

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Axon Enterprise, Inc. and Dedrone Holdings, Inc.

Petitioners,

v.

Airspace Systems, Inc.

Patent Owner

Case No. IPR2025-00530

U.S. Patent No. 10,249,199

PATENT OWNER'S NON-CONTINGENT MOTION TO AMEND
(CORRECTED)

TABLE OF CONTENTS

I. INTRODUCTION 1

II. REQUEST FOR PRELIMINARY GUIDANCE 1

III. LEVEL OF ORDINARY SKILL IN THE ART 1

IV. SUBSTITUTE CLAIMS COMPLY WITH 37 C.F.R. §42.121, *LECTROSONICS*,
PAPER 15, AND THE TPG 1

V. PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE 18

VI. CONCLUSION.....23

CLAIMS APPENDIX.....1

List of Patent Owner Exhibits

Exhibit No.	Description
EX2001	Declaration of Nikolaos Papanikolopoulos, Ph.D., in support of this Motion to Amend
EX2002	U.S. Patent Application No. 15/598,303 (from which U.S. Patent No. 10,249,199 issued) (annotated to include page and line nos.) (the “’303 App.”)
EX2003	U.S. Provisional Patent Application No. 62/309,838 (the “’838 Prov.”)
EX2004	Curriculum Vitae of Dr. Nikolaos Papanikolopoulos

I. INTRODUCTION

Patent Owner Airspace Systems, Inc. respectfully moves under 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121 to amend challenged claims 1-9 of U.S. Patent No. 10,249,199 (the '199 patent).¹ This motion, proposing substitute claims 10-18, is non-contingent with respect to all of the challenged claims. As discussed below, this motion complies with all of the requirements of 37 C.F.R. § 42.121, *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019) identified in the Scheduling Order, and with the Trial Practice Guide (TPG).

II. REQUEST FOR PRELIMINARY GUIDANCE

Per 37 C.F.R. § 42.121(a)(ii) Patent Owner respectfully requests preliminary guidance from the Board.

III. LEVEL OF ORDINARY SKILL IN THE ART

Patent Owner does not dispute Petitioner's formulation regarding the level of ordinary skill in the art that was adopted by the Board. EX2001 ¶¶ 50-53.

IV. SUBSTITUTE CLAIMS COMPLY WITH 37 C.F.R. § 42.121, *LECTROSONICS*, PAPER 15, AND THE TPG

A reasonable number of substitute claims: Per 37 C.F.R. § 121(a)(3), for each of the challenged claims 1-9, Patent Owner proposes only a single

¹ This corrected motion corrects an error in the Certificate of Service included in the motion filed on December 19, 2015.

corresponding substitute claim. *See* EX2001 ¶ 71.

Responsive to a Ground of Unpatentability: Proposed independent substitute claim 10 is amended to add limitations that no prior art cited by Petitioners teaches or suggests. *See infra* § V. Proposed dependent substitute claims 11-18 depend from proposed substitute claim 10. As such, the proposed substitute claims respond to one or more Grounds of unpatentability per 37 C.F.R. § 121(a)(2)(i). *See* EX2001 ¶ 72, §§ VII, VIII, XI.

No enlargement the scope of the challenged claims: Proposed substitute claim 10 retains all of the limitations of the corresponding challenged claim 1 and adds further limitations. In proposed dependent substitute claims 11-18, only the dependencies are amended. As such, per 37 C.F.R. § 121(a)(2)(ii), no proposed substitute claim enlarges the scope of the challenged claims. *See* EX2018, ¶ 73.

No new matter; supported in the original disclosure: Per 37 C.F.R. § 42.121(a)(2)(ii) and (b), proposed substitute claims do not introduces new subject matter and are fully supported by the original disclosure of the '199 patent, as shown in the claim charts below. *See* EX2001 § X(D). To show support in the “original disclosure of the application, as filed,” Patent Owner cites the relevant portions of the '303 App. and the '838 Prov.² *Lectrosonics*, Paper 11 at 7-8; 37

² The relevant portions of the '303 App. are quoted; the corresponding portions of the '838 Prov. and the '199 patent are cited.

C.F.R. § 42.121(b)(1)-(2).

Claim Element	Support in the Specification
[[1]]10[.pre] A discrimination system comprising:	EX2002 at 1, Title (System and Method for Aerial System Discrimination and Action), at 1:8-10 (“a new and useful aviation discrimination and action system”), at 2:5 (“FIGURE 1 is a schematic representation of the aerial system discrimination system”), at 2:18-23 (“[a]s shown in FIGURE 1, the aerial system discrimination system [] includes an aerial system disruption system 105, an aerial system identification system 111, and a permissions module 103. The discrimination system [] can additionally include or use an identifier transmission system 101 configured to mount to, or be embedded in, an aerial system 100. The discrimination system 110 functions to determine whether an aerial system 100 is authorized or unauthorized to be in the airspace”), FIGURE 1; EX2003, Title, ¶¶ 1, 5, 12, FIGURE 1; EX1001, Title, 1:13-15, 1:40-41, 1:60-2:1, FIGURE 1. Thus, the '303 App. and the '838 Prov. both teach a discrimination system for determining whether an aerial system is authorized to be in an airspace.
[10.a] an identifier transmission system coupled to an aerial system, wherein the identifier transmission system is configured to broadcast an aerial system identifier signal <u>comprising an aerial system identifier</u> unique to the aerial system;	EX2002 at 2:18-22 (“[a]s shown in FIGURE 1, the aerial system discrimination system [] includes an aerial system disruption system 105, an aerial system identification system 111, and a permissions module 103. The discrimination system [] can additionally include or use an identifier transmission system 101 configured to mount to, or be embedded in, an aerial system 100”), FIGURE 1; EX2003, ¶ 12, FIGURE 1; EX1001, 1:60-65, FIGURE 1. EX2002 at 4:8-11 (“in some variations, the identifier transmission system 101 includes a wireless communication chipset 605 (e.g., WiFi, BLE, or LTE chipset), which broadcasts the aerial system identifier 300 over a long geographic distance”), at 6:12-14 (“[t]he aerial system identifier signal 300 can be globally unique, locally unique (e.g., to a geographic location, to an aerial

Claim Element	Support in the Specification
	system manufacturer or type, etc.), or generic”), at 3:8-10 (“[t]he aerial system identifier 300 is checked against the permissions module 103, which determines whether the aerial system identifier 300 is associated with an authorized or unauthorized UAV”), EX2003, ¶¶ 14, 17, 13; EX1001, 2:47-51, 3:50-53, 2:12-15. EX2002 at 14:13-16 (“[t]he identifier transmission system 101 preferably periodically or constantly broadcasts the aerial system identifier signal 300, but can alternatively display the aerial system identifier 310, send the aerial system identifier signal 300 in response to receipt of a request for the aerial system identifier 310, or otherwise transmit the aerial system identifier 310. The aerial system identifier 310 preferably identifies an aerial system 100, and is preferably globally unique, but can alternatively be unique for a geographic region, unique for a period of time, generic, or otherwise related to other aerial system identifiers”); EX2003, ¶¶ 44-45; EX1001, 7:51-62. EX2002 at 3:3-8 (“[i]n a specific example, the discrimination system 110 includes: a disruption system 105 including a launcher 303 and an interdiction module 304; an identification system 111 including a wireless communication system; and a permissions module 103 connected to the wireless communication system. In operation, the wireless communication system receives an aerial system identifier signal 300 broadcast from a aerial system 100”), at 8:21-9:1 (“the identification receiver 102 is a wireless communication module including an antenna array 607 and chipset 608 The antenna array 607 of the identification receiver 102 functions to receive broadcast signals from an aerial system 100”), FIGURES 1, 3, 6; EX2003, ¶ 13 (referring to the wireless communication system as a radio and the aerial system as a UAV), ¶ 31, FIGURES 1, 3, 6; EX1001, 2:5-12, 4:64-5:2, FIGURES 1, 3, 6. Thus, the '303 App. and the '838 Prov. both disclose an

Claim Element	Support in the Specification
	identifier transmission system mounted to or embedded in, i.e., coupled to, an aerial system. The identifier transmission system broadcasts the aerial transmitter signal. The signal is globally or locally unique, and is used to determine whether the UAV, i.e., the aerial vehicle, is authorized, and is thus unique to the aerial system. The discrimination system includes an identification system for receiving signals, including the aerial system identifier signal, broadcast from an aerial system.
[10.b] <u>an identification system comprising an identification receiver;</u>	EX2002 at 2:18-20 (“[a]s shown in FIGURE 1, the aerial system discrimination system [] includes an aerial system disruption system 105, an aerial system identification system 111, and a permissions module 103”), at 3:3-6 (“[i]n a specific example, the discrimination system 110 includes: a disruption system 105 including a launcher 303 and an interdiction module 304; an identification system 111 including a wireless communication system”), at 8:7-8 (“[t]he identification system 111 of the discrimination system 110 functions to receive the aerial system identifier signal 300 from the aerial system 100”), FIGURE 1; EX2003, ¶¶ 12, 13, 29, FIGURE 1; EX1001, 1:60-63, 2:5-10, 4:44-46, FIGURE 1. EX2002 at 8:16-9:1 (“[t]he identification system 111 can include an identification receiver 102, which functions to receive the aerial system identifier signal 300. The identification receiver 102 can be passive (e.g., receive information broadcast by the aerial system 100) In a first variation, as shown in FIGURE 6, the identification receiver 102 is a wireless communication module including an antenna array 607 and chipset 608 The antenna array 607 of the identification receiver 102 functions to receive broadcast signals from an aerial system 100), FIGURE 6; EX2003, ¶¶ 30-32, FIGURE 6; EX1001, 4:57-5:2, FIGURE 6.
[10.c] a permission module,	EX2002 at 2:18-20 (“[a]s shown in FIGURE 1, the aerial system discrimination system [] includes an aerial system disruption system 105, an aerial system identification

Claim Element	Support in the Specification
	system 111, and a permissions module 103”), FIGURE 1; EX2003, ¶ 12, FIGURE 1; EX1001, 1:60-63, FIGURE 1. EX2002 at 3:3-6 (“[i]n a specific example, the discrimination system 110 includes: a disruption system 105 including a launcher 303 and an interdiction module 304; an identification system 111 including a wireless communication system; and a permissions module 103 connected to the wireless communication system. In operation, the wireless communication system receives an aerial system identifier signal 300 broadcast from a aerial system 100. The aerial system identifier 300 is checked against the permissions module 103, which determines whether the aerial system identifier 300 is associated with an authorized or unauthorized UAV”), FIGURE 1; EX2003, ¶ 13, FIGURE 1; EX1001, 2:5-15, FIGURE 1. EX2002 at 18:8-13 (“[a]s shown in FIGURE 3, the permissions module 103 of the discrimination system 110 functions to store permissions for the physical volume and/or individual aerial systems. The permissions module 103 can additionally function to determine whether the aerial system 100 has permission for a physical volume (e.g., restricted airspace 301ab), and/or generate operation permissions for the disruption mechanism 105 based on whether the aerial system identifier 310 is permitted”), FIGURE 3; EX2003, ¶ 40, FIGURE 3; EX1001, 9:53-61, FIGURE 3. Thus, the '303 App. and the '838 Prov. each discloses a permission module that stores permissions for the physical volume of an airspace and an aerial system, and determines whether a particular aerial system has the permission to enter a particular airspace.
[10.d] wherein the identification receiver is configured to receive the aerial system identifier	<i>See supra</i> element [10.b] (disclosing the identification receiver receives from the identifier transmission system broadcast signals that include the aerial system identifier signal and the secondary / second factor). EX2002 at 9:13-17 (“The chipset 608 of the identification

Claim Element	Support in the Specification
signal and a second factor identifier associated with the aerial system; [[and]	receiver 102 functions to interpret the received aerial system identifier signal 300. The chipset 608 preferably interprets the signal 300 into the aerial system identifier 310 (e.g., decrypts the signal, etc.)”), at 28, ll. 8-9 (“[t]he aerial system identifier 310 is preferably determined by the identification receiver 102”); EX2003, ¶¶ 32, 59; EX1001, 5:20-27, 14:60-64. EX2002 at 8:16-9:1 (“[t]he identification system 111 can include an identification receiver 102, which functions to receive the aerial system identifier signal 300. The identification receiver 102 can be passive (e.g., receive information broadcast by the aerial system 100) In a first variation, as shown in FIGURE 6, the identification receiver 102 is a wireless communication module including an antenna array 607 and chipset 608 but can alternatively include any other suitable component. The antenna array 607 of the identification receiver 102 functions to receive broadcast signals from an aerial system 100), FIGURE 6; EX2003, ¶¶ 30-31, FIGURE 6; EX1001, 4:57-5:2, FIGURE 6. Thus, the '303 App. and the '838 Prov. both disclose that the identification receiver receives the identifier signal. The '303 App. and the '838 Prov. each also teaches that the identification receiver receives “information broadcast by the aerial system” and “broadcast signals from an aerial system,” which include the secondary / second factor identifier that is included in, and is thus associated with, the aerial system. Both the '303 App. and the '838 Prov. also teach that the identification receiver interprets the identifier signal to determine the aerial system identifier from the identifier signal. Moreover, according to the '199 patent, determining the identifier includes “verifying the authenticity” of the aerial system identifier, which is accomplished using the second factor identifier.
[10.e1] <u>wherein the identification system is</u>	EX2002 at 30:17-18 (“[d]etermining an aerial system identifier 310 can optionally include verifying the authenticity of the aerial system identifier 310”), at

Claim Element	Support in the Specification
<u>configured to determine and verify an authenticity of the aerial system identifier of the aerial system identifier signal using the second factor identifier, and to provide an authenticated aerial system identifier of the aerial system identifier signal when the authenticity has been determined and verified, and</u>	30:24-31:1 (“[i]n a second variation, authentication is accomplished by using a secondary identifier”), at 4:15-20 (“in some variations, the aerial system 100 can include a first and second identifier, transmitted by a first and second identifier transmission system, respectively, wherein the second identifier can function as ... a second factor identifier for the aerial system 100 (e.g., as a secondary authenticator for the aerial system to prevent tampering and/or identifier reproduction)”); EX2003, ¶¶ 14, 66; EX1001, 2:57-64, 16:6-8, 16:17-18.
<u>[10.e2] to provide the authenticated aerial system identifier of the aerial system identifier signal to the permission module, and</u>	<i>See supra</i> element [1.b] (describing that the identification module determines the aerial system identifier from the aerial system identifier signal, and that the determination includes verifying the authenticity of the aerial system identifier). EX2002 at 3:3-6 (“the discrimination system 110 includes: ... an identification system 111 including a wireless communication system; and a permissions module 103 connected to the wireless communication system”), FIGURE 1; EX2003, ¶ 13, FIGURE 1; EX1001, 2:5-10, FIGURE 1. EX2002 at 9:13-17 (“The chipset 608 of the identification receiver 102 functions to interpret the received aerial system identifier signal 300. The chipset 608 preferably interprets the signal 300 into the aerial system identifier 310 (e.g., decrypts the signal, etc.)”), at 30:17-18 (“[d]etermining an aerial system identifier 310 can optionally include verifying the authenticity of the aerial

Claim Element	Support in the Specification
	system identifier 310"); EX2003, ¶¶ 32, 66; EX1001, 5:20-27. EX2002 at 9:20-22 (“[t]he chipset 608 can be connected to the permissions module 103, wherein the chipset 608 sends the raw or processed signal to the permissions module 103 for permissions determination”), at 18:13-16 (“[t]he permissions module 103 is preferably connected to, and receives information from, the identification receiver 102”), FIGURES 3, 6; EX2003, ¶¶ 32, 40, FIGURES 3, 6; EX1001, 5:31-34, 9:61-64, FIGURES 3, 6. Thus, the '303 App. and the '838 Prov. disclose that the identification receiver provides the determined and verified, i.e., authenticated, aerial system identifier that was determined from an aerial system identifier signal to the permission module for permissions determination.
[10.f] wherein the permission module is configured to determine that the aerial system associated with <u>the authenticated aerial system identifier of the aerial system</u> identifier signal is not permitted to be in an airspace; and	EX2002 at 3:6-10 (“[t]he aerial system identifier 300 is checked against the permissions module 103, which determines whether the aerial system identifier 300 is associated with an authorized or unauthorized UAV”), at 18:8-13 (“[t]he permissions module 103 can additionally function to determine whether the aerial system 100 has permission for a physical volume (e.g., restricted airspace 301ab), and/or generate operation permissions for the disruption mechanism 105 based on whether the aerial system identifier 310 is permitted”), FIGURES 1, 3; EX2003, ¶¶ 13, 40, FIGURES 1, 3; EX1001, 2:12-15, 9:55-61, FIGURES 1, 3. EX2002 at 32:20-22 (“[d]etermining a set of permissions associated with the restricted airspace functions to identify metrics by which to determine whether the aerial system 100 is permitted within the airspace”), at 35:3-10 (“[d]etermining whether the aerial system parameters are permitted based on the set of permissions functions to determine: whether the aerial system is permitted within the airspace The aerial system parameters can be: permitted, prohibited, partially permitted”), at 35:17-20 (“the aerial system is deemed not permitted when the

Claim Element	Support in the Specification
	aerial system lacks an identifier, the identifier is not on the list of permitted aerial system identifiers for the airspace, or the identifier is on a list of prohibited aerial system identifiers for the airspace”); EX2003, ¶¶ 69, 74, 75; EX1001, 17:13-16, 18:21-31, 18:42-47. The ’303 App. and the ’838 Prov. teach that the permission module can determine that the aerial system associated with the authenticated aerial system identifier from an aerial system identifier signal is not permitted to be in an airspace.
[10.g] a disruption system configured to disrupt an operation of the aerial system <u>(i) when it is determined by the permission module that the aerial system associated with the authenticated aerial system identifier of the aerial system identifier signal is not permitted to be in an airspace, or</u> <u>(ii) when the authenticity of the aerial system identifier of the aerial system identifier signal is not verified,</u> wherein the disruption system is preemptively enabled based on the received aerial	EX2002 at 2:18-20 (“[a]s shown in FIGURE 1, the aerial system discrimination system [] includes an aerial system disruption system 105”), at 3, ll. 3-6 (“the discrimination system 110 includes: a disruption system 105 including a launcher 303 and an interdiction module 304”), at 20:9-14 (“[i]n one variation, shown in FIGURE 3, the disruption system 105 can include a launching system 303 and an interdiction module 304, which cooperatively function to intercept, then interdict, the aerial system 100”), FIGURES 1, 3; EX2003, ¶¶ 12, 13, 21, FIGURES 1, 3; EX1001, 1:60-63, 2:5-10, 10:56-59, FIGURES 1, 3. EX2002 at 3:10-17 (“[t]he disruption system 105 can be automatically disabled (e.g., locked) in response to determination that the UAV is authorized, and/or automatically activated (e.g., unlocked) in response to determination that the UAV is unauthorized (e.g., reporting an unauthorized identifier, not reporting an identifier, etc.). When the disruption system 105 is in an unlocked state, the launcher 303 can launch the interdiction module 304 toward the UAV, wherein the interdiction module 304 can immobilize the motive mechanism of the aerial system 100 (e.g., by disabling the power system, entangling the motive mechanism, etc.)”); EX2003, ¶ 13; EX1001, 2:15-26. EX2002 at 30:17-20 (“[d]etermining an aerial system identifier 310 can optionally include verifying the authenticity of the aerial system identifier 310. This functions to identify aerial systems 100 with fake

Claim Element	Support in the Specification
system identifier signal.	identifier transmission systems, wherein such systems can be treated as unauthorized or otherwise treated”), at 2:22-3:2 (“[t]he discrimination system 110 functions to determine whether an aerial system 100 is authorized or unauthorized to be in the airspace. The discrimination system no can additionally function to prevent, disrupt, remove, or otherwise interact with an unauthorized aerial system within the airspace”); EX2002 ¶¶ 12, 66; EX1001, 1:66-2:4, 16:6-10. EX2002 at 36:20-37:2 (“certain scenarios may require the disruption system 105 to be ready to engage on short notice. As depicted in FIGURE 5, the disruption system 105 may thus be preemptively enabled if certain conditions are met (e.g. aerial system detected w/o an identifier 500, identifier is received but is invalid 501”), at 24:4-5 (“[t]he discrimination system 110 can additionally include a control system 104 that functions to selectively activate or deactivate disruption system operation”), at 24:10-15 (“[t]he control system 104 is preferably operable between a locked and unlocked mode The control system 104 preferably locks or otherwise disables disruption system 105 operation in the locked mode, and unlocks or otherwise enables disruption system 105 operation in the unlocked mode”), FIGURE 5 (depicting that the disruption system is enabled for disrupting an aerial system upon determining that the aerial system does not have permission); EX2003, ¶ 42, FIGURE 5; EX1001, 12:54-56, 12:63-13:3, 19:15-21, FIGURE 5. EX2002 at 26:9-15 (“[a]s shown in FIGURE 2, the method for aerial system discrimination and action includes: determining that an aerial system has entered restricted airspace 200, determining an aerial system identifier 300 for the aerial system 201, determining a set of permissions associated with the restricted airspace 202, and determining whether the aerial system parameters are permitted based on the set of permissions 203. Further, if the aerial system is not permitted, enabling a disruption system 204, and disrupting the operation of the aerial system 205”),

Claim Element	Support in the Specification
	FIGURE 2; EX2003, ¶ 54, FIGURE 2; EX1001, 13:62-14:4, FIGURE 2. EX2002 at 36:4-6 (“[t]he method can optionally include controlling disruption system operation based on the aerial system permission determination, which functions to selectively enable or disable the disruption system”), at 36:8-14 (“[c]ontrolling disruption system operation can include: selecting a disruption system operation mode based on the determined aerial system permission and controlling the disruption system operation to meet the selected mode. Selecting a disruption system operation mode based on the determined aerial system permission preferably includes: selecting an enabled operation mode in response to aerial system classification as not permitted (e.g., prohibited) and selecting a disabled operation mode in response to aerial system classification as permitted”); EX2003, ¶ 76; EX1001, 18:57-60, 18:63-19:6. Thus, the '303 App. and the '838 Prov. each discloses a disruption system 105 that is preemptively enabled, i.e., enabled for disrupting an aerial system upon determining that the aerial system does not have permission, or is unauthorized, e.g., because its identifier was not authenticated, where such determination is made e.g., when the aerial system identifier determined from the received aerial system identifier signal is found to be invalid.
[[2]11. The system of claim 10, wherein the identifier transmission system and the identification receiver communicate using a radio chipset that is compatible with a	EX2002 at 4:8-11 (“the identifier transmission system 101 includes a wireless communication chipset 605 (e.g., WiFi, BLE, or LTE chipset), which broadcasts the aerial system identifier 300 over a long geographic distance”), at 8:21-23 (“as shown in FIGURE 6, the identification receiver 102 is a wireless communication module including an antenna array 607 and chipset 608”), FIGURES 1, 3, 6; EX2003, ¶¶ 14, 31, FIGURES 1, 3, 6; EX1001, 2:48-51, 4:64-67, FIGURES 1,3, 6. <i>See also</i>, EX2002 at 30, ll. 17-18 (“[d]etermining an aerial system identifier 310 can optionally include verifying the

Claim Element	Support in the Specification
communication protocol selected from the following: WiFi, LTE, or Bluetooth.	authenticity of the aerial system identifier 310”), at 31:1-7 (“the authenticity of the identifier transmission system 101 can be verified when a first aerial system identifier signal 300 received from a WiFi transmitter (e.g., removably couplable to the aerial system) is associated with a second aerial system identifier” or with “a communications network interface identifier (e.g., MAC address)”), at 40 (claim 2); EX2003, ¶ 66,; EX1001, 16:6-8, 16:18-27. Thus, the '303 App. and the '838 Prov. disclose an identifier transmission system having a WiFi, BLE (i.e., Bluetooth Low Energy), or LTE chipset, and an identification receiver that is a wireless communication module that includes a chipset 608 and that receive a aerial system identifier signal broadcast by the identifier transmission system. As such, the identifier transmission system and the identification receiver can communicate using radio chipsets that are compatible with WiFi, LTE, or Bluetooth.
[[3]]12. The system of claim 10, wherein the identification receiver is a mobile device.	EX2002 at 11:15-18 (“the identification reader 102 is mounted to a mobile mounting point (e.g., the disruption system, second aerial system, etc.)”), at 8:14-17 (“the identification system 111 can be part of a secondary system, such as a user device 405 (e.g., a smartphone, tablet, etc.)” and “can include an identification receiver 102”), 40 (claim 4); EX2003, ¶ 36; EX1001, 6:25-30. Thus, both the '303 App. and the '838 Prov. disclose that the identification reader / receiver 102 can be mounted to a mobile mounting point, or may be included in a smartphone or tablet. As such, the '303 App. and the '838 Prov. both teach an identification receiver that is a mobile device.
[[4]]13. The system of claim 10, wherein the identifier transmission system is configured to be reassigned from a first aerial system to	EX2002 at 14:17-23 (“ [d]ynamic aerial system identifiers can be generated, re-assigned, ... in response to the occurrence of a trigger event (e.g., upon user reassignment of the identifier transmission system 101 to a different aerial system)”), at 16:23-17:3 (“[t]he coupling mechanism of the identifier transmission system 101 functions to couple the identification transmitter to the aerial system 100. The coupling mechanism ... can ... be

Claim Element	Support in the Specification
a second aerial system.	removable (e.g., transient), such that the identifier transmission system 101 can be moved between different aerial systems 100"); EX2003, ¶¶ 45, 50; EX1001, 7:63-8:5, 9:6-12. EX2002 at 37:21-38:4 (“[a]s shown in FIGURE 4 the method can optionally include reassigning identifier transmission systems 101 to different aerial systems Reassigning the identifier transmission system 101 can include: detecting a reassignment event 401 ... detecting an assignment event for a second aerial system 402”), at 38, ll. 5-8 (“reassignment event can include: physical identifier transmission system 101 removal from the first aerial system 401”), at 38, ll. 16-21 (“[t]he assignment event can be: physical identifier transmission system 101 coupling to a second aerial system 402”); EX2003, ¶ 78; EX1001, 19:51-67, 20:11-19. Thus, the '303 App. and the '838 Prov. both disclose reassigning an identifier transmission system by removing it from one aerial system and coupling and assigning it to another aerial system.
[[5]]14. The system of claim 10, wherein when the disruption system is enabled the aerial system is caused to be removed from the airspace.	EX2002 at 43 (Abstract) (“[t]he discrimination system can additionally function to prevent, disrupt, remove, or otherwise interact with an unauthorized aerial system within the airspace”), at 2, l. 23 to 3, l. 3 (stating the same), at 41 (claim 7); EX2003, ¶ 12, EX1001, Abstract. EX2002 at 3:10-17 (“[t]he disruption system 105 can be ... automatically activated (e.g., unlocked) in response to determination that the UAV is unauthorized (e.g., reporting an unauthorized identifier, not reporting an identifier, etc.). When the disruption system 105 is in an unlocked state, the launcher 303 can launch the interdiction module 304 toward the UAV, wherein the interdiction module 304 can immobilize the motive mechanism of the aerial system 100 (e.g., by disabling the power system, entangling the motive mechanism, etc.)”); EX2003, ¶ 13; EX1001, 2:15-26.

Claim Element	Support in the Specification
	EX2002 at 20:9-14 (as “shown in FIGURE 3, the disruption system 105 can include a launching system 303 and an interdiction module 304, which cooperatively function to intercept, then interdict, the aerial system 100. However, the disruption system 105 can include a jamming system, an electromagnetic disruption system, a buckshot system ..., an ablation system, a projectile net system, or any other suitable mechanism capable of interfering with aerial system operation”), at 21:12-19 (“[t]he interdiction module 304 of the disruption system 105 functions to interfere with aerial system 100 traversal through airspace. The interdiction mechanism 304 preferably interferes with aerial system 100 motive mechanism operation, but can additionally or alternatively interfere with the aerial system electronics and controls, disrupt the electrical connections between the control system and the motive mechanism ... to disrupt aerial system traversal through airspace”), FIGURE 3; EX2003, ¶ 21, 23, FIGURE 3; EX1001, 10:56-64, 11:28-39, FIGURE 3. EX2002 at 21:20-21 (“the interdiction module 304 includes a net that entangles the aerial system motive mechanism”), at 22:9-11 (“the interdiction module 304 includes a set of masses (e.g., bullets) that physically intercept the aerial system motive mechanism and/or electronics”), at 22:18-20 (“the interdiction module 304 includes collated light (e.g., a laser) that physically intercepts and burns the aerial system motive mechanism and/or electronics”); EX2003, ¶¶ 24-26; EX1001, 11:40-41, 11:58-60, 12:4-7. Thus, both the '303 App. and the '838 Prov. disclose that the disruption system can remove “an unauthorized aerial system within the airspace.” To this end, the '303 App. and the '838 Prov. both disclose that the disruption system is automatically unlocked and enabled upon determining the presence of an unauthorized aerial vehicle in the airspace. The '303 App. and the '838 Prov. each also describes that the disruption system can interfere with the motive, electronics, and/or controls of the unauthorized aerial

Claim Element	Support in the Specification
	system. Instruments such as a net, bullets, and a laser can be used for causing the interference. Interference with the motive, electronics and/or controls would cause the unauthorized aerial vehicle to be removed from the airspace.
[[6]]15. The system of claim 10, wherein the disruption system comprises of a projectile launcher and an interdiction module.	EX2002 at 20:9-14 (as “shown in FIGURE 3, the disruption system 105 can include a launching system 303 and an interdiction module 304, which cooperatively function to intercept, then interdict, the aerial system 100. However, the disruption system 105 can include a jamming system, an electromagnetic disruption system, a buckshot system (e.g., a system that fires buckshot), an ablation system, a projectile net system”), at 21:20-21 (“the interdiction module 304 includes a net that entangles the aerial system motive mechanism”), 22, ll. 4-8 (“the net can be part of a two-stage system, wherein the net is encapsulated within an airframe. The airframe is launched from the launching mechanism 303, and the net is subsequently launched from the airframe while the airframe is in flight. However, the net can be otherwise propelled toward the target”), at 41 (claim 8), FIGURE 3; EX2003, ¶¶ 21, 24, FIGURE 3; EX1001, 10:56-64, 11:40-41, 11:52-57, FIGURE 3. Thus, the '303 App. and the '838 Prov. disclose a “projectile net” that can be launched from an airframe, i.e., a projectile launcher. The airframe itself can be launched from a launcher included in the interdiction module.
[[7]]16. The system of claim 10, wherein the disruption system comprises of an interceptor drone coupled with an interdiction module.	EX2002 at 20:9-14 (as “shown in FIGURE 3, the disruption system 105 can include a launching system 303 and an interdiction module 304, which cooperatively function to intercept, then interdict, the aerial system 100”), at 23:16-18 (“the interdiction module 304 is propelled from a second aerial system (e.g. an interceptor drone) towards a target aerial system 100 when the target aerial system 100 is in ra[n]ge of the second aerial system”), FIGURE 3; EX2003, ¶ 21, FIGURE 3; EX1001, 10:56-59, 12:37-40, FIGURE 3.
[[8]]17. The system	EX2002 at 24:4-5 (“[t]he discrimination system 110 can

Claim Element	Support in the Specification
of claim 10, further comprising a control system for controlling the disruption system.	additionally include a control system 104 that functions to selectively activate or deactivate disruption system operation”), at 24:12-15 (“[t]he control system 104 preferably locks or otherwise disables disruption system 105 operation in the locked mode, and unlocks or otherwise enables disruption system 105 operation in the unlocked mode”), at 41 (claim 10), FIGURE 1; EX2003, ¶ 42, FIGURE 1; EX1001, 12:54-56, 12:66-13:3, FIGURE 1. <i>See also</i> supra element [10.d] (describing the control, including enabling and disabling of the disruption system by the control system). The '303 App. and the '838 Prov. each discloses that by activating / deactivating and/or enabling / disabling the disruption system, the control system controls the disruption system.
[[9]]18. The system of claim [[8]]10, further comprising a logging system that is configured to record activity of at least one of the identification receiver, the permission module, or the control system.	EX2002 at 25:13-21 (“[t]he discrimination system 110 can additionally include a logging system 106 that functions to store and/or provide histories for aerial system identifiers 310 (e.g., generated by the identifier transmission system 101, static identifier for the aerial system 100, etc.), airspace volume, an entity associated with a set of airspaces, an entity associated with a set of aerial systems, or any other suitable history. The history can include: operation history (e.g., SOC, flight velocity, etc.), parameters for aerial system collocation within a given volume of airspace (e.g., airspace identifier, timestamps, concurrent weather proximal the airspace, etc.), or any other suitable historic parameter”), FIGURE 1; EX2003, ¶ 43, FIGURE 1; EX1001, 13:34-45, FIGURE 1. EX2002, at 25:21-26:7 (“[t]he history is preferably generated (automatically, etc.) in response to aerial system identification within the airspace (e.g., wherein the logging system can be coupled to the identification receiver), in response to determination of unauthorized aerial system presence within the airspace (e.g., wherein the logging system can be coupled to the permissions module) The history can be used to predict aerial

Claim Element	Support in the Specification
	system action given a set of current operation parameters (e.g., using machine learning algorithms), to verify that the aerial system was within restricted airspace, to identify or verify the aerial system (e.g., wherein the discrimination system can query the aerial system for historic information, and verifies the aerial system upon receipt of the correct historic information)”), at 41 (claim 11), FIGURE 1; EX2003, ¶ 43, FIGURE 1; EX1001, 13:45-60, FIGURE 1. Thus, the '303 App. and the '838 Prov. each discloses a discrimination system that includes a logging system that is coupled to the identification receiver and/or the permission module, for recording histories, i.e., activity of these modules. At the permission module, “in response to determination of unauthorized aerial system presence within the airspace,” the activity of the control system, e.g., in disabling / activating the disruption system is recorded.

V. PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE

While Petitioners “bear[] the burden ... to show ... that any proposed substitute claims are unpatentable,” 37 C.F.R. § 42.121(d)(2), Patent Owner respectfully submits that the proposed substitute claims are patentable over the prior art cited in the Grounds asserted in this IPR proceeding (the “IPR Prior Art”).

In particular, proposed independent substitute claim 10 is patentable at least because it recites “an identification receiver ... configured to receive the aerial system identifier signal and a second factor identifier”; and an “identification system [] configured to determine and verify an authenticity of the aerial system identifier ... using the second factor identifier, and to provide an authenticated

aerial system identifier ..., and to provide the authenticated aerial system identifier ... to the permission module.”

Among the IPR Prior Art, Whitmarsh appears to describe “a drone defense system (DDS) ... to effect one or more countermeasures against unwanted or unauthorized drone incursions into defined air space.” EX1006 ¶ 3. Whitmarsh states that the “drone defense system may also involve a remote transmission security system (RTSS) which may be used to take control of or commandeer an unauthorized, undesired, or rogue drone.” *Id.* ¶ 6. Whitmarsh also states that “[a]ll drones have a unique identifier, such as a media access control (MAC) address, that can be determined or read by the DDS and used to identify the drone.” *Id.* ¶ 13.

Whitmarsh further states that “[a]ll drones with definable MAC addresses are tagged by the DDS. All non-MAC address drones activate the countermeasures system.” *Id.* ¶ 16. Whitmarsh’s “DDS Tags all drones and does a MAC address check at the local and national registry. If no MAC address is detected, or if it is not registered, the DDS activates the countermeasures system.” *Id.* ¶ 17.

Whitmarsh also states that “RTSS is the first defensive system that can ID a drone's signature.” *Id.* ¶ 7.

Regarding signatures that may be used to identify a done, Whitmarsh states: RTSS determines threat level and identifies (IDs) the drones. In one

embodiment, the **RTSS identifies**, classifies, and categorizes the unauthorized or hostile drones by their **signatures. Each movement is computed and observed.** Each tracking signature may be processed in conjunction with one or more information databases, including, for example a local database or a national database (the national registry database structure is currently being defined) to record the signature of each non-recognized signature and each event. The RTSS will record them and once the national database is online, it will attempt to match the signature of the drone or device with its owner. The **behavior of the unauthorized or hostile drone is recorded with its signature identification.**

Id. ¶ 10. Thus, the “signature” that Whitmarsh describes is not an identifier of the drone, but an attribute of the drone – its movement pattern that may be used to identify (or “ID” as Whitmarsh states) the drone. Whitmarsh’s signature is **computed and observed.** It is not received as an identifier by the DDS.

Whitmarsh further states:

DDS will enable creation of a National Registry for a Cloud based highly secure DDS Database that interacts with the DMV for classification, registration, and recording the signature ID of a Drone and its MAC address (MAC addresses are like the VIN Numbers on vehicles). The DDS would **cross-check** Drones being tracked for authentication and verification **via the DMV and DDS Database** that transmits to DDS “RTSS” to activate an action.

Id. at 23 (Section “Regulation”).

To the extent Whitmarsh discloses the MAC address of a drone as the claimed “identifier signal unique to the aerial system,” Whitmarsh does not teach or suggest any other identifier that is received by the DDS, RTSS, or any other system. Whitmore discloses a “signature ID”, but as shown above, it is an attribute of a drone – a drone’s movement pattern –that is **computed and observed**. As such, Whitmarsh does not teach or suggest a “received” “second factor identifier,” as claimed in proposed substitute claim 10. To the extent Whitmarsh describes “authentication and verification” of a drone, Whitmarsh does not teach or suggest verifying the authenticity of the MAC address using any additional identifier that is received as an identifier, i.e., using a received second factor identifier. Accordingly, Whitmarsh does not teach or suggest any of the above-stated limitations of proposed substitute claim 10.

Viggiano appears to describe a system and method that “requires ADS-B systems to respond to authentication challenges, verifying the identity of the ADS-B systems using an authentication challenge-response format.” EX1007 ¶ 6. In particular, Viggiano teaches that an “Authenticator’s system generates a unique identifier and transmits an authentication challenge 12, which includes the unique identifier, to the ADS-B transmitter 20.” *Id.* ¶¶ 12, 13. The ADS-B transmitter on the aircraft uses “the unique identifier, the ADS-B transmitter’s ID 22 and specific data 24” to “generate its authentication challenge response.” *Id.* ¶ 13. The

challenge response received from the aircraft by the ground station, whether unencrypted or encrypted, is not a second factor identifier.

Falk appears to describe a “beacon ... attached to an unmanned aerial vehicle” where the “beacon includes first indicia identifying an owner or responsible party, and second indicia identifying a particular unmanned aerial vehicle.” EX1011, 3:42-44. “At least a portion of the first and second indicia together form a unique identifier associating the owner or responsible party with the unmanned aerial vehicle.” *Id.*, 3:44-47. Falk also discloses:

[A] beacon 100 may include first indicia 121 that encodes in an optical form the information required by regulation, and second indicia 122 that encodes in a computer-readable form the information required by regulatory requirements. In other embodiments, the beacon 100 may include first and second indicia 121, 122 that have different information. For example, the first indicia 121 may only include the information required by regulation, and the second indicia 122 may only include additional information such as the intended flight plan for the UAV or the intended purposes of the UAV.

Id. 6:36-46, FIG. 1.

Falk does not disclose authenticating the first indicia of a beacon using a second indicia thereof, or vice versa. As such, neither of the two indicia is “a second factor identifier associated with the aerial system” used “to determine and verify authenticity of the aerial system identifier of the aerial system identifier

signal,” as proposed substitute claim 10 recites.

For its part, Goodrich appears to disclose “an interceptor UAV that is launched toward a detected target UAV. The target UAV is detected, for example, by a ground-based detector,” and the “interceptor UAV then flies autonomously to intercept the target UAV.” EX1008 ¶ 11. Goodrich is silent on any identifiers associated with a UAV, and as such, does not teach or suggest any of the above-stated limitations of proposed substitute claim 10.

Because none of the IPR Prior Art teaches or suggests at least the above-stated limitations of proposed substitute claim 10, that claim is patentable.

Proposed substitute claims 11-18 depend from proposed substitute claim 10, and are therefore patentable at least for that reason. *See* EX2001 § XI, ¶ 136.

VI. CONCLUSION

In light of the foregoing, Patent Owner respectfully requests that the Board grant this motion to amend.

Respectfully submitted,

Dated: December 20, 2025

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CLAIMS APPENDIX

Proposed substitute claims are shown in the marked-up form below:

[[1]]10. A discrimination system comprising:

an identifier transmission system coupled to an aerial system, wherein the identifier transmission system is configured to broadcast an aerial system identifier signal comprising an aerial system identifier unique to the aerial system;

an identification system comprising an identification receiver;

a permission module,

wherein the identification receiver is configured to receive the aerial system identifier signal and a second factor identifier associated with the aerial system;

wherein the identification system is configured to determine and verify an authenticity of the aerial system identifier of the aerial system identifier signal using the second factor identifier and to provide an authenticated aerial system identifier of the aerial system identifier signal when the authenticity has been determined and verified, and

to provide the authenticated aerial system identifier of the aerial system identifier signal to the permission module, and

wherein the permission module is configured to determine that the aerial system associated with the authenticated aerial system identifier of the aerial system identifier signal is not permitted to be in an airspace; and

a disruption system configured to disrupt an operation of the aerial system (i) when it is determined by the permission module that the aerial system

associated with the authenticated aerial system identifier of the aerial system identifier signal is not permitted to be in an airspace, or (ii) when the authenticity of the aerial system identifier of the aerial system identifier signal is not verified, wherein the disruption system is preemptively enabled based on the received aerial system identifier signal.

[[2]]11. The system of claim 10, wherein the identifier transmission system and the identification receiver communicate using a radio chipset that is compatible with a communication protocol selected from the following: WiFi, LTE, or Bluetooth.

[[3]]12. The system of claim 10, wherein the identification receiver is a mobile device.

[[4]]13. The system of claim 10, wherein the identifier transmission system is configured to be reassigned from a first aerial system to a second aerial system.

[[5]]14. The system of claim 10, wherein when the disruption system is enabled the aerial system is caused to be removed from the airspace.

[[6]]15. The system of claim 10, wherein the disruption system comprises of a projectile launcher and an interdiction module.

[[7]]16. The system of claim 10, wherein the disruption system comprises of an interceptor drone coupled with an interdiction module.

[[8]]17. The system of claim 10, further comprising a control system for controlling the disruption system.

[[9]]18. The system of claim [[8]]10, further comprising a logging system that is configured to record activity of at least one of the identification receiver, the permission module, or the control system.

Certificate of Service

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a copy of the foregoing PATENT OWNER’S MOTION TO AMEND (CORRECTED) and its exhibits were served via email on December 20, 2025 (per counsel’s consent) to lead and backup counsel of record for Petitioners as follows:³

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³ Patent Owner’s Motion to Amend (filed on December 19, 2025) and its additional exhibits were not served. This corrected motion corrects the date of service in this Certificate of Service and the date of filing. No other changes are made.