

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 - Courtrooms 1 and 3

9 Thursday, 29 February 2024

10 (The hearing starts in open session at 9.32 a.m.)

11 THE COURT OFFICER: [9:32:26] All rise.

12 The International Criminal Court is now in session.

13 Please be seated.

14 PRESIDING JUDGE SCHMITT: [9:32:49] Good morning, everyone. Good morning,

15 Mr Brown.

16 Court officer, please call the case.

17 THE COURT OFFICER: [9:32:57] Good morning, Mr President, your Honours.

18 Situation in the Central African Republic II, in the case of The Prosecutor versus

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

20 And for the record we are in open session.

21 PRESIDING JUDGE SCHMITT: [9:33:14] Well, for the presence, I think the

22 Prosecution, Ms Henderson, remains unchanged. Ms Massidda, same. Mr Suprun.

23 Then I switch over to

24 Ms Dimitri, I think.

25 MS DIMITRI: [9:33:30] We always have someone new, Mr President. Mr Gyo Suzuki

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1 joined us this morning.

2 PRESIDING JUDGE SCHMITT: [9:33:36] Well, I see.

3 Now Mr Knoops.

4 MR KNOOPS: [9:33:41] Mr President, good morning. Your Honours, good
5 morning. Everyone, good morning. We are in the same composition except that
6 Ms Clémence, our intern, is here. Thank you.

7 PRESIDING JUDGE SCHMITT: [9:33:48] Thank you very much.

8 And you can already remain standing, so to speak, and continue your examination.

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10 (The witness speaks English)

11 QUESTIONED BY MR KNOOPS: (Continuing)

12 Q. [9:34:03] Good morning, Mr Brown.

13 A. [9:34:05] Good morning.

14 Q. [9:34:06] Mr Brown, I will dwell this morning on several final questions to you
15 which derive from your very last paragraph in your report. That is paragraph 5.3.18
16 on page 0026 where you refer to the best quality cell-site analysis which obviously
17 would require accuracy in all details.

18 First of all, can you mention any such details which you would specifically look for in
19 order to present the, what you mentioned, "best quality cell-site analysis"?

20 A. [9:34:53] Yes. The accuracy of the cell-site locations are obviously the most
21 critical details to be correct and, depending on the analysis being done, other details
22 related to that cell site, particularly antenna details, if they are available, and the
23 direction of those antennas, and then the quality of the actual cell-site data,
24 particularly the times of that data.

25 Q. [9:35:30] The best quality standard you mention in paragraph 5.3.18, Mr Brown,

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1 is this a standard which you, yourself, impose upon yourself as expert or is this a
2 standard which your forensic profession dictates on forensic experts in general -- if
3 you will, a forensic precondition to be able to present an expert opinion on the
4 interpretation and limitations of CDRs as evidence in a criminal case?

5 A. [9:36:09] Within the UK there is a forensic regulator, and they have issued
6 guidance for forensic practitioners and there is one particular section that reports
7 directly to geolocation evidence. So that is in place and in force with
8 recommendations for how a cell-site expert witness should conduct their analysis in
9 terms of standards that should be achieved and with some pointers towards things
10 that should not be included by way of descriptions related to cell-site analysis.

11 Q. [9:36:59] Mr Brown, are you familiar with the scientific working group on digital
12 evidence and its recommendations on cell-site analysis?

13 A. [9:37:11] What's the umbrella organisation for that?

14 Q. [9:37:15] It's International Scientific Working Group, and in its last
15 recommendation of 18 December 2023 -- I have the document not in the binder
16 because we were only made privy of this document after our list of evidence was
17 provided to the Court. But it's an interesting document because in its
18 recommendations in the document of 18 December 2023, it imposes certain
19 recommendations on cell-site analysis such as cell-site analysis for the purposes of
20 legal proceedings should not take place without additional verification.

21 I ask you if you are in agreement with such a recommendation?

22 And it's also saying that any such analysis should be subjected to a peer review to
23 ensure validity of the work product and to make sure the analysis is accurate. It's,
24 by the way, a United States-based organisation.

25 A. [9:38:52] Yes. I don't believe I'm familiar with it. You have mentioned two

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1 points there: One, the peer review, and indeed my own organisation is signed up to
2 the -- some British standards, and peer review is part of that. So this report was
3 subject to peer review by one of my expert witness colleagues.

4 The first point you mentioned was that cell-site analysis should not be carried out
5 with -- I'm not sure of the words you used -- some sort of corroboration. This is a
6 point that's often been discussed amongst cell-site experts.

7 Personally, I think that is for the court to decide, not for me to decide. I have
8 certainly been involved in cases where cell-site evidence was the majority of the
9 evidence, but it's for the court to decide whether that is sufficient or requires some
10 corroboration.

11 Q. [9:39:58] Mr Brown, you were provided with the English version of a report of
12 the Federal Judicial Police of Switzerland, dated 31 March 2020.

13 A. [9:40:18] Yes.

14 Q. [9:40:19] Signed by your colleague Mr Paolo Grassi from the crime analysis
15 division.

16 It's in our binder, tab 5, Mr President, CAR-OTP-0018-0068.

17 First of all, Mr Brown, you asked for the English version of this report to our
18 Defence team. I guess that you're able to read it?

19 A. [9:40:51] Yes.

20 Q. [9:40:52] In its entirety?

21 A. [9:40:54] Yes.

22 Q. [9:41:02] I would like to show you without reading it out loud, show you
23 page 33, that's 0100.

24 In the second paragraph, the second portion starting with, "The most obvious
25 technical problems have been specified" et cetera, until the end of this part of the

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1 second section.

2 A. [9:41:40] Yes.

3 Q. [9:41:41] Could you please, Mr Brown, read it again and I come back to you with
4 several questions.

5 A. [9:42:10] Yes.

6 Q. [9:42:18] Mr Brown, bearing in mind that your colleague Mr Grassi from the
7 Federal Judicial Police based these findings on an analysis of 47 CDRs spanning a
8 time frame of 1 March 2013 till 31 December 2014, relating to 17 target numbers,
9 assuming that he went through all those data, would you agree that this conclusion is
10 reasonable or not -- the conclusions Mr Grassi drew in that paragraph you just read
11 out?

12 PRESIDING JUDGE SCHMITT: [9:43:08] Ms Henderson.

13 MS HENDERSON: [9:43:10] We object to that question, your Honour. There is no
14 indication, and indeed it appears to be the case, that the witness has not received the
15 data that this report writer had access to, and in that situation it would be pure
16 supposition as to whether the conclusion can be supported or not. This witness can
17 simply say nothing (Overlapping speakers) --

18 PRESIDING JUDGE SCHMITT: [9:43:34] Yes. It depends exactly, Mr Brown, what
19 information you have beyond the report as such. So did you have an opportunity to
20 look into these 47, I think, CDRs we are talking about?

21 THE WITNESS: [9:43:54] No, I did not have these 47 CDRs to examine.

22 PRESIDING JUDGE SCHMITT: [9:43:59] Then I would suggest, since Mr Brown has
23 been in the past days and is still aware of the role and the possibilities what he can
24 responsibly say or not, then let's do it this way.

25 You have seen this paragraph and you have read, obviously, the report. What can

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1 you -- in that regard, can you comment on that?

2 THE WITNESS: [9:44:25] The technical problems that the writer has referred to in
3 paragraph 2, I recognise as problems that have occurred to -- for myself in large
4 datasets. So to that extent, I was not in any way surprised that he had these
5 comments to make.

6 PRESIDING JUDGE SCHMITT: [9:44:45] Thank you very much.

7 So, Mr Knoops, I think it's fine like that, that we do it this way. Yes, please continue.

8 MR KNOOPS: [9:44:54]

9 Q. [9:44:55] Mr Brown, would these examples Mr Grassi alluded to in his report be,
10 in your opinion, an example of not having the accurate information in all detail as
11 mentioned in your paragraph 5.3.18, your concluding paragraph in your report?

12 A. [9:45:26] My concluding paragraph was attempting to say -- to carry out the best
13 quality cell-site analysis. What I see explained in this report is that there were
14 numerous difficulties with the call data. Many of those with enough time spent on
15 the issue can be ameliorated to the extent that an analysis can be conducted, but
16 inevitably there would be some limitations on what could be carried out with this
17 data. So some, certainly, basic analysis would be possible, but some perhaps more
18 advanced analysis would not be possible.

19 Q. [9:46:17] If you transpose this finding of you onto the duty-bound regulations
20 you mentioned under UK law, would this prevent you to a certain extent, to filing an
21 expert report in a criminal case without the people, non-experts, not being aware of
22 the problems as highlighted by Mr Grassi?

23 A. [9:46:56] It would not prevent me producing a report, but I would want to be
24 very clear as to the difficulties and therefore the limitations of that report, and
25 I would obviously hope to explain to those in court what those limitations are and,

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1 therefore, what conclusions they might safely or not safely draw from that
2 information.

3 Q. [9:47:32] Without having this report of Mr Grassi, and without having you today
4 and the last few days in court, how could you explain that we, non-experts in this
5 court, would have detected all those problems as highlighted by Mr Grassi?

6 A. [9:48:06] I assume the Court would have difficulty recognising those issues and
7 understanding, therefore, the limitations to what conclusions they might draw from
8 the information.

9 Q. [9:48:16] Mr Brown, I would like to close my examination with a moment of
10 candidness you expressed during your examination last Monday.

11 In your evidence you gave last Monday, transcript page 33 of the English transcript,
12 lines 21 till 22 --

13 A. [9:48:40] Tuesday, I think you probably refer to.

14 Q. [9:48:44] You're right. I'm sorry, it was Tuesday, yes.

15 When we confronted you with the work of your colleague, Paolo Grassi from the
16 Swiss Federal Judicial Police in regard to the 47 CDRs related to 17 target numbers,
17 your reaction was, "I'm tempted to say that I'm glad I didn't get that job."

18 Now, Mr Brown, if you were given the same task as Mr Grassi received and you had
19 to perform the same steps as you went through and undertook, how much time it
20 would take you to perform such a research to complete the same task as Mr Grassi
21 undertook?

22 And I'm asking not, of course, in hours, but maybe you can express yourself in days,
23 weeks or years.

24 PRESIDING JUDGE SCHMITT: [9:49:56] I think Mr Knoops would be happy with
25 an estimate.

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1 THE WITNESS: [9:50:00] Of course, I do understand. I feel like I'm being asked to
2 provide a quotation which does require some detailed analysis.

3 Without the opportunity to browse those 47, it is difficult to gauge just how much
4 difficulty I might face. I would think there are several weeks of work, certainly two,
5 perhaps three or more to unravel the issues within those and to find some way to
6 standardise that data.

7 MR KNOOPS: [9:50:39]

8 Q. [9:50:40] Mr Brown, if I were to tell you that the Office of the Prosecution in this
9 specific case disclosed 715 CDRs - spanning a time frame of the year 2012 till 2016,
10 entailing CDRs originating from at least three different countries, Cameroon, Central
11 African Republic and France, relating to at least 65 alleged phone number attributions,
12 now that you hear these figures, Mr Brown, what time would it take you to perform
13 or compose a report on the basis of these data, a report of the kind Mr Grassi made?

14 MS HENDERSON: [9:51:36] Again, your Honour, we object, because firstly, without
15 knowing the dataset more precisely, as the witness has already alluded to, it would be
16 speculative for him to give an answer on that.

17 And, secondly, simply because material has been disclosed does not mean that the
18 Court is asked to decide upon it. Therefore, the utility of a question on a broader
19 disclosure which may be required under the Court's statutory framework can't have a
20 bearing on what the Court necessarily is asked to determine, which is on a much
21 smaller dataset.

22 PRESIDING JUDGE SCHMITT: [9:52:15] Well, there is some merit in what you're
23 saying. However, I think Mr Brown is an expert and he can --

24 If you have -- you have heard this, yeah? Also bearing -- let me put it this way.

25 You have heard the question, you have heard what Ms Henderson from the

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1 Prosecution said. Putting those two interventions, let me put it this way, together,
2 can you comment or would you feel comfortable to make an estimate or say anything
3 on the matter?

4 THE WITNESS: [9:52:47] What I can say is that I have been faced with such a task on
5 previous cases and in that case there was some initial week or two's work for myself
6 to identify and categorise the CDRs into different types, and in that particular case
7 I think I arrived at 14 different types of CDRs.

8 I did then enlist with consent of those instructing me to use the software processing
9 company that I use to enable automation of that data so that I was then able to spend
10 another few weeks, from memory three or four weeks, processing that data and
11 producing the kind of analysis that was asked of me.

12 PRESIDING JUDGE SCHMITT: [9:53:43] Yes. Let me also put it this way. It is
13 clear that -- also looking now to the Rule 68(3) expert report that you provided, that
14 this takes time, let me put it this way. So we can -- I think we can follow that, that
15 such an analysis is nothing what you do -- well, you're just, you know, at a whim in a
16 couple of hours. I think we can let it stand like this, Mr Knoops.

17 MR KNOOPS: [9:54:11]

18 Q. [9:54:11] Final question, Mr Brown. Over the last two days you have taken us
19 through various potential integrity issues or, if you will, anomalies in this case in
20 regard to some CDRs you saw and you examined in this case. You've now been
21 privy to the significant problems your colleague, Mr Paolo Grassi, detected in regard
22 to 47 CDRs in this case. If we assume, as a figure, that in this case 715 CDRs were
23 made available, that leaves 686 CDRs of them which were not forensically examined
24 or scrutinised by any forensic telecom expert in terms of establishing patterns of use,
25 building user profiles, establishing a primary user, assessing attribution and to speak

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1 about the forensic integrity of CDRs itself.

2 Now, my question to you, Mr Brown, is: Would you as a professional advise that
3 non-experts take those 668 CDRs, which were not subjected to any forensic
4 verification process, at face value in terms of using them in a criminal case as
5 evidence?

6 PRESIDING JUDGE SCHMITT: [9:56:08] Again, this is very -- this is --

7 Ms Henderson, please, you can elaborate on it.

8 MS HENDERSON: [9:56:15] Your Honour, it's the same objection, in two parts.

9 I won't repeat that, but I'd also add that for all this witness knows of those additional
10 -- with the calculation 600-and-something additional CDRs, perhaps they only had
11 one row and could be easily interpreted by a layperson.

12 PRESIDING JUDGE SCHMITT: [9:56:33] I understand, but still the figures that

13 Mr Knoops puts to Mr Brown are significant. Let's say if we put it in a more abstract
14 manner, Mr Knoops.

15 So, Mr Brown, if such a -- let's assume that there is quite a number of CDRs with
16 attributed or non-attributed telephone numbers, and over different countries. So
17 taking this into account without now having regard to the -- to the exact figures that
18 Mr Knoops has mentioned, can you comment on that?

19 THE WITNESS: [9:57:19] I would say I would obviously be concerned that that was
20 the case, that so many might be included in evidence. The degree of my alarm
21 would perhaps depend on what was intended for that material and what conclusions
22 somebody might be attempting to draw from that information. Without knowing
23 that, I can't comment further.

24 PRESIDING JUDGE SCHMITT: [9:57:52] And when we look -- let's assume that not
25 all of these call data records that may have to be analysed by the Chamber have some

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1 anomalies. Let's just assume it's -- there would be also CDRs that could be -- that
2 entail all the information in a manner that you would say, well -- and don't speak of
3 best practices, but good practice, normal practice. What about that? Could a
4 chamber, with the help of the parties and their submissions, try to at least base some
5 findings on it, together perhaps with other evidence, of course, like always?

6 THE WITNESS: [9:58:46] I think I would probably say it, as always, depends on
7 what you wish to do with it. I cannot imagine any chamber wanting to look through
8 several hundred files of this nature and they are therefore likely to be led to some
9 conclusions as to what they should be looking at, and clearly what they are being
10 asked to conclude would be my concern as to whether that was a reasonable way to
11 approach that process.

12 PRESIDING JUDGE SCHMITT: [9:59:33] Okay. Let us understand it this way.
13 Okay, thank you, Mr Knoops.

14 MR KNOOPS: [9:59:41]

15 Q. [9:59:41] Thank you, Mr Brown. This was my final question for this moment.
16 Thank you so much for your evidence.

17 PRESIDING JUDGE SCHMITT: [9:59:46] So, thank you again, Mr Knoops, and
18 I give the floor to Mr Pages-Granier.

19 MR PAGES-GRANIER: [10:00:06] Thank you, Mr President.

20 If I could just have a minute to set up everything.

21 PRESIDING JUDGE SCHMITT: [10:00:10] Of course.

22 MR PAGES-GRANIER: [10:00:15] Thank you.

23 QUESTIONED BY MR PAGES-GRANIER:

24 Q. [10:00:50] Good morning, Mr Brown. We have already met, but I am going to
25 introduce myself again. My name is Mr Pages-Granier, Florent, and I work for the

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1 Yekatom Defence team. I will ask you questions that hopefully will cover only today
2 and not go over tomorrow.

3 Before we begin, I just want to briefly give you an overview of the subjects that I have
4 so you and as well everyone in the courtroom can follow the topics that we are going
5 to go over with.

6 A. [10:01:19] Thank you, sir.

7 Q. [10:01:20] The first topic that I will go over relates to CDRs, CSTs and the
8 manner in which they're used in the context of a criminal proceeding.

9 A. [10:01:33] Okay.

10 Q. [10:01:34] Second, I will ask you questions on attribution. Third, we will go
11 over the subject of the limitations of cell-site analysis. Then I wish to go over with
12 you -- over several CSTs in order to get your comments on the process from which we
13 go from a CDR to a CST, and this is directly linked to the documents that we
14 provided you Tuesday.

15 A. [10:02:02] Yes, thank you.

16 Q. [10:02:03] I know that some of the topics that I am going to go over with might
17 overlap with what Professor Knoops did, but I will endeavour to not having you
18 repeat answers that you already gave. Thank you.

19 A. [10:02:17] Okay.

20 Q. [10:02:18] And just before we begin, as you have probably guessed by now,
21 English is not my mother tongue so if there is anything that is unclear, don't hesitate
22 to ask me to repeat it or rephrase it or reformulate it.

23 PRESIDING JUDGE SCHMITT: [10:02:32] But if I may say so, we understand you
24 very well and there are others in this courtroom where you can immediately detect
25 that they are non-native speakers and where they come from. Please.

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1 MR PAGES-GRANIER: [10:02:45] Thank you for the comment, Mr President.

2 Q. [10:02:48] My first question will be on the topic of CDRs. For the last few days
3 we talked a lot about call data records, but what will be the definition of a CDR, of a
4 call data record, that you would want for any court of law to have?

5 A. [10:03:12] I'm sorry, can you repeat the question?

6 Q. [10:03:15] Sorry, it was not clear. My question will be simpler. What is the
7 definition of a call data record for you?

8 A. [10:03:27] Sorry, I'm missing the one word. Something "calls"?

9 Q. [10:03:33] CDR. What is the definition of CDR?

10 A. [10:03:38] CDR. So we've talked -- CDR are call data records, also sometimes
11 called call detail records. So for every connection that a user makes on their network,
12 the network records a variety of pieces of information. Firstly, information related to
13 the billing, so in particular the start time of the call and the duration and the parties to
14 the call. Each network then starts to vary what they record, but all will record the
15 parties to the call, so the caller and the called party, often referred to as the outgoing
16 party or the incoming party, technically referred to as the A party or the B party.
17 And then for network management purposes they also record various pieces of
18 information.

19 The one that is relevant to my work is the identification number of the antennas used,
20 or the cell-site number, and they usually add to that some further information about
21 the cell site, be it the name or location, and information of that type.

22 So three pieces of information coming together for use in court. So something from
23 the original billing records, something from the management records and something
24 from the cell-site information database.

25 Q. [10:05:30] Thank you for this definition.

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1 You just mentioned that each network collects its own data and it varies between
2 network to network, and I want to go over one thing that you said yesterday. So it is
3 transcript 271 at 10:41. You said that when you were faced with CDRs from new
4 operators you will face a learning curve as to what you have in front of you.
5 My question is: How do you ascertain precisely how the operator has recorded the
6 data?

7 A. [10:06:14] It is simply in looking at the material in front of me to identify the
8 column headings as to the information that they are providing. Because that varies,
9 it sometimes needs a little bit of interpretation as to what data they are including in
10 which of those columns, and in the case of overseas networks there may be some
11 element of translation required to -- to see what that might be. It is usually -- it's not
12 an overly long process, just to understand what is included in this particular CDR.

13 Q. [10:07:05] Thank you.

14 As part of your work on this analysis, are you provided by the network with clear
15 definitions as to the content of the CDR?

16 A. [10:07:18] Only one of the networks I most frequently deal with provide a
17 definition of what they have included, most do not.

18 Q. [10:07:33] Thank you for this detail.

19 Now, from your experience both at Vodafone and as an expert, is it rare that the call
20 that really occurred is missing from a CDR?

21 A. [10:07:53] It does happen. The networks do try very hard to make sure every
22 call is accounted for, because if they can't account for it they can't charge you for it.
23 I certainly have seen cases, and, indeed, being aware in the UK industry of occasions
24 when the network has had some element of failure within the network whereby
25 customers could not be charged for their calls, so the customers had free calls for a

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1 day or however long it took to fix the problem.

2 So, yes, it's possible that calls will get missed. They do try very hard. They have a
3 target of I think 99.9 per cent as a minimum for collecting that information.

4 Q. [10:08:54] Thank you. On Tuesday you also said, regarding anomalies in CDRs
5 that in such occasions you might inquire whether there was an alternative source of
6 that data.

7 A. [10:09:08] Yes.

8 Q. [10:09:09] Would obtaining the CDR of the other party of a call be included as
9 alternative source of data?

10 A. [10:09:20] Yes, that is certainly one possibility for answering any queries I might
11 have. Within the UK the law-enforcement agencies are required to pay for the data
12 that they are provided with and, therefore, they don't wish to obtain more data than
13 they think they need. I think it would have to be a fairly serious issue for them to
14 actually go and obtain additional data for a secondary phone. They do -- the
15 legislation that controls their activities does require that they are not intrusive
16 unnecessarily for privacy reasons, so they have to be able to justify that of any data
17 they do obtain.

18 Q. [10:10:20] You just mentioned that the target for telephone companies,
19 99.9 per cent of the calls recorded, so if we have the CDR of both parties of a call, how
20 does that alleviate the risk of a misinterpretation due to an anomaly of a missing call?

21 A. [10:10:42] Yes. For all practical purposes, yes.

22 Q. [10:10:54] On Tuesday, in transcript 270 at 10:55, you mentioned that the most
23 common error from reading a raw CDR would be as regard to who was initiating a
24 call and the location of the user during a call.

25 Now I would want to show you on your screen raw CDR that is submitted in

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1 evidence in this case. It is in the Defence binder tab 42, CAR-OTP-2054-1478. Is it
2 appearing on your screen?

3 A. [10:11:41] No. It that on evidence 1 or evidence 2?

4 Q. [10:11:45] Evidence 1.

5 A. [10:11:47] I have it now. Thank you.

6 Q. [10:11:54] As my colleague is going to show, all the data contained in this CDR
7 is in one single column, column A. So we can see like rows 2, 3, 4, 5, everything is
8 contained in a single column.

9 My question will be: From your experience as an expert, would there be other risks
10 than the ones that you mentioned of using such a raw CDR in the context of criminal
11 proceedings?

12 A. [10:12:26] For me it is normal it to see data in this format. It is obviously more
13 difficult for laypeople to understand what they are looking at. I, myself, would
14 immediately do some formatting work on this so that I could correctly see the column
15 headings above the data, and, again, that would just a certain degree of care to make
16 sure that that was correct.

17 Q. [10:13:05] Thank you.

18 More specifically, would the use of only raw CDR such as this one could lead to a
19 misunderstanding as to the number of calls between two individuals?

20 A. [10:13:25] Certainly that's possible. It -- it depends on what data is included in
21 here. So it may well be the case that both ends of the call are included in here, so
22 there could be an element of miscounting if it was not made apparent whether it was
23 the same call or not.

24 Q. [10:13:52] I want to briefly show you two examples and you will be able to
25 expand on this if such a situation.

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1 So the first document that we want to show is Defence tab 43 CAR-OTP-2019-2839, at
2 lines 94253 and 94254.

3 As you can see, as my colleague highlighted, we see a call on 18 January 2014 at
4 exactly the same time, 1 pm, four minutes and 30 seconds, another exact duration.

5 A. [10:14:56] Yes.

6 Q. [10:14:56] Now I want to show you a second example and then I will go with my
7 question.

8 The second example is Defence tab 44, CAR-OTP-2019-1364. It's in the second tab, so
9 sheet 2, and it will be lines 2896 and 2897.

10 So, and now my colleague is going to show on the screen like a screenshot of the two
11 CDRs put together so we can have a better view of them.

12 So it would appear that those four lines refer to a single call that would have occurred
13 on 18 January 2014 with a duration of 28 seconds.

14 Is it a correct understanding to say that those four call lines are duplicates?

15 A. [10:16:26] Yes, I would agree. I only hesitate in that we have two phones here
16 for which the data has been included. So the first pair are at opposite ends of the
17 same connection. The second pair are a duplication of the first pair. Slightly
18 different information is included, but, yes, one pair is a duplicate of the second pair.
19 If you were only interested in one of the parties involved here, then you've got four
20 versions, so, yes, only one of those is relevant to one subject phone.

21 Q. [10:17:22] Could you please comment on how such things appearing in a CDR
22 where multiple calls -- where a single call appear on multiple lines? What is the
23 process behind it?

24 A. [10:17:32] So if we can have the example back, it's easy. So in the first pair we
25 are looking at you can see in the last-but-one column, it is the incoming and outgoing,

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1 so "*entrant*" and "*sortant*" provide -- tell me immediately one of those lines relates to
2 the incoming call and one relates to the outgoing call. So the second line is the one
3 you might logically wish to think of first where mobile ending 707 called mobile
4 ending 262. So that created one call data record. And, obviously, the other party
5 has also had a call data record created to show that it received this call from mobile
6 707.

7 Q. [10:18:35] Thank you for those details.

8 Now that we talked a bit about CDR, could you please briefly tell us what is a CST, a
9 call sequence table?

10 A. [10:18:49] So a call sequence table, I would consider to be a product that has
11 been produced by an analyst or an expert to provide simplified information about a
12 particular subject mobile or mobiles in a standardised format so that all of the
13 different formats of the CDRs has been eliminated. So a simple product for
14 presentation in court.

15 Q. [10:19:28] Other than a simple presentation for a court, are there any other ways
16 that CSTs are used in the context of criminal proceedings?

17 A. [10:19:47] Of course, they make some sorts of visual analysis of the data simpler,
18 and that's it really. So use during the investigation phase just to make the process
19 simpler, and more accurate, I suppose - indeed it would make it more accurate - and
20 then for presentation in court.

21 Q. [10:20:18] Thank you.

22 As you just said, like it would be more accurate. Over the last two days you talked
23 quite a lot about the risk in misinterpreting a CDR.

24 My question will be: Can you please explain what are the risks if we are only using
25 a CST now, so only a CST and not a CDR?

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1 A. [10:20:50] CSTs can perhaps be prepared incorrectly, and certainly there is one
2 type of CST that is often used by analysts, but I prefer to avoid it because I believe it is
3 more difficult to interpret.

4 Perhaps I should expand on that. The form of CDR I like to use for the example that
5 we had on screen a moment ago, if both of those mobile phones are of interest,
6 I would like to show those two lines as separate lines within the CST. Some analysts
7 prefer to combine that information onto a single line because they think of it as a
8 single connection; whereas, I think of it as two parties and, therefore, I want two lines
9 of information. If you put them on a single line, some pieces of information are
10 partly disguised or hidden and can be more difficult to interpret, in my opinion.

11 Q. [10:22:04] Thank you.

12 So, would it be a fair assessment to say that in the context of criminal proceedings you
13 would expect both CDR and CST to be used at the same time?

14 A. [10:22:22] Yes, I would say it is normal that the CST or some sort of CST product
15 is used in court, but the raw material would be provided as the source data for that
16 CST.

17 Q. [10:22:45] Thank you very much for those details.

18 I will now move on my second topic, which is attribution.

19 First, could you please present the concepts of association and attribution?

20 A. [10:23:09] So attribution is the process of attempting to connect a mobile phone
21 number to a named individual -- in my words, as the primary user of that mobile
22 phone.

23 Certain aspects of that attribution process can show an association. So you might
24 think of that as an indirect attribution rather than a direct attribution because perhaps
25 a witness says this is the phone number of individual X, so that would be a direct

1 attribution.

2 But an indirect association might be that it is in contact with an individual and, of
3 course, that individual is going to be known to many people. The contact shows that
4 there is an association between this mobile phone user and the other party, but it is
5 not a direct attribution to the name of the individual.

6 Q. [10:24:32] To better understand and visualise, could you please provide an
7 example of associations that becomes attribution with a practical example?

8 A. [10:24:43] We talked yesterday of a number of elements of attribution. A
9 number of those could be classified as association elements, and it is where you then
10 have a consistent picture through those elements of association that you start to build
11 the strength of the attribution.

12 So, I think, an example I gave yesterday, if you can associate the number to a
13 particular area of where the user must live and combine that with where a named
14 individual is said to work, those are all associations. But when you add them
15 together, then clearly it becomes logical that there is an attribution more than just an
16 association.

17 Q. [10:25:48] Thank you for this example.

18 On Tuesday, you mentioned that analysis on a small amount of data can be done but
19 that the conclusions will be less strong. Could the quantity of data available to you
20 have an influence as to whether you consider that an association or an attribution can
21 be inferred from an information?

22 A. [10:26:17] Yes, and it depends again on the quantity of data, how many
23 associations it might be possible to establish and if the other information is available
24 to me. It is, perhaps, often the case that I don't have the information as to where the
25 individual works so I can't do that type of association.

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1 It's very common that I can see 100 different phone numbers that a number has been
2 in contact with, but if those numbers themselves have not been attributed, then there
3 is no association, so it depends how much information is available around the data as
4 to whether you can reach a stronger or weaker conclusion.

5 Q. [10:27:13] Would it be exact to say that association is an information that needs
6 to be supplemented by other information and only when it is supported enough it can
7 become an attribution?

8 A. [10:27:33] Yes, if you have only a single association, obviously that speaks for
9 itself that there is an association. But if you have no other information, then it's
10 obviously a very weak attribution.

11 Q. [10:27:56] Thank you.

12 On the concept of attribution I would have a simple question, which is: What
13 exactly is attribution? Earlier you mentioned that it is, I think you mentioned the
14 connection to a phone number to an individual, to a named individual, but is it only
15 that or is it also the attribution of an handset to an individual?

16 A. [10:28:34] Yes, at the same time you can create that attribution to -- of a handset
17 to an individual, yes.

18 Q. [10:28:56] And maybe you already answered the question, but I'm going to ask it
19 anyway and you can tell me, because you mentioned indirect association, I think, a bit
20 earlier. But what is the differences between direct and indirect attribution factors?
21 If you could provide a definition of those.

22 A. [10:29:25] Yes, I tried to explain that what I consider to be a direct attribution is a
23 piece of evidence that links the number directly to the name of an individual. So
24 I perhaps mentioned already that the police would examine the phone of the partner
25 of the subject phone and if that number is stored with the name against it. So that is

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1 the most common type of direct attribution that I see.

2 Similarly, witness statements. There will be police records from lots of different
3 companies where they have stored a number against the name for an individual. All
4 of those would provide that direct attribution, showing this individual has told me
5 that this is their phone number.

6 Q. [10:30:25] And an indirect attribution is when we don't have this link with the
7 name, right?

8 A. [10:30:31] When the associate- -- yeah, there's an association to some aspect of
9 the subject individual's life, but the name is not directly associated.

10 (Counsel confers)

11 MR PAGES-GRANIER: [10:31:08]

12 Q. [10:31:08] Now I want to show you an extract of your report which is Ngaissona
13 tab 3, which is a list of the 22 elements of factors for attribution. So it's Ngaissona
14 tab 3, CAR-D30-0018-0001.

15 It's page 17, at paragraph 4.10.2.

16 A. [10:32:07] I have that. Thank you.

17 Q. [10:32:12] If you were asked to do an attribution analysis, which of those
18 elements would you want to have a look at first for this analysis? And what are the
19 strongest indicators?

20 A. [10:32:38] My standard analysis to understand something about the user of the
21 phone would include number 6, the contact lists -- oh, no, apologies, I'm reading that
22 incorrectly. I would look at the contact with any family or friends which is number
23 10, and number 11, contact with any other nominated numbers.

24 That obviously will depend on my having been provided with the names of other
25 individuals and their phone numbers.

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1 I would then always conduct the overnight address analysis at 15 and 16, the most
2 used cells, and 17 and 18, as the first call, last call.

3 So those would be my starting point to understand the usage. And I would also look
4 at the type of connections made by this phone -- is it all about voice connections, is
5 only about text messages, or does it only use this phone for data connections.

6 So all of those things start to help me build an understanding of the user of the phone.

7 Q. [10:34:17] Thank you for again your sharing with us the process that you would
8 undertake.

9 Can cultural aspects specific to a country have an impact on the work that you do on
10 attribution?

11 A. [10:34:37] Yes, I have -- we haven't mentioned, but one of the elements I might
12 look at is average duration of phone calls. And, clearly, that can have a cultural
13 impact. I wouldn't put a huge amount of weight on cultural aspects, but, clearly, it is
14 something to bear in mind when I'm trying to understand who the user of this phone
15 might be, and whether that is a good fit for the named individual or not.

16 Q. [10:35:21] And in a situation where handsets and SIM cards are often shared
17 between individuals, how would that affect the attribution analysis?

18 A. [10:35:36] It makes it more difficult. I have faced cases where it was apparent
19 that a family or family-type groups would share handsets, and similarly prison
20 populations often share handsets. So in these situations to attribute a single
21 individual as the primary user becomes much more difficult.

22 Q. [10:36:11] So in such a situation, you will want to look at more data, right, before
23 being able to do a -- to draw a conclusion on an attribution?

24 A. [10:36:22] Yes, always more data if possible.

25 PRESIDING JUDGE SCHMITT: [10:36:26] Well, again, from the perspective of a

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1 layperson in this matter, it could become impossible, also, in such a case, because if
2 it -- if it is only established that there was an exchange, but not how often, when,
3 where, and so I think it might be a task that is -- that becomes so difficult that is -- but
4 it's just an assumption by me -- that it might become impossible to make a
5 determination at all.

6 THE WITNESS: [10:36:56] Yes, of course, your Honour. Depending on the
7 information available, it may simply not be possible.

8 MR PAGES-GRANIER: [10:37:16]

9 Q. [10:37:19] On Tuesday you briefly mentioned the subject of user profile.

10 First, could you provide a brief definition of what is a user profile?

11 A. [10:37:20] The user profile is simply what I've referred to as that basic analysis
12 when we went through the attribution elements. So it is looking at those that build
13 the picture of the user profile: How do they use this phone? When do they use this
14 phone? Where did they use this phone?

15 So this is the basic user profile.

16 Q. [10:37:50] And would a specific situation -- special situation like a conflict have
17 an impact on your ability to establish a user profile; and, if yes, what impact?

18 A. [10:38:12] I would carry out the same process, but of course there may be
19 confusing factors because of conflict, that makes that more difficult or leaves me with
20 more questions that I would have to highlight within my report.

21 Q. [10:38:42] In your report you also mention that it is important to consider the
22 elements of dis-attribution that might affect the strength of attribution.

23 A. [10:38:54] Yes.

24 Q. [10:38:54] Could you please provide the most common example of
25 dis-attributions or indicators that would warrant in your book further investigation?

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1 A. [10:39:09] I think the simplest would be the dislocation of the mobiles. If the
2 two phones are being used at such a distance that they could not be together, that is
3 clearly the starting point for thinking that there must be two users. If there is only a
4 single or a few examples of that dislocation, that doesn't rule out a single user as the
5 normal user of both mobile phones. But if the data is available to examine that over
6 a prolonged period, yes, they are from time to time together but a lot of the time they
7 are apart, that would certainly lead to the conclusion there must be more than one
8 user.

9 Q. [10:40:03] So you just mentioned the dislocation of two mobiles. I want to put
10 to you a situation and have your comment on it.
11 If a CDR showed that two numbers apparently attributed to the same individual were
12 calling one another, would that warrant further investigation?

13 A. [10:40:32] Yes, I would certainly want to know how often that appeared to occur,
14 I think. Whilst I personally have only ever owned one mobile phone, I'm aware that
15 many people seem to use two or three about their -- have two or three about their
16 person, and I'm sure if they lost one of those phones, they might ring it to try to locate
17 it. So there has to be an allowance that one might occasionally phone the other.
18 If you can see that those phones were dislocated when they called each other and that
19 there were prolonged conversations whilst they were physically separated, then
20 clearly that suggests it's not the same person using the phones.

21 (Counsel confers)

22 MR PAGES-GRANIER: [10:41:26]

23 Q. [10:41:26] In the example that you gave, if someone just tries to locate his phone
24 by making it ring, would it appear on the CDR?

25 A. [10:41:42] A very good question, and the answer is no, it would not in the

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1 majority of networks unless the phone was answered.

2 I should perhaps mention the other scenario where certainly an individual might

3 send a text message from one of their phones to the other, in which case there would

4 be a record created.

5 Q. [10:42:11] If you were faced with such a situation of two numbers apparently

6 issued to the same individual calling each other for conversation with a certain

7 duration, what more information would you seek on this?

8 A. [10:42:29] I would certainly want to consider where they were and was this a

9 one-off event or was this a regular occurrence. Clearly that could have a very big

10 impact. It's entirely logical that that would have a big impact if they are regularly

11 having long conversations with each other.

12 Q. [10:43:00] Thank you. I would like to be more specific and talk about IMEI

13 attribution. But, firstly, before we go on to that, could you please explain what is an

14 IMEI?

15 A. [10:43:15] So the IMEI is the international mobile equipment identification

16 number. Every mobile phone produced has its own unique serial number. The

17 structure of that number follows a set format which is controlled internationally.

18 Not all of the digits are relevant. The first few digits identify the manufacturer of the

19 phone, the model of the phone, and then there is a serial number, a six-digit serial

20 number, for that particular model, and then there are usually one, sometimes two,

21 final digits that are used for other purposes to check. One is called a checksum digit

22 to check that the IMEI number has been correctly included on the call record, and

23 sometimes there may be two additional digits to identify the software version of the

24 mobile.

25 Perhaps I should say, hence, the IMEI number may be 15 or 16 digits long.

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1 Q. [10:44:38] Thank you for this detail.

2 Then how -- how is performed an IMEI attribution? How do you proceed?

3 A. [10:44:55] From the call data records, whilst most call data records do include an
4 IMEI number, not all do. So if the number is not included then, obviously, there
5 I cannot perform any analysis. If it is included, then I would include the same
6 processes: When this IMEI was used, who were the contacts of that mobile, where
7 was it located and so on, as we've already discussed.

8 Q. [10:45:38] And I guess for IMEI attribution, correct me if I'm wrong, the amount
9 of data and the type of data at your disposal is still an important factor?

10 A. [10:45:48] Yes, of course, as for number attribution.

11 Q. [10:46:06] You mention as a -- the difficulty but impossibility to do an IMEI
12 analysis if this information is not in a CDR.

13 A. [10:46:17] Yes.

14 Q. [10:46:17] But if you have this information, then what are the main difficulties
15 that you could face when you're proceeding with such an analysis?

16 A. [10:46:34] Within a CDR it is of course -- perhaps I should say, most CDRs are
17 produced with a target phone number as the subject of that CDR. It is possible for
18 the networks to produce a CDR-type file based on an IMEI number as the target. If
19 they were to do that, then all of the records in that CDR would relate to that IMEI
20 number, which may or may not show all of the different phone numbers that had
21 been used with that IMEI.

22 For most normal CDRs, one of the things I would normally look at is to see whether
23 this phone number has used more than one handset. And if I'm looking at multiple
24 phones, then, fortunately the software I use is able to cross-reference between
25 different phones and can show me whether the handset, the IMEI, has been used by

1 multiple numbers.

2 Q. [10:48:04] So is it fair to say that if the phone is of communal property, it is
3 shared between a lot of individuals, that is one of the main difficulties?

4 A. [10:48:21] If it was apparent that it was shared by a number of individuals, then
5 yes, that clearly becomes a difficulty. In that case, it may be responsible to make an
6 association in that if it's a family group and if it's possible to identify members of that
7 family and their contacts, yes, it may be possible to make an association rather than
8 an attribution to a primary user.

9 Q. [10:48:55] We talked earlier about direct and indirect attribution or association.
10 In which category would you put IMEI attribution -- direct, indirect or it could be
11 both depending on the circumstances?

12 A. [10:49:11] Yes, it could be both. It is the same as for the number.

13 Q. [10:49:19] Could you maybe expand a bit on IMEI attribution and when it is
14 direct or indirect. What process? What analysis you would do?

15 A. [10:49:28] Yes, certainly. By the same logic I used previously. If an individual
16 is arrested and they have a handset in their pocket, then clearly there is a direct
17 attribution of that handset to that individual.

18 Similarly, others may be able to identify that is the type of phone that he always used,
19 or there may be some distinctive feature because of the cover or other features of the
20 phone. So it maybe possible, perhaps less common than for the phone number,
21 because people obviously don't store details of either somebody else's handset or
22 IMEI, but there are possibilities for direct attribution.

23 Q. [10:50:26] In your expert opinion is it possible to attribute a number to an
24 individual by only relying on IMEI attribution?

25 A. [10:50:46] Yes. It depends, of course, on the factors and the number of

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1 elements of attribution that are possible. It is immediately more difficult to do so
2 than just based on a number. But I don't see why it wouldn't be possible. It just
3 may not -- it certainly wouldn't be as easy.

4 Q. [10:51:13] Would your answer be the same if as an additional condition I say
5 that we do not have the handset?

6 A. [10:51:26] Possession of the handset is clearly a -- can be of enormous benefit to
7 an attribution process, but it's not essential.

8 Q. [10:51:42] If you only had the IMEI attribution to link a number to someone,
9 would you consider that a strong attribution?

10 A. [10:52:04] It's possible it could be a strong attribution; more likely it would be
11 modified to some degree. I can't say. Again, there are so many elements that might
12 be considered. There maybe enough to make a strong attribution, but it is more
13 difficult to do so.

14 Q. [10:52:34] And maybe to illustrate all of that, I want to provide you with an
15 example and you will be able to comment on the IMEI attribution.

16 So in this example an individual used number A, which makes two calls with an
17 handset with IMEI X. Then the same handset, months later, is used by number B for
18 only one call. With only those parameters at your disposition, is it possible to
19 attribute number B to the same individual who used number A?

20 A. [10:53:23] I would think that's the weakest possible attribution.

21 Q. [10:53:32] Thank you for your answer.

22 MR PAGES-GRANIER: [10:53:37] Mr President, I see the time. I'm going to move
23 to my next subject, which is limitation of cell-site analysis, so we could do the break
24 now.

25 PRESIDING JUDGE SCHMITT: [10:53:46] I pick this proposal up. Let's have a

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- 1 coffee break or whatever, a tea break, until 11:30.
- 2 THE COURT OFFICER: [10:53:52] All rise.
- 3 (Recess taken at 10.53 a.m.)
- 4 (Upon resuming in open session at 11.30 a.m.)
- 5 THE COURT OFFICER: [11:30:36] All rise.
- 6 Please be seated.
- 7 PRESIDING JUDGE SCHMITT: [11:30:53] Mr Pages-Granier, you still have the floor.
- 8 MR PAGES-GRANIER: [11:31:05](Microphone not activated)
- 9 PRESIDING JUDGE SCHMITT: [11:31:19] It should work.
- 10 MR PAGES-GRANIER: [11:31:20] Now it's working, thank you.
- 11 Q. [11:31:22] So, Mr Brown, I'm just going -- before going to move on to the
- 12 limitation of cell-site analysis, I will just go over the last topic that we touched upon
- 13 and the example.
- 14 A. [11:31:36] Okay.
- 15 Q. [11:31:37] Earlier today you mentioned that you need a consistent picture of
- 16 attribution factors to conclude to an attribution.
- 17 A. [11:31:45] Yes.
- 18 Q. [11:31:47] You also said, as regard to the last example I gave regarding IMEI
- 19 attribution, that it will be the weakest of attributions?
- 20 A. [11:31:59] For the example you gave, yes.
- 21 Q. [11:32:03] So for the example that I gave, and bearing in mind the consistency,
- 22 would you agree that it is an association rather than a weak attribution?
- 23 A. [11:32:19] I would say an association is part of the attribution process. So you
- 24 are correct, it is an association, but that of itself provides something towards an
- 25 attribution and, as I said, a very weak attribution in that case.

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1 Q. [11:32:44] Okay, thank you.

2 I will now move to my next subject, which is the limitation of cell-site analysis. But
3 first, to have a better understanding on what we are going to talk about, could you
4 please explain what is cell coverage?

5 A. [11:33:09] Yes. We have talked a lot about cell sites, or radio base stations, as
6 they might be called. In simple parlance, cell sites is most commonly used.
7 Every network has its own collection of cell sites, thousands indeed, tens of thousands
8 of cell sites for each network and that's as a UK example. Each of those cell sites is
9 using radio transmitters to connect to their subscribers, to the handsets used by those
10 subscribers. The antennas at each cell site obviously transmit their signal over an
11 area, and that is an area -- we talked a little bit yesterday about the size of that area,
12 and it is often referred to as best server coverage. In other words, whilst the signal
13 from that antenna may go over a more extensive area, it will not be the strongest
14 signal throughout that area. Rather, a smaller area can be considered where it is
15 providing the strongest signal, and that is the best server coverage, in simple terms,
16 where that radio signal is the best one. So it is frequently -- I will talk about
17 coverage, meaning the best server coverage, rather than the total coverage area.

18 Q. [11:35:17] (Microphone not activated)

19 PRESIDING JUDGE SCHMITT: [11:35:26] It doesn't seem to be your fault. It
20 appears to be --

21 (Pause in proceedings)

22 (Discussion between the Chamber and the Court Officer)

23 PRESIDING JUDGE SCHMITT: [11:35:55] It is still not very good to hear. I think
24 it's not a solution. The technician is on his way?

25 (Discussion between the Chamber and the Court Officer)

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1 PRESIDING JUDGE SCHMITT: [11:36:35] Well, it appears that this cannot be solved
2 easily, so I would prefer to resolve this for good, so to speak, during the lunch break.
3 It is now too early for the lunch break, but could you use the one on the other side, the
4 other Defence team? Or you switch simply with Ms Bafadhel. So let us do it this
5 way and try to fix it during the lunch break.

6 Take your time to install yourself, it's not a problem.

7 MR PAGES-GRANIER: [11:37:53](Microphone not activated)

8 PRESIDING JUDGE SCHMITT: [11:38:06] So I think the only solution would be that
9 the two Defence teams switch for, let's say -- no?

10 (Discussion between the Chamber and the Court Officer)

11 PRESIDING JUDGE SCHMITT: [11:38:18] So then we have the lunch break until
12 1 o'clock. So that's it.

13 (Recess taken at 11.38 a.m.)

14 (Upon resuming in open session in Courtroom 3 at 1.06 p.m.)

15 THE COURT OFFICER: [13:06:41] All rise.

16 Please be seated.

17 PRESIDING JUDGE SCHMITT: [13:06:53] Good afternoon, in this not new, but, let's
18 say for this case, new courtroom.

19 I see that I have a hammer here, which I did not have in courtroom I, but which I
20 would not need, I think.

21 Mr Pages-Granier, you have still the floor and I hope we can hear you now.

22 MR PAGES-GRANIER: [13:07:20] (Microphone not activated).

23 PRESIDING JUDGE SCHMITT: [13:07:22] Well, I still don't hear you.

24 MR PAGES-GRANIER: [13:07:33] (Microphone not activated).

25 PRESIDING JUDGE SCHMITT: [13:07:35] I would have thought that this --

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1 MS MASSIDDA: [13:07:40] Neither can I.

2 PRESIDING JUDGE SCHMITT: [13:07:42] -- would have been solved during the
3 break, which is nobody's fault here, which is unfortunate, of course.

4 (Discussion between the Chamber and the Court Officer)

5 PRESIDING JUDGE SCHMITT: [13:07:58] But, Mr Pages-Granier is not the only one
6 who has problems, and that's the thing.

7 MS DIMITRI: [13:08:13] I don't know if you can hear me, Mr President, but it is
8 working -- this computer is working, so perhaps the case managers can swap.

9 PRESIDING JUDGE SCHMITT: [13:08:21] Yes.

10 MS DIMITRI: [13:08:22] But that's going to take a few minutes, obviously.

11 PRESIDING JUDGE SCHMITT: [13:08:25] Yes. And what about Ms Henderson
12 and Ms Prathaban, is there a chance on this side that --

13 MS HENDERSON: [13:08:31] We don't have evidence 1 either. That's the only
14 problem, I think.

15 PRESIDING JUDGE SCHMITT: [13:08:37] So let's try the following -- apologies for
16 that.

17 Actually, that normally does never happen, so I would not, let's say, want to say that
18 you have something to do with it, but really -- don't you think that this happens every
19 once in a while? No, normally it does not happen. Let's have a short pause and try
20 to rearrange so that we can finish your examination this afternoon and perhaps,
21 Ms Henderson, yours tomorrow. Yes? Okay.

22 (Recess taken at 1.09 p.m.)

23 (Upon resuming in open session at 1.18 p.m.)

24 THE COURT OFFICER: [13:18:21] All rise.

25 Please be seated.

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1 PRESIDING JUDGE SCHMITT: [13:18:37] Well, I heard that the test has functioned.

2 So let's see and let's hear.

3 Mr Pages-Granier, you have the floor.

4 MR PAGES-GRANIER: [13:18:53] "Test 1, 2, 1, 2 ..."

5 PRESIDING JUDGE SCHMITT: [13:18:54] Well, very well, without further ado
6 into the matter with the witness, please.

7 MR PAGES-GRANIER: [13:18:53] And if it may assist, I think I only have one hour
8 left, approximately.

9 PRESIDING JUDGE SCHMITT: [13:18:56] It's okay.

10 And on that, Ms Henderson, you can, I would not say decide, but if you say you can
11 finish tomorrow anyway, when you have a little bit -- perhaps a little bit more time to
12 prepare, or we could finish then after this session.

13 MS HENDERSON: [13:19:14] Is the session for one and a half hours or for two?

14 PRESIDING JUDGE SCHMITT: [13:19:19] Well, initially we have thought until 2.30,
15 and then perhaps another one hour because the judges have again other judicial
16 commitments.

17 So how long would your examination last, if you can tell?

18 MS HENDERSON: [13:19:35] I don't want to be more optimistic than I should be,
19 but it might be one hour, but it could be two hours.

20 PRESIDING JUDGE SCHMITT: [13:19:41] Well, then, I think it makes sense to finish
21 after this session then. Also for the judges it's, let's say, more comfortable, and then
22 we have perhaps only one session tomorrow, we will see. But it is like it is. We
23 cannot force it now to finish it.

24 MS HENDERSON: [13:19:56] Your Honour, I'm not sure that your microphone is
25 functioning, I have to say. It's cutting in and out with what I can hear. It might just

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1 be me.

2 PRESIDING JUDGE SCHMITT: [13:20:05] Do you hear me?

3 MS HENDERSON: [13:20:08] I think I can hear you across the floor, but not through
4 my --

5 PRESIDING JUDGE SCHMITT: [13:20:12] No, we don't interrupt here anymore. If
6 you can hear me, it's good enough, and if I'm speaking loud, then I'm speaking loud.

7 We don't need --

8 MS HENDERSON: [13:20:29] (Microphone not activated) It may be me, your
9 Honour, I apologise.

10 PRESIDING JUDGE SCHMITT: [13:20:32] No, no, it is surely not you.

11 MS HENDERSON: [13:20:33] I do hear you now. I do hear you now.

12 PRESIDING JUDGE SCHMITT: [13:20:39] Well, the more happens, the less Mr -- the
13 expert, Mr Brown, is convinced that this normally does not happen.

14 So, please, Mr Pages-Granier.

15 MR PAGES-GRANIER: [13:20:51] Thank you, Mr President.

16 Q. [13:20:53] Good afternoon, Mr Brown.

17 Just before the break, we have talked about cell coverage and I want to go back on
18 your last answer. In the last answer that you provided, you mentioned best server
19 coverage rather than total coverage area.

20 A. [13:21:14] Yes.

21 Q. [13:21:14] Now, do you agree that in the total coverage area of a cell, you will
22 have portions or areas that are best covered by other cells?

23 A. [13:21:30] Yes, within the total coverage area.

24 Q. [13:21:36] Thank you. Now I want to go back to one of your answers from
25 yesterday. It's transcript 271 at 12:37. A question was put to you by Professor

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1 Knoops regarding the range of antenna and he provided you with an example. In
2 your answer, you stated that:

3 "I would expect the network operator to use a high power level for that cell site
4 because they would not only wish to cover the tower, they would wish to also cover
5 the approach roads. So it would need a fuller assessment to consider where are the
6 next cell sites. But they would be foolish if they had not designed the network to
7 provide continuous coverage along the access route to that [...] town. So I would
8 expect it to be a large coverage, 20 or even that theoretical 30 kilometres possibility."

9 A. [13:22:49] Yes.

10 Q. [13:22:50] I would just like to clarify this answer. When you mention
11 "continuous coverage", such continuous coverage, would it usually connect multiple
12 cells or antennas along that road?

13 A. [13:23:07] Yes, it is -- it clearly depends on the length of the road we are talking
14 about, but, yes, any road of significant length would need multiple cell sites to
15 provide best server coverage along its whole length.

16 Q. [13:23:35] Thank you. Could you please explain what is a patch in cell
17 coverage?

18 A. [13:23:47] How can I put it? If you think of radio waves, much like you might
19 think of light waves, they are both different parts of the same radio frequency
20 spectrum. And quite simply, a patch can be either a patch absence of coverage, just
21 like there may be a shadow from light, but also there may be a bright spot from light
22 and there may be a patch of coverage. In other words, the coverage is not
23 necessarily continuous, it does not necessarily have any holes in it, and
24 some -- particularly when you look at best server coverage in normal terrain, there
25 will be patches of best server coverage that crop up further away from the cell site.

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1 Very close to the cell site, then it is -- it may be near continuous from that cell site
2 location, but the further away you go, then it would tend to break up at the edges
3 with patches from that cell site and other parts filled in by signals from other cell sites.

4 Q. [13:25:09] Thank you for this definition. Now, for the network providers, what
5 methods of maintenance do they have to undertake to maintain the accuracy of their
6 coverage?

7 A. [13:25:33] The vast majority of networks use sophisticated radio planning
8 software -- in simple terms, a computer program that predicts where will there be
9 coverage from a cell and where in particular will there be the best server coverage
10 from each cell. If they want the best possible quality of prediction, then they must
11 maintain an accurate database of the details of the cell site. A number of factors
12 would be critical -- the height of the antennas, the exact location of the cell site, the
13 direction of the antennas. One of the things you can do with an antenna is to tilt it so
14 that its signal goes to a reduced area. So there are a number of technical factors that
15 they would maintain in this database so that when they ran the software, they would
16 get the best possible prediction of where that cell will be the best server.

17 Q. [13:26:59] Thank you. Once you have used this software to prepare the
18 network over a long period of time, what are the steps the network will have to
19 undertake to maintain the same coverage that they try to have in the first place?

20 A. [13:27:31] Networks would generally do something to monitor the quality of
21 their network. The main telephone exchanges - we referred to the MSCs - will be
22 programmed to provide alarms for particular types of fault in the network, and of
23 course they may have customer complaints about poor coverage areas or problematic
24 coverage, and the engineers would therefore look for solutions. So it may be that
25 they change some of the parameters of an existing cell site and in other cases they

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1 may choose to add additional cell sites. Additional cell sites are frequently provided
2 to either increase the total capacity of the network, or to provide new coverage to
3 areas that were not previously covered. Of course, any of those changes that they
4 then make should be included within their database of the current network so that
5 they can then continue to make accurate predictions for the network coverage.

6 Q. [13:28:51] Thank you for those details.

7 In your last to previous answer you mentioned like tilting the antenna. Is it the same
8 thing as recalibrating an antenna?

9 A. [13:29:12] No. I'm not sure what you are referring to as recalibrating an
10 antenna. So, different antennas will have slightly different characteristics of the
11 coverage that they provide. Most are designed to cover a pattern of coverage. In
12 simple terms, you could think of it as a large teardrop shape from the antenna going
13 forward, but it is a little bit more complicated than that.

14 If they were to use a new antenna type, they might wish to carry out some
15 measurements so that they understood it and they may need to add some additional
16 parameters to their prediction software to accommodate that different antenna.

17 Q. [13:30:09] Correct me if I'm wrong, but I think we're talking about the same
18 thing. When I talked about recalibrating an antenna, I had in mind a technician that
19 will go on the physical antenna -- sorry.

20 (Counsel confers)

21 MR PAGES-GRANIER: [13:30:47]

22 Q. [13:30:50] Sorry for this small interruption. And I will be more precise. I
23 talked about recalibrating in the sense of an antenna, its power.

24 A. [13:31:01] Yes, one of the parameters that it is possible for the engineers to
25 change is the power. I have mentioned it previously that at full power, the signal

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1 may be transmitted too far so that it starts to interfere with other antenna signals, so
2 they may wish to change that power level so that it covers a reduced area. That
3 would commonly be done if new cell sites are introduced, so that they would
4 recalculate what does the power need to be for every one of these antennas in this
5 new configuration of the network in that area.

6 Q. [13:31:43] And all of this work should be recorded in the database so it will take
7 into account all those changes?

8 A. [13:31:55] Yes, if they wish to be able to make accurate predictions, they would
9 need to record that information.

10 Q. [13:32:02] Could you explain to us what is a drive survey?

11 A. [13:32:10] Yes, of course. There are a number of types of survey, either carried
12 out on behalf of a cell site expert or on behalf of the network. So the networks, for
13 their own quality purposes, may choose to drive the survey equipment around a
14 given area, and very simply what it is doing is seeing how strong are the signals and a
15 number of other technical parameters that they can record as they drive around.
16 And that provides them with a picture of what does the coverage actually look like,
17 the best server coverage actually look like, compared to their prediction model. So a
18 number of networks might use drive surveys to ensure their prediction model is
19 working accurately.

20 Q. [13:33:11] In a situation where such drive survey were not possible -- it was not
21 possible to conduct them, in a situation where there is a lack of prediction software
22 that you mentioned earlier, if that is not available, what is the impact on the reliability
23 of your cell-site analysis?

24 A. [13:33:34] For reference to geolocation work, an accurate location of the cell site
25 can be important. I have seen examples where the database information provided

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1 suggests the cell tower was on the top of a particular mountain, but we could
2 physically see that it was on the top of a different mountain. So clearly that would
3 have an impact on any cell-site analysis, any geolocation analysis.

4 Q. [13:34:19] So it will mean that the proper recording of this information, and to
5 make sure that the database is up to date, is a crucial, crucial requirement for you to
6 then do a cell-site analysis?

7 A. [13:34:39] Yes. If the information provided is incorrect, then the cell-site
8 analysis will to at least some extent be incorrect.

9 Q. [13:34:53] I want to show you a CDR now and have your comments on it. It is
10 at Defence tab 33, CAR-OTP-2054-1480.

11 Is it on your screen, Mr Brown?

12 A. [13:35:34] Yes, it is.

13 Q. [13:35:36] Okay. So, on this CDR, we can see in the column M the
14 identification number of a cell.

15 A. [13:35:48] Yes.

16 Q. [13:35:50] And in column O, some site name?

17 A. [13:35:58] Yes.

18 Q. [13:35:58] When you have such a CDR where the cell ID is recorded but not the
19 geographical location, or is not always the case, will that be an indication to you that
20 the database is not up to date?

21 A. [13:36:13] It is not uncommon to see missing information in a cell site database.
22 How much information is missing obviously depends on the degree of impact it
23 would have on the cell-site analysis. If most of the information is missing, then
24 clearly it's a major impact.

25 Q. [13:36:46] Would you draw a specific conclusion as to the fact that the cell IDs

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1 are properly recorded, apparently for most of them, but that the site name is not
2 present? Would just this fact -- would you have any comments on it?

3 A. [13:37:06] It's difficult to make any comment without knowing more from the
4 network operator as to why it might be absent. Looking at this example, I can see
5 that numbers beginning 15 appear to be missing a lot of their information. It could
6 be that is a particular type of cell site. So it's possible that there's a reason why it is
7 not present. We can see here also cell ID 9999, and that, as far as I'm concerned, is a
8 default number where I would not expect to see a site name.

9 As I said, it depends. If this particular -- if these 15 cell sites are very common in this
10 data, there is clearly something wrong with either the CDR production process or
11 with the database that provided the data to the individual that created the CDR.

12 Q. [13:38:22] Thank you for your comments.

13 For the record, on this document rows 48 to 63 were shown to the witness.

14 In your report, you also explain that no expert can pinpoint where the mobile
15 telephone was specifically located within the extent of coverage of the cell used.

16 A. [13:39:02] That's correct.

17 Q. [13:39:05] My first question relates to the antenna to which a phone connects
18 during a call. Is it exact that it is not always the physically nearest antenna that is
19 used?

20 A. [13:39:21] No, it needn't be the closest antenna.

21 Q. [13:39:25] So, earlier, you talked about best service coverage that will be linked
22 to the strength of the antenna, so the one with the most strength will be the one
23 providing the best server coverage?

24 A. [13:39:39] Yes, that's the normal situation.

25 Q. [13:39:43] Is it even always the strongest signal that is used to establish a call, or

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1 are there situations where even a weaker signal could be the one chosen to go through
2 the call?

3 A. [13:40:06] There are some exceptional circumstances whereby the strongest
4 signal is not selected. If it's an important point, I can perhaps expand further on that
5 as a subject, but in all normal circumstances, it will be the strongest signal.

6 Q. [13:40:36] So I think if it is fair, we can leave it as it is a possibility?

7 A. [13:40:43] Yes, technically it is possible for the network to make that happen and
8 in very brief instances. Perhaps if I add a little bit more.

9 The strength of the signal you are receiving at wherever you are is constantly
10 changing so that if you are somewhere where there are more than one signal, those
11 signals may be changing in their relative strengths. So that one minute one might be
12 the strongest; the next second a different one might be the strongest. But the
13 network won't instantly switch you to the strongest. It waits a short period of time,
14 typically only a few seconds, to make sure that it is going to stay the strongest signal.
15 And if it does that, then it will swap you over to it. So for that brief period, yes, you
16 might be using what is technically a weaker signal.

17 The other situation may be where the network does not want you to use a particular
18 antenna because of some design issues related to the position of that antenna. For
19 instance, I have seen this done where a signal was very strong at a road junction, but
20 people waiting at traffic lights would be swapped onto what the network considered
21 to be the wrong signal, so they deliberately set some parameters to make sure that a
22 weaker signal would be used in that particular location.

23 So not often used, but it's certainly a possibility for the network to do that.

24 Q. [13:42:30] Thank you for all those details.

25 You talked about the variation of the strength of the signal. I just want to put a

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1 concrete example.

2 If right now I would take my phone and make a phone call, I will connect to an
3 antenna and in three minutes, while not moving and still being there, I would take
4 my phone call, make another call, but I will be able to connect to another antenna,
5 right, while not moving?

6 A. [13:43:03] Indeed. Even within a few seconds you might connect to a different
7 antenna.

8 Q. [13:43:11] Thank you.

9 Now to go back on the subject of cell-site analysis. Could you please provide an
10 explanation as what is a cell-site analysis, what it consists of?

11 A. [13:43:30] Cell-site analysis is generally used to describe a number of activities
12 related to the analysis of call data records. Primarily, that is towards analysis for the
13 purposes of attribution and, secondly, towards the geolocation of the mobiles. So
14 those are the two main areas that are encompassed by cell-site analysis. It uses the
15 historical data recorded by the network; it does not use live information that would
16 be available to the network operator at any one time.

17 Q. [13:44:21] You just mentioned the historical data of the network operator.
18 What other type of information would you need to conduct a proper cell-site
19 analysis?

20 A. [13:44:35] I've referred to the three types of information that I would want
21 available -- that is, the billing records combined with the call management
22 information to create a CDR. The CDR would normally contain at least the identity
23 number of the antenna used and, therefore, either included in the CDR file or in a
24 separate file I would want to find further information detailing the location and
25 orientation of the antennas for the cell site that had been used.

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1 Q. [13:45:18] When you talk about the orientation of the antenna, is it what we call
2 azimuth.

3 A. [13:45:30] Yes, so technically called the azimuth of the antenna. Very simply, it
4 is the compass bearing in which the direction the antenna is pointing.

5 Q. [13:45:38] What will be the impact on your work doing a cell-site analysis if you
6 did not have any information regarding the azimuth of antennas?

7 A. [13:45:50] If I don't know the azimuth of the antenna, I have to assume that it
8 could be pointing in any direction from that cell site location. So I have to allow a
9 full 360 degrees around that location.

10 Normally, if I have the azimuth, then I need only consider one-third of that circle, so
11 120 degrees from that location.

12 Q. [13:46:22] So it would have an impact on the precision of your analysis?

13 A. [13:46:28] Exactly that.

14 Q. [13:46:31] Could you now briefly explain what is the phenomenon of congestion
15 of an antenna?

16 A. [13:46:43] Yes. Each of the network operators has a limited set of radio
17 frequencies that they are able to utilise in their network. Those frequencies are
18 normally allocated to them by their national government. The networks and the
19 amount of frequencies they have available to them determines the total capacity that
20 they can have in their network.

21 Each cell site can only carry a certain number of calls before it is effectively full, before
22 it has reached its capacity. At that point, the network has to make a choice as to
23 what to do with any further calls. Some networks choose simply to tell you it's
24 congested, try again later - although they might not tell you that, you just can't get a
25 connection - other networks have an option to allow you to connect to a weaker

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1 signal.

2 Q. [13:47:59] Does this phenomenon of congestion have an impact on cell-site
3 analysis; and, if yes, what is the impact?

4 A. [13:48:08] It is not normally of concern except in circumstances where I can see
5 there may be a reason for congestion. The networks do try very hard to not have
6 congestion, because that is less than optimal for their network. If I knew that there
7 had been some reason that there may be congestion, then I would provide further
8 consideration of that. I have referred to the fact that I would always endeavour to
9 consider a sequence of calls to help assist with location. If that sequence of calls are
10 all consistent with each other in what they are telling me, then I'm content. There
11 will be times when I may see a possible difference in that series and that may be a
12 possible explanation.

13 Again, it depends how much of an impact that has as to how critical is the timing that
14 I am being asked to consider for location. If I'm being asked to consider location
15 within a few minutes, it becomes more relevant than if I'm being asked to consider the
16 general location at a general -- a more general time.

17 Q. [13:49:37] Thank you for this detailed explanation.

18 Could you tell us what kind of events could cause the congestion of an antenna?

19 A. [13:49:50] Yes. Perhaps the most common might be a road traffic accident
20 where there are suddenly a lot of cars stationary where the network would have not
21 anticipated the need for the capacity that's then required while everybody phones
22 ahead to let people know what's happened and where they are. Any kind of
23 emergency situation can also have that. The networks have some capabilities then to
24 restrict access to the network so that the remaining capacity can be provided only to
25 emergency services. And, similarly, major sporting events would stress the capacity

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1 of the network, although, again, the best networks will try to allow for a typical
2 football match because they know the location. So those are circumstances where it
3 might crop up.

4 Q. [13:50:57] Could we summarise this to an event that leads to a high number of
5 calls could cause congestion?

6 A. [13:51:10] Yes. Particularly any unexpected events. So there may obviously
7 be over time unexpected growth in a particular area for mobile phones if a new
8 housing estate is suddenly developed. Those are longer-term situations where the
9 network would start to notice a problem. I think generally you're talking about the
10 short-term event where there is unexpected demand on the network.

11 Q. [13:51:40] And would it be fair to say that during this short-term event that
12 caused congestion, the cell-site analysis that you will be able to do will be less precise
13 during the time frame of this event?

14 A. [13:51:56] Yes, that's a reasonable statement.

15 Q. [13:52:00] Yesterday, you mentioned the usual range of the signal of an antenna.
16 I just want to put to you an example and you can provide your comments.
17 From your experience, is it possible that while in a city to connect to an antenna
18 located in another city which is located 100 to 120 kilometres away?

19 A. [13:52:31] It's not technically possible.

20 Q. [13:52:37] Thank you for your assistance, sir.

21 I'm now going to move to my next subject, which is the guides and the CSTs that we
22 provided to have your comments on the process that is described.

23 I would just ask for one minute to collect the documents.

24 PRESIDING JUDGE SCHMITT: [13:52:57] Take your time. Ms Henderson.

25 MS HENDERSON: [13:53:06] Sorry, your Honours, while Mr Pages-Granier is doing

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1 that, I just wanted to flag that there were a number of these documents disclosed on
2 Friday. Nine in total. They aren't on the Yekatom Defence's list of evidence. I
3 have discussed this with my colleagues and I'm not sure what the intention is with
4 this witness in terms of submission, but our position is that there would need to be
5 application to add them to the list of evidence before they would be submitted.

6 PRESIDING JUDGE SCHMITT: [13:53:35] I think, Ms Dimitri, I think you could
7 comment on that. This is not how we normally do it. Normally, we also allow it,
8 but please tell --

9 MS DIMITRI: [13:53:48] Thank you, Mr President. I think the situation is a bit
10 different, indeed, because Mr Brown is not our witness. We are not the calling party.
11 So the exercise that my learned friend is suggesting means that every time we are
12 going to use items in cross-examination, if you allow me the word, with a witness, we
13 would need to make an application to add it on the list of evidence, which is not very
14 practical.

15 We received the material from the non-calling party five days before, and it's upon
16 the assessment of that material that we decide what we will or will not use in
17 cross-examination. And the same, I would suggest, would apply to the Prosecution;
18 it means that every time the Prosecution would use items in cross-examination of
19 Defence witnesses, they would too have to amend their list of evidence.

20 PRESIDING JUDGE SCHMITT: [13:54:48] Yes. Ms Henderson.

21 MS HENDERSON: [13:54:52] Sorry, perhaps I -- I might have created a debate that
22 isn't there, because we are not objecting to the use of the items. I'm just flagging that
23 for them to be submitted, if that's ultimately the purpose, that there would need to be
24 an application for that to happen.

25 PRESIDING JUDGE SCHMITT: [13:55:07] Okay, yes, now, I've understood. So also,

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1 I think I was also not -- well, that is, at least now, at 13:55, not an issue yet, yes?

2 Please continue. And, by the way, since we have a, so to speak, short interruption
3 here, we can still -- if you are sure you don't need more than an hour, we can still
4 ponder. It depends a little bit on the examination by Mr Pages-Granier, that we
5 make a shorter pause and then finish today, but you can think about that.

6 MS HENDERSON: [13:55:43] I can certainly try. I can't make a promise, but I can
7 try to keep it to an hour. It depends on how smoothly it goes.

8 PRESIDING JUDGE SCHMITT: [13:55:51] Okay. That is too indefinite, I would
9 say.

10 Please continue.

11 Let's wait for the moment.

12 MR PAGES-GRANIER: [13:55:58] Thank you.

13 Q. [13:56:01] So Mr Brown, we provided you with the documents which contain
14 guides, CDRs and the CSTs that were produced through those CDRs.

15 A. [13:56:12] Yes.

16 Q. [13:56:13] Did you have time to look at those documents?

17 A. [13:56:15] Yes, I have browsed those documents to familiarise myself with the
18 general content.

19 Q. [13:56:19] Thank you for that. While we go through the process, feel free at any
20 time to look on your computer to the documents if what we show on the screen is not
21 sufficient.

22 A. [13:56:33] Okay, thank you.

23 Q. [13:56:35] So the first document that I will -- the first document that I will want
24 for us to bring to the screen is the Defence tab 2, CAR-D29-0004-3913. As it is
25 indicated, it is a guide that relates to CDRs provided by the network company,

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1 Orange. And all of the CDRs that are mentioned in this document were provided in
2 a CSV format, and the CDR were multi-targets.

3 So my colleague is going to show the five CDRs that are mentioned, which begin by
4 2054. And from the CDRs, 18 different CSTs currently shown on the screen were
5 processed.

6 First, especially as it is the first guide - and it will be streamlined for the other one - I
7 would just want for us to have a look at one of the CDRs and one of the CSTs to see
8 the differences.

9 So the CDR that I will want for us to have on the screen is Defence tab 33,
10 CAR-OTP-2054-1480.

11 And from the CDR, CSTs were created and such an example can be found at Defence
12 tab 23, CAR-D29-0004-1241.

13 So, Mr Brown, as it is the first guide, we will go through the steps taken to produce
14 the CSTs that we currently see on the screen.

15 A. [13:58:38] Okay.

16 Q. [13:58:39] I will then ask you to elaborate on certain steps but, of course, if there
17 are any steps in the guide that will be shown on the screen on your computer that I
18 don't stop at that you wish to comment on, please feel free to do so.

19 A. [13:58:52] Okay.

20 Q. [13:58:55] So, as explained underneath the "general process", I think it is
21 important for what kind of documents were originally processed. The CDRs were
22 taken in a CSV format and downloaded from Nuix, which is a platform used at the
23 Court. A working copy is then created in an Excel format and we keep the original.
24 One of the first steps that we take is that some of the CDRs are in a single column, and,
25 as you briefly mentioned this morning, we divided it in multiple columns by using

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1 the "Text to Columns" function of Excel?

2 A. [13:59:43] Yes.

3 Q. [13:59:43] And then we deleted the columns that you see in red currently on
4 your screen, as they were not useful for future assessments.

5 A. [13:59:54] Okay.

6 Q. [13:59:56] So, for your assessment, no comments for now?

7 A. [14:00:00] No, that's all straightforward.

8 Q. [14:00:07] Thank you.

9 And maybe we can switch back on the CDR briefly to explain the second step.

10 Then, as you can see, column A contains the date and hour of the end of the call, and
11 the date and hours are in a single column.

12 A. [14:00:37] Yes.

13 Q. [14:00:37] The next step on the guide that we are going to show on the screen in
14 a few seconds --

15 PRESIDING JUDGE SCHMITT: [14:00:49] But it gets really -- you are doing this
16 really quick, so we appreciate that, because it's not -- I can at least sense that it's not an
17 easy task.

18 MR PAGES-GRANIER: [14:00:59] Thank you. I confirm.

19 Q. [14:01:03] And then the second big step that we undertook is to split this first
20 column, which contained both the date and hour, into two columns -- one for the time
21 and one for the date?

22 A. [14:01:29] Yes.

23 Q. [14:01:29] To do this, we used the process described in the guide. You can have
24 a look at it and tell us if you have any comments on it.

25 A. [14:01:39] No, I've had the opportunity to read this and agree it is a -- one of the

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1 methods that can be used to do this.

2 Q. [14:01:50] Would you also confirm that it is useful to divide the date and time
3 into columns and not to have them in a single one?

4 A. [14:01:58] Yes. Certainly that is always my preference. It's a lot simpler to
5 manage the data when it has been split.

6 Q. [14:02:12] Then the next step, as described in the guide, is that we extracted the
7 number of interest and copied them in the new Excel sheet?

8 A. [14:02:23] Yes.

9 Q. [14:02:24] This type of CDR could have two lines per call as we saw with some
10 examples earlier, if both numbers in a call are targeted numbers? The goal --

11 A. [14:02:38] That's correct.

12 Q. [14:02:39] The goal, when we produce a CST, is to have only one line per call
13 and for that we want to keep the lines of the CDR which record the target numbers
14 activity and metadata?

15 A. [14:02:54] Yes.

16 Q. [14:02:56] Otherwise, if we don't follow this step, we may have two lines per call,
17 if both ends of the call are recorded in the CDR?

18 A. [14:03:05] Yes, that's correct.

19 Q. [14:03:08] And to do this process, we did an analysis of the IMSIs of the call
20 selected?

21 A. [14:03:17] Yes. You just need a method of identifying those lines that relate to
22 the target number, and this is a good method to do that.

23 Q. [14:03:36] Thank you. Then we are going to go on the next page of the guide
24 and we can follow the steps. We renamed some columns, merged the two columns
25 for duration into one, using Excel and the function =SUM, and we formatted the call

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1 tabs with the examples that you can see in the table on your screen?

2 A. [14:04:01] Yes.

3 Q. [14:04:02] Would you agree with the process shown?

4 A. [14:04:05] Yes, that's straightforward and makes the data easier to use.

5 Q. [14:04:12] Thank you. And then after that, we can see for each of the 18 CSTs
6 created, their specificities. If you want, you can have a read of them and tell us if
7 you have any comments.

8 A. [14:04:33] Yes, I think most of note there was that a number of the CSTs are an
9 extract of that, what I might call master CST, where you are interested in its
10 interaction with a particular other mobile. So a straightforward activity to extract
11 those interactions between two noted numbers.

12 Q. [14:04:57] Thank you. To conclude with this guide, would you agree that the
13 process described does not change the data?

14 A. [14:05:12] That's correct. There was one area I did have a concern, which was
15 the time of the calls. If you show the CDR again briefly, you can see that the column
16 A only contains the time as an hour and minutes, but if you click on one of those cells,
17 you can see in the header box above the columns that, in actual fact, the seconds are
18 also included in that, and I checked for myself that the seconds had then been
19 transported through to the CST, and indeed they had been.

20 Q. [14:05:58] Thank you very much for your useful comments and to have gone
21 through the work of going through this material.

22 PRESIDING JUDGE SCHMITT: [14:06:04] Well, that was quite impressive, I have to
23 say, and also I think we could also follow. Thank you.

24 MR PAGES-GRANIER: [14:06:12] Thank you.

25 Q. [14:06:14] And as --

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1 PRESIDING JUDGE SCHMITT: [14:06:14] And I think in the end this will be
2 submitted, so I think it would be strange, but, of course, you do what you want, so to
3 speak.

4 But okay, please continue.

5 MS DIMITRI: [14:06:28] Let's try and do it without a list of evidence amended.

6 PRESIDING JUDGE SCHMITT: [14:06:32] Okay.

7 MR PAGES-GRANIER: [14:06:42]

8 Q. [14:06:43] Then for the next one --

9 MR PAGES-GRANIER: [14:06:45] Because a lot of the steps are similar, so --

10 PRESIDING JUDGE SCHMITT: [14:06:47] No, no, I understood this was the general
11 path --

12 MR PAGES-GRANIER: [14:06:48] Yes.

13 PRESIDING JUDGE SCHMITT: [14:06:49] -- to understand the process and
14 specifically to clarify and verify with Mr Brown that this process was one that did not
15 taint the data, so that that's -- and we have understood that.

16 MR PAGES-GRANIER: [14:07:05] Exactly. And we have four further guides, but it
17 will be way faster, because some of the steps are the same, and we'll just look at the
18 differences that they may have with the first ones that we did, so it should streamline
19 --

20 PRESIDING JUDGE SCHMITT: [14:07:21] We are fine with that. Except Mr Brown
21 would say, no, no, this is absolutely out of the way, this is not professional, but he
22 will not, I think.

23 MR PAGES-GRANIER: [14:07:32] Hopefully he doesn't.

24 Q. [14:07:39] So the next guide that we are going to show on the screen is Yekatom
25 Defence tab 4, CAR-D29-0004-3920. It is also a guide for one CDR provided by

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1 Orange, but which had differences with the first one that we saw and the new guide.
2 This CDR was also provided in a CSV format and it is a multi-target numbers one.
3 We are going to quickly show this CDR on the screen, which is tab 41 of the Defence,
4 CAR-OTP-2135-4034. So you have the example of this CDR?

5 A. [14:08:43] I do have it, thank you.

6 Q. [14:08:45] And then the CST that was produced can be found at Yekatom
7 Defence tab 40, CAR-D29-0004-3899.

8 A. [14:09:02] Yes.

9 Q. [14:09:04] So, now that we are on the guide you can have a look at it, but the
10 main difference, as we will be able to see in the column -- in the table, sorry, is that
11 this CDR contained more columns and we indicated there the ones that were deleted
12 when producing the CST.

13 A. [14:09:26] Yes.

14 Q. [14:09:29] Would you also agree that the process done through the CDR to
15 process the CDR into a CST is sound?

16 A. [14:09:39] The process is sound. I saw one difficulty with this particular CDR
17 file, if you want to put that on screen.

18 Q. [14:09:52] Yes, we can do that.

19 A. [14:09:54] If you could double-click on the divider between the A and B, this
20 then changes the width of this data to its maximum. If you now scroll away to the
21 right, you can see that whilst the top line did extend to a single number, there is
22 additional data below which appears to be other in column A and, indeed, appears to
23 be now in column B. So whilst that wasn't recorded in the process you've described,
24 it would be very obvious to somebody doing this process that something wasn't quite
25 right, and I've assumed they have corrected that as soon as they saw that. But it just

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1 wasn't included in the description that that might be the case.

2 Q. [14:10:53] Thank you for those details. And if I'm provided with the answer to
3 your question, I'm going to provide it to you.

4 Then I think we can go to the third guide, which now refers to CDR provided by the
5 Telecel company, so another network provider of the Central African Republic.

6 So we can put on the screen the guide which is at tab 3 of the Defence binder,
7 CAR-D29-0004-3918. The CDRs included in this guide were provided to us in Excel
8 format and they are multi-target ones. As can be seen on the guide, from the three
9 CDRs, three CSTs were created.

10 We are going to show on the screen an example of a CDR provided by Telecel
11 company and we are going to show Defence tab 7, CAR-OTP-2008-0480.

12 As can be seen on the screen, the CDR was divided in multiple tabs which each refers
13 to a different month.

14 A. [14:12:31] Yes, I see that.

15 Q. [14:12:36] We are now going to show page 3918 of the guide. The beginning is
16 still the same regarding the process that we use to save a file with a working copy and
17 keeping in an original.

18 And as indicated in the guide, the target numbers the Defence is interested in is
19 identified and copied from the MSISDN column of the CDR and it is copied into a
20 new single spreadsheet. And this step is done for each of the tabs corresponding to
21 the different months.

22 A. [14:13:34] Okay.

23 Q. [14:13:35] Would this process be sound?

24 A. [14:13:36] Yes, I believe so.

25 Q. [14:13:44] Then, as was done with the Orange CDR, we split the date and hour

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1 column with the same process. Would you have any specific comment on it?

2 A. [14:13:57] No, that's satisfactory.

3 Q. [14:14:01] Then another step, as described in the guide, is that a column is
4 started for the attribution of the corresponding number. That will appear in the
5 CST?

6 A. [14:14:19] Yes, I would do the same.

7 Q. [14:14:20] And unless I'm mistaken, I think I forgot to show a CST that was
8 created from this CDR. So just so that we can have a look at the final product, if we
9 could show on the screen tab 6 of the Defence, CAR-D29-0004-0047. That is an
10 example of a final product, CST.

11 A. [14:14:50] I would note the date here has been reformatted to the more common
12 date/month/year rather than the original format.

13 Q. [14:14:58] Yes.

14 A. [14:14:59] But, again, a simple process.

15 Q. [14:15:02] Thank you for the details.

16 Then we can go on the fourth guide which still relates to Telecel CDR and we are
17 going to show Yekatom Defence tab 1, CAR-D29-0004-3912.

18 The document is blinking on my screen, but I don't know if it's only my -- I don't see
19 the document on my screen, but it may be just an issue with this. No, it's fine.

20 So this guide relates to a CDR provided by Telecel and that were provided in a CSV
21 format and it was a single target CDR.

22 From this CDR, two CSTs with CAR-D29, here shown on the screen, were created.

23 I will first show on the screen an example the only CDR used, which is tab 14 of the
24 Defence binder, CAR-OTP-00000125.

25 As you can see, now the details contained in one sheet contrary to the previous

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1 Telecel CDR that we saw, which was divided by months and different tabs?

2 A. [14:16:48] Yes.

3 Q. [14:16:48] And here is an example of a CST that was created, which is Defence
4 tab 12, CAR-D29-0004-2592.

5 We can go back to the guide and you can have a read. It is the same process that was
6 done for the last one, the difference being that the previous CDR was divided
7 by months but this one was not.

8 A. [14:17:25] Yes.

9 Q. [14:17:26] Would you have any specific comments on this process?

10 A. [14:17:29] No, this one I think was straightforward.

11 Q. [14:17:36] Thank you.

12 I'm reaching the last one, which is also a guide for CDR provided by Telecel company,
13 and we are going to show on the screen the guide which is at tab 5 from the Defence
14 binder, CAR-D29-0004-3922.

15 The CDR was provided in a CSV format and it is a multi-target CDR, and we are
16 going to see it on the screen.

17 Sorry, we are going to show the CDR on the screen, which is at tab 39,
18 CAR-D29-0004-0003.

19 As you can see, another different CDR from Telecel company as now each targeted
20 phone number has its own tab which is shown at the bottom of the screen by my
21 colleague.

22 And we are now going to show a CST created from the CDR, which is at tab 38 of the
23 Defence binder, CAR-D29-0004-3895.

24 As a first step, the tab corresponding to the number for which we created a CST is
25 extracted into a new spreadsheet.

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1 Is this step sound, in your opinion?

2 A. [14:19:26] Yes, I think you said the original file here was a CSV. I disagree. I
3 have it -- at least the copy I have here is an Excel workbook, not a CSV. It would not
4 necessarily make much difference, but the process would be slightly different. I
5 think the process is sound for the file you've got.

6 Q. [14:19:47] Okay. We are still going to check and maybe it's a mistake that I
7 made in my document that I'm currently presenting, and if we have the answer, we
8 are going to provide it to you, just for the record.

9 Then the next step will be as follows: There was a CDR, two CSTs that we saw, the
10 splitting of the date and hour function, the date and hour column, still using the
11 text-to-column function in Excel. Would you have any comments on that?

12 A. [14:20:23] No, that's good.

13 Q. [14:20:25] Then, as described in the guide, columns are added for call number
14 reference, source of CDR used and attribution?

15 A. [14:20:35] Yes, all good.

16 Q. [14:20:39] Finally, as described in the last paragraph, a filter is placed on the
17 correspondent number that we are interested in, and then the result is extracted into a
18 new Excel document.

19 Is the process sound?

20 A. [14:21:04] Sorry, just one moment, please. There's something I just want to just
21 check for myself.

22 Yes, I'm happy. The process is sound.

23 Q. [14:21:37] Thank you. And, for the record, I just got the confirmation that I
24 made a mistake and it was originally an Excel file and not a CSV file.

25 A. [14:21:45] Okay. Thank you.

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1 PRESIDING JUDGE SCHMITT: [14:21:48] But this mistake is not material in any
2 way, as we can derive from the answer, or the remarks by Mr Brown.

3 MR PAGES-GRANIER: [14:22:04]

4 Q. [14:22:05] I now finish with the presentation of the CSTs to you, but I still have
5 some questions on this topic.

6 A. [14:22:14] Okay.

7 Q. [14:22:15] We just went through the CDRs from Orange and Telecel company,
8 and we saw that there are differences in the CDRs, even inside the same company.
9 Is that usual?

10 A. [14:22:29] It is usual during the investigative stage of any case in that the
11 investigators don't necessarily know immediately what they need, so they start with
12 one request and then they realise they need something a bit different. So in my
13 experience, yes, there will be differences depending on what was asked for. Yes, I
14 would consider that to be normal.

15 Q. [14:23:06] Which would explain why some CDRs are divided by months, some
16 just in a single column, or just others in a targeted number?

17 A. [14:23:16] Yes, exactly that. It may be, of course, that a different operator was
18 asked to create it and they've simply interpreted the instruction slightly differently, or
19 had some feedback that it wasn't wanted a particular way.

20 Q. [14:23:33] I now want to present to you a filing - so not a document, a filing that
21 is in the case record - and it is a filing for the Prosecution. It is filing 1296, which is a
22 physical binder at tab 45. And it's a filing related to the submission of call data
23 records through a bar table motion.

24 We are now showing on the screen paragraph 16 and 17.

25 On Tuesday, the first day of your testimony, at 10.37, you mentioned in relation to a

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1 software that you use that you may need to sometimes physically rearrange some of
2 the data so that the software is able to recognise this data.

3 A. [14:24:34] Yes.

4 Q. [14:24:37] However, we see that paragraph 16 talks about different file format of
5 CDR. Would you need also to manipulate some CDRs in order to combine them
6 into a compatible file format for the software?

7 A. [14:24:56] For the .txt files, that would be definitely the case. Certainly the
8 software I use cannot automatically read those files and it would need to be translated
9 into an Excel-type format. So .csv and .xls files can be used, but before I use them, I
10 would need to check that the column titles were ones that the software understood.
11 And it may be I needed to change those titles and in some instances I have needed to
12 change the date or time formats into something my software comprehends.

13 Q. [14:25:45] Would you also need to manipulate or to modify an Excel that
14 contained a several tabs, as an example, the Telecel one with different months before
15 unloading it into the software?

16 A. [14:26:04] Yes. Certainly, the standard software I use only likes to see one sheet
17 at a time, so I would have to split that into as many files as there were tabs of the data.

18 Q. [14:26:25] Thank you.

19 Now, if you could, please, read paragraphs 18 to 20, which will be shown on your
20 screen, and could you please comment on the process described by the Prosecution?
21 Is there anything that your expert eye is intrigued about?

22 A. [14:26:43] I have talked about differences in call durations and start times, and
23 certainly if it is only one or two seconds, that is not a discrepancy I would be
24 concerned about as being one that was being standardised as described here.

25 I would be more concerned if that related to text messages and concerned if that

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1 related to discrepancies of more than two or three seconds.

2 Q. [14:27:36] Just for the record, is your comment related to paragraph 18(a) that
3 you are currently seeing?

4 A. [14:27:48] Really to all of it.

5 Q. [14:27:57] From this point (a) in the filing, where there is a mention of
6 discrepancy in the time stamps, are you able from this description to understand how
7 big the discrepancy is?

8 A. [14:28:12] No, obviously I can't see, hence I mentioned a few seconds would not
9 concern me. More would concern me.

10 Q. [14:28:30] Then on point (b) of this filing, the Prosecution says where there
11 discrepancy was between two records of the outgoing call, the lower value was used.
12 Do you understand what is meant here, given that it is a record of apparently the
13 same one record?

14 A. [14:28:52] Yes. As I've said, it is certainly common to see a discrepancy of a few
15 seconds, and to use the lower value does have the benefit that it is not exaggerating
16 the duration of the contract -- sorry, contact.

17 Again, if it's a greater discrepancy than that, I would want to understand why.

18 There are circumstances when it can be explained and it's reasonable to, therefore,
19 take the lower value and circumstances where I would be unhappy that had been
20 done.

21 Q. [14:29:29] Then in paragraphs 19 and 20, there is mention of duplication.
22 With information alone provided in this filing, does the process accurately depict a
23 high or low for the deletion of duplicative calls?

24 A. [14:29:56] As a general description, that for me is adequate. I would clearly
25 want to look at that data for myself to ensure that nothing important had been deleted

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1 from the second record.

2 Of the records I often see there is useful information in one record and some useful
3 information in the other and sometimes they need to be combined rather than one of
4 them be deleted.

5 Q. [14:30:28] I now want to show you confidential annex A from this filing.

6 So it is 1296, annex A, which is at tab 46 of the Defence binder.

7 We are first going to show on the screen page 6 of this annex. Would you have any
8 specific comments on the CSTs that you see on this page?

9 A. [14:31:02] It's just -- oh, there it is.

10 PRESIDING JUDGE SCHMITT: [14:31:05] It vanished.

11 THE WITNESS: [14:31:10] It's gone again. There we are. No, no, gone again.

12 MR PAGES-GRANIER: [14:31:16]

13 Q. [14:31:16] We still have some technical difficulties.

14 A. [14:31:19] I need a little longer to look at it.

15 PRESIDING JUDGE SCHMITT: [14:31:21] But we are really going through with this
16 with you today, I have to say.

17 MR PAGES-GRANIER: [14:31:27] Maybe I'm the unlucky one.

18 PRESIDING JUDGE SCHMITT: [14:31:30] No, no. Absolutely not.

19 MR PAGES-GRANIER: [14:31:33]

20 Q. [14:31:33] If that pops out of the screen again, we can maybe provide the paper
21 copy, but for now it is.

22 PRESIDING JUDGE SCHMITT: [14:31:39] It's there.

23 MR PAGES-GRANIER: [14:31:41]

24 Q. [14:31:41] Would you have any comments on the CSTs that you see? Anything
25 catch your eye?

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1 A. [14:31:50] So the first thing I've done is to scan the durations to look for
2 matching calls, and I see two pairs that match of 11 seconds and a pair that match at
3 one second, but I note the times of those calls are then different. I would wish to
4 investigate further as to why that might be -- whether it is one of the issues we have
5 previously discussed about poor synchronisation or whether it is an issue of different
6 countries' records, although I don't think that is the case, from what I can see.

7 PRESIDING JUDGE SCHMITT: [14:32:39] Well, the short one, one second, I think,
8 seems to be even the same time, if I'm correct.

9 THE WITNESS: [14:32:49] Not quite.

10 PRESIDING JUDGE SCHMITT: [14:32:50] Oh, yes, 15 and 51.

11 THE WITNESS: [14:32:52] Yes, yes. Confusing, but yes.

12 PRESIDING JUDGE SCHMITT: [14:32:55] Yes, indeed. Indeed, you're right, as
13 always.

14 THE WITNESS: [14:32:58] No, it is possible. I would want to try to identify if these
15 are on the same network. If they are on different networks, is one of the networks
16 including the ring time that I have previously mentioned. I would also quickly do
17 the assessment as to whether it is the same discrepancy in time, which it is not. And,
18 indeed, the second example here of one second, the difference in time is so great as to
19 be very unlikely -- well, I cannot see that that's likely to be the ring time issue. So
20 there is some other issue going on here, although, of course, it's a possibility that it is
21 coincidence, just looking at two examples.

22 MR PAGES-GRANIER: [14:33:52]

23 Q. [14:33:52] Thank you. Would you have any comment on the decision to just
24 put "Voice" as a type of call?

25 A. [14:34:01] I commonly see this done and, as an expert, it does distress me

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1 slightly. I would like to see it as "outgoing voice" or "incoming voice" to help with
2 the interpretation of the information. So, yes, it is commonly presented like this.
3 It's certainly not my personal preference.

4 Q. [14:34:41] Two seconds.

5 (Counsel confers)

6 MR PAGES-GRANIER: [14:34:48]

7 Q. [14:34:48] We can also see in the column at "Item" that there is a mention of
8 multiple CDRs for a single line. Would you have any comment on this decision?

9 A. [14:34:54] I am intrigued as to why that might be thought necessary. I would
10 have to look at those items to try to understand why that might be.

11 Perhaps I have already alluded to the possibility that sometimes it is necessary to
12 combine two lines, so perhaps I shouldn't be too upset to see it, but I would want to
13 investigate it.

14 Q. [14:35:27] Thank you.

15 We are now going to show page 25. And I wish to bring to your attention the two
16 calls at 22, 33 and 54 that my colleague is highlighting.

17 Are these calls duplicates?

18 A. [14:36:00] It is, of course, possible. They may be separate calls. It may be
19 coincidence. I cannot be certain, but perhaps it is a duplicate of the type we saw
20 previously where there is simply a discrepancy in the timing.

21 Indeed, the next line down there has another -- is again an identical duration which
22 would start to make me think I would want to go back to the original CDRs to check
23 that the data is being correctly portrayed.

24 MR PAGES-GRANIER: [14:36:48] I just want for the record to mention that I think it
25 is the same mistake as you, Mr President, because one call is at 54 and the other one is

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1 34. So it's not exactly the same time as I mentioned.

2 PRESIDING JUDGE SCHMITT: [14:37:09] Well, now I have seen it, too.

3 MR PAGES-GRANIER: [14:37:11]

4 Q. [14:37:12] We can now go to page 384 of this document.

5 Do you have any comments on the CSTs that you see, and especially with the number
6 of calls which have only one second as during?

7 A. [14:37:28] It's certainly not uncommon to see calls of one-second duration. I
8 would consider those as failed calls. I would want to check the original data, that
9 these were not, in fact, text messages, which are often shown as one second rather
10 than voice calls as suggested here. But if a network has any problems, then this is
11 the sort of failed call that might crop up.

12 This is typically a failure that as the individual tries to answer, the network discovers
13 it hasn't got quite the connection it wanted and the call fails. So it not uncommon to
14 see these as failed calls.

15 Q. [14:38:18] (Microphone not activated) And maybe one last example. One last
16 example. We can go to page 98. So the bottom of 98 and the top of 99. By your
17 expertise, what can we say about the sequence of calls on those slides? Are they also
18 failed calls?

19 A. [14:38:47] I am often asked the question: How many seconds does it need to be
20 before you think of it as a failed call. Three seconds is probably right on the margin, in
21 that it's certainly possible to say in three seconds, "On my way, with you in five
22 minutes" full stop. So more likely a failed call, but not impossible it's a connected
23 call.

24 Q. [14:39:18] Thank you.

25 MR PAGES-GRANIER: [14:39:19] If I could just have one minute to consult.

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- 1 PRESIDING JUDGE SCHMITT: [14:39:22] Of course, yes.[14:39:29]
- 2 MR PAGES-GRANIER: [14:39:29] Thank you very much, Mr Brown, that was the
- 3 last question from me and we have concluded our examination.
- 4 PRESIDING JUDGE SCHMITT: [14:39:34] Thank you very much,
- 5 Mr Pages-Granier. I think it's -- we don't want to put you under pressure. We
- 6 would have to make, say, at least 15, 20 minutes pause and we have definitely to
- 7 finish at 4 o'clock, so I think we conclude the hearing for today.
- 8 So still not over for you, Mr Brown. We meet together again tomorrow at 9.30.
- 9 (The hearing ends in open session at 2.40 p.m.)