



## INTERNATIONAL CIVIL AVIATION ORGANIZATION

**AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP  
FOURTEENTH MEETING (APIRG/14)**  
(Yaounde, Cameroon, 23-27 June 2003)

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**Agenda Item 4 : Air Navigation Issues****4.7: ANP/FASID**

(Presented by the Secretariat)

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**Summary**

This paper presents amendments to the AFI Basic ANP and FASID documents as completed and approved by the APIRG.

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**1. Introduction**

1.1 It may be recalled that the AFI Basic ANP and FASID documents have been completed and approved by the APIRG/13 Meeting. States are now familiar with these documents.

**2. Discussion**

2.1 There is a need to incorporate amendments to the AFI Basic ANP for approval by the APIRG. These amendments relate to CNS and MET fields as included in the AFI ANP and FASID documents.

2.2 In the CNS field, the proposed amendments are shown at **Appendices A1, A2 and A3** to this paper. Amendment proposals concern the following:

**AFI FASID Table CNS-1A (AFTN)**

- inclusion of the circuit Cairo/Tripoli
- inclusion of the circuit Bata/Brazzaville via Douala

**AFI FASID Table CNS-1D (ATS/DS)**

- establishment of Atlantico FIR (in Brazil) interfacing with Dakar Oceanic, Johannesburg and Luanda FIRs (WP/8 refers);
- inclusion of the circuit Lagos/Niamey (WP/6 refers)
- inclusion of the circuit Las Palmas/Nouakchott (WP/17 refers)

**AFI FASID Table CNS-3 (ARNS)**

- inclusion of GNSS planning elements (WP/8 refers).

2.3           Concerning the MET field, in view of the developments over the last few years, the regional procedures related to the World Area Forecast System (WAWS) are in need for update. The proposed amendments take into account Amendment 72 to Annex 3 and the fact that the responsibilities of all regional area forecast centres (RAFCs) have been transferred to the World Area Forecast Centre London, WP/7 refers.

2.4           The following conclusion was formulated :

**Conclusion 14/ -           Amendment to AFI ANP/FASID Documents**

**That amendments proposed in the CNS sand MET fields as contained in Appendix  
---- be reflected in AFI ANP/FASID Documents.**

**2.5       Action by the APIRG**

The meeting is invited to :

- S       review the amendments proposed
  - S       approve the amendments for inclusion in the AFI ANP/FASID Documents.
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**Amendment proposals to AFI FASID Table CNS-1A**

Terminal I/Tête de ligne I Termainal II/Tête de ligne II	Category/Catégorie	Remarks/Observations
1	2	3
<b>BRAZZAVILLE</b>	M	
BANGUI	T	
<b>BATA</b>	S	<b>VIA DOUALA</b>
DAKAR	M	
DOUALA	T	
KINSHASA	T	
JOHANNESBURG	M	
LIBREVILLE	T	
LUANDA	T	
MALABO	S	
NAIROBI	M	
N'DJAMENA	T	
NIAMEY	M	
SAO TOME & PRINCIPE	T	
<b>CAIRO</b>		
KHARTOUM	T	
NAIROBI	M	
<b>TRIPOLI</b>	T	
TUNIS	M	
(EUR)	-	
(MID)	-	
		ATHENS BEIRUT & JEDDAH

**Amendment proposals to AFI FASID Table CNS-1D**

ATS requirements for speech communications Besoins en communications vocales			Remarks Observations
Terminal I Terminal I	Terminal II Terminal II	Type Type	
1	2	3	4

<b>ANGOLA</b>	LUANDA ACC-FIC	ACCRA <b>BRASILIA ATLANTICO</b> BRAZZAVILLE GABORONE JOHANNESBURG KINSHASA LUSAKA WINDHOEK	A A A A A A A
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<b>MAURITANIA</b> <u>NOUADHIBOU</u> <u>APP</u>	<u>DAKAR</u> <u>LAS PALMAS</u> <u>NOUAKCHOTT</u>	<u>A</u> <u>A</u> <u>A</u>
<u>NOUAKCHOTT</u> <u>ACC/FIS</u>	<u>DAKAR</u> <u>LAS PALMAS</u> <u>NOUADHIBOU</u>	<u>A</u> <u>A</u> <u>A</u>

<b>NIGER</b>	NIAMEY ACC/FIC	ABIDJAN ACCRA ALGER DAKAR GAO KANO <b>LAGOS</b> N'DJAMENA OUAGADOUGOU TRIPOLI	A A A A A A <b>A</b> A A A
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<b>NIGERIA</b>				
KANO	ACCRA	A		
ACC/FIC	BRAZZAVILLE	A		
	DOUALA	A		
	LAGOS	A		
	LIBREVILLE	A		
	MAIDUGURI	A		
	N'DJAMENA	A		
	NIAMEY	A		
LAGOS	ACCRA	A		
ACC/FIC	COTONOU	A		
	DOUALA	A		
	KANO	A		
	LIBREVILLE	A		
	NIAMEY	A		
MAIDUGURI	KANO	A		
APP	N'DJAMENA	A		

ATS requirements for speech communications Besoins en communications vocales			Remarks Observations
Terminal I Terminal I	Terminal II Terminal II	Type Type	
1	2	3	
<b>SENEGAL</b>			
DAKAR	ABIDJAN	A	
ACC/FIC	ALGER	A	
	BAMAKO	A	
	BANJUL	A	
	BISSAU	A	
	CASABLANCA	A	
	FREETOWN	A	
	LAS PALMAS	A	
	NIAMEY	A	
	NOUADHIBOU	A	
	NOUAKCHOTT	A	
	<b>RECIFEATLANTICO</b>	A	
	ROBERTSFIELD	A	
	ROCHAMBEAU	A	
	SAL	A	

ATS requirements for speech communications Besoins en communications vocales			Remarks Observations
Terminal I Terminal I	Terminal II Terminal II	Type Type	
1	2	3	4
SOUTH AFRICA			
BLOEMFONTEIN	CAPETOWN DURBAN JOHANNESBURG MASERU PORT ELIZABETH WINDHOEK	A A A A A A	
CAPETOWN	BLOEMFONTEIN JOHANNESBURG PORT ELIZABETH WINDHOEK	A A A A	
DURBAN	BLOEMFONTEIN JOHANNESBURG MANZINI MAPUTO PORT ELIZABETH	A A A A A	
JOHANNESBURG	ANTANANARIVO BEIRA BLOEMFONTEIN <b>BRASILIA ATLANTICO</b> CAPETOWN DURBAN EZEIZA GABORONE HARARE LUANDA MANZINI MAPUTO MAURITIUS PERTH PORT ELIZABETH WINDHOEK	A A A A A A A A A A A A A A A A A A	
PORT ELIZABETH	BLOEMFONTEIN CAPETOWN DURBAN JOHANNESBURG	A A A A	

**TABLE CNS 3 - RADIONAVIGATION AIDS**  
**Phases I and II of the AFI GNSS Strategy**  
*EXPLANATION OF THE TABLE*

*Column*

1 Name of the country, city and aerodrome and, for en-route and terminal area aids, the location of the facility.

2 Type of runway:

NINST	-	non-instrument
NPA-		non-precision approach runway
PA1 -		precision approach runway, Category I
PA2 -		precision approach runway, Category II

3 The function served by the aids shown in columns 4 to 8:

A/L	-	approach and landing
E	-	en-route
T	-	terminal

4 ILS - Instrument landing system. The designation number of the runway to be served by an ILS is indicated together with a Roman numeral I or II to indicate a facility performance Category I or II ILS, respectively.

*Note:- The symbol  $\dagger$  indicates that the ILS requires a Category II signal quality but without the reliability and availability provided by redundant equipment and automatic changeover.*

5 Locator, either associated with an ILS or for use as an approach aid to an aerodrome.

6 Distance measuring equipment. Aligned with the ILS shown in column 4 when the DME is required to serve as a substitute for a marker beacon component of ILS. When aligned with the VOR in column 7, indicates a requirement for the DME to be collocated with the VOR.

7 Recommended VOR.

8 NDB.

*Note I:- New requirements for NDB are discouraged. En-route navigation requirements are to be met by VOR/DME facilities.*

*Note II:- A plus sign (+) indicates that the NDB should be withdrawn when the recommended VOR or VOR/DME is implemented.*

*Note III:- The LF/MF NDB annotated with the symbol A#@are, with few exceptions, existing national facilities which are not protected from interference to the extent required by the international planning provisions of Annex 10.*

- 9 The distance and altitude to which signal protection of the VOR or VOR/DME is required, indicated in nautical miles (NM) and in hundreds of feet, or recommended rated coverage of NDB expressed in nautical miles.

*Note: - Rated coverage is defined as the area surrounding an NDB within which the strength of the vertical field of the ground wave exceeds the minimum value specified for geographical area in which the radio beacon is located.*

10 & 11 GNSS - global navigation satellite system (including GBAS and SBAS). (**To be developed**)

GBAS (ground-based augmentation system) implementation planned to be used in precision approach and landing CAT-I , CAT-II, CAT-III.

*Note: CAT-I by GBAS or SBAS will be available at those location where analysis of historical MET data or traffic characteristics justifies the requirement.*

SBAS (satellite-based augmentation system) planned to be used for route navigation, for terminal, for non precision approach and landing. An AX@ indicates service availability; exact location of installation will be determined.

12 Remarks

**TABLEAU CNS 3 - AIDES DE RADIONAVIGATION***EXPLICATION DU TABLEAU**Colonne*

- 1 Nom du pays, de la ville et de l'aérodrome et, dans le cas des aides de route et de région terminale, emplacement de l'installation.
- 2 Type de piste:

NINST - piste à vue  
 NPA- piste avec approche de non-précision  
 PA1 - piste avec approche de précision, catégorie I  
 PA2 - piste avec approche de précision, catégorie II

- 3 Fonction des aides indiquées dans les colonnes 4 à 8:

A/L - aide d'approche et d'atterrissage  
 E - aide de route  
 T - aide terminale

- 4 ILS - Système d'atterrissage aux instruments. Le numéro d'identification de la piste qui doit être desservie par un ILS est indiqué et accompagné du chiffre romain I ou II pour indiquer une installation ILS de catégorie de performance I ou II, respectivement.

*Note: - Le symbole A\*@ indique que l'ILS doit émettre des signaux d'assez bonne qualité pour la catégorie II, sans la fiabilité et la disponibilité procurées par un équipement redondant et le passage automatique sur équipement de secours.*

- 5 Radiobalise associée à un ILS ou utilisée comme aide d'approche sur un aérodrome.
- 6 Équipement de mesure de distance. En regard de l'ILS de la colonne 4: le DME doit être utilisé à place d'une radioborne faisant partie de l'ILS. En regard du VOR de la colonne 7: le DME doit être coimplanté avec le VOR.
- 7 VOR recommandé.
- 8 NDB recommandé.

*Note I:- Le signe plus (+) indique que le NDB devra être mis hors de service lorsque l'installation VOR ou VOR/DME aura été mis en oeuvre.*

*Note II:- Presque tous les NDB LF/MF identifiés par le symbol A#@ sont des aides nationales existantes non protégées contre le brouillage autant que l'exigent les dispositions de l'Annexe 10 relatives à la planification internationale.*

- 9 La distance et l'altitude jusqu'auxquelles les signaux du VOR ou du VOR/DME doivent être protégés sont respectivement indiquées en milles marins (NM) et en centaines de pieds, et la couverture nominale recommandée pour le radiophare non directionnel NDB est donnée en miles marins.

*Note: - Par définition, la couverture nominale est la zone entourant le NDB dans laquelle le champ vertical de l'onde de sol dépasse la valeur minimale spécifiée pour la région où se trouve ce radiophare.*

- 10 & 11 GNSS C Système mondial de navigation par satellite (comprend le GBAS et le SBAS).

Implantation du GBAS (système de renforcement par stations au sol) destiné à être utilisé pour les approches de précision et les atterrissages CAT I, CAT II, CAT III.

*Note: Le GBAS ou SBAS de CAT-I sera disponible aux emplacements où l'analyse des données MET historiques ou bien les caractéristiques de trafic en justifient le besoin.*

Implantation du SBAS (système de renforcement par satellite) destiné à la navigation en route, pour la navigation en région terminale et pour les approches et atterrissages conventionnels. Un \*X+ indique que le service est assuré; l'emplacement exact de l'installation sera déterminé ultérieurement.

## 12 Observations

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Station	RWY Type	Function Fonction	ILS						Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
				L	DME	VOR	NDB			SBAS				
										GBAS	NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
<b>ALGERIA</b>														
ADRAR/Taouat	04 NPA 22 NINST	A/L		X	X	X	X	200/250		XX	XX			
ALGER/Houari Boumediene	05 NPA 23 PA2	E A/L A/L	23-II	X X	X X	X X	X X	200/500		XX	XX			
	09 PA1 27 NPA	A/L A/L	09-II*	X						XX	XX			
ANNABA/EL Mellah	01 NPA 19 PA1	E A/L A/L	19-II	X X	X X	X X	X X	200/250		XX	XX			
	05 NPA 23 NINST	A/L A/L								XX	XX			
BEJAIA/Bejaia	08 NPA 26 NPA	E A/L A/L					X			XX	XX			
BENI ABBES		E					X	200/500						
BENI AMRANE		E					X	200/170						
BORDJ MOKHTAR		E				X		100						
BORDJ OMAR DRISS		E			X	X	X	200/500						
BOU-SAADA		E			X	X		200/500						
CHERCHELL		E			X	X	X	100						
CONSTANTINE/Mouhamed Boudiaf	14 NPA 32 PA1	E A/L A/L	32-II*	X X	X X	X X	X X	200/500		XX	XX			

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
DELLYS	16 NPA 34 PA1	A/L A/L	34-II*		X X	X X		X	50		X X	X X	
DJANET		E E				X	X	X+##	200/500 100				
EL BAYADH		E				X	X	X	150/100 100				
EL GOLEA		E E			X	X		X+	200/500 100				
EL OUED		E			X	X	X		200/400				
GHARDAIA/Noumérata	12 NPA 30 PA1	E A/L A/L	30-I		X X X	X X X	X X X		200/500		X X	X X	
HASSI-MESSAOUD/Oued Irara	01 PA1 19 NPA	E E A/L A/L	01-I		X X	X X		X+##	200/500 50		X X	X X	
ILLIZI		E				X			200/500				
IN GUEZZAM		E				X		X	200/170 100				
IN SALAH/In Salah		E E A/L A/L			X X	X X	X X	X	200/400 100		X X	X X	
JIJEL/Ferhat Abbas		E			X	X		X	200/500 50				
MECHERIA		E						X	50				

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS		
									GBAS	SBAS				
										NPA	APV 1	RIMS		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
MOSTAGANEM		E			X	X		200/500						
ORAN/Es Sénia	07 NPA 25 PA2	E A/L A/L	25-II	X	X X	X X	X	200/400 <b>200/400</b>		X X	X X			
REGGAN		E					X	80						
TAMANRASSET/Aguennar	02 NPA 20 NPA	E A/L A/L	03-II*	X X	X X	X X	X	200/500 <b>200/500</b>		X X	X X			
	08 PA1 26 NPA	A/L A/L	08-II*	X X						X X	X X			
TEBESSA/Tébessa	11 NPA 29 NPA	E A/L A/L		X	X	X		200/500		X X	X X			
TIARET/Bou Chékif	09-NPA	E A/L E		X	X	X	X	200/500						
TIMIMOUN		E			X	X	X	200/400						
TINDOUF		E			X	X	X	200/400 125						
TLEMCEN/Zénata	07 NPA 25 NPA	A/L		X	X	X	X	20/500						
							X	180						
TOUGGOURT/Sidi Mahdi		E			X	X	X	200/500 50						
ZARZAITINE/In-Amenas	05 NPA 23 NPA	E A/L A/L		X	X	X	X	200/400 <b>200/400</b>		X X	X X			
				X			X	135						

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ZEMMOURI		E			X	X	X	200/500 135					
<b>ANGOLA</b>													
CUITO CUANAVALE		E			X	X		200/500					
HUAMBO/Albano Machado	11 NPA 29 NPA	A/L			X	X		200/500		X X	X X		
KUITO		E			X	X		200/500					
LUANDA/4 de Fevereiro	05 NPA 23 PA1	E A/L A/L	23-II*	X X X	X X X	X X X		200/500		X X	X X		
LUENA		E			X	X		200/500					
SAURIMO		E			X	X	X+#	200/500 50					
<b>BENIN</b>													
COTONOU/Cadjehoun		E			X	X		200/500					
	06 NPA 24 PA1	A/L A/L	24-II*	X X	X X	X X				X X	X X		
<b>BOTSWANA</b>													
FRANCISTOWN	11 NINST 29 NINST	E A/L		X	X	X		200/500		X X	X X		
GABORONE/Sir Seretse Khama Intl	08 PA1 26 NPA	E A/L	08-I		X	X		200/500		X X	X X		
KASANE/Kasane	08 NPA 26 NINST	A/L			X	X		200/500		X X	X X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
MAUN/Maun	08 NINST 26 NINST	E A/L			X	X X		200/500		X X	X X		
KANG		E				X		200/500					
SELEBI-PHIKWE/Selebi Phikwe	12 NINST 30 NINST	A/L					X			X X	X X		
<b>BURKINA FASO</b>													
BOBO-DIOULASSO/Bobo-Dioulasso	06 PA1 24 NPA	E A/L A/L	06-I	X X	X X	X X		200/500		X X	X X		
OUAGADOUGOU/Ouagadougou	04L PA1 22R NPA	E A/L A/L	04L-II*	X X	X X	X X	X	200/500		X X	X X		
<b>BURUNDI</b>													
BUJUMBURA/Bujumbura	18 PA1 36 NPA	E A/L A/L	18-II*	X	X X	X X	X	200/500		X X	X X		
<b>CAMEROON</b>													
DOUALA/Douala	12 NPA 30 PA2	E A/L A/L	30-II	X X	X X	X X	X	200/500		X X	X X		
FOUMBAN		E				X		200/500					
GAROUA/Garoua	09 PA1 27 NPA	E A/L A/L	09-II*	X	X X	X X	X	200/500		X X	X X		
MAMFE		E				X		200/500					
MAROUA/Salak	13 NPA 31 NINST	E A/L				X X	X	200/500		X X	X X		



Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ANJOUAN/Ouani	10 NPA 28 NPA	A/L		X						X	X		
DZAoudzi/Pamanzi, Mayotte I.	16 NINST 34 NPA	A/L		X	X	X			40/250	X	X		
MORONI/Hahaia Prince Said Ibrahim	02 PA1 20 NPA	E A/L A/L	02-II*	X	X	X	X		200/500	X	X		
<b>CONGO</b>													
BRAZZAVILLE/Maya-Maya	06 PA1 24 NPA	E A/L A/L	06 -II*	X	X	X	X	200/500		X	X	X	
MAKOUA		E				X		200/500					
POINTE-NOIRE/Agostino Neto	17 NPA 35 NPA	E A/L A/L		X	X	X	X	200/500 200/500	X	X	X		
								150					
<b>COTE D'IVOIRE</b>													
ABIDJAN/Félix Houphouet Boigny	03 NPA 21 PA2	E A/L A/L	21-II	X	X	X	X	200/500		X	X		
BOUAKÉ/Bouaké	03 NPA 21 PA1	E A/L A/L	21-I	X	X	X	X	200/500		X	X		
<b>DEMOCRATIC REPUBLIC OF CONGO</b>													
BUNIA		E				X	X	200/500					
GOMA/Goma	18 NINST	E			X	X		200/500		X	X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
KALEMIE	36 NPA	A/L			X	X				X	X		
KANANGA		E				X		200/500					
KINDU		E				X		200/500					
KINSHASA/N-Djili	06 NPA 24 PA1	E A/L A/L	24-II*	X	X	X		200/500		X	X	X	
KISANGANI/Bangoka	13 NPA 31 NPA	E A/L A/L		X	X	X		200/500		X	X	X	
LUBUMBASHI/Luano	07 PA1 25 NPA	E A/L A/L	07 -II*	X	X	X		200/500		X	X	X	
MBUJI MAYI/Mbuji Mayi	17 NPA 35 NINST	A/L A/L		X			X			X	X	X	
DJIBOUTI													
DJIBOUTI/Ambouli	09 NPA 27 PA1	E A/L A/L	27-II*	X	X	X		200/500		X	X	X	X
EGYPT													
ABU SIMBEL/Abu Simbel	15L NPA 33R NPA	E A/L A/L			X	X		200/500		X	X	X	
	15R NPA 33L NPA	A/L A/L			X	X				X	X	X	
ALEXANDRIA/Alexandria	04 NPA PA-I 22 NPA	E A/L A/L A/L	04-II*	X	X	X		200/500		X	X	X	X
				X	X	X				X	X	X	ECAC RIMS

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ASWAN/Aswan	18 NPA 36 NPA	A/L A/L A/L	E A/L A/L	35-II*	X X X	X X X		200/500		X X	X X	X	AFI RIMS
ASYUT	17 NPA 35 PA1	E			X	X		200/500					
BALTIM		E			X	X		200/500					
CAIRO/Cairo Intl	05L PA2	A/L	05L-II		X	X		200/500					
	23R PA2	E T A/L	23R-II		X	X X X		200/500					
	05R PA2	E T A/L	05R-II		X	X X X		200/500					
	23L PA2	E T A/L	23L-II		X	X X X		200/500					
	16 NPA 34 NPA	A/L			X	X		200/500		X X	X X	X	
		E T			X	X X X		200/500					
EL ARISH	NPA	E A/L			X	X		200/500		X	X		
FAYOUM		E			X	X		200/500					
HURGHADA/Hurghada	16 NPA	E A/L			X	X X	X	200/500		X	X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
LUXOR/Luxor	34 PA1	A/L	34-II*		X	X					X	X	
	02 NPA	E			X	X	X				X	X	
	20 PA1	A/L	20-I	X	X	X	X				X	X	
MERSA MATRUH/Mersa Matruh	15 NPA	A/L									X	X	
	33 NPA	A/L									X	X	
NUWEIBAA		E						X	200				
SAINTE CATHERINE/Sainte Catherine Intl	17 NPA	E						X	200		X	X	
SHARM EL SHEIK/Sharm El Sheik	35 NINST	A/L						X					
	04L PA1	E			X	X	X	X+			X	X	
	22R NINST	A/L	04L-II*		X	X	X	X+	200/500		X	X	
TABA/Taba		E						X	200/500		X	X	
	04 NINST	A/L						X			X	X	
EQUATORIAL GUINEA													
BATA		E						X	200				
MALABO/Malabo		E						X					
	05 PA1	E			X	X	X	X+			X	X	
	23 NPA	A/L	05-I	X	X	X	X	X+	200/500 150		X	X	
ERITREA													
ASMARA/Asmara Intl	07 PA1	E			X	X	X	X	200/500		X	X	
ASSAB/Assab	25 NPA	A/L	07-II*	X	X	X	X	X			X	X	
	12 NPA	A/L						X		150	X	X	
30 NINST	A/L										X	X	

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>ETHIOPIA</b>													
ADDIS ABABA/Bole Intl	07 NPA 25 PA1	E A/L A/L	25-II*	X	X	X	X	200/500		X	X		
0519.3N 3745.1E Makele					X	X		200/500					
DIRE DAWA/Dire Dawa Intl	15 NINST 33 NPA	E E A/L A/L	X	X	X	X	X#	200/500 150		X	X		
GAMBELA								X	200/500				
LALIBELA		E						X	200/500				
<b>FRANCE</b>													
SAINT-DENIS/Gillot (La Réunion)	14 PA1 32 NINST	E A/L A/L	14-II*	X	X	X	X	200/500		X	X		
	12 NINST 30 NPA	A/L A/L		X	X	X				X	X		
<b>GABON</b>													
FRANCEVILLE/M-Vengue	15 PA1 33 NPA	E A/L A/L	15-II*	X	X	X	X	200/500		X	X		
				X	X	X	X						
LIBREVILLE/Léon M-Ba	16 PA1 34 NPA	E A/L A/L	16-II*	X	X	X	X	200/500		X	X		
				X	X	X	X						
PORT GENTIL/Port Gentil	03 NPA 21 PA1	E A/L A/L	21-I	X	X	X	X	200/500		X	X		
				X	X	X	X						

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>GAMBIA</b>													
BANJUL/Banjul Intl	14 NPA 32 PA1	E A/L A/L	32-I	X X	X X	X X	X X	200/500		X X	X X		
<b>GHANA</b>													
ACCRA/Kotoka Intl	03 NPA 21 PA1	E A/L A/L	21-II*	X X	X X	X X	X X	200/500		X X	X X		
KUMASI/Kumasi	02 NPA 20 NPA	E A/L A/L		X	X	X	X	200/500 25/100 100		X X	X X		
PAMPA/Pampa		E			X	X	X	X	200/500				
TAMALE/Tamale	05 NPA 23 NPA	E A/L A/L		X	X	X	X	200/500		X X	X X		
<b>GUINEA</b>													
BOKE/Baralande	NINST												
CONAKRY/Gbessia	06 PA1 24 NPA	E A/L A/L	06-II*	X X	X X	X X	X X	200/500		X X	X X		
FARANAH/ Badala	NPA	A/L		X		X		200/500					
KANKAN/Diankana	10 NPA 28 NINST	E A/L A/L		X		X		X	150	X X	X X		
LABE/Tata	06 NINST 24 NINST	A/L A/L		X		X				X X	X X		
N-ZEREKORE/Konia	18 NPA 36 NINST	A/L A/L		X		X				X X	X X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>GUINEA-BISSAU</b>													
BISSAU/Osvaldo Vieira Intl		03 NPA 21 PA1	E A/L A/L	21-I	X X	X X	X X	X X	200/500		X X	X X	
<b>KENYA</b>													
ELDORET/Eldoret Intl		08 PA2 26 NPA	A/L A/L	08-II	X X	X X	X X	X X	200/500		X X	X X	
GARISSA			E			X	X		200/500				
LODWAR			E E			X	X	X X	200/500 350				
MANDERA			E			X	X		200/500				
MOMBASA/Moi Intl		03 NPA 21 PA1	E A/L A/L	21-I	X X	X X	X X	X X	200/500		X X	X X	
NAIROBI/Jomo Kenyatta Intl		06 PA-2 24 NPA	E A/L A/L	06-II	X X	X X	X X	X X	200/500		X X	X X	X
NAKURU			E			X	X		40/250				
<b>LESOTHO</b>													
MASERU/Moshoeshoe I Intl		04 NINST 22 PA1	E A/L A/L	22-I	X	X	X	X X	200/500		X X	X X	
<b>LIBERIA</b>													
MONROVIA/Roberts Intl		04 PA2	E A/L	04-II	X	X	X	X X	200/500		X	X	

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
LIBYAN ARAB JAMAHIRIA	22 NPA	A/L		X	X	X				X	X		
BENGHAZI/Benina	15 L PA1 33R NPA	E A/L X	15L-II*	X	X	X	X	200/500		X	X		
	15R NPA 33L PA1	A/L A/L	33L-II*							X	X		
BENI WALID		E				X		150/500					
GHADAMES		E				X	X	X+	200/500 160				
KUFRA		E				X	X		200/500				
SARIR		E			X	X			200/500				
SEBHA/Sebha	13 PA1 31 NPA	E A/L A/L	13-I		X	X	X	200/500		X	X		
TRIPOLI/Tripoli Intl	09 PA1 27 PA2	E A/L A/L	09-I 27-II	X	X	X		50/250		X	X		
ZAWIA		E				X		200/500					
MADAGASCAR													
ANKAZOBE		E					X	200/500					
ANTANANARIVO/Ivato	11 PA1 29 NPA	E A/L A/L	11-II*	X	X	X	X	200/500		X	X		
ANTSIRANANA/Arrachart	13 NPA 31 NINST	E A/L A/L		X	X	X	X	200/500		X	X		



Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
BAMAKO/Sénou	06 PA1 24 NPA	E A/L A/L	06-II*	X X X	X X X	X X X		200/500		XX	XX	X	
GAO/Gao	07 NPA 25 NINST	E A/L A/L		X		X X		200/500 200/500		XX	XX		
KAYES/Kayes	08 NPA 26 NINST	E E A/L A/L		X		X	X+	200/500 200		XX	XX		
KIDAL/Kidal	10 NPA 28 NINST	A/L A/L		X		X		200/500		XX	XX		
MOPTI-BARBE/Mopti-Barbe	05 NPA 23 NINST	A/L A/L		X		X		200/500		XX	XX		
NIORO/Nioro	08 NPA 26 NINST	A/L A/L		X		X	X+	200/500 50		XX	XX		
TESSALIT		E E				X	X+	200/500 200					
TOMBOUCTOU/Tombouctou	07 NPA PA4 25 NPA	E A/L A/L	07-4	X X X	X X X	X X X		200/500		XX	XX		
<b>MAURITANIA</b>													
ATAR/Atar	04 NPA 22 NINST	E E A/L A/L		X		X	X+	200/500 200		XX	XX		
NEMA/Néma	10 NINST 28 NPA	A/L A/L		X		X		200/500		XX	XX		
NOUADHIBOU/Nouadhibou		E			X	X		200/500		X	X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
NOUAKCHOTT/Nouakchott	03 PA1 21 NPA	A/L A/L	03-II*	X X	X X	X X	X X	X X	200		X	X	
	05 PA1 23 NPA	E A/L A/L	05-II*	X X	X X	X X	X X		200/500		X	X	
ZOUERATE/Zouérate	10 NPA 28 NPA	E A/L A/L		X		X	X		200/500		X	X	
<b>MAURITIUS</b>													
MAURITIUS/Sir Seewoosagur Ramgoolam Intl	14 PA1 32 NPA	E E A/L A/L	14-I	X X	X X	X X	X X	X X	200/500 450		X	X	
<b>MOROCCO</b>													
AGADIR/AI Massira	10 NPA 28 PA1	E A/L A/L	28 -II*	X X	X X	X X	X X	X X	200/500		X	X	
AL HOCEIMA/CHerif Al Idrissi	18 PA1 36 NPA	E A/L A/L	18-II*	X X	X X	X X	X X	X X	100/500		X	X	
CASABLANCA/Mohamed V	17 NPA 35 PA2	E A/L A/L	35-II	X X	X X	X X	X X	X X	150/500		X	X	
ERRACHIDA/Moulay Ali Cherif	13 NPA 31 PA1	E A/L A/L	31-II*	X X	X X	X X	X X	X X	200/500		X	X	
FES/Saïss	10 NPA 28 PA1	E A/L A/L	28-II*	X X	X X	X X	X X	X X	150/500		X	X	
MARRAKECH/Ménara		E			X	X			150/500				

Station	RWY Type	Function Fonction	ILS						Coverage Couverture	GNSS			REMARKS/OBSERVATIONS
										SBAS			
				GBAS	NPA	APV 1	RIMS						
1	2	3	4	5	6	7	8	9	10	11	12	13	14
OUARZAZATE/Ouarzazate	10 PA1 28 NPA	A/L A/L	10-II*	X	X	X				X	X		
	12 NPA 30 PA1	E A/L A/L	30-II*	X	X	X	X	200/500		X	X		
OUJDA/Angads	06 PA1 24 NINST	E A/L A/L	06-II*	X	X	X	X	150/500		X	X		
RABAT/Salé	04 PA1 22 NPA	E A/L A/L	04-II*	X	X	X	X	150/250		X	X		
TANGER/Ibnou Batouta	10 NPA 28 PA1	E A/L A/L	28-II*	X	X	X	X	150/500		X	X		
TAN-TAN/Plage Blanche	14 NPA 22 NINST	E A/L A/L		X		X	X	150/500		X	X		
TETOUAN/Saniat Rimel	06 NPA 24 NINST	E A/L A/L		X	X	X	X	100/500		X	X		
<b>MOZAMBIQUE</b>													
BEIRA/Beira	12 PA1 30 NPA	E A/L A/L	12-II*		X	X	X	200/500		X	X		
LIMPOPO		E							300				
LICHINGA		E		X	X			200/500					
MAPUTO/Maputo Intl	05 NPA 23 PA1	E A/L A/L	23-II*	X	X	X	X	200/500		X	X		
NAMPULA		E		X	X			200/500					

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
QUELIMANE		E				X		200/500					
TETE		E		X		X		200/500					
<b>NAMIBIA</b>													
KEETMANSHOOP/ Keetmanshoop	06 NPA 24 NPA	E A/L A/L			X	X	X	200/500		X X	X X		
WALVIS BAY/Walvis Bay	09 NPA 27 NPA	E A/L A/L			X	X	X	200/500		X X	X X		
WINDHOEK/Hosea Kutako	08 PA1 26 NPA	E A/L A/L	08-II*		X	X	X	200/500		X X	X X	X	
<b>NIGER</b>													
AGADES/Sud	07 NPA 25 NINST	E A/L A/L		X		X		200/500		X X	X X		
DIRKOU		E				X		200/500					
NIAMEY/Diori Hamani Intl	09R PA1 27L NPA	E A/L A/L	09R-II*	X	X	X	X	200/500		X X	X X		
ZINDER/Zinder	06 NPA 24 NINST	E A/L A/L				X	X	200/500		X X	X X		
<b>NIGERIA</b>													
ABUJA/Nnamdi Azikiwe	04 NPA 22 PA1	E A/L A/L	22-II*	X	X	X	X	200/500		X X	X X		
BIDA		E			X	X		200/500					
CALABAR/Calabar		E			X	X		200/500					



Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
KIGALI/Grégoire Kayibanda	10 NPA 28 PA1	E A/L A/L	28-II*	X X	X X	X X		200/500		X X	X X		
<b>SÃO TOMÉ AND PRÍNCIPE</b>													
SÃO TOMÉ/São Tomé	11 PA1 29 NPA	E A/L A/L	11-II*	X X	X X	X X	X X	200/500		X X	X X		
<b>SENEGAL</b>													
CAP SKIRING/Cap Skiring	15 NINST 33 NPA	A/L A/L		X				25/100		X X	X X		
DAKAR/Léopold Sédar Senghor Intl	18 NPA 36 PA2	E A/L A/L	36-II	X X	X X	X X	X X	200/500		X X	X X	X	
SAINT-LOUIS/Saint-Louis	18 NPA 36 NINST	A/L A/L		X X				25/100		X X	X X		
TAMBACOUNDA/Tambacounda	06 NPA 24 NPA	E A/L A/L		X X		X X	X X	200/500		X X	X X		
ZIGUINCHOR/Ziguinchor	10 NINST 28 NPA	E A/L A/L		X		X	X	200/500		X X	X X		
<b>SEYCHELLES</b>													
MAHE/Seychelles Intl	E				X	X		200/500 (N+E) 150		X X	X X	X	
	13 NPA 31 PA1	E A/L A/L	31-II*	X X	X X	X X	X X						

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
PRASLIN		E			X	X		200/500					
SIERRA LEONE													
FREETOWN/Lungi								200/500					
SOMALIA													
BERBERA/Berbera	12 NPA 30 PA1	E A/L A/L	30-II*	X	X X X	X X X				X X	X X		
BURAO/Burao	05 NINST 23 NINST	A/L A/L											
HARGEISA/Hargeisa	13 NINST 31 NINST	A/L A/L											
KISIMAYU/Kisimayu	06 NPA 24 NPA	E E A/L A/L			X X	X X	X+	200/500 150		X X	X X		
MOGADISHU/Mogadishu	05 NPA 23 PA1	E A/L A/L	23-II*	X X	X X	X X	X+#+	200/500 200		X X	X X		
SOUTH AFRICA													
ALEXANDER BAY/Alexander Bay	01 NPA 19 NPA	A/L NPA			X X	X X		40/250					
BLOEMFONTEIN/Bloemfontein	02 NPA PA4 20 NPA	E A/L A/L	02-I	X	X X	X X	X	200/500		X X	X X		
	12 NINST 30 NINST	A/L A/L								X X	X X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
CAPE TOWN/Cape Town			E A/L A/L	01-II* 19-III	X X X	X X X		200/500		X X	X X		
DURBAN/Durban			E A/L A/L	06-II* 24-II*	X X X	X X X		200/500		X X	X X		
GATEWAY						X X		200/500					
GREEFSWALD			E			X X		200/500					
HARTEBEESPOORTDAM			E				X X	200/500					
JOHANNESBURG/Johannesburg			E A/L A/L	03L-II 21R NPA	X X	X X	X X	200/500		X X	X X		X
			A/L A/L	03R PA2 21L PA2	X					X X	X X		
JOHANNESBURG/Rand		35-NPA	A/L		X								
LANSERIA/Lanseri		06L NPA 24R NINST	A/L		X		X	25/100		X X	X X		
MAFIKENG/Mafikeng		04 PA1 22 NINST	A/L A/L	04-I	X X	X X	X X			X X	X X		
NELSPRUIT/Nelspruit		04NINST 22 NINST	A/L A/L		X X	X X	X X			X X	X X		
PIETERSBURG/Gateway		01 NINST 19 NINST	E A/L A/L		X X	X X	X X	200/500		X X	X X		
PORT ELIZABETH/Port Elizabeth		08 PA1 26 PA1	A/L A/L	08-II*	X X	X X	X X			X X	X X		
		17 NINST 35 NINST	A/L A/L							X X	X X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
UPINGTON/Upington	17 NINST 35 NPA	E A/L A/L	04-4		X	X		200/500		X X	X X		
<b>SPAIN</b>													
GRAN CANARIA/Gran Canaria, Canary Is.	03L PA2 21R NPA	E A/L A/L	03L-I	X X	X X	X X	X	200/500		X X	X X	X	<u>ECAC RIMS</u>
	03R NINST 21L NINST	A/L A/L								X X	X X		
HIERRO/Hierro, Canary Is.	16 NPA 34 NINST	E A/L A/L		X				X	200/500	X X	X X		
LA PALMA I./La Palma, Canary Is.	01 NPA 19 NINST	E A/L A/L		X	X			X	200/500 40	X X	X X		
LANZAROTE/Lanzarote, Canary Is.	04 PA1 22 NPA	E A/L A/L	04-I	X X	X X	X X	X	X	200/500	X X	X X		
MELILLA/Melilla	15 NPA 33 NINST	A/L A/L			X	X			200/500	X X	X X		
FUERTEVENTURA/Fuerteventura, Canary Is.	01 PA1 19 NPA	E A/L A/L	01-I	X X	X X	X X	X	X	200/500 40	X X	X X		
TENERIFE NORTE/Los Rodeos, Canary Is.	12 NPA 30 NPA	E E A/L A/L	30-4	X X	X X	X X	X	X	200/500 200	X X	X X		
TENERIFE SUR/Reina Sofia, Canary Is.	08 PA1 26 NPA	E A/L A/L	08-I	X X	X X	X X	X	X	40/250	X X	X X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS		
									GBAS	SBAS				
										NPA	APV 1	RIMS		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
<b>SUDAN</b>														
EL FASHER		E E			X	X	X+	200/500 200						
EL OBEID		E				X		200/500						
GENEINA		E E				X		200/500 200						
JUBA/Juba		E E A/L A/L	13 PA1 31 NINST	13-II*	X	X	X+	200/500 200		X X	X X			
KARINA		E E			X	X	X+	200/500 200						
KASSALA/Kassala		E E A/L A/L	02 NINST 20 NINST		X	X	X+	200/500 100		X X	X X			
KHARTOUM/Khartoum		E A/L A/L	18 PA1 36 NPA	18-I	X X	X X	X X	200/500		X X	X X			
MALAKAL		E E			X	X	X	X+	200/500 200					
PORT SUDAN/Port Sudan Intl		E E A/L A/L	18 NPA 36 PA1	36-I	X X	X X	X X	X+	200/500 150	X X	X X			
<b>SWAZILAND</b>														
MANZINI/Matsapha		E A/L A/L	07 NPA 25 NINST		X	X	X		200/500	X X	X X			

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>TOGO</b> LOME/Tokoin													
	05 NPA 23 PA1	E A/L A/L	23-II*	X X	X X	X X	X X	200/500		X X	X X		
NIAMTOUGOU/Niamtougou	03 PA1 21 NPA	E A/L A/L	03-II*	X X	X X	X X	X X	200/500		X X	X X		
<b>TUNISIA</b>													
BEN AOUN		E				X		200/500					
CAP BON		E				X		200/500					
DJERBA/Zarzis		E A/L A/L	09-II	X X	X X	X X	X X	200 /500 150		X X	X X	X	<a href="#">ECAC RIMS</a>
EL-BORMA		E				X		200/500					
GAFSA/Ksar	05 NPA 23 NPA	E A/L A/L			X X	X X	X X	200/500		X X	X X		
MONASTIR/Habib Bourguiba	07 PA1 25 NPA	E A/L A/L	07-II	X X	X X	X X	X X	200/500		X X	X X		
SFAX/Thyna	15 NPA PA4 33 NPA	E A/L A/L	15-I			X X	X X	200/500		X X	X X		
TABARKA/ 7 Novembre	09 NINST 27 PA1	E A/L A/L	27-II		X X	X X	X X	200/500 200/500		X X	X X		
TOZEUR/Nefta	09 PA1 27 NPA	E A/L A/L	09-II	X X	X X	X X	X X	200/500		X X	X X		
TUNIS/Carthage		E			X	X	X	200 /500					

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>UGANDA</b>	01 NPA 19 PA1	A/L A/L	19-II	X X	X X	X X				X X	X X		
	11 NPA 29 PA1	A/L A/L	29-II	X	X	X	X	50		X X	X X		
<b>ENTEBBE/ Entebbe Intl</b>	17 PA1 35 NPA	E A/L A/L	17-II*	X X	X X	X X	X	200/500		X X	X X		
<b>UNITED REPUBLIC OF TANZANIA</b>													
DAR-ES-SALAAM/Dar-es-Salaam	05 PA1 23 NPA	E E A/L A/L	05-II*		X	X		X	200/500 350		X X	X X	
DODOMA		E E			X	X		X+	200/500 150				
KILIMANJARO/Kilimanjaro Intl	09 PA1 27 NPA	E A/L A/L	09-I	X X	X X	X X	X	200/500		X X	X X		
MBEYA		E E			X	X		X+	200/500 100				
MWANZA		E			X	X			200/500				
ZANZIBAR/Zanzibar	18 NINST 36 NPA	E A/L A/L			X	X		X+	200/500 100		X X	X X	
<b>WESTERN SAHARA</b>													
EL AAIUN/EI Aaiun	04NPA 22 PA1	E A/L A/L	03-I	X X	X X	X X		200/500		X X	X X		

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
SMARA/Smara	17 NINST 35 NINST	A/L A/L				X				X X	X X		
VILLA CISNEROS/Villa Cisneros	04 NINST 22 NPA	E A/L A/L		X X	X X	X X	X	200/500		X X	X X		
<b>ZAMBIA</b>													
KAOMA MONGU		E E					X	X+	350 200/500				
KAPIRI		E						X+	350				
WEST TWO SOLWEZI		E					X	200/500					
LIVINGSTONE/Livingstone Intl	11 NPA 29 NPA	E A/L A/L	11-1		X X	X X	X	200/500		X X	X X		
LUSAKA/Lusaka Intl	10 PA1 28 NPA	E A/L A/L	10-II*	X X	X X	X X	X	200/500 200/500 40		X X	X X		
MFUWE/Mfuwe	08 NPA 26 NPA	E A/L A/L			X X	X X	X	200/500		X X	X X		
NDOLA/Ndola	10L NPA 28R NPA	E A/L A/L	10L-1		X X	X X	X	200/500 200/500		X X	X X		
<b>ZIMBABWE</b>													
BULAWAYO/Bulawayo	13 NPA 31 NPA	E A/L A/L	13-II*	X	X X	X X	X	200/500 200/500		X X	X X		
FLYDE		E			X	X		200/500					

Station	RWY Type	Function Fonction	ILS	L	DME	VOR	NDB	Coverage Couverture	GNSS			REMARKS/OBSERVATIONS	
									GBAS	SBAS			
										NPA	APV 1	RIMS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
GOKWE		E				X		200/500					
HARARE/Harare	05 PA1 23 PA1	E A/L A/L	05-II* 23-II*	X	X X	X X		200/500 200/500		X X	X X		
HWANGE		E				X		200/500					
MASVINGO		E			X	X		200/500					
VICTORIA FALLS/Victoria Falls	12 PA1 30 NINST	E A/L A/L	12-II*	X			X	200/500		X X	X X		

(CNSTBL\_3.WPD)

8. **World area forecast system (WAWS)**  
(FASID Tables MET 5, MET 6 and MET 7)

8.1 FASID Table MET 5 sets out the [AFI, ASIA/PAC, CAR/SAM, EUR, MID, NAT] Regions requirements for WAWS products: upper wind and temperature and significant weather (SIGWX) charts, and the gridded binary (GRIB) data, and abbreviated plain language SIGWX forecasts to be provided by WAFC [London, Washington].

[APIRG/12, Con. 12/32]

8.2 All the WAWS products should be prepared by WAFC Washington for fixed valid times of 00, 06, 12 and 18 UTC.  
[CAR/SAM/3, Rec. 8/5]

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*Editorial Note.*— Paragraph is redundant as it repeats Annex 3, 3.2.3.

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8.32 The levels for which forecasts of upper-air wind and temperature and SIGWX in charts form are to be provided by the WAFC [London, Washington] and the areas to be covered by these charts and the GRIB data are indicated in FASID Table MET 5.

*Note.— WAFCs will continue to issue forecasts of upper-air wind and temperature and of SIGWX in chart form until 1 July 2005.*

[APIRG/12, Con. 12/32]

8.43 FASID Table MET 6 sets out the WAFC responsibility responsibilities of WAFCs London and Washington for the production of SIGWX WAWS forecasts and upper wind and temperature charts for the areas of coverage indicated, and GRIB data. Each WAFC is responsible for the routine production, and dissemination by satellite broadcast, of charts for the areas of coverage listed. For back-up purposes, each WAFC should have the capability to produce SIGWX WAWS forecasts for all the required areas of coverage.  
[APIRG/12, Con. 12/32]

*Note:- The responsibilities of RAFCs Brasilia, Buenos Aires, Dakar, Las Palmas, Melbourne, Nairobi, New Delhi, Tokyo and Wellington will be progressively transferred to the WAFC London and WAFC Washington in accordance with AFI/7 Recommendation 7/10, ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG) Recommendation 7/19 and CAR/SAM Regional Planning and Implementation Group (GREPECAS) Conclusion 8/24.*

8.56 The projection of the WAWS forecasts in charts form and their areas of coverage should be as indicated in FASID Charts MET 4, MET 5 and MET 6 associated with FASID Table MET 6; their scale should be 1:20 X 10<sup>6</sup>, true at 22.5° in the case of charts in the Mercator projection, and true at 60° latitude in the case of charts in the polar stereo-graphic projection.

[APIRG/12, Con. 12/32]

*Note.— WAFCs will continue to issue forecasts of upper-air wind and temperature and of SIGWX in chart form until 1 July 2005.*

8.65 WAFS products should be disseminated by WAFC [London, Washington] using the [satellite distribution system for information relating to air navigation (SADIS), international satellite communications system (ISCS1, ISCS2)] covering the reception area shown in FASID Chart COM 7 CNS [4]. To fulfil the requirements of long distance flights, transmission of WAFS products should be completed not later than [11] hours before validity time.

[APIRG/12, Con. 12/32]

8.76 The amendment service to the ~~WAFS products~~ **SIGWX forecasts** issued by WAFCs London and Washington should be by means of ~~abbreviated plain language messages~~ **amended BUFR files** disseminated through [SADIS, ISCS1, ISCS2].

[APIRG/12, Con. 12/32]

8.87 Each State should make the necessary arrangements to receive and make full operational use of WAFS products ~~issued disseminated~~ by WAFC [London, Washington]. FASID Table MET 7 ~~provides the status of lists the authorized access by users of the~~ [SADIS, ISCS1, ISCS2] ~~users to the~~ satellite broadcast and location of the operational VSATs.

[APIRG/12, Con. 12/32]



**World area forecast system (WAFS)**

(FASID Tables MET 5, MET 6 and MET 7  
FASID Charts MET 4, MET 5 and MET 6)

8. FASID Table MET 5 sets out the [AFI, ASIA/PAC, CAR/SAM, EUR, MID, NAT] Regions requirements for WAFS products: ~~upper wind and temperature and significant weather (SIGWX) charts, and the gridded binary (GRIB) data, and abbreviated plain language SIGWX forecasts~~, to be provided by WAFC [London, Washington].

9. FASID Table MET 6 sets out the ~~WAFC responsibility responsibilities of WAFCs London and Washington for the production of SIGWX WAFS forecasts and upper wind and temperature charts for the areas of coverage indicated, and the GRIB data.~~ ~~WAFC~~ The maximum areas of coverage of WAFS forecasts in chart form are shown on FASID Charts MET 4, MET 5 and MET 6.

*Note.— WAFCs will continue to issue forecasts of upper-air wind and temperature and of SIGWX in chart form until 1 July 2005.*

10. FASID Table MET 7 provides the status of lists the authorized access by users of the [SADIS, ISCS1, ISCS2] users to the satellite broadcast and location of the operational VSATs. The table is included in the FASID for information purposes and kept up-to-date by the Regional Offices concerned.

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**FASID TABLE MET 5 — REQUIREMENTS FOR WAFS PRODUCTS***EXPLANATION OF THE TABLE**Column*

1. WAFS products required by the [AFI, ASIA/PAC, CAR/SAM, EUR, MID, NAT] States, to be provided by WAFC [London, Washington].
2. Area of coverage required for the ~~upper wind and temperature and SIGWX charts and other WAFS data forecasts~~, to be provided by WAFC [London, Washington].

PRODUCT FORECAST REQUIRED	AREAS REQUIRED
1	2
W/T CHART > FL 390	[A, B1, E, F, G, H, I]
“ “ “ ” FL 390	[A, B1, E, F, G, H, I]
“ “ “ ” FL 340	[A, B1, E, F, G, H, I]
“ “ “ ” FL 300	[A, B1, E, F, G, H, I]
“ “ “ ” FL 240	[A, B1, E, F, G, H, I]
“ “ “ ” FL 180	[A, B1, E, F, G, H, I]
“ “ “ ” FL 100	[A, B1, E, F, G, H, I]
“ “ “ ” FL 50	[A, B1, E, F, G, H, I ]
SWM/SWH CHART (FL 100 - 450 <del>250 - 630</del> )	[A, B1, E, F, G, H, I, J]
SWM CHART (FL 100 - ....)	[NIL or ... ]
SIGWX forecasts in the BUFR code form	GLOBAL
Upper-air wind and temperature forecasts in the GRIB-data code form	GLOBAL
SIGWX forecasts in abbreviated plain language	YES

*Note 1.— SWM charts are provided for limited geographical areas as determined by regional air navigation agreement. [They are not currently provided by WAFC [London, Washington]]*

*Note 2.— WAFCs will continue to issue forecasts of upper-air wind and temperature and of SIGWX in chart form until 1 July 2005.*



**FASID TABLE MET 6 —  
RESPONSIBILITIES OF THE WORLD AREA FORECAST CENTRES**

*EXPLANATION OF THE TABLE*

*Column*

- 1 Name of the world area forecast centre (WAFC).
- 2 Area of responsibility for the preparation coverage of significant weather (SIGWX) forecasts ~~in the BUFR code form prepared or relayed by the WAFC in Column 1.~~
- 3 Area of coverage of the SIGWX forecasts in charts ~~form~~ prepared or relayed by the WAFC in Column 1.
- 54 Area of coverage of upper-air wind and temperature forecasts in the GRIB-data code form ~~prepared issued~~ by the WAFC in Column 1.
- 45 Area of coverage of the upper-air wind and temperature forecasts in charts ~~form~~ prepared by the WAFC in Column 1.

WAFC	Areas of coverage of			
	SIGWX forecasts		Upper-air wind and temperature forecasts	
	Area of responsibility In the BUFR code form	Areas of coverage of SIGWX In chart form <sup>2</sup>	In the GRIB data code form	Areas of coverage of In charts form <sup>2</sup>
1	2	3	54	45
London	global <sup>1</sup>	[B, E, G, H, K, EUR and MID (FL 100 - 450), C and D]	global <sup>1</sup>	[B, C, D, E, G, H and K]
Washington	global <sup>1</sup>	[A, B1, H, J, E, G, I and F]	global <sup>1</sup>	[A, B1, E, F, G, H, I and J]

Notes corresponding to superscripts in FASID Table MET 6 above

- 1) For back-up purposes
- 2) WAFCs continue to issue forecasts of upper-air wind and temperature and of SIGWX in chart form until 1 July 2005.

- 2) Currently produced by RAFC Tokyo/Actualmente producido por el RAFC de Tokio
- 3) Parts of area D currently produced by RAFCs Dakar, Nairobi and New Delhi and relayed to WAFC London for uplink on SADIS/Partes del área D son actualmente producidas por los RAFC de Dakar, Nairobi y Nueva Delhi y retransmitidos al WAFC de Londres para enlace ascendente por el SADIS
- 4) Currently produced by RAFC Melbourne and relayed to WAFC Washington for uplink on the international satellite communications system (ISCS)/Actualmente producidos por el RAFC de Melbourne y retransmitidos al WAFC de Washington para enlace ascendente por el sistema internacional de comunicaciones por satélite (ISCS)
- 5) Currently produced by RAFC Brasilia (area limited by 12° N - 130° W, 12° N - 25° W, 35° S - 25° W, 35° S - 130° W) and RAFC Buenos Aires (stereographic polar plane limited by 7.85° S - 95.98° W, 11.48° S - 41.57° W, 59.91° S - 0.22° E, 39.25° S - 136.56° W)/Actualmente producidos por el RAFC de Brasilia (área limitada por los 12° N - 130° W, 12° N - 25° W, 35° S - 25° W, 35° S - 130° W) y por el RAFC de Buenos Aires (plano esterográfico polar limitado por 7.85° S - 95.98° W, 11.48° S - 41.57° W, 59.91° S - 0.22° E, 39.25° S - 136.56° W)

**WAFS MAXIMUM AREAS OF COVERAGE – MERCATOR PROJECTION**

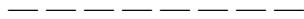
FASID Chart MET 4

**WAFS MAXIMUM AREAS OF COVERAGE – POLAR STEREOGRAPHIC PROJECTION**

FASID Chart MET 5

**MAXIMUM AREAS OF COVERAGE – POLAR STEREOGRAPHIC PROJECTION**

FASID Chart MET 6



**FASID TABLE MET 7—  
STATUS OF AUTHORIZED ACCESS BY AUTHORIZED USERS OF THE [SADIS, ISCS1, ISCS2]  
USERS TO THE SATELLITE BROADCAST AND LOCATION OF THE OPERATIONAL VSATs**

*EXPLANATION OF THE TABLE*

*Column*

- 1 Name of the State or territory.
- 2 User of the satellite broadcast. Abbreviations used:

CAA — civil aviation authority  
NMS — national meteorological service  
O — other than the civil aviation authority or the national meteorological service.

- 3 Location of VSAT: town and, where applicable, aerodrome to be indicated.
- 4 Indication whether the access to the satellite broadcast has been approved:

— X — yes  
— [blank] — no.

- 54 Indication whether the equipment is operational:

2w — two-way VSAT operational  
1w — one-way VSAT operational  
[blank] — no.

*Editorial Note.—* Column 4 considered redundant and proposed therefore for deletion.

[satellite distribution system for information relating to air navigation (SADIS) , International Satellite Communication System (ISCS1, ISCS2)] provided by the [United Kingdom, United States]

State/Territory	User of satellite broadcast	Location of VSAT	Access approved	Equipment operational
1	2	3	4	5
			*	

— — — — — — —