

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4 Axon Enterprise, Inc. And Dedrone Holdings, Inc.
5 Petitioners

6 v.

7 Airspace Defense, Inc.,
8 Patent Owner,
9

10 Case IPR2025-00525

11 U.S. Patent No. 10,713,959
12

13
14 REMOTE DEPOSITION OF
15 NIKOLAOS PAPANIKOLOPOULOS, PH.D.

16 JULY 7, 2026

17 10:15 A.M. CST
18
19
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21 JOB NO.: 640750

22 REPORTED BY: LINDA RUSSELL

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Remote Oral Deposition of NIKOLAOS
PAPANIKOLOPOULOS, PH.D., produced as a witness at
the instance of the Petitioners, and duly sworn,
was taken in the above-styled and numbered cause
on July 7, 2026, from 10:15 a.m. to 11:43 a.m.,
before Linda Russell, CSR in and for the State of
Texas, recorded by machine shorthand, held via
Zoom Videoconference.

A P P E A R A N C E S

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I N D E X

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EXHIBITS MARKED

No.	Description	Page
Exhibit 1032	14 CFR 91.119	28
Exhibit 2035	FAA: Airspace 101 - Rules of the Sky	34

(Exhibit 1032 was retained by counsel for the Petitioners. Exhibit 2035 is attached to the original transcript.)

(REPORTER'S NOTE: All quotations from exhibits are reflected in the manner in which they were read into the record and do not necessarily denote an exact quote from the document.)

1 P-R-O-C-E-E-D-I-N-G-S

2 THE COURT REPORTER: My name is Linda
3 Russell, court reporter representing Planet Depos.
4 Today's date is July 7, 2026. The time on the
5 record is 10:15 a.m.

6 Will counsel please introduce themselves
7 and state who they represent, and then I will
8 swear in the witness.

9 MR. WALTERS: For Petitioners, this is
10 Chad Walters of Baker Botts. And with me in the
11 deposition meeting is my colleague Ellyar
12 Barazesh.

13 MS. L'ESPERANCE: For the Patent Owner,
14 this is Amanda L'Esperance. And with me is my
15 colleague Suhrid Wadekar of Prince Lobel.

16 NIKOLAOS PAPANIKOLOPOULOS,
17 having been first duly sworn, testified as
18 follows:

19 EXAMINATION

20 BY MR. WALTERS:

21 Q Hello, Dr. Nikos.

22 A Hello again.

1 Q Can you state your name for the record.

2 A I'm Nikolaos Papanikolopoulos.

3 Q Where are you physically located right
4 now?

5 A I'm in Larnaca, Cyprus.

6 Q Is anyone in the room with you?

7 A Dr. Suhrid.

8 Q You understand that this deposition is for
9 the IPR proceeding related to the '959 Patent,
10 which is US Patent No. 10,713,959?

11 A I do.

12 Q And that is Case Number IPR2025-00525?

13 A I do.

14 Q You understand you've been sworn to
15 testify truthfully to the best of your ability?

16 A Yes, I understand.

17 Q Is there any reason you cannot testify
18 truthfully today?

19 A No, to the best of my knowledge.

20 Q What did you do to prepare for today's
21 deposition?

22 A I looked at my second declaration, my

1 first declaration, and all the other documents.

2 And I had consultation with the counsel.

3 Q What counsel did you meet with?

4 A You mean for the -- for the preparation
5 for the deposition or for writing the -- for
6 preparing the declaration, the second declaration?

7 Q For preparation for the deposition.

8 A Dr. Suhrid.

9 Q Anyone else?

10 A No.

11 Q You are submitting testimony or being
12 deposed in three separate IPR proceedings over the
13 course of a couple of days. Is it fair to say
14 that you spent approximately forty hours total
15 preparing for these depositions?

16 A Yeah, including consultation and also my
17 own reading.

18 Q At what rate are you being compensated for
19 your time in this matter?

20 A My normal rate of \$500 per hour.

21 Q And you've submitted two declarations in
22 this proceeding?

1 A For the '959 Patent?

2 Q Yes.

3 A That's true.

4 Q One is Exhibit 2014, and the most recent
5 is Exhibit 2018?

6 A I don't have the -- I believe what you
7 say. I don't -- I don't have the first one in
8 front of me.

9 Q Everything in those declarations is
10 accurate?

11 A To the best of my knowledge.

12 Q Who wrote your declarations?

13 A I had full control of the words except the
14 legal statements at the beginning that were
15 informed by the counsel.

16 Q Did you write your declarations in
17 conjunction with counsel?

18 A I was in control of every word that was
19 issued.

20 Q Were you the original drafter of all the
21 analysis provided in your declarations?

22 A Yes.

1 Q All the original analysis in your
2 declarations -- strike that.

3 All the analysis in your declarations are
4 one hundred percent words that you drafted?

5 MS. L'ESPERANCE: Objection. Asked and
6 answered.

7 A I have the approval of the words. And I
8 asked the counsel about the legal elements.

9 BY MR. WALTERS:

10 Q Did your counsel write any of the words in
11 the analysis sections of your declarations?

12 A For example, if there are cases which are
13 cited, since I'm not a lawyer I have no -- I have
14 been informed by the counsel. So the words which
15 are used are basically, for the legal part, are
16 influenced by the opinion of the counsel. For
17 example, I often give guidance by phone and I say
18 what is my technical opinion.

19 Q In some cases you give guidance by phone
20 and counsel may have written some of the text
21 analysis that you then approved?

22 A Yes, or I have been discussing options.

1 Q Are you familiar with challenge response
2 authentication?

3 A Yes.

4 Q How does challenge response authentication
5 work?

6 A So I think again, as I asked you before,
7 the "authentication" term is a little bit
8 misleading. I express some opinions, because one
9 of the references -- so let me review -- just to
10 be accurate, let me review my report.

11 Q Sure.

12 A I still use a clean copy. I don't know if
13 you can see it. So is it okay with you?

14 Q Sure.

15 And this is Exhibit 2018?

16 A This is my second declaration.

17 (Document Review)

18 So if you go to paragraph 100 of my
19 declaration where I express opinions about the
20 Viggiano-Hayes combination, the ground device is
21 challenge. And basically this may include -- so
22 the drone sends back an encrypted message, and

1 basically -- so it's like think of a printer that
2 you ping it and you wake it up, a printer -- a
3 printer device that is in sleep mode and then
4 basically you ping it, you send a challenge. In
5 this case Viggiano sends two challenges and then
6 the system changes the state, it doesn't change
7 its behavior. And this is basically what I
8 describe in paragraph 100.

9 Q So in a challenge response -- strike that.

10 Are you familiar with challenge response
11 authentication generally before reading the
12 Viggiano reference?

13 A I had to refresh my memory in order to get
14 context in what Viggiano discloses, yes.

15 Q And in a challenge response authentication
16 procedure there is a device that is being
17 authenticated; is that fair?

18 A Yes.

19 Q Does the device that is being
20 authenticated only send a response upon receiving
21 a challenge?

22 A That's correct.

1 Q If the device being authenticated does not
2 receive a challenge, then would it send a
3 response?

4 A No.

5 Q Do you have the '959 Patent in front of
6 you?

7 A No. If you can...

8 Q I just uploaded the '959 Patent to the
9 Chat, and this is Exhibit 1001 in the IPR.

10 A Yeah, just give me one minute.

11 Q Sure.

12 A Yes, I have it in front of me. It finally
13 uploaded.

14 Q Can you turn to Figure 14.

15 A Bear with me one second while I get there.
16 Yes.

17 Q Have you reviewed this figure?

18 A Among other things, yes.

19 Q Figure 14 illustrates drone operation
20 logic 1400, is that right?

21 A Just one moment, and let me see.

22 That's correct.

1 Q Are you generally familiar with the
2 components that are illustrated in Figure 14 such
3 as the main controller, the GPU, the memory, the
4 DSP?

5 A Yes.

6 Q What does the main controller 1404 do?

7 A Generally or in this particular context?

8 Q Both. What would you expect main
9 controller 1404 to do in this context?

10 A Just making sure that all these different
11 components are synchronized and certain algorithms
12 are run on these particular boards, including
13 sending particular signals and so on and so forth,
14 or responding to commands from the ground.

15 Q How does main controller 1404 work with
16 memory 1408?

17 A Let me go to the description, if you don't
18 mind.

19 Q Sure.

20 A So if you go to column 13, number --
21 column 13 number -- line -- row number four.
22 Let's start from line number three and go to

1 number four. "The drone operation logic 1400 will
2 typically comprise memory 1408 which may be
3 utilized by the main controller 1404 and other
4 components (the DSP 1426 and/or the GPU 1422) to
5 read and write instruction (commands) and data
6 (operands for the instructions)."

7 Q What is a DSP 1426?

8 A A digital signal processing unit.

9 Q What does that do?

10 A It processes digital the signals. Signals
11 carry information, as I explain in my write-up.

12 Q Does DSP 1426 send and receive signals
13 between -- to and from main controller 1404?

14 A Among other things.

15 Q What is GPU 1422?

16 A "GPU" stands for general processing unit.

17 Q What does it do in this context?

18 A It just coordinates the different
19 components and it has specific tasks. And all
20 these are working as part of this diagram
21 together. It could be, for example, the graphics
22 in a case, another -- in other ways it may be the

1 graphics processing unit, because -- let me -- let
2 me just check. Give me one minute. Let me read
3 some of the descriptions to refresh my memory.

4 (Document Review)

5 For example, what has been performed by
6 all these units, which I think is relevant in this
7 case, is actually, "Images and video stored in the
8 memory 1408 may also be read and processed by the
9 main controller 1404, DSP 1426, and/or the GPU
10 1422."

11 Q What part are you reading from?

12 A This is column 13, row 16 through 18.

13 Q You said column 13, row 16 to 18?

14 A Yeah.

15 Q Can you turn to column 6 of the '959
16 Patent.

17 A Yes.

18 Q At line 63 of column 6, the patent states,
19 "The RF receiver and transmitter 16 and 37 in both
20 the identification box 1 and the ground device 21
21 creates a duplex communication." Do you see that?

22 A Just give me one minute.

1 This is line 65, am I right?

2 Q 63 to 65, yes.

3 A Yeah.

4 Q What is a duplex communication?

5 A Communication in both ways between the two
6 ends. So we can go in both directions.

7 Q I'd like to ask some questions about
8 substitute claim 22, and so to do that it may be
9 easiest if you're looking at the Revised Motion to
10 Amend.

11 A Yeah, if you can upload it.

12 Q I just sent it.

13 A Give me a couple of minutes until I...

14 Just to make sure that I have the correct
15 one, you are talking about Patent Owner's
16 Non-Contingent Revised Motion to Amend; am I
17 right?

18 Q Yes.

19 A Do you want me to go somewhere in
20 particular?

21 Q The appendix has claim 22 in it.

22 A Sure. I'm there.

1 Q Limitation 22.a recites "a radio frequency
2 communication antenna."

3 A That's true.

4 Q And 22.b recites "a radio communication
5 module coupled to the radio frequency
6 communication antenna."

7 A That's true.

8 Q And 22.d recites that "the radio frequency
9 communication antenna is coupled to the first
10 low-altitude aircraft."

11 A That's correct.

12 Q The radio communication module is onboard
13 the first low-altitude aircraft?

14 A That's correct.

15 Q Does the radio frequency communication
16 antenna receive an RF signal for the aircraft?

17 A Can you repeat the question?

18 Q Does the radio frequency communication
19 antenna receive an RF signal for the aircraft?

20 A Yes.

21 Q And then the antenna would pass along that
22 signal to the radio communication module?

1 A Yes.

2 Q And 22.e recites "the radio communication
3 module is configured to utilize a secure
4 identifier, the secure identifier comprising a
5 specified excitation enabling disambiguation."

6 A That's correct.

7 Q And 22.f recites "utilizing the secure
8 identifier comprises receiving by the radio
9 communication module the specified excitation from
10 a remote portable detection system."

11 A Yes. But also for 22.e, "disambiguation
12 of the first low-altitude aircraft from other
13 detected low-altitude aircraft."

14 Q Okay. The secure identifier is received
15 by the radio communication module from the remote
16 portable detection system?

17 A That's correct.

18 Q The remote portable detection system would
19 be located on the ground?

20 A Possibly, yes.

21 Q And the radio communication module
22 receives the secure identifier from the remote

1 portable detection system via an RF signal?

2 A Are you reading from the -- from the claim
3 or -- I have lost you here.

4 Q Sure. In the context of the claim. As we
5 said, the radio communication antenna receives an
6 RF signal that's passed along to the radio
7 communication module.

8 A Can you repeat your question?

9 Q Sure. The radio communication module
10 receives the -- I'll take a step back.

11 So we just talked about limitations 22.e
12 and 22.f.

13 A Yeah.

14 Q The secure identifier is received by the
15 radio communication module from the remote
16 portable detection system.

17 A That's correct.

18 Q And the radio communication module
19 receives that secure identifier from the remote
20 portable detection system via an RF signal in this
21 claim.

22 A That's correct.

1 So in other words, to summarize what you
2 just described, the ground station sends this
3 specified excitation -- and I want to underline
4 the word "specified excitation" -- to the onboard
5 antenna to the radio communication module which is
6 mounted on the low-altitude aircraft.

7 Q I'd like to go back to your second
8 declaration, Exhibit 2018.

9 A Just give me a minute.

10 Yes.

11 Q Specifically I'd like to turn to
12 paragraph 92.

13 A Yes.

14 Q In this paragraph you're discussing the
15 term "low-altitude aircraft"?

16 A I'm discussing the opinion of the
17 Petitioners that "low altitude" is a term -- just
18 let me -- "is a term of degree, and the
19 specification does not provide an objective
20 standard for determining what constitutes low
21 altitude."

22 So I'm saying that basically if you look

1 at the specification it says that "small UAS,
2 unmanned aerial systems, as aircraft up to
3 25 pounds flying up to 500 feet of the low
4 altitude airspace." And this comes from the --
5 from the specification and also is supported by
6 FAA rules that govern the space.

7 Q You state, "Thus, the specification
8 clearly describes a low-altitude aircraft as one
9 flying in low altitude airspace, e.g., up to
10 500 feet of the low-altitude airspace."

11 A That's -- that's correct.

12 Q What is the low-altitude airspace?

13 A The one that is -- if you look at
14 column -- let me -- let's go to the patent. Give
15 me one minute to find -- to find the particular
16 line. Just give me one minute.

17 (Document Review)

18 You can go column 2/33, it says -- and I'm
19 reading 31: "One potential advantage of this
20 identification mechanism is the possibility for a
21 person to visually identify an aircraft from a
22 distance of about 500 feet, without the use of any

1 special equipment."

2 Q What is the low-altitude airspace?

3 A Per the patent, it's 500 feet.

4 Q The patent states in column 1, line 50,
5 "For related art small UASs (e.g., aircrafts up to
6 25 pounds flying up to 500 feet of the
7 low-altitude airspace)." Do you see that?

8 A That's correct.

9 Q Does that suggest to you that 500 feet is
10 a portion of the low-altitude airspace?

11 A It can be. It has potential of being a
12 portion. But based off my knowledge of drones,
13 500 feet is -- and, for example, if you look at
14 FAA, it can go up to 14- or 18,000 feet. So if
15 you compare this, this may be a portion.

16 Q So the low-altitude airspace could go up
17 to 14,000 feet or it could go up to 18,000 feet?

18 A Per FAA.

19 MS. L'ESPERANCE: Objection.

20 BY MR. WADEKAR:

21 Q Does the low-altitude airspace have a
22 maximum altitude?

1 A FAA usually sets this to these numbers
2 that I told you.

3 Q How does one know if an aircraft is a
4 low-altitude aircraft?

5 A You have to look either at the patent at
6 hand or the FAA rules.

7 Q How does the -- how does one know if an
8 aircraft is a low-altitude aircraft as is claimed
9 in the '959 Patent?

10 A Again, I think the line -- column 1/51,
11 it's a term of art, so a POSITA will know.

12 Q If a drone is flying at 600 feet, is it a
13 low-altitude aircraft under the '959 Patent?

14 A It can be, if we...

15 (Document Review)

16 So, for example, something that I have
17 been thinking, to answer your question, is that
18 you can look at this from the other perspective.
19 If it is above 18,000 feet, per FAA rules it won't
20 be -- for sure it won't be a low-altitude
21 aircraft.

22 Q You said 18,000 feet?

1 A Yeah, whatever is the FAA -- FAA number.

2 Q If a drone is flying at 13,000 feet, is it
3 a low-altitude aircraft under the '959 Patent?

4 A If I assume that my recollection of the
5 number is correct, yes, because I don't recall the
6 exact number.

7 Q If a drone is flying at 17,000 feet, is it
8 a low-altitude aircraft under the '959 patent
9 claims?

10 A Again, if we use the FAA numbers, which
11 are available to a POSITA, and, again, I don't
12 recall the exact number -- I believe -- if -- for
13 example, if the exact number is 14,000 feet, it is
14 not. If it is 18,000 feet, it is. This
15 information is available to a POSITA from the FAA
16 guidelines.

17 Q What if you use the information that's
18 provided in the '959 Patent specification, would a
19 drone flying at 17,000 feet be a low-altitude
20 aircraft under the '959 patent claims?

21 A Can you repeat the question?

22 Q If you use the information that's provided

1 in the '959 patent specification, would a drone
2 flying at 17,000 feet be a low-altitude aircraft
3 under the '959 patent claims?

4 A If we assume that FAA says so, yes.
5 Because, again, a POSITA is going to look at
6 guidance, because FAA designs these numbers and
7 defines the airspace accordingly.

8 Q Is an airplane a low-altitude aircraft?

9 A During landing and during certain phases.
10 Depends on the altitude. And depends also on the
11 type of the plane.

12 Q What do you mean by that?

13 A For example, if you take a small amateur
14 plane, it often is. But if we're talking about an
15 Airbus 380, it's not.

16 Q Even if the Airbus 380 is flying at
17 1,000 feet?

18 A Yeah, I'm talking about not the approach
19 landing or departure phases, but during the normal
20 flying altitudes, it's not. And landing and
21 departure, these are not normal operations.
22 Landing and takeoff.

1 Q To be a low-altitude aircraft under the
2 '959 patent claims, does the aircraft need to have
3 a maximum capable altitude?

4 A Can you repeat the question?

5 Q To be a low-altitude aircraft under the
6 '959 patent claims, does the aircraft need to have
7 a maximum capable altitude?

8 A Generally, yes, because then -- yes. I
9 would say generally, yes.

10 Q What is that maximum capable altitude?

11 A Again, the one that is defined by the FAA.

12 Q Have you reviewed Patent Owner's Reply to
13 Opposition to the Revised Motion to Amend in this
14 proceeding?

15 A Yes, but it has been some time. I mainly
16 focused on my own documents. So I'm familiar, but
17 not word by word.

18 Q Okay. I just sent the reply in the Chat.

19 A Sure. Just give me a minute.

20 Again, this is -- can you repeat the
21 document? Because it takes some time to upload.
22 This is the document? This is the Petitioner

1 Reply to the Motion to --

2 Q This is Patent Owner's Reply to
3 Petitioners' Opposition to the Revised Motion to
4 Amend.

5 A So this is Paper 35?

6 Q Yes, it is.

7 A Okay. Yeah, I have it in front of me.

8 Q Can you turn to page 5.

9 A Give me a minute.

10 Page 5, yes.

11 Q Do you see the section related to the
12 meaning of "low altitude aircraft"?

13 A Let me read it just to refresh my memory.

14 (Document Review)

15 Yes, I read it.

16 Q Do you see at the end of that section
17 there's a reference to 14 C.F.R. section
18 91.119(c)?

19 A I see, but I'm not a lawyer to understand.

20 Q You're not familiar with that regulation?

21 A I don't recall if I have been informed.

22 MR. WALTERS: Okay. I'm going to upload

1 that regulation to the Chat, and we will call this
2 Exhibit 1032.

3 (Exhibit 1032 marked for identification.)

4 THE WITNESS: Give me a minute.

5 Yes, I'm there.

6 BY MR. WALTERS:

7 Q Do you see that this regulation relates to
8 minimum safe altitudes?

9 A That's correct.

10 Q And Patent Owner's Reply cited to
11 subsection (c) of this regulation?

12 A Yes.

13 Q And subsection (c) relates to "Over other
14 than congested areas."

15 A Just a second, I'll read this.

16 Q Sure.

17 (Document Review)

18 A Yes.

19 Q So read in context with the beginning of
20 that regulation, 91.119(c) states, "Except when
21 necessary for takeoff or landing, no person may
22 operate an aircraft below the following

1 altitudes," and for (c) it states, "Over other
2 than congested areas, that altitude is 500 feet
3 above the surface, except over open water or
4 sparsely populated areas." Do you see that?

5 A That's correct, yes.

6 Q Why did Patent Owner cite this provision
7 (c) to support the meaning of "low-altitude
8 aircraft"?

9 A I think this is -- we are talking about
10 the minimum here. You see, so FAA describes the
11 maximum and here describes the minimum, at least
12 from a quick read of this.

13 Q Does a low-altitude aircraft under the
14 '959 Patent have a minimum altitude?

15 A According to FAA, yes.

16 Q What is that altitude?

17 A 500 feet.

18 Q If you look at subsection (b), it relates
19 to congested areas. Do you see that?

20 A Let me read this. You said -- where
21 should I go?

22 Q Subsection (b).

1 A (b) like "boy"?

2 Q Yes.

3 A Yes.

4 Q So subsection (b) read in context with the
5 beginning of the regulation states, "Except when
6 necessary for takeoff or landing, no person may
7 operate an aircraft below the following
8 altitudes," (b) it says, "Over congested areas of
9 a city, town, or settlement, or over any open air
10 assembly of persons, an altitude of 1,000 feet
11 above the highest obstacle within a horizontal
12 radius of 2,000 feet of the aircraft." Do you see
13 that?

14 A I see.

15 Q So over a congested area does a
16 low-altitude aircraft as interpreted under the
17 '959 patent claims have a minimum altitude of
18 1,000 feet over the highest obstacle?

19 A According to what it says, yes. But I
20 don't know -- I mean, I don't know how specific
21 this case is.

22 Q What do you mean by that?

1 A I mean, you have normal operations. And
2 here it says, for example, the highest obstacle.
3 How do you define the highest obstacle? You
4 see like, for example, when we are talking about
5 Minneapolis and New York and Sacramento, the
6 highest obstacle may be completely different.

7 Q When interpreting the claims of the
8 '959 Patent, a POSITA would have looked to
9 14 C.F.R. 91.119?

10 A I think they would have looked at -- let's
11 take -- let's take the average drone operator,
12 they will look at the FAA maximum, as we
13 discussed, and minimum.

14 Q In order to determine what a low-altitude
15 aircraft would be?

16 A In order to determine where a low-altitude
17 aircraft may operate.

18 MR. WALTERS: Would it be a good time to
19 take a break?

20 THE WITNESS: Fine with me, yes.

21 MR. WALTERS: Say until 20 after the hour?

22 THE WITNESS: Yes.

1 MR. WALTERS: Okay.

2 THE COURT REPORTER: Off the record.

3 (A break was taken from 11:07 a.m. to
4 11:21 a.m.)

5 THE COURT REPORTER: Back on the record.

6 MR. WALTERS: I don't have any further
7 questions, so I'll pass the witness.

8 MR. WADEKAR: I'm sorry, but I wasn't
9 expecting that, but -- all right. So let's take a
10 15-minute break and then I will collect my notes
11 and then we can resume.

12 MR. WALTERS: Okay. So 35 after the hour?

13 MR. WADEKAR: Sounds good, yeah.

14 THE COURT REPORTER: Off the record.

15 (A break was taken from 11:21 a.m. to
16 11:36 a.m.)

17 THE COURT REPORTER: Back on the record.

18 EXAMINATION

19 BY MR. WADEKAR:

20 Q Thank you for your time again today.

21 We are discussing airspace and
22 low-altitude aircraft, so can you explain to us

1 what "airspace" really means in this context?

2 A So airspace is dependent on many factors,
3 including countries, including urban and non-urban
4 areas, including needing waivers, needing
5 licenses, the class of the plane you are flying,
6 even the class of the low-altitude airplane you
7 may fly. One thing is clear, anything above
8 18,000 feet is outside -- at least for this is
9 outside the area of low altitude.

10 And then we have Class C, Class E,
11 Class A, which is the one above 18,000 feet and
12 goes to 60,000 feet. So you can have -- so
13 depends on where you're going to fly and what
14 equipment you have in your hands and what
15 permissions you have. So a drone pilot needs to
16 be aware of all this.

17 MR. WADEKAR: So, Amanda, would you
18 please, with permission from the opposing
19 counselor, there is an exhibit -- I want to place
20 an exhibit in the Chat.

21 MS. L'ESPERANCE: Yes, I have this is in
22 the Chat, so I will drop in an exhibit and

1 introduce it.

2 THE WITNESS: Can I upload this? Can I
3 see this?

4 MS. L'ESPERANCE: It will be in the Chat.
5 Hold on. I'm just having trouble here.

6 Okay. It should be in the Chat now.

7 THE WITNESS: Yeah, I got it.

8 (Exhibit 2035 marked for identification.)

9 BY MR. WADEKAR:

10 Q Let me know what you have that.

11 A Yeah, just give me a minute.

12 Okay. I have it.

13 Q So do you see the document that says -- it
14 has the title, "Airspace 101 - Rules of the Sky"?

15 A Yeah. And this is -- this says FAA.

16 Q Yeah. Yes. Okay. That's the same
17 document.

18 Okay. So if you go to -- there is a
19 figure in this document. Do you see that?

20 A I see.

21 Q And the title of the figure, it seems --
22 I'm just going to read it. It says, "Airspace

1 Guidance for Small UAS Operators." Do you see
2 that?

3 A Yes.

4 Q Could you please explain to -- explain to
5 us what is -- what this is citing?

6 A So it says, for example, from the top we
7 have Class E, which is the upper limit is
8 undefined. We have Class A, which is FL 600,
9 which corresponds to 18,000 feet MSL. And then we
10 have -- you can see in blue Class E. And then you
11 can see the Class B, for example, requires --
12 which is 14,500 MSL, requires air traffic
13 authorization. It has also Class C, which is
14 roughly around 3,000 feet which says air traffic
15 authorization required. It has Class E, which
16 says above 400 feet air traffic authorization
17 required. It has Class G, which is various --
18 it's around 400 feet. So depending on the class,
19 the drone operator should basically act
20 accordingly.

21 Q And what is MSL?

22 A I don't recall. I think it's feet.

1 Q Oh, no, no, I meant what does the word
2 "MSL" mean.

3 A Oh, the sea level. The Mean Sea Level.

4 Q Oh, okay.

5 A I misunderstood. Sorry.

6 Q So is this figure -- is this figure
7 indicating that there are drones operating in
8 different airspace classes?

9 A Yes.

10 Q But it -- go ahead, please continue your
11 answer.

12 A But you need different protocols and
13 different authorization or waivers.

14 Q But there are no drones in the Class A
15 airspace; is that correct?

16 A That's my understanding.

17 MR. WADEKAR: I have no further questions.

18 MR. WALTERS: I don't have any further
19 questions.

20 THE COURT REPORTER: Okay. We are off the
21 record.

22 (Time Noted: 11:43 a.m.)

1 CERTIFICATE OF SHORTHAND REPORTER

2

3 I, LINDA RUSSELL, Certified Reporter
4 within and for the State of Texas, do hereby
5 certify:

6 That NIKOLAOS PAPANIKOLOPOULOS,
7 the witness whose deposition is hereinbefore set
8 forth, was duly sworn by me before the
9 commencement of such deposition and that such
10 deposition was taken before me and is a true
11 record of the testimony given by such witness.

12 I further certify that the adverse party
13 was represented by counsel at the deposition.

14 I further certify that the deposition of
15 NIKOLAOS PAPANIKOLOPOULOS occurred remotely via
16 Zoom videoconference on Tuesday, July 7, 2026,
17 commencing at 10:15 a.m. to 11:43 a.m.

18 I further certify that I am not related
19 to any of the parties to this action by blood or
20 marriage, I am not employed by or an attorney to
21 any of the parties to this action, and that I am
22 in no way interested, financially or otherwise, in

1 the outcome of this matter.

2
3
4 IN WITNESS WHEREOF, I have hereunto set
5 my hand this 7th of July, 2026.
6
7

8 

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Transcript of Nikolaos Papanikolopoulos, Ph.D.
Conducted on July 7, 2026

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Re: Deposition of **Nikolaos Papanikolopoulos, Ph.D.**

Date: 7/7/2026

Case: Axon Enterprise, Inc., et al. -v- Airspace Defense, Inc. (PTAB)

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ACKNOWLEDGMENT OF DEPONENT

I, Nikolaos Papanikolopoulos, Ph.D., do hereby acknowledge that I have read and examined the foregoing testimony, and the same is a true, correct and complete transcription of the testimony given by me and any corrections appear on the attached Errata sheet signed by me.

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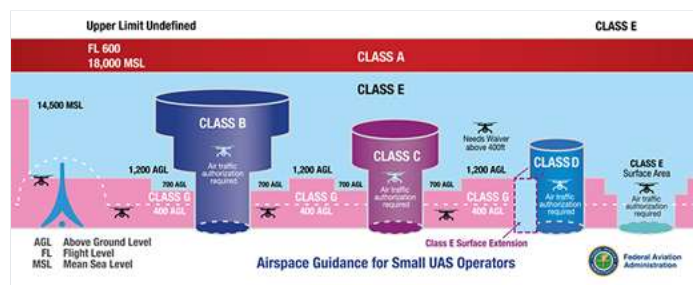
IN THIS SECTION



Airspace 101 – Rules of the Sky

FAA rules apply to the entire National Airspace System -- there is no such thing as "unregulated" airspace. Drone operators should be familiar with the difference between controlled and uncontrolled airspace, and where you can legally fly. Controlled airspace is found around some airports and at certain altitudes where air traffic controllers are actively communicating with, directing, and separating all air traffic. Other airspace is considered uncontrolled in the sense that air traffic controllers are not directing air traffic within its limits.

In general, you can only fly your drone in uncontrolled airspace below 400 feet above the ground (AGL). Commercial drone operators are required to get permission from the FAA before flying in controlled airspace. Learn more about the rules for Certificated Remote Pilots and commercial operators on [Flying Drones Near Airports \(Controlled Airspace\) – Part 107](#).



(click to enlarge)

Read more about [controlled and uncontrolled airspace](#), as well as the different classifications of controlled airspace in the [Pilot's Handbook of Aeronautical Knowledge](#) (PDF) in chapter 15 (see page 377).

Remember, there are thousands of private pilots who fly in both controlled and uncontrolled airspace at various altitudes, and they usually cannot see your drone until it's too close for comfort. Drone operators are responsible for staying away from manned aircraft, not the other way around!

Last updated: Monday, August 30, 2021

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