UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,	) IPR2024-00031
	) U.S. Patent No.
	) 8,400,358
	) IPR2024-00032
Petitioner,	) U.S. Patent No.
	) 8,786,494
v.	) IPR2024-00255
	) U.S. Patent No.
	) 7,561,104
GEOSCOPE TECHNOLOGIES PTE, LTD,	) IPR2024-00259
	) U.S. Patent No.
Patent Owner.	) 8,406,753
	)

REMOTE DEPOSITION OF MARK ALAN STURZA

November 7, 2024
9:06 a.m. Pacific Standard Time

Reported by: Lori J. Goodin, RPR, CRR, RSA,
California CSR #13959

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1 REMOTE DEPOSITION of
2 MARK ALAN STURZA,
3 Witness, in the above-titled action, held on
4 Thursday, November 7, 2024, commencing at
5 approximately time 9:06 a.m. before Lori J.
6 Goodin, RPR, CRR, RSA, California CSR #13959,
7 Registered Professional Reporter, Certified
8 Realtime Reporter, Realtime Systems
9 Administrator, and Certified Shorthand Reporter,
10 and Notary Public of the State of Florida, State
11 of California, State of Maryland, District of
12 Columbia, State of Delaware and Commonwealth of
13 Pennsylvania.
14
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1 REMOTE APPEARANCES:

2

3

4 ON BEHALF OF PETITIONER:

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1 INDEX TO EXAMINATION

2 WITNESS: MARK ALAN STURZA

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5 MR. CHOWDHURY 6

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1 INDEX TO EXHIBITS

2 MARK ALAN STURZA

3 Apple Inc. V. Geoscope Technologies PTE. LTD

4 Thursday, November 7, 2024

5 Lori J. Goodin, RPR, CRR, RSA,

6 California CSR #13959

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9 PREVIOUSLY MARKED EXHIBITS

PRIOR MARKED EXHIBITS	FIRST REFERRAL PAGE
Exhibit 1001 ('358)	25
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1 THURSDAY, NOVEMBER 7, 2024, 9:06 a.m. PST
2
3 PROCEEDINGS
4 * * *
5 Whereupon,
6 MARK ALAN STURZA,
7 a witness called for examination, having been
8 first duly sworn, was examined and testified as
9 follows:
10 * * *
11 MR. CHOWDHURY: Thank you.
12 EXAMINATION
13 BY MR. CHOWDHURY:
14 Q. Good afternoon, sir. Could you
15 please state your full name for the record.
16 A. Mark Alan Sturza.
17 Q. And where are you located today,
18 Mr. Sturza?
19 A. Encino, California.
20 Q. Mr. Sturza, my name is Ryan
21 Chowdhury, and I represent the petitioner in four
22 inter partes, or IPR proceedings, relevant to

1 today's deposition.
2 For the record, we are conducting a
3 single deposition today to cover topics for the
4 four IPR proceedings.
5 Do you understand that?
6 A. Yes, I do.
7 Q. And, those four IPRs have the IPR
8 numbers 2024-0031, 2024-0032, 2024-00255 and
9 2024-00259.
10 These IPRs are pertinent to U.S.
11 Patent Numbers 8,400,358, 8,786,494, 7,561,104,
12 and 8,406,753.
13 Before we get started, I just wanted
14 to state for the record how we are breaking
15 up the deposition.
16 There is quite a bit of overlap
17 between the '358, '494, and '104 IPRs.
18 Mr. Sturza, is it fair to say that
19 your declaration in the '358 IPR is similar
20 to those for the '494 and '104 IPRs?
21 A. Yes. That is fair to say.
22 Q. Great. And, for simplicity, in the

first part of today's deposition, I will refer you to your declaration in the '358 IPR.

Is that okay?

A. Sure. That works.

Q. Excellent. And, afterwards, I will ask you to turn to your declaration in the '753 IPR. Does this make sense?

A. Yes, that makes sense.

Q. Okay. And before we get started, could you please let me know what documents you brought with you to this remote deposition?

A. I have copies of my four declarations.

Q. And these documents have no annotations, markings or any notes in them; is that correct?

A. That is correct.

Q. Mr. Sturza, I understand you were deposed previously; is that correct?

A. Yes, I have been deposed previously.

Q. And if you could estimate, how many times do you think you have sat for deposition?

1 A. Somewhere between 12 and 20 times.
2 Q. So, given your experience, I just
3 wanted to refresh your understanding of how
4 today's deposition should be conducted, just to
5 make sure we are on a level playing field.
6 Is that okay with you?
7 A. Sure. That sounds good.
8 Q. Okay. So, you understand that you
9 have taken an oath here, yes?
10 A. Yes, I do.
11 Q. And that oath requires you to tell
12 the truth, the whole truth, and nothing but the
13 truth. Correct?
14 A. Yes, I am here to tell the truth.
15 Q. And, you will do that here today?
16 A. Yes, I will. I have given my oath.
17 Q. And, it is very important that we
18 try not to talk over one another.
19 So, if you will give me the courtesy
20 to get my questions out, I will extend that same
21 courtesy to you in responding completely.
22 Can we agree on that?

1 A. Yes, I understand.
2 Q. And, that is especially true in
3 these remote depositions because there is always
4 a bit of lack of clarity when someone has
5 finished speaking.
6 So, I will try my best not to step
7 on your toes. Fair?
8 A. That sounds fair.
9 Q. And, is it fair if you don't --
10 strike that.
11 And is it fair that if you don't ask
12 me to clarify a question, that you have a
13 reasonable understanding of what I am asking?
14 A. Sure. If I don't understand the
15 question, I will ask it.
16 Q. And, since the questions and answers
17 are being typed out by the court reporter, I
18 would ask you to audibly answer every question.
19 So, a nod of the head is not
20 sufficient. We would need you to say yes in that
21 case.
22 Do you understand?

1 A. Yes, I understand.
2 Q. And your attorney, Mr. McBride, may
3 pose objections to some of my questions from time
4 to time.
5 But, unless he expressly instructs
6 you not to answer, you understand that you are
7 obligated to answer, given the oath that you have
8 provided, yes?
9 A. Yes, I will provide an answer.
10 Q. And I will try to take a break every
11 hour or so, just so that the court reporter and
12 the others can get up, take biobreaks and do
13 whatever they need during the deposition.
14 If you need to take a break at any
15 point, will you please just let me know?
16 A. Thank you. I will do that.
17 Q. And, the only thing I ask is that if
18 there is a question pending, and absent an
19 attorney/client assertion, that you answer the
20 question before we take a break.
21 Will you agree to that?
22 A. Sure. That seems fair.

1 Q. Is there any reason you can't
2 provide your best, most accurate testimony here
3 today?
4 A. No, no reason I can't.
5 Q. No medication that would impair your
6 ability to testify?
7 A. No. I am not on any medication that
8 would impair my ability to testify.
9 Q. Okay. Let's turn to Exhibit 2019 in
10 the '358 IPR, which I will represent to you is
11 your declaration in the '358 IPR.
12 (Whereupon, previously marked
13 Exhibit 2019,
14 first referral.)
15 BY MR. CHOWDHURY:
16 Q. I will upload this document into the
17 Chat. And just let me know when you have that
18 document open.
19 A. Okay. I'm not seeing it in the
20 Chat. Could you repost that, please?
21 Q. Sure thing.
22 A. Thank you. I've got it now.

1 Q. Great. Could you turn to Page 61 of
2 the declaration? It is PDF Page 64.
3 A. Okay. I am there.
4 Q. Is that your signature on this page?
5 A. Yes, that is my signature.
6 Q. And, you signed this declaration on
7 August 23rd, 2024, correct?
8 A. Yes. That is correct.
9 Q. Did you review this declaration in
10 preparing for this deposition today?
11 A. Yes, I did review this deposition.
12 Q. And at this time do you have any
13 corrections you want to make to your declaration
14 at this time?
15 A. I think, on Page 56, at the top,
16 excuse me, where it says, "are also calibration
17 data," it should be, "are also not calibration
18 data."
19 Q. Okay.
20 A. And let's see. I believe that is
21 the only thing I am aware of.
22 Q. Let's turn to Paragraph 52 of your

1 declaration, and let me know when you are there.
2 A. Okay. I am there.
3 Q. Around the fifth line in this
4 paragraph your declaration states, "As of
5 February 2007 (the filing date of the '379
6 Provisional), there were many methods of
7 geolocation."
8 Do you see that?
9 A. Yes, I think it is actually "for
10 geolocation." I see that.
11 Q. And is your understanding that the
12 filing date of the '379 provisional is
13 February 5th, 2007, correct?
14 A. I recall it is in February of 2007.
15 I would have to refer to the document for the
16 actual day of the month.
17 Q. And did you consider February 2007
18 in forming the opinions expressed in your
19 declaration?
20 A. Yes, I did. I took that date into
21 account.
22 Q. Is February 2007 the relevant time

1 frame for prior art to the '358 patent?
2 MR. MCBRIDE: Objection, form.
3 THE WITNESS: My understanding is
4 the, you know, all four of the patents that I
5 believe we are going to be discussing today,
6 you know, incorporate by reference the
7 provisional application, the '379
8 provisional.
9 And that that is the date of the
10 '379 provisional and that is the date I used.
11 BY MR. CHOWDHURY:
12 Q. Is it also your understanding that
13 February 2007, is the relevant time frame for a
14 level of ordinary skill pertinent to the '358
15 patent?
16 A. Yes, that is my understanding, the
17 February 2007 date.
18 Q. So, turning back to Paragraph 52 of
19 your declaration. Your declaration states,
20 "There were many methods for geolocation."
21 Do you see that?
22 A. Yes, I do.

1 Q. Can you provide some examples of
2 these methods for geolocation?
3 A. Well, as I say in my declaration,
4 the best known one was GPS. And there were other
5 things being used at the time.
6 It was the beginning or early in the
7 time of using WiFi access points, cellphone tower
8 locations. There were some cellular
9 standard-based positioning techniques involving
10 time difference of arrival as well as the, you
11 know, the cell location.
12 There was, my recollection is there
13 was work being done with, using TV signals.
14 People were using IP addresses. Those were the
15 ones that come to mind.
16 Q. And, thank you for that explanation.
17 The geolocation methods that used
18 cellphone towers, those methods used cellular
19 technology, correct?
20 A. Well, they use cellular
21 infrastructure. They don't use, you know,
22 per se, cellular telephone calls.

1 Q. Were there geolocation methods that
2 used cellular technology that were known around
3 February 2007?
4 A. Yes there was, you know, as I
5 mentioned, you know, using the base station
6 location and tower location. There was the time
7 difference of arrival and variations of that that
8 were in use.
9 Q. And in Paragraph 52, your
10 declaration states in the first line,
11 "Location-based services for mobile devices
12 generally rely on mobile devices being able to
13 determine their location through a process called
14 geolocation."
15 Did I read that right?
16 A. Yes, I believe so.
17 Q. And location-based services would
18 have used cellular capabilities of a mobile
19 device in providing geolocation, correct?
20 MR. MCBRIDE: Objection, form.
21 THE WITNESS: So, location-based
22 services took advantage of the ability of the

1 mobile devices to geolocate, to determine
2 their position, in some cases using the
3 cellular technology, cellular infrastructure.
4 BY MR. CHOWDHURY:
5 Q. Let's turn to Paragraph 37 of your
6 declaration. And let me know when you are there.
7 A. Okay. I am there.
8 Q. In this paragraph, your declaration
9 states that a person of ordinary skill in the
10 art, or a POSITA, "is considered to possess
11 normal skills and knowledge in the relevant
12 technical field."
13 Did I read that right?
14 A. Yes, I believe that is correct.
15 Q. And, as you have testified earlier
16 today, the level of ordinary skill pertinent to
17 the '358 patent is around February 2007.
18 Correct?
19 MR. MCBRIDE: Objection, form.
20 THE WITNESS: Yes. The -- you know,
21 the relevant time frame is February 2007.
22 BY MR. CHOWDHURY:

1 Q. And what is your understanding of a
2 geolocation system in the context of the '358
3 patent?
4 A. So, a geolocation system, and I'm
5 not -- I don't recall, you know, if geolocation
6 was used in the patents or not. So, I can't,
7 sitting here without looking at the patent, think
8 of any reference to geolocation in the patent.
9 Generally, you know, at the time,
10 geolocation is the ability to locate on the, you
11 know, surface of the earth, you know where you
12 are on the earth.
13 Q. If I could refer you to Paragraph 47
14 of your declaration. Just let me know when you
15 are there.
16 A. Sure.
17 Q. In the second sentence your
18 declaration states, "While cellular technologies
19 have some overlap in the field of geolocation,
20 and both fields are relevant in the context of
21 the '358 patent, the two fields are distinct."
22 Did I read that correctly?

1 A. Yes. I believe that is correct.
2 Q. So, is it your opinion that the
3 field of geolocation is relevant to the '358
4 patent?
5 A. No. I think, as I said, you know,
6 the '358 patent would require a POSITA to be
7 knowledgeable in both cellular radio systems and
8 mobile communication devices.
9 Q. So, you would agree with me that
10 the '358 patent describes an example of a
11 geolocation system, correct?
12 A. The '358 patent, it is -- yes, it,
13 you know, relates to geolocation of mobile
14 devices using RF signals and cellular
15 technologies.
16 Q. Thank you. I appreciate that
17 explanation.
18 Could we turn to Paragraph 49 of
19 your declaration.
20 A. Sure. I am there.
21 Q. In this paragraph your declaration
22 states, "Cellular technology often does not

1 involve geolocation and geolocation often has
2 nothing to do with cellular technology."
3 Did I read that right?
4 A. Yes. That sounds right.
5 Q. Can you explain what you mean by
6 this statement?
7 A. You know, at the higher level, you
8 are not -- geolocation is not required for
9 cellular systems to operate.
10 And there may be geolocation
11 systems, for example, GPS that have nothing to do
12 with cellular technology.
13 Q. But around February 2007,
14 geolocations that used cellular technology were
15 well known, correct?
16 MR. MCBRIDE: Objection, form.
17 THE WITNESS: So, around 2007,
18 geolocation systems that used cellular
19 technology were well known. And geolocation
20 systems that did not use cellular technology
21 were well known.
22 BY MR. CHOWDHURY:

1 Q. Could you please turn to
2 Paragraph 21 of your declaration. And let me
3 know when you are there.
4 A. Okay. I am there.
5 Q. Here your declaration states that
6 between 2006 and 2009, you investigated
7 positioning and geolocation techniques for GSM
8 and UMTS mobile devices, and analyzed hybrid
9 positioning techniques for mobile devices.
10 Is that correct?
11 A. Yes, that is correct.
12 Q. Can you explain what you mean when
13 your declaration refers to GSM and UMTS in this
14 paragraph?
15 A. Yes, those were the two cellular
16 standards that were popular at the time. The
17 3G -- so-called 3G cellular technologies. They
18 were to provide interoperability of cellular
19 systems. They are standardized and these were
20 the two standards at the time.
21 Q. Thank you for that explanation.
22 And the mobile devices that your

1 declaration references in this paragraph are
2 configured to use GSM and UMTS as cellular
3 protocols, correct?
4 A. I'm sorry. I'm not sure I caught
5 that. Could you repeat the question, please?
6 Q. In Paragraph 21, you refer to GSM
7 and UMTS mobile devices.
8 These mobile devices that you are
9 referring to in Paragraph 21, they are configured
10 to use GSM and UMTS as cellular protocols,
11 correct?
12 A. Yes, that is correct. The GSM and
13 the UMTS.
14 Q. Would it be fair to say that GSM and
15 UMTS are examples of cellular technology?
16 A. Yes, it is fair to say that they are
17 cellular standards or families of cellular
18 standards.
19 Q. And when GSM and UMTS are used for
20 positioning and geolocation, is this an example
21 of a geolocation system using cellular
22 technology?

1 MR. MCBRIDE: Objection, form.
2 THE WITNESS: Well -- so, yes. What
3 I am saying is that GSM and UMTS are mobile
4 standards. And those standards incorporate
5 capability for doing geolocation using the
6 cellular infrastructure.
7 BY MR. CHOWDHURY:
8 Q. So, use of GSM and UMTS involves use
9 of cellular technology, correct?
10 A. That is correct. Those are two
11 cellular standards.
12 Q. And GSM and UMTS were known around
13 February 2007, to be used in geolocation systems,
14 correct?
15 A. Well, they were, you know, cellular
16 standards that provided a, I believe actually
17 optional capability for doing cellular only
18 positioning or geolocation.
19 MR. CHOWDHURY: Let's now turn to
20 Exhibit 101 in the '358 IPR, which I will
21 represent to you is the '358 patent.
22 I will upload this document into the

1 Chat and just let me know when you have it
2 open.
3 (Whereupon, previously marked
4 Exhibit 1001,
5 first referral.)
6 THE WITNESS: Okay. I have it open.
7 BY MR. CHOWDHURY:
8 Q. Could you please turn to the
9 paragraph starting at Column 1, Line 19, and just
10 let me know when you are there.
11 A. Column 1, Line 19. I am there.
12 Q. Great. And this paragraph appears
13 in the background section of the '358 patent,
14 correct?
15 A. Yes, that is correct.
16 Q. And, in this paragraph, on the first
17 line, the '358 patent explains that, "The use of
18 wireless communication devices such as
19 telephones, pagers, personal digital assistants,
20 laptop computers, et cetera, hereinafter referred
21 to as collectively as mobile appliances or mobile
22 stations, has become prevalent in today's

1 society."
2 Did I read that correctly?
3 A. Yes. I believe so.
4 Q. In your opinion, do -- strike that.
5 Around 2007, were wireless
6 communication devices known to use cellular
7 technology?
8 A. Yes. In 2007, wireless
9 communication devices were, you know, generally
10 cellular technology.
11 Q. And, in the next sentence the '358
12 patent further explains that, "There has been an
13 increased interest in technology which can
14 determine the geographic position or geolocate a
15 mobile station in certain circumstances."
16 Do you see that?
17 A. Yes, I do.
18 Q. Would you agree with me that
19 the '358 patent recognizes a growing interest in
20 the use of wireless communication devices around
21 2007 -- February 2007?
22 A. So, I note that the patent was filed

1 in April 2009. And, while I understand that, you
2 know, that it incorporates the provisional, which
3 is the 2000 -- February 2007 date, I am not sure
4 what you mean by the '358 -- you know, what is in
5 the background section of the '358.
6 You know, my understanding, it was
7 filed in 2009, I believe it was.
8 Q. Okay. As of its April 15, 2009,
9 filing date, would you agree with me that
10 the '358 patent recognizes a growing interest in
11 the use of wireless communication devices?
12 A. So, certainly, you know, it is
13 saying that, you know, mobile appliances or
14 mobile stations have become prevalent in today's
15 society.
16 Q. And wireless communication devices
17 were used in at least some geolocation systems,
18 correct?
19 A. Well, the wireless devices performed
20 geolocation.
21 Q. Mr. Sturza, just so I'm clear, is
22 that the end of your answer?

1 A. Yes. That was my thought.
2 If you want to repeat the question.
3 Q. Sure. Let me just rephrase.
4 A. Sure.
5 Q. In your opinion were geolocation
6 systems that used wireless communication devices
7 known around the February 2007 time frame?
8 A. Yes. Geolocation systems using
9 wireless devices were known around the 2008
10 time -- 2000 -- well, '07, '08, '09 time frame,
11 yes.
12 Q. And in your opinion, were
13 geolocation systems that used wireless
14 communication devices with cellular capabilities
15 known around the February 2007 time frame?
16 A. Yes. There were mobile positioning
17 geolocation capabilities in, you know, mobile
18 cellular devices.
19 Q. And the '358 patent is an example of
20 such a system, correct?
21 A. Yes. It is about the, improving the
22 accuracy of geolocation using wireless or

1 cellular devices.
2 Q. Let's now turn to a different
3 paragraph of the '358 patent.
4 This paragraph starts at Column 4,
5 Line 27. And just let me know when you are
6 there.
7 A. Okay. I am there.
8 Q. Starting at around the third line of
9 this paragraph, the '358 patent states that, "A
10 MS may be configured to transmit data signals at
11 specific time slot intervals depending on the
12 type of wireless communication protocol employed
13 (e.g., TDMA, GSM, 3GPP, et cetera.)."
14 Do you see that?
15 A. Yes, I do.
16 Q. And in this sentence when the '358
17 patent references a, the acronym MS, it is
18 referring to a mobile station, correct?
19 A. Yes. That is my understanding.
20 Q. And when the '358 patent references
21 TDMA, GSM, and 3GPP, it is referring to examples
22 of wireless communication protocols employed by

1 the mobile station, true?
2 A. Yes, the mobile stations are
3 using -- were part of systems using those
4 cellular standards.
5 Q. And, these examples of wireless
6 protocols described in this paragraph of
7 the '358 patent specification were known around
8 February 2007. Correct?
9 A. Yes. That is correct. They were
10 known around February 2007.
11 Q. Let's now turn to Paragraph 63 of
12 your declaration. And just let me know when you
13 are there.
14 A. Okay. I am there.
15 Q. So, on the last sentence of Page 21,
16 your declaration states that, "The claimed grid
17 points represent an area of a collected
18 calibration data," and continuing onto the next
19 page, your declaration states, "and represent the
20 signal characteristics and/or calibration data
21 over a given range."
22 Did I read that correctly?

1 A. Yes, I believe so.
2 MR. MCBRIDE: Objection, form.
3 THE WITNESS: Yes, I believe those
4 were, you know, quotes from the patent
5 specification or some of what you have just
6 read.
7 BY MR. CHOWDHURY:
8 Q. When your declaration states,
9 "claimed grid points," are you referring
10 specifically to the grid points recited in
11 various claims of the '358 patent?
12 A. Yes. I am talking about the grid
13 points that are claimed, you know, made in the
14 claims of the patents.
15 Q. And this includes non-uniform grid
16 points?
17 A. Yes. That does include the
18 non-uniform grid points or NUGs.
19 Q. And Paragraph 63 of your declaration
20 cites to Column 3, Lines 57 to 67 of the '358
21 patent, on the top of Page 22.
22 Do you see that?

1 A. Yes. Column 3, 57 to 67.
2 Q. Let's turn to that part of the '358
3 patent. And just let me know when you are there.
4 A. Okay. I am there.
5 Q. And this paragraph of the '358
6 patent, the paragraph starts, and I will read,
7 "In general, a non-uniform grid point (NUG) may
8 represent the signal characteristics and/or
9 calibration data over a given region."
10 Did I read that correctly?
11 A. Yes, I believe that is correct.
12 Q. And is it your understanding that
13 when the '358 patent refers to the acronym NUG,
14 it is referring to the term "non-uniform grid
15 points"?
16 A. Yes. That is my understanding.
17 NUG, non-uniform grid point.
18 Q. And, the term "non-uniform grid
19 points" is a feature described in the claims of
20 the '358 patent, correct?
21 A. Yes. It is. Some of the claims
22 talk about non-uniform grid points.

1 Q. And the term "non-uniform grid
2 points" is a feature that is also described in
3 the claims of the '494 patent and the '104
4 patent?
5 A. That is my recollection, yes. I
6 don't have them in front of me.
7 Q. And is it your understanding that
8 the '358 patent, the '494 patent, and the '104
9 patent share the same specification?
10 A. That is my recollection that there
11 is -- I have not done, I have not done a
12 word-for-word comparison of them.
13 But, you know, generally my
14 recollection is that they are, you know,
15 essentially the same.
16 Q. That is fair. So, the descriptions
17 relating to NUG in the '358 patent are pertinent
18 to the non-uniform grid points feature described
19 in the claims of the '358 patent, correct?
20 MR. MCBRIDE: Objection, form.
21 THE WITNESS: The -- so, if I
22 understood the question correctly, the

1 specification discussion of non-uniform grid
2 points, you know, is relevant to the claims
3 use of non-uniform grid points, if that is
4 what you were asking.
5 BY MR. CHOWDHURY:
6 Q. That's correct. So, let's turn back
7 to paragraph ---or, strike that.
8 Let's turn to Column 3, Line 57 of
9 the '358 patent.
10 You will recall that this paragraph
11 says, "A NUG may represent characteristics and/or
12 calibration data over a given region." Correct?
13 A. I'm sorry, you broke up a little
14 bit. Could you repeat that, please?
15 Q. Sure. In Column 3, Line 57,
16 the '358 patent describes that "a non-uniform
17 grid point may represent the signal
18 characteristics and/or calibration data over a
19 given region." Correct?
20 A. Yes. That is, that appears to be
21 what it says.
22 Q. And signal characteristics and

1 calibration data are examples of information that
2 can be represented over a geographic region?
3 MR. MCBRIDE: Objection, form.
4 THE WITNESS: I'm not sure what you
5 are asking. I mean, we just read that "a
6 non-uniform grid point may represent signal
7 characteristics and/or calibration data over
8 a given region."
9 BY MR. CHOWDHURY:
10 Q. Can signal characteristics be
11 represented over a given region?
12 A. Yes. Signal characteristics can be
13 represented over a given region.
14 Q. And information pertaining to the
15 signal characteristics are represented by a
16 non-uniform grid point, fair?
17 MR. MCBRIDE: Objection, form.
18 THE WITNESS: So, the -- you know,
19 as we have read, the NUG may represent the
20 signal characteristics and/or calibration
21 data over a given region.
22 BY MR. CHOWDHURY:

1 Q. Can signal characteristics be
2 non-uniform over a geographic region?
3 A. So, signal characteristics being,
4 referring to something like cellular signal
5 characteristics, you know, in this context, then
6 they can be -- they can vary over regions, or --
7 yes.
8 Q. Can signal characteristics be
9 non-uniformly spaced throughout a geographic
10 region?
11 MR. MCBRIDE: Objection, form.
12 THE WITNESS: I don't -- I don't
13 know what that question means.
14 BY MR. CHOWDHURY:
15 Q. Let me see if I can clarify.
16 It is your opinion that signal
17 characteristics can be non-uniform over a
18 geographic region, correct?
19 A. Well, the characteristics of the
20 signal, as measured at various points in a
21 region, can be non-uniform, in other words,
22 different, at different points in the region.

1 Q. So, would you agree with me that a
2 set of NUGs representing signal characteristics
3 that are non-uniform over a geographic region is
4 an example of grid points that are non-uniformly
5 spaced throughout a geographic region?
6 MR. MCBRIDE: Objection, form.
7 THE WITNESS: Again, I really don't
8 understand the question. I think you started
9 with set of NUGs. So, I'm not sure what that
10 means.
11 BY MR. CHOWDHURY:
12 Q. A geographic region can include
13 multiple NUGs, correct?
14 A. A geographic region -- yes. A
15 geographic region could include multiple
16 non-uniform grid points, yes.
17 Q. And those multiple NUGs for a given
18 region, they can represent signal characteristics
19 that are non-uniform over the geographic region,
20 correct?
21 A. So, the non-uniform grid points
22 are -- you know, represent regions of, you know,

1 similar characteristics.
2 So, multiple non-uniform grid
3 points, the -- you know, represent signals of
4 different characteristics.
5 Q. So, would these multiple NUGs that
6 you just referred to in your previous answer, are
7 they examples of grid points that are
8 non-uniformly spaced throughout a geographic
9 region?
10 A. So, the -- yeah, the non-uniform
11 grid points are non-uniformly spaced, because
12 they are based on, you know, areas,regions with
13 similar characteristics.
14 Q. Let's now turn to Paragraph 63 of
15 your declaration. And let me know when you are
16 there.
17 A. Okay. I am there.
18 Q. And again, you agree that Column 3,
19 Lines 57 to 67 of the '358 provides descriptions
20 relating to NUGs, correct?
21 A. Yes. Those are -- yes, it is a
22 section of the patent that I, you know, quoted in

1 my declaration.
2 Q. Are there any other sections in
3 the '358 patent that you can identify today that
4 addresses NUGs?
5 A. I would have to go through the
6 patent again in, you know, just off the top of my
7 head.
8 You know, the sections I have
9 referenced in my report, in my declaration. And,
10 you know, there may be others.
11 I would have to go through the
12 patent again.
13 Q. Sure. Let's look at Column 4,
14 Line -- starting at Line 1. This paragraph, I
15 think it is around Column 4, Lines 1 through 14.
16 There are descriptions of NUGs in this paragraph.
17 Correct?
18 A. Yes. There appear to be
19 descriptions of NUGs here, or discussion of NUGs.
20 Q. And around the eighth line, there is
21 a sentence starting with the different NUGs, 1
22 to 3.

1 Do you see that?
2 A. Yes, I do.
3 Q. And this sentence says, "The
4 different NUGs, 1 to 3, may be separately defined
5 by a variety of parameters."
6 Did I read that correctly?
7 A. Yes. That is correct.
8 Q. And as you have explained earlier
9 today, the '358 patent references NUGs in
10 describing non-uniform grid points, correct?
11 A. Yes. As we have discussed, NUG is
12 an acronym for non-uniform grid points or a
13 shorthand for it.
14 Q. And the '358 patent's description of
15 NUGs is pertinent to the non-uniform grid points
16 feature recited in the claims.
17 Correct?
18 A. Yes, the discussion of non-uniform
19 grid points and specifications relevant to the
20 claims.
21 Q. And you would agree with me that in
22 this paragraph, the '358 patent describes that

1 different NUGs can be defined by a variety of
2 different parameters, true?
3 A. So, in this paragraph, it is saying
4 that different NUGs may be separately defined by
5 a variety of parameters and provides some
6 examples, such as, you know, geographical
7 features -- or, excuse me, the geographical
8 areas, mountains, buildings and roads may be a
9 factor in deciding the boundaries of NUGs.
10 Q. And there are two examples that are
11 identified here, correct?
12 A. I'm not sure. I'm just seeing the,
13 "For example, the geographical areas (e.g.,
14 mountains, buildings, roads) may be a factor in
15 determining the boundaries of a NUG."
16 Q. So, you would agree with me that
17 the '358 patent describes geographical areas as a
18 factor in deciding the boundaries of an NUG,
19 correct?
20 A. Well, as we have just read, it says,
21 "For example, geographical areas (e.g.,
22 mountains, buildings, roads) may be a factor in

1 deciding the boundaries of an NUG."
2 Q. And another example of determining a
3 boundary of an NUG is varying concentration of
4 mobile stations, correct?
5 A. It says, "Additionally, varying
6 concentrations of MSs," mobile stations, "may be
7 another factor that separates one NUG from
8 another."
9 Q. And is it your understanding from
10 this sentence of the '358 patent that varying
11 concentrations of mobile stations may be a factor
12 in deciding the boundaries of an NUG?
13 A. Yes. Varying concentrations of
14 mobile stations may be another factor that
15 separates one NUG from another.
16 Q. When the '358 patent refers to
17 geographic areas, what is your understanding of
18 this term?
19 MR. MCBRIDE: Objection, form.
20 THE WITNESS: Well, you know,
21 specifically, I would look at the language in
22 the specification where it is providing

1 examples of mountains, buildings and roads.
2 BY MR. CHOWDHURY:
3 Q. And mountains, buildings and roads,
4 these are attributes of a geographic, geographic
5 areas, correct?
6 A. Yes, they are features on the earth
7 that would appear on a map.
8 Q. So, attributes of a geographic area
9 may be one factor used to determine boundaries of
10 an NUG, correct?
11 A. You know, the mountains, buildings,
12 roads all affect, you know, signal
13 characteristics. Signals are blocked by
14 mountains. Signals travel well down roads.
15 Buildings tend to block signals.
16 So, when looking at areas or regions
17 with similar signal characteristics, you know,
18 unsurprisingly mountains, buildings and roads,
19 you know, and other geographical features would
20 come into play.
21 Q. So, mountains, buildings and roads
22 may be used as a factor to determine the

1 boundaries of an NUG. Correct?
2 A. Well, so I think of it as the
3 mountains, buildings, roads, the other
4 geographical features are affecting the signal
5 characteristics, so that areas of similar
6 characteristics, the non-uniform grid points
7 would likely, you know, reflect the boundaries
8 between the non-uniform grid points, would likely
9 reflect these kind of features like the
10 mountains, buildings and roads.
11 Q. And some types of attributes of a
12 geographic region, such as mountains, may be
13 non-uniformly spaced within a geographic region,
14 correct?
15 A. Yes. Mountains, you know, are
16 typically in my experience non-uniformly spaced.
17 Q. And, in the following sentence when
18 the '358 patent is referring to varying
19 concentrations of mobile stations, is this
20 referring to a distribution of devices that may
21 be present within a geographic area?
22 MR. MCBRIDE: Objection, form.

1 THE WITNESS: My reading of the, you
2 know, the paragraph here or this sentence, is
3 that the -- it is talking about
4 concentrations of mobile devices. And, you
5 know, those typically in my experience, vary,
6 you know, over geographic areas.
7 For example, cities tend to have
8 higher concentrations of mobile devices.
9 BY MR. CHOWDHURY:
10 Q. So, you would agree with me that in
11 geographic area that represents an urban area has
12 a different concentration of mobile stations
13 compared to a rural area?
14 A. Typically that has been my
15 experience that urban areas have higher
16 concentrations of mobile devices or mobile
17 stations than more rural areas.
18 But, you know, not a -- you know,
19 not an absolute. That is just, you know, has
20 been my experience.
21 Q. Can a geographic area have a
22 non-uniform concentration of mobile stations

1 within it?
2 MR. MCBRIDE: Objection, form.
3 THE WITNESS: So, as we have been
4 talking about this last line of the
5 paragraph, and you know, it is saying,
6 "Additionally, varying concentrations of
7 mobile stations may be another factor that
8 separates one NUG from another."
9 And, you know, my experience has
10 been that concentrations in mobile devices
11 varies across areas or regions.
12 MR. MCBRIDE: Ryan, we have been
13 going about an hour. Whenever is a good time
14 for a break.
15 MR. CHOWDHURY: Yes, I just have one
16 or two questions left on this module, and
17 then we can take a break. Thank you for
18 checking in.
19 MR. MCBRIDE: Sure.
20 BY MR. CHOWDHURY:
21 Q. Mr. Sturza, would a set of NUGs with
22 boundaries that are determined based on the

1 factor of geographic, geographic areas be an
2 example of grid points that are non-uniformly
3 spaced throughout a geographic region?
4 MR. MCBRIDE: Objection, form.
5 THE WITNESS: So, you know, my
6 understanding -- well, first, the concept of
7 non-uniform grid points. You know, my review
8 of the, you know, relevant documents and
9 knowledge of the industry, this is really --
10 you know, this family of patents is really
11 the first place that talks about non-uniform
12 grid points.
13 And, you know, my understanding in
14 reading, you know, the various documents in
15 the record is that non-uniform grid points
16 are determined based on, you know, a
17 similarity of some measured characteristic.
18 And I -- you know, as we were
19 discussing, those characteristics are
20 influenced by geographical features like the
21 mountains, buildings, and roads.
22 So, you know, that is my

1 understanding of the non-uniform grid points
2 is that they are based on some form of data
3 similarity, measurement data similarity. And
4 that is how the boundaries are drawn to
5 create the non-uniform grid points.
6 And these boundaries may well
7 coincide with mountains, buildings and roads.
8 BY MR. CHOWDHURY:
9 Q. And I appreciate that explanation.
10 Let me see if I can rephrase my question.
11 The NUGs that are described in
12 Column 4, Lines 1 through 14 of the '358 patent,
13 are they examples of grid points that are
14 non-uniformly spaced throughout a geographic
15 region?
16 MR. MCBRIDE: Objection, form.
17 THE WITNESS: I would back up a bit
18 in the specification and, you know, look at
19 Column 3, around Line 57, you know, which is
20 explaining, "In general, a non-uniform grid
21 point may represent the signal
22 characteristics or calibration data over a

1 region."
2 And then goes on, you know, to talk
3 more about that the, you know, at about 63,
4 that, "The NUGs represent an area of
5 collected calibration data, which may be
6 stored in a database." And then it goes on.
7 And then starting here at Column 4,
8 we've got, "Calibration data may be obtained
9 from data collection devices that field test
10 -- during field test operations and/or mobile
11 stations or other communication devices with
12 the new general area of the NUG."
13 And then so when we get down to the
14 lines we have been discussing -- and actually
15 backing up a little bit to maybe Line 8, the
16 different NUGs 1 to 3, referring to Figure 1,
17 I believe, may be separately defined by a
18 variety of parameters.
19 "For example, geographical areas may
20 be a factor in deciding the boundaries of the
21 NUG."
22 So, my takeaway from that and the

1 rest of the specification is that the NUGs
2 are defined, you know, based on the
3 calibration data. And that they -- the
4 boundaries of the NUGs may correspond to
5 things like mountains, buildings and roads
6 because the signal characteristics are
7 influenced by those geographical features.
8 BY MR. CHOWDHURY:
9 Q. And NUGs that are defined by
10 calibration data, they may still be non-uniformly
11 spaced throughout a geographic region?
12 A. Yes. The non-uniform grid points
13 are, you know -- because the signal
14 characteristics, you know, tend to be non-uniform
15 over geographical regions.
16 So, the non-uniform grid points are,
17 you know, non-uniform in distribution and in
18 shape.
19 MR. CHOWDHURY: Thank you. Should
20 we go ahead and take a break?
21 What would you like, Mr. Sturza? We
22 can do ten minutes, 15 minutes, however much

1 you need.
2 THE WITNESS: Ten would be plenty
3 for me, if that works.
4 (Recess taken -- 10:20 a.m.)
5 (After recess -- 10:31 a.m.)
6 BY MR. CHOWDHURY:
7 Q. Okay. Let's turn to Paragraph 94 of
8 your declaration. And just let me know when you
9 are there.
10 A. Okay. 94 in the '358.
11 Q. So, in this paragraph, we are on
12 Line 5. Your declaration states, "The boundaries
13 of the area represented by a non-uniform grid
14 point, which defined the shape of that area, are
15 variable because they are based on an evaluation
16 of statistical similarities across the gathered
17 calibration data."
18 Did I read that correctly?
19 A. Yes, I believe so.
20 Q. And, in the following sentence your
21 declaration identifies a portion of Exhibit 2030
22 in the '358 IPR, which I believe is the '379

1 provisional.
2 Do you see that?
3 A. Yes.
4 Q. And your declaration also states
5 that, "The '379 Provisional explains this
6 fundamental aspect of the claimed non-uniform
7 grid points (or NUGs)."
8 Is that correct?
9 A. Yes, I see that.
10 Q. And when your declaration refers to
11 "this fundamental aspect," is this in reference
12 to the evaluation of statistical similarities
13 across the gathered calibration data that is
14 discussed in the previous sentence?
15 A. Yes, this all ties together.
16 Q. So, just so I am clear, what is the
17 fundamental aspect of the claimed non-uniform
18 grid points, in your opinion?
19 A. Well, you know, as I -- as the '379
20 says, "The NUGs fully cover the region R, and
21 each NUG has statistically similar data
22 accumulated into itself.

1 "The geometrical shape and the
2 amount much data accumulated into such NUGs is
3 seen to be variable since these are determined by
4 the statistical similarity of the data allocated
5 to a NUG."
6 Q. Is it your opinion that the
7 fundamental aspect of the claimed non-uniform
8 grid points is the evaluation of statistical
9 similarities across the gathered calibration
10 data?
11 A. Well, that they are determined by
12 the statistical similarity of the data allocated
13 to the NUG.
14 Q. And it is your opinion that all of
15 the techniques for determining boundaries of the
16 NUGs that are described in the '379 provisional
17 require evaluation of calibration data?
18 MR. MCBRIDE: Objection to form.
19 THE WITNESS: That is, you know, my
20 recollection of the, you know, intrinsic
21 record, including the '379 provisional.
22 BY MR. CHOWDHURY:

1 Q. And evaluation of calibration data
2 is described in the '379 provisional as being
3 performed by assessing statistical similarity
4 amongst calibration data, correct?
5 MR. MCBRIDE: Objection, form.
6 Scope.
7 THE WITNESS: So, yes. As
8 specifically quoted here from the '379,
9 "Each NUG has statistically similar data
10 accumulated into itself." And this
11 statistical similarity of the data is what
12 determines the shape and hence boundaries of
13 the NUG.
14 BY MR. CHOWDHURY:
15 Q. And in your opinion, the description
16 that appears in this paragraph of your
17 declaration supports your statement in the first
18 sentence of this paragraph that, "The intrinsic
19 record also requires Patent Owner's proposed
20 construction of non-uniform grid point."
21 Correct?
22 MR. MCBRIDE: Objection, form.

1 THE WITNESS: Let me just
2 double-check.
3 So, all right. Thanks for giving me
4 a moment to refresh my memory.
5 Could you repeat the question,
6 please?
7 BY MR. CHOWDHURY:
8 Q. Sure. In your opinion, the
9 description that appears on Paragraph 94 of your
10 declaration -- strike that.
11 In your opinion, the description
12 from the '379 provisional that is provided in
13 Paragraph 94 of your declaration supports your
14 statement that "The intrinsic record also
15 requires patent owner's proposed construction of
16 non-uniform grid point."
17 Correct?
18 A. Yes. That is what I am saying in
19 Paragraph 94. That is correct.
20 Q. And your declaration provides no
21 opinion regarding Page 8 of Exhibit 2030,
22 correct?

1 MR. MCBRIDE: Objection, form.
2 THE WITNESS: I would have to -- so,
3 you know, that was -- I would have to look at
4 what you are referring to.
5 Did you say -- what exhibit?
6 BY MR. CHOWDHURY:
7 Q. Exhibit 2030, which is the '379
8 provisional.
9 A. Okay. Yes, I don't --
10 Q. You are --
11 A. I don't have that in front of me.
12 As I recall, it is a rather long document.
13 Q. There is no citation to Page 8 of
14 Exhibit 2030 in your declaration; is that right?
15 MR. MCBRIDE: Objection, form.
16 THE WITNESS: I either have to take
17 a look at the exhibit or I would have to go
18 through my declaration.
19 You know, I don't know what we are
20 referring to without looking at the exhibit.
21 And I haven't memorized my declaration. So,
22 I don't -- you know, I would have to go

1 through the cites to answer that question.
2 BY MR. CHOWDHURY:
3 Q. Sure. Could you let me know if
4 there is a paragraph in your declaration that
5 cites to Page 8 of Exhibit 2030?
6 A. No. So far, I haven't found one.
7 You know, I could take some more
8 time if you want a definitive answer.
9 But, with the time I have taken, I
10 have seen references to Page 6 and Page 7 and I
11 think there is some paragraph numbers.
12 But I have not, with the time taken,
13 I don't see a reference to Page 8.
14 Q. So, you haven't opined on Page 8 of
15 Exhibit 230 -- 2030, within your declaration,
16 correct?
17 A. Well, again without looking at
18 Page 8 of the document, it is hard to provide a
19 answer. You know, it is something I would want
20 to get right.
21 So, all I can say is with the time I
22 have taken so far to look at the references to

1 Exhibit 2030, you know, I haven't seen one here
2 that refers to Page 8.
3 I -- you know, I didn't review the
4 entire provisional, I believe that is 2030,
5 the '379 provisional.
6 And, you know, I took into account
7 everything that, you know, was -- that I believed
8 was relevant to providing an opinion here.
9 But, you know, so, I can't -- you
10 know, without looking at Page 8, I can't provide
11 a definitive answer.
12 You know, that is all I can say is
13 that with the time I have taken right now looking
14 at it, I am not seeing a reference to
15 Exhibit 2030, Page 8.
16 Q. Okay. And thank you for checking.
17 Let's turn now to Paragraph 48 of
18 your declaration. Just let me know when you are
19 there.
20 A. Okay.
21 Q. In the first sentence your
22 declaration states that, "The Bhattacharya

1 reference used in this IPR adds geolocation to
2 existing cellular technologies."
3 Do you see that?
4 A. Yes, I do.
5 Q. And, in the following sentence your
6 declaration then states, "Bhattacharya adds a
7 location system 212 to an existing wireless
8 telecommunications system."
9 Do I have that right?
10 A. Yes, that is correct.
11 Q. And when your declaration refers to
12 Bhattacharya, it is Exhibit 1005 in the '358 IPR,
13 correct?
14 A. Yes, that is my understanding.
15 Q. And in the following page, Page 14,
16 your declaration cites to Paragraph 52 of
17 Bhattacharya.
18 Do you see that?
19 A. Yes, I see a cite to 51 to 52.
20 Q. Great.
21 MR. CHOWDHURY: I'm now going to add
22 into the Chat Exhibit 1005 from the '358 IPR

1 which I will represent to you is the
2 Bhattacharya reference.
3 (Whereupon, previously marked
4 Exhibit 1005,
5 first referral.)
6 BY MR. CHOWDHURY:
7 Q. I will upload this document to the
8 Chat. Just let me know when you have the
9 document open.
10 A. Okay. I have it open.
11 Q. And you reviewed the Bhattacharya
12 reference in preparing your declaration, correct?
13 A. Yes, that is correct. I did review
14 Bhattacharya.
15 Q. And based on that review, does
16 Bhattacharya describe an example of a geolocation
17 system?
18 A. Yes. Bhattacharya does provide a
19 description of -- for determining a location of a
20 wireless terminal.
21 Q. And so you would agree with me that
22 the Bhattacharya system uses cellular technology

1 for geolocation, correct?
2 A. I don't --
3 Yes, it is using cellular technology
4 to -- or cellular signals or cellular
5 infrastructure to provide for a location of the
6 wireless terminal.
7 Q. So, let's turn to Bhattacharya
8 disclosure, and specifically to Paragraph 52,
9 which is cited in Paragraph 48 of your
10 declaration.
11 Do you have that paragraph of
12 Bhattacharya available to you?
13 A. Give me a moment. 52, yes.
14 Q. So, in this paragraph, Bhattacharya
15 states that, "A illustrative embodiment operates
16 in accordance with the Global System For Mobile
17 Communications (formally known as the Groupe
18 Speciale Mobile) which is ubiquitously known as
19 GSM."
20 Did I read that correctly?
21 A. Yes, that is correct.
22 Q. And in the next line Bhattacharya

1 describes that, "After reading this disclosure,
2 however, it will be clear to those skilled in the
3 art how to make and use alternative embodiments
4 of the present invention that operates in
5 accordance with other protocols."
6 Do you see that?
7 A. Yes, I do.
8 Q. And in the last sentence of this
9 paragraph, Bhattacharya references examples of
10 other protocols, such as the Universal Mobile
11 Telephone System or UMTS, CDMA-2000, IS-136,
12 TDMA, Short Message Service and Circuit Switched
13 Data.
14 Is that correct?
15 A. Yes, I see that.
16 Q. So, you would agree with me that
17 Bhattacharya's disclosure in Paragraph 52
18 confirms that various cellular protocols were
19 well known by the filing date of Bhattacharya,
20 which is March 15, 2015, correct?
21 MR. MCBRIDE: Objection to form.
22 BY MR. CHOWDHURY:

1 Q. Sorry. March 15th -- I will just
2 rephrase.
3 The filing date of Bhattacharya is
4 March 15th, 2005.
5 Is that correct?
6 A. March 15th, 2005. Yes.
7 Q. And so based on the March 15th, 2005
8 filing date, would you agree with me that
9 Bhattacharya's disclosure in Paragraph 52
10 confirms that various cellular protocols were
11 well known by its filing date?
12 MR. MCBRIDE: Objection, form.
13 THE WITNESS: Yes. Bhattacharya is
14 talking about various cellular protocols or
15 standards that were, you know, well known at
16 that filing date in 2005.
17 BY MR. CHOWDHURY:
18 Q. So, Bhattacharya's disclosure
19 provides an example of a geolocation system
20 incorporating use of well known cellular
21 protocols, correct?
22 MR. MCBRIDE: Objection, form.

1 THE WITNESS: So, Bhattacharya's
2 disclosure is for, you know, a location
3 system that operates, you know, using the
4 well known cellular standards of the time.
5 BY MR. CHOWDHURY:
6 Q. And these well known cellular
7 standards included GSM and UMTS, correct?
8 A. Yes. They were well known, you
9 know, cellular standards at the time. And, you
10 know, Bhattacharya was taking advantage of the
11 signals used in those cellular protocols or
12 standards.
13 Q. And based on your testimony today,
14 GSM and UMTS were known around February 2007, to
15 be used in geolocation systems, correct?
16 MR. MCBRIDE: Objection, form.
17 THE WITNESS: There were a couple of
18 nuances there. I just want to be clear.
19 So, GSM and UMTS were well known
20 in 2005. My recollection is that both of
21 them provided standards-based positioning.
22 And Bhattacharya, in my opinion, is

1 an example of using those signals from those
2 systems in a non standards-based way to
3 geolocation or positioning of mobile devices.
4 BY MR. CHOWDHURY:
5 Q. Okay. Let's turn to Paragraph 117
6 of your declaration. And just let me know when
7 you are there.
8 A. Okay. 117.
9 Q. In this paragraph, your declaration
10 states that, "Spain determines the boundaries of
11 its locations without evaluation of calibration
12 data."
13 Do you see that?
14 A. Yes, I do.
15 Q. And when your declaration refers to
16 Spain, you are referring to Exhibit 1006 in
17 the '358 IPR, correct?
18 A. 1006, yes.
19 Q. And, in Paragraph 117, your
20 declaration also states that, "Spain explains
21 that the boundaries of each location are based at
22 least in part on factors that are non-calibration

1 data."
2 Did I read that correctly?
3 A. Yes. That is correct.
4 Q. And one of the factors that are
5 described in Spain and referenced in
6 Paragraph 117 of your declaration, includes
7 natural and manmade physical attributes of
8 geographic region 120 -- 220; is that correct?
9 A. Yes, these include natural and
10 manmade physical attributes of geographic
11 region 220.
12 Q. Is your opinion in Paragraph 117
13 that Spain describes boundaries of partitioned
14 regions being based on natural and manmade
15 physical attributes of geographic region 220?
16 MR. MCBRIDE: Objection, form.
17 THE WITNESS: So, you know, my
18 opinion as expressed in Paragraph 117 is that
19 Spain determines the boundaries of its
20 location without evaluation of calibration
21 data.
22 And, that the boundaries of each

1 location are based, at least in part, on
2 factors that are not calibration data, i.e.,
3 not network measurement data.
4 And, you know, for example, these
5 include the quoting from Spain, "the natural
6 and manmade physical attributes of a
7 geographic region, legal laws governing
8 geographic region, data regarding location
9 and movement of individuals and vehicles in
10 the geographic region."
11 And there is other factors in Spain
12 that -- you know, I believe I have provided a
13 excerpt of the section of Spain.
14 BY MR. CHOWDHURY:
15 Q. So, Spain describes boundaries of
16 locations being based on multiple factors,
17 correct?
18 A. Yes, multiple factors that are not
19 network measurement data, not calibration data.
20 Q. And one of these factors is natural
21 and manmade physical attributes of geographic
22 region 220, correct?

1 A. Yes, that is correct.
2 Q. And in your opinion, are natural and
3 manmade physical attributes, are they an example
4 of attributes of a geographic area?
5 MR. MCBRIDE: Objection, form.
6 Scope.
7 THE WITNESS: That is not something
8 that I have provided an opinion on here.
9 You know, in general, you know, we
10 are talking about, you know, features of the,
11 you know, topography.
12 So, you know, it is -- I think it is
13 fair to say that these are, you know,
14 features of the topography, or a topography.
15 BY MR. CHOWDHURY:
16 Q. So, the portion of Spain that you
17 quote in Paragraph 117 of your declaration says,
18 "natural and manmade physical attributes of
19 geographic region 220."
20 That quoted portion refers to the
21 word "attributes," correct?
22 A. "Natural and manmade physical

1 attributes of geographic region 220." And then
2 it goes on to give some examples, yes.
3 Q. So, "natural and manmade physical
4 attributes of geographic 1 -- 220," that quoted
5 portion, that is a description of attributes of
6 geographic region 220, correct?
7 A. Well, you know, that is what it says
8 in Spain, that, you know, as you have just read,
9 natural -- you know, in context, "In accordance
10 with the illustrative embodiment, the boundaries
11 of each location are based at least in part on."
12 And then the first one is, "natural
13 and manmade physical attributes of geographic
14 region 220."
15 Q. Is a mountain a type of natural
16 physical attribute?
17 A. I don't, you know, see that in
18 Spain's examples here. He has buildings,
19 sidewalks, roads, tunnels, bridges, hills, walls,
20 water, cliffs and rivers.
21 So, hills is in his list.
22 Q. Based on your experience in the

1 relevant field, would you understand a mountain
2 to be a type of natural physical attribute of a
3 geographic region?
4 A. Well, and, you know, just in terms
5 of plain and ordinary meaning, and I don't know
6 if any, you know, whether any of these terms of
7 natural, or manmade physical attributes of
8 geographic region would require any construction.
9 And Spain is not something I have,
10 you know, thought about.
11 But just in, you know, plain and
12 ordinary use, you know, hills and mountains are
13 physical attributes of geographic regions, yes.
14 Q. And based on your experience in the
15 relevant fields, would you understand buildings
16 and roads to be types of manmade physical
17 attributes of a geographic region?
18 A. Well, you know, in the context of
19 Spain, those are two of his examples.
20 So, you know, I wouldn't want to put
21 words in his mouth. I believe your question
22 was -- it was without regard to Spain; is that

1 correct?
2 Q. Based on the plain and ordinary use,
3 would buildings and roads be a type of manmade
4 attributes of a geographic region?
5 MR. MCBRIDE: Objection, form.
6 THE WITNESS: Well, manmade physical
7 attributes. Buildings, roads, you know,
8 anything constructed by man in, you know,
9 plain and ordinary meaning.
10 BY MR. CHOWDHURY:
11 Q. Can natural physical attributes of a
12 geographic region be non-uniformly spaced
13 throughout a geographic region?
14 MR. MCBRIDE: Objection, form.
15 Scope.
16 THE WITNESS: So, you know, again,
17 something, you know, I haven't provided an
18 opinion on here in my reports.
19 You know, just in general, you know,
20 buildings, you know, in my experience, roads
21 are sometimes uniformly spaced and sometimes
22 not.

1 BY MR. CHOWDHURY:
2 Q. So, based on your experience,
3 natural physical attributes may be non-uniformly
4 spaced throughout, throughout a geographic
5 region, correct?
6 MR. MCBRIDE: Objection, form.
7 THE WITNESS: You know, again
8 something that I haven't provided an opinion
9 on here. But, you know, without regard to
10 any -- you know, just with the plain and
11 ordinary meaning of all of the terms, in my
12 experience buildings, roads, et cetera, can,
13 you know, be uniformly spaced. Can be
14 non-uniformly spaced.
15 You know, it depends.
16 BY MR. CHOWDHURY:
17 Q. And you testified here earlier today
18 that a mountain may be a type of natural physical
19 attribute, correct?
20 A. Well, again, you know, in the plain
21 and ordinary meaning of a physical attribute,
22 which I would understand to be, you know,

1 something -- some sort of something constructed
2 or, you know, something geological or, you know,
3 something that exists.
4 So, you know, things like mountains
5 are, you know, physical, you know, in that plain
6 and ordinary meaning.
7 Q. Based on your experience in the
8 relevant fields, would a partitioning technique
9 based on natural physical attributes of a
10 geographic region provide regions that are
11 non-uniformly spaced throughout the geographic
12 region?
13 MR. MCBRIDE: Objection, form.
14 Scope.
15 THE WITNESS: So, you know, again,
16 something I haven't provided an opinion on,
17 hadn't -- you know, I haven't really thought
18 about.
19 And, you know, I can only answer in
20 a, you know, general context that, you know,
21 things, natural features can be, or manmade
22 features can be, you know, uniformly spaced

1 or non-uniformly spaced.
2 But, you know, I haven't considered
3 that in the context of these patents. That
4 is just, you know, general observation.
5 BY MR. CHOWDHURY:
6 Q. So, you have not provided an opinion
7 on whether Spain's partitioning technique
8 provides grid points that are non-uniformly
9 spaced throughout each geographic region; is that
10 correct?
11 A. No, that is not correct. That --
12 when we start talking about non-uniform grid
13 points, then we are talking about something that
14 is, you know, constructed in this matter.
15 And, you know, in my understanding
16 of what non-uniform grid point means in this
17 matter, Spain does not incorporate non-uniform
18 grid points.
19 Spain's, you know, boundaries of his
20 grid points are not based on network measurement
21 data or calibration data.
22 Q. But you provide no opinion on

1 whether Spain teaches partitioning that is
2 non-uniformly spaced throughout a geographic
3 region, correct?
4 A. Well, to the extent non-uniformly
5 spaced is related to non-uniform grid points, you
6 know, I would go with my prior answer that my
7 opinion is that Spain does not, you know,
8 disclose non-uniform grid points.
9 Q. So, that was slightly different from
10 the question that I asked. And maybe I can
11 rephrase.
12 The question I am asking is, have
13 you provided an opinion on whether Spain's
14 partitioning techniques provides grid points that
15 are non-uniformly spaced throughout a geographic
16 region?
17 A. So, my recollection, without looking
18 back at Spain, is that the grid points in Spain
19 were uniformly spaced and had uniform boundaries.
20 THE WITNESS: I don't -- I have lost
21 video, or is everybody still there?
22 MR. CHOWDHURY: I am here.

1 Can you hear me, Steve?
2 MR. MCBRIDE: I can.
3 Mark, are you having technical
4 difficulties?
5 THE WITNESS: No, I just -- the
6 videos disappeared and I got a phone icon so
7 I just wanted to make sure. I was, you know,
8 still connected.
9 MR. MCBRIDE: Can we go off the
10 record for a second?
11 MR. CHOWDHURY: Yes, sure.
12 (Whereupon, a discussion off the
13 record took place.)
14 BY MR. CHOWDHURY:
15 Q. Mr. Sturza, I think you were in the
16 middle of your answer, so I will just repeat my
17 last question so you will have an opportunity to
18 answer fully.
19 My question was, have you provided
20 an opinion on whether Spain's partitioning
21 techniques provide grid points that are
22 non-uniformly spaced throughout a geographic

1 region?
2 A. I know I provided an opinion that
3 Spain is not, you know, disclosing non-uniform
4 grid points, you know, as used in the patents at
5 issue here.
6 I don't recall, and I do -- you
7 know, I am not looking at Spain but, you know, my
8 recollection of Spain's examples and figures are
9 all about uniformly spaced grid points.
10 I don't believe that I have, yeah,
11 that -- I believe that my opinion is that, you
12 know, Spain does not disclose non-uniform grid
13 points.
14 I don't recall providing an opinion
15 on, you know, anything else, you know, with
16 regard to the, you know, Spain's grid point
17 distribution.
18 Q. To be clear, your opinion regarding
19 Spain is based on non-uniform grid points,
20 meaning a point associated with representative
21 calibration data for an area whose boundaries are
22 determined from evaluation of calibration data.

1 Correct?
2 A. A point associated with
3 representative calibration data for an area whose
4 boundaries are determined from evaluation of the
5 calibration data.
6 Yes, that is correct.
7 Q. Can you point me to a paragraph in
8 your declaration where you analyzed Spain in
9 relation to grid points that are non-uniformly
10 spaced throughout each geographic region?
11 MR. MCBRIDE: Objection to form,
12 scope.
13 THE WITNESS: Well, my recollection
14 is that what I have addressed is Spain
15 relative to non-uniform grid points and that
16 is the, you know, opinion I have provided.
17 MR. CHOWDHURY: Thank you
18 Mr. Sturza. I don't have any other questions
19 about the '358 IPR.
20 I think maybe now is a good time to
21 take a break. We can take ten minutes or we
22 can take a longer break if you prefer.

1 THE WITNESS: Ten is more than
2 enough. We could do five if that works.
3 MR. CHOWDHURY: Sure, let's do a
4 ten-minute break and go off the record and we
5 can resume at 11:30, if that works.
6 THE WITNESS: Okay, sure.
7 (Recess taken -- 11:20 a.m.)
8 (After recess -- 11:31 a.m.)
9 BY MR. CHOWDHURY:
10 Q. Mr. Sturza, we will now focus on IPR
11 Number 2024-00259, which is the IPR proceeding
12 involving the '753 patent.
13 I would like to turn to Exhibit 2018
14 in the '753 IPR which I will represent to you is
15 your declaration in that proceeding.
16 (Whereupon, previously marked
17 Exhibit 2018,
18 first referral.)
19 BY MR. CHOWDHURY:
20 Q. I will upload this document to the
21 Chat and just let me know when you have it open.
22 A. Okay. I have it open.

1 Q. Great. As with your other
2 declaration, could you please turn to Page 53 of
3 the declaration.
4 A. Okay.
5 Q. And is that your signature on
6 Page 53 of the declaration?
7 A. Yes, it is.
8 Q. And you signed this declaration on
9 August 23rd, 2024, that's correct?
10 A. That is correct.
11 Q. And did you review this declaration
12 in preparing for today's deposition?
13 A. Yes, I did.
14 Q. Do you have any corrections that you
15 would like to make to this declaration at this
16 time?
17 A. No, I do not. I am not aware of
18 any.
19 Q. Great. Let's turn to Paragraph 64
20 of your declaration. And just let me know when
21 you are there.
22 A. I am there.

1 Q. Here on the first line of
2 Paragraph 64 your declaration states, "Although
3 the '753 patent claims recite the generation of
4 'grid points,' not only 'non-uniform grid points'
5 or 'NUGs,' they make clear that the claimed grid
6 points are generated 'for said calibration data'
7 referring to calibration data recited in the
8 preceding limitation."
9 Do you see that?
10 A. Yes, I do.
11 Q. And then your declaration further
12 states, "Regardless of whether the claimed grid
13 points are ultimately uniform or non-uniform,
14 they must be generated previous -- based on
15 previously gathered calibration data."
16 Is that correct?
17 A. Yes, that is correct.
18 Q. Is your opinion that the grid points
19 recited in Claims 1 and 32 encompass both uniform
20 and non-uniform grid points?
21 A. You know, that is not what I am
22 saying. What I am saying with regard to, you

1 know, the construed term "non-uniform grid
2 points," is that, you know, all of the grid
3 points in these claims are NUGs.
4 Even though, you know, whether they
5 are ultimately uniformly spaced or non-uniformly
6 spaced, they are generated based on the
7 previously gathered calibration data, so they are
8 NUGs.
9 Q. Can you explain your understanding
10 of the difference between uniform grid points or
11 UGs, and non-uniform grid points or NUGs, in the
12 context of the '753 patent specification?
13 A. So, I don't have -- I don't believe
14 I have that in front of me, the patent.
15 But, you know, my recollection is
16 that what we're, you know, with the -- in terms
17 of non-uniform grid points as being grid points
18 that are generated based on, you know, previously
19 gathered calibration data, it could turn out that
20 the, you know, points were in a -- were uniformly
21 distributed.
22 Although as the '753 patent

1 explains, usually it would not be uniformly
2 distributed throughout the geographic region.
3 The key point in my opinion is that
4 the grid points are generated based on previously
5 gathered calibration data.
6 MR. CHOWDHURY: I will now introduce
7 Exhibit 1001 in the '753 IPR, which I will
8 represent to you is the '753 patent. I'm
9 going to drop it into the Chat. Just let me
10 know when you have it open.
11 (Whereupon, previously marked
12 Exhibit 1001,
13 first referral.)
14 THE WITNESS: Okay. I have it open.
15 BY MR. CHOWDHURY:
16 Q. Can you please turn to the paragraph
17 starting at Column 25, Line 31. And just let me
18 know when you are there.
19 A. 25, Line 31. I am there.
20 Q. The first sentence of this paragraph
21 reads, "In a further aspect of embodiments of the
22 present subject matter, an estimated location may

1 be generated for a mobile device given a received
2 NMR and a region R over which a set S of grid
3 points (NUGs or UGs) have been established."
4 Do you see that?
5 A. Yes, I do.
6 Q. This sentence describes both NUGs
7 and UGs. Is that fair?
8 A. Yes, it contains both NUGs and UGs.
9 Q. So, would you agree with me that
10 the '753 patent describes location techniques in
11 terms of both UGs and NUGs?
12 MR. MCBRIDE: Objection, form.
13 THE WITNESS: It describes, you
14 know, location techniques in terms of grid
15 points. And it talks about uniformly spaced
16 grid points and non-uniformly spaced grid
17 points.
18 But in -- you know, in terms of the
19 claims that are at issue, I believe it is 1
20 and 32, you know, it is talking about grid
21 points that are -- you know, generated based
22 on the calibration data, the previously

1 gathered calibration data.
2 BY MR. CHOWDHURY:
3 Q. And if we turn to Claim 1 of
4 the '359 -- sorry. Strike that.
5 If we turn to Claim 1 of the '753
6 patent, which is in Column 59.
7 A. Okay.
8 Q. Starting at Line 14.
9 Just let me know when you are there.
10 A. I am there.
11 Q. Limitation B, which is at line --
12 Column 59, Line 19, prefaced with the Romanette
13 B, or parentheses B, states, "Generating one or
14 more sets of grid points for said calibration
15 data."
16 Correct?
17 A. Yes, that is what it says.
18 Q. There is no language in the claim
19 that specifies the grid points as being uniform
20 or non-uniform; is that correct?
21 A. There is no use of non-uniform or
22 uniform grid points.

1 It is talking about grid points.
2 And it is, you know, generating more than one
3 sets of grid points for said calibration data.
4 Q. But based on the claim language, the
5 one or more sets of grid points that is recited
6 in Claim 1 can include uniform grid points, for
7 example, or non-uniform grid points; is that
8 right?
9 A. Well, if it is non-uniform grid
10 points in the way non-uniform grid points has
11 been construed, in that it is grid points that
12 are generated from calibration data, network
13 measurement data.
14 Q. And if we turn back to Column 25,
15 line -- starting at Line 31 of the '753 patent.
16 Just let me know when you are there.
17 A. It was 29?
18 Q. Column 25, Line 31.
19 A. 25. Okay.
20 Q. And in the first sentence the '753
21 patent states, "An estimated location may be
22 generated for a mobile device given a received

1 NMR and a region 'R' over which a set 'S' of grid
2 points (NUGs or UGs) have been established."
3 Do you see that?
4 A. Yes, I do.
5 Q. So, in this sentence, is the
6 received NMR -- strike that.
7 From this description, would your
8 understanding be that the received NMR can be for
9 non-uniform grid points or uniform grid points?
10 A. You know, again, the way non-uniform
11 grid points has been construed in this matter,
12 they are all non-uniform grid points.
13 And, you know, my understanding of
14 what is being said here is those non-uniform grid
15 points could form a array -- a uniform spaced
16 array.
17 Although as I mentioned in my
18 declaration, it also says that is not likely to
19 happen.
20 Q. What is your understanding of a
21 uniform grid point or UG?
22 A. Well, in -- you know, like in the

1 context of this matter with the construction, the
2 non-uniform grid point, you know, and the claim
3 language, you know, I understand that what is
4 referred to in this, what is it, 25, Line 34, as
5 uniform grid points are actually the construed
6 non-uniform grid points.
7 Grid points, you know, are
8 determined with the boundaries, determined based
9 on the NMRs or calibration data, that happened to
10 be in a uniform arrangement.
11 Q. Could you refer to Column 10,
12 Line 31 of the '753 patent?
13 A. 10, Line 31. Okay.
14 Q. Here at the line -- so starting at
15 Line 29 of Column 30 -- or, sorry, strike that.
16 Starting at Line 29 of Column 10,
17 the '753 patent says, "A NUG generator or a
18 method to produce NUGs may begin the NUG
19 generation operation using, for example, one or
20 more of the following: A fixed not uniform grid
21 point, or UG, defined over the region R with the
22 calibration point data being assigned to the

1 fixed grid points by some rule (e.g., allocated
2 by closest fixed grid point, a centroid of the
3 set of fixed grid points).
4 "B, random grid points to define the
5 start of each NUG.
6 "C, combinations of A and B,
7 depending on the characteristics of the
8 calibration data.
9 "Or D, some useful method, some
10 other useful method."
11 Did I read that correctly?
12 A. I don't believe so. I believe you
13 said uniform grid points, and what it says here
14 is fixed uniform grid.
15 Q. Okay.
16 A. In A.
17 Q. And in your opinion is there a
18 difference between a fixed uniform grid and a
19 uniform grid point?
20 A. It is -- yeah, that isn't something
21 I provided an opinion on, you know, in this
22 matter.

1 You know, not something that I have
2 thought about.
3 And I think the, you know, I read
4 the paragraph you have just read is that -- and I
5 just, you know, wanted to be clear that we were
6 reading the same thing -- is that, you know, it
7 is talking about a NUG generator, a NUG generator
8 or a method to produce NUGs may begin with a NUG
9 generation operation using for example one or
10 more of the following.
11 And one of the things it suggests is
12 a fixed uniform grid defined over a region R with
13 the calibration point data being assigned to the
14 fixed grid points by some rule.
15 It then, you know, talks about in B,
16 random grid points. And it goes on from there.
17 When we have -- you know, when we
18 look at the claims, it is talking about grid
19 points. And the grid points in the claims are
20 clearly what, you know, has been construed as the
21 NUGs.
22 That it is, you know, grid points

1 whose boundaries are determined based on the
2 calibration data or the NMR measurements.
3 Q. And I appreciate that explanation.
4 In the context of this paragraph of
5 the '753 patent, Column 10, Line 29 to about
6 Line 38, is it your opinion that the '753 patent
7 describes NUG generation based on a fixed uniform
8 grid point, UG, defined over the region R with
9 calibration data -- calibration point data being
10 assigned to the fixed grid points by some rule?
11 A. Well, yeah, again, I haven't -- in
12 the context of this paragraph that we have just
13 read, that is what it says.
14 And it is, you know, again in the
15 context of this paragraph, what it is talking
16 about is method to produce NUGs may begin the NUG
17 generation operation using.
18 So, even, you know, just limited to
19 this paragraph, it is not saying that that is
20 the, that that is the output.
21 It is saying that the -- it may
22 begin the generation operation from. And then it

1 gives those four examples.
2 So, you know, not reading this as
3 saying that that is the NUGs. That is the
4 starting point for the NUG generation operation.
5 Q. And just so the record is clear, in
6 this paragraph on Line 3, it says, "fixed uniform
7 grid." Is that right?
8 A. It does in Line 3 say, "a fixed
9 uniform grid," where it is talking about, you
10 know, starting points for the NUG generation
11 operation.
12 Q. But, a few lines further down, there
13 is also a description that says, "calibration
14 date -- point data being assigned to the fixed
15 grid points by some rule."
16 Do you see that?
17 MR. MCBRIDE: Objection, form.
18 THE WITNESS: I, you know, again in
19 the context of this paragraph where we are
20 talking about, you know, how to start or
21 begin the NUG generation operation, one of
22 the examples it gives is a fixed uniform

1 grid, UG, defined over the region R with the
2 calibration point data being assigned to the
3 fixed grid points by some rule.
4 BY MR. CHOWDHURY:
5 Q. Could you refer back to Claim 1 of
6 the '753 patent, which is starting at, just give
7 me --
8 Column 59, starting at about
9 Line 14.
10 A. Yes, I am there.
11 Q. And, Limitation B states,
12 "Generating one or more sets of grid points for
13 said calibration data." Correct?
14 A. Yes. That is correct.
15 Q. How many fixed grid points can be
16 part of the one or more grid points that are
17 recited in this limitation of Claim 1?
18 MR. MCBRIDE: Objection, form,
19 foundation.
20 THE WITNESS: So, what I am seeing
21 here is, "Generating one or more sets of grid
22 points for said calibration data."

1 And that is -- you know, all I am
2 seeing in this limitation is one or more sets
3 of grid points.
4 BY MR. CHOWDHURY:
5 Q. Can it include more than one grid
6 point? And let me just clarify my question
7 further.
8 Can the one or more sets of grid
9 points or calibration data that is recited in
10 Claim 1 of the '753 patent include more than one
11 grid point?
12 THE WITNESS: I lost everybody for a
13 moment. I'm back.
14 BY MR. CHOWDHURY:
15 Q. No problem. I will just restate my
16 question.
17 Can the one or more sets of grid
18 points -- strike that.
19 Can the one or more sets of grid
20 points for set calibration data that is recited
21 in Claim 1 of the '753 patent include more than
22 one grid point?

1 A. That is something I don't recall
2 having provided an opinion on in my report.
3 Q. So, is it your opinion that the one
4 or more sets of grid points for said calibration
5 data includes only a single grid point?
6 A. No, I haven't, you know, provided an
7 opinion as to how many grid points could be in a
8 set of grid points or, you know, or sets of grid
9 points, distinct grid points.
10 You know, it is not something I have
11 thought about. It is not something I, you know,
12 provided an opinion on.
13 MR. CHOWDHURY: Thank you,
14 Mr. Sturza. I have no further questions.
15 MR. MCBRIDE: Okay. Well, let's
16 take a quick break and let me review my
17 notes.
18 It is 2:57. Do you want to come
19 back at, I guess, 3:10, or 12:10, your guys'
20 times.
21 MR. CHOWDHURY: Sounds great.
22 (Recess taken -- 11:58 a.m.)

1 (After recess -- 12:08 p.m.)

2 MR. MCBRIDE: Okay. Patent owner

3 has no further questions. Thank you

4 everyone.

5 (Whereupon, signature not having been waived,

6 the deposition suspended at 12:08 p.m. PST)

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1 CERTIFICATE OF NOTARY

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11 STATE OF CALIFORNIA, CA CSR# 13959
12 My Commission expires: February 22, 2025
13
14 STATE OF MARYLAND, COUNTY OF ANNE ARUNDEL
15 My Commission expires: August 2, 2025
16 DISTRICT OF COLUMBIA, WASHINGTON DC
17 My Commission expires: June 1, 2026
18
19 STATE OF DELAWARE, COUNTY OF KENT
20 My Commission expires: September 9, 2025
21 COMMONWEALTH OF PENNSYLVANIA, COUNTY OF LEHIGH
22 My Commission expires: April 5, 2025

1 Mark Alan Sturza, c/o
2 CARMICHAEL IP, PLLC
3 8607 Westwood Center Drive, Suite 270
4 Tysons, Virginia 22182
5
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