picture is a lot different than seeing someone in person." Rosette was the only witness who identified defendant as the intruder. In conjunction with Special Agent David's testimony, her

identification could have had a serious impact on the jury's perception of defendant's guilt or innocence. See Watkins v. Sowders, 449 U.S. 341, 352 (1981) (Brennan, J., dissenting) ("There is almost nothing more convincing [to a jury] than a live human being who takes the stand, points a finger at the defendant, and says 'That's the one!'" (footnote omitted)). Her testimony, of course, also raises serious due process concerns because of the likelihood of misidentification. See Henderson, 208 N.J. at 285 (announcing a new rule of law based on the recognition that "suggestive police procedures may 'so irreparably "taint[]" . . . out-of-court and in-court identifications' that a defendant is denied due process") (alteration in original) (quoting State v. Madison, 109 N.J. 223, 239 (1988)); see also Neil v. Biggers, 409 U.S. 188, 198 (1972) ("It is the likelihood of misidentification which violates a defendant's right to due process."). These constitutional ramifications, which we underscored in Watson, ___ N.J. at ___ (slip op. at 22-24, 29), magnify the harmfulness of the trial court's error.

It is true that the State relied on other evidence throughout trial and during summation, namely defendant's DNA on the Costco bag, the pictures of the Princess watch on defendant's phone, and the similarity of the voice announcements from the intruder's cell phone and defendant's cell phone. Balancing that evidence against the force of the improperly admitted evidence

that was stressed by the prosecutor in summation, however, we cannot conclude that the evidentiary errors in this case, considered in tandem, were inconsequential or harmless. See R. 2:10-2. Rather, we find the cumulative error impacted and prejudiced the fairness of defendant's trial. Therefore, defendant's conviction and sentence of life without the possibility of parole must be vacated and a new trial granted.

At a retrial, the State may not ask Rosette to identify defendant again. Given the highly suggestive nature of Rosette's prior in-court identification, the likelihood of an irreparable misidentification at this point is substantial. See Watson, ___ N.J. at ___ (slip op. at 34-35).

V.

For the foregoing reasons, we reverse the judgment of the Appellate Division and remand the matter for a new trial consistent with this opinion.

CHIEF JUSTICE RABNER; JUSTICES WAINER APTER and FASCIALE; and JUDGE SABATINO (temporarily assigned) join in JUSTICE PIERRE-LOUIS's opinion. JUSTICE SOLOMON filed a dissent, in which JUSTICE PATTERSON joins.

State of New Jersey,

Plaintiff-Respondent,

v.

Roberson Burney, a/k/a Robert Burney, John Burney, Robin Burney, and Michael Langford,

Defendant-Appellant.

JUSTICE SOLOMON, dissenting.

I concur with the majority that the trial court should not have admitted Special Agent David's testimony that the cell towers near the crime scene had a coverage area of an approximate one-mile radius, based on his "rule of thumb" policy. Ante at ___ (slip op. at 26-33). I also agree that the court should not have permitted Rosette Martinez to identify defendant for the first time in court. Ante at ___ (slip op. at 33-37). I part company with the majority, however, in its assessment that despite the overwhelming evidence establishing defendant's guilt, those errors were not harmless. Ante at ___ (slip op. at 37-39).

Indeed, the sheer volume of competent evidence against defendant -- most notably his DNA on the Costco shopping bag found at the scene, the photographs of Martinez's unique watch on his phone, and the corresponding

testimony about the intruder's text message alerts and the taking of photographs -- leads to the inescapable conclusion that defendant was convicted in a fair trial, and any error was harmless. Accordingly, I respectfully dissent from the majority's judgment.

I.

A.

Whether the errors defendant complains of deprived him of a fair trial, and therefore warrant a reversal of his conviction, is governed by Rule 2:10-2, which provides that

> [a]ny error or omission shall be disregarded by the appellate court unless it is of such a nature as to have been clearly capable of producing an unjust result, but the appellate court may, in the interests of justice, notice plain error not brought to the attention of the trial or appellate court.

An error during a jury trial is therefore harmless unless there is a reasonable doubt that it contributed to the verdict. State v. Jackson, 243 N.J. 52, 72-73 (2020).

That determination requires consideration of the record as a whole, State v. Sowell, 213 N.J. 89, 108 (2013), and of the strength of the prosecution's case, see, e.g., State v. Derry, 250 N.J. 611, 634 (2022) ("[W]e rely on the overwhelming evidence against defendants to conclude that the error in admitting [disputed] testimony as lay opinion testimony was harmless."); State

v. J.L.G., 234 N.J. 265, 306 (2018) (holding that the error in admitting unreliable medical-related expert testimony was "harmless in light of the overwhelming evidence of [the] defendant's guilt"); State v. Rochat, 470 N.J. Super. 392, 442 (App. Div. 2022) (remanding for a new trial after finding that DNA evidence was unreliable because the court "d[id] not find [the remaining] evidence to be overwhelming").

Thus, the issue is "whether in all the circumstances there was a reasonable doubt as to whether the error denied a fair trial and a fair decision on the merits." State v. Macon, 57 N.J. 325, 337-38 (1971); see also State v. Lazo, 209 N.J. 9, 26 (2012). When, as here, the error is the improper admission of evidence, an error is harmless "if the untainted evidence . . . is so overwhelming that in the judgment of the reviewing court conviction was inevitable." State v. Pillar, 359 N.J. Super. 249, 276 (App. Div. 2003) (citation omitted).

B.

In this matter, the State presented overwhelming evidence of defendant's guilt that did not rely on Agent David's improperly admitted comment about his one-mile radius "rule of thumb" policy or on Martinez's in-court identification of defendant.

The Appellate Division held that the trial court did not abuse its discretion in permitting Agent David's expert testimony because "[i]t was for the jury to decide whether his testimony was credible and how much weight to give it." State v. Burney, 471 N.J. Super. 297, 320 (App. Div. 2022). The Appellate Division also concluded that although the conduct was "suggestive," any theoretical error in admitting Martinez's first-time in-court identification of defendant was harmless because of "the overwhelming evidence that defendant was the robber." Id. at 329-30. Although I disagree with the Appellate Division's evidentiary rulings, I agree that any potential error in admitting the evidence was harmless.

First, Martinez testified that when she answered the door at her home on December 25, 2015, and was confronted with an armed intruder, she believed that she recognized the perpetrator as a person who had recently worked in her home. Her testimony about that identification was corroborated by evidence of the 9-1-1 call that she made immediately after the robbery, in which she told the dispatcher that the intruder had "worked at our house." This is also consistent with her statement to police. Moreover, defendant admitted that he had indeed participated in contracting work at Martinez's home, and his brother Mark, a contractor, confirmed that to be true.

Second, Martinez reported to the police that the intruder stole jewelry. When police searched defendant's cell phone, they found photographs of a watch engraved with the word "Princess." Detective Alfonso testified that the manufacturer of the watch was "Princess." Defendant's metadata revealed that the photos were taken with his cellphone just days after the robbery, between December 26 and December 29. Defendant also searched online for "Princess" watches during that time. Thus, defendant's cellphone was used to document the specific type of watch and his research regarding that watch in the immediate aftermath of the robbery.

Martinez not only identified the watch by viewing the photographs, but also testified to its details -- that it had a black band, was adorned with clear rhinestones, and had the word "Princess" engraved on the inside. She also provided Detective Alfonso with the watch's packaging and additional bands as further proof that the watch was hers. In short, if accepted by the jury, Martinez's testimony, the packaging, and bands demonstrate that the perpetrator stole the precise type of watch that defendant's cell phone had photographed and researched just days after the robbery.

Third, defendant's DNA was found on a Costco bag hanging in the stairwell leading to Martinez's apartment. Martinez testified that the day after the robbery, she noticed the bag, which she did not recognize. She

additionally testified that neither she nor her daughter, Samantha, had a Costco membership. She identified the bag as one of several that appeared in a photograph taken after the robbery. There was no definitive testimony about how long the Costco bag had been in the stairwell, but Martinez's testimony that she did not recognize the bag and noticed it for the first time the day after the robbery supports the State's contention that it was brought to the apartment at the time of the robbery. Additionally, the presence of defendant's DNA on that bag is compelling evidence that he was the intruder.

Fourth, the victims testified that they heard the intruder's phone sound during the home invasion. Martinez recalled hearing an automated voice assistant announce an incoming call or text message from a name that she could not recognize. Her daughter, Samantha, testified that she heard the phone announce an incoming text message and recalled the man answering a call at one point. A third victim, Samantha's friend, also testified that she heard an "incoming message" announcement from the phone's automated voice. The victims' testimony about the intruder's cellphone -- signaling its receipt of a text message -- directly matched evidence derived from the search of defendant's phone. Indeed, the search of defendant's phone confirmed that he had received a single text message at 8:02 p.m. on December 25, while the robbery was in progress. This is consistent with the victims' testimony that

the intruder's cellphone had received a single text, audibly announced by his cell phone's automated voice during the robbery.

Fifth, all three victims testified that, while they were bound, they heard "click" noises, signaling that the robber was taking photos with his phone. The search of defendant's phone revealed several blurry, dark photographs, taken at 8:03 p.m. on December 25, while the robbery was in progress. Also found on defendant's phone were photographs taken after the robbery, identified by Martinez as photographs of her "Princess" watch.

As the appellate court explicitly noted, "even if the in-court identification had been suppressed, Rosette [Martinez] would still have identified her watch from the photographs stored on defendant's cell phone." Id. at 330.

Sixth, while questioning defendant at the hospital, Detective Alfonso texted defendant the word "hello." Defendant's phone then made an audible voice announcement of "message received" from Detective Alfonso's phone number and read the message aloud -- just as the victims described the intruder's phone did.

Seventh, the clothing that defendant was wearing when he was questioned at the hospital, described as a black knit wool hat, a winter jacket,

and a maroon jacket, matched the victims' description of the intruder: a tall, thin black male wearing a hat and dark clothing.

II.

I concur with the Appellate Division's determination that the evidence against defendant, independent of the expert's improper comment and Martinez's in-court identification, is overwhelming.

I would affirm as modified the Appellate Division's determination affirming defendant's conviction. I respectfully dissent.

892 F.Supp.2d 949
United States District Court, N.D. Illinois, Eastern Division.

UNITED STATES of America
v.

Antonio EVANS.
Case No. 10 CR 747–3.
|
Aug. 29, 2012.

Synopsis
Background: In prosecution for conspiracy to kidnap and kidnapping, Government moved in limine to admit expert testimony regarding the analysis of cell site data. Defendant moved for disclosure of expert testimony.

Holdings: The District Court, Joan Humphrey Lefkow, J., held that:

[1] witness could provide lay opinion testimony concerning his creation of maps showing the location of cell towers used by defendant's cell phone;

[2] witness was qualified to testify as an expert concerning the operation of cellular networks and the granulization theory;

[3] proffered expert testimony concerning how cellular networks operated was admissible; but

[4] proffered expert testimony concerning use of a theory of granulization was unreliable.

Motions granted in part, denied in part, and denied as moot in part.

West Headnotes (10)

[1] **Criminal Law**
Aid to jury
Criminal Law
Matters involving scientific or other special knowledge in general
Criminal Law
Knowledge, Experience, and Skill

To admit expert testimony, district court must determine that (1) the witness is qualified, (2) the expert's methodology is scientifically reliable, and (3) the testimony will assist the trier of fact to understand the evidence or to determine a fact in issue. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

1 Cases that cite this headnote

[2] **Criminal Law**
Subjects of Expert Testimony
Criminal Law
Cross-examination and redirect examination

Determinations on admissibility of expert testimony should not supplant the adversarial process; "shaky" expert testimony may be admissible and assailable by its opponents through cross-examination. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

Cases that cite this headnote

[3] **Criminal Law**
Preliminary evidence as to competency

Proponent of expert testimony bears burden of proving that the proffered testimony meets the *Daubert* requirements. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

Cases that cite this headnote

[4] **Criminal Law**
Subjects of Expert Testimony

District court has wide latitude in performing its gate-keeping function with regard to expert testimony. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

Cases that cite this headnote

[5] **Criminal Law**
Telephone records
Criminal Law
Telecommunications

Cellular telephone call data records were likely admissible under the business record exception to the hearsay rule, assuming the proper foundation was laid. Fed.Rules Evid.Rule 803(6), 28 U.S.C.A.

Cases that cite this headnote

[6] **Criminal Law**
Place, space, or distance

FBI agent could provide lay opinion testimony, in prosecution for, inter alia, kidnapping, concerning his creation of maps showing the location of cell towers used by defendant's cell phone in relation to other locations relevant to the crime; creating such maps did not require scientific, technical, or other specialized knowledge.

42 Cases that cite this headnote

[7] **Criminal Law**
Miscellaneous matters

FBI agent's proffered testimony, in prosecution for, inter alia, kidnapping, concerning how cellular networks operated or the granulization theory, was only admissible if the agent met requirements of the Rule governing admissibility of expert testimony; understanding how various factors affected a cell phone's ability to connect to a particular cell tower was not within the perception of the untrained layman, but demanded scientific, technical, or other specialized knowledge and resulted from a process of reasoning which could be mastered only by specialists in the field. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

13 Cases that cite this headnote

[8] **Criminal Law**
Knowledge, Experience, and Skill

FBI agent was qualified to testify as an expert concerning the operation of cellular networks and the granulization theory; agent had received over 350 hours of training in the use of cellular phones and investigations, and he spent approximately 70 percent of his time analyzing cell phone records, had instructed approximately 700 officers in basic techniques for utilizing cell phones in investigations, was qualified as an expert in the use of historical cell site data in five state court cases, had received training from a service provider on how its network operated, was familiar with that and similar networks, and had successfully used historical cell site data on a number of occasions to locate people in the course of other investigations. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

12 Cases that cite this headnote

[9] **Criminal Law**
Miscellaneous matters

FBI agent's proffered testimony concerning how cellular networks operated was admissible as expert testimony in prosecution for, inter alia, kidnapping; proffered testimony would allow jury to narrow the possible locations of defendant's phone during course of the conspiracy, it was reliable, given the extensive training the agent had received and the time he spent analyzing cell site records, and it fit the facts of the case, since a phone registered to

defendant used certain cell towers to place a number of calls during the course of the conspiracy. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

18 Cases that cite this headnote

[10] **Criminal Law**
Miscellaneous matters

FBI agent's proffered expert testimony concerning use of a theory of granulization to estimate the range of certain cell sites based on a tower's location to other towers and predict coverage overlap, and the estimated range of coverage for each of the towers indicated on a summary exhibit, was unreliable, and thus inadmissible, in prosecution for, inter alia, kidnapping, despite agent's testimony that he and other agents had used the theory with a zero percent rate of error; factors that could have caused defendant's phone to connect to one of the towers even though another tower was closer to him were not fully accounted for in agent's analysis and he presented no scientific calculations concerning the coverage area, and the granulization theory was wholly untested by and was not generally accepted in the scientific community. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

11 Cases that cite this headnote

Attorneys and Law Firms

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Patrick W. Blegen, Daniel Anthony Rufo, Blegen & Garvey, Chicago, IL, for Antonio Evans.

OPINION AND ORDER

JOAN HUMPHREY LEFKOW, District Judge.

This matter is before the court on the government's motion *in limine* to admit cell site evidence and analysis through the testimony of Special Agent Joseph Raschke. (Dkt. # 97.) On August 17, 2011, defendant Antonio Evans and two co-defendants were charged with conspiracy to kidnap in violation of 18 U.S.C. § 1201(c) (Count I) and kidnapping in violation of 18 U.S.C. § 1201(a)(1) (Count II).[1] (Dkt. ***951** # 41.) The kidnapping allegedly took place on April 23 and 24, 2010. The government proposes to call Special Agent Raschke to testify about the operation of cellular networks and how to use historical cell site data to determine the general location of a cell phone at the time of a particular call. Applying a theory called "granulization," Special Agent Raschke proposes to testify that calls placed from Evans's cell phone during the course of the conspiracy could have come from the building where the victim was held for ransom.

On August 21 and 23, 2012, this court held an evidentiary hearing pursuant to Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993), to determine whether the government's proposed evidence and analysis are admissible. After the hearing, Evans moved for disclosure of expert evidence under Federal Rule of Criminal Procedure 16. (Dkt. # 122.) For the reasons set forth herein, the government's motion *in limine* (dkt. # 97) will be granted in part and denied in part and Evans's motion (dkt. # 122) will be denied as moot.

LEGAL STANDARD

[1] The admission of lay witness testimony is governed by Federal Rule of Evidence 701, which limits lay opinion testimony to that which is (1) rationally based on the witness's perception; (2) helpful to clearly understanding the witness's testimony or to determining a fact in issue; and (3) not based on scientific, technical, or other specialized knowledge within the scope of Rule 702. Fed.R.Evid. 701. The admission of expert opinion testimony is governed by Federal Rule of Evidence 702 and *Daubert. See Bielskis v. Louisville Ladder, Inc.,* 663 F.3d 887, 893 (7th Cir.2011). Rule 702 states that a

witness who is qualified as an expert by knowledge, skill experience, training or education may testify in the form of opinion or otherwise provided that "(1) 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; (2) the testimony is based on sufficient facts or data; (3) the testimony is the product of reliable principles and methods; and (4) the expert has reliably applied the principles and methods to the facts of the case." Fed.R.Evid. 702. To admit expert testimony under this rule, the court must determine that (1) the witness is qualified; (2) the expert's methodology is scientifically reliable; and (3) the testimony will assist the trier of fact to understand the evidence or to determine a fact in issue. *Myers v. Ill. Cent. R.R. Co.,* 629 F.3d 639, 644 (7th Cir.2010).

In *Daubert* the United States Supreme Court set out four factors the court may consider when assessing the reliability of an expert's methodology, including (1) whether the theory is based on scientific or other specialized knowledge that has been or can be tested; (2) whether the theory has been subjected to peer review; (3) the known or potential rate of error and the existence of standards controlling the theory's operation; and (4) the extent to which the theory is generally accepted in the relevant community. *Daubert,* 509 U.S. at 593–94, 113 S.Ct. 2786; *see also Kumho Tire Co. v. Carmichael,* 526 U.S. 137, 151, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999).

[2] [3] [4] The Rule 702 inquiry "is a flexible one." *Daubert,* 509 U.S. at 594, 113 S.Ct. 2786. As such, "[d]eterminations on admissibility should not supplant the adversarial process; 'shaky' expert testimony may be admissible, assailable by its opponents through cross-examination." *Gayton v. McCoy,* 593 F.3d 610, 616 (7th Cir.2010). The proponent of the testimony bears the burden of proving that the proffered testimony meets these requirements, ***952** and the Seventh Circuit grants the district court "wide latitude in performing its gate-keeping function." *Bielskis,* 663 F.3d at 894 (internal quotation marks and citation omitted).

BACKGROUND

The government has obtained what it alleges are the call data records for the phone registered to Evans during the time of the alleged conspiracy. The data contained in these records includes the date and time of calls originating from Evans's phone, the duration of each call, and the originating and terminating cell tower (also known as cell site) used by the phone to place the call. Using these records, Special Agent Raschke testified that he could apply the granulization theory to estimate the general location of Evans's phone during the time calls were placed. To understand the theory of granulization it is necessary to understand how a cellular network operates.

According to Special Agent Raschke, when a cell phone is in idle mode, it regularly communicates with cell towers in its network. Using radio frequency waves, the phone tries to determine which cell tower has the strongest signal. In urban areas, cell towers are often located on top of buildings or water towers. A cell tower emits radio frequency waves in all directions, providing cell phone coverage in a 360 degree radius around the tower. Three antennas typically comprise each tower; each antenna covers a 120 degree area. When a cell phone places a call, it typically connects to the tower in its network with the strongest signal. This is usually the tower nearest to the phone, although a variety of factors including physical obstructions and topography can determine which tower services a particular phone. Once the call reaches the tower, this interaction is recorded by the network provider. The call then proceeds to a mobile switching center, which may choose to reroute the call to a different tower based on network traffic. The call may also be rerouted to a different tower if the caller changes location during the duration of the call. These data are recorded by the network and maintained as call data records.

To determine the location of a cell phone using the theory of granulization, Special Agent Raschke first identifies (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. He then estimates the range of each antenna's coverage based on the proximity of the tower to other towers in the area. This is the area in which the cell phone could connect with the tower given the angle of the antenna and the strength of its signal. Finally, using his training and experience, Special Agent Raschke predicts where the coverage area of one tower will overlap with the coverage area of another.

[5] Applying this methodology, Special Agent 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. According to Special Agent Raschke, based on his estimate of the coverage area for each of the antennas, the

calls made from Evans's phone could have come from the location where the victim was held for ransom. In support, the government proposes to admit summary exhibit 6, which is a map of the two towers used by Evans's phone and a drawing of the estimated coverage overlap of the two towers. The building where the victim was held falls squarely within the coverage overlap of the two towers. (*See* Gov't Summ. Ex. 6.) In addition to this exhibit, the government also proposes to ***953** introduce maps indicating the location of cell towers used by Evans's phone in relation to other locations relevant to the crime (Gov't Summ. Exs. 1–5),[2] maps showing the topography of the area between the two towers indicated in summary exhibit 6 (Gov't Summ. Ex. 7–8), and a listing of the total number of calls placed by Evans's phone during the relevant time period that originated or terminated with one of the two towers (Gov't Summ. Ex. 9).[3]

ANALYSIS

I. Admissibility of maps containing cell tower locations and other locations relevant to the crime

[6] As an initial matter, the government argues that a portion of Special Agent Raschke's testimony is admissible under Rule 701, specifically, his testimony concerning maps he created indicating the location of certain cell towers used by Evans's phone during the course of the conspiracy in relation to other locations relevant to the crime. (*See* Gov't Summ. Exs. 1–5.) The court agrees that using Google Maps to plot these locations does not require scientific, technical, or other specialized knowledge and that these exhibits are admissible through lay opinion testimony under Rule 701.

[7] The relevancy of these exhibits, however, is primarily based on the premise that a cell phone connects to the tower in its network with the strongest signal, and the tower with the strongest signal is usually the one closest to the cell phone at the time the call is placed. Although this is the general rule, there are a variety of factors that determine the tower to which a cell phone will connect. *See* Aaron Blank, *The Limitations and Admissibility of Using Historical Cellular Site Data to Track the Location of a Cellular Phone,* 18 RICH. J.L. & TECH. 3, at *7 (Fall 2011) (identifying factors that affect a tower's signal strength to include the technical characteristics of the tower, antennas and phone, environmental and geographical features and indoor or outdoor usage); Matthew Tart et al., *Historic cell site analysis-Overview of principles and survey methodologies,* 8 DIGITAL INVESTIGATION 1, 186 (2012) ("In a perfectly flat world with equally spaced and identical masts, a mobile phone user would generally connect to the closest mast. In the real world, however, this is not necessarily the case."). Indeed, Special Agent Raschke himself testified that topography, physical obstructions and the signal strength of other towers can impact whether a cell phone connects to the tower closest to it.

Lay witness testimony is admissible under Rule 701 when it is "rationally based on [a] witness's perception" or based on "a process of reasoning familiar in everyday life." Fed.R.Evid. 701 & advisory comm. notes (2000 amends.); *see also United States v. Conn,* 297 F.3d 548, 554 (7th Cir.2002) ("Lay opinion testimony is admissible only to help the jury or the court to understand the facts about which the witness is testifying and not to provide specialized explanations or interpretations that an untrained layman could not make if perceiving the same acts or events." (quoting ***954** *United States v. Peoples,* 250 F.3d 630, 641 (8th Cir.2001))). Understanding how the aforementioned factors affect a cell phone's ability to connect a particular tower, however, cannot be said to be within the perception of the untrained layman. Rather, this type of understanding demands "scientific, technical, or other specialized knowledge" of cellular networks and "results from a process of reasoning which can be mastered only by specialists in the field." Fed.R.Evid. 701 & advisory comm. notes (2000 amends.); *Conn,* 297 F.3d at 554 ("Expert opinion ... brings to an appraisal of those facts ... that the lay person cannot be expected to possess.")[4] Special Agent Raschke may therefore provide lay opinion testimony concerning (1) the call data records obtained for Evans's phone and (2) the location of cell towers used by Evans's phone in relation to other locations relevant to the crime; but if he wishes to testify concerning (1) how cellular networks operate, *i.e.,* the process by which a cell phone connects to a given tower or (2) granulization theory he must first meet the demands of Rule 702 and *Daubert*.[5]

II. Admissibility of testimony concerning how cellular networks operate and the theory of granulization under Rule 702 and *Daubert*

A. Whether Special Agent Raschke is qualified to testify as an expert

[8] Special Agent Raschke testified that he has been a member of the Federal Bureau of Investigation for 14 years and currently serves on the agency's Violent Crimes and Fugitive Task Force. He has received over 350 hours of training and instruction in the use of cellular phones and investigations and spends approximately 70 percent of his time in his current position analyzing cell phone records. He has instructed approximately 700 officers in basic techniques for utilizing cell phones in investigations and has been qualified as an expert in the use of historical cell site data in five state court cases in the past two years. (*See* Gov't Ex. CV.) Special Agent Raschke testified that he has received training from Sprint–Nextel on how their cellular network operates and ***955** is familiar with the operation of this and similar networks. He also stated that he has successfully used historical cell site data on a number of occasions to locate people (both dead and alive) in the course of other FBI investigations.

Based on this testimony, the court is satisfied that Special Agent Raschke is qualified to testify as an expert concerning the operation of cellular networks and granulization theory. *See United States v. Allums,* No. 2:08–CR–30 TS, 2009 WL 806748, at **2–3 (D.Utah Mar. 24, 2009) (holding that FBI agent was qualified to provide expert testimony on historical cell site analysis where he underwent two official FBI training courses on how cell technology and cell networks function, five training courses on radio frequency theory, and was obtaining a master's degree in geospatial technology); *see also United States v. Schaffer,* 439 Fed.Appx. 344, 347 (5th Cir.2011) (finding that lower court did not err in allowing FBI agent to provide expert testimony where agent taught courses on historical cell site analysis, his students had qualified as experts, and he had used the technique without error on at least 100 occasions).

B. Whether Special Agent Raschke's testimony concerning how cellular networks operate is admissible under Rule 702

[9] Rule 702 instructs that when a qualified expert provides testimony regarding general principles, without trying to apply those principles to the facts of the case, the expert's testimony need only (1) address a subject matter on which the factfinder can be assisted by an expert; (2) be reliable; and (3) "fit" the facts of the case. Fed.R.Evid. 702 advisory comm. notes (2000 amends.). Here, testimony concerning how cellular networks operate would be helpful because it would allow the jury to narrow the possible locations of Evans's phone during the course of the conspiracy. Although Special Agent Raschke is not an engineer and has never worked for a network provider, he has received extensive training on how cellular networks operate and is in regular contact with network engineers. He also spends a majority of his time analyzing cell site records, which requires a thorough understanding of the networks themselves. The court concludes that his testimony on this subject is reliable. Finally, it is undisputed that a phone registered to Evans used certain cell towers to place a number of calls during the course of the conspiracy and, as such, Special Agent Raschke's testimony on this topic fits squarely within the facts of this case.[6]

C. Whether Special Agent Raschke's testimony concerning the theory of granulization is admissible under Rule 702

[10] Special Agent Raschke testified that using a theory of granulization he can ***956** estimate the range of certain cell sites based on a tower's location to other towers. This in turn allows him to predict the coverage overlap of two closely positioned towers. Special Agent Raschke testified that he has used this theory numerous times in the field to locate individuals in other cases with a zero percent rate of error. He also testified that other agents have successfully used this same method without error. No evidence was offered, however, beyond Special Agent Raschke's testimony, to substantiate the FBI's successful use of granulization theory or its rate of error in the field.

Despite Special Agent Raschke's assurances, the court remains unconvinced that granulization theory is reliable. First, in determining the coverage overlap of the two towers used by Evans's cell phone on August 24, 2010, Special Agent Raschke assumed that Evans's cell phone used the towers closest to it at the time of the calls. But as previously discussed, there are a number of factors that could have caused Evans's phone to connect to these towers even though another tower was closer. For example, a building could have obstructed the phone's access to the closest tower[7] or the call could have been rerouted due to network traffic. Special Agent Raschke acknowledged these factors but did not fully account for them in his analysis. Rather, he relied on his training and experience to estimate the coverage overlap between the two. Estimating the coverage area of radio frequency waves requires more than just training and experience, however, it requires scientific calculations that take into account factors that can affect coverage. Special Agent Raschke presented no scientific calculations and did not consider a variety of relevant factors. Although the call data records upon which he relied are undisputed, the link

between those records and his conclusions is deficient. *See United States v. Mamah,* 332 F.3d 475, 478 (7th Cir.2003) ("It is critical under Rule 702 that there be a link between the facts or data the expert has worked with and the conclusion the expert's testimony is intended to support.... The court is not obligated to admit testimony just because it is given by an expert." (internal citation omitted)).

Second, the granulization theory remains wholly untested by the scientific community, while other methods of historical cell site analysis can be and have been tested by scientists. *See, e.g.,* Matthew Tart et al., *Historic cell site analysis-Overview of principles and survey methodologies,* 8 DIGITAL INVESTIGATION 1, 193 (2012) (reviewing techniques for collecting radio frequency data for historic cell site analysis and concluding that "[a]rea [s]urveys around the location of interest ... provide the most accurate and consistent method for detecting servicing [c]ells at a location"). The Seventh Circuit has stated that "[a] very significant *Daubert* factor is whether the proffered scientific theory has been subjected to the scientific method." *Chapman v. Maytag Corp.,* 297 F.3d 682, 688 (7th Cir.2002). This is because "the scrutiny of the scientific community ... increases the likelihood that the substantive flaws in methodology will be detected." *Daubert,* 509 U.S. at 593, 113 S.Ct. 2786; *see also* Charles Alan Wright et al., ***957** 29 FEDERAL PRACTICE & PROCEDURE—EVIDENCE § 6266 (1st ed.) ("[J]udicial interference with the jury's power to weigh [expert] evidence may be warranted where expert testimony is based on emerging scientific theories that have not gained widespread acceptance within the scientific community."). Granulization theory has not been subject to scientific testing or formal peer review and has not been generally accepted in the scientific community. These factors weigh against a finding of reliability.

Given that multiple factors can affect the signal strength of a tower and that Special Agent Raschke's chosen methodology has received no scrutiny outside the law enforcement community, the court concludes that the government has not demonstrated that testimony related to the granulization theory is reliable. As such, testimony concerning this theory, along with the estimated range of coverage for each of the towers indicated on summary exhibit 6, will be excluded under Rule 702 and *Daubert.* Because summary exhibits 7 through 9 do not contain estimated ranges of coverage, they will be admitted.

CONCLUSION AND ORDER

To summarize, the government's motion *in limine* to admit cell site evidence and analysis (dkt. # 97) is granted in part and denied in part. Special Agent Raschke is qualified to provide expert testimony concerning how cellular networks operate. Based on this testimony, summary exhibits 1 through 5 and 7 through 9 are admissible at trial. Special Agent Raschke may not testify concerning the theory of granulization, which the court finds to be unreliable. In addition, the estimated coverage areas contained in summary exhibit 6 must be removed before the court will admit this exhibit. Evans's motion for disclosure of expert evidence under Rule 16 (dkt. # 122) is denied as moot.

All Citations

892 F.Supp.2d 949

Footnotes

1 The two co-defendants, Jerry Zambrano and Jose Antonio Lopez, pleaded guilty on April 27, 2012 and August 7, 2012 respectively. (*See* Dkt. # 95, # 115.)

2 Government summary exhibit 1 also contains a line from the location of one of the cell towers used by Evans's phone to the location where the victim was kidnapped, demonstrating the close proximity of the two locations.

3 The government has also moved to admit the call data records under the business record exception to the hearsay rule. *See* Fed.R.Evid. 803(6). Assuming the proper foundation is laid, these records are likely admissible. *See United States v. Graham,* 846 F.Supp.2d 384, 389 (D.Md.2012) (stating that historical cell site location records are "created by cellular providers in the ordinary course of business").

4 As recently explained by the Seventh Circuit,

> [a] law-enforcement officer's testimony is a lay opinion if it is limited to what he observed ... or to other facts derived

> exclusively from [a] particular investigation. On the other hand, an officer testifies as an expert when he brings the wealth of his experience as [an] officer to bear on those observations and ma[kes] connections for the jury based on that specialized knowledge.

United States v. Christian, 673 F.3d 702, 709 (7th Cir.2012) (internal quotation marks and citations omitted); *see Compania Administradora de Recuperacion de Activos Administradora de Fondos de Inversion Sociedad Anonima v. Titan Int'l, Inc.,* 533 F.3d 555, 561 (7th Cir.2008) ("Testimony based solely on a person's special training or experience is properly classified as expert testimony, and therefore it is not admissible under Rule 701.")

5 On this point, the court respectfully disagrees with those courts that have allowed law enforcement officers to provide lay opinion testimony as to how cellular networks operate or the use of call data records to determine the location of a cell phone. *See, e.g., United States v. Feliciano,* 300 Fed.Appx. 795, 801 (11th Cir.2008) (allowing officer to provide lay opinion testimony based on his "particularized knowledge garnered from years of experience in the field," but relying on *Tampa Bay Shipbuilding & Repair Co. v. Cedar Shipping Co.,* 320 F.3d 1213, 1223 (11th Cir.2003) for a position that has been called into doubt in this district, *see Chen v. Mayflower Transit, Inc.,* 224 F.R.D. 415, 419 (N.D.Ill.2004)); *United States v. Henderson,* No. CR 10–117 BDB, 2011 WL 6016477, at **4–5 (N.D.Okla. Dec. 2, 2011) (allowing agent to provide lay opinion testimony that cell phone records "identif[y] the cell tower that was nearest to the location of the cell phone at the time a particular call was made or received").

6 Evans's proposed expert, Manfred Schenk, contested Special Agent Raschke's opinion regarding which cell towers get recorded in the call data records. According to Schenk, the only cell tower that gets recorded is the tower that ultimately services the call (*i.e.,* the tower assigned by the mobile switching center, not the tower that the phone initially connects to before being routed to the mobile switching center.) This factual disagreement goes to the weight not the admissibility of Special Agent Raschke's testimony. *See, e.g., Traharne v. Wayne Scott Fetzer Co.,* 156 F.Supp.2d 717, 723 (N.D.Ill.2001) ("Factual inaccuracies are to be explored through cross-examination and go toward the weight and credibility of the evidence not admissibility." (citing *Walker v. Soo Line R.R. Co.,* 208 F.3d 581, 586–89 (7th Cir.2000))). The same is true for the line connecting the location of the kidnapping to the cell tower used by Evans's phone on April 23, 2010 contained in summary exhibit 1. Evans is free to solicit on cross examination factors other than proximity that may have caused Evans's phone to connect with that particular tower.

7 Special Agent Raschke testified that he has driven this area many times and there are no buildings that would obstruct cell phone access to nearby towers. It is unclear when he drove this area and whether he drove it with the specific purpose of determining whether any such obstructions exist. *Cf. Allums,* 2009 WL 806748, at *1 (finding methodology reliable where agent drove around cell towers using a cell phone from defendant's provider and device called a "Stingray" to determine the approximate range of coverage for each tower).

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