U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

August 28, 2015

Exemption No. 12646
Regulatory Docket No. FAA–2015–1602

Mr. Brandon Torres Declet
Measure, a 32 Advisors Company, LLC
1875 Connecticut Avenue, NW.
10th Floor
Washington, DC 20009

Dear Mr. Declet:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

By letters dated May 4, 2015, and June 8, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Measure (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate unmanned aircraft systems (UAS) for the purpose of aerial data acquisition.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner are the aircraft attached to the docket as appendices 1 and 2 in addition to the aircraft approved by the Secretary of the Department of Transportation for operation under Section 333.[1]

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection.[2] The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

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[1] The petitioner also proposed to operate additional battery and gas powered UAS. The FAA is assessing the fuel source and weight of these UAS. When the FAA completes its review, we will proceed accordingly and no further action will be required by the petitioner.

[2] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

As discussed in the conditions and limitations below this exemption is issued to Measures. Therefore, Measures is the operator of any UAS operations conducted under the terms of this exemption. Nothing in this letter should be construed as FAA approval of a particular business model or employment arrangement between the exemption holder and UAS PICs. This exemption is subject to the conditions and limitations listed below.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Measure is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection.

Conditions and Limitations

In this grant of exemption, Measure is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the aircraft approved by the Secretary of the Department of Transportation for operation under Section 333 (Attachment 1) when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than

corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is

prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of

the risk of operating closer to those objects and determined that it does not present an undue hazard.

The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on August 31, 2017, unless sooner superseded or rescinded.

Sincerely,
/s/
John S. Duncan
Director, Flight Standards Service

Enclosures

Attachment 1

1. 2AgEagle
2. 3D Robotics Aero-M
3. 3D Robotics Iris
4. 3D Robotics Iris+
5. 3D Robotics X8
6. 3DRobotics Fixed Wing
7. 3DRobotics Multirotor
8. 3DRobotics Quadrotor
9. 3DR Solo
10. 3DR Spektre
11. 3DRobotics Spektre Industrial Multi-Rotor Aerial Vehicle
12. 3D Robotics Solo
13. 3DRobotics X8+
14. 3D Robotics X8-M
15. 3D Robotics Y6
16. Aerial Mob Heavy Lifter
17. Aerial Mob Light Lifter
18. Aerial Remote Mineral Detection System (ARMDS)
19. Aerialtronics Zenith with intergrated Airware system
20. Aerialtronics Altura Zenith ATX8
21. Aerigon
22. Aerobo
23. AeroCine Kopterworx Hammer X12
24. Aeromao AeroMapper 300
25. Aeromao Talon
26. Aeromao Aeromapper 300
27. Aeromao Aeromapper EV-2
28. AeroVironment Shrike
29. AeroVironment Puma
30. Aeronavics X4 Titanium
31. Aeryon Sky Ranger
32. Aervonics Sky Jib frame with a DJI A2 flight system
33. Aero-M
34. Aeryon Scout
35. Aeryon SkyRanger
36. AgEagle
37. AgEagle Robotic
38. AgScout
39. AgScout Mini
40. Agribotix Hornet Drone
41. Agribotix Enduro Quad
42. AgriView VK Ranger EX

43. Aibot
44. Aibotix X-6
45. Air Rover AR-3000
46. AirCover QR-425s
47. AirRobot AR 180
48. AirRobot AR 100
49. AirRobot AR200
50. Air-X
51. Align M690
52. Altavian Nova
53. Altavian Nova F6500
54. Altavian Nova R8400
55. Altus X-4
56. Altus X-8
57. American Drones, LLC Eagle
58. Apprentice
59. Arch Aerial OCTO multi-rotor UAS
60. Arris hexacoper
61. AR-960 Hex Rotor
62. AR-540 Quad Rotor
63. ARF-MikroKopter OktoXL
64. ARF-MikroKopter OktoXL +
65. ArrowLite
66. AscTec Falcon
67. AscTec Falcon 8
68. Astraeus Aerial Cinema System V.3CS
69. Atlantic RC Aircraft LC04
70. Auburn Trimble UX5
71. Auburn War Eagle
72. Auburn EasyStar
73. Auburn
74. AV44
75. Bixler 3DR Plane
76. Blade 350QX
77. Bixler 2
78. Boomerang Carbon Fiber Frame (The Identified System)
79. Bormatec Maja UAV
80. BOSH Technologies Super Swiper
81. Bumblebee-S
82. C-Astral Bramor gEO
83. CarbonCore Octocopter 1000
84. Carbon Core Cortex Quadcopter
85. CCO w/Wkm M
86. Chameleon Pro

87. CinesStar
88. Cinestar 6
89. Cinestar X8
90. Cinestar 8
91. Cinestar 8 HL
92. Cinestar 8 Okto XL
93. Coaxial Quad Multirotor VAO1-V1
94. Coaxial Quad Multirotor VAO2-V2
95. CopelandRED LLC Delta Wing Aircraft
96. CyberQuad Maxi
97. DJI Flame Wheel F450
98. DJI Flame Wheel F550
99. DAx8
100. DJI Inspire
101. DJI Inspire 1
102. DJI Inspire 2
103. DJI M P330z
104. DJI Phantom
105. DJI Phantom 1
106. DJI Phantom 2
107. DJI Phantom 2+
108. DJI Phantom 2 Vision
109. DJI Phantom 2 Vision+
110. DJI Phantom Vision +
111. DJI Phantom 3
112. DJI Phantom FC40
113. DJI Spreading Wings S900
114. DJI Spreading Wings S1000
115. DJI Spreading Wings S1000+
116. DJI S800
117. DJI S800 EVO
118. DJI T600
119. Draganflyer Guardian
120. Draganflyer X4ES
121. Draganflyer X4P
122. Draganflyer X6
123. DT-18
124. DYS D800-X8
125. Eagle VTOL
126. Eagle V2
127. E-Flite Apprentice
128. Event 38 E384
129. F-450
130. Falcon VTOL

131. Fire Fly 6
132. First Aerial Responder UAV
133. Flame Wheel G4 7.8 Skycrane
134. Flying-Cam 3.0 SARAH
135. Foxtech Kraken 130 V2
136. FreeFly Systems ALTA RTF
137. FreeFly Systems Octocopter Airframe (Legacy)
138. G4
139. G4 models
140. GeoStar
141. GerMAP G220
142. GerMAP G180
143. goFarm GF-1
144. Gryphon Dynamics X8
145. GT80X
146. Harris 18 HL
147. HEFF
148. Helicopters West DJI Inspire
149. Helicopters West SkyJib 8
150. Helios 960
151. Hawkeye Mk-III
152. HexaCrafter HC-1100 85.
153. HexaCrafter HO-1250
154. HH Blade 350QX2 AP
155. Hobbyking “Bixler” Fixed Wing Trainer
156. HoneyComb AgDrone
157. Horizon Hobby Blade 350 Qx2 quadcopter
158. Hoverfly LiveSky, BigSky 60 and H-Frame
159. Hubsan X4 micro drone
160. HVP 14301 Multi Rotor
161. Identified System
162. IMT Global xFold Cinema
163. Indago
164. InovalDrone:Inova One
165. InstantEye Mk-2
166. InstantEye Mk-2 Gen2
167. Intuitive Aerial Aeragon
168. K130 Octocopter
169. KongCopter X8
170. Kopterworx Hammer X12
171. Latitude HQ-4 Hybrid Multirotor
172. LB700
173. Leading Edge Precision Vision 10
174. Leptron Avenger

175. Lewis Realty Associates Hexacopter 650
176. Liberty 1
177. Lockheed Martin Desert Hawk III
178. Lockheed Martin Indago
179. Matrix quad copter
180. MaxFlight
181. MD4-200
182. MD4-1000
183. Mikrokopter 2.5
184. MLB Company Super Bat
185. MU-1H
186. Multirotor G4 7.8 Skycrane
187. Nighthawk
188. Nighthawk VTOL
189. OktoXL 6S12
190. PAG X4
191. Parksone Radian RTF
192. Parrot Bebop drone
193. Parrot PF 725100 Bebop Drone 14MP
194. Parrot Skycontroller
195. Patriot X4
196. Patriot X8
197. Finwing Penguin V2
198. Birdseyeview FireFly 6
199. Phoenix
200. Phoenix VTOL
201. Phoenix 60
202. Phoenix 60LE
203. Pixhawk
204. Precision Drone Pacesetter
205. PrecisionHawk
206. PrecisionHawk Hawkeye Mk-III
207. PrecisionHawk Lancaster
208. Precision Lancaster MK3
209. Prioria Hex
210. Prioria's Maveric
211. Pulse Aerospace, PA 01 Vapor
212. Pulse Aerospace Pulse Vapor 35
213. Pulse Vapor
214. Puma AE DDL
215. PV 14817 Multi Rotor
216. PV HL1
217. PV HL2
218. Q1

219. Quadcopter LLC MikroKopter
220. Quiet UAV
221. Qube
222. R/C Rotors and Aerial Media: Matrix Prof. Multi Rotor Frame & Octo Heavy Lift Prof. Multi Rotor
223. Frame Ronin Edition Microdrones:MD4-1000
224. RCTimer Hexacopter
225. RDASS
226. REHawk 500
227. REHawk 680
228. RF-70
229. Riegl RiCopter
230. RITEWING Z3 Spade 47”
231. Ritewing Drake 60”
232. RITEWING Z3 Spade 70”
233. RITEWING Z4 Spade 52”
234. RMAX
235. Roboflight
236. Rotomotion SR-15
237. RV Jet
238. Scout X4
239. SD02
240. Seahawk 1.2
241. SelectTech Geospacial’s EH-4
242. SenseFly eBee
243. SenseFly eBee RTK
244. SenseFly eXom
245. Sensurion Magpie MP-1
246. Service-Drone Recon One
247. Service-Drone Blackbird
248. SH 900
249. ShadowHawk
250. Shrike
251. Sirius
252. SkyCatch
253. SkyJib 8 v.2 Heavy Lifter
254. SkyPhilly MI
255. Skywalker Aero
256. Skywalker Flying Wing X8
257. SnapRoll Media SUAS
258. Solutions Phoenix 30
259. SteadiDrone
260. Steadidrone Quad
261. Steadydrone QU4D

262. Steadidrone Mavik
263. SuperX/P2 Multirotor
264. Swift Radioplanes Lynx
265. Tali 500
266. Talon 120LE
267. Tarot FY690S Hexacopter
268. Tarot quadcopter
269. Tarot 680pro
270. Tarot 690
271. Tarot 900
272. Tarot 960
273. Tarot T-15
274. Tarot T15 C/F Folding Octocopter
275. Tarot T18 UAV
276. Tarot T690
277. Tarot T810
278. Tarot T960
279. Tarsier Systems MoAC
280. Tayzu Robotics Titan X8
281. TBS Discovery Pro
282. Team Black Sheep Discovery Pro Tarot T15
283. T-Rex 700E F3C
284. TREX 800E DFC PRO
285. Trimble UX5
286. Trimble UX5 hp
287. Trimble ZX5
288. Turningy Talon 500
289. TUP X8-800
290. Turbo Ace CINEWING 6
291. TurboAce Matrix-G quadcopter
292. Turbo Ace matrix-E
293. Turbo Ace MATRIX-1
294. UAV Solutions Phoenix 60
295. Universeye Penguin
296. Unmanned Flying Rolling Orb “UFRO”
297. US2 GreenHawk
298. UtiliCopter ITX8
299. VA03-v1
300. VA04-v1
301. VA07-v1
302. Viking UAS Multicopter (VTOL)
303. Viking UAS FF-X4/X8
304. VK-Patriot X4/X8
305. Viking UAS Patriot X4/X8 Multirotor

306. Viking UAS X6 Model 800
307. Viking UAS Viking ONE
308. VK-450
309. Viking Unmanned Aerial Systems, LLC AgriView VK Ranger EX
310. Viking VK-FF-X4
311. VK- Ranger EX- SAR Fixed Wing UAS
312. Volantex Raptor Tarot T-18
313. Volt Aerial Robotics Octane
314. Vulcan frame controlled by a DJI A2 flight controller
315. Vulcan Mantis
316. Vulcan Octocopter
317. Vulcan Raven
318. Vulcan UAV
319. Walkera TALI H500
320. Walkera Scout X4
321. Wookong DJI 5800
322. xCel Drones XD550CDR
323. XFold Rig with four configurations: Quadcopter, Hexcopter, Octocopter and x12 Copter
324. X8-M

Electronic Submission

May 4, 2015

U.S. Department of Transportation, Docket Operations
West Building Ground Floor, Room W12-140
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (herein referred to as FMRA) and 14 CFR Part 11, Measure, a 32 Advisors Company, LLC (herein referred to as Measure) hereby applies for an exemption from the listed Federal Aviation Regulations (FARs) to allow commercial operation of UAS for the acquisition of aerial data, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA.

As detailed in this document and the attached Appendix of UAS, the requested exemption would permit the operation of UAS under controlled conditions in the United States. Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's responsibilities to "...establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) Reform Act.

The name and address of the applicant is:

Measure, a 32 Advisors Company, LLC
Brandon Torres Declet
CEO & Co-Founder
1875 Connecticut Avenue, NW
10th Floor
Washington, D.C. 20009
Tel: 202-793-3052
Email: bdeclet@measure32.com

Regulations from which the exemption is requested:

14 CFR Part 21
14 CFR 45.23(b)
14 CFR 61.113(a) & (b) 14 CFR 91.7(a)
14 CFR 91.9(b)(2)
14 CFR 91.103
14 CFR 91.109
14 CFR 91.119
14 CFR 91.121
14 CFR 91.151(a)
14 CFR 91.203(a) & (b) 14 CFR 91.405(a)
14 CFR 407(a)(1) 14 CFR 409(a)(2) 14 CFR 417(a) & (b)

AUTHORITY FOR EXEMPTIONS

The Federal Aviation Act expressly grants the FAA authority to issue exemptions. This statutory authority includes exempting civil aircraft, as the term is defined under §40101 of the Act, including UAS, from the requirement that all civil aircraft must have a current airworthiness certificate.

The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any sections §44702-44716 of this title if the Administrator finds the exemption in the public interest. 49 USC §44701(f). See also 49 USC §44711(a); 49 USC §44704; 14 CFR 91.203(a)(1).

Section 333(b) of the Reform Act assists the Secretary in determining whether UAS may operate in the national airspace system without creating a hazard to the user, the public, or a threat to national security. In making this determination, the Secretary must consider:

- The UAS' size, weight, speed and operational capability;
- Whether the UAS operates within the visual line of sight of the operator;
- Whether the UAS operates outside of highly populated areas and away from close proximity to airports.

Reform Act 333(a). If the Secretary determines that a UAS "may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft in the national airspace system." Id. 333(c).

BACKGROUND ON MEASURE

Measure is one of the world's leading Drone as a Service® companies. Measure provides turnkey solutions utilizing UAS to deliver specific, low risk, and cost effective actionable data to clients. Measure was founded specifically to help clients avoid the capital expense and operating risks of establishing their own drone programs and to purchase drone support in a way which better fits their operations and cost profiles.

Measure believes in a risk-based and technology agnostic approach to operations in the national airspace. Approval for any operation should be based on an analysis of the specific risks associated with the fully integrated solution, rather than the individual components.

The Measure business model is predicated on identifying requirements, developing the business case, and demonstrating the Return on Investment (ROI) from UAS for enterprise clients in a number of industries. Drone as a Service® is a custom integrated solution made up of seven different components.

UAS AND OPERATIONAL DESCRIPTION

Measure seeks to commercially operate a variety of UAS weighing less than 55 pounds including payload in the United States for the purpose of acquiring aerial data. The Appendix attached to this exemption petition lists the aircraft that Measure contemplates operating. In addition, Measure requests that it be granted permission to operate those aircraft already approved in previous Section 333 exemption petitions.

As the operator of these aircraft, Measure is committed to the following conditions and limitations on its operations. Measure understands that failure to comply will be grounds for the immediate suspension or rescission any exemption granted.

1. Operations are limited to the UAS listed in the Appendix and those UAS previously approved by the Secretary when weighing less than 55 pounds including payload.

2. Operations for the purpose of closed-set motion picture and television filming are not contemplated.

3. The aircraft will not be operated at a speed exceeding 87 knots (100 miles per hour). In no case will the aircraft be operated at airspeeds greater than the maximum aircraft operating airspeed recommended by the aircraft manufacturer.

4. The aircraft will be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The aircraft will be operated within visual line of sight (VLOS) of the Pilot in Command (PIC) at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's U.S. driver's license.

6. All operations will utilize a visual observer (VO). The aircraft will be operated within the visual line of sight (VLOS) of the PIC and VO at all times.

7. All operating documents needed to operate the UAS and will be accessible during UAS operations and made available to the Administrator upon request. The operator will also present updated and revised documents if it petitions for extension or amendment.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g. replacement of a flight critical component, will undergo a functional test flight prior to conducting further operations.

9. Measure is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC will conduct a pre-flight inspection and determine the UAS is in a condition for safe flight.

11. Measure will follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption will comply with all manufacturer safety bulletins.

13. The PIC will hold a UAS flight training certificate, in some cases training directly from the aircraft manufacturer, and a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government.

14. Measure will not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated to acquire aerial data, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency will be logged in a manner

consistent with 14 CFR § 61.51(b). Measure will operate flights for the purposes of training Measure PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS.

15. UAS operations will not be conducted during night, as defined in 14 CFR § 1.1. All operations will be conducted under visual meteorological conditions (VMC).

16. The aircraft will not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA.

17. The aircraft will not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the aircraft will return to a pre-determined location.

19. The PIC will abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC will be prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power or fuel for the aircraft to conduct the intended operation and to operate after that for at least five minutes or with the reserve power or fuel recommended by the manufacturer if greater.

21. All operations shall be conducted in accordance with an ATO-issued COA if the blanket COA does not cover the intended operation.

22. All aircraft operated will be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings will be as large as practicable.

23. Documents used by Measure to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 will be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating.

24. The aircraft will remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may be operated by the PIC from a moving device or vehicle; however, specific requests will be made via subsequent COA.

26. All flight operations will be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the aircraft or debris in the event of an accident; or

    b. The owner/controller/operator of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made an assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

27. The PIC, VO, operator trainees or essential persons will not be considered nonparticipating persons under this exemption.

28. All operations conducted over private or controlled-access property will be conducted with the permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

29. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA will be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

DESCRIPTION OF SPECIFIC REGULATIONS

14 CFR Part 21, Subpart H: Airworthiness certificates

Subpart H, establishes the procedural requirements for the issuance of airworthiness certificates as required by FAR §91.203(a)(1). Given the size and limited operating area associated with the aircraft to be utilized by Measure, an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act. The Federal Aviation Act (49 USC §44701(f)) and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability and proximity to airports and populated areas of the particular UAS. In all cases, an analysis of these criteria demonstrates that the UAS operated without an airworthiness certificate, in the restricted environment and under the conditions proposed, will be at least as safe, or safer, than a conventional aircraft operating with an airworthiness certificate without the restrictions and conditions proposed.

14 CFR 45.23(b): Marking of the aircraft

This regulation requires that certain experimental, provisionally certified aircraft, or light-sport category aircraft to be marked with letters between 2 inches and 6 inches high "limited", "restricted," "light-sport," "experimental," or "provisional," near each entrance to a cabin, cockpit or pilot station. Even though the UAS will have no airworthiness certificate, an exemption may be needed as the UAS will have no entrance to the cabin, cockpit or pilot station on which the word "Experimental" can be placed. Given the size of the UAS, 2 inch lettering may be impossible. Measure will mark the UAS as practicable.

14 CFR 61.113(a) & (b): Private pilot privileges and limitations: Pilot in command

Sections 61.113(a) and (b) limit private pilots to non-commercial operations. Because the UAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the pilot operating the aircraft to have completed a UAS flight-training course. Unlike a conventional aircraft that carries the pilot and passengers, the UAS is remotely controlled. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance. The risks associated with the operation of the UAS are so diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, that allowing operations of the UAS as requested exceeds the present level of safety achieved by 14 CFR 61.113(a) and (b).

14 CFR 91.7(a): Civil aircraft airworthiness

The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft Measure contemplates operating, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the aircraft and the operational restrictions put on the aircraft, an equivalent level of safety will be provided.

14 CFR 91.9(b)(2): Civil aircraft flight manual, marking and placard requirements

The UAS, given its size and configuration has no ability or place to carry such a flight manual on the aircraft, not only because there is no pilot on board, but because there is no room or capacity to carry such an item on the aircraft. The equivalent level of safety will be maintained by keeping the Operating Manuals at the ground control point where the pilot flying the UAS will have immediate access to it.

14 CFR 91.103: Preflight action

This regulation requires each pilot in command take certain actions before flight to ensure the safety of flight. An exemption is needed from this requirement, as the pilot will take separate preflight actions, including checking for weather conditions, checking flight battery or fuel requirements, checking takeoff and landing distances, and all other actions in the Operating Manuak and safety checklists. These actions will provide an equivalent level of safety.

14 CFR 91.109: Flight instruction

Section 91.103 provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. By design, UAS do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The equivalent level of safety is provided by the fact that neither a pilot nor passengers will be carried in the aircraft, the ability to control the UAS via radio signals from the controller and by the size and speed of the aircraft.

14 CFR 91.119: Minimum safe altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. The UAS will never operate at altitude higher than 400 AGL and all operations will occur during daylight hours under Visual Meteorological Conditions (VMC) only.

The equivalent level of safety will be achieved given the size, weight and speed of the UAS as well as the location where it is operated. No flight will be taken without the

permission of the property owner. Because advance notice to the property owner and any onsite personnel, as well as the precautions outlined below, all affected individuals will be aware of the planned flight operations.

Flight operations will be conducted at least 500 feet from all non-participating persons (persons other than the pilot in command (PIC) or visual observer (VO)), vessels, vehicles and structures, unless operations do not present an undue hazard.

The UAS will remain within visual line of sight of the PIC or VO. Flight operations will be conducted at least 5 miles from an airport. The PIC or VO will provide notification to the local Flight Standards District Office and airport controller of all operations within 5 miles of an airport. The FAA will have advance notice of all operations through the filing of notices-to-airmen.

Compared to flight operations with aircraft or rotorcraft weighing far more than the UAS proposed herein, any risk associated with our operations is far less than those presently presented with helicopters and other conventional aircraft operating at or below 500 feet AGL. In addition, the low-altitude operations of the UAS will ensure separation between these UAS operations and the operations of conventional aircraft that must comply with Section 91.119.

14 CFR 91.121: Altimeter Settings

This regulation requires each person operating the aircraft to maintain cruising altitude by reference to an altimeter that is set "...to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the UAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption may be needed. An equivalent level of safety will be achieved by the PIC confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

14 CFR 91.151(a): Fuel requirements for flight in VFR conditions

Section 91.151(a) outlines fuel requirements for beginning a flight in VFR conditions. Relief from Section 91.151(a)(1) is requested to the extent required to allow flights of a variety of UAS during daylight hours in visual flight rules (VFR) conditions to continue until 90 percent of remaining battery power or fuel reserves remain. Measure seeks the requested relief because without an exemption from Section 91.151(a)(1), the flight time duration of the selected aircraft will be reduced and severely constrain the practicality of any aerial acquisition of data that Measure proposes to conduct pursuant to this Petition.

The technical specifications of the proposed UAS, their Operations Manuals, and Measure's proposed operating limitations, ensure that Measure will safely operate the

selected aircraft during daylight hours in VFR conditions until 90 percent of remaining battery power or fuel reserves remain.

14 CFR 91.203(a) & (b): Carrying civil aircraft certification and registration

The UAS has no cabin, cockpit or pilot station and is operated without an onboard pilot. Therefore, there is no ability or place to carry certification and registration documents or to display them on the UAS. An equivalent level of safety will be achieved by keeping these documents at the ground control point where the pilot flying the UAS will have immediate access to them, to the extent they are applicable to the UAS.

14 CFR 91.405(a); 407(a)(1); 409(a)(2); 417(a) & (b): Maintenance inspections

These regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter...," and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to Measure. Maintenance will be accomplished pursuant to the User Guide or Operating Manual. An equivalent level of safety will be achieved because these UASs are limited in size and will carry a small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise, the UAS can land immediately and will be operating from no higher than 400 feet AGL. The PIC will ensure that the UAS is in working order prior to initiating flight, perform required maintenance and keep a log of any maintenance performed. Moreover, the PIC is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

PUBLIC INTEREST

Approval of exemptions allowing commercial operations of UASs for aerial acquisition of data enhances safety while reducing risk. Manned aircraft in certain application such as pipeline monitoring create a greater risk because the aircraft are much larger and carry an onboard human pilot. In contrast, a UAS weighing 55 pounds or less will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights. In addition, additional streams of aerial data will allow large commercial entities to make decisions about how to best deploy ground resources and ensure the safety and cost-effectiveness of their operations.

MEASURE
a 32 Advisors Company

EQUIVALENT LEVEL OF SAFETY

Measure proposes that the exemption requested herein apply to civil aircraft that have the characteristics and that operate within the limitations listed herein. These limitations provide for at least an equivalent or even higher level of safety to operations under the current and proposed regulatory structure.

PRIVACY

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. Images or video taken of individuals will have consented to being filmed or otherwise they will be made anonymous.

NATIONAL SECURITY

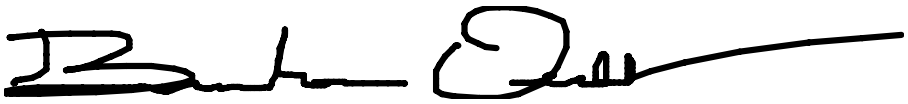
Given the small size of the UAS involved and the restricted environment within which they will operate, our petition presents no national security issue.

FEDERAL REGISTER SUMMARY

Docket No.: No. FAA-2015-____
Petitioner: Measure, a 32 Advisors Company, LLC
Part 21 and §§ 45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b)(2), 91.103, 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 407(a)(1), 409(a)(2), 417(a) and (b) of Title 14, Code of the Federal Regulations (14 CFR).
Description of Relief Sought: Measure is seeking an exemption to conduct commercial acquisition of aerial data using unmanned aircraft systems.

Based upon the foregoing, Measure requests that the FAA grant it the necessary exemptions under Section 333 of the FAA Reform Act as requested herein to allow for commercial operations of UAS within the United States.

Sincerely,



Brandon Torres Declet
CEO & Co-Founder
Measure, a 32 Advisors Company, LLC
1875 Connecticut Avenue, NW
10th Floor
Washington, DC 20009

Summary
8/19/2015 9:15:00 AM

Differences exist between documents.

New Document:	Old Document:
Measure_-_Exemption_Rulemaking	Measure_-_Petition_for_Exemption
11 pages (251 KB)	11 pages (272 KB)
8/19/2015 9:14:47 AM	8/19/2015 9:14:45 AM
Used to display results.	

Get started: first change is on page 1.

No pages were deleted

How to read this report

Highlight indicates a change.
~~**Deleted**~~ indicates deleted content.
 indicates pages were changed.
 indicates pages were moved.

MEASURE
a 32 Advisors Company

Electronic Submission

June 8, 2015

U.S. Department of Transportation, Docket Operations
West Building Ground Floor, Room W12-140
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (herein referred to as FMRA) and 14 CFR Part 11, Measure, a 32 Advisors Company, LLC (herein referred to as Measure) hereby applies for an exemption from the listed Federal Aviation Regulations (FARs) to allow commercial operation of UAS for the acquisition of aerial data, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA.

As detailed in this document and the attached Appendix of UAS, the requested exemption would permit the operation of UAS platforms previously approved by the FAA for commercial operations in the United States. Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's responsibilities to "...establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) Reform Act.

The name and address of the applicant is:

Measure, a 32 Advisors Company, LLC
Brandon Torres Declet
CEO & Co-Founder
1875 Connecticut Avenue, NW
10th Floor
Washington, D.C. 20009
Tel: 202-793-3052
Email: bdeclet@measure32.com

- Regulations from which the exemption is requested:

14 CFR Part 21
14 CFR 45.23(b)
14 CFR 61.113(a) & (b) 14 CFR 91.7(a)
14 CFR 91.9(b)(2)
14 CFR 91.103
14 CFR 91.109
14 CFR 91.119
14 CFR 91.121
14 CFR 91.151(a)
14 CFR 91.203(a) & (b) 14 CFR 91.405(a)
14 CFR 407(a)(1) 14 CFR 409(a)(2) 14 CFR 417(a) & (b)

AUTHORITY FOR EXEMPTIONS

The Federal Aviation Act expressly grants the FAA authority to issue exemptions. This statutory authority includes exempting civil aircraft, as the term is defined under §40101 of the Act, including UAS, from the requirement that all civil aircraft must have a current airworthiness certificate.

The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any sections §44702-44716 of this title if the Administrator finds the exemption in the public interest. 49 USC §44701(f). See also 49 USC §44711(a); 49 USC §44704; 14 CFR 91.203(a)(1).

Section 333(b) of the Reform Act assists the Secretary in determining whether UAS may operate in the national airspace system without creating a hazard to the user, the public, or a threat to national security. In making this determination, the Secretary must consider:

- The UAS' size, weight, speed and operational capability;
- Whether the UAS operates within the visual line of sight of the operator;
- Whether the UAS operates outside of highly populated areas and away from close proximity to airports.

Reform Act 333(a). If the Secretary determines that a UAS "may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft in the national airspace system." Id. 333(c).

MEASURE
a 32 Advisors Company

BACKGROUND ON MEASURE

Measure is one of the world's leading Drone as a Service® companies. Measure provides turnkey solutions utilizing UAS to deliver specific, low risk, and cost effective actionable data to clients. Measure was founded specifically to help clients avoid the capital expense and operating risks of establishing their own drone programs and to purchase drone support in a way which better fits their operations and cost profiles.

Measure believes in a risk-based and technology agnostic approach to operations in the national airspace. Approval for any operation should be based on an analysis of the specific risks associated with the fully integrated solution, rather than the individual components.

The Measure business model is predicated on identifying requirements, developing the business case, and demonstrating the Return on Investment (ROI) from UAS for enterprise clients in a number of industries. Drone as a Service® is a custom integrated solution made up of seven different components.

UAS AND OPERATIONAL DESCRIPTION

Measure seeks to commercially operate a variety of UAS weighing less than 55 pounds including payload in the United States for the purpose of acquiring aerial data. The Appendix attached to this exemption petition lists the aircraft that Measure contemplates operating. In prior, similar exemptions the Secretary has approved every UAS platform included in the Appendix.

As the operator of these aircraft, Measure is committed to the following conditions and limitations on its operations. Measure understands that failure to comply will be grounds for the immediate suspension or rescission any exemption granted.

1. Operations are limited to the UAS listed in the Appendix when weighing less than 55 pounds including payload.

2. Operations for the purpose of closed-set motion picture and television filming are not contemplated.

3. The aircraft will not be operated at a speed exceeding 87 knots (100 miles per hour). In no case will the aircraft be operated at airspeeds greater than the maximum aircraft operating airspeed recommended by the aircraft manufacturer.

4. The aircraft will be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The aircraft will be operated within visual line of sight (VLOS) of the Pilot in Command (PIC) at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's U.S. driver's license.

6. All operations will utilize a visual observer (VO). The aircraft will be operated within the visual line of sight (VLOS) of the PIC and VO at all times.

7. All operating documents needed to operate the UAS and will be accessible during UAS operations and made available to the Administrator upon request. The operator will also present updated and revised documents if it petitions for extension or amendment.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g. replacement of a flight critical component, will undergo a functional test flight prior to conducting further operations.

9. Measure is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC will conduct a pre-flight inspection and determine the UAS is in a condition for safe flight.

11. Measure will follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption will comply with all manufacturer safety bulletins.

13. The PIC will hold a UAS flight training certificate, in some cases training directly from the aircraft manufacturer, and a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government.

14. Measure will not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated to acquire aerial data, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency will be logged in a manner consistent with 14 CFR § 61.51(b). Measure will operate flights for the purposes

of training Measure PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS.

15. UAS operations will not be conducted during night, as defined in 14 CFR § 1.1. All operations will be conducted under visual meteorological conditions (VMC).

16. The aircraft will not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA.

17. The aircraft will not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the aircraft will return to a pre-determined location.

19. The PIC will abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC will be prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power or fuel for the aircraft to conduct the intended operation and to operate after that for at least five minutes or with the reserve power or fuel recommended by the manufacturer if greater.

21. All operations shall be conducted in accordance with an ATO-issued COA if the blanket COA does not cover the intended operation.

22. All aircraft operated will be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings will be as large as practicable.

23. Documents used by Measure to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 will be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating.

24. The aircraft will remain clear and give way to all manned aviation operations and activities at all times.

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26. All flight operations will be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the aircraft or debris in the event of an accident; or

    b. The owner/controller/operator of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made an assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

27. The PIC, VO, operator trainees or essential persons will not be considered nonparticipating persons under this exemption.

28. All operations conducted over private or controlled-access property will be conducted with the permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

29. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA will be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

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14 CFR 45.23(b): Marking of the aircraft

This regulation requires that certain experimental, provisionally certified aircraft, or light-sport category aircraft to be marked with letters between 2 inches and 6 inches high "limited", "restricted," "light-sport," "experimental," or "provisional," near each entrance to a cabin, cockpit or pilot station. Even though the UAS will have no airworthiness certificate, an exemption may be needed as the UAS will have no entrance to the cabin, cockpit or pilot station on which the word "Experimental" can be placed. Given the size of the UAS, 2 inch lettering may be impossible. Measure will mark the UAS as practicable.

14 CFR 61.113(a) & (b): Private pilot privileges and limitations: Pilot in command

Sections 61.113(a) and (b) limit private pilots to non-commercial operations. Because the UAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the pilot operating the aircraft to have completed a UAS flight-training course. Unlike a conventional aircraft that carries the pilot and passengers, the UAS is remotely controlled. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance. The risks associated with the operation of the UAS are so diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, that allowing operations of the UAS as requested exceeds the present level of safety achieved by 14 CFR 61.113(a) and (b).

14 CFR 91.7(a): Civil aircraft airworthiness

The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft Measure contemplates operating, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the aircraft and the operational restrictions put on the aircraft, an equivalent level of safety will be provided.

14 CFR 91.9(b)(2): Civil aircraft flight manual, marking and placard requirements

The UAS, given its size and configuration has no ability or place to carry such a flight manual on the aircraft, not only because there is no pilot on board, but because there is no room or capacity to carry such an item on the aircraft. The equivalent level of safety will be maintained by keeping the Operating Manuals at the ground control point where the pilot flying the UAS will have immediate access to it.

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This regulation requires each pilot in command take certain actions before flight to ensure the safety of flight. An exemption is needed from this requirement, as the pilot will take separate preflight actions, including checking for weather conditions, checking flight battery or fuel requirements, checking takeoff and landing distances, and all other actions in the Operating Manual and safety checklists. These actions will provide an equivalent level of safety.

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Section 91.103 provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. By design, UAS do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The equivalent level of safety is provided by the fact that neither a pilot nor passengers will be carried in the aircraft, the ability to control the UAS via radio signals from the controller and by the size and speed of the aircraft.

14 CFR 91.119: Minimum safe altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. The UAS will never operate at altitude higher than 400 AGL and all operations will occur during daylight hours under Visual Meteorological Conditions (VMC) only.

The equivalent level of safety will be achieved given the size, weight and speed of the UAS as well as the location where it is operated. No flight will be taken without the permission of the property owner. Because advance notice to the property owner and any onsite personnel, as well as the precautions outlined below, all affected individuals will be aware of the planned flight operations.

Flight operations will be conducted at least 500 feet from all non-participating persons (persons other than the pilot in command (PIC) or visual observer (VO)), vessels, vehicles and structures, unless operations do not present an undue hazard.

The UAS will remain within visual line of sight of the PIC or VO. Flight operations will be conducted at least 5 miles from an airport. The PIC or VO will provide notification to the local Flight Standards District Office and airport controller of all operations within 5 miles of an airport. The FAA will have advance notice of all operations through the filing of notices-to-airmen.

Compared to flight operations with aircraft or rotorcraft weighing far more than the UAS proposed herein, any risk associated with our operations is far less than those presently presented with helicopters and other conventional aircraft operating at or below 500 feet AGL. In addition, the low-altitude operations of the UAS will ensure separation between these UAS operations and the operations of conventional aircraft that must comply with Section 91.119.

14 CFR 91.121: Altimeter Settings

This regulation requires each person operating the aircraft to maintain cruising altitude by reference to an altimeter that is set "...to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the UAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption may be needed. An equivalent level of safety will be achieved by the PIC confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

14 CFR 91.151(a): Fuel requirements for flight in VFR conditions

Section 91.151(a) outlines fuel requirements for beginning a flight in VFR conditions. Relief from Section 91.151(a)(1) is requested to the extent required to allow flights of a variety of UAS during daylight hours in visual flight rules (VFR) conditions to continue until 90 percent of remaining battery power or fuel reserves remain. Measure seeks the requested relief because without an exemption from Section 91.151(a)(1), the flight time duration of the selected aircraft will be reduced and severely constrain the practicality of any aerial acquisition of data that Measure proposes to conduct pursuant to this Petition.

The technical specifications of the proposed UAS, their Operations Manuals, and Measure's proposed operating limitations, ensure that Measure will safely operate the selected aircraft during daylight hours in VFR conditions until 90 percent of remaining battery power or fuel reserves remain.

14 CFR 91.203(a) & (b): Carrying civil aircraft certification and registration

The UAS has no cabin, cockpit or pilot station and is operated without an onboard pilot. Therefore, there is no ability or place to carry certification and registration documents or to display them on the UAS. An equivalent level of safety will be achieved by keeping these documents at the ground control point where the pilot flying the UAS will have immediate access to them, to the extent they are applicable to the UAS.

14 CFR 91.405(a); 407(a)(1); 409(a)(2); 417(a) & (b): Maintenance inspections

These regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter...," and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to Measure. Maintenance will be accomplished pursuant to the User Guide or Operating Manual. An equivalent level of safety will be achieved because these UASs are limited in size and will carry a small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise, the UAS can land immediately and will be operating from no higher than 400 feet AGL. The PIC will ensure that the UAS is in working order prior to initiating flight, perform required maintenance and keep a log of any maintenance performed. Moreover, the PIC is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

PUBLIC INTEREST

Approval of exemptions allowing commercial operations of UASs for aerial acquisition of data enhances safety while reducing risk. Manned aircraft in certain application such as pipeline monitoring create a greater risk because the aircraft are much larger and carry an onboard human pilot. In contrast, a UAS weighing 55 pounds or less will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights. In addition, additional streams of aerial data will allow large commercial entities to make decisions about how to best deploy ground resources and ensure the safety and cost-effectiveness of their operations.

EQUIVALENT LEVEL OF SAFETY

Measure proposes that the exemption requested herein apply to civil aircraft that have the characteristics and that operate within the limitations listed herein. These limitations provide for at least an equivalent or even higher level of safety to operations under the current and proposed regulatory structure.

PRIVACY

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. Images or video taken of individuals will have consented to being filmed or otherwise they will be made anonymous.

NATIONAL SECURITY

Given the small size of the UAS involved and the restricted environment within which they will operate, our petition presents no national security issue.

FEDERAL REGISTER SUMMARY

Docket No.: No. FAA-2015-____
Petitioner: Measure, a 32 Advisors Company, LLC
Part 21 and §§ 45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b)(2), 91.103, 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 407(a)(1), 409(a)(2), 417(a) and (b) of Title 14, Code of the Federal Regulations (14 CFR).
Description of Relief Sought: Measure is seeking an exemption to conduct commercial acquisition of aerial data using unmanned aircraft systems.

Based upon the foregoing, Measure requests that the FAA grant it the necessary exemptions under Section 333 of the FAA Reform Act as requested herein to allow for commercial operations of UAS within the United States.

Sincerely,

Brandon Torres Declet
CEO & Co-Founder
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