

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 International Criminal Court

2 Trial Chamber V

3 Situation: Central African Republic II

4 In the case of The Prosecutor v. Alfred Rombhot Yekatom and Patrice-Edouard

5 Ngaïssona - ICC-01/14-01/18

6 Presiding Judge Bertram Schmitt, Judge Péter Kovács and

7 Judge Chang-ho Chung

8 Trial Hearing - Courtroom 1

9 Wednesday, 28 February 2024

10 (The hearing starts in open session at 9.31 a.m.)

11 THE COURT USHER: [9:31:14] All rise.

12 The International Criminal Court is now in session.

13 Please be seated.

14 PRESIDING JUDGE SCHMITT: [9:31:35] Good morning, everyone. Good morning,

15 Mr Brown.

16 WITNESS: CAR-D30-P-4864 (On former oath)

17 (The witness speaks English)

18 THE WITNESS: [9:31:50] Good morning.

19 PRESIDING JUDGE SCHMITT: [9:31:50] Court officer, please call the case.

20 THE COURT OFFICER: [9:31:53] Good morning, Mr President, your Honours.

21 The situation in the Central African Republic II, in the case of The Prosecutor versus

22 Alfred Yekatom and Patrice-Edouard Ngaïssona, case reference ICC-01/14-01/18.

23 For the record, we are in open session.

24 PRESIDING JUDGE SCHMITT: [9:32:09] Thank you very much. I think

25 Prosecution and both teams of the victims remain unchanged to yesterday.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 Ms Guissé, Ms Dimitri, or whoever, you have to inform us who is here for the
2 Defence of Mr Yekatom. And Mr Yekatom is here, which is very good, yes.

3 MS DIMITRI: [9:32:30] Thank you, Mr President. Good morning. Yes, Ms Guissé
4 joined us and Mr Yekatom is back.

5 PRESIDING JUDGE SCHMITT: [9:32:35] Thank you. Mr Knoops.

6 MR KNOOPS: [9:32:38] Good morning, Mr President, your Honours. Good
7 morning, everyone in the courtroom. Good morning, Mr Brown. We are in the
8 same composition as yesterday, Mr President.

9 PRESIDING JUDGE SCHMITT: [9:32:46] Thank you very much. So without
10 further ado, Mr Knoops, you have still the floor and you can continue your
11 examination.

12 MR KNOOPS: [9:32:51] Thank you very much.

13 QUESTIONED BY MR KNOOPS: (Continuing)

14 Q. [9:32:54] Good morning, Mr Brown. Today, I would like to touch upon some
15 of the CDRs you were asked to examine in your report.

16 First, we would like to start with the CDR which you mentioned in your report in
17 paragraph 5.2.13 and 5.2.14. That is, CAR-D30-0018, 0022 till 0023; these two
18 paragraphs.

19 It is in our Defence binder, tab number 7, which is CAR-OTP-2046-0766.

20 Now, Mr Brown, in your report in paragraph 5.2.13, you say in the second sentence
21 that you don't believe -- the first sentence: "I do not believe" that this CDR "is a normal
22 CDR. Rather it is the records of some other activity, possibly money transfers or some
23 other transaction between the parties."

24 Now, my first question to you, Mr Brown, is: Could you inform the Chamber which
25 features of this CDR led you to conclude that this was not a normal CDR?

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 A. [9:34:51] It had different information included within it, in that there were a
2 number of features when compared with the other CDRs that I was provided with
3 that made me think it was not a standard CDR; so perhaps something generated from
4 the network's records, but not a normal CDR.

5 Q. [9:35:22] Could you point to the judges, for their information, one of the features
6 in this CDR - for instance, in the heading of the CDR - which led you to believe that
7 this was not a normal CDR but potentially a record of money transfer activity or other
8 type of transactions?

9 A. [9:35:53] The column headed "Montant" was one that I did not recognise as a
10 normal feature, and comparing it with some of this information that was contained in
11 another -- what I consider to be a normal CDR for this same mobile number, and it
12 was a comparison of the two rather than just any features in this example.

13 Q. [9:36:27] And, Mr Brown, if you look at the heading of this CDR, you referred to
14 the term "Montant", is there any other feature which led you to this conclusion that it
15 was not a normal CDR?

16 A. [9:36:44] No. Some of the headings are nonstandard, but that doesn't mean
17 that they themselves are necessarily not CDRs. It was just a -- the general features of
18 this did not appear to me to be a normal CDR and, as I said in my report, it's not
19 possible to be certain what it is without some form of statement of origin.

20 Q. [9:37:12] Would it be correct to say, Mr Brown, that without having this
21 additional information about how these items came to be, would you be cautious
22 about relying on these types of CDRs in the process of, for example, building a user's
23 profile or using them in the context of a CSD?

24 A. [9:37:45] Yes, of course, I would be cautious. If I was to combine it with other
25 information, I would wish to make sure that I could understand what it was telling

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 me or not telling me. So it may be possible to use it, but I would use it with caution.

2 Q. [9:38:07] You said yourself, Mr Brown, that it's not possible to be certain of the
3 purpose of these records without an originating witness statement.

4 A. [9:38:23] Yes.

5 Q. [9:38:24] Did you in your career as expert witness encounter such a situation like
6 we have here with this CDR and were you able to comment on it as you did today?

7 A. [9:38:42] There have been several occasions where some nonstandard-looking
8 CDRs have been presented to me. It is usually with enough of a sample being
9 possible to understand what it was or where it came from. So, the networks all
10 record a lot more information about the transactions on their network, then are
11 provided in a normal CDR, so it is quite possible for them to produce many different
12 sorts of records and for them to choose what sort of records to look at. And,
13 therefore, yes, there can be many different things that look vaguely like a CDR but
14 aren't a standard CDR.

15 Q. [9:39:43] Thank you, Mr Brown.

16 I would now like to turn to a second CDR you examined, which is in your report in
17 paragraph 5.2.6. It's CAR-D30-0018-0020. This is CAR-OTP-2054-1479, which you
18 can find, Mr Brown, in our binder under tab 8 and I ask my colleagues to pull up this.
19 Thank you.

20 It's CAR-OTP-2054-1479, as mentioned. You have it before you, Mr Brown?

21 A. [9:41:01] I do, yes.

22 Q. [9:41:04] Thank you. Mr Brown, in your report in paragraph 5.2.6, you say
23 after examining this CDR:

24 "[...] is not a CDR for a single subject mobile. The table combines the CDRs of
25 multiple mobile phones possibly as a result of a query made by the operator of their

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 database or more likely by somebody later combining the individual CDRs of the
2 mobiles."

3 Also here, Mr Brown, my first question is: Could you point the Chamber to the
4 features in this CDR which led you to this conclusion?

5 A. [9:41:59] Simply, if you scroll down this table, you will see the variety of
6 numbers, so there is no consistency of the numbers. In the columns here we can see
7 "C" and "D", and for a single mobile phone you would always see the subject number
8 appearing in one or other of those columns. In this case, we see a variety of numbers,
9 so currently we are looking at the CDR for the number that ends 0101, and you can
10 see that that number appears either in the originating or the destination column C
11 or D.

12 If you scroll further down, you will see that the subject number changes, so this is all
13 still 101, and now we have changed to the subject mobile ending 0455, where that is
14 the number that appears in either the outgoing or incoming column. So that
15 identifies to me that at least two subject mobiles -- the data for two subject mobiles,
16 has been combined.

17 Q. [9:43:12] Mr Brown, is it your evidence that this could only have been done by
18 an operator themselves?

19 A. [9:43:24] No. I would think the operator would -- the simplest activity would
20 be for the operator to create a query for each of the numbers that they wished and to
21 extract that data one at a time from the database. But, of course, if they were asked
22 to produce all of the data from a particular location, which is sometimes done, then
23 that would contain the data for multiple mobile telephones.

24 Otherwise, the operator may have made multiple queries for different mobiles and
25 then put them together before they were provided to the investigators, or the

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 investigator themselves combined them. I simply can't say which way it was done.

2 Q. [9:44:28] But in your evidence, this is not a normal CDR, right?

3 A. [9:44:37] I'd hesitate to say not normal; it is not a standard CDR. I would
4 normally expect a CDR to be for a single-subject mobile. It doesn't make it wrong
5 that it's multiple mobiles, it's just less -- less usual that it is multiple mobiles.

6 Q. [9:44:57] Would you, when assessing such a CDR, be more cautious in terms of
7 providing conclusion for attribution making a user's profile, or in terms of the use of
8 the CDR as such for any of those analyses; analysis for user profile or for the concept
9 of attribution?

10 A. [9:45:32] I would be careful to ensure I extracted the data for the subject mobile I
11 was interested in and to make sure I extracted all of the data for that subject mobile.
12 Thereafter, I would be comfortable to carry out a normal assessment of the data.

13 Q. [9:45:57] Mr Brown, in the same CDR, you see in the rows 2 till 48, in the very
14 right column, "Geographical Location" -- actually, it starts with "Site Name", that's
15 column O, and column P, Q, "Geographical Location". These rows, 2 till 48, are
16 empty, while starting in row 49 of the CDR you see that the columns O and P are
17 filled in with numbers and names.

18 A. [9:46:49] Yes.

19 Q. [9:46:51] What is your observation with regard to the fact that the rows 2 till 48
20 are missing the geographical location and the site name, while from 49 onwards we
21 see some mentioning of locations and site names?

22 A. [9:47:21] I can see in the columns M and N that there is the 9999 number. This
23 is often used by networks as a default number if they don't have that information
24 available.

25 I can see from column D that this first section from line 2 to line 48 appears to be

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 reference to the number ending all with zeros. That is a very unusual number, and
2 whilst it is possible that that is the number for a subscriber, my first thought would be
3 that is probably some number used by the network for one of the network's services,
4 and if that was the case then it's not relevant where that number is, and hence there
5 would be no location information for that number.

6 So just to illustrate that, I don't know the purpose of this number, but it might be
7 something like an inquiry service where subscribers can ring to check the balance of
8 their credit, for instance. So it might be that sort of service where the network would
9 not be interested in the location of their number and hence there is no location
10 information.

11 Q. [9:48:49] Would these observations you just made, Mr Brown, have a bearing on
12 the use of this CDR in general for the purpose of cell-site analysis or attribution?

13 A. [9:49:13] To some extent it would depend what analysis I might be asked to do
14 on this. If I was told that the number beginning 72 and ending with all the zeros
15 actually belonged to a subject of interest, then clearly I would be unable to carry out
16 any geographical analysis. Because of the format of this CDR, I would be more
17 cautious generally.

18 Beyond that, if I could extract the phone of interest, then I would be able to work with
19 that data, although I would include my concerns about the sources of the data.

20 Q. [9:50:06] Mr Brown, still speaking about the same CDR, if you look at column C,
21 the header row of this CDR mentions "Numéro" and then a copyright sign, "ro de
22 destination".

23 My question to you is, Mr Brown, is it correct to say that this might be an issue that
24 occurs when text files are converted between different ways of representing letters
25 and show that this file was likely re-saved at some point?

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 A. [9:50:56] Two questions. Yes, to the first. The unusual use of the symbols we
2 have in the middle of that title may indeed be because of different software systems
3 not recognising the same character set, and that obviously can happen where there is
4 a difference in the set-up of the particular computers being used.

5 To your second question, could it be as a result of saving the file, that is a possibility.
6 I don't have the expertise to say whether it is one or the other.

7 Q. [9:51:42] Mr Brown, would you say that these examples we just went through of
8 the CDR are potential examples of data corruption or indicia of lack of forensic
9 integrity, as we discussed yesterday in this court?

10 A. [9:52:02] My concern would normally be with the data and possible corruptions
11 to the data. The text information included, yes, it could be a problem for corruption
12 of the data. Of more interest would be to me if you can see cell 49/D on this, if you
13 click on that cell, if you look at that cell 49/D, you can see that the cell actually reads
14 correctly in the line above the headings, but is presented visually in the cell as an
15 exponential number. If this file was saved incorrectly, then that exponential number
16 would become fixed and we would not be able to see the original number. So that is
17 the kind of corruption that I see most commonly in CDRs.

18 In this case, fortunately, it's a -- the cell can be correctly formatted to show the number
19 as it should be, rather than as we currently see it at 49/D, as an exponential number.

20 Q. [9:53:30] Now, could you -- you're an expert, you explain to us what the
21 potential problems here are with the forensic integrity. Could you describe some
22 ways to the Judges how to recognise data corruption in CDRs?

23 A. [9:53:53] The example we see at 49/D is, as I said, the most common example
24 that I see. The next most common would be, as we see in the lines above, if there are
25 a lot of zeros appended to a number, that can sometimes be as a result of a corruption,

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 although I couldn't rule out that that was a number being used by the network.
2 In other cases, formatting of other cells may be that the time, the duration of a call, is
3 recorded by the networks in various ways, and again the handling of that data can
4 change -- can change that information. And likewise the dates, so the dates,
5 particularly for international CDRs, the dates can be formatted in what I might call
6 the European style with day, month and year. In some cases it would be recorded in
7 what I think of as the American style, which is month, day, year. And, indeed, in
8 some cases I myself also use the year, month, day format. So those are things I
9 would have to check and, indeed, I think I have seen in this case where there are the
10 European and the American different formats that I've seen.

11 Q. [9:55:29] Would you say --

12 PRESIDING JUDGE SCHMITT: [9:55:30] Just a second.

13 Ms Henderson, there was not a question yet, so no objection, I assume?

14 MS HENDERSON: [9:55:35] No, it's just that -- it's not an objection. It's just a
15 suggestion that we can see that the file being shown to the witness is an Excel
16 spreadsheet, and it may in fact be helpful for Mr Knoops to show the witness how the
17 CDR appears in Nuix, perhaps as he does in other examples where he's made
18 screenshots, so that you can see how it appears, and there may be a comparison to be
19 made between the headings that appear in Nuix, if I can call it the screenfront of Nuix,
20 as opposed to when an Excel spreadsheet is downloaded, as this has been, and then
21 shown.

22 PRESIDING JUDGE SCHMITT: [9:56:19] On the other hand, wasn't this, Mr Brown,
23 part of your report already? So you have seen the whole thing; am I right?

24 THE WITNESS: [9:56:30] Yes, your Honour, what we're looking at now is, I believe,
25 the example that I was originally given.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 PRESIDING JUDGE SCHMITT: [9:56:35] And you have been given, let's say, the
2 whole data with regard to this CDR?

3 THE WITNESS: [9:56:41] I believe I was given that whole file, yes.

4 PRESIDING JUDGE SCHMITT: [9:56:43] Okay. I think, Ms Henderson, then the
5 witness is absolutely aware of the whole document, let me put it this way, in a more
6 generic way, and that's fine, I think.

7 Please continue, Mr Knoops. If, Mr Knoops, if you think it would be helpful to show
8 it completely, or like Ms Henderson suggested, it might also be fine, but I think
9 Mr Brown is aware of, let's say, the whole information he needs with regard to this
10 CDR.

11 MR KNOOPS: [9:57:28]

12 Q. [9:57:29] Mr Brown, still on the topic of data corruption in this regard, with
13 respect to this CDR - and perhaps you have more examples - would you say that if a
14 CDR like this missed certain information or values, like the rows 2 till 48 in this CDR,
15 would this be for you an example of potential data corruption or a lack of integrity,
16 forensic integrity, as we discussed yesterday? To make it more visible for the Judges,
17 what we have to understand, what is forensic integrity, what is data corruption?
18 So my question is, in this specific CDR we see rows 2 till 48 there is no mentioning of
19 the geolocation. You said, "It might impact upon my assessment of geolocation", but
20 the fact that the CDR doesn't entail that information, does that for you qualify as an
21 example of data corruption?

22 A. [9:58:53] I don't think I would class that as data corruption. In many CDR files
23 there is some element of the information that may be missing and some of this
24 information is more critical to the network than other pieces of the information. So
25 most critical to the network operator is the time and duration so that they can

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 correctly record the billing. It is a condition of the licence for their operation in most
2 cases that that information is very accurately recorded.

3 It is not a condition of their licences to be so accurate with the recording and for the
4 information around the geographical location; that is for their purposes and, therefore,
5 they don't necessarily try to record it to the same level of exactness.

6 So if geographical information is missing, I would not be concerned. Obviously I
7 just would be unable to do geolocation work. If other pieces of information are
8 missing, I would start to wonder why that might be, particularly if durations were all
9 missing or one or other of the outgoing or incoming numbers were missing. Then I
10 would seek to understand why that may be the case and, indeed, whether I would be
11 able to use that CDR or not.

12 Q. [10:00:38] The same question, Mr Brown, in the event of the file, CDR file has
13 been re-saved by someone who did not produce it, would you qualify such a situation
14 as data corruption?

15 A. [10:00:58] The process would not necessarily have corrupted the data. It is not
16 ideal and, as I think I've already said, I would much prefer to have a file that I know
17 nobody has touched in any way, but I accept that it is commonly the case that
18 investigators would have opened a file before they provided a copy to myself. So I
19 would describe best practice as a copy being made of the file before an investigator
20 has ever looked at it, but that's not always the case. It won't necessarily corrupt it,
21 but obviously I must then consider whether that has -- is a possibility that it has been
22 corrupted.

23 MR KNOOPS: [10:01:51] One second, Mr President.

24 (Counsel confers)

25 MS HENDERSON: [10:01:54] Mr President --

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 PRESIDING JUDGE SCHMITT: [10:01:55] Ms Henderson, you have a question?

2 No, I'm joking.

3 MS HENDERSON: [10:01:59] No, but just for the court record, while there's a break,
4 because the witness commented on a scrolling screen, I just wanted to state what rows
5 he saw. And this was at about minute 9:41 -- sorry, hour 9:41 minutes, and he was
6 looking at rows 2 to approximately 500, I believe.

7 PRESIDING JUDGE SCHMITT: [10:02:17] Yes. Correct, indeed. Thank you very
8 much.

9 Mr Knoops.

10 MR KNOOPS: [10:02:22] Yes. Well, Ms Henderson put me on a question which
11 was also in our preparations table.

12 Q. [10:02:32] Still speaking about the forensic integrity of the CDRs in general, and
13 this one in specific, yesterday, Mr Brown, in your evidence at 11:10:48 you mentioned
14 that Excel has a strange little quirk in that if you change the file name while the file is
15 open, it can corrupt some numerical document within the file.

16 A. [10:03:05] Yes.

17 Q. [10:03:06] My first question: Could you please explain to the judges a little bit
18 more what type of corruption might occur?

19 A. [10:03:18] Yes. Luckily that is the example I talked about a few minutes ago
20 where we could see in, I think it was, cell 49:D that the Excel had reformatted the
21 number to an exponential number. So this is where you can see an "E" has been
22 added in there. So this is Excel presenting the number as an exponential number.
23 Because it sees a very long number, it thinks it's doing you a favour by changing it to
24 a mathematically easier to understand very long number. If this file is -- the file
25 name is changed at this point and saved in a different format, then that, what you

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 visually see there becomes fixed and the original number cannot be found beneath
2 that, what you see, as it still can be in this example.

3 Q. [10:04:25] Mr Brown, is it your experience that this type of data corruption could
4 occur or occurs more often and that without having an expert witness in court, it's for
5 a non-expert difficult to detect such a data corruption?

6 A. [10:04:50] I think this particular corruption is visually very obvious. Once
7 you've seen it, you know what it is. Of course, some people who have never used
8 Excel may look at that and wonder what the number is, but it's a very easy-to-see
9 change to the data. That's all I can say.

10 Q. [10:05:21] My last question, Mr Brown, on this topic: How can one identify any
11 other forms of corruptions in a CDR except for the examples you mentioned?

12 A. [10:05:48] I can only say that when I am looking at a CDR, I would tend to scan
13 the whole of that CDR to see that there is consistency in how that information is
14 presented. One type of corruption that I haven't mentioned is that if you combine
15 the data from two different Excel spreadsheets, it's of course critical to ensure that you
16 put the right information in the right column. Because data can be presented very
17 differently by different networks, if you try to combine the data from two different
18 networks, then very quickly you could have the originating number not being in the
19 correct column, but being in the destination column, or the duration being presented
20 in the time column -- some other mix-up of the data.

21 A general review of the whole Excel spreadsheet would tell me visually whether there
22 was something that needed to be investigated, whether this data had accidentally
23 been changed in some way.

24 I haven't mentioned, of course, that once data is in an Excel spreadsheet it is very easy
25 to edit that data on a line-by-line basis, or even on a wholesale basis, and I myself am

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 sometimes asked to anonymise the numbers that we see. So a simple formula can
2 change those numbers to something unrecognisable from the original data. So that
3 is something that I might also be mindful to guard against, that the data is the source
4 data for the phone that we see and not for some other.

5 Of the normal types of CDR that I see, there is often header information which tells
6 me which is the subject mobile, and again this is easily checked in the PDF format
7 copy, to see what was the number that was the target of this query by staff at the
8 network operator and then I can -- it's very simple to see that it is still the data for that
9 phone.

10 Q. [10:08:34] Thank you, Mr Brown. Mr Brown, if we take a starting point your
11 conclusion in paragraph 5.2.6 of your report that the CDR we just discussed, 1479, is
12 most likely a combination of CDR -- CDRs of multiple phones, possibly as a result of
13 the query made by the operator, would the, in your expert opinion, competence of the
14 operator in question matter and, if so, the impact thereof upon whether the CDRs
15 gave an accurate representation of the exchanges between the numbers?

16 A. [10:09:40] Whoever carried out that activity would obviously need to
17 understand what they were doing and understand how to correctly extract the
18 required information. For some operators, that would involve the individual
19 creating several queries to create files of the different types of information, so that the
20 outgoing records may be extracted and then the incoming records might be extracted
21 and then text messages might be extracted. So, because each network stores and
22 manages its data in different ways it would have to be somebody who
23 understand -- understood what they were doing.

24 So, yes, of course, a degree of competence would be required to produce all of the
25 evidence, all of the information requested. It is possible, in doing so, they would

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 miss some of that information. It would be more difficult for them to extract and
2 accidentally change all of that information. I think it more likely they might just
3 miss some of that data rather than what they extracted was wrong -- just not
4 complete.

5 Q. [10:11:22] Thank you, Mr Brown. I would like to move now to your findings
6 which can be found in para 5.2.7 of your report at page 0020. And we are still in the
7 same CDR, 1479. You say that in column A of that CDR, the heading has a
8 connection with the end time, and you say:

9 "In my experience it is highly unusual for the CDR[s] to contain the end time rather
10 than the start time. There would be an obvious problem if [the] CDRs with start
11 times were unthinkingly combined with other CDRs with only end times."

12 Could you show the judges for their illustration an example of this phenomenon you
13 discovered in this CDR in column A?

14 A. [10:12:48] No. I pointed it out as a theoretical issue. It would be invisible. If,
15 in combining records of different mobile phones, one of those files contained a start
16 time and the other contained the end time, it would simply be invisible. So in
17 column A, it's titled that they are the end times, but if there were start times mixed in
18 there, I simply wouldn't know that that was the case.

19 Q. [10:13:23] Would this observation made by you have any bearing on, for
20 instance, the analysis of a user's profile, the analysis of attribution, or would it have a
21 bearing on the integrity of the CDRs, as such, of either one of those analyses?

22 A. [10:13:52] Having said that there is obviously a risk that that was done, I would
23 wish to try and establish whether that was the case, and, as I've said, I would want to
24 better understand from an originating witness statement how this file was created.
25 If that statement tells me that the end times were requested, then there's no reason to

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 believe that there is anything wrong with the integrity. I can work with the end time,
2 as long as I know that it is the end time and not some mixture of end time and start
3 time.

4 Q. [10:14:35] Would such a situation say anything about the way the operator who
5 provided these CDRs was familiar with how to produce CDRs for litigation purposes,
6 for instance?

7 A. [10:14:58] So, the operator may have chosen to use the end time in their data
8 warehouse - I cannot think why they might choose to do so, but they may have very
9 good reasons to do so - so the information they are recording is for their business
10 purposes. If that is the information they have available, then so be it, I would simply
11 learn to work with it.

12 Having seen that this CDR said "end time", I would want to compare it with CDRs
13 from the same operator, different subject numbers, to see if they always did this the
14 same way. Clearly, if they always produce their CDR with the end time, then that is
15 just a matter of how they do it.

16 As I said, I'm -- I would happily work with the end time as long as I knew that that
17 was always the case.

18 MR KNOOPS: [10:16:13] One second, Mr President.

19 (Counsel confer)

20 MR KNOOPS: [10:16:45]

21 Q. [10:16:46] Mr Brown, you repeatedly said that you would need, with these type
22 of potential data corruption or questions on forensic integrity, you would need either
23 a source of verification yourself or a witness statement from the person who
24 produced these CDRs? That's right? Is my understanding correct?

25 A. [10:17:22] Yes.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 Q. [10:17:24] Suppose you would not have that information, what would be your
2 finding?

3 PRESIDING JUDGE SCHMITT: [10:17:31] Please wait a second, Mr Knoops.
4 Yes, Ms Henderson.

5 MS HENDERSON: [10:17:36] Slightly belated, your Honour, but I'm unsure of this
6 reference to the witness talking about potential data corruptions, or repeatedly stating
7 things in relation to potential data corruptions.

8 PRESIDING JUDGE SCHMITT: [10:17:49] Well, the witness can rectify it in his
9 answer. You know if this were a -- not an expert and not this expert, who is
10 absolutely clear about everything and structured and understands what's going on, I
11 think we can simply let him answer.

12 So, Mr Brown, you have heard our exchange, you can answer the question.

13 THE WITNESS: [10:18:14] Your Honour, I'm slightly confused as to what counsel
14 were referring to. If they could --

15 PRESIDING JUDGE SCHMITT: [10:18:19] Well, then, Mr Knoops, please tell
16 Mr Brown what you're referring to specifically.

17 MR KNOOPS: [10:18:26]

18 Q. [10:18:28] My point is, Mr Brown, how could a court of law assess whether it
19 needs additional information of the kind you, as an expert, would need to come to the
20 conclusion there is no data corruption or lack of forensic integrity?

21 A. [10:18:54] I would think it my duty to indicate in a report that some of the
22 elements to establish the forensic integrity were not visible to me. Of course, it is
23 most commonly the case that I only ever see part of the evidence of the case and don't
24 hear what other witnesses may have said on the subject, and, therefore, I can do no
25 more than highlight my concerns and the court would have to make that assessment

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 for itself.

2 Q. [10:19:42] But you would agree with me, Mr Brown, that without the person like
3 you as the expert who can indicate the potential pitfalls in forensic integrity, that for
4 us as non-experts, we are not able to assess them?

5 A. [10:20:11] Of course, without somebody that has the experience of CDRs that I
6 have gathered, it clearly becomes more difficult and we have highlighted a number of
7 the pitfalls that could be made.

8 PRESIDING JUDGE SCHMITT: [10:20:42] Yes. If I may?

9 Mr Brown, have we, the Chamber, understood you correctly that what we are talking
10 about here is that, of course, there are best practices. There is an idea world and, if
11 you encounter it, you say, wonderful, everything's okay, so we can proceed from
12 there.

13 But the world is not ideal. Not everybody -- not everybody everywhere follows best
14 practices. What you are doing since yesterday is - and we appreciate that a lot - you
15 point to potential pitfalls, as you word it, where the Chamber, everybody else,
16 analysing it has to be cautious, sometimes, perhaps, even suspicious where it is
17 not, which means that the analysis, even of the judges, has to be made perhaps
18 holistically also with regard to other evidence, but more cautiously, more careful as if
19 we had always the best of all possible worlds.

20 I worded this a little bit basic, but is this, in these basic words, something that you
21 would subscribe to?

22 THE WITNESS: [10:21:50] Indeed, your Honour, I would agree.

23 PRESIDING JUDGE SCHMITT: [10:21:53] Mr Knoops.

24 MR KNOOPS: [10:21:56]

25 Q. [10:21:57] Mr Brown, one last question on this CDR. We notice in your report

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 in paragraph 5.2.8, page 0021, again, you refer in this paragraph to the observation
2 that the CDR is not a CDR for a single subject.

3 But then you say in the second sentence:

4 "... they have not been collectively reordered."

5 Could you explain to the Chamber what you mean with this observation?

6 A. [10:22:46] CDRs are most commonly presented, ordered by start time of that
7 individual call record. That is not always the case and that will depend on the query
8 used by somebody at the network operator to produce the information. When you
9 then combine the data from multiple subject phones, it would be normal for me to
10 then sort that data so that it is all in chronological order and that is clearly for the
11 simple matter of then following chronologically the sequence of calls.

12 It's not necessary that it be done in the source data files; it's an observation that
13 suggests to me it's more likely they have been combined rather than originally created
14 like that, but I can't rule out that that's a possibility it was created like that.

15 Q. [10:24:13] If they are not originally created, what would be the bearing, if any,
16 on any type of analysis, either attribution, user profile, the CDRs as data, as such?

17 A. [10:24:39] Only the caution I've previously mentioned that the date formats are
18 the same, that start times and end times have not been mixed together. Otherwise,
19 there is no reason not to proceed with that data once those queries have been checked.

20 Q. [10:25:02] And this CDR in its shape as we discussed this morning, is this how a
21 CDR, as in your experience, is used for billing purposes?

22 A. [10:25:16] No. Billing -- billing data is part of what we see here, but billing
23 records are created separately by the networks. So I would not expect to ever see
24 pure billing data provided as a CDR.

25 Q. [10:25:45] Mr Brown, that brings me also to the next topic --

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 A. [10:25:51] Sorry, I should just add that CDRs are frequently called billing data
2 by non-experts, because they think of it as billing data. But I just want to make the
3 distinction that the billing data is created by the network purely for correctly charging
4 their subscribers, and call data records are a combination of that billing data, plus
5 data created by the network for their management of the network.

6 So a CDR is a special product created for the benefit of law enforcement agencies.

7 Q. [10:26:44] That is exactly the topic I will touch upon now, Mr Brown. In
8 general, Mr Brown, for us as laypersons, can you inform the Chamber in general what
9 are the main differences between a document for billing purposes and a CDR, which
10 combines information for billing purposes with information for law enforcement? Is
11 it the fact of the person who has produced it?

12 A. [10:27:33] It will be dependent on how that network operator has chosen to store
13 their data, whether they have chosen to store billing data separately and, therefore,
14 they have to recombine that data; or whether all of that data is in the same data
15 warehouse and they simply query that data. I can't comment how any network may
16 have stored its data.

17 I think I've already described that the two main functions of the data that they store
18 and that a CDR is a product combining those two sources of data. I haven't
19 mentioned -- actually, there is also a third source of data commonly used in the
20 analysis I carry out, and that will be a database kept by the network of its base station
21 information, its cell sites, in my normal usage.

22 So for each of the locations in the network where they have antennas and equipment,
23 they will have a database recording a whole range of information about that
24 particular cell site. And for me to carry out geolocation work, there would need to
25 be some of that information also provided to me, sometimes combined with the CDR

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 file, sometimes provided in a separate file and giving me the detailed information of
2 which direction is the antenna pointing, what is the exact location, typically with a
3 grid reference. This is all information normally kept by the network operator for
4 them to carry out their planning, network planning, of the network. So, in other
5 words, how they design the network is dependent upon this information and then
6 keeping that information.

7 Q. [10:29:46] Mr Brown, isn't it so that one of the other differences between the
8 records for business purposes and the CDRs meant for law enforcement purposes is
9 that the first category of records are contemporaneously made, while the CDRs for
10 law enforcement purposes are, what you say, specifically combined by the operator
11 for the purpose of litigation, so not necessarily contemporaneously made?

12 A. [10:30:43] Yes, I agree. The billing data and, shall I call it, management data of
13 the network are created automatically and the cell-site information database would
14 typically be manually maintained by those responsible for that data within the
15 network operator, and then at some point somebody is extracting that information
16 and combining it when that query is created. So they wouldn't be creating new data
17 at that point; simply combining the data they already have.

18 Q. [10:31:34] So you would agree, Mr Brown, that the latter type of document - say,
19 the CDRs for law enforcement purposes - not created for billing purposes, are not to
20 be seen as documents/records made in the course -- regular course of business?

21 A. [10:32:14] The data is made in the normal course of business; the CDR files
22 presented to law enforcement are extracts of that data, obviously combined when that
23 query is made. They can't obviously be done -- they don't exist in that format until
24 that query is made of the database.

25 Q. [10:32:41] Mr Brown, yesterday you can recall - and maybe we can show it

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 again - we showed you several CDRs in tab 1 of our binder. You can recall these
2 eight examples?

3 A. [10:32:56] Yes.

4 Q. [10:32:59] And you've noticed yesterday during the exercise that the eight
5 examples gave various differences between the formatting, the colour, the sheet
6 names, et cetera.

7 A. [10:33:20] Yes.

8 Q. [10:33:22] Would you agree with me if I say that these are not records of the first
9 type you mentioned, so business records, billing records?

10 A. [10:33:42] They are a representation of that data. So this data was not created
11 at the point in time this CDR file was made. It's created at a prior date. So it has
12 simply been extracted from the database to put it in a format that is visible and
13 readable by humans. The source data can only be understood and read by
14 computers, so, you know, the data that exists in the database is not -- cannot be
15 comprehended until it is extracted in this format, this type of format.

16 Q. [10:34:23] And, Mr Brown, please tell us a little bit more about how such an
17 extraction is normally made and by whom? So an extraction to transform those
18 billing records into a CDR for law enforcement purposes.

19 A. [10:34:50] My experience is obviously mainly within the UK where, because law
20 enforcement is -- started frequently asking questions of the network operators, the
21 network operators created teams of individuals whose specific role was to liaise with
22 the law enforcement agencies, and so they became the staff who regularly provided
23 this information.

24 In many of the earlier cases that I dealt with, there would be a statement from those
25 individuals, what they had done to create that data and, indeed, it may still

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 occasionally happen that those individuals are required to testify as to their activity.
2 Because it has become such a standardised activity, it is now more common to only
3 see the statement from the police officer or investigator that requested the information
4 to show what they requested and produce the evidential files of that data.

5 Q. [10:36:15] Mr Brown, when a telecom company is asked by, for instance, a
6 prosecution service to prepare a CDR for legal proceedings, right, can you tell us if
7 and how the operator in question who is charged with this assignment is going to
8 select data from the billing records into a CDR for law enforcement purposes? Do
9 we have to see it like this; there is an individual, an operator, who is being asked to
10 prepare a CDR, and is that individual then, based on the assignment, making the
11 selection of the data they have logged for billing purposes?

12 A. [10:37:20] The network operators clearly understand the value of their resource
13 in the database that they have. I would think they would not let anybody loose on it
14 that didn't understand what they were doing because of the potential damage that
15 they might do to the database. The operator would then need to write a query of the
16 database and clearly would need competence to do that. That is about the limit of
17 my expertise in understanding the IT skills required to do that. It's not something I
18 would consider myself competent to do. That is something that is down to that
19 operator, how they store their data and how that query might be created.

20 Q. [10:38:24] Mr Brown, in your experience in the UK, what type of operators have
21 or should have the technical skills to perform this procedure to transform billing
22 records into a law enforcement CDR?

23 A. [10:39:05] I have no personal experience of the individuals that carry out this
24 work. As I've already said, it would need to be somebody with relevant IT skills,
25 database skills, to carry out that task.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 Q. [10:39:24] Now, Mr Brown, before the break, I would like to touch upon the next
2 topic, which relates to the difference in CDRs - you already mentioned it this
3 morning - provided by different telecommunication services and the interpretation
4 thereof. My first question in this regard: From your experience as an expert, is it
5 possible, and if so in which way, that CDRs differ depending upon the provider?

6 A. [10:40:07] Yes, is the short answer. They all record slightly different
7 information for their databases. It seems they all do it slightly differently, so each
8 operator tends to have CDRs that look different, you know, have their own style and
9 structure for that network.

10 Q. [10:40:35] Is it your experience, Mr Brown, that these differences also entail
11 difference in software, equipment and telecom infrastructure?

12 A. [10:40:55] Yes, all of those could make a difference to the information that is
13 available to the network and, therefore, what queries can be made of that database.

14 Q. [10:41:12] And, in general, Mr Brown, before going into more specific questions,
15 how do these differences potentially impact upon the use of CDRs and your analysis
16 as expert?

17 A. [10:41:34] It is a normal part of my work, when considering CDRs from an
18 operator new to me, that I try to understand what they are producing, and
19 particularly, if there are multiple examples, to check that there is some degree of
20 regularity in how they produce that data. So, yes, every time I'm faced with the call
21 data records from a new operator, I have a learning curve as to what I have in front of
22 me.

23 Q. [10:42:18] And, in specific, if you would receive call data records for law
24 enforcement purposes provided by two different telecommunication companies, what
25 procedure would you follow before you would accept them as CDRs for your report?

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 A. [10:42:48] As I've already described, I would need to familiarise myself with the
2 content of all of the CDR data and, if there was a need to combine that data, to ensure
3 I did it in a way that did not corrupt that data or muddle that data by mixing different
4 formats of start times or end times, et cetera.

5 MR KNOOPS: [10:43:23] One second, Mr President.

6 (Counsel confers)

7 MR KNOOPS:

8 Q. [10:43:40] In a practical sense, Mr Brown, you would have knowledge, say, of
9 company A, and you are confronted with CDRs for law enforcement purposes of
10 company B. You couldn't use, without any further information, your knowledge
11 regarding company A to assess the CDRs of company B, would that be correct?

12 A. [10:44:09] CDRs all have a significant degree of overlap in the data that they
13 contain, although some have some novel pieces of information compared to others.
14 So it's not that I would compare company A with company B directly; rather, I would
15 consider company B in the light of the experience I have of all network operators and
16 what information they are likely to include in their CDRs.

17 Q. [10:44:58] Mr Brown, let us take the example you mentioned in your report in
18 paragraph 4.1.3, that is on page 0010. That's the example of the diverted calls.

19 A. [10:45:37] Yes.

20 Q. [10:45:38] First of all, how is a diverted call reflected in a CDR?

21 A. [10:45:45] Unfortunately, every network operator does it differently. Some
22 networks would, if my phone was the phone -- the subject phone, if my call was
23 diverted to another -- to another destination number, then I would see a line of data
24 saying my attempted call had been diverted. Some of the other networks would also
25 show that somebody was trying to contact me but I didn't answer, and a line of data

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 would show that that incoming attempt was diverted to another number.
2 So that's two possibilities, just for myself as the subject number. But not all
3 networks -- all the networks do it differently. Some don't include any information of
4 that type so I simply cannot tell whether the number has possibly been diverted.
5 I would -- if that is a particular question at issue, are some of these calls -- have these
6 calls been diverted, I would be looking to combine the data for both of the phones of
7 interest to try to consider whether the number -- the call has actually been answered
8 or whether it might have been diverted. It's not always possible to give an answer as
9 to whether it has been or not.

10 Q. [10:47:20] So, in this regard, with the example company A and B, you would
11 need more information from the company who apparently does it differently?

12 A. [10:47:53] If it was a critical issue, then I might ask the question if they had that
13 information available. It may be they simply didn't include it because they weren't
14 asked to include it. And, again, this will depend then on the individual who created
15 the query of the database, as to whether they included all possibilities as to how the
16 call may have been routed.

17 Q. [10:48:23] In this same paragraph, Mr Brown, para 4.1.3, you mention that a
18 third CDR might be created to record this diversion. Would this third CDR be
19 produced and provided on request or is also the answer here that every provider,
20 every network does it differently?

21 A. [10:48:52] I wasn't in this paragraph wanting to suggest that a separate file
22 would be created for the diverted calls, just that a line, a single line being a call data
23 record, may or may not be created by the network. So when I look at call records, it
24 may be that there are three lines of information that -- indeed, I've seen cases of five
25 lines of information that all relate to the same voice call connection between two

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 parties. So a CDR file is not necessarily one line of information with all the
2 information for that particular connection, there may be multiple lines of data for
3 each connection. And that is what I was trying to indicate here.

4 Q. [10:49:58] Mr Brown, as non-experts, how do we know from reading a CDR
5 whether we would look at a diverted call or not?

6 A. [10:50:13] In some cases it is obvious, because it tells you that it's a diverted call.
7 In other cases it might not be so obvious. It may be that you can see the C number.
8 But, again, if that information isn't provided, it's simply not possible to tell.

9 Q. [10:50:37] Would you -- in such a situation of uncertainty in regard to these
10 diverted calls and how to find them, would you ask for a statement from the person
11 collecting or producing the CDR to better understand the CDR?

12 A. [10:51:00] I don't believe I've ever made a query of that type. I generally accept
13 at face value the data I've been given is what is available from that network operator
14 and then endeavour to work with that data.

15 PRESIDING JUDGE SCHMITT: [10:51:19] May I shortly.

16 Isn't it so, Mr Brown, with regard to the end of your last answer, if that information
17 isn't provided, it's simply not possible to tell. So you -- so if you can't tell, you can't,
18 let's say, ask for further information? Do you see what I mean? So if there is -- if
19 there is the possibility or even the abstract possibility, abstract, yes, that a call might
20 have been diverted but there is no indication on the record that you have, you can't
21 do anything? Is that the correct understanding?

22 THE WITNESS: [10:51:58] Yes, your Honour. If the information simply doesn't
23 exist, then I cannot necessarily make an assessment. It is sometimes possible to
24 combine the data from two different phones - in other words, the one that is trying to
25 make the call and the one hoping to receive the call - and sometimes there is enough

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 information to indicate that it was diverted and not connected.

2 PRESIDING JUDGE SCHMITT: [10:52:22] Yes. Thank you very much.

3 Mr Knoops.

4 MR KNOOPS: [10:52:25]

5 Q. [10:52:25] Mr Brown, apart from the differences between telecommunication
6 services in terms of what we just discussed - software, equipment, infrastructure - is
7 there also sometimes between those companies a difference in the substance of the
8 information they provide in the CDRs? For instance, an example, the duration of
9 calls or the transmission of power?

10 A. [10:53:00] Yes. As I mentioned, each of the networks records many pieces of
11 information and they don't all record the same information. So whilst I would
12 expect all of the networks to record the duration of the call, some of the networks will
13 sometimes include what I refer to as the ring duration; in other words, how long was
14 the phone ringing before it was answered. So that is a type of information that
15 might be included by one network but not by another.

16 Q. [10:53:41] Does the same count, Mr Brown, for the tuning of the network in
17 terms of transmission of power? Say that one network company wants to save
18 money and has less as antennas as possible while the other opts for more antennas
19 and less coverage, for instance?

20 A. [10:54:06] Yes. Obviously the networks are normally driven to make a profit,
21 and so they will make their own decisions about the number, how they design their
22 network. Generally, they don't wish to waste money so they will use the minimum
23 number of base stations or cell sites and they would adjust the transmission power of
24 each of those cell sites according to the coverage that they want to achieve.

25 I would expect a well-run network to have a record of that information in their

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 cell-site database; that is, the database that their radio planners would need to rely
2 upon. Most of the networks have to use sophisticated radio planning software that
3 takes into account all of the variables that they can adjust to make a prediction of
4 where that coverage will be. So that is how they design, plan and manage the
5 network. So I would expect them to record that information, but it is, I would say,
6 almost never provided to me as a cell site expert. It's simply not necessary for most
7 of the work that I do to have that information. So whilst it is almost certainly
8 available to the network operator, it is rarely provided to myself.

9 Q. [10:55:38] Mr Brown, location, is this a potential or example of a difference
10 between networks? For instance, some CDRs might have technical tower names
11 while others have city names, for instance? Is that one of the other potential
12 differences between networks' services?

13 A. [10:56:06] Yes. Within their cell-site information database, they all choose to
14 record the location information differently and I would say with different degrees of
15 exactness. Ideally, for my purposes, they record the cell-site location with a grid
16 reference or a latitude and longitude so that I can precisely know the location. In
17 other cases, they may only have a building address, which can be adequate, but of
18 course in more rural locations the descriptions tend to be, if they haven't used a grid
19 reference, then the description tends to be more vague. They know where it is and
20 they are not asking for the postman to deliver to them, so they don't need a more
21 sophisticated address to give an exact location.

22 Q. [10:57:16] And I take it -- I take it, Mr Brown, that that type of information which
23 differs from network to network, location difference I mean, might have a bearing on
24 the geolocation analysis you were asked to make?

25 A. [10:57:31] Yes. Generally there is enough information to do some sort of

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 analysis, but it may be at one extreme the most vague analysis that the user must have
2 been in so and so city, and in the best case, where they have an exact location and the
3 direction of an antenna, I can define a relatively small area, perhaps of a few square
4 kilometres, where the user might have been. So those are the two extremes of the
5 geolocation information available to me.

6 Q. [10:58:12] My final question, Mr Brown, before the break, on this topic: As a
7 conclusion, would you agree with our understanding that information about CDRs
8 from two or more different telecommunication providers are not necessarily, without
9 more, transposable to the other?

10 A. [10:58:42] No, I'm -- I hope the Court now understands that because they can be
11 so different in their structure and formatting, care must be taken as to how those are
12 then utilised, particularly if they are going to be combined in some way.

13 PRESIDING JUDGE SCHMITT: [10:59:00] Okay, thank you.

14 That is a good time to have a break until 11.30.

15 THE COURT USHER: [10:59:06] All rise.

16 (Recess taken at 10.59 a.m)

17 (Upon resuming in open session at 11.31 a.m.)

18 THE COURT USHER: [11:31:09] All rise.

19 Please be seated.

20 PRESIDING JUDGE SCHMITT: [11:31:32] Mr Brown, we have been informed that
21 you would like to elaborate a bit more on your last answer before the break. So
22 please do that.

23 THE WITNESS: [11:31:41] Your Honour, thank you. It was -- it was actually
24 concerning a question that I was asked earlier on -- reference, the CDR that ended
25 0766.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 If that could be made available on-screen.

2 I just didn't think my answer was very satisfactory and reflected on it during the
3 break and would just like to add a little more.

4 PRESIDING JUDGE SCHMITT: [11:32:06] Perhaps you can help us, Mr Knoops with
5 the ERN number, yeah.

6 Mr Rowse, yeah. Thank you.

7 MR KNOOPS: [11:32:13] It's tab, I think it's tab 8 in our binder. And the ERN is
8 2046-0766. And indeed it's tab 7 in the Defence binder.

9 THE WITNESS: [11:32:37] Thank you. I was asked to give an example of why
10 I considered this was a non-CDR.

11 Perhaps if we could scroll down further into column G, perhaps a little bit further.

12 Thank you. That will be fine.

13 We can see here at line 26/G, or cell 26/G, is a different type of entry, which I thought
14 may be where somebody is recharging the credit on their phone and putting credit on
15 to their phone.

16 But I would not expect to see very many of those records; whereas, here we can see
17 another one occurring very quickly thereafter and, indeed, throughout this column
18 there are quite a number of these recharge events.

19 So this looked to me like a financial transaction rather than a normal call connection
20 and that led me to the conclusion that this was not a normal CDR.

21 PRESIDING JUDGE SCHMITT: [11:33:42] Thank you. This is really an important
22 additional information, yeah.

23 Mr Knoops, please continue.

24 MR KNOOPS: [11:33:52]

25 Q. [11:33:53] Mr Brown, that leads me actually to a question which our team has

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 constantly in our mind.

2 Would you agree, Mr Brown, now with this suppletion to your testimony, are you of
3 the opinion that a layperson like all of us here are able to find those potential
4 anomalies and appreciate them?

5 A. [11:34:25] I think it clearly would be difficult. It's only my experience of CDRs
6 that made me realise this was not a standard entry within a CDR and therefore, might
7 be something different.

8 Q. [11:34:42] Would the same count for the concept of attribution of phone
9 numbers? Would you say this is something where a layperson can easily be
10 mistaken, be not able to appreciate ways of attribution, this is clearly something for an
11 expert and not for a layperson?

12 A. [11:35:10] I suspect we're going to be talking a lot more about attribution. At
13 this stage I would say that attribution can be very simple and straightforward. It can
14 be quite obvious, but it can also be a much more complicated issue.

15 So I'm afraid the answer, as many of my answers are, it depends on what you're being
16 asked to consider.

17 Q. [11:35:36] The same question, if we were to conclude whether a certain pattern
18 of usage of phone -- a certain mobile phone can be established, is this something in
19 your experience that where a layperson can easily misinterpret whether a pattern
20 exists, based on all the anomalies you went through this morning?

21 PRESIDING JUDGE SCHMITT: [11:36:05] Ms Henderson.

22 MS HENDERSON: [11:36:06] I object to the use of the term "anomalies". That's not
23 established in this witness's evidence.

24 PRESIDING JUDGE SCHMITT: [11:36:16] Yeah, but it's a term -- yeah, and let's say
25 the potential problems, this is what is meant and I agree with that. There are

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 obviously -- I said that before the break, there are obviously CDRs who are not ideal,
2 who have to be interpreted, and for this interpretation it might be very difficult, if
3 impossible, for laypersons to do that. But it depends I would assume -- if
4 I understand the testimony of the expert correctly, it depends on the concrete CDR.
5 So we cannot talk here in the abstract I think.

6 Is this roughly again -- again, on my -- with my very basic understanding, roughly
7 correct?

8 THE WITNESS: [11:37:01] Yes, your Honour. I would class these as perhaps
9 differences in CDRs, which of course makes the task more difficult without familiarity
10 of the different types of CDR.

11 PRESIDING JUDGE SCHMITT: [11:37:12] And, of course, Ms Henderson, the word
12 "anomaly" is, from the point of view of the Defence, is, let's say already an assessment
13 from their view but -- if you call it differences or whatsoever, but the evidence of the
14 expert stands for itself, yeah.

15 Mr Knoops, I assume you will have also concrete, further -- and I also assume that the
16 Defence of Mr Yekatom will have concrete examples and then we can go to any of
17 these potential differences, problems into more detail.

18 MR KNOOPS: [11:37:53]

19 Q. [11:37:54] Mr Brown, the topic we are going to discuss now with you, the second
20 session, is the forensic implications of attribution.

21 In your report on paragraph 4.10.2 on page 0017, you -- you have mentioned five
22 forms of different analysis.

23 One I understand to be number 4, SIM card analysis; number 5, text message analysis;
24 number 8, top-up and payment analysis; number 9, call records contact analysis; and
25 number 12, cell-site analysis.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 Is this a fair reflection of the various types of analyses which you would need for a
2 form of attribution of phone numbers?

3 A. [11:39:05] Attribution can use any combination of the elements that I have listed
4 here. Some of those elements are -- carry greater weight than others. So, yes, the
5 conclusions I might draw will depend on which elements I am able to provide
6 analysis for and how they combine together.

7 Q. [11:39:38] And also, Mr Brown, is it fair to say that in order to perform these
8 analyses and giving weight to one or more of them, in terms of attribution, you would
9 need to have certain forensic knowledge on the limitations and the elements of CDR
10 evidence, wouldn't you?

11 In other words, a layman like me, I couldn't apply this -- these analyses without
12 having you as an expert besides me, right?

13 PRESIDING JUDGE SCHMITT: [11:40:21] If I may, Mr Knoops. I think this does
14 not -- would not apply to any of these elements. So if we had a CDR, plus we have
15 witness testimony, you see, who tells us, well, person A or person B has been there
16 and they -- or, I have called person A or person B. So these are things that even we
17 with our limited knowledge could exercise.

18 So let's say an analysis beyond the technical implications is of course, always be --
19 always possible, and it's interesting that I find actually in these attribution elements -
20 also look at 20, 21, for example, 15 - these are things that could be established without
21 expertise by Mr Brown, for example.

22 So excuse me. I've interrupted here. But, yeah. The question was: If this can
23 be -- if this exercise can be conducted by a layperson. A layperson, Mr Knoops,
24 always means judges here.

25 MR KNOOPS: [11:41:39] No offence, Mr President, it also counts for the counsel

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 here.

2 PRESIDING JUDGE SCHMITT: [11:41:43] No offence taken -- no offence taken.

3 MR KNOOPS: [11:41:45] But Mr President, my question was actually relating to the
4 five specific forensic analyses; so not -- you're right, Mr President, about witness
5 attribution, that's, of course, something for the Court.

6 PRESIDING JUDGE SCHMITT: [11:42:00] Yeah --

7 MR KNOOPS: [11:42:01] But these five --

8 PRESIDING JUDGE SCHMITT: [11:42:02] -- thank you for that clarification. Okay,
9 good.

10 MR KNOOPS: [11:42:05]

11 Q. [11:42:05] So, Mr Brown, would you agree that these five elements -- or out of
12 the 22, which specifically relate to a form of technical analysis or forensic
13 interpretation of that information, is specifically something within the competence of
14 an expert, which I will put it down on myself, that I, Mr Knoops, could not present in
15 a court of law?

16 A. [11:42:32] I agree. Some of these elements are clearly more technical than
17 others from the very simplest, number 1, possession of the handset, which is a matter
18 of fact whether an individual has been found in possession of the handset.
19 I would not limit it, the technical ones, to the five -- just the five you have mentioned.
20 Some of these are perhaps more technical than they might appear on the face of the
21 description, the brief description I've given here.

22 Q. [11:43:07] Are there amongst those 22, except for those five elements, where you
23 say in the 22, these are also attribution elements which require some type of forensic
24 knowledge or forensic expertise?

25 A. [11:43:28] I'm not certain now whether you mentioned number 14, but that is the

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 one that within the UK, it has now been established by the forensic regulator that that
2 requires an expert to provide information on that topic, rather than a layperson
3 providing that information.

4 Q. [11:43:50] Indeed, I did mention this, Mr Brown, that's a very valuable
5 attribution, to use the word "attribution" in my -- from my perspective.

6 Could you please explain to the Court what this element 14 entails? The "Potentially
7 co-located", which is now actually put within the domain of an expert in the UK.

8 A. [11:44:18] So perhaps 13 and 14 do go hand in hand as two parts of the same
9 analysis. And this is analysis to consider whether two mobile phones are being
10 operated in a similar area within a short time of each other, suggesting that the users
11 could be together or could indeed be the same individual, accepting always that they
12 may, of course, be physically separated within that geographical area.

13 So the analysis needs an understanding of the propagation of the radio waves and,
14 therefore, whether those areas in which the phones are operated are likely to overlap
15 to the point where it can be said they could be together, and likewise the opposite
16 then, of whether those areas could not possibly overlap so that the users must have
17 been geographically separated and, therefore, there must be two users.

18 PRESIDING JUDGE SCHMITT: [11:45:33] Mr Brown, when we're talking about
19 analysis of the, let's say, the more technical aspects, would you say it is possible for
20 anybody in this room - I'm not talking of you - if you had some CDR record, and have
21 a number that is attributed -- and then you, you have a, let's say, somebody who says,
22 well this number belonged to person A, and then you have somebody who has been
23 called, and you have the information -- well, if verified or not, we're not talking about
24 that, but you have the information, well, this number belonged to person B, a phone
25 used by B. And then you have the IMEI, and so on and so forth. But these

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 informations, I think anybody of us could understand, couldn't we?

2 The question is, of course, not answered if the ascribed number to a certain phone
3 was used by this person. This is -- this is always a deficiency. This could only be
4 proven by other evidence or not. Yeah?

5 THE WITNESS: [11:46:39] Indeed.

6 PRESIDING JUDGE SCHMITT: [11:46:39] Is this -- is this something that even we
7 could exercise, or the Defence, of course, or the Prosecution too?

8 THE WITNESS: [11:46:51] Yes, of course. Once -- once you understand the basic
9 information contained, then it's possible to start to have some understanding of the
10 users. It is the more complicated, what we've referred to as the technical analysis,
11 that would require some additional, at least, training or understanding.

12 PRESIDING JUDGE SCHMITT: [11:47:15] Thank you for that clarification.

13 Mr Knoops.

14 MR KNOOPS: [11:47:20]

15 Q. [11:47:21] Mr Brown, CDRs which were provided to you in your research, you
16 have just these CDRs, and we don't have any context given by a forensic expert.
17 Would you say that CDRs as such provided to law enforcement officials amount to
18 call records contact analysis, which is mentioned under point 9, element 9 of the
19 attribution table in your report? So we just have the CDRs without any other
20 information.

21 A. [11:48:15] Of course, you've referred there to the contact analysis. It does not
22 require expertise to identify that phone A called phone B.

23 Q. [11:48:30] Yeah.

24 A. [11:48:31] That is a simple understanding in looking at the call records. And, of
25 course, there is the process to identify who those two phones may have been used by

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 and that can sometimes become more complicated and sometimes it is simple.
2 So, perhaps, in the simplest case it, certainly within the UK, the investigators would
3 very quickly, if they wished to try and attribute a subject phone, make contact with
4 known family and friends and ask them, "What is the phone number?" And if they
5 get the phone number, "It's X, Y, Z", they have a very simple start to their attribution.
6 It becomes much more complicated, or can become much more complicated, if you
7 don't have that information and you have to start making a more statistical analysis.

8 Q. [11:49:31] You just referred to the regulations on this point in the UK. Apart
9 from the attribution element under 13, 14, you just mentioned, are there any other
10 analysis in this table which would require, under your jurisdiction, the availability of
11 an expert opinion report?

12 A. [11:50:17] Probably number 22 is similar in its technicals to 13 and 14. Perhaps
13 -- I'm sorry, I haven't provided an explanation of this acronym. It's automatic
14 number-plate recognition. It just -- it is common throughout the UK that these
15 number-plate recognition cameras record the time of a particular vehicle. So I am
16 frequently asked to consider whether a particular phone was likely to have been
17 within a particular vehicle seen on the camera. So that, similarly, is quite a technical
18 analysis.

19 Many of the others perhaps could be done manually, but are done much more easily
20 and reliably by using the technical software that I have access to.

21 Q. [11:51:18] From your experience, Mr Brown, which of those elements would in
22 your view be more determinative than potential other ones, and how would you as an
23 expert weigh those 22 factors if you were asked to provide an answer to attribution?
24 And can you provide an example of circumstances where some of those factors were
25 essential for reliable attribution?

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 PRESIDING JUDGE SCHMITT: [11:52:01] Ms Henderson.

2 MS HENDERSON: [11:52:04] Your Honour, at this point I believe that the question
3 does start to bear on the -- the ultimate questions that the fact-finder in this case,
4 which is the Chamber, has to decide.

5 PRESIDING JUDGE SCHMITT: [11:52:17] Yeah. Yeah, I agree with you.

6 I actually also thought shortly about, to intervene. Well, there are elements here that
7 simply -- and let me put it this way, how each of these of or any of these 22 potential
8 elements to be considered by a holistic assessment of the evidence, how it has to be
9 weighed and evaluated and assessed in the end is really something that depends on
10 the assessment by the judges. I agree with Ms Henderson in that regard.

11 MR KNOOPS: [11:52:56] Mr President, I believe that the expert could inform the
12 Chamber which of those 22 are more determinative than the other.

13 PRESIDING JUDGE SCHMITT: [11:53:05] You can -- you can try it. I would say it
14 might depend on the circumstances. But you can try it. I don't want to stop you
15 here.

16 You have heard the question, Mr Brown. Can you tell us in an abstract, generic
17 manner which of the 22, or if any, would be more determinative than others?

18 Well, let me put it this way: If you have somebody who says "Well, that's my phone,
19 I have called" would be good, for example. Yeah, please, Mr Brown.

20 THE WITNESS: [11:53:38] Indeed, the first thing I would say is it clearly does not
21 need all of these elements. What I would consider to be a strong attribution is one
22 that has at least several of these elements all saying the same thing and none of them
23 saying something different.

24 It is possible in some cases to have only a single element. So possession of handset
25 might seem to be of itself strongly determinant, but of course it's quite possible I lend

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 my phone to my wife for the day. So there is no single element that would provide
2 an absolute attribution and I would always want that several elements to be
3 corroborating each other.

4 PRESIDING JUDGE SCHMITT: [11:54:40] That makes sense, because the more -- the
5 more of these elements you have, the better, because they -- in the end, they reinforce
6 themselves, to put it this way.

7 THE WITNESS: [11:54:51] Indeed.

8 PRESIDING JUDGE SCHMITT: [11:54:52] In this manner. Yeah.
9 Mr Knoops.

10 MR KNOOPS: [11:54:54]

11 Q. [11:54:55] But the question, maybe, in the reverse, Mr Brown: Suppose you
12 wouldn't be able to have the elements based on the five types of analysis, including
13 number 13, 14, which require technical expertise. So you would have some of the
14 facts of the 22 except for these five, so number 4, 5, 8, 9, 12, 13, and 14. Would you be
15 in a position to come to an attribution conclusion? So absent any of those analyses?

16 A. [11:55:38] Any of the technical analysis?

17 Q. [11:55:41] Yeah. Yeah.

18 A. [11:55:42] Absent any of the technical analysis, it is certainly possible to come to
19 an attribution conclusion. It may or may not be a strong conclusion. It would
20 simply depend on the evidence that was actually available and the circumstances of
21 each of those elements.

22 Q. [11:56:00] Would it be problematic for a reliable attribution if in a certain
23 situation the IMSI number or the IMEI number is absent from the CDRs?

24 A. [11:56:18] Not if other information was available in its place.

25 Q. [11:56:27] When it concerns the attribution analysis and the conclusion about the

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 consistent primary user, and the alleged primary user had a phone for, say, several
2 months or several years, or several phones, or travelled to several countries, would
3 that absence make a difference for attribution?

4 PRESIDING JUDGE SCHMITT: [11:57:04] It was quite a compound question,
5 Mr Knoops, I would say.

6 Well, Mr Brown, perhaps you can deal with it, but otherwise you would have to
7 break it down, perhaps.

8 THE WITNESS: [11:57:18] What you are suggesting is that there may be a lot of call
9 data records available covering at least a number of months. That of itself may be
10 adequate to produce a reliable attribution. It simply depends how much analysis is
11 possible within that data. I certainly -- I have seen phones with several months of
12 data and there is not a single contact of that mobile identified within the data. So the
13 fact that there are months of data does not help. If no handsets have been
14 confiscated at any point, then the IMEI number would not help with that attribution.
15 And indeed one of the most common technical elements that I need to address is the
16 potential co-location. And this is the common situation for those involved in drugs,
17 that they have what they refer to as a clean phone, their personal phone that makes
18 contact with all their contacts, and their - perhaps I'd call it the criminal phone - that
19 is -- that may be used for criminal activities. And there is no other attribution
20 available other than that co-location analysis. And it's possible that that can produce
21 a very strong conclusion for attribution if you can compare that phone with that -- the
22 personal phone.

23 So, again, as always, I'm afraid the answer is: It depends on what information you
24 have.

25 MR KNOOPS: [11:59:14]

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 Q. [11:59:15] Mr Brown, in case where an individual is said to have several phones,
2 several phone numbers over several years, what -- what elements out of the 22 you
3 would hope to have to come to an attribution or the acceptance of a pattern of usage?

4 A. [11:59:40] Where an individual is said to have used, I would call it, a series of
5 mobiles, or multiple mobiles, then I would look to consider whether there was shared
6 use of a particular handset through an IMEI analysis. I would look for common
7 contacts. In the very simplest case, more than one phone is most frequently
8 contacting a known associate or family member, that would be a strong attribution
9 element. The cell analysis could also be strong in that case as well. If a home
10 address was known and a work address was known, those phones could be
11 compared to see that they all shared that same geographic distribution in their use, so
12 they would have a similar geographic profile.

13 I would also look at the time-of-day usage of the phones. That can be very
14 distinctive for some users -- what time of day did they use their phone in particular.
15 So there's a number of aspects that could be used to consider whether an individual
16 had a series of phones or indeed serial phones.

17 Q. [12:01:18] Could you in this regard, Mr Brown, give the Court some examples of
18 patterns you would look for if you were made to ask to make a user's profile,
19 specifically a user's profile, what type of examples of patterns you would look for?

20 A. [12:01:47] So, a simple example might be that a case I've done recently where
21 you could see on most of the weekdays the phone was -- can be seen to travel from
22 the area where the attributed user was said to live to the area where the attributed
23 user was supposed to work, and so their pattern of daily travel fitted the pattern of
24 the named individual.

25 Contacts, I think I've already mentioned particular contact with family and friends

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 can be a very telling item, as can where the phone most commonly is located
2 overnight. It may simply be called "overnight analysis" or "bed-and-breakfast
3 analysis" -- where was the phone at bedtime, where was it at breakfast time. And
4 that can build up a consistent picture of where does the user most likely live or which
5 area does the user most likely live and does that fit a known address for that
6 attributed user.

7 Q. [12:03:09] In your report at para 4.6.2, you say that:

8 "A single mobile can be analysed to identify contacts or patterns of use to create a
9 profile of use and to support the attribution to a named 'Primary User'."

10 A. [12:03:37] Yes.

11 Q. [12:03:37] You say the primary user is the individual who has an effective
12 control of the mobile and is likely to make the most of the use of the phone.

13 A. [12:03:49] Yes.

14 Q. [12:03:49] My question to you, Mr Brown: How are you able to determine as
15 an expert whether an individual has an effective control of the mobile? What would
16 be the type of attribution elements to say that individual has effective control of the
17 mobile? Or is simply not possible?

18 A. [12:04:17] It certainly can be possible. Perhaps if I gave an example of the
19 opposite where I see that a phone does not have a single user and this may be a phone
20 used in criminal activity where the phone number in question is handled and held by
21 a number of different individuals at different times. In that case the profile shows
22 that it is not consistent where it is situated overnight. It is not consistent in the
23 contacts made using that phone. There may be other aspects that are consistent, but,
24 again, as soon as I start to see inconsistent elements, then that weakens the possible
25 primary user.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 Of course -- and I've said "primary user" because I think we all understand that your
2 mobile phone can be lent to another individual very easily so it is not necessarily that
3 a hundred per cent of the use is by a single individual, just that I can see and
4 understand a consistent use apparently pointing to the same individual.

5 Q. [12:05:38] Mr Brown, in your UK cases, which we discussed yesterday, you were
6 asked -- if I understand your CV well, you were asked to make such analysis of a
7 primary user, right?

8 A. [12:05:56] Yes.

9 Q. [12:05:58] Negative profiles. Is it in your jurisdiction something which is
10 within the competence of a forensic expert and is it part of the instructions your
11 receive from the Crown Prosecution Service to make such profiles?

12 A. [12:06:23] Perhaps I should describe the typical process in -- it is normal that the
13 investigators, normally the police, have done everything you might consider to be
14 the -- the initial work to identify a primary user. So it is normal that they would
15 supply to me that information that says they've identified the number of contacts of a
16 particular mobile phone. And then I'm usually asked to provide supporting
17 evidence to that that they have already created for themselves. In other words, they
18 may have already completed a number of the elements on my list and they are merely
19 asking me to add some of the more technical elements, such as the analysis of the cells
20 used, and whether that fits the home and work addresses, and, again, as I said, very
21 commonly, whether a second phone then fits the same profile and, therefore, is
22 potentially a single user.

23 Q. [12:07:51] But the ultimate analysis of the attribution factors in your paragraph
24 4.10.2, is this something which is, in your opinion, within the domain of a forensic
25 expert and not in the domain of the police when it concerns the technical factors you

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 described? So the factors which we identified under 4, 5, 8, 9, 12, 13, and 14, and 22,
2 you also identified.

3 A. [12:08:45] So the prosecution for the police do not always employ me as an
4 expert to support their attribution of the phone. If they are content they have
5 enough nontechnical elements for their attribution, then they will proceed on that
6 basis and won't wish to instruct me or spend any money with an expert to support
7 their work. If, as you said, they are unhappy that the elements are not as strong as
8 they would wish, then they would come to me to support the work they have done
9 with the more technical attribution elements.

10 Q. [12:09:30] Mr Brown, would you raise yourself concerns in such a scenario if in
11 your view the police analysis would be flawed in terms of attribution?

12 A. [12:09:51] I could only do that if they had asked me to consider the attribution
13 evidence that they have, and that is not always the case. So sometimes I am unaware
14 of what attribution they may have already carried out. However, if they do provide
15 it, and certainly in some cases they do ask me to comment, perhaps it's simpler to
16 answer that that is actually very commonly the work I am doing if instructed by the
17 defence, is to consider attribution work done by the prosecution and to highlight any
18 weaknesses or shortcomings of that evidence.

19 Q. [12:10:35] Interesting point, Mr Brown. I'll certainly come back to this remark.
20 For now, I have another question. In the letter of instruction to you, you might recall
21 that we mentioned that the Prosecution theory in this case involves patterns of usage
22 between a network of phone numbers.

23 A. [12:10:56] Yes.

24 Q. [12:10:57] If -- suppose that a network involves 10 alleged phone number
25 attributions or more, would you as an expert consider it important or necessary to

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 consider or to establish the profile of each of those numbers in order to be able to give
2 an expert opinion on whether the primary user could be identified?

3 A. [12:11:43] I find that difficult to answer in that it is simply a matter of what
4 instructions have I been given. If -- if I were instructed for the defence -- no, let me
5 answer this way. If I was instructed by the prosecution, then that is certainly an
6 activity I would want to carry out as an expert if the information was available to me
7 to do that. If I was going to be asked to provide commentary on an attribution, then
8 I would obviously wish to do everything I could as an expert to support what I was
9 asked to do. And, similarly, if instructed by the defence, I would highlight anything
10 that I felt could have been done by the prosecution that might undermine that
11 attribution. So commonly, I would also look for what I refer to as dis-attribution
12 elements, those things that conflict with an attribution that has been put forward.

13 Q. [12:12:58] You raised also my next question indeed, Mr Brown, on this
14 attribution.

15 In your report on page 0017, paragraph 4.10.3, you say:

16 "It is of equal importance to consider elements of 'dis-attribution' that might affect the
17 overall strength of the attribution. These elements demonstrate the [phone numbers]
18 cannot be attributed to a single user, but to two or more potential users."

19 Could you provide the Court some examples which occurred in your career as expert
20 witness of elements of dis-attribution - you mentioned already one this morning,
21 I recall - that you were able to include in your report as a potential contra-indication
22 for attribution?

23 A. [12:14:08] Yes, there are potentially several elements that could point towards
24 other than a single user. Just looking at the list, I can see in front of us there number
25 19, "Concurrent calls". This can be a very strong element of dis-attribution. This

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 analysis is, step one, seeing whether two phones are being used simultaneously. Of
2 course it is not impossible for me to be using one mobile phone and then choosing to
3 put that on hold while I answer another mobile phone. But if I can then do step two
4 of that analysis to see those two phones were actually 20 miles apart when that
5 occurred, that would be a strong element of dis-attribution.

6 I've already mentioned some around inconsistencies in the contacts or inconsistencies
7 in the overnight analysis. All of these things could be elements of dis-attribution.
8 And, again, just as for attribution, those dis-attribution elements need to be added
9 together to consider whether they overpower the attribution elements or not. And
10 frequently it is not that I will reach a definitive conclusion one way or the other, but
11 present the evidence to the court for the court to hopefully understand all of the
12 evidence I've seen and to balance those aspects of the evidence.

13 Q. [12:16:04] In your evidence, in your report on para 4.10.5 on page 0018, you also
14 refer to the attribution of multiple telephone numbers to the same individual. You
15 say that the aspects of the usage of one attributed phone are to be compared to other
16 mobiles and the use -- and "use the consistency of those issues to support attribution".
17 That's a very clear line maybe for you, but could you explain to the Court what you
18 mean with "consistency of those issues to support attribution"? Is this something
19 that you as expert base on the elements, the 22 elements, or the absence of those
20 elements?

21 A. [12:17:20] Yes, I think I've referred to many aspects of this already in that of the
22 possible elements of attribution I would like to see as many as possible showing
23 consistency; so, in other words, showing the same contacts, the same balance of
24 contacts, the same use of an overnight cell or a work location cell. So those are the
25 things that I would wish to see as many aspects being consistent rather than any of

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 those being inconsistent.

2 Q. [12:18:02] Also, Mr Brown, how could a lay individual actually appreciate the
3 forensic weight of those elements to say this is consistent or not? In other words,
4 how could a court -- can you give the Court any guidance on how this should be
5 weighed, or is this something which is not, in your opinion, for a layperson?

6 A. [12:18:45] It is always my intention as an expert to provide information that can
7 then be used by a layperson. If I put in front of the Court that phone X lives in a
8 particular area and phone Y does the same, these two phones have exactly the same
9 contacts, they both work in the same area, then I think it does not require expertise to
10 make a judgment that this is most likely the same individual. There is of course
11 always the possibility that I am always in company with another individual who lives
12 at the same address and drives to the same work address. So I can't ever eliminate
13 those possibilities. But I don't think it's impossible for a lay individual to consider
14 those elements once I have completed my analysis and presented the results to them.

15 Q. [12:19:59] But without knowing any of the cell site evidence limitations -- and
16 we come to this topic in a minute -- there are many cell site limitations as you
17 expressed also in your report -- without being aware of those limitations and without
18 being informed by an expert opinion, is it a risk that we as laypersons are prone to
19 make mistakes in not apprehending the limitations which you describe in your
20 report?

21 A. [12:20:44] I think it would depend whether they are trying to include
22 consideration of the more technical aspects or not. I hope now you have built an
23 understanding of some of these elements are not technical and certainly can be
24 compared without the use of an expert; others are more technical and would certainly
25 benefit from the addition of an expert to provide what we'd call the additional

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 support as to what those results are.

2 PRESIDING JUDGE SCHMITT: [12:21:27] If I may say so, the whole idea of an
3 expert is -- in a court of law is to assist the Chamber, to assist the judges. The more
4 complicated technically this gets, I have to admit, the more difficult it might be to
5 understand any results, any analysis that is presented to the judges. But it's clear
6 that there is a division of tasks between an expert and the judges, and this, I think,
7 Mr Brown has also made clear. He makes an analysis. He points to potential or
8 existing problems and then he shows us which attribution elements might be
9 considered and specifically explains the five, six, seven that are more technical, and in
10 the end the process of what to do with this information presented by the expert is
11 something that, well, the bench here has to do. Mr Knoops.

12 MR KNOOPS: [12:22:32] Thank you, Mr President.

13 Q. [12:22:35] Mr Brown, one of the examples you gave in your report of the
14 potential pitfalls we as laypersons can make without having the benefit of an expert
15 like you who was able to digest in this case more than 700 CDRs, which you didn't
16 receive, but that's for another reason. But anyway, in your report in paragraph 4.9.6
17 on page 0016, you specifically refer to:

18 "Non-experts [might] be inclined to think the mobile and user was at or close to the
19 cell-site location and it is important to emphasise the user could have been many
20 kilometres away."

21 A. [12:23:35] Yes.

22 Q. [12:23:35] Now, there must be a reason, Mr Brown, why you wrote this down.
23 I guess this might be an experience you might have in another case where people,
24 simple lawyers like me, or other people and not experts, make this mistake. Is this
25 based on your experience as an expert in court that you specifically have wrote this

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 down?

2 A. [12:24:05] Yes. We haven't looked at any particular geolocation mapping. But
3 I commonly present that mapping to court, and on it I provide a point of reference
4 showing the cell site location, and that often has associated with it perhaps a postcode
5 or a zip code, and I always wish to guard against people thinking that the user must
6 have been at that location or very close to that location.

7 PRESIDING JUDGE SCHMITT: [12:24:50] If you allow me. First of all, thank you
8 very much, Mr Knoops, for addressing this specifically.

9 Mr Brown, could you tell us in easy understandable words what the reason for this
10 statement is? Why is it so that it could be that the user might be kilometres away
11 from the cell site?

12 THE WITNESS: [12:25:12] Certainly. So there are a number of factors that can
13 determine the distance you could be from a particular radio base station or cell site.
14 There are a number of different technologies involved and that can be one factor that
15 can determine how far away they might be. At the most extreme, they could be
16 32 kilometres from that cell site location. So, technically, you could be at that
17 distance from the cell site and still be connecting to that cell site.
18 That is the most extreme example, but I have come across examples, particularly boats
19 at sea, where you can be 20, 30 kilometres from the coast but still make a mobile
20 phone connection to the coast.

21 PRESIDING JUDGE SCHMITT: [12:26:26] If it were, let's say, clear or proven or
22 whatsoever, let's stick with the example now on the ground, not on sea --

23 THE WITNESS: [12:26:36] Okay.

24 PRESIDING JUDGE SCHMITT: [12:26:37] -- or 30 kilometres, just to make an
25 example, if you were 30 kilometres away and it was proven that there are other cell

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 sites in this area, is this still possible that you see on the data -- you see the cell site
2 and the person was, let's again say, 30 kilometres away? Or is this a
3 misunderstanding by me?

4 THE WITNESS: [12:27:06] There certainly are situations where what appears to be
5 an anomaly in the location crops up. So I would always look to consider a sequence
6 of cell-site locations. Certainly one case comes to mind where the sequence of
7 antennas used suggested they were in a particular part of the south coast of the
8 United Kingdom, but one of the cells used was in France. And this is quite simply
9 because the user, I finally worked out, had dropped onto the beach behind the beach
10 wall. All of the local signals, therefore, became weaker to the point where the
11 strongest signal was now being received from France. So as a single example,
12 I wouldn't want to judge how far away they might be, but rather looking at that
13 sequence.

14 PRESIDING JUDGE SCHMITT: [12:28:13] But, indeed, as you mention in your
15 report, 4.9.6 -- as you see, as non-expert, I actually was indeed inclined to think that
16 the user and the site, that they have a close connection to each other geographically,
17 so this obviously is not necessarily the case.

18 Mr Knoops.

19 THE WITNESS: [12:28:34] I should say, I need to continue that answer to give you a
20 fuller understanding.

21 That extreme example of 32 kilometres is very rare, because if that was the case then
22 the signals from the cell site would overlap to such an extent that it would create
23 interference on the network.

24 PRESIDING JUDGE SCHMITT: [12:28:57] That was what I was heading at with my
25 question, but I have not expressed myself clearly enough, obviously. And -- but, of

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 course, we understand that the 30, 32 kilometres is an extreme example. What
2 would be something that -- a distance that, if you can say, yeah, that would occur
3 more than, let's say, than in extraordinary cases?

4 THE WITNESS: [12:29:30] So in very simple terms, it depends on the location of the
5 cell site. If it was in a densely populated city centre, then I would expect the phone
6 was most probably within two kilometres of that cell-site location.

7 There are cases where it could be a few more, perhaps up to five kilometres, but
8 normally most cases within two.

9 If it's at the edge of the city, then I might say perhaps up to five or eight kilometres.

10 If it was out in the countryside, then certainly 10 or 15 kilometres becomes a
11 possibility.

12 PRESIDING JUDGE SCHMITT: [12:30:19] That is certainly very helpful.

13 Mr Knoops, please.

14 MR KNOOPS: [12:30:28]

15 Q. [12:30:28] So, simply put, Mr Brown, if you only would have CDRs with the
16 location, geographical location of the tower, as we saw yesterday in some of them,
17 and this morning, and you don't have any further information, a court could not
18 establish -- we could not establish if that person was indeed nearby that tower,
19 without having a further assessment of all the parameters which you would need to
20 assess, like urban area, dense area, a high tower, beach, whatever?

21 A. [12:31:19] As an expert, I would caution any court to do that without expert
22 assistance. But I have to declare some self-interest in it is my employment. It is not
23 uncommon for the UK police forces to feel they can do some geolocation analysis
24 themselves and present that. And it is my biggest concern when I then look at the
25 defence for those cases: Has the court clearly understood the possibilities of where

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 else they could be?

2 Q. [12:32:04] Mr Brown, based on your experience, would you say that these sort of
3 extreme examples, reaching out to 30, 32 kilometres --

4 In my own practice, Mr President, I had a case where the mobile phone touched upon
5 a cell tower 60 kilometres away from the location. It's a recent case.

6 But my question to you, Mr Brown -- I'm not testifying from the Bench.

7 PRESIDING JUDGE SCHMITT: [12:32:32] Yeah, yeah, yeah, yeah. No, I can really
8 put that into perspective, and why not? Ms Henderson was right, though.

9 MR KNOOPS: [12:32:39] Yeah. Of course. I knew, I knew.

10 PRESIDING JUDGE SCHMITT: [12:32:42] Although she didn't say anything, but she
11 was right.

12 MR KNOOPS: [12:32:38] I knew. I knew.

13 PRESIDING JUDGE SCHMITT: [12:32:39] Mr Knoops.

14 MR KNOOPS: [12:32:44]

15 Q. [12:32:44] So these extreme examples, like the example you mentioned,
16 Mr Brown, would you say, based on your experience, that these are more likely to
17 occur in a town, in an urban area, or when somebody is in a tower, a high building?

18 Is there any reference based on your practice to say these extreme examples mostly
19 occur in a certain situation?

20 A. [12:33:16] They do mostly occur in rural locations. There are exceptions to that,
21 and you mentioned tall buildings as being one of them. If I was a resident in a
22 multi-storey tower block and turned on my mobile phone, the strongest signal might
23 be one that is coming from tens of kilometres away just by virtue of the line of sight
24 from that particular cell-site location. So those are always possibilities that I wish to
25 guard against and -- but they are usually visible as apparent anomalies within the

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 sequence of connections that I am looking at.

2 PRESIDING JUDGE SCHMITT: [12:34:07] Well, actually -- well, extreme examples,
3 yes, they are possible. But still, also, Mr Knoops, and Mr Brown, you -- Mr Brown,
4 the examples that you gave for, let's say, for rural areas, for areas at the edge of a
5 town, or in town, they are still -- the margins are still significant. Let me put this:
6 They might not be extreme but they might, might be still significant.

7 Mr Knoops.

8 MR KNOOPS: [12:34:38]

9 Q. [12:34:39] Mr Brown, assume we have a cell tower with a practical reception of
10 radius 20 kilometres, and we have information that in that area it's the only cell tower.

11 A. [12:35:03] Okay.

12 Q. [12:35:08] Would it mean, in your expertise, that the phone of a specific
13 individual whose signal actually contacts this one cell tower, that that individual is
14 somewhere within the area of a radius of 1,250 square kilometres? That's the
15 formula to calculate the radius of 20 kilometres of the reception power of the tower.
16 Is that something you would agree with?

17 A. [12:35:47] I can't check your mathematics. But you are talking about a situation
18 where the ground around that cell site would all have to be flat.

19 Q. [12:35:57] Right.

20 A. [12:35:58] So, yes, in that theoretical situation, if your calculation is correct.

21 Q. [12:36:05] Okay. Thank you.

22 PRESIDING JUDGE SCHMITT: [12:36:06] We all know that judges or juries not only
23 are not very versatile in technical matters, but they also do not -- are not very good in
24 mathematics, if I may say.

25 Mr Knoops, no offence, I hope.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 MR KNOOPS: [12:36:24] No. We calculated this (Overlapping speakers) --

2 PRESIDING JUDGE SCHMITT: [12:36:26] No, no. You have Mr Rowse at your
3 side --

4 MR KNOOPS: [12:36:26] Yes. We know --

5 PRESIDING JUDGE SCHMITT: [12:36:26] So I assume, I assume that the calculation
6 is correct.

7 MR KNOOPS: [12:36:41] One second, Mr President.

8 (Counsel confers)

9 MR KNOOPS: [12:37:12]

10 Q. [12:37:12] Mr Brown, just a follow-up question.

11 In the example I just gave, there's one town in that area, one cell site, would -- what
12 would be the radius of reception, approximately?

13 A. [12:37:48] Firstly, I would consider it unusual that there was only a single cell
14 site, although it's certainly a possibility. If that was the case, there would be no
15 reason -- well, perhaps there would be. I would expect the network operator to use a
16 high power level for that cell site because they would not only wish to cover that
17 town, they would wish to also cover the approach roads. So it would need a fuller
18 assessment to consider where are the next cell sites. But they would be foolish if
19 they had not designed the network to provide continuous coverage along the access
20 route to that -- to that town. So I would expect it to be a large coverage, 20 or even
21 that theoretical 30 kilometres possibility.

22 Q. [12:38:50] Thank you.

23 Speaking about cell site evidence limitations, a second potential limitation I would
24 like to address to you is the following, Mr Brown. It concerns the mobile switch
25 centres. First of all, in your report you touch upon MSC, mobile switch centres, in

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 paragraph 5.2.10 at page 0022.

2 Could you briefly explain to the Court what they are and their function.

3 A. [12:39:39] So, very simply, what I would call an MSC, a mobile switching centre,
4 is just a telephone exchange. So -- and the number of these telephone exchanges
5 within the network depends on the number of users. So it could be common in a
6 major city for there to be several of these mobile switching centres, but, confusingly,
7 several mobile switching centres might be physically situated in the same building.
8 Their purpose is to provide the routing for the call.

9 So your mobile phone is using radio waves to connect you to the strongest cell site in
10 your general area. That base station routes its call to its mobile switching centre, and
11 that mobile switching centre then decides where does this call have to go. It may
12 send it to another switching centre within that network or it may send it to a specialist
13 switching centre within the network that routes that call internationally, and it does
14 this both for outgoing and incoming calls. And these are the also -- also the locations
15 where a number of other activities are carried out, such as authenticating whether
16 you are eligible to use this network.

17 And, again, different computers within these centres provide your data connection or
18 store your text messages until they can be delivered to you. So they are basically
19 computer centres that serve as a telephone exchange.

20 Q. [12:41:54] Mr Brown, the importance to have time clocks on these MSC, is
21 something you can elaborate on? What is the importance of these time clocks in the
22 MSC?

23 A. [12:42:13] So every record that is created clearly relies on having an accurate
24 time associated with it. As I've explained here, there was a time when they could
25 not be automatically synchronised so that they were all using the same time and had

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 to do manually. Those days, thankfully, are long past where the digital
2 interconnection between these telephone exchanges means they can all be
3 automatically synchronised.
4 Of course, that does not mean that a particular network has necessarily chosen to do
5 that, they may still rely on manually synchronising their telephone exchanges and
6 this does mean that synchronisation can drift over time. And it means if on one
7 network party A calls party B, and they have both used different switching centres for
8 that connection, then when you put those two connections together they appear to be
9 happening at different times.

10 That of itself can obviously be very confusing, as to I can see one party to this call but
11 I can't see the other party's connection. And it's because the times have become out
12 of sync.

13 Q. [12:43:54] Could this happen with combined CDRs, in terms that they may show
14 that several calls were made, whereas it could be one call that went through
15 different -- the synchronised MSCs? So, therefore, the combined CDRs actually may
16 not reflect the reality of the number of calls which were made.

17 A. [12:44:22] It depends how the data is combined. I'm sure we'll talk more about
18 sequence tables later, but, ideally, I would always like to see, if I am going to combine
19 the call records of two subject phones, I would like to see those sitting alongside each
20 other in my call table if I have them ordered by chronologically, and I would expect to
21 see the timing of the start of those calls, or the end of that call, as being the same.

22 And the duration as being the same.

23 There is this slight oddity that can trip up the layperson that the times appear to be
24 slightly different or the duration appears to be slightly different, meaning no more
25 than a few seconds different. But it is simply the fact that both ends of that

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 connection are timed separately. And if I receive a phone call, I know or my phone
2 knows that I've answered the call before your phone can possibly know that because
3 my phone has to send a signal back to yours to say that I've answered. That process
4 can take a second or two and hence the start times can appear to be slightly different
5 by a second or two.

6 PRESIDING JUDGE SCHMITT: [12:45:58] Ms Henderson, you don't believe that?

7 MS HENDERSON: [12:46:00] No, that's not it, your Honour. I'm just wanting to
8 clarify for the record because the question was about combined CDRs, which is a call
9 table. That's not the raw CDR. I'm not sure if that's the question that Mr Knoops
10 intended to ask. He's also asking about MSCs (Overlapping speakers) --

11 PRESIDING JUDGE SCHMITT: [12:46:14] But that's actually up to Mr Knoops to
12 figure that out, yeah.

13 MR KNOOPS: [12:46:24] (Overlapping speakers)

14 PRESIDING JUDGE SCHMITT: [12:46:25] Indeed, I have understood the answer.
15 If this was the answer to this specific question, it's up to Mr Knoops actually.

16 MR KNOOPS: [12:46:32] It was the answer -- it was an answer, sorry.

17 PRESIDING JUDGE SCHMITT: [12:46:34] Then please continue.

18 MR KNOOPS: [12:46:37]

19 Q. [12:46:38] Mr Brown, in your report, the same paragraph, 5.2.10, at page 0022,
20 you mention the possibility that two subject mobiles may be connecting through
21 different MSCs. Could you explain to the judges the potential consequences of
22 having two subject mobiles going through different MSCs?

23 A. [12:47:16] Yes. A number of possible issues that might become visible. I've
24 already mentioned one which is the timings may appear to be inconsistent. In other
25 words, more than just the few seconds I mentioned that can be the delay between

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 answering and knowing that you've answered.

2 And, as I've said, I have seen examples where the synchronisation or the lack of
3 synchronisation has meant that the start times appear to be several minutes apart.

4 I'm referring there to voice calls which obviously requires both parties to be on that
5 connection at the same time.

6 It may be useful to also touch on text messages. And of course a text message can be
7 sent, but the time it is delivered can be seconds, minutes, hours or even days after it
8 was sent. So in combining call data records for different subject mobiles, that is a
9 factor that needs to be considered as to when a text message might have been sent
10 and when it was then delivered.

11 Q. [12:48:47] Is there any technical explanation for the path that an SMS message
12 takes from a sender to reach the recipient in order to analyse whether this is made -- is
13 due to a technical error or not. You say it takes -- it can take seconds, minutes, hours,
14 even days. What is the technical explanation for such a significant differentiation
15 between the sending and the receiver?

16 A. [12:49:22] For text messages, and so I'm referring to SMS, short message service,
17 commonly called text messages, I may send a text message but your phone is
18 switched off, and if your phone is switched off, it cannot be delivered to you, so it is
19 built into the network structure that they will retain that message and try again to
20 deliver it to you. Each network does this slightly differently. Typically, they will
21 try within a few minutes to try again to deliver it. If that fails, they will try maybe an
22 hour later. Most of the networks then will give up after a set time, typically a few
23 days. They simply don't want to use up their storage capacity keeping your text
24 messages and that's the point at which they -- I would expect them to delete that
25 message.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 Q. [12:50:29] Could you, Mr Brown, explain to the Chamber how such a process of
2 SMS messages is reflected in the CDRs, if at all?

3 A. [12:50:44] It varies depending on the operator as to what information is
4 provided to me in the call data records. In the simplest call data records I would
5 expect to see a time that the message was sent or the time that a message was received.
6 It is only when I then combine those can I see whether there was any significant delay
7 in the sending and receipt of those messages.

8 If both phones are switched on and operating normally, then I would expect to see a
9 text message delivered within a matter of seconds. If one of the phones happens to
10 be out of coverage or switched off, as I said, or has a flat battery, then obviously there
11 will be a more significant delay until that phone is once again switched on or
12 recharged and switched on.

13 Q. [12:51:46] Is it your view, Mr Brown, that the content of a SMS CDR is reflected?

14 A. [12:52:03] The content of a text message is not included in call data records.
15 The networks -- as I said, the vast majority of networks would retain the text
16 messages in their system only for the period for which they are trying to deliver it
17 before they delete it. I have only in one jurisdiction internationally seen that the
18 network had held on to those text messages and they, they could be queried for many
19 years prior. But that is -- that is the -- only once have I ever seen that.

20 Q. [12:52:44] Mr Brown, a witness who worked for a telecommunication service in
21 the Central African Republic testified before this Chamber some time ago and he told
22 us that an SMS message that is -- that exceeds a certain number of characters will be
23 split and will appear on the sender's CDR as separate messages, but on the receiver
24 CDR one will only see one message.

25 PRESIDING JUDGE SCHMITT: [12:53:27] Mr Knoops, can you give us the reference

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 for that, the citing.

2 MR KNOOPS: [12:53:30] Yes, that's paragraph 20 of the statement in
3 CAR-OTP-2122-9874-R01, and that was the individual from the telephone company.

4 Q. [12:53:55] Mr Brown, what is your opinion on the explanation that individual
5 gave before this Court?

6 A. [12:54:09] My -- as you quite rightly say, that a very long message will be split
7 down into several pieces. This is -- so text messages, because the technology was
8 only designed to carry short messages, hence the name short message service.
9 Modern smartphones simply deconstruct that message into several parts and then
10 send those parts to the network one after another. And I would always expect to see
11 in the call records those parts of the message being recorded as separate text messages
12 typically with a second or two between those messages.

13 My experience is that the multiple parts of that text message would also be received
14 as multiple text messages and the mobile phone will automatically combine those
15 messages back into one. So the user is oblivious of the fact that it has been taken
16 apart and put back together again.

17 In the call records, my experience is that I can always see the multiple parts of that
18 message also being received. But, thinking about that as you asked the question,
19 I can conceive that the network choose not to record all of the parts of that message,
20 that they chose to only show the first part of that message or the last part of that
21 message being sent and therefore being received. Sorry, being sent from the
22 network to the receiver, rather than sent from the originator. And that's simply
23 because every transaction that the network makes is part of their overheads of
24 computer power. So they may have made that decision not to record that. There
25 are these little quirks within every network that always surprise me that they choose

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 to do things a slightly different way. So I can't say he's wrong in what he says, but
2 my experience is not that within -- certainly within the UK.

3 Q. [12:56:37] Can you explain, Mr Brown, if a failed SMS message is in your
4 opinion reflected in the CDR or not?

5 A. [12:56:50] In some of the CDRs I receive, that is visible. One particular UK
6 network will for an SMS message show me every attempt it has made to deliver that
7 message and will show me the message saying "delivery failed". But that is unusual.
8 In most cases I could not identify that it had not been delivered.

9 Q. [12:57:41] Would you agree, Mr Brown, speaking about cell site evidence
10 limitations, that a single CDR could also contain a mixture of time zones based on
11 different regions of, for instance, United States, as well as a change to or from DST?

12 A. [12:58:16] Some of the networks do identify multiple time zones within their
13 CDRs. Of course it's possible that some don't bother to do that. I would normally
14 expect them to translate them back to their own time zone. But, again, it may be
15 their preference to not do that. I would like to think they indicated it in some way.
16 I simply can't say, unless you have an example that I might consider.

17 Q. [12:58:56] Actually the crux of my question is how could we - again, using the
18 word "layperson" - see on the basis of a CDR whether there was a mixture of time
19 zones or a recalculation of time zones? How is this visible from a CDR without
20 having you as expert to tell us or say this is fine?

21 A. [12:59:28] Depending on the information recorded in the CDR, it may be
22 apparent from the cell identification information that the user is not in their home
23 network, that they, technically speaking, are roaming on a foreign network, foreign to
24 their home network.

25 So that may be obvious, and that that was the case, I would examine the time closely

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 to see whether I thought that was time being recorded from the foreign network or
2 the time from the home network that has created the CDR.

3 MR KNOOPS: [13:00:22] Mr President, I just need five minutes and then I terminate
4 my questions for today, so if you Court.

5 PRESIDING JUDGE SCHMITT: [13:00:29] Okay, five minutes. But, please, you
6 know we also have other business this afternoon.

7 MR KNOOPS: [13:00:36] Yes. Okay, Mr President.

8 Q. [13:00:40] Mr Brown, in some of the CDRs we saw in this case there are several
9 calls that only took a few seconds. If these were voice messages, and you mentioned
10 in your report that it takes 10 seconds to start leaving a message, so after 10 seconds
11 the actual message has been delivered -- would you agree that one might interpret it,
12 as a layperson, these voice messages as calls, actual telephone calls while in reality
13 these were not calls? Would you consider this one of the potential pitfalls of the
14 interpretation of voice messages?

15 A. [13:01:35] I think I normally say that if you can see the duration of the call is
16 only one or two seconds, I would consider that to be a failed call, and in many cases
17 that may be because the user realises -- sorry, the caller, realises they are not going to
18 be connected and they don't want to leave a message so they terminate the call. The
19 10 seconds I've given you is not consistent certainly across all networks. Most
20 networks start to record the duration of the call from the point at which the caller
21 hears the network's message, "This call is being diverted" and that is why they then
22 terminate if they don't want to leave a message.

23 By the time they've gone through the whole of that message and you've they heard
24 the beep, "Please leave your message", then it could be 10 seconds. It could be
25 slightly more particularly if somebody chooses to leave a personalised message that

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

1 takes longer.

2 So in those cases it can be harder to interpret whether it was a simple voice call
3 connection or whether it was a message being left. And that would require further
4 analysis of the receiving phone's call data records as well to try to understand
5 whether it was likely it was a connected call or whether it was a diverted call.

6 Q. [13:03:11] Thank you, Mr Brown.

7 MR KNOOPS: [13:03:15] Mr President, that is for today our examination.

8 I just would like to inform the Court we might need tomorrow, probably maximum
9 one hour, I estimate -- I look at my colleagues -- to finish.

10 PRESIDING JUDGE SCHMITT: [13:03:26] Well, let's say a session. And do you
11 have already an idea?

12 MR PAGES-GRANIER: [13:03:35] Our estimation still stands. I want two sessions,
13 maybe a bit less because Professor Knoops has gone over some. But just on this
14 point you will recall that we asked for Mr Brown to use a computer for a specific
15 exercise. We have provided the material to Mr Brown and it will greatly assist in
16 streamlining the proceeding if he could take the afternoon to look at this material.

17 PRESIDING JUDGE SCHMITT: [13:03:59] This is for something good that we don't
18 continue this afternoon.

19 Mr Brown has really a lot of work to do. You are not only here to testify, you have
20 also to do some additional exercises. Well, that's fine. And then I'm absolutely
21 optimistic that we finish on Friday without too many extended hours.

22 Actually I don't assume that you would have so many questions, Ms Henderson.
23 I'm just assuming, you can do whatever you want.

24 So this then concludes the hearing for today - thank you, very much, Mr Brown,
25 again - and we continue tomorrow at 9:30.

Trial Hearing
WITNESS: CAR-D30-P-4864

(Open Session)

ICC-01/14-01/18

- 1 THE COURT USHER: [13:04:36] All rise.
- 2 (The hearing ends in open session at 1.04 p.m.)