



ICAO DAKAR UNITING AVIATION

Contingency Planning for CNS

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Outline

- I. Operational requirements
- II. COM Contingency planning
- III. NAV Contingency planning
- IV. SUR Contingency planning
- V. Spectrum Contingency planning
- VI. Cyber Safety & Resilience Contingency planning
- VII. Conclusion





Operational Requirements

Annex 11-2.32 Contingency arrangements

Air traffic services authorities shall develop and promulgate contingency plans for implementation in the **event of disruption, or potential disruption, of air traffic services and related supporting services** in the airspace for which they are responsible for the provision of such services.

Such contingency plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.



Operational Requirements

Annex 11 - Attachment C

2. Status of contingency plans

Contingency plans are intended to provide **alternative facilities and services** to those provided for in the regional air navigation plan when those facilities and services are temporarily not available. **Contingency arrangements are therefore temporary in nature**, remain in effect only until the services and facilities of the regional air navigation plan are reactivated and, accordingly, do not constitute amendments to the regional plan requiring processing in accordance with the “Procedure for the Amendment of Approved Regional Plans”.



Operational Requirements

Annex 11 - Attachment C

3. Responsibility for developing, promulgating and implementing contingency plans

3.1 The State(s) **responsible for providing air traffic services and related supporting services** in particular portions of airspace is (are) also **responsible, in the event of disruption or potential disruption of these services**, for instituting measures to ensure the safety of international civil aviation operations and, where possible, for making provisions for alternative facilities and services. **To that end the State(s) should develop, promulgate and implement appropriate contingency plans..**



Operational Requirements

Annex 11 - Attachment C

4. Preparatory action

4.1 **Time is essential** in contingency planning if hazards to air navigation are to be reasonably prevented. **Timely introduction of contingency arrangements requires decisive initiative and action**, which again **presupposes that contingency plans have, as far as practicable, been completed and agreed among the parties concerned before the occurrence of the event requiring contingency action**, including the manner and timing of promulgating such arrangements.



Operational Requirements

Annex 11 - Attachment C

5. Coordination

5.2 States which anticipate or experience disruption of air traffic services and/or related supporting services **should advise, as early as practicable, the ICAO Regional Office accredited to them, and other States whose services might be affected.**

Such advice should include information on associated contingency measures or a request for assistance in formulating contingency plans.



Operational Requirements

Annex 11 - Attachment C

6. Development, promulgation and application of contingency plans

Development of a contingency plan presupposes as much information as possible on **current and alternative routes, navigational capability of aircraft and availability or partial availability of navigational guidance from ground-based aids, surveillance and communications capability of adjacent air traffic services units,** volume and types of aircraft to be accommodated and the actual status of the air traffic services, communications, meteorological and aeronautical information services.



Operational Requirements

PANS ATM DOC. 4444 -15.6.1 Radiocommunications contingencies

15.6.1.1-GENERAL

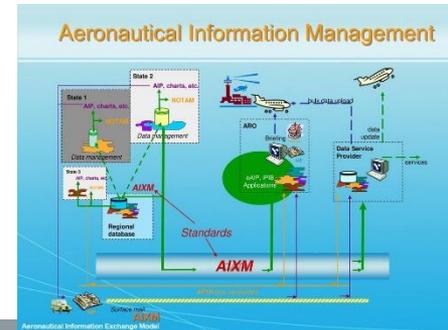
ATC contingencies related to communications,, may be caused by **either a failure of ground radio equipment, a failure of airborne equipment, or by the control frequency being inadvertently blocked by an aircraft transmitter.** The duration of such events may be for prolonged periods and appropriate action to ensure that the safety of aircraft is not affected should therefore be taken immediately.

COM Contingency planning AFS

- Coordination
 - ✓ ATS/DS
 - ✓ AIDC
 - ✓ VoIP
- Operational Messages

✓ AFTN

✓ AMHS





COM Contingency planning AMS

- Voice HF/VHF
- Data: CPDLC/VDL



NAV Contingency planning

- Conventional Nav'Aids
- GNSS Core and augmented





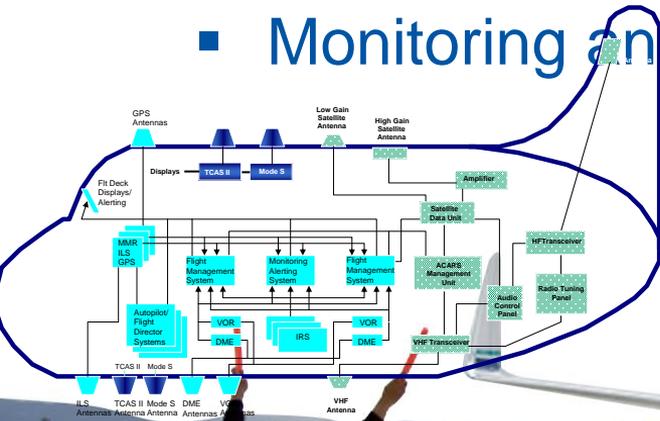
SUR Contingency planning

- Ground Based sensors : SSR Mode S & ADS-B
- Space based Sensors: ADS-B Space
- SUR Data Sharing



Spectrum Contingency planning

- Reassignment of frequencies
- Monitoring and Mitigation of interferences



Cyber Safety & Resilience Contingency planning

- Continuous monitoring
- Coordination
- Real time mitigating measures





Conclusion

- Pre-organization of CNS systems
- Training & exercises
- Coordination
- Implementation
- Assessment
- Sharing of best Practices



ICAO DAKAR UNITING AVIATION



ICAO

North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU