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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

UNITED STATES OF AMERICA,

Plaintiff,

v.

JONATHAN JOSEPH NELSON, et al.,

Defendant.

Case No. [17-cr-00533-EMC-1](#)

**ORDER DENYING DEFENDANTS’
MOTION TO EXCLUDE OR LIMIT
“CAST” TESTIMONY**

Docket No. 1444

I. INTRODUCTION

Pending before the Court is Defendant Brian Wendt’s motion to exclude or limit the proposed testimony of Special Agent Meredith Sparano. *See* Docket No. 1444. Ms. Sparano is a member of the FBI’s Cellular Analysis Survey Team (“CAST”) whose testimony the Government proffers as expert opinion on cell phone communications and “[h]istorical cell site data analysis.” *See* Docket No. 1490-1 (“Sparano Decl.”) ¶ 4. In essence, Ms. Sparano will testify as to how cell phone call detail records (“CDRs”) reveal the general geographic locations of cell phones at particular points in time based on the location of the cell towers with which the phones are communicating. Ms. Sparano will also illustrate tower locations relevant to the instant case on illustrative maps in a PowerPoint presentation.

Defendants do not take issue with the accuracy and use of CDRs, nor do they dispute the way that cell phones connect with particular cell towers. Instead, they focus on the admissibility of Ms. Sparano’s mapping testimony. Mr. Wendt argues that Ms. Sparano’s testimony should be excluded or limited for several reasons, including (1) that the Government’s disclosures about its proprietary mapping software do not satisfy Federal Rule of Criminal Procedure 16 or this Court’s

United States District Court
Northern District of California

1 discovery order of January 13, 2021; (2) that Ms. Sparano is not qualified to offer expert opinion
 2 in reliance on the Government’s proprietary mapping software for purposes of Federal Rule of
 3 Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993); and (3)
 4 that Ms. Sparano’s methodology in analyzing historical cell site data is unreliable under Rule 702
 5 and *Daubert*. See Docket No. 1445 (“Opening Br.”). Mr. Wendt further contends that Ms.
 6 Sparano’s testimony, especially in its use of the PowerPoint slides, raises issues relating to
 7 authentication, the Confrontation Clause of the Sixth Amendment, and Federal Rule of Evidence
 8 403. See *id.* In addition, Defendants Russell Ott and David Diaz argue, in a supplemental brief,
 9 that Ms. Sparano’s testimony is unreliable because it does not incorporate certain information
 10 about cell towers that Ms. Sparano had at her disposal. See Docket No. 1446 (“Suppl. Br.”).

11 For the reasons given below, the Court **DENIES** Mr. Wendt’s motion to exclude or limit
 12 Ms. Sparano’s testimony on the ground that it fails to satisfy Rule 702 and *Daubert*. In short, Ms.
 13 Sparano’s mapping testimony is not complicated, and its accuracy can easily be verified through
 14 the CDRs in Defendants’ possession. The Court also **DENIES** the motion on the alternative
 15 grounds asserted by defendants, with one minor exception discussed below. While the Court
 16 defers ruling definitively on the Rule 403 issues raised by Ms. Sparano’s PowerPoint presentation,
 17 it here reiterates the brief guidance that it provided the parties at the motion hearing.

18 **II. BACKGROUND**

19 A. Procedural History

20 As the Government points out, the parties have previously engaged in “two rounds of
 21 litigation on CAST.” Docket No. 1489 (“Opp’n Br.”) at 1. On November 29, 2020, Defendants
 22 filed a motion (in the form of a joint defense letter request) with Magistrate Judge Beeler for
 23 discovery regarding Ms. Sparano’s proposed testimony pursuant to Federal Rule of Criminal
 24 Procedure 16(a)(1)(G). See Docket No. 1337. The Government opposed Defendants’ motion on
 25 December 7, 2020, noting that it had earlier provided Defendants with the declaration by Ms.
 26 Sparano that continues to serve as the foundation of her testimony on August 14, 2020. See
 27 Docket No. 1356 at 1 n.1; Docket No. 1490-1. In an order of December 20, 2020, Judge Beeler
 28 denied Defendants’ requests for additional discovery concerning the factual bases of Ms.

1 Sparano’s opinions. *See* Docket No. 1378. Judge Beeler concluded that there was “no more
2 information to disclose” about Ms. Sparano’s methodology beyond what she recited in her
3 declaration and that Defendants were free to “challenge the sufficiency of the predicates for [her]
4 expert opinion through the[ir] contemplated *Daubert* motion.”¹ *Id.* at 2.

5 On December 31, 2020, Defendants filed an appeal of Judge Beeler’s discovery order with
6 this Court. *See* Docket No. 1388. The Court addressed the issue at the parties’ status conference
7 of January 13, 2020. In response to Defendants’ complaint that they had not been provided
8 adequate information about the “particular software program” used by Ms. Sparano to prepare her
9 PowerPoint presentation, the Court ordered the Government, out of an abundance of caution, to
10 identify the program and “to provide sufficient information (*e.g.*, in the form of user manuals,
11 technical guides, etc., or descriptions by the [Sparano] of specific steps taken) to determine how
12 the program was used.” Docket No. 1419 at 2. The Court further instructed that if the
13 Government wished to prove the reliability of Ms. Sparano’s methodology by reference to any
14 peer review of the PowerPoint presentation it had to disclose to Defendants “the protocols
15 underlying the peer review process (including software used by the reviewers).” *Id.* The
16 Government sent Defendants a discovery letter on January 15, 2021, identifying its software
17 program, called ESPA, and describing its peer review process.² *See* Docket No. 1547-1.

18 In response to Mr. Wendt’s motion, and Mr. Ott’s and Mr. Diaz’s supplemental brief in
19 support thereof, the Government also filed Ms. Sparano’s declaration (which had previously been
20 lodged with the Court the previous month; *see* Docket No. 1396-4) as well as the then-current
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22

23 ¹ Judge Beeler nevertheless requested (but did not order) that the Government provide Defendants
24 with a copy of “the actual PowerPoint” presentation that Ms. Sparano proposes to use at trial,
25 rather than the PDF version of it that the Government apparently turned over to Defendants on or
26 around December 18, 2020. *Id.*; *see also* Docket No. 1511 (“Reply Br.”) at 1 n.1 and 5. n.5
27 (describing Defendants’ receipt of the slideshow dated December 18, 2020); Opening Br. at 8-9
28 (describing earlier versions of the slideshow that Defendants have received).

² As Government’s discovery letter explains, ESPA “stands for Enterprise Sensor Processing
Analytics.” Docket No. 1547-1 at 1. The proprietary software “is a product of Gladiator
Forensics.” *Id.* The Government represents that “CAST agents like SA Sparano receive virtual
online training as well as in-person, hands-on training from Gladiator Forensics.” *Id.*

1 version of Ms. Sparano’s PowerPoint slideshow, dated December 18, 2020.³ *See* Sparano Decl.,
2 Docket 1490-2 (“Slideshow”).

3 The Court held a three-hour hearing on Defendants’ motion on March 2, 2021. *See* Docket
4 No. 1562 (“Hearing Tr.”). The Court took the matter under submission.

5 B. Proposed Testimony

6 As noted above, the foundation of Ms. Sparano’s proffered testimony is contained in her
7 declaration of August 12, 2020. The declaration summarizes Ms. Sparano’s training, experience,
8 and methodology as a member of CAST.⁴ In it, Ms. Sparano states that she has “served as a
9 Special Agent for the FBI since 2015” and has been assigned to CAST for “the past three years.”
10 Sparano Decl. ¶ 1. Regarding her qualifications to testify as an expert, Ms. Sparano claims to
11 “have over 500 hours of training in the area of historical call detail records analysis” and “cellular
12 phone and cellular network technology.” *Id.* Her background “includes training from the FBI,
13 other U.S. Government Agencies, engineers from the Florida Institute of Technology, and
14 engineers from all the major cellular network providers.” *Id.* Ms. Sparano herself also
15 “conduct[s] training regarding cellular technology and record analysis for various state, local, and
16 federal law enforcement personnel.” *Id.* ¶ 2. Further, she has “been qualified as an expert on the
17 analysis of historical cell site data on one occasion” in California state court and she represents
18 that her analysis of such data “has been utilized on multiple occasions in federal and state courts
19 throughout the United States.”⁵ *Id.* ¶ 3.

20 Ms. Sparano then discusses the scientific principles underlying cell site location
21 information and the methodology customarily employed by CAST agents.

22 4. Historical cell site data analysis is based on the premise that
23 the *approximate (not exact) location* of a cell phone can be
24 determined by examining the records generated by the cell phone

25 ³ The PowerPoint slideshow, Docket No. 1490-2, has been filed under seal.

26 ⁴ CAST agents, Sparano explains, “provide cellular record analysis and technological assistance to
27 local, state, and federal law enforcement, including mapping, analytical report[s], and expert
28 testimony at trials.” Sparano Decl. ¶ 1.

⁵ The Government also includes a copy of Sparano’s two-page C.V. with her declaration. *See*
Docket No. 1490-1 at 8-9.

1 when it was used. These records are called CDRs (call detail
2 records). When a cell phone communicates with a cell tower (voice,
3 text message[,] or data session), a record is produced showing the
4 cell tower and sector the phone utilized to complete the call, text[,]
5 or data session. The cell tower has a specific number combination
6 that is unique to that geographic area (no other tower within the
7 network will have these same numbers). All of the service providers
8 maintain a “tower list”, archived periodically throughout the year,
9 which provide the exact location of towers within their network.
10 The tower list contains additional information that is used to
11 determine the orientation of the tower sectors. . . .

12 5. Three things are needed to conduct historical record
13 analysis[:] a set of CDRs, a tower list, and address information/ facts
14 concerning the crime. The CAST team illustrates this information
15 onto a mapping platform similar to Microsoft Map Point or Google
16 Earth to illustrate the *approximate location* of the phone. The
17 illustration of the tower and sector is commonly represented by a
18 symbol known as an open wedge. The wedge shows the direction
19 radio frequency is moving away from the tower along the center line
20 of the [sector].⁶ These shapes have been used since the beginning of
21 historical cell site analysis by cell phone service providers, who
22 advocate the use “wedges” to illustrate orientation and can
23 demonstrate the *potential coverage area* of a cell site. In some
24 cases, service providers may have additional data they can provide
25 law enforcement . . . to further define the *approximate location* of a
26 cell phone.

27 6. After plotting relevant events from the CDRs on a map,
28 address information and known facts are then considered. Results
and/or conclusions are compiled in an official report and/or
presentation for use by investigators or at trial. The maps in the
official report and/or presentation demonstrate the *general area*
where the cellular phone associated with the CDR was located on
the date and at the time the records were generated.

19 *Id.* ¶¶ 4-6 (emphasis added).

20 Ms. Sparano next explains that CAST agents can verify the *actual* coverage area of a cell
21 tower (*i.e.*, beyond the *potential* coverage area indicated by the CDRs) in numerous ways. These
22 include “cell tower surveys” and “drive tests.”⁷ With cell tower surveys, CAST agents employ an

23 _____
24 ⁶ Mr. Sparano further explains, in her PowerPoint presentation, that cell tower sectors generally
25 “cover approximately 120” degrees each, so that each tower is comprised of three sectors. *See*
26 Slides at 4. The angle of the open wedge graphics in her slideshow reflects this 120-degree sector
27 graphic “shows the *general direction* the radio frequencies (RF) travel from the antennas “and
28 “does not depict the actual . . . coverage area of the particular sector.” *Id.* at 5 (emphasis in
original).

⁷ Alternative, less direct, methods of verifying the accuracy of cell site location information
include “video surveillance, license plate readers, defendant’s admission, witness statements,

1 engineering phone and “go to certain points within the projected area of coverage (within the
2 [open] wedge) and take measurements to corroborate the coverage area of a particular cell sector.”
3 *Id.* ¶ 7. With drive tests, agents begin by “identifying the towers of interest (target towers) and a
4 target area,” which is “defined on a map” and “encompasses the target towers as well as
5 ‘peripheral towers.’” *Id.* ¶ 8. Agents then take surveying equipment to the target area and drive
6 the equipment “in a grid search pattern” so as “to measure and record data from the target and
7 peripheral towers.” *Id.* These data are finally “processed and displayed on maps to demonstrate
8 the actual coverage area of the target tower.” *Id.* Ms. Sparano states that both cell tower surveys
9 and drive tests “have been utilized over the past ten years by CAST Agents to verify the accuracy
10 of theoretical illustrations”—*i.e.*, those generated solely from CDR information. *See id.* ¶ 9. She
11 claims that while “these methods typically refine the footprint created by a cell tower” they
12 generally “support the use of historical cell site data to illustrate the approximate location of a
13 phone at the time a call is generated.” *Id.*; *see also id.* ¶ 11 (“Based on my experience and the
14 collective experience of the FBI CAST Team, historical record analysis has repeatedly proved
15 highly effective at determining the approximate location of cell phones at the time calls, text
16 messages, or data sessions are conducted and the CDRs are generated.”).

17 Ms. Sparano then discusses the mechanics by which cell phones connect to cell towers
18 based on her “training from cellular network engineers.” *Id.* ¶ 10. She explains that “cell phones
19 are designed to select which cell tower to communicate with for call origination . . . based on one
20 overriding factor,” namely which tower has “the *strongest, best quality* signal” at a particular
21 location and particular time. *Id.* (emphasis added). The tower with the clearest signal, she
22 clarifies, might not be the tower that “was the closest to the phone at the time the call was
23 generated.” *Id.* CDRs thus indicate “the cell tower that was, in fact, chosen by the phone”
24 because it “provided the best service” to the phone at a given moment, “regardless of whether that
25 particular cell tower was the closest to the phone at the time the call was generated.” *Id.*; *see also*
26 *id.* (“Although the cell tower listed in the CDRs is not always the closest tower, the phone must
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physical evidence, GPS devices, etc.” Sparano Decl. ¶ 12.

1 have been within the ‘footprint’ of the cell tower that appears in the call detail record.”). As a
2 result, a CDR “will provide the *approximate* location—not the *exact* location—of the cell phone at
3 the time the record was generated.” *Id.* (emphasis in original).

4 Ms. Sparano’s declaration concludes by describing her specific methodology in the instant
5 case.

6 13. In this case, I conducted historical cellular analysis in
7 accordance with the methods laid out above. First, I was provided
8 sets of CDRs and address information/facts concerning the crime,
9 specifically a suspected homicide that occurred on or about July 15,
10 2014, in the vicinity of Fresno, California. I understand that the
11 CDRs provided to me were obtained from search warrants executed
12 in this case for a set of nine phone numbers of interest in the
13 suspected homicide. The CDRs contained information regarding the
14 towers accessed for each phone call, text message, and data session.
15 I also obtained the tower list from the cell phone provider for the
16 relevant time period. I then analyzed the records and compiled a
17 report, which depicted the cellular activity of the phone numbers of
18 interest relative to significant times and locations of the suspected
19 homicide. As part of creating the report, *I imported the CDRs and
20 tower information into a mapping program to obtain a visual
21 depiction of the tower locations accessed by each target phone
22 number during relevant times to the crime.* No drive test was
23 performed in this case.

24 *Id.* ¶ 13 (emphasis added).

25 As noted above, Ms. Sparano’s proffered testimony will also be conveyed through the
26 PowerPoint presentation that the Government filed contemporaneously with her declaration. *See*
27 Slides. The presentation, in its current iteration, includes sixty slides, the vast majority of which
28 feature spreadsheets with underlying CDR data and/or mapping images generated through the
Government’s ESPA software. *See id.* The mapping images typically depict a particular location
(*e.g.*, the area around Fresno, California) on which are superimposed open wedges (indicating cell
tower locations and sector orientations) and tables listing the time(s) at which a target phone
connected to the relevant towers. *See id.* Some of the images also contain additional graphics
such as arrows indicating a purported direction of travel, *see, e.g., id.* at 20, or explanatory
inferences concerning the CDR data captured elsewhere on the slides, *id.* at 39. The slides do *not*
identify the precise location in which a particular cell phone was located—only the phone’s general
location relative to the sector of the cell tower with which it was communicating.

1 **III. LEGAL STANDARD**

2 A. Federal Rule of Evidence 702 & Daubert

3 Rule 702 lays out the requirements for a district court to admit expert testimony. The rule
4 provides that a witness “qualified as an expert by knowledge, skill, experience, training, or
5 education,” Fed. R. Evid. 702, may offer opinion testimony if it “rests on a reliable foundation and
6 is relevant to the task at hand,” *Daubert*, 509 U.S. at 597. To testify as an expert, Rule 702
7 mandates that

8 (a) the expert's scientific, technical, or other specialized knowledge
9 will help the trier of fact to understand the evidence or to determine
a fact in issue;

10 (b) the testimony is based on sufficient facts or data;

11 (c) the testimony is the product of reliable principles and methods;
12 and

13 (d) the expert has reliably applied the relevant principles and
methods to the facts of the case.

14 Fed. R. Evid. 702. Rule 703 further identifies the permissible “bases” of an expert's opinion
15 testimony, which must be premised on “facts or data in the case that the expert has been made
16 aware of or personally observed.” Fed. R. Evid. 703. Additionally, “[i]f experts in the particular
17 field would reasonably rely on those kinds of facts or data in forming an opinion on the subject,
18 [the facts or data] need not be admissible for the opinion to be admitted.”⁸ *Id.*

19 The Supreme Court has elaborated the standards for admissibility under Rules 702 and 703
20 in a series of cases, including *Daubert*; *General Electric Co. v. Joiner*, 522 U.S. 136 (1997); and
21 *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999). The district court, in deciding whether
22 to admit expert testimony, acts as “a gatekeeper, not a fact finder.” *United States v. Sandoval-*
23 *Mendoza*, 472 F.3d 645, 654 (9th Cir. 2006). As the Ninth Circuit has explained:

24 “Expert opinion testimony is relevant if the knowledge underlying it
25 has a valid connection to the pertinent inquiry. And it is reliable if
26 the knowledge underlying it has a reliable basis in the knowledge
and experience of the relevant discipline.” [*Primiano v. Cook*, 598

27 _____
28 ⁸ “[I]f the facts or data would otherwise be inadmissible,” however, “the proponent of the opinion
may disclose them to the jury only if their probative value in helping the jury evaluate the opinion
substantially outweighs their prejudicial effect.” Fed. R. Evid. 703.

1 F.3d 558, 565 (9th Cir. 2010)] (citation and internal quotation marks
 2 omitted). “Shaky but admissible evidence is to be attacked by cross
 3 examination, contrary evidence, and attention to the burden of proof,
 4 not exclusion.” *Id.* at 564 (citation omitted). *The judge is*
 5 *“supposed to screen the jury from unreliable nonsense opinions, but*
 6 *not exclude opinions merely because they are impeachable.”*
 7 [*Alaska Rent–A–Car, Inc. v. Avis Budget Grp., Inc.*, 738 F.3d 960,
 8 969 (9th Cir. 2013)]. Simply put, “[t]he district court is not tasked
 9 with deciding whether the expert is right or wrong, just whether his
 10 testimony has substance such that it would be helpful to a jury.” *Id.*
 11 at 969–70.

12 The test of reliability is flexible. *Estate of Barabin v. AstenJohnson,*
 13 *Inc.*, 740 F.3d 457, 463 (9th Cir. 2014) (en banc).⁹ The court must
 14 assess the expert's reasoning or methodology, using as appropriate
 15 criteria such [factors] as testability, publication in peer-reviewed
 16 literature, known or potential error rate, and general acceptance. *Id.*;
 17 *see also Primiano*, 598 F.3d at 564. But these factors are “meant to
 18 be helpful, not definitive, and the trial court has discretion to decide
 19 how to test an expert's reliability[,] as well as whether the testimony
 20 is reliable, based on the particular circumstances of the particular
 21 case.” *Primiano*, 598 F.3d at 564 (citations and quotation marks
 22 omitted); *see also Barabin*, 740 F.3d at 463. *The test “is not the*
 23 *correctness of the expert's conclusions but the soundness of his*
 24 *methodology,” and when an expert meets the threshold established*
 25 *by Rule 702, the expert may testify and the fact finder decides how*
 26 *much weight to give that testimony.* *Primiano*, 598 F.3d at 564–65.
 27 Challenges that go to the weight of the evidence are within the
 28 province of a fact finder, not a trial court judge. A district court
 should not make credibility determinations that are reserved for the
 jury.

17 *City of Pomona v. SQM N. Am. Corp.*, 750 F.3d 1036, 1044 (9th Cir. 2014) (emphasis added).

18 Although the Ninth Circuit has warned against a reflexive ““that goes to weight, not admissibility”
 19 default” position, *United States v. Valencia-Lopez*, 971 F.3d 891, 898 (9th Cir. 2020), the “gate
 20 [should] not be closed to [a] relevant opinion offered with sufficient foundation by one qualified to
 21 give it,” *Primiano*, 598 F.3d at 568.

22 The proponent of expert testimony “has the burden of establishing that the pertinent
 23 admissibility requirements are met by a preponderance of the evidence.” Fed. R. Evid. 702
 24 advisory committee note—2000 amendment (citing *Bourjaily v. United States*, 483 U.S. 171
 25 (1987)).

26
 27
 28 ⁹ The Ninth Circuit recently overruled *Estate of Barabin* on other grounds in *United States v. Bacon*, 979 F.3d 766, 770 (9th Cir. 2020) (en banc).

1 B. Federal Rule of Criminal Procedure 16

2 Rule 16(a) governs the Government’s disclosure obligations in a federal prosecution. Rule
3 16(a)(1)(F) provides that “the government must permit a defendant to inspect . . . the results or
4 reports of any physical or mental examination and of any scientific test or experiment” where,
5 *inter alia*, “the item is material to preparing the defense or the government intends to use the item
6 in its case-in-chief at trial.” Fed. R. Crim. P. 16(a)(1)(F). Rule 16(a)(1)(G) addresses disclosures
7 pertaining to a Government’s proposed expert witnesses. It states that “the government must give
8 to the defendant a written summary of any testimony that the government intends to use under
9 Rules 702, 703, or 705 of the Federal Rules of Evidence during its case-in-chief at trial.” Fed. R.
10 Crim. P. 16(a)(1)(G). The summary “must describe the witness’s opinions, the bases and reasons
11 for those opinions, and the witness’s qualifications.” *Id.*

12 The Government’s disclosure obligations with respect to expert testimony are not
13 excessively demanding:

14 Rule 16(a)(1)(G) requires that the government provide a summary of
15 the opinions of its experts to be used during its case-in-chief. The
16 rule requires that “[t]he summary . . . must describe the witness's
17 opinions, the bases and reasons for those opinions, and the witness's
18 qualifications.” The Advisory Committee Note to the 1993
19 Amendment stated that the bases and reasons must be sufficient to
20 allow counsel to frame a *Daubert* motion (or other motion *in*
limine), to prepare for cross-examination, and to allow a possible
21 counter-expert to meet the purport of the case-in-chief testimony.

22 *United States v. Cerna*, 2010 WL 2347406 (N.D. Cal. June 8, 2010), at *1. Consequently, “Rule
23 16(a)(1)(G) does not require recitation of the chapter and verse of the experts’ opinions, bases and
24 reasons. No rule, statute, or decision necessitates such comprehensive disclosure.” *Id.* at *2; *see*
25 *also United States v. Spotted Horse*, 914 F.3d 596, 601 (8th Cir. 2019) (stating that Rule 16 “does
26 not require a recitation of every piece of information in the case that the expert reviewed” but only
27 “notice, in summary fashion, of the expert’s opinions, bases for the opinions, and reasons for the
28 opinions”).

26 C. Federal Rule of Evidence 403

27 Rule 403 provides that a court “may exclude relevant evidence if its probative value is
28 substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing

1 the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative
 2 evidence.” Fed. R. Evid. 403. “‘Undue prejudice’ within [this] context means an undue tendency
 3 to suggest decision on an improper basis, commonly, though not necessarily, an emotional one.”
 4 *Id.* advisory committee note. The Ninth Circuit has stressed that the “danger of [unfair] prejudice
 5 must not merely outweigh the probative value of the evidence, but *substantially* outweigh it.”
 6 *United States v. Haischer*, 780 F.3d 1277, 1281-82 (9th Cir. 2015) (quoting *United States v.*
 7 *Mende*, 43 F.3d 1298, 1302 (9th Cir. 1995)) (brackets and emphasis in original). “[A]pplication of
 8 Rule 403 must be cautious and sparing because the Rule’s major function is limited to excluding
 9 matter of scant and cumulative probative force, dragged in by the heels for the sake of its
 10 prejudicial effect.” *Id.* at 1282 (internal quotations omitted) (brackets in original).¹⁰

11 IV. DISCUSSION

12 A. Daubert Objections

13 As argued by the parties, the primary question regarding the admissibility of Ms. Sparano’s
 14 testimony under Rule 702 is whether she must have expert knowledge not only of historical cell
 15 site data analysis but also of ESPA, the mapping program that she used to produce her PowerPoint
 16 presentation. At issue here, Mr. Wendt contends, “is not only discussion of cellphone and cell
 17 network operation, but also the use of propriet[ar]y, largely undisclosed, law enforcement related
 18 mapping and display processes that will display [Ms. Sparano’s] opinions and analysis.”¹¹
 19 Opening Br. at 1. And Ms. Sparano, according to Mr. Wendt, lacks “the necessary scientific and
 20 technical background to explain the actual methodologies and analytical processes involved” in
 21 using the mapping software. *Id.*

22 Mr. Wendt offers a host of challenges to Ms. Sparano’s proposed testimony, dividing his
 23

24 ¹⁰ As previously noted, Defendants also raise objections to Ms. Sparano’s proffered testimony
 25 based on other grounds, including Federal Rules of Evidence 901 and the Confrontation Clause.
 The standards governing those issues will be addressed briefly below.

26 ¹¹ *See also* Opening Br. at 6 (“The issues presented here have to do not only with what analytical
 27 technology has been disclosed by the Government, but also with the vagaries and uncertainties
 28 about the reliability of illustrative slides, charts, PowerPoints, and maps that are sought to be
 introduced by the Government.”); Reply Br. at 1 (“[T]he concern here is not the basic theory of
 radio transmission—it is the methodology used to arrive at the case specific opinions, and
 arguments, that are proposed to be *displayed* to the jury.”).

1 opening brief into “three main categories” of “nine arguments.” *Id.* at 2. Yet the latter do not fit
2 neatly into the former, making orderly analysis of the parties’ positions somewhat difficult. At
3 bottom, Mr. Wendt does not take issue with the way that cell phones connect with cell towers, the
4 essential reliability of CDRs, or the general geographic and temporal information that can be
5 gleaned from CDRs. Instead, his focus is on the mapping program and the inferences that Ms.
6 Sparano draws therefrom in her PowerPoint slides. Mr. Wendt’s principal *Daubert*-specific
7 arguments are: (1) that Ms. Sparano is not qualified to establish the reliability of ESPA, *id.* at 10-
8 13; (2) that ESPA is in fact unreliable, largely because the results it has produced here have not
9 been validated through drive tests, *id.* at 22-27; and (3) that, aside from the ESPA issue, Ms.
10 Sparano’s analysis of the CDRs themselves is unreliable since she failed to account for additional
11 mapping factors beyond those discussed in her declaration, *id.* at 28-37. This last argument is
12 developed in further detail in the supplemental brief filed by Mr. Ott and Mr. Diaz, which focuses
13 on the asserted importance of “radio frequency theory” to CAST analysis. *See* Suppl. Br. at 5.

14 The Government responds that Mr. “Wendt’s attempt to focus the Court on ESPA is a red
15 herring, and is irrelevant to the Court’s inquiry” under Rule 702, which here concerns only the
16 reliability of Ms. Sparano’s historical cellular analysis. Opp’n Br. at 1. Courts have regularly
17 found such analysis “not only to be reliable, but routine,” the Government argues, and often
18 “without a hearing.” *Id.* It further asserts that the PowerPoint presentation “is not [Ms. Sparano’s]
19 actual expert opinion, but merely [an] aid in her presentation to the jury of that opinion,” which is
20 contained in her declaration. *Id.* Moreover, Mr. Wendt’s implicit contention “that any witness
21 who uses any software or technological tool in their work must be an expert in software
22 engineering to testify” would erect an extremely high bar to all manner of expert testimony, which
23 the Government declares “far afield from the purpose of *Daubert*.” *See id.* And to the extent that
24 the reliability of ESPA is relevant to the Court’s Rule 702 inquiry, the Government notes that it
25 has previously disclosed all of the CDRs on which Ms. Sparano relied to Defendants such that
26 they “can easily verify for themselves the accuracy of the visual representations in her
27 demonstrative exhibit using publicly available software like Google Maps.” *Id.* To this last point,
28 the Government adds that Defendants have failed to identify “a single point of inaccuracy” in Ms.

1 Sparano’s PowerPoint presentation that would “suggest that the software is unreliable.” *Id.*

2 The Court agrees with the substance of the Government’s argument and finds Defendants’
3 numerous *Daubert*-based arguments unpersuasive.

4 1. Qualifications

5 As a threshold matter under Rule 702, Defendants do not seriously question whether Ms.
6 Sparano is qualified to testify as an expert on historical cell site data analysis. Mr. Wendt suggests
7 in passing that, while Ms. Sparano “has received . . . training in cell phone related investigation,”
8 she lacks the authority of “an expert on cellphone systems, radio wave propagation, or mapping
9 software.” Opening Br. at 4. In reviewing the contents of Ms. Sparano’s C.V., however, Mr.
10 Wendt does not contend that she is unqualified to opine on cellular-records analysis. *See id.* at 9.
11 And while Mr. Ott and Mr. Diaz question “whether Agent Sparano understands . . . the appropriate
12 scientific standards in this case,” Suppl. Br. at 5, they also decline to challenge her qualifications
13 as an expert on historical cellular analysis with any specificity. For its part, the Government
14 emphasizes Ms. Sparano’s many credentials, including “two CAST certification[] trainings” and
15 instruction in “basic and advanced pin-point cellular survey analysis.” Opp’n Br. at 9 (citing
16 Sparano Decl. at EXPERT-00002103). The Government also cites district-court decisions that
17 have approved “other CAST agents who have been similarly qualified” to proffer expert
18 testimony. *Id.* at 9-10; *see also United States v. Howard*, 2017 WL 2662469, at *1 (C.D. Cal.
19 June 19, 2017) (finding that a CAST agent with comparable training and experience to Ms.
20 Sparano “is well qualified to testify as an expert in the field of historical cell site analysis”). And
21 contrary to Mr. Wendt’s suggestion, analysis of CDRs to ascertain the general location of cell
22 phones, as described by Ms. Sparano, does not require her to be an authority on radio wave
23 propagation. The Court thus finds Ms. Sparano qualified to testify for purposes of Rule 702 and
24 *Daubert*.

25 2. Relevance

26 Defendants likewise fail to meaningfully challenge the relevance of Ms. Sparano’s
27 proffered testimony. The closest they come is in a two-paragraph section of Mr. Wendt’s brief, in
28 which he argues that the timing and location of the phone calls that Ms. Sparano addresses in her

1 PowerPoint slideshow “is relevant only if foundational information can be presented such as to
2 demonstrate that there would be a basis” for the testimony.¹² Opening Br. at 27-28. The
3 Government readily acknowledges that this is true, and affirms that it “will present evidence, as
4 typical in these cases, through other witnesses establishing information regarding the target
5 phones,” namely that they belonged to Defendants at the times in question. Opp’n Br. at 24; *see*
6 *also Howard*, 2017 WL 2662469 at *2 (stating that CAST agent testimony is “clearly relevant”
7 where it is “expected to place Defendants . . . in the general area where and when the various
8 [crimes] in [a] case took place”). Assuming that the Government lays an adequate foundation at
9 trial linking Defendants to the phone numbers that are reflected in the predicate CDRs, the Court
10 has little trouble concluding that Ms. Sparano’s proffered testimony “has a valid connection to the
11 pertinent inquiry,” and is therefore relevant under Rule 702 and *Daubert*. *See City of Pomona*,
12 750 F.3d at 1044; *see also United States v. Cervantes*, 2015 WL 5569276, at *3 (N.D. Cal. Sept.
13 22, 2015) (stating that CAST testimony is relevant “to the extent the cell phones analyzed can be
14 linked, directly or circumstantially . . . to the defendants, victims, or relevant third parties”). In
15 particular, the Government seeks to place certain individuals in the general vicinity of an alleged
16 murder at the relevant time. The CDR records and accompanying cellular analysis are relevant to
17 doing so.

18 3. Reliability

19 Defendants focus most of their attention on the purported unreliability of Ms. Sparano’s
20 testimony. Mr. Wendt acknowledges, however, that several courts “have admitted opinion
21 testimony based on historical cell phone records of varying sorts,” including in this District.
22 Opening Br. at 6 (citing, *e.g.*, *Cervantes*, 2015 WL 5569276, at *3-5). This concession is
23 something of an understatement, as the Government represents that no court has ever excluded
24 CAST agent testimony on the ground that historical cellular analysis is inherently unreliable under
25 Rule 702. *See* Opp’n Br. at 7. The Government also cites a lengthy series of authorities standing
26 for the principle that such testimony *is* reliable for *Daubert* purposes so long as it only describes

27
28 ¹² Mr. Wendt frames this objection as presenting a Rule 403, rather than a *Daubert*, issue. *See*
Opening Br. at 28.

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1 the *general* area in which a phone was located and does not exaggerate the precision provided by
2 cell site location information. *See id.* at 7-8.

3 In *United States v. Hill*, 818 F.3d 289 (7th Cir. 2016), for example, the Seventh Circuit
4 offered the following analysis of the Government’s use at trial of expert testimony based on
5 historical cell site analysis, which the court acknowledged could potentially pose problems under
6 Rule 702 (as well as Rule 403):

7 In his trial testimony, [the expert] emphasized that [the defendant’s]
8 cell phone’s use of a cell site did not mean that [the defendant] was
9 right at that tower or at any particular spot near that tower. This
10 disclaimer saves his testimony. *Historical cell-site analysis can*
11 *show with sufficient reliability that a phone was in a general area,*
12 *especially in a well-populated one. It shows the cell sites with*
13 *which the person’s cell phone connected, and the science is well*
14 *understood. . . . A mathematical error rate has not been calculated,*
15 *but the technique has been subjected to publication and peer*
16 *criticism, if not peer review. . . . The advantages, drawbacks,*
17 *confounds [sic], and limitations of historical cell-site analysis are*
18 *well known by experts in the law enforcement and academic*
19 *communities. . . .*

20 . . .

21 Our concern is that the jury may overestimate the quality of the
22 information provided by this analysis. *We therefore caution the*
23 *government not to present historical cell-site evidence without*
24 *clearly indicating the level of precision—or imprecision—with*
25 *which that particular evidence pinpoints a person’s location at a*
26 *given time. The admission of historical cell-site evidence that*
27 *overpromises on the technique’s precision—or fails to account*
28 *adequately for its potential flaws—may well be an abuse of*
discretion. In this case, however, [the expert’s] testimony on both
direct and cross-examination made the jury aware not only of the
technique’s potential pitfalls, but also of the relative imprecision of
the information he gleaned from employing it in this case.

29 *Id.* at 298-99 (emphasis added). The Seventh Circuit thus concluded that historical cell record
30 analysis of the kind at issue here is reliable for *Daubert* purposes when an expert testifies “that a
31 phone was in a general,” rather than precise, “area” at a given time, and makes clear “the relative
32 imprecision of the information” that the methodology provides.¹³ *See id.*

33 ¹³ At the motion hearing, counsel for Mr. Wendt acknowledged that “the state of the law” on the
34 admissibility of cellular record analysis under Rule 702 “is with respect to what’s said in *Hill*,” a
35 case that is “cited fairly often.” Hearing Tr. at 20.

1 Numerous district courts before and after *Hill* have reached the same essential conclusion
 2 as the Seventh Circuit in that case. *See, e.g., United States v. Hitesman*, 2016 WL 3523854, at *9
 3 (N.D. Cal. June 28, 2016) (“In applying Rule 702, district courts within the Northern District of
 4 California have consistently found that historical cell site evidence is admissible, so long as the
 5 evidence is offered to establish an individual’s general geographic location.”) (internal quotations
 6 omitted); *United States v. Jones*, 918 F. Supp. 2d 1, 5 (D.D.C. 2013) (“[T]he use of cell phone
 7 records to determine the general location of a cell phone has been widely accepted by numerous
 8 federal courts.”). Many of these courts have also found the proposed experts’ methodology
 9 reliable without holding an evidentiary hearing on the matter, given courts’ general acceptance of
 10 the practice’s reliability. *See, e.g., Howard*, 2017 WL 2662469 at *4 (concluding “that a *Daubert*
 11 hearing would not be helpful here due to the wide consensus in the judicial community that
 12 historical cell site data is a reliable methodology”); *see also United States v. Alatorre*, 222 F.3d
 13 1098, 1102-03 (9th Cir. 2000) (confirming that district courts in the Ninth Circuit are not required
 14 to conduct evidentiary hearings to discharge their gatekeeping responsibilities under *Daubert*).

15 Mr. Wendt frequently refers to caselaw that, he suggests, endorses his challenge to the
 16 reliability of historical cell site location information. For example, his opening brief cites *Hill*,
 17 *Cervantes*, and *United States v. Morgan*, 292 F. Supp. 3d 475 (D.D.C. 2018), in arguing that cell
 18 site analysis is “subject to variables and uncertainties not acknowledged by Agent Sparano” and
 19 that her “opinions are not based on reliable or admissible mapping” techniques. *See* Opening Br.
 20 at 22, 24. But as the Government points out, the courts in these cases all admitted the proffered
 21 testimony on historical cellular analysis—subject, again, to the important qualification that the
 22 prosecution not “overpromise[] on the technique’s precision.” *See Hill*, 818 F.3d at 299; *see also*
 23 Opp’n Br. at 12-13 (addressing these and other cases). Thus, in *Morgan*, a decision that
 24 concerned “the reliability of drive testing,” the court explained that “generating data from drive
 25 testing operates on many of the same principles as historical cell-site analysis,” which ““can show
 26 with sufficient reliability that a phone was in a general area.”” 292 F. Supp. 3d at 478-79 (quoting
 27 *Hill*, 818 F.3d at 298). In concluding that drive testing was likewise reliable for purposes of Rule
 28 702, the *Morgan* court noted that law-enforcement officials “believe it to be a more accurate

1 method than historical cell-site analysis at approximating a tower’s coverage area” and that
2 “[c]ourts routinely accept historical cell-site analysis as reliable.” *Id.* at 484 (citing *Hill*, 818 F.3d
3 at 298; *Jones*, 918 F. Supp. 2d at 5); *see also Cervantes*, 2015 WL 5569276, at *4-5 (ruling cell
4 site location information reliable where the Government sought to “offer general location
5 testimony” and did “not intend to offer pinpoint location opinions”). Contrary to Mr. Wendt’s
6 suggestion, then, none of the aforementioned cases supports exclusion of historical cell site
7 analysis as unreliable when it addresses the general area of a phone at a given time. And while the
8 absence of a drive test may limit the degree of precision with which an expert may testify about
9 cell phone locations, providing grounds for cross-examination, that absence does not negate the
10 admissibility of such testimony.

11 Here, Ms. Sparano’s proffered testimony, as described in her declaration, repeatedly
12 clarifies that “historical cell site data analysis is based on the premise that the *approximate (not*
13 *exact) location* of a cell phone can be determined.” Sparano Decl. ¶ 4 (emphasis added); *see also*
14 *id.* ¶ 5 (stating that service providers sometimes provide law enforcement with data beyond CDRs
15 “to further define the *approximate location* of a cell phone”) (emphasis added); *id.* ¶ 10 (stating
16 that CDRs reveal “the *approximate location*—not the *exact location*—of a cell phone at the time”
17 a call was received by a cell tower) (emphasis in original). This point is reinforced when the
18 declaration stresses that the “one overriding factor” that determines which cell tower a phone
19 connects to is the strength and quality of the tower’s signal, “regardless of whether that particular
20 cell tower was the closest to the phone at the time the call was generated.” *Id.* CDRs, in other
21 words, “record the cell tower that provided the best service to the phone” and *not* necessarily the
22 tower that was nearest in proximity to the phone when it connected with the tower. *Id.* As a result
23 (and as the Government insisted at the motion hearing), Ms. Sparano is opining only that “a cell
24 phone would connect to the tower with the strongest, clearest signal” such that the phone “would
25 be in the approximate area of that particular tower at the time” a call was made or text message
26 sent. *See* Hearing Tr. at 42. Ms. Sparano’s opinions in her declaration thus adequately contain the
27 caveat required by *Hill* and numerous other courts that have found CAST-related testimony
28 reliable for *Daubert* purposes.

1 Moreover, during the motion hearing the Court repeatedly emphasized to defense counsel
2 the limited nature of the testimony that Ms. Sparano proposes to offer, observing that her analysis
3 identifies only the particular cell tower (or sector within that tower) to which a target phone
4 connected. *See, e.g.*, Hearing Tr. at 24-25, 46-48, 67-68. The Court also expressly stated that it
5 “inten[ds] to enforce that limit” at trial, restricting Ms. Sparano to opining only on “approximate
6 location[s]” of cell phones. *Id.* at 67-68. In fact, the Court explained that its concerns on this
7 issue were not entirely ameliorated by the Government’s assertion that Ms. Sparano would only
8 testify to general or approximate areas in which calls could have originated (rather than offering
9 opinions about, for example, the likely mileage range of a particular cell tower). *See id.* at 42-46.
10 The Court made clear that if Ms. Sparano wishes to testify about the towers’ coverage areas with
11 greater specificity than what she has thus far proffered does then the Government would need to
12 provide additional factual bases to satisfy Rule 702. *See id.* at 64-68. Again, if she were to opine
13 as to the size of the radius of a particular cell tower’s sector, she would have to provide a specific
14 and reliable basis therefor. At this point, however, the Court does not consider Ms. Sparano’s
15 testimony about the general or approximate locations of the target phones problematic for
16 purposes of *Daubert*.

17 Defendants offer three principal arguments for why Ms. Sparano’s testimony fails Rule
18 702. First, Mr. Wendt argues that Ms. Sparano’s decision not to supplement her historical cell site
19 analysis with additional cellular mapping techniques, such as drive testing, renders it unreliable.
20 *See* Opening Br. at 2, 25-27. He points out that some recent caselaw has admitted CAST-like
21 testimony where an expert corroborated his or her initial CDR-based findings through some “type
22 of double or triple checking.” *Id.* at 26. In *Morgan*, for example, the court upheld the reliability
23 of drive testing under *Daubert*, noting that law-enforcement officials “believe it to be a more
24 accurate method than historical cell-site analysis at approximating a tower’s coverage area.” 292
25 F. Supp. 3d at 483-84. Mr. Wendt thus argues that, “[a]ccording to the ruling in *Morgan*, drive
26 testing is the case specific quality assurance mechanism” for CAST testimony. Opening Br. at 12.
27 But the *Morgan* court’s finding that drive tests can provide a *sufficient* basis for satisfying Rule
28 702’s reliability requirement does not mean that drive tests are *necessary* for doing so. And as the

1 Government points out, Mr. “Wendt presents no authority suggesting [that] the absence of drive
2 testing renders straightforward historical cellular analysis unreliable.” Opp’n Br. at 18. Rather, as
3 the Court noted above, the *Morgan* court averred that historical cell site analysis, by itself, is
4 “routinely accept[ed]” as reliable for *Daubert* purposes. *See* 292 F. Supp. 3d at 484. As the Court
5 also stated above, the lack of a drive test will limit Ms. Sparano’s ability to testify as to, for
6 example, the radius of any given cell tower sector’s coverage area. But so long as her location
7 analysis does not overpromise in view of the available data (including the lack of a drive test), her
8 testimony is not barred by *Daubert*.

9 Additionally, Mr. Wendt argues that Ms. Sparano’s testimony is unreliable because she
10 used “limited data” to conduct her analysis. Opening Br. at 28. Mr. Wendt specifically faults Ms.
11 Sparano for declining to validate her analysis with additional “intelligence gathering and analytical
12 tools” offered by the purveyor of ESPA.¹⁴ *Id.* at 26-27. He also quotes extensively from a law
13 review article that “explains the technical issues that may affect which cell sites are involved in the
14 transmission of cell phone radio waves,” such as “the technical characteristics [1] of cell sites,”
15 “[2] of the antennas on cellular sites,” and “[3] of the phone,” as well as “[4] environmental and
16 geographic factors.” *Id.* at 33. Mr. Wendt asserts that these “variables . . . can influence the
17 operation of a cell phone network system and influence the attempts to ‘localize’ phone calls,” and
18 complains that Ms. Sparano neglects to account for them. *See id.* at 34. This is essentially the
19 same argument that Mr. Ott and Mr. Diaz offer in their supplemental brief in support of Mr.
20 Wendt’s motion. They contend, for example, that “a scientist would consider” such factors as “the
21 strength of the transmitting signal, the height of the tower, the angle of the antenna, and the
22 geography of area” when analyzing cell site location information. Suppl. Br. at 5. Ms. Sparano’s
23 failure to do so, they contend, renders her “approximations of a cell tower’s coverage area”
24

25 ¹⁴ Mr. Wendt specifically faults Ms. Sparano for declining to validate her analysis with additional
26 “intelligence gathering and analytical tools” offered by the purveyor of ESPA. *Id.* at 26-27. He
27 also points to the absence of AT&T Network Event Location Services (“NELOS”) data in Ms.
28 Sparano’s analysis, even though NELOS records purportedly provide a more accurate estimate of
a cell phone’s location at a given time than historical cell site information. *Id.* at 29. He therefore
accuses Sparano and the Government of using “only some of the available information that AT&T
provides when litigants obtain AT&T records.” *Id.* at 30.

1 unreliable. *See id.* at 4.

2 While courts have observed that factors beyond mere location can affect the strength of a
3 cell tower's signal and its resulting coverage area, *see United States v. Medley*, 312 F. Supp. 3d
4 493, 500-01 (D. Md. 2018), Defendants fail to explain how such factors affect the reliability of the
5 modest opinions that Ms. Sparano offers here. Again, her testimony simply identifies the
6 particular cell tower (and sector) that a phone actually connected to at a given time, and so
7 establishes that the phone must have been within the coverage area of that tower (however large or
8 small it may have been). This historical information, as reflected in the CDRs, is not affected by
9 the factors that Defendants identify, which instead concern the *extent* of a tower's coverage area.
10 *See* Opp'n Br. at 18. So long as Ms. Sparano's testimony addresses only the *general* or
11 *approximate* location from which a target phone connected to a cell tower and does not opine as to
12 the precise extent of a cell tower's coverage area, her failure to incorporate the factors mentioned
13 by Defendants does not alter the Rule 702 analysis. Defendants are, of course, free to address the
14 shortcomings of historical cell site analysis at trial. But "the fact that a particular methodology is
15 subject to limitations . . . is not a bar to admissibility under *Daubert*." Opp'n Br. at 13; *see also*
16 *Daubert*, 509 U.S. at 596 ("Vigorous cross-examination, presentation of contrary evidence, and
17 careful instruction on the burden of proof are the traditional and appropriate means of attacking
18 shaky but admissible evidence.").

19 Defendants' third, and most strenuously asserted, argument for the unreliability of Ms.
20 Sparano's testimony is that it depends on ESPA's mapping software and that Ms. Sparano lacks
21 the technical knowledge to understand how ESPA works. Mr. Wendt devotes a great deal of
22 attention to this issue in his brief, and defense counsel did likewise throughout the motion hearing.
23 *See, e.g.*, Hearing Tr. at 27-31, 75-91. The basic point, however, is straightforward: while Ms.
24 Sparano has training in techniques "specific to CAST and to forensic cell phone investigation,"
25 she "has no background, training, or education in computer science, and apparently no ESPA-
26 specific training that allows her to explain the design, coding, and computer science aspects of
27 ESPA." Opening Br. at 12. This is particularly problematic, Mr. Wendt argues, because ESPA's
28 proprietary technology is available only to law enforcement, making its reliability impossible to

1 determine beyond Ms. Sparano’s and the Government’s representations. *Id.* at 13. Mr. Wendt
2 thus concludes that “[u]nless the Government can establish that Agent Sparano has knowledge of
3 the coding of the algorithms, the operational characteristics of the algorithms, the artificial
4 intelligence related properties of the algorithms, and the methodologies used to verify the accuracy
5 of the resulting maps,” her testimony must be excluded or limited. *Id.* In sum, as the Government
6 puts it, Mr. “Wendt essentially is objecting that SA Sparano is not an expert on ESPA and that he
7 personally does not have access to the ESPA software.” Opp’n Br. at 14.

8 The Government responds that the map illustrations that Ms. Sparano seeks to present at
9 trial are “merely an aid in illustrating her opinion,” rather than the opinion itself. *Id.* Her
10 testimony addresses the general methodology of historical cell site analysis and “the relevant
11 CDRs in this case around the time of [a victim’s] murder”; the demonstrative exhibit, in contrast,
12 simply presents that information “through visual depictions of which towers the phones connected
13 to.” *Id.* at 15-16. And creating the exhibit, the Government contends, “requires no expertise
14 whatsoever” since (as with open-source technology such as Google Maps) it simply involves
15 “inputting coordinates from CDRs into . . . mapping software,” which “can be done by anyone.”
16 *Id.* at 15; *see also United States v. Evans*, 892 F. Supp. 2d 949, 953 (N.D. Ill. 2012) (finding that
17 using Google Maps to plot cell tower locations “does not require scientific, technical, or other
18 specialized knowledge” and that the resulting maps were “admissible through lay opinion
19 testimony under Rule 701”).

20 As the Court indicated at the motion hearing, it disagrees with the Government that Ms.
21 Sparano’s slideshow is simply a “visual depiction” of her substantive testimony (as contained in
22 her declaration) and therefore irrelevant to the Rule 702 analysis. *See* Hearing Tr. at 70-71; *see*
23 *also* Wendt Reply at 10 (“The Government’s argument that the slides, maps, and displays are not
24 part of [Ms. Sparano’s] opinions and proposed testimony . . . does not square with reality.”).
25 Insofar as the slides in Ms. Sparano’s PowerPoint presentation convey inferences drawn from the
26 underlying CDRs, they remain subject—independently of the statements in Ms. Sparano’s
27 declaration—to Rule 702’s requirements that her methodology be reliable and that it rest on an
28 adequate factual basis. *See* Fed. R. Evid. 702.

1 Beyond this clarification, however, the Court agrees with the Government that Ms.
2 Sparano’s use of the ESPA program does not render her testimony unreliable for *Daubert*
3 purposes. Defense counsel asserted throughout the motion hearing that firsthand access to ESPA
4 is necessary “to ensure that the software system did, in fact, map each specific transaction
5 correctly.” Hearing Tr. at 79. But as the Government observes, it has long since provided
6 Defendants with “all of the CDRs” underlying Ms. Sparano’s PowerPoint presentation, as well as
7 earlier drafts of the slideshow. *See* Opp’n Br. at 20. Defendants, however, “have identified no
8 specific areas where the draft presentation is unreliable,” such as by placing a particular cell tower
9 in the wrong location on one of the mapping images. *See id.* Nor have Defendants ever offered a
10 persuasive response to the question—posed repeatedly throughout the hearing—of why they
11 cannot verify the accuracy of the cell tower locations represented in the slideshow by inputting the
12 CDR data into a publicly available mapping program such as Google Maps. *See, e.g.,* Hearing Tr.
13 at 29-31, 75-83. The apparent absence of any inaccuracies in Ms. Sparano’s presentation strongly
14 suggests that even if ESPA operates like a “black box,” as Mr. Wendt contends, Defendants have
15 not been harmed by their lack of direct access to the program. *Cf.* Opening Br. at 24. In sum,
16 given “[1] that the maps produced by ESPA can be independently verified, and [2] the lack of any
17 specific points of unreliability with respect to the maps,” the Court cannot find any reason to
18 exclude or limit Ms. Sparano’s testimony on these grounds. *See* Opp’n Br. at 20. ESPA, as used
19 by Ms. Sparano here, is simply a mapping function, one that can be performed manually or with
20 publicly available software such as Google Maps, and whose accuracy can be easily verified.
21 Indeed, defense counsel admitted at the hearing that they had no *concrete* reason to doubt the
22 accuracy of the mapping illustrations in Ms. Sparano’s slideshow or the CDR data on which the
23 slides are based. *See* Hearing Tr. at 36-37 (stating that counsel did not “have an immediate
24 contrary argument to present” about the slides’ presentation of the CDR data); *id.* at 80 (stating
25 that counsel did not “have a case-specific reason” to doubt the accuracy of the CDRs). In the final
26 analysis, Ms. Sparano’s use of ESPA is not rocket science.

27 Informing the Court’s conclusion are the sweeping and counterintuitive implications of
28 Defendants’ position on the ESPA issue. If courts required expert witnesses to possess expert

1 knowledge of “the software used to generate” demonstrative exhibits such as maps, as Defendants
2 suggest they should, then law-enforcement and intelligence officials would almost always be
3 barred from relying on such commonplace exhibits at trial. *See id.* at 16, Hearing Tr. at 16-17.
4 Similarly, “anyone who testifies using any basic software such as Excel . . . to provide financial
5 analysis[] would be required to be an expert in the algorithms by which Excel codes its formula
6 and calculations.” Opp’n Br. at 17. As a result, “no expert utilizing any technological tools would
7 be permitted to testify without also being an expert software engineer.” *Id.* at 19. The Federal
8 Rules of Evidence do not mandate such an absurd result. Indeed, the court in *Morgan*—a decision
9 that Mr. Wendt cites with approval throughout his briefs, *see, e.g.*, Opening Br. at 11-12, 42-43—
10 specifically stated that expert witnesses need not possess “an in-depth knowledge of all algorithms
11 underlying their technological tools . . . to reliably testify about the outputs of those tools.” *See*
12 292 F. Supp. 3d at 485. The *Morgan* court thus admitted CAST testimony even though the agent
13 did not have expert knowledge of ESPA’s mechanics because “it is not required—nor is it
14 practical—for an investigator to have expertise in or knowledge about the underlying
15 programming . . . of the software” he customarily relies on. *Id.* at 484-85 (internal quotation
16 omitted).

17 Further, if Ms. Sparano’s use of the slideshow were prohibited for the reasons that Mr.
18 Wendt gives, but the underlying testimony in her declaration remained admissible, the result
19 would entail a painstaking recitation by Ms. Sparano of “all the relevant locations of the CDRs,”
20 which would “require numerous days of cellular testimony alone and be extremely wasteful of the
21 jury’s time.” Opp’n Br. at 19. “Indeed, without a visual demonstrative, testimony regarding
22 historical cellular analysis, like other voluminous data, would be virtually impossible.” *Id.* In this
23 regard, the mapping slides perform a function similar to summary evidence under Federal Rule of
24 Evidence 1006. *See* Fed. R. Evid. 1006 (“The proponent may use a summary, chart, or calculation
25 to prove the content of voluminous writings, recordings, or photographs that cannot be
26 conveniently examined in court.”).

27 The Court therefore **DENIES** Mr. Wendt’s motion to exclude or limit Ms. Sparano’s
28 proffered testimony on the basis of Rule 702 and *Daubert*. The Court emphasizes that, as stated at

1 the motion hearing, Ms. Sparano may not substantially alter or supplement her testimony in any
2 manner that exceeds the bounds that this order has set around her testimony. *See* Hearing Tr. at
3 72-73. The Court will set a date by which the Government must submit its final exhibits well in
4 advance of trial. *See id.*

5 B. Additional Objections

6 As Defendants' arguments in support of the instant motion often merge with one another,
7 *see* Hearing Tr. at 21, many of the non-*Daubert*-specific issues they raise have been dealt with
8 above. The Court therefore addresses the remaining issues only briefly.

9 1. Federal Rule of Criminal Procedure 16

10 Defendants object that the Government has failed to satisfy its disclosure obligations under
11 Federal Rule of Criminal Procedure 16(a)(1)(G), which requires the Government to provide
12 defendants with "a written summary" of a proposed expert witness's "opinions, the bases and
13 reasons for those opinions, and the witness's qualifications." *See* Opening Br. at 14-15, Fed. R.
14 Crim. P. 16(a)(1)(G).

15 Mr. Wendt asserts, for example, that Ninth Circuit authority "underscores the need for the
16 Government to produce foundational information when computer operations and software issues
17 are central to important aspects of the Government's case against an accused." *Id.* at 15. But his
18 reliance on *United States v. Budziak*, 697 F.3d 1105 (9th Cir. 2012), for this proposition is
19 misplaced. *Budziak* was a child pornography case in which FBI agents downloaded illicit images
20 from the defendant's computer using an enhanced peer-to-peer file-sharing program. *Id.* at 1107.
21 Whereas the publicly available version of the program allowed users like the defendant to
22 exchange files only "by piecing together file fragments from multiple users," the enhanced version
23 allowed law-enforcement "to download complete files from a single user," perhaps without his
24 permission. *Id.* After the defendant was convicted of both distribution and possession of child
25 pornography, he argued on appeal that the district court erred in denying him access to the
26 enhanced program because the program's specific capabilities were immediately relevant to
27 whether the defendant intended to distribute complete files to others (versus merely possessing
28 them). *Id.* at 1112. The Ninth Circuit agreed and stated that disclosure under Rule 16 is

1 appropriate where “a change against the defendant is predicated largely on computer software
2 functioning in the manner described by the government, and the government is the only party to
3 the software.” *Id.* at 1113.

4 As indicated above, *Budziak* is inapposite. The precise operation of the contested software
5 program in that case went directly to the defendant’s degree of criminal intent. Here, in contrast,
6 the manner in which “ESPA functions does not pertain to a required *element* of the charged
7 offenses.” Opp’n Br. at 23 (emphasis in original); *see also United States v. Robinson*, 2018 WL
8 5077260, at *3 (E.D. Mich. Oct. 18, 2018) (rejecting the defendant’s analogy between his request
9 for access to ESPA and the disclosure issue in *Budziak*, which “went directly to defendant’s
10 defense of whether he intentionally distributed the pornography or not”). The Government
11 correctly argues that “[t]he only relevance of ESPA” in the instant case “is that it was used to
12 create demonstrative maps to aid in SA Sparano’s testimony, which the defense can easily verify
13 using any publicly available mapping program.” *Id.*

14 The parties’ dispute over CAST-related disclosures, moreover, has been actively litigated
15 since November 2020, and was effectively resolved at the January 13, 2021, status conference.
16 There, the Court instructed the Government to make additional disclosures concerning ESPA and
17 its internal peer review of Ms. Sparano’s analysis. *See* Opp’n Br. at 22. The Government did so
18 two days later, confirming that Ms. Sparano relied on ESPA in preparing her PowerPoint
19 slideshow, directing Defendants to the ESPA website for additional information about the
20 program’s operation and capabilities, and providing a step-by-step explanation of how Ms.
21 Sparano used ESPA to generate the slideshow’s mapping illustrations. *See* Docket No. 1547-1 at
22 1. The Government further clarified how CAST’s internal peer review process functions. *Id.* at 2.
23 These disclosures easily satisfy both Rule 16 and the Court’s January 13, 2021, discovery order.
24 *See Cerna*, 2010 WL 2347406, at *2 (“Rule 16(a)(1)(G) does not require recitation of the chapter
25 and verse of the experts’ opinions, bases and reasons.”).

26 2. Authentication

27 Mr. Wendt next contends “that there is no authenticating evidence offered in the
28 Government’s CAST proffer or in the disclosures related to Agent Sparano’s proposed testimony

1 that indicate that the Government is undertaking to authenticate Agent Sparano’s mapping
 2 evidence within the meaning of F.R.E. 901(a).” Opening Br. at 17. Under Rule 901(a), the
 3 proponent of an item of evidence “must produce evidence sufficient to support a finding that the
 4 item is what the proponent claims it is.” Fed. R. Evid. 901(a). More specifically, the proponent of
 5 statements produced by machines “must show that a machine is reliable and correctly calibrated,
 6 and that the data put into the machine,” such as “GPS coordinates,” “is accurate.” *United States v.*
 7 *Lizarraga-Tirado*, 789 F.3d 1107, 1110 (9th Cir. 2015).

8 Mr. Wendt does not appear to be concerned with issues of authentication proper, given that
 9 Rule 901(a) generally sets a “low bar” to admissibility, “that SA Sparano was the one who
 10 created” the mapping illustrations, and that she has copious “experience using [ESPA] in her job.”
 11 Opp’n Br. at 25; *see also United States v. Espinal-Almeida*, 669 F.3d 588, 612-13 (1st Cir. 2012)
 12 (holding that a witness was able to authenticate GPS data where he was “knowledgeable, trained
 13 and experienced in analyzing GPS devices”). Instead, Mr. Wendt’s objection is, once again, that
 14 Defendants lack access to ESPA and that “[t]he Government is essentially playing a shell game
 15 with both the Court and the defense, knowing that [ESPA’s purveyor] has not been forthcoming
 16 with discovery and disclosures about ESPA.” Opening Br. at 19. The Court has addressed related
 17 ESPA issues above. And as Defendants have not identified any problems with the CDRs or the
 18 mapping illustrations that Ms. Sparano herself created and that she proposes to present at trial, the
 19 Court declines to exclude or limit her testimony on the grounds of Rule 901(a) at this time. *See*
 20 *Lizarraga-Tirado*, 789 F.3d at 1110 (stating that, “when faced with an authentication objection,
 21 the proponent of Google-Earth-generated evidence would have to establish Google Earth’s
 22 reliability and accuracy,” and providing examples of how the proponent may do so).

23 3. Confrontation Clause

24 Mr. Wendt also asserts that Ms. Sparano’s opinions contain testimonial hearsay and thus
 25 run afoul of both the Federal Rules of Evidence and the Confrontation Clause of the Sixth
 26 Amendment to the U.S. Constitution. Mr. Wendt acknowledges that “cell phone records in
 27 themselves if established to be business records can be admitted under F.R.E. 803(6),” an
 28 exception to the general prohibition on hearsay evidence for records that are “kept in the course of

1 a regularly conducted activity of a business.” *See* Opening Br. at 37, Fed. R. Evid. 803(6). Mr.
2 Wendt suggests, however, that the exception does not apply to “the records that are prepared by a
3 cell phone company pursuant to a warrant,” *i.e.*, CDRs. *Id.* But as the Government points out,
4 numerous courts have held that cell phone records of the type at issue here are business records
5 within the meaning of Rule 803(6). *See* Opp’n Br. at 25; *see also United States v. Yeley-Davis*,
6 632 F.3d 673, 678-79 (10th Cir. 2011) (holding that cell phone records are not testimonial under
7 the Confrontation Clause and that they fall within the business records exception of Rule 803(6)).

8 Mr. Wendt also contends that any “specific entries made by an expert in an illustration or a
9 map,” such as “tacking . . . a label on a map with a name or coordinates entered,” may amount to
10 hearsay. Opening Br. at 38. But this argument is foreclosed by *Lizarraga-Tirado*, which held that
11 while a manually placed and labeled tack on a map is “classic hearsay,” a “tack placed by the
12 Google Earth program and *automatically* labeled with GPS coordinates isn’t hearsay” because the
13 tacking is not the assertion of a “person” under Rule 801(a). *Id.* at 1109-10 (emphasis added).
14 Here, unlike in *Lizarraga-Tirado*, Ms. Sparano is the testifying witness who made the entries, and
15 ESPA automatically generates the mapping display.

16 Mr. Wendt’s further attempts to analogize Ms. Sparano’s testimony to that proffered in
17 *Bullcoming v. New Mexico*, 564 U.S. 647 (2011), and *Melendez-Diaz v. Massachusetts*, 557 U.S.
18 305 (2009), are likewise misplaced. In those cases, testimonial statements in forensic reports were
19 presented at trial in the absence of the laboratory analyst who personally prepared them.
20 *Bullcoming*, 564 U.S. at 661-62; *Melendez-Diaz*, 557 U.S. at 308. The Supreme Court held that
21 such testimony violated the defendants’ right of confrontation because the lab analyst was not
22 available for cross-examination. *Bullcoming*, 564 U.S. at 652; *Melendez-Diaz*, 557 U.S. at 329.
23 Here, in contrast, Ms. Sparano herself prepared the demonstrative exhibit that she plans to rely on
24 at trial and can testify to the conditions of its creation under live cross-examination from defense
25 counsel. Ms. Sparano’s proposed testimony therefore does not run afoul of the Confrontation
26 Clause.

27 4. Federal Rule of Evidence 403

28 Finally, Mr. Wendt raises the issue of whether Ms. Sparano’s PowerPoint presentation is

1 unfairly prejudicial to Defendants under Rule 403. That rule gives the Court discretion to
2 “exclude relevant evidence if its probative value is substantially outweighed by a danger of,”
3 among other things “unfair prejudice,” “misleading the jury,” or “wasting time.” Fed. R. Evid.
4 403. Mr. Wendt’s essential argument is that “the Government is seeking to introduce to the jury a
5 set of synthesizing illustrations based on an incomplete set of cell phone company records . . .
6 without any of the limiting information or fulsome explanations of the weaknesses and error rates
7 involved in the process used.” Opening Br. at 43. The Government counters that “under Rule
8 403, the absence of any basic labels on the demonstrative maps will serve to confuse the jury and
9 unnecessarily prolong the testimony.” Opp’n Br. at 27.

10 Defendants point to a number of proposed slides that, in their view, contain “an argument
11 or an explanation . . . that goes beyond data entry,” either in the form of graphics or text, and thus
12 run afoul of Rule 403. *Id.* at 38. Several of these slides contain arrows that represent the direction
13 in which target phones purportedly traveled in a given timeframe, based on the sequence of
14 relevant CDR data. *See, e.g.*, Slides 20, 23, 48, and 49. Defense counsel object to these types of
15 graphics as conveying Ms. Sparano’s interpretation of the underlying data in argumentative
16 fashion rather than neutrally presenting the data. *See, e.g.*, Hearing Tr. at 57-58. In response, the
17 Government asserts that the graphics visually display permissible (and, in fact, irrefutable)
18 inferences based on the CDR data. *Id.* at 59.

19 The Government is correct that the slides’ representations of simple deductions about a
20 phone’s direction of travel based on the timing and sequence of general location data are not
21 complicated and may be highly probative. *See id.* at 52, 59-60. The representations are also not
22 unduly prejudicial since any errors or shortcomings will be subject to cross-examination. The
23 Court is more receptive, however, to defense counsel’s argument that an express statement in slide
24 39 that two Defendants were “traveling together” is problematic insofar as it suggests a degree of
25 concerted action that may not be supported by the underlying data. *See id.* at 52-55. In this
26 respect, the statement could be excludable either as lacking an adequate factual basis for *Daubert*
27 purposes or as likely to mislead the jury under Rule 403.

28 The parties shall use the guidance herein to resolve further evidentiary disputes over Ms.

1 Sparano's proposed testimony. The Court expects such disputes to be resolved before trial via
2 objections lodged when exhibits are disclosed prior to the pretrial conference.


3 **V. CONCLUSION**

4 For the reasons given above, the Court **DENIES** Mr. Wendt's motion to exclude or limit
5 Ms. Sparano's proffered testimony on the grounds that it fails to satisfy Federal Rule of Evidence
6 702 and *Daubert*. The Court also **DENIES** Mr. Wendt's motion on the alternative theories he has
7 asserted thus far. The Court denies Defendants' additional objections to Ms. Sparano's
8 demonstrative exhibit based on Federal Rule of Evidence 403, except as provided herein.

9 This order disposes of Docket No. 1444.

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11 **IT IS SO ORDERED.**

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13 Dated: April 13, 2021

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16 _____
17 EDWARD M. CHEN
18 United States District Judge

United States District Court
Northern District of California

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