Practices of the Republic of Azerbaijan regarding Protection of Civil Aviation from Possible Attacks Using Drones

Presented by the Republic of Azerbaijan

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Regulatory Framework of the Republic of Azerbaijan

By the Law of the Republic of Azerbaijan “On the List of Items Belonging to certain public users and requiring special approval (restricted public use)”, unmanned aerial vehicles (UAVs) are classified as items with restricted use.

Per this law, special permission for UAV usage is granted only to legal entities and individuals engaged in independent production activities.

Regulatory Framework of the Republic of Azerbaijan

- Under the same Law, special permission is issued by the State Civil Aviation Agency (SCAA), subject to mandatory coordination with the Ministry of Internal Affairs, State Security Agency, State Border Control and the Presidential Safety and Security Service.

- Once special permission has been obtained, the SCAA registers UAVs in accordance with the "Interim Rules on the Registration and Issuance of Flight Permits for UAVs".

- The Interim Rules are approved by the SCAA.

Regulatory Framework of the Republic of Azerbaijan

The Interim Rules regulate the following legal areas:

a) procedures for applying for UAV registration;
b) procedures for applying for flight operations;
c) requirements for UAV pilots/operators.

Regulatory Framework of the Republic of Azerbaijan

The Interim Rules do not apply to UAVs that:

a) have a max take-off weight (MTOW) under 0.25 kg;
b) do not carry payload and are not qualified as children's models/toys;
c) are used for sports and recreational activities;
d) are intended for military purposes.

Regulatory Framework of the Republic of Azerbaijan

Depending on the activities carried out, UAVs are divided into three categories:

a) “Category A”;

b) “Category B”;

c) “Category C”.

Regulatory Framework of the Republic of Azerbaijan

"Category A" shall meet the following requirements:
- the MTOW not exceeding 25 kg;
- the flight altitude shall not exceed 120m and the aerial vehicle must remain within visual distance;
- during flight, the pilot must maintain safe distance from people.

❖ A UAV that does not meet one of "Category A" requirements is classified as "Category B".

Regulatory Framework of the Republic of Azerbaijan

"Category C" UAVs shall meet the following criteria:

- flights intended for transportation of persons;
- flights intended for transportation of dangerous goods;
- flights that, based on risk assessment, cannot be carried out within the framework of "Category B".

Regulatory Framework of the Republic of Azerbaijan

Requirements for UAV pilots:

- shall undergo specialized training;
- minimum age requirement: 18 years of age;
- pilots shall strictly comply with ATC requirements and restrictions;
- pilots shall not be under the influence of alcoholic, narcotic or psychotropic substances;
- shall not modify a certified model;
- a pilot license is issued for a validity of 5 years.

Regulatory Framework of the Republic of Azerbaijan

Main principles for UAV flight operations:

- UAV flights shall comply with flight safety requirements;
- UAV flights shall not interfere with the flight operations of other aircrafts;
- UAV flights shall comply with ATC requirements and requirements of technical aids utilized in the given airspace.

Regulatory Framework of the Republic of Azerbaijan

- UAV operators are obliged to submit reports of any incidents related to the use of UAVs.
- The Certificate of Registration, after the initial application, is issued for a period of 1 year/or until the expiration of mandatory insurance.
- UAVs shall only be operated by the pilot(s) listed in the Certificate of Registration.

Regulatory Framework of the Republic of Azerbaijan

- Each UAV, listed in the Certificate of Registration, is assigned a state number, which shall be marked on this UAV.
- All types of UAV flights shall be carried out in compliance with the works indicated in the Certificate of Registration.
- Any UAV flights in open areas shall be conducted exclusively with the approval of the ATC ("Azeraeronavigation").
- For indoors usage (enclosed spaces), ATC does not issue permission.

Regulatory Framework of the Republic of Azerbaijan

Revocation or temporary suspension of the Certificate:

- if the operation does not comply with the Interim Rules;
- if the UAV is technically unfit for flights;
- in case of loss of the UAV.

Legal Sanctions

Administrative liability:

- *For certified UAVs:*

- unauthorized operations in a controlled area;
- failure to comply with instructions in the flight area;
- operations without mandatory insurance.

- *For uncertified UAVs:*

- purchase or sale of UAVs without special permission.

Legal Sanctions

Criminal liability:

- *For certified UAVs:*

- unlawful collection and dissemination of personal data;

- *For uncertified UAVs:*

- unlawful use of UAVs for commercial purposes.

Legal Sanctions

Individuals: 500 – 5,000 manat (USD 300 - 3,000)

Officials: 5,000 –10,000 manat (USD 3,000 - 6,000)

Legal persons: 10,000 – 50,000 manat (USD 6,000 - 30,000)

Practice of the Heydar Aliyev International Airport

Heydar Aliyev International Airport operates the RPLS-AK anti-drone system (produced by the Turkish company AKSOY GİRİŞİMCİLİK ENERJİ VE TURİZM A.Ş).

The system exists in various configurations:

- suitable for any type of deployment (mounted on any platforms, means of transportation and vessels);
- operational requirements (stationary, portable, temporary).

Practice of the Heydar Aliyev International Airport

- System components and devices are protected from atmospheric conditions by weatherproof, air-cooled housing, which ensure constant 24/7 operation in harsh environments and under any weather conditions.
- System provides a fully automated real-time protection.
- System provides for operation independent from any other system.
- System provides for a manual on/off switch function at any time.

Practice of the Heydar Aliyev International Airport

RPLS-AK system:

- does NOT rely on any other detection systems, radars, etc.;
- does NOT REQUIRE maintenance;
- does NOT REQUIRE an operator;
- is capable to operate non-stop 24/7, no need to switch on/off during aircraft landing, takeoff and taxiing.

Practice of the Heydar Aliyev International Airport

- The RPLS-AK system established an invisible and fully safe no-fly zone in the airspace, with an efficient protection radius of 1.5 km horizontally, as well as at altitudes 1.5 km above sea level.

- The protection does not affect/disrupt any existing communication networks (GSM, Wi-Fi, radio, etc.), radars, GPS or radio systems within the protected area.

Practice of Heydar Aliyev International Airport

- The system is capable of blocking multiple drones, attempting to penetrate the protected zone from diverse directions simultaneously as well as potential actions of single or group attacks.

- If a drone attempts to enter the airport no-fly zone, established by the RPLS-AK system, the counter signal prevents the operator (UAV pilot) from controlling video and telemetry via the downlink.

- The system interferes with the drone control frequencies, forcing it to return to its take-off point, also disabling the drone onboard video recording system.

Practice of the Heydar Aliyev International Airport

UPGRADED UNIT RPLS-AK 360 DEGREES

Functionalities:

- Effective operational range: radius 1.5 km – altitude above sea level 1.5 km
- Antenna Radiation Pattern: full coverage 360°
- Frequency: 2.4 and 5.8 GHz.
- Beamwidth: ± 360° horizontal- ± 80° vertical
- Weight: 6 kg.
- Dimensions: 280x400 mm.
- Rating IP: IP 66
- Output Power: 2 W
- Supplied with a 12 Volt DC power source

Practice of the Heydar Aliyev International Airport

MAGNETIC MOUNTING RPLS-AK, UNIT 160 DEGREES

Functionalities:

- Patch Antenna Radiation Pattern: directional
- Beamwidth: 2.4 GHz, 160° и 5.8 GHz, 160°± 80° horizontal and vertical
- External lithium-ion DC rechargeable battery, 6.8 Ah, 12 V DC
- Weight: 6.5 kg
- Dimensions: 400x400x190 mm
- Output power: 2 W
- Magnetic mounting for means of transportation, vessels and aircraft

Practice of the Heydar Aliyev International Airport

- RPLS-AK160 is analoque to standard and portable devices but has magnetic mounts for quick deployment. It also has a stand mount for fixed deployment.

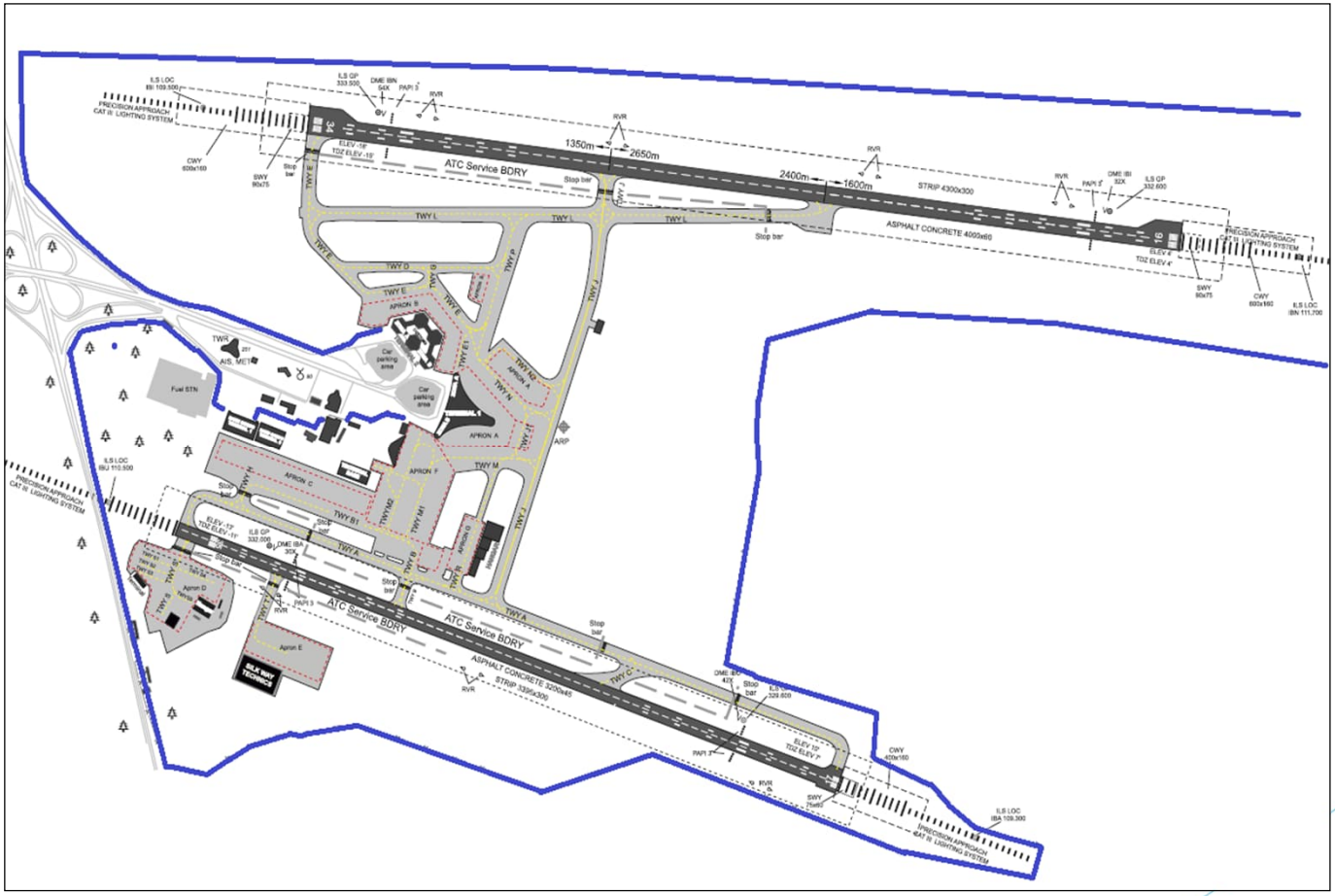
- The new magnetic mounting system allows for quick deployment on any means of transportation, speedboat or aircraft.

- Can be powered by a 12 V DC lithium-ion battery, a 12–240V AC power source or a 12V DC power source.

Practice of the Heydar Aliyev International Airport

- for duration of 5 years, annual inspection and maintenance of the systems is carried out by the AKSOY GİRİŞİMCİLIK ENERJİ VE TURİZM A.Ş
- Annual inspection shall be carried out 4 times a year

Practice of the Heydar Aliyev International Airport



Practice of the Heydar Aliyev International Airport
Conducted tests

Dji Mavic 2 Zoom		
DJI Phantom 4 RTK		
Matrice 600 Pro		

Practice of the Heydar Aliyev International Airport
Test Results

1. A selected drone will fly in the airport direction, when the system RPLS-AK360 is OFF, the drone will reach the airport and return.

2. After the system is switched ON, the first drone will again fly in the direction of the airport. Since the system is ON, at the limit of the airport restricted zone the DRONE connection is interrupted and the drone returns to its take-off point.

3. After the system is switched ON, other DRONES will again fly toward the airport one by one. Since the system was activated, drone communication was interrupted at the limit of the airport's restricted zone, and the drone return to their take-off point.

4. After the system is activated, several drones again fly toward the airport simultaneously. Since the system is on, the drones' connection is interrupted at the boundary of the airport's restricted zone, and the drones return to their take-off point.

5. After the tests, while the system was activated, the communication network at the location of the system and around was checked. Result: no interruption.

QUESTIONS ???

Thank you for your attention