INTERNATIONAL CIVIL AVIATION ORGANIZATION

Twenty Sixth Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group (APIRG/26)

7 - 8 November 2023

Agenda Item 3: Implementation of air navigation goals, targets and indicators, including the priorities set in the Regional Air Navigation Plan

Status of implementation of AMBEX at ASECNA

Presented by ASECNA

SUMMARY	
This working note reports on the difficulties encountered in the implementation of the AMBEX Manual by some centres and which may contribute to the unavailability of OPMET data from the AFI region. The follow-up to the meeting is set out in paragraph 3.	
Strategic Objectives	Globally interoperable systems and data.
References	APIRG20 Conclusion 20/44 APIRG/24 Conclusion 24/26 ; Conclusion 24/33 (Action n°11)

1. INTRODUCTION

1. The Traditional Alphanumeric Weather Reports (TAC) Exchange System of the ICAO Africa-Indian Ocean Region (AFI) (AMBEX) was established by the AFI Planning and Implementation Group (APIRG) in 1986 and has since been successfully serving the AFI Region for the exchange of required OPMET information.

2. The exchange of meteorological information according to the IWXXM model was introduced in November 2013 through ICAO Amendment No. 76 to Annex 3. This introduction allowed states to exchange OPMET data in both traditional alphanumeric code format and Extensible Markup Language (XML) and more specifically Geographic Markup Language (GML).

3. The introduction of the IWXXM as an international standard format for the exchange of meteorological information was the beginning of a profound upheaval in the provision and exchange of OPMET data in text form for a transition to a digital environment, in support of ICAO's Global Air Navigation Plan (GANP) and a transition to a SWIM environment.

1. The exchange of meteorological information using the IWXXM model became a recommended practice in ICAO Annex 3 Amendment No. 77, which entered into force in November 2016. Some states have started trading digital products following the IWXXM model in early 2017. The exchange of meteorological information using the IWXXM model became a standard in November 2020, as outlined in ICAO Annex 3 Amendment No. 78 in accordance with the effective date of ICAO Annex 3 Amendment No. 79.

2. OPMET data in TAC format is a barrier to digital use as it often contains typographical errors and is poorly structured.

1. ANALYSIS

1. Exchange of OPMET in alphanumeric format at ASECNA.

1. ASECNA is home to 1 IROG/BRDO (Dakar), 3 BCCs (Dakar, Brazzaville and Niamey) and 17 NOCs (Cotonou, Ouagadougou, Douala, Bangui, Moroni, Brazzaville, Abidjan, Libreville, Bissau, Malabo, Antananarivo, Bamako, Nouakchott, Niamey, Dakar, N'Djamena and Lomé).

2. The BRDO in Dakar, which has reached a high level of dilapidation, is being replaced. Currently, it trades OPMETs only with the BRDO in Pretoria. The web server is down. All services of the Dakar BRDO are scheduled to resume in March 2024, including OPMETs in IWXXM format.

2.1.2.The 3 ASECNA BCCs are linked at sub-regional level by VSAT links and at interregional level with the Toulouse ROC by FTP links. For nearly three years, the Plan's two Dakar-Toulouse routes (VAT and FTP) have been out of service. Meteorological and aeronautical data destined for Toulouse transit through Niamey.

1. In all ASECNA centres, AMBEX procedures are applied in accordance with the requirements of the AMBEX Manual.

2. Despite compliance with the procedures for the exchange of METAR and TAF, ASECNA's BCCs regularly record relatively low rates of availability of certain aerodromes (see Appendix). It is important to zoom in on the stations concerned in order to identify the real causes of this unavailability and to look for appropriate solutions.

3. Also, the AMBEX Manual standardizes the exchange of OPMET from BCC, BRDO, IROG, ROC, etc., but does not propose the collection and transmission of OPMET at the NOC level. This failure does not help the unsophisticated national centres to properly route their OPMETs.

1. Exchange of OPMET in IWXXM format

1. 3 BCCs (Dakar, Brazzaville and Niamey), the Dakar BRDO and 10 NOCs (Douala, Bangui, Moroni, Brazzaville, Abidjan, Libreville, Bissau, Malabo, Niamey and Dakar) are equipped with virtualized SMT switches, which are responsible for the conversion of OPMETs from TAC to IWXXM 3.0 format and interfaced with the AMHS/AFTN switch, which is responsible for routing on the RSFTA and ATN network. The latest fully virtualized AMHS/AFTN switches acquired by ASECNA and operational in 7 centers are equipped with the OPMET conversion function from alphanumeric to numeric format.

2. A project to standardize AMHS/AFTN switches for the remaining 10 centres on the one hand, and another project to standardise SMT switches for the remaining 7 centres on the other, are being implemented.

3. It is important to remember that the entire AMBEX Manual and its procedures are based only on Traditional Alphanumeric Coding (TAC), while ICAO's ongoing work foresees the discontinuation of the TAC format around 2026. This deadline calls for the definition of the transitional phase during which the two formats (TAC and IWXXM) will coexist and the definitive switch to the IWXXM in the update of the AMBEX Handbook to achieve the objectives of SWIM.

4. In order to ensure the different implementations of OPMET in IWXXM format, it would be wise to carry out inter-BRDO, inter-BCC-BRDO and NOC-BCC tests. Any difficulties identified may be discussed in the appropriate working groups.

5. In the light of the above, it would be possible to encourage Member States to produce, once the latest version of the IWXXM format is stabilised, METAR and SPECI in native digital format from aerodrome weather stations. In this case, there would be no more conversion, only routing.

6. From the statistics on the availability of METAR and TAF developed by the BCCs

of Dakar, Brazzaville and Niamey from January to September 2023 (see Appendix), it appears overall that:

1. For the BCC of Dakar

    1. The availability of TAFs from the following centres is low to almost non-existent: Freetown; Monrovia, Bissau, Assension, Rabil and Freetown are close to low to very low average TAF availability rates.

    2. The centres of Bissau, Kayes, Mopti, Freetown, Boa Vista, Mopti, Nioro, Ascension, Atar, Nzérékoré, Nema, Zouerate, Kankan, Labé, have very low METAR availability rates.

    3. The Kadal Gao Timbuktu

4. For the BCC of Brazzaville

    1. The centres in Luanda, Sao Tomé, Lubumbashi and Kisangani have low TAF availability rates.

    2. Low to almost zero rates are recorded for the following centres: Luanda, Mvengué, Port-Gentil, Garoua, Kinshasa, Lubumbashi, Port-Gentil, Mvengué, Luanda, Bata, Sao-Tomé, Berberati, Maroua, Ngaoundere, Cabinda, Huambo, Goma, Kisangani, Bangassou, Mbuji-Mayi, Gemena.

5. For the BCC of Niamey:

1. Despite the remarkable efforts made by Nigeria and Ghana, further efforts are still needed to achieve TAF availability rates.

2. The Takoradi Kumasi Tamale, Zaria, Benin and Calabar centres are close to zero METAR availability rates.

    1. If the low availability rate of METARs can be explained by the lack of reliable means of communication and the lack of personnel, the availability of TAFs is a challenge for us. For example, the case of Nigeria, which shows disparities in the availability rate of TAFs at the BCC in Niamey, suggests that each aerodrome writes and transmits its own TAFs. If that is the case, it will mean that all of these centres have the capacity to do this work.

2. Difficulties

1. Among the recurrent malfunctions that are the cause of the unavailability of the OPMET (AS/SP and FT/FC) are the following cases: incorrect headers, circuit failures for long periods of time, lack of qualified personnel in message transmission and lack of coordination.
2. There are a few NOCs that do not have an automatic switching system for weather and aeronautical messages.
3. Several stations required in AMBEX collectives from non-ASECNA states are still manual. As a result, the collection and transmission of ballots is irregular and often riddled with errors.

1. CONCLUSION

1. Meeting
    1. is invited to take note of the information contained in this document;
    2. proposes to facilitate coordination meetings between:
        1. BCC AFI and BRDO AFI;
        2. BRDO AFI and ROC of Toulouse;
        3. BRDO Dakar and IROG/Brazilia.
    4. proposes to:

1. plan tests on the exchange of OPMET in IWXXM 3.0 format;
2. Expedite the updating of the AMBEX Manual to take into account the exchange of digital data extended to NOCs.

ANNEX

1. Availability of TAF and METAR of the BCC of Dakar

A.1.- Availability of TAFs at the Dakar BCC from January – September 2023 (Average percentage)

TAF BCC - GO	January	February	March	April.	May	June	July	August	September	% Medium
GOBD	95,43	95,98	96,44	96,12	95,56	93,39	95,3	98,52	98,47	**96,13**
GOSS	97,58	100	100	99,14	100	100	100	100	100	**99,64**
GOGS	97,58	100	100	99,14	100	100	100	100	100	**99,64**
GOOY	98,39	100	100	99,14	100	98,23	100	100	98,33	**99,34**
GBYD	100	99,11	99,19	98,28	100	98,28	100	100	98,33	**99,24**
GABS	97,58	100	100	100	98,39	97,41	100	100	100	**99,26**
GFLL	71,77	47,22	53,23	81,03	83,06	76,72	63,13	86,29	75	**70,83**
GUCY	77,42	50	52,42	95,69	95,16	98,28	99,19	98,39	97,5	**84,89**
GQNO	95,97	100	99,19	100	98,39	98,28	98,39	100	100	**98,91**
DIAP	97,77	99,11	98,39	100	98,39	95,69	100	98,39	100	**98,64**
GVAC	98,39	100	100	100	99,19	98,28	100	98,33	100	**99,35**
GLRB	57,26	46,43	55,65	62,93	66,13	70,69	70,94	74,14	75,83	**64,44**
GQPP	95,16	98,21	97,58	100	100	98,28	98,39	100	100	**98,62**
GGOV	63,71	73,21	73,39	75	75	74,14	79,03	75,86	81,67	**74,56**
GAGO	98,39	100	100	100	100	96,55	100	100	100	**99,44**
FHAW	63,71	43,75	16,94	41,38	81,45	22,41	3,23	22,41	85,83	**42,35**
GVSV	100	100	100	100	99,19	97,41	99,19	98,33	100	**99,35**
DIYO	98,39	99,11	98,39	100	98,39	96,65	98,39	99,17	100	**98,72**

A.2.- Availability of the METARs of the BCC of Dakar from January – September 2023 (Average percentage)

METAR BCC - GO	January	February	March	April.	May	June	July	August	September	% Medium
GOBD	95,43	95,98	96,44	96,12	95,56	93,39	95,30	98,52	98,47	**96,13**
GOOY	64,38	78,88	87,26	86,21	90,99	87,93	88,17	88,31	90,28	**84,71**

GOSS	75	90,77	89,25	95,26	98,23	94,11	94,35	93,15	94,17	**91,59**
GOGS	78, 67	84,87	92,11	95,98	90,14	90,04	96,42	99,28	98,89	**93,47**
GOGG	76,43	89,8	90,86	92,96	89,38	89,94	90,99	94,62	92,92	**89,77**
GOTT	62,10	72,56	69,62	70,11	88,98	88,07	78,63	86,83	83,89	**77,87**
DIAP	99,19	99,78	96,37	98,35	95,43	98,42	99,87	98,66	98,61	**98,30**
GGOV	41 ,13	97,68	78,23	86,21	82,39	87,50	86,69	88,17	85,97	**86,61**
DIBK	94,22	94,05	92,07	92,96	92,20	92,39	91,67	89,92	88,89	**92,04**
DIYO	94,62	93,45	93,55	93,10	93,55	92,82	92,20	91,80	88,89	**92,66**
GABS	95,43	93,82	95,83	94,25	96,17	92,82	95,70	97,18	99,03	**95,58**
GAGO	0	0	0	0	0	0	0,81	0,13	0	**0,10**
GAKD	68,95	72,92	74,87	73,79	72,85	73,71	75,67	69,89	84,03	**74,08**
GAKL										Silencieuse
GAMB	47,58	43,6	51,75	49,71	51,48	45,11	59,54	57,80	61,25	**51,98**
GANR	32,39	33,63	33,20	33,19	33,33	32,90	33,33	33,20	33, ;19	**33,15**
GATB										Silencieuse
GQPP	87,5	96,88	93,28	98,49	92,47	86,93	91,94	93,15	90,56	**92,36**
GQNO	90,59	97,4	96,77	98,49	98,66	97,13	98,25	96,77	95,42	**96,61**
GQPA	6,85	7,59	9,41	9,91	8,86	12,21	12,90	10,75	8,47	**9,66**
GQNI	2,96	0,30	0,40	9,41	0,27	0,14	0	0,27	0,14	**1,54**
GQPZ	0	0,15	0,13	0,14	0,13	0	1,34	1,08	0	**0,33**
GUCY	58,6	89,29	85,48	94,24	90,93	90,66	90,05	87,23	83,89	**85,60**
GAXN	0	0,15	0,13	0,14	0	0	1,21	0	0	**0,18**
GUNZ	0,27	2,08	0 ,54	1,15	0,34	1,72	0,94	0	6,81	**1,66**
GBYD	73,12	63,39	88,44	92,39	91,53	91,95	97,85	95,03	97,64	**87,93**
GFLL	51,48	62,95	48,92	49,28	66,39	86,64	76,48	69,89	51,67	**62,63**
GLRB	67,88	89,88	87,83	69,76	85,62	85,20	93,01	91,13	91,11	**84,60**
GVAC	95,7	99,7	99,73	99,71	100	98,99	100	99,87	99,44	**99,24**
GVNP	95,83	99,26	99,33	99,28	99,73	98,56	99,46	99,73	100	**99,02**
GVSV	95,83	99,70	99,33	99,43	99,87	98,56	99,87	99,87	100	**99,16**
FHAW	10,89	16,07	0,76	16,95	41,77	49,86	39,11	42,61	42,51	**28,95**

A. Disponibilités des TAF et METAR du BCC de Niamey

B.1.-Availability of TAFs of the BCC of Niamey from January – September 2023 (Average percentage)

TAF BCC - DR	January	February	March	April.	May	June	July	August	September	% Medium
DRRN	100	100	100	100	100	100	100	100	100	**100**
DRZA	100	100	100	100	100	100	100	100	100	**100**
DRZR	100	100	100	100	100	100	100	100	100	**100**
DXNG	100	100	98,39	100	99,19	100	100,00	89,52	100,00	**98,57**
DXXX	100	100	98,39	100	100	100	99,19	90,32	99,17	**98,56**
DFFD	100	100	95,16	100	100	100	99,19	90,32	96,67	**97,93**
FTTJ	97,58	99,11	97,58	100	100	98,33	100,00	89,52	99,17	**97,92**
DBBB	98,39	99,11	97,58	100	100	99,17	98,39	89,52	98,33	**97,83**
DFOO	100	100	95,16	100	100	96,67	99,19	89,52	96,67	**97,47**
DGAA	97,58	94,64	93,55	97,50	94,35	96,67	99,19	87,90	97,50	**95,43**
DNKN	92,74	90,18	91,13	81,67	91,13	**71,67**	91,13	80,65	63,33	**83,74**
DNAA	89,52	82,14	89,52	78,33	74,19	64,17	78,23	72,58	82,50	**79,02**
DNMM	70,97	48,21	76,61	90,00	91,94	65,00	91,13	84,68	88,33	**78,54**
DNKA	79,03	87,50	87,90	80,00	70,90	59,17	75,81	70,16	82,50	**77,00**
DNJO	85,48	85,71	87,90	75,00	69,35	58,33	75,81	69,35	81,67	**76,51**
DNIL	81,45	83,04	90,32	77,50	66,13	58,33	74,19	70,97	80,00	**75,77**
DNMN	87,90	82,14	87,90	74,17	65,32	53,33	75,81	68,55	80,83	**75,11**
DNKT	69,35	69,64	88,71	77,50	76,61	66,67	87,10	75,81	59,17	**74,51**
DNMA	74,19	69,64	90,32	72,50	73,39	57,50	82,26	70,97	59,17	**72,22**
DNSO	71,77	68,75	86,29	74,17	73,39	55,00	82,26	66,13	59,17	**70,77**
DNYO	72,58	66,96	83,06	71,67	74,19	57,50	77,42	62,90	56,67	**69,22**
DNAK	3,23	1,79	2,42	87,50	89,52	61,33	91,13	83,06	85,00	**56,11**
DNBE	2,42	0,89	0,81	85,83	89,52	61,67	89,52	84,68	85,83	**55,68**

TAF BCC - DR	January	February	March	April.	May	June	July	August	September	% Medium
DNSU	1,61	1,79	0,81	90,00	89,52	61,67	90,32	83,87	80,83	**55,60**
DNIB	3,23	0,89	1,61	88,33	87,10	58,33	90,32	84,68	85,83	**55,59**
DNPO	81,45	76,79	79,84	70,83	79,84	41,67	11,29	5,65	8,33	**50,63**
DNIM	76,61	72,32	73,39	68,33	76,61	30,00	11,29	3,23	4,17	**46,22**
DNCA	70,16	72,32	71,77	65,00	75,00	36,67	11,29	5,65	6,67	**46,06**
DNEN	70,16	71,43	72,58	65,83	75,81	34,17	11,29	5,65	4,17	**45,68**
DGSI	44,35	45,51	45,16	49,17	12,10	33,33	38,71	33,87	45,83	**38,67**

B.2.- Availability of the METARs of the BCC of Niamey from January – September 2023 (Average percentage)

METAR BCC DR	January	February	March	April.	May	June	July	August	September	% Medium
DRRN	99,9	100	100	100	100	100	100	100	99,9	**99,98**
DRZA	99,3	99,2	99,8	100	99,8	100	99,3	100	99,7	**99,68**
DRRM	98,79	99,4	99,2	98,7	99,2	99,5	98,7	99,3	97,9	**98,97**
DRRT	98,5	97,9	98,3	98,6	99	99,5	98,4	98,7	96,9	**98,42**
DRZR	97,5	99,4	99,5	100	99,5	100	99,5	100	97,3	**99,19**
DGAA	94,49	92,71	100,00	98,36	99,85	92,71	92,2	91,8	92,9	**95,00**
DGTK	0,00	0,30	0,00	0,00	0,00	0,00	0,00	0,00	0,56	**0,10**
DGSI	0,13	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,28	**0,05**
DGLE	0,27	0,15	0,00	0,00	0,00	0,00	0,00	0,00	0,42	**0,09**
DNKN	90,59	89,73	98,81	87,20	97,02	63,84	81,45	85,08	66,25	**84,44**
DNMM	39,38	31,10	39,73	86,61	99,11	71,28	93,15	89,11	86,11	**70,62**
DNAA	69,09	66,52	70,76	70,68	79,91	52,98	73,79	66,94	71,53	**69,13**
DNAK	4,00	66,85	7,74	4,61	4,61	8,48	14,38	10,48	5,83	**14,11**
DNBE	0,00	0,00	0,15	0,30	0,15	0,00	0,00	1,61	2,36	**0,51**
DNCA	0,27	0,15	0,30	3,42	2,23	0,00	0,00	0,27	0,00	**0,74**
DNEN	32,26	29,02	21,28	24,85	17,71	17,11	28,76	25,94	28,89	**25,09**
DNGO	22,98	24,85	26,49	17,86	14,43	15,63	17,61	23,12	22,08	**20,56**
DNIB	15,86	11,90	13,99	17,56	7,14	12,05	19,35	12,63	12,36	**13,65**
DNIL	27,42	28,27	28,57	25,15	18,45	18,01	33,20	30,51	28,47	**26,45**
DNIM	2,15	1,34	0,60	0,89	0,30	0,74	0,40	5,91	9,44	**2,42**
DNJO	14,52	14,73	13,54	15,03	7,74	6,70	15,86	13,17	13,19	**12,72**

METAR BCC DR	January	February	March	April.	May	June	July	August	September	% Medium
DNKA	20,70	20,09	20,83	11,90	9,23	8,63	20,70	19,49	18,47	**16,67**
DNKT	15,05	14,88	15,48	12,20	6,70	3,42	2,42	2,15	15,05	**9,71**
DNMA	8,06	8,33	8,33	11,31	3,57	4,32	1,48	3,63	3,61	**5,85**
DNMN	35,89	30,36	38,24	35,27	20,83	19,64	38,71	37,63	32,50	**32,12**
DNSU	0,00	0,45	0,00	0,00	0,00	0,00	0,00	0,00	0,00	**0,05**
DNPO	56,85	56,85	60,57	62,20	56,40	26,79	12,10	11,96	10,28	**39,33**
DNSO	12,90	20,09	16,37	13,99	8,78	6,55	1,08	5,51	7,22	**10,28**
DNYO	5,51	11,31	7,29	4,91	2,23	3,57	3,09	4,30	2,50	**4,97**
DXXX	96,51	96,88	89,29	95,98	97,62	96,28	95,83	86,29	98,47	**94,79**
DXNG	97,18	97,99	92,14	96,67	96,04	99,78	94,15	84,27	96,04	**94,92**
DXSK	96,77	98,66	90,63	96,88	97,32	97,32	96,37	85,08	98,75	**95,31**
DBBB	94,35	93,75	98,81	98,66	91,94	93,82	90,05	83,47	95,69	**93,39**
FTTJ	96,10	95,09	93,01	93,01	95,69	95,83	96,51	89,38	97,64	**94,7**
FTTC	67,42	62,50	43,93	21,43	86,43	81,07	66,77	63,87	71,67	**62,79**
FTTY	57,74	65,71	31,07	32,14	46,79	0,00	0,00	0,00	3,33	**26,31**
FTTD	13,71	16,67	29,61	20,83	33,93	31,85	27,55	18,15	7,50	**22,20**
FTTA	95,83	96,43	94,05	96,58	97,32	92,56	93,82	86,42	97,08	**94,45**
DFFD	91,94	90,33	94,49	97,47	90,97	96,73	91,80	85,22	94,17	**92,57**
DFOO	93,82	87,95	84,67	87,20	93,01	86,46	90,59	77,69	86,39	**87,53**

C.1.-Availability of TAFs of the BCC of Brazzaville from January – September 2023 (Average percentage)

TAF BCC - FC	January	February	March	April.	May	June	July	August	September	% Medium
FCBB	100	100	100	100	100	100	100	100	100	100,00
FCPP	100	100	100	100	100	100	100	100	100	100,00
FKKD	99,19	100	100	100	100	100	100	100	100	99,91
FKYS	99,19	100	100	100	100	100	100	100	100	99,91
FZAA	25	91,07	100	96,77	95,16	95	100	92,74	98,33	88,23
FOOL	99,19	100	100	100	100	100	100	100	100	99,91
FOOG	99,19	100	100	100	100	100	100	100	100	99,91
FNLU	53,23	83,93	94,35	99,17	96,77	92,74	100	96,77	100	90,77
FGSL	99,19	100	100	100	100	100	100	100	100	99,91
FPST	73,39	58,04	66,94	29,17	41,13	55	93,55	55,65	74,17	60,78
FEFF	99,19	100	100	100	100	100	100	100	100	99,91

C.2.-Availability of the BRAZZAVILLE BCC's METARs from January – September 2023 (Average percentage)

METAR BCC - FC	January	February	March	April.	May	June	July	August	September	% Medium
FCBB	100	100	100	100	100	100	100	100	100	**100**
FCPP	99,19	100	100	96,77	100	100	100	100	100	**99,55**
FCOD	94,79	53,42	54,84	55,69	65,99	54,03	56,32	62,92	62,92	**62,32**
FKKD	99,26	100	100	100	100	100	100	100	100	**99,92**
FKYS	89,99	96,73	100	96,77	100	100	100	100	100	**98,17**
FKKR	43,55	48,51	53,23	47,45	47,85	48,47	49,73	53,47	53,47	**49,53**
FKKL	21,77	42,58	44,17	31,51	29,28	40,51	37,47	38,73	38,72	**36,08**
FKKN	19,09	30,77	34,24	18,28	17,2	23,89	24,87	28,75	28,75	**25,09**
FZAA	36,02	34,45	52,76	72,65	63,17	60,28	63,58	64,31	64,31	**56,84**
FZQA	0,4	3	0	4,7	1,88	5,28	6,59	19,17	19,17	**6,69**
FZNA	0	0	0,25	6,75	3,58	3,31	3,44	7,98	7,98	**3,7**
FZIC	0	0	0,5	3,76	2,42	3,09	4,44	4,44	4,44	**2,57**
FZWA	0	0	0	0	0	0	0	0	0	**0**
FZFK	0	0	1,74	1	0	0	0	0	0	**0,3**

FOOL	98,92	100	100	96,77	100	99,17	98,52	99,58	99,58	**99,17**
FOOG	76,28	75,45	78,16	76,08	74,93	69,31	76,55	71,46	71,46	**74,41**
FOON	52,55	52,68	58,87	48,25	55,24	49,86	51,21	57,5	57,5	**53,74**
FNLU	22,98	63,99	93,41	95,3	96,77	91,53	90,32	92,22	92,22	**82,08**
FNCA	20	9,23	5,24	6,99	13,84	16,25	14,92	11,11	11,11	**12,08**
FNHU	18	3,57	14,64	6,85	15,32	16,94	15,32	1,81	1,81	**10,47**
FTTJ	94,56	94,12	100	96,77	99,6	96,11	95,7	90,21	90,21	**95,25**
FGSL	93,08	99,78	100	96,51	100	99,24	99,33	98,13	98,13	**98,24**
FGBT	38,84	49,4	50,27	79,03	81,99	75,56	73,12	74,17	74,17	**66,28**
FPST	54,7	49,26	43,28	15,05	38,04	59,86	57,53	69,72	69,72	**50,8**
FEFF	97,51	100	97,98	95,97	100	100	100	100	100	**99,05**
FEFT	6,85	18,68	26,3	13,58	11,42	13,06	14,11	16,39	16,39	**15,2**
FEFG	0	0	0	0	0	0	0	0	0	**0**

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Annexe 4 : Glossaire

1. **AICM** : Modèle conceptuel de l'information aéronautique
1. **AIXM** : Modèle d'échange d'informations aéronautiques
2. **AMHS** : ATS Message Management System
3. **ATN/IPS**: Aeronautical Telecommunications Network/Intrusion Prevention System
4. **AMBEX**: AFI MET Bulletins Exchange (Scheme);
5. **IWXXM**: ICAO Weather Information Exchange Model
6. **BRDO :** Regional OPMET Data Bank
7. **BCC :** Centres AMBEX ou BCC;
8. **FIXM** : Flight Information Exchange Model
9. **FK** : Tropical Cyclone Warning
10. **FT** : TAF 24 and 30 hours
11. **FV** : Volcanic Ash Reviews
12. **GANP :** Global Air Navigation Plans
13. **IOT/POT** : Interoperability Test/Pre-Operational Test
14. **IROG :** Inter-regional OPMET Gateway
15. **NOC** : National OPMET Center
16. **OPMET** : Operational meteorology Operational meteorological
17. **SA** : METAR
18. **SP** : SPECI
19. **SWIM** : System-Wide Information Management
20. **WC** : SIGMET pour TC
21. **WS** : SIGMET
22. **WV** : SIGMET pour VA