

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Criminal Action
	)	No. 13-10200-GAO
	)	
DZHOKHAR A. TSARNAEV, also	)	
known as Jahar Tsarni,	)	
	)	
Defendant.	)	
	)	

BEFORE THE HONORABLE GEORGE A. O'TOOLE, JR.  
UNITED STATES DISTRICT JUDGE

**JURY TRIAL - DAY THIRTY-ONE**  
**EXCERPT**  
**TESTIMONY OF CHAD FITZGERALD**

John J. Moakley United States Courthouse  
Courtroom No. 9  
One Courthouse Way  
Boston, Massachusetts 02210  
Wednesday, March 11, 2015  
9:51 a.m.

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Official Court Reporter  
John J. Moakley U.S. Courthouse  
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Mechanical Steno - Computer-Aided Transcript

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I N D E X

	<u>Direct</u>	<u>Cross</u>	<u>Redirect</u>	<u>Recross</u>
<u>WITNESSES FOR THE GOVERNMENT:</u>				
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E X H I B I T S

<u>DEFENDANT'S EXHIBIT</u>	<u>DESCRIPTION</u>	<u>FOR ID</u>	<u>RECEIVED</u>
2	T-Mobile Call Detail Record		60
3	Phone extraction records for Tamerlan Tsarnaev	78	
4	AT&T records	78	

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P R O C E E D I N G S

\* \* \*

MR. CHAKRAVARTY: The government calls Chad Fitzgerald.

CHAD FITZGERALD, duly sworn

THE CLERK: Have a seat. State your name, spell your last name for the record and speak into the mic so everyone can hear you.

THE WITNESS: Okay. Chad Fitzgerald,  
F-I-T-Z-G-E-R-A-L-D.

DIRECT EXAMINATION

BY MR. CHAKRAVARTY:

Q. And can you tell the jury where you're employed?

A. The Federal Bureau of Investigation, or the FBI, out of Atlanta.

Q. Are you a special agent there?

A. I am.

Q. How long have you been with the FBI?

A. A little over 18 years.

Q. And what is your current assignment?

A. I'm assigned to the Cellular Analysis Survey Team, or CAST. Our responsibilities include interpreting and analyzing cell phone data as it's received from the different service providers like the AT&Ts and Verizons. And we primarily work on -- we were put in place for child abductions, so we do a lot

1 of -- kind of like a fly team for that, but we also, day to  
2 day, do -- help out in local investigations and prosecutions  
3 such as murders, robberies. We do bank robberies with the FBI  
4 too.

5 Q. Now, how did you start working on this team?

6 A. The team started kind of ad hoc several -- about -- I'd  
7 say in the neighborhood of eight years ago, and then we became  
8 an official unit about five years -- five, six years ago. So  
9 we were kind of born out of the fugitive and robbery  
10 investigations. A bunch of us were doing phone analysis.

11 Q. Have you received any special training?

12 A. I have, yes.

13 Q. Would you describe that?

14 A. Going back to school, I have a master's in electrical  
15 engineering specializing in communication systems, and since  
16 then, being part of this unit, we have been -- we go to  
17 training and we meet quite frequently with the different  
18 providers in the United States, you know, the Sprint, AT&T,  
19 Verizon, Metro PCS and Cricket. I'm sure I'm leaving one out  
20 there. But we meet with them, both subpoena compliance and the  
21 engineering side, plus we go to specialized training for people  
22 that work in that industry, different companies that provide  
23 training to the cellular industry and others.

24 Q. When you say "provide training," what types of aspects of  
25 their businesses do you discuss with them?

1 A. We do both how they maintain their records, but we're also  
2 on the side of how their systems are designed -- how the  
3 cellular systems are designed and meant to function, everything  
4 from RF, radio frequency, to drive testing their networks and  
5 how their network is maintaining the records and whatnot.

6 Q. Before joining the FBI, did you have a technical  
7 background at all?

8 A. I did, yes.

9 Q. What was that?

10 A. My prior employment was Hughes Aircraft Company. I worked  
11 as an engineer there doing satellite -- we -- the unit I was  
12 assigned to designed hardware for communication to satellite --  
13 command to control of satellites, both commercial -- I mostly  
14 worked on the commercial side, but we also had defense  
15 satellites, and then I also, before that, have worked at IBM in  
16 technical as well as in TV as an engineer.

17 Q. And what's your education?

18 A. I have a master's in electrical engineering.

19 Q. Now, do you also perform trainings yourself?

20 A. Yes, we -- part of our unit goes around the United States  
21 training detectives, police departments, prosecutors. We've  
22 had -- we also go overseas and help train investigators  
23 overseas just on techniques and methodologies they can use to  
24 analyze phone records. I think to date we've trained somewhere  
25 in the neighborhood of 6,000. I did about 100 about two weeks

1 ago myself.

2 Q. And when you provide training, what kind of training do  
3 you do?

4 A. Just how we -- in our -- in the CAST unit how we -- what  
5 we've done, how we've taken our practical experience as well as  
6 our training with all the different providers and the cell  
7 technology and we just kind of merge it into a fairly basic  
8 two-day class where we teach people the methods we use and the  
9 successes we've had using those methods.

10 Q. And what's the ultimate point of this CAST -- the CAST is  
11 the group that you -- the team that you're with. Is that  
12 right?

13 A. Yes.

14 Q. What is the ultimate addition to the arsenal of tools that  
15 this offers to the FBI?

16 A. It gives an interpretation for cell phone data. So  
17 somewhere in the neighborhood of more than -- it's 100 to 105  
18 percent of the American population has a cell phone, so that's  
19 a very strong tool to be able to exploit when you can receive  
20 records. And all the companies do it slightly different, and  
21 we just help with that. And it can be quite voluminous, so we  
22 just help with techniques to analyze that information and  
23 interpret it into, you know, where people can understand it and  
24 see what's going on.

25 Q. And is one of the functions of that kind of telephone

1 analysis to do what we call a cell site location?

2 A. Yes. So we do cell site analysis. So the companies have  
3 to know -- just by the nature of their business, they have to  
4 know the general area of where their phone users are located to  
5 deliver and allow them to make calls, and we can take that data  
6 and determine the general geographic area of where a phone is  
7 located.

8 Q. Now, have you performed that type of analysis in many  
9 other cases?

10 A. Of course, yes. All the time. Every day.

11 Q. About how many cases would you estimate you personally  
12 have conducted that kind of analysis?

13 A. I look at phone records every day. I mean, it's  
14 definitely in the thousands, I'm sure.

15 Q. And do you use various technical tools to help you filter  
16 through this volume of information?

17 A. Yes. So we have a couple of tools we've created on our  
18 own with the help of computer programmers as well as just  
19 basic, like Micro- -- that people would be familiar with,  
20 Microsoft Excel, Google Maps or Google Earth. We also use  
21 Microsoft MapPoint, which is the mapping program. So  
22 everything from that on up to custom software that we've  
23 developed.

24 Q. Now, on occasion do you collaborate with other members of  
25 this CAST team, the cell analysis team, in order to analyze



1 telephone data in a particular case?

2 A. Yes. So like I mentioned earlier, we're a pseudo fly  
3 team. So if there's a child abduction somewhere in the United  
4 States that -- we get involved in quite a bit of those, we will  
5 routinely fly either individually or a lot of times as a group  
6 to provide coverage and work as a team on the -- you know,  
7 there's a lot of records coming in in those, as well as like in  
8 this case, we flew up here as soon as we got -- you know, as  
9 soon as we knew that we were going to be needed up here.

10 Q. When there's a large volume of data, do you separate roles  
11 within the team and different people handle different types of  
12 analysis?

13 A. Yes. So we have -- there will be different assignments  
14 within the team to help get through all the data as well as  
15 there's also kind of a peer-checking function too where we  
16 might be working on the same thing but checking our work also  
17 of each other.

18 Q. And have you testified in various courts around the  
19 country about this type of cell site analysis?

20 A. Yes, this is the third time in the last week -- the  
21 third -- about eight -- between last week and this week, this  
22 is the third time in different states -- three different  
23 states.

24 Q. Is that fair to say that's a pretty regular pattern for  
25 you?

1 A. Not -- that's quite a bit, but it definitely -- we fly  
2 around and testify a lot in state court, some federal court.  
3 But definitely a lot of state court cases. Yes, it's a  
4 routine. That's part of the nature of our assignments.

5 Q. And so were you asked to conduct a cellular telephone  
6 analysis in this case?

7 A. I was, yes.

8 Q. And were you involved with a portion of the investigation  
9 back in April of 2013?

10 A. I was. I came here fairly quickly.

11 Q. Okay. And was the CAST team deployed to Boston to assist  
12 in the investigation?

13 A. Yes. There were several members here -- both assigned  
14 members and people that we have in training, both came here.  
15 I'm not sure -- when I was here I think we had somewhere in the  
16 neighborhood of five to six people on CAST, and then we got  
17 relieved with another wave of people after about a week or so.

18 Q. And particularly with regard to what your analysis was for  
19 presentation to the jury, is that a small subset of all of the  
20 analysis that was done over the last two years?

21 A. Absolutely. I mean, this is pared down to keep it -- try  
22 to keep it somewhat simple.

23 Q. In preparation for your testimony, did you prepare  
24 any -- a presentation for the jury?

25 A. I did, yes.

1 MR. CHAKRAVARTY: Just for the witness, your Honor,  
2 I'd call up Exhibit 1440.

3 Q. Do you recognize this?

4 A. Yes, that's the first page of my presentation I created.

5 Q. And would this presentation assist you in presenting your  
6 testimony to the jury?

7 A. I hope. That's the purpose of it.

8 MR. CHAKRAVARTY: I'd move and publish Exhibit -- move  
9 into evidence and publish Exhibit 1440.

10 MS. CONRAD: There's multiple pages, your Honor. I  
11 don't have an objection to it being a chalk, but I think the  
12 foundation for the individual --

13 THE COURT: It seems more a chalk to me without  
14 knowing what's in it.

15 MR. CHAKRAVARTY: So --

16 THE COURT: Will it illustrate his testimony? Is that  
17 what it does?

18 MR. CHAKRAVARTY: It will illustrate his testimony.  
19 The government would move it into evidence, but perhaps that  
20 foundation can be made during his testimony.

21 THE COURT: We'll defer on that, then. So we can  
22 expose it now, as he testifies, to the jury as a chalk?

23 MS. CONRAD: Yes. No objection to that, your Honor.

24 THE COURT: All right.

25 BY MR. CHAKRAVARTY:

1 Q. Mr. Fitzgerald, is that the symbol of your CAST team?

2 A. Right. That's our logo, I suppose.

3 MR. CHAKRAVARTY: Page 2, please.

4 Q. What are these?

5 A. So this is just a photo that I took of a fairly standard  
6 cell tower. This is what your phone is ultimately  
7 communicating with. There's antennas mounted at the top  
8 of -- can I draw on this?

9 Q. Yes, that's a touch screen. If you just push with the pad  
10 of your finger.

11 A. So there's antennas mounted at the top of these triangular  
12 structures, are mounted to those triangular structures and  
13 pointed in different directions. And that's ultimately what  
14 your phone is monitoring. So as my phone sits in my pocket,  
15 it's in idle mode, not necessarily doing anything. It's just  
16 monitoring the air to see what the strongest, clearest signal  
17 is. Typically, it can see multiple different towers, multiple  
18 different sectors, which I'll get to. But ultimately, they're  
19 communicating with these antennas that are antennas that are  
20 mounted at the top of this structure.

21 Those antennas are attached or connected to equipment at  
22 the base of this tower, and from there that equipment at the  
23 base of the tower is then connected to a switch which is kind  
24 of the brains behind the operation. It connects to hundreds,  
25 if not thousands, of towers and sectors, and from that switch

1 connected to the rest of the network, Verizon, AT&T network,  
2 and then connected to the rest of the world. So I can make and  
3 receive a call through that general infrastructure.

4 Q. Is that just a regular radio frequency signal that is  
5 going through the --

6 A. Right. So each tower is putting out a signal. And like  
7 my phone is only programmed to speak to, you know, a certain  
8 set of towers. So my Verizon phone is -- it's no different  
9 than a language -- is speaking the Verizon language and only  
10 looking for Verizon towers; the AT&T phone is only going to  
11 speak to AT&T towers. So they're programmed for certain  
12 languages.

13 So like in this instance this particular tower, which is  
14 fairly standard, there's multiple layers of antenna on top of  
15 it, and, you know, it can be just one company or it can be  
16 multiple companies co-located on the same structure.

17 Q. And so how does the cell phone communicate with these  
18 towers?

19 A. Well, so my phone will monitor the air and kind of rank  
20 the strongest, clearest signal. When I dial a number, hit the  
21 green button or hit the send button, my phone will request  
22 services from that strongest, clearest signal. So a lot of  
23 times I equate it to the teacher-student relationship in a  
24 classroom. If the tower is the teacher, and there's several  
25 students in the classroom, would be the mobile phones, when my

1 phone wants to make a call, the student is going to raise -- or  
2 ask a question, he's going to raise his hand, and when the  
3 teacher is ready, the teacher will call on the student. My  
4 phone will ask for services saying it needs to make a call,  
5 send a text. The tower will then grant services to that  
6 mobile, and that's when a record is generated, once those  
7 services are granted.

8 Q. Okay. And once the tower gets the call, just for the  
9 benefit of the jury, how does the call get to its ultimate  
10 destination, just in summary?

11 A. So like I said earlier, there's equipment attached to  
12 those antenna at the top of the tower. There's equipment at  
13 the base of the tower typically, and that is connected to  
14 switches. The switch will then connect out to the rest of the  
15 network and ultimately to the rest of the world when I dial a  
16 number, or on the reverse, when a number is coming in -- a call  
17 is coming in.

18 Q. And do telephone companies keep records of when their cell  
19 towers connect with cell phones?

20 A. Yes. So for every user on their network, they maintain a  
21 record. They have to for the nature of their business. Like I  
22 mentioned earlier, they have to know generally where you are to  
23 deliver a call to you, and they have to know what piece of  
24 equipment you're communicating through so that they cannot only  
25 allow you to deliver -- you know, make a call, but also once

1 you're in that call, they need to know generally where you are  
2 so they can keep your call connected as you're moving around,  
3 you know, the city, the United States. They have to hand off  
4 from tower to tower, sector to sector. They also -- what's  
5 most important to them, they need to know how much you're  
6 utilizing their services so they can bill you appropriately  
7 each month.

8 Q. And so how are cell towers designed?

9 A. They're designed -- so every cell provider only has a --  
10 set bands that it can operate in. So the FCC, so the federal  
11 government, you know, restricts them to a certain area that  
12 they can operate in. They have to be able to -- that's a very  
13 specified area, so they have to make use of that as efficiently  
14 as possible so that they can provide service to more people.

15 So a lot of times -- very common, you'll see that in very  
16 densely populated areas, like the city of Boston, they'll put  
17 towers very close to each other so that they can handle more  
18 subscribers on each tower. They will also further divide those  
19 towers up into sectors. So just think of if, you know, we  
20 ordered a pizza -- there were three of us that ordered a pizza  
21 and we wanted to cut it into three equal shares, or if we had a  
22 pie or a cake and we wanted to have three equal shares, that's  
23 the same thing they're doing with these towers. They'll  
24 sectorize it so they can support more subscribers.

25 I think that answers your question.

1 Q. So typically they're sectorized off in 120-degree pie  
2 shapes?

3 A. Right. So if you -- the most common would be three  
4 sectors. And if you think of a 360-degree circle divided by  
5 three, in theory you would have a 120-degree sector, you know,  
6 on paper.

7 MR. CHAKRAVARTY: If we could go to the next page.

8 Q. What does this slide show?

9 A. So like I was mentioning earlier, every phone is  
10 programmed to speak a certain language, so -- and the towers  
11 have different companies mounted on them. So a lot of people,  
12 when they see a tower across the street and they're wondering  
13 why they're not getting service, it doesn't -- if I'm carrying  
14 a Verizon phone and if Verizon doesn't have, you know, any  
15 antenna on that tower that I see, it doesn't exist in my  
16 phone's world. So just because you see a tower doesn't mean  
17 that's the one your phone is communicating with.

18 And I just put together a slide to show that just because  
19 you don't see a tower doesn't mean that there isn't one nearby.  
20 So they do try to disguise them occasionally depending on the  
21 local ordinances or, you know, depending on where they're  
22 trying to place their antenna.

23 So there could be one behind you, you know, instead of one  
24 that you're communicating with in front of you. So they're all  
25 over the place. So just because you do or don't see one



1 doesn't mean that your phone isn't communicating to the one  
2 you're looking at or not.

3 Q. So all the photos on this slide, do they have a cell tower  
4 in each of the photos?

5 A. Yes.

6 MR. CHAKRAVARTY: Could we go to the next page?

7 Q. All right. And is this an example of some cell site  
8 analysis that you do?

9 A. Yes. So every provider maintains a listing of where all  
10 their towers are located. Like I mentioned earlier, they have  
11 to put towers -- they have to put them out to provide service.  
12 So if the AT&Ts of the world could go to downtown Boston, on  
13 the tallest building just put one antenna up, they'd be more  
14 than happy to do that to maintain maintenance, you know, just  
15 make it simple. And if they could provide service to everyone,  
16 that would make it simple.

17 But they obviously, like I spoke to earlier, have to put  
18 multiple towers, thousands, hundreds of thousands across the  
19 United States, out in the United States, and they maintain a  
20 list of where all those towers are located. And that list has  
21 a unique number identifying every tower within their system and  
22 sector.

23 So if you think of it like a fingerprint, there's only one  
24 with that unique set of numbers. And it provides a location of  
25 where the tower is, the direction from the tower that that

1 sector's providing service to, and a couple of other pieces of  
2 information. So in this sample, this is -- I just took a tower  
3 listing for the Boston area; I plotted it on a map to show with  
4 the blue dots that are in the presentation -- in this page  
5 where the towers are for this particular area.

6 And as I mentioned earlier, those towers are then further  
7 divided out by sector. So if I'd look at this one in the  
8 middle, you can see I drew three 120-degree sectors, and I  
9 included the numbers for -- that make that tower and sector  
10 unique. So if I was in this area and I wanted to make a call,  
11 my phone would communicate with the strongest, clearest signal,  
12 which would be this 40361. A record would be generated when I  
13 made that call that I started my call on that tower and sector.  
14 So we know the general area that that tower is providing  
15 service to.

16 And once my phone is connected, it's nothing more than a  
17 beacon reporting the signal quality back to the switch or the  
18 network. And as I -- if I were to move around this tower, as I  
19 got closer to a sector boundary, the signal levels, the quality  
20 of signal would degrade on one and increase on this neighboring  
21 sector.

22 And when I get to -- they're going to have some built-in  
23 overlaps. They can hand my call off from sector to sector. If  
24 there was no overlap, your call would just be dropped. And as  
25 I get close to that sector, at some point the network is going

1 to -- the switch will hand off that call to the next -- the  
2 better signal quality.

3 And if I were just to continue around clockwise, my phone  
4 call would just be handed off from sector to sector. And if I  
5 were to get on the highway and travel west, I would just be  
6 handed off, you know, from sector to sector, tower to tower,  
7 and I could -- in theory, if everything is designed out  
8 appropriately, I could get on a highway in this area and  
9 drive -- and start a call, drive for however long I want to,  
10 and I would never know that my call is being handed off from  
11 sector to sector, tower to tower; my call would just maintain  
12 connectivity to the person on the other end of the line.

13 Q. Apparently you've never driven under the Prudential  
14 Center, right?

15 A. Everybody's experienced dropped calls.

16 (Laughter.)

17 Q. So the list of all the cell towers around the country, did  
18 you rely on that list of cell towers for purposes of your  
19 presentation today?

20 A. Yes, we can pare it down to the Boston area.

21 Q. And is that thousands of pages' worth of data?

22 A. Yes, it's very -- if it was printed out it would be inches  
23 thick.

24 Q. Does the orientation of the cell tower matter to your  
25 analysis?

1 A. Yes. So like I said, we know not only where the tower  
2 structure is, but within that tower list we can then determine  
3 what direction that sector is providing service to. So if you  
4 think of it -- if there was a man standing at the top of that  
5 tower and he's got a big floodlight, we can tell which  
6 direction that floodlight is pointing down towards the earth.

7 So if it was, you know, zero degree azimuth, that  
8 floodlight would be pointing due north, you know, out from that  
9 tower structure, providing light or service out to that -- in  
10 that direction.

11 Q. And just for the court reporter, is the word that you said  
12 "azimuth," A-Z-I-M-U-T-H?

13 A. Yes.

14 MR. CHAKRAVARTY: All right. Next page, please.

15 Q. What is this?

16 A. So it's kind of hard to see on the screen, but this is --  
17 like I mentioned earlier, every provider keeps a record of use  
18 that a subscriber is using on their network. So it's in the  
19 form of a call detail record, or a CDR. So a lot of them, from  
20 carrier to carrier, contain the same types of information.  
21 They might name it a little bit differently.

22 So starting left to right, a lot of the information is  
23 fairly self-explanatory. So in the first two columns you have  
24 date and time; you have length of time that it took to set up  
25 the call; you have an originating and terminating number, so

1 that's just the from-to call. So who the call came from and  
2 who the call is going to. So if it's an incoming call to me,  
3 the "from" will be the caller ID that will display on my phone,  
4 the "to" column would be my phone number. If I was placing a  
5 call out, my number would be in the "from," the person I was  
6 dialing would be in the "to" column. So just a from-to,  
7 nothing more.

8 Q. Now, that's -- originating is "from" and terminating is  
9 "to"?

10 A. Correct.

11 Q. Please continue.

12 A. Then the next column we have the elapsed time that the  
13 call took, the amount of time in seconds and minutes that the  
14 call took; we have the number that was dialed, very similar to  
15 the -- you know, who I'm trying to connect to, the "to" column.  
16 The next two columns are just equipment identifiers, so one is  
17 the IMEI, which is the serial number of the phone. So it's the  
18 serial number burned into the phone equipment. The next one is  
19 an MZ, which is the SIM card that you place into the phone. So  
20 the MZ is what's tied to your account, what authenticates you  
21 and gives you service.

22 Finally, the next two columns, the second-to-last one is  
23 going to be the direction. So that tells us if it's an  
24 incoming or outgoing call, and the last column is what gives us  
25 that location information. So there would be information in

1 there that has the first little section on this left-hand side  
2 is that unique fingerprint, that number -- that unique number  
3 identifier. It's a combination of numbers that is unique  
4 anywhere in that AT&T network.

5 So if I took one of these number combinations and went to  
6 the entire United States for the AT&T network, which would be  
7 hundreds of thousands of towers and sectors, there's only going  
8 to be one entry for that number combination. And then they  
9 actually provide a longitude/latitude and the azimuth for that  
10 tower, if available.

11 Q. So when in the life cycle of a telephone call, a cell  
12 call, is a record made by the phone company?

13 A. When the call comes in to the switch, so there will be a  
14 record -- that's when the record gets started. When the tower  
15 information is populated, that initial tower is the tower that  
16 I'm initially granted services on. So the teacher called on  
17 me, allowed me to ask my question and granted me resources. So  
18 it said: Go make your call on this channel; go make your call  
19 or your text, or send me your text. And so when that initially  
20 occurs, that's when that initial cell tower is recorded.

21 On some carriers, we can get a terminating tower where the  
22 call ended. And with AT&T, every now and again you may get  
23 some intermediate handoff tower, but it's not very often in the  
24 grand scheme of things.

25 Q. How about if the user of a cell phone, especially today's

1 smartphones, is using text message or some other data function?

2 A. Right. So with some of the providers, we can get a tower  
3 used for a text message. On other providers, because of the  
4 way it's routed, we will see that the text occurred but we  
5 won't get the actual tower information. And then on some  
6 providers, they don't provide us that information at all. And  
7 then likewise with some providers, we get data connections.  
8 You know, when the person is checking their Facebook or surfing  
9 the Internet, we will get some of those too.

10 Q. Today's phones also sometimes allow people to call using  
11 Wi-Fi or just your home network.

12 A. Right.

13 Q. Are those recorded on these call detail records?

14 A. Typically not. If you're using some type of app on your  
15 phone, like a Skype, that would be recorded as a data connection.  
16 But if you're strictly connecting your phone up to Wi-Fi and --  
17 like some of the networks, like T-Mobile will allow you to make  
18 texting -- or do texting and make calls over that connection,  
19 that would generally not touch the network where we get the CDR  
20 from.

21 Q. Now, on this page, is this a sample of some records  
22 provided by AT&T Wireless for the telephone number  
23 (857) 247-5112?

24 A. Yes.

25 Q. And was that the phone associated by subscriber

1 information to Jahar Tsarnaev?

2 A. Yes. I think at the time, in April, it was -- the service  
3 had been terminated for lack of payment, as I remember.

4 Q. And meaning at the time of the marathon bombing?

5 A. That's correct, yes.

6 Q. And did you review records related to this phone number  
7 for purposes of your presentation and testimony?

8 A. I did, yes.

9 Q. And, in fact, did you focus on two distinct time periods?

10 A. I did.

11 Q. And was that the week of the marathon bombing, April 15th,  
12 2013, through April 19th, 2013, as well as a day or so back in  
13 December, around Christmastime of 2012?

14 A. I did, yes.

15 MR. CHAKRAVARTY: Next slide, please.

16 Q. Would you explain what this is?

17 A. So this is just T-Mobile's version of the call detail  
18 records, just giving an explanation of each of their columns.  
19 Like I said, a lot of the columns all have the same  
20 information. In this case T-Mobile gives us a little bit more  
21 information for everything. And it's obviously very difficult  
22 to read on this screen, but on the far left I had to break it  
23 up into two different lines because it's -- the spreadsheet is  
24 so long, but starting on the far left on the upper side is the  
25 number that was --



1 Q. Sorry. It's all right. Go ahead.

2 A. So on the far left we have the number that was requested,  
3 the target phone number that was requested that the records  
4 pertain to; then you have some equipment identifiers, same  
5 thing, the IMEI, the electronic serial number of the phone, as  
6 well as the MZ or the SIM card that you put in the phone; you  
7 have the type of connection, whether it's voice, SMS, a text;  
8 you have the date and time for the call; direction of the call,  
9 just incoming and outgoing; you just have the other phone  
10 number that the phone -- that the call was connected to, so  
11 whatever the other party's number was. Then you have a couple  
12 pieces of information about the status of the call, whether it  
13 was roaming or not. And then kind of over here on the top half  
14 of the far right --

15 Q. I think you can touch the screen.

16 A. There. Now I can.

17 -- you have the -- once again, those unique identifiers in  
18 their system, that unique number combination, that is like the  
19 fingerprint within the T-Mobile network for what tower and  
20 sector was used. And they also provide a location,  
21 latitude/longitude. And then continuing on down to the second  
22 row, you have the last tower and latitude/longitude that was  
23 used when the call terminated. And then you have the market  
24 the tower is located in, the switch that was handling the call.  
25 And then you have over here just different versions of the

1 duration or the amount of data that was used to send the text  
2 message. So you have minutes, seconds of duration, and the  
3 data -- the amount of bytes.

4 Q. So how do the call detail records vary from company to  
5 company, just generally?

6 A. Like I mentioned earlier, they all have generally the same  
7 information. They might word it a little bit differently, but  
8 a lot of the columns are the same. They're not identical to  
9 each other, by no means, but a lot of the information is very  
10 similar.

11 Q. Now, for this case, for your presentation did you review  
12 records provided by T-Mobile for the telephone number  
13 (857) 928-4634?

14 A. I did, yes.

15 Q. And was that the cell phone that was subscribed to by  
16 Tamerlan Tsarnaev?

17 A. I did. Yes, it is.

18 Q. And again, did you cover the analysis for the same time  
19 period of the week of the marathon bombing and then a brief  
20 period of time back around Christmas of 2012?

21 A. I don't think I look -- I think I only did the week around  
22 the marathon bombing on this particular target number.

23 MR. CHAKRAVARTY: Go to the next slide, please.

24 Q. All right. What is this?

25 A. So this is just taking all that information, the call

1 detail records, the tower list or the base station list, and  
2 marrying those two pieces of information up in relation to a  
3 particular set of calls, and then displaying it graphically on  
4 a map so it's more visual versus just lines on a piece  
5 of -- you know, just numbers on a piece of paper.

6 So we have the telephone number that you mentioned  
7 earlier, the 4634 number, the Tamerlan number. I have a call  
8 that was at 1449 and 8 seconds utilizing a tower and sector.  
9 The tower is located right here, and the sector that was  
10 utilized points off in this direction providing service, you  
11 know, to that general area.

12 The kind of shaded area that I have on the map is not to  
13 infer that that's the coverage. That's just to give emphasis  
14 which direction that sector is pointing and providing service  
15 to.

16 And then I had another phone number, another T-Mobile  
17 number that ends in 9151 that we analyzed, also a T-Mobile  
18 number, and it also made a call at 1449, I think, and 6, I  
19 think -- it's hard to see on this screen -- seconds utilizing  
20 the same tower but a different sector that points off into the  
21 opposite direction of the call. And these two phones were  
22 calling each other at that time during the call. The 915  
23 number actually dialed the Tamerlan number.

24 I was also provided addresses of the Forum restaurant and  
25 Marathon Sports which I depicted on the map with red markers.

1 Q. I neglected to ask --

2 MR. CHAKRAVARTY: Mr. Bruemmer, if you could just go  
3 back two slides to...

4 Q. So when I asked you about this phone number, this was the  
5 AT&T phone subscribed to Dzhokhar Tsarnaev, the 5112?

6 A. Yes.

7 Q. In addition to that phone, did you identify another phone  
8 associated with Dzhokhar Tsarnaev?

9 A. Yes, we eventually associated it with him.

10 Q. And was that a phone that was a prepaid phone that was  
11 subscribed to on April 14th of 2013?

12 A. I don't remember the exact date, but I remember it was  
13 very close to April 15th. That sounds right.

14 Q. Right.

15 MR. CHAKRAVARTY: If we could call up 1170. Page 2,  
16 please. Page 3. Sorry.

17 Q. Is this the subscriber information for that phone?

18 A. Yes. So you can see it's first name, Jahar; it  
19 gives -- it's a prepaid phone so they can put whatever they  
20 want on it; last name is T-S-A-R-N-I. And it also shows the  
21 date that it was activated, which was, like you said, April 14,  
22 2013.

23 Q. And so is that the phone that was being reflected in your  
24 graphic, in Exhibit 1440?

25 A. Yes.

1 MR. CHAKRAVARTY: Back to 1440, please.

2 Q. So that phone that we just were talking about, did you --  
3 like the other phone records, did you review the phone records  
4 for this phone?

5 A. I did.

6 Q. And did those phone records simply extend from April 14,  
7 2013, to April 19, 2013?

8 A. April 19th or 18th, somewhere in that -- one of those two  
9 days.

10 Q. All right. And is the first call between the two phones  
11 that you just mentioned on that day at 1449?

12 A. Yes, I believe it was the first call of the day.

13 Q. And the fact that they're both reflecting off of one  
14 tower, what does that tell you?

15 A. They're both in the same general geographic area hitting  
16 that one tower, but further they're hitting different sectors  
17 pointing in opposite directions of each other. So I believe  
18 the user of one phone is on one side of the tower and the user  
19 of the other phone is on the other side of the tower.

20 Q. So with regards to the precision of your cell site  
21 analysis, can you tell with, you know, precise -- within like a  
22 GPS exactly where someone was within that sector?

23 A. No, absolutely not. I can't tell what street they're on,  
24 what side of the street. I can't tell that. I can just tell  
25 the general geographic area that that phone is located in. And

1 as you can see on this map, I have other red dots of other  
2 T-Mobile towers all in the downtown area near this site that  
3 we're displaying that was used.

4 Q. And so if the marathon -- Boston Marathon finish line was  
5 in this area, the 4634 number was positioned closer to that  
6 finish line area than the 9151 number?

7 A. It was pointing -- yes, it was utilizing services off of a  
8 sector that definitely points towards the finish line more than  
9 the other phone.

10 Q. And the other phone was in a direction of the Forum  
11 restaurant. Is that correct?

12 A. That's correct, yes.

13 MR. CHAKRAVARTY: Next slide, please.

14 Q. What does this show?

15 A. So this is just continuing chronologically. We have the  
16 9151 phone receiving a call at 1451, so 2:51 p.m., on the 15th,  
17 and it's utilizing that tower and sector pointing in the same  
18 direction that it was on the previous slide. And then the  
19 other phone, the Tamerlan phone, was actually placing a call to  
20 that Jahar phone at the same time, just seconds before, and  
21 utilizing the same tower structure but a sector that points  
22 more towards the north. So the service area would be up in  
23 this direction versus the service area for this other tower and  
24 sector being out to the west. And then I've also left on the  
25 map those same two reference points of the Marathon Sports and

1 the Forum restaurant. Once again, they're calling each other.

2 Q. So can your cell site analysis tell you how far away from  
3 the tower either of these two callers were?

4 A. No, we do not get that type of data with these providers.

5 Q. All right. But with regards to the 4634 number, you can  
6 tell that that phone has been moving in the northerly  
7 direction. Is that fair?

8 A. Well, it's utilizing a sector that's pointing more towards  
9 the north. I can't tell if it was actually moving from one  
10 sector to the other or if it was just in that overlap area.  
11 Like I mentioned earlier, there is a mutual boundary for those  
12 two sectors and they could be right in that overlap area where  
13 the signal quality is just as strong for both sectors. So it's  
14 going to be one or the other.

15 Q. Okay. And with regards to the 9151 number, can you  
16 conclude that it's staying within the sector and maybe going  
17 further away from the tower on the left-hand side?

18 A. Right. It's still in the same general area. The service  
19 is in the same general area.

20 MR. CHAKRAVARTY: Next slide, please.

21 Q. So that last call, was that about a minute and a half  
22 after the first call at 1449?

23 A. Right. Yes.

24 Q. And so what does this slide show?

25 A. So this is showing -- and I can't -- if you could zoom in

1 on the one.

2 So this is both phones utilizing the same tower. So the  
3 tower's located here, the sector points to the north. And  
4 also, just kind of going chronologically a couple of minutes  
5 later, at 2:53 p.m. -- and if you zoom back out -- so they're  
6 both in -- I guess slightly to the north and east of the two  
7 locations, the Marathon Sports and the Forum restaurant a  
8 couple of minutes later.

9 Q. And so this shows both of the phones in the same sector.  
10 Is that correct?

11 A. That's correct, yes.

12 Q. So you don't know where in proximity, whether it's over  
13 here by where the tower is or whether it's out here by the end  
14 of the range of that tower -- you don't know where in that  
15 sector they are?

16 A. Right. I can't say that they're standing right next to  
17 each other or, you know, a block away from each other, but  
18 they're utilizing -- they're in the same coverage area, that  
19 same tower and sector.

20 Q. And again, compared to the previous call, this call is  
21 about a minute and a half later? A little bit more than a  
22 minute and a half?

23 A. Right. And it's the 9151 number, the Jahar phone, calling  
24 the Tamerlan phone.

25 MR. CHAKRAVARTY: Next slide.



1 Q. Now, does this reflect calls from about 20 and about 40  
2 minutes later? I'm sorry, 35 minutes later?

3 A. So at 3:14, and then I think it's 3:38 -- 3:36 two calls  
4 from the -- on the Tamerlan phone utilizing two different  
5 towers and sectors, one just to the north of the other one.  
6 And I also depicted on the map a Whole Foods which came into  
7 play when we were conducting the investigation.

8 Q. Okay. So just to orient the jury, is this the city of  
9 Cambridge --

10 A. Yes.

11 Q. -- reflected on this chart?

12 And so the marathon -- and Boylston Street is on the other  
13 side of the Charles River, to the south?

14 A. It is, yes.

15 Q. And let's focus in on, first, this call. What does this  
16 tell you?

17 A. This is the Tamerlan number, has a call that was at 3:14  
18 p.m. on April 15th. So just kind of continuing on  
19 chronologically.

20 Q. And then a few minutes later is there another call?

21 A. Yes, at 3:30 p.m. So the next call that was recorded --  
22 or the next phone activity that was recorded was at 3:30 and 32  
23 seconds.

24 Q. And again, the direction of the cell tower, the sector,  
25 could be anywhere on this area up to any of these other

1 sectors -- other cell towers?

2 A. Right. So the coverage area will be generally in that  
3 fashion. Same with down here, it would be -- that's the  
4 general service area for that phone -- for that sector.

5 Q. Now, did that information become of investigative interest  
6 during the investigation?

7 A. Yes. So when I was here at the time the investigation was  
8 occurring, we had received information, I believe, from a  
9 witness that the people involved stopped at a Whole Foods.

10 MS. CONRAD: Objection.

11 THE COURT: No, go ahead.

12 THE WITNESS: I used that information. Looking at the  
13 phones, once we identified the phone numbers, I told the  
14 investigative team that they probably want to go to the Whole  
15 Foods and look at the video in between these two times, so  
16 between the 3:15 and 3:30 time period, review the video to see  
17 if that statement is true, that they might have been caught on  
18 video. And I was told the next day that when they --

19 MS. CONRAD: Objection.

20 THE COURT: No, overruled.

21 THE WITNESS: When they returned, they were able to  
22 locate video stills of the two suspects, or at least one of the  
23 suspects at the Whole Foods in that time period that I provided  
24 to them.

25 MR. CHAKRAVARTY: Next slide, please.

1 BY MR. CHAKRAVARTY:

2 Q. And what does this next slide show?

3 A. So this is just continuing on with the Tamerlan phone,  
4 just showing the tower and sector utilized from roughly 8:30 to  
5 8:47. And then I have another tower and sector depicted on the  
6 map that shows kind of further into the night. I believe it  
7 was a little after ten o'clock. And I also referenced the  
8 address of 410 Norfolk Street, showing where it is in relation  
9 to that 1028 call.

10 Q. And 410 Norfolk Street you know to be the Tsarnaev family  
11 residence?

12 A. Yes.

13 Q. And is that off of Prospect Street? There's a cell tower  
14 here near Prospect Street?

15 A. Yes.

16 MR. CHAKRAVARTY: Next slide, please.

17 Q. Now, this is the next day. Can you explain what this  
18 slide shows?

19 A. Yes. So I was asked to look at the numbers just kind of  
20 as they -- where they were generally being used on April 16th.  
21 And if you zoom to the top half, please.

22 So this is just showing on the 16th both the Tamerlan  
23 phone and the 5112 phone during -- from 3:30 the 5112 phone is  
24 located in the Boston area. The Tamerlan phone is also in  
25 the -- utilizing towers in the Boston area at 5:23 -- around

1 5:23.

2 And then if you zoom to the other towers kind of down at  
3 the bottom, it shows that later in the day the 5112 phone  
4 traveled down to and utilized towers around 9:47 and 10:25 in  
5 the New Bedford/Dartmouth area.

6 Q. So in the afternoon there was phone activity from that  
7 AT&T phone subscribed to Jahar Tsarnaev in the Cambridge area,  
8 and then in the evening it was down in the New Bedford area?

9 A. That's correct, yes.

10 Q. And are you familiar with the UMass Dartmouth campus,  
11 where that is?

12 A. I am, yes.

13 Q. Is that in the vicinity of these cell towers?

14 A. As I remember, it was very close.

15 MR. CHAKRAVARTY: Next slide, please.

16 Q. What does this show?

17 A. Kind of more of the same, just showing where the phones  
18 are -- the towers that the phones are utilizing on the 17th.  
19 So once again, if you wouldn't mind zooming in to the top half.

20 It's just showing the Tamerlan phone on the 17th as  
21 utilizing towers all in the Boston area starting at 12:29 p.m.  
22 and going all the way through 9:46 p.m.

23 And if you could zoom to the bottom.

24 Q. Sure. So this shows the Tamerlan phone, the 4634, in the  
25 Boston area for the entire day, essentially?

1 A. That's correct.

2 Q. And what does this show?

3 A. It's the records for the 5112 number, show the phone  
4 utilizing towers once again in the New Bedford/Dartmouth area  
5 in the eight o'clock hour, so 8:08 through 8:48 -- and 8:48.

6 Q. So did you -- do you recall whether you had telephone  
7 activity from the 5112, the phone subscribed to Jahar Tsarnaev,  
8 in the morning on April 17th?

9 A. No, I plotted the activity that was available.

10 MR. CHAKRAVARTY: Next slide, please.

11 Q. Now, is this a slide of April 18th, 2013, the Thursday  
12 after the marathon bombing?

13 A. It is.

14 Q. And what does this show?

15 A. So it's showing both the 9151 phone, the Jahar phone,  
16 utilizing a tower kind of over in this side of the map and a  
17 sector pointing to the south at 8:17. And I also depicted the  
18 two towers and sectors -- or three, actually, that were being  
19 utilized by the Tamerlan phone starting at 5:34 and ending at  
20 7:30 p.m. So there's this tower and then two sectors pointing  
21 in that direction. And I also put where -- I kept on the map  
22 410 Norfolk Street.

23 Q. And so this shows that 9151 phone number subscribed to  
24 Jahar Tsarni, the phone that was activated on the Sunday before  
25 the marathon bombing, that was back in Cambridge,

1 Massachusetts, on Thursday at about 8:17 p.m.?

2 A. I can't say it was back in. It started being used on the  
3 18th again in the Cambridge area.

4 Q. And you hadn't seen any activity prior to that -- on that  
5 phone before -- after April 15th?

6 A. Right. So the slides I spoke to earlier showing that  
7 phone activity, that was it on the 15th, and then it doesn't  
8 get used again until the 18th.

9 Q. And just if we could go back quickly to --

10 MR. CHAKRAVARTY: Go to Exhibit 1172.

11 Q. So these are the phone records associated with that 9151  
12 number. On April 17th in between was there an SMS text that  
13 apparently was coming in to that phone?

14 A. Right. So there's a text, but like I mentioned earlier,  
15 we don't get data -- or tower information on texts for  
16 T-Mobile. And I'd also like to note also that with T-Mobile,  
17 texting is in Pacific time. So to add further confusion to the  
18 whole thing, instead of 9:06 a.m. Eastern time, that text  
19 actually occurred at a little after noon. So you have to add  
20 three hours for texts in T-Mobile.

21 Q. And this originating number, 7777, what significance does  
22 that have?

23 A. That's typically a network message of some sort, like  
24 maybe something about their bill or voicemail or something to  
25 that effect, some kind of text network-generated, is typically

1 what I see.

2 MR. CHAKRAVARTY: Back to 1440.

3 Q. All right. And what does this slide show?

4 A. So this is just showing the night of the 18th. There's a  
5 call between the two phones, the Tamerlan phone as well as the  
6 9151 phone a little after 11 p.m., and utilizing two different  
7 towers and sectors, which I've depicted on the map, so you  
8 have, you know, the general coverage area for the one and then  
9 general coverage area for the other, and just showing they're  
10 calling each other. The Tamerlan phone is calling the Jahar  
11 phone, and just showing the general area of where that service  
12 is being provided.

13 Q. So this is the Thursday night at about 11 p.m., correct?

14 A. Correct.

15 Q. So it's about three hours after the earlier call that was  
16 reflected on the 9151, Jahar Tsarni phone?

17 A. Yes.

18 Q. And separating the calls -- or the towers from which these  
19 phones used is the Charles River, so one person, Tsarni, is in  
20 Cambridge, and the Tamerlan Tsarnaev phone is in Boston. Or I  
21 should say the tower off of which the Tamerlan Tsarnaev phone  
22 uses --

23 A. The towers are located there. It doesn't mean --  
24 obviously, you don't plug into the base of the tower. So the  
25 service is provided in the directions that I've depicted on the

1 map. So they could definitely be -- the furthest south tower  
2 I'm sure has service on both sides of that river.

3 Q. Now, does a cell phone always use the nearest tower?

4 A. No. There could be something physically blocking it.

5 Like if I'm off standing on the other side of the mountain and  
6 the tower is physically closer to me but it's getting blocked  
7 from that topology, the actual earth, my phone won't be able to  
8 see it. So there are situations where the towers get blocked  
9 either by, you know, solid structures, the mountains, hills.  
10 But obviously the network engineers know the area and they  
11 place the towers to provide service in the most appropriate  
12 area, immediately around that tower and sector.

13 Q. Now, testing your Boston area geography a little bit, is  
14 this the direction of Watertown and this the direction of  
15 Cambridge?

16 A. Being from Atlanta I have no idea, but I'll take your word  
17 for it.

18 (Laughter.)

19 Q. Fair enough.

20 MR. CHAKRAVARTY: Next slide, please.

21 Q. Now, in addition to -- is that the last call activity  
22 between the two phones the week of the marathon bombing?

23 A. It is. And I've also depicted on the map the address of  
24 45 Laurel Street and where it is in relation to that last call  
25 between them.



1 Q. And you prepared this exhibit for testimony today from the  
2 records that you had reviewed from each of these phone  
3 companies and the cell towers?

4 A. Correct. The phone records as well as the tower lists.

5 Q. All right.

6 MR. CHAKRAVARTY: Your Honor, I would move to  
7 introduce this into evidence.

8 MS. CONRAD: I'm sorry. I don't even -- can I just  
9 see what it is because I don't even have -- just this one page  
10 or the whole thing?

11 MR. CHAKRAVARTY: All of 1440.

12 MS. CONRAD: Then I would like to be heard.

13 THE COURT: Yeah, we'll talk about it.

14 MS. CONRAD: Thank you.

15 MR. CHAKRAVARTY: Just for the witness, can I show  
16 1485, please?

17 BY MR. CHAKRAVARTY:

18 Q. Do you recognize what this is?

19 A. Yes.

20 Q. What is that?

21 A. This is a slide I was asked to put together just showing  
22 the activity on December 25th and December 26th to just show  
23 the area that was being used for the AT&T phone, the  
24 5112 -- the Jahar -- I'm sorry. I don't know which name you  
25 said -- what you're calling that phone, but the AT&T 5112

1 number.

2 Q. The Jahar Tsarnaev phone.

3 A. Sorry.

4 Q. So is this, like the other slides you showed, a fair and  
5 accurate depiction of your plotting of the cell site location  
6 for that use of that phone in that 24-hour period?

7 A. Yes. So I just -- I took that entire day's worth of  
8 activity and just kind of put it all on one map showing all the  
9 different towers and sectors to show where that phone, you  
10 know, was -- the towers and sectors that phone was utilizing  
11 for that two-day period, and I also depicted the 410 Norfolk  
12 Street address.

13 MR. CHAKRAVARTY: I would move into evidence Exhibit  
14 1485 which for all intents and purposes is just another page to  
15 the presentation that he had just done.

16 MS. CONRAD: Your Honor --

17 THE COURT: The same situation?

18 MS. CONRAD: Well, yes, and also the underlying data.

19 THE COURT: Yeah. That objection's overruled.

20 This was so far -- you may use it -- we're deferring  
21 the exhibit/chalk question, but it may be used as a chalk and  
22 I'll expose it now to the jury.

23 MR. CHAKRAVARTY: Thank you, your Honor.

24 BY MR. CHAKRAVARTY:

25 Q. Agent Fitzgerald, is this also, as with the phone records

1 that you described, about the phone activity on the Tsarnaev  
2 brothers' phones the week of the marathon bombing -- does this  
3 show the use of the Jahar Tsarnaev AT&T phone on December 25th  
4 and 26th of 2012?

5 A. Yes.

6 Q. And can you go through and explain what the phone activity  
7 shows you?

8 A. So there were several text messages -- mostly text  
9 messaging, if not all -- utilizing, what -- one, two, three,  
10 four -- five different sectors in the Cambridge area over that  
11 time period.

12 Q. And, again, as with some of the previous plots, you showed  
13 where the Tsarnaev family residence was at 410 Norfolk Street?

14 A. Yes.

15 Q. And this was that Prospect Street cell tower that you were  
16 talking about -- or actually, this is an AT&T cell tower also  
17 in the vicinity of Prospect Street?

18 A. Right. It might be at the same location. I don't recall.  
19 Like I say, sometimes they co-locate on the same structure, the  
20 same building, and sometimes they are just nearby each other.  
21 I can't remember if exactly -- if this was in the same exact  
22 location, but it's definitely near that.

23 Q. And does this show that this phone, the one that ends in  
24 5112, was using cell towers in the Cambridge area from December  
25 25th in through December 26th, at least through 12:35 of that

1 day?

2 A. Right. I believe that -- I think this one over here might  
3 be 12 -- yeah, 12:31. So, yeah, through 12:35, noon. And it  
4 starts as early as a little after -- well, there's actually --  
5 on 12:26 there's another one up here, 5:55. So all the way  
6 through 5:55. And then it starts as early as -- let's see, a  
7 little after noon on Christmas Day.

8 Q. So if that's when Christmas break was for -- or the  
9 holiday break, I should say, for UMass Dartmouth, then it's  
10 possible that the phone was being used back at home on Norfolk  
11 Street?

12 A. I mean, my kids were on break those same two days. I  
13 mean, as far as the university, I assume that they're also on  
14 break Christmastime. But, yes, the phone was being utilized in  
15 Cambridge, and it definitely could have been 410 Norfolk  
16 Street. In that area for sure. That tower and sector to the  
17 north is providing service to that address.

18 MR. CHAKRAVARTY: Just a moment, your Honor.

19 (Counsel confer off the record.)

20 MR. CHAKRAVARTY: No further questions.

21 MS. CONRAD: Your Honor, I do have cross-examination,  
22 but there's a discovery issue that I would like to discuss with  
23 your Honor, and perhaps if we could take a break and discuss  
24 that.

25 THE COURT: All right. A different one, I presume?

1 MS. CONRAD: I'm sorry?

2 THE COURT: A different one?

3 MS. CONRAD: Yes.

4 THE COURT: All right. We'll take the morning recess.

5 THE CLERK: All rise for the Court and the jury. And  
6 we'll take the morning recess.

7 (The Court and jury exit the courtroom at there is a  
8 recess at 10:57 a.m.)

9 THE CLERK: All rise for the Court.

10 (The Court enters the courtroom at 11:21 a.m.)

11 THE CLERK: Be seated.

12 MS. CONRAD: Do you want me back at counsel table,  
13 your Honor, or can I be --

14 THE COURT: That's fine.

15 MS. CONRAD: Okay. Your Honor, just a couple of  
16 matters. First of all, I think we've resolved the chalk, I'll  
17 call it for now, that Mr. Chakravarty was using, had a page  
18 that was not in the one that we had been provided in discovery.  
19 So he gave me a hard copy of his, and I now have it. But that  
20 was the discovery issue.

21 THE COURT: Okay. So that's solved?

22 MS. CONRAD: That's solved.

23 I do have some issues about *Jencks* material. I could  
24 ask, if the Court would allow me, Agent Fitzgerald, outside the  
25 presence of the jury, about *Jencks* material. We have been

1 provided no reports, no memoranda, no emails, nothing other  
2 than this chalk and the summary expert witness disclosure. No  
3 worksheets.

4 MR. CHAKRAVARTY: I've inquired of him, and there's no  
5 *Jencks* material that the government is aware of. If Ms. Conrad  
6 wants to ask Mr. Fitzgerald that question in lieu of asking in  
7 front of the jury, then the government has no objection to it.

8 THE COURT: All right. Right now.

9 MS. CONRAD: Thank you.

10 VOIR DIRE EXAMINATION

11 BY MS. CONRAD:

12 Q. Good morning, sir. I'm Miriam Conrad. I'm one of  
13 Mr. Tsarnaev's lawyers.

14 A. Hi.

15 Q. In preparing what the jury has now seen, the  
16 multiple-page, I think 14-page document, did you take any notes  
17 in preparation of that?

18 A. No. It's all just done on the computer utilizing the  
19 records and the tower list and the mapping and so forth.

20 Q. And do you create spreadsheets as you're doing that?

21 A. They're just derivative of the original spreadsheet. So  
22 they might be pared down to, like in this case, the April 15th  
23 through the 18th, but there's no -- I don't create an original  
24 spreadsheet, no.

25 Q. And did you provide copies of those documents to the

1 government?

2 A. The call detail record?

3 MR. CHAKRAVARTY: Objection, your Honor.

4 THE COURT: It's not clear what documents you mean.

5 BY MS. CONRAD:

6 Q. Well, you created documents that were essentially a  
7 summary of what you reviewed, the records you reviewed. Is  
8 that right?

9 A. I utilize the records, the original call detail records,  
10 and then I can filter it out -- or filter it down to the calls  
11 I'm interested in versus having the thousands of calls.

12 Q. I see. All right. And did you write any reports or  
13 memoranda regarding what you found?

14 A. No. I mean, I've emailed back and forth like the drafts  
15 and stuff like that for peer review or to the prosecutors.

16 Q. So when you say "drafts," drafts for what?

17 A. The presentation.

18 Q. Okay.

19 MS. CONRAD: And I'd ask to be provided with those.

20 MR. CHAKRAVARTY: Ms. Conrad just complained that she  
21 had the draft of the presentation that we sent her.

22 MS. CONRAD: Okay. Let me ask a different question.

23 BY MS. CONRAD:

24 Q. How many drafts did you prepare?

25 A. I only sent one draft up to Al. I mean, that's the draft.

1 I mean, that was the draft, and that draft becomes a final.

2 Q. And you said there were emails back and forth?

3 A. Right. To the person who is doing the peer review, asking  
4 them to do the peer review, as well as to Al, showing him that  
5 the draft was done and to contact me after he reviewed it.

6 Q. And was there any substance in those emails?

7 A. No, it was all logistics.

8 Q. Okay. Thank you.

9 THE COURT: All right?

10 MS. CONRAD: Yes.

11 THE COURT: Just while we have the jury out of the  
12 room, after this witness?

13 MR. CHAKRAVARTY: We have a brief witness who's going  
14 to describe the press conference and introduce some photos from  
15 the press conference that we've agreed upon, and then we'll  
16 move to MIT.

17 THE COURT: Okay. And there was a controversy about  
18 one of the pictures?

19 MR. BRUCK: Yes, your Honor.

20 THE COURT: Let me see the numbers. So I'm told  
21 they're 676, 677 and 678. Do you know which one it is  
22 you're --

23 MS. CONRAD: The picture we object to is the  
24 graduation photo in which Officer Collier is back by the flag,  
25 and we just think that's -- 77.



1 MS. CLARKE: 677.

2 MR. BRUCK: 677.

3 THE COURT: I guess my question is: Why do we need  
4 three photographs?

5 MS. PELLEGRINI: Well, your Honor, having Chief DiFava  
6 explain how Sean Collier was hired by MIT and his experience  
7 before he joined the MIT police force, we were asking him about  
8 what path Sean took, and one of them was that he attended the  
9 police academy. I asked him about what uniform he was in at  
10 that time. He said Somerville, and he explained why it was  
11 Somerville and not MIT, and that he recognized this as being  
12 his graduation photo. So that was part of his story of how  
13 Sean joined the force.

14 And then the other picture is of him in his MIT  
15 uniform which, as the Court can see, is different. And the  
16 explanation for that is that is that uniform, and that was also  
17 his identification card.

18 THE COURT: Well, I think it's cumulative. I don't  
19 believe you need more than one, frankly.

20 MS. PELLEGRINI: Well, can I use --

21 THE COURT: You can have the narrative of what his  
22 career path was but --

23 MS. PELLEGRINI: Can I use the one they're not  
24 complaining of, then, the general one and the other?

25 THE COURT: Fine. You can use the civilian one as

1 well.

2 MR. CHAKRAVARTY: Your Honor, since the jury is not  
3 here, if Ms. Conrad intends to attempt to introduce phone  
4 records that the government objects to, introducing defense  
5 evidence in the government case, perhaps we should deal with  
6 that now as opposed to wasting the jury's time when they come  
7 out.

8 THE COURT: I think I've already ruled on that.

9 MR. CHAKRAVARTY: Okay.

10 MS. CONRAD: Well, your Honor, I am planning to ask  
11 Agent Fitzgerald questions about his review of phone records,  
12 and I assume that that is permissible. And I also -- to the  
13 extent there are excerpts from phone records that are in the  
14 government's chalk, I intend to show the phone records from  
15 which those were drawn.

16 THE COURT: Well, we'll see how it goes. I don't  
17 think the records themselves -- the volume of records  
18 themselves should be admitted. So something else?

19 MR. MELLIN: Yes. While the jury is out of the room,  
20 it may surprise you we're actually in agreement on the point  
21 I'm about to raise, and that concerns the autopsy photos of  
22 Officer Sean Collier.

23 There are three photos that we intend to use. I don't  
24 think there's any objection to those three photos. What we  
25 would like to do, though, is not have those photos broadcast,

1 that those photos just be shown to your Honor and to the jury,  
2 to the witness, but not put on the big screens.

3 THE COURT: Well, somebody, I don't know who, gave me  
4 a set of --

5 MR. MELLIN: I gave you --

6 THE COURT: -- autopsy photos.

7 MR. MELLIN: -- the PowerPoint that was put together  
8 by Dr. Robinson.

9 And if you look at the first photo of the head of  
10 Officer Collier, we will use that photograph. As you turn the  
11 page, the next photo of the side, and then a picture --

12 THE COURT: I think this is -- we've had some  
13 discussion about autopsy photographs in general, and I think  
14 the consensus is that they need not -- because of the nature of  
15 them, they need not be displayed publicly beyond the jury out  
16 of respect for the victims and their families.

17 I think perhaps the most feasible way would be the  
18 old-fashioned way and let the jury see paper copies. The  
19 electronics are a little more complex because of the way the  
20 system is configured.

21 MR. MELLIN: That's fine, your Honor. Over lunch hour  
22 we'll make 18 copies -- or 19 copies, one for the Court.

23 THE COURT: Any disagreement with that approach?

24 MS. CLARKE: No, that's fine. My understanding is  
25 that the big screens can be unplugged, and it works that way.

1 THE COURT: Yes, but it's more disruptive, I think,  
2 than using the paper. Anyway -- okay. Let's get the jury.

3 (Pause.)

4 THE CLERK: All rise for the jury.

5 (The jury enters the courtroom at 11:32 a.m.)

6 THE CLERK: Be seated.

7 MS. CONRAD: Thank you, your Honor.

8 CROSS-EXAMINATION

9 BY MS. CONRAD:

10 Q. Good morning, Mr. Fitzgerald. My name is Miriam Conrad.  
11 I'm one of Mr. Tsarnaev's lawyers.

12 A. Hi.

13 Q. I would like to ask you a few questions about the work you  
14 did regarding the location of the two phones being used by  
15 Jahar and Tamerlan Tsarnaev on April 15th.

16 Now, those were both T-Mobile phones, correct?

17 A. Right. There was one -- well, on April 15th, yes, they  
18 were both T-Mobile.

19 MS. CONRAD: And, Mr. Bruemmer, if you would be kind  
20 enough to turn to -- I think it's Slide 7, page -- no, this  
21 one. Thank you.

22 Q. So that one shows a phone call approximately 2:49 p.m.  
23 from Jahar Tsarnaev to Tamerlan Tsarnaev, correct?

24 A. That's correct, yes.

25 Q. And the work that you did -- I know you can't pinpoint

1 exactly, but it shows that the -- their locations at that time  
2 were consistent, or the information you found was consistent  
3 with Jahar Tsarnaev being in the vicinity of the Forum  
4 restaurant and Tamerlan Tsarnaev being in the vicinity of  
5 Marathon Sports, correct?

6 A. Right. That's fair to say, yes.

7 Q. In the vicinity, right?

8 A. Yes.

9 Q. And turning to the next slide, which reflects the phone  
10 call made from Tamerlan Tsarnaev to Jahar Tsarnaev at  
11 approximately 2:51 p.m., that also is consistent with Tamerlan  
12 Tsarnaev being in the vicinity of Marathon Sports and Jahar  
13 Tsarnaev being in the vicinity of the Forum restaurant. Is  
14 that correct?

15 A. Right. It's all the same area, yes.

16 Q. Now, you extracted this information from T-Mobile records,  
17 correct?

18 A. That's correct, yes.

19 Q. And those T-Mobile records, I think they're shown for  
20 April 10th, anyway, on the previous slide?

21 MS. CONRAD: Is that right, Mr. Bruemmer? I'm sorry.  
22 Two back. Well, let's start with that since it's on the  
23 screen.

24 Q. That's the AT&T Wireless call detail, correct?

25 A. Correct. The call detail records, yes. Just a small

1 sampling of what we received.

2 Q. And by the way, that record was drawn from a much larger  
3 portion -- excuse me -- from a much larger set of records you  
4 got from AT&T, correct?

5 A. That's correct, or the government got from AT&T.

6 MS. CONRAD: And if I could just for the witness now  
7 display on the screen -- could we have the -- thank you. Just  
8 for the witness, please.

9 BY MS. CONRAD:

10 Q. So that's the record that Mr. Bruemmer just had up on the  
11 screen, right?

12 A. It's only part of the screen; it's not --

13 Q. I just want to show you now the record that you took that  
14 information from. If you'd just bear with me for a second.

15 While Mr. Watkins is trying to figure that out, let me ask  
16 a different question. Going back to the record that  
17 Mr. Bruemmer had up on the screen.

18 THE COURT: Do you want to go back to the computer?

19 MS. CONRAD: Yeah, the AT&T, the portion. Thank you.

20 BY MS. CONRAD:

21 Q. Do you see where it says "seizure time"?

22 A. Yes.

23 Q. And can you explain what that means?

24 A. Typically, it's the amount of time it took to set up the  
25 call.

1 Q. And that varied, at least on April 10th, from anywhere  
2 from four seconds to 21 seconds?

3 A. Correct.

4 Q. And just to use your analogy earlier of when someone makes  
5 a call, it's sort of like a kid in the classroom raising their  
6 hand, right, and asking to be called on, right?

7 A. Right. That's what I used, yes.

8 Q. From the time someone dials a number and then hits send,  
9 it takes some time before the call actually goes through,  
10 right?

11 A. It can.

12 Q. And it can be anywhere from four seconds to 21 seconds,  
13 right?

14 A. It can be any amount of time.

15 Q. So, for example, if you make a telephone call, sometimes  
16 you'll dial the number and you press "send" on your cell phone,  
17 and you don't necessarily even hear ringing right away, right?

18 A. Right. It would be like call blocking, yes.

19 Q. Well, sometimes that's the time when your phone is trying  
20 to communicate with the most available tower, correct?

21 A. I mean, that's one instance, yes.

22 Q. So without the seizure time, you don't know how long an  
23 actual -- or even with the seizure time, for that matter,  
24 because you don't know how long it took someone to answer the  
25 phone -- you don't know how long the actual conversation was.

1 Is that correct?

2 A. That would be under the elapsed time of the call --

3 Q. So for --

4 A. -- for AT&T.

5 Q. So for this record, for AT&T it would show the elapsed  
6 time, correct?

7 A. That's correct.

8 Q. And you're saying that would be the length of the actual  
9 conversation?

10 A. Yes; that's what AT&T tells us.

11 Q. And is that from the time the person receiving the call  
12 actually answers the phone?

13 A. Well, when I say it's the length of the call, the  
14 channel's being used, so I don't know -- you mentioned that's  
15 when that person answered the phone. It's not  
16 necessarily -- the person doesn't have to physically pick up  
17 the phone; it's just that's what they're billing you under.  
18 That's going to be how long you used up that channel.

19 Q. Sure. But my question is whether you can tell from  
20 looking at that how long the actual conversation was.

21 A. I don't even know that a person picked up the phone. I  
22 don't know what the content of the call was. No, I do not know  
23 if the call was physically connected person to person.

24 Q. And with respect to the T-Mobile records --

25 MS. CONRAD: If we could just go to that next slide,



1 please, Mr. Bruemmer.

2 Q. -- there's no column -- I know this is actually two sets  
3 of columns that are cut into two pieces to fit on the page,  
4 right?

5 A. Correct.

6 Q. So there's a lot of columns here?

7 A. Right.

8 Q. Is that fair to say?

9 A. Absolutely.

10 Q. And in a second I'm going to show you the columns -- or at  
11 least some of the columns for April 15th. Is it fair to say  
12 that T-Mobile does not give you the seizure time?

13 A. Right. So their system is just set up differently, and  
14 then they give us the duration of the call.

15 Q. And the duration includes the time it takes to connect,  
16 right?

17 A. I believe the time starts when you start utilizing  
18 resources on the tower. So that would be once you get  
19 that -- those resources granted from the tower, that's when the  
20 timestamp occurs and that's when your duration starts with  
21 T-Mobile. So your call would be -- you would be in a, like,  
22 call mode, if you will.

23 Q. So just to make sure I understand this correctly, so I  
24 pick up my phone, I dial the number, I press "send," a signal  
25 goes out to a tower, right?

1 A. Right. You request services.

2 Q. They make sure that I've paid my bill, right?

3 A. Hopefully -- you usually register before that part.

4 Q. All right. And at that point the signal starts searching  
5 for the person being called, right?

6 A. No, because you have to get resources from the tower.

7 Q. Right. Once you get resources from the tower, which would  
8 be when this record shows the call, the time starts running on  
9 that call, correct?

10 A. Right. Once those resources are granted from the tower,  
11 that's when the duration and the timestamp occurs.

12 Q. Okay. But the call does -- is not necessarily received by  
13 the person whom I'm calling at that moment?

14 A. Right. When your resources are granted, you still have to  
15 then navigate through the rest of the system and through  
16 whoever you're contacting's system, back down to the mobile,  
17 the page has to occur, all that.

18 Q. And so the person that I'm calling -- if I'm calling  
19 Mr. Chakravarty, he doesn't know yet that I'm trying to call  
20 him, right?

21 A. Right. I mean, when you dial the phone, your phone  
22 requests services, you're granted those services, and  
23 everything starts getting routed out to whatever his service  
24 provider is.

25 Q. Okay. So showing you --

1 A. But the time has already started on your end.

2 Q. Now, sir --

3 MS. CONRAD: Maybe this is just for the witness unless  
4 Mr. Chakravarty doesn't have an objection.

5 MR. CHAKRAVARTY: I don't know what it is.

6 MS. CONRAD: Could we just get that on -- I'm going to  
7 plug this in -- or try to.

8 It's a page from the call detail from T-Mobile. It's  
9 on the screen.

10 MR. CHAKRAVARTY: Can you zoom in, please?

11 MS. CONRAD: I'm sorry?

12 MR. CHAKRAVARTY: Can you zoom in, please?

13 MS. CONRAD: Yes.

14 MR. CHAKRAVARTY: I think this is an exhibit.

15 MS. CONRAD: I'm sorry?

16 MR. CHAKRAVARTY: This is an exhibit.

17 MS. CONRAD: I think a portion of it is. But if it's  
18 an exhibit -- if it is, it's 1172. I'm just asking if you have  
19 any objection if I show it to --

20 MR. CHAKRAVARTY: The witness?

21 MS. CONRAD: -- the witness and the jury.

22 I'll ask the witness first.

23 BY MS. CONRAD:

24 Q. Mr. Fitzgerald, do you recognize what's on your screen?

25 A. Yes.

1 Q. Okay. And that's a portion of the T-Mobile records,  
2 correct?

3 A. It appears to be, yes.

4 Q. And let me just slide it over a little bit more and then  
5 slide it up so you can see the top column, right?

6 A. Yes.

7 Q. And that says "duration seconds," right?

8 A. Yes.

9 Q. And again, that is the time from when the caller started  
10 using the resources, as you put it, of the phone -- cell tower,  
11 correct, to when the call ended?

12 A. Well, assuming it's an outgoing call, yes.

13 Q. Okay. All right. Well, let's go back --

14 A. In reference to that call.

15 MS. CONRAD: Your Honor, if it's not in evidence, I'd  
16 offer it at this time.

17 MR. CHAKRAVARTY: No objections. I'm sorry.

18 THE COURT: Okay.

19 MS. CONRAD: I guess that would be Defendant's 2.

20 THE COURT: Do you want to give it Defense 2?

21 MS. CONRAD: Unless we changed over. Did we change  
22 over to 3,000 to --

23 THE COURT: We'll fix that later.

24 MS. CONRAD: Okay.

25 (Defense Exhibit No. 2 received into evidence.)

1 BY MS. CONRAD:

2 Q. And that shows that the phone call from 9151 -- which  
3 would be Jahar's phone, right?

4 A. Yes.

5 Q. -- at 2:49 p.m., outgoing call, it lists it as 19 seconds,  
6 correct?

7 A. That's correct.

8 Q. But that's not the length of the conversation?

9 A. That's the length that that phone was using utilizing  
10 T-Mobile resources.

11 Q. So presumably the length of the conversation was shorter  
12 than that?

13 A. It's absolutely possible, yes. If there was a  
14 conversation at all. I don't even know if there was a  
15 conversation.

16 Q. But if there was a conversation, it was certainly shorter  
17 than this, right?

18 A. Well, the phone on the other end does have to ring and  
19 that is included in this phone duration.

20 Q. And looking at the next phone call, which is a phone call  
21 from Tamerlan to Jahar at 2:51, that's listed as 30 seconds,  
22 right?

23 A. That's correct.

24 Q. And again, it would be -- that's not the length of the  
25 time that they were actually talking on the phone, if they did

1 talk on the phone?

2 A. That's correct.

3 Q. Now, did you, by any chance, review the extraction from  
4 Tamerlan's phone?

5 A. It probably came into our area where we were working in  
6 the original investigation, so it's very possible that I saw  
7 it. But we didn't rely on it for any of our maps or anything.

8 MS. CONRAD: Okay. If I can just have the camera for  
9 the witness only, please.

10 A. And can I clarify it?

11 Q. Oh, sure. Please do.

12 A. On that extraction, we might have used contacts. Like so  
13 if a contact was listed as a certain person associated with a  
14 phone number, that's how we would have used that extraction.

15 Q. Okay. All right. I'm not sure I understood what you just  
16 said, but it may help me if I'm looking at something --

17 A. To marry up a name to a phone number is what we use it  
18 for.

19 Q. Okay.

20 MS. CONRAD: Again, just for the witness.

21 Q. Do you see an entry for 4:15 -- let me go back down,  
22 actually -- no, let me stay there. 4:15 --

23 MR. CHAKRAVARTY: Your Honor, I'm sorry. I'm just not  
24 clear why is the witness being impeached, or what is the  
25 question?

1 MS. CONRAD: No, I'm eliciting information. I thought  
2 that's what --

3 THE COURT: Go ahead.

4 BY MS. CONRAD:

5 Q. Thank you. 4/15/2013, and it says 6:51, but then it says  
6 UTC. Do you know what "UTC" is?

7 A. The GMT about this time of year, it would be four hours'  
8 difference.

9 Q. Is "GMT" Greenwich Mean Time?

10 A. Yes.

11 Q. So that actually would be the 2:51 call?

12 A. Yes.

13 Q. And do you see what the length of that phone call is?

14 A. Yes.

15 Q. And that's 18 seconds?

16 A. According to the phone, yes.

17 Q. And that's an extraction, meaning that's information taken  
18 from the phone physically itself?

19 A. Right, it's a forensic report generated from the actual  
20 hardware -- the actual phone -- mobile phone itself.

21 Q. So that's -- instead of 30 seconds that you got from the  
22 cell tower records, it's 18 seconds for the 2:51 call, right?

23 A. I thought it was 18 or 19 -- oh, 2:51? Yes.

24 Q. 2:51, not 2:49.

25 A. Yes, that's a different time.

1 Q. And these are records for Tamerlan Tsarnaev's, correct?

2 MR. CHAKRAVARTY: Objection, your Honor. There's no  
3 foundation that this witness has even seen this.

4 THE COURT: Use the phone number.

5 MS. CONRAD: Well, it's an extraction. The  
6 government, I hope, would be aware of this. It's an extraction  
7 from Tamerlan's phone. I don't have the phone number. It's  
8 not toll records; it's an extraction done by the government.

9 THE COURT: Go ahead. Proceed.

10 MR. CHAKRAVARTY: Just, your Honor, this witness has  
11 analyzed phone records, not data extracted from a phone.

12 THE COURT: I understand.

13 Go ahead.

14 BY MS. CONRAD:

15 Q. So that was the 2:51 call, right?

16 A. Right.

17 Q. And that was outgoing, right? Just, I could scroll back  
18 up if you want to look at it again.

19 A. Yeah, according to whatever system they used here,  
20 Cellebrite or whatever extraction they used.

21 Q. And there's an earlier call, 6:49 UTC, which would be  
22 2:49 p.m. Boston time, right?

23 A. That's correct, yes.

24 Q. And that's shown as incoming, right?

25 A. Right, yes.



1 Q. From 9151 -- excuse me. From 9151, correct?

2 A. That's correct, yes.

3 Q. And that would be Jahar's phone, right?

4 A. Yes.

5 Q. And that shows a duration of eight seconds?

6 A. That's correct, yes.

7 Q. And so we've got an eight-second call at 2:49 -- or  
8 eight-second conversation, I guess, right, at 2:49?

9 A. I don't know how Cellebrite or whatever forensic utility  
10 was used. I don't know how they determine the duration, if  
11 it's the actual -- if the call's connected, if it's the  
12 conversation or if it's when the call comes in. I don't know  
13 how this system works or the extraction software works.

14 Q. But just to clarify, it's not inconsistent that the phone  
15 would reflect an eight-second call when the cell tower data  
16 reflects a 19-second call?

17 MR. CHAKRAVARTY: Objection, your Honor.

18 THE COURT: Overruled.

19 You may answer it.

20 THE WITNESS: Like I said, I don't know much about  
21 Cellebrite other than how to operate it. I don't know the  
22 detail ins and outs that it pulls from the call logs. I mean,  
23 this is like from a call log versus network resources that are  
24 used in the network. So you're kind of comparing -- although  
25 it's talking about the same information, you're kind of

1 comparing two different entities or two different things.

2 BY MS. CONRAD:

3 Q. I guess really I'm just asking, the fact that one shows a  
4 shorter time period does not -- it's not inconsistent with the  
5 fact that the cell tower reflects a longer time because it  
6 includes the connection time, right?

7 A. I don't think that's unusual. But, like, once again, I  
8 don't know how it determines this duration or time. I assume  
9 it's the call. It's like when the -- you know, the actual call  
10 is occurring. But what happens when a call's missed, I don't  
11 know the answer to that. So whether you say it's inconsistent  
12 or consistent, I don't know the answer to that because I'm not  
13 familiar enough with what they're extracting out of the actual  
14 mobile phone itself. I deal with more the networks.

15 Q. I understand. Thank you.

16 But the -- showing you the slide that I think is Number 9  
17 which is the -- well, let's go to Number 8 -- which is the 2:49  
18 call, I think, right?

19 MS. CONRAD: And could we have that on the screen,  
20 please?

21 Q. That shows -- I'm sorry. It's the 2:51 call, but let's  
22 just stay there for a second.

23 It shows for one -- that's just one phone call even though  
24 there's two times shown, right?

25 A. Two diff- -- yes, they're calling each other, so it's in

1 respect to two different phones. So we received call detail  
2 records for one phone number and call details for another phone  
3 number. I'm showing them both on the screen in respect to each  
4 of those call detail records, but, yes, the two phones are  
5 calling each other.

6 Q. And the 2:51 call we know was a call from Tamerlan to  
7 Jahar, right?

8 A. Yes.

9 Q. And one of them says 14:51:18. The other one shows  
10 14:51:19. Is that because the cell data for each of them would  
11 be different?

12 A. Well, yeah, it's in respect to that phone itself.

13 Q. Right. But again, the 14:51:19 is not the time that in  
14 this instance Jahar picked up the phone and started talking?

15 A. Well, it's the instant in which his phone responded to the  
16 page. So when a phone's incoming, like I said, the network has  
17 to generally -- or know the general area where you are. So if  
18 I have an incoming call, the area where I am, a page signal  
19 would go out. When that page signal goes out, it's kind of  
20 like going back to the teacher-student relationship. The  
21 teacher's calling my name. As the mobile I raise my hand; the  
22 teacher calls on me and says: Hey, you have a call. Go over  
23 here and you can complete your call. That's when -- when those  
24 resources are granted, that's when the record is generated and  
25 that timestamp is generated.

1 Q. Okay. But not when the conversation necessarily began?

2 A. Right, not when I hit the green button. But like I'm  
3 getting caller ID, my phone is ringing, that's typically when  
4 you're starting to look for those resources. And right before  
5 I hit the green button, that's when, you know, I'm going to  
6 actually connect and we can communicate with each other.

7 Q. And the records or the -- excuse me -- the maps and  
8 diagrams that you showed us for days after April 15th were not  
9 necessarily calls between the brothers. Is that right?

10 A. Right. There are some that are between them, but I think  
11 the majority of them, or the bulk of the calls that are  
12 displayed, are not between the two.

13 Q. So the purpose of that was just to show where each phone  
14 was located at those particular times, right?

15 A. The general area, yes.

16 Q. And in order to put that information together, you  
17 reviewed in this case AT&T records going back from April  
18 2014 -- excuse me -- April 2013 going back to -- into December  
19 of 2012, right?

20 A. They continued on beyond that.

21 Q. Okay. But you reviewed all of them. Is that right?

22 A. I had them on my system. Like there were  
23 several calls -- yes. I mean, when we were in the  
24 investigation, we were trying to come up with leads, yes, we  
25 did review in bulk, like, who they're contacting, what phone

1 numbers they're contacting. But for the purposes of this  
2 presentation, I only looked at the dates and times that I have  
3 displayed.

4 Q. But you are generally familiar with those underlying  
5 records. Is that correct?

6 A. Absolutely, yes.

7 MS. CONRAD: May I have a moment, please?

8 (Counsel confer off the record.)

9 MS. CONRAD: Okay. We're going to give this another  
10 try with Mr. Watkins. Again, just for the witness, please.

11 Q. So what you see on the screen now is your presentation,  
12 right?

13 A. That's correct, yes.

14 Q. A portion of the AT&T records from April 10th, 2013?

15 (Pause.)

16 MS. CONRAD: Thank you. If I could just have my  
17 laptop this time for the witness.

18 Q. Is that the record from which you took that? I can make  
19 it bigger. Sorry.

20 A. Yeah, it looks on the surface like it is. Yes.

21 Q. Well, that's April 10, 2013, right?

22 A. Yes.

23 Q. And those are the records that you put into the  
24 presentation, right?

25 A. Yeah, I just grabbed a screen shot of a couple of lines.

1 MS. CONRAD: And could I have this --

2 Q. And those are records that were received by the government  
3 from AT&T for Jahar Tsarnaev's AT&T cell phone, correct?

4 A. Right, I think they received a couple different -- you  
5 know, like they got a certain time period, then they wanted to  
6 extend that time period. So which set I used, you know,  
7 between the two time periods that were obtained, because one  
8 was much longer than the other, I don't recall off the top of  
9 my head.

10 Q. But you reviewed records for that phone going back, at  
11 least, until December 2012, which is how you prepared your  
12 other presentation --

13 A. Yes. Yes.

14 Q. -- correct?

15 To December 11, 2012, correct?

16 A. Like I said, for this phone, I only went back to -- you  
17 know, as I testified to earlier, I only went and did December  
18 25th and 26th.

19 MS. CONRAD: Your Honor, I'd ask that these be  
20 marked -- this be marked for identification.

21 THE COURT: All right.

22 MR. CHAKRAVARTY: No objection to identification; not  
23 as an exhibit, though.

24 THE COURT: I'm sorry?

25 MR. CHAKRAVARTY: No objection as to identification,

1 not as an exhibit.

2 THE COURT: Yes.

3 BY MS. CONRAD:

4 Q. In reviewing those records, you told us about Jahar's  
5 location on December 25th and 26th, correct?

6 A. That's correct, yes.

7 Q. And you know he was a student at UMass Dartmouth during  
8 that time, correct?

9 A. Yes.

10 Q. And I think you testified about that being the Christmas  
11 break?

12 A. Correct, yes.

13 Q. And in the records that you reviewed, did you note that  
14 Mr. Tsarnaev, Jahar Tsarnaev, spent much of his time in the  
15 Dartmouth area based on his cell phone data usage?

16 A. Yeah. As I remember, it definitely went down there, even  
17 the week of April 15th.

18 Q. Thank you.

19 MS. CONRAD: I don't have any further questions.

20 THE COURT: Anything else?

21 MR. CHAKRAVARTY: I do have some brief follow-up.

22 REDIRECT EXAMINATION

23 BY MR. CHAKRAVARTY:

24 Q. Agent Fitzgerald, you were asked several questions about  
25 these calls that occurred on the 15th, the date of the marathon

1 bombing, at about 1449. Is that 2:49 for those of us who  
2 haven't been in the military?

3 A. Yes.

4 Q. So at 2:49, is that the first call contact between the two  
5 phones, the one -- the new T-Mobile phone that was subscribed  
6 to by Jahar Tsarni and the T-Mobile phone that was subscribed  
7 to by Tamerlan Tsarnaev?

8 A. Right. I believe it was the first -- if I remember  
9 correctly, it was the first call of the day, even. But, yes,  
10 it was definitely the first call between them.

11 MR. CHAKRAVARTY: Can we call up 1172?

12 Q. And this reflects those calls?

13 A. Yes. So as you can see, the first call of the day on the  
14 15th is the 2:49 call you were asking about.

15 Q. And is that a call of 19-second duration outgoing from  
16 Jahar's phone to Tamerlan's phone?

17 A. It is.

18 Q. Now, Ms. Conrad asked you a number of questions about what  
19 the call duration means. The 19 seconds that appear here, what  
20 can you definitively say that means in terms of the phone  
21 contact of the 9151 phone?

22 A. That's how long that phone utilized resources on the  
23 T-Mobile network.

24 Q. And did you also review Tamerlan's phone records around  
25 that -- for that same call?



1 A. Yes.

2 Q. And did that, in fact, show that there was a call on the  
3 same date and time for 17 seconds?

4 A. Right. I think it might be off by a second, but, yes,  
5 it's relatively the same time.

6 Q. And that seizure period, or the handshake period where the  
7 phone is talking to the cell tower, can that be just a matter  
8 of less than a second up to maybe several seconds?

9 A. Right. I think several people have experienced both ends  
10 of that, where you dial the number, hit "send" and your call  
11 starts connecting, or sometimes, like the defense mentioned,  
12 you'd dial your number, hit "send," and it might take a little  
13 while before your phone call actually gets connected.

14 Q. Do you know whether this call was made before or after the  
15 marathon bombing?

16 A. I believe it was --

17 MS. CONRAD: Objection. Foundation, your Honor.

18 THE COURT: Yes, sustained.

19 BY MR. CHAKRAVARTY:

20 Q. How do you know when this call was made vis-à-vis the  
21 marathon bombing?

22 MS. CONRAD: Objection.

23 THE COURT: Sustained. It's also not proper redirect.

24 BY MR. CHAKRAVARTY:

25 Q. So Ms. Conrad asked you about a call at 1451, which is the

1 very next call. Do you remember that?

2 A. Yes.

3 Q. And she highlighted that there was a slight discrepancy  
4 between Jahar's phone records and Tamerlan's phone records of  
5 one second. I think one was at 20:51:18 and one was at  
6 20:51:19. Do you remember that?

7 A. Yes.

8 Q. And can you explain the discrepancy?

9 A. Well, once again, it's the person making the call, it's  
10 just how long each call was using resources. The person  
11 dialing the phone, you know, logically, that call, when you're  
12 dialing and hitting the green button, it's going to happen  
13 sooner than the person receiving the call.

14 MR. CHAKRAVARTY: Can we call up Exhibit 1440? I  
15 believe it's page 8.

16 Q. Does this reflect that call?

17 A. Yes.

18 Q. And so this reflects that if there's a school over here,  
19 that the 4634 number was in the vicinity -- or was in the  
20 sector assigned to that school?

21 MS. CONRAD: Objection, your Honor.

22 THE COURT: Sustained.

23 BY MR. CHAKRAVARTY:

24 Q. Ms. Conrad asked you some questions about phone  
25 extraction. Can you explain to the jury why data collected

1 from a handset or of a phone is different from the data  
2 collected from the phone company that provides the tower log  
3 records?

4 A. Right. So the phone company pulls that information from  
5 the switch that -- like I mentioned earlier on direct, it's  
6 pretty much the brains behind the operation; it's the one  
7 controlling all the handoffs. That's where the phone detail  
8 records occur. The phone extraction software, like I testified  
9 to, I don't know where it's grabbing the information from, how  
10 it's grabbing the information, or even from provider -- or from  
11 manufacturer to manufacturer, an iPhone versus an S5, even a  
12 Samsung versus an HTC, I don't know how that phone software  
13 maintains those logs, but that's what the phone extraction, or  
14 the forensic tool, is relying on to obtain those records that  
15 were brought up by the defense.

16 Q. And does a cell phone capture all of the same data that is  
17 captured by the cell phone network?

18 A. No. For a perfect example, the phone extraction is not  
19 going to be able to tell you what tower and sector was being  
20 utilized versus the switch knows what tower and sector was  
21 being utilized.

22 Q. Now, on this graphic, does this show, then, that the call  
23 by Tamerlan was made in the sector -- this sector over here?

24 A. Yes.

25 MR. CHAKRAVARTY: Can we go to --

1 THE WITNESS: This is a little wider -- I mean, it  
2 goes out to this edge right here.

3 MR. CHAKRAVARTY: Can we go to the previous page?

4 Q. And the call at 1449 it shows in this sector?

5 A. The phone, yeah.

6 Q. The phone?

7 A. Yes.

8 Q. Does that suggest movement in your business?

9 MS. CONRAD: Objection, your Honor.

10 THE COURT: Sustained.

11 BY MR. CHAKRAVARTY:

12 Q. Ms. Conrad asked you some questions about connectivity, I  
13 mean, calls between these two cell phones, the 9151 T-Mobile  
14 phone, the prepaid T-Mobile phone, and Tamerlan's phone, 8634.  
15 Aside from the contact on April 15th and then again later in  
16 the week on the 18th, did -- was the principal phone that was  
17 subscribed to by Jahar Tsarnaev, the AT&T phone, the one that  
18 communicated with Tamerlan Tsarnaev?

19 MS. CONRAD: Objection. Scope.

20 THE COURT: No, but I'm not sure the question is  
21 clear. Why don't you replay it.

22 MR. CHAKRAVARTY: I'll ask another question.

23 Mr. Bruemmer, can you fast-forward about four slides?  
24 One more, please.

25 BY MR. CHAKRAVARTY:

1 Q. So this is the next day. At this time it's not the 9151  
2 phone that was being used -- the Jahar Tsarni phone that was  
3 being used to communicate with Tamerlan Tsarnaev; it was the  
4 AT&T phone?

5 MS. CONRAD: Objection.

6 THE COURT: Overruled.

7 You may answer it. Go ahead.

8 MS. CONRAD: It's the assumption in the question,  
9 "being used to communicate with Tamerlan Tsarnaev."

10 THE COURT: Right. That's enough.

11 Go ahead.

12 THE WITNESS: I don't remember how many calls there  
13 were, if any, during this time period between 4634 and 5112.  
14 And as I remember, the service had been disconnected on the  
15 5112. But kind of a side product, they don't eliminate  
16 texting. So the user could still use it for texting, and I  
17 believe that's what was -- if my memory serves correctly, I  
18 believe that's what was being used on the 5112 number at this  
19 time period.

20 BY MR. CHAKRAVARTY:

21 Q. And that 5112, if it hadn't paid for its service, could  
22 also use the wireless signals, the Wi-Fi signals?

23 A. Right. It could connect via Wi-Fi or do the texting even  
24 though it would have been shut off.

25 Q. Does Apple have an iMessage communications means?

1 MS. CONRAD: Objection, your Honor.

2 THE COURT: Sustained.

3 MR. CHAKRAVARTY: That is all I have, your Honor.

4 MS. CONRAD: Your Honor, I neglected to ask that the  
5 phone extraction for Tamerlan's phone be marked for  
6 identification, so I would ask that that be marked as Exhibit 3  
7 for identification, and then the AT&T records be marked for  
8 identification as Exhibit 4.

9 THE COURT: All right.

10 MS. CONRAD: And I would actually ask that -- given  
11 the redirect examination, I would ask that the AT&T records for  
12 April 15th, 16th, 17th and 18th, at least, be admitted at this  
13 time, or those -- excuse me -- that were reviewed.  
14 Mr. Chakravarty just asked a series of questions about what  
15 those records showed.

16 MR. CHAKRAVARTY: I would object to that, your Honor.

17 THE COURT: No. You may have them all marked for  
18 identification.

19 (Defense Exhibit Nos. 3 and 4 marked for  
20 identification.)

21 MS. CONRAD: May I ask just a couple of questions on  
22 redirect, please?

23 THE COURT: Recross.

24 MS. CONRAD: Recross. Thank you.

25 THE COURT: Only as to that matter.

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MS. CONRAD: Yes. Absolutely.

RECROSS-EXAMINATION

BY MS. CONRAD:

Q. Sir, Mr. Chakravarty just asked you some questions about being able to make calls wirelessly, correct?

A. Yes.

Q. Those wouldn't be reflected on cell tower data, would they?

A. No. Well --

Q. And --

MS. CONRAD: May I just have a moment?

A. -- they would be reflected in the data connection part, but we didn't rely on any of those.

Q. Right. That's not what you were referring to in these charts?

A. Right. Right.

MS. CONRAD: May I just have one moment, please?

(Counsel confer off the record.)

MS. CONRAD: Thank you very much, sir.

THE COURT: All right. Thank you, sir. You may step down.

THE WITNESS: Thank you.

(The witness is excused.)

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C E R T I F I C A T E

I, Marcia G. Patrisso, RMR, CRR, Official Reporter of the United States District Court, do hereby certify that the foregoing transcript constitutes, to the best of my skill and ability, a true and accurate transcription of my stenotype notes taken in the matter of Criminal Action No. 13-10200, United States v. Dzhokhar Tsarnaev.

/s/ Marcia G. Patrisso  
MARCIA G. PATRISSO, RMR, CRR  
Official Court Reporter

Date: 3/17/15