

What 2015 has brought... What 2016 will bring...

The UAS Webinar Series

February 9, 2015



Presenters



Mark Dombroff



Mark McKinnon



Jim Williams,

JHW Unmanned Solutions LLC



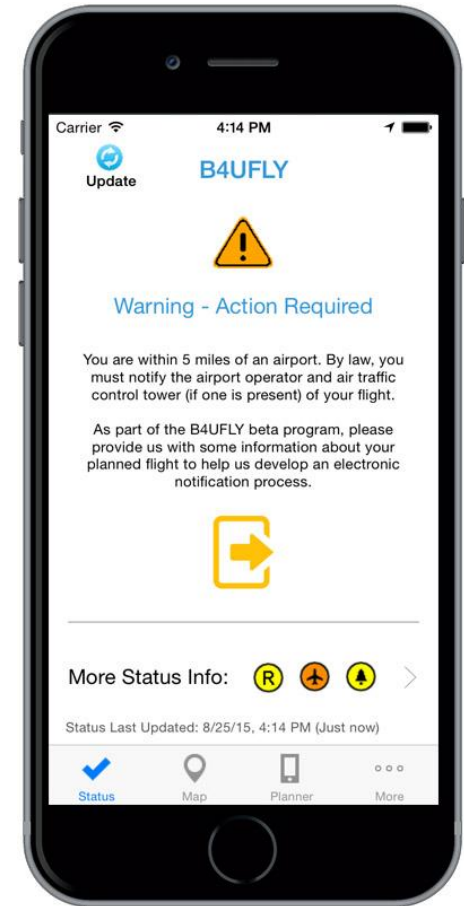
2015 – The Market

- Approximately 400,000 to 500,000 drones in the US in 2014
- Total drone sales in the US in 2015 were estimated at 1-2 million
- Sales up 63% over 2014
- Total Christmas 2015 drone sales estimated at 600,000 to close to 1 million
- Range from very small UAS worth less than \$100 to “prosumer” drones worth in the thousands



FAA's Response

- Continuing to emphasize “know before you fly” campaign
- B4UFLY smartphone app



Commercial Operations - 2015

- Small UAS Rule NPRM Published almost exactly 1 year ago, February 15, 2015
- Comment period closed on April 24, 2015
- 4,631 comments were received
- FAA is expected to hand off a final draft of the rule between March and April
- Final release of the rule in Summer or Early Fall 2016



2015 – New UAS Registration

- All Commercial UAS have to be registered using the same process that is used for manned aircraft (CFR Title 14 Part 47)
- DOT has created a task force to make recommendations for registration of model aircraft
- Task Force returned recommendations on November 20, 2015
- Registration is web based
- Registration is required for any UAS weighing over 250 grams (8.8 ounces).
- For hobbyists, each person is given a unique operator registration number which has to be placed on each aircraft
- Only name and address is required to register. Phone number, email address are optional



2015 – UAS Enforcement

- FAA has started its first major UAS enforcement action since the Pirker Case
- FAA is seeking a \$1.9m civil penalty against SkyPan International

“Between March 21, 2012, and Dec. 15, 2014, SkyPan conducted 65 unauthorized operations in some of our most congested airspace and heavily populated cities, violating airspace regulations and various operating rules, the FAA alleges. These operations were illegal and not without risk.”

- 173 violations, each with a penalty of \$11,000
- SkyPan got an Exemption in April 2015, possible loss of Exemption
- Possible liability for pilot



2015 – State Law

- In 2015, 45 states considered 168 bills related to drones. Twenty states—Arkansas, California Florida, Hawaii, Illinois, Louisiana, Maine, Maryland, Michigan, Mississippi, Nevada, New Hampshire, North Carolina, North Dakota, Oregon, Tennessee, Texas, Utah, Virginia and West Virginia—have passed legislation.
- These laws address a wide range of topics:
 - Privacy
 - Airspace Regulation
 - Hunting or Fishing
 - Harassment
 - Licensing



2015 - State and Local Preemption Policy Memo

- December 17, 2015 FAA issues fact sheet on state and local regulation of unmanned aircraft systems (UAS)
 - Provides information for states and municipalities considering UAS laws
 - Outlines FAA's safety reasons for federal oversight of aviation and airspace
- Provides examples of state and local laws affecting UAS that are problematic:
 - Restrictions on flight altitude or flight paths,
 - Regulation of the navigable airspace, and
 - Mandating UAS-specific equipment or training
- Provides examples of UAS laws that are not problematic:
 - Requirements for police to obtain a warrant prior to using UAS for surveillance
 - Prohibitions on the use of UAS for voyeurism;
 - Exclusions on using UAS for hunting or fishing, or harassing individuals engaged in those activities;
 - Prohibitions on attaching firearms or other weapons to a UAS



Pushing New Horizons 2015

- Pathfinder Projects announced at AUVSI in May 2015
 - BNSF – Beyond Visual Line of Sight
 - PrecisionHawk – Beyond Visual Line of Sight
 - CNN – Congested Areas
- All 6 UAS test Sites in full operation the entire year
- UAS Center of Excellence Created
- NASA/AMES Air Traffic Control and airspace management projects
- Increase of UAS seeking Airworthiness Certification



2016 – Commercial Operations Under The Small UAS Rule

- Creation of new UAS Operators Certificate
 - Regulations do not refer to them as “Pilots”
 - Proficient in English
 - Must be at least 17 years old
 - Must pass an Initial Aeronautical Knowledge Test
 - Tests administered at FAA-approved Knowledge Test Centers
 - TSA Background Check
 - No Medical Certificate
 - No vision test
 - No requirement to demonstrate flight proficiency
 - Application process expected to take 6-8 weeks



2016 – Commercial Operations Under The Small UAS Rule

- Unmanned aircraft must weigh less than 55 lbs. (25 kg)
- Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the operator or visual observer
- At all times the small unmanned aircraft must remain close enough to the operator for the operator to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses
- Small unmanned aircraft may not operate over any persons not directly involved in the operation
- Daylight-only operations (official sunrise to official sunset, local time).
- Must yield right-of-way to other aircraft, manned or unmanned
- May use visual observer (VO) but not required
- First-person view camera cannot satisfy “see-and-avoid” requirement but can be used as long as requirement is satisfied in other ways.
- Maximum airspeed of 100 mph (87 knots)



2016 – Commercial Operations Under The Small UAS Rule

- Maximum altitude of 500 feet above ground level.
- Minimum weather visibility of 3 miles from control station.
- No operations are allowed in Class A (18,000 feet & above) airspace.
- Operations in Class B, C, D and E airspace are allowed with the required ATC permission.
- Operations in Class G airspace are allowed without ATC permission
- No person may act as an operator or VO for more than one unmanned aircraft operation at one time.
- No careless or reckless operations.
- A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS.
- Proposes a 302 option that would allow operations in Class G airspace, over people not involved in the operation, provided the operator certifies he or she has the requisite aeronautical knowledge to perform the operation.



2016 – State Law

- In the first 6 weeks of 2016, 30 states have introduced a total of 105 bills
- These laws address the same issues as 2015:
 - Privacy
 - Airspace Regulation
 - Hunting or Fishing
 - Harassment
 - Licensing
- A number of states still are introducing bills that attempt to regulate airspace despite the FAA policy statement



2016 – FAA Reauthorization Act

- Congress did not get around to passing a reauthorization in 2015
- House Draft Bill to be Marked Up shortly
- Senate Draft Bill to be released in the next few weeks
- Current extension runs out March 31, 2016
- House bill has 40 pages dealing with UAS issues
- Recodifies Key parts of the 2012 FAA Reform Act
- Extends test sites for another 5 years



2016 – FAA Reauthorization Act

- Creation of “Risk Based Permitting System”
 - FAA has 120 days to set up system that would be equivalent to current exemptions and would meet both Airworthiness and operational issues
 - Permit process exempt from APA if it is not in a congested area
 - Permit valid for 5 years
 - Insurance Requirement
 - System goes away if they are covered under the new small UAS rule



2016 – FAA Reauthorization Act

- Model Aircraft Operations
- Codifies Section 336 without change
- Adds provisions for Commercial Operation for Instructional or Educational Purposes
- This is not a higher education R&D or training provision
- Limited to Eligible Not for Profit Organization that “the mission of which is demonstrably the furtherance of model aviation”



FAA Reauthorization

Small UAS Air Carrier Certificate

- Several proposals are circulating in Congress to create a new carrier certificate for small UAS operators
- Would cover small UAS used for package delivery, BVLOS, multi-vehicle operations
- Would require insurance
- Would require appropriate manufacturing and quality assurance minimums and more thorough oversight.

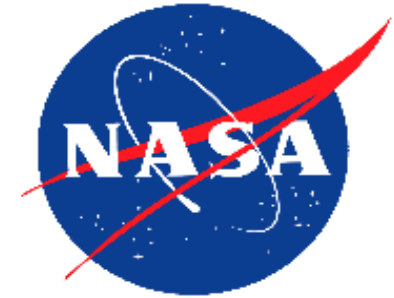


Europe – Past and Future

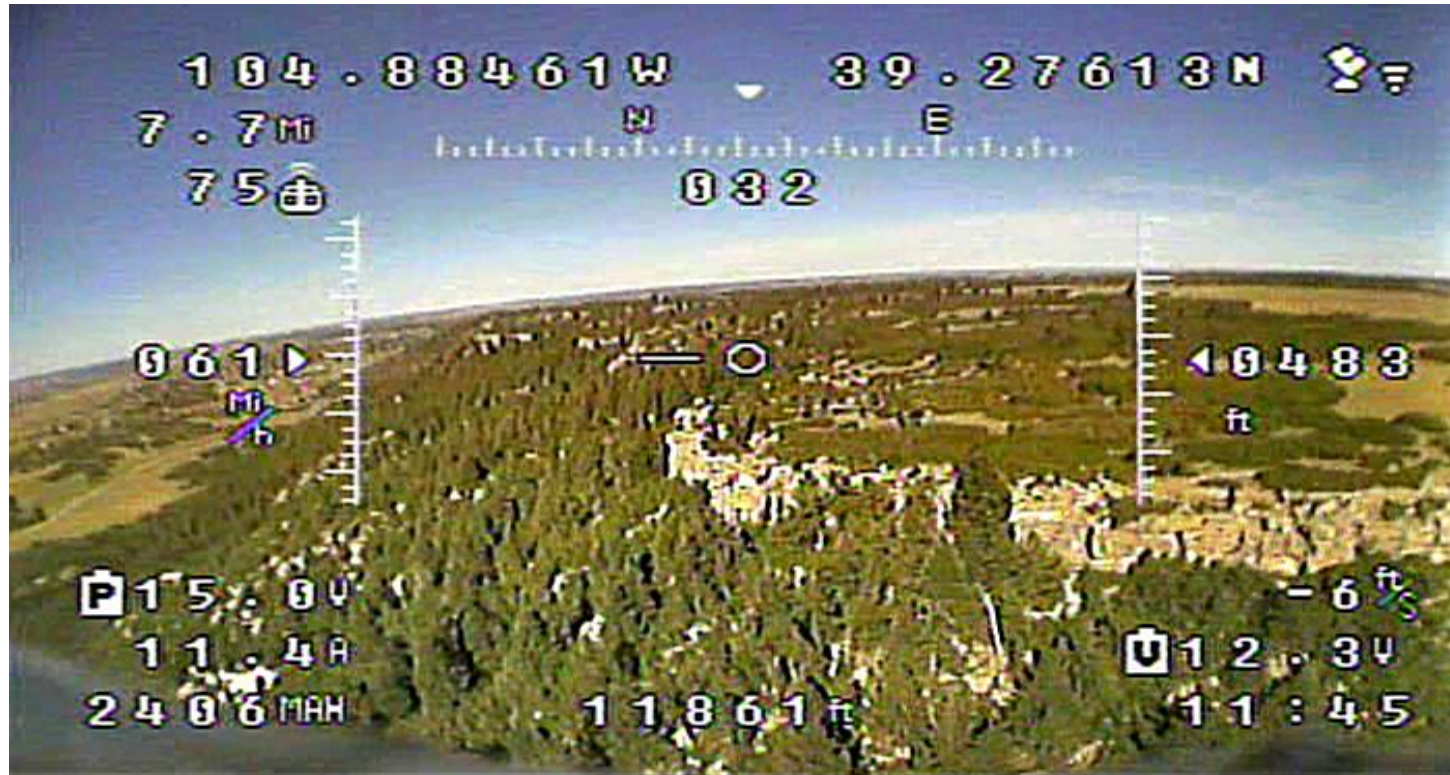
- Europe has traditionally left small UAS (under 150 kg) operational issues to the member nations
- No reciprocity between member countries
- European Aviation Safety Agency issued a Notice of Proposed Rulemaking for standard UAS rules for Europe in September 2015
- Proposal was for a broad system of regulations based on types of risk, with higher risk vehicles and operations requiring more stringent controls and certifications
- A Technical Opinion regarding the proposal was published in December
- The Rulemaking is expected to proceed during 2016



Pushing New Horizons- 2016 Unmanned Aerial System Traffic Management (UTM)



Pushing New Horizons 2016- Beyond Visual Line of Sight



The Future – Unmanned Aircraft Certification

- FAA likely to require certified aircraft for any BVLOS or congested area UAS Operations
- Currently 14 aircraft are under review for a type certificate
- FAA Reauthorization Act has a section requiring the FAA to streamline the aircraft certification process

