

**INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICAN OFFICE**



**COORDINATION MEETING OF THE JOINT TECHNICAL TEAM FOR THE
MODERNIZATION AND RE-ENGINEERING OF THE CAFSAT NETWORK**

Canarias, Spain, 2-4 November 2016

DRAFT MINUTES OF THE MEETING

Prepared by ICAO WACAF Office, Secretariat of the meeting

The JTE Coordination Meeting is as a result of Conclusion 6/04: *Focal points for CAFSAT Re-engineering and modernization*, Conclusion 6/08: *Revitalization of Phase II of CAFSAT Modernization and re-engineering*, Decision 6/09: *Term of Reference and updated schedule for CAFSAT Re-engineering and modernization Phase II* and Decision 6/10: *Coordination meeting of the Joint Technical Team for CAFSAT Re-engineering and modernization* of the CNMC/6 Meeting.

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I-Introduction

1.1 The sixth meeting of the CAFSAT Network Management committee (CNMC/6) held in Lisbon, Portugal from 06 to 07 June 2016 assessed the status of implementation of phase I of the CAFSAT Modernization and re-engineering, decided to end this exercise and agreed to revitalize the process to conduct Phase II of CAFSAT modernization and re-engineering.

1.2 In this regard the meeting decided (**Decision 6/09**) to nominate an ad'hoc Commission tasked to identify specific actions to be completed by each State/Organization in an agreed time frame and to revitalize CAFSAT JTE by tasking it through a Roadmap to set up the Term of Reference (ToRs) for CAFSAT re-engineering. Taking into account the experience gained in the conduct of a re-engineering exercise of similar Networks in particular AFISNET; ASECNA was designated to draft the ToRs.

1.3 Therefore at the kind invitation of Spain, a coordination meeting of the Joint Technical Team for CAFSAT engineering and modernization (JTT) was held from 02 to 04 November 2016 in Canarias in the aim to examining the draft Terms of Reference developed by ASECNA. The meeting was attended by the following States/Organizations, **ASA & CAA (Cabo Verde), ASECNA, ENANA-E.P (Angola), ENAIRE (Spain), NAV Portugal (Portugal), TTCAA (Trinidad & Tobago)**. A representative of the supplier **AICOX** made a technical presentation to the meeting. The list of participants is attached at **Appendix A**. The following CAFSAT Members were missing: **ANAC&DGCTA (Argentina), DECEA (Brazil), ONDA (Morocco) and ATNS (South Africa)**

II-Summary of discussions

2.1 Agenda Item 1: Review of the Conclusions/Decisions of CNMC/6 and CNMC previous meetings related to the re-engineering and modernization of the CAFSAT Network

2.1.1 The Secretariat presented to the meeting a working paper summarizing Conclusions & Decisions of SAT meetings (*Decision SAT17/04: Nomination of contact persons for the Joint Technical Team for CAFSAT evaluation and re-engineering; Decision SAT17/05: CAFSAT Reengineering Roadmap and Reference Document*) and those from CNMC meetings (**Conclusion 1/07: Development of a Roadmap for CAFSAT joint technical evaluation and re-engineering, Conclusion 4/13: Future Phase of the CAFSAT modernization and re-engineering; Conclusion 5/11: Future phase of the CAFSAT modernization and re-engineering; Conclusion 6/08: Revitalization of Phase II of CAFSAT Modernization and re-engineering; Decision 6/09: Term of Reference and updated schedule for CAFSAT Re-engineering and modernization Phase II and Decision 6/10: Coordination meeting of the Joint Technical Team for CAFSAT Re-engineering and modernization**) dealing both with the CAFSAT network re-engineering and modernization.

2.1.2 Portugal, the coordinator for the CAFSAT re-engineering and modernization reminded the meeting to have earlier appointed a focal point for the technical team and provided comments on the draft document developed by Spain. The coordinator also pointed out that all the members have nominated focal point except **ATNS (South Africa)**. It was agreed that the Secretariat should liaise with South Africa in order to have the appointment of the focal point.

2.1.3 Finally Portugal informed the meeting to have signed two month ago a contract with AICOX the supplier replacing ISDEFE, in order to replace parts of its nodes in Santa Maria and Lisbon to enable power and bandwidth increase to support new aeronautical services and provided the meeting with the following additional information:

- ONDA Morocco signed a contract to upgrade the Casablanca node and to install a new node in Agadir;
- ISDEFE has planned to be in Luanda in November 7th , in order to finalize the installation of the CAFSAT node.

2.2 Agenda Item 2: Review of the draft Terms of Reference for the re-engineering and modernization of the CAFSAT Network (Operational Requirements, Technical Specifications, operation monitoring and maintenance)

2.2.1 ASECNA presented a draft Document on the Terms of Reference for the re-engineering and modernization of the CAFSAT Network.

2.2.2 The meeting applauded the document and discussed in length detailed issues for clarification and common understanding. It was agreed the following:

- The Network has been working well therefore its main characteristics such as its topology and type of satellite access (Multiple Channel par Carrier -MCPC) should be kept for Phase II of the re-engineering;
- The technical and operational requirements should be identified by ANSPs and the re-engineering team will agree on a set of minimum common requirements;
- Every ANSP could include in a wider manner, possible future CNS/ATM services to be supported by the network in the spirit of the Technologies Roadmap of the ICAO Aviation System Block Upgrades (ASBUs) contained in the Global Air Navigation Plan (GANP);
- Each ANSP will tailor the required service to be supported by the station in accordance with its desired needs while keeping the minimum common requirements;
- The draft document will be separated into two documents dealing one with the Operational Requirements, the Technical Specifications, the operation and monitoring and the maintenance of the network, the other will be part of the ToRs of the Joint Technical Team for the CAFSAT re-engineering and modernization;
- The Technical Specification document will be completed with a table summarizing the service to be supported by the nodes. The draft tables are attached at **Appendices B** and **C** to these minutes;

2.3 Agenda Item 3: Development of a project scheme for the re-engineering and modernization of the CAFSAT Network (Modalities for Funding, Procurement, provision of satellite spectrum...)

2.3.1 The meeting discussed the modalities for the CAFSAT re-engineering and modernization such as the funding and procurement mechanisms, the request for proposal, the contract with the supplier, the provision of satellite spectrum and agreed on the following:

- Based on the common minimum requirements and technical specifications the draft ToRs will be completed to become the technical document for calling for tenders;
- Every ANSP will make available the necessary budget to fund the re-engineering of its node;

- The contract with the supplier will be individual and managed by every ANSP in accordance with its national Procurement Regulation;
- The re-engineering technical exercise will be managed by the CNMC Joint Technical Team through teleconferences and coordination meetings convened if necessary under the leadership of Portugal (Coordinator) with the assistance of the CNMC Secretariat (ICAO WACAF Office) to follow up the progress made in the implementation of the project.

2.3.2 The meeting was reminded with a presentation by Portugal to CNMC/6 on initiatives taken by ENAIRE, ONDA and NAV Portugal through the outcome of a technical coordination meeting held in Madrid from 25th to 26th May 2016 with **AICOX**, the facilities supplier. During the discussions the intention of ONDA to install a new CAFSAT station in the future Agadir ACC was considered as well as the intention of NAV Portugal to install new and powerful transmitters in Lisbon station to have the possibility to increase the bandwidth of Lisbon station in order to implement new services.

This coordination meeting made recommendations amongst which:

- The need to continue with the current CAFSAT network approach (decentralized CAFSAT stations, ANSPs being responsible of their procurement and operation) with a satellite modem that is fully compatible with the actual network;
- The option to continue with the same satellite operator unless another option that has considerable economical savings can be found;
- Proposal of guidelines regarding the different components of the system (base band, modems, RF and M&C)

2.3.3 The meeting considered this information and agreed on the following:

- During Phase II of CAFSAT re-engineering ANSPs should ensure to maintain or improve the current level of Quality of Service (QoS) of the Network by sustaining the best practices while taking the opportunity of the emerging technologies candidate for the future communication systems;
- The CAFSAT phase II exercise should enable the network to comply with the full IP scenario for the future services in accordance with ICAO Aviation System Block Upgrades (**ASBUs**) ;
- A transition period should be observed in order to smoothly include these emerging technologies such as **IPV 6** (not yet mature) in the network in order to support ATN components such as AMHS, VoIP;
- Provision of adequate bandwidth should be considered to support the identified services as well as satellite coverage beam in order to enable the growth of the CAFSAT Network;
- Although every ANSP will sign an individual contract for satellite spectrum provision, opportunities of spectrum provision should be explored amongst possible space segment providers including INTELSAT, the current spectrum provider, in order to ensure sustainability, availability and cost effectiveness of the future network.

2.4 Agenda Item 4: Update of the planning for the re-engineering and modernization of the CAFSAT Network

2.4.1 ASECNA presented to the meeting a draft updated planning for the re-engineering exercise. The meeting noted that the mobilization of the financial resources (Budget) will be the corner angle for the progress of the project.

2.4.2 ANSPs pointed out the regulatory constraints consisting on the provision of the yearly budget half a year before the forthcoming period. In this regard for most of CAFSAT members, the 2017 year budgets do not include the funding for the project. It was decided to update the draft planning taking into consideration this constraint and ANSPs were invited to include in the year 2018 budget the resources for the project.

The updated planning for the re-engineering and modernization of the CAFSAT Network is attached at **Appendix D**.

2.5 Agenda Item 5: Review and adoption of the Minutes of the Meeting

2.5.1 Under this Agenda item the meeting reviewed the minutes of the meeting through the main agreements as summarized and presented above.

2.6 Agenda Item 6: Any other business

2.6.1 Under this agenda item the meeting visited the facilities and the control room of the Canarias ACC.

2.6.2 The participants to the meeting expressed their gratitude to ENAIRE for having hosted the meeting and facilitated their attendance through the provision of assistance in transportation, accommodation, coffee and lunch breaks.

Appendix A

COORDINATION MEETING OF THE JOINT TECHNICAL TEAM FOR THE MODERNIZATION AND RE-ENGINEERING OF THE CAFSAT NETWORK

Canarias, Spain, 2-4 November 2016

List of Attendance

| N° | STATE/ ORGANIZATION | NAME | E-Mail |
|-----|-----------------------------|-------------------------------|--|
| 1. | Angola (ENANA) | Antonio Borges Pereira | apereira@Enana-ao.com borgesabp@gmail.com |
| 2. | | Aguinaldo Madureira | amadureira@enana-ao.com aguinaldomadureira@gmail.com |
| 3. | Cabo Verde (CAA) | Sabino Baptista | sabinogb@gmail.com |
| 4. | Cabo Verde (ASA) | Hamilton Pinheiro | hpinheiro@asa.cv |
| 5. | ASECNA | Bissa Sougué | souguebis@asecna.org |
| 6. | | Eric Damiba | damibaeri@asecna.org |
| 7. | Portugal (NAV Portugal) | Luis F. L. Rodrigues | luis.rodrigues@nav.pt |
| 8. | ENAIRES (Spain) | Antonio Arias | aariasf@enaire.es |
| 9. | | Fernando Luna | fluna@enaire.es |
| 10. | | Angel Crespo | acrespo@enaire.es |
| 11. | | Juan Alberto Sanchez | jacanestro@enaire.es |
| 12. | | Marcial Alfonso Sosa | malfonso@enaire.es |
| 13. | TRINIDAD TOBAGO (CAA) | Veronica RAMDATH | vramdath@caa.gov.tt |
| 14. | AICOX | Raul Castromil | rcastramil@aicox.com |
| 15. | ICAO | François Xavier SALAMBANGA | fsalambanga@icao.int |

Appendix C

COORDINATION MEETING OF THE JOINT TECHNICAL TEAM FOR THE MODERNIZATION AND RE-ENGINEERING OF THE CAFSAT NETWORK

Canarias, Spain, 2-4 November 2016

Details of aeronautical services to be supported by CAFSAT nodes

| Stations | | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|------------------------|-------------------|-----------------|-----------------|----------|
| Casablanca | Agadir | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| | 1 SSR | | | |
| | Dakar | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| | Las Palmas | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 OLDI | | | |
| | 1 SSR | | | |
| | Lisbon | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| 1 AIDC | | | | |
| Total Bandwidth | | | | |

| Stations | Casablanca | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|------------------------|--------------|-----------------|-----------------|----------|
| Dakar | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | Johannesburg | | | |
| | 1 ATS/DS | | | |
| | Las Palmas | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | Sal | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 SSR | | | |
| | 1 AIDC | | | |
| | Recife | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| 1 AIDC | | | | |
| Total Bandwidth | | | | |

| Stations | Johannesburg | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|------------------------|--------------|-----------------|-----------------|----------|
| Ezeza | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | Las Palmas | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| Total Bandwidth | | | | |

| Stations | Dakar | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|------------------------|------------|-----------------|-----------------|----------|
| Johannesburg | 1 AFTN | | | |
| | Ezeza | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| | Las Palmas | | | |
| | 1 AFTN | | | |
| | Recife | | | |
| | 1 ATS/DS | | | |
| 1 AFTN | | | | |
| Total Bandwidth | | | | |

| Stations | Casablanca | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|------------------------|--------------|-----------------|-----------------|----------|
| Las Palmas | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 OLDI | | | |
| | 1 SSR | | | |
| | Dakar | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| | Johannesburg | | | |
| | 1 AFTN | | | |
| | Sal | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | Recife | | | |
| | 1 ATS/DS | | | |
| 1 AFTN | | | | |
| Total Bandwidth | | | | |

| Stations | Casablanca | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|-----------------|-------------|-----------------|-----------------|----------|
| Lisbon | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 OLDI | | | |
| | 1 SSR | | | |
| | Las Palma | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 OLDI | | | |
| | 1 SSR | | | |
| | Santa Maria | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 OLDI | | | |
| | 1 SSR | | | |
| Total Bandwidth | | | | |

| Stations | Recife | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|-----------------|----------|-----------------|-----------------|----------|
| Luanda | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| Total Bandwidth | | | | |

| Stations | Casablanca | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|-----------------|------------|-----------------|-----------------|----------|
| Nouakchott | 1 AFTN | | | |
| | 1 ATS/DS | | | |
| | 1 SSR | | | |
| | Las Palmas | | | |
| | 1 AFTN | | | |
| | 1 ATS/DS | | | |
| Total Bandwidth | | | | |

| Stations | Dakar | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|------------------------|------------|-----------------|-----------------|----------|
| Recife | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| | 1 SSR | | | |
| | Las Palmas | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| Total Bandwidth | | | | |

| Stations | Dakar | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|------------------------|-------------|-----------------|-----------------|----------|
| Sal | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| | 1 SSR | | | |
| | Las Palma | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 OLDI | | | |
| | 1 SSR | | | |
| | Santa Maria | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 OLDI | | | |
| | 1 SSR | | | |
| Total Bandwidth | | | | |

| Stations | | Speed (Kbits/s) | Bandwidth (MHZ) | Comments |
|------------------------|------------|-----------------|-----------------|----------|
| Santa Maria | Las palmas | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 AIDC | | | |
| | Lisbon | | | |
| | 1 ATS/DS | | | |
| | 1 AFTN | | | |
| | 1 OLDI | | | |
| | Sal | | | |
| | 1 ATS/DS | | | |
| 1 AFTN | | | | |
| Total Bandwidth | | | | |

Appendix D

COORDINATION MEETING OF THE JOINT TECHNICAL TEAM FOR THE MODERNIZATION AND RE-ENGINEERING OF THE CAFSAT NETWORK

Canarias, Spain, 2-4 November 2016

Draft Action plan CAFSAT Re-engineering – second phase

| N° | Action | Actor | Deadline | Observations | Comments |
|----|--|--|--------------------------------|--|---|
| 1 | Correction of CAFSAT stations deficiencies | Each CAFSAT member ASECNA-ENAIRES-NAV-ONDA-ASA | 30 November 2016 | Correction of deficiencies impacting in the short term the operation of CAFSAT | Identification of deficiencies |
| 2 | Finalize of the ToR of the CAFSAT second phase re-engineering | JTT Technical coordination meeting | 30 th November 2016 | the terms of reference reviewed to be adopted by the meeting | Detailed definition of the operational requirements in line with the GANP, AFI-plan, ASBU and regional requirement. |
| 3 | CAFSAT Re-engineering Funding | CNMC/Administrations To make the necessary provision in their investment budget | 2018 (T0) | Each Administration to plan the budget | |
| 4 | Request For Proposal for Re-engineering phase II(RFP)/ call for Tender | CNMC/Administrations ICAO-WACAF to coordinate | T0+1 month (T1) | JTT to conduct RFP | Advertisement By CNMC Members |
| 5 | Tender Evaluation | CNMC/Administrations | T1+ 3 months (T2) | CNMC/Administrations to conduct Tender Evaluation | Tender Evaluation to be done in (TBD) |
| 6 | Award of contract | CNMC Administrations. | T2+1 month (T3) | Award with regards to CNMC members State regulation | After the evaluation brief to CNMC administrations |
| 7 | Implementation of CAFSAT Re-engineering | CNMC | T3+7 months (T4) | In accordance with the contract terms | Coordinating meetings to be held |
| 8 | Assessment of Re-Engineering | CNMC | T4+1 year | JTT to assess the Re-engineering process | After Sites Acceptance Test (SAT) |
| 9 | Report of the action plan to the CNMC board | CNMC Board | CNMC meeting | | |