

1 IN THE UNITED STATES DISTRICT COURT
2 DISTRICT OF UTAH
3 CENTRAL DIVISION

4
5 UNITED STATES OF AMERICA,)
6 Plaintiff,)
7 vs.) CASE NO. 2:08-CR-30TS
8 JAMES EDWARD ALLUMS,)
9 Defendant.)
10 _____)

11
12 BEFORE THE HONORABLE TED STEWART
13 -----

14 February 24, 2009
15 Daubert Hearing

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24 REPORTED BY: Patti Walker
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1 SALT LAKE CITY, UTAH; TUESDAY, FEBRUARY 24, 2009; 2:30 P.M.

2 PROCEEDINGS

3 THE COURT: We are here in the case of United
4 States of America vs. James Edward Allums, case 08-CR-30.
5 Representing the United States is Mr. Cy Castle and Mr. Bill
6 Kendall, and on behalf of the defendant Ms. Vanessa Ramos
7 and Kris Angelos. The purpose of this hearing is to hear
8 testimony on a motion to exclude the testimony of expert
9 witness William Shute.

10 Mr. Castle, I am going to presume that you want to
11 proceed first. Is that logical?

12 MR. CASTLE: Yes, Your Honor, I do, with some
13 questions.

14 THE COURT: Go ahead and ask the questions.

15 MR. CASTLE: Just so we -- I've already talked to
16 defense counsel about this concept, Your Honor. I want to
17 just make sure we have it on the record. The question that
18 I had for them was are we here today to talk about the
19 qualifications of Special Agent Shute to testify about his
20 area of expertise or at least his alleged area of expertise
21 of the cell site historical analysis or whether we're also
22 here to deal with the opinion that he would be rendering as
23 a result of the historical analysis that he has done in this
24 particular case.

25 If we are going to do both, then at least it's the

1 government's hope that should the Court believe that he is
2 an expert and that what he has to say will assist the trier
3 of fact in determining the guilt or innocence of Mr. Allums,
4 that we don't have to repeat this process in front of the
5 jury, that Mr. Shute be considered designated in front of
6 the jury as being an expert witness, qualified to render the
7 opinion that he will render, and that the defense would have
8 their opportunity to cross-examine and to create a
9 reasonable doubt related to his opinion either -- I
10 shouldn't say through cross-examination, but should they
11 bring an expert in to provide some contrary testimony. I
12 just want to make sure that we're on the same page in terms
13 of the direction that we conduct this hearing. The
14 government is prepared to go forward on both elements.

15 THE COURT: Did you ask these questions of Ms.
16 Ramos?

17 MR. CASTLE: Right.

18 THE COURT: What did she say?

19 MR. CASTLE: She said she wanted to do both.

20 THE COURT: Let me see if I understand. There are
21 two issues before this Court in determining the
22 admissibility of any expert testimony. First is the
23 relevance of the testimony. Second is the reliability of
24 the witness. I am reading the motion to exclude testimony
25 of -- all I can see is evidence that -- the indication that

1 they are challenging the reliability of the testimony, not
2 the relevance. And that is what I'm going to presume
3 because that is what is in writing before the Court.

4 MR. CASTLE: I'm sorry, Your Honor. I didn't hear
5 that last part.

6 THE COURT: That is what is in writing and I can't
7 read their motion any other way then to say that they are
8 challenging not the relevance of testimony but the
9 reliability of the expert witness. And it would be the
10 Court's presumption that it will make a ruling as to whether
11 or not the testimony is reliable, whether the expert will be
12 allowed to testify. And if that's the case, then I will, as
13 I always do, require that at the trial you put on ten to 15
14 minutes of questioning about his qualifications, and then I
15 will have him designated as an expert, with his vitae going
16 to the jury for them to determine what they want to from
17 that information. It would not be my intention to go
18 through this again. Okay.

19 Ms. Angelos, do you want to respond to that? You
20 seem to be the one. Ms. Ramos.

21 MS. ANGELOS: Your Honor, that is correct. So the
22 two things that I understand that we would be doing under
23 the reliability factor is, first, is he qualified, and then
24 is his methodology sound. Those would be the two things we
25 would be dealing with today, Your Honor.

1 THE COURT: That's helpful very much. Thank you.

2 That being the case, Mr. Castle, are you prepared
3 to put the witness on?

4 MR. CASTLE: Your Honor, the government is
5 prepared. And in light of that, we would call Special Agent
6 William Shute to the stand.

7 THE COURT: Okay.

8 WILLIAM D. SHUTE,
9 Having been duly sworn, was examined
10 and testified as follows:

11 THE CLERK: If you would please state and spell
12 your name for the Court.

13 THE WITNESS: Yes. William D. Shute. S-h-u-t-e.

14 DIRECT EXAMINATION

15 BY MR. CASTLE:

16 Q What is your occupation?

17 A Yes, I'm a special agent with the FBI.

18 Q How long have you been a special agent?

19 A I have been a special agent for about nine years.

20 Q Where are you currently assigned?

21 A In the Philadelphia division. I work on the violent
22 crimes fugitive task force.

23 Q On that task force, do you have a special assignment
24 for something that you do in addition to the normal duties
25 an agent would do on that type of a task force?

1 A I have a particular expertise in cell phone technology,
2 plotting cell towers, tracking movements people are making
3 when they are making phone calls.

4 Q Tell us what education you have gone through to develop
5 those qualifications.

6 A Sure. The FBI has provided myself and other agents in
7 the FBI with training as to how cellular telephone
8 technology works, how cellular telephone network is set up,
9 how it operates. We've done that training regarding all the
10 various technologies, GSM, which stands for global standard
11 for mobile communications, IDEN, which stands for integrated
12 digital enhanced network, which is basically Nextel, GSM
13 being T-Mobile, AT&T, and also CDMA, and CDMA stands for
14 code division multiple access, which would be representative
15 of Cricket's network, Sprint, Verizon Wireless, companies
16 like that. So I've had a lot of training in how those
17 networks operate and how the technology works.

18 I've also had training from an independent private
19 company, ETS. ETS stands for E.mergent technology support.
20 And that company is comprised of mainly ex-military and
21 ex-government workers ranging from various government
22 entities. What they do is they provide training in radio
23 frequency theory, radio frequency cell phone analysis,
24 tracking, all those types of things, and they provide that
25 back to specific government entities. And they are probably

1 the best in the world at that training.

2 I've also had training from the Harris Corporation
3 in Melbourne, Florida, which is a company that produces
4 various products for analyzing cellular telephones,
5 measuring radio frequency. It's basically an engineering
6 development company.

7 And beyond that, I have also had routine daily
8 interaction with cell phones providers, all the major
9 providers in the company -- I mean, rather, in the country.
10 And also I'm currently enrolled at Penn State University
11 pursuing my master's degree in what is called geospatial
12 intelligence, basically utilizing mapping programs,
13 sophisticated or non, to locate places on the earth and
14 those reference points that matter to a particular
15 situation.

16 Q Over what period of time have you been involved in the
17 study of cellular technology?

18 A In one aspect or another the last nine years,
19 predominantly my entire time as an agent.

20 Q These FBI courses that you've referenced, how many
21 courses are we talking about?

22 A I have had two from the FBI, numerous -- probably about
23 four from ETS, and one from the Harris Corporation. Then I
24 will be going back there in April for additional training.

25 Q If you could for us just go through the subject matter

1 of each one of those training courses. What is it you have
2 learned from each one of those courses?

3 A I've kind of covered that already in terms of radio
4 frequency of how the cell phones operate, how they interact
5 with the tower to how the network is built, how the phones
6 interact and utilize cell phone towers for service, various
7 aspects of that type of technology.

8 Q Have you had training that involves locating cell phone
9 devices in real time?

10 A In real time?

11 Q Yes.

12 A Yes.

13 Q What kind of training have you had in that regard?

14 A Just a lot of the same. I mean essentially when a
15 phone call is made, the moment the phone call is made, it's
16 originated and then terminated, it becomes a record on the
17 cell phone network. So my training is to take the record,
18 you know, that originating cell site, the terminating cell
19 site, and being able to plot that into a geographic area and
20 to be able to determine approximately the range of that
21 tower in relation to that phone call at that moment, so you
22 can make a determination of the geographic location from
23 which that phone made the call.

24 Q What about training in historical cell phone data?

25 A Well, again, it's the same exact thing. The moment a

1 phone call is made it's historical in nature. So as soon as
2 you receive the information, then that information becomes
3 historical. The process by which we use to actively locate
4 someone right now or by which we plot a historical cell site
5 analysis is exactly the same. It's taking the data, it's
6 analyzing it, breaking it down, figuring out the cell site,
7 the orientation of that cell tower, the potential range of
8 it, where that translates into a geographical area, and then
9 plot it. It's the same exact -- it's the same exact
10 process.

11 Q You mentioned you had training in GSM?

12 A GSM, yes

13 Q Tell us what that stands for.

14 A As I said earlier, it stands for global standard for
15 mobile communications. That is one particular technology
16 that seems to be across the -- internationally and globally,
17 it seems to be the main -- the most preferred technology.
18 But CDMA is a more efficient technology and it is actually
19 growing all across the world as well.

20 Q Here in the United States which technology is used
21 most?

22 A It's a combination between CDMA and GSM. Verizon
23 Wireless is currently the largest cellular telephone
24 provider, and AT&T is just below them in terms of
25 subscribers. I just read it recently. So you have pretty

1 such GSM and CDMA being very close. I wouldn't know the
2 exact numbers. But I know in terms of the amount of users
3 in this country, you know, it could even have CDMA being a
4 little bit more used.

5 Q So what is the difference in the two technologies?

6 A The main difference is the way they operate. I mean
7 GSM utilizes a technology known as TDMA. That stands for
8 time division multiple access. Whereas CDMA uses code
9 division multiple access. Two different technologies
10 operating similarly but different.

11 Q And in the course of your career of nine years, have
12 you had an opportunity to work with both of these networks?

13 A Oh, yes, yes, and it's important to note that CDMA and
14 GSM, there are international standards by which these
15 companies are built. Although a label of a company may look
16 different, such as Cricket or Sprint, the technology on
17 which they are based, how the phones are used, is based on a
18 scientific standard. It's a published standard that they
19 use and that they correspond to build their network.

20 Q What is that standard, for example, with CDMA?

21 A Well, I mean the standard being the way the phone
22 operates, the way the technology operates, the way the
23 signals are emitted, the way the signals are transmitted and
24 then received back on the other end.

25 For example, a smaller network like Cricket

1 doesn't have towers yet in the Philadelphia market. So if
2 somebody was to take their Cricket cell phone from here, go
3 to Philadelphia, where I'm primarily based out of, you would
4 have a situation where that phone would have to roam on
5 another network. In Philadelphia, it would have to roam on
6 either Sprint or Verizon Wireless because they are the two
7 CDMA carriers there in Philadelphia. So the standard has to
8 be the same by which they are used. If they are not, then
9 the phone won't be able to function on the network.

10 Q So when it comes to these two networks, then, whoever
11 is using them, whether it's Sprint, for example, or Verizon,
12 they are all using the same scientific standards?

13 A Yes.

14 Q They do that so that, for example, if I had a Verizon
15 phone here in Salt Lake, I could go to Philadelphia and use
16 my phone?

17 A That's correct.

18 Q You also mentioned -- perhaps you didn't, but let me
19 ask you -- radio frequency theory. Have you had training in
20 that area?

21 A Yes.

22 Q Tell us what that training consisted of.

23 A Pertaining to actual radios or cell phones?

24 Q Cell phones. Okay. Well, basically, we examine how
25 the cell phone network operates, how the cell phone network

1 provides the phone service. So you have your cell phone
2 network that is comprised of towers. And the phone utilizes
3 these towers, the frequency emitted from the tower. So in
4 this case each individual cell phone tower has what is
5 called a channel and they are all on the same frequency
6 channel, but they are coded differently, hence the name code
7 division multiple access. So you have a cell site sector,
8 you have a cell site sector which is represented by
9 something known as PN offset, which stands for pseudo noise.

10 THE COURT: Mr. Shute, you use a lot of technical
11 terms. Would you keep in mind that, number one, the court
12 reporter has got to get everything you say. And, further,
13 it would be helpful if you use any acronyms to automatically
14 give us what the acronym stands for.

15 THE WITNESS: Sure. You got it.

16 So PN stands for pseudo noise. It's basically a
17 coded signal emitted from the tower that would be
18 representative of that tower and that tower sector. And so
19 the phone then utilizes that frequency channel, that code,
20 to place it into the right slot to make the phone call.

21 So it's important to note that that PN -- there is
22 one PN per sector, PN offset per sector. So it would go
23 through all that and how it works and how it operates, how
24 that translates back into call detail records. Those are
25 the types of things that we go over.

1 BY MR. CASTLE:

2 Q You mentioned you have regular contact with cell phone
3 providers. Why do you do that?

4 A Well, because, you know, they have their world as being
5 a cellular telephone provider and we have our world as law
6 enforcement. The more you interact with them, the more you
7 speak with them about the products they put out, their
8 records and how they handle it and do business, the better
9 you are going to be at understanding what you are dealing
10 with and what you get. My goal is to be able to move very
11 quickly when it comes to a case, be it a fugitive case, a
12 murder case, a victim of child kidnapping, any of these
13 types of things, all of which are examples of cases that
14 I've worked on, to move very fast. So there is no room for
15 delay in that. So you have to really understand what is
16 going on and the little idiosyncrasies with each company.

17 Q Are you also an instructor for the FBI?

18 A I am, yes, sir.

19 Q What kind of instructor?

20 A Well, they have an instructor course known as an
21 instructor development course to make you a certified
22 instructor. Typically what I do is I instruct other agents,
23 task force officers, detectives in the area of cell phone
24 technology and historical cell site analysis and tracking,
25 things like that.

1 The FBI asked me -- or our criminal investigative
2 division asked me if you would create a curriculum, to teach
3 a course, which I've done, and we've taught it about five
4 times and are slotted to teach it another five times this
5 year. Basically we're teaching, you know, how to take the
6 records, break them down, a three-day course, to criminal
7 agents, how to plot that and how to show where a person was
8 when they made the call.

9 Q The training that you have received and discussed here
10 with the Court, how many times have you had the opportunity
11 to apply this training?

12 A Over the last nine years, but predominantly more so in
13 the last three, I personally have used this over 300 times.
14 And now the people that I've trained over the last couple of
15 years, I just checked with FBI headquarters this morning,
16 and they informed me that at least the statistical
17 accomplishments claimed by the people I've trained is over
18 500. Then there are any number of county detective schools
19 where I instruct at where there is no way of knowing the
20 amount because we don't track that.

21 Q In terms of the number of times you've applied your
22 training, do you make a distinction in your numbers between
23 real-time cell phone locations versus the historical cell
24 phone analysis?

25 A They are all historical. Like I said, from the moment

1 that the phone call is made, that becomes our record in
2 nature, and then that is -- it's historical the moment that
3 the phone call is made.

4 Q Now across the country have you been requested by
5 various prosecuting agencies to come in and provide
6 testimony about cell site historical analysis?

7 A Yes.

8 Q How many cases would you say you have been involved in
9 in that capacity?

10 A Where I provided cell site analysis?

11 Q Right.

12 A Probably close to 35.

13 Q Of those cases, how many have you testified in?

14 A Yeah, in only a portion of those, mainly because many
15 of them plead guilty or something happened where the
16 testimony is not actually needed.

17 Q So I have two questions. Tell us how the cell phone
18 works that enables a person with the kind of training that
19 you have had to identify where not necessarily the person is
20 but the handset was located. Walk us through that process.

21 A Okay. So it would be a basic description of how a cell
22 phone network operates. You have your phone, which utilizes
23 cell phone towers for service, also known as base stations.

24 And those base stations or cell towers, they are

25 synonymous -- I always get that confused myself -- they are

1 utilizing -- see, a lot of people like the word bounce, it
2 bounces off, or hits. I don't like that. I prefer to use
3 the phrase utilize because that is what it's doing.

4 Q What about the word ping?

5 A I don't like to use that word either.

6 Q Does it all mean the same thing?

7 A Yeah. It all depends on what they are saying, who is
8 saying it. But to be fair and the way it actually works is
9 that the phone is actually utilizing that cell site and cell
10 site sector for service. So that is where I -- there are
11 resources being allocated from the tower and then that phone
12 is utilizing those resources to go up on a call. So, as I
13 say, you have phones and you have cell phone towers.

14 Now within the CDMA network, such as this, you
15 have like a registration zone. In GSM that would be called
16 a LAC. So there is a registration zone, which would be a
17 group of towers, and within that area all the towers in that
18 area would report to what is called a switch. Okay.

19 So the phone call -- the phone is sitting there
20 idle just waiting for a phone call to come in, or waiting to
21 make a phone call. What happens is the phone is kind of
22 going through these certain measurements. It's measuring
23 something known as EC over IO. Basically it stands for
24 energy per chip over -- I believe it's interference. It's
25 basically a measured -- the EC over IO is a unit of

1 measurement that is determining the quality of the call
2 signal. So it's doing this, it's measuring.

3 What it does is is the phone is camped on the cell
4 site that it sees best, not just the cell site, but the cell
5 site and cell site sector that it sees best.

6 Now the phone call comes in. That is the cell
7 site sector where the phone has place the call. And then
8 from there the network takes over. When the network takes
9 over, that call could be carried on any number of different
10 cell phone towers along the way in order to provide it with
11 the best possible call quality. So they record at the
12 switch the originating cell site, where the phone was at the
13 moment that the call was made, or received, initiated, in
14 those terms.

15 Secondly, the phone is then recorded as to where
16 it is when the phone call is terminated. It does this in
17 the network. However, Cricket doesn't see fit to provide
18 those records to law enforcement. It is in fact in their --
19 the matrix of their world, but they don't provide that to
20 law enforcement. So what we have here in the call detail
21 record in this case is a representation of the cell site
22 sector where the phone was originated.

23 Q Of the times that you have been requested to testify in
24 court regarding cell site historical analysis, how many
25 times have you qualified as an expert witness?

1 A Eight times, eight out of nine, and the only reason was
2 on the very first time it wasn't requested. There was a
3 proffer between the defense attorney and the prosecutor and
4 they just determined that it was best just to handle it as
5 is.

6 Q Has that occurred both in federal and state court?

7 A Yes. I've testified in the district of -- federal
8 district of New Jersey.

9 THE COURT: Mr. Shute, that's okay, that's not
10 been requested of you, that answer. I want us to move this
11 on as quickly as we can.

12 THE WITNESS: Five different courts is that
13 answer.

14 BY MR. CASTLE:

15 Q The procedure that you talked about, that you apply
16 when you are doing a cell site historical analysis, did you
17 apply that procedure here to the case involving Mr. James
18 Allums?

19 A Yes, I did.

20 Q As part of that procedure, were you given certain
21 information regarding his cell number?

22 A Yes, his cell phone number as well as his call detail
23 records with cell site information.

24 MR. CASTLE: Your Honor, I have books of exhibits,
25 one for the Court, one for the witness. I would like to go

1 through those right now, if I could.

2 THE COURT: Frankly, I don't want them at all.

3 I'm just kidding. Thank you. When you are
4 talking about books, you can imagine that is quite
5 intimidating.

6 I trust defense counsel have copies of this?

7 MR. CASTLE: That's correct, Your Honor.

8 BY MR. CASTLE:

9 Q Special Agent Shute, let me just ask you two questions
10 before we get into this. Tell us what a cell site is.

11 A A cell site -- a cell site is basically the cellular
12 telephone tower or the device that you would know that
13 provides service. Sometimes it's not physically on a tower.
14 Sometimes, as in this case, I believe cell site 50 was on
15 top of a building. It doesn't have to be a physical
16 structure, but it represents the device by which the cell
17 phone company provides service. That generally is a
18 three-sector tower. Not always, but generally.

19 Q How are the sectors designated?

20 A How are they designated?

21 Q Yeah, in the sense -- well, how are they designated?

22 A Sure. Each company does it different, but what Cricket
23 does is they have what they call an engineer's list. They
24 provide a list. They give it a number. That number
25 corresponds to a location. They generally have an address

1 for it as well as a latitude and longitude so they know
2 exactly where that is in relation to any other tower out
3 there.

4 On the network, each cell site, meaning each cell
5 site sector has its own what is called a base station ID,
6 meaning cell phone tower identifier. And each one has their
7 own what is called PN, PN offset basically, the pseudo
8 noise, that kind of code that gets sent from the tower
9 sector to the phone. So that is how they are designated.
10 But what happens is Cricket then translates that, say, for
11 example, in cell site 50, it may have a different base
12 station ID at the actual location because that is just the
13 way Cricket builds their network, but that base station ID
14 actually corresponds to one of their cell phone towers and
15 it's recorded as such.

16 Q Do cell phone companies typically have physical
17 addresses for their cell sites?

18 A Yeah. Every company I've ever seen, all the major ones
19 and even smaller ones, they have a tower number. If they
20 don't have the address and latitude and longitude, they at
21 least have a latitude and longitude. Keep in mind, if a
22 cell phone tower goes down in a general geographic area,
23 there could be a loss of calls and thereby not providing the
24 best call quality or service to their customers. So it's
25 imperative for them to know exactly where that tower is

1 should there be a problem.

2 Q Now you've talked about sectors. What is the
3 association of a sector with a cell site?

4 A Well, each cell phone tower, at least all the ones in
5 this particular case, have three sectors. Each sector has
6 its own PN, has its own pseudo noise offset, and it has its
7 own number -- number and sector designation. Say, for
8 example, in the call detail records here, you will see a
9 cell site, but you also see a sector designation with that.

10 Q Do the sector designations all have the same
11 geographical designation?

12 A No. Meaning are they all omnidirectional? No, they
13 are not.

14 Q Are they all the same size geographically?

15 A Geographically speaking, generally they are all about
16 120 degrees. But that having been said, on one of the
17 examples, I believe it was cell site 50, it was a little
18 less than that because it's up against the mountain so there
19 is no reason for them to shoot too much signal towards the
20 mountain because there is nobody living there. Generally
21 speaking, you will have an orientation of three different
22 sectors, each representing close to 120 degrees.

23 Q Does the measurement begin starting north or starting
24 in some other direction? If it's 0 to 120 degrees, in
25 relationship to what I guess is my questions.

1 A It's really in relationship to how the network -- how
2 they decide to lay out their network. They have to do what
3 is best for them for best call quality. That's why often in
4 these cases it's hard to make a determination. Like in
5 Philadelphia, I've worked so much in that area, I know the
6 way all the towers are oriented. Many of them I've done
7 training off of or I've had cases where I testified or I did
8 an analysis for.

9 But when I come here to Salt Lake City, an area or
10 market that I'm not familiar with, I think it's imperative
11 to go to the tower, verify its existence, then verify both
12 by sketching it out as well as taking certain gear to test
13 it to be able no measure the exact orientation of that
14 tower, which is what I did in this case.

15 THE COURT: When you are talking about a
16 120-degree angle, are you talking about the angle from the
17 top of the tower based from the base of the tower outward
18 and up? For example, that thunderbolt line there, would
19 that be an example of 120 degrees?

20 THE WITNESS: Right. Like this, Your Honor,
21 basically 120 degrees. If you had a circle -- if you are
22 looking down on it and had a circular area, it would be kind
23 of at 120 degrees.

24 THE COURT: You are looking down at a 120-degree
25 coverage?

1 THE WITNESS: Correct, generally speaking.

2 THE COURT: Thank you.

3 BY MR. CASTLE:

4 Q Your experience, at least out here with the towers that
5 you tested, indicated that they had three sectors?

6 A Oh, yes, they did.

7 Q Are these sectors designated by alpha, beta, gamma?

8 A That is the way we view them as, yes. They have
9 separate, like I said, base station IDs, separate codes off
10 of each one. That's the way they are. But each company
11 does it differently. I believe, having interactions with
12 the gentleman from Verisign that indicated that, yes, they
13 do take a binary code, meaning their alpha designator, their
14 beta designator, their gamma designator, and then that
15 translates into a sector number, and in this case two, three
16 or four.

17 Q Why not one, two, three?

18 A Why not?

19 Q Yeah.

20 A Because in this market here, this market -- Cricket's
21 market here was put up by Lucent. The company Lucent built
22 all their towers. As a result, it's just the way Lucent
23 does business. Lucent records their data as a two
24 designation for the alpha, a three designation for the beta,
25 and a four designation for the gamma.

1 Q Do you understand how it is that the information
2 generated from a cell phone is stored, translated and then
3 placed into -- you've mentioned record, a call detail
4 record?

5 A Yeah. Every company does it differently. Most
6 companies handle their call detail reports themselves. I
7 believe Cricket chooses to outsource it to a company known
8 as Verisign, which is now I believe Convergys. They just
9 got bought out. And, you know, they take the data -- all
10 the data recorded at the switch, again, cell phone towers
11 through that zone recorded at the switch, they take that
12 data and that is what Verisign has then taken from them and
13 translating into basically what you see as an Excel
14 spreadsheet, each call -- detailing each call, the call
15 made, the call time, the duration, the cell site used.

16 Q Can I have you turn to Exhibit 1 of the notebook that
17 you have been handed?

18 A Yes.

19 Q Can you tell us what Exhibit 1 is?

20 A This is I guess my CV that I provided to you guys a
21 while ago.

22 Q Is it current?

23 A Yeah, fairly current. I testified last week in a case,
24 so a lot of times I'll put them down. But I testified as an
25 expert witness in the Eastern District of Pennsylvania last

1 week.

2 MR. CASTLE: Your Honor, we would move to admit
3 Exhibit No. 1.

4 MS. ANGELOS: No objection, Your Honor.

5 THE COURT: It will be admitted.

6 (Plaintiff's Exhibit 1 was received into
7 evidence.)

8 MR. CASTLE: Your Honor, we would at this point
9 request that Special Agent Shute be designated as an expert
10 witness in the field of cell site historical analysis.

11 THE COURT: My assumption is that's what this case
12 is all about, so I think it's premature for you to do that.

13 BY MR. CASTLE:

14 Q Let's go back then, Special Agent Shute, to your
15 involvement in this case. Let me have you turn to
16 Government's Exhibit No. 4, if you would.

17 Do you recognize that exhibit?

18 A It's the Salt Lake City cell sites for Cricket.

19 Q Is this a document that you relied upon for your
20 analysis to determine historical cell site data?

21 A It was -- there were two actual cell site lists which
22 did match up. It's just one had more information than the
23 other. I don't remember which one I used, but I do recall
24 making sure they were the same, meaning that, you know, cell
25 site 71 had the same information. I believe this one has a

1 little bit more information than another one.

2 MR. CASTLE: Your Honor, I would move to admit
3 Government Exhibit No. 4.

4 MS. ANGELOS: Your Honor, the only objection I
5 would have is if he can say this is the one that I used in
6 my analysis.

7 THE COURT: Well, has this witness prepared an
8 expert witness's report?

9 MS. ANGELOS: Your Honor, the only report that we
10 have is this Pin Point. He doesn't have any methodology
11 behind that with the report -- with the Pin Point
12 presentation.

13 THE COURT: All right. Well, again, the question
14 to you, Special Agent, is this Exhibit 4 what you relied
15 upon in preparing your expert report?

16 THE WITNESS: I would say yes.

17 THE COURT: All right. Being answered yes, are
18 you going to object to its admission?

19 MS. ANGELOS: No, Your Honor.

20 THE COURT: It will be admitted.

21 (Plaintiff's Exhibit 4 was received into
22 evidence.)

23 BY MR. CASTLE:

24 Q Now I would have you turn to Government's Exhibit 5.

25 Do you recognize this exhibit?

1 A Yes, these are the call detail records that were used
2 in this analysis.

3 Q Was this the call detail record you used for the number
4 assigned to Mr. Allums, that number being 801-654-0247?

5 A Yes.

6 Q In addition to Exhibits 4 and 5, will you also -- what
7 other information did you rely on or use to create your
8 report?

9 A Well, like I said, because the only way I think you
10 could truly make a determination of a particular range of a
11 tower in relation to a phone call at any given moment is to
12 take into consideration the cell phone network. So what I
13 did was I came out here in early November of last year and I
14 took a cell phone that would mirror the same type of phone,
15 most phones are generally the same, and used a handset to --
16 basically I pushed it into engineering mode and watched the
17 actual cell tower that it was utilizing, and also the sector
18 PN.

19 And what we did was we actually used the phone as
20 well as radio frequency measuring gear to see the best
21 possible signal. Then what we did was drove in various
22 areas, directions, also the locations of the actual crimes
23 themselves, and was observing the phone tower that that
24 particular phone would be camped on at that given moment.

25 So, you know, doing it, it was basically

1 conducting what we call drive test data basically showing
2 the geographic breadth of that particular cell site and cell
3 site sector.

4 Q Using a cell phone the way you've described it, is that
5 generally accepted in the industry in terms of locating cell
6 towers?

7 A I'm sorry. Could you say that again?

8 Q The way in which you used the cell phone, you indicated
9 that you came out to Salt Lake and you bought a cell phone?

10 A Yes.

11 Q You signed up for the Cricket cell service?

12 A Yes, the FBI here in Salt Lake City did.

13 Q On your behalf?

14 A Correct.

15 Q Then you converted it into, as you mentioned, an
16 engineering mode?

17 A Yes.

18 Q And the purpose of doing that was what?

19 A So that -- well, because what is happening is your
20 phone is doing all these things I explained earlier,
21 measuring its best signal. When in engineering mode, you
22 can actually see what it's doing, when you have your nice
23 little screen saver on there, picture of your kids, inside
24 the phone it's going through these measurements, it's kind
25 of remeasuring the actual best cell site and cell site

1 sector, you know, to provide service. So when you push the
2 phone into engineering mode, just about every phone will do
3 it, you just have to find the right code to push on the
4 buttons, you can actually visually see what is happening
5 about what I'm describing.

6 Q So your explanation is in using a phone like that, is
7 it generally accepted practice in the industry to use a
8 phone, convert it to its engineering mode to determine the
9 strength, location of a cell tower signal?

10 A Oh, yes. In fact, you know, if you ever see the
11 Verizon Wireless commercial, can you hear me now, it's based
12 on jest, but it's actually based on reality, cell phone
13 networks actually do this for data testing to determine, you
14 know, the range of a tower to make sure that they have
15 coverage in an area, that there are proper overlaps so that
16 they can provide you with the best possible call quality.

17 Q Then you mentioned you brought some other gear with
18 you. Could you explain what that other gear was?

19 A Yes. Radio frequency measuring gear, measures the
20 radio frequency of the cell phone tower, the measurements of
21 which I talked about, that EC over IO, to measure the best
22 signals in the area. It also will record the base station
23 ID, the latitude, longitude.

24 So what we did is I took the -- in one particular
25 column, I matched that latitude and longitude up with each

1 corresponding cell site. So in this case, say it was cell
2 site 50, I made sure that the latitude and longitude on the
3 cell site that was being emitted from the tower was the same
4 as what Cricket had on their tower list.

5 Q What is the name of this equipment?

6 A The equipment that I used was from the Harris
7 Corporation called the Sting Ray.

8 Q Is that particular piece of equipment commonly used in
9 the cell phone industry to verify the information you have
10 talked about?

11 A Yes. I mean various companies produce varies pieces of
12 equipment all doing the same thing.

13 Q You used two pieces of equipment when you came out to
14 Salt Lake?

15 A I used the device known as the Sting Ray as well as the
16 engineering cell phone.

17 Q Why did you use both of them and not one or the other?

18 A Well, you know why, because the Sting Ray actually has
19 better antenna systems in it. So in order to get a more
20 real depiction of what a phone would have seen at that time,
21 you have to base it on what the phone is seeing. The device
22 will tell you certain numbers like the latitude and
23 longitude, and some of the numbers that you need to make the
24 correspondence. However, the phone is actually the more
25 real depiction of what a phone would have seen in that

1 particular cell site sector.

2 Q When you came out here to Salt Lake, were you provided
3 information about when the robberies occurred for which
4 Mr. Allums is accused?

5 A Yes.

6 Q Were you provided the dates and times?

7 A Yes, I was.

8 Q Were you provided the location of the businesses
9 robbed?

10 A Yes, I was.

11 Q With that information in mind, tell me what procedure
12 you then followed to verify that the towers nearest those
13 businesses were properly working.

14 A Well, what we did is came and went to the actual --

15 MS. ANGELOS: Your Honor, could I clarify we.

16 THE WITNESS: I'm sorry. There was another agent
17 from the Phoenix division who drove me because I have to use
18 the gear in the back of a van, so another agent drove. I'm
19 sorry, I say we because there were two of us. I was doing
20 all the gear operating, but he was driving.

21 Okay. So we were driving around and we would go
22 to each location. I believe what we tried to do was go to
23 each location close to the approximate time of each robbery,
24 at least we tried to the best we could. I can't remember
25 exactly right now, mainly because the cell phone tower, the

1 range could be different at any given time a day. Usually
2 later in the evening when it's cooler or wet atmosphere
3 conditions, the cell phone -- the cell phone tower could
4 breathe a little bit more than it would in a warm
5 environment. So I tried to go at the same exact time of
6 day, keeping the understanding that I forget the exact dates
7 of the actual robberies. I could only come that week of
8 November when I came.

9 Q So during the time you were here, did you go to Kmart,
10 for example?

11 A Yes, I went to all the locations, the Kmart, the Home
12 Savings Bank, I believe there was another bank. We went to
13 all locations and tried to take measurements and using that
14 engineering cell phone at each location to determine the
15 cell site sector that the phone was camped on at that moment
16 just to see if it was possible that the suspect could have
17 been in that range at that location at the time that they
18 made the call.

19 I also then went and was checking the range of the
20 towers, again, in relation to a phone. I mean a cell phone
21 tower could technically emit signals, you know, much further
22 than what we have, but you have to take into consideration
23 the phone and the phone network plays a vital role in this.
24 So what I was doing was trying to see when it was that the
25 cell phone network would actually hand off the phone to

1 another tower in that general direction.

2 So what I did was I created a tower range based
3 upon -- based on an actual phone, what an actual phone saw
4 in that area.

5 Q Before going to the Kmart -- do you recall the address
6 of the Kmart?

7 A I don't. It's on the slides here.

8 Q Okay. The cell detail records that you were provided,
9 what kind of information was provided in the call detail
10 records?

11 A Well, it's the phone number, the number in question,
12 the number that made the phone call, generally the duration
13 of the call. They give you the originating cell site
14 sector. I believe Cricket does a thing where they will tell
15 you if it's ML or LM, mobile to land, land to mobile.
16 Typically if you see an ML, mobile to land, it's an outgoing
17 call. If it's an LM, it's usually an incoming call, things
18 like that. It gives you various different columns which are
19 displayed in this report as well as one of the government
20 exhibits here. I believe it's 5 -- 4 or 5.

21 Q Now with respect to 5, you were aware that the Kmart
22 robbery occurred on October 23rd of 2007 at approximately
23 9:00 p.m.?

24 A Yes.

25 Q Did you --

1 THE COURT: Excuse me, Mr. Castle. I need to
2 interrupt. First of all, are you going to offer the
3 admission of Exhibit 5?

4 MR. CASTLE: Yes, Your Honor, I do.

5 THE COURT: Any objection?

6 MS. ANGELOS: No, Your Honor.

7 THE COURT: It will be admitted.

8 (Plaintiff's Exhibit 5 was received into
9 evidence.)

10 THE COURT: Mr. Castle and counsel for the
11 defendant, you need to know that I have to leave here by
12 about ten minutes to five. I hope you will keep that in
13 mind as you question these witnesses. Okay.

14 BY MR. CASTLE:

15 Q Did you have an opportunity to look at Government's
16 Exhibit No. 5 relating to the date of 10-23-07 around the
17 time of nine o'clock?

18 A Yes, I did.

19 Q What were you able to at least see from Exhibit 5
20 related to this cell number that is depicted in Exhibit No.
21 5 related to the date and time of the robbery at Kmart?

22 A Are we going to go through the slides?

23 Q Sure.

24 This is testimony you have already provided,
25 correct, regarding towers and --

1 A Yes.

2 MR. CASTLE: Sorry, Your Honor, we didn't know how
3 to convert it, so it just went from page to page.

4 BY MR. CASTLE:

5 Q Tell us what this page is right here, Special Agent
6 Shute.

7 A So this is basically the call detail records, just
8 copied and pasted onto the slide.

9 THE COURT: Part of Exhibit 5?

10 THE WITNESS: Yes, part of Exhibit 5.

11 And what I have there highlighted in red are the
12 calls that I am about to display. It shows the date and it
13 shows the time of the call. And then if you look off to the
14 right where it says cell, that is the cell site.

15 Now there was a lot of contention regarding a cell
16 site on Cricket's part of whether or not they could
17 determine a cell site sector. And my experience with all
18 the various companies is because each cell site sector emits
19 its own signal, its own PN and, then, of course, there would
20 be its own cell site sector.

21 What you see here is this five-digit designation
22 in the cell column. You see first the S, and the S is
23 representative of the way Cricket Communications codes, and
24 then Verisign, the company that does the translation of the
25 records, translates it. S means the Salt Lake City market.

1 So you know you are in the Salt Lake City market.

2 The next digit is representative of the tower
3 sector. So what you have here is a tower sector and you are
4 going to see either a two, a three or a four because this
5 market here is Lucent, meaning the Lucent Company built the
6 tower system here. So the two, the three and the four is
7 the tower sector designation.

8 Then the last three digits would be representative
9 of the actual cell phone tower, the physical location of
10 that particular cell site.

11 So that is what we have here. This would be
12 representative of where the defendant's phone was
13 approximately an hour to 15 minutes prior to the robbery of
14 the Kmart.

15 BY MR. CASTLE:

16 Q And in terms of locating cell tower locations, you
17 relied on Exhibit 4 for that?

18 A Yes.

19 Q Tell us what this exhibit is.

20 A Well, what this is is this is an exhibit that shows the
21 cell site sectors, their locations, as well as the location
22 of the Kmart. It is basically a geographical representation
23 of the last slide that we just showed. This is just showing
24 the range of that tower, omnidirectionally because at one
25 point during the various conversations that we had in

1 preparing evidence at the trial was that Cricket was not
2 able to determine a cell site sector. That has since been
3 proven to be incorrect, at least through our conversations
4 with both Cricket and Verisign, that they do in fact have
5 sector designations, which is what I found when I was here.
6 But this is the range of that tower in relation to a phone,
7 the test phone that I used, and it's just showing where the
8 phone was first at about eight o'clock and then again at
9 about 8:11.

10 Q In terms of historical data?

11 A Historical, yes.

12 Q What you attempted to do with this particular slide is
13 plot where Mr. Allums' handset was either before or after
14 the robbery at Kmart?

15 A Yeah. Typically I'll take a significant amount of time
16 prior to the crime and look to see where the phone was.
17 This is where the phone was in that general geographical
18 area there.

19 Q How did you determine that general geographic area?

20 A Again, using the gear that I used, the cell phone, and
21 measuring when the phone would switch and hand off to the
22 next tower in that area. So the first call would have been
23 46 and the second call would have been down there on cell
24 site 50.

25 Q The 46 that we see on this particular exhibit, that is

1 the tower number?

2 A Yes, that's correct.

3 Q And then the next round circle, what tower number are
4 we dealing with?

5 A Fifty.

6 Q And then did you with respect to this location do some
7 other testing?

8 A In relation to this one here?

9 Q Right.

10 A I don't know if it's coming up next, but I did do a --
11 it's going to go through where the phone was in the next
12 couple calls. You are probably getting to the drive test --
13 the drive that's coming up.

14 Q Tell us what this exhibit is.

15 A So these are the phone calls -- the next two phone
16 calls that he made at the seven -- what is 1914, so that's
17 7:14, and also at 2007, which would be 8:07. And it's just,
18 again, showing the phone was moving around throughout that
19 time frame.

20 Q Then our next exhibit?

21 A Yeah, that is showing where the first two towers were
22 where calls were made and then the next two if you were to
23 hit the advance button.

24 Q So what you have done is you have included towers 54
25 and towers 52?

1 A Yeah, because they were the next two cell sites used.

2 Q Based on what information?

3 A Based on the call detail report recorded by Cricket's
4 network.

5 THE COURT: Mr. Castle, is it really necessary for
6 you to go through each of these? I think the emphasis here
7 ought to be in the special agent's methodology and the
8 reliability of that methodology. I don't think it's
9 necessary for the Court to see all the testimony that he
10 intends to present if it is all based on the same
11 methodology.

12 MR. CASTLE: Well, Your Honor, we could speed this
13 up by asking that question.

14 BY MR. CASTLE:

15 Q The methodology that you have been talking about, is it
16 the same methodology that you used involving the Kmart
17 robbery, the Salt Lake City Credit Union robbery, and the
18 Home Savings Bank robbery?

19 A Yes.

20 Q And based on that methodology, is that a methodology
21 that is generally accepted in the industry for identifying
22 the location of handset devices in a CDMA network?

23 A Yes. We also use test phones to mirror what the target
24 phone is going to be doing and what the target phone would
25 be seeing.

1 Q Have you had an opportunity to talk with Cricket about
2 their call detail records?

3 A Numerous times.

4 Q And there was some question in talking with them about
5 whether they would provide sector information?

6 A Initially there was, yes.

7 Q What additional information have you learned regarding
8 their ability to provide sector information?

9 A Well, you see, Cricket, when you call their law
10 enforcement relations number, typically you have people that
11 are -- you know, people that are processing records, trying
12 to field calls. But there are usually two groups. There is
13 the subpoena compliance side and then there is the
14 engineering side. What I've come to realize is that rarely
15 do the two speak. They don't interact as much as we would
16 probably like them to.

17 What we've been able to find out is that in fact
18 not only are there clearly on all of these towers three
19 clear sectors, but that in fact that data is recorded into
20 their network at their switch, and that Verisign, the
21 company, does have a way to take that binary code and crunch
22 it down and decipher that that actually corresponds to a
23 cell site sector.

24 Q Are there factors that can come into play to reflect
25 whether a cell phone even hits a particular tower or not?

1 A Sure. There could be any number of different things
2 ranging from atmosphere conditions to structures blocking
3 it. You know, you get into a certain thing -- keep in mind,
4 we're dealing with a radio frequency, so line of sight is a
5 big thing, reflection, radio frequency signals bouncing off
6 objects, refraction, when one hits the location where it
7 goes, the direction it goes in and how it's propagated from
8 there. There are various things to consider, which is why
9 the best way to do this sort of thing -- and it's the same
10 method by which we used to find, myself personally, 300
11 people, the rest of the guys that I work with another 500
12 people. I know it's done by us, other agencies, U.S.
13 Marshals, Secret Service, any different number of agencies
14 all over the country every day.

15 Keep in mind, just this morning I had interactions
16 with another cell phone provider that said they get ten
17 requests a day on exigent circumstances to know the sector
18 of where a person is right now so law enforcement can take
19 some sort of action. This is done every single day all
20 across the country, you know, with all various cell phone
21 providers.

22 Q When it comes to Mr. Allums' call detail records, how
23 do we know that some of these other factors weren't in play
24 and, in fact, the sector and tower numbers identified in his
25 call detail records aren't incorrect?

1 A Well, because you have to understand that the cell
2 phone network has allocated certain resources. That tower
3 and that tower sector is representative of a geographical
4 area. Cricket will tell you that they want to try to narrow
5 it down to that area to provide service.

6 So when a person is making that call -- so as long
7 as you've done drive test data to determine the scope of
8 that tower range and you know when the phone would then
9 switch to the next sector or the next tower, then you can
10 accurately depict where that range is and what that
11 translates to geographically.

12 Q It's the cell company's objective to construct towers
13 so that they -- so that cell phones, when they are used, are
14 hitting the closest tower? Is that their objective?

15 A That's their objective, but it's not always the case.
16 In certain circumstances a tower could be up on a mountain
17 utilizing that because it has the best line of sight.

18 But in this case here, you know, I didn't find
19 that to be the case. In this case here, we were trying to
20 measure out the cell site and when that phone would actually
21 hand off to the next tower, when it would be camped on
22 another tower. So what you have here are the approximate
23 ranges of those cell phone towers in relation to an actual
24 handset, not in relation to how far a tower actually blasts
25 its energy out. This is in relation to an actual phone.

1 Q You came out a year later?

2 A Correct.

3 Q So how do you know that the information contained in
4 Mr. Allums' call detail records is reliable information if
5 you came out a year later to do all this testing that you've
6 talked about?

7 A Right. I wouldn't know specifically, I would have to
8 ask, and I have done that before in a case in Tennessee. I
9 had to go ask the site engineer, sir, has there been any
10 changes in the tower, the tower structure, anything in the
11 notes, because, you know, the site engineer keeps record of
12 all that.

13 THE COURT: Have you done that in this case?

14 THE WITNESS: I did. I requested that of Cricket
15 and they were not able to say that there were any changes or
16 anomalies or problems with the network.

17 BY MR. CASTLE:

18 Q Your request was to provide copies of any work orders
19 that might have been issued to repair the cell towers that
20 were the subject of your study?

21 A I believe we asked for that and I think through legal
22 process you may have asked for that. Nothing was ever
23 provided saying there were any problems or work orders or
24 changes in the tower. Typically, if it's working, then they
25 are not going to change that. If I take various networks --

1 THE COURT: Mr. Shute, I'm sorry. I've just got
2 to ask you to make your answers very brief. He's only got
3 five minutes more.

4 THE WITNESS: Okay.

5 MR. CASTLE: Your Honor, then we would, as part of
6 our presentation, move to admit Exhibit No. 6.

7 THE WITNESS: Mr. Castle, based on the outcome of
8 this hearing, keep in mind, you know, we'll have to, you
9 know, upon the new information learned from Cricket -- which
10 is not new to me, I have known this all along -- we would
11 have to redraw the sector designations in this report here.
12 This is just omnidirectional.

13 BY MR. CASTLE:

14 Q I'm going to have you look at Government's Exhibit 14.
15 Tell us what that is.

16 A These are call detail reports of the phone that I
17 utilized while I was here.

18 Q Were you able to verify reliability information
19 contained in Exhibit 14?

20 A Yes.

21 Q How did you go about doing that?

22 A These are the phone calls that I made when I was at
23 these various locations. I was basically trying to test the
24 tower to see where the phone that I had was -- you know,
25 where it was using for a serving cell site when it made the

1 phone calls. So some of these calls represent where I was
2 at different points in time.

3 Q And do they correlate to the sectors and cell site
4 towers you were at?

5 A Yes, they do actually.

6 MR. CASTLE: Your Honor, I would move for the
7 admission of Government's Exhibit 14.

8 THE COURT: Six and 14?

9 MS. ANGELOS: I have no objection, Your Honor.

10 THE COURT: Exhibit 6 and 14 will be admitted.

11 (Plaintiff's Exhibits 6 and 14 were received into
12 evidence.)

13 MR. CASTLE: Yes, Your Honor.

14 If I could just have a second, Your Honor?

15 THE COURT: Go ahead.

16 BY MR. CASTLE:

17 Q Special Agent Shute, you mentioned this issue that you
18 were having with Cricket regarding sector designations?

19 A Yes.

20 Q How was it you were able to clarify, at least in your
21 mind, that Cricket in fact does have sectors within their
22 towers?

23 A Well, first of all, just by a general understanding of
24 the CDMA technology, I knew that there were different
25 sectors. When I came out here and tested it and basically

1 drove around the towers, spent significant time, over three
2 days at each tower, I can see there are three clear base
3 station IDs, three clear PNs coming off of each tower. You
4 know, you were able to sketch it out and then modify that
5 based on where the phone would switch as I drove across
6 those boundaries lines. And so -- I'm sorry.

7 THE COURT: I think you've answered the question.

8 BY MR. CASTLE:

9 Q Did you have an opportunity to speak to a Michael
10 Vlassis?

11 A Yes.

12 Q Who is he with?

13 A He is with Verisign, now Convergys.

14 Q What function does Verisign provide to Cricket or
15 Convergys.

16 A They take the data that is recorded at the switch for
17 Cricket Communications and other cell phone companies, and
18 they translate that into a call detail report. Basically
19 what you seen on the previous slide where it says the phone
20 call, the date, the time, the cell site, they take that, and
21 particularly the most important part, they take that binary
22 code that is generated from that cell site sector and they
23 translate that into a numeric designation, as you see here,
24 two, three or four because it follows the Lucent technology
25 standard format for that type of thing.

1 Q When you were visiting with Mr. Vlassis, was he able to
2 verify the reliability of the cell numbers and sector
3 numbers in Exhibit 14?

4 A Yes.

5 Q How was he able to do that?

6 A Well, I believe he is the director --

7 MS. ANGELOS: Your Honor, I'm going to object to
8 that question. I think Mr. Vlassis can actually answer
9 those questions.

10 THE COURT: I would agree.

11 MR. CASTLE: That's all I have, Your Honor.

12 THE COURT: Thank you, Mr. Castle.

13 Special Agent, I would again ask you to please
14 specifically try to be as brief and precise in your answer
15 as possible.

16 THE WITNESS: Yes, Your Honor.

17 CROSS-EXAMINATION

18 BY MS. ANGELOS:

19 Q Hello, Mr. Shute.

20 A Hello.

21 Q You indicate in your resume that you've taken an FBI
22 cellular technology course, and I think you told us today
23 you've done it two times; is that correct?

24 A Recently, between the time I sent you the CV, there was
25 an online course that the FBI offers through a Web-based

1 training and I took that as well.

2 Q So two times total?

3 A Yeah, two different courses.

4 Q How long was the course?

5 A Which course?

6 Q The first one. How long was the first course?

7 A A week long.

8 Q How long was the second course?

9 A The second one was a Web-based course that took
10 somewhere around four hours to complete.

11 Q Was there a manual used in either one of them?

12 A A manual? I mean the FBI has a, you know, lesson plan
13 they utilize for that. I don't know what it is.

14 Q Were there any specific books that you were required to
15 read?

16 A Online courses, no.

17 Q For those courses?

18 A No.

19 Q Did you have to take a test afterward to show
20 successful completion of the course?

21 A Yes. In the Web-based course, yes. And then the
22 week-long course, it was more of a practical exercise in
23 practicality.

24 Q And then you also indicate that you have received
25 training in the cellular technology from a private company

1 known as ETS. I think you testified today that was five
2 times; is that correct?

3 A Yes, and the people there, I interact with them
4 frequently.

5 Q How long was that training each time?

6 A The first one was two weeks long, the second one was a
7 week long, and then after that each of the other three were
8 a week long.

9 Q And was there any manual that was used in that type of
10 training?

11 A There was -- again, the ETS is a private company, they
12 have their own proprietary information that they utilize to
13 train people. Yes, they have their manuals and guides.

14 Q Were there any specific books you were required to read
15 outside their manual?

16 A They provided us with certain books, a GSM book, a CDMA
17 technology book where we just look at excerpts from the
18 book.

19 Q Do you know the names of those books?

20 A I don't know, but one was something to the effect of
21 GSM made simple. I don't remember it now. It was a couple
22 years ago.

23 Q Did you have to take a test afterward to show
24 successful completion of these courses?

25 A Yes. We have quizzes and then I believe we also had a

1 practical exercise to make sure you understood the concepts
2 of being able to locate phones in certain areas.

3 Q Where did you go to college?

4 A Rutgers University.

5 Q What was your degree in?

6 A Psychology.

7 Q So you don't have a degree in mathematics?

8 A No.

9 Q You don't have a degree in engineering?

10 A No.

11 Q Have you ever worked for a cell phone company?

12 A No, ma'am.

13 Q What type of training do you have specifically in
14 regard to the collection of these type of records, the
15 historical records?

16 A The collection is the duty of the actual cell phone
17 provider. They do the collecting of it. Where we come in
18 is we take the data that they have collected and then we
19 analyze it, break it down, translate that into a
20 geographical area.

21 Q Do you have any training with regards to the collection
22 of those records? Have you ever done any type of training?

23 A There would be no type of training done.

24 Q What type of training do you have with regard to the
25 interpretation and analysis of these types of records?

1 A Okay. That would be all these various courses that
2 we've talked about where we take the records, we break them
3 down, figure out the geographical scope of a particular cell
4 phone tower, and then go and look for that handset in that
5 given area.

6 Q Do you have any type of certification or accreditation
7 with respect to cellular data analysis?

8 A Cellular data analysis?

9 Q Cellular tower data analysis.

10 A Accredited -- to my knowledge there exists no
11 accreditation of it. It's just, as we would call it, the
12 school of hard knocks, doing it every day, you know,
13 practical use.

14 Q Do you have any certification or accreditations in
15 radio frequency engineering principles?

16 A No.

17 Q In your resume, and I think today you also testified
18 that you have indicated that you successfully used project
19 Pin Point, the survey mapping process -- in your resume it
20 says 250 times, but I think you said 300 times today.
21 That's using cellular telephone historical records; is that
22 correct?

23 A Yes.

24 Q But you are not really using the same type of analysis
25 on fugitive cases that you would be using in this type of

1 case, are you?

2 A Yes, I am.

3 Q Let's walk through a fugitive case. On a fugitive
4 case, do you acquire historical records in that case?

5 A Yes.

6 Q What period of days -- how many days would you make --
7 how many -- how many days would you make a request on?
8 Would you want 30 days of historical records in a certain
9 period, 60 days?

10 A It's case specific. I generally go with 30 days, but
11 you have to take into consideration the -- well, you have to
12 take into consideration what has happened with this
13 particular suspect. Did he just shoot somebody three days
14 ago and now is on the run? Did a law enforcement agency
15 carrying that warrant just serve a warrant at his home
16 residence? You know, it really depends, but I generally ask
17 for 30 days so that I'm looking for patterns.

18 Q Exactly, you're looking for patterns.

19 So is it true that you would use the mapping and
20 you would map the towers that he's hitting on any given
21 date? Right?

22 A Yes.

23 Q In that 30-day period.

24 So he's hitting this tower one day, he's hitting
25 this tower one day, he's hitting this tower another day,

1 he's hitting this tower another day, and you would plot all
2 of those where he's hitting on those towers during that
3 30-day period, correct?

4 A Yes, plot the tower and the sector.

5 Q Now if only one -- is it fair to say if one of the
6 towers, there is a possibility that it's only hit one time
7 during that 30-day period?

8 A Yes, sure.

9 Q You are looking for a pattern of how many times a
10 certain tower is being hit, aren't you?

11 A In some circumstances, yes.

12 Q How many circumstances? Of those 300 cases, how many
13 are you using this type of looking at patterns?

14 A In all 300 cases, I always look at that. However,
15 there is another aspect to it, which is where the phone is
16 right now. Because if I'm trying to locate somebody, I want
17 to know where the phone is now, what was the last call that
18 was just made two minutes ago.

19 Q Let's ignore right now for a second. So on that 30-day
20 call record, after you have plotted them all out, what you
21 are looking at is where the tower he hit upon the most is,
22 correct?

23 A Well, somewhat. We're looking for a number of
24 different things. I'm looking for the most frequently hit
25 calls, the most frequently hit towers, the most frequently

1 hit at specific times a day.

2 Q To determine his location, though, right?

3 A Sure, I'm trying to look at the first --

4 THE COURT: Special Agent, I think it's going to
5 be best if you let her ask the question, you answer it
6 directly, concisely, then if she wants to ask you more
7 questions, she may. Keep in mind this is cross-examination.
8 She has the right to have you -- she can ask the question
9 and you are to answer the question she asks and nothing
10 more.

11 BY MS. ANGELOS:

12 Q The reason that you are looking at patterns is because
13 the more the tower is hit, the most likely that is the
14 location he's going to be in, correct? Like a home?

15 A Sure. I'm looking for -- I'm looking for patterns in
16 certain cases, yes.

17 Q In 300 cases of fugitives, correct?

18 A Sure.

19 Q Now in this type of case that we're dealing with today,
20 you are looking at one day, correct? Say the day of the
21 Kmart robbery. You're looking at one day, and you are
22 looking at possibly a three-hour period, correct?

23 A Sure.

24 Q And you are looking at one tower, correct?

25 A Yes, one tower. Each call is one tower. Sure.

1 Q You are saying that that tower was hit at a certain
2 time, one hit, correct?

3 A Yes.

4 Q There is no pattern there, is there?

5 A No. I mean not at that given moment.

6 Q So it's a different analysis in the 300 fugitive cases
7 that you have looked at --

8 A No.

9 Q Explain that then.

10 A Okay. I was trying to, but I was told to explain --
11 you know, answer your one question. I look for the pattern,
12 that is if a person is making a call. I do that and then I
13 put that aside because I am hoping that the next call that
14 the person makes matches that pattern. However, many times
15 it doesn't match that pattern.

16 In fact, in many cases, victims of carjackings,
17 kidnappings where you have to look at the call and the call
18 that was just made and you have to analyze that and
19 translate that into a geographical area. Just because there
20 isn't a consistent pattern over and over and over does not
21 mean that the range of the tower is any less correct.

22 Q But in looking at fugitive cases when you talk about
23 looking in three minutes before he made the call, you don't
24 have that in this case, do you? You are looking at
25 historical call records from a period of long ago, correct?

1 A Sure.

2 Q So we don't even have the added addition of looking at
3 the last three minutes where his cell phone tower hit,
4 correct?

5 A Correct, but you are assuming one thing.

6 Q Hold on. All right.

7 A You are assuming that every time I had a fugitive case
8 that the person is there in the pattern and most of the
9 times they are not.

10 Q That's fine. So there is an error of probability in
11 this; is that correct?

12 A Not in the technology in where a person could be, sure,
13 you don't know where the person is going to be.

14 Q But in usual circumstances, if you are having a
15 pattern, those are the two places you are going to be most
16 likely to look as far as his location, correct?

17 A Yes.

18 Q And you know whether or not you'll find him there?

19 A I know whether or not I find him there because before I
20 go out into the street to find him, I see what the last cell
21 site was that was used. If it matches that pattern, then
22 that helps me --

23 Q When you get there, if you find a fugitive, you know
24 you are correct?

25 A Correct, sure.

1 Q So if in 300 cases you go out and on 150 of those cases
2 you find him where the pattern is, you know that you have
3 got 50 percent of the time this analysis is correct,
4 correct?

5 A If you say so. I mean --

6 Q Answer me.

7 A You are comparing apples and oranges, so I don't
8 understand how to answer you.

9 Q Let me ask it this way. In the case that we have where
10 there is one day that you are looking at, one hour that you
11 are looking at, one call that you are looking at and one
12 tower, how do you determine the error rate -- because you
13 are basically saying if it's hit this tower, the cell phone
14 is in this tower's range, correct?

15 A Uh-huh. (Affirmative)

16 Q Which basically says the individual is right in that
17 range, too?

18 A Well, the person who has the phone in their hands.

19 Q How do you determine an error rate on that?

20 A Well, again, by doing drive test data. You go out
21 there and utilize this gear, you determine the geographical
22 breadth of that particular cell site and that cell site
23 sector and that is how you determine it.

24 Q But the only real way you would be able to determine if
25 your analysis was correct was I guess in a jury trial

1 setting where they convict the individual, correct?

2 A In that respect, sure. The problem here is that I
3 think what maybe you are not understanding is that the
4 process is the same whether I'm looking for a person right
5 now because regardless of that cell site analysis that you
6 are talking about, I am looking at the last call, what was
7 the call that was just made, and that is where I go look.
8 That is incidental.

9 Q You are saying that the analysis is different?

10 MR. CASTLE: Your Honor, he was trying to explain
11 the answer and she's asking a question right in the middle
12 of his testimony.

13 MS. ANGELOS: Your Honor, I just want a simple
14 answer.

15 THE WITNESS: You want your answer.

16 THE COURT: Again, you will have an opportunity on
17 redirect, Mr. Castle, to explain further if you think it's
18 necessary. But I do want you to make maximum use of your
19 time, Ms. Angelos.

20 MS. ANGELOS: Thank you, Your Honor.

21 BY MS. ANGELOS:

22 Q Your resume -- and I think you testified today that you
23 would have weekly contact with all major cellular telephone
24 company providers for the last five years; is that correct?

25 A Yes.

1 Q You've met with Sprint daily for the last five years?

2 MR. CASTLE: Objection, Your Honor, that's a
3 mischaracterization of his testimony. He didn't meet daily
4 with these cell phone providers. He said he met weekly with
5 them.

6 MS. ANGELOS: I actually think it's in his resume,
7 Cy.

8 THE WITNESS: Weekly contact.

9 BY MS. ANGELOS:

10 Q Weekly contact with Sprint?

11 A Sure. Again, contact is telephonic. It doesn't mean
12 face-to-face.

13 Q That's fine.

14 You've met with Verizon daily -- weekly within the
15 last five years?

16 A Telephonically, sure. We speak to them all the time.

17 Q T-Mobile?

18 A T-Mobile a lot, yeah.

19 Q Nextel?

20 A Nextel, yes.

21 Q Cingular daily?

22 A Cingular now is AT&T.

23 Q Although you've met with all of these telephone
24 providers in a weekly setting for the last five years, this
25 is the first case you've ever had with Cricket; is that

1 correct?

2 A This is the first case I have had with Cricket. I have
3 assisted some agents from other divisions who were trying to
4 interpret Cricket records.

5 Q Prior to this case, have you had weekly contact with
6 Cricket?

7 A Weekly contact with Cricket, no.

8 Q You are primarily based out of Philadelphia,
9 Pennsylvania; is that correct?

10 A Yes, ma'am.

11 Q Cricket doesn't have operations there?

12 A Not yet. They are coming in the next month or two.

13 Q So when you indicate that you have weekly conversations
14 with all the major telephone carriers, that excludes
15 Cricket?

16 A Correct. Cricket is, like I said, not --

17 THE COURT: Special Agent, you could have answered
18 that yes. That's how I want you to answer the question.
19 All right.

20 BY MS. ANGELOS:

21 Q Is it true that the major carriers, and those are the
22 ones I just discussed, besides Cricket, provide the
23 following information in their historical call records, the
24 originating cellular telephone tower where the cell call
25 originated?

1 A Yes.

2 Q They also provide the terminating cell tower; is that
3 correct?

4 A Many of them do, yes.

5 MS. ANGELOS: Your Honor, if it's all right, it
6 helps me to walk him through this, if I can just continue to
7 use this.

8 BY MS. ANGELOS:

9 Q So it provides the originating cell tower and the
10 terminating cell tower, correct?

11 A Yes, many of them do.

12 Q Then do all of them also provide if a tower -- there is
13 a handoff to another tower during the cell phone call?

14 A During the call, no. The only thing they are recording
15 is the originating cell site where the phone was at the time
16 that it initiated the call or the call was originated, and
17 the location of the terminating cell site where the phone
18 call was terminated.

19 Q Is it accurate that Cricket does not provide any
20 information with where the call terminated?

21 A They do not provide it, no. They have it, but they
22 don't provide it.

23 Q So the only thing that you received in those historical
24 call records of Cricket is the originating cell phone tower?

25 A Yes.

1 Q Now I think you described -- you have got a tower that
2 reports to -- and is it an LAC that you --

3 A A LAC would be, yes, in GSM terms. In this case, this
4 is a CDMA network, so it reports to a zone and it records at
5 a switch.

6 Q So it reports to a zone but then records at a switch;
7 is that accurate?

8 A Yes, the zone. The switch covers that zone. They are
9 synonomous.

10 Q How many towers would be covered with a switch?

11 A A switch could be -- it depends on the network and the
12 area, but it could be anywhere from say 25 to 100.

13 Q Twenty-five to 100 towers?

14 A Could be, yeah.

15 Q Generally how many calls is a tower able to handle?

16 A Oh, what time frame?

17 Q I mean even just in five minutes?

18 A In five minutes, one individual tower could, depending
19 upon how frequent the bouncing, hundreds, maybe even close
20 to a thousand. Probably hundreds.

21 Q So at any given time the switch that is recording
22 information from all of these towers could be making
23 recordings involving a thousand calls; is that correct?

24 A Yeah.

25 Q You are aware that the switch most often only stores

1 volatile information for a period of 36 hours; is that
2 correct?

3 A Yes, volatile data is -- yes.

4 Q You are aware that a switch, if busy, may not record
5 all of the information of the towers' calls, correct?

6 A Well, it's going to record the originating cell site.
7 It's going to record that, yes, it is.

8 Q Will it skip information if it gets busy?

9 A If the tower gets busy? If the tower gets busy --

10 Q If the switch gets busy?

11 A If the switch gets busy. I've never seen a situation
12 where the switch did not record the data.

13 Q Your assumptions and conclusions are based on the
14 belief that the data that you received is entirely accurate,
15 correct?

16 A Sure, the data is -- yes.

17 Q Is it true that in a switch data there would be
18 recorded information regarding tower troubles?

19 A If there was a trouble with the tower, the network,
20 yes, and Cricket would know that.

21 Q But you don't get any information in that with
22 historical call detail records, do you?

23 A No, because it's not needed. All we need is where the
24 phone was originated.

25 Q Yes or no, you don't get any information with regards

1 to the tower trouble?

2 A No.

3 Q That switch data would also initially record the amount
4 of traffic on all of the towers, correct?

5 A For a finite period of time, then that data has to be
6 dropped because it's just so much.

7 Q Correct. So that information wouldn't be in the
8 historical call detail records either, right?

9 A No.

10 Q You have no idea on the days in question whether there
11 was any troubles with the towers in the areas in question,
12 correct?

13 A Correct. I assume not because we asked Cricket.

14 Q You have no information yourself, correct?

15 A I have none.

16 Q And you have no idea on the days in question what the
17 call volume was during the time of the incident on all those
18 towers, correct?

19 A Call value?

20 Q The volume.

21 A Volume, no.

22 Q Do you know what the weather was like on the particular
23 days in question?

24 A I do not.

25 Q You have no knowledge of whether there was any cloud or

1 ceiling coverage issues, raining, snowing, anything like
2 that?

3 A On the days that the phone calls were recorded, no.

4 Q Is it true that the weather does have a tendency to
5 affect cell phone tower coverage?

6 A Yes. I said that earlier.

7 Q Is it also true that buildings or other obstructions
8 can affect which cell phone tower is chosen during a call?

9 A Yes.

10 Q Is it your opinion that the only place that a target
11 device or cell phone can be located within a call -- during
12 a specific call is within the shaded area?

13 A In the shaded area that I drew?

14 Q Yes.

15 A Yes, and I could offer a reason, if you would like.

16 Q Well, is it possible, taking everything that we've just
17 discussed above with building obstructions, weather being a
18 possible thing, traffic being a possible thing, that the
19 cell phone could have actually been in an area that hasn't
20 been shaded?

21 A No. Could I explain?

22 Q Sure.

23 A Because had I not done the data testing that I did, I
24 would agree with you. But in this example, what I did was I
25 came out here just at the very beginning of November, so

1 it's almost the exact time frame. I went to the towers
2 close to the exact time -- time of the year and the time
3 that these calls were made. And what I was doing was using
4 the engineering phones and trying to measure the distance,
5 which, keep in mind, that phone that I'm using to test with
6 is taking all that into consideration. It's taking into
7 consideration building reflection, refraction, height of the
8 tower, all of that stuff. The phone doesn't lie.

9 Q It's not taking into consideration the traffic on the
10 tower at a year before?

11 A Oh, yeah, sure.

12 Q Is it?

13 A It couldn't because --

14 Q It couldn't, correct?

15 And it doesn't take into account how the weather
16 was the year before, correct?

17 A Sure.

18 Q None of the information, geographic, weather, traffic
19 on the tower, or even antenna placement appear on the
20 historical call records you used, correct?

21 A Run that one again, please.

22 Q I'll just ask individually. The geography doesn't
23 appear on -- the weather, traffic on the tower doesn't
24 appear on the historical call records?

25 A No.

1 Q Whether or not buildings obstructed doesn't appear on
2 the historical call records?

3 A No. It's impossible.

4 Q Antenna placement doesn't appear on the historical call
5 records?

6 A Well, you know, technically it does because they
7 provide you with the engineering tower list. And so if it
8 hasn't changed, that would still be the same.

9 Q Is it also true that if a cell phone is hitting a
10 particular segment of a tower, you certainly cannot say with
11 any specificity how close it is to that tower, correct?

12 A You couldn't say, no. You would have to be within that
13 range.

14 Q The most that you can say is that this is the strongest
15 cell tower, correct?

16 A What I can say is that is the geographical area of that
17 tower in relation to a phone.

18 Q Let me ask you this: Is the tower which carries -- a
19 tower which carries a particular call is not always the
20 closest tower to the phone call, it's the strongest?

21 A That's correct.

22 Q So you would agree that a cell phone doesn't
23 necessarily hit the closest tower, but it hits the tower
24 with the strongest signal?

25 A Strongest signal, correct. It's typically the one

1 that's closest to it.

2 Q But not always?

3 A Not always, yes.

4 Q But your conclusions rest on the fact that you are
5 assuming that the cell phone is hitting the closest tower?

6 A There is no assumption there. That is based on an
7 actual phone in relation to towers in the area.

8 Q You are talking about the phone you purchased?

9 A Yeah.

10 Q I will get to that.

11 A Sure.

12 Q Are there any scientific tests supporting this theory
13 or testing of it, strongest versus closest?

14 A Well, the scientific testing which you talk about is
15 based on how a cell phone company operates. This testing is
16 done all the time by various cell phone networks.

17 Q Are there any scientific tests that you've been able to
18 read to find errors, accuracies, probabilities?

19 A No, just practicality, using the techniques to locate
20 people.

21 Q Are there any scientific tests documenting things that
22 could interfere with the signal?

23 A Not that I am aware of.

24 Q Are there any scientific tests to determine the limit
25 or range of a radio wave?

1 A Well, yeah, cell phone companies do testing to see how
2 far a cell phone tower can -- radio frequency can propagate.
3 Typically, let's say, for example, in a GSM network, it can
4 go 35 kilometers, the signal, but keep in mind the phone
5 plays a huge role in that.

6 Q Are you aware of any specific written memorandum
7 regarding those tests?

8 A No.

9 Q You don't have any personal knowledge with regard to
10 those tests?

11 A No.

12 Q Are there any scientific tests out there which show the
13 instance of radio waves hitting unexpected towers at
14 substantial distances?

15 A Tests, ma'am?

16 Q Uh-huh. (Affirmative)

17 A No.

18 Q But you are aware of that happening, correct?

19 A I'm aware of that happening because of my practical
20 use, sure.

21 Q So you are aware that a cell phone tower can hit an
22 unexpected tower at a substantial distance?

23 A Yes. If it can see the signal as the clearer signal at
24 that moment, yes.

25 Q Are there any scientific tests indicating frequencies

1 that cell signals are redirected or passed on to other
2 towers?

3 A I believe the cell phone networks do their testing for
4 that, but not that I'm aware of.

5 Q You are not specifically aware of any?

6 A No.

7 Q You didn't rely on any of those because you are not
8 aware --

9 THE COURT: Ms. Angelos, it's pretty evident,
10 isn't it?

11 MS. ANGELOS: Thank you.

12 BY MS. ANGELOS:

13 Q You would agree with me that radio waves is a
14 scientific principle, correct?

15 A Yes.

16 Q And you are not a scientist, correct?

17 A Nope.

18 Q You have not conducted any research with regards to any
19 of this, correct?

20 MR. CASTLE: Your Honor, that's a vague question.

21 THE COURT: Sustained.

22 BY MS. ANGELOS:

23 Q You yourself have not made any type of determination
24 with regards to error rates on the type of analysis you are
25 doing in this particular case, have you?

1 A In this particular case, no. I mean just that I've
2 used it hundreds of times to locate where the handset is.

3 Q Is hundreds of times in those 300 fugitive cases,
4 correct?

5 A You keep saying fugitive cases. I didn't say that.
6 Some of them were fugitive cases, some of them were
7 kidnappings, some of them were witnesses, some carjackings.
8 It could have been any number of different cases.

9 Q Are the fugitive cases similar to child kidnappings,
10 carjackings, you are taking 30 days' worth of historical
11 data?

12 A No, not always. I take the records and, again, I look
13 for a pattern. But what I'm always looking for at the
14 moment I'm looking for the phone is I'm looking for the last
15 call regardless if it matches that pattern or not.

16 Q You can't do that in this case, can you?

17 A No, but I did look at the last phone call, where that
18 phone call was and translated that into a geographical area.

19 Q Your conclusions and analysis assume that the signal
20 was not interfered with, correct?

21 A If the signal was interfered with, then it wouldn't
22 have been recording that data at that cell site. The call
23 wouldn't have gone through.

24 Q What I mean is your assumptions assume that a call -- a
25 cell phone made a call and there was no interference

1 because -- does that make sense?

2 A Well, there was no interference because it's recorded
3 as being a phone call on that cell site and cell site
4 sector.

5 Q Let me ask it in a different way. Your conclusions and
6 analysis assume that the radio waves on the cell phones do
7 not hit an unexpected tower a substantial distance away?

8 A Correct. I'm just saying the tower that it did hit and
9 utilized.

10 Q Your conclusions and analysis assume that the cell
11 signal was not passed or redirected to another tower because
12 of weather?

13 A I'm sorry?

14 Q Your conclusions and analysis assume that the cell
15 signal was not passed or redirected to another tower because
16 of weather?

17 A Sure.

18 Q Or because of traffic?

19 A Sure.

20 Q Or because of interference by buildings or other
21 geographical blocks that would interfere with the signal?

22 A Yeah, but that has nothing to do with the recording
23 cell site, but, yes, I guess.

24 Q Your conclusions and analysis also assume that the
25 signal was not passed or redirected to another tower because

1 of maintenance problems on a certain tower?

2 A Correct. I was not aware of any maintenance problems.

3 We asked, but didn't get any.

4 Q Your conclusions and analysis assume that the
5 historical cell phone records are entirely accurate?

6 A Yes.

7 Q Your conclusions and analysis assume that the switch
8 downloaded and recorded entirely accurate information?

9 A Yes. You keep using the word assume and, you know --

10 THE COURT: That's all right, Special Agent.

11 BY MS. ANGELOS:

12 Q Would you concede that line of sight is important in
13 determining what cell tower a cell phone will hit?

14 A A line of sight could be important, yes.

15 Q Is it possible that a cell phone will hit on a cell
16 tower a half mile away versus 40 feet away if the closest
17 tower obstructs the radio waves from getting through?

18 A It is possible. I mean you have to take a case-by-case
19 basis.

20 Q In the present instance you didn't have Mr. Allums'
21 cell phone to test your analysis with, did you?

22 A No, I took another phone.

23 Q Do you know what type of phone he had?

24 A I believe I requested that, but I never got that.

25 Q Do you know what type of phone he had?

1 A No.

2 Q Do you know what type of features he had on his phone?

3 A No.

4 Q What --

5 THE COURT: Would it be relevant if he had
6 different types of features?

7 THE WITNESS: Again, I am confused as to where
8 she's going with this.

9 THE COURT: That's why I'm asking the question.
10 Would it matter, would it be relevant to your analysis if he
11 had different types of features on his phone? Would it
12 affect any of your analysis as to where the phone was at a
13 given time?

14 THE WITNESS: The features, like what, sir, like
15 the games?

16 THE COURT: That's all I can say. Call waiting,
17 call forwarding.

18 THE WITNESS: The features are not the same. The
19 cell phone network and cell phone are still operating the
20 same.

21 THE COURT: So the answer to my question would be
22 what features he had would not be relevant to your analysis?

23 THE WITNESS: I believe not, sir.

24 BY MS. ANGELOS:

25 Q What type of phone did you use for your analysis?

1 A I believe it was a Razor, bought at a Cricket store,
2 the Razor.

3 Q Is it true that you've never viewed Allums' phone and
4 have no idea what model it is?

5 MR. CASTLE: Asked and answered, Your Honor.

6 THE COURT: Sustained.

7 BY MS. ANGELOS:

8 Q Are there certain types of phones that cannot operate
9 in engineering mode?

10 A I am not sure. The ones that I used did. Most of them
11 can, though.

12 Q Would you concede that even similar types of cell
13 phones could react differently?

14 MR. CASTLE: Objection, vague. Differently to
15 what?

16 BY MS. ANGELOS:

17 Q Differently to a cell tower. For example, if two
18 individuals are sitting in the same car with the same type
19 of cell phone, both make a call at the same time, is it
20 possible that these two types of phones could actually go to
21 different towers?

22 A It would depend on the location of where they are at
23 that time.

24 Q Is it possible?

25 A If they are in the middle of two towers, in the

1 overlap, the two towers, it's possible, sure.

2 Q Is it also true that there could be two individuals in
3 the same home with the same phone, in different rooms, where
4 one gets a signal and the other does not?

5 A Again, that's a case-by-case basis.

6 Q Is it possible?

7 A It's possible.

8 Q Would you also concede that the condition of a phone
9 may affect how it reacts to a cell tower?

10 A A condition of a phone?

11 Q Uh-huh. (Affirmative)

12 A I mean it could -- it could, but not in the technology.
13 The technology is the same.

14 Q Let me ask you this: If Mr. Allums' phone was
15 significantly damaged, would it react differently than your
16 newly purchased phone?

17 MR. CASTLE: Objection, Your Honor. That is a
18 vague question. There are no facts in evidence that even
19 existed.

20 THE COURT: Overruled.

21 THE WITNESS: So the question is --

22 BY MS. ANGELOS:

23 Q If Mr. Allums' phone was significantly damaged, would
24 it react differently with regards to a cell tower than a
25 newly acquired, spanking new phone?

1 A If Mr. Allums' phone was significantly damaged, it
2 would react differently. It wouldn't even make a call. It
3 wouldn't record a call.

4 Q Assuming it's not significantly damaged enough not to
5 make a call?

6 A Well, then I wouldn't consider that significantly
7 damaged. If a phone call can go through, then what is the
8 point?

9 THE COURT: If a phone is old and has some damage,
10 it is possible that it might go to a different tower than a
11 brand new phone in the same location?

12 THE WITNESS: No, the technology operates the
13 same.

14 THE COURT: That's all you needed to say was no.
15 Thank you.

16 BY MS. ANGELOS:

17 Q You didn't do any testing back in October and November
18 of 2000, correct?

19 A Of 2000?

20 Q When the robberies occurred.

21 A The robberies happened in 2007.

22 Q Sorry. 2007, October and November of 2007.

23 A No.

24 Q You didn't do any testing until November of 2008, a
25 full year later, correct?

1 A Yes, after I was asked.

2 Q That was the first time you had ever been to Salt Lake
3 City, Utah; is that correct?

4 A I had been to Salt Lake City before, but never for that
5 purpose.

6 Q I guess I would want to know how many times you have
7 been to Salt Lake City.

8 MR. CASTLE: Objection, Your Honor, relevancy.

9 THE COURT: Sustained.

10 MS. ANGELOS: Your Honor, there are certain things
11 on his analysis indicating that he drove a period of a road,
12 timed it at eight minutes and said this is the only route
13 that someone could take, and I think that is my question.

14 THE COURT: That may go to relevance of testimony
15 at trial, but it has nothing to do with the issues before
16 the Court here today, Ms. Angelos.

17 MS. ANGELOS: Thank you, Your Honor.

18 BY MS. ANGELOS:

19 Q Yes or no, isn't it true that a cell phone tower can
20 actually reject at 35 kilometers?

21 A Yes.

22 Q Which would be about 22 miles?

23 A Yes.

24 Q In your analysis of cell phone historical -- or
25 analysis of historical -- let me ask it a different way.

1 In your analysis of cell data, have you ever made
2 a mistake?

3 A Have I ever made a mistake? I would say no based on
4 the fact that every time we've done this, we've gone and
5 located a person within that cell site sector.

6 Q So you have gone to find your fugitive and you've
7 actually located a person?

8 A Yes, or victim, or any number of things.

9 Q Or a victim.

10 How do you test your error rate with this type of
11 analysis when you don't have a body to find, a fugitive to
12 find?

13 A Because, as I said earlier, the analysis is the same.
14 It's exactly the same. The moment a phone call is made, it
15 is a record of the system. We take that, we plot it, so if
16 I'm looking for a person right now and the phone call was
17 just made, I have to take that, interpret that. So the
18 analysis is exactly the same. The survey process is exactly
19 the same, whether that data is a year old or the data is,
20 you know, three minutes old.

21 Q Has all of your work in this field been done with
22 respect to law enforcement and litigation?

23 A Yes.

24 Q Have you ever provided any of your analysis or
25 conclusions in other matters or this matter to anyone in the

1 scientific community?

2 A No.

3 Q Agent Shute, does part of your analysis involve looking
4 at the cell tower in person?

5 A Yes.

6 Q In order to make assumptions and conclusions, must you
7 actually look at the physical orientation of the tower?

8 A I believe you do.

9 Q And your analysis involves taking actual readings from
10 the specific tower in person, correct?

11 A In this case, yes.

12 Q Would you agree that you can't take a reading from a
13 tower that is no longer there?

14 A Oh, sure, you can't do that.

15 Q So is it true that with regards to tower 52, which is
16 no longer there, you can make no analysis with regards to --
17 or conclusion with regards to physical location?

18 A I'm sorry? Say again.

19 Q Because part of your assumptions and conclusions rely
20 on looking at the specific tower in question, you can make
21 no conclusions as to whether Mr. Allums' phone was in the
22 geographic area of cell phone 52?

23 A No, I believe you can. I will explain, if it's okay.
24 Many times in many cases, I never even go through this much
25 detail and work as I did for this particular case. I did it

1 here because of the fact that the Salt Lake City market, I'm
2 not as familiar with that. So here in this example, that
3 range is very generous to where -- generous towards the
4 defendant in that in my experience and knowledge of how this
5 cell phone network works, by the time he would have gotten
6 to the outskirts of that area in tower 52, he most certainly
7 would have re-selected to another tower.

8 MS. ANGELOS: Your Honor, may I approach the
9 witness?

10 THE COURT: You may.

11 BY MS. ANGELOS:

12 Q Did you testify in a case, United States v. Marvin
13 Nicholson?

14 A Yes, in Tennessee.

15 Q I am handing you the Marvin Nicholson transcript. Let
16 me just find the page.

17 THE COURT: Ms. Angelos, are you going to wrap
18 this up in ten minutes?

19 MS. ANGELOS: We are, Your Honor.

20 THE WITNESS: Just so I know, is this from the
21 trial or from the McDaniel hearing?

22 MS. ANGELOS: It's from the trial.

23 MR. CASTLE: Your Honor, if I could just make one
24 comment. I know that we had reserved three hours with the
25 Court, but we're not going to be able to complete --

1 THE COURT: Yes, you are.

2 MR. CASTLE: -- this process today. We have
3 several other witnesses.

4 THE COURT: You have other witnesses on this
5 expert --

6 MR. CASTLE: We have a witness from Verisign, Your
7 Honor, regarding the collection of the data.

8 THE COURT: That doesn't go to the issue before
9 this Court as to this witness's reliability of his
10 testimony, Mr. Castle. I'm sorry. It may be something that
11 would be very relevant at trial, but it's not relevant to
12 this witness.

13 BY MS. ANGELOS:

14 Q I'm handing you the transcript in United States v.
15 Marvin Nicholson and I'm asking you to look at page 16. If
16 you could read lines two through nine to the Court.

17 A Yes. It says -- I guess it's my answer. It says, it's
18 only part of the data and that I had the data of the cell
19 phone towers that were utilized for each call. Then, again,
20 to be accurate and to be fair also to the defendant, you
21 have to go to the tower and verify its existence. You know,
22 I can't see it any other way of being able to be a
23 legitimate person who would testify to this unless you did
24 the things that I did.

25 Q Thank you.

1 A Which is what I did in this case.

2 Q You didn't -- you weren't able to go out and verify the
3 tower 52, correct, because it's no longer in existence?

4 A True, but, keep in mind, I don't do this when I'm
5 routinely looking for people based on the call detail
6 records. This is just --

7 THE COURT: The question is is the tower that is
8 designated as 52, does it still exist?

9 THE WITNESS: No, it does not.

10 THE COURT: Did it exist when you were here last
11 fall to do your --

12 THE WITNESS: No, it was taken down three weeks
13 before I got here.

14 THE COURT: Go ahead, Ms. Angelos.

15 MS. ANGELOS: Your Honor, if I can have him turn
16 to page 18.

17 BY MS. ANGELOS:

18 Q If you could read lines 18 through 24.

19 Do you want me to help you?

20 A Yes. I'm sorry.

21 Q It was probably two pages after.

22 If you could read lines 18 through 24.

23 THE COURT: Is this from the same proceeding?

24 MS. ANGELOS: It is, Your Honor.

25 MR. CASTLE: What page are we referring to?

1 MS. ANGELOS: Your Honor, I think it's 17 -- or
2 page 18, lines 18 through 24.

3 BY MS. ANGELOS:

4 Q If you could read that in open court, please.

5 A 18 through 24?

6 Q Yes. And this is your answer, correct?

7 A No, this is a question from Mr. Houston.

8 Q I think your answer follows.

9 A So it says, but you communicated to the state two
10 months ago, did you not, that the validity of your findings
11 were premised upon the orientation of these towers. My
12 answer is, I told them that I needed to come here and verify
13 the tower existence and the cell site sectors or else I
14 wouldn't feel comfortable in testifying to it in court.

15 Q Thank you.

16 The analysis and conclusions you are making are
17 not based on GPS or cell phone triangulation; is that
18 correct?

19 A No.

20 Q GPS is the use of satellites to pinpoint a person's
21 location, correct?

22 A Yes.

23 Q And this is done in real time?

24 A GPS can be done in real time, yes.

25 Q In that method, three satellites are used to determine

1 a person's location, correct?

2 A That's more of triangulation.

3 Q How many triangulations does GPS use?

4 A Multiple. It could use eight, nine. The more
5 satellites, the better the triangle of where it's at.

6 Q Cell triangulation is the use of cell towers to
7 pinpoint a person's certain location also, isn't it?

8 A Triangulation takes into account at least three or
9 potentially six towers.

10 Q This is also done in real time?

11 A Yes.

12 Q So both GPS and cell triangulation use at least three
13 points of reference to determine location, correct?

14 A Yes. They are what is called location based services.

15 Q In your analysis with your historical data, you only
16 used one, correct?

17 A Yes.

18 Q Were you asked by the prosecution to analyze the cell
19 phone records of any other individual?

20 A No.

21 MS. ANGELOS: Your Honor, the only other questions
22 that I have are with regards to certain slides. Like I
23 indicated, all that we got was this report, no methodology.
24 These do not have specific ranges on them. The range --

25 THE COURT: Are you all right, Mr. Castle?

1 MR. CASTLE: Oh, yes. I'm sorry. I have a bad
2 back, Your Honor, and sometimes it just fails me.

3 THE COURT: Before you fell, were you going to say
4 something, Mr. Castle?

5 MR. CASTLE: Well, what I wanted to say is that
6 defense counsel had an opportunity to interview Mr. Shute
7 for about an hour. So while it's true a formal report was
8 not provided, they were given the opportunity to --

9 THE COURT: Let her finish her point here, please.

10 MS. ANGELOS: Your Honor, if I may, with regards
11 to that one-hour phone conversation, Mr. Shute was not
12 forthcoming as far as certain questions with regards to a
13 methodology. If the Court has concerns about me going
14 forward, I would be happy to enter that recorded phone
15 information.

16 THE COURT: No.

17 MS. ANGELOS: Do we have time that I can --

18 THE COURT: What do you want to do?

19 MS. ANGELOS: That's what I want to do.

20 THE COURT: What do you want to do?

21 MS. ANGELOS: I would like to question him with
22 regards to the specific ranges on each tower because I think
23 that is important to his analysis.

24 THE COURT: Go ahead.

25 //

1 BY MS. ANGELOS:

2 Q In slide number two, you indicate that you can tell
3 where the phone of Mr. Allums originated and terminated. Is
4 that inaccurate as far as termination?

5 A Where does it say that?

6 Yeah, when I created that, I just must have left
7 terminated in.

8 Q Slide four.

9 THE COURT: Ms. Angelos, please tell me, is this
10 really necessary for the purposes of this hearing in
11 contrast to what may happen at trial?

12 MS. ANGELOS: The only thing I'm concerned about,
13 Your Honor, is he's going to be saying that a cell phone
14 reaches a specific range and based on that range a person
15 has to be inside that range.

16 THE COURT: You may challenge the accuracy of
17 that, but for purposes of methodology, does it have anything
18 to do methodology?

19 MS. ANGELOS: As long as he took ranges on each of
20 them, Your Honor.

21 THE COURT: Ask him that.

22 BY MS. ANGELOS:

23 Q Did you take ranges on each one of them?

24 A On each one of the towers in question? Yes, I did.

25 Q Did you go around each sector to take the ranges?

1 A I did.

2 MS. ANGELOS: Your Honor, if I may just have a
3 moment?

4 THE COURT: Go ahead.

5 Mr. Castle, be organizing your redirect very
6 carefully, would you, please?

7 MR. CASTLE: I am, Your Honor. Thank you.

8 MS. ANGELOS: Your Honor, I don't think I have any
9 other questions. Thank you.

10 THE COURT: Thank you.

11 REDIRECT EXAMINATION

12 BY MR. CASTLE:

13 Q Special Agent Shute, you were asked the question about
14 never having dealt with Cricket until now, correct?

15 A Yes.

16 Q Does it make a difference whether you've dealt with
17 Cricket before or not?

18 A No.

19 Q Why is that?

20 A Because the standard of CDMA technology is the same, be
21 it Cricket --

22 THE COURT: Officer -- Special Agent, excuse me.
23 Remember, she's trying to get everything you are saying.

24 THE WITNESS: It's the same, so it's just their
25 procedures, which we interacted with them numerous times.

1 BY MR. CASTLE:

2 Q But they use the same type of network system?

3 A Yes.

4 Q That's why it works?

5 A Yes.

6 Q That's why --

7 THE COURT: Same kind of recording of data?

8 THE WITNESS: That all the other companies I
9 mentioned, they all use the same thing.

10 BY MR. CASTLE:

11 Q Now there were conversations about cell phones hitting
12 other towers potentially because of weather, volume of
13 calls, buildings. If that happened, would the cell phone
14 then be -- or would the call data record be recording the
15 fact that the cell phone hit another tower because that was
16 the tower whose signal it hit?

17 A Yes. And it's not recording all these things like
18 weather, but it would record the cell site it was on,
19 correct.

20 Q Even if it was one across town from where they actually
21 were?

22 A Correct. It's recording the cell site it was on.

23 Q So you would go to the cell tower -- the CDR and it
24 would demonstrate that?

25 A Yes.

1 Q Did you find that with any of the call records that you
2 looked at regarding Mr. Allums' phone number?

3 A No.

4 Q Now there was this question -- or your response about
5 apples and oranges, because Ms. Angelos was up here talking
6 about what she defined as fugitives and what you are doing
7 here, your response was, well, you are talking about apples
8 and oranges. Could you explain to the Court what you meant
9 by that?

10 A Well, yeah. She was fixated on this concept that a
11 fugitive case is anything different. It's true I do do an
12 analysis to see historically over 30 days where the person
13 is, if I am looking for the person now, but I am only
14 concerned -- I take that into consideration, but I'm only
15 looking for where they are now. So in many cases the
16 historical analysis -- say, for example, in a case where a
17 person just shot somebody yesterday and I get 30 days' worth
18 of call detail records, all of a sudden he changes his
19 behaviors and patterns. So the 30 days' worth of analysis,
20 even though I do it and I do it very quickly, I can do it in
21 five to ten minutes, I do not always take that into
22 consideration. What I do take into consideration is where I
23 believe the phone is right now.

24 And so when I'm talking about apples and oranges,
25 it is two different things. On all the cases I do the

1 apples, but I also do the oranges, if that makes sense to
2 you.

3 Q So the analysis that you did in this case is an
4 analysis you have done on every other case?

5 A Yes, especially when I'm trying to locate the handset.

6 Q Here in the Salt Lake valley when you were out doing
7 your testing, did you find any Cricket towers that had a
8 range of 35 miles -- or 35 kilometers?

9 A No. But, then again, I wasn't testing for that. Keep
10 in mind, and this is very important to understand, I am
11 testing the tower in relation to a phone. Is it true that a
12 tower can blast out that far? Absolutely. But what you
13 have to take into consideration when you are doing this
14 analysis is the fact that the phone plays a vital role in
15 it. And, you know, the phone can only see so much, it can
16 only see so many towers out there. So it's not going to see
17 35 kilometers away, especially in a setting like Salt Lake
18 City where there are numerous towers in the area. So you to
19 take that into consideration.

20 Q Your understanding is that the objective of a cell
21 phone provider, like Cricket, is to provide a cell tower
22 closest to where someone would use a cell phone?

23 A That's the objective.

24 Q Part of reason for that is the cell phone tower
25 projects a signal, correct?

1 A Yes.

2 Q The closer you are to a cell tower, the better the
3 signal?

4 A Yes, particularly with CDMA because CDMA is all about
5 power, it's all about the strength of the power of the
6 signal. So typically with CDMA --

7 THE COURT: Thank you, Special Agent. You have
8 answered the question.

9 BY MR. CASTLE:

10 Q With respect to cell phones and the power of cell
11 phones, what has changed historically about cell phones
12 today?

13 A I'm sorry?

14 Q In the old days, you remember --

15 THE COURT: We don't know need to know about the
16 old days, Mr. Castle.

17 BY MR. CASTLE:

18 Q Remember when we had brick phones?

19 THE COURT: Mr. Castle, we don't need to know
20 about brick phones.

21 BY MR. CASTLE:

22 Q What about the wattage on cell phones today?

23 A I'm not sure what you are asking.

24 Q I'm wondering what the wattage is and if it's changed
25 over time.

1 A It could be less than a watt, one watt.

2 Q So does it make it imperative that the cell phone, when
3 used, be closest to the closest tower because the wattage of
4 the cell phone is different than what it used to be?

5 A Yeah, it's typically the one that's closest. But, keep
6 in mind, it's the best signal is what it's looking for.

7 MR. CASTLE: That's all I have, Your Honor.

8 THE COURT: Thank you, Mr. Castle.

9 Ms. Angelos, do you have any questions?

10 MS. ANGELOS: No, Your Honor.

11 THE COURT: May I assume you will want a
12 transcript in order to do your briefing?

13 MR. CASTLE: Yes.

14 THE COURT: Ms. Angelos, if you have a transcript
15 by Friday, March 6th, how long will it take you to do your
16 memorandum?

17 MS. ANGELOS: Could I have until the end of the
18 week, Your Honor? I'm not sure what day March 6th is.

19 THE COURT: March 6th is a Friday.

20 MS. ANGELOS: The following Friday, if I could
21 have it.

22 THE COURT: I will give you until the 16th. I'll
23 give you over the weekend, okay.

24 Mr. Castle, can you then have yours by the
25 following -- the 23rd of March?

1 MR. CASTLE: Sure, Your Honor.

2 THE COURT: Do you think you will want a reply?

3 MS. ANGELOS: Your Honor, the trial --

4 THE COURT: The trial is not going to go, guys.
5 It's not going to go on schedule, not with this briefing.

6 MS. ANGELOS: Your Honor, I think I will want a
7 reply.

8 THE COURT: Is it more important to keep the trial
9 date? How important is it to keep the trial date?

10 MS. ANGELOS: I think it's pretty important. I
11 can work that weekend and get it done if you could give me
12 until Wednesday.

13 THE COURT: If you have the transcript by March
14 4th, can you have your memorandum to the Court by the 9th,
15 Ms. Angelos?

16 MS. ANGELOS: What?

17 THE COURT: If you have the transcript by the 4th,
18 which is a week from tomorrow, can you have your memorandum
19 by the 9th, which is the following Monday?

20 MS. ANGELOS: Yes, Your Honor.

21 THE COURT: Mr. Castle, would you be able to have
22 yours by the 13th?

23 MR. CASTLE: Sure, Your Honor.

24 THE COURT: Are you sure?

25 MR. CASTLE: I'll do whatever the Court needs us

1 to do.

2 THE COURT: Then, Ms. Angelos, I will give you
3 until the 17th for the reply. Okay.

4 Those dates, will they work for you, counsel? Are
5 they realistic?

6 MR. CASTLE: Well, we'll make it work, Your Honor.

7 THE COURT: Okay. The trial is scheduled, as I
8 recall, for the 23rd of March; isn't that right?

9 MR. CASTLE: Twenty-fourth.

10 THE COURT: All right. We'll try to keep the
11 trial date then.

12 Is there anything else, counsel, today?

13 MR. CASTLE: No, Your Honor.

14 MS. ANGELOS: No, Your Honor.

15 THE COURT: Special Agent, thank you very much.
16 Appreciate it.

17 We'll be in recess.

18 (Whereupon, the proceeding was concluded.)

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C E R T I F I C A T E

I hereby certify that the foregoing matter is transcribed from the stenographic notes taken by me and is a true and accurate transcription of the same.

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