

Trial Hearing
WITNESS: CAR-OTP-P-2973

(Open Session)

ICC-01/14-01/18

1 International Criminal Court
2 Trial Chamber V
3 Situation: Central African Republic II
4 In the case of The Prosecutor v. Alfred Rombhot Yekatom and Patrice-Edouard
5 Ngaïssona - ICC-01/14-01/18
6 Presiding Judge Bertram Schmitt, Judge Péter Kovács and
7 Judge Chang-ho Chung
8 Trial Hearing - Courtroom 1
9 Monday, 21 August 2023
10 (The hearing starts in open session at 9.33 a.m.)
11 THE COURT USHER: [9:33:24] All rise.
12 The International Criminal Court is now in session.
13 Please be seated.
14 PRESIDING JUDGE SCHMITT: [9:33:45] Good morning, everyone.
15 Court officer, please call the case.
16 THE COURT OFFICER: [9:33:58] Good morning, Mr President, your Honours.
17 The situation in the Central African Republic II, in the case of The Prosecutor versus
18 Alfred Yekatom and Patrice-Edouard Ngaïssona, case reference ICC-01/14-01/18.
19 And for the record, we are in open session.
20 PRESIDING JUDGE SCHMITT: [9:34:12] Thank you very much.
21 I ask for the appearance of the parties. Prosecution first.
22 MS PRATHABAN: [9:34:17] Good morning, your Honours, good morning everyone.
23 The Prosecution is represented today by
24 Mr Pierre Belbenoit-Avich, Mr Yassin Mostfa, Mr Kweku Vanderpuye and myself,
25 Manochitra Prathaban.

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1 PRESIDING JUDGE SCHMITT: [9:34:29] And then Ms Massidda next.

2 MS MASSIDDA: [9:34:31] Good morning, Mr President, your Honours. The
3 victims of the other crimes are represented today by Enrique Carnero Rojo and myself,
4 Paolina Massidda.

5 PRESIDING JUDGE SCHMITT: [9:34:40] Thank you.
6 Mr Suprun.

7 MR SUPRUN: [9:34:42] Good morning, Mr President, good morning, your Honours.
8 The former child soldiers are represented by myself, Dmytro Suprun. Thank you.

9 PRESIDING JUDGE SCHMITT: [9:34:48] We turn to the Defence. Ms Dimitri first.

10 MS DIMITRI: [9:34:52] Good morning, Mr President. Good morning, your
11 Honours. Good morning, everyone. Mr Yekatom is present in the courtroom. He
12 is represented today by Mr Gyo Suzuki, Ms Alexia Legault, Mr Jason Antley and
13 myself, Mylène Dimitri.

14 PRESIDING JUDGE SCHMITT: [9:35:03] Thank you.
15 And Mr Knoops.

16 MR KNOOPS: [9:35:05] Very good morning, Mr President, your Honours. Good
17 morning, everyone in the courtroom. Our Defence team today is combined of
18 Mr Michael Rowse on my right side and Mr Alexandre Desevedavy. Second row,
19 Ms Melissa Beaulieu, Ms Despoina Eleftheriou and Myriam Hollant. And, of course,
20 Mr Ngaïssona is present.

21 PRESIDING JUDGE SCHMITT: [9:35:34] Thank you very much.

22 We will now start with the testimony of Prosecution witness P-2973.

23 Mr Witness, good morning. Can you hear and understand me well?

24 WITNESS: CAR-OTP-P-2973

25 (The witness speaks French)

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1 (The witness gives evidence via video link)

2 THE WITNESS: [9:35:48](Interpretation) Yes. Good morning. I can hear you just
3 fine. Thank you.

4 PRESIDING JUDGE SCHMITT: [9:35:59] We can hear you also fine and we see you
5 also very good, so that's promising.

6 Mr N'Douba, you are called to testify in the case of The Prosecutor against
7 Mr Ngaïssona and Mr Yekatom. There should be a card in front of you with a
8 solemn undertaking to tell the truth. Would you please be so kind and read this
9 card out aloud. If there is no card, then I speak -- okay, good.

10 THE WITNESS: [9:36:35](Interpretation) Thank you. Okay. I solemnly declare
11 that I shall tell the truth, the whole truth and nothing but the truth.

12 PRESIDING JUDGE SCHMITT: [9:36:47] Thank you very much. Mr N'Douba, you
13 are now under oath and I think we can already start with your testimony. You will
14 explain to him the velocity or non-velocity of speaking. So I give the floor to the
15 Prosecution.

16 MS PRATHABAN: [9:37:04] Thank you, Mr President.

17 QUESTIONED BY MS PRATHABAN:

18 Q. [9:37:03] Good morning, Mr N'Douba. We met briefly a few days ago. Let me
19 introduce myself again. I am Manochitra Prathaban and I will be asking you
20 questions today on behalf of the Prosecution. Thank you for coming to testify today.
21 This morning I will be asking you questions about your background and a few
22 questions about your prior statement, specifically to clarify portions of it.
23 And if any of the questions I ask are unclear, or you do not understand, please let me
24 know.

25 And, finally, both my questions and your answers are being interpreted, so it's

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1 important that we both pause for a few seconds after either of us have spoken so that
2 the interpreters have time to do their work. Are you with me so far?

3 A. [9:38:06] Yes, yes, I've understood.

4 Q. [9:38:15] We'll begin with the questions now.

5 Please state your full name for the record.

6 A. [9:38:25] My name is N'Douba Hughes Ghislain.

7 Q. [9:38:39] And what is your date of birth?

8 A. [9:38:43] I was born on the 11th of January 1978 in Bangui.

9 Q. [9:38:54] Can you confirm that you are a Central African national?

10 A. [9:39:03] Yes, I am a national of the Central African Republic.

11 Q. [9:39:18] Thank you, Mr N'Douba. Can you confirm that you gave a statement
12 to the investigators of the Office of the Prosecutor back in October 2020?

13 A. [9:39:29] Yes, I can confirm that.

14 Q. [9:39:38] All right. And for the record, the statement is at tab 4 of the
15 Prosecution binder. It's at CAR-OTP-2122-9874.

16 Mr N'Douba, you had a chance to carefully review the statement recently and you
17 made certain corrections; is that right?

18 A. [9:40:06] Yes, that's right.

19 Q. [9:40:16] For the record, the ERN of these corrections are at CAR-OTP-0000-1717.

20 Mr N'Douba, can you confirm that read together with the corrections which you have
21 made, your statement is true to the best of your knowledge and recollection?

22 A. [9:40:46] Yes. My statement matches what I know and what I remember.

23 Q. [9:41:06] Thank you. And do you agree that the Chamber may use your
24 statement and corrections as evidence in this case?

25 A. [9:41:19] Yes.

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1 PRESIDING JUDGE SCHMITT: [9:41:30] Okay. Thank you very much. Then the
2 conditions for Rule 68(3) with regard to the statement of the witness, read together
3 with his corrections, are fulfilled.

4 Since we are on procedural matters, and I think we can do away with it orally quickly,
5 the Ngaïssona Defence has requested to add two items to their list of evidence. I
6 take it that you don't have any objections to that? Okay. Then this is granted, this
7 request.

8 You may continue.

9 MS PRATHABAN: [9:42:02]

10 Q. [9:42:03] Mr N'Douba, as you heard, your statement that is now in evidence is
11 quite complete. I will only ask you a few clarifications and some additional
12 information. So this means I won't be taking up too much of your time this morning.
13 So we will start with the first topic, which relates to your professional experience.
14 Having started work at Moov in 2005, can you explain briefly what your work as a
15 radio technician entailed?

16 A. [9:42:33] Thank you, ma'am. As a radio technician, my work at Moov was to
17 install radio equipment for the mobile network and, as well, I maintained the
18 equipment and ensured its ongoing operation, the various antennas within the
19 network.

20 Q. [9:43:21] Thank you, Mr N'Douba. Could you briefly explain what your work
21 as a network supervisor entailed?

22 A. [9:43:32] As the network supervisor, I kept an eye on the network, the entire
23 mobile network, in general terms. The work was supervising the operation of all the
24 equipment, analysing alarms, if there were any, and I also had to forward information
25 to other departments responsible for administering the various aspects of the

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1 equipment.

2 Q. [9:44:28] Thank you, Mr Witness. And what is your current role in Moov?

3 A. [9:44:36] Currently within Moov I am the head of the equipment and project
4 department. I'm responsible for all the activities relating to management of the
5 network infrastructure and the implementation of various projects to develop the
6 network.

7 Q. [9:45:25] Thank you, Mr N'Douba. I'm moving to the next topic. At
8 paragraph 13 of your statement, you mentioned that as soon as a subscriber makes a
9 call and the caller answers, CDR recording is triggered. Could you briefly explain,
10 in simple terms, how this process occurs?

11 A. [9:45:46] Yes. The CDR process -- well, as the name indicates, this is the
12 process whereby the mobile network from the central platform registers all the
13 various activities that a particular number carries out on the network. So during this
14 process everything that the owner of the SIM card does on the network is recorded in
15 a database, in a data file, so that later on we can bill the customer or trace the number
16 for business purposes.

17 Q. [9:46:58] Thank you, Mr N'Douba. So you mentioned that every activity that
18 the subscriber does would be recorded. So, just to clarify, the activities you are
19 referring to is basically any communication, such as phone call or SMS, when it is
20 initiated, there is data generated in the form of CDRs; is that correct?

21 A. [9:47:26] Yes, that's right.

22 Q. [9:47:31] Thank you. And could you explain what sort of data is generated?

23 A. [9:47:40] In general terms, in the CDA we register the number that has initiated
24 the action on the network --

25 THE INTERPRETER: [09:47:57] Correction, on the CDR.

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1 THE WITNESS: [09:47:59](Interpretation) -- the destination of the action, whether
2 this is a call or this is an SMS, and we also record the person to whom the subscriber
3 is communicating with. We also register the date of the action and the time, the
4 duration of the call, if this is a call, and other information that is useful to process calls
5 and thus establish the business reports of the company.

6 MS PRATHABAN:

7 Q. [9:48:52] Thank you, Mr N'Douba, it's very clear.

8 So the generation of such data that you explained, it's common to all telephone
9 companies in CAR; is that right?

10 A. [9:49:11] Yes, that's what all telephone companies do, because they use such
11 data to establish a business model for the company. The business model is always
12 based on the -- this data.

13 Q. [9:49:38] Thank you, Mr N'Douba. Just to elaborate on the last point you made
14 about the business model, what is the purpose for which CDRs are generated in that
15 case, if you could explain?

16 A. [9:49:53] Indeed, the CDRs are produced so that we can determine the
17 consumption of the customer for billing purposes and, what's more, the CDRs allow
18 us to later respond to any queries from customers and show the public authority as
19 well what volume of calls the company has. And this is for the purposes of taxation,
20 determining the amount of tax to be paid.

21 Q. [9:50:50] Thank you, Mr N'Douba. So would it be fair to say that CDRs serve
22 the business interests of the telephone companies?

23 A. [9:51:02] Yes, the CDRs are used for the business purposes of the company. On
24 the basis of these CDRs, the company's business activities are recorded and you can
25 determine the volume of business as well.

1 Q. [9:51:36] Thank you. And that is why CDRs have to be as accurate as possible;
2 is that right?

3 A. [9:51:48] Yes, indeed. That is why the CDRs have to be reliable, so that we can
4 generate reliable reports for the income of the company and also so that we can draw
5 up the statements that we have to draw up for the government, statements for tax
6 purposes.

7 Q. [9:52:27] Thank you, Mr N'Douba.

8 At paragraph 17 you mentioned that among the data recorded includes IMSI and
9 IMEI. Could you explain what is an IMSI number?

10 A. [9:52:48] An IMSI number - we usually just call it the IMSI - is a unique number
11 that is recorded on a particular SIM card as soon as that SIM card is manufactured at
12 the factory. And each SIM card has its own unique number and on the basis of that
13 number, the network records the SIM card and the number of the client that goes
14 along with that SIM card.

15 Q. [9:53:45] Thank you, Mr N'Douba. Would it be fair to say, in other words, that
16 an IMSI number basically identifies the subscriber?

17 A. [9:53:59] Yes, exactly. The IMSI number identifies a particular subscriber on
18 the network.

19 Q. [9:54:14] Thank you, Mr N'Douba.

20 Could you also explain what is an IMEI number?

21 A. [9:54:23] The IMEI number, just like the IMSI number, is a unique number that
22 identifies a telephone as soon as it is manufactured at the factory. So the IMEI is the
23 number for a specific telephone and it's an item of information that's also used on the
24 network to identify in the case of each call that a -- that that telephone was used by
25 the person at the time of the call.

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1 Q. [9:55:19] Thank you, Mr N'Douba, it's very clear. So, in other words, the IMEI
2 number refers to the physical telephone, the number attached to that; is that right?

3 A. [9:55:34] Yes, the IMEI refers to a physical telephone and the number is unique,
4 single, to each telephone. You can't have one and the same IMEI number for two
5 different telephones.

6 Q. [9:56:03] Thank you, Mr N'Douba.

7 Earlier on you mentioned that -- the different types of data that is recorded, and one
8 of it you referred to was call duration. So I just have a question in relation to that.
9 Could you explain whether the call duration that is recorded in the CDR excludes the
10 ringing time?

11 A. [9:56:30] Yes, indeed. When we register the duration of the call, the timing
12 begins when the person receiving the call picks up the phone. So the duration that's
13 recorded is the duration of the call by the subscriber to the person on the network.

14 Q. [9:57:13] Thank you, Mr Witness. And what happens in a situation where
15 there's a loss of coverage after the connection has been made? For example, you
16 enter a lift and you lose the connection. How will the call duration be recorded in
17 that case?

18 A. [9:57:36] In that specific case, the duration stops once the subscriber loses the
19 signal from the network because there's no longer any possibility to continue the
20 communication. So it stops once the signal is lost, once connection to the network is
21 lost.

22 Q. [9:58:11] Thank you, Mr N'Douba.

23 And at paragraph 22, you describe that it's not possible for a communication to
24 appear in the CDR without it having actually taken place. Can you explain why this
25 is the case in Moov?

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1 A. [9:58:34] Yes. As I said earlier, CDRs are used to record end data for billing
2 purposes, to bill for the communication established by the subscriber. On that basis,
3 on the basis of that principle, the connection data are used for that purpose. So if a
4 communication is not established on the network, there's no point for the mobile
5 phone operator to take that information into account.

6 Q. [9:59:34] Thank you, Mr N'Douba, that's very helpful.

7 And at paragraph 26, you mentioned that communication data is kept for five years
8 on Moov's servers and then transferred to digital archives. Is there a protocol for
9 this data archiving?

10 A. [9:59:55] Yes, there is. There's a protocol for archiving data and also there is a
11 regulatory requirement to do so.

12 Q. [10:00:27] Thank you. And do you have knowledge whether this regulatory
13 requirement applies to Moov, but also to other telephone companies?

14 A. [10:00:37] Yes, because it is a regulatory requirement for all operators on the
15 market. * The others are also required to do the same and save the data. And
16 beyond the duration of the regulatory requirement, there is no further obligation in
17 this respect.

18 Q. [10:01:20] Thank you, Mr N'Douba. And could you clarify whether at Moov,
19 the data transfers to the archives is done automatically?

20 A. [10:01:30] Yes, the transfer of data is done automatically in order to ensure that
21 the transfer is carried out properly and completely.

22 Q. [10:01:59] Thank you, Mr N'Douba. I'm moving to the next topic now.

23 At paragraph 31 of your statement and your corrections, you described Mr Teddy
24 Kopati as the person in charge of extracting and saving raw data for production of
25 CDR reports. How long has Mr Kopati been working at Moov?

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1 A. [10:02:30] Mr Teddy Kopati, at the time of the hearings for the record, he'd been
2 working for Moov for some years. I don't remember the exact number of years and,
3 today, this man is no longer with us. He has gone on to seek out other
4 opportunities.

5 Q. [10:03:08] Thank you, Mr N'Douba. At paragraph 32, you explain the
6 procedure for producing CDRs. Could you explain how you know this process?

7 * A. [10:03:23] I am already familiar with this process because of my duties as head
8 of projects, because all the technical solutions which will be implemented on the
9 Moov network are solutions which I am discussing ahead of time with the suppliers
10 to decide what will be done on the network.

11 Moreover, I know this process specifically because I regularly replace the technical
12 director and often we have to deal with these types of requests from the legal
13 authorities of the country.

14 Q. [10:04:44] Thank you for the clarification, Mr N'Douba. At paragraph 35, you
15 described having control mechanisms to ensure that the process for producing CDRs
16 is well executed. Could you explain what these control mechanisms are, in simple
17 terms?

18 A. [10:05:02] The control mechanisms are based on automatic monitoring of the
19 transfer process. When I talk about monitoring, I mean that the system that
20 functions automatically also automatically generates a report on the result of the data
21 transfer. So the system knows at the outset how many CDR files will be transferred
22 to other servers and having -- to the servers, those who -- the servers that receive it
23 then indicate that they have received it.

24 So there is this automatic report of a transfer of data within the system in case there
25 are some problems, and if some data are not fully transferred, there are alarms

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1 generated by the system in order to point out these failures. *Then the colleagues
2 who manage these servers review this report so they can correct the errors, and to
3 ensure that there is an automatic transfer of data in order to resolve these difficulties
4 and finalize the issue.

5 Q. [10:06:57] Thank you, Mr N'Douba. That was very helpful. I'll be moving to a
6 different topic now, and I would like to show you a document. For the record, it is
7 at tab 7, CAR-OTP-2122-9885. You had provided this document to the investigators
8 at your interview and I have a few questions regarding that.

9 A. [10:07:35] I see the document.

10 Q. [10:07:40] Thank you, Mr N'Douba. Could you clarify whether this
11 document -- you had obtained it from the business records of Moov?

12 A. [10:07:50] Yes, this document indicates the position of the antennae of the
13 network. It's for commercial purposes. So we produce this document within the
14 technical department for the sales people and also for the regulatory body that asks
15 for information about the Moov network throughout the territory of the Central
16 African Republic.

17 Q. [10:08:39] Thank you, Mr N'Douba. And do you recall whether this map of the
18 network system was valid for the period of 2013 to 2014?

19 A. [10:08:52] Yes, I remember well.

20 Q. [10:09:05] Thank you. We can remove it from the display.

21 At paragraph 42, you described the range of cell towers and you mentioned that, in
22 general, it is the users who inform about the real scope of your coverage. Could you
23 explain what you meant by that? What do you mean by the users informing you
24 about the scope of the coverage?

25 A. [10:09:36] Yes. When I say that it is the subscribers who inform us of the real

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1 coverage of our coverage, it is only because we have not gone everywhere throughout
2 the country to make prior measurements and evaluate the scope of the -- or the range
3 of the coverage.

4 So, in this case, when subscribers see that when they get to a certain area they still
5 have the signal from the network, they report this to us and they say that -- tell the
6 sales people, and we take this information into account.

7 Q. [10:10:38] Thank you, Mr N'Douba. I just want to jump back to your previous
8 answer that you gave, just to clarify. So when I showed you the map of the BTS and
9 the different localities, I asked you whether it was valid for the period of 2013 and
10 2014, you mentioned yes. But I just want to clarify, is it yes that it was valid or yes
11 you remember that it was, you had seen it?

12 A. [10:11:04] I confirm that this map -- this map at that time was valid, because I
13 am the one who drew up this map. I am in charge of establishing the coverage of the
14 network on the territory within my scope of project management.

15 Q. [10:11:41] Thank you, that is very clear. At paragraph 44, you mentioned that
16 in Bangui the range of relay antennas is generally set at 1 to 2 kilometres in order to
17 avoid interference between them. Could you explain what you meant by
18 "interference between the relay antennas"?

19 A. [10:12:06] Yes. Interference between the relay antennae is a phenomenon
20 which we observe on the functioning of the signals that are emitted. * When
21 operating a mobile network, we use radio frequencies which are allocated to us by the
22 regulatory body, and these radio frequencies are re-used by us several times
23 throughout the network. That is to say, let's say an antenna using a frequency at
24 point A is a frequency that we could use at point C, a bit further away.

25 So, given that we're re-using this frequency, there is a risk that if the signal of the two

1 antennae using the same frequency, there could be a problem created, because the
2 network in the way it processes data will no longer be able to distinguish between the
3 two antennae, because they are using the same frequency. That is what this
4 interference is when we're talking about these networks; it's the re-using of the
5 frequencies by the different antennae.

6 Q. [10:13:57] Thank you, Mr N'Douba, that is very clear. But other than the same
7 frequency, the antennas use the same frequencies, are there any other factors that may
8 affect the -- have interference between the different antennas?

9 A. [10:14:20] No, there are no other factors besides interference due to the re-using
10 of frequencies.

11 Q. [10:14:41] Thank you, Mr N'Douba. At paragraph 48, you mentioned that there
12 were fuel shortages of generators in 2013 to 2014. Does Moov have access to
13 contingency power in case of these types of power outages?

14 A. [10:14:57] At the time, no. The only source of energy that -- or power source
15 that Moov had for its antennae, especially within the country, were power generators.
16 So if these generators ceased to function, there were no other power sources to power
17 the antennae. In the capital, in Bangui, there is public power sources that power the
18 system, and then we have generators as a backup.

19 Q. [10:16:03] Thank you, Mr N'Douba. Do you recall which months in 2013 and
20 2014 these fuel shortages took place?

21 * A. [10:16:13] Not precisely, no, but the data.... We record the time of these power
22 outages for our own internal reporting requirements as well, to justify the impact on
23 our business activities. But I, myself, do not remember exactly which months we are
24 talking about.

25 Q. [10:16:54] That is all right. Thank you, Mr N'Douba. I would like to show

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1 you a document.

2 For the record, it's at tab 8, CAR-OTP-2122-9886. You had also provided this
3 document to the investigators at your interview. I have a few questions regarding it.
4 Could we go to the second page of the document. Thank you.

5 Mr N'Douba --

6 A. [10:17:36] I see it.

7 Q. [10:17:37] Thank you. Could you clarify whether this document -- you had
8 obtained it from the business records of Moov?

9 * A. [10:17:47] This document contains technical elements produced by the
10 technical department and, in particular, by my section.

11 Q. [10:18:16] Thank you, Mr N'Douba. And do you recall whether this list was
12 valid for the period of 2013 and 2014?

13 A. [10:18:25] Yes, I confirm that this list was valid for that period.

14 Q. [10:18:37] Thank you, Mr N'Douba. And you can see in the heading there,
15 there's a reference to "Antenna azimuth". Could you explain, in simple terms, what
16 is an antenna azimuth?

17 * A. [10:18:55] Okay. The azimuth is information that describes the angle at which
18 the antenna on the tower is pointed. The azimuth indicates the direction in which the
19 signal is emitted by the antenna.

20 Q. [10:19:37] Thank you, Mr N'Douba. So, if I understood correctly, it's basically
21 the direction in which the antenna is pointing to and it's measured in degrees; is that
22 right?

23 A. [10:19:50] Yes, that's it; it is the direction indicated in degrees and which
24 specifies in which direction the antennae is pointing, because in the Moov network
25 we have directional antennae. The antennae are pointing in a certain direction and

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1 we have the azimuth which provides the degree of the angle the antenna is pointing
2 in a given direction.

3 Q. [10:20:40] Thank you, Mr N'Douba. Just last question on this point: So would
4 it be fair to say if it's zero degrees, it's pointing true north, and if it's 90 degrees it's
5 pointing east, and so on?

6 A. [10:20:56] Yes, indeed, the measurement of the azimuth is done at the place of
7 the angle of -- from zero to 359 degrees and it's due north at zero, it's 90 at east, 180 at
8 south and in the west we would be at 270 degrees, if memory serves me correctly.
9 So it gives the geographical positioning from the place where the antenna is fixed, is
10 set.

11 Q. [10:22:01] Thank you for the clear explanation. What is the purpose of Moov
12 having this azimuth register in the list of geographical sites that we had displayed to
13 you?

14 A. [10:22:12] This list is one we have for several reasons. There are technical
15 reasons. It enables us to define our plan of coverage in a given area. So when we
16 install an antenna somewhere, we already have an idea of how we're going to cover a
17 certain area. So this list gives us the necessary information to predict what coverage
18 we could provide. And the second reason is also technical. It is that this
19 information makes it possible to distinguish each antenna and also from the others,
20 and to also differentiate the identifications of the antennae. If we talk about
21 antennae and we talk about a locality where there is an antenna, the antenna is
22 organised with three sectoral antennae, and this information makes it possible to
23 differentiate among these three antennae which one is going in what direction.
24 These are the main technical reasons for which we provide this list, or we have this
25 list, rather.

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1 And the commercial reason for having this list is that subsequently the sales team,
2 when they analyse the data traffic in the network, it enables them to know in which
3 areas we have many customers, a lot of traffic, for which we -- they would need to
4 work more on sales, or there are other areas where there is not a lot of traffic and they
5 perhaps have to go into the field and -- to see how they can get more business.

6 This is one of the reasons that makes it of interest for us to have such a list.

7 Q. [10:25:00] Thank you, Mr N'Douba, that was very clear. So, to your knowledge,
8 do all companies, such as Orange and Telecel, have similar information for the same
9 or similar commercial and technical reasons that you explained?

10 A. [10:25:22] Yes, I believe I know, and I know that all mobile telephone operators
11 have this type of information in their database because, from the start, it is this
12 information that makes it possible to deploy antennae and then to know where traffic
13 on the network is taking place on the network, and this is for sales purposes.

14 Q. [10:26:10] Thank you, Mr N'Douba. I've come to the last question. You
15 mentioned at paragraph 57 that the number portability service does not exist in CAR.
16 Could you explain what is a number portability service?

17 A. [10:26:31] The number portability service is a service where when a person has a
18 number from the Moov network, for instance, that has clear numbers and it is clear
19 that this person is calling from that number, portability is the fact that this person can
20 take the same SIM card on this number when that person is in an area that does not
21 have the Moov number, and they can use this same number on another network
22 where they are not registered. That's what it means; it's a number that can be used
23 on different networks maintaining that number and behaving as a subscriber to those
24 networks. So, as its name exists, that indicates that portability means the person can
25 operate, use their phone with the same advantages and principles as they do on the

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1 Moov network. I hope that you have understood my answer. If not, I'm here at
2 your disposal and you can ask me again.

3 Q. [10:28:20] Thank you, Mr N'Douba. Let's see if we can try with an example.
4 Let's say a Moov client now decides to switch to Telecel and become a client of theirs.
5 They cannot keep their original telephone number from Moov; is that correct?

6 A. [10:28:39] Yes, precisely. When a client takes the Moov number and they try to
7 be localised on the Telecel network, they will not be able to do this. They will not
8 have access to Telecel, because portability between these two networks is not
9 operational.

10 Q. [10:29:08] Thank you, Mr N'Douba, for answering all of my questions patiently.
11 Thank you also to the interpreters and to the Chamber.

12 PRESIDING JUDGE SCHMITT: [10:29:21] Thank you very much for this very
13 expeditious and succinct questioning.

14 I don't assume that the representatives of the victims have any questions?

15 MS MASSIDDA: [10:29:31] No, your Honour, we don't. Thank you very much.

16 PRESIDING JUDGE SCHMITT: [10:29:33] This applies also to Mr Suprun, I would
17 assume? Yes. The Defence, in which sequence do you want to question? And
18 would you prefer to have a short break now or a coffee break, to put it this way?

19 MS DIMITRI: [10:29:47] Thank you, Mr President. We are going first. We have
20 discussed with the Ngaïssona team. Because of one or two answers, I would like to
21 confer because it's very technical. So if we could have the break now, we would be
22 ready to start at 11, if that suits your Honours.

23 PRESIDING JUDGE SCHMITT: [10:30:01] Then let's start at a quarter past 11.
24 Thank you.

25 MS DIMITRI: [10:30:07] Thank you.

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1 THE COURT USHER: [10:30:08] All rise.

2 (Recess taken at 10.30 a.m.)

3 (Upon resuming in open session at 11.17 a.m.)

4 THE COURT USHER: [11:17:54] All rise.

5 Please be seated.

6 PRESIDING JUDGE SCHMITT: [11:18:07] I assume Mr Suzuki has the floor; is this
7 correct?

8 Yes, Mr Suzuki.

9 MR SUZUKI: [11:18:22] Indeed, your Honour. Thanks very much. Good
10 morning, your Honours.

11 QUESTIONED BY MR SUZUKI:

12 Q. [11:18:33] Good morning, Mr N'Douba. Can you hear me?

13 A. [11:18:34] Yes, I can hear you, good morning.

14 Q. [11:18:36] We met briefly last week, but I will reintroduce myself. My name is
15 Gyo Suzuki from the Yekatom Defence and I will be asking you a few questions today.

16 It'll be -- for the most part, it will be some technical questions about the functioning of
17 cell sites and cellular networks, and I have a few questions about Moov's

18 record-keeping. We should be done by the end of the day, I hope, so if you could
19 bear with us and I will ask for your patience in advance. Is that clear?

20 A. [11:19:08] Yes, it's clear, thank you.

21 Q. [11:19:22] Thank you, Mr N'Douba.

22 So I'd like to start with some questions about the basic functioning of cellular
23 networks and hardware. And very basically, Mr N'Douba, cellular phones are a
24 form of radio; is that correct?

25 A. [11:19:44] Yes.

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1 Q. [11:19:57] Thank you. And when you speak to somebody on a cell phone,
2 you're speaking on one radio channel or frequency, and you're receiving on another
3 radio channel; is that correct?

4 A. [11:20:11] Yes, yes, indeed, that's how the area works.

5 Q. [11:20:22] Thank you. And so cell phones don't communicate with each other,
6 but they communicate via a transceiver, an equipment -- a piece of equipment that
7 emits or receives radio signal; is that right?

8 A. [11:20:39] Yes. During a communication, the telephone communicates by way
9 of the mobile network and plays the role of a transmitter.

10 Q. [11:21:05] Thank you. And these transceivers, they are found within the base
11 transceiver stations, so otherwise known as BTSs; is that correct?

12 A. [11:21:20] Yes.

13 Q. [11:21:29] And a BTS is also known as a cell site; is that right?

14 A. [11:21:34] Yes, that's right, correct.

15 Q. [11:21:45] Thank you, Mr N'Douba.

16 I'm going to show you a document, with the assistance of counsel, that's the
17 document at OTP tab number 8, CAR-OTP-2122-9886. Do you see that on your
18 screen, Mr Witness?

19 A. [11:22:22] Yes. Yes, I have the document up on the screen.

20 MR SUZUKI: [11:22:31] If we could go to page 9886, just above, please. Thank you.

21 Q. [11:22:47] Mr Witness, in the first row there, this might seem a little bit obvious,
22 but the fourth column, "Site Name", these are the names of the BTSs or the cell sites
23 that Moov has assigned to your BTSs; is that correct?

24 A. [11:23:08] Yes, that's right. Those are the names that Moov has attributed to
25 each BTS.

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1 Q. [11:23:31] Thank you.

2 And if we could go to the next page, please.

3 Mr witness, we see some more information about the cell sites of Moov. And, first,
4 the fourth and fifth columns, "Longitude" and "Latitude", again, it might seem a little
5 bit obvious, but these are the geographical coordinates of the physical equipment at
6 the cell site locations; is that correct?

7 A. [11:24:02] Yes, those are the GPS coordinates of the place where the BTS is
8 located.

9 MR SUZUKI: [11:24:19] If we could go to the document at Defence tab 2, that's
10 CAR-D29-0003-0189 at 0189.

11 And for the record, these are slides that were accessed on the Duke University School
12 of Law website.

13 Q. [11:25:06] Mr Witness, you referred to this earlier this morning, but can you
14 confirm that cell sites are divided into sectors and each sector has a antenna? Is that
15 correct?

16 A. [11:25:24] Yes. Cell sites are divided into sectors, three in number, actually,
17 and each sector has an antenna.

18 Q. [11:25:37] And on the right there, that's a photo -- what looks like -- a
19 photograph of what looks like a cell site or a BTS divided into three cell sectors; is
20 that -- is that fair?

21 A. [11:25:52] Yes, I can see that. That's right.

22 Q. [11:26:00] And cell sites are typically divided into three sectors, but they can
23 have anywhere from zero sectors to six sectors; is that also correct?

24 A. [11:26:17] Yes, that's possible with the mobile network technology, but we just
25 have the three sector possibility, that's the only option that we have.

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1 Q. [11:26:39] Thank you. So, hypothetically, a cell site could have one sector with
2 one antenna pointing in one specific direction; is that correct?

3 A. [11:26:55] Yes, that's correct.

4 Q. [11:27:05] Thank you, Mr Witness.

5 If we could go to the document at Defence tab 1, that's CAR-D29-0003-0196. And,
6 for the record, these are slides from a digital forensics firm Forensic Analytics.

7 Mr Witness, the graphic on the right there, that's a sectorised cell with three cell
8 sectors, like those at Moov; is that correct?

9 A. [11:27:53] Yes. Yes.

10 Q. [11:28:01] Thank you. And I'm going to show you another document,

11 Mr Witness, at OTP tab number 8. We've spoken about this before. It's the Moov
12 cell site information.

13 If we can go to the next page, please, 9887, and focus on the top three rows. Thank
14 you.

15 So, in the second column, Mr Witness, we see "Cell Name" and we see Bakongo 1,
16 Bakongo 2 and Bakongo 3. From this information, we can understand that Bakongo
17 is a sectorised cell site with three sectors; is that -- is that fair to say?

18 A. [11:29:10] Yes, I confirm that.

19 Q. [11:29:13] Thank you. And the sixth -- the sixth column, the "Antenna
20 Azimuth", we touched on this -- or my friend touched on this earlier this morning, but
21 just to return to the example of Bakongo 1, we see that the antenna azimuth of
22 Bakongo 1 is -- has the -- has the -- or, rather, it's pointing 60 degrees from the north;
23 is that correct?

24 A. [11:29:41] Yes, I can see that it is directed 60 degrees from the north, yes.

25 Q. [11:29:56] Thank you. Mr Witness, we spoke -- well, I'm going to move on

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1 from questions about individual cell sites to the kind of broader cellular network.

2 So I'm going to ask counsel to show the document at Defence tab number 2. If we
3 can go to page 0192, please.

4 Mr Witness, now, this is just a simple graphic that shows the way that multiple cell
5 sites -- they work together to form a network; is that correct?

6 * A. [11:31:10] Yes, I see that. That's right.

7 Q. [11:31:23] Thank you. And, broadly speaking, telecommunications companies
8 try to create networks by arranging cell sites to ensure that mobile phone users get
9 signal coverage over a certain area; is that correct?

10 A. [11:31:41] Yes, that's the goal.

11 Q. [11:31:58] Thank you. And the economic rationale is to maximise coverage so
12 you can maximise the number of users of your company; is that right?

13 A. [11:32:13] Yes.

14 Q. [11:32:22] Thank you. And in a given cellular network, there is quite a degree
15 of overlap in radio signal between cell sites; is that correct?

16 A. [11:32:38] Yes, there's always overlap and the work done behind the scenes is to
17 reduce that overlap as much as -- to the minimum.

18 Q. [11:32:58] Thank you. And because of this overlap, at a given location it's
19 likely that there would be multiple cell towers or cell sites providing coverage; is that
20 correct?

21 A. [11:33:18] Yes, that's the case in urban centres when there's more than one
22 antenna set up.

23 Q. [11:33:33] Thank you. Now, even when cell phones are not being used for calls,
24 mobile phones are actually in constant communication with the network; is that
25 correct?

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1 A. [11:33:57] Yes, that's the principle. Even when not being used, a cell phone
2 communicates regularly with the network so that the network knows at all times
3 where a telephone is located with the number.

4 Q. [11:34:33] Thank you. And so this communication involves scanning and
5 compiling a list of cell sectors that provide a signal for that phone at that location at
6 that time; is that correct?

7 A. [11:34:51] Yes.

8 Q. [11:35:04] Thank you. And in this list, cell sectors are listed in order of signal
9 strength; is that right?

10 A. [11:35:21] Yes, that's the principle. The telephone gets the strongest signal that
11 is the best for establishing communications.

12 Q. [11:35:48] Thank you. Now, as I understand it, the maximum number of cells
13 in that list will vary from company to company; is that correct? So some companies
14 might limit that list to six, others might limit it to more. Is that correct?

15 A. [11:36:15] Yes. It all depends on how each operator organises his network with
16 the level of technology that the operator has available.

17 Q. [11:36:30] And can you tell us what the -- if you know, can you tell us what the
18 number of cells in -- the maximum number of cells in that list is for Moov?

19 *A. [11:36:46] No. Off the top of my head, no, but I can say for a fact that we have
20 three cells on all the BTS on the Moov network. So in this case, it's the number of BTS
21 multiplied by three, and that gives us the number of cells on the network.

22 Q. [11:37:18] Thank you, Mr Witness. And I think you just said this earlier,
23 but -- so when a mobile phone makes or receives a call, it will communicate with the
24 network, scan that list and tune into the -- or try to tune into the strongest signal, and
25 the cell sector that's actually used to make or receive the call is known as the serving

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1 cell; is that correct?

2 A. [11:38:02] Yes.

3 Q. [11:38:16] Thank you. And the call data records generated by Moov, or by any
4 communications company, always reflects the cell site or the cell sector that was
5 actually used to make or receive the call?

6 A. [11:38:37] Indeed. The call from the subscriber is always identified by making
7 reference to the cell that took the subscriber's call.

8 Q. [11:39:03] Thank you, Mr N'Douba. I'm going to show you another document
9 that's at Defence tab number 4, CAR-OTP-2082-1009. Mr Witness, this is
10 correspondence between investigators from the Prosecutor and an employee from the
11 Orange telecommunications company in CAR.

12 If we can go to the second page, please, that's page 1010, and if you could zoom on to
13 that screenshot, please. Thank you.

14 Mr Witness, I want to use this document --

15 A. [11:40:03] Yes, I'm listening.

16 Q. [11:40:07] I'd like to use this document to illustrate overlap in coverage that we
17 just spoke about. So if you could kindly take note of this screenshot, we see a cell
18 site at the top left, *Borossé école*, and, at the bottom right, we see another cell site with
19 the name *Bimbo*, and according to this email, there is 19 kilometres distance between
20 these two cell sites.

21 Are you following me, Mr Witness?

22 A. [11:40:42] Yes, yes, I'm with you. I completely understand.

23 Q. [11:40:48] Thank you. If we could go to the next page, please, down to the
24 table of calls. Perfect, thank you.

25 Now, as I understand it, Mr Witness, this is a table of calls that were made or received

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1 by a certain user of Orange, and in the first column we see what looks like dates; and
2 in the second column we see what looks like times; and in the third column we see the
3 cell site that the phone connected to, so the serving cell for these calls in question.

4 Now, investigators seemed to have raised this example with the Orange employee
5 because the cell phone in question seems to have connected with these two cell sites,
6 Borossé and Bimbo, 19 kilometres apart, in a very short span of time.

7 So we see in the third row, at 19:12, the phone is connecting to Bimbo, and then below
8 that, four minutes later, connecting to Borossé, two minutes later --

9 A. [11:42:15] Yes, I can see that.

10 Q. [11:42:17] -- at 19:18, connecting to Bimbo again and then within less than a
11 minute, this phone is connecting to Borossé again. Are you following, Mr Witness?

12 A. [11:42:32] Yes, I'm following you.

13 Q. [11:42:36] Thank you. Now, it is obviously unlikely that this user was
14 travelling between Bimbo and Borossé in that short span of time. So my question is,
15 is it correct that this table indicates that it's likely that this user was at a location --

16 I see my friend's on her feet.

17 PRESIDING JUDGE SCHMITT: [11:43:01] Yes, Ms Prathaban?

18 MS PRATHABAN: [11:43:02] I just want to clarify, he's a witness of fact, not a
19 witness -- expert witness; so if you are going to ask him questions, we need to
20 establish it's within his personal knowledge, and specific to Moov.

21 PRESIDING JUDGE SCHMITT: [11:43:15] Actually, I don't disagree -- I disagree
22 with you. I think it's -- the main reason why we have the witness who is -- at least
23 has expertise, to word it this way, in his field, that's the reason why we have him here,
24 to address such issues and you may continue.

25 Don't tell him what to answer, of course, in your question, but you may put a

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1 question to the witness perhaps in a more neutral way. You can do it by asking him
2 how -- if he had an explanation for that, from his expertise, from his background. I
3 think we can do it also with Mr Rowse. Perhaps you will address similar issues
4 tomorrow.

5 MR SUZUKI: [11:43:59] Thank you, your Honour, I will follow your guidance.

6 Q. [11:44:03] Mr Witness, you heard the Presiding Judge. Could you tell
7 us -- could you possibly give an explanation as to this use of these cell sites that are 20
8 kilometres apart in this short -- in this short period of time?

9 *A. [11:44:20] Okay. Well, what I can say already -- I can't guarantee what my
10 colleagues from Orange do exactly on the network, but in light of the information that
11 was shown here, I would say that it's possible that the subscriber remained in the
12 same spot and was using the two different cells. It's possible.

13 Under what condition? Well, what it means is that in the case I was explaining
14 earlier, within the Moov network, when the conditions -- when the terrain and the
15 weather conditions allow, the signal that is sent out by a particular antenna can go
16 very far. In this particular case, it's quite possible.

17 PRESIDING JUDGE SCHMITT: [11:45:33] Thank you. I think we cannot expect
18 more from the witness. But please proceed.

19 MR SUZUKI: [11:45:45] Thank you, your Honour.

20 Q. [11:45:49] Thank you for that explanation, Mr N'Douba. Can you -- just to
21 return to the idea of overlap in coverage, essentially what you just said raises the
22 possibility that the user was at a location where Bimbo and Borossé provide
23 overlapping and competing coverage; is that correct?

24 A. [11:46:25] Overlapping is possible, yes, in the conditions that I've explained.
25 Yes, it is possible.

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1 Q. [11:46:32] Thank you, Mr Witness. And is it correct that this example
2 illustrates that the serving cell for a given location can change quite quickly? Would
3 you agree with that?

4 A. [11:46:52] Not totally that it can change very quickly, as such. Conditions in
5 which it would -- could happen are quite exceptional, and we see this much more in
6 areas where we do not have a lot of serving cells.

7 Q. [11:47:23] Thank you, Mr Witness. I'd like to move on to network coverage.
8 It's correct, isn't it, that your company Moov didn't have a specific way of measuring
9 network coverage? Is that correct?

10 A. [11:48:00] Yes. Measuring the coverage of the network involves a number of
11 tools, and we did not have all those tools at that time.

12 Q. [11:48:22] Thank you. And are you familiar with drive tests, a type of field
13 survey called a "drive test"?

14 A. [11:48:38] What kind of test? Could you perhaps clarify that somewhat?

15 Q. [11:48:57] Of course, Mr Witness. As I understand it, the drive test involves
16 engineers moving around an area with a mobile testing device that measures the
17 signal strength of a given location or measures the coverage of a given cell. Does
18 that assist?

19 * A. [11:49:24] Yes, I see that, I understand. So you're talking about campaigns to
20 take radio measurements so as to carry out testing and take measurements under
21 normal conditions like a subscriber.

22 Q. [11:49:55] Thank you, Mr Witness. I might take you to an image of a drive test.
23 That's at Defence tab 1, at page 0201.

24 Now, Mr Witness, this is an image of a field survey, a driving test, so it would involve
25 engineers driving around testing the coverage of this target cell. The route that's

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1 taken is depicted in the dots on the map and the red dots are the locations where the
2 target cell is the best serving cell. This is a -- does this correspond with your
3 understanding of a field survey or a driving test?

4 * A.[11:51:34] Yes, going by what I know about radio measurements, yes, there are
5 similarities to... This corresponds to the dots showing radio measurements.

6 Q. [11:52:04] Thank you, Mr Witness. And this is the only way to know for certain
7 that a given location is served by a given cell; is that correct?

8 A. [11:52:16] Yes. When we make these radio measurements, from a technical
9 point of view it enables us to check this.

10 Q. [11:52:40] Thank you, Mr N'Douba. And just to be -- just to be clear, you didn't
11 do these kind of surveys at Moov; correct?

12 A. [11:52:55] We have not done this throughout the entire territory. In Bangui, we
13 regularly make these kinds of measurements, and in certain localities in the provinces,
14 when we have a complaint, we send a team to go and check out the situation. But
15 this is not done throughout the entire territory.

16 Q. [11:53:41] If I could just have a moment, your Honour.

17 PRESIDING JUDGE SCHMITT: [11:53:46] Of course.

18 MR SUZUKI: [11:53:47] Thank you, Mr President, and thank you for your patience,
19 Mr Witness.

20 Q. [11:54:28] Did you have these -- did you conduct these field surveys in 2013 and
21 2014?

22 A. [11:54:36] In that period especially, no. The conditions did not make it possible
23 to carry out fully and properly this activity. In this specific period, I do not recall
24 that we were able to do so.

25 PRESIDING JUDGE SCHMITT: [11:55:11] Let me comment shortly. That's not

1 surprising, given the circumstances.

2 MR SUZUKI: [11:55:18] Thank you, your Honour.

3 Q. [11:56:04] Mr Witness, another way of evaluating network coverage is
4 prediction software that produces theoretical coverage predictions; is that correct?

5 * A. [11:56:18] Yes. That is what prediction software is used for, yes. It gives an
6 idea of the theoretical coverage, based on the information that is provided about the
7 data from the site where the equipment will be installed.

8 Q. [11:56:48] Thank you. And the information that you're referring to, this is
9 information such as the azimuth value or cell site coordinates, the type of terrain,
10 signal strength, this kind of information; is that correct?

11 * A. [11:57:10] Yes, indeed. In predicting coverage, the analysis takes into account
12 the height at which the antennae are set on the tower and the direction in which the
13 antennae is oriented. It also takes into account the transmitting power of the base
14 station, as well as the terrain in the area, because when one is predicting coverage,
15 there are digitalized maps that include information on the terrain and other aspects of
16 the area, such as vegetation and waterways.

17 Q. [11:58:07] Thank you, Mr Witness. And this kind of prediction software was
18 not available to your company in 2013-2014; is that correct?

19 * A. [11:58:24] Yes, it was not available. But we work closely with the equipment
20 manufacturer, who is responsible for predicting coverage, vis-a-vis the demand we
21 have for coverage.

22 Q. [11:58:59] Thank you. If we could go to the document at Defence tab number 2
23 at page 0190. Thank you. Mr Witness, this is a -- this is an example of a --

24 A. [11:59:44] Yes.

25 Q. [11:59:44] -- cell site mapped with coverage prediction software. This -- so we

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1 would see the cell site itself in the middle there and the blue and yellow areas --

2 A. [12:00:01] Yes.

3 Q. [12:00:02] -- would represent the coverage of those three sectors that we see; is
4 that correct?

5 A. [12:00:13] Yes.

6 Q. [12:00:19] Thank you. If we could go to page 0195, please. Now, Mr Witness,
7 this is the same concept, but this is at the network level, so this is a map of best
8 serving cells created by prediction software; is that fair to say?

9 A. [12:00:47] Yes, I see. I see what is presented here.

10 Q. [12:01:04] Thank you. And you touched upon this earlier about how users
11 inform you about the extent of Moov network signal. And this might seem a little
12 bit obvious, but users can't inform you specifically which cell site is providing
13 coverage at a given location; is that correct?

14 A. [12:01:36] A user cannot know exactly which cell.

15 Q. [12:01:56] Thank you. And, again, you spoke about this earlier as well, but in
16 your witness statement you say that antenna at Moov can provide coverage of up to
17 20 kilometres but that in Bangui your company adjust them to provide coverage of
18 one or two kilometres to prevent interference. Just to be more specific or more clear,
19 you're saying that the company modifies the signal strength of the cell sites in the
20 network in Bangui; is that correct?

21 A. [12:02:32] Yes, these are adjustments of coverage done to avoid problems of
22 interference and radio issues.

23 Q. [12:02:53] Thank you. And Moov -- or, rather -- yes, Moov adjusts the cell
24 strength, or the signal strength, and the coverage according to the network
25 configuration that's specific to Moov; that's correct, isn't it?

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1 A. [12:03:16] Yes.

2 Q. [12:03:24] Thank you. And as we see on this map in front of you, cell sectors in
3 a network, they provide asymmetrical coverage, in the sense that they don't
4 necessarily all provide the same amount of coverage; is that correct?

5 A. [12:03:57] Yes, there is asymmetry and there are multiple reasons to explain that.

6 Q. [12:04:26] Thank you, Mr N'Douba. We will touch on some of those reasons
7 later on, but one such reason that coverage can be asymmetrical is because of these
8 kind of modifications to the signal -- to signal strength that are undertaken by your
9 company or any company; is that correct?

10 A. [12:04:50] Yes. *Inter alia*, adjustment of the strength does have an effect on
11 these parameters.

12 Q. [12:05:11] Thank you. Now, I'm going to ask you some questions about the
13 best-serving cell. And we established earlier that the serving cell is the cell site that's
14 actually used when a phone makes or receives a call. Now, my question is: The
15 best serving cell --

16 A. [12:05:46] Yes.

17 Q. [12:05:47] -- or the serving cell is not necessarily the cell site that is closest in
18 physical distance to the phone; can you confirm that?

19 A. [12:05:56] No. Let me explain.

20 * In the configuration of cells, there are many parameters to be taken into account, like the
21 transmitting power of the antennas and what is defined as the neighbourhood relation
22 with the other cells around. * We have seen that a BTS already has three cells that are
23 built-in, and in a given area where we have several BTSs, there are parameters that define
24 the neighbourhood relations among the different cells of the various BTSs that also come
25 into play. * And the basic principle which governs this is a working principle of mobile

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1 telephony. In a given area that is covered by a specific antenna, the parameters are set so
2 that this antenna has the strongest or most dominant signal in order to pick up the
3 subscriber's call. And that is what guarantees the quality and the type of communication
4 that the customers have the right to on the network.

5 Q. [12:07:53] Thank you, Mr Witness. I think -- well, just to maybe simplify or
6 confirm, from that I understand that the cell site that gives the strongest signal is not
7 necessarily the one that's closest to the mobile phone that's being used; is that correct?

8 A. [12:08:18] To answer the question, perhaps you could repeat the question? I
9 have a hard time grasping it.

10 Q. [12:08:39] Of course, Mr Witness. I apologise, it's my fault. The serving cell --
11 a cell phone that's being used to make or receive a call, the serving cell for that call is
12 not necessarily the cell tower that's the closest to that mobile phone; can you confirm
13 that?

14 A. [12:09:06] Yes. In the case where there are several cells and if neighbour
15 relations are authorised, it is not always the closest or the strongest that takes care of
16 the call. If the conditions don't make it possible for this cell to take care of the call,
17 the other cells are authorised in these neighbouring relations with the specific cell to
18 cover the call of the subscriber.

19 Q. [12:10:00] Thank you, Mr Witness. Now, I'm going to go through some
20 examples that hopefully illustrate or demonstrate this. If we could -- actually, I think
21 it should be the same document that's on your screen, Mr Witness. Yes.

22 Now, again, this is an example of theoretical predicted coverage created by prediction
23 software. So on this map we see the predicted best server coverage, or the best
24 serving cells, that are overlaid on to a map. So you can see the roads underneath
25 that. I'd like to take the example in the centre of the map, the cell sector ending

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1 60748 with the coverage depicted in yellow. Do you see that, Mr Witness?

2 A. [12:11:16] Yes, I see this.

3 Q. [12:11:21] Thank you. So, according to this map, if you were to use your phone
4 within that yellow area on the map, the best serving cell would be cell sector 60748; is
5 that correct?

6 A. [12:11:44] Yes.

7 Q. [12:11:56] Thank you. And we spoke earlier about the fact that coverage in a
8 network is asymmetrical, so I'd like to draw your attention to those yellow patches
9 down the bottom of this image. And so there, too, according to this map, the yellow
10 cell sector 60748 is again the best serving cell; correct?

11 A. [12:12:34] Yes.

12 Q. [12:12:47] Thank you. And these kind of patches of coverage, they are typical
13 of networks, of cell networks; is that correct?

14 A. [12:13:03] Yes. What we see is typical of cellular networks, as far as I know. I
15 don't know all the possible conditions that this prediction was carried out in, but
16 given what I know about the functioning of mobile networks, this case is possible.
17 And as a piece of information, in the orientation of the antennae, we spoke earlier of
18 the azimuths which give the directions in which the antennae are directed, and that is
19 one datum which determines on a horizontal plane the direction of the antennae.
20 There is another setting which is taken into account in the coverage prediction, and
21 that is the prediction of the -- the position, rather, of the antennae on the vertical axis.
22 And if there is a problem - the antennae is, let's say, damaged, or a case where we
23 don't want the signal to go too far -- the antenna can be installed at a lower height,
24 vis-a-vis another one. In that case, we have had situations where the yellow would
25 be a bit further ahead. And, as I have already said, prediction is theoretical

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1 information -- that it is what we can expect. Thank you.

2 Q. [12:15:16] Thank you for that explanation, Mr Witness, and we'll touch on that a
3 little bit later, actually. But for now I'd like to -- again, I'd like to just demonstrate
4 that -- what we spoke about earlier, about how the best serving cell is not necessarily
5 the one that's closest to the phone itself. So, again, if we stick with this yellow cell
6 sector that we see in front of us, this yellow coverage patch down the bottom that
7 counsel is kindly circling, according to this map, within this yellow patch, the best
8 serving cell is still 60748 and so you would expect that if you were to use that phone
9 in that patch, cell 60748 would be the serving cell and it would appear in the call data
10 records for that call; is that correct?

11 A. [12:16:47] Yes.

12 Q. [12:16:56] So you'll agree that even though the best serving cell in that patch is
13 60748, that patch is actually closer in distance to the cell sector 55139 directly above
14 with the dark coverage?

15 PRESIDING JUDGE SCHMITT: [12:17:18] Ms Prathaban?

16 MS PRATHABAN: [12:17:20] Just a comment, really. This map is not a CAR map,
17 so it seems to be a theoretical exercise and I'm not sure if the witness is also aware of
18 it, because he seems to be just asking based on factors like terrain that he's talked
19 about. It's completely different countries.

20 PRESIDING JUDGE SCHMITT: [12:17:36] Well, that's true, of course, but then the
21 question-- it's perfectly clear that we are not talking about Bangui here and obviously
22 the witness, who is very intelligent, he knows that, that we are not talking about
23 Bangui, that it's sort of a theoretical exercise.

24 But what is important for you, Mr Witness, is if what we are discussing here with
25 regard to this document would also have, in your opinion, working in the field for

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1 20 years -- or nearly 20 years now, also have -- would also apply for the situation in

2 Bangui, or it might very well be that Mr Suzuki will go this step further, then.

3 And, of course, interesting is in the end, and I think you will address it, if it were so

4 that the cells -- the cell that appears on the call data records is not necessarily the

5 closest to where the person is when it uses the cell phone, what this might mean for

6 reliability of any conclusions to be taken for the location of a certain person. It might

7 be a bit complicated, but I think you understand what I mean. I take it you will

8 address this with the witness, or will you leave the conclusions to the Chamber, then?

9 MR SUZUKI: [12:19:19] I tend to think we will leave it to your Honours.

10 PRESIDING JUDGE SCHMITT: [12:19:20] Okay, good.

11 MR SUZUKI: [12:19:21] We might touch on it just in conclusion.

12 PRESIDING JUDGE SCHMITT: [12:19:27] Otherwise I will bring it up through the

13 witness. Thank you.

14 MR SUZUKI: [12:19:31] Thank you, your Honour.

15 Q. [12:19:32] Just to remove any doubt, this is a theoretical exercise, but I do think

16 that, for example, the witness said that the kind of coverage patches that we see on

17 this map are typical of cell networks, so I do think that there is some value --

18 PRESIDING JUDGE SCHMITT: [12:19:50] Perhaps we can clarify, because I

19 understand that Mr Prathaban stood up here. Mr Witness, you have heard our

20 exchange and what I said. Is it correct when we assume, or when I assume, that

21 what we have discussed theoretically here with regard to -- I think it's London we are

22 talking about? I don't know, whatever it is, but it's not Bangui. Would this

23 situation also apply to Bangui?

24 THE WITNESS: [12:20:18](Interpretation) Thank you, your Honour. That situation

25 indeed, as I said at the beginning -- you can't say that one would apply this for all of

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1 Bangui with complete certainty. As I said initially already, the prediction of
2 coverage is an entirely theoretical exercise. It gives one an idea.
3 Secondly, the conditions -- well, the information that would allow you to carry out
4 this prediction of coverage I'm not aware of, but as for the principles of operation I
5 would say it's possible. Now, in this particular case, when it comes to the Moov
6 network, to the best of my knowledge, my network that I administer, I know that
7 network better than any other network.

8 PRESIDING JUDGE SCHMITT: [12:21:33] Mr Suzuki.

9 MR SUZUKI: [12:21:35] Thank you, your Honour.

10 Q. [12:21:52] Thank you, Mr Witness. And, yes, we are just interested in the kind
11 of underlying principles that -- yes, like I said -- like you said, actually, the underlying
12 principles are the focus of these questions.

13 So I will -- I will start again with this question. Again, on the idea that the best
14 serving cell is not necessarily the one that's closest to -- or closest in distance from the
15 phone -- well, actually, just to continue on from what we spoke about in terms of
16 underlying principles, that principle, the idea that the best serving cell is not
17 necessarily the one that's closest to the phone, that would apply to your network, for
18 example?

19 A. [12:22:55] Yes, that would be possible on our network.

20 Q. [12:23:10] Thank you. And in the same vein, you said that patches of coverage
21 like we see on this map are typical across networks, so you would expect them to
22 be -- you would expect to see these types of patches of coverage at Moov, at your
23 network; is that correct?

24 A. [12:23:35] Yes, that's one of the reasons why a lot of work is done to optimise the
25 network, and that work's done on an ongoing basis.

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1 PRESIDING JUDGE SCHMITT: [12:23:49] Mr Witness, if we assume that this would
2 also be the situation for your network, what would the consequences be for any
3 information we would derive from the call data records with regard to the location
4 where a certain call was placed? Do you understand my question? It was a little
5 bit complicated, but when the serving cell which is -- appears then also in the call data
6 records is not the nearest to the location, what consequences would that be for the
7 validity of such information we get from the call data records?

8 THE WITNESS: [12:24:31](Interpretation) When it comes to the fact that the serving
9 cell may not necessarily be the closest cell to the telephone, in the very principle of the
10 operations of mobile networks, that is established, that being the case, but that is not
11 necessarily a deviation that would call into question the reliability of the data from
12 the CDR, because we know full well under what conditions such a thing would occur,
13 and those are cases that we observe in urban areas, in very dense urban areas, and the
14 policy to manage the coverage is to provide as much coverage capacity and -- so that
15 means the way the cells are placed, the cell that picks up a call from a customer
16 remains the call -- the cell intended to cover the zone in question.

17 PRESIDING JUDGE SCHMITT: [12:26:13] Okay. Thank you very much for
18 obviously understanding my question, which I'm happy about. But wouldn't it now,
19 from a layman's perspective, like I am and perhaps others here in the courtroom too,
20 wouldn't it appear to be logical that if the cell that is covered in the call data records is
21 not the one closest to where the phone call is placed, that there is a deviation with
22 regard to the location? Or is this -- is there an error in thinking, in my thinking?

23 THE WITNESS: [12:26:55](Interpretation) Well, when we're talking about signals
24 that are close, we have to consider to what extent the proportion. If it's, say, one
25 hundred metres, that's different to one or two kilometres. So the situation is quite

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1 different when you consider such factors.

2 PRESIDING JUDGE SCHMITT: [12:27:30] Yes. That would have been my next
3 question. So when there is some deviation, what would the scope be? So, the
4 difference with regard to the location, would it be a couple of kilometres or would it
5 be a couple of hundred metres? Generally speaking, yes? Of course, you can only
6 speak in the abstract here, but would it be a significant deviation or a less significant
7 deviation?

8 *THE WITNESS: [12:28:02](Interpretation) No, it would be a lesser deviation,
9 because, you see, behind the scenes, so to speak, the purpose of arranging the
10 coverage in a particular way is to truly minimise the possible deviation. If a signal is
11 transmitted by an antenna, we can't restrict it to a certain area like a coloured zone on
12 a map. The goal of the exercise, and I think I've said this earlier, we want to optimise
13 the network and ensure the best range. That's the sign of quality. We want to give the
14 best quality to the client. So the margin is quite small; it's not all that big, really.

15 PRESIDING JUDGE SCHMITT: [12:29:05] When you say the margin is quite small,
16 I know I told you that we cannot expect from you that you have a concrete figure, but
17 could you give us an idea what the margin of deviation would be -- a couple of
18 hundred of metres or kilometres, or whatsoever? Would you be able to give us such
19 information or is this beyond what you know?

20 THE WITNESS: [12:29:34](Interpretation) Yes. Yes, indeed. I can give you that
21 information. We'll have to go into more depth from a technical point of view. So,
22 you see in urban centres, as I've said already, depending on the frequency used, we
23 manage to restrict -- we restrict the range of the antenna to 500 metres or 1 kilometre
24 for a particular band of frequencies and we use other bands of frequency to offer
25 capacity. And in that particular case, the distances are being -- are smaller, less than

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1 500 metres.

2 So, in those cases we are talking about 250 to 300 metres in urban centres. When we
3 are in rural areas, in those cases we don't have a lot of antenna. In most cases we
4 only have one BTS to serve a location. In that case, we don't have any problems with
5 interference that we have to manage. In rural areas, those spaces are bigger and we
6 have antenna whose powers are set to the maximum to cover as much space as
7 possible and to have as many customers as possible. That's the principle.

8 So, you see, in a urban area when we have many users working together, living side
9 by side, we use a different adjustment, or we tune the network differently, so to speak,
10 in comparison with a rural area where there are far fewer antenna.

11 PRESIDING JUDGE SCHMITT: [12:31:45] Mr N'Douba, we really appreciate your
12 explanations. That's very, very helpful, I think. And another -- you probably will
13 immediately recognise it's a layman's question. Is there any difference with regard
14 to these deviations, with regard to the person who places the call and the person who
15 receives the call? Is there any difference?

16 THE WITNESS: [12:32:07](Interpretation) The difference in what way? In terms of
17 the perception of the servers?

18 PRESIDING JUDGE SCHMITT: [12:32:21] That was my mistake. I was not clear
19 enough.

20 We said that there could be some deviation with regard to the location, so with regard
21 to -- again, with regard to this deviation, is there a difference between the person who
22 places the call and the person receives the call?

23 THE WITNESS: [12:32:39](Interpretation) No. For the person who is calling or
24 receiving the call, the difference is not perceptible to the person.

25 PRESIDING JUDGE SCHMITT: [12:33:02] Mr Suzuki, we have to understand it too,

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1 so because of that I put some questions, so that I at least can try to follow what's going
2 on here. But I hope it has covered a little bit what is here in the question. Please,
3 Mr Suzuki.

4 I wonder when we will have the lunch break? Do you already know how long it will
5 take, the afternoon, if you can finish in the afternoon?

6 MR SUZUKI: [12:33:40] We should finish by the end of the day, so I'm in your hands
7 as to when your Honours would like to take the break.

8 PRESIDING JUDGE SCHMITT: [12:33:47] Perhaps since we have just had, I would
9 not say a natural break, but some sort of break, 2 o'clock? And then in the afternoon,
10 whatever, I think you will finish at half past 3, but if you need a couple of minutes
11 more, we can go that. I suggest that.

12 Yes, okay. Lunch break until 2.

13 (Recess taken at 12.34 p.m.)

14 (Upon resuming in open session at 2.01 p.m.)

15 THE COURT USHER: [14:01:18] All rise.

16 Please be seated.

17 PRESIDING JUDGE SCHMITT: [14:01:36] Good afternoon, everyone.

18 Mr Suzuki, you still have the floor.

19 MR SUZUKI: [14:01:45] Good afternoon, Mr President, your Honours. Thank you.

20 Q. [14:01:50] Good afternoon, Mr Witness.

21 A. [14:01:56] Good afternoon.

22 Q. [14:01:59] Mr Witness, I'd like to go back very briefly to one -- to one of your
23 answers that you gave earlier -- or this morning, rather. And then at --

24 A. [14:02:16] Yes.

25 Q. [14:02:17] -- 12:24 in the French transcript. And, Mr Witness, you said and I

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1 quote in French:

2 (Interpretation) "But in all circumstances the cell that was for the client is the cell
3 which was designated to cover the zone given opposite."

4 (Speaks English) And my question, Mr Witness, by -- by the cell that's facing you,
5 you're referring to that the -- you mean in the direction of the azimuth; is that correct?

6 A. [14:02:59] Yes, I'm speaking about the direction.

7 Q. [14:03:05] Thank you, Mr Witness.

8 And I'd like to pick up on what we were talking about earlier about -- well, I'm just
9 going to pick up on what we were talking about earlier, Mr Witness. In your 2020
10 interview at paragraph 44, you say that in Bangui the range of antenna are generally
11 adjusted to 1 to 2 kilometres to avoid interference. This range of 1 to 2 kilometres,
12 was that the -- does that apply to the time frame of this interview, so in 2020 that was
13 the range of antenna -- of Moov antenna in Bangui; is that correct?

14 A. [14:04:12] I wouldn't be able to say that exactly.

15 Q. [14:04:20] Okay. Today you gave us numbers that are slightly different.
16 Today you told us at 12:29 that the -- the range of antenna of Moov in Bangui usually
17 are adjusted to 500 to 1.5 kilometres. And I'm just trying to understand the
18 difference between these two -- these two figures. Can you -- can you explain that
19 for us?

20 A. [14:05:01] Well, as I said a moment ago, it depends on the technology, the
21 technology that's adopted on the network that's used. If my memory serves me well,
22 during this period of 2013, 2014, the Moov network only had 2G technology. 2G had
23 this particularity of having a signal which emitted a bit further than the 3G signal that
24 we have now, due to the frequencies which are used. *So today the network also has
25 2G technology and 3G technology, and there's this difference of technology which

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1 explains the difference in range that has been recorded.

2 (Counsel confers)

3 MR SUZUKI: [14:06:27]

4 Q. [14:06:32] Thank you, Mr Witness.

5 So in 2013, 2014, the cells or the antenna were adjusted to a distance of more than 500
6 to 1.5 kilometres, is that -- is that -- do I understand that correctly?

7 A. [14:07:11] Yes. What I said was that depending on the technology that we had
8 at the time, you had a longer range, the frequent -- due to the frequency that was
9 used.

10 Q. [14:07:30] Thank you for that clarification, Mr Witness.

11 I'm going to pick up where we left off in -- about this idea that the cell phone
12 that -- sorry, the cell site that a phone uses, the serving cell for a certain call is not
13 necessarily the closest in physical distance to the mobile phone. I'd like to pick up
14 on that idea again, Mr Witness, and I'd like to show an example, or two examples, of
15 that.

16 If we could go to the document at tab 2, please, at page 0195.

17 Now, Mr Witness, again we're going to focus on the yellow cell sector?

18 A. [14:08:51] Yes.

19 Q. [14:08:52] 60748. And again to cover this -- or refer -- I'm referring to this
20 yellow coverage patch at the bottom centre. Again, given that this map purports to
21 show the best server coverage if a phone was within that patch, the best -- the serving
22 cell would be 60748 and, again, it would be 60748 that would appear in the call data
23 records as the serving cell for that call, correct?

24 A. [14:09:36] Yes.

25 Q. [14:09:44] Thank you. And you'll agree that even though the best serving cell

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1 in that patch, according to this map, is 60748, it's actually closer in distance to the cell
2 sector directly above with number 55139 or it's also closer to the cell sector to the left
3 with the dark blue coverage, 51028, or the navy blue coverage colour. Can you
4 confirm that?

5 A. [14:10:30] Yes. Yes, I see that. But that's a particular case.

6 PRESIDING JUDGE SCHMITT: [14:10:42] May I ask you, Mr Witness, in which
7 sense you mean that that it is a particular case?

8 THE WITNESS: [14:10:54](Interpretation) Yes, I'm saying that it's a particular or
9 special case because to say that quite simply when it concerns the engineering and the
10 coverage of the network, you will notice that this yellow block, or patch, which is
11 lower on the map, this is in a zone which we call a zone of non-dominance. * There
12 isn't one specific antenna which is aimed at that zone. So in this case, it is the signal
13 that can propagate itself most easily in this zone that will prevail. And that is the type
14 of situation which we look for when we are optimising the network in order to fix the
15 problem. So this is a particular function with regards to a normal mobile network.
16 This particular patch at that time, there should be an antenna that covers it. And if
17 we're not able to do so with antennas around it, then we have to install an antenna in
18 that zone to remedy that problem. That's why I say it's a special case, it's not a
19 normal case.

20 PRESIDING JUDGE SCHMITT: [14:12:16] And such a special case could also occur
21 in the situation you are acquainted with, for example, in Bangui; is this the correct
22 assumption?

23 THE WITNESS: [14:12:30](Interpretation) Yes, that could exist, because if the
24 coverage isn't well adjusted, that could be the case.

25 PRESIDING JUDGE SCHMITT: [14:12:40] Thank you so much.

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1 Mr Suzuki.

2 MR SUZUKI: [14:12:46] Thank you, your Honour.

3 Q. [14:12:54] Thank you, Mr Witness.

4 I'm continuing with a couple more examples here. Again sticking with the yellow

5 cell sector, we see some small patches of yellow to the left where counsel is pointing.

6 And, again, I'm repeating myself a little bit here, but this would be an area where the

7 best serving cell is 60748, but as we can see on this map, the cell 55459 with the brown

8 coverage is -- is substantially closer to that patch, as is the green cell sector, 51078, is

9 also substantially closer than the yellow sector -- or the yellow cell tower. Would

10 you agree with that?

11 A. [14:13:59] Yes, I see that. That's -- when I said when it concerns the

12 management of coverage of a mobile network, there are a lot of parameters which

13 have to be taken into account in order to explain things. In the case in point, I would

14 say we have the pictures. You have the yellow, which is in a patch of other colours,

15 but I wouldn't be able to rigorously explain how because I don't know the real

16 conditions under which this capture was done and what the criteria were, which were

17 taken into account and defined when it came to carrying out this work.

18 PRESIDING JUDGE SCHMITT: [14:14:49] I think we -- I would like to pick up with

19 what Ms Prathaban -- before the break, she had made an objection or so, but it's clear

20 that we want to entertain that, but we have to really leave what is concretely

21 appearing here and have to try to, if you can, to pull out perhaps abstract -- abstract

22 knowledge that could then be applied to the situation in Bangui at the time, 2013-14.

23 So -- and I think the principle we have understood now, what you are talking about.

24 That is -- and I think we have also already figured out that there are some deviations

25 in a certain range. So perhaps you can pick up from there.

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1 Ms Prathaban.

2 MS PRATHABAN: [14:15:40] It's not an objection, just a clarification. Can we just
3 get on the record when was this produced, this document?

4 PRESIDING JUDGE SCHMITT: [14:15:49] Okay, that's not a clarification. This is
5 simply an explanation what you're using. If you -- I don't know if it is important,
6 but -- well, continue, Mr Suzuki. Ms Dimitri will figure it out and will tell us. You
7 know, we don't want to lose time here.

8 And we appreciate it again, Mr N'Douba, that you really try to discuss here things
9 that have not to do with Bangui so that we understand the whole picture. We
10 appreciate that.

11 Mr Suzuki, please continue.

12 MR SUZUKI: [14:16:30] Thank you, your Honour.

13 Q. [14:16:35] I'll move on, Mr Witness. I'd like to talk about factors that can affect
14 cell coverage. I think you touched on this earlier, but I'd like to talk about perhaps a
15 bit more in detail.

16 In your witness statement you say that -- well, I'll quote the French:

17 (Interpretation) "The range of the antenna can go up to 20 kilometres, but changes
18 according to the physical conditions and the climate."

19 (Speaks English) Could you explain for the Court how geographic relief affects
20 coverage, please?

21 A. [14:17:23] Well, the incidence of the impact of geographical relief on coverage is
22 that if there's a situation facing this antenna you have a hill, then this hill constitutes a
23 natural barrier to the propagation of the signal. So depending on the height of this
24 obstacle, the people who are behind this hill - that is to say, this hill which is between
25 the people and the antenna - then they will not be able to have the signal or at least

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1 they won't be able to have good quality of signal. That is how the geographical relief
2 or physical structure affects the signal.

3 Q. [14:18:16] Thank you, Mr Witness. And in the same way, sometimes a radio
4 could go -- radio signal could go further than the 20 kilometres that we spoke about
5 because of differences in geographic -- geographic relief; is that correct?

6 * A. [14:18:42] Yes, it can go far, but that's really in exceptional cases. And really,
7 this is seen only in open country.

8 Q. [14:19:05] Thank you. And an urban landscape or an urban kind of
9 topography can also affect coverage; is that correct?

10 A. [14:19:18] Yes. In an urban zone, it could have an impact with regards to the
11 configuration. It's different. You have a lot more obstacles, and then the agencies,
12 telephone agencies, have to deal with these situations.

13 Q. [14:19:42] Thank you. And I think you've answered -- answered my next
14 question.

15 Now, the fact that there's water in between, or if a radio signal travels over water, that
16 can also impact the cell signal as well; is that correct?

17 A. [14:20:17] Yes. There are impacts, but currently the technology of mobile
18 networks make it possible to counter this type of propagation, which is parasite
19 propagation as we call it. * So the system is able to distinguish if the signal has
20 bounced off other natural obstacles and its trajectory has been changed.

21 Common -- the technology that you have nowadays makes it possible to deal with
22 this type of situation.

23 PRESIDING JUDGE SCHMITT: [14:21:00] Mr N'Douba, was this already possible in
24 2013, 2014?

25 THE WITNESS: [14:21:10](Interpretation) Yes, indeed it was.

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1 PRESIDING JUDGE SCHMITT: [14:21:13] Thank you.

2 MR SUZUKI: [14:21:17]

3 Q. [14:21:18] Now, Mr Witness, you referred to weather conditions affecting
4 coverage as well. Could you explain what you mean by that, please?

5 A. [14:21:31] Yes. By weather conditions, normally what one refers to there is a
6 time when there are storms. You can have conditions when you have a clearer sky,
7 then it can get the signal more easily. But when you get a strong storm, well, it
8 worsens the signal that is propagated in the area, so the signal gets weaker and then
9 you no longer have the same level of reception and that's what's meant when you say
10 that the weather conditions impact the range of the signal.

11 Q. [14:22:26] Thank you. And this might be a bit obvious as well, but power cuts
12 can also -- or power shortages, they can also affect coverage. For example, if a given
13 cell site loses power, that would affect that cell site's ability to provide coverage; is
14 that correct?

15 A. [14:22:56] Yes. The incidents, or the impact, if there's no electricity, then the
16 antenna stops, there's no longer any signal. If there's energy and it's on, then the
17 antenna will give out its signal as it should.

18 Q. [14:23:18] Thank you. And you say in your statement that there were -- and
19 I think my friend touched on this earlier, you spoke about fuel shortages in generators
20 in 2013, 2014. So I understand that this resulted in power outages in cell sites across
21 the Moov network; is that correct?

22 A. [14:23:50] Yes, there were power outages, but it wasn't through the whole
23 network.

24 Q. [14:23:58] Are you able to tell us if it wasn't across the whole network, can you
25 tell us roughly what areas were most affected by this?

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1 A. [14:24:15] Today, with the time that's passed, it's difficult to remember things
2 precisely. But where you can see the impact, it's particularly within the interior of
3 the country where for each locality you only had one BTS, and that means that in that
4 location everything was cut and then that was clear. But with the time that passed,
5 it's difficult to give precise elements in this regard.

6 Q. [14:24:57] That's perfectly understandable, Mr Witness.

7 Now, were there instances of pillaging of fuel by the Seleka in 2013, 2014? I mean
8 the fuel that was used to power the generators of the Moov network.

9 A. [14:25:29] When it comes to pillaging of fuel, I don't know. But the problem
10 that you had much more that we were confronted with was to have a correct supply
11 of it, because the supply had to be done in advance in order to have a break of service.

12 Q. [14:26:02] Thank you. And in your witness statement you also speak about the
13 destruction of material in 2013, 2014, and do I understand correctly that you're
14 referring to damage to the network equipment or infrastructure during the 2013, 2014
15 conflict?

16 A. [14:26:34] Yes, indeed. In this specific case and on that point we had cases of
17 total vandalism. Antenna within the town of Bangui, what we saw with them, there
18 were cases which we had seen -- this was the case, and then later there was another
19 locality within the country which had also faced the situation. But we weren't as
20 affected by this type of vandalism or sabotage as other networks at the time.

21 Q. [14:27:19] By "other networks", are you referring to Orange, for example?

22 A. [14:27:31] Yes, because in that environment there were points of information
23 which managers would make in order to evaluate the overall situation because we
24 offer a public service. So when it came to the information that we had at the time,
25 we would have that with regards our competitors - Orange, for example - and we saw

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1 that we had less damage than those who had suffered it.

2 Q. [14:28:08] Thank you for that, Mr Witness. Can you tell us a little bit more
3 about what you know about the damage to the network infrastructure of Orange in
4 2013, 2014, if you have some more information about that?

5 A. [14:28:27] No, no. I don't have the details. We know that there were issues
6 with the quality when the antennas weren't working. It was easy to know that
7 because in these situations, particularly in the interior of the country, given that there
8 weren't a lot of possibilities, if there was a network which was down, then without
9 having formal information about it, people, the subscribers, would immediately go to
10 another network that was available and you would see a spontaneous increase in the
11 traffic, and that was how we would know that there was an issue with regard to the
12 other networks or not.

13 Q. [14:29:23] Thank you, Mr Witness, for that.

14 Now, we spoke earlier a little bit about overlapping coverage between cell sites in a
15 network and especially in urban settings like Bangui. So my question is: Is it
16 correct that where there's overlapping coverage between cell sites, if one cell site fails
17 because of power shortages or damage to the hardware, then other cell sites with
18 overlapping coverage in that area will fill in the kind of missing coverage in whole or
19 in part; is that correct?

20 A. [14:30:43] Yes. In the case of coverage, if an antenna amongst others is for
21 some reason not working, indeed signals of others could arrive in that area. But the
22 service will not be at the same level as the one that the antenna would have provided
23 and we could be talking about very weak signals where the subscriber will feel a
24 difference in the quality of the service. There you go.

25 Q. [14:31:28] Thank you, Mr Witness. So the -- you're speaking about a signal

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1 that's very weak and the user will possibly be able to --

2 A. [14:31:54] Yes.

3 Q. [14:31:55] (Overlapping speakers) -- to tell the difference, but it's still essentially
4 a usable signal that has filled in for the missing cell; is that correct?

5 A. [14:32:09] Yes, it is a compensation that's not at the same level of performance.

6 Let me explain. *When we have such a case, in the definition of the range of the cells,
7 among the multitude of criteria defined to establish this, one parameter is the signal
8 level received by the telephone. In order to preserve the quality of service, this
9 parameter is set at a higher threshold than the limit of the reception of the mobile
10 phone. * That's in order to guarantee that if the call can be placed, we can ensure a
11 minimum level of quality, so that the call is acceptable. Below that, even if the phone
12 sees the signal, it would not be able to communicate with this signal.

13 Q. [14:33:16] Thank you for that answer, Mr Witness.

14 I might just try to illustrate what we just discussed with a -- again, a theoretical
15 example. If we could return to the document at Defence tab 2 at page 0195.

16 Thank you.

17 Mr Witness, again just to illustrate what we just spoke about in terms of cell failures
18 and other cells filling in for those failed cells, we'll return to this yellow coverage cell
19 set again, but I'd like to draw your attention to the cell sector right underneath that,
20 with 55139, the dark navy blue coverage that counsel is circling.

21 A. [14:34:51] Yes.

22 Q. [14:34:52] Again, just theoretically, if that cell sector failed because of a power
23 cut or because of damage to that cell, then one of the neighbouring cells with
24 overlapping coverage would likely become the best serving cell in that area.

25 For instance, the yellow cell might fill in for the missing coverage and provide a

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1 signal or become the best serving cell to replace the failed cell. Is that correct?

2 A. [14:35:51] Yes. If the yellow area has a signal that is deteriorating or is
3 completely lost, another antenna from the blue zone could temporarily cover it so it
4 remains within the limit of what is authorised for the network, if the phone can
5 capture it.

6 Q. [14:36:17] Thank you, Mr Witness. And --

7 PRESIDING JUDGE SCHMITT: [14:36:19] Ms Dimitri, have we figured out when
8 this -- well, I seem to have figured out that it's Kansas City we are speaking about,
9 so -- and if I were Ms Prosecutor, I would ask why Kansas City or where do you have
10 it from, simply why not, and when was it produced.

11 MR SUZUKI: [14:36:45] Your Honour, we intend to get back to you about the date
12 of --

13 PRESIDING JUDGE SCHMITT: [14:36:51] We can also do that tomorrow. It's
14 not -- it's not an issue where we need an immediate response.

15 MR SUZUKI: [14:36:59] Thank you, your Honour. And just with regard to the
16 location being Kansas City, they had just training -- essentially training slides that
17 we've obtained.

18 PRESIDING JUDGE SCHMITT: [14:37:11] That's fine. That's fine. You know,
19 when it's theoretical, it can be anywhere in the world being theoretical, but it's of
20 course a concrete example. For the case here it boils down to a theoretical, because
21 we are talking about Bangui 2013-14.

22 Yes, please, Mr Suzuki.

23 MR SUZUKI: [14:37:34] Indeed, your Honour. Thank you.

24 Q. [14:37:36] And just to conclude on that point, Mr Witness, in this theoretical
25 example of cell failure that we just went through, this is another instance where the

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1 cell -- that a mobile phone might not connect to the cell site that is closest in distance
2 to that phone, correct?

3 A. [14:38:08] Yes, in the case of an outage, that can happen, or a breakdown, that
4 can happen.

5 Q. [14:38:18] And again, in the call data records the company would record the cell
6 that was actually used for that -- for that call, correct?

7 A. [14:38:37] Yes.

8 Q. [14:38:41] Thank you, Mr Witness.

9 Now, in light of all these factors that we spoke about that could potentially affect cell
10 sites and radio signal, it's correct that network coverage is something that's dynamic
11 as opposed to kind of static. Is that something that you would agree with?

12 Maybe I'll give you an example. Just hypothetically, for example, at PK0 in Bangui,
13 one day the best serving cell could be a certain cell site and then the next day for any
14 of the reasons that we've discussed, at the same location the best serving cell could be
15 a different cell.

16 Is that something that you would agree with?

17 A. [14:39:39] No.

18 Q. [14:39:43] Would you like to explain, Mr Witness?

19 A. [14:39:51] Yes, I say no because the way we provide the coverage, this case can
20 only happen if there is a breakdown in normal functioning of the network, if, let's say,
21 at PK0 there's an antenna, that will be always the antenna with the dominating signal
22 there. So it will always be that antenna that will be serving PK0 as a zone, unless it's
23 proven otherwise.

24 Q. [14:40:41] Mr Witness, I'm not just talking about the failed cells, I'm actually
25 talking about all of the factors that we spoke about that affect coverage -- that can

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1 affect coverage for -- we spoke about the weather, we spoke about the urban terrain,
2 we spoke about relief, all of those factors together could make that -- or
3 they -- because of these factors, network coverage is something that's dynamic.

4 Would you agree with that?

5 A. [14:41:15] Yes, it is dynamic, but this -- this dynamic is limited by the settings
6 which we determine on the network.

7 Q. [14:41:35] I do understand that, Mr Witness, but you would agree with me,
8 though, that you can't guarantee that the best serving cell for a location won't change
9 from one day to another because of all the factors that we've just discussed; you will
10 agree with that, Mr Witness?

11 A. [14:42:03] Yes, if the conditions vary, then that can vary.

12 Q. [14:42:13] Thank you for that. I'm going to speak about one more phenomenon
13 of coverage, Mr Witness. And -- well, first of all, is it correct that cells can be
14 temporarily overloaded or reach full capacity? For example, when many people in a
15 certain area are trying to use their phone at the same time? Is that correct?

16 A. [14:42:51] Yes, saturation or overloading can happen at a given moment in the
17 network because the resources available are in a finite amount.

18 Q. [14:43:10] Can you tell us what happens when a cell in your -- in Moov, in your
19 company, is overloaded in this way? Can you tell us how the company deals with
20 that, please.

21 * A. [14:43:32] Well, in fact, there is no specific measure which is taken
22 automatically or instantaneously in the case of congestion. The network already has a
23 system to make adjustments automatically in order to manage, to some extent, what
24 we call congestion. So when the network is functioning normally, in the case of
25 congestion, the network looks among the surrounding antenna to see if other cells are

1 available with a good signal and these cells can then cover the additional subscribers.

2 * Otherwise, as a company, in order to manage these cases of congestion, we are
3 planning to set up new antennae or to redistribute coverage in the area in order to
4 provide greater capacity in the area that is experiencing congestion.

5 Q. [14:44:51] Thank you, Mr Witness, for that answer.

6 Now focussing on the first part of your answer, this -- this automatic process that
7 you're talking about, essentially the process -- it's a process by which the phone
8 connecting to the overloaded cell will be redirected to a cell that provides a weaker
9 signal and that weaker signal will be the serving cell; is that correct?

10 A. [14:45:37] Yes, within what is possible, yes.

11 Q. [14:45:43] And this procedure is called directed retry; is that correct?

12 A. [14:45:58] Well, it is not a new attempt as such. To say it more specifically, the
13 network looks at the other cells, neighbouring cells, vis-à-vis the relevant one, and the
14 antenna that are able to maintain the level of signal, the call will be redirected to this
15 new cell to continue. That's usually how it works.

16 Q. [14:46:45] Thank you, Mr Witness, for that.

17 I might again -- I promise you this is the last time, but I'll try to illustrate that with
18 another theoretical example, Mr Witness. If you could return to the document at
19 Defence tab 2, again at page 0195. And we'll return to the yellow sector, the yellow
20 cell sector.

21 So if we -- if we imagine a cell phone is located within that yellow area, and that cell
22 site 60748 becomes overloaded or over-congested because, for example, a big sports
23 event in that area just ended and everybody is getting on their mobile phones at once,
24 so in that scenario, a phone that tries to connect with cell sector 60748 would be
25 redirected -- if that cell sector was overloaded, it would be redirected to a cell sector

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1 that provides the second strongest signal; is that correct?

2 A. [14:48:31] Yes, the call can be transferred to another cell which would provide a
3 better signal.

4 Q. [14:48:39] Thank you. And it's usually a cell that neighbours the overloaded
5 cell, but it's not necessarily one that's right next to the overloaded cell; is that correct?

6 A. [14:49:05] Yes, it would always be a neighbouring cell and, if, depending on the
7 prepondering signal, preponderant signal of that neighbouring cell.

8 Q. [14:49:25] Thank you, Mr Witness. Now, the fact that that call is redirected,
9 that's not something that's reflected in the call data records; is that correct?

10 * A. [14:49:47] The fact that the call was transferred is not seen in the CDR, because
11 if the call was already under way and the call was transferred to another cell in order
12 to be completed, that is not recorded directly on the CDR.

13 Q. [14:50:14] My apologies, Mr Witness. I was not -- I wasn't clear on that one.
14 Returning -- still on the idea of the overloaded cell, the call data records -- the call
15 data records always show the cell that's actually used, so in the case of the overloaded
16 cell that we spoke about, it wouldn't show the overloaded cell, but it would show the
17 cell that provided the second strongest signal that became the serving cell; is that
18 correct?

19 A. [14:50:59] No, because the call had already been initiated starting with the initial
20 cell in the case you have presented. It had been initiated in the cell in yellow, so that
21 cell is the one that took the call from the outset.

22 PRESIDING JUDGE SCHMITT: [14:51:20] And I think with the last answer, not this
23 answer, but the last before answer, the witness was referring to phone calls who are
24 already under way. This is I think what the witness meant.

25 THE WITNESS: [14:51:44](Interpretation) Yes, that's it, indeed.

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1 MR SUZUKI: [14:51:52]

2 Q. [14:51:54] Mr Witness, the -- again, returning to this idea of the overloaded cell,
3 if the phone was in the best serving cell area, the yellow sector that we see on the
4 screen, and the yellow cell is overloaded, then the yellow cell would not appear in the
5 call data records, it would be the neighbouring cell that would become the serving
6 cell and it would be the neighbouring cell that would appear in the call data records.
7 Is that correct?

8 PRESIDING JUDGE SCHMITT: [14:52:37] Ms Prathaban.

9 MS PRATHABAN: [14:52:42] It calls for speculation and it was asked and answered.

10 THE WITNESS: [14:52:44] (Interpretation) Can I answer, please?

11 PRESIDING JUDGE SCHMITT: [14:52:46] No, it's -- I think it does not call for
12 speculation, it's simply that it was not clear from the answer and we want to clarify it.
13 So, Mr Witness, you may answer. You know, you have -- with the exception of the
14 examiners here, you have -- on the counsel side you have people in front of you who
15 don't understand a lot about the matter, so because of that, sometimes we repeat
16 things and we ask for further information. And that might sound very basic for you,
17 but perhaps can you again explain what happens in such a case.

18 THE WITNESS: [14:53:27] (Interpretation) Yes. I would like Mr Suzuki to reiterate
19 his question, please.

20 PRESIDING JUDGE SCHMITT: [14:53:36] Mr Suzuki, I think we give it another try.
21 Because of the intervention and the back and forth and my additional comments,
22 I think we should repeat the question, please.

23 MR SUZUKI: [14:53:52] Of course, Mr President. Thank you.

24 Q. [14:53:55] I'll try again, Mr Witness. Again, if a phone is located within the
25 yellow coverage area that we see on the map with cell sector 60748 and 60748 is

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1 overloaded or congested, then the network would use the second strongest
2 signal - you said it's a neighbouring cell - to connect that call, and it's the
3 neighbouring cell that would appear in the call data records for that call; is that
4 correct?

5 * A. [14:54:38] No, that is not the case. In the case of the yellow cell...

6 PRESIDING JUDGE SCHMITT: Please continue, Mr Witness.

7 THE WITNESS: [14:54:46] (Interpretation) Yes. Now, for the yellow cell, in the case of the
8 yellow cell, when the call is made, there are resources already. And when there is
9 congestion and it is not possible to place a call from the yellow zone, no calls will be made
10 from there. So in the CDR, if the call is initiated in the yellow zone the data from the
11 yellow cell will appear in the CDR since that is the cell where the call was placed. * But if
12 the subscriber is in another cell, this is a case of mobility. But if there is congestion, the
13 congestion does not allow one to place a call from the yellow area, so no call will be made
14 from the yellow cell. Even if the subscriber is close to the antenna, if it is completely
15 congested, no channel will be available and well, the call will be made from another cell.

16 Q. [14:56:04] Thank you, Mr Witness. Just on what you said at the very end there,
17 it would be the other cell, the non-congested cell would appear in the call data
18 records; is that correct?

19 A. [14:56:21] Yes. There where the call will begin.

20 Q. [14:56:29] Thank you, Mr Witness.

21 PRESIDING JUDGE SCHMITT: [14:56:30] Well, it's still not clear to me now, but this
22 is perhaps due to my ignorance.

23 So again with an example. So I, Presiding Judge, would place a call in the yellow
24 area. Yellow area is completely overloaded. So what would appear on the call data
25 records as the location where I have placed the record?

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1 THE WITNESS: [14:57:07](Interpretation) Yes, you started the call in the yellow zone,
2 in the yellow sector. If you were able to do so, there were resources available to
3 make that call. At that point, all the other calls that will come after you where there
4 will be no more resources which will be transferred elsewhere. You already have
5 your available channel which has taken your call in the yellow area. So it's for those
6 who will come later where there will not be any channels available. But you already
7 have the resources from the yellow sector. It's for -- so in your CDR, you will have
8 the yellow zone showing.

9 PRESIDING JUDGE SCHMITT: [14:57:55] So, Mr Suzuki, assuming Mr Suzuki is
10 also in the yellow zone, coming immediately after me, what -- what is in the CDR for
11 him then? So I'm the last one, I'm the last one who is, let's say, who is served, so to
12 speak, from this cell. Really I'm putting it in a way like a layman would do. I'm the
13 last one. And after me comes Mr Suzuki standing 10 metres apart, for example, so
14 what would be reflected in the call data records for his location?

15 THE WITNESS: [14:58:36](Interpretation) What will be indicated for the place of
16 Mr Suzuki, it's the cell where his call will begin. Even if he's standing 10 metres
17 away from you. * So if it's not the yellow cell in the CDR, it's not the information
18 from the yellow cell.

19 PRESIDING JUDGE SCHMITT: [14:59:00] But he's also in the yellow zone. Let's
20 assume he's standing aside of me and we are at the same spot, so to speak,
21 what -- you know, it's simply perhaps -- it's ignorance, perhaps, but can you tell us
22 what would happen in that case with the CDR.

23 * THE WITNESS: [14:59:21](Interpretation) Yes, I can answer. I understand exactly what you
24 are asking about. In this case, as I'd said earlier, Mr President, the number of channels that are
25 provided by a particular antenna is very limited. Let's say - just an example - an antenna has

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1 20 channels for simultaneous calls, and if there were already 10 calls under way, 10 calls
2 placed, if there were only one channel left, you would occupy that channel, which is from the
3 yellow cell. * When Mr Suzuki wants to make his call, the network will just see, even if he is
4 on.... the network will see him connected to the yellow cell, his signal will be transmitted on
5 the yellow cell, and the network will just see that there are no more resources available, no
6 channels available on the yellow cell, even if that is the cell that has the best signal for him. At
7 that point, automatically the network looks in the neighbouring cells --- this is the role of
8 neighbour relations --- to see among those neighbours which cell is the one best placed to take
9 the call instead of the yellow cell.

10 PRESIDING JUDGE SCHMITT: [15:00:49] Thank you very much for this clarification.

11 I think, Mr Suzuki, we have an answer.

12 And also thank you very much to the interpreter. That is not easy, actually, today to
13 interpret these technical matters. So we appreciate that.

14 Mr Suzuki, I think it's not getting clearer any more, so please continue. You can move on.

15 MR SUZUKI: [15:01:24] Okay, your Honour. I think with that it's clear enough. Thank you.

16 Q. [15:01:28] And thank you, Mr Witness, as well.

17 Just a last couple of questions about overloaded cells.

18 A. [15:01:35] Thank you.

19 Q. [15:01:38] This kind of cell overloading can also happen -- so we talked about
20 crowds where we have many people trying to use one cell sector at once, but this kind
21 of cell overloading can also happen where a cell site has failed and the other cell sites
22 around it are forced to kind of take on the extra load; is that something that you
23 would agree with?

24 A. [15:02:18] Yes, indeed. Where you have overloading or outage, at that time, the
25 other cell towers that are nearby, they have to take over.

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1 Q. [15:02:35] Thank you, Mr Witness.

2 Now, witnesses who have appeared before the Chamber, they have spoken about
3 having trouble using their mobile phones during the 5 December 2013 fighting
4 between the Anti-Balaka and the Seleka.

5 And for the record, for example, that's P-1858, transcript number 185 at 9:51 a.m.

6 And my question to you, Mr Witness: Is it fair to say that during that attack the
7 network would have likely been overloaded because many people were trying to use
8 their mobile phones at the same time?

9 PRESIDING JUDGE SCHMITT: [15:03:22] Please reword it -- or let me put the
10 question.

11 Mr Witness, do you have any information that on the 5 December 2013 attack -- and
12 we assume that this exact date is also in your recollection, I think it's the collective
13 recollection of your country and it will also be in your recollection, do you have any
14 information that on this day there was this phenomenon of overload of this network
15 systems?

16 THE WITNESS: [15:03:55](Interpretation) No, not at all. No.

17 PRESIDING JUDGE SCHMITT: [15:04:01] Okay.

18 Mr Suzuki.

19 May I ask you why you are so sure, if you may? If I may.

20 THE WITNESS: [15:04:17](Interpretation) Yes. I can say it with certainty because
21 I'm on the technical staff who monitor the network. We have a unit which is always
22 on duty which works 24 hours a day and it monitors the resources of the network,
23 and their level of occupation, the occupancy, that makes it possible to carry out an
24 alert if there's a problem. So that's how I can say with certainty that I know that.

25 PRESIDING JUDGE SCHMITT: [15:04:49] Thank you.

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1 Mr Suzuki, please move on.

2 MR SUZUKI: [15:05:22]

3 Q. [15:05:24] Thank you, Mr Witness.

4 I'm on my last topic now, Mr Witness. I'd like to ask you some questions about your
5 company's data and record-keeping.

6 So I'd like to return to the kind of cell site information that we spoke about earlier,
7 azimuth direction, cell site coordinates, these kind of things.

8 First of all, can you tell us how do you -- how do you measure the location of cell
9 sites?

10 A. [15:06:08] I haven't understood, but I think I don't know exactly what you want
11 to say.

12 Q. [15:06:13] That's -- that's my fault, Mr Witness. You provided -- we saw a
13 document where we had coordinates of cell sites. Can you tell us, how did you
14 come up with those coordinates --

15 A. [15:06:31] Yes.

16 Q. [15:06:32] -- that you provided?

17 * A. [15:06:37] The GPS coordinates. We use a GPS device to get these coordinates.
18 I think that you know what that is. * It's a small device that makes it possible to
19 pinpoint a location using a number of satellites. It makes it possible to indicate the
20 precise position of the location where you are standing with this device. So in order
21 to take the coordinates of our antennas, this is something we measure at the very start
22 when we choose a place to put the antenna. So in order to take the coordinates of the
23 antenna, this is something we take at the very start when we choose a place in order
24 to put the antenna. So we get the coordinates as to where the antenna will be located
25 and that's a single reference for that site which makes it possible to geolocate it. And

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1 we use that as a basis of information that can be used in order to establish predictions
2 of coverage or to analyse the performance when we measure them.

3 Q. [15:07:49] Thank you. Now, we spoke -- or my friend touched upon
4 your -- your experience at Moov and the responsibilities that you've had over the
5 years and you spoke about the fact that as a radio technician your -- your job
6 was -- part of your responsibilities were to install and maintain equipment and
7 maintain the network.

8 Now, my question is: Is it correct that maintaining a telecommunications network, it
9 involves constantly kind of recalibrating the equipment to ensure network coverage
10 in response to changing conditions, this kind of thing? Is that -- is that fair to say?

11 * A. [15:08:45] No. There isn't any frequent or continuous recalibration of
12 equipment or the network. When it comes to recalibration of the network, that is
13 only done when clients move, for example. That is to say, today if we have an
14 antenna to cover a given location and then over time the demography, the
15 neighbourhood gets bigger or in the -- if there is a movement of the population and
16 the initial direction is no longer relevant to meet the needs of the population, well, in
17 that case we can carry out a recalibration. But the network doesn't need to be
18 recalibrated constantly or even in a frequent manner. The network functions in
19 almost complete autonomy, unless there is a breakdown of the physical materials.

20 Q. [15:10:01] Thank you, Mr Witness. Just to focus on the recalibrating, setting
21 aside whether it's frequent or not frequent, you spoke about having to respond to the
22 changing demography of Bangui. So is it fair to say, for example, that to respond to
23 these kind of changes in the city, if new buildings are built or new areas become more
24 populated, the network modifies the network coverage to ensure that coverage is
25 maintained? Is that correct?

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1 A. [15:10:51] Yes, if it's necessary, we do that. And all these changes are
2 documented so that we can keep at the traceability of all the changes that have been
3 made. So we put it down on what date any modification to an azimuth was done,
4 because also for us, when we follow up the performance, we have to measure the
5 impact of any change that we make to the network. So these are things that are well
6 dated and they are well covered in terms of taking them down.

7 Q. [15:11:31] Thank you, Mr Witness.

8 PRESIDING JUDGE SCHMITT: [15:11:34] Mr N'Douba, when you say it's well
9 documented, do you have knowledge of and a recollection if such recalibration was
10 done in 2013 or 2014? Do you recall that?

11 THE WITNESS: [15:11:55](Interpretation) At that time, no, not with certainty. We
12 didn't make a change because the context didn't make it possible to carry out this type
13 of exercise because, for your information, in order to recalibrate coverage, you have to
14 put up -- go to the pylons where they are in order to work on them and you actually
15 have to physically move the antenna. And during this period, if the conditions of
16 work -- well, they didn't -- conditions of work didn't make it possible. We had to
17 ensure the security of our staff at the time.

18 PRESIDING JUDGE SCHMITT: [15:12:31] Thank you.

19 Mr Suzuki.

20 MR SUZUKI: [15:12:55] My apologies, Mr President. If we could just have a
21 moment to confer.

22 PRESIDING JUDGE SCHMITT: [15:13:02] Of course.

23 MR SUZUKI: [15:13:03] Thank you.

24 (Counsel confers)

25 MR SUZUKI: [15:13:49] Thank you, Mr President. I apologise for the delay.

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1 Q. [15:13:53] Mr Witness, thank you very much for your patience. I
2 have -- actually, sorry, I have two -- two final questions for you, Mr Witness.
3 This morning in response to a question from -- from my friend from the Prosecutor,
4 you said that the IMSI identifies the subscriber. Now, it's more correct to say that
5 the IMSI, the IMSI identifies the SIM card, that's more of a precise description of -- of
6 what an IMSI is; is that fair?

7 A. [15:14:37] Yes, indeed. The IMSI identifies the SIM card which bears the
8 number of the subscriber.

9 Q. [15:14:51] Thank you for that clarification, Mr Witness. I'm just going to return
10 to what you said about cell -- the network being overloaded on 5 December, and you
11 told us that you were aware that this didn't -- that the Moov network was not
12 overloaded. Now, you've already told us about the trouble that the Orange network
13 had with damage to their cell sites, but do you know whether the Orange had -- the
14 Orange network had issues of congestion and overloading (Overlapping speakers)
15 PRESIDING JUDGE SCHMITT: [15:15:24] I let the question pass because I
16 want -- wanted to ask it myself. I simply want to know, and then we can finish that.
17 And it was not phrased in manner that calls for speculation.
18 Do you have knowledge, concrete knowledge if there was an issue with other
19 companies during that day?

20 THE WITNESS: [15:15:51](Interpretation) The difficulty on that day, I wouldn't be
21 able to tell you because I don't have the oversight of their networks so I can't state to
22 what extent they had problems or not.

23 PRESIDING JUDGE SCHMITT: [15:16:05] That is perfectly fine, Mr Witness. It was
24 just a try. Sometimes because these are colleagues of yours, perhaps you have heard
25 something, but you tell us you don't have information.

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1 Mr Suzuki.

2 MR SUZUKI: [15:16:19] Thank you, Mr President.

3 Thank you, Mr N'Douba, for your patience and those are our questions on behalf of

4 Mr Yekatom.

5 Thank you, Mr President.

6 PRESIDING JUDGE SCHMITT: [15:16:32] Thank you, Mr Suzuki.

7 Mr N'Douba, that concludes the session -- the hearing for today, but you are not yet

8 done. We see you tomorrow morning, and everybody else, at 9.30. And we will

9 definitely finish your examination tomorrow.

10 THE COURT USHER: [15:16:52] All rise.

11 THE WITNESS: [15:16:54](Interpretation) Thank you.

12 (The hearing ends in open session at 3.16 p.m.)

13 CORRECTIONS REPORT

14 The following interpretation corrections, marked with an asterisk *, are brought into

15 the transcript.

16 Page 10, lines 15-17

17 "The others must be able to carry out the same work to save the data, and in terms of

18 the duration regulatory requirement, there is no longer any obligation in this respect."

19 Is corrected to

20 "The others are also required to do the same and save the data. And beyond the

21 duration of the regulatory requirement, there is no further obligation in this respect."

22 Page 11, lines 7-10

23 "A. [10:03:23] This process I know because of my duties as head of projects,

24 because all the technical solutions which will be implemented on the Moov network

25 are solutions which I have discussed ahead of time with the suppliers to decide what

1 will be done on the network.”

2 Is corrected to

3 “A. [10:03:23] I am already familiar with this process because of my duties as head
4 of projects, because all the technical solutions which will be implemented on the
5 Moov network are solutions which I am discussing ahead of time with the suppliers
6 to decide what will be done on the network.”

7 Page 12 lines 1-4

8 “Then colleagues who manage these servers make these reports known to be able to
9 correct the errors, and to ensure that there is an automatic transfer of data and in
10 order to resolve these difficulties and finalise the issue. There you go.”

11 Is corrected to

12 “Then the colleagues who manage these servers review this report so they can correct
13 the errors, and to ensure that there is an automatic transfer of data in order to resolve
14 these difficulties and finalize the issue.”

15 Page 13 lines 20-23

16 “You know that in the functioning of a mobile network, we use radio frequencies
17 which are communicated by the regulatory body, and these radio frequencies are re
18 used by us several times throughout the network.”

19 Is corrected to

20 “When operating a mobile network, we use radio frequencies which are allocated to
21 us by the regulatory body, and these radio frequencies are re-used by us several times
22 throughout the network.”

23 Page 14 lines 21-24

24 “A. [10:16:13] Not precisely, but the data that we recorded did show the
25 availability and we could you know, if we had internal needs to justify the effect

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1 on sales, that information could be available. But I, myself, do not remember exactly
2 which months we are talking about.”

3 Is corrected to

4 “A. [10:16:13] Not precisely, no, but the data.... We record the time of these power
5 outages for our own internal reporting requirements as well, to justify the impact on
6 our business activities. But I, myself, do not remember exactly which months we are
7 talking about.”

8 Page 15 lines 9-10

9 “A. [10:17:47] This document contains technical elements produced by the
10 technical department and, namely, my servers.”

11 Is corrected to

12 “A. [10:17:47] This document contains technical elements produced by the
13 technical department and, in particular, by my section.”

14 Page 15 lines 17-19

15 “A. [10:18:55] Okay. The azimuth is information that describes the angle in which
16 the antenna is located on a pylon and is guided. The azimuth indicates the direction
17 the signal is emitted and in what direction it will be sent.”

18 Is corrected to

19 “A. [10:18:55] Okay. The azimuth is information that describes the angle at which
20 the antenna on the tower is pointed. The azimuth indicates the direction in which the
21 signal is emitted by the antenna.”

22 Page 23 line 6

23 “A. [11:31:10] Yes, often that's the case. Yes.”

24 Is corrected to

25 “A. [11:31:10] Yes, I see that. That's right.”

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1 Page 24 lines 19-21

2 "A. [11:36:46] No. Off the top of my head, no, but I can say for a fact that of all the
3 BTS that Moov has, we have three cells. The number is three. We have three cells
4 for the for the network."

5 Is corrected to

6 "A. [11:36:46] No. Off the top of my head, no, but I can say for a fact that we have
7 three cells on all the BTS on the Moov network. So in this case, it's the number of BTS
8 multiplied by three, and that gives us the number of cells on the network."

9 Page 27 lines 9-12

10 "A. [11:44:20] Okay. Well, what I can say already I can't guarantee what my
11 colleague from Orange might say, but in light of the information that was shown here,
12 I would say that it's possible that the subscriber remained in the same spot and was
13 using the two different cells."

14 Is corrected to

15 "A. [11:44:20] Okay. Well, what I can say already -- I can't guarantee what my
16 colleagues from Orange do exactly on the network, but in light of the information that
17 was shown here, I would say that it's possible that the subscriber remained in the
18 same spot and was using the two different cells."

19 Page 28 lines 19-21

20 "A. [11:49:24] Yes, I see that, I understand. So you're talking about campaigns to
21 make radio measurements, to measure things in normal conditions that we would
22 give."

23 Is corrected to

24 "A. [11:49:24] Yes, I see that, I understand. So you're talking about campaigns to
25 take radio measurements so as to carry out testing and take measurements under

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1 normal conditions like a subscriber.”

2 Page 29 lines 4-5

3 “A. [11:51:34] Yes, as far as I know. In terms of radio measurements, there are
4 similarities and it corresponds to the radio measurements.”

5 Is corrected to

6 “A.[11:51:34] Yes, going by what I know about radio measurements, yes, there are
7 similarities to... This corresponds to the dots showing radio measurements.”

8 Page 30 lines 5-7

9 “A. [11:56:18] Yes. This concerns prediction software, yes. They give an idea of
10 the theory, based on the information that is provided from the data in the installations
11 that have been set up.”

12 Is corrected to

13 “A. [11:56:18] Yes. That is what prediction software is used for, yes. It gives an
14 idea of the theoretical coverage, based on the information that is provided about the
15 data from the site where the equipment will be installed.”

16 Page 30 lines 11-16

17 “A. [11:57:10] Yes, indeed. In predicting coverage, the analysis takes into account
18 the height at which the antennae are set on the pylon and takes into consideration the
19 direction in which the antennae will be oriented, and also takes into account the
20 strength of the emission of the base station, but also takes into account the terrain in
21 the area, because there are digitalised maps that compile information on the terrain
22 and other aspects of the area, such as vegetation.”

23 Is corrected to

24 “A. [11:57:10] Yes, indeed. In predicting coverage, the analysis takes into account
25 the height at which the antennae are set on the tower and the direction in which the

1 antennae is oriented. It also takes into account the transmitting power of the base
2 station, as well as the terrain in the area, because when one is predicting coverage,
3 there are digitalized maps that include information on the terrain and other aspects of
4 the area, such as vegetation and waterways.”

5 Page 30 lines 19-21

6 “A. [11:58:24] Yes, not available, but we were working closely with the team of the
7 manufacturer in order to predict the coverage, vis a vis the demand we have for
8 coverage.”

9 Is corrected to

10 “A. [11:58:24] Yes, it was not available. But we work closely with the equipment
11 manufacturer, who is responsible for predicting coverage, vis-a-vis the demand we
12 have for coverage.”

13 Page 32 lines 20-22

14 “In the configuration of cells, there are many settings to be taken into account, like the
15 strength of the signal and the waves emitted, and also what are the, let's say,
16 neighbouring relations with the other cells around.”

17 Is corrected to

18 “In the configuration of cells, there are many parameters to be taken into account, like
19 the transmitting power of the antennas and what is defined as the neighbourhood
20 relation with the other cells around.”

21 Page 32 lines 22-25

22 “We have seen that a BTS has three cells itself and in one area where we have several
23 BTSs, there are settings that define the relationship of the neighbours among the
24 different cells and BTSs that are part of the whole.”

25 Is corrected to

1 “We have seen that a BTS already has three cells that are built-in, and in a given area
2 where we have several BTSs, there are parameters that define the neighbourhood
3 relations among the different cells of the various BTSs that also come into play.”

4 Page 32 line 25 to page 33 line 4

5 “And the basic principle which governs this work is the principle of the functioning
6 of mobile telephony in a given area dedicated to antenna coverage. It is set up so that
7 this antenna can receive the strongest or dominant signal in order to provide the
8 communication of the subscriber, and that guarantees the quality and the type of
9 communication that the customers have the right to on the network.”

10 Is corrected to

11 “And the basic principle which governs this is a working principle of mobile
12 telephony. In a given area that is covered by a specific antenna, the parameters are set
13 so that this antenna has the strongest or most dominant signal in order to pick up the
14 subscriber’s call. And that is what guarantees the quality and the type of
15 communication that the customers have the right to on the network.”

16 Page 39 lines 8-9

17 “THE WITNESS: [12:28:02](Interpretation) It would be a lesser deviation, because,
18 you see, behind the scenes, the way the coverage is arranged, we try to minimise.”

19 Is corrected to

20 “THE WITNESS: [12:28:02](Interpretation) No, it would be a lesser deviation,
21 because, you see, behind the scenes, so to speak, the purpose of arranging the
22 coverage in a particular way is to truly minimise the possible deviation.”

23 Page 42, line 24, to page 43, line 1

24 “So today the network also has the 2G technology and 3G technology, and there's this
25 difference of technology which explains the difference in range that is seen.”

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1 Is corrected to

2 "So today the network also has 2G technology and 3G technology, and there's this
3 difference of technology which explains the difference in range that has been
4 recorded."

5 Page 44 lines 11-14

6 "There isn't specifically one antenna which has priority over that zone. So in this
7 case, then the signal can propagate itself easily in this area and that is the type of
8 situation which we observe when we optimise the network in order to make it work
9 properly."

10 Is corrected to

11 "There isn't one specific antenna which is aimed at that zone. So in this case, it is the
12 signal that can propagate itself most easily in this zone that will prevail. And that is
13 the type of situation which we look for when we are optimising the network in order
14 to fix the problem."

15 Page 47 lines 6-7

16 "A. [14:18:42] Yes, it could go far, but that's in exceptional cases. What one sees is
17 that what one sees is that it goes further in the country."

18 Is corrected to

19 "A. [14:18:42] Yes, it can go far, but that's really in exceptional cases. And really,
20 this is seen only in open country."

21 Page 47 lines 19-20

22 "So the system is able to make a difference if the signal has been spread by other
23 natural obstacles which have modified its trajectory."

24 Is corrected to

25 "So the system is able to distinguish if the signal has bounced off other natural

1 obstacles and its trajectory has been changed.”

2 Page 51 lines 6-9

3 “When we have such a case in the definition of the range of a cell, among the
4 multitude of criteria defined to establish this, a setting of the level of the signal
5 received by the telephone to preserve the quality of service, this setting has a higher
6 threshold than the limit of the reception of the mobile phone.”

7 Is corrected to

8 “When we have such a case, in the definition of the range of the cells, among the
9 multitude of criteria defined to establish this, one parameter is the signal level
10 received by the telephone. In order to preserve the quality of service, this parameter is
11 set at a higher threshold than the limit of the reception of the mobile phone.”

12 Page 51 lines 9-11

13 “In order to guarantee if the communication can be established, we can assure that
14 there will be a minimum of quality so that the communication is acceptable.”

15 Is corrected to

16 “That’s in order to guarantee that if the call can be placed, we can ensure a minimum
17 level of quality, so that the call is acceptable.”

18 Page 54, line 21, to Page 55, line 1

19 “A. [14:43:32] Well, in fact, there is not a certain measurement which automatically
20 or instantaneously changes if there's an overload, but the way the network is set up,
21 overloading can be managed and we call this congestion. When there's normal
22 functioning in the case of congestion, the network looks among the surrounding
23 antenna of the congestion and other cells are available and they can then cover the
24 other subscribers. That's how it works.”

25 Is corrected to

1 "A. [14:43:32] Well, in fact, there is no specific measure which is taken
2 automatically or instantaneously in the case of congestion. The network already has a
3 system to make adjustments automatically in order to manage, to some extent, what
4 we call congestion. So when the network is functioning normally, in the case of
5 congestion, the network looks among the surrounding antenna to see if other cells are
6 available with a good signal and these cells can then cover the additional
7 subscribers."

8 Page 55, lines 2 to 4

9 "But as a company to manage such overloading, we try to project to set up new
10 antennae in order to redistribute the coverage in an area in order to provide greater
11 capacity in an area that is being overloaded."

12 Is corrected to

13 "Otherwise, as a company, in order to manage these cases of congestion, we are
14 planning to set up new antennae or to redistribute coverage in the area in order to
15 provide greater capacity in the area that is experiencing congestion."

16 Page 56 lines 10-12

17 "A. [14:49:47] The fact that the call would be transferred, that is not in the CDR,
18 because if the call was already under way and the call transferred to another cell in
19 order to be completed, that is not transcribed directly into the CDR."

20 Is corrected to

21 "A. [14:49:47] The fact that the call was transferred is not seen in the CDR, because
22 if the call was already under way and the call was transferred to another cell in order
23 to be completed, that is not recorded directly on the CDR."

24 Page 58 lines 5-11

25 "A. [14:54:38] No, that is not the case.

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1 PRESIDING JUDGE SCHMITT: Please continue, Mr Witness.

2 THE WITNESS: [14:54:46] (Interpretation) Now, for the yellow cell, so in the case of
3 the yellow cell, so the call is made, there are resources. And when can when
4 there cannot be a call placed because there aren't the resources in the yellow zone and
5 if it's initiated in the yellow zone, it will appear in the CDR of the yellow zone, where
6 the call was established, where it was made."

7 Is corrected to

8 "A. [14:54:38] No, that is not the case. In the case of the yellow cell...

9 PRESIDING JUDGE SCHMITT: Please continue, Mr Witness.

10 THE WITNESS: [14:54:46] (Interpretation) Yes. Now, for the yellow cell, in the case
11 of the yellow cell, when the call is made, there are resources already. And when
12 there is congestion and it is not possible to place a call from the yellow zone, no calls
13 will be made from there. So in the CDR, if the call is initiated in the yellow zone the
14 data from the yellow cell will appear in the CDR since that is the cell where the call
15 was placed."

16 Page 58, lines 11 to 15

17 "But if the subscriber is in another cell, this is a case of mobility. But if there is
18 congestion or overloading and this doesn't make it possible to establish the call from
19 the yellow area, even if the subscriber is close to the antenna but there is an
20 overloading of that antenna, then it will not be possible to establish the call, to make
21 the call."

22 Is corrected to

23 "But if the subscriber is in another cell, this is a case of mobility. But if there is
24 congestion, the congestion does not allow one to place a call from the yellow area, so
25 no call will be made from the yellow cell. Even if the subscriber is close to the antenna,

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1 if it is completely congested, no channel will be available and well, the call will be
2 made from another cell."

3 Page 59, lines 17 and 18

4 "So if it's not the yellow zone, it's not the information from the yellow zone."

5 Is corrected to

6 "So if it's not the yellow cell in the CDR, it's not the information from the yellow cell."

7 Page 59, line 23, to page 60, line 2

8 "THE WITNESS: [14:59:21](Interpretation) Yes, I can answer. So I understand in

9 this case, as I'd said earlier, Mr President, the number of channels that are provided is

10 something that's very limited. Let's say an antenna has 20 channels for simultaneous

11 communication, and if there were already 10 calls under way and there would be

12 only one channel left, you would occupy that."

13 Is corrected to

14 "THE WITNESS: [14:59:21](Interpretation) Yes, I can answer. I understand exactly

15 what you are asking about. In this case, as I'd said earlier, Mr President, the number

16 of channels that are provided by a particular antenna is very limited. Let's say ---

17 just an example --- an antenna has 20 channels for simultaneous calls, and if there

18 were already 10 calls under way, 10 calls placed, if there were only one channel left,

19 you would occupy that channel, which is from the yellow cell."

20 Page 60 lines 3-8

21 "When Mr Suzuki wants to make his call, even if the network is connected in the

22 yellow in the yellow cell, the network will see that there are no more resources

23 available, no channels available, even if that is the place that has the best signal for

24 him. At that point, automatically the network looks to see what are the neighbouring

25 cells, the neighbouring cells to see among those neighbours which is the one best

1 placed to work on behalf of the yellow zone.”

2 Is corrected to

3 “When Mr Suzuki wants to make his call, the network will just see, even if he is on....
4 the network will see him connected to the yellow cell, his signal will be transmitted
5 on the yellow cell, and the network will just see that there are no more resources
6 available, no channels available on the yellow cell, even if that is the cell that has the
7 best signal for him. At that point, automatically the network looks in the
8 neighbouring cells --- this is the role of neighbour relations --- to see among those
9 neighbours which cell is the one best placed to to take the call instead of the yellow
10 cell.”

11 Page 62 lines 17-18

12 “A. [15:06:37] The GPS coordinates. We use a machine to get a positioning a
13 GPS device, rather. I think that you know what that is.”

14 Is corrected to

15 “A. [15:06:37] The GPS coordinates. We use a GPS device to get these coordinates.
16 I think that you know what that is.”

17 Page 62 lines 19-23

18 “It's a small device that makes it possible to locate via a number of satellites, it
19 makes it possible to indicate the precise position of the location where they are with
20 this device.”

21 Is corrected to

22 “It's a small device that makes it possible to pinpoint a location using a number of
23 satellites. It makes it possible to indicate the precise position of the location where you
24 are standing with this device. So in order to take the coordinates of our antennas,
25 this is something we measure at the very start when we choose a place to put the

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1 antenna.”

2 Page 63 lines 11-13

3 “A. [15:08:45] No, there isn't recalibration there isn't frequent or continuous
4 recalibration of equipment or the network. When it comes to recalibration of the
5 network, that is only done when the client moves, for example.”

6 Is corrected to

7 “A. [15:08:45] No. There isn't any frequent or continuous recalibration of
8 equipment or the network. When it comes to recalibration of the network, that is
9 only done when clients move, for example.”