AIRSIGHT
UAS & Drone Pilot Detection

Remote ID of Drones with AirSight: A Comprehensive Guide

I. Introduction

In an era where unmanned aerial vehicles (UAVs) are becoming increasingly prevalent in our skies, the need for robust airspace security and management has never been more critical. Remote ID technology plays a pivotal role in this ecosystem, serving as a digital license plate for drones. This report outlines the methods for testing Remote ID functionality using AirSight, a cutting-edge airspace management and drone detection platform.

AirSight is a purpose-built solution designed to provide real-time visualization and mitigation of drone risks and threats. It assists a wide range of entities, including airports, prisons, spectator sports venues, corporations, critical infrastructures, and public events in rapidly identifying all UAVs that could pose potential safety and security challenges.

The purpose of this report is to provide a comprehensive guide on how to effectively test Remote ID capabilities using the AirSight platform, ensuring that your airspace remains secure and compliant with evolving regulations.

II. Understanding Remote ID

Definition and Key Components

Remote ID is a system that allows a drone in flight to provide identification and location information that can be received by other parties. The key components of Remote ID include:

1. Unmanned Aircraft System Identification (UAS ID): A unique identifier for the drone
2. Location: Real-time GPS coordinates of the drone
3. Altitude: The drone's current altitude
4. Velocity: The speed and direction of the drone
5. Control station location: GPS coordinates of the drone operator
6. Emergency status: Any emergency conditions of the UAS
7. Time mark: A time stamp for the transmitted data

Regulations and Mandates

The Federal Aviation Administration (FAA) has mandated Remote ID for most drones operating in US airspace. This rule aims to address safety, security, and law enforcement concerns while promoting accountability and responsible drone use. As of September 16, 2023, most drone operators are required to comply with the Remote ID rule when flying their drones.

Methods of Remote ID Broadcast

There are primarily two methods of Remote ID broadcast:

1. Broadcast Remote ID: The drone broadcasts Radio Frequency (RF) signals directly from the unmanned aircraft.
2. Network Remote ID: The drone transmits the Remote ID information via an internet connection to a Remote ID service provider.

AirSight is capable of detecting and processing both types of Remote ID broadcasts, ensuring comprehensive coverage of compliant drones in your monitored airspace.

III. AirSight's Remote ID Detection Capabilities

AirSight integrates seamlessly with Remote ID technology, leveraging its multi-layered approach to drone detection and identification. The platform's capabilities in relation to Remote ID testing include:

1. Real-time data display: AirSight provides an intuitive interface that displays Remote ID information in real-time, including drone ID, make/model, GPS location of both drone and pilot, and flight telemetry.

2. Data recording and playback: The system records all detected Remote ID broadcasts, allowing for post-event analysis and investigation.

3. Identification features: AirSight can identify specific drone models, their payload capacity, and potential risks based on the Remote ID data received.

4. Integration with multiple data sources: AirSight integrates data from various sources, including RF sensors, radars, and third-party systems like ADS-B and ARCGS, providing a comprehensive view of the airspace.

5. AI-powered risk assessment: AirSight's AI layer analyzes Remote ID data along with other sensor inputs to provide real-time threat assessments and predictions.

It's important to note that while AirSight excels at detecting and processing Remote ID signals, its capabilities extend far beyond just Remote ID. The system can also detect non-compliant drones that may not be broadcasting Remote ID information, providing a comprehensive solution for airspace security.

IV. Testing Procedures

Test Scenarios

When testing Remote ID functionality with AirSight, consider the following scenarios:

1. Distance testing: Verify Remote ID detection at various distances from the AirSight sensors.
2. Multiple drone scenarios: Test the system's ability to simultaneously track and identify multiple drones broadcasting Remote ID.
3. Different drone types: Use a variety of drone models to ensure AirSight can correctly identify and display Remote ID information for different manufacturers.
4. Edge cases: Test scenarios such as drones flying at maximum allowed altitudes or at the edges of your monitored airspace.

Equipment Needed

To conduct Remote ID tests with AirSight, you will need:

1. AirSight system components (RF sensors, optional radar)
2. Multiple drones with Remote ID capability enabled
3. Drone controllers/ground stations
4. GPS logging device (for verifying location accuracy)

Step-by-Step Testing Guide

1. Set up the AirSight system according to the manufacturer's instructions, ensuring all components are properly connected and calibrated.

2. Launch the AirSight software interface on your monitoring station.

3. Power on a Remote ID-enabled drone and its controller.

4. Take off and fly the drone within the monitored airspace.

5. Observe the AirSight interface for the following:

    - Detection of the drone

    - Display of Remote ID information (drone ID, location, altitude, etc.)
    - Accuracy of the displayed information

6. Repeat the process with multiple drones, varying distances and flight patterns.

7. Test the system's alerting capabilities by creating geo-fenced zones and flying drones into these areas.

8. Record all test flights for later analysis and comparison.

Data Analysis

After conducting the tests, analyze the collected data:

1. Compare the Remote ID information displayed by AirSight with the actual flight logs from the drones.

2. Evaluate the system's detection range and accuracy at different distances.

3. Assess the speed and reliability of alerts generated by the system.

4. Review any discrepancies or anomalies in the data and investigate their causes.

5. Use AirSight's built-in analytics tools to generate reports on the test flights, including heat maps and statistical data.

V. Benefits of Testing Remote ID with AirSight

Utilizing AirSight for Remote ID testing offers several advantages:

1. Comprehensive detection: AirSight's multi-layered approach ensures detection of both Remote ID-compliant and non-compliant drones.

2. Real-time visualization: The platform provides an intuitive, real-time display of airspace activity, enhancing situational awareness.

3. Historical data analysis: AirSight's recording capabilities allow for in-depth post-event analysis and pattern recognition.

4. Scalability: The system can be easily scaled to cover multiple sites or expanded coverage areas.

5. Integration capabilities: AirSight can integrate with existing security systems, enhancing overall airspace management.

6. Compliance support: By effectively testing Remote ID, organizations can ensure they are prepared to meet regulatory requirements and support law enforcement efforts.

7. Risk mitigation: The AI-powered risk assessment helps security teams prioritize and respond to potential threats more effectively.

VI. Conclusion

Testing Remote ID functionality with AirSight is a crucial step in ensuring the safety and security of your airspace. By leveraging AirSight's advanced detection and analysis capabilities, organizations can not only verify compliance with Remote ID regulations but also gain valuable insights into drone activity in their airspace.

As drone technology continues to evolve, platforms like AirSight will play an increasingly important role in airspace management and security. Regular testing and refinement of Remote ID detection capabilities will be essential to stay ahead of potential threats and ensure the safe integration of drones into our skies.

For the latest updates on AirSight's capabilities and advancements in Remote ID technology, we encourage you to always check our website and follow industry developments closely.

VII. Appendix

Glossary of Terms

- UAV: Unmanned Aerial Vehicle
- UAS: Unmanned Aircraft System
- Remote ID: Remote Identification
- RF: Radio Frequency
- ADS-B: Automatic Dependent Surveillance-Broadcast
- LAANC: Low Altitude Authorization and Notification Capability
- FAA: Federal Aviation Administration