



International Civil Aviation Organization
Western and Central African Office

**Fourteenth Meeting of the Air Traffic Management/Aeronautical Information
Management/Search and Rescue Sub-Group (ATM/AIM/SAR SG/14)
(Dakar, Senegal, 11-14 May 2015)**

Agenda Item 3: Status of Implementation
3.1 Air Traffic Management

**STATUS OF IMPLEMENTATION OF PBN PARTICULARLY WITH RESPECT TO
DEVELOPMENT OF PBN AND TERMINAL ROUTES FLIGHT PROCEDURES.**

(Presented by the Secretariat)

SUMMARY

This paper presents information on the implementation of the PBN in AFI Region particularly with respect to development of PBN and terminal routes flight procedures.

The development of the National PBN Implementation Plan is presented as a major step for the PBN implementation process.

Current status of PBN implementation and proposed rate of PBN flight procedures implementation in Terminal Airspaces are proposed, including assistance from the African Flight Procedure Programme.

Action by the Steering Committee is indicated in item 3.

References

States PBN (RNAV GNSS APCH, SIDs and STARs) implementation status for Terminal Airspace in ESAF and WACAF States (October 2014).

African Flight Procedure Programme Document.

1. INTRODUCTION

1.1 The objective of this paper is to report on the implementation of the PBN in AFI Region particularly with respect to development of PBN and terminal routes flight procedures. Implementation status is based on tables provided by ESAF and WACAF Regional Offices regarding PBN flight procedures, SIDs and STARs implementation in airports from their respective areas.

2. DISCUSSION

2.1 Current situation of PBN flight procedures implementation in African States

2.1.1 According to the information included in the tables presented in Appendix A, Parts 3 and 4, the tables here under present the current status for conventional and PBN (RNP approach) flight procedures implemented in International airports in Africa.

2.1.2 Flight Procedures implementation in ESAF and WACAF areas

In Eastern and Southern African (ESAF) area, 24 States represent:

- a) 65 International airports;
- b) 80 runways and 160 QFUs;
- c) 48 RNP approach procedures implemented; and
- d) 112 RNP approach procedures to implement, in 19 States.

Table 1. Number of runways related to flight procedures implemented status, in ESAF area

	Procedures on 2 QFUs	Number of States	Procedure on 1 QFU	Number of States	Total of runways	No procedure	Number of States
Conventional implemented	32		29		61	19	
RNP approach implemented	20	14	8	5	28	52	19
RNP approach to implement	0		8	5		52	19

Western and Central African (WACAF) Office is accredited with 24 Contracting States, which represent:

- a) 69 International airports;
- b) 73 runways and 146 QFUs;
- c) 72 RNP approach procedures implemented; and
- d) 74 RNP approach procedures to implement, in 17 States.

Table 2. Number of runways related to PBN flight procedures to implement, in WACAF area

	Procedures on 2 QFUs	Number of States	Procedure on 1 QFU	Number of States	Total of runways	No procedure	Number of States
Conventional implemented	50		9		59	14	
RNP approach implemented	33	14	6	4	39	34	16
RNP approach to implement	0		6	4		34	16

2.2 **PBN implementation - Status of the States**

2.2.1 The current PBN implementation status of the States will be updated through the completion of the attached questionnaire (see Appendix A, parts 1 and 2).

2.2.2 This questionnaire was sent by the ICAO ESAF and WACAF Offices to the CAAs and copied by the African Flight Procedure Programme (AFPP) to the National PBN Plan Managers/Coordinators (NPPM/Cs). The information from the questionnaire will be used by the Regional Offices to update the status of PBN implementation by each State.

2.2.3 The completed questionnaire should be forwarded to the AFPP.

2.2.4 The results of the survey will give a better view of the African States capability in PBN flight procedure implementation and the volume of PBN flight procedures to be implemented in African airports for States to meet the ICAO implementation requirements.

2.3 **AFPP Actions concerning National PBN Implementation Plans**

2.3.1 As a major step in the PBN implementation process, ESAF and WACAF offices will monitor and follow up on the number of PBN Implementation Plans published by African States. The ICAO Regional Offices will assess the information on each questionnaire related to the PBN Implementation Plan and will propose, if needed, corrective actions to the States.

2.3.2 The AFPP will maintain a record of State PBN Implementation Plans and will encourage States to develop and implement appropriate PBN Implementation Plan. Therefore, when a State assistance activity is conducted, the AFPP will ensure that this activity is consistent with the State's National PBN Implementation Plan.

2.3.3 Upon request of the State, AFPP may also give provide advice on specific topics (i.e. the necessity of the State to have internal flight procedure design capability). Preferably, a State should have as a minimum, the expertise to oversee the full flight procedure implementation process (ICAO Doc 9906).

2.4 **Implementation Objectives for Years 2015, 2016 and 2017**

2.4.1 The total number of RNP approach procedures to implement is 186 procedures considering all the instrument runways in the 134 airports of the 48 ESAF and WACAF States.

2.4.2 The present (October 2014) implementation represents 30% in ESAF area and 49% in WACAF area of the possible total of RNP approach procedures.

2.4.3 The percentage of 100% should be obtained by the end of 2016 to meet the ICAO resolution A37-11 on OBN flight procedures implementation.

2.4.4 Considering the need for major international airports to have, at least as an initial goal, one runway/2 QFUs with RNP approach procedures implemented, plus the most important airports with commercial traffic, it could be proposed to implement a minimum number of 70 (in ESAF area) and 40 (in WACAF area) RNP approach procedures to reach a minimum percentage of 75% of all the instrument runways in mid-2017.

2.4.5 The proposed repartition to implement procedures for Years 2015 to 2017 is as follows:

	Oct 2014	2015		2016		Mid 2017	
ESAF	48	+18	66	+35	101	+18	119
<i>160 QFU</i>	<i>30%</i>		<i>41%</i>		<i>63%</i>		<i>75%</i>
WACAF	72	+10	82	+20	102	+10	112
<i>146 QFU</i>	<i>49%</i>		<i>56%</i>		<i>70%</i>		<i>80%</i>

2.4.6 The implementation of an instrument flight procedure includes the design of the flight procedure and the related actions of which the regulatory approval.

2.4.7 The result will be obtained using either the internal capability of States where the flight procedure implementation expertise exists or an external consultant with adequate and recognized expertise. The AFPP will propose assistance to States to implement RNP approach procedures in order to meet the aims presented in the table here above using the Quality Assurance (QA) process described in Doc 9906, QA for flight procedure design.

2.4.8 The States will also have the responsibility to develop PBN Operational Approval process for local air carriers with possible assistance from AFPP as necessary.

2.4.9 The States will have the opportunity to learn new skill in PBN flight procedures implementation through the training, assistance and support activities proposed by the AFPP and detailed in the section 2.2.3 of the Operational Concept in the AFPP Programme Document.

3. **RECOMMENDATIONS**

3.1 It is hereby recommended that:

a) African States be urged to implement their National PBN Implementation Plan as an urgent matter;

b) African States to implement the PBN flight procedures in Terminal Airspaces and meet the 2016 ICAO targets;

c) African States to complete and return the questionnaires sent to them on PBN implementation; and

d) African States to use the African Flight Procedure Programme (AFPP) to implement the PBN flight procedures.

-END-

Appendix A

QUESTIONNAIRE TO STATES

Part 1: Survey for African States National PBN Implementation Plan

ICAO Region: _____

State/Administration: _____

Surname/Name: _____

Title: _____

Telephone: _____

Email: _____

Date: ____/____/____

1. Is your State/Administration currently a member of AFPP? Yes No

1.1. If yes, what type? Active Participating State User State

2. Has your State/Administration started the development of the National PBN Implementation Plan? Yes No

1.2. If yes, which date?

Year	2009	2010	2011	2012	2013	2014	2015
------	------	------	------	------	------	------	------

3. If information available, indicate current/expected date for the achievement of the National PBN Implementation Plan

Year	2015						2016					
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

4. If your State/Administration has not developed or achieved the National PBN Implementation Plan, please specify the challenges impeding the development, in the following domains?

4.1. PBN Plan template availability:

4.2. Updated knowledge on GNSS, PBN concept and/or RNAV/RNP flight procedures:

4.3. Implementation strategy at short, medium and long-term for En Route, terminal and approach areas:

4.4. PBN equipage of the aircraft:

4.5. Role of stakeholders:

4.6. Other points:

5. Regarding the legislation for GNSS use, has your State/Administration developed related documentation and published a relevant Air Information Circular (AIC)?

5.1. Documentation Yes No

5.2. If yes, AIC Yes date: No

5.3. Comments:

6. Please indicate the type of assistance you may request from the ICAO (AFPP)/AFCAC to achieve your National PBN Implementation Plan in short delays.

Part 2: Survey for PBN flight procedures implemented in African Airports

ICAO Region: _____

State/Administration: _____

Surname/Name: _____

Title: _____

Telephone: _____

Email: _____

Date: ____/____/____

-
1. Is your State/Administration currently a member of AFPP? Yes No
- 1.1. If yes, what type? Active Participating State User State

-
2. Did your State/Administration implement an instrument flight procedure implementation oversight service?
- Yes No Pending , date (*if available*):

-
3. Did your State/Administration implement a flight procedure design service?
- Yes No Pending , date (*if available*):

-
4. Did your State/Administration implement conventional and/or PBN flight procedures?
- 4.1. Conventional: Yes No Pending , date (*if available*):
- 4.2. PBN: Yes No Pending , date (*if available*):

-
5. Did your State/Administration approve conventional and PBN flight procedures?
- 5.1. Conventional: Yes No Pending , date (*if available*):
- 5.2. PBN: Yes No Pending , date (*if available*):

6. Please indicate the type of workshop, included in the AFPP Work Programme, you intend to participate to:

6.1. Quality Assurance for conventional or PBN flight procedure implementation

6.2. Airspace design

6.3. PBN for ATC/ATM personnel

7. Please indicate the type of training session, included in the AFPP Work Programme, you intend to participate to:

7.1. Train flight procedures designers (indicate number)

7.2. PBN Operational Approval

8. Please indicate the type of assistance you may request from the ICAO (AFPP)/AFCAC

8.1. Implementation of a flight procedure implementation oversight service

8.2. Design conventional and/or PBN flight procedures

Part 3-1

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (ESAF STATES)

A	B	C	D	E	F	G	I	J	K							
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwys	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR	
1	ANGOLA												25%	25%	0%	
a.	ESAF	FNHU	Huambo	2	11/29	2	0	0	0	0%	0%	0%				
b.	ESAF	FNLU	Luanda	2	05/23	2	Rwy23	Rwy 23	0	50%	50%	0%				
2	BOTSWANA												8%	8%	8%	
a.	ESAF	FBFT	Francistown	4	13/31 11/29	2 0	0	0	0	0%	0%	0%				
b.	ESAF	FBSK	Gaborone (SK)	2	08/26	2	Rwy08	Rwy08	Rwy08	50%	50%	50%				
c.	ESAF	FBKE	Kasane	2	08/26	0	0	0	0	0%	0%	0%				
d.	ESAF	FBMN	Maun	2	08/26	2	0	0	0	0%	0%	0%				
e.	ESAF	FBSP	Selebi-Phikwe	2	12/30	1	0	0	0	0%	0%	0%				
3	BURUNDI												0%	0%	0%	
a.	ESAF	HBBA	Bujumbura	2	17/35	2	0	0	0	0%	0%	0%				
4	COMOROS												50%	0%	16%	
a.	ESAF	FMCV	Anjouan	2	10/28	0	0	0	0	0%	0%	0%				
b.	ESAF	FMCZ	Dzaoudzi	2	16/34	2	Rwy16/34	0	0	100%	0%	0%				
c.	ESAF	FMCH	Moroni	2	02/20	1	Rwy02	0	Rwy02	50%	0%	50%				
5	DJIBOUTI												0%	0%	0%	
a.	ESAF	HDAM	Djibouti	2	09/27	2	0	0	0	0%	0%	0%				
6	ERITREA												50%	0%	0%	
a.	ESAF	HHAS	Asmara	2	07/25	1	Rwy07/25	0	0	100%	0%	0%				
b.	ESAF	HHSB	Assab	2	12/30	1	0	0	0	0%	0%	0%				
7	ETHIOPIA												66%	0%	33%	
a.	ESAF	HAAB	Addis Ababa	4	07R/25L 07L/25R	1 1	Rwy07R/25L Rwy07L/25R	0	Rwy07R Rwy07L	100%	0%	50%				
b.	ESAF	HADR	Dire Dawa	2	15/33	1	0	0	0	0%	0%	0%				

Part 3-2

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (ESAF STATES)

A	B	C	D	E	F	G	I	J	K						
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwys	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR
8	KENYA												66%	66%	66%
a.	ESAF	HKEL	Eldoret	2	08/26	1	0	0	0	0%	0%	0%			
b.	ESAF	HKMO	Mombasa	2	03/21	2	Rwy03/21	Rwy03/21	Rwy03/21	100%	100%	100%			
c.	ESAF	HKJK	Nairobi	2	06/24	2	Rwy06/24	Rwy06/24	Rwy06/24	100%	100%	100%			
9	LESOTHO												100%	0%	0%
a.	ESAF	FXMM	Maseru	2	04/22	1	Rwy04/22	0	0	100%	0%	0%			
10	MADAGASCAR												42%	14%	28%
a.	ESAF	FMMI	Antananarivo	2	11/29	2	Rwy11/29	Rwy11/29	Rwy11/29	100%	100%	100%			
b.	ESAF	FMNA	Antsiranana	2	13/31	1	0	0	0	0%	0%	0%			
c.	ESAF	FMNM	Mahajanga	2	14/32	2	Rwy14/32	0	Rwy14/32	100%	0%	100%			
d.	ESAF	FMNN	Nosy-Be	2	05/23	1	0	0	0	0%	0%	0%			
e.	ESAF	FMMS	Sainte-Marie	2	01/19	2	0	0	0	0%	0%	0%			
f.	ESAF	FMMT	Toamasina	2	01/19	2	Rwy01/19	0	0	100%	0%	0%			
g.	ESAF	FMSD	Tolagnaro	2	08/26	2	0	0	0	0%	0%	0%			
11	MALAWI												33%	66%	66%
a.	ESAF	FWCL	Blantyre	4	10/28 15/33	0 0	0 0	Rwy10/28 0	Rwy10/28 0	0%	50%	50%			
b.	ESAF	FWLI	Lilongwe	2	14/32	2	Rwy14/32	Rwy14/32	Rwy14/32	100%	100%	100%			
12	MAURITIUS												100%	100%	100%
a.	ESAF	FIMP	Mauritius (SSR)	2	14/32	2	Rwy14/32	Rwy14/32	Rwy14/32	100%	100%	100%			
13	MOZAMBIQUE												100%	100%	100%
a.	ESAF	FQBR	Beira	2	12/30	1	Rwy12/30	Rwy12/30	Rwy12/30	100%	100%	100%			
b.	ESAF	FQMA	Maputo	2	05/23	1	Rwy05/23	Rwy05/23	Rwy05/23	100%	100%	100%			

Part 3-3

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (ESAF STATES)

A	B	C	D	E	F	G	I	J	K						
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwys	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR
14	NAMIBIA												12%	0%	0%
a.	ESAF	FYKT	Keetmanshoop	2	04/22	1	0	0	0	0%	0%	0%			
b.	ESAF	FYWB	Walvis Bay	2	09/27	2	0	0	0	0%	0%	0%			
c.	ESAF	FYWH	Windhoek	4	08/26 16/34	1 0	Rwy26 0	0 0	0 0	0%	0%	0%			
15	RWANDA												0%	0%	0%
a.	ESAF	HRYR	Kigali	2	10/28	1	0	0	0	0%	0%	0%			
16	SEYCHELLES												100%	100%	100%
a.	ESAF	FSIA	Seychelles	2	13/31	2	Rwy13/31	Rwy13/31	Rwy13/31	100%	100%	100%			
17	SOMALIA												0%	0%	0%
a.	ESAF	HCM1	Berbera		05/23	0	0	0	0	0%	0%	0%			
b.	ESAF	HCMV	Burao		13/31	0	0	0	0	0%	0%	0%			
c.	ESAF	HCMH	Hargeisa		06/24	0	0	0	0	0%	0%	0%			
d.	ESAF	HCMK	Kisimayu		05/23	0	0	0	0	0%	0%	0%			
e.	ESAF	HCMH	Mogadishu		05/23	0	0	0	0	0%	0%	0%			

Part

3-4

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (ESAF STATES)

A	B	C	D	E	F	G	I	J	K						
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwy's	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR
18	SOUTH AFRICA												30%	50%	45%
a.	ESAF	FABL	Bloemfontein	4	02/20 12/30	2	0	0	0	0%	0%	0%			
b.	ESAF	FACT	Cape Town	4	01/19 16/34	2	0	Rwy01/19	Rwy01/19	0%	100%	100%			
c.	ESAF	FADN	Durban	2	06/24	2	Rwy06/24	Rwy06/24	Rwy06/24	100%	100%	100%			
d.	ESAF	FAOR	OR Tambo	4	03L/21R 03R/21L 06L/24R	2 2 1	Rwy21L Rwy03R Rwy06L	03R/21L 03L/21R 0	Rwy21L Rwy03R Rwy06L 0	50%	100%	50%			
e.	ESAF	FALA	Lanseria	6	06R/24L 07/25	2 1	0 Rwy07	0 0	0 0	50%	0%	25%			
f.	ESAF	FAMM	Mafikeng	2	04/22	1	0	0	0	0%	0%	0%			
g.	ESAF	FANS	Nelspruit	2	04/22	1	0	0	0	0%	0%	0%			
h.	ESAF	FAPB	Pietersburg	4	01/19 05/23	1	0	0	0	0%	0%	0%			
i.	ESAF	FAPE	Port Elizabeth		08/26 17/35	2 0	0 0	0 0	Rwy08/26 0 Rwy08/26 0	0%	100%	100%			
j.	ESAF	FAUP	Upington		17/35 01/19 08/26	1 0 0	0 0 0	0 0 0	0 0 0	0%	0%	0%			
19	SOUTH SUDAN												100%	100%	100%
a.	ESAF	HSSJ	Juba	2	13/31	2	Rwy13/31	Rwy13/31	Rwy13/31	100%	100%	100%			
20	SWAZILAND												0%	0%	0%
a.	ESAF	FDMS	Manzini/Mats	2	07/25	1	0	0	0	0%	0%	0%			

Part 3-5

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (ESAF STATES)

A	B	C	D	E	F	G	I	J	K						
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwys	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR
21	UGANDA												0%	50%	50%
a.	ESAF	HUEN	Entebbe	2	17/35 12/30	2	0	Rwy17/35	Rwy17/35	0%	50%	50%			
22	UNITED REP OF TANZANIA												66%	66%	66%
a.	ESAF	HTDA	Dar Es Salaam	2	05/23	2	Rwy05/23	Rwy05/23	Rwy05/23	100%	100%	100%			
b.	ESAF	HTKJ	Kilimanjaro	2	09/27	1	Rwy09/27	Rwy09/27	Rwy09/27	100%	100%	100%			
c.	ESAF	HTZA	Zanzibar	2	18/36	1	0	0	0	0%	0%	0%			
23	ZAMBIA												20%	40%	40%
a.	ESAF	FLLI	Livingstone	2	10/28	2	0	Rwy10/28	Rwy10/28	0%	100%	100%			
b.	ESAF	FLLS	Lusaka	2	10/28	2	Rwy10/28	Rwy10/28	Rwy10/28	100%	100%	100%			
c.	ESAF	FLMF	Mfuwe	2	08/26	1	0	0	0	0%	0%	0%			
d.	ESAF	FLND	Ndola	4	10L/28R 10R/28L	1 0	0 0	0 0	0 0	0% 0%	0% 0%	0% 0%			
24	ZIMBABWE												0%	0%	0%
a.	ESAF	FVBU	Bulawayo	2	13/31	1	0	0	0	0%	0%	0%			
b.	ESAF	FVHA	Harare	2	05/23	2	0	0	0	0%	0%	0%			
c.	ESAF	FVFA	Victoria Falls	2	12/30	1	0	0	0	0%	0%	0%			

Note: The above data was derived from Table AOP 1 of the AFI Air navigation Plan (AFI ANP) and Jeppesen Airway Manuals

Part 4-1

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (WACAF STATES)

A	B	C	D	E	F	G	I	J	K							
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwy's	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR	
1	BENIN												100%	0%	100%	
a.	WACAF	DBBB	Cotonou	2	06/24	2	Rwy06/24	0	Rwy06/24	100%	0%	100%				
2	BURKINA FASO												66%	0%	66%	
a.	WACAF	DFOO	Bobo-Dioulasso	2	06/24	2	Rwy06/24	0	Rwy06/24	100%	0%	100%				
b.	WACAF	DFFD	Quagadougou	4	04L/22R 04R/22L	4	04L/22R 0	0 0	04L/22R 0	50%	0%	50%				
3	CAMEROON												58%	25%	50%	
a.	WACAF	FKKD	Douala	2	12/30	2	Rwy30	Rwy12	Rwy12/30	50%	50%	100%				
b.	WACAF	FKKR	Garoua	2	09/27	2	Rwy09/27	0	Rwy09/27	100%	0%	100%				
c.	WACAF	FKKL	Maroua	2	13/31	1	0	0	0	0%	0%	0%				
d.	WACAF	FKKN	N'gaoundere	2	02/20	1	0	0	0	0%	0%	0%				
e.	WACAF	FKYS	Yaounde	4	01/19 03/21	2	Rwy01/19 Rwy03/21	Rwy01/19 0	Rwy01/19 0	100% 100%	100% 0%	100% 0%				
4	CAPE VERDE												0%	100%	100%	
a.	WACAF	GVFM	Praia	2	03/21	2	0	RWY03/21	RWY03/21	0%	100%	100%				
b.	WACAF	GVAC	Sal/Amilcar C.	2	01/19	2	0	RWY01/19	Rwy01/19	0%	100%	100%				
5	CENTRAL AFRICAN REPUBLIC												50%	0%	50%	
a.	WACAF	FEFF	Bangui	2	17/35	2	RWY17/35	0	Rwy17/35	100%	0%	100%				
b.	WACAF	FEFT	Berberati	2	17/35	0	0	0	0	0%	0%	0%				
6	CHAD												100%	0%	100%	
a.	WACAF	FTTJ	N'Djamena	2	05/23	2	Rwy05/23	0	RWY05/23	100%	0%	100%				
7	CONGO												33%	33%	100%	
a.	WACAF	FCBB	Brazzaville	4	05L/23R 05R/23L	2	0 0	Rwy05L/23R 0	Rwy05L/23R Rwy05R/23L	0%	50%	100%				
b.	WACAF	FCPP	Point Noire	2	17/35	2	Rwy17/35	0	Rwy17/35	100%	0%	100%				

Part 4-2

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (WACAF STATES)

A	B	C	D	E	F	G	I	J	K							
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwy's	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR	
8 COTE D'IVOIRE																
a.	WACAF	DIAP	Abidjan	2	03/21	2	Rwy03/21	0	Rwy03/21	100%	0%	100%	50%	0%	50%	
b.	WACAF	DIBK	Bouake	?	?	?	?	?	?	0%	0%	0%				
9 DEM. REP OF CONGO																
a.	WACAF	FZNA	Goma	?	?	?	?	?	?	0%	0%	0%	60%	60%	60%	
b.	WACAF	FZAA	Kinshasa	2	06/24	2	Rwy06/24	Rwy06/24	Rwy06/24	100%	100%	100%				
c.	WACAF	FZIC	Kisangani	2	13/31	0	Rwy13/31	Rwy13/31	Rwy13/31	100%	100%	100%				
d.	WACAF	FZQA	Lubumbashi	2	07/25	1	Rwy07/25	Rwy07/25	Rwy07/25	100%	100%	100%				
e.	WACAF	FZWA	Mbuji Mayi	?	?	?	?	?	?	?	?	?				
10 EQUATORIAL GUINEA																
a.	WACAF	FGSL	Malabo	2	04/22	2	Rwy04/22	0	Rwy04/22	100%	0%	100%	100%	0%	100%	
11 GABON																
a.	WACAF	FOON	Franceville	2	15/33	2	Rwy15/33	0	0	100%	0%	0%	83%	33%	16%	
b.	WACAF	FOOL	Libreville	2	16/34	1	Rwy16	Rwy16/34	Rwy16	50%	100%	50%				
c.	WACAF	FOOG	Port Gentil	2	03/21	2	Rwy03/21	0	0	100%	0%	0%				
12 GAMBIA																
a.	WACAF	GBYD	Banjul	2	14/32	2	Rwy14/32	0	0	100%	0%	0%	100%	0%	0%	
13 GHANA																
a.	WACAF	DGAA	Accra	2	03/21	2	Rwy03/21	Rwy03/21	Rwy03/21	100%	100%	100%				
b.	WACAF	DGSI	Kumasi	2	02/20	2	Rwy02/20	Rwy20	Rwy20	100%	50%	50%				
c.	WACAF	DGLE	Tamale	2	05/23	2	Rwy05/23	Rwy23	Rwy23	100%	50%	50%				

Part 4-3

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (WACAF STATES)

A	B	C	D	E	F	G	I	J	K							
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwys	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR	
14	GUINEA												25%	25%	25%	
a.	WACAF	GUCY	Conakry	2	06/24	1	Rwy06/24	Rwy06/24	Rwy06/24	100%	100%	100%				
b.	WACAF	GUXN	Kankan	?	?	?	?	?	?	0%	0%	0%				
c.	WACAF	GULB	Labe	2	06/24	2	0	0	0	0%	0%	0%				
d.	WACAF	GUNZ	N'Zerekore	2	18/36	1	0	0	0	0%	0%	0%				
15	GUINEA-BISSAU												100%	0%	0%	
a.	WACAF	GGOV	Bissau	2	03/21	2	Rwy03/21	0	0	100%	0%	0%				
16	LIBERIA												100%	0%	100%	
a.	WACAF	GLRB	Monrovia	2	04/22	2	Rwy04/22	0	Rwy04/22	100%	0%	100%				
17	MALI												28%	0%	14%	
a.	WACAF	GABS	Bamako	2	06/24	2	Rwy06/24	0	Rwy06/24	100%	0%	100%				
b.	WACAF	GAGO	Gao	2	07/25	2	0	0	0	0%	0%	0%				
c.	WACAF	GAKY	Kayes	2	09/27	2	0	0	0	0%	0%	0%				
d.	WACAF	GAKL	Kidal	?	?	?	?	?	?	0%	0%	0%				
e.	WACAF	GAMB	Mopti-Barbe	2	05/23	2	Rwy05/23	0	0	100%	0%	0%				
f.	WACAF	GANR	Nioro	2	08/26	0	0	0	0	0%	0%	0%				
g.	WACAF	GATB	Tombouctou	2	07/25	2	0	0	0	0%	0%	0%				
18	MAURITANIA												20%	0%	20%	
a.	WACAF	GQPA	Atar	2	04/22	?	0	0	0	0%	0%	0%				
b.	WACAF	GQNI	Nema	?	?	?	?	?	?	0%	0%	0%				
c.	WACAF	GQPP	Nouadhibou	2	02/20	2	Rwy02/20	0	Rwy02/20	100%	0%	100%				
d.	WACAF	GQNN	Nouakchott	2	05/23	2	Rwy05/23	0	Rwy05/23	100%	0%	100%				
e.	WACAF	GQPZ	Zouerate	?	?	?	?	?	?	0%	0%	0%				

Part 4-4

STATES PBN (RNAV GNSS APCH, SIDs & STARs) IMPLEMENTATION STATUS FOR TERMINAL AIRSPACE - OCTOBER 2014 (WACAF STATES)

A	B	C	D	E	F	G	I	J	K							
NO	ICAO REGION	STATE ICAO DESIGNATOR	AIRPORT NAME	No of Rwys	RWY Orientation	No of INST RWYS	RNAV/RNP APCH	RNAV/RNP SID	RNAV/RNP STAR	% of PBN RNAV APCH	% of SID Implemented	% of STAR Implemented	Total % RNAV GNSS APCH	Total % RNAV SID	Total % RNAV STAR	
19	NIGER													66%	33%	33%
a.	WACAF	DRZA	Agades	2	07/25	2	Rwy07/25	0	0	100%	0%	0%				
b.	WACAF	DRRN	Niamey	2	09/27	2	Rwy09/27	Rwy09/27	Rwy09/27	100%	100%	100%				
c.	WACAF	DRZR	Zinder	2	05/23	2	0	0	0	0%	0%	0%				
20	NIGERIA													35%	35%	35%
a.	WACAF	DNAA	Abuja	2	04/22	2	Rwy04/22	Rwy04/22	Rwy04/22	100%	100%	100%				
b.	WACAF	DNCA	Calabar	2	03/21	2	0	0	0	0%	0%	0%				
c.	WACAF	DNIL	Ilorin	2	05/23	2	0	0	0	0%	0%	0%				
d.	WACAF	DNKA	Kaduna	2	05/23	2	0	0	0	0%	0%	0%				
e.	WACAF	DNKN	Kano	2	06/24	2	Rwy06/24	Rwy06/24	Rwy06/24	100%	100%	100%				
f.	WACAF	DNMM	Lagos	4	18R/36L	2	Rwy18R	Rwy18R	Rwy18R	50%	50%	50%				
g.	WACAF	DNMA	Maiduguri	2	18L/36R	2	Rwy18L	Rwy18L	Rwy18L	50%	50%	50%				
h.	WACAF	DNPO	Port Harcourt	2	05/23	2	0	0	0	0%	0%	0%				
i.	WACAF	DNPO	Port Harcourt	2	03/21	2	Rwy21	Rwy21	Rwy21	50%	50%	50%				
	WACAF	DNPO	Port Harcourt	2	08/26	1	0	0	0	0%	0%	0%				
21	SAO TOME & PRINCIPE													0%	0%	0%
a.	WACAF	FPST	Sao Tome	2	11/29	1	0	0	0	0%	0%	0%				
22	SENEGAL													30%	20%	20%
a.	WACAF	GOGS	Cap Skiring	2	15/33	1	Rwy15	0	0	50%	0%	0%				
b.	WACAF	GOOY	Dakar	2	18/36	2	Rwy18/36	Rwy18/36	Rwy18/36	100%	100%	100%				
c.	WACAF	GOSS	Saint Louis	2	18/36	2	0	0	0	0%	0%	0%				
d.	WACAF	GOTT	Tambacounda	?	?	?	?	?	?	0%	0%	0%				
e.	WACAF	GOGG	Ziguinchor	2	10/28	2	0	0	0	0%	0%	0%				
23	SIERRA LEONE													0%	0%	0%
a.	WACAF	GFLI	Freetown	2	12/30	2	0	0	0	0%	0%	0%				
24	TOGO													50%	50%	50%
a.	WACAF	DXXX	Lome	2	04/22	2	Rwy04/22	Rwy04/22	Rwy04/22	100%	100%	100%				
b.	WACAF	DXNG	Niamtougou	2	03/21	2	0	0	0	0%	0%	0%				

Note: The above data was derived from Table AOP 1 of the AFI Air navigation Plan (AFI ANP) and Jeppesen Airway Manuals