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INTERNATIONAL CIVIL AVIATION ORGANIZATION

THE FOURTEENTH MEETING OF THE NAFISAT SUPERVISORY BOARD (NAFISAT-SVB/14) (CAIRO, EGYPT, 27 – 28 NOVEMBER 2019)

Agenda Item 8:   VSAT-IP Network for COMESA Countries

(Presented by EGYPT)

Summary
• The purpose of installing VSAT-IP network is establishment of a Regional centre for air traffic control management in Cairo for the sake of the unification of COMESA airspace, which can be called COMESA Single Sky **CSS**. • For the implementation of the COMESA Single Sky CSS, all surveillance services (ADS-Bs), extended range coverage communication system (En-VHFs) and Aeronautical Message Handling System (AMHS), in addition to Hotlines and PABX internal exchange network are required to connect these countries. • To connect COMESA countries with each other, it is necessary to establish a central satellite station VSAT network consists of one HUB in Cairo and 20 remote stations in other COMESA countries in addition to geographical Standby hub station in one of COMESA countries

References
- APIRG/16 – IP/21 - A35-WP/323 P/61 - ANIWG4WP26 - CNS SG/19 – IP/07 - APIRG/16 – IP/21

1.   Introduction

1.1   This working paper provides an overview of the issues associated with the implementation, operation and evolution of the VSAT-IP networks that support the provision of the aeronautical fixed service (AFS) and other ground-ground communications.

2.   Offered services

2.1   CSS is planned to have the following missions (in the COMESA REGIONS). The offered services will have better technology in VSAT-IP over all CSS countries:

> 1- Aeronautical mission (it is the main mission): The ICAO CNS/ATM requirements will be completely fulfilled.
> 2- Fixed Communications missions (En-VHF, AMHS, PABX and HL)
> 3- Surveillance mission: through ADS-B services.

3.   **Components of the project:**

    1- Central VSAT-IP satellite station in Cairo and 20 sub-stations VSAT in other COMESA countries in addition to one geographical Standby Hub VSAT station in one of COMESA countries.

    2- **ADS-B terminals** (ADS-B) in case of absent of like this station in the COMESA country members, it is preferred to be established at the airport of the capital of the COMESA State or in its navigation center. The aim of this service is to locate the aircraft locations and its movement parameters during its movement in COMESA airspace.

4.   **Extended-range coverage communication network (EN-VHFs):**

- The level of implementation of area control service in upper airspaces is relatively good, reflecting the recent advances in VHF coverage.

- Benefits of the Upper Airspace Harmonization include harmonized ATM procedures, reduction in separation between aircraft resulting in increased airspace capacity utilization and enabling aircraft to get User Preferred Flight Profile and consolidating and deconsolidating sectors dynamically depending on traffic density besides fuel savings and reduction in carbon emission.

- In case of the absence of like these stations these stations are needed to be established at the capital airport or at the navigation Centre of the COMESA country to connect the regional ATC Centre with the aircraft anywhere in COMESA countries sky.

5.   **Aeronautical message Handling System AMHS**

- AMHS between COMESA countries and the Regional Air Traffic Management Center in Cairo which carry all aeronautical information related with the aircraft.

6.   **Air Traffic Controller Center (ACC)**

It will be Located at Cairo, and Control air traffic on and within vicinity of airport and movement of air traffic between altitude sectors and control centers in COMESA Single Sky (CSS) according to established procedures and policies. Authorize, regulate, and control commercial airline flights according to government or company regulations to expedite and ensure flight safety.

7.   **Voice Communication Control Systems (VCCS):**

- The VCCS System shall be exist in all Countries of COMESA and if it is not exist shall install a new one in the country.

- VCCS controls and connects together various voice communication systems used for Air Traffic Management such as VHF Tx/Rx, telephone, and other ATC communications. It also provides an interworked chain & backbone for numerous interfaces acting as an exchange for all the interfaces put together

- Connecting of hotlines (HLs) and internal telephone lines (PABXs) between the Cairo regional center and the different air traffic control centers of the COMESA countries, through the internal telephone exchange network specified for COMESA countries.

8. **Benefits of the Project**

   COMESA Single Sky Project will enhance the following:

   (A)   Re-delimitation of air routes between these countries to reduce the route of aircraft passing through the CSS.
   (B)   Providing fuel consumed from aircraft, which is beneficial to COMESA airlines, as well as reducing harmful emissions from aircraft to preserve the environment.
   (C)   Increasing the number of aircraft crossing the common airspace between COMESA States.
   (D)   Improving the navigation infrastructure and using the latest technology applied to ATM / CNS.

9. **Action by the meeting:**

   The meeting is invited to:

   1. Take note of the contents of this paper.
   2. Support from NAFISAT Members for this project as a part of the CNS/ATM infrastructure in the Middle East & African regions to offer the aeronautical communication and surveillance services according to the ICAO recommendations.
   3. Support from ICAO for assistance in establishing the newly VSAT-IP in COMESA Countries.
   4. Support from Member States of our Organization to be more aware of the need for bilateral or multilateral cooperation.