

A P P E A R A N C E S

For the Patent Owner, SES-IMAGOTAG SA:

Perkins Coie LLP
BY: CHRISTOPHER MARANDO, Attorney at Law
CHRIS MOULDER, Attorney at Law
1900 Sixteenth Street, Suite 1400
Denver, Colorado 80202
Telephone: (303) 291-2300
Facsimile: (303) 291-2400
Email: cmarando@perkinscoie.com

For the Petitioner, HANSHOW AMERICA INC. AND HANSHOW
TECHNOLOGY CO., LTD.:

Arch & Lake LLP
BY: YU DI, Attorney at Law
203 N LaSalle Street
Chicago, Illinois 60601
Telephone: (312) 485-9547
Facsimile: (312) 614-1873
Email: yudi@archlakelaw.com

For the Witness, EMMANOUIL TENTZERIS:

Arch & Lake LLP
BY: CHRISTOPHER J. FAHY, Attorney at Law
203 N LaSalle Street
Chicago, Illinois 60601
Telephone: (312) 404-2330
Facsimile: (312) 614-1873
Email: Christopher@archlakelaw.com

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E X H I B I T S

(No exhibits marked.)

1 BE IT REMEMBERED that, on TUESDAY, the 7th day of
2 JANUARY, 2025, commencing at the hour of 6:34 a.m. thereof,
3 by remote videoconference before me, Emma Harris, a
4 Certified Shorthand Reporter in and for the State of
5 California, there personally appeared:

6 EMMANOUIL TENTZERIS,
7 called as a witness, who, being by me first duly sworn
8 to tell the truth, the whole truth, and nothing but the
9 truth, was thereupon examined and interrogated as
10 hereinafter set forth.

11 THE REPORTER: My name is Emma Harris. I am
12 California Certified Shorthand Reporter No. 14387.

13 Please raise your right hand.

14 Do you solemnly swear the testimony you are about to
15 give in this matter will be the truth, the whole truth, and
16 nothing but the truth, so help you God?

17 THE WITNESS: I do.

18 THE REPORTER: Thank you. Go ahead, Counsel.

19 EXAMINATION BY MR. MARANDO

20 Q. Good morning. Can you please state your name for
21 the record?

22 A. It's Emmanouil Tentzeris. E-M-M-A-N-O-U-I-L,
23 Tentzeris, T-E-N-T-Z-E-R-I-S. You may call me Manos,
24 M-A-N-O-S.

25 Q. All right. And where are you today?

1 A. Atlanta, Georgia.

2 Q. Is there anyone in the room with you?

3 A. Nope. It's only me.

4 Q. All right. Any documents with you?

5 A. Only the exhibits for the case.

6 Q. And do you have all the exhibits?

7 A. I believe so.

8 Q. All right.

9 A. I have the electronic form of them; yes.

10 Q. Do you have electronic versions?

11 A. Yes. Yes.

12 Q. All right. Do you have any markings on any of the
13 documents --

14 A. No markings.

15 Q. -- you have?

16 A. No. Everything's clean.

17 Q. All right. Have you been deposed since the last
18 round of depositions that you were deposed in the -- in
19 these related IPRs?

20 A. I've been deposed for another case, but --

21 Q. What other case?

22 A. Excuse me?

23 Q. You said one other case?

24 A. Yes, one other case.

25 Q. Okay. And was that unrelated to --

1 A. Completely unrelated. Completely unrelated.

2 Q. All right. Have you testified at trial since the
3 last round of depositions?

4 A. Can you say that again, because you broke off.

5 Q. Have you testified at trial --

6 A. No --

7 Q. -- since the last round?

8 A. No.

9 Q. So I'll do my best to ask clear questions. Let me
10 know if you don't understand any of my questions, and
11 otherwise, I'll assume you understood.

12 Does that sound fair?

13 A. Yep.

14 Q. Since we're making a record, we'll need verbal
15 answers to all the questions.

16 Does that sound good?

17 A. That's great.

18 Q. And do our best -- it's a little more challenging
19 sometimes in the video world, depositions, but we'll do our
20 best not to talk over you -- over each other.

21 Sound good?

22 A. That's good.

23 Q. All right. So there's going to be times today
24 when I ask you to turn to a specific section of a document,
25 and I'll just ask that you let me know where -- when you're

1 there and wait until I ask you a question before you start
2 talking about the document; okay?

3 A. That is correct. Yeah.

4 Q. All right. And Counsel may object today from time
5 to time. I'd ask that you please answer the question unless
6 he specifically instructs you not to answer --

7 A. Sure.

8 Q. -- okay? And we'll take breaks probably every
9 hour, but if there's a need for a break at any point, I --
10 just let me know. The only thing I ask is that if there's a
11 question pending, that you answer the question before we
12 take a break; okay?

13 A. That's good.

14 Q. All right. So what -- when is the first time you
15 heard the term "planogram"?

16 A. About --

17 MR. FAHY: Objection. Form. Relevance.

18 THE WITNESS: So in general, I heard the term
19 "planogram" when I was putting together my RFID class --
20 RFID class at Georgia Tech, and that was around 2007. So
21 that was the first time started dealing with this term.

22 When that -- that term was quite useful for one of the
23 major applications of RFIDs and NFCs, and I kept on spending
24 time on this term over the last years that I have been
25 actively participating in the digital twins activities of

1 patent lease.

2 So I would say I have been familiar with this term for
3 more than 15 years, for both teaching and also IEEE, which
4 is the major electrical engineer organization in the world,
5 activities on RFIDs and IC tags, as well as when I was
6 chosen to be chair of some of the major international
7 conferences on NFC and RFID community.

8 I've been organizing special sessions, giving invited
9 talks or plenary talks. I was even the distinguished
10 lecturer of the RFID Committee of IEEE, and planogram was
11 one of the applications we were actively checking,
12 especially given the fact that one of the first uses of NFC
13 and RFID tags was from a major France department store
14 around 2007.

15 Q. BY MR. MARANDO: All right. Thank you for that,
16 and -- I'm going to ask -- in any of that answer, did -- did
17 you talk about that in your declarations in this matter?

18 A. Excuse me? Can you please be more specific?

19 Q. So all that experience with planograms that you
20 just mentioned -- did you disclose that in your
21 declarations?

22 MR. FAHY: Objection. Relevance. Form.

23 THE WITNESS: I have -- I have expressed my opinion
24 about declaration -- about planogram in my declarations. I
25 have discussed in general my experience for RFIDs and NFCs.

1 That has been quite extensive. And planogram has been part
2 of this experience.

3 So I have discussed about my extensive expertise on
4 RFIDs and NFC technologies, and I have -- in my
5 declarations.

6 THE REPORTER: You have what?

7 THE WITNESS: I have listed my experience on RFID and
8 NFC technology, my extensive experience in these, as well as
9 numerous reports I have in technical applications of RFIDs
10 in my declaration.

11 Q. BY MR. MARANDO: So -- and specifically with
12 planogram experience, where did you discuss planogram
13 experience only? And please pay attention to the question
14 I'm asking. Where is the discussion of planogram
15 experience?

16 MR. FAHY: Objection. Relevance. Form.

17 THE WITNESS: Are you asking me about my response
18 declaration?

19 Q. BY MR. MARANDO: Well, let's start there. Where
20 is the discussion of your planogram experience in your reply
21 declaration?

22 MR. FAHY: Objection. Relevance. Form.

23 THE WITNESS: Let me pull it up.

24 So in my reply declaration, I -- I'm expressing my
25 opinion about planogram in paragraphs 4 all the way down

1 to -- to -- all the way down to paragraph 11, and that's
2 when I express my opinion about planogram.

3 Now, in my deposition in August, I specifically
4 referred to my experience, listing also my participation in
5 numerous invited talks, plenary talks, some papers from
6 Qualcomm about smart inventories, and also other plenary
7 talks of RFID and NFC community boss in the industry and in
8 standard associations. I spent some significant time, I can
9 recall, in August covering all my experience and my
10 participation in planogram activities and actually utilizing
11 my experience.

12 I expressed my opinion about the term "planogram" in
13 my response declaration.

14 Q. BY MR. MARANDO: So as to the specific question --
15 and let me make this very clear -- I'm asking you about your
16 reply declaration.

17 In your reply declaration, did you disclose any of
18 your experience -- not your opinions about planograms. Did
19 you disclose any of your experience about planograms in your
20 reply declaration?

21 MR. FAHY: Objection.

22 Q. BY MR. MARANDO: Just your reply declaration.

23 MR. FAHY: Objection. Relevance. Form.

24 THE WITNESS: Again, in my reply declaration, I
25 expressed my opinion about the term "planogram" based on the

1 experience I discussed in my deposition in August, based on
2 my participation in major planogram-related activities I
3 listed in my deposition, encompassing participation in
4 multiple major articles about smart inventories, as well as
5 different technical applications for RFIDs.

6 Now, in my -- in my recent declaration, I referred my
7 experience in the RFID technical applications conference,
8 just to provide some background on this. This conference
9 was established in 2010. That's why I chose to list, like,
10 the RFID conference and the RFID-TA conference. That was
11 established in 2010. It's still going on.

12 Actually, we won the Best Paper Award last month in
13 RFID Technical Application Conference. That took place in
14 2024. And this conference covers technical applications,
15 including smart inventory and planogram.

16 So every person of ordinary skills would understand
17 that my talks and my participation in RFID Technical
18 Application means I have been very familiar with planogram
19 and other technical applications of RFIDs, and also, this
20 was one of the topics in my distinguished lectures I gave
21 for the same community I listed in my declaration, and also
22 in my deposition.

23 So in my opinion, person of ordinary skills of art
24 would understand that terms such as "planogram" is
25 inherently understood as included in the technical

1 application RFID conference I participated. And actually, I
2 have been one of the founders over the last 15 years.

3 Q. BY MR. MARANDO: Move to strike as nonresponsive.

4 It's going to be a long day if you're not going to
5 answer my questions. I can see that you want to testify
6 about other things, but let's focus on my questions, please.
7 I asked you one question, which was, what's in your reply
8 declaration? And I don't think you answered it.

9 Now, all of that experience that you're -- that you're
10 talking about -- can you point me to a -- you said you have
11 your declaration -- point me to a specific paragraph that
12 discusses what you just mentioned.

13 MR. FAHY: Objection --

14 Q. BY MR. MARANDO: A specific paragraph.

15 MR. FAHY: Objection. Relevance. Form.

16 THE WITNESS: You can go to paragraph 5, and I read
17 there, throughout my career, I have received a variety of
18 awards. I'm a fellow of IEEE, a member of MTT-15, an
19 Associate Member of European Microwave Association, a Fellow
20 of Electromagnetics Academy, and a member of Commission D of
21 Technical Chamber in Greece. In recognition of my
22 world-leading achievements --

23 THE REPORTER: Doctor, could I have you slow down a
24 bit, please? I don't know what you're reading from.

25 THE WITNESS: I'm reading from paragraph 5 --

1 Q. BY MR. MARANDO: Doctor, are you just reading the
2 paragraph? Because you can just say it's in paragraph 5.

3 A. I'm reading the paragraph stressing the IEEE
4 C-RFID, Committee on RFID Technologies. That's -- that's
5 where I'm reading that.

6 Q. Okay. Is the answer, paragraph 5? Is that the
7 paragraph -- we already have the declaration. We don't need
8 to read it into the record.

9 A. This is in paragraph 5; yes.

10 Q. Okay. That's Exhibit 1009?

11 A. Yes.

12 Q. Anywhere else? Any other paragraph numbers?

13 A. Same thing in the listing of the awards, like the
14 IEEE RFID-TA Best Student Paper Award.

15 Q. Where's that?

16 A. Again, that's listed in paragraph 5 in the list of
17 my awards. And I stress, again, that's the IEEE Conference
18 on RFID-TA, technical applications. That typically covers
19 planogram, digital twins, and similar architectures. So if
20 you ask anybody in the area, in the domain of RFIDs, NFCs,
21 and smart inventory, they would confirm that that
22 constitutes a major participation, a major experience in the
23 area.

24 Q. Okay. Let me ask you specifically to point to
25 which -- is it one of the bullets you're referencing, or

1 specifically tell me where on the page you're talking about.

2 A. That was one of the bullets. So if you go to the
3 bullet, 2014 IEEE RFID Best Student Paper Award, for
4 example.

5 Q. Does that say planograms? Does that talk about
6 planograms?

7 A. That says RFID technical applications, so that's
8 exactly the point I was making in my previous response. If
9 you ask anybody with the definition of personal of ordinary
10 skills about experience in planogram or other RFID-based
11 applications, they will confirm that planogram is one of the
12 fundamental topics covered in RFID technical application.
13 That was my point before.

14 Q. Move to strike as nonresponsive.

15 A. So talking about -- talking --

16 Q. Let's move on. Let's move on. It's a question
17 and answer. Appreciate --

18 A. Let -- please let me finish. I would really --

19 Q. I didn't ask you a question. There's no question
20 pending.

21 A. -- would you like to hear all the technical
22 details that --

23 Q. No. There's no question pending, sir.

24 A. So -- so --

25 Q. There's no question pending.

1 A. If you don't let me finish, then I cannot give a
2 clear answer to the judge. You're asking me a question, and
3 I have to give my correct technical answer.

4 Q. Sir, I --

5 A. -- if you cut me off, then --

6 Q. I withdraw the question. I withdraw the question.
7 Let's move on.

8 Please give me the name of the paper. That's all I
9 want.

10 MR. FAHY: Objection. Form. Relevance.

11 THE WITNESS: The name of the paper?

12 Q. BY MR. MARANDO: Please give me the name --

13 A. You're asking me about one out of my 150 papers.
14 I have to go back and look it up.

15 Q. You don't have the name of the RFID-TA Best
16 Student Paper Award?

17 A. You may look it up. The two awards -- I've got,
18 like, 2014 and this year. 2024. You may look it up and
19 explore it. I mean, it's been, like, 11 years, and I have
20 900 papers. So you --

21 Q. Is it in your CV?

22 A. It should be. Yes.

23 Q. All right. Do you have your CV?

24 A. Let me open it up.

25 Q. All right. This is Exhibit 1008.

1 A. Okay.

2 THE REPORTER: Are you marking it, or is it previously
3 marked?

4 MR. MARANDO: They were previously marked. All the
5 exhibits are going to be previously marked.

6 THE WITNESS: Actually, I cannot find my CV. If you
7 can let me find it real quick. Okay.

8 Yes. So if you go to Exhibit 1008 and you go to my
9 general papers, that's paper 378, a fully inkjet-printed
10 chipless RFID gas and temperature sensor on paper. That was
11 the paper that won the Best Paper Award in RFID-TA, and that
12 was a paper, actually, utilized in monitoring the -- or
13 integrating RFIDs and other tags with sensors in environment
14 such as department stores, such as logistics areas, and also
15 shelves.

16 And that was a continuation of paper -- if I can go
17 back -- that was a continuation of paper 330, another paper
18 on 2012, IEEE International Conference on RFID Technologies
19 and Applications. And that had to do with embedding
20 inkjet-printed antennas into plywood structures for
21 identification and sensing, specifically for smart shelves
22 applications.

23 So there are more papers. I could go over, I would
24 say, another five or six papers. All of them belong in a
25 family of RFIDs and NFC tags being utilized in smart shelves

1 and in plan -- planogram-type environments. That's why you
2 hear the term "plywood." That's why you hear the term
3 "sensing." That's why you hear the term "identification,"
4 as well as numerous papers about localization and trucking.

5 So if you check my CV, I'm sure you -- you're going to
6 find another, I would say, 25 to 30 papers about
7 localization in electromagnetically rugged environments,
8 same as the environments covered by planograms.

9 Q. BY MR. MARANDO: Move to strike as nonresponsive.

10 I only asked you for the name of a paper. Please
11 focus on my question -- please. All right. I'm trying not
12 to cut you off, sir, but you need to answer my questions.
13 That's how a deposition works.

14 All right. Now, you considered the Egan reference,
15 which is Exhibit 2003, in forming your opinions in your
16 reply declaration; is that right?

17 A. Egan's paper agrees with my opinions. So
18 corroborates my opinion about the term "planogram."

19 Q. So it's your opinion that Egan defines what a
20 planogram is; is that right?

21 MR. FAHY: Objection. Form.

22 THE WITNESS: Oh, let me open the exhibit. I guess
23 that's 2003.

24 Q. BY MR. MARANDO: Well, if you want to look at what
25 you said in your declaration, it's paragraph 10.

1 A. Yes. So what I wrote in paragraph 10 is, in my
2 opinion, the definition of Egan that planogram is a custom
3 product assortment and product placement plans as given at
4 column 1, line 16. Pretty much supports my opinion about
5 the term "planogram," and also, it's compatible with the
6 Board's interpretation of the term.

7 Q. Okay. So it's your opinion that Egan's disclosure
8 is relevant to the interpretation of planogram; right?

9 MR. FAHY: Objection. Form.

10 THE WITNESS: Egan, in the first lines of his reply,
11 gives -- or defines "planogram" as custom product assortment
12 and product placement plans. Now, planogram -- they serve a
13 common purpose as it's listed also in 5d, that retailers can
14 plan, track, and make decisions about the placement of
15 products throughout the retail store in an effort to
16 maximize sales.

17 So the -- the plain term or the plain meaning of the
18 term "planogram" given by these two very similar
19 propositions is also corroborated by something I included in
20 page -- paragraph 8 of my declaration, which lists both
21 interpretation of the term "planogram" and the Decision to
22 Institute that the planogram is merely list of locations of
23 labels and associated locations and the items on the shelf.

24 So I believe all these three propositions express the
25 same point and that agrees with my view of the term

1 "planogram." There are other known essential
2 characteristics of planogram that people may include, but
3 talking about the term "planogram" is something that can be
4 described by these propositions.

5 Now, other people may add features, details, that are
6 not necessarily part of planograms. But talking about
7 planogram is something described by these propositions.

8 Q. BY MR. MARANDO: Do you remember what my question
9 was?

10 A. Yes.

11 Q. What was it?

12 A. You were asking -- you asked me whether Egan
13 describes my opinion about planogram.

14 Q. No. That's not my question. I asked you -- let
15 me read it.

16 I asked you if Egan's disclosure is relevant to the
17 interpretation of planogram. Is there a yes or no answer to
18 that question?

19 MR. FAHY: Objection. Form. Relevance.

20 THE WITNESS: Egan's proposition of planogram is
21 relevant to the definition of the planogram, and as I said,
22 that corroborates my view of the term "planogram."

23 Q. BY MR. MARANDO: Okay. Is it your opinion that
24 Egan defines planogram?

25 MR. FAHY: Objection. Form.

1 THE WITNESS: Egan discloses a planogram, and that's
2 why he defines planogram as a custom product assortment and
3 product placement plans. Egan's product is dealing with
4 planograms and Egan's definition of planogram as custom
5 product assortment and product placement plans agrees with
6 the way planogram is conceived by a person of ordinary
7 skills.

8 Q. BY MR. MARANDO: So that -- you believe that the
9 definition of "planogram" in Egan is at line 1 -- I'm sorry.
10 Column -- let me withdraw that.

11 You believe that the definition of "planogram" in Egan
12 is at column 1, line 16?

13 MR. FAHY: Objection. Form.

14 THE WITNESS: Let me check Egan's paper. That's 2003
15 exhibit.

16 Q. BY MR. MARANDO: Well, you can look at your
17 declaration too. You cited column 1, line 16 in
18 paragraph 10; right?

19 A. Yes.

20 Q. You didn't cite anything else from Egan; right?

21 A. No. No, because it was clear to me that Egan's
22 patent defines "planogram" in lines 15 and 16, custom
23 product assortment and product placement plans or planograms
24 for individual retail facilities.

25 Now, in the rest of the patents, there are some

1 potential features that could be included in a planogram.

2 But this sentence defines the term "planogram."

3 Now, as I said before, as it's well-known for a person
4 of ordinary skills. You start with a planogram, and then
5 you add other features in addition to the information of the
6 planogram to customize your space.

7 So, for example, using the planogram definition of
8 Egan of product assortment and product placement plans, then
9 when you try to implement this planogram in some individual
10 retail store with different shelf dimensions or --

11 Q. BY MR. MARANDO: Can I ask you, what question are
12 you answering? Because my question was, you didn't cite
13 anything else from Egan; right? Did you answer that
14 question already? Did you already --

15 A. -- justifying my opinion, Mr. Marando. So I start
16 with the def --

17 Q. I didn't ask you to justify your opinion. You
18 need to answer my questions.

19 A. If --

20 Q. That's how a deposition works.

21 A. A --

22 Q. All right. I've given you leeway --

23 A. -- ten depositions, and I know very well how
24 deposition works, and I have expressed my technical opinions
25 in a way that helps the judge get the best decision. So I

1 cannot give you --

2 Q. Sir --

3 A. -- a yes or no --

4 Q. Sir, respectfully, this is not your time to
5 testify without a question. The question was -- and you've
6 answered it -- you didn't cite anything else? Your answer
7 was -- well, tell me.

8 Is your answer, you did not cite anything else in
9 Egan; is that right?

10 A. -- my response declaration, the line 16 of Egan.

11 Q. Okay. Thank you.

12 THE REPORTER: It's going to be very hard for me to
13 make a good record if you don't speak one at a time.

14 MR. MARANDO: I apologize, but I need to make sure the
15 deponent is answering the questions. So I agree. Let's not
16 talk over each other. Let's answer the questions.

17 Q. BY MR. MARANDO: Were you advised on what the
18 legal standard is for determining how a patent defines a
19 term?

20 MR. FAHY: Objection. Form. Relevance.

21 THE WITNESS: Say that again -- can you say that
22 again?

23 Q. BY MR. MARANDO: Were you advised on what the
24 legal standard is for determining how a patent defines a
25 term?

1 MR. FAHY: Objection. Form. And I caution the
2 witness not to reveal any of the substance of communications
3 between you and counsel. You may answer the question.

4 THE WITNESS: I'm going to try to give my answer the
5 best I can, because I'm not a lawyer. So I have been given
6 the advice of giving the term, the plain and ordinary
7 meaning, as it would be conceived by a person of ordinary
8 skills, unless there is a specific instruction. That's my
9 understanding.

10 So I gave it the plain and ordinary meaning, as a
11 person of ordinary skills, at the time of the invention was.
12 That's -- that's how I expressed my opinion about this term.

13 Q. BY MR. MARANDO: So with respect to Egan, what
14 standard did you apply to determine that it defines a
15 planogram in line -- column 1, line 16?

16 MR. FAHY: Objection. Foundation. Form.

17 THE WITNESS: Egan's patent was -- was published in
18 2011 and was filed in 2009 by Walgreens, if I am correct.
19 So I -- I expressed my opinion and I came to the conclusion
20 that Egan defines "planogram" in past -- it lists it in
21 line 16, based on how either me or the master's student that
22 had taken my class or the bachelor's student with two years'
23 experience would give the plain and ordinary meaning of
24 planogram. And that would have been formed by their
25 reviewing some RFID papers, having some experience with RFID

1 implementation. So it was the plain and ordinary meaning
2 even of a master's student in 2009.

3 I was not aware of any other claim construction or
4 construction for this patent. So I came to the conclusion
5 that line 15 and 16 defines the term "planogram" based on
6 this. Plain and ordinary meaning of a person of ordinary
7 skills.

8 Q. BY MR. MARANDO: So you don't know what the legal
9 standard is for determining whether a patent defines a term;
10 is that right?

11 MR. FAHY: Objection. Foundation. Form.

12 THE WITNESS: Whenever I review the patent, and I have
13 listed some legal terms in my reading the declaration. I
14 have to go back. But for the definition of the term, I used
15 the plain and ordinary meaning.

16 Now, in my original declaration, after consultation
17 with the counselors, I discussed about legal standards being
18 utilized in the analysis and some of the conclusions of the
19 terms or the patents. But asking me about the definition of
20 the term "planogram" -- I utilized the plain and ordinary
21 meaning, as is the standard.

22 I mean, typically, whenever I analyze patents, I start
23 with the plain and ordinary meaning, and then I read the
24 rest of the patent in case the patents give some specialized
25 meaning in this term. Still -- that's how I come to my

1 conclusion about the term.

2 But reading Egan, I did not see the patent giving some
3 meaning to the term "planogram" different than the plain and
4 ordinary meaning as a person of ordinary skills would
5 conceive it.

6 Q. BY MR. MARANDO: To -- to be clear, it's your
7 opinion that Egan defines "planogram" as custom product
8 assortment and product placement plans? That's your
9 opinion; right?

10 MR. FAHY: Objection. Foundation. Form.

11 THE WITNESS: This is the opinion expressed by Egan.
12 As I said, that corroborates with opinions -- with -- with
13 definitions in other sources, at least in my response
14 declaration, and that also agrees with my opinion on how the
15 term "planogram" would be conceived by a person of ordinary
16 skills.

17 Now, in the declaration -- in my main declaration,
18 which is document 1009, as I told you, there is a section of
19 legal standards going from 19 -- from paragraph 19 all the
20 way down to 33, but specifically about the -- the term, I
21 believe I covered it in my response before.

22 Q. BY MR. MARANDO: -- the Egan reference?

23 THE REPORTER: What -- what was that?

24 Q. BY MR. MARANDO: The Egan reference, E-G-A-N,
25 Exhibit 2003?

1 A. Let me open it.

2 Q. Yes, please. Thank you. Let me know when you
3 have it.

4 A. Sure.

5 Yes. I just opened it.

6 Q. Can you turn to column 1?

7 A. Sure. Okay.

8 Q. And I want to give you a chance to review column
9 1, lines -- excuse me -- lines 15 through 21. And then let
10 me know when you've had a chance to review that, and then
11 I'll ask you a question. Not asking any question right now.

12 A. Sure.

13 Okay.

14 Q. So Egan discloses that a planogram indicates the
15 assortment of products to be offered for sale at the
16 facility, the placement of those products within the
17 facility's sales floor, and the amount of display space
18 devoted to each product, often measured in linear feet of
19 shelf space; correct?

20 A. That is correct.

21 MR. FAHY: Objection -- objection. Form.

22 Q. BY MR. MARANDO: You didn't cite lines 17
23 through 21, which is what I just read from, in your
24 declaration -- your reply declaration; right?

25 MR. FAHY: Objection. Form.

1 THE WITNESS: That is correct.

2 Q. BY MR. MARANDO: Okay. Now, did you consider
3 lines 17 through 21 or did you only consider line 16?

4 MR. FAHY: Objection. Form.

5 THE WITNESS: I reviewed all these lines, and line 15
6 and 16, in my opinion, is a definition of some essential
7 characteristics of planograms. Now, lines 17 maybe going
8 down all the way to 24 -- they just add some features of
9 another to explicitly stated two fundamental features of
10 planograms in line 16.

11 So in line 16, planograms are defined as custom
12 product assortment and product placement plans. Now, if you
13 look at lines 17 to 20, you asked me to study, and even
14 going further, Egan lists that, and adding to this
15 fundamental features of planograms, adding about -- again,
16 product assortment of products, the placement of the
17 products within the facility sales floor, and then he adds
18 the amount of display space devoted to each product, often
19 measured -- measured in some space.

20 He goes on to add some other features often added to
21 the two fundamental features listed in line 16. So in my
22 opinion -- and that's my opinion based on my experience --
23 line 16 covers the two essential features of planogram, and
24 then the rest of the paragraph address some potential
25 features that could be included in planogram, but they're

1 not essential parts of the planogram. Otherwise, why would
2 Egan repeat the two fundamental features in line 16 again,
3 in line 17 and 18, and then add some more characteristics?

4 I mean, if you look line 18 and line 19, it's pretty
5 much a repeat of the two fundamental features of a planogram
6 in line 16. And then Egan adds some other features often
7 utilized, and that's why I use the term often and often and
8 often in all of these sentences.

9 So that's -- that's why I did not include the rest of
10 the lines. I mean, I definitely reviewed all of this
11 paragraph, because this paragraph includes, in my opinion,
12 the fundamental features of every plan -- planogram, and
13 then some additional features that could be included in some
14 planogram. And that's the reason. They have -- he has
15 added the lines from 17 to 20 -- to 26. And that's why
16 clearly lists in line 25 and 26, implement a wide variety of
17 corresponding planograms.

18 So in line 25 and 26, he concludes the discussion in
19 this paragraph. So he starts with the two fundamental
20 features of a planogram, then he lists some potential
21 features, not included in all planograms, but in some
22 planograms, and he clearly stresses in line 25, 26,
23 implement a wide variety of corresponding planograms.

24 So that's -- that's why I did not include the lines 17
25 to 20 or 17 to 25.

1 Q. BY MR. MARANDO: Do you agree -- and this is a --
2 if you can answer a yes or no, I'd ask you to answer a yes
3 or no -- do you agree that Egan discloses at lines 17
4 through 21 that a planogram indicates the amount of display
5 space devoted to each product often measured in linear feet
6 of shelf space?

7 MR. FAHY: Objection. Form.

8 THE WITNESS: Line 17 to line 20 add or repeat what
9 has been listed in line 15 and 16 along with some potential
10 additional features of a planogram along the lines of what
11 you read.

12 So Egan, in my opinion, defines the fundamental
13 properties of planogram in line 16, and then from line 17 to
14 20, as you read, it adds some potential additional features
15 under the spirit of what it lists in line 25, implement a
16 wide variety of corresponding planograms.

17 Q. BY MR. MARANDO: The word "potential" that you
18 just said -- lines 17 through 21 are potential features.

19 That's not in Egan; right? That's your opinion that
20 those are potential features?

21 A. What --

22 MR. FAHY: Objection. Form.

23 THE WITNESS: As a person of ordinary skills would
24 think reading this paragraph, paragraph from line 15 to
25 line 26, I would -- I would ask somebody to read till

1 line 26, because that explains the difference of lines 17 to
2 20 or the additional features with respect to lines 15 and
3 16.

4 So Egan starts with the two necessary features of
5 planogram in line 15 and 16. If he considered what's given
6 in 17 to 20 or 21 as important parts for the definition of a
7 planogram, he would have included it in the first sentence,
8 clearly identifying planograms. But what he's doing in
9 lines 17 to 25 is list additional features that one of these
10 wide variety of corresponding planograms might have
11 included.

12 So this line 17 and 20 expresses these -- these
13 potential features, just as a prequel to the implementation
14 of a wide variety of corresponding planograms of 25. So
15 Egan lists that these features are some potential or some
16 not essential features that would be included in a wide
17 variety of corresponding planograms.

18 I mean, the use of the term "wide variety" means you
19 would have different planograms, including different
20 additional features to the necessary features he lists in
21 line 15 and 16. So in my opinion, Egan discloses that these
22 features are some extra features that could be included in
23 some of these wide variety of planograms. And not only from
24 lines 15 and 20 -- I would say from lines 17 to 25.

25 Q. BY MR. MARANDO: So is it your opinion that we --

1 or -- withdraw that.

2 Is it your opinion that as a person of ordinary
3 skill -- when Egan says "a planogram indicates" on lines 17
4 to 18, that a person of ordinary skills should read that as
5 "a planogram potentially indicates"?

6 MR. FAHY: Objection. Form.

7 THE WITNESS: You're rephrasing what I said. What I
8 said before is, a person of ordinary skills would conceive
9 the term "planogram" the way it is explicitly expressed in
10 lines 15 and 16, and then, a person of ordinary skills
11 reading the sentence, "a planogram indicates the
12 assortment," would understand by just reading the lines 17
13 to 25 that the sentence "a planogram indicates," first of
14 all, the two fundamental features listed in line 15 and 16.

15 It's a full repeat of line 15 and 16. So lines 18 and
16 20 is a full repeat of 15 and 16. And then there are
17 additional information having to do with amount of display
18 space, having to do with sale history, having to do with
19 product demand preferences, just as his way on how to
20 implement a wide variety of corresponding planograms, all of
21 which should feature what's listed in the first sentence of
22 this.

23 So a person of ordinary skills would think that lines
24 17 to 24 would be some suggestions building on the
25 definition of line 15 and 16 on how somebody could implement

1 the appropriate planogram for his -- or his -- or their
2 needs. So that's -- that's how a person of ordinary skills
3 would read this paragraph. I mean, typically, in -- not
4 only in patents, but even in technical papers, the first
5 sentence sets the tone and gives the fundamental
6 characteristics.

7 Now, if lines 17 to 20 you asked me to study or to
8 read did not include the two essential features in line 15
9 and 16, then I would potentially think of this as something
10 complementary to the sentence in 15 and 16, but actually
11 does. So there -- there would be no reason for Egan to
12 repeat these two essential and fundamental features if he
13 thought that part of the planogram definition should compose
14 by everything in this sentence.

15 But he starts with it. He claim -- he pretty much
16 stresses these two important parts of product assortment --
17 custom product assortment and product placement plans, and
18 then he keeps on adding more and more information.

19 Q. BY MR. MARANDO: So it's -- it's your opinion that
20 Egan discloses and -- and specifically defines a planogram
21 as custom product assortment and product placement plans on
22 line 16 in column 1, and everything else after that, he's
23 describing things that are not essential to a planogram; is
24 that right?

25 MR. FAHY: Objection. Form.

1 THE WITNESS: As a person of ordinary skills would
2 think, and as I have written in my reply declaration in
3 paragraph 10, it is my opinion that Egan defines "planogram"
4 as custom product assortment and product placement plans, as
5 listed in line 16, and this definition is fully compatible
6 with the Board's interpretation of the term, as well as
7 corroborates with mine.

8 Q. BY MR. MARANDO: Everything in Egan starting on
9 line 17 is not essential to a planogram, according to --
10 that's what a person of ordinary skill -- that's how they
11 would read Egan; is that right?

12 MR. FAHY: Objection. Form.

13 THE WITNESS: I didn't -- I did not say that. Again,
14 I have to correct, because I said that lines 18 and 19,
15 where you say "indicates the assortment of products to be
16 offered for sale and the placement of these product within
17 the sales floor" -- they repeat the fundamental features of
18 the planogram given in line 15 and 16. It's exactly the
19 same terminology, and then, in the rest of the sentence,
20 they keep on adding some features which are not essential
21 for the planogram definition. That was my opinion.

22 So lines 15 and 16 and lines 18 and 19 -- they are
23 identical. And they are listed to stress that these are the
24 essential parts of the planogram, and then the rest of the
25 sentence as well as the rest all the way down to line 25,

1 stressing the wide variability or the wide variety of
2 corresponding planograms -- they are nonessential features
3 often utilized in planograms.

4 My opinion is not that these features do not exist in
5 any planogram. My opinion is, planograms is -- is a term
6 that features essential characteristics defined as the
7 product assort -- custom product assortment and product
8 placement plans, and then it could feature lots of different
9 characteristics.

10 And that's one of the topics I cover also in my reply
11 declaration from paragraphs 4 to paragraph 11. That
12 expresses exactly the same principle, that planograms --
13 as -- as most of the technical terms, they have some
14 essential characteristics and some add-ons based on your
15 needs of your company.

16 So -- and if you -- if you think about the -- the --
17 the main target of the planogram, which is to maximize
18 sales -- this -- this is the whole point. And actually, in
19 other words, the first proposition in Dr. Surati's, that
20 agrees with exactly what I told you. Start with some
21 fundamentals, some essentials, that are listed in lines 15
22 and 16, and then you keep on adding more features that are
23 not common in all planograms, but that would exist in some
24 of a wide variety of the planograms.

25 Q. BY MR. MARANDO: Is it your opinion that the

1 location of labels is not an essential feature of
2 planograms?

3 MR. FAHY: Objection. Form.

4 THE WITNESS: Can you point me -- can you point me to
5 a specific point of Egan, or is it a different question?
6 Are we still on Egan, or --

7 Q. BY MR. MARANDO: It's a different question.

8 So is it your opinion that placement of labels is not
9 an essential feature of a planogram?

10 MR. FAHY: Objection. Foundation. Form.

11 THE WITNESS: So you're asking me just the location of
12 the labels or some database correlating the location of
13 labels and the items of the sale? Because -- I mean,
14 location of labels could be anything. So are you asking me
15 about location of labels by themselves or are you asking me
16 about the relationship between the location of the labels
17 and the items on the sale?

18 Because if you are asking me about -- about the
19 location of the labels, I'd say they are listed in
20 paragraph 9 of my response declaration, which is pretty much
21 the paper 11, interpretation of the term "planogram." It
22 says, the planogram of the '340 patent is merely list of
23 locations of labels and associated locations in the items on
24 the sale. So based on this, I agree that the list of the --
25 location of labels and associated locations of the items on

1 the sale are an important or an essential characteristic of
2 a planogram.

3 But I would say, that's the list of the labels and
4 associated locations of items on the sale. And you can see
5 some more extensive discussion of this in paragraph 8 of my
6 reply declaration.

7 Q. BY MR. MARANDO: All right. So I'm going to ask
8 one more question about Egan, and then we can take a break.
9 Does that sound good?

10 A. That's good.

11 Q. All right. So Egan, at line 17 through 21 -- you
12 with me?

13 A. Yes.

14 Q. All right. So want to parse that sentence and see
15 if you agree with -- want to go through that sentence.

16 So Egan discloses first at that line 17 -- yeah,
17 line 17 through 21 -- that a planogram indicates the
18 assortment of products to be offered for sale at the
19 facility.

20 Do you see that?

21 A. Yes.

22 Q. It's your opinion that that is an essential
23 feature of a planogram; right?

24 A. Not --

25 MR. FAHY: Objection. Form.

1 THE WITNESS: That's what's listed also in line 16,
2 custom product assortment. I have listed in my reply
3 declaration. It's -- it's identical.

4 Q. BY MR. MARANDO: Okay. So it is -- it is
5 essential to a planogram?

6 A. It is essential; yes --

7 MR. FAHY: Objection. Form.

8 THE WITNESS: -- line 16 of Egan.

9 Q. BY MR. MARANDO: Okay. And then, Egan also
10 discloses that a planogram indicates the placement of those
11 products within the facility's sales floor.

12 Do you see that?

13 A. Yes. A person of ordinary skills would feel that
14 this is identical to what's listed as product placement
15 plans in line 16. So it's -- these are the two essential
16 features listed in line 16.

17 Q. All right. And then, the last thing Egan
18 discloses in that sentence that starts with "a planogram
19 indicates" on lines 17 is that a planogram indicates the
20 amount of display space devoted to each product, often
21 measured in linear feet of shelf space.

22 Do you see that?

23 A. Yes. Yes, I do.

24 Q. Okay. And so it's your opinion that the first two
25 things are essential because they're listed in line 16, but

1 this would -- the -- the amount of display space is not
2 essential to a planogram?

3 MR. FAHY: Objection. Form.

4 THE WITNESS: As a person of ordinary skills would
5 think, the -- the first two items that are a complete repeat
6 of what's listed in line 15 and 16 constitute the
7 fundamental or the essential features of planograms that
8 agree also with the paper 11, planogram interpretation.

9 The -- the last item you read to me, the amount of
10 display space devoted to each product, puts some limitation,
11 in my opinion, on the term that's not -- pretty much, that
12 does not give or that does not agree with my interpretation
13 of the term "planogram." That's some extra feature that
14 could be included in different planograms.

15 And even the fact that say, often measured in linear
16 feet of shelf space, or the next line, retailers often draw
17 on known demographic, and then, on the end, on line 25,
18 talking implement a wide variety of corresponding
19 planograms, means that this third term could be a feature of
20 a planogram, but that's not a necessary feature. That could
21 be come across in some of the planograms, but that's not one
22 of the essential features of the planogram.

23 And, again, I point you, in paragraph 7 of my
24 declaration, to the last sentence. Because you're asking me
25 about the shelf space dedicated to each product, and I point

1 you to Exhibit 1032, paragraph 7, and I have clearly
2 addressed that. I said it is unclear whether how much shelf
3 space is dedicated to each product is an essential feature
4 of their understanding, as it does not appear on his first
5 exemplary graphic, and further, it is not disclosed anywhere
6 in the '340 patent itself.

7 Now, if you go to the exemplary graphics in the
8 previous page, the top graphic -- there is a very generic
9 listing of the groups of products -- Dr. Surati, for
10 example, defined this as a representative schematic of a
11 planogram, but still, looking at the schematic of a
12 planogram below paragraph 6 of my reply declaration, it is
13 clear that there is no reference of how much shelf space is
14 dedicated to each product.

15 Clearly, you can see in page 8, which has the list of
16 the schematics of Dr. Surati's top figure. He claims and he
17 uses this as a representation of a planogram. Still, I do
18 not see in this schematic any specific amount of space for
19 individual products in this. It just has -- one corridor
20 has staple food. One corridor has fruit. One corridor has
21 vegetables.

22 And that's one example of what I was saying, and
23 that's why I do not consider how much shelf space dedicated
24 to each product to be an essential feature of general
25 understanding. Because this exemplary graphic, for example,

1 does not list any amount of shelf space dedicated to its
2 product.

3 Now, if that was --

4 Q. BY MR. MARANDO: Are you talking about Egan?

5 A. I am talking about the term you asked me about,
6 giving you one very practical example, justifying my
7 opinion. Because you asked me the question whether this
8 one -- whether the space amount dedicated to every product
9 is considered by me as an essential product, and I give you
10 the answer, utilizing all of the schematics listed in his
11 declaration.

12 Even your expert, in reality, agrees with my opinion,
13 which would be the opinion of person of ordinary skills,
14 that it is unclear that how much shelf space dedicated to
15 each product is an essential feature. Even Dr. Surati's
16 schematic of a planogram listed in paragraph 6 -- it's not
17 my schematic. It's a schematic by your expert --

18 Q. So you need to refer to -- let me understand this.
19 You need to refer to Dr. Surati's opinion in order to answer
20 the question about whether Egan discloses that the amount of
21 display space devoted to each product is an essential
22 feature of the planogram?

23 MR. FAHY: Objection. Form.

24 THE WITNESS: This is not a correct statement of what
25 I said. What I said is, a person of ordinary skills in the

1 area of planogram would understand that how much space
2 dedicated to every product is not an essential feature, and
3 then I just corroborated this opinion by just adding a
4 reference to your expert's schematic of a planogram, pretty
5 much justifying my answer.

6 So that's why I utilized this. I did not rely on
7 Dr. Surati's. I relied on reading the sentence, and I
8 relied on my expertise. But also, I added this extra
9 reference by your expert agreeing with me in this case by
10 providing a schematic of a planogram that does not have the
11 feature you asked me about. That was the only reason.

12 Should we have a break?

13 Q. BY MR. MARANDO: Sure, if you can answer one more
14 question.

15 A. Okay.

16 Q. It's your opinion, based on reading Egan, that
17 Egan discloses that a planogram indicates the amount of
18 display space devoted -- withdraw that.

19 It's your opinion that Egan's disclosure that a
20 planogram indicates the amount of display space devoted to
21 each product should be write as, a planogram may indicate
22 the amount of display space devoted to each product, but
23 it's not essential.

24 That's your opinion; right?

25 MR. FAHY: Objection. Form.

1 THE WITNESS: No, that's not my opinion.

2 Q. BY MR. MARANDO: Okay. Let's --

3 A. My opinion --

4 Q. Let --

5 A. -- let me finish, please --

6 Q. -- take a break.

7 A. No, we're not going to take a break, because I
8 want to clarify something.

9 So my opinion is that Egan lists that the planogram
10 indicates the assortment of products to be offered for sale
11 at the facility, the placement of these products within the
12 facility sales floor, and the amount of display space
13 devoted to each product, often measured in linear feet of
14 shelf space. Listing or repeating the essential
15 characteristics of a planogram in line 15 and 16, I referred
16 to in my reply, and also the nonessential -- the
17 nonessential additional features he provides in this line.
18 This is my opinion.

19 Q. The words "not essential" don't appear in line 17
20 through 21, do they?

21 MR. FAHY: Objection. Form.

22 THE WITNESS: There is -- if you look at Egan, you
23 have to read it the way that a person of ordinary skills
24 would read it. And the person of ordinary skills knows that
25 planogram definition or the essential characteristics are

1 given in 15 and 16.

2 Now, from line 17 to 25, after repeating the two
3 essential characteristics of a planogram listed in line 15
4 and 16, there is a whole slew of other features that could
5 be added in the wide variety of corresponding planograms
6 Egan lists in 25. And these additional characteristics,
7 adding, I would say, some potential customization potential
8 of planogram -- I discussed them also in my reply
9 declaration, justifying the opinion that what's listed in
10 Egan from line 19 and below are not come across in all
11 planograms.

12 You know, typically, when you come to a decision about
13 the term, technically, you don't rely just on one reference.
14 So you read the reference, and then by considering what has
15 been known by a person of ordinary skills, you identify what
16 are the main characteristics and what are the additional
17 characteristics. And that's why I wrote this reply
18 declaration.

19 The lines 15 and 16 corroborate with my opinion about
20 the planogram and about the essential characteristics.
21 Still, everybody knows planograms in practice have
22 additional features to these essential ones. Now, that's
23 what's listed in Egan, and that's what I discuss also in the
24 paragraphs 4 to 11 on my reply declaration.

25 If you ask -- I'm sure, if you ask people around, if

1 you go to Walgreens, if you go to Target, if you go to all
2 of them, you ask about, "What is a planogram?" They will
3 give you the answer that Egan lists in the first two lines,
4 but then they will keep on listing additional features, and
5 that's what I cover also in my reply declaration, so.

6 MR. MARANDO: Move -- move to strike as nonresponsive.

7 Let's take a break.

8 THE WITNESS: Okay.

9 MR. FAHY: How long?

10 MR. MARANDO: Let's come back at 11:05.

11 THE WITNESS: That's fine.

12 MR. FAHY: Thank you.

13 THE WITNESS: Thank you.

14 (Recess taken from 7:49 a.m. to 8:06 a.m.)

15 MR. MARANDO: All right. Let's -- let's get started.

16 Q. BY MR. MARANDO: So can you turn to paragraph 8 of
17 your reply declaration?

18 A. Yes.

19 Q. That's Exhibit 1032.

20 A. Okay.

21 Q. So it's your opinion -- or -- I'm sorry. Withdraw
22 that.

23 It's your understanding that the Board interpreted
24 "planogram" in its institution decision as a list of
25 locations of labels and associated locations and the items

1 on sale; is that right?

2 MR. FAHY: Objection. Form.

3 THE WITNESS: Yes, in paragraph 8, I have listed that
4 Board's interpretation of the term "planogram" in its
5 Decision to Institute was that the planogram of the '340
6 patent is merely a list of locations of labels and
7 associated locations in the items on the sale.

8 So that's a definition of -- interpretation of the
9 term "planogram" of the '340 patent.

10 Q. BY MR. MARANDO: And it's your interp -- withdraw
11 that. Sorry.

12 It's your opinion that the interpretation of
13 "planogram" that you just read is correct; right?

14 MR. FAHY: Objection. Form.

15 THE WITNESS: This Board's interpretation of the term
16 "planogram" you read is -- well, corroborates with my
17 interpretation of the term "planogram" for the '340 patent.

18 Q. BY MR. MARANDO: It's your opinion that that's the
19 correct interpretation; right?

20 MR. FAHY: Objection. Form.

21 THE WITNESS: Well, I would -- I said that the Board's
22 interpretation of the term "planogram" you listed agrees
23 with my interpretation for the planogram of the '340 patent.

24 Q. BY MR. MARANDO: In paragraph 11, you state, "It
25 is my opinion that the Board's interpretation of the term in

1 its institution de -- in its Decision to Institute is
2 correct"; right?

3 A. Yeah, that's -- that's exactly what's said.
4 That's interpretation of the term "planogram" for the '340
5 patent.

6 Q. So your invalidity analysis in this IPR is based
7 on your understanding that a planogram is a list of
8 locations of labels and associated locations and the items
9 on sale; right?

10 MR. FAHY: Objection. Foundation. Form.

11 THE WITNESS: When I -- I formed the analysis for
12 invalidity, my interpretation of the term "planogram" is
13 corroborated by this definition of paper 11, that the
14 planogram of the '340 patent is merely a list of locations
15 of labels and associated locations in the items on sale.

16 Q. BY MR. MARANDO: Do you have a copy of
17 Exhibit 1001, the '340 patent?

18 A. 1001. Yes.

19 Q. Okay. Could you pull that up, please, and let me
20 know when you have it open?

21 A. It's open.

22 Q. All right. Can you turn to column 6, lines 35
23 through 37? And review those, and then, once you've had a
24 chance to review those, I'm going to ask you a question.

25 A. Planogram lists the locations of all the

1 electronic labels and the items of the sale. Okay. Yes.

2 Q. So the '340 patent discloses in column 6, lines 35
3 to 37, that "A planogram lists the locations of all of --
4 all the electronic labels 3 and of the items on sale in a
5 sales area"; right?

6 MR. FAHY: Objection. Form.

7 THE WITNESS: Reading 101, says that it lists the
8 locations of all the electronic labels and of the items on
9 sale in a sales area, which agrees with what we looked at
10 before on paragraph 8 on paper 11, interpretation of the
11 term "planogram," from my reply.

12 Q. BY MR. MARANDO: So according to the '340 patent,
13 a planogram -- I'm going to split this up; okay?

14 A. Okay.

15 Q. So I'm going to start my question now.

16 According to the '340 patent, a planogram lists the
17 locations of all of the electronic labels; correct?

18 MR. FAHY: Objection. Form.

19 THE WITNESS: Okay. Yes.

20 Q. BY MR. MARANDO: And according to the '340 patent,
21 a planogram lists the locations of the items on sale in a
22 sales area; correct?

23 MR. FAHY: Objection. Form.

24 THE WITNESS: Reading the whole paragraph from line 30
25 to 35, it says -- let me read this. "Determines the

1 location -- the central server determines the location of
2 the said terminal from the label identifier" --

3 Q. BY MR. MARANDO: I'm -- I'm sorry. I'm not trying
4 to interrupt you. I'm just -- if you're reading quietly, I
5 think it's going to be difficult for the court reporter to
6 take that down, so if you want to just say what you're
7 reviewing and review it to yourself, or if you want to read
8 it out loud, I'd just ask you to slow down and --

9 A. Yeah, I -- I read it loud, because I want to put
10 the sentence into context and what is the meaning of, lists
11 the locations of the labels and the items.

12 So the planogram lists the locations of the labels and
13 of the items, but also determines the location of the mobile
14 terminal from the label identifier of the electronic label.
15 And then the central server determines the location of the
16 terminal from the identifier of said label using the data of
17 the planogram associating the location with the label
18 identifier.

19 So you read the second sentence about the function of
20 the planogram, but you ignored the first sentence, line 33,
21 saying data of planogram associating the location with the
22 label identifier. So -- you have to read both of them
23 together, otherwise we will identify only half of the
24 functions of the planogram.

25 So a planogram associates a location with a label

1 identifier, and then lists the locations of all the labels
2 and of the items in the sales -- in the sales area. So
3 that's what constitutes the whole function of the planogram.
4 That's why I read the rest, because I wanted to cover all
5 the functionalities of the planogram, not just some of them.

6 Q. Got it. And so understanding that you have to put
7 it in context and that you -- you -- you wanted to describe
8 what constitutes the whole function of the planogram, one of
9 the things that the '340 patent discloses as to what a
10 planogram lists is it lists locations of the items on sale
11 in a sales area.

12 Do you agree?

13 MR. FAHY: Objection. Form.

14 THE WITNESS: One of the -- one of the functions could
15 be the locations of the items on the sales only at -- the
16 location of the items in the sales area. Yes. That's --
17 that's pretty much what -- what the Board's interpretation
18 of the term "planogram" for '340, list of locations of
19 labels and associated locations of the items on sale.
20 That's correct.

21 Q. BY MR. MARANDO: All right. You have an opinion
22 in paragraphs 12 through 18 of your reply declaration about
23 the term "activated/activating"; right?

24 A. Yes. So that's an interesting term, because this
25 is one of the terms we have been focusing on in my class,

1 and --

2 Q. Let me -- let me ask you a question.

3 A. Yes.

4 Q. I haven't asked a question yet.

5 A. Yes, sir.

6 Q. All right. So your opinion is that the plain and
7 ordinary -- ordinary meaning of "activated" is "put into
8 action"; is that right?

9 MR. FAHY: Objection. Form.

10 THE WITNESS: That is correct.

11 Q. BY MR. MARANDO: Okay.

12 A. "Put it -- put into action" or "getting ready for
13 communication." These are the two terms I will utilize for
14 the term "activate." I mean, I list "put into action" in
15 12, but I could equally use well "getting ready for
16 communication."

17 Q. All right. In your declaration -- let's -- let's
18 focus on what's in your declaration.

19 In your declaration, did you cite a document that
20 defines "activated" as "put into action"?

21 MR. FAHY: Objection. Form.

22 THE WITNESS: I referred -- and I will give you two
23 answers for this one. One answer will have to do with what
24 I covered in context in my declaration, stressing that in
25 the '340 patent, lines -- I'm calling 4 -- lines 54, 56,

1 saying that the radio-frequency peripheral of the electronic
2 label comprises an antenna and an electronic chip of NFC
3 type or RFID type.

4 Did you find it on column 4, lines 54, 56?

5 Q. BY MR. MARANDO: Did you cite --

6 A. I'm talking about paragraph 14.

7 Q. -- that -- okay. Let me -- I -- I see that you
8 cited that. So you're saying you cited the '340 patent,
9 column 4, lines 54 through 56. Does that --

10 A. Exactly. That's --

11 Q. Does that include the language "put into action"?

12 A. Let me finish. I told you, I'll have to pretty
13 much give you the whole technical answer here. You're
14 asking me a question. I'll have to put it into context.

15 So --

16 Q. That's not my question, though --

17 A. Yeah --

18 Q. That's not my question, sir. My question is
19 only -- it's a narrow one. It's, did you cite something --

20 A. Oh --

21 Q. -- that defines, that uses the terms, "put into
22 action"?

23 A. I have to respectfully --

24 Q. -- answer that --

25 A. -- disagree -- it's not -- it's not a yes or no

1 answer -- is --

2 Q. So you can't answer that --

3 A. The answer is -- the answer is, I have listed in
4 my reply declaration that patent '340 at column 4, lines 54,
5 56, makes use of any chip of NFC type or RFID type.

6 Now, any RFID type means, as I list in the line -- the
7 first two lines of my paragraph 14, that the claim language
8 in the disclosures of '340 patent are compatible with
9 passive and active radio-frequency peripherals and do not
10 lead me to relevant claim terms to passive radio-frequency
11 peripherals alone.

12 So '340 patent envisages radio-frequency peripheral to
13 include other types than passive NFC type. And going to
14 paragraph 15, the last four lines, the person of ordinary
15 skills -- or it is my opinion that '340 patent does not
16 exclude the use of active NFC or RFID types.

17 And in addition, it is my opinion that the person of
18 ordinary skills would understand that an active NFC or an
19 active RFID type is powered by its own power source and not
20 by any other device that has mobile terminal, nor by any
21 electromagnetic wave energy transmitted to from any other
22 device that has mobile terminal.

23 So it is my opinion that the person of ordinary skills
24 of art would understand, as listed in paragraph 16, that an
25 active NFC or active RFID tag, when not in communication

1 with other devices -- so before interacting with the mobile
2 terminal -- stays for a considerable portion of time in a
3 relatively low power consumption mode, and when another
4 device, such as mobile terminal, intends to initiate
5 communication with the active NFC or active RFID tag, the
6 other device will send an interrogation or call-up or even
7 wake-up signal, some other reference called wake-up signal,
8 to the active NFC or active RFID tag, which, upon receipt of
9 the interrogation or call-up signal, will switch into
10 relatively high power consumption mode and engage in
11 communication.

12 So --

13 Q. BY MR. MARANDO: Are you just -- are you reading
14 from your declaration --

15 A. -- to understand that the other device through
16 such interrogation --

17 Q. Sir --

18 A. -- wake-up signal activates the NFC or activates
19 the RFID tag in the plain and ordinary sense of the word.
20 So putting the active NFC or active RFID tag into the action
21 of communication.

22 I read this because you asked me whether I list
23 "activate" explicitly. So I read these paragraphs because
24 they explain the term "activate."

25 Now, there's a reference of 14443 --

1 Q. Move to strike as nonresponsive. Withdraw the
2 question. Let's move on.

3 A. Okay. I just want to finish.

4 Q. No. No question pending. No question pending.

5 A. Okay. I just want to --

6 Q. Move on.

7 A. -- sentence, that if you read any data sheet of
8 ICs operating for NFC or RFID, such as Texas Instruments,
9 TRF7970, which is the golden rule utilized by all
10 universities in the world, about the 13.56-MHz RFIDs and
11 NFCs -- if you check this, you will read the term "activate"
12 in the plain meaning I discussed in my response declaration.

13 So I just ask you or anybody to go look any IC
14 operating for NFCs or HF RFIDs, such as the 7970, and you
15 will hear the term "activate." Same thing for references --
16 for standards. 14443-3 ISO uses the term "initiation" and
17 "activation."

18 Q. Move to strike as nonresponsive.

19 What time frame did you assess the plain and ordinary
20 meaning of "activated" from?

21 MR. FAHY: Objection. Form.

22 THE WITNESS: The time frame was between 2006 and
23 2008. As I said before, this time, I was corroborating with
24 major industry and HP, Texas Instruments for the first ICs
25 covering NFC and HF RFID tags, similar to the ones for '340.

1 So I'm talking about 2006, 2008. And I had some
2 personal feedback for the data sheet of the resulting ICs
3 that came out at 20 -- 2010, 2011. I gave you the TRF7970
4 from Texas Instruments as an example. That came out
5 June 2011, and that clearly says -- clearly lists the term
6 "activation."

7 So if you check any IC performing the function of
8 communication of an NFC or HF RFID tag and utilizing the
9 standards ISO 14443-2, 3, or 15693, or even 18092, you will
10 read the term "activate." You can even go check now. I
11 believe Texas Instruments still sells this IC. Has been one
12 of the most successful ICs. Maybe the company you represent
13 uses this one for the smart labels.

14 And you will see the term "activate" for both passive
15 and active RFIDs, meaning set into action or getting ready
16 for communication or initiating the communication between
17 the mobile terminal and the tag itself.

18 So the short answer is, 2008 -- 2006, 2008, all the
19 way up to 2011, when the first ICs came out.

20 Q. BY MR. MARANDO: All right. Move to strike
21 everything other than "2006 to 2008, all the way up to
22 2011," as nonresponsive.

23 All right. Let's talk about Exhibit 2013.

24 A. Do you want me to open it?

25 Q. Yep.

1 A. Okay.

2 Q. All right. So do you have Exhibit 2013 open?

3 A. Yes, I do.

4 Q. All right. This is US Patent Number 6,002,344.

5 We'll call that Bandy '344; okay?

6 A. Okay.

7 Q. And you discuss Exhibit 2013 in your declaration;
8 right?

9 A. Yes.

10 Q. All right. Can you review column 5, line 36
11 through 43 of Bandy, and let me know when you've had a
12 chance to review that, and then I will ask you a question.

13 A. One second, please. Of course it's frozen, so
14 give me one second to unfreeze, so.

15 You said column 7?

16 Q. Column 5, line 5 through -- withdraw that.

17 Column 5, lines 36 through 43 of -- and to clarify the
18 record, Bandy '344, which is Exhibit 2013.

19 A. Okay. Let me review this.

20 Okay.

21 Q. All right. So Exhibit 2013 discloses in the
22 portion that you just read that Bandy '344's antenna uses RF
23 back scatter signals.

24 Do you agree?

25 MR. FAHY: Objection. Form.

1 THE WITNESS: Yes.

2 Q. BY MR. MARANDO: All right.

3 A. That's what's written.

4 Q. All right. And in that same disclosure,
5 Exhibit 2013 discloses that Bandy '344's antenna uses a
6 900-MHz carrier frequency; do you agree?

7 MR. FAHY: Objection. Form.

8 THE WITNESS: In a preferred embodiment. Okay. I'm
9 reading this, so can you ask me a question?

10 Q. BY MR. MARANDO: Yeah. In the preferred
11 embodiment that you just read, Bandy '344's antenna uses a
12 900-MHz carrier frequency; correct?

13 A. That's what's written in lines 38 to 40; yes.

14 Q. Okay. All right. Let's take a look at Figure 9.

15 A. Okay.

16 Q. Are you there?

17 A. Yep.

18 Q. All right. So Figure 9 depicts a pair of tags;
19 correct?

20 MR. FAHY: Objection. Form.

21 THE WITNESS: Yes.

22 Q. BY MR. MARANDO: All right. There's a tag 102A on
23 the right and tag 102B on the left; correct?

24 MR. FAHY: Objection. Form.

25 THE WITNESS: That's correct.

1 Q. BY MR. MARANDO: All right. Each tag includes an
2 antenna 302 and an application-specific integrated circuit
3 904; correct?

4 MR. FAHY: Objection. Form.

5 THE WITNESS: Can you say it again, because you broke
6 off. I heard only "904." Can you say that again?

7 Q. BY MR. MARANDO: Sure. Sure. So each tag
8 includes an antenna 302 and an application-specific
9 integrated circuit 904; correct?

10 MR. FAHY: Objection. Form.

11 THE WITNESS: That's an integrated circuit, 904; yes.
12 And an antenna 302A and B; yes.

13 Q. BY MR. MARANDO: And 302A is the antenna and tag
14 102A, and 302B is the tag -- is the antenna and tag 102B;
15 right?

16 MR. FAHY: Objection. Form.

17 THE WITNESS: Okay.

18 Q. BY MR. MARANDO: That was "right"; right?

19 A. So you have two antennas. Yes. 302A, 302B.
20 That's what I can see here; yes. I can see that in
21 Figure 9.

22 Q. Right.

23 A. Yes.

24 Q. In tag 102A on the right, Figure 9 shows antenna
25 302A connected on one end to the application-specific

1 integrated circuit 904A --

2 A. Yes --

3 Q. -- correct?

4 A. And there's a second end that most likely is
5 connected to the ground, but it's not shown, because you
6 have only a top view. Yes. So that -- this antenna has two
7 ends. One end is connected to the IC. The second end most
8 likely is connected to the bottom ground. Please -- please
9 go ahead.

10 Q. All right. Is your answer the same for tag 102 --

11 MR. FAHY: Objection. Form.

12 Q. BY MR. MARANDO: -- B?

13 A. For 302A, you have a two-terminal antenna. Most
14 likely, one is connected to the ground. Now, for the 302B,
15 that's another loop antenna. Now, this loop antenna could
16 be connected to a -- to the ground or some other underlying
17 structures.

18 So you are talking about two -- two typical antennas
19 in loop configurations. One is connected to the IC. Could
20 be the signal input. The other could be connected to a --
21 something below, or could be connected to other part of the
22 circuitry, which is not clear.

23 So the -- what I can see here is, I can see two loop
24 antennas. Loop antenna for 302B. Clearly, that's an
25 incomplete loop wrapped around, and for 302A, is some spiral

1 folded antenna. Again, receiving a signal from some IC.

2 So what I can see from the schematic -- and this is a
3 very generic schematic here -- is that you have two loop
4 antennas fed by a signal from two different ICs, the 9024A
5 and 9024B. That is what I can extract here. And all of
6 them, they are printed on the back of a ticket, which gives
7 you some idea about the -- the dimensions. So -- or it --
8 like, its tag. So we're talking about a large piece of
9 paper here.

10 But apart from that, the details of connection on the
11 second port of the antenna -- it's -- it's something that
12 can be realized many different ways.

13 Q. All right. Can you pull up Exhibit 1022?

14 A. 1022. Give me one second, please. 1022. Okay.
15 1022, you said, or 1024?

16 Q. 1022.

17 A. 1022. Okay.

18 Q. And for the record, this is US Patent Number
19 7,973,722.

20 A. Okay.

21 Q. You discuss Exhibit 1022 in your reply
22 declaration; correct?

23 A. That is correct.

24 Yes, I discuss this in paragraph 22. That is correct.

25 Q. And you discuss the antennas in Figures 2

1 through 5, Exhibit 1022; correct?

2 A. Yes.

3 Q. All right. So can you take a look at Figures 2
4 through 5 and let me know when you've had a chance to look
5 at them, and I'll ask you a question.

6 A. One second, please.

7 Yeah. Please go ahead.

8 Q. All right. So the antennas shown in Figures 2
9 through 5 are antennas with positive and negative terminals;
10 right?

11 MR. FAHY: Objection. Form.

12 THE WITNESS: That is correct.

13 Q. BY MR. MARANDO: All right.

14 A. On these patents, the -- that means that the
15 potential on one port is higher than the potential of the
16 other port. That's correct.

17 Q. What's the purpose of having positive and negative
18 terminals?

19 MR. FAHY: Objection. Form.

20 THE WITNESS: The -- the whole purpose is that you
21 have to connect these antennas in a way that current will
22 run between the two ports. So in general, if you ask me in
23 general -- or in general of this spiral inductors as they
24 represent Figure 2 or 3, that means the two terminals have
25 to be connected to two different potentials, so as current

1 runs through them and they induce some magnetic field.

2 So that's the meaning of plus minus. And you may
3 realize it many different ways. I mean, you could have
4 the -- the regular fed inductor or the differential fed
5 inductor. So the meaning of plus and minus, for example,
6 for Figure 4 and Figure 5 is that you cannot apply the same
7 potential in this differential orientation.

8 For Figure 2 and 3, which is the common mode feed --
9 fed inductors, that means you can realize these antennas the
10 same way that spiral printed antennas have been used since
11 1993, 1994 -- the other structures -- they have been used
12 since, like, 1994 in most of the -- in the graded circuits
13 since then.

14 And the idea is, you connect to one terminal to some
15 port of your IC. That would be the plus terminal. And you
16 connect the end of your cord or your antenna to the ground.
17 So, for example, for Figure 2 of Exhibit 1022, you connect
18 60 to the ground, which is a lower potential than the
19 potential of the IC. So current runs through that, and you
20 create a magnetic field.

21 So that's -- that's explanation on the plus and the
22 minus. Practically, that means you connect one port of this
23 antenna to the ground, which is a lower potential than the
24 IC. Or, there's an alternative way you can connect it to
25 the pin of the IC that's grounding. Two different ways of

1 doing it.

2 So implicitly, whenever you see schematics of PCB
3 boards, you never see the connection to the ground for the
4 60, but implicitly, everybody knows, whenever you have plain
5 inductors, you have to either ground the second board or you
6 have to connect it explicitly as in the differential
7 Figures 4 and 5 to another port of the IC, so.

8 Q. BY MR. MARANDO: Let me ask you a question, and
9 let me ask you if you agree or disagree with this statement.
10 If you -- the statement is, if you place NFC systems next to
11 water or detergent, there's no way to interrogate them, even
12 down to two centimeters or less.

13 Do you agree with that?

14 MR. FAHY: Objection. Form. Foundation.

15 THE WITNESS: Now, that's -- that's an interesting
16 question, actually, you are asking. And I addressed that
17 also in -- in my preliminary deposition in August, and the
18 answer I gave is, if you just get a typical NFC tag -- let's
19 start with NFC, and then we can generalize for HF RFID.

20 The range is determined by three main factors, as I
21 had said in August. One is the power level, and the power
22 level is controlled by the standards. So maximum magnetic
23 field is controlled by ISO 14443 -- that's 1, 2, and 3 -- or
24 15693. This one is fixed. You can't play with it. So if
25 you don't change anything in your IC, then I would say the

1 range goes down from 50, 30, 20, down to 10, 5, or possibly
2 2.

3 Now, the second factor that controls the range for the
4 NFCs or the RFID tags is the antenna. And the antenna
5 means -- or changing the shape of the antenna means we set
6 more magnetic lines.

7 And the third one has to do with the sensitivity of
8 the IC. So if you utilize more sensitive IC, which means an
9 IC that can detect lower amounts of power or magnetic lines,
10 then you may push this -- this range from two to maybe ten
11 centimeter, and that's what's happened with the really
12 expensive wines from France.

13 Now, there is also a fourth parameter I had stressed
14 in my deposition, which has to do with environment. And
15 typically, you isolate or you improve the range by adding a
16 layer of ferrite, and that's what I included also in my
17 reply declaration. And ferrite -- they are some very thin
18 films of iron oxide or ore of iron, and -- let me see if I
19 can find it -- that's in paragraph 39, where I talk about
20 ferrite shielding.

21 So the way to push from two centimeters again to ten
22 centimeters or more is, utilize this very thin film of
23 material, and in this way, you kill something we call the
24 eddy current. And eddy currents -- typically, they are
25 fundamental reasons we reduce the range near water or

1 liquids and so on.

2 So effectively, my answer is, if you don't change
3 anything in the NFC, then the range goes down, near to
4 matter of liquids. The range is obviously much better than
5 the RF, because everybody knows, the higher you go on
6 frequency, the more interference and the more attenuation
7 you have. But if you utilize high-sensitivity IC, different
8 shape of antenna, or an adhesive-backed ferrite tape, you
9 may push the range back to some very well readable -- maybe
10 ten centimeter or more.

11 Q. BY MR. MARANDO: So do you -- just to be clear, do
12 you disagree that if you place NFC systems next to water or
13 detergent, there's no way to interrogate them, even down to
14 two centimeters or less?

15 MR. FAHY: Objection. Form.

16 THE WITNESS: -- because I -- I was confused by your
17 question. Did you say --

18 Q. BY MR. MARANDO: Yeah --

19 A. -- with what?

20 Q. Do you agree -- I'll -- I'll ask a different
21 question. So this isn't exactly what I just -- are you able
22 to say whether, yes, no, you agree that if you place NFC
23 systems next to water or detergent, there's no way to
24 interrogate them, even down to two centimeters or less?

25 A. I --

1 MR. FAHY: Objection. Form.

2 THE WITNESS: -- disagree with this statement.

3 Q. BY MR. MARANDO: Okay.

4 A. And that's what I explained before. I disagree
5 with this statement.

6 Q. Okay.

7 A. If you don't change anything, if you don't add
8 ferrite tape or a high-sensitivity IC or a new antenna, and
9 you utilize NFCs low-cost -- with low-cost ICs and all this,
10 then your interrogation range goes low. I don't say you
11 can't interrogate, but you can't interrogate closer.

12 But everybody knows, whenever you utilize NFC and RFID
13 tags -- a person of ordinary skills -- you just add this
14 adhesive-backed ferrite tape or high-sensitivity ICs or a
15 different type of antenna, and you can push back the range
16 to about ten centimeter.

17 So that's my answer.

18 Q. Okay.

19 A. And that's given also in -- I believe in some of
20 the references. So in my reply declaration, I covered these
21 ways of pushing back this range in paragraphs 38 and 39. So
22 I give some example ways of pushing back the range to
23 reasonable interrogation range, even in the vicinity of
24 liquids or water.

25 Q. All right. Let's talk about paragraph 31.

1 A. 31. Okay.

2 Q. So in paragraph 31, you're discussing

3 Exhibit 1028; correct?

4 A. Yes.

5 And that's an example of a Texas Instruments tag in
6 2006.

7 Q. Your opinion is that Exhibit 1028 discloses a
8 small and flexible NFC antenna for HFRID -- sorry. Withdraw
9 that. Said it wrong.

10 Your opinion is that Exhibit 1028 discloses a small
11 and flexible NFC antenna for HF RFID purposes?

12 A. That is correct. Actually, this is a small and
13 flexible NFC antenna going to work for both NFC and HF RFID.
14 Same frequency, same standards. It's small. It's less than
15 four inch square. And that's a laminar plastic substrate
16 which is flexible. And the thickness is -- is tiny. I
17 would say it's a fraction of a millimeter.

18 Q. So in this paragraph, you're not discussing the
19 Bandy reference or the Bandy '344 reference; would you
20 agree?

21 MR. FAHY: Objection. Form.

22 THE WITNESS: This reference lists out of many a small
23 and flexible NFC antenna for HF RFID purposes, proving the
24 point that HF RFID and NFC antennas placed on goods could
25 take a small form factor if needed and could be flexible to

1 easily attach to goods.

2 So that's -- that's the whole point of this.
3 Flexibility and couplability to possibly reduce it to a
4 small form factor that could be attached on a label, on --
5 on anything that could suffer by space constraints, such as,
6 for example, the Bandy question you asked me about the 302B,
7 which would be the small stamp you may need to utilize for
8 your luggage.

9 Now, obviously, the easiest way and the cheapest way
10 to realize this type of NFC tags or HF RFID tags would be to
11 make it even larger, especially when attaching them to a --
12 to bulky items, one next to each other.

13 So, for example, if you are -- if you add a luggage
14 tag, and you have hundreds of luggages you want to sort out,
15 you might have chosen a larger antenna to have a better,
16 more elaborate interrogation range, similar to what's
17 happened in 302A.

18 I would -- I would think that this miniaturized tag
19 would be good to be utilized, for example, for 302B type of
20 antennas, which is a small stamp you utilize when you attach
21 bag to your ticket when you scan your entry to your
22 aircraft. And that's why that was kind of a stamp size.
23 You can apply the stamp to a small items. You can
24 imagine -- you can apply this to the stub of your ticket.
25 And we have been doing that since 2007, actually, in our

1 major airports.

2 But then, if you want to attach to some bulkier items,
3 like large boxes or luggages, similar to 302A, you would
4 care about performance, because the area of luggage tag
5 is -- is quite large. The only thing you care about the
6 luggage tag is flexibility, because you have to fold it and
7 attach it to each other. Wrap it around and then use some
8 adhesive and attach it.

9 So I would say the -- the miniaturized stamp type of
10 antenna we discussed before from TI would be useful for
11 302B, and a much larger antenna with size similar to the
12 size of a luggage tag would be utilized for 302A. And
13 actually, that's why Bandy, the '344 patent, says that this
14 approach can be utilized for RFIDs.

15 There is an example talking about MHz with, actually,
16 the '344 antenna, explicitly says this approach can be
17 utilized for all RFIDs. For HF RFIDs or VHF RFIDs. And in
18 my opinion, especially as a person of ordinary skills, in
19 looking at Figure 9, I would say it would be much better to
20 have HF RFID than UHF RFIDs for environments like airports.
21 Based on size, based on platform, all of this.

22 So I would say 302B is quite similar antenna to the
23 miniaturized TI antenna you asked me before.

24 Q. BY MR. MARANDO: So is your opinion that you could
25 substitute the tags disclosed in -- or -- I'm sorry -- the

1 tag disclosed in Exhibit 20 -- 1028 into one of the Bandy
2 references?

3 MR. FAHY: Objection. Form.

4 THE WITNESS: I thought it was --

5 MR. FAHY: -- foundation.

6 THE WITNESS: -- Exhibit 1032, wasn't it? You
7 asked --

8 Q. BY MR. MARANDO: So let me clarify. We're in
9 paragraph 31 --

10 A. That's Exhibit 1032. Yes.

11 Q. No, it is not. It is Exhibit 1028.

12 A. Yeah. 1028, at 4 -- yes. Okay. Yes.

13 Q. All right. So is your opinion based on
14 substituting the tag disclosed in Exhibit 1028 into the
15 Bandy -- or Bandy '344 references?

16 MR. FAHY: Objection. Foundation. Form.

17 THE WITNESS: I do not know the power levels, and
18 Figure 9 does not give lots of specifics. Just looking
19 high-level in Figure 9 and looking at the shape, I would say
20 what would substitute, and then, again, assuming that power
21 level and all of this -- and I say in all of these would
22 satisfy. That would be utilized for the antennas 302B or
23 302A.

24 Now, there's a caveat in this. 1030 -- 1028, as you
25 can see here, you see a spiral antenna with lots of turns.

1 Now, I would say that would be an overkill for -- for Bandy
2 or practical cases. So the generic straight would be
3 similar, but I would say you may -- you may have utilized a
4 much smaller number of turns based on the condition of
5 Bandy's patent.

6 Because, again, given the application -- now, 302B
7 antenna, we're talking about substituting with 1028 -- is
8 something you almost attach to the ticket reader when you
9 check in for your flight. So you are talking about a not
10 really large interrogation range. So I would say that's why
11 he needs only one turn here. One turn would be fine for
12 this type of near interrogation range application. You
13 almost touch the reader when you check in the flight.

14 Now, on the other side, if you would try to utilize
15 the 1028 to replace the 302A, pass can be shown, like, in
16 302A, you could utilize maybe two turns, similar to what's
17 happening for 302A. Again, you can see pretty much it's two
18 turns placed around here.

19 So generically, without knowing the specifics, you
20 could utilize an architecture similar to this one, most
21 likely with a much smaller antenna. Definitely same ICs,
22 same tag, same flexible laminar plastic substrate, but most
23 likely with very few turns, if not one turn.

24 But that's just a speculation, because I don't know --
25 there's no listing in 2013 about power levels, about voltage

1 provided by the IC, and so on. But in principle, you could
2 utilize any type of spiral printed antenna similar to this
3 one.

4 MR. MARANDO: All right. You want to take, like, a
5 ten-minute break?

6 THE WITNESS: Sure. Sure.

7 MR. MARANDO: Let's come back at -- let's come back at
8 12:15.

9 THE WITNESS: 12:15. That's fine.

10 MR. MARANDO: All right. Thank you.

11 (Recess taken from 8:58 a.m. to 9:15 a.m.)

12 Q. BY MR. MARANDO: All right. So in paragraph 3 of
13 your reply declaration, you identify the exhibits you
14 reviewed; is that right?

15 A. Yes.

16 Q. All right. Did you review copies of Exhibits 1013
17 through 1021 before you submitted your first declaration in
18 this IPR?

19 A. 1013 to 1031 -- I reviewed some copies of this;
20 yes.

21 Q. You reviewed copies of 1013 through 1021?

22 A. 1013 to 1021; yes.

23 Q. Okay. So you have Exhibit 1009 with you; right?

24 A. 1009 -- yes.

25 Q. So paragraph 13 of that exhibit, you only

1 identified Exhibits 1001 through 1007. You see that?

2 A. Yes. Yes, I do see that.

3 Q. So why did you not include Exhibits 1013
4 through 1021?

5 A. Because for my reply declaration, I thought
6 additional exhibits would provide much more complete and
7 even more clarified view addressing some of the topics
8 listed in the declaration of Dr. Surati. I don't think any
9 of these additional references change anything about my
10 opinion listed in 10,000. I just -- additional references.

11 And actually, even without these references, I would
12 have come to the same conclusion. They did not change
13 anything. It just added some more information to
14 corroborate my opinion expressed in my original declaration.
15 Talking about all these topics in my reply declaration
16 utilizing the additional exhibits changes nothing of my
17 original declaration. It just listed more reference
18 corroborating my opinion.

19 But none of them changes anything. Just want to
20 provide more technical information to the Board to -- to get
21 an even better idea why I'd come to specific conclusions in
22 my declaration.

23 Now, all of these are patents or publications or user
24 guides that pretty much repeat the same topics. Honestly, I
25 could have added more. For example, I could have added some

1 additional documents about all the NFC, HF RFIDs that were
2 addressed in these topics even more, like the 7970 I
3 referred to, which is not included in this list. Identifies
4 very clearly what's awakening of the NFC tags.

5 But I was advised that we cannot -- only a small
6 number of exhibits. I could have easily added another 20 or
7 30 exhibits, pretty much reiterating the same topics I have
8 listed. That was the only reason.

9 Q. So you were advised that you could only include a
10 small number of exhibits? Is that what you said?

11 A. Based on my experience for my declarations in IPR
12 cases. I know that it's much easier to handle a smaller
13 number of exhibits. I wasn't advised by anyone -- counsel.
14 Just based on my experience, that typically having, like,
15 only, like, 10, 15 additional exhibits is more than
16 enough -- 20. That's just based on my experience. But no
17 other reason for this.

18 Q. So to be clear, did you review Exhibits 1013
19 through 1021?

20 A. Yeah. Yeah.

21 Q. Before you submitted your first declaration?

22 A. No. No.

23 Q. You did not. Okay.

24 A. Before submitting my initial declaration, I
25 reviewed different opinion -- different ones. I would

1 say -- let me see -- oh, no, these are, like, the 10 ones.

2 No, no, I reviewed them. That's correct. So I reviewed all
3 the -- all the 10 -- I thought we were talking about the 20
4 ones. So --

5 Q. My question is about Exhibits 1013 through 1021,
6 to be clear.

7 A. Let -- let me -- let me see. Because I was
8 confused. I thought we were talking about the 2025, the
9 2000 one, and all this. Sorry -- sorry for that.

10 So let me see, because there are lots of exhibits
11 here. And I know I reviewed the 2000 ones. Let me -- let
12 me go back. Hold on. Hold on. Talking about, like, 100
13 exhibits here. Hold on.

14 Q. Well, Exhibits 1013 through 1021 aren't listed.

15 A. That's what I'm trying to figure out. So for
16 10 -- for my initial declaration, I listed the exhibits I
17 reviewed, and they were -- they were listed in my initial
18 declaration. They're 103, 107, now -- I have to recall,
19 because the thing is, it's -- it's quite some time since
20 August. So --

21 Q. Well, if you had reviewed them, you would have
22 cited them; right?

23 MR. FAHY: Objection. Form. Foundation. Relevance.

24 THE WITNESS: All I can say is, because I cannot
25 recall, all exhibits reviewed for every declaration are

1 listed in the declaration. I have to go back to my lists
2 and dates and everything, and -- and do that.

3 For example -- I cannot recall. I cannot give you an
4 answer. I mean, I -- pretty much, the exhibits I reviewed
5 for every declaration are listed specific declaration. So
6 the ones I reviewed for 109 are listed in the 101 -- 109
7 exhibits, and the ones I reviewed for my reply declaration,
8 I list them here as well, and also for my reply declaration,
9 I reviewed all the exhibits cited by SES-imagotag, of
10 course, by Dr. Surati, and I reviewed following -- and
11 corroborating references 1011, all the way up to 1031.

12 I cannot recall if I reviewed anything else for my
13 main declaration, but most likely. I reviewed the
14 documents, all the exhibits listed in my initial
15 declaration.

16 Q. BY MR. MARANDO: So you're saying you reviewed
17 everything up to Exhibit 1031 before you submitted your
18 original declaration?

19 A. What I said is I cannot recall, and I can rely
20 only on the declaration list of exhibits about the material
21 I reviewed. So that's -- that's all I can say. I mean, I
22 reviewed the patent. I reviewed the -- the history of the
23 patent. I reviewed the references, 103, 107, and -- I
24 cannot recall of other reference I reviewed. Pretty much,
25 my memory is just the references I reviewed.

1 I reviewed various supporting references and -- and
2 documentation for the preliminary declaration, but I have to
3 look line by line to identify additional. That's something
4 I have to go through the initial declaration and -- I
5 thought today we're talking about the reply declaration, so
6 for the initial declaration, I have to go back and check
7 additional references.

8 I will stick with the list of the reference listed and
9 their respective declaration. That's --

10 Q. Got it.

11 A. -- that's what I can say.

12 Q. Do you have a copy of Exhibit 1019?

13 A. 1019. Okay.

14 Q. Can you open that up, please?

15 A. Okay. Okay.

16 Q. Do you see on the first page that Exhibit 1019
17 says it was ex -- there's an execution on the 27th day of
18 November, 2024?

19 A. Yes.

20 Q. So you submitted your original declaration before
21 November 2024; right?

22 A. I believe so.

23 Q. So you didn't review Exhibit 1019 before you
24 submitted your original declaration --

25 A. I reviewed an unofficial translation of this. So

1 the only thing that was missing was the official
2 certification page. So -- yeah, I reviewed this, but it was
3 missing the official certification page.

4 So I was told that -- and then I -- I personally
5 confirmed that the unofficial translation I used for my
6 reply declaration and this one with this additional page
7 were identical.

8 So the -- the Japanese translation of this patent,
9 Exhibit 1019, was exactly identical, just missing the first
10 page, including the certification of translation. The rest
11 of the information was exactly the same.

12 Q. You were told that or you personally confirmed
13 that?

14 A. No, I personally confirmed it. So I -- I -- I saw
15 the text in English in the translated version, and then I
16 was sent the new version, which included only the additional
17 page. So everything identical except from the -- the first
18 page.

19 So the -- only the first page was missing. Nothing
20 was different concerning the technical terms or concerning
21 the -- the figures.

22 Q. Did you do a line-to-line comparison? Can you
23 describe your process for comparing them?

24 A. I checked the -- the text. I checked the -- the
25 figures. I checked the de -- detail description and the

1 disclosure of the invention and the claims, and the
2 unofficial translation I used and this one was, as I told
3 you, identical, except from the first page. That's -- I
4 mean, the first page, I cannot speak to.

5 So I don't know anything about the translation. The
6 only thing I know is, the unofficial translation and the
7 official translation with this page were the same. Nothing
8 changed technically. Nothing changed in terms of the
9 figures. Nothing changed in terms of paragraph enumeration.
10 Nothing changed of the references or the application or the
11 means for solving the problem.

12 Q. Was this unofficial translation -- where did you
13 get it?

14 A. I was provided this by the -- the counselors.

15 Q. Was it a machine translation?

16 A. I -- I cannot give you any information about this.
17 The only thing I can tell you was an unofficial translation
18 covering the -- the patent -- this Japanese patent.
19 Japanese patent 2007-155383A. That's all I can tell you.

20 Q. Do you still have a copy of that?

21 A. No, I don't. I just have the official exhibit.

22 Q. Okay. So for your original declaration, you're
23 saying you relied on a unofficial translation of this
24 patent. You don't have a copy of it anymore; is that right?

25 A. I don't have any copy of anything except from the

1 official exhibit, and I was told that the first page,
2 certification of translation, was a page that pretty much
3 certified that the attached documents are accurate
4 translation of the Japanese language.

5 So it made no difference. This patent that was
6 published in 2007 -- this one was true and correct, and I
7 relied my conclusions on -- on this one.

8 And if I go back, just -- just make sure...

9 And then, the other thing is, honestly, I don't think
10 I made any reference to 1018 or 1019 in my reply
11 declaration. I have to go back to -- to look at it. Let me
12 see if I made any reference from the -- from this one.

13 Q. Yeah, I --

14 A. Hold on. Let me see.

15 Q. Go ahead.

16 A. I'm trying to see if I made any reference to this
17 one. So I'm trying to figure out if it made any difference.
18 Checking the Exhibit 1032, 1018 -- I cannot see any
19 reference. I reviewed this document, but I don't think I
20 made any reference to 1018 or 9 -- or 1019. I don't think I
21 made any reference in my reply declaration to 1018, 1019.

22 I reviewed this document. I reviewed the official
23 translation. But I cannot see any specific reference to
24 this patent. Unless my -- my program is not working well, I
25 have no reference. So, in a sense, reviewing the unofficial

1 translation or the official translation did not make any
2 difference for my reply declaration.

3 Q. So you said you don't have a copy of the
4 unofficial translation that you reviewed; right?

5 A. I don't have a --

6 MR. FAHY: Objection. Form.

7 THE WITNESS: I don't -- I don't have any copy.

8 Q. BY MR. MARANDO: When did you do the comparison of
9 the unofficial translation --

10 A. I --

11 Q. -- of Exhibit 1019?

12 A. Whenever this official translation was published.
13 So sometime after November 27. I cannot know the -- the
14 exact date.

15 Q. So sometime after November 27th --

16 A. After November 27 --

17 Q. You just -- you deleted the unofficial
18 translation?

19 MR. FAHY: Objection. Foundation --

20 THE WITNESS: I don't have any of these files, so the
21 only files I have are exhibits.

22 THE REPORTER: Was the second objection to form?

23 MR. FAHY: Yes.

24 THE REPORTER: Thank you.

25 THE WITNESS: I don't have any -- I don't have any

1 recollection of the exact date.

2 Q. BY MR. MARANDO: So just logically, if you did a
3 comparison after November 27th, 2024, you would have had a
4 copy of the unofficial translation; right --

5 A. I --

6 MR. FAHY: Objection. Relevance. Foundation. Form.

7 THE WITNESS: The only files I have today are the
8 official exhibits. This exhibit was missing just the front
9 page. When I reviewed this, I have no reference to this in
10 my reply declaration, so it's -- there's no -- no
11 difference, but just for the record, I compared the
12 unofficial translation and the official translation after it
13 came out. And it was identical, except from the first page.

14 Still, I make no reference of this in my reply
15 declaration. In other words, just some piece of art I
16 reviewed before putting together my reply declaration.

17 Q. BY MR. MARANDO: So I -- I -- just to be clear,
18 when you did this comparison of the unofficial translation
19 and the official translation of Exhibit 1019, did you at
20 that point have a copy of the unofficial translation or not?

21 A. Again, when I was sent the official translation, I
22 saw that the only additional information was the first page,
23 and there was no difference. Now, the only thing I can tell
24 you is, I disposed all documents except from the official
25 exhibits of the case. 1019 was some reference that I

1 reviewed, did not include, did not refer to in my reply
2 declaration. That was one of many I did not include in my
3 reply declaration, and that's all I can say.

4 Q. Have you ever had a copy of the unofficial
5 translation?

6 A. Excuse me?

7 Q. Have you ever been in possession of a copy of the
8 unofficial translation?

9 A. I had access to the unofficial translation when I
10 was reviewing prior art for my reply declaration.

11 Q. So the first time you had access to the unofficial
12 translation was when you reviewing prior art for the reply
13 declaration?

14 MR. FAHY: Objection. Foundation. Form.

15 THE WITNESS: -- as I told you, that's something I
16 cannot recall to what -- what I can say is I had access to
17 the unofficial translation when I reviewed art for my
18 declaration. Sometime before. I cannot recall the exact
19 date. There have been lots of documents and lots of time.

20 So I've been involved in this, like, more than a year.
21 So I cannot give answers time-wise. The only thing I can
22 recall is what's given in the declaration.

23 I may have reviewed this document earlier than that
24 during my career. That's something I cannot recall. The
25 only thing I can confirm is what's given in my declaration.

1 Q. BY MR. MARANDO: Do you have a recollection of
2 deleting the unofficial translation?

3 MR. FAHY: Objection. Foundation. Form.

4 THE WITNESS: No recollection at all. Like, I can --
5 I don't have any recollection. As I told you, I have
6 recollection of what's in my declaration. I -- I'm
7 reviewing art and references about RFIDs and NFCs for my
8 whole career, so I cannot give you specific dates, specific
9 details.

10 The only thing I can tell you is, the only difference
11 between 1019 and the unofficial translation I used when I
12 reviewed this art was this extra page, and it does not
13 change anything concerning the technical parts forming my
14 opinion. In addition to this, there's no reference to this
15 prior art in my reply declaration.

16 Q. BY MR. MARANDO: All right. So did you draft your
17 reply declaration, Exhibit 1032, yourself?

18 A. Oh, I collaborated with the counselors about the
19 reply declaration. Technical opinions are mine, and the
20 counselors put some comments concerning the format or some
21 legal terms. So technical opinions are exclusively mine,
22 and counselors gave some kind of aesthetic and legal
23 information to be added to this, so.

24 Q. Were there any paragraphs you can point to that
25 you drafted versus that your counsel drafted?

1 A. Oh --

2 MR. FAHY: Objection. Relevance.

3 THE WITNESS: I cannot recall. As I told you, that
4 was -- these were my technical opinions, and formatting --
5 mainly formatting issues and some legal terms were the
6 contribution from the counselors. I cannot point to
7 specifics, because you end up with some integrated draft.
8 But high-level, that was the process of putting together
9 the -- the reply declaration.

10 Q. BY MR. MARANDO: During any of our breaks today,
11 did you speak with anyone about your testimony?

12 A. Only myself. Only myself, and also, central
13 heating is off, so I'm pretty much cold. That's why I'm
14 wearing my coat.

15 MR. MARANDO: Understood. All right. Well, I don't
16 have any further questions, so I'll pass the witness. Thank
17 you very much.

18 THE WITNESS: Thank you very much.

19 EXAMINATION BY MR. FAHY

20 Q. And I have just a couple questions for you,
21 Dr. Tentzeris.

22 You were just discussing with Counsel Exhibit 1019,
23 which is listed in the materials or the exhibit numbers on
24 page 3 of your reply declaration.

25 A. Yes.

1 Q. And you see Exhibit 1019 references a certified
2 translation of a Japan patent application publication?

3 A. That is correct.

4 Q. What is the number of the Japan patent application
5 publication?

6 A. 2007-155383A --

7 Q. And -- and what is Exhibit 1018?

8 A. 108 -- that's 1018, the Japan patent application
9 publication 2007-155383A. That's --

10 Q. So does that refresh your recollection as to
11 whether Exhibit 1018 is the unofficial translation of
12 Exhibit 1019?

13 A. So --

14 MR. MARANDO: Object to form.

15 THE WITNESS: Can you say that again?

16 Q. BY MR. FAHY: What's the difference between 1018
17 and 1019?

18 A. The difference between 1018 and 1019 is -- 18 --
19 the 1018 I have is the -- includes the same figures and some
20 text in Japanese, and 1019 has exactly the same figures
21 utilizing mostly Latin characters, talking about the
22 technical characteristics of this patent and the features of
23 this patent. So I would say it has -- they have the same
24 figures. The only difference is 1018 is text in Japanese
25 and 1019 is text in English. But the figures are the same.

1 Q. You testified earlier about Exhibits 1013 to 1021;
2 is that right?

3 A. Yes.

4 Q. And you do not recall whether you reviewed them
5 before your original declaration?

6 A. As I said, I cannot recall. It is quite possible.
7 I have reviewed them, but what I said is, it's been quite
8 some time when I put together my original declaration.
9 You're talking about almost a year ago --

10 Q. Well --

11 A. -- so it is quite possible that I reviewed them
12 before my original declaration. Things I cannot recall,
13 because it's been very long time -- that's what I said.
14 So --

15 Q. When you --

16 A. -- relied on the list of exhibits on every
17 declaration. It's -- it's quite possible that I reviewed
18 them before the original declaration. I just cannot recall,
19 because that's a year.

20 Q. Would you ever cite to a document in a declaration
21 that you have signed if you did not review it?

22 A. No.

23 MR. MARANDO: Objection. Form.

24 THE WITNESS: Anything -- anything I cite in the
25 declaration is based on art I have reviewed in the files.

1 Q. BY MR. FAHY: I have --

2 A. -- so -- and that's why I said it's quite possible
3 I reviewed it before my original declaration. I just cannot
4 recall, because there are about 100 exhibits in these files,
5 and I don't know whether if I don't -- excuse me -- only 10
6 of them.

7 So my answer for the record is, it is quite possible I
8 reviewed them before my initial declaration. I just cannot
9 recall, due to the time between my art review providing the
10 current declaration and now, which is more than a year.
11 That's all I can say.

12 MR. FAHY: I have no more questions.

13 EXAMINATION BY MR. MARANDO

14 Q. So in your last question, you just referred to 100
15 exhibits. About 100 exhibits in these files, and then you
16 said something about only 10 of them -- can you clarify what
17 you were referring to?

18 A. No, you -- you asked me about the list of 10. I
19 remember it was, like, 1013 to 1019 or something like that.
20 And what I have seen is -- the total number of exhibits is
21 more than -- than 60 for this case. So that is what I said,
22 that I cannot recall when I reviewed each one of these
23 exhibits. That -- that was the only reason I referred to
24 the list in my declarations.

25 It's quite likely I have reviewed lots of this art

1 before my original declaration, but I cannot recall, because
2 that was mostly 2023, and I review literally hundreds of art
3 every year, so I rely on what's given in the declaration.
4 It's quite likely I have reviewed some of this art before
5 the original declaration.

6 MR. MARANDO: All right. No further questions.

7 MR. FAHY: Nothing further.

8 THE REPORTER: Could I get everyone's transcript
9 orders on the record, please?

10 MR. MARANDO: Three days.

11 THE REPORTER: Okay.

12 MR. FAHY: That's fine for us as well.

13 THE REPORTER: Okey doke.

14 MR. MARANDO: All right. Let's go off the record.

15 (The proceedings concluded at 9:47 a.m.)

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C E R T I F I C A T E O F R E P O R T E R

I, EMMA HARRIS, RPR, CRR, CSR NO. 14387, Certified
Shorthand Reporter, certify:

That the foregoing proceedings were taken before me at
the time and place set forth, at which time the witness was
put under oath by me;

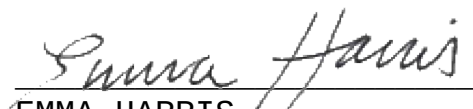
That the testimony of the witness, the questions
propounded, and all objections and statements made at the
time of the examination were recorded stenographically by me
and were thereafter transcribed;

That the foregoing is a true and correct transcript of
my shorthand notes so taken.

I further certify that I am not a relative or employee
of any attorney of the parties, nor in any way interested in
the outcome of the action.

I declare under penalty of perjury under the laws of
California that the foregoing is true and correct.

IN WITNESS WHEREOF, I have hereunto set my hand this
9th day of JANUARY 2025.


EMMA HARRIS
RPR, CRR, CSR NO. 14387

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DECLARATION UNDER PENALTY OF PERJURY

---000---

I, the undersigned, declare under penalty of perjury that I have read the foregoing transcript, and I have made any corrections, additions or deletions that I was desirous of making; and that the foregoing is a true and correct transcript of my testimony contained therein.

EXECUTED this ____ day of _____, 2025.

EMMANOUIL TENTZERIS

Focus Litigation Solutions
400 Capitol Mall, Suite 1450
Sacramento, CA 95814
Telephone (916) 228-4593
Production@FocusLitigationSolutions.com

January 10, 2025

Emmanouil Tentzeris
mtentzeris@gmail.com

Re: Hanshow America Inc. and Hanshow
Technology Co., LTD., v. SES-Imagotag SA
Date of Deposition: January 7, 2025

The transcript of your deposition taken in the above-entitled matter has been transcribed. The original transcript will be held for 30 days from the date of this letter before it is sealed and forwarded to the noticing attorney.

You have the right to review, sign and make corrections to your transcript within the 30-day period. Please call the above number, or e-mail to make an appointment for your review. It is our policy not to release the original transcript and complimentary copies are not provided.

If you are represented by an attorney, we advise that you contact your attorney to discuss this matter. If you are an independent witness and have questions, please contact the attorney who requested you to testify or this office for further instructions.

If you wish to waive signature, please sign and date below and return this letter to the above address. In the event you have not read, corrected, and signed your deposition within (30) days of receipt of this letter, it may be used with the full force and effect as though it had been read, corrected, and signed.

Cc: All counsel

DATE

Emmanouil Tentzeris

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9th (1)

< A >

a.m (6)

able (1)

Academy (1)

access (3)

accurate (1)

achievements (1)

action (9)

activate (7)

activated (3)

activated/activating
(1)

activates (2)

activation (2)

active (13)

actively (2)

activities (4)

add (9)

added (9)

adding (8)

addition (3)

additional (23)

add-ons (1)

address (1)

addressed (3)

addressing (1)

adds (3)

adhesive (1)

adhesive-backed (2)

advice (1)

advised (5)

aesthetic (1)

ago (1)

agree (15)

agreeing (1)

agrees (8)

ahead (4)

aircraft (1)

airports (2)

alternative (1)

AMERICA (2)

amount (15)

amounts (1)	attenuation (1)	centimeter (3)	collaborated (1)
analysis (3)	Attorney (5)	centimeters (5)	Colorado (1)
analyze (1)	August (6)	central (3)	column (17)
answer (39)	awakening (1)	certification (4)	come (9)
answered (2)	Award (5)	Certified (5)	commencing (1)
answering (2)	awards (4)	certify (2)	comments (1)
answers (3)	aware (1)	chair (1)	Commission (1)
antenna (39)		challenging (1)	Committee (2)
antennas (14)	< B >	Chamber (1)	common (3)
anybody (3)	bachelor's (1)	chance (5)	communication (9)
anymore (1)	back (17)	change (6)	communications (1)
apart (1)	background (1)	changed (4)	community (3)
apologize (1)	bag (1)	changes (2)	company (2)
APPEAL (1)	Bandy (14)	changing (1)	compared (1)
appear (2)	Bandy's (1)	characteristic (1)	comparing (1)
appeared (1)	based (17)	characteristics (15)	comparison (4)
Application (10)	believe (8)	characters (1)	compatible (3)
applications (12)	belong (1)	cheapest (1)	complementary (1)
application-specific (3)	best (10)	check (8)	complete (2)
apply (4)	better (4)	checked (3)	Completely (2)
Appreciate (1)	bit (1)	checking (2)	compose (1)
approach (2)	BOARD (4)	Chicago (2)	comprises (1)
appropriate (1)	boards (1)	chip (2)	conceive (2)
Arch (2)	Board's (7)	chipless (1)	conceived (3)
architecture (1)	boss (1)	chose (1)	concerning (4)
architectures (1)	bottom (1)	chosen (2)	concluded (1)
area (10)	boxes (1)	CHRIS (1)	concludes (1)
areas (1)	break (8)	CHRISTOPHER (2)	conclusion (4)
art (14)	breaks (2)	Christopher@archlake	conclusions (3)
articles (1)	broke (2)	law.com (1)	condition (1)
asked (16)	building (1)	circuit (4)	conference (9)
asking (15)	bulkier (1)	circuitry (1)	conferences (1)
assess (1)	bulky (1)	circuits (1)	configurations (1)
Associate (1)	bullet (1)	cite (10)	confirm (3)
associated (9)	bullets (2)	cited (5)	confirmed (3)
associates (1)		claim (4)	confused (2)
associating (2)	< C >	claims (2)	connect (7)
Association (1)	California (3)	clarified (1)	connected (10)
associations (1)	call (3)	clarify (4)	connection (2)
assort (1)	called (2)	class (4)	consider (3)
assortment (20)	calling (1)	clean (1)	considerable (1)
assume (1)	call-up (2)	clear (11)	considered (3)
assuming (1)	care (2)	clearly (9)	considering (1)
Atlanta (1)	career (3)	closer (1)	constitute (1)
attach (6)	carrier (2)	cmarando@perkinscoi	constitutes (3)
attached (2)	Case (10)	e.com (1)	constraints (1)
attaching (1)	cases (2)	coat (1)	construction (2)
attention (1)	caution (1)	Coie (1)	consultation (1)
	caveat (1)	cold (1)	consumption (2)

context (4)	declaration (116)	disclosures (1)	employee (1)
continuation (2)	declarations (6)	discuss (6)	encompassing (1)
contribution (1)	declare (1)	discussed (7)	ends (1)
controlled (2)	dedicated (8)	discusses (1)	energy (1)
controls (1)	def (1)	discussing (3)	engage (1)
copies (3)	defined (3)	discussion (4)	engineer (1)
copy (11)	defines (18)	display (12)	English (2)
cord (1)	definitely (2)	disposed (1)	entry (1)
correct (35)	definition (18)	distinguished (2)	enumeration (1)
correlating (1)	definitions (1)	Doctor (2)	environment (2)
corresponding (10)	deleted (1)	document (8)	environments (4)
corridor (3)	deleting (1)	documentation (1)	envisages (1)
corroborate (2)	demand (1)	documents (7)	equally (1)
corroborated (3)	demographic (1)	doing (3)	especially (3)
corroborates (5)	Denver (1)	doke (1)	essential (37)
corroborating (3)	department (2)	domain (1)	essentials (1)
Counsel (6)	depicts (1)	Dr (9)	established (2)
counselors (6)	deponent (1)	draft (2)	European (1)
couplability (1)	deposed (3)	drafted (2)	everybody (4)
couple (1)	Deposition (10)	draw (1)	everyone's (1)
course (2)	depositions (4)	due (1)	Everything's (1)
court (1)	describe (2)	duly (1)	ex (1)
cover (3)	described (2)		exact (3)
covered (5)	describes (1)	< E >	exactly (10)
covering (3)	describing (1)	earlier (2)	Examination (5)
covers (3)	description (1)	easier (1)	examined (1)
create (1)	detail (1)	easiest (1)	example (17)
C-RFID (1)	details (4)	easily (2)	exclude (1)
CRR (3)	detect (1)	eddy (2)	exclusively (1)
CSR (3)	detergent (3)	effectively (1)	Excuse (5)
current (5)	determine (1)	effort (1)	execution (1)
currents (1)	determined (1)	Egan (55)	exemplary (3)
custom (12)	Determines (4)	E-G-A-N (1)	Exhibit (48)
customization (1)	determining (3)	Egan's (10)	exhibits (37)
customize (1)	device (5)	either (2)	exist (2)
cut (2)	devices (1)	elaborate (1)	expensive (1)
CV (4)	devoted (10)	electrical (1)	experience (25)
	DI (1)	electromagnetic (1)	expert (3)
< D >	difference (10)	electromagnetically (1)	expertise (2)
data (4)	different (20)	Electromagnetics (1)	expert's (1)
database (1)	differential (3)	electronic (9)	explain (1)
date (3)	difficult (1)	Email (3)	explained (1)
dates (2)	digital (2)	embedding (1)	explains (1)
day (4)	dimensions (2)	embodiment (2)	explanation (1)
days (1)	disagree (5)	EMMA (5)	explicitly (5)
de (2)	disclose (3)	EMMANOUIL (4)	explore (1)
dealing (2)	disclosed (4)	E-M-M-A-N-O-U-I-L (1)	express (2)
Decision (6)	discloses (16)		expressed (9)
decisions (1)	disclosure (5)		expresses (2)

expressing (1)	foregoing (3)	great (1)	ignored (1)
extensive (4)	form (71)	Greece (1)	Illinois (2)
extra (4)	format (1)	ground (9)	imagine (1)
extract (1)	formatting (2)	grounding (1)	implement (7)
< F >	formed (2)	groups (1)	implementation (2)
facilities (1)	forming (2)	guess (1)	implicitly (2)
facility (5)	forth (2)	guides (1)	important (3)
facility's (2)	Foundation (13)	< H >	improve (1)
Facsimile (3)	founders (1)	half (1)	inch (1)
fact (2)	four (2)	hand (2)	include (10)
factor (3)	fourth (1)	handle (1)	included (14)
factors (1)	fraction (1)	HANSHOW (4)	includes (4)
FAHY (81)	frame (2)	happened (2)	including (3)
fair (1)	France (2)	happening (1)	incomplete (1)
familiar (2)	frequency (4)	hard (1)	indicate (1)
family (1)	front (1)	HARRIS (5)	indicates (14)
feature (14)	frozen (1)	hear (5)	individual (3)
features (48)	fruit (1)	heard (3)	induce (1)
fed (4)	full (2)	heating (1)	inductor (2)
feed (1)	fully (2)	help (1)	inductors (3)
feedback (1)	function (4)	helps (1)	industry (2)
feel (1)	functionalities (1)	hereinafter (1)	information (9)
feet (5)	functions (2)	hereunto (1)	inherently (1)
fellow (2)	fundamental (15)	HF (12)	initial (7)
ferrite (6)	fundamentals (1)	HFRID (1)	initiate (1)
field (3)	further (6)	high (1)	initiating (1)
figure (15)	< G >	higher (2)	initiation (1)
Figures (11)	gas (1)	high-level (2)	inkjet-printed (2)
filed (1)	general (7)	high-sensitivity (3)	input (1)
files (6)	generalize (1)	history (2)	Institute (3)
film (1)	generic (3)	Hold (4)	institution (2)
films (1)	generically (1)	Honestly (2)	instruction (1)
find (5)	Georgia (2)	hour (2)	instructs (1)
fine (4)	getting (3)	HP (1)	Instruments (5)
finish (5)	give (23)	hundreds (2)	integrated (5)
first (31)	given (13)	< I >	integrating (1)
five (1)	gives (3)	IC (19)	intends (1)
fixed (1)	giving (4)	ICs (9)	interacting (1)
Flexibility (2)	Go (27)	idea (3)	interested (1)
flexible (7)	God (1)	identical (8)	interesting (2)
flight (2)	goes (4)	identification (2)	interference (1)
floor (5)	going (20)	identified (1)	international (2)
focus (3)	golden (1)	identifier (6)	interp (1)
focusing (1)	Good (9)	Identifies (1)	interpretation (21)
fold (1)	goods (2)	identify (4)	interpreted (1)
folded (1)	graded (1)	identifying (1)	interrogate (5)
following (1)	graphic (3)	IEEE (8)	interrogated (1)
food (1)	graphics (1)		interrogation (8)
			interrupt (1)

invalidity (2)	lawyer (1)	M-A-N-O-S (1)	NFCs (8)
invention (2)	layer (1)	MARANDO (94)	nonessential (3)
inventories (2)	lead (1)	marked (4)	nonresponsive (7)
inventory (2)	lease (1)	marking (1)	Nope (1)
invited (2)	lecturer (1)	markings (2)	notes (1)
involved (1)	lectures (1)	master's (2)	November (6)
IPR (3)	leeway (1)	material (2)	Number (8)
IPR2024-00189 (1)	left (1)	materials (1)	numbers (2)
IPRs (1)	legal (9)	matter (3)	numerous (3)
iron (2)	level (3)	maximize (2)	< O >
ISO (3)	levels (2)	maximum (1)	o0o (3)
isolate (1)	limitation (1)	mean (12)	oath (1)
issues (1)	line (68)	meaning (19)	object (2)
item (1)	linear (5)	means (12)	Objection (72)
items (25)	lines (46)	measured (7)	objections (1)
its (7)	line-to-line (1)	member (3)	obviously (2)
< J >	liquids (3)	memory (1)	offered (4)
JANUARY (3)	list (24)	mentioned (2)	OFFICE (1)
Japan (3)	listed (42)	merely (4)	official (13)
Japanese (6)	listing (6)	MHz (1)	Oh (5)
judge (2)	lists (24)	Microwave (1)	Okay (55)
June (1)	literally (1)	millimeter (1)	Okey (1)
justify (1)	little (1)	mine (3)	once (1)
justifying (4)	LLP (3)	miniaturized (3)	ones (8)
< K >	localization (2)	minus (3)	oOo (2)
keep (3)	location (16)	missing (5)	open (8)
keeps (1)	locations (26)	mobile (6)	opened (1)
kept (1)	logically (1)	mode (3)	operating (2)
kill (1)	logistics (1)	monitoring (1)	opinion (73)
kind (2)	long (3)	month (1)	opinions (8)
know (20)	look (14)	morning (1)	order (1)
knowing (1)	looked (1)	MOULDER (1)	orders (1)
known (3)	looking (4)	Move (13)	ordinary (44)
knows (5)	loop (7)	MTT-15 (1)	ore (1)
< L >	lots (7)	multiple (1)	organization (1)
label (9)	loud (2)	< N >	organizing (1)
labels (25)	low (2)	name (7)	orientation (1)
Lake (2)	low-cost (2)	narrow (1)	original (14)
laminar (2)	lower (3)	near (3)	outcome (1)
language (3)	luggage (5)	necessarily (1)	overkill (1)
large (4)	luggages (2)	necessary (3)	Owner (2)
larger (3)	< M >	need (9)	oxide (1)
LaSalle (2)	machine (1)	needed (1)	< P >
Latin (1)	magnetic (5)	needs (3)	Page (23)
Law (4)	main (5)	negative (2)	pair (1)
laws (1)	major (10)	never (1)	Paper (22)
	making (2)	new (2)	papers (10)
	Manos (1)	NFC (35)	

paragraph (51) paragraphs (7) parameter (1) parse (1) part (4) participated (1) participating (1) participation (6) parties (1) parts (5) pass (2) passive (4) PATENT (53) patents (7) pay (1) PCB (1) penalty (1) pending (6) people (3) performance (1) performing (1) peripheral (2) peripherals (2) perjury (1) Perkins (1) person (30) personal (2) personally (4) Petitioner (2) piece (2) pin (1) place (5) placed (2) placement (20) plain (16) plan (3) planogram (153) planogram-related (1) planograms (39) planogram-type (1) plans (13) plastic (2) platform (1) play (1) Please (23) plenary (3) plus (4) plywood (2) point (18)	port (6) portion (2) ports (1) positive (2) possession (1) possible (5) possibly (2) potential (18) potentially (2) potentials (1) power (9) powered (1) practical (2) Practically (1) practice (1) preferences (1) preferred (2) preliminary (2) prequel (1) Pretty (15) previous (2) previously (3) principle (2) printed (3) prior (3) probably (1) problem (1) proceedings (2) process (2) product (50) products (12) program (1) properties (1) proposition (2) propositions (4) propounded (1) provide (3) provided (2) provides (1) providing (2) proving (1) publication (3) publications (1) published (3) pull (3) purpose (3) purposes (2) push (4) pushing (2)	put (13) puts (1) putting (4) < Q > Qualcomm (1) question (54) questions (14) quick (1) quietly (1) quite (13) < R > radio-frequency (4) raise (1) range (17) read (31) readable (1) reader (2) reading (17) ready (3) real (1) reality (1) realize (3) realized (1) really (3) reason (6) reasonable (1) reasons (1) recall (20) receipt (1) received (1) receiving (1) Recess (2) recognition (1) recollection (6) record (10) recorded (1) reduce (2) refer (3) reference (28) references (15) referencing (1) referred (7) referring (1) refresh (1) regular (1) reiterating (1) related (1)	relationship (1) relative (1) relatively (2) Relevance (12) relevant (4) relied (5) rely (4) remember (2) REMEMBERED (1) remote (1) repeat (9) repeating (2) rephrasing (1) replace (1) reply (50) Reported (1) Reporter (16) reports (1) represent (2) representation (1) representative (1) respect (2) respectfully (2) respective (1) response (8) rest (9) resulting (1) retail (3) retailers (2) reveal (1) review (15) reviewed (49) reviewing (6) RF (2) RFID (42) RFID-based (1) RFIDs (20) RFID-TA (5) right (92) room (1) round (3) RPR (3) rugged (1) rule (1) run (1) runs (2) < S > SA (2)
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sale (20)	size (4)	Street (3)	ten (5)
sales (15)	skill (2)	stress (2)	ten-minute (1)
satisfy (1)	skills (29)	stressed (1)	TENTZERIS (6)
saw (2)	slew (1)	stresses (2)	T-E-N-T-Z-E-R-I-S
saying (6)	slow (2)	stressing (3)	(1)
says (9)	small (12)	strike (7)	term (65)
scan (1)	smaller (3)	structures (3)	terminal (10)
scatter (1)	smart (7)	stub (1)	terminals (3)
schematic (10)	solemnly (1)	Student (6)	terminology (1)
schematics (3)	solving (1)	study (2)	terms (13)
second (11)	somebody (2)	submitted (5)	testified (3)
section (2)	sorry (8)	submitting (1)	testify (2)
see (34)	sort (1)	substance (1)	testimony (3)
seen (1)	sound (4)	substitute (2)	Texas (5)
sells (1)	source (1)	substituting (2)	text (5)
send (1)	sources (1)	substrate (2)	Thank (10)
sense (2)	space (29)	successful (1)	thereof (1)
sensing (2)	speak (3)	suffer (1)	thickness (1)
sensitive (1)	special (1)	suggestions (1)	thin (2)
sensitivity (1)	specialized (1)	Suite (1)	thing (14)
sensor (1)	specific (13)	supporting (1)	things (5)
sensors (1)	specifically (8)	supports (1)	think (13)
sent (2)	specifics (3)	Surati (3)	third (2)
sentence (19)	speculation (1)	Surati's (5)	thought (6)
sentences (1)	spending (1)	Sure (13)	three (3)
serve (1)	spent (1)	swear (1)	TI (2)
server (2)	spiral (5)	switch (1)	ticket (4)
SES-IMAGOTAG (3)	spirit (1)	sworn (1)	till (1)
sessions (1)	split (1)	systems (3)	time (22)
set (5)	square (1)	< T >	times (1)
sets (1)	stamp (5)	tag (27)	time-wise (1)
shape (3)	standard (6)	tags (12)	tiny (1)
sheet (2)	standards (6)	take (11)	today (6)
shelf (13)	staple (1)	taken (5)	told (10)
shelves (3)	start (8)	talk (7)	tone (1)
shielding (1)	started (2)	talking (24)	top (3)
short (1)	starting (1)	talks (6)	topics (8)
Shorthand (4)	starts (4)	tape (3)	total (1)
shown (3)	State (3)	target (2)	touch (1)
shows (1)	stated (1)	teaching (1)	track (1)
side (1)	statement (5)	Tech (1)	TRADEMARK (1)
signal (7)	statements (1)	technical (25)	transcribed (1)
signals (1)	STATES (1)	technically (2)	transcript (2)
signed (1)	stays (1)	technologies (3)	translated (1)
significant (1)	stenographically (1)	TECHNOLOGY (3)	translation (37)
similar (11)	stick (1)	Telephone (3)	transmitted (1)
sir (8)	store (3)	tell (7)	TRF7970 (2)
six (1)	stores (1)	temperature (1)	TRIAL (3)
Sixteenth (1)	straight (1)		trucking (1)

true (3)
truth (6)
try (3)
trying (5)
TUESDAY (2)
turn (7)
turns (5)
twins (2)
two (40)
two-terminal (1)
type (13)
types (2)
typical (2)
typically (7)

< U >
UHF (1)
unclear (2)
underlying (1)
understand (9)
understanding (6)
understood (3)
unfreeze (1)
UNITED (1)
universities (1)
unofficial (23)
unrelated (3)
use (6)
useful (2)
user (1)
uses (8)
utilize (12)
utilized (14)
utilizing (5)

< V >
variability (1)
variety (14)
various (1)
vegetables (1)
verbal (1)
version (2)
versions (1)
versus (1)
VHF (1)
vicinity (1)
video (1)
videoconference (1)
view (4)

voltage (1)
vs (1)

< W >
wait (1)
wake-up (3)
Walgreens (2)
want (17)
wanted (2)
water (5)
wave (1)
way (24)
ways (5)
wearing (1)
well (22)
well-known (1)
we're (6)
WHEREOF (1)
wide (14)
wines (1)
withdraw (10)
Witness (86)
won (2)
word (2)
words (3)
work (1)
working (1)
works (3)
world (3)
world-leading (1)
Wrap (1)
wrapped (1)
write (1)
written (3)
wrong (1)
wrote (2)

< Y >
Yeah (13)
year (6)
years (5)
Yep (3)
YU (1)
yudi@archlakelaw.co
m (1)