Additional Formal Comments to the National Telecommunications and Information Administration (NTIA) – Tethered Drones and Privacy

On Docket No. 150224183-5183-01, Privacy, Transparency, and Accountability Regarding Commercial and Private Use of Unmanned Aircraft Systems (UAS)

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Tethered Drones

These comments are in addition to my original comments filed with the NTIA on March 17, 2015. My original comments are listed below this set of additional comments on drones and privacy.

These additional comments are devoted to the operation of tethered drones. A tethered drone is a drone that is operated from a fixed location with a cable attaching the drone to the ground. The cable restricts the motion of the drone and also can provide a continuous source of electric power from the ground. In theory the drone can keep flying as long as the electric power is supplied to it. Its flight duration is limited by the ability of its motors to provide continuing service. In effect, the drone becomes a portable observation tower that can be deployed and removed rather quickly. It can be equipped with an automatic control system that would allow it to compensate for changing wind conditions.

The tethered drone can serve as a photographic platform as well as a video platform for temporary but long duration service. This type of drone could be used to oversee specific events such as automobile races or county fairs. It also could be used for emergency management purposes such as the control of an incident event such as a forest fire, providing the incident manager with a live overview of the situation.

The drone could be used as an antenna support for high-frequency radio communication wire antennas such as those used after hurricanes and similar emergencies. This is a non-photographic application of a tethered drone.

This drone's lack of mobility means that it can be less of a problem for privacy than a free-flying drone that can roam about as directed by its operator. However, the long duration flight time of the tethered drone can make it a greater threat to privacy. This drone can hang in the air for hours or days observing the whole area. This is a contrast to the typical mobile drone which has a battery life of about one half hour or less. A drone hanging in the air at an altitude of 200 feet above ground level will be able to observe for a considerable distance away. This means that a whole community could be observed with one or a few tethered drones. Clearly this is a privacy problem.

The NTIA's privacy regulations need to address tethered drones along with the more common mobile drones. The tethered drone should be required to meet the same requirements of transparency and accountability that other drones must meet. In addition tethered drones must be clearly identified as such in any records or databases. In addition, the NTIA should establish a time limit for the deployment of a tethered drone and a limit on the number of times it can be deployed in a given area. In all cases, the NTIA should prohibit long-term or continuous

monitoring of any specific areas by drones (tethered or free-flying). Furthermore, there should probably be limits on the use of telephoto photographic/video equipment on tethered drones.

Respectfully submitted,

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My Comments filed on March 17, 2015 in this Docket ----------

My comments are presented in two main sections. The first section is my general comments on this docket, and the second section is my responses to selected questions from the NTIA.

General Comments

While this docket is a valuable effort for the protection of privacy and civil liberties from drones (remote control aircraft) operated by commercial and private parties, we also need another docket directly focused on privacy and civil liberty issues related to government operation of drones. Many American citizens view government operation of drones as being a

bigger threat to privacy and civil liberties than the threat from private and commercial operation of drones.

Privacy, transparency, and accountability regulations should be based on the size of the drones, the size and aspects of the drone operating areas, and the size of the organizations operating the drones. Regulations that are appropriate for a two-thousand-pound drone aircraft are not appropriate for the operation of a four-pound drone. Drones operated in small line-of-sight operating areas should have different regulations than drones operated on long cross-country flights. [Note: the proposed FAA drone regulations are focused on relatively small drones operated within the line-of –sight of the drone operator.]

The type of operation is also relevant. The drones flown for recreational, hobby, and educational purposes should be very lightly regulated. While complex drones flown by large corporations should have more detailed regulations.

Responses to Questions from the NTIA

My responses are identified by the question number of the NTIA's questions in the docket.

Question Number 3

Yes, the stakeholders in this docket should definitely distinguish between micro, small, and large UAS platforms. The micro sized UAS (under 4.4 pounds) can be very lightly regulated because they have a very limited ability to carry a payload (such as a good camera) that can be a threat to privacy. A medium-size UAS (4.4 to 55 pounds) can carry highly sophisticated instrumentation that could be a threat to the privacy and the civil liberties of

American citizens. Large UAS (over 55 pounds) can be a major threat to privacy and civil liberties, but at the current time the FAA is not planning to license such drones for civilian service.

Question Number 5

UAS-based aerial photography is a greater threat to privacy than manned aerial photography. This is because drone aircraft can fly much closer to the target and maneuver in much smaller spaces than manned aircraft can. Furthermore, photography in itself is the major threat to privacy. Drones without cameras are very minor threats to privacy. Although some sophisticated technologies such as monitoring target cell phones and other in-home electronics can probably be implemented without cameras.

Question 6

Photography of residences and communities for the enforcement of home owner association rules can be a major threat to privacy. Similarly, the photography of residences and communities for real estate sales purposes can also be a major threat to privacy. The stakeholder committees may decide to recommend that drones not be allowed to photograph residential buildings and communities with the possible exception of being allowed to photograph one's own residence. Real estate agents and home repair companies could be accommodated by being allowed to photograph a building or lot with the owner's permission.

Question 10

Operators of drones flown for recreational and hobby purposes can provide transparency by signing in with their club when they operate from the club's flying field. Then, when the

neighbors to the field want to know who is flying these hobby drones, they can examine a written list at the flying field. In this regard, it is important to remember that model aircraft flying is conducted within the visual line-of-sight of the operator who is standing on the fixed field location for the model aircraft flying. These aircraft are not being flown cross-country at all. Recreational drones that are flown without cameras should not be regulated at all for the purposes of privacy and transparency.

Informal recreational drone flights are usually over the drone operator's own property where the neighbors know him or her and they can directly address any privacy issues in a face-to-face manner.

Commercial drones will be flown at specific sites, such as farmer's fields, on specific dates. These commercial flying sessions can be announced by means of a data base maintained by an organization of commercial drone operators. This data can be retained over a period of time for accountability purposes too.

Question 11

The NTIA should use the FAA system of registration numbers for the identification of commercial drones. Each registration number is a unique string of letters and numbers that visually identifies an individual aircraft and serves as its "license plate". These are known as N-Numbers. The FAA has proposed that this same registration system will be used for commercial drones. In the case of recreational drones, they can have the Academy of Model Aeronautics (AMA) member number presented on the outside skin of the drone. This is already done with model airplanes.

There is no reason to invent a new system of visually identifying drones when we can use the FAA's system of registration developed throughout the full history of aviation regulation. Persons needing to know the ownership of a drone can go to the FAA Internet web site and look up the drone's N-Number. This N-Number look-up function is provided on the FAA's home page. The AMA could possibly provide a similar look-up service for recreational drone owners based on their member numbers.

The use of electronic identifiers should be avoided because many of the drones are and will be made by their owners and requiring electronic identification will be an excessive burden on homebuilt drones. However, voluntary use of experimental electronic identification should be allowed. For example, a larger drone could broadcast its FAA N-Number using a machine-generated voice message over a specific Citizen's Band radio channel.

Question 13

Invention and innovation occur best in environments that are lightly regulated and where the operators are trusted to do the right thing based on consensus values. Complex requirements for announcing drone flights will certainly discourage the development and use of prototype drones. Success in this area depends of developing reasonable regulations that are viewed as legitimate and that do not impose a major burden on the operator. This is especially the case for recreational and educational drone operations.

Question 15

Commercial drone operators can maintain a pilot's logbook in the same manner that pilots of manned aircraft do. The logbook is a tested mechanism for accountability because it is a record of all the flights that a pilot has accomplished. Logbooks have been successfully used

throughout most of the history of aviation. We can continue to use this time-tested instrument of accountability for commercial drone flying.

In general, the NTIA should avoid the use of audits and assessments except in the case of the very large drones which are naturally in a complex flight environment. The very big drones and the large corporation flying numerous drones can log their drone flights electronically in computerized data bases.

Question 16

Invention and innovation need a rather relaxed regulatory environment where detailed logging and audits are avoided.

Respectfully Submitted,

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