

COMMENTS OF THE ELECTRONIC PRIVACY INFORMATION CENTER

to the

FEDERAL AVIATION ADMINISTRATION

Small Unmanned Aircraft Registration System (sUAS)

[Docket No. FAA–2019–0333]

July 8, 2019

By notice published May 9, 2019, the Federal Aviation Administration (“FAA”) issued a notice that FAA is seeking public comments on the renewal of the Small Unmanned Aircraft Registration System.¹

EPIC submits these comments to (1) insist the FAA adopt regulations requiring small unmanned aircraft actively broadcast location, course, purpose, and registration information; (2) express support for the FAA registration system and to urge the agency to require operators to register and broadcast surveillance capabilities.

EPIC is a public interest research center in Washington, D.C. EPIC was established in 1994 to focus public attention on emerging privacy issues.² For well over a decade, EPIC has maintained expertise on privacy, safety, and security concerns related to drones and has

¹ *Agency Information Collection Activities: Requests for Comments; Clearance of Renewed Approval of Information Collection: Small Unmanned Aircraft Registration System (sUAS)*, 84 Fed. Reg. 20460 (May 9, 2019), <https://www.federalregister.gov/documents/2019/05/09/2019-09499/agency-information-collection-activities-requests-for-comments-clearance-of-renewed-approval-of>.

² EPIC, *About EPIC* (2019), <https://epic.org/epic/about.html>.

prominently advocated for better regulation of the national airspace.³ In 2012, EPIC, joined by more than one hundred experts and organizations, petitioned the FAA to undertake a rulemaking to establish privacy regulations prior to the deployment of commercial drones in the national airspace. In the Petition, EPIC described the many ways in which the deployment of drones would threaten important privacy interests.⁴

EPIC has submitted many comments to the FAA recommending that drone registration include disclosure of surveillance capabilities and explaining the necessity of active broadcast of drone information.⁵ In 2015, EPIC stated “[t]he widespread deployment of drones in the United States is one of the greatest privacy challenges facing the Nation.”⁶ EPIC also testified to legislative bodies on the “unique threat to privacy” posed by drones⁷ because “[t]he technical and economic limitations to aerial surveillance change dramatically with the advancement of drone technology.”⁸

³ EPIC, *Domestic Unmanned Aerial Vehicles (UAVs) and Drones* (2019), <https://epic.org/privacy/drones/>; EPIC, *Spotlight on Surveillance: Unmanned Planes Offer New Opportunities for Clandestine Government Tracking* (Aug. 2005), <https://epic.org/privacy/surveillance/spotlight/0805/>.

⁴ Petition from EPIC, et al., to Michael P. Huerta, Acting Adm’r, Fed. Aviation Admin. (Mar. 8, 2012), <https://epic.org/privacy/drones/FAA-553e-Petition-03-08-12.pdf>.

⁵ EPIC, *Comments of the Electronic Privacy Information Center to the Federal Aviation Administration of the Department of Transportation Docket No. FAA-2013-0061: Unmanned Aircraft System Test Site Program* 10 (Apr. 23, 2013), <https://epic.org/apa/comments/EPIC-Drones-Comments-2013.pdf>; EPIC, *Comments on the Clarification of the Applicability of Aircraft Registration Requirements for Unmanned Aircraft Systems (UAS) and Request for Information Regarding Electronic Registration for UAS*, Federal Aviation Admin. Docket No. FAA-2015-4378], 9-11 (Nov. 12, 2016), <https://epic.org/privacy/drones/EPIC-FAA-Drone-Reg-Comments.pdf>.

⁶ EPIC, *Comments on the Operation and Certification of Small Unmanned Aircraft Systems*, Federal Aviation Admin. Docket No. FAA-2015-0150, 5 (Apr. 24, 2015), <https://epic.org/privacy/litigation/apa/faa/drones/EPIC-FAA-NPRM.pdf>.

⁷ *Use of Unmanned Aerial Vehicles (Drones): Hearing Before the S. Majority Policy Comm. of the General Assembly of Pennsylvania*, 1-2 (2016) (statement of Jeramie D. Scott, EPIC National Security Counsel), <https://epic.org/privacy/drones/EPIC-Drone-Testimony-20160315.pdf>; *Crimes – Unmanned Aircraft Systems – Unauthorized Surveillance: Hearing Before the H. Judiciary Comm. of the General Assembly of Maryland*, 435th 1-2 (2015) (statement of Jeramie D. Scott, EPIC National Security Counsel), <https://epic.org/privacy/testimony/EPIC-Statement-House-Bill-620.pdf>; *Using Unmanned Aerial Systems Within the Homeland: Security Game Changer?: Hearing Before the H. Subcommittee on Oversight, Investigations, and Management of the Comm. on Homeland Sec.*, 112th Cong. 4 (2012) (statement of Amie Stepanovich, EPIC Association Litigation Counsel), <https://epic.org/privacy/testimony/EPIC-Drone-Testimony-7-12.pdf>.

⁸ EPIC National Security Counsel Jeramie D. Scott, Statement for the Rec. of the H. Judiciary Committee of the Gen. Assemb. of Md., *In Support of House Bill 620: "Crimes – Unmanned Aircraft Systems – Unauthorized Surveillance"*, 1 (Mar. 17, 2015).

EPIC has also specifically recommended that drones broadcast location, course, and purpose.⁹ EPIC wrote in 2015 that:

passive registration does nothing to address the privacy risks posed by drones in the national airspace, which undermines the safe integration of drones into the national airspace. Drones should be required to broadcast their registration information to allow members of the public and law enforcement officials to easily identify the operator and responsible party.¹⁰

EPIC also wrote at the time:

Because drones present substantial privacy and safety risks, EPIC recommends that any drone operating in the national airspace system include a mandatory GPS tracking feature that would always broadcast the location of a drone when aloft (latitude, longitude, and altitude), course, speed over ground, as well as owner identifying information and contact information.¹¹

EPIC's recommendations have now been adopted by the European Union and constitute international standards for the regulation of drones.

I. The FAA Must Mandate Active Broadcast of Location, Course, and Purpose to Meet International Norms

The European Union has recognized that drones pose risks to security, privacy, and personal data.¹² In response, the European Commission recently established regulations setting out manufacturing and operating requirements for drones in the EuroZone.¹³ The Commission enacted an EU-wide requirement that drones broadcast operator registration number, drone serial number, geographic position and height of the drone, course and ground speed, and location of

⁹ EPIC, Comments on the *Clarification of the Applicability of Aircraft Registration Requirements for Unmanned Aircraft Systems (UAS) and Request for Information Regarding Electronic Registration for UAS*, Federal Aviation Admin. Docket No. FAA-2015-4378 (Nov. 12, 2015), <https://epic.org/apa/comments/EPIC-FAA-Drone-Reg-Comments.pdf>.

¹⁰ *Id.* at 11.

¹¹ *Id.*

¹² Commission Implementing Regulation 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft, 2019 O.J. (L152) 46d, https://eur-lex.europa.eu/eli/reg_impl/2019/947/oj.

¹³ Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems, 2019 O.J. (L152).

the operator.¹⁴ The broadcast signal must be receivable by mobile devices.¹⁵ The EU Drone Regulation applies to virtually any drone operating within the EU, regardless of where the drone was made or where it launched. The Commission's regulation sets an international norm that drones broadcast key information including identification, position, course, and, operator location. Citizens of the EU now have a means of identifying the operator of drones posing safety or privacy hazards and resolving disputes with the operator.

The EU Drone Regulation responds to a series of incidents worldwide in which the operator of a drone creating a public safety hazard could not be identified. The FAA should move quickly to adopt a similar rule. In the U.S. unidentified drones have recently crashed into a living room,¹⁶ fallen into the stands at a crowded baseball stadium,¹⁷ harassed students at a college track meet,¹⁸ collided with landmarks,¹⁹ and brought down powerlines.²⁰ In these cases drones posed a serious threat to the public, but the operators could not be identified. As a result, crimes went unsolved and individual operators—either malicious or dangerously unskilled—avoided repercussions. A broadcasting requirement would significantly reduce the identification problem by allowing any bystander to identify the drone's registration information and owner identification with their cell phone. Thus, there would be a record available to allow both law

¹⁴ *Id.* Annex Part II ¶ (12).

¹⁵ *Id.*

¹⁶ Eyewitness News, *Drone crashes into Manhattan apartment, shatters window*, abc7ny.com (Feb. 27, 2017), <https://abc7ny.com/news/drone-crashes-into-manhattan-apartment-shatters-window/1774826/>.

¹⁷ Marissa Payne, *MLB will 'monitor the situation' after drone nearly takes out fans at Padres game*, Wash. Post (May 23, 2017), <https://www.washingtonpost.com/news/early-lead/wp/2017/05/23/mlb-bans-drones-in-ballparks-after-one-nearly-takes-out-fans-at-padres-game/>.

¹⁸ Caleb Ragan, *Drone drops water balloons at Division 1 track prelims*, L.A. Times (May 13, 2017), <https://www.latimes.com/sports/highschool/varsity-times/la-sp-high-school-sports-drone-attack-htmlstory.html>.

¹⁹ Jessica Lee, *Drone hits Seattle's huge Ferris wheel; SPD investigating*, Seattle Times (last updated Nov. 12, 2015 at 3:59pm), <https://www.seattletimes.com/seattle-news/drone-hits-seattles-huge-ferris-wheel-spd-investigating/>; Jessica Lee, *Watch: Drone crashes into Space Needle during New Year's Eve fireworks setup*, Seattle Times (last updated Jan. 11, 2017 at 9:00pm), <https://www.seattletimes.com/photo-video/video/watch-drone-crashes-into-space-needle-during-new-years-eve-fireworks-setup/> (operator was eventually found).

²⁰ Joseph Serna, *Drone knocks out power to hundreds of West Hollywood residents*, L.A. Times (Oct. 27, 2015), <https://www.latimes.com/local/lanow/la-me-ln-drone-power-west-hollywood-20151027-story.html>.

enforcement and private citizens to resolve drone incidents without resorting to dangerous self-help remedies.²¹

Drones also pose a serious threat to security and air travel. In France, a series of unidentified drones flew over thirteen nuclear power plants, stoking security concerns.²² Unidentified drones nearly collided with aircraft at multiple UK airports in the last few years, grounding hundreds of flights and delaying travel for hundreds of thousands of passengers.²³ Gatwick and Heathrow Airports in the UK experienced repeated near-collisions between drones and aircraft, beginning in 2014 and continuing to January of this year.²⁴ Aircraft near misses are on a precipitous rise, in the UK recorded near-misses ballooned from 6 incidents in 2014 to 70 near misses in 2016.²⁵ In 2017 a drone actually collided with a commercial flight in Canada, the operator was never found.²⁶

A broadcasting requirement would prevent collisions and unnecessary groundings by affirmatively identifying a drone's location for airport operators and pilots. Instead of simply shutting down flights when a drone is spotted, airports could actively track the drone, contact the

²¹ See James Vincent, *Judge Rules Kentucky Man Had The Right To Shoot Down His Neighbor's Drone*, The Verge (Oct. 28, 2015), <https://www.theverge.com/2015/10/28/9625468/drone-slayer-kentucky-cleared-charges>.

²² Maia de la Baume, *Unidentified Drones Are Seen Above French Nuclear Plants*, N.Y. Times (Nov. 3, 2014), <https://www.nytimes.com/2014/11/04/world/europe/unidentified-drones-are-spotted-above-french-nuclear-plants.html>.

²³ See, e.g., *Drone in near miss with plane near Edinburgh Airport*, BBC News (May 23, 2017), <https://www.bbc.com/news/uk-scotland-edinburgh-east-fife-40019778>; *'Matter of luck' that Easyjet plane missed drone*, BBC News (Apr. 28, 2017), <https://www.bbc.com/news/uk-scotland-edinburgh-east-fife-39748047>.

²⁴ Alice Evans, *Heathrow airport: Drone sighting halts departures*, BBC News (Jan. 8, 2019), <https://www.bbc.com/news/uk-46803713>; *Gatwick flight drone near-miss 'put 130 lives at risk'*, BBC News (Oct. 15, 2017), <https://www.bbc.com/news/uk-england-sussex-41627552>; Press Association, *Investigators confirm Heathrow plane in near miss with drone*, The Guardian (Dec. 12, 2014), <https://www.theguardian.com/world/2014/dec/12/heathrow-plane-near-miss-drone>; Press Association, *Pilots call for research into impact of drone hitting passenger jet*, The Guardian (Mar. 2, 2016), <https://www.theguardian.com/business/2016/mar/02/pilots-research-impact-drone-hitting-passenger-jet>; *Gatwick drones: as it happened*, BBC News (Dec. 17, 2018), <https://www.bbc.com/news/live/uk-england-sussex-46564814>; *Drone causes Gatwick Airport disruption*, BBC News (Jul. 2, 2017) <https://www.bbc.com/news/uk-40476264>.

²⁵ BBC News, *supra* note 23.

²⁶ *A first in Canada: Drone collides with passenger plane above Quebec City airport*, CBC News (Oct. 15, 2017 at 12:11PM), <https://www.cbc.ca/news/canada/montreal/garneau-airport-drone-quebec-1.4355792>.

operator, and manage the risk. Pilots would also have greater warning that a drone is in their airspace, allowing the pilot to avoid the drone altogether. Finally, when violations do occur authorities will be able to identify and apprehend the operator, preventing repeat offenses like the shutdowns at London-Heathrow Airport.

Currently, individuals cannot hold drone operators accountable because it is essentially impossible to identify the drone or the operator of a drone. The FAA's registration scheme still does little to solve this problem. Solutions exist.²⁷ To increase accountability of drone operators, the FAA Reauthorization Act of 2018 requires the FAA to consider and develop remote identification for drones.²⁸ Passive identification does not go far enough—the FAA must require active remote identification.

Because drones present substantial privacy and safety risks, EPIC recommends that the FAA require any drone operating in the national airspace system to broadcast location when aloft (latitude, longitude, and altitude), course, speed over ground, as well as owner identifying information and contact information, similar to the Automated Identification System (“AIS”) for commercial vessels.²⁹

The FAA Working Group has already recognized several means of identifying drones in real-time, such as the integration of a direct broadcast method known as C2 that features high ease of compliance, high readiness for implementation, strong operational performance and

²⁷ See, e.g., Isabella Lee, *FAA Issues Request for Information (RFI) from Industry Partners Interested in Developing Remote ID and Unmanned Traffic Management (UTM) Systems* (Jan. 24, 2019) (“Remote ID development and testing has already begun in the private and commercial sector.”), <https://uavcoach.com/remote-id-faa-rfi/>.

²⁸ See Federal Aviation Administration Reauthorization Act of 2018, Pub. L. No. 115-254, § 376(b)(2), (c)(3)(A) 132 Stat. 3186, 3305–06 (2018) (directing the FAA to develop a plan for the implementation of unmanned aircraft systems traffic management (UTM) services that, *inter alia*, permit the testing of remote identification and that assess the risks raised and mitigation means required to remotely identify drones).

²⁹ See 80 F.R. 5281, amending 33 C.F.R. § 164.46. The ADS-B standard is intended to provide sense and avoid capability for aircraft and may also be deployed for drones. However, it is not designed to provide information about UAS location, course, and speed to the general public. By contrast, information about vessels equipped with AIS is available to the public through freely available apps.

security, and low cost for implementation.³⁰ The Working Group has also identified several additional means of achieving remote identification via direct broadcast with only slightly steeper hurdles to implementation.³¹ Private companies have also demonstrated the feasibility of remote identification. Intel publicly demonstrated its “Open Drone ID” that uses Bluetooth 4.2 broadcast packs and Bluetooth 5 advertising extensions to broadcast the drone’s “unique ID, location, direction, altitude, speed, make/model, base location, and other related data.”³² Wing, AirMap, and Kittyhawk also demonstrated remote identification of drones using a network-based remote ID application utilizing the open-source InterUSS platform.³³ Finally, the EU’s recent regulation demonstrates that such identification is now not only possible, but likely to become the industry standard outside the US.

Recognizing the need for remote ID, the FAA has already requested unmanned aircraft system service suppliers (“USS”) to submit input to “establish the operational framework (requirements and criteria) for Remote ID USS and provide supporting data to airspace users as necessary for collaboration and safe operations.”³⁴ FAA has also stated in recent notices that:

the FAA is cognizant of the importance of various stakeholders to be able to identify small UAS to mitigate safety concerns that operations may present. Because of the importance of this particular issue, the FAA plans to finalize its policy concerning remote identification of small UAS, by way of rulemaking, standards development or other activities that other Federal agencies may

³⁰ See Aviation Rulemaking Comm., Fed. Aviation Admin., ARC Recommendations Final Report: Appendix B Working Group 1 Report 37–41 (2017), https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/UAS%20ID%20ARC%20Final%20Report%20with%20Appendices.pdf.

³¹ See, e.g., *id.* at 13–17 (ADS-B transceivers); *id.* at 18–22 (low power radio frequency).

³² Mike Rees, *Intel Demonstrates Remote Drone Identification Solution*, Unmanned Sys. Tech. (Aug. 20, 2018), <https://www.unmannedsystemstechnology.com/2018/08/intel-announces-new-open-standard-for-remote-drone-identification>.

³³ Malek Murison, *AirMap, Kittyhawk, and Wing Demonstrate InterUSS Remote ID Solution*, DroneLife (Jan. 17, 2019), <https://dronelife.com/2019/01/17/airmap-kittyhawk-and-wing-demonstrate-interuss-remote-id-solution>.

³⁴ Fed. Aviation Admin., *FAA UAS Remote Identification Request for Information (RFI)-Data Exchange Strategies and Demonstrations for UAS Remote Identification 2* (Jan. 31, 2019), <https://faaco.faa.gov/index.cfm/announcement/view/32514>.

propose—prior to finalizing the proposed changes in this rule that would permit operations of small UAS over people and operations at night.³⁵

EPIC agrees the FAA must conduct a rulemaking on Remote ID and adds that privacy considerations should be included in that rulemaking as well as any others on drone policy.

The agency's practice of placing privacy concerns outside the scope of drone rulemakings³⁶ does not align with public opinion. In a recent behavioral sciences study, "the most popular [drone] policies were those that protected personal privacy."³⁷ Further, participants were nearly evenly divided as to which risks were most concerning: privacy (49.9%) and safety (50.1%).³⁸ As such, the FAA should cease its practice of excluding privacy concerns in drone policy formation.

II. EPIC Supports The FAA's Drone Registration Program, but The FAA Must Also Require Drone Operators to Register and Broadcast Surveillance Capabilities

EPIC supports the Small Unmanned Aircraft Registration System now, as EPIC has in past comments.³⁹ The drone registry does help identify drone operators that use drones in impermissible ways and aid the Department in taking enforcement actions against drone violations.⁴⁰ However, the current registration system falls short because it does not require

³⁵ *Operation of Small Unmanned Aircraft Systems Over People*, 84 Fed. Reg. 3861 (Feb. 13, 2019), <https://www.govinfo.gov/content/pkg/FR-2019-02-13/pdf/2019-00732.pdf>. See also *Safe and Secure Operations of Small Unmanned Aircraft Systems*, 84 Fed. Reg. 3733, <https://www.govinfo.gov/content/pkg/FR-2019-02-13/pdf/2019-00758.pdf>.

³⁶ 84 Fed. Reg. 3893. See also *Operation and Certification of Small Unmanned Aircraft Systems*, 80 Fed. Reg. 9552 (Feb. 23, 2015), <https://www.govinfo.gov/content/pkg/FR-2015-02-23/pdf/2015-03544.pdf>.

³⁷ Adam Zwickel, Hillary B. Farber, and Joseph A. Hamm, *Comparing public concern and support for drone regulation to the current legal framework*, Behav. Sci. Law. 2018, 1 (May 23, 2018), https://www.researchgate.net/publication/326381803_Comparing_public_concern_and_support_for_drone_regulation_to_the_current_legal_framework.

³⁸ *Id.* at 7.

³⁹ EPIC, *Comments of The Electronic Privacy Information Center to the Federal Aviation Administration of the Department of Transportation on Docket FAA-2015-4378: Clarification of the Applicability of Aircraft Registration Requirements for Unmanned Aircraft Systems*, (Nov. 12, 2015), <https://epic.org/apa/comments/EPIC-FAA-Drone-Reg-Comments.pdf>.

⁴⁰ See Fed. Aviation Admin., *FAA Targets UAS Violators for Enforcement*, FAA.gov (Sept. 28, 2018 at 2:40 pm) https://www.faa.gov/news/updates/?newsId=91706&omniRss=news_updatesAoc&cid=101_N_U.

registration of surveillance capabilities, leaving the FAA unable to protect the public from serious privacy violations.

Drones are surveillance platforms able to carry a multitude of different data-collection technologies including high-definition cameras, geolocation devices, cellular radios and disruption equipment, sensitive microphones, thermal imaging devices, and LIDAR.⁴¹ Drones can also be equipped to enable facial recognition, scan license plates, and identify nearby cell phones and other mobile devices.⁴² The public should not be left to wonder what surveillance devices are enabled on a drone flying above their heads. Drone operators should be required to broadcast this information and not permitted to suppress the broadcast. If the capabilities of the drone are altered, the drone operators should be required to update his or her registration.

Operators of any drone carrying video surveillance technology should make clear at registration the surveillance capabilities, including resolution and zoom range of any camera as well as any capabilities like facial recognition⁴³ or license plate recognition.⁴⁴ Operators of any drone carrying audio surveillance technologies should be required to make clear at registration the specific capabilities to capture and record audio communications. Operators of any drone carrying technology to engage in interception of signal communication, human recognition at a distance, or other advanced surveillance techniques, should be required at the time of registration to detail the capabilities and the anticipated use. Drones must be required to actively broadcast all of this information, too.

⁴¹ Richard M. Thompson II, Cong. Research Serv., R43965, *Domestic Drones and Privacy: A Primer* 3 (2015).

⁴² *Id.*

⁴³ See, e.g., April Glaser, *The Next Frontier of Police Surveillance Is Drones*, Slate (June 7, 2018), <https://slate.com/technology/2018/06/axon-and-dji-are-teaming-up-to-make-surveillance-drones-and-the-possibilities-are-frightening.html>.

⁴⁴ Julian Dasilva, Ricardo Jimenez, Roland Schiller, and Sanja Zivanovic Gonzalez, *Unmanned Aerial Vehicle-based Automobile License Plate Recognition System for Institutional Parking Lots*, 15 Systemics, Cybernetics and Informatics 39 (2015).

Requiring registration of surveillance technology would impose a minimal burden on the FAA and most drone operators. FAA's registration page could auto-populate surveillance technologies for all commercially available drones. Only individuals specially modifying their drones would have to input surveillance capabilities manually during registration.

Conclusion

The FAA's proposal to renew its drone registration system is a small step in the direction of promoting accountability for drones. While EPIC supports the renewal of FAA's registration system, the FAA must meet international norms and mandate remote identification broadcasting, including course, location, surveillance equipment and other relevant operational information. Drones should simply not continue to fly above the laws that protect public safety.

Respectfully submitted,

/s/Marc Rotenberg

EPIC President and Executive Director

/s/ Jeramie D. Scott

EPIC Senior Counsel

/s/ Jake Wiener

EPIC Summer Clerk