

UAS ID & Tracking

August 2019

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Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author and do not necessarily reflect the views of Black River Systems Company, AFRL, or DHS.

Black River Systems Company Credentials

- 20+ years of signals collection and exploitation experience
- **Since 2015:** (CUAS) Counter-UAS Research and Development, multiple branches of the U.S. Military and DHS:
 - **Over 90 CUAS systems built and deployed to date**
 - Rapid Reaction Deployment and Support; Multiple Systems, Multiple Sites, 24-7 / 365 operations, Long-term Testing
 - Design and Testing of Fixed site, Airborne, On-the-Move, and Mobile Systems
- Counter-small UAS (sUAS) Hunter-Killer Trade Study
- CUAS Open Systems Architecture (COSA) for Layered Sensing
- DARPA Mobile Force Protection Program
- Recently awarded an \$89M contract for Counter-sUAS open systems architecture software/hardware systems

Correctional Facility Drone Problem



- Can I hear the drone?
- Can I find the drone?
- How fast can I react?



Counter-Drone Technical Solutions

- Detection

- RF Scanning
- Optical
- Infrared
- Radar
- Acoustic

- Mitigation

- Spoofing
- Directional Jamming
- Omni-directional Jamming
- Intercept/Capture
- Destruction



Legal Authority is the real issue



All solutions have different strengths and weaknesses

UAS ID & Tracking – Prior FAA Activity

- UAS ID and Tracking Aviation Rulemaking Committee (ARC)
- ARC Recommendations and Final Report – **30 Sept 2017**
- **74 member ARC** represented a diverse array of stakeholders; aviation community, industry, law enforcement, public safety organizations, manufacturers, researchers, and standards entities
- The FAA should consider two methods for remote ID and tracking of drones:
 - **Direct broadcast** (transmitting data in one direction only with no specific destination or recipient)
 - **Network publishing** (transmitting data to an internet service or group of services)
 - Both methods would send the data to an FAA-approved internet-based database.

Industry Activity

- Dec 2017 – DJI introduces voluntary flight ID options
 - DJI controls about 70% of the sUAS commercial market
 - DJI introduces Aeroscope remote ID system
 - Sales to law enforcement and aviation safety officials
 - Local broadcast ID solution
 - Requires a mobile network chip for drone manufacturers
- 2018 - Society for Automotive Engineering (SAE) is working to develop standards for UAS remote ID
 - AS-4UCS Unmanned Systems Control Segment Architecture Committee

Continuing FAA Activity

- Dec 2018 – FAA announced an Request for Information (RFI) for a Drone Remote ID System
 - Develop a realistic approach to sharing data to remotely ID small drones in controlled airspace
 - **Unique identifiers for the UAV, tracking information, drone ownership, and remote pilot ID**
 - The selected respondents will be known as “Remote ID UAS service suppliers (USS)”

Industry Activity (cont.)

- Dec 2018 - AirMap, Alphabet Wing, and Kittyhawk.io demonstrate InterUSS Remote ID
 - Open source and network-based InterUSS Platform solution
 - Balance privacy and transparency in networked areas without the need for additional infrastructure or technology

Technology exists today but collaboration and policy are barriers to implementation

Upcoming FAA Guidance

- Sep 2019 - upcoming FAA Notice of Proposed Rulemaking (NPRM) on UAS ID & Tracking

We will see more guidance on this topic soon