

Workshop Mitigation of loss of FLPs, NOTAMs &OPMETs

# INTERNATIONAL CIVIL AVIATION ORGANIZATION



## Workshop on the Mitigation of loss of operational messages (FLPs, NOTAMs &OPMETs)

(Dakar, Senegal, 12 – 14 May 2014)

# Final Report

Prepared by ICAO Secretariat

May 2014

**Workshop Mitigation of loss of FLPs, NOTAMs &OPMETs**

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## Workshop Mitigation of loss of FLPs, NOTAMs & OPMETs

### 1. Introduction

The First Regional Workshop on the mitigation of loss of Operational messages (Flight Plans, NOTAMs & OPMETs) in the AFI Region was held at the ASECNA ERNAM School and the ICAO WACAF Regional Office of Dakar, Senegal from 12 to 14 May 2014.

### 2. Objectives

The main objective of the meeting was inter alia to explore ways of reducing the pace of loss of Operational messages (Flight Plans, NOTAMs & OPMETs) being exchanged in the region in the framework of the implementation of the ICAO Aviation System Block Upgrades (ASBU) related Modules.

### 3. Attendance

3. The meeting was attended by Thirty nine (39) participants from six (06) Contracting States namely, Angola, Ghana, Guinea, Nigeria, Senegal and Tanzania one (01) Air Navigation Service Providers (ASECNA), and a representative of international airlines (IATA).

3.2 A list of participants is provided at **Appendix A.**

### 4. Organization, Secretariat and attendance

4. The meeting elected **Mr. John Chucks Onyegiri**, NAMA (Nigeria) as Chairperson. **Mr. Francois-Xavier Salambanga**, Regional Officer, Communications, Navigation and Surveillance (CNS, ICAO Regional Office for Western and Central Africa (WACAF, Dakar), acted as Secretary he was assisted by **Mr. Akoa Benoit Okossi** ICAO Regional Officer MET, WACAF.

### 5. Working language

The meeting was conducted in English and the meeting documentation was issued in this language.

### 6. Opening

6.1 The meeting was opened by **Mr. Mam Sait Jallow** ICAO Regional Director for Western and Central Africa Regional Office. Mr Jallow first welcomed the participants on behalf of the President of the ICAO Council, the Secretary General, and the staff of the ICAO WACAF Regional Office of Dakar, as well as on his own behalf.

6.2 He pointed out the crucial role played by Aeronautical operational messages such as Flight Plans, NOTAMs & OPMETs in the provision of air navigation services both in terms of air navigation safety, capacity and efficiency and indicated that in the AFI Region, subject to an air traffic continued growth, the issues pertaining to loss of Flights Plans, NOTAMs and OPMETs have been impacting adversely on the provision of Air Navigation service for years.

6.3 He noted that although these concerns were brought to the regional planning and implementation meetings during this last decade; tangible durable mitigation mechanisms have not been found yet to definitively overcome this barrier to the safe development and improvement of Air Navigation service within the Region.

6.4 He reminded the participants that uncoordinated implementation of ground communication systems as well as no harmonized operation procedures can result in unsuccessful exchange of operational messages conducting to either safety reduction or to inadequate usage of the potential capability of neighboring ATM automated systems inter-exchange.

6.5 The Regional Director then, after having summarized up the agenda items, underlined the outcome expected from the workshop, wished fruitful deliberations to the meeting and declared open the Workshop.

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### 7. Agenda

The meeting adopted the following agenda proposed by the Secretariat:

**Agenda Item 1: Contribution of the operational messages (Flight Plans, NOTAMs, OPMETs..) to the enhancement of Air Navigation safety, efficiency and cost effectiveness**

**Agenda item 2: Overview of the status of implementation and Performance of the AFI Aeronautical fixed Service (AFS)**

**Agenda Item 3: Investigation and mitigation actions on the loss of operational messages**

**Agenda Item 4: Exercises on practical cases**

**Agenda Item 5: Key role of operational messages in the automation, interconnectivity/interoperability of Air Traffic Management systems**

**Agenda item 6: Evolution of Operational Messages exchange in the framework of the ICAO ASBU Methodology**

**Agenda Item 7: Future development on aeronautical Fixed Service**

**Agenda Item 8: Any other business**

**8. Summary of Recommendations**

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8. The following Recommendations were formulated by the workshop:

<b>Number</b>	<b>Title</b>
<b>Agenda Item 1</b>	<b>Contribution of the operational messages (Flight Plans, NOTAMs, OPMETs..) to the enhancement of Air Navigation safety, efficiency and cost effectiveness</b>
<b>Recommendation 1/01</b>	<p><b>Reinforcement of the compliance to the requirements of the ICAO Flight Plan new format</b></p> <p><b>That:</b>  <b>In order to increase the availability of Flights Plans in the AFI Region, Administrations/Organizations ensure that Airlines &amp; ANSPs reinforce the capability of their operators in charge of Flight Plans to follow the requirements of the ICAO Flight Plan new format.</b></p>
<b>Recommendation 1/02</b>	<p><b>Availability of NOTAMs in the AFI Region</b></p> <p><b>That:</b>  <b>States/organizations implement consolidated procedures for the maintenance of NOTAMs with critical safety related information and consider the ongoing development of NOTAM systems to increase the availability of NOTAMs in the AFI Region.</b></p>
<b>Recommendation 1/03</b>	<p><b>Update of the transmission of required OPMETs from AFI aerodromes</b></p> <p><b>That:</b>  <b>In order to increase the availability of OPMETs in the AFI Region, Administrations/Organizations endeavor to update and align the transmission plan with the AMBEX for all concerned aerodromes.</b></p>
<b>Agenda Item 2</b>	<b>Overview of the status of implementation and Performance of the AFI Aeronautical fixed Service (AFS)</b>
<b>Recommendation 1/04</b>	<p><b>Monitoring of the control signal between AFTN Messages switching systems</b></p> <p><b>That:</b>  <b>States/Organization make bilateral and multilateral arrangements to investigate the availability of the control signal between AFTN Messages switching systems and take the related remedial measures.</b></p>
<b>Recommendation 1/05</b>	<p><b>Update of the AFI COM chart and alignment with the AFTN Directory</b></p> <p><b>That:</b>  <b>As a matter of urgency ICAO Regional Offices (WACAF &amp; ESAF) update the AFI COM chart to be aligned with the AFI COM Directory.</b></p>
<b>Agenda Item 3</b>	<b>Investigation and mitigation actions on the loss of operational messages</b>
<b>Recommendation 1/06</b>	<p><b>Implementation of procedures to mitigate loss of operational messages (FLPs, NOTAMs, OPMETs)</b></p> <p><b>That:</b>  <b>Administrations/Organizations be urged to implement the mitigation measures for loss of operational messages (FLPs, NOTAMs, OPMETs) as presented at <b>Appendices C, D &amp; E</b>.</b></p> <p><b>In particular:</b></p> <ul style="list-style-type: none"> <li>a) States should establish local multidisciplinary working groups composed with representatives of CAAs, airlines, ANSPs...</li> <li>b) ANSPs should issue AICs and letters to inform their neighbors, IATA, Eurocontrol &amp; ICAO on their collective addressing procedures</li> </ul>

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Number	Title
	<p align="center"><b>c) ANSPs should conclude/revise under the auspice of their CAAs, agreements with their national MET Offices in order to ensure the proper provision of OPMETs in accordance with the AMBEX scheme</b></p>
<b>Agenda Item 4</b>	<b>Exercises on practical cases</b>
	<i>APIRG</i>
<b>Agenda Item 5</b>	<b>Key role of operational messages in the automation, interconnectivity/interoperability of Air Traffic Management systems</b>
<b>Recommendation 1/07</b>	<p><b>Expected benefits from the mitigation of loss of operational messages (FLPs, NOTAMs and OPMETs)</b></p> <p><b>That:</b>  <b>Taking into consideration the requirements of all stakeholders (States, Airlines, ANSPs), APIRG be encouraged to consolidate the list of potential benefits expected from the mitigation of loss of operational messages (FLPs, NOTAMs and OPMETs) as attached in <b>Appendix F</b> and to explore additional improvement benefits.</b></p>
<b>Agenda Item 6</b>	<b>Evolution of Operational Messages exchange in the framework of the ICAO ASBU Methodology</b>
<b>Recommendation 1/08</b>	<p><b>Implementation of SWIM</b></p> <p><b>Administration/Organizations consider the benefit expected from the ICAO Aviation System Blocks Upgrades (ASBU) Block 0 Module WIM when modernizing their ground /ground systems</b></p>
<b>Agenda Item 7</b>	<b>Future development on aeronautical Fixed Service</b>
<b>Recommendation 1/09</b>	<p><b>Update of AFTN systems in compliance with the timeline of implementation of ICAO ASBU Blocks 0 Modules</b></p> <p><b>That:</b>  <b>In the framework of the AFI Air navigation Plan, Administrations/Organizations be urged to accelerate the update of AFTN systems in order to comply with the timeline of implementation of ICAO communication related Aviation Systems Blocs Upgrades (ASBU) Block 0 Modules provided by the ICAO Global Air Navigation Plan (GANP Doc. 9750).</b></p>
<b>Agenda Item 8</b>	<b>Any other business</b>

## PART II: SUMMARY OF THE DISCUSSIONS

### **Agenda Item 1: Contribution of the operational messages (Flight Plans, Notams, OPMETs..) to the enhancement of Air Navigation safety, efficiency and cost effectiveness**

1.1 Under this agenda item the workshop examined the impact of operational messages (Flight Plans, NOTAMs, OPMETs...) to the enhancement of Air Navigation safety, efficiency and cost effectiveness.

1.2 The operational purpose of Flight Plans, NOTAMS and OPMETs were reminded to the participants:

- Flight Plans Enable ATC to plan operation based on the expectations on aircraft COM/NAV/SUR capabilities and intention;
- NOTAMs enable Aircraft to be aware in advance of service availability/limitation, potential hazards, new procedures
- OPMETs bulletins increase aircraft awareness of weather conditions and enable a safer navigation in given weather conditions.

1.3 The meeting recognized that the operational messages (FLPs, NOTAMs and OPMETs) exchange principles & procedures in the AFI region are linked to AFTN principles and procedures and agreed on the necessity for the personnel from Administration Air navigation Service providers, Airlines involved in these messages operations be trained in accordance with the provoson of ICAO supporting documents in the matter such as Annex 10 Volumes 1, 2 & 3, Annex 3 Doc 8259 Annex 11, Doc 4444...

The following Recommendation was formulated:

#### **Recommendation 1/01: Reinforcement of the compliance to the requirements of the ICAO Flight Plan new format**

##### **That:**

**In order to increase the availability of Flights Plans in the AFI Region, Administrations/Organizations ensure that Airlines & ANSPs reinforce the capability of their operators in charge of Flight Plans to follow the requirements of the ICAO Flight Plan new format.**

### **Agenda item 2: Overview of the status of implementation and Performance of the AFI Aeronautical fixed Service (AFS)**

2.1 Under this agenda item the workshop reviewed the status of implementation of the AFI Aeronautical Fixed Service (AFS) in particular the Aeronautical Fixed Telecommunication Network (AFTN) with focus on the negative impact of loss of operational messages on Air Traffic Management (ATM) performance. The performance collection forms such as the Performance Data Collection Form (PDCF) adopted by APIRG/19 were presented to the participants.

2.2 The detailed status of implementation of AFTN in the AFI Region summarized in the AFI COM chart that reflects the provision of FASID Table CNS 1A was presented to the workshop together with the AFI AFTN directory updated by the the second Task Force on the implementation of AMHS in the AFI Region held in Dakar, Senegal from 30 to 31 Mai 2013 as well as the table of AFTN monthly availability and the instruction for use of AFTN Transit Time statistics Form

2.3 The meeting addressed issue related to the evolution of NOTAMA system and recognized that the NOTAM system conveys a very wide range of operationally relevant information at ever increasing volumes which can be broken down into thtre principle categories:

- 1) Changes to published information including advance information not yet published;
- 2) Meta-information concerning elements of published information providing "status and condition" of ANS infrastructure; and
- 3) Other information not published by other means.

2.4 The meeting noted that with the number of NOTAM currently in circulation within the AFTN, there is a growing risk that a vital piece of information will be missed, and that a flight safety incident will occur. It



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was agreed that this is a risk that must be minimized by the implementation of consolidated procedures for the maintenance of NOTAMs with critical safety related information.

The following Recommendation was formulated:

### **Recommendation 1/02: Availability of NOTAMs in the AFI Region**

**That:**

**States/organizations implement consolidated procedures for the maintenance of NOTAMs with critical safety related information and consider the ongoing development of NOTAM systems to increase the availability of NOTAMs in the AFI Region**

2.5 The meeting examined the availability of OPMETs in the AFI region and noted the time sensitivity of some AFTN MET messages and bulletins containing OPMET.

The figures also indicated missing OPMETs such as METARs and TAFs resulting from an inadequate alignment of the transmission plan for MET message with the AFI Met bulletin Exchange (AMBEX) scheme.

2.6 The meeting strongly encouraged Administration/Organizations to update the transmission plan of required OPMETs from their concerned aerodromes in order to increase the availability of OPMETs.

The following Recommendation was formulated.

### **Recommendation 1/03: Update of the transmission plan of required OPMETs from AFI aerodromes**

**That:**

**In order to increase the availability of OPMETs in the AFI Region, Administrations/Organizations endeavor to update and align the transmission plan with the AMBEX for all concerned aerodromes**

### **Agenda item 2: Overview of the status of implementation and Performance of the AFI Aeronautical fixed Service (AFS)**

2.6 Under this agenda item the workshop reviewed the status of implementation of the AFI Aeronautical Fixed Service (AFS) in particular the Aeronautical Fixed Telecommunication Network (AFTN) with focus on the negative impact of loss of operational messages on Air Traffic Management (ATM) performance.

2.7 The performance collection forms such as the Performance Data Collection Form (PDCF) adopted by APIRG/19 was presented to the participants.

2.8 It was recognized that the unavailability of the control signal between AFTN Messages switching systems was amongst others one of the main cause of missing operational messages.

The following recommendation was formulated:

### **Recommendation 1/04: Monitoring of the control signal between AFTN Messages switching systems**

**That:**

**States/Organization make bilateral and multilateral arrangements to investigate the availability of the control signal between AFTN Messages switching systems and take the related remedial measures.**

2.9 The meeting also examined the AFI COM chart and noted some inconsistencies with the updated AFTN Directory.

These inconsistencies result from the fact that some implemented AFTN circuits have not been considered by the AFI COM chart while the last update of the directory has considered these circuits. The meeting encouraged the ICAO Regional Offices to align the FAI COM chart with the AFI updated AFTN directory.

The following Recommendation was formulated.

### **Recommendation 1/05: Update of the AFI COM chart and alignment with the AFTN Directory**

**That:**

**As a matter of urgency ICAO Regional Offices (WACAF & ESAF) update the AFI COM chart to be aligned with the AFI COM Directory.**

**Agenda Item 3: Investigation and mitigation actions on the loss of operational messages**

3.1 Under this agenda item the workshop examined the methodology of investigation of loss of operational messages and shared mitigation actions undertaken by Administration/Organizations with focus on the regional commitment and the existing investigation mechanisms.

3.2 In this regards the workshop was reminded on the main deliberation of APIRG dealing with missing operational messages in particular : **Decision 16/17**, APIRG 16 Rubavu, Rwanda, 18-23-11-2007: *Survey on missing Flight Plans*; **Conclusion 17/42 APIRG 17**, Ouagadougou, Burkina Faso 2-6-08-2010: *Resolution of Missing Flight Plans Problem*; **Conclusions 18/17 & 18/18 APIRG 18**, Kampala, Uganda 27-30 -03- 2012: *Addressing Missing Flight Plans & Training of air operator personnel on airspace organization*; **Conclusion 19/23 APIRG 19**, Dakar, Senegal, 28-31 -10-2013.

3.3 The workshop recognized that various ways have been explored for the resolution of the issue of missing Flight Plans and some actions have been taken by ANSPs (ASECNA, ATNS) with encouraging results.

In this regard ASECNA shared with the workshop the results of the mitigation measures (**Appendix B refers**) undertaken to minimize the loss of Flight Plans.

3.4 The need for Administrations/organizations to establishing Local Working Groups (involving all stakeholders personnel ATCs, AIM, MET, COM, ATSEP, Airlines) tasked to investigate on missing operational messages (Flight Plans and OPMETs) as called upon by the APIRG CNS Sub Group 5<sup>th</sup> meeting was reminded to the meeting.

3.5 The meeting drafted during the practical exercises mitigation measures to be finalized by the Groups after the workshop. The meeting encouraged Administrations/Organizations to implement these mitigation measures for loss of operational messages (FLPs, NOTAMS, OPMETs).

The following Recommendation was formulated.

**Recommendation 1/06: Implementation of procedures to mitigate loss of operational messages (FLPs, NOTAMS, OPMETs)**

**That:**

**Administrations/Organizations be urged to implement the mitigation measures for loss of operational messages (FLPs, NOTAMS, OPMETs) as presented at **Appendices C, D & E**.**

**In particular:**

- a) States should establish local multidisciplinary working groups composed with representatives of CAAs, airlines, ANSPs.....
- b) ANSPs should issue AICs and letters to inform their neighbors, IATA, Eurocontrol & ICAO on their collective addressing procedures
- c) ANSPs should conclude/revise under the auspice of their CAAs, agreements with their national MET Offices in order to ensure the proper provision of OPMETs in accordance with the AMBEX scheme

**Agenda Item 4: Exercises on practical cases**

4.1 Under this agenda item the participants in the workshop were provided, through exercises on real cases of loss of operational messages (Flight Plans, NOTAMS, OPMETs) occurred in the AFI Region and proposals for solution were be drafted by the teams and submitted to the plenary meeting.

4.2 Mitigation measures were initiated and should be finalized later by the rapporteur of the Teams. The detailed outcome of the exercises is presented in **Appendix** to this report.

**Agenda Item 5: Key role of operational messages in the automation, interconnectivity/interoperability of Air Traffic Management systems**

5.1 Under this agenda item the workshop brainstormed on the role of operational messages in the automation, interconnectivity/interoperability of Air Traffic Management systems with focus on the expected benefit from the mitigation of loss of operational messages (FLPs, NOTAMs and OPMETs).

5.2 The Workshop recognized the key role of operational messages in the automation, interconnectivity/interoperability of Air Traffic Management systems and therefore the operational (safety capacity and efficiency), economic and environmental benefits to be gained in the ATM operation.

5.3 In this regard a list of non-exhaustive benefits was developed and the Administration/organizations encouraged to explore for additional improvement benefits.

The following Recommendation was formulated.

**Recommendation 1/07: Expected benefits from the mitigation of loss of operational messages (FLPs, NOTAMs and OPMETs)**

**That:**

**Taking into consideration the requirements of all stakeholders (States, Airlines, ANSPs), APIRG be encouraged to consolidate the list of potential benefits expected from the mitigation of loss of operational messages (FLPs, NOTAMs and OPMETs) as attached in **Appendix F** and to explore additional improvement benefits.**

**Agenda item 6: Evolution of Operational Messages exchange in the framework of the ICAO ASBU Methodology**

6.1 Under this agenda item a summary on the ICAO Aviation System Blocks Upgrades (ASBU) methodology was presented to the meeting with focus on the modules dealing with operational messages exchange.

6.2 The workshop examined the evolution of Operational Messages exchange in the framework of the ICAO ASBU Methodology with focus on the requirements on availability and accuracy to be fulfilled by the messaging systems.

6.3 The System Wide Information Management (SWIM) module was presented to the Workshop as the future of operational information management concept.

6.4 Administration/Organizations were strongly encouraged to consider the benefit expected from the ICAO Aviation System Blocks Upgrades (ASBU) Block 0 Module SWIM when modernizing their ground /ground systems.

Administration/Organization were encouraged to consider the benefit expected from the ICAO Aviation System Blocks Upgrades (ASBU) Block 0 Module SWIM when modernizing their ground /ground systems.

The following Recommendation was Formulated.

**Recommendation 1/08: Implementation of SWIM**

**Administration/Organizations consider the benefit expected from the ICAO Aviation System Blocks Upgrades (ASBU) Block 0 Module SWIM when modernizing their ground /ground systems**

**Agenda Item 7: Future development on aeronautical Fixed Service**

Under this agenda item the workshop will examine the future technical developments on operational messages exchanges as planned by the AFI Planning and Implementation Regional Group (**APIRG**) in line with the Global Air navigation Plan (GANP Doc. 9750). The industry will also be invited to present the trend in the evolution of the technology governing aeronautical Fixed Service Provision.

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**Recommendation 1/09: Update of AFTN systems in compliance with the timeline of implementation of ICAO ASBU Blocks 0 Modules**

**That:**

**In the framework of the AFI Air navigation Plan, Administrations/Organizations be urged to accelerate the update of AFTN systems in order to comply with the timeline of implementation of ICAO communication related Aviation Systems Blocs Upgrades (ASBU) Block 0 Modules provided by the ICAO Global Air Navigation Plan (GANP Doc. 9750).**

**Agenda Item 8: Any other business**

8.1 Under this Agenda Item, the workshop did not have any particular other issues of interest not included in the previous Agenda Items.

8.2 The participants assessed positively the workshop and its outcome in particular the practical case exercise and took the commitment to finalize the mitigation measure drafted by the exercise teams.

\*\*\*\*\* **END**\*\*\*\*\*

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**APPENDIX A**

**Workshop on the mitigation of loss of Operational messages  
(Flight Plans, NOTAMs & OPMETs)  
Dakar, Senegal, 12 – 14 May 2014**

**LIST OF PARTICIPANTS**

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**Workshop Mitigation of loss of FLPs, NOTAMs &OPMETs**

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APPENDIX B

**Title: Procedure for collection, analysis and processing  
Of missing flight plans**

**1. Object**

The object of this procedure is to identify missing flight plans, examine, analyze the causes and propose corrective measures to overcome this problem.

**2. Purpose**

2.1. The issue of missing flight plans is being considered since a long time and several initiatives have been undertaken by ANSP and/or States in order to tackle this problem. A consolidated global procedure is necessary to properly improve globally the availability of the flight plans at regional and inter-regional level.

2.2. This procedure aims to provide provision which implementation will allow to mitigate and /or to minimize the impact of missing flight plans on the safety of the air navigation. It describes the approach to be followed by the various involved actors, for the monitoring missing flight plans.

2.3. It specifies the actions to be taken in a timely manner and the responsibility of all stakeholders in the collection and management of data on missing flight plans. It aims to reduce to an acceptable level the proportion of missing flight plans.

2.4. The dispositions of this procedure shall be applied from the date of its signature.

**3. Scope**

The implementation of this procedure will involve several entities from the ANSP, including Aerodrome (Local) control Unit, (En) Route control unit, Telecommunications Operations Unit, AIM Unit (Flight plan Processing Unit)

**4. Definitions**

1 Missing flight plan: a flight plan is considered missing when it is not received by the Units involved in air traffic management, or on the AFTN terminal or on the support of any other approved system of air traffic management.

2 Flight Plan Working Group (FPWG): a group whose role is to monitor and propose measures to mitigate the problem of missing flight plans. Its composition includes:

- 1 Aerodrome control ;
- 2 En-route control ;
- 3 ATC, local training, AIM, Telecommunications Operations; units
- 4 Air Traffic Controller.

The sessions of the Working Group shall be chaired by the En-route control Manager or the aerodrome Manager

## **5. Collection of missing flight plans information**

- 5.1. The Head Unit ATC identifies and indicates by distinctive memo mentions in the section "Miscellaneous" or reverse of strips, to distinguish flights whose flight plans are either received, missing or received with a delay.
- 5.2. Then Air Traffic controllers on duty will note, clearly, these distinctive mentions in the strip during their service.
- 5.3. The distinctive mentions may be
  - a « R » : for flights whose flight plans were received ;
  - b « D » : for flights whose flight plans were received with delay
  - c « N »: for flights whose flight plans were not received.
- 5.4. The of head Unit of ATC will collect daily the data on flight plans and fill a file of Excel designed for this purpose (see Annex).
- 5.5. AIM staff collects data on arrivals for flight plans not received and will fill each day, the file of Excel designed for this purpose.
- 5.6. The data collected by AIM or ATC units and AC can be compared in order to detect anomalies at least for flight on arrival.
- 5.7. In case of doubt on the recorded data, investigations will be conducted in collaboration with the Telecommunications Operation Unit.
- 5.8. Investigation will be conducted in coordination with the Operation of Telecommunications unit to define the hours of receipt of the plans received with delays.
- 5.9. Investigation will be conducted in coordination with the Telecommunications Operation unit to determine the plans received by the center but not addressed to the concerned control organism.

## **6. Analysis and processing of the missing flight plan**

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a The file containing information on missing flight plans will be finalized at the latest 2<sup>nd</sup> of the following month by the head of ATC unit and transmitted to the en-route control Manager or to the aerodrome Manager.

b The en-route control Manager or to the aerodrome Manager, from the Excel file, extract all relevant information that can be used to analyze and identify the various causes of the missing flight plans, including .

1. percentage of missing flight plans by type of traffic (arrivals over flight);
2. the missing flight plans by departure aerodrome(ANSP), airlines...
3. Percentage of flight plans received by the center but not routed correctly to the relevant organism, by origin, by airline.
4. any other relevant ratio for analysis.

5.3. The en-route control Manager or to the aerodrome Manager convene the Flight Plan Working Group no later than 4<sup>th</sup> of the month to analyze and interpret the various results and ratios and provide corrective actions to mitigate the problem of missing flight plans.

5.4. The results of the Flight Plan Working Group will be forwarded to Headquarter no later than the 5th of the month by the en-route control or aerodrome Manager, for the appropriate actions.

5.5. The Flight Plan Working Group should follow the status of implementation of previous corrective actions and results of their application. Highlights should be reported in the report of the working group.

## 7. Implementation of the correctives action

The corrective actions will be implemented as soon as possible taking in account

- Coordination between relevant centers
- Coordination with the entities in charges of flight plan processing
- Coordination between ANSP
- Coordination with IATA or Airlines

5.6. Annexes : missing flight plan template

Date	Call Sign	Registration	Airport		Flight Plan						Remarks
			Departure	arrival	received	Not received	Delay	TX time	RX time	Transit time	
1	2	3	4	5	6	7	8	9	10	11	12
<b>TOTAL</b>					36	12					



**APPENDIX C**

**Mitigation measures for loss of Flight Plans**

<b>Identified Risks/Causes</b>	<b>Mitigation solutions</b>	
	<b>Short Term</b>	<b>Mid Term/Long Term</b>
<b>Equipment and systems</b>		
Equipment/Systems obsolescence	Corrective maintenance	Replacement Policy
Link Failure	Preventive Maintenance	Training & organisation
	Contingency Procedure	Redundancy of Equipment
		Contingency Procedure
AFTN Switch Failure (same as link failure)		Replacement Policy
	Preventive Maintenance	Training & organisation
	Contingency Procedure	Redundancy of Equipment
<b>Operations</b>		
Wrong configuration of the routing table	Training Edit routing table	Routing Table Updating
Technical Factors (Congestion, System Down)		Network Optimization (for congestion)
	Preventive maintenance, Redundancy, sensitization, simulation (for system down)	Equipment replacement policy
	curative maintenance (system down)	preventive maintenance (system down)
	Sensitization (for o Incompatibility)	Training, Time synchronization
Uncompleted/Incorrect address	Sensitization	Training
	Issue reference addresses for Airlines Edit address before transmission	
<b>Human factors</b>		
Human Factors	Training and supervision	Training and supervision
	Procedures	Procedures
	Check list	Check list
	QMS	
	Personnel Exchange between Centers	

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<b>Domain</b>	<b>Actors involved</b>	<b>Individual action</b>	<b>Individual Responsibility</b>
Airlines OPS	Airlines Operator	To fill correctly and timely the FPL form	Ensuring the compliance with ICAO
AIM OPS	AIM Operator	Check if FPL form is filled correctly correct if necessary, accept and transmit or reject and advise	Ensuring the compliance with ICAO
COM OPS	AFTN Operator	Receive / Transmit	Ensuring the compliance with ICAO
ATM	ATC	Receive/create and (or) Process FPL	Ensuring the compliance with ICAO
Maintenance	Technical Maintenance	Inspect Equipment, routine maintenance	Ensuring the compliance with ICAO
Ragulation	CAA	Oversight	Ensuring the compliance with ICAO
ICAO	RO	Assist and advise	Verification of compliance to ICAO SARPs and policy ; formulation and assistance to implementation

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## APPENDIX D

### Mitigation measures for loss of NOTAMs

#### APPENDICES YYYY

##### Exercise 1-2: Tracking a NOTAM

Bobo-Dioulasso (Burkina Faso) is supposed to receive an international event but the capacity in Fire Fighting has decreased. A draft NOTAM is developed to advise aircraft crew on the limitation.

1) Describe the way for the NOTAM to be issued (AFI FASID Table AIS 3 contains the list of International NOTAM Offices in the AFI Region)

Answer: NOTAM is an essential information that ensures safety in International Air Navigation and for that reason must be issued within the shortest possible time.

This particular NOTAM was originated from Bobo-Dioulasso and was to notify Ouagadougou, Niamey, Bamako and Dakar in the end was to promulgate disseminate this NOTAM to the various International NOTAM Offices in the AFI Region.

2) Evaluate the available communication facilities along the way.

Answer: The available communication facilities from Bobo-Dioulasso to Ouagadougou to Niamey and finally to Dakar is through the AFTN medium.

3) Assess the risks/causes that may prevent the NOTAM to:

a) Successfully reach its destination of issuance;

Answer: 1, Due to technical i.e. the AFTN system were down.

2) Due to human error i.e. It could be that the NOTAM Addressees were not properly addressed and transmitted.

Another factor could be power outage so there was a break in transmission and could not reach in good time.

Another factor could be that the officer in charge did not take serious note of NOTAM and was working on other jobs before tackling the NOTAM thereby causing delay in transmission.

b) Reach its destination of issuance in time.

Answer: Because of congestion the messages may not reach its destination in time.

c) Reach its destination of issuance in time but corrupted.

Answer: Because of technical reasons and power outages the NOTAM got garbled when it finally reached its destination.



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4) In the short Term , the only available means or solution is through the Telephone and Intercom link.

Another short term measure is to use ATC Unit to notify a passing Aircraft under their jurisdiction to inform the other NOTAM stations and finally to Dakar To issue the NOTAM.

In the Mid and Long Term. The NOTAM Office Unit must ensure that reliable, dependable and efficient machines such as AFTN, AMHS, SITA, Telephone , Intercom, fax and HF are put in place. There must be back-up to replace any unserviceable machine. Unit supervisors must ensure that everyday point to point stations are readable and serviceable. Technical and Electronic Offices must be adequately resourced, trained to service these equipment. NOTAM Officers must be trained to man these machines and be able to do their jobs uninterrupted. Day to day loggings are also essential so that sup

erisors can quickly identify problems and find solutions to them. Supervisors must also ensure day to day operations and standards are adhere to. Management must endeavor to equip the offices with new equipment anytime the machines get old.

With Fire Fighting there must be a routine maintenance check and making sure there is always one or two Fire Tenders as back up. Intercom and Telephone must be available between Tower and the Fire Station.

5) Individual Fire Officer must ensure that availability of Fire Tender s, equipment and number of personnel are always given to Aerodrome Tower. If is downgraded to the minimum the Aerodrome Fire Officer must notify Tower for NOTAM to be promulgated. A maintenance code should be put in place.

6)

Organization	Procedure	Training	Personnel exchanges
Special agreement btw DFFD and DFFO -Good supervision and coordination systems.	Operational Manual. On the JOB training(OJT). Feedback facilities into the AFTN so as to eliminate problems.	Refresher courses. OJT. Proficiency Training. Language Training. In service Training both Local and international.	Co-ordination meetings. Exchange programmes. Sharing experiences.

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## APPENDIX E

### Mitigation measures for loss of OPMETs

Identified Risks/Causes		Mitigation solution	
		Short term	Middle and long term
Unavailability of the interconnection between sub-networks (AFISNET/CAFSAT/SADC)		Contingency plans	Full Interoperability of sub-networks
unavailability of the connection in one or more sub-networks (AFISNET/CAFSAT/NAFISAT)	Unavailability of a switch	Contingency plans, Respect of preventive maintenance plans	Redundancy of equipment
	Routing-table matters	Update the routing table	Optimizing of the routing table
Messages addressing matters		Controls actions by supervisors	Training and sensitization plans, Automation of addressing process.
Large number of transit circuits		Optimization of networks	Optimization of AFI AFTN plan
Messages congestion;		Optimization of networks,	More capacity of messages processing (switchs, etc. )
Late or no transmission of messages by agents		Application of procedures	Training and sensitization
No optimizing of routing tables		Optimize routing tables	
Unavailability of direct circuit Interface matters		Make available the direct circuit Check interfaces towards different sub- networks	Harmonize the interfaces between the sub-networks
Synchronization matters		Check the synchronization	Move to a unique network for the AFI region

Domain	Actors involved	Individual action	Individual Responsibility
MET	Forecasters	Issuance OPMET at time	Syntax and format requirement
	COM operator	Allocation of AFTN addresses	OPMET exchange
AIM	AIM Operator	Check if OPMET form is filled correctly and correct it if necessary, transmit or reject and advise	Ensuring compliance with ICAO specifications
Maintenance	Keep Maintenance equipment on function	Carry on preventive maintenance program at time	Keep equipment working
Management	Managers or Supervisor	Plan all operational actions	Keep the services available

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## APPENDIX F

### Operational benefits expected from the interconnection of surveillance systems

#### **1 Safety**

- 1.1 Best awareness of users on critical information/earlier information received
- 1.2 Avoidance of risk of serious incidents/accidents
- 1.3 Improvement of ATM
- 1.4 Contingency capability

#### **2. Efficiency**

##### **3.1 Regularity**

- 2.1 Reduced delays
- 2.2 Optimized routing and trajectories
- 2.3 Preferred FLs

#### **3. Capacity**

- 3.1 Predictability
- 3.2 Improved airspace planning
- 3.3 Flexibility (CCO, CDO, PBN)
- 3.4 Increased apron capacity
- 3.5 ATFM

#### **4. Environment**

- 4.1 Reduced fuel consumption & CO2 Emission
- 4.2 Reduction of noise
- 4.3 Reduction of global warming

#### **5. Economic impact/Cost effectiveness**

- 5.1 Fuel cost saving
- 5.2 Profitability

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5.3 GDP growth

5.4 Increased employment

5.5 Increased sub regional air transport growth

## **6. Human Resources**

6.1 Reduction of Workload / stress

6.2 Increased capacity building/staff management

6.3 Increased capacity by training/development

## **7. Others**

7.1 Better inter-coordination between States

7.2 “Single sky” /Integration

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