



FAA UAS Online Listening Session April 3, 2013

DOT Deputy Secretary John Porcari: Good afternoon. This is Deputy Secretary John Pocari and I'd like to thank you all for joining us today. Let me start by sharing some information about today's format. Each caller will have three minutes to make their comments. We will notify you when you have 30 seconds left in your comment period, so please at that point wrap up your other comments to allow other speakers an opportunity to be heard. Panelists will not be answering questions or responding to statements today that are voiced during this comment period. So please keep your comments professional, succinct and relevant to today's topic. This session is being recorded and it will be available for playback at a later date and with that we look forward to the input and participation of everyone who is registered. At this point, I am going to turn it over to Jim Williams.

Jim Williams, Manager, FAA UAS Integration Office: Good afternoon or good morning to everyone. Thank you, John, and let me add my welcome to those of you on the line who are participating in this listening session. I would like to provide you with some background information and go over ground rules for how the session will work. But first, I will take a minute to provide a quick introduction to unmanned aircraft systems. Perhaps you have heard the term drone or maybe you've read news stories of the United States going after bad guys in the Middle East using unmanned aircraft. The aircraft that flies such missions are precision weapons systems that our government uses to engage the enemy. That is not what we're talking about when we discuss UAS operations here over U.S. soil. The U.S. operations that the FAA authorizes today serve the public good and promote jobs. Today, UAS come in all shapes and sizes, from those that are as big as a 737 to some that will fit in the palm of your hand. UAS are used for such purposes as firefighting, search and rescue, disaster relief, border patrol, weather monitoring, hurricane tracking and crime scene documentation. Generally, when we think of UAS operations, we think of them as flight operations that are dull, dirty or dangerous, crop dusting and inspecting high-tension wire electrical towers all over the United States are high-risk operations, which are well suited for a UAS. Key benefits of a UAS are that they allow humans to stay safely on the ground while the aircraft conducts the hazardous operations. UAS allows for long duration operations because ground based pilots can easily swap out while the aircraft continues the mission. In some cases, they are cheaper than manned operations because of the smaller size and lower operating costs. According to the Association of Unmanned Vehicle Systems International, there is a tremendous potential for economic growth in this field. The FAA is committed to a safe, efficient, and timely integration of UAS into the U.S. airspace to help enable this economic growth for our nation. As many of you know, the FAA was charged by Congress to plan for safe integration of UAS into the national air space system by 2015. Embracing these opportunities now will enable the United States to enhance our leadership position in this exciting new industry. However, integration into the national air space system must be prudent and systematic. Risk must be accurately identified and properly addressed so that UAS do not propose an unacceptable risk to people or property in the air or on the ground. There are many questions that must be answered before we are ready for safe integration. The UAS test sites required by the FAA Modernization and Reform Act of 2012 will provide the United States with testing and research facilities that will help answer UAS related questions and enable us to retain our leadership role in aviation safety. I would like to share with you some

history on the UAS test sites and how we arrived at where we are today. After being asked by Congress in the FAA Modernization and Reform Act, the FAA rapidly engaged in planning activities and was ready to begin the test site selection process back in July of 2012. However, we chose to delay the start of the selection process until we were able to adequately address privacy concerns as they relate to test site operations. After much deliberation and additional planning, on February 14th of this year, the FAA released the Screening Information Request, which officially kicked off the selection process of the six test sites. Interest in the test sites has been very robust. With the interest expressed by fifty initial applicants representing 37 states, concurrent with the selection process, the FAA also posted a federal registry notice on privacy as it relates to UA test sites. The federal register's notice contained a draft policy approach and requested public comment on this approach.

Today's listening session is designed to be a forum for the FAA to hear directly from the public regarding this privacy approach. We will use the comments we receive today to help develop the FAA's final privacy approach for the UAS test sites. The session will be run by a moderator, who will manage all incoming calls. Each caller will have a maximum of three minutes to share his or her viewpoints and while we understand the topic of UAS operations may be emotional for some on the line today, we kindly ask that all commenters show their thoughts, feelings and questions in a professional and courteous manner. If a commenter uses inappropriate language, the moderator will disconnect that caller and move on to the next commenter. As this is a listening session for the FAA, we will not be responding directly to your questions or comments. I repeat, this listening session is designed for you, the public, to share with us your perspectives on the proposed privacy approach as it relates to the test sites. The FAA will be listening only. In addition to sharing your comments with us verbally today, you may also choose to pose written comments and questions to the *Federal Register* notice, which contains information about UAS test site privacy approach. The session is scheduled for two hours and will conclude at 2:00 p.m. Eastern Time. The session will be recorded so that the FAA may review comments and questions and insure all viewpoints are concerned in our final approach to privacy for the UAS test site. I will now turn it over to our moderator, Nicole, who will provide additional details on how the session will work and how you may share your thoughts.

Moderator: Thank you, Jim, and thank you for joining us today. I'll start by sharing and repeating some information about today's format. Again, this session is being recorded and right now you are currently in listen only mode. If you would like to make a live comment, please make sure that you're dialed into the number shown on the screen and then press *8. Live comments will be heard in the order they are received. Please state your name prior to giving your comment. Each caller will have three minutes to make their comment. We will notify you when you have 30 seconds left in your comment period. Please do wrap up your comments at that time to allow other speakers an opportunity to be heard. Again, panelists will not answer questions or respond to statements voiced during the comment period. Please keep your comments professional, succinct and relevant to today's topic. This session, again, is being recorded and will be made available for playback at a later date. If you experience any technical difficulties with the audio for today's conference and are dialed in via phone, please press *0 on your touch tone phone for assistance. Any other technical difficulties, please send a chat to all panelists using the chat box. With that, we will begin taking comments.

Caller in Oakland.

Joseph Hall: This is Joseph Hall from the Center for Democracy and Technology. Some of our written comments just to give a little preview are going to talk about specific substantive elements that privacy policies should include for drone operators or UAS operators, excuse me, and the UAS test sites. We're also playing around with the notion of requiring UAS that operate in all classes of air space other than Class G to do ADS-B ALC broadcasting of an identifier location altitude and velocity so that ground based observers can know what UAS are above them and the meta data associated with the UAS platform and we're also going to sort of talk about data collection statements, which is sort of the bigger substantive element of the notice about how a UAS can operate and for law enforcement entities or contractors thereof data minimization statement and we'd like to see the FAA stand up a USA registry that can be queried by a company like an N number, maybe it's a U number, such that you could actually, anyone who has an identifier for a UAS specific UAS can then see what the data collection statement is and if there's a data minimization statement. That's all I wanted to say.

Moderator: Caller in Alexandria, Virginia.

Ben Gilo: Hello. My name is Ben Gilo. I'm the Government Relations Manager and the General Counsel for the Association for Unmanned Vehicle Systems International or AUVSI. We're the world's largest non-profit organization devoted to [?] unmanned systems. We've got over 7,500 members, including 6,300 members of the United States. UAS or unmanned aircraft systems hold tremendous potential to keep the public safe, create lasting jobs, boost local economies and further advance the U.S. as a leader in technology and innovation and in fact in an AUVSI study, found that the UAS industry is poised to help create 70,000 new jobs and \$13.5 billion in economic impact in the first three years following the integration of UAS into the national air space. That's why in February 2012 Congress required the FAA to safely integrate UAS into the air space by 2015 and it called for the creation of these six UAS test sites to help gather the safety data. In addition to providing valuable safety data, these test sites will also help educate the public about UAS and provide best practices for community engagement and open and transparent privacy policies. However, we want to be clear, AUVSI does not believe the FAA should govern UAS operations based on privacy issues or concerns. The FAA should stay focused on its stated mission, which is to provide the safest, most efficient aerospace system in the world. The FAA should rely on others, such as the judicial system and other federal agencies with expertise dealing with privacy issues such as U.S. Department of Justice and the Department of Homeland Security. The FAA should not be in the business of denying access to the air space for anything other than safety reasons. AUVSI believes information gathered by UAS should be treated no differently than information gathered by a manned aircraft or any other electronic means. Therefore, any new legislation or any regulations addressing privacy issues should be technology neutral. That being said, the AUVSI does support the development and advancement of the UAS technology in a safe and responsible manner while respecting existing privacy laws and insuring transparency and accountability. For example, AUVSI supports the registration of unmanned aircraft and pilots with the FAA. AUVSI supports the enforcement of established law and policies governing the collection, use, storage, sharing and deletion of data regardless of how it is collected. Those policies should be available for public review and those policies should outline strict accountability for unauthorized use. AUVSI

supports the International Association of Chiefs of Police recommended guidelines for UAS operations that also includes recommendations on data collection. AUVSI supports the Fourth Amendment requirement that the government obtain a search warrant when the UAS will intrude upon someone's reasonable expectation of privacy. AUVSI also supports the prosecution of individuals who misuse any technology to violate privacy laws and AUVSI does not condone the use of UAS for illegal surveillance and AUVSI looks forward to continuing to work with the FAA, privacy groups and other stakeholders to address these issues. We will be commenting more in the written comments to the Federal Register and we just want to thank you for this opportunity to provide comment. Thanks.

Moderator: Next caller from Spring Hills, Florida.

William Dubin: My name is William Dubin. I'm a private pilot and my concern is safety issues. How will they regulate or control safety around the airports if they're going to be operating out of an airport and also in the operating area and in general in the air space? Would we be able to get if we get a flight briefing, would we be able to get an indication of any UAS activity in the area? So again, safety is my primary concern. Thank you.

Moderator: Next caller from Charlottesville, Virginia.

Michael Covari: Hello. My name is Michael Covari. I'm a Policy Analyst with the Rutherford Institute, a civil liberties organization based in Charlottesville, Virginia. The Rutherford Institute has been particularly vocal in warning against the unprecedented privacy and civil liberties threats posed by allowing UAS to take to the skies domestically, particularly when it comes to UAS recording Americans' daily activities. The privacy implications of UAS have become the topic of national and international attention, especially since the city of Charlottesville, Virginia, based upon model legislation drafted by the Rutherford Institute became the first city in the nation to call for limits on the use of UAS by state and local law enforcement agencies. The city of Seattle followed suit with its mayor ordering the police department to abandon its plan to use UAS altogether. Moreover, lawmakers in at least 11 states are considering legislation to constrict the use of UAS over their skies, again, based upon model legislation drafted by the Rutherford Institute with people across the nation looking for assurances that their rights will be secure in the age of UAS. We encourage the FAA to go on record in support of two critical regulations on the use of UAS and domestic air space. The first element of the legislation drafted by the Rutherford Institute prevents information gathered via UAS from being used as evidence in a criminal court of law. UAS, which are capable of videotaping the facial expressions of people on the ground from hundreds of feet in the air, will usher in a new age of surveillance in our society. No person, whether he is at a political rally, exiting a house of worship or simply walking around downtown will be safe from the prying eyes of these devices. Without the assurance that our daily activities will not become fodder for overzealous law enforcement officers and prosecutors, our First and Fourth Amendment rights will surely suffer. The second element of the legislation drafted by the Rutherford Institute requires that UAS never be equipped with any sort of anti-personnel device whether lethal or non lethal. To do so would not only cause a serious safety hazard but would lead to the further erosion of our first amendment rights as Americans protesting the actions of government officials might be less inclined to rally when they know that a UAS equipped with a taser, tear gas or even a machine gun is hovering overhead. Without

these two provisions, any guidelines aimed at regulating UAS will be relatively ineffective. While it is unlikely that the vast array of privacy issues inherent to the use of UAS can be rectified via FAA policy, it is critical that the agency go on record to support these two critical safeguards for UAS use, both during the testing phase and during their integration into international air space. Thank you.

Moderator: Next caller.

John Davidson: Good afternoon, John Davidson from St. Louis, Missouri. While I'm a lawyer, I am actively developing several business models to use unmanned aerial vehicles to provide safety and security for all Americans and especially to cut energy use by one-third, specifically I am looking at a business model that incorporates unmanned aerial vehicles to constantly monitor our major metropolitan areas so that we can turn off the lights at night. The technology now exists that we can install light bulbs that are wi-fi operated and that can be turned on only on an as-needed basis. The preliminary calculations are that by adopting such a system we can cut our energy use in the United States by 30%. In addition, I'm looking at various security models and in particular in that regard, I am looking at how unmanned aerial vehicles can be used by law enforcement to end the more than 70,000 tragic deaths we have each year due to automobiles and guns. As regards the privacy issue specifically as to unmanned aerial vehicles, what everyone who talks about this issue of privacy fails to consider is that the right of self defense is a constitutional dimension, the right to deploy drones to surveil the conduct of people in and around your environs is constitutionally protected. So we have the entire debate flipped. What we should be talking about is how promptly and quickly the FAA is going to move to recognize the self defense rights of all Americans to deploy drones in many different varieties in order to provide self defense. That will, among other things, allow us to eliminate the need for weapons of all other sorts because drones and other robotic devices can provide a far superior self protection environment without unnecessary loss of human life. And so I think that the entire debate has been skewed and overtaken by failure to correctly understand and analyze risk. Today we have more than 70,000 Americans needlessly dying, deaths that we could prevent by rapid and widespread deployment of effective drone technologies, especially if those technologies were incorporated into vehicles that are driverless and so forth and so I'm going to conclude my remarks by emphasizing this point: the FAA should be burning the midnight oil to get these sites up immediately. I saw the last notice that you're talking about doing this by end of this year. Why can't we get this done by the end of this month? We're talking about a number of lives and the economic and property loss sufficient to justify. Last, I want to address a procedural matter. While you all claim that you have published your proposed policy draft, that is not the case. I have been over your website repeatedly and it nowhere appears.

Moderator: Thank you for your comment. We are going to move onto the next comment because there is no time remaining. Thank you.

Moving onto our next caller. [NO RESPONSE]

We will move onto the next caller.

Barry Novivitz: My name is Barry Novivitz. I'm the Associate Vice President for Research at the University of North Dakota. UND has been doing research for a number of years now and based upon our experience, we have addressed privacy and other ethical issues by establishing the first UAS Research Compliance Committee. This committee is based upon similar committees established by federal rules and regulations to address issues regarding research with human subjects, animals, biological materials and radioactive materials. The committee is community based and its deliberations are open to the committee. We believe that the complexity of UAS use requires a case by case approach, in part because of our technological differences between uses, air frames and the kinds of sensors that are being used. We have now reviewed and approved four protocols specifically addressing issues related to use with first responders. It is the University of North Dakota's position that similar local committees should be established to determine the appropriateness and use of UAS in a particular location and a particular use taking into consideration for each use the kind of UAS being used, the privacy issues, the data management issues and any other ethical issues that the community feels are important. Thank you.

Moderator: Next caller.

Amy Sapanovich: Hi. This is Amy Sapanovich calling from Washington D.C. from the Electronic Privacy Information Center. To echo a few points that were made earlier and make some new points, we've had aerial surveillance for a very long time but drones bring a new capacity for surveillance simply because they're cheaper and easier to operate than traditional measures. Voluntary guidelines are not enough to address the privacy issues brought by drones. Simply by the definition these guidelines are both voluntary and not enforceable. They don't provide the necessary protections that people need to be protected from the persistent aerial surveillance that will be allowed under drones. Similarly, registration is not enough unless those registrations are made publicly available and accessible on a easy basis for members of the public to see where they're, what drones are capable of surveilling them in any given area and, finally, privacy policies, such as the ones proposed by the FAA are not enough unless those policies require the fair information practices and not just recommend that they be used. Thank you.

Moderator: Next caller.

Anna Lanz: Hello. This is Anna Lanz. I'm in the San Pedro Valley in Southeastern Arizona. Our area has been proposed as a designated test range and I have a few things to say about that. While many of us have our opinions about privacy, we should begin with the dictionary. The Oxford Universal Dictionary of 1955 defines privacy as the state or condition of being withdrawn from society of others or from public interest, seclusion, private or retired places, private apartments, places of retreat etc. Ralph Waldo Emerson used the word to guard the independence and privacy of their homes. Emerson recognized that independence and privacy are inextricably linked. Privacy is not just physical. It has psychological, visual and audible aspects which are just as important. As the purpose of the test is to enable UAS or drones to be integrated with manned aircraft, which must fly at 500 feet or higher, the drones or UAS must also maintain that altitude. Nothing has been said and little written about the noise generated. Noise would be a major intrusion and should be minimized or eliminated entirely. No

surveillance equipment should be used at all ever. The contract of the site operator in the draft contract which I read must provide for not only the receipt and consideration of public input, but for detailed responses as well. Without thoughtful, mature, articulate response, the contract would not be a valid instrument. It would actually reduce the independence and privacy of the public. Thank you.

Moderator: Next caller from Savannah.

Alice Sheflaw: My name is Alice Sheflaw and I'm calling from Savannah, Georgia. At this point I am less concerned with the privacy issue. I am more concerned with safety with mid air collisions between a UAV and a manned aircraft and pieces of aircraft debris falling from the sky. So I would like to request or would like to ask FAA to devise strict regulations to stipulate who can fly the UAVs for commercial applications to insure that we are safe from all these collisions and falling debris from the sky. Thank you.

Moderator: Next caller from Prescott.

[?]: Thank you for trying to involve the people of Prescott. If you wanted to know, however, what the people of Prescott think about drones and yes they are drones, you would not have placed a tiny little brief in our newspaper. You would not have devised his circuitous response scheme. A drone is a drone and what you are doing here is a sham. Thank you.

Moderator: Next caller from Brooksville, Florida.

Shirley Mikinott: Shirley Mikinott in Brooksville, Florida and like some other callers, our small community, we're 170,000 people in Humana County in the process of applying for one of these positions at one of the six airports and regional test sites. We're concerned because it is the testing that would focus on whether drones can be integrated in the general aviation and restricted air space. We're a tight community and this is an airport that's in the middle of a populous area. We've read in the recent March 2013 National Geographic Magazine, who quotes Wright Patterson Air Force [?] technology a center of military drone research, a gentleman named John Marquette, who does designs new navigation systems for drones and I quote, "GPS is vulnerable he explains. Its signals can be blocked by buildings or deliberately jammed. In 2011, when a C[?] A drone crashed in Iran, they said it was because of hacking." Mr. Marquette says, the [?] is to the get to a point where systems can be systems that you can trust." So, so far we cannot be assured that these systems can be trusted. Also further, the FAA that even when controlled by skilled, well intentioned operators drones can pose a hazard and that's what they're concerned about. The safety record of the military drones is not reassuring. Since 2001 according to the Air Force, extreme UAVs, the Predator, [?] and Reaper have been involved in at least 120 mishaps, 36 of which destroyed the drones. Those statistics don't include the casualties on the ground. So that's what people in our community are concerned about is the safety, not just the Fourth Amendment rights but our safety. Do drones go awry, have accidents? They most assuredly do. Remember NATO drone strike that accidentally killed 24 Pakistani soldiers in the Fallala incident? How would you feel if a 45 foot wingspan drone came crashing to the ground in one of your elementary schools? Which the flight path of the drone testing in our community would go over some of our schools and many neighborhood flea markets, businesses and [?]. In

the March 2013 article also in National Geographic, they detail other accidents such as a 400 pound shadow drone crashing into a C130 Hercules transport plane. How will our light aircraft in most of our small community fare? Again, this is a test and we would rather tests took place in a more remote, more isolated and I know they need to be tested but we are very concerned about that and the safety. Again, we're worried about GPS being very vulnerable. The control signal delay in the command is a concern and the second method, even a skilled well intentioned operator can have a problem. We the citizens do know that this technology is coming. We would what Charlottesville, Virginia for each community out there to be proactive and start putting in place resolutions in your own county commissions, cities and other states that are working on similar legislation to put in place privacy rights for your citizens such as insuring that we have no surveillance without a 24 hour warrant from your law enforcement, also having in place no armed [?] and also we want to see something about the good and positive uses like for firefighting, obviously, for checking electric lines. Do we want to have things in place for search and rescue for people. So yes we recognize that there are lots of good purposes for them but we need to be careful in our neighborhoods not to have this testing take place over neighborhoods where it's not a tested technology that where even the FAA says it's not safe. Thank you so much.

Moderator: Next caller from [?] River.

Michael McGrugin: Yes, hello. My name's Michael McGrugin. I'm retired FAA employee and I work at Pac[?] Maryland, working on the Triton UAV. I agree with the privacy policy. I'd just like to promote safety and using all available resources to us between the military and the FAA to make these UAV safe and I would like to see the testing done at Pac[?] Maryland and the YMJU's Technical Center in Elaxia, New Jersey, two perfect sites to have all testing done. Thank you for giving me the time today.

Moderator: Next caller from Arlington, Virginia.

Harvey Brown: Yeah, hi. This is Harvey Brown. I work at the Army Guard Readiness Center, managing the Army Guard Shadows and Ravens. We've got about 43% of the ones that belong to the Army and I just wanted to mention some of the data which I think would be useful to the participants. One, there's between UAS, drones is sort of a drone is actually a target but not a thing, but anyway, there's no significant difference in terms of surveillance and privacy with the systems on a UAS vs. a manned aircraft. It doesn't really bring anything new. So it's a question of how do you manage that within the Department of Defense, those systems, whether on a manned aircraft or on an unmanned aircraft system? Cannot be used to gather, record or anything on a U.S. citizen without the express permission of the Secretary of Defense and there's a thing called a proper use memorandum that every unit that does these, lays out when they use them, how they use them, under what conditions and that paperwork goes all the way up to the Defense Intelligence Agency to get approved and fed back. So all that data is available to the public. Second thing, there was some comments made about armed drones or armed UAS, again, that's no different than any other like in the case of the Guard, the helicopters, everybody's got the capability of mounting a gun on there but you don't mount it or use it in the homeland. Same thing for the drones. On the safety aspect, none of your UAS systems in any of the services have an airworthiness release, which takes into account the FAA's mandated safety things and that

determines where you can fly. In most cases it's inside of a restricted area, which is just used by the military. The mention was made of the accident in Iraq with the C130 and that didn't have to do with the unmanned aircraft. The C130 went to the wrong reporting point and ran into the drone not vice versa. Not that this stuff can't happen but there's a lot of procedures already in effect that probably the process of getting that data out to the people who want to see it. So that's all.

Moderator: Next caller from Annapolis, Maryland.

Tim Adelman: Hello. This is Tim Adelman. I'm an attorney that practices in the unique field of unmanned aircraft law. I'm also a commercial pilot and flight instructor. The FAA's recognized as the world leader in aviation safety. Despite being a relatively large agency, the FAA has limited resources to focus on unmanned aircraft. As such, I would prefer to have the FAA continue its focus on aviation safety and not focus in the areas that are not the FAA's expertise and in particular privacy. The FAA is improperly become the lightning rod for privacy concerns with UAS. The FAA has permitted aircraft to operate in the national air space with cameras for as long as we've been able to fly. The problem is not the aircraft in the air but the use of data obtained. Regulating the use of data is not the FAA's responsibility. I would strongly encourage that the FAA make it clear that it does not regulate privacy and that it would encourage and assist the appropriate federal agencies to take on the privacy issues. I would also encourage the media, activist groups and associations to focus on the solution to the privacy concerns through our current legal structure and with an eye toward practical solutions. With tight budgets, let's not continue to waste precious resources by having the FAA reinvent the wheel on privacy. An example of a practical solution would be to have the SEC regulations prohibit the use of frequency to inappropriately intrude on one's reasonable expectation of privacy. Such a regulation would apply to all users not simply public safety or these test sites. Another example would be to have the Department of Justice's Office of Privacy and Civil Liberties implement appropriate regulations. Again, I would encourage the FAA to continue its superb focus on aviation safety and to let the experts on privacy deal with the privacy issues.

Moderator: Next caller from Inglewood, California.

Tom Anthony: Good morning. This is Tom Anthony and Harrison Wolf at the University of Southern California and it strikes us that since we are starting with a relatively clean regulatory slate within the UAS environment that the current initiative that is being implemented for aircraft operators, airports, and air traffic providers, namely safety management systems, that is a safety system that is operator based, this might be a real opportunity to start anew with SMS at the outset as an essential underpinning of the US operators' regulatory environment. That's about it. Just might be a good fit for the UAV's is SMS. Over.

Moderator: Next caller.

Jonathan Rotner: Hello. My name is Jonathan Rotner and I'm a member of the D.C. Area Drone User Group, which is an association dedicated to promoting the advancement of fine robot technologies for community service, artistic, entrepreneurial and recreational purposes. We welcome professionals and amateurs, beginners and experienced users, makers and hobbyists.

We promote the responsible use of flying robots through education, technology demonstrations, community service and advocacy initiatives. I'm calling today to advocate for the following action to echo what an earlier caller said, hoping that the mandated timeline is established for licensing procedures by 2015 or preferably earlier. We're also calling to support legislation that supports private ownership and entrepreneurial use of drones through allowing commercial and experimental use of small UAS to operate under current FAA rules for recreational use, i.e. under 400 feet and not within 300 miles of an airport, establishing a standardized and inexpensive certification process for use not covered under the above guidelines, emphasize that regulations should not make entry into the marketplace prohibitive for small business and, lastly, make use of current privacy, information security and personal responsibility laws, which in many cases are already adequate to cover the responsible use of this technology. Thank you very much.

Moderator: Next caller from Weeki Wachee, Florida.

David Lemmon: My name is David Lemmon. I'm a retired research and development specialist with the Navy. I've spent 32 years in science and technology initiatives and I've been very intimately involved in most of the electronics surveillance systems currently used by the Department of the Defense. I agree absolutely there's no valid reason for the FAA to be involved in the privacy issues. Those should be always within the FCC and the existing laws that we have governing our Fourth Amendment rights. If we're going to allow drones or UAS or whatever you want to call them in our private air space, not in the restricted military air space but in our private air space, they should be required to have unencrypted down links so that all their data collection can be reviewed by the public and that includes records that are contained onboard and recovered after landing so that they're open for public inspection to not allow these people to privately run drones or collection devices around our public neighborhoods, our public air space and not have any oversight as to what they're collecting and for the purpose and rationale. Remember that all air space is public air space and these people must be operating in the same rules and regulations that any other aircraft do. I don't understand why the FAA would consider developing six new sites when we have a multitude of DOD sites that are already engaged in UAV research and have been doing it for many many years, who have the infrastructure and the environmental capabilities to control the hazards and restrictions of UAVs. Why are you reinventing the wheel and going out to private airports trying to reestablish facilities that already exist within the Department of Defense? Surely, Cape Canaveral and all of the military test ranges that are already current involved in UAV flights have the capability to experiment with the FAA's objectives of integration and air space. We do not need to reinvent those test sites. They already exist. We've already paid for them. Let's not pay for them again. We've got to insure that these vehicles are safe in any environment and we can do that in controlled air space where we assure that they are capable of integrating without risking a pilot and a flight instructor and the thought of running into a 400 pound UAV that's 400 feet around my airport is very very scary and I don't want that to happen in my air space. Thank you very much.

Moderator: Next caller from Edwards, California. [NO RESPONSE]

Next caller.

Sue Udri: Hi. My name is Sue Udri. I'm calling from the Washington D.C. area and I'm with Defending Dissent Foundation and I appreciate hearing that the restrictions on the Army use of UAS but our concern is more with civilian law enforcement and I would respectfully submit to others that don't believe the FAA should play a role in establishing privacy guidelines is that UAS are different and, frankly, Congress gave FAA the mandate to come up with policies and they punted. They didn't create privacy policy, so unfortunately it is left up to the FAA and we would like to suggest that the FAA not issue drone licenses unless the application includes a data collection statement that explains who will operate the drone, where the drone will be flown, what kind of data will be collected, and how that data will be used and whether the information will be sold to third parties and for how long the information will be retained and that the FAA should create a publicly available website that lists all the approved licenses as well as the data collection and minimization statements but we also strongly believe that law enforcement agencies should as well as their contractors and subcontractors should include additional data minimization statements that explains how they'll minimize the collection and retention of data that's unrelated to the investigation of a crime. And of course any surveillance by law enforcement agencies should require a warrant or extreme exigent circumstances. Unfortunately, law has not kept up with technology and we're about to enter a whole new technological age with these UAS flying around our air space, which could be exciting and could create a whole lot of great stuff but it also creates a potential for huge risk to our privacy. Defending Dissent Foundation is particularly concerned not only with privacy within our own homes or our own property but at political demonstrations and in our every day lives outside of our property. We believe that Americans should be free from surveillance from law enforcement or from others.

Moderator: Thank you. Just wanted to let all callers know, that the queue is relatively short right now and if you would like to make a comment, now would be a good time to press *8. We are going to be moving to the next caller from Denver, Colorado.

Alan Bishop: Good afternoon. My name is Alan Bishop, President and CEO of Reference Technologies, a small aerospace company here in Colorado. Also on the AUVERSI Rocky Mountain Chapter. Like to speak to two points very quickly. Currently the technology that we all enjoy through Google Earth, police car cams, intersection cameras that have been installed for almost decade plus now, everyone has become very comfortable with and there were those who thought that that was going to also be an invasion of our privacy has only come to show that these technologies provide tremendous value to the public in general. I don't disagree that privacy is always an issue but the use of UAS more commonly called drones is a value tool both in search and rescue, oil line inspections, power line inspections, and the list of application is huge. I'm also a part of the team that's applying through the SAR that was issued by the FAA for test site selection. We believe we've addressed the issues of privacy and those concerns. The real issue that I have is with safety. We build these platforms, application neutral platforms; our concern is we want the safest air frame possible to be flying in our open skies. The FAA I feel is doing an excellent job in getting those issues resolved through the application process for the test site committees. Like many other callers, I strongly suggest that the FAA leave the privacy issue to the legal side of our government and focus entirely on the technical side for sense and avoid. This is an issue that is only going to become more and more of an issue as these low cost applications, low cost drones become more and more ubiquitous throughout the national air space. There's been a number of issues where these have flown up into controlled air space,

mostly by people ignorant of the law and I would hope that the FAA would come down quite heavily on these individuals to set the expectation that the air space is a very important aspect of both our freedom but also of our economy. Strongly suggest that we focus on sense and avoid, the technology to insure that we can integrate into the national air space very efficiently and very safely over the next several years. This is a technology that is just as robust as Google Earth, providing information and clarity of different types of mission requirements. I thank you very much for the opportunity. Education is number one and I hope that we can continue more of these FAA sponsored educational technology calls. Thank you.

Moderator: Next caller from Edwards, California. [NO RESPONSE]

Next caller from Bay St. Louis.

Maj. Gen. Jim Poss: Yeah, hi. This is Major General Jim Poss retired with Mississippi State University down here at the Stennis Space Center on the Mississippi Gulf Coast. Hey listen, I think we've got a very vital interest both at Mississippi State University and the state of Mississippi in making sure that we can safely and ethically fly unmanned aerial systems in national air space. Mississippi as you know has undergone a couple of recent tragedies and, I'll be honest with you, we would've loved to be able to have flown unmanned aerial systems in the aftermath of Hurricane Katrina. Because we hadn't engaged in this very worthwhile work that the FAA is now leading the charge on we were literally had to affix UAS sensors to buildings to look for survivors instead of doing what we should've been doing, which was flying these unmanned systems to look for survivors of that great tragedy. We had a similar experience just in the BP oil spill just a few years ago where, again, we weren't able to fly unmanned systems that could've potentially tracked that oil spill movement in real time. Mississippi State's got a unique position in the world of precision agriculture. We're very convinced that if we can get the cost of sensing down to a reasonable amount we can use hyperspectral sensors and other type of sensors on unmanned aerial systems to very precisely spray herbicide and pesticide and fertilizers and cut down by an order of magnitude the amount of those type of items that you're putting into the environment. When you live in a state where 41% of the United States water drains through your state and creates a large dead zone in the northern gulf you realize how important it is to move out on this work. I agree with everyone that said that we shouldn't take the focus of the world's finest aviation safety organization off of safety as we're talking about how to fly these UAS in here. I strongly agree that we should leave privacy, which is a very important concern, should be left up to those agencies, DOJ's the one that springs to mind most to figure out how to fly these unmanned aerial systems ethically in our air space. I'm concerned that if we add privacy to this effort and put that on the backs of the FAA that will take some of the focus off on safety, which is very very important to do. Several of the callers has put out flying cameras on aerial vehicles. It's not new. We've been doing that since the dawn of aviation. The fact that we are surrounded in today's modern world by video cameras in ATM machines, security cameras, law enforcement, means that we should apply existing rules that we have and let the existing agencies that we have that have that as their mission let them do that. Thank you very much for letting me talk.

Moderator: Next caller from Nortown, Pennsylvania.

James Keller: Yes, my name's James Keller. I'm calling to represent the University of Pennsylvania at General Robotic Grass Lab and we operate several types of small model scale UAS indoors right now and we just have made local contact with our FAA office to pursue a research based clearance to operate outdoors on campus. Our first objective is to simply operate on campus property. So we respect everyone's comments on privacy and we share them entirely. We're basically looking to operate vehicles in the research and educational capacity. So once we've established that we are working in air space that meets the standards for current model aircraft. We believe that the only additional elements we'd like to establish for safe operations over UAS in the research context are operation only and visual flight meteorological conditions, operate with a safety pilot close enough to take control of the aircraft at any moment at the operator discretion, always work with an observer supporting the safety pilot, explicitly define a containment strategy so we keep the vehicles in the operational air space that we have already cleared or presumably cleared with the FAA and then importantly have an explicit loss of length flight plan already embedded onboard, have a dead man's flight termination system in place to terminate the flight and if the loss of length does not work and, lastly to clear basically a gross weight center of gravity envelope for safe operation of our vehicles because in a research capacity once we establish those limits we like to be free to put on any payloads that are within those constraints. So having demonstrated these items we like to be free to pursue research and not have to come back to the regulatory representative each time we make a software change and so forth. So we believe we can petition our software and meet the requirements to operate safely, in a very constrained on campus location. Thank you very much.

Moderator: Once again, the wait time for making a comment is low. If you would like to make a comment, now would be a great time to make sure you're dialed into the number on the screen and pressing *8. We will move to our next caller from Mariminek, New York. They'll be live and able to speak momentarily.

Nick Mautern: Yes, this is Nick Mautern with knowdrones.com. I want to make several comments. One is I believe that the notice for this hearing was insufficient particularly in the zones where these test zones are planned. Secondly, there's absolutely no explanation as to why the FAA would be interested in a privacy issue if these drones are going to be tested for avoidance technology. I think the FAA needs to be very public about what will be on these drones that are flying with respect to cameras, what will be involved with the monitoring, what the cameras see and actually I believe that any of these tests, drones should be prohibited from carrying anything that would be of a surveillance possibility whatsoever. Further, I agree with the lawyer in Annapolis that the federal government has avoided completely taking responsibility within the Justice Department for these privacy issues, which are profound. The technology is beyond in capability anything we have experience with and furthermore, I found very important the gentleman from Florida, who said there is absolutely no reason for these additional test sites. I think they present huge safety problems for people around the country and I think the FAA needs to go back and advise to the Congress that these test subjects are largely being proposed for commercial purposes under the influence of aerospace industry and AUVERSI and that we as taxpayers have absolutely no reason to want to subsidize aerospace development, particularly when there are these profound safety concerns. Thank you very much.

Moderator: Next caller from Huntsville, Alabama.

Richard Barrett: Hi, my name is Richard Barrett. I'm a previous UAS operator with 1,500 hours in both Iraq, Afghanistan and the United States. I'd like to briefly read the FAA's mission statement, which is our continuing mission is to provide the safest, most efficient air space in the world. Nowhere in the mission statement, their vision or their values does it mention the requirement or availability to perform security operations. These are clearly the responsibility of the Department of Justice and not the FAA. That being said, that FAA should focus more clearly on adapting the IOPs or training and certification of the current military assets and those assets that will be incorporated in the national air space.

Moderator: Next caller from Manchester.

John Davidson: Yes, John Davidson from St. Louis. A quick observation, a number of people have said that these proposed drafts are available on your website. They are not. The only place that I have been able to find them is three paragraphs or four paragraphs in the Federal Register and I would appreciate you all immediately putting up on your website where it's accessible, for example, the notice that was sent out does not have a link that works to what we're talking about. Thank you.

Moderator: Once again, the queue is not long. If you would like to make a comment, we do have just about an hour left for any comments that you may wish to make. Again, you will need to be dialed into the number that's showing on the screen at this time and then press *8 on your touchtone phone.

Next caller.

[?]: Yes, good afternoon. Thank you for accepting my comment. There have been other comments that FAA should not be concerned about privacy and should only focus on safety aspects. I do agree with that, but then it follows logically that because of that FAA should wait until privacy laws and regulations are in place by the entities responsible for defining those privacy protections. The [?] program that violates privacy because you're not responsible for privacy, not necessarily a responsible action. I have an additional safety question and a legal question for FAA's consideration and review. For BFR pilots, how can UAVs be identified, especially in being [?] poor visibility? Are there such markings required to make them more visible for BFR pilot and if they're required to stand out visually how would that in the long term affect the public in terms of sight pollution, especially when the number of UAVs increase over open air space? The second question I have is a legal question, what are the liability roles in the event of a crash between a private aircraft and a UAV? How is fault established if the pilot is unable to identify the UAV due to poor visibility or to the muted or camouflaged color of the UAV? So are UAV's required to carry insurance as required by private airplanes? And what recourse to citizens have in civil courts against mistakes or errors or any kind of abuse by UAV operators and their companies? Thank you for taking my comment.

Moderator: Next caller from East Grand Forks.

Alegra Rossler: Good afternoon, my name is Alegra Rossler and I am a co-owner of New England UAVs. What we do is we work with different entities who are trying to find out more information about UAVs and we basically provide education, consultation, what not along those lines and I would like to make a few brief statements. As a commercially rated pilot and an air traffic controller, I do believe that the privacy issue should be left out of the hands of the FAA. They have far more important safety issues to consider and to take on and they have a very small entity working UAVs. They need to stay away from that. Let the government do their job on that bit and they need to stay focused as always and as they always have been on the safety and integration of the see and avoid. With that being said, pilot in command is always the pilot in command and wherever that person is that's who is responsible for whatever happens in my opinion and that's what I've seen in the past working integration of these aircraft within the military structure. There's been a lot of people asking about the sites, DOD vs. the proposed sites, I would like to highlight that the proposed sites are actually for local governments, universities and other public entities. So things that are paid for by the state to develop these sites for research and testing. That does allow us to help open up a commercial market eventually. That commercial market is not there right now but this is if we say no we don't want these, then there's an \$8 billion economic bombshell for us when it would be very easy to continue on and continue testing. DOD sites cannot be currently used for these type of projects due to laws and basically where the money comes from to fund these things. That's all I have to say. Thank you very much.

Moderator: Next comment in Washington D.C.

Elizabeth Withnell: My name is Elizabeth Withnell and I'm a retired federal privacy professional. I would like to start by noting that I believe integrating privacy in federal initiative is the responsibility of every agency and not the expertise of only a few. With that in mind, I recommend that rather than simply requiring test sites to have privacy policies, the FAA in consultation with other federal agency privacy officers that's necessary develop and publish a prototype of the privacy policy the test site should adopt. This would offer more detailed direction to these sites. The prototype could be published for comment prior to being made final. In addition, the FAA should specific the precise Fair Information Practice Principles that its policy incorporates, as there are a number of formulation of the FIPPs. More pointed direction from the FAA on privacy would help insure that the test sites have appropriate privacy policies in place. Thank you.

Moderator: Next caller from Woodstock, Illinois.

Brian Walsh: Hello. Good afternoon. My name is Brian Walsh from Southern Illinois. I'm a commercial reserve pilot and an instrument rated pilot as well. On the topic of unmanned systems, the FAA must begin to assess these systems, first realizing they already possess the foundation for regulating these systems. With experiences and current policies on manned aircraft, all with the gear toward safety. The FAA needs to model their policies on unmanned aerial systems with expectations and strict air worthiness requirements for these systems as manned aircraft, thus, reassuring the public by regarding similar safety systems and publicly distributing that information. The FAA needs to emphasize [?] distribute easily accessible information to the public explaining systems diversity along with mission diversity. Privacy

policy should not be the concern of the FAA but of the FCC, DOJ and other current laws protecting our Fourth Amendment rights. These systems have the potential to impact this country from an economic standpoint and job creation standpoint that has not been seen since aircraft started carrying mail in the early 20's. The FAA should focus on what these systems will be used for and that they are not taking primarily focused, commonly publicly perceived large predator drones flying over the public but rather smaller systems used for precise missions, such as agriculture, land surveying, power line surveying, disaster relief and many environmental applications. The FAA needs to expedite the process. They'll need to focus on approving safe systems, developing ways to certify operators and systems similarly to the manned aircraft that currently fly in our air space system and hold accountability to the operators and produce publicly accessible information on how they will do that. The FAA needs to fully integrate unmanned aerial systems international air space systems but this may be too large of a concept for the general public to accept as a total idea. It may inhibit the FAA to meet its congressionally mandated date of 2015. The FAA needs to start with integrating specific missions such as agriculture, power line surveying and build public confidence as these systems develop into safer, more beneficial systems that have more potential economic benefits along with safety policies. They need to distribute this effectively and show publicly the successes of the systems on smaller scale and then build up with general public trust. That is all I have. Thank you for your time.

Moderator: Next caller from Brooksville, Florida.

[?]: Brooksville, Florida and we thank you for listening. Just a few comments about some of the things we've heard this morning. Some gentleman commented the [?] would be small [?]. We were told at our local aviation authority by the airport manager that he was approached that we would have 40-45 foot wingspan drones. So these aren't necessarily small drones that would be being tested and then other people talked about the guidance systems and in the National Geographic Magazine, it tells us that they are now working on a drone that can navigate visually because GPS is vulnerable. Again, it can be blocked by buildings or deliberately jammed. Now, these systems are still very much experimental and they do not have the [?] and the gentleman there says that the lab's goal is to emphasize systems that use [?] trust. Right now, they still he says cannot be trusted. A drone equipped with this visual navigational system he says would help with the going over neighborhoods etc. When they did a test on the first drone, it flipped over. Then they tried a second test. It crashed into the wall and the gentleman said, this demonstrates a need for trust. Well, again, we have a problem over very very tight neighborhoods having these tested in and amongst our neighborhoods with our schools, with people that are here that we just don't see the is very [?] that this technology is not ready yet to be put into general aviation space. Another example that we have is that the Air Force has a micro aviator at Wright Patterson flight testing small drones. Cavernous chamber, 35 feet high, 4,000 square feet with padded walls, probably for good reason. Micro aviator researchers, much of whose work is classified, would not let the author of this National Geographic article see a flight test. But they did show him an animated video showing micro UAVs that resembled winged, multi-leg bugs. The drones swarm through alleys, crawl across windowsills and perch on power lines. One of these sneaks up on a scowling man holding a gun and shoots him in the head. The video concludes, "unobtrusive, pervasive, lethal, micro air vehicles." Then anyone would ask why we have some safety concerns. Now, again, we need to be proactive in our communities. Many states are already

proactive, Oklahoma, Mississippi, Virginia, Nebraska, Oregon, many of these states are already trying to put these in place to be sure that we have our safety concerns met and the privacy concerns. I encourage every community out there to be proactive and to [?] and I think you for the opportunity.

Moderator: Next caller from Manchester, Missouri.

[?]: An observation I thought others would touch on but has not is that the business models that we're looking at not only use drones but consider using drones in connection with tethered balloons which basically have the same ability to survey. The only thing is that their position is fixed and so if the FAA decides to get into this at all, there should be coordination between whatever policies are about tethered balloons and drones. Thank you.

Moderator: Next caller from Washington D.C.

Julia Horowitz: This is Julia Horowitz calling with the Electronic Privacy Information Center in Washington D.C. The FAA is uniquely positioned to regulate many of the significant privacy concerns involved with the use of domestic drones. In 2012 EPIC, joined by a coalition of more than 100 organizations, experts and individuals petitioned the FAA to take action on the very real privacy risks associated with surveillance drones. The FAA is the primary licensing entity for drone operators and, therefore, should require all drone operators, as a condition for licensing, to be listed in a publicly accessible database and submit a data collection statement. Further, the FAA is specifically positioned to address how to make drones identifiable by members of the public. Other agencies may have a say in the overall scheme of privacy regulations for drones but the FAA's work in this area is important and should not be overlooked. Thank you for listening to EPIC and to the public and for considering and acting on these topics.

Moderator: Next caller from Grand Forks, North Dakota.

Al Palmer: Hello. My name is Al Palmer. I'm the Director of the University of North Dakota's Unmanned Aircraft Systems Center for Excellence. I also lead the air space integration team designated by our Governor and Congressional Delegation to go after one of the six test sites recommended by the FAA. I would like to say that UAS an emerging technology. Many of the uses that can be used to improve the quality of life, such as been noted—emergency response, humanitarian efforts, improvement in agriculture—basically we're just limited by our imagination as to the uses for this new technology. However, we still need to be concerned about respecting people's privacy issues and address those concerns. My thoughts are that the FAA should focus on safety, as has been designated by previous speakers, as part of Justice and Federal Communication, those are the agencies that should be dealing with privacy concerns and I believe that respectfully we should not focus on the tool but focus on the space that we want to be protected and just for clarification, there is no federal funding for the designation of these six test sites. They must be funded by the state or have a business plan that supports this test sites, so thank you.

Moderator: Next caller from Dothen.

Greg Ramberry: Hello. This is Greg Ramberry. I'm from Dothen but I'm at the Northland Community and Technical College Program on Unmanned Aerial Systems Maintenance Technicians. While I agree that we have a lot of privacy concerns, I do think there's enough laws in place right now that could handle whatever issues come up to allow people to complain, sue if you would, whatever and I think this privacy issue is one thing that could further hinder commercialization of the UAS industry that we need to have in place seeing as how we're having military drawbacks in this sequestration environment and I want to be able to be employed when I get out of this program in May and there's already enough issues that the FAA is having to deal with and privacy shouldn't be added onto it. That's all I have to comment.

Moderator: Next caller from Herndon, Virginia.

Gustavo Safro: Hello, my name is Gustavo Safro from McLean, Virginia. I'm a GASS Student, a member of American Society for Photo[?]metry and Remote Sensing [?] and I'm also a member of the D.C. Area Drone Users Group. As a [?], I'm honored to fly a quad copter for recreational purposes but if they're going to want to use that same drone flying around the same path under the same conditions for research or experimental purposes or commercial purposes, it's [?]. This makes no sense and as a student I attend a lot of conferences. Most of them including UAVs and aerial photos and I witness the use of these as most UAVs is incredibly changing. I got into research in aerial [?] and remote sensing opportunity I find that most advances in these areas are increasingly done by foreign companies and universities, mostly from Europe, Australia and South America, where I believe the laws are more flexible with the new technology. My concern is that if we take too much time to decide about the [?] relation the U.S. will be losing its leadership position in this area. So I hope the FAA meets [?]. Thank you.

Moderator: Once again, the queue is short if you would like to make a comment at this time. We have just over 30 minutes remaining for comments to be made. Once again, if you're already dialed in via phone you simply need to press *8. If you have not dialed in, you can dial into the number that's listed here on the page that is showing, then press *8 to make a live comment.

There is no one in the queue at this time, so please go ahead and press *8.

We do have a few that have come in. The next caller is in Portsmouth, Virginia.

Bob Fitzgerald: This is Bob Fitzgerald with Bosch Global Services, just want to make an observation about the discussion. One thing I hadn't heard brought up is the fact that there is manned aircraft now with sensors onboard and flying around either privately where people looking out the window of an aircraft or having sensors of their own have no concerns with privacy or there are no privacy rules regarding them that I'm aware of or haven't heard any discussion about. Unmanned aircraft systems technology fundamentally just removes the pilot from the cockpit and puts them on the ground and I'm still struggling to figure out how that creates a privacy issue when you could be flying effectively the same aircraft with the same sensor package, just put the pilot on the ground instead of in the air. Now it becomes a privacy issue. My concern beyond that is if we get caught up too much with privacy issue, we may lose the opportunity to take full advantage of this technology in other areas where privacy is not a concern, that is environmental protection, wildlife protection, oil and gas industry, search and

rescue, precision agriculture and the like. There are so many good, promising applications of this technology, I just want to caution everybody from letting this privacy thing which has limited concern in terms of the spectrum of uses of this technology and don't let it unduly affect all the other promising things that have absolutely no privacy issue at all. Let's not throw out the baby with the bathwater. That's all I had to say. Thank you.

Moderator: Next caller from Alexandria, Virginia. They'll be live and able to speak momentarily.

Rick Dave: Good afternoon, this is Rick Dave from Alexandria, Virginia and, first of all, I'd like to thank John Pocari and Jim Williams for hosting this webinar and FAA for taking a leadership role to set up these public forums. As the previous gentleman mentioned, the only difference is the location of the pilot when it comes to sensor packages on manned or either unmanned aircraft and FAA has a history in regulating data, the acquisition of data, the retention of data, and the destruction of data, including aircraft flight data recordings, cockpit voice recordings, and air traffic controller communications and even lasers being shown into cockpits and they've done an excellent job but these are primarily focused and driven by safety concerns. It appears that the purview for privacy policy should rest with, as mentioned before, Department of Justice, FCC or DHS. And my recommendation is that following the public comment and through interagency coordination and the guidance that has developed and defined by DOJ and DHS and appropriate privacy entities in the federal sector we should then apply the FAA's expertise in implementing broad privacy policy, rule or regulation which applies to both manned and unmanned aircraft including tethered balloons and I'd like to thank you for the opportunity to make the comments.

Moderator: Next caller from Wicki Wachee, Florida.

Dave Lemmon: This is Dave Lemmon, again, as a former DOD researcher, I'd like to comment that the Posse Comitatus regulations restrict the DOD from surveillance of civilians but it does not restrict using a DOD site that currently exists for testing of UAVs by a big commercial or civilian population. We do that frequently in any number of business arenas where an organization or company could come in and request the use of federal air space or restricted air space or restricted air space to test a development or to any facility like the unmanned uses at Cape Canaveral, those facilities could certainly be used for research in integrating into the air space. That's the purpose of these test sites, integration into the national air space without even worrying about sensors. We can leave the sensors out of the equation until we can easily and safely integrate UAVs into the national air space system. Let's do that in restricted and controlled air space. We can do all the tests and we can integrate it, see if it's going to work without killing somebody, which is what the current plan envisions, operating out of civil airports. Thank you.

Nicole: Next caller from Sacramento, California.

Patrick: Hey, everyone, it's Patrick [?] again. I just had a question about the test site thing and I would think with the test sites that they would be out pretty much in the middle of nowhere flashing back to the experience from the small unmanned aircraft systems ARC, the group [?], which were going to be up to 55 pounds. It was proposed that they would be 30 nautical miles

from any charted airport or heliport. Are the test centers, are they proposed to be in remote locations or is the criteria to let them be as in some states want to have them in crowded location? And I guess my question is, if these are going to be in remote areas that are very sparsely populated, what are the privacy concerns?

Moderator: Next caller from Dayton, Ohio.

John VanDunkler: This is John VanDunkler. I commend the FAA on the privacy concerns, specifically as they relate to the fixed test ranges. This is an activity that's best done up front before flights take place. There are people living underneath the test range air space and UAVs differ from manned aircraft because of their pervasive nature. People under the test range air space should have web based access to who's overhead, what data are they collecting and who is responsible for the safe operation of the UAV? UAVs should avoid intrusive activities that disturb people living under the test range air space and recourse for privacy disruption should be clearly documented and the FAA should advocate for the public's rights against test range users to make sure quick resolution. Again, the FAA should be involved in test range privacy because they will be the ones getting the phone call when somebody thinks they are being harassed by UAVs operating in the test range. Thank you very much.

Moderator: Once again, the queue is short for any comments that you would like to make and we do have about 30 minutes left. Just a reminder that panelists will not be answering any questions or responding to the statements voiced during the comment period but we do welcome you to make your comments at this time. Once again, the phone number to dial in if you have not done so already is shown on the screen and then you simply press *8 to be moved into the queue to make your comment.

Next caller from San Diego, California.

David Place: Hi, this is David Place, here in San Diego, California. It's really encouraging to hear all the smart people talking about these issues and for the most part I think the consensus sounds like the FAA probably should not, clearly privacy is an issue but it should not be put in the FAA's ball park to try and resolve that. There are other agencies to do that. The FAA clearly needs to be informed about what those are and perhaps make some contributions but the onus should not fall on them. I would just also encourage everybody that's interested in the whole test site then you approach to consider state legislature involvement, historical military units involvement, educational institution involvement as well as the private sector. That's really encouraging to hear everybody be so well informed on this entire issue. Thanks very much.

Moderator: Next caller from Tucson, Arizona.

John Wasak: Hi, this is John Wasak, a Co-Owner of Cyclone Autonomous Design Group in Tucson. We specialize in small unmanned aircraft systems. My comment is primarily to the folks that are in support of UAS here in the U.S. I think we're really doing ourselves a disservice if we talk about drones. Like to encourage everyone to really talk about unmanned aircraft or unmanned aircraft systems. We need to really do a better job of publicly discussing the benefits to all of us and to everyone in the U.S. relative to utilization of these systems for surveillance,

reconnaissance, help of emergency response teams. We've heard a lot of people talk about different categories of support. I mean the list is endless, protecting those in harm's way by saving lives for police, fire department, SWAT, bomb squad, border patrol, the Coast Guard, the large list of commercial users from ranchers, farmers, forest service, search and rescue like perhaps park rangers, inspection of all these different sites like nuclear sites, pipelines, oil spills. Again, that list is endless. There's a tremendous potential economic benefit to the United States of continuing this whole development aggressively moving forward. If we're not careful, there's a tremendous international competition out there and if we don't really keep pace, we're going to lose the opportunity to develop a lot of these jobs within U.S. high paying, high tech jobs. FAA certainly needs to focus on safety but they've got to work very closely with these other agencies on privacy. That's extremely important. Thank you.

Moderator: Next caller from Tucson, Arizona.

Elna: This is Elna, I'm actually calling from Benson, Arizona. This is the same stream of thought the caller from Dayton was on. I live in one of the proposed test sites, which people say are sparsely populated, well it's a proposed test site I should say but there are people living here and one privacy concern that no one seems to have considered is what happens in the event that one of these unmanned aircraft vehicles or drones whatever we prefer to call them are downed, whether because they've lost contact with their home base or because they have some kind of technical problems? Now there's going to be a drone down on my property. Are we going to have, how many people are going to come trooping in? How is this all going to manage? Whatever happened to my privacy in that event? Yeah, I'm not even talking about being able to leave my house. I live in a sparsely populated area because I like it. I find the noise from even commercial aircraft disturbing but I really do not look forward to having a little army of people to come into rescue anything. That's it. Thank you.

Moderator: Next caller from Lake Havasu City, Arizona.

Dr. Jeremy Lemeiux: Hey, Dr. Jeremy Lemeiux from Unmanned Vehicle University. We're getting people ready for engineering jobs with the thousands of companies that are going to start up once we have the integration performed and we can use commercial vehicles in our system and catch up to the rest of the world. Canada, UK, Australia and Japan already use unmanned vehicles commercially. 90% of the crop dusting in Japan is done with UAVs. So my concern here with this discussion is that Congress has already expressed concern about the integration date of 2015. They actually sent a letter to the Department of Transportation Secretary Ray LaHood and they asked for an update on the progress of the program. In that letter, they asked the FAA to focus primarily on safety not privacy. So I'm a little bit confused about why are we having this discussion with the FAA leading it? It may be better to have another agency as a former suggested, the Department of Justice lead this conversation because this is a start of a string of conversations I would imagine, a debate, that we're going to have to try to fix the privacy issue concern and hopefully get us on schedule to catch up to the rest of the world. That's it.

Moderator: Next caller from Manchester.

John Davidson: Yes, John Davidson, I called back in to respond to a couple of questions and to give some people some insight. We have discarded the small UAV business models for the reason that we believe that already foreign suppliers are so advanced that small UAVs are going to be self assembled with people going on the internet and the other electronic trans communication obtaining the plans and the necessary software and then purchasing for themselves the materials they need to assemble their own drones. We also believe that once the capacity of this technology is understood, its self defense capacity, that the same thing that is driving our current for lack of a better word temporary insanity of self manufacturing guns is going to overtake the drone industry and we're going to see a large rapid increase in people building their own drones to operate for self defense and so we are not concentrating as a business model in that space. We believe that the government's failure to act has already given foreign suppliers the necessary lead time and path dependence. The second thing that I wanted to comment on was the recovery of a drone and privacy issue. We have taken a look at that because obviously if we have multimillion dollar investments in hardware we do anticipate sooner or later that while we're going to be saving lives that these things will descend and there are important recovery issues. As we understand the current status of the common law, a drone merely because it falls out of the sky is not abandoned, that gives the owner of the drone the right to ask the property owner to return it. If the property owner refuses to return it on demand, that's a conversion of the personal property making the property owner liable in tort for both the actual value of the drone and punitive damages. Knowing that and but also knowing that people cannot understand that they have rights and duties in the society to other people, we are in the process of drafting model legislation for states to adopt that regulate the process of entering property and recovering drones for the exact reason that people have mentioned that there will be concerns about the damages and so forth and that connection we are also looking at requirement that people who operate drones who desire to recover them either have to have insurance or bonding or some capacity to pay for the damage that they might incur if they have to enter the property of someone else in order to recover the property. So people are thinking about those issues and looking for solutions. Thank you.

Moderator: Next caller from Sacramento, California.

[?]: Yeah, one other comment about reiterating the idea of putting someone from the ACLU, EFF, et al on the current unmanned aircraft systems ARC. If these people were included in the conversation, I think we would be able to blunt some of the privacy issues. They are all open and amiable to hearing the ideas that we have as an industry. I just did a talk at UC Berkeley and [?], the ACLU, everyone else they are approachable. I think if we brought them into the conversation we would have less of an issue.

Moderator: Next caller from Oakland, California.

Joe Hall: Hi everyone. This is Joe Hall. I'm the Senior Staff Technologist at the Center for Democracy and Technology in California. To speak to the last comment, both the Center for Democracy and Technology and EPIC, the Electronic Privacy Information Center are very good friends with EFF and ACLU and were heavily involved with this issue and so feel free to contact us. My email is joe@CDT.org. Two points to make with the rest of my time, everyone on this

call who has been complaining the FAA is not the right place to do this, I think that those complaints are falling on deaf ears. FAA has a legislative mandate to look at these issues and you would probably want to talk to legislatures about amending the FAA Modernization Act or something like that rather than spending your time arguing to FAA that they're not the right place for this. The second comment is a lot of folks who are not UAS operators seem to want to be able to know what drones are above them and what those drones are capable of and excuse me if I use UAS and drones interchangeably, one has fewer syllables. By 2020 the FAA is going to require all manned aircraft operating in Class A, B and C air space to use what's called ADS-B out and you may know what this is, but it's essentially a radio frequency signal that broadcasts an identifier location and position to go off. Right now you can buy a really cheap iPad rig that can display some of those signals. Not all aircraft use them right now. I would personally be interested in anyone contacting me with feasibility data about how expensive, how heavy it would be to mount ADS-B out signaling infrastructure on UAS that are going to operate in significant altitude and stuff like that. I think that's important for a public notice in understanding what's above you, what's going around the flight paths. I think it's also important for collision avoidance. Safety is a big issue and collision avoidance operation to the FAA is a big issue and if certain classes of drones, however we end up classifying them, should have to send these signals. I thank you for the time to speak, once again.

Moderator: Next caller from Minneapolis.

Alex Walker: Hi. My name's Alex Walker. I'm a student at the Northland Community and Tech actually training to be a UAS operator technician. So as far as I'm concerned, I don't think the FAA should have a huge role to play in the privacy of the U.S. Citizens. They're more of a safety related issue I believe. I think it should stay that way. There's so many aspects of safety with the UAS that they need to concentrate on that I don't think they need to add this to their plate, more of an FCC issue. So that's my thoughts on it.

Moderator: Next caller.

[?]: Yes, good afternoon. I called in earlier but I have another comment, so I appreciate the ability to add. I have a national security concern for FAA's consideration. Due to the nature of UAV, in essence, the actual identity of the pilot can be hidden, what do we need to put in place to prevent the use of UAV for espionage or terrorism over U.S. air space by foreign entities? Due to the conspiracy sounding tone of this next comment but it's not outside the realm of reality, what do we need to put in place to insure that what happened on 9/11 will not happen using UAVs in smaller, cheaper, more difficult to trace and possibly more frequent scale? Thank you.

Moderator: Next caller from New Orleans.

Aaron Grant: Good afternoon, this is Aaron Grant from Crescent Unmanned Systems. We operate from the NASA Meecham Assembly Facility in New Orleans, Louisiana. The issue of privacy has overwhelmed the conversation about this new technology and there is an unnecessary amount of hyperbole and hysteria due to misinformation or lack of information. Privacy is primarily a legislative issue. It's the job of local, state and federal legislative bodies to draft regulations addressing the proper deployment of surveillance devices. Regulations already

exist that govern surveillance by manned aircraft so the FAA should simply articulate these restrictions that are already in place and move onto the task of developing protocols that will allow for the safe operation of remotely piloted and autonomous unmanned aircraft. Thank you.

Moderator: Next caller from Charlestown, Massachusetts.

Helen Dana: My name is Helen Dana. While recognizing that Congress has only mandated six test sites, there is a much much greater demand. I suggest keeping the plan for the six sites and go for it as quickly as possible on these but focus these six sites on the large UAVs, then pick many additional geographically disparate site that will allow small UAVs to fly under existing hobby guidelines and as mentioned these small UAVs are identical to those flown by thousands of hobbyists every day and if this is a true safety or privacy issue, these hobbyists would be stopped immediately. I don't support this. You, as researchers, should not be intimidated in this small UAV research but should have to follow the hobbyist guidelines. The restrictions on flights for small UAVs are letting foreign companies take the lead in an area that the U.S. has funded and should be a U.S. economic driver. Again, my input is [?] every state for small UAV testing.

Moderator: Next caller from Booneville.

[?]: Hi I believe that the privacy risks associated with drones is very real. Now voluntary guidelines are not enough. The FAA may be about safety but this is a new page in our history before UAVs become ubiquitous surveillance from above. If you hand it over to DOJ or DHS, then how much of that is going to be classified from the public and how long would it take to see via Freedom of Information Act? While there may be many promising applications, how many times have we seen mission creep or abuse seeking surveillance? There is a difference between cameras mounted on aviation now, such that surveillance would be much more difficult in those traditional aircraft. For example, you would notice a hovering helicopter and airplanes circling around your home. If you choose to live in the country and you've put up a fence and you've made a decision to enhance to protect your privacy. The PBS Nova documentary talked about some of [?] capabilities and it's the equivalent of having up to 100 Predator drones look in an area at the size of a medium city all at once. They could even see shoelaces. I also believe there's safety and security issues such as we should not disregard the fact that GPS can be jammed. Researchers have showed this. The FAA should require all drone operators to be listed in a publicly accessible database. What is the payload? Who's the operator? Where and what data is collected? Who is the data used? How long will it be retained? Will it be sold and if so to what third parties? Data collection statements should be available to the public. We should be able to see the data collection via unencrypted download links and that includes what law enforcement is collecting. Thank you.

Moderator: At this time, we have time for about two more comments. We have about ten minutes remaining. If you would like to make a comment at this time and you're already dialed in, just press *8 on your telephone keypad or dial into the number shown if you're not dialed in and then press *8. Commenting will be taken in the order they are received.

We'll start with a call from Minneapolis.

Eric: Yes. My name is Eric from Northland Community College and Community and Technical College and my feelings about it is for privacy issues is about three callers back from the aerospace division that there is a lot of overblown problems with worrying about privacy and the federal government should not be legislating to it. It is based on states and city and county dealing with the problem and it should be no problem working it out eventually in the future. Thank you.

Moderator: Next caller from Redding, California.

Melody Fowler: Hello. This is Melody Fowler from Redding, California and I just wanted to make a statement. We went to a little City Council last night about drones because we may be a possible site here in California for testing and we are not rural or in the middle of nowhere. We have over 100,000 in population in my city. I see the benefits of drones. I understand it's a new technology but I feel like we have the cart before the horses in this. I think we need to determine who, what, where as far as who's in charge, who's regulating this, and if someone does breach a privacy policy, how is that going to be handled through the legislative branch. I did want to read a short thing from Langdon Lenner in his classic book *The Well and the Reactor, a Search the Limits in the Age of High Technology*. He says technologies are inherently political, tied to relations of power and authority. Because technologies don't exist in a social vacuum they are not mere tools. They become integrated in social systems in every day life, part of our very humanity. As such, their uses tend to reflect the priorities of the society's dominant forces. So my question is, I think it's time in this conversation to examine our society's dominant use of force and to look at our policy of global intervention and the violence we have committed with the use of drones and the endless act of militarism abroad. Thank you.

Nicole: Next caller from Arlington, Virginia.

Harvey Brown: Yeah, hi. Harvey Brown, Army Guard again. Just a couple of quick final comments. One there was a lot of comments about the GPS reliability and I just wanted to point out that since we're changing to a GPS oriented system for all aviation, airliners on down, it's a much bigger concern than worrying about a drone falling on your head. The other thing has to do with the role of local and state governments. Right now, today you can walk into a store and you can buy a ready assembled spy copter model, radio controlled, comes equipped with a camera whether it can take stills or video clips and if you want to go fly over your neighbors, it's ludicrous to expect that the FAA is going to be the one to govern that. That's where there has to be an interface in state and local law that can tie into the federal level. That's all.

Nicole: We have time for one last comment from Saterton, Pennsylvania.

Jesse Perkins: My name is Jesse J. Perkins. I'm a Vice President of In Pursuit and we are an up and coming U.S. training site. We hope to be in the future and also a member of AUVSI. I though most of this comment on this session today would be about test site operation privacy considerations only and not so much about the future of integration but I understand the test site itself should be considered in the same as a manned site as far as the ability of the privacy considerations for those flying manned aircraft as well as a person flying a UAS aircraft. So in order to get the test sites up in operation as quickly as possible, the same privacy considerations

for a manned aircraft should be considered for the UAS and as future follow on, the integration into the NAT system that is something that the Department of Justice, FCC, DHS and the Department of Transportation should consider in the future as far as development on how we integrate this and take into the fact of the consideration of the privacy issues that everyone is concerned about. But as the moment right now, I think the focus should be on the test site privacy agenda only and not so much as for the future integration. That's my comment. Thank you very much.

Moderator: We are near the end of this session and there are no more questions in the queue. So I will now hand the floor back over to John Pocari for closing remarks.

John: Hi, this is Deputy Secretary John Pocari and on behalf of the Department of Transportation and its Federal Aviation Administration, let me thank you all for participating in today's listening session. We'll consider all the public comments when formulating the final UAS test site privacy strategy. Thank you for your participation.

Moderator: This concludes our session today. Your opportunity to be heard on this topic continues until April 23rd, 2013. To submit your written comments, visit <http://www.regulations.gov> and search FAA-2013-0061. This concludes today's conference. We appreciate your time and thank you for joining us. You may now disconnect. [END]