



International Civil Aviation Organization

**MIDANPIRG Air Traffic Management Sub-Group  
Seventh Meeting (ATM SG/7)**

*(Virtual, 15 – 18 November 2021)*

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**Agenda Item 5: Air Navigation Deficiencies in the ATM/SAR fields.**

**Development of Contingency plans and arrangements with Adjacent ACCs**

*(Presented by Saudi Arabia)*

**SUMMARY**

This paper provides information on the contingency plans and arrangements developed by Saudi Air Navigation Services (SANS) that would be introduced in the event of disruption of the ATC services provided to ensure safety of flight, continuity of the services, and to facilitate limited flight operations commensurate with the prevailing conditions.

Action by the meeting is in paragraph 6.

**REFERENCE(S)**

**ANNEX 11**

**DOC 4444, PANS-ATM**

**MID DOC 003: MID REGION ATM CONTINGENCY PLAN**

**MID AIR NAVIGATION DEFICIENCY DATABASE (MANDD)**

**1. INTRODUCTION**

1.1 Contingency plans are intended to provide alternative facilities and services when Air Navigation facilities and services are temporarily not available. Contingency arrangements are therefore temporary in nature, remain in effect until the normal Air Navigation facilities and services are restored.

1.2 Under the certification of Air Traffic services provider, General Authority of Civil Aviation (GACA) in Saudi Arabia requires the development of Emergency Response Plan (ERP). The main regulatory reference used for ERP and the provision of Air Traffic Services (GACA regulation Parts 5 and 171) requires that an ATS provider develops and promulgates contingency arrangements and plans to be deployed in the event of disruption, or potential disruption of ATS and related supporting services in the airspace for which they are responsible for the provision of such services. The GACA Regulation Parts 5 & 171 can be reached through the following link: <https://gaca.gov.sa/web/en-gb/page/new-regulations>.

**2. RESPONSIBILITY FOR DEVELOPING, PROMULGATING AND IMPLEMENTING CONTINGENCY PLANS.**

2.1 In KSA, the ATS provider providing air traffic services and related supporting services in Jeddah FIR is also responsible, in the event of disruption or potential disruption of these services, for instituting measures to ensure the safety of civil aviation operations and, where possible, for making provisions for alternative facilities and services. To that end, the ATS provider must develop, promulgate, and implement appropriate contingency plans. Such plans must be developed in consultation with other parties and airspace users concerned and with ICAO, as appropriate, whenever the effects of the service disruption(s) are likely to affect the services in adjacent airspace.

2.2 Regarding the preparatory actions for the introduction of the contingency arrangements including coordination, the ATS provider must deploy measures, as appropriate, for facilitating timely

introduction of contingency arrangements which include:

- a) Preparation of general contingency plans for introduction in respect of generally foreseeable events;
- b) Assessment of risk to civil air traffic due to military conflict or acts of unlawful interference with civil aviation as well as a review of the likelihood and possible consequences of natural disasters or public health emergencies. Preparatory actions must also include initial development of special contingency plans in respect of natural disasters, public health emergencies, military conflicts or acts of unlawful interference with civil aviation that are likely to affect the availability of a portion of the Jeddah FIR for civil aircraft operations and/or the provision of air traffic services and supporting services.
- c) Monitoring of any developments that might lead to events requiring contingency arrangements to be developed and applied. The ATS provider must designate persons/ administrative units to undertake such monitoring and, when necessary, to initiate effective follow-up action; and
- d) Designation/establishment of a secondary location which, in the event of disruption of air traffic services and introduction of contingency arrangements, would be able to provide, 24 hours a day, up-to-date information on the situation and associated contingency measures until the system has returned to normal. A coordinating team must be designated within, or in association with, such a secondary location for the purpose of coordinating activities during the disruption.
- e) Reporting to GACA and detailed coordination with adjacent ACCs whose services might be affected for example by re-routing of traffic. Such coordination must include information on associated contingency measures.

### **3. ANS CONTINGENCY PLANS**

3.1 In 2016, Saudi Air Navigation Services (SANS) developed an Emergency Response Plan (ERP) covering contingency arrangements for the whole FIR covering: total or partial Airspace closure, public health pandemic, radiation and nuclear events, natural disasters. The ERP is complemented by local technical and operational contingency plans for each Air Traffic Services Unit and maintenance sector. The ERP was updated in June 2021 and approved as part of SMS documentation.

3.2 The approved contingency plans include detailed information 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 all 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.

3.3 The ERP describes the contingency arrangements to be implemented to permit the provision of safe ATS by ATS Units and continuity of flights to transit and operate from/to the Jeddah FIR. It caters for serious failures and a worst-case scenario of a total disruption in one or both ACCs (Jeddah & Riyadh) serving civil flights within the Jeddah FIR.

3.4 The main elements considered in the development of the ERP for ATM contingency planning cover the following actions and measures:

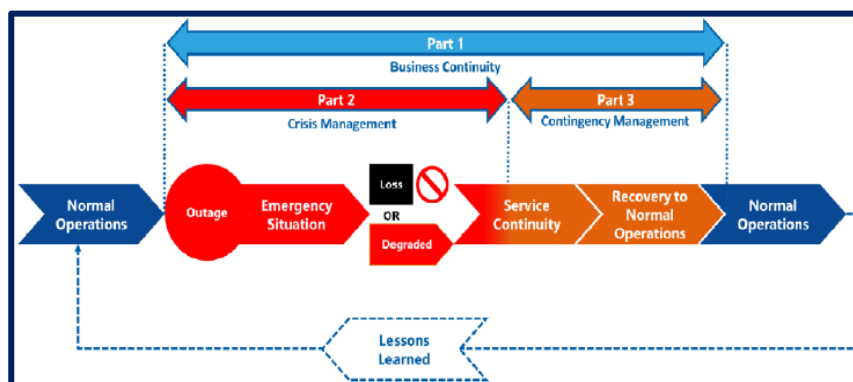
- a) Re-routing of traffic to avoid the whole or part of the Jeddah FIR, involving establishment of contingency routes or route segments with associated conditions for their use. All details are

captured in the contingency plans;

- b) Establishment of a simplified Contingency Route network through Jeddah FIR (CRJ), with a flight level allocation scheme to ensure lateral and vertical separation, and ATC procedures for Riyadh and Jeddah ACC to establish longitudinal separation at the entry point and to maintain such separation through Jeddah FIR;
- c) Internal reassignment of responsibility for providing air traffic services in Jeddah FIR;
- d) Provision and operation of adequate air-ground communications, AFTN and ATS direct speech links, including reassignment, to adjacent FIR, of the responsibility for providing meteorological information and information on status of navigation aids, through specific coordination;
- e) Special arrangements for collecting and disseminating in-flight and post-flight reports from aircraft;
- f) Use to TIBA with a requirement for aircraft to maintain continuous listening watch on TIBA frequency in specified areas where air-ground communications are uncertain or non-existent and to broadcast on that frequency, position information and estimates, including start and completion of climb and descent;
- g) *Notification*: A template of NOTAM text, ready for use, is defined in the ERP to describe any type of disruption of air traffic services and/or related supporting services. The NOTAM text covers the main contingency procedures. In the case of foreseeable disruption, the advance notice will be within 48 hours.
- h) *Recovery and reactivation of normal operations*: A template of NOTAM text, ready for use, is defined for Notification by NOTAM of discontinuance of contingency measures and reactivation of the normal services within Jeddah to ensure an orderly transfer from contingency conditions to normal conditions.

3.5 The ERP lifecycle comprises the following steps (as illustrated in the figure below):

- 1) Normal Operations: Standard staffing levels and full-service provision to airspace users.
- 2) Outage or event leading to an Emergency Situation: In the event of a crisis, it is declared by SANS and depending on its priority, different courses of action are taken.
- 3) Service Continuity: This is the first step to recovering normal operation, giving a sustainable but reduced level of service. It may overlap with some of the crisis management processes.
- 4) Recovery to Normal Operations: Recovery to full-service provision must occur within the predefined time periods based on the business and operational requirements.
- 5) Lessons Learned: After operations are fully recovered, appropriate actions must be completed to ensure that any lessons can be learned for future improvement of the business continuity procedures.



3.6 It covers three contingency levels (as shown in the following table):

- Level 1 Partial system failure or degradation of a system that can be managed by local contingency plan or facilities.
- Level 2: Total failure of the entire ATM system or air navigation system requiring the assistance or intervention of adjacent FIR(s) for the provision of ATS.
- Level 3: Total failure of the entire ATM system or air navigation system requiring the avoidance of the concerned FIR or portion of airspace.

#### 4. CONTINGENCY ATS ROUTE NETWORK

4.1 Under the implementation of ERP and if an event results in the disruption of ATS services, the Contingency Route Network (CRJ) may be activated to ensure safety of flight and to facilitate limited flight operations commensurate with the prevailing conditions. A list of the CRJ is given in Appendix A to this paper. The procedures for transitioning to CRJ can be summarized as follows:

- a) The decision to implement the Contingency Route Network must be taken by the SANS Emergency Response Team based on thoroughly assessment of the outage or the trigger event. The implementation is managed by a special ATSU Committees engaged for the coordination and sharing of real time information on flights . The transition period is defined as the time when the ability to provide ATS is affected until the time when the contingency routes are activated by NOTAM.
- b) Prioritization of flights: Priority will be provided to aircraft on long-haul international flights and special operations, e.g. Search and Rescue (SAR) missions, State aircraft, humanitarian flights, etc. If required and after consultation with GACA (Civil Aviation Authority), domestic operations may be temporarily suspended until a full assessment of the prevailing conditions has been determined and sufficient ATS restored.
- c) Notification: In the event of service disruption that has not been promulgated, ATC should, if possible, broadcast to all aircraft in their airspace that the service is being disrupted, and flights must follow the contingency procedures. In the event that normal ATS cannot be provided in significant parts of Jeddah FIR, a NOTAM shall be issued indicating, at least, the following:
  - 1) Time and date of the beginning of the contingency measures.
  - 2) Airspace available for landing and overflying traffic, and airspace to be avoided.
  - 3) Details of the facilities and services available or not available and any limitation on remaining
  - 4) ATS provision (e.g., FIC, APPROACH, TOWER and AFIS), including an expected date of restoration of services if available.
  - 5) Information on alternative ATS services.

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- 6) Any changes to the ATS contingency routes.
  - 7) Any special procedures to be followed by pilots; and
  - 8) Any other details with respect to the disruption and actions being taken that aircraft operators may find useful.
- d) Activation of the Contingency Route Network: The Contingency route network (CRJ) is divided into blocks considered ATC sectors used within Jeddah FIRs. During the activation of CRJ the following procedures are applied:
- 1) Aircraft Separation: The longitudinal separation on routes will be 15 minutes, constant or increasing. Use of 20 minutes separation may be applied if the faster is behind, with a maximum overtake difference M.04, provided the flight time remaining is less than one hour in Jeddah FIR. The route structure provides for a standard minimum vertical separation. RVSM levels are included, but 2,000 ft vertical separation is required. Where possible, aircraft on long-haul international flights shall be given priority with respect to cruising levels.
  - 2) Aircraft Position Reporting: Pilots were to keep a continuous watch on the specified contingency frequencies (shown in Appendix B to this paper), and transmit position information and estimates in line with normal ATC position reporting procedures. The Traffic broadcast by aircraft (TIBA) procedures shall be used when no ATS was available for an airspace. Through TIBA, pilots shall report (ID, Position, Level, and ETA at next REP) every 10 minutes and continue to broadcast routine position reports in line with normal ATC reporting procedures. When partial ATC is available and pilots are in contact with Jeddah, Riyadh, or Dammam ATC, they will provide standard reports or as instructed.
  - 3) VFR Operations: VFR flights shall not operate in the Jeddah FIR, except in special cases such as State aircraft, MEDEVAC flights, and any other essential flights authorized by GACA.

4.2 As defined under ERP, the decision to restore ATS services shall be taken by the SANS Emergency Response Team. As soon as ATS are fully restored, ATC will broadcast on all sector unit frequencies, establish the traffic situation, and establish normal traffic flows. A NOTAM notifying the restoration of ATS shall also be published.

4.3 In the event that the KSA International NOTAM Office is unable to issue a NOTAM, the Bahrain International NOTAM Office will be invited to issue the required NOTAM upon notification by SANS or the ICAO MID Regional Office.

## **5. CONTINGENCY ARRANGEMENTS WITH ADJACENT ACCS**

5.1 Jeddah and Riyadh ACCs have signed LoAs with all adjacent ACCs. The LoAs are covering coordination procedures for exchange of flight data, transfer of control and communications, ATS surveillance-based coordination procedures, air traffic flow management, SAR and Contingency arrangements.

5.2 The Contingency arrangements are covered under Appendix H of the LoAs and focusing on the ATC procedures that must be implemented in case of total failure of the entire ATM system or air navigation system requiring the assistance or intervention of adjacent ACC(s) for the provision of ATS and vice versa.

5.3 The LoAs signed with Asmara, Baghdad, and Khartoum have been updated to

incorporate the contingency arrangements and SANS is coordinating with adjacent ACCs to sign the revised LoAs as quick as possible.

**6. ACTION BY THE MEETING**

6.1 The meeting is invited to:

- a) note the information provided in this paper;
- b) invite States to share information on the contingency arrangements and plans adopted to safely manage flights and ensure the continuity of the services in the event of disruption, or potential disruption of ATS and related supporting services;
- c) invite States to sign bilateral contingency arrangements that must be introduced in the event of disruption of the ATC services within MID region to ensure safety of flight, continuity of the services, and to facilitate limited flight operations commensurate with the prevailing conditions.
- d) Invite ICAO MID Office to review the list of ATM deficiencies considering the information provided in this paper and to support activities related to the signature of contingency arrangements between MID States and with adjacent AFI States.

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**Appendix A**  
**Contingency Route Network within Jeddah FIR (CRJ)**

Designator	Entry Point	ATS Route Description	Exit Point	Flight Levels
<b>Allocation of Even Levels</b>				
CRJ 01 NB	DANAK	M999 – JDW – UM686	GIBAL	FL320 FL380
CRJ 02 NB	DANAK	M999 – JDW – L677 – WEJ – L677	PASAM	FL320
CRJ 03 NB	DANAK	M999 – JDW – A424 – PMA – B544 – ASH– G662	GRY	FL 320
CRJ 04 NB	RASKA	G650 – JDW – A424 – PMA – B544 – ASH– G662	GRY	FL280
CRJ 05 NB	DANAK	M999 – JDW – A424 – PMA– B544 – ASH – B544	SODAR	FL 320
CRJ 06 NB	RASKA	G650 – JDW – A424 – PMA– B544 – ASH – B544	SODAR	FL280
CRJ 07 WB	NIDAP (K)	UL550-VATIM-UL768-OTILA	OTILA	FL300
CRJ 08 WB	NIDAP (K)	UL550-NIMAR-G662-GRY	GRY	FL300
CRJ 09 WB	ULADA	UL768	OTILA	FL340 - FL360 -FL380 - FL400
CRJ 10 WB	ULADA	UL768-VATIM-UL550-NIMAR-G662-GRY-UN318	GRY	FL340 – FL360 FL380 - FL400
CRJ 11 WB	ULADA	UL768 VATIM – UL550	KITOT	FL340 – FL360
CRJ 12 WB	ULADA	Q143 – BPN - UN697 – HIL – A788 – HLF – L604 – WEJ – L677	PASAM	FL340 – FL360 - FL380 – FL400
CRJ 13 WB	ULADA	Q143 – BPN - UN697–HIL –A788 –HLF – L604 – WEJ – L604	IMRAD	FL340 – FL360 - FL380 – FL400
CRJ 14 WB	ULADA	Q143 – SILNO-G663-KIA-G782-JDW-UM863	GIBAP	FL-400 -FL360 – FL340
CRJ 15 WB	ULADA	Q143 – SILNO-G663-KIA-G782-JDW-B407-KAROX	KAROX	FL400 – FL360 – FL340
CRJ 16 SB	KATOD	G667 – AVOBO – KIA – G667 – NEJ	NETAS	FL 300
CRJ 17 SB	ULADA	Q143 – G663 – KIA – G667 – NEJ	NETAS	FL 320
<b>Allocation of Odd Levels</b>				
CRJ 18 SB	DEDLI	M999 – JDW M559 – LABNI – M999	DANAK	FL350
CRJ 19 SB	DEDLI	M999 – JDW – V31 - BSH - UL425	GOBRO	FL350
CRJ 20 SB	RASLI	B544 – HLF – B412 – JDW – M559 – LABNI - M999	DANAK	FL330
CRJ 21 EB	SILKA	M872 –WEJ – UL604/L604 GAS – UL308	DAROR	FL 350, FL 390
CRJ 22 EB	SILKA	M872 –WEJ – UL604/L604 GAS	NARMI	FL350, FL 390
CRJ 23 EB	IMRAD	UL604 – GAS – UL308	DAROR	FL 350, FL 390
CRJ24 EB	IMRAD	UL604 – GAS – LU604	NARMI	FL350, FL 390
CRJ 25 EB	SILKA	UM872-WEJ-UL604-HLF-A788-SOROR	SOROR	FL 270, FL310
CRJ 26 EB	IMRAD	UL604 – WEJ -UL604 -HLF-A788-SOROR	SOROR	FL 270, FL310

Designator	Entry Point	ATS Route Description	Exit Point	Flight Levels
CRJ 27 EB	MIPOL	G660 – JDW – T532 – KIA – M872 – KFA – <del>UL604</del>	NARMI	FL 310
CRJ 28 EB	RASLI	UP559	DAROR	FL 290
CRJ 29 EB	RASLI	UP559 – LOTOK – A788 – HFR	SOROR	FL 290
CRJ 30 EB	DEESA	DEESA-UY415-LOTOK-UP559-JBL-UL308	DAROR	FL370 – FL410
CRJ31 EB	DEESA	DEESA -UY415-TAMRO- UN318-KUSRO- <del>UN605</del>	NARMI	FL 370, FL 410
CRJ 32 NB	NETAS	G667 – KIA – G667-MGA-UP891	KUNRU	FL 330
CRJ 33 NB	NETAS	G667 – KIA – M872 – KFA – UL604	NARMI	FL 330



**Appendix B**

**Contingency frequencies for Control, Flight Information and/or Flight Monitoring Services.**

Contingency Route Designator	Entry Point	ATS Route Description	Mandatory Report & Monitoring Frequency	Exit Point Adjacent ACC
CRJ 01 NB	DANAK	M999 – JDW – UM686		GIBAL/ Cairo ACC
CRJ 02 NB	DANAK	M999 – JDW – L677 – WEJ – L677		PASAM/ Cairo ACC
CRJ 03 NB	DANAK	M999 – JDW – A424 – PMA – B544 – ASH– G662		GRY/ Amman ACC
CRJ 04 NB	RASKA	G650 – JDW – A424 – PMA – B544 – ASH– G662		GRY/ Amman ACC
CRJ 05 NB	DANAK	M999 – JDW – A424 – PMA– B544 – ASH – B544		SODAR/ Amman ACC
CRJ 06 NB	RASKA	G650 – JDW – A424 – PMA– B544 – ASH – B544		SODAR/ Amman ACC
CRJ 07 WB	NIDAP (K)	UL550-VATIM-UL768-OTILA		OTILA / Amman ACC
CRJ 08 WB	NIDAP (K)	UL550-NIMAR-G662-GRY		GRY /Amman ACC
CRJ 09 WB	ULADA	UL768	ULADA FL350+ Riyadh 132.25 COPPI FL350+ Riyadh 132.95 / RAF FL350+ Riyadh 133.9	OTILA / Amman ACC
CRJ 10 WB	ULADA	UL768-VATIM-UL550-NIMAR-G662-GRY- UN318	ULADA FL350+ Riyadh 132.25 COPPI FL350+ Riyadh 132.95 RASMO FL350+ Riyadh 134.8	GRY /Amman ACC
CRJ 11 WB	ULADA	UL768 VATIM – UL550	ULADA FL350+ Riyadh 132.25 VATIM FL350+ Riyadh 119.45	KITOT/ Cairo ACC
CRJ 12 WB	ULADA	Q143 – BPN - UN697 – HIL – A788 – HLF – L604 – WEJ – L677	ULADA FL350+ Riyadh 132.25 LUGAL FL350+ Riyadh 127.75 LOSEL FL350+ Riyadh 133.45 HIL FL350+ Riyadh 133.7	PASAM/ Cairo ACC

Contingency Route Designator	Entry Point	ATS Route Description	Mandatory Report & Monitoring Frequency	Exit Point Adjacent ACC
CRJ 13 WB	ULADA	Q143 – BPN - UN697-HIL –A788 –HLF – L604 – WEJ – L604	ULADA FL350+ Riyadh 132.25 LUGAL FL350+ Riyadh 127.75 LOSEL FL350+ Riyadh 133.45 HIL Jeddah 133.7	IMRAD/ Cairo ACC
CRJ 14 WB	ULADA	Q143 – SILNO-G663-KIA-G782-JDW-UM863	ULADA FL350+ Riyadh 119.35 GUBUS Riyadh 126.0 RGB Jeddah 126.5	GIBAP/ KHARTOM ACC
CRJ 15 WB	ULADA	Q143 – SILNO-G663-KIA-G782-JDW-B407-KAROX	ULADA FL350+ Riyadh 119.35 GUBUS Riyadh 126.0 RGB Jeddah 126.5	KAROX/ KHARTOM ACC
CRJ 16 SB	KATOD	G667 – AVOBO – KIA – G667 – NEJ	Riyadh /MGA 126.0 Jeddah /KITUB 133.1	NETAS / Sanaa ACC
CRJ 17 SB	ULADA	Q143 – SILNO – G663 – KIA – G667 – NEJ	ULADA FL350+ Riyadh 119.35 GUBUS Riyadh 126.0 KITUB Jeddah 133.1	NETAS / Sanaa ACC
CRJ 18 SB	DEDLI	M999 – JDW M559 – LABNI – M999		DANAK
CRJ 19 SB	DEDLI	M999 – JDW – V31 - BSH - UL425		GOBRO
CRJ 20 SB	RASLI	B544 – HLF – B412 – JDW – M559 – LABNI - M999	RASLI FL350+ Riyadh 134.8 SOBAS Jeddah 133.7	DANAK
CRJ 21 EB	SILKA	M872 –WEJ – UL604/L604 GAS – UL308	LAKRO FL350+ Riyadh 127.75 LOROX FL350+ Riyadh 132.25	DAROR
CRJ 22 EB	SILKA	M872 –WEJ – UL604/L604 GAS –L604		NARMI
CRJ 23 EB	IMRAD	UL604 – GAS – UL308	LAKRO FL350+ Riyadh 127.75 LOROX FL350+ Riyadh 132.25	DAROR
CRJ 24 EB	IMRAD	UL604 – GAS –L604		NARMI
CRJ 25 EB	SILKA	UM872-WEJ-UL604-HLF-A788-SOROR	HLF FL350+ Riyadh 133.45 LOSEL FL350+ Riyadh 132.95	SOROR

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Contingency Route Designator	Entry Point	ATS Route Description	Mandatory Report & Monitoring Frequency	Exit Point Adjacent ACC
CRJ 26 EB	IMRAD	UL604 – WEJ -UL604 -HLF-A788-SOROR	HLF FL350+ Riyadh 133.45 LOSEL FL350+ Riyadh 132.95	SOROR
CRJ 27 EB	MIPOL	G660 – JDW – T532 – KIA – M872	TASBA Riyadh 126.0 GIBUS Jeddah 133.8	NARMI
CRJ 28 EB	RASLI	UP559		DAROR
CRJ 29 EB	RASLI	UP559 – LOTOK – A788 – HFR		SOROR
CRJ 30 EB	DEESA	DEESA-UY415-LOTOK-UP559-JBL-UL308		DAROR
CRJ 31 EB	DEESA	DEESA-UY415-TAMRO-UN318-KUSRO- UN685		NARMI
CRJ 32 NB	NETAS	G667 – KIA — G667-MGA-UP891		KUNRU
CRJ 33 NB	NETAS	G667 – KIA – M872		NARMI