



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP
THIRTEENTH MEETING (APIRG/13)**
(Sal, Cape Verde, 25-29 June 2001)

Agenda Item 4.7.1 : Review of WGS-84 Requirements and Reporting Methods

(Presented by the Secretariat)

SUMMARY

This working paper reviews the WGS-84 requirements and the reporting method for the implementation of WGS-84. The Air Navigation Commission, to ensure a global standard, called upon the PIRGs to develop respective standard tables on WGS-84 requirements similar to that adopted by the CAR/SAM/3 RAN Meeting and to review them on a periodic basis. This in turn would facilitate the reporting of a detailed, up-to-date, global implementation of WGS-84 to ALLPIRG.

Action by the APIRG is proposed at paragraph 4.

1. Introduction

1.1 During a review of the global implementation of WGS-84 in June of this year, the Air Navigation Commission noted that, although some progress had been made since the last report reviewed, the format of reporting was inadequate as it was not clear to what level the different States have implemented WGS-84. The CAR/SAM/3 Regional Air Navigation Meeting developed a table for WGS-84 requirements that contains all the information required; it is attached at the appendix to this working paper. It may also be recalled that the second meeting of ALLPIRG adopted Conclusion 2/7, which requested regular updates to show the regional picture of WGS-84 implementation. To achieve this, the Air Navigation Commission called upon the PIRGs to develop respective tables on WGS-84 requirements similar to that contained in the CAR/SAM/3 Report and to review them on a periodic basis. This standardized table would assist regional offices in compiling up-to-date, detailed information on the implementation of WGS-84 by States.

2. WGS-84 Requirements

2.1 Annex 15, paragraph 3.4.4.1 specifies that published geographical coordinates must be expressed in terms of the World Geodetic System – 1984 (WGS-84) geodetic reference datum. Furthermore, Annex 15, paragraph 3.4.4.2 requires that, in addition to the elevation (referenced to mean sea level) for the specific area surveyed ground positions, geoid undulation (referenced to the WGS-84 ellipsoid) for those positions specified in Appendix 1 (to Annex 15) must also be published.

2.2 Annex 11 and Annex 14, Volumes I and II, govern the determination of the field work and reporting of the geographic coordinates. Annexes 4 and 15 govern the publication of the coordinates in textual and graphic form, respectively. The *World Geodetic System – 1984 (WGS-84) Manual* (Doc 9674) provides guidance material intended to facilitate the implementation by States.

2.3 The main air navigation points for which geographical coordinates are needed are shown in the following two general groups of requirements:

<i>Area/en-route coordinates</i>	<i>Aerodrome/heliport coordinates</i>
ATS/RNAS route points	Aerodrome/heliport reference points
Holding points	Runway, FATO thresholds
En-route radio navigation aids	Terminal radio navigation aids
Restricted/prohibited/danger areas	FAF, FAP and other IAP essential points
Obstacles – en route	Runway centre line points
FIR boundaries	Aircraft standpoints
CTA, CTZ	Aerodrome/heliport obstacles
Other significant points	

3. Global standard for reporting of WGS-84 implementation

3.1 It should be noted that a large part of the initial work has already been completed by most States; however, the reporting of WGS 84 implementation is not standard and it is therefore very difficult to assess the overall status of implementation. The Air Navigation Commission requested the Secretary General to again bring the status of WGS-84 implementation and its impact on the introduction of the global navigation satellite system (GNSS) to the attention of Contracting States. It is also recognized that the development of national WGS-84 implementation plans is essential for States to be able to establish strategies, planning and timetables that would lead to the effective implementation of a world geodetic system.

3.2 In light of the above, APIRG may wish to adopt a uniform format for the reporting of WGS-84 implementation, as proposed in WP/8 and the following conclusion is proposed:

Conclusion 13/- – Adoption of a uniform format for the reporting of WGS-84 implementation

That the table available at the appendix to this working paper be adopted as a uniform format for reporting of WGS-84 implementation by the States

4. ACTION BY THE APIRG

4.1 The APIRG is invited to:

- a) note the information provided in this paper; and
- b) adopt Conclusion 6/X as in paragraph 3.2 above.

STATUS OF WGS-84 IMPLEMENTATION
EXPLANATION OF THE TABLE

Column

- | | |
|----|--|
| 1 | Name of the State, territory or aerodrome for which WGS-84 coordinates are required with the designation of the aerodrome use:

RS — international scheduled air transport, regular use
RNS — international non-scheduled air transport, regular use
RG — international general aviation, regular use
AS — international scheduled air transport, alternate use |
| 2 | Runway designation numbers |
| 3 | Type of each of the runways to be provided. The types of runways, as defined in Annex 14, Volume 1, Chapter I, are:

NINST — non-instrument runway;
NPA — non-precision approach runway
PA1 — precision approach runway, Category I;
PA2 — precision approach runway, Category II;
PA3 — precision approach runway, Category III. |
| 4 | Requirement for the WGS-84 coordinates for FIR, indicated by the expected date of implementation or an “X” if already implemented. |
| 5 | Requirement for the WGS-84 coordinates for Enroute points, indicated by the expected date of implementation or an “X” if already implemented. |
| 6 | Requirement for the WGS-84 coordinates for the Terminal Area, indicated by the expected date of implementation or an “X” if already implemented.. |
| 7 | Requirement for the WGS-84 coordinates for the Approach points, indicated by the expected date of implementation or an “X” if already implemented. |
| 8 | Requirement for the WGS-84 coordinates for runways, indicated by the expected date of implementation or an “X” if already implemented. |
| 9 | Requirement for the WGS-84 coordinates for Aerodrome/Heliport points (e.g. aerodrome/heliport reference point, taxiway, parking position, etc.), indicated by the expected date of implementation or an “X” if already implemented. |
| 10 | Requirement for geoid undulation indicated by the expected date of implementation or an “X” if already implemented. |
| 11 | Requirement for the WGS-84 Quality System, indicated by the expected date of implementation or an “X” if already implemented. |
| 12 | Requirement for publication of WGS-84 coordinates in the AIP indicated by the expected date of publication or an “X” if already published. |
| 13 | Remarks |

APPENDIX

STATUS OF IMPLEMENTATION OF WGS-84 WESTERN AND CENTRAL AFRICAN REGION

STATE, TERRITORY OR AERODROME/FOR WHICH WGS-84 IS REQUIRED & AERODROME USE			WGS-84 IMPLEMENTATION									Remarks
City/Aerodrome	RWY No	RWY TYPE	FIR	ENR	TMA CTA CTR	APP	RWY	AD/ HEL	GUND	Quality System	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
BENIN Cotonou (DBBB) RS	06 24	NPA PA1		x	x	x	x	x	x	x	x	In ACCRA FIR
BURKINA FASO Ouagadougou (DFFD) RS	04 22	PA1 NPA	x	x	x	x	x	x	x	x	x	
Bobo-Dioulasso (DFOO) RS	06 24	PA1 NPA	x	x	x	x	x	x	x	x	x	
CAMEROUN Douala/Douala (FKKD) RS	12 30	NPA PA2	x	x	x	x	x	x	x	x	x	
Maroua/Salak (FKKL) RS	13 31	NPA NINST	x	x	x	x	x	x	x	x	x	
Ngaoundéré/Ngaoundéré (FKKN) RS	03 21	NPA NINST	x	x	x	x	x	x	x	x	x	
Garoua/Garoua (FKKR) RS	09 27	PA1 NPA	x	x	x	x	x	x	x	x	x	
Yaoundé/Simalen (FKYS) RS	01 19	NINST PA2	x	x	x	x	x	x	x	x	x	
CAPE VERDE Praia/Francisco Mendes (GVFM) RS	04 22	NPA NINST	x	x	x	x	x	x	x	x	x	
Sal/Amilcar Cabral (GVAC) RS	01 19	PA1 NPA	x	x	x	x	x	x	x	x	x	
CENTRAL AFRICAN REPUBLIC Bangui/M'poko (FEFF) RS	17 35	NPA PA1	x	x	x	x	x	x	x	x	x	
Berberati/Berberati (FEFT) RS	17 35	NPA NINST	x	x	x	x	x	x	x	x	x	
CHAD N'djamena (FTTJ) RS	05 23	PA1 NPA	x	x	x	x	x	x	x	x	x	
COMOROS ** Anjouan/Ouani (FMCV) RS	10 28	NPA NPA	x	x	x	x	x	x	x	x	x	** State included in the ICAO ESAF Region
Moroni/Hahaia. (FMCH) RS	02 20	PA1 NPA			x	x	x	x	x	x	x	

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STATE, TERRITORY OR AERODROME/FOR WHICH WGS-84 IS REQUIRED & AERODROME USE			WGS-84 IMPLEMENTATION									Remarks
City/Aerodrome	RWY No	RWY TYPE	FIR	ENR	TMA CTA CTR	APP	RWY	AD/HEL	GUND	Quality System	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
Tambacounda/Tambacounda (GOTT) RS	06 24	NPA NPA	x	x	x	x	x	x	x	x	x	
Ziguinchor/Ziguinchor (GOGG) RS	10 28	NINST NPA	x	x	x	x	x	x	x	x	x	
SIERRA LEONE												
TOGO												
Lomé/Tokoin (DXXX) RS	06 23	NPA PA1			x	x	x	x	x	x	x	In ACCRA FIR
Niamtougou/Niamtougou (DXNG) RS	03 21	PA1 NPA			x	x	x	x	x	x	x	In ACCRA FIR

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