CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP (GREPECAS)
Sixteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/16)
Punta Cana, Dominican Republic, 28 March – 1 April 2011

Agenda Item 3: Performance framework for Regional Air Navigation Planning and Implementation

3.1 Global, inter-regional and intra-regional activities concerning air navigation systems in the CAR/SAM Regions

UNMANNED AERIAL VEHICLE ACCESS TO THE BRAZILIAN AIRSPACE

(Note presented by Brazil)

SUMMARY

This information paper presents the characteristics of the Brazilian legislation that regulate the Unmanned Aerial Vehicle Access to the Airspace.

References:

- AIC A 15/10 (AIC N 21/10), dated 23 September 2010
- ICAO UAS Circular 328

1. Introduction

1.1 The use of UAV (Unmanned Aerial Vehicles) is increasing drastically worldwide both in military and civil operations. As a result, there was a clear need to regulate their access to the airspace in order to allow their use, ensuring a high level of safety to the other aircraft and people on the ground.

1.2 Following initiative of the International Civil Aviation Organization (ICAO) a Study Group (UASSG – Unmanned Aircraft System Study Group) was created to establish recommendations to the Contracting States.

1.3 Brazil participates in the Study Group since its 3rd Meeting, contributing with the ICAO UAS Circular 328 elaboration. Such document, which is still on its last stage for publication, defines the terminology and gives recommendations to the Contracting States to create their legislation.

1.4 Initially, the Brazilian Department of Airspace Control has issued the AIC N 29/09. However due to some internal procedures as well as evolutions within the Study Group, there was a need of an update that resulted on the issuance of the AIC A 15/10, more aligned with the UAS Circular 328.

2. Characteristics of the Brazilian Legislation

2.1 One of the main premises used by the current legislation is that due to many reasons – but mainly because of the incipient capacity of detecting and avoiding collisions, the UAV flight is allowed within the segregated airspace only. In other words, UAV does not share the same airspace with the manned aircraft. Specific areas where UAV flight only is allowed are defined and published in NOTAM.

2.2 Other distinctive feature is that the legislation refers to the airspace use only. The regulation on issues of certification of the UAV airworthiness and Remote Pilot Station, as well as the licenses issuances to pilots, system operators and observers are on the National Civil Aviation Agency's responsibility. While the use of frequencies for command, control and communications is the Telecommunications National Agency's responsibility.

2.3 AIC 15/10 (Portuguese/English only) was included as an A**ppendix** to this information paper to show other characteristics.

3. Conclusion

3.1 The Brazilian legislation was elaborated into agreement with the ICAO recommendations, through the UAS Circular 328 and the knowledge acquired by the Study Group. Brazil is the only country from Latin America that has a representative on this Study Group.

3.2 The current Brazilian legislation is not definitive. Together with the advances of the technologies involved with UAV, some rules will be changed until new requirements are established, allowing, in a medium and long term, the UAV flight within the non-segregated airspace. We have already a perspective to issue a new comprehensive Brazilian legislation, expected to be published by the end of the first semester of 2011.

- END -

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UNMANNED AERIAL VEHICLES

1 PRELIMINARY PROVISIONS

1.1 PURPOSE

This Aeronautical Information Circular (AIC) aims to provide the necessary information to support the safe operation of unmanned aerial vehicles in the Brazilian airspace.

1.2 SCOPE

The information contained in this AIC apply to all those who, while on duty, intend to operate in the Brazilian airspace with unmanned aircraft flights, as well as to the SISCEAB (Brazilian Airspace Control System) Units.

2 ABBREVIATIONS AND CONCEPTS

2.2 ABBREVIATIONS

ANAC	National Civil Aviation Agency
ANATEL	National Telecommunications Agency
ARP	Remotely-Piloted Aircraft
CAG	General Air Traffic
CINDACTA	Integrated Center for Air Defense and Air Traffic Control
COM	Military Operations Area
COMDABRA	Brazilian Airspace Defense Command
DECEA	Department of Airspace Control
ERP	Remote Pilot Station
IFR	Instrument Flight Rules
OACI	International Civil Aviation Organization
SDOP	DECEA Operations Subdepartment
SISVANT	Unmanned Aircraft System

SRPV-SP	São Paulo Regional Flight Protection Service
UASSG	Unmanned Aircraft Systems Study Group
UAV	Unmanned Aerial Vehicle
VFR	Visual Flight Rules

2.2 CONCEPTS

It should be noted that the terminology used to describe the operation of unmanned aircraft systems (UAS), as well as the personnel and equipment engaged in UAS operations is in constant evolution, and each change is subject to international discussion and further approval by the ICAO Contracting States.

2.2.1 AUTONOMOUS AIRCRAFT

An unmanned aircraft that does not allow external intervention in the management of the flight. It is a subcategory of UAV.

2.2.2 CHASE AIRCRAFT

Manned aircraft, which accompany the remotely-piloted aircraft to ensure separation from obstacles and other aircraft. The minimum crew required is one pilot and one ARP observer.

2.2.3 REMOTELY-PILOTED AIRCRAFT (ARP)

Aircraft where the flying pilot is not on-board the aircraft. It is a subcategory of unmanned aerial vehicle (UAV).

2.2.4 VISUAL RANGE

The maximum distance that an object can be seen with the unaided eye (other than corrective lenses).

2.2.5 DANGER AREA

An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

2.2.6 PROHIBITED AREA

An airspace of defined dimensions, above the Brazilian territory or territorial sea, within which the flight of aircraft is prohibited.

2.2.7 RESTRICTED AREA

An airspace of defined dimensions, above the Brazilian territory or territorial sea, within which the flight of aircraft is restricted according to certain defined conditions.

2.2.8 PAYLOAD

All pieces of equipment on board an unmanned aerial vehicle that are not needed for the flight or for its control. Its transport aims exclusively to fulfill a specific mission.

2.2.9 DETECT AND AVOID

The capability to see, sense or detect, conflicting traffic or other hazards and take the appropriate action to comply with the applicable rules.

2.2.10 UAS CREW

Crew members with essential skills for the operation of an unmanned aerial vehicle (UAV).

2.2.11 REMOTE PILOT STATION

The station at which the remote pilot manages a remotely-piloted unmanned aircraft.

2.2.12 COMMAND AND CONTROL LINK

A link between the remotely-piloted aircraft and the pilot station for the purposes of managing the UAV flight.

2.2.13 REMOTELY-PILOTED AIRCRAFT OBSERVER

UAS crew member who, by visual observation of the remotely-piloted aircraft, assists the remote pilot in the safe conduct of the flight.

2.2.14 AUTONOMOUS OPERATION

Operation during which a remotely-piloted aircraft is operating without external intervention in the management of the flight.

2.2.15 OPERATOR

A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

2.2.16 AIR TRAFFIC CONTROL AGENCY

Generic expression which applies, depending on the case, to an Area Control Center, Approach Control Center or Aerodrome Control Tower.

2.2.17 REGIONAL UNIT

Units that develop activities in the General Air Traffic (CAG) and Military Operations Area (COM), coordinating airspace and air navigation management and control actions in their areas of jurisdiction.

DECEA's Regional Units include: the CINDACTA and SRPVSP.

2.2.18 LOST LINK

The loss of command and control link contact with the remotely-piloted aircraft such that the remote pilot can no longer manage the aircraft's flight.

2.2.19 PILOT-IN-COMMAND

The pilot designated by the operator, as being in charge of the operation.

2.2.20 REMOTE PILOT

The person who manipulates the flight controls of a remotely-piloted aircraft.

2.2.21 UAS

An aircraft and its associated elements which is operated with no pilot on-board.

2.2.22 UAV

Aircraft which is intended to operate with no pilot on-board, which has a payload on-board and that is not used for recreational purposes only. This definition includes all the airplanes, helicopters and airships controlled in three axes, excluding therefore the traditional balloons and model airplanes.

3 GENERAL PROVISIONS

3.1 The proliferation of UAS around the world with their unique operation features has led to the development of various procedures and applicable legislation. Through the ICAO-UASSG - Unmanned Aircraft Systems Study Group, DECEA actively participates in this process in order to keep up-to-date and defend the interests of the State.

3.2 The UAV is recognized as a category of aircraft and, as such, must be piloted. The control of such aircraft may be exercised directly by a pilot located in a remote pilot station - ERP (remotely-piloted aircraft) or indirectly by programming (autonomous aircraft). Given the existing technological constraints, and the ease of adaptation to the existing rules, initially, only the remotely-piloted aircraft will have access to the Brazilian airspace.

3.3 The operations of a remotely-piloted aircraft, according to their profile, fall into two types:

a) Visual line-of-sight operation - VFR operation in which the pilot or the observer maintains direct visual contact with the remotely-piloted aircraft to meet separation and collision avoidance responsibilities; and

b) Beyond line-of-sight operation - IFR or VFR operation where there is no need to maintain visual contact with the remotely-piloted aircraft.

3.4 The operations of a remotely-piloted aircraft, according to their nature, fall into two types:

a) Unclassified operation– of general nature, carried out at CAG, coordinated by the Regional Unit and by DECEA; and

b) Classified operation – of reserved nature, carried out at COM, coordinated by the Regional Unit and by COMDABRA.

3.5 Every remotely-piloted aircraft flight which involves radio contact with Air Traffic Control units shall, in its initial call, use the term "UAV ... ." This procedure aims to raise the situational awareness of those involved in the operation, without demanding any special treatment from the Air Traffic Control unit.

3.6 Given the limitations imposed by the absence of the pilot on board and the current impossibility of a remotely-piloted aircraft to comply with various requirements contained in the aviation regulations in force, in particular with regard to their ability to detect and avoid, flights are always conducted in defined airspaces.

3.7 In order to provide an orderly and safe access of the unmanned aircraft to the Brazilian Airspace taking into account the lack of ICAO publications regarding the topic, requests for UAV flights will be examined on a case-by-case basis, depending on the particularities of the request and considering all aspects relating to the safety of the SISCEAB users, among them:

a) UAV Operations shall not increase the risk to people and property (in the air or on the ground);

b) UAV Operations must meet at least the same safety standards required for manned aircraft;

c) Flight is prohibited over cities, towns, settlements or groups of people outdoors;

d) UAV Operations shall adapt to the existing rules and regulations, and shall not receive any special treatment from the Air Traffic Control units;

e) Flight can be conducted only within segregated airspace, as defined by NOTAM, and the operation in an airspace shared with manned aircraft is prohibited; and

f) When a shared aerodrome is used for UAV Operation, the operations must be halted from the beginning of the taxi or equivalent procedure until leaving the traffic pattern at the departure, and from entering the traffic pattern until its complete stop at the arrival.

4 FLIGHT AUTHORIZATION

4.1 Requests for UAV flights in the Brazilian airspace must be submitted at least 15 (fifteen) days in advance to DECEA's Regional Units (CINDACTA I, CINDACTA II, CINDACTA III, CINDACTA IV and SRPV-SP), which are in charge of the airspace in which the flights will be conducted. Such requests shall contain as much information as possible about airspace control, such as:

a) physical characteristics of the aircraft (measurements, weight, fixed/rotary wings, number of engines etc.) and of the remote pilot station (ERP);

b) operating characteristics of the aircraft (speed, ceiling, endurance, departure/launch mode and landing/recovery mode etc.);

c) communication capability with the Air Traffic Control units, if applicable;

d) characteristics of the intended operation (exact location of the flights, including routes, height/altitude, date/time and duration);

e) location of the remote pilot station (ERP);

f) information about the payload, if applicable;

g) procedures to be adopted in case of loss of link;

h) navigation and detect and avoid capability of the remotely-piloted aircraft;

i) contact telephone or fax number, or email; and

j) any other information and comments deemed necessary.

4.2 The Regional Unit is responsible for issuing UAV flight authorizations in CAG (unclassified operations).

4.3 The Regional Unit should prepare, within 5 (five) working days, a report addressing at least the following aspects:

a) the impact the operation shall have on the air traffic flow;

b) the exact location of the intended area in relation to the Terminal Areas, air traffic patterns, ATS, SID and IAC routes;

c) information concerning the concentration of people and buildings in the flight area;

d) information concerning the civil, police or military characteristics of the operation;

e) restrictions and changes regarding the initial request, if any; and

f) any other information and comments deemed necessary.

NOTE: If adjustments are needed for the approval of the request, the Regional Unit shall contact the user to check the feasibility of the changes to enable the compliance with the provisions of this AIC and the consequent flight authorization.

4.4 This report must be filed and may be requested by DECEA whenever necessary.

4.5 If the flight is authorized, the Regional Unit shall take all steps needed for it to be conducted and inform the user and DECEA (SDOP) about its decision by fax, stating all conditions that must be met for the operation.

4.6 If the Regional Unit considers that the flight request does not meet the provisions of this AIC, it should inform DECEA (SDOP) about its decision by fax, stating the reason for the denial. SDOP shall examine the report of the Regional Unit and decide whether the flight should be made or not, informing the decision within five working days. In this case, the Regional Unit shall keep the user informed of the progress of the process.

4.7 The authorization, according to the user request and the analysis of the Regional Unit, can cover a period of up to six months.

4.8 If UAVs are used by military organizations and public safety agencies, such as the Police and the Internal Revenue Service, the restrictions described in item **3.7** may be revised by the Regional Unit, and subsequently by DECEA, considering the peculiarities of the mission required.

5 GENERALITIES

5.1 The authorizations and guidelines issued by DECEA only apply to the use of airspace.

5.2 Authorizations relating to airworthiness/personnel license and use of frequencies for controlling remotely-piloted aircraft should meet the requirements set forth in the statutes of the competent agencies, respectively ANAC and ANATEL.

5.3 The guidelines contained in this AIC apply to flights conducted in CAG. Flight requests in COM (classified operations) should be subject to specific regulations.

6 FINAL PROVISIONS

6.1 This AIC was approved by DECEA Internal Bulletin, issue nr.146, dated 04 AUG 2010.

6.2 This AIC cancels AIC A27/09, from November 19, 2009, on the date of its publication.

6.3 Cases not provided for in this Circular shall be settled by the Director-General of the Department of Airspace Control.