

CNMC/4

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



**FOURTH MEETING OF CAFSAT NETWORK
MANAGEMENT COMMITTEE (CNMC/4)**

FINAL REPORT

Buenos Aires, Argentina, 4 - 5 August 2014

Prepared by ICAO, Secretariat of the meeting

The CNMC Meeting is as a result of the SAT Group Decision SAT/15/03:

Adoption of the Terms of Reference of CAFSAT Network Management Committee

Its Reports are therefore submitted to SAT/CNS/WG for review and action.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Fourth Meeting of the CAFSAT Network Management Committee (CNMC/4) was held in the Conference room of the Argent Tower Suite hotel, Buenos Aires, from 4 to 5 August 2014 in parallel with the SAT/FIT/9 Meeting and preceding the SAT/ 19 Meeting (6-8 August 2014).

1.2 Mr. **Alejandro Granados**, Director General of ANAC Argentina welcomed the participants. He pointed out the crucial role played by the CAFSAT to support the provision of a reliable Aeronautical Fixed Service (AFS)-ATS/DS & AFTN and noted the importance of CNMC meeting in the coordination and harmonization of the Network to support future applications such as AMHS and AIDC.

1.3 He also noted the main role of CAFSAT to enable the interconnection and the interoperability of ATM systems between AFI, EUR, NAT and SAM regions of automated ATM systems. He wished fruitful deliberation to the participants and opened the meetings.

2. Officers and Secretariat

The Meeting was chaired by Mr. **Sabino André Galvão Baptista**, Inspector ANS Cape Verde. Mr. **François Xavier Salambanga**, RO/CNS, ICAO WACAF Office served as Secretary of the meeting. He was assisted by Mr. **Onofrio Smarrelli** RO/ CNS, ICAO SAM Office who also serviced the SAT/FIT/9 Meeting together with Mr. Julio de Souza Pereira RO/ATM SAM.

3. Attendance

The meeting was attended by Seventeen (17) participants from nine (9) States (Angola, Argentina, Brazil, Cape Verde, Portugal, Senegal, South Africa, Trinidad & Tobago, Uruguay), three (3) Air Navigation Service Providers, namely **ASECNA**, **ATNS** and **Nav Canada**, and a Communication Integrator Company **ISDEFE** (Spain).

The list of participants is attached in **Appendix A** to this report.

4. Working Language

The meeting was conducted in the English language and the Working and Information Paper were submitted in this language.

5. Agenda

The Meeting adopted and discussed the following Agenda items through the Work programme.

Agenda Item 1: Review of the status of implementation of the Conclusion/Decision of the third meeting of CNMC (CNMC/3)

Agenda Item 2: Review the performance of CAFSAT earth stations and the operational statistics of availability for supported links

Agenda Item 3: Implementation of recommendations 6/19 of Special AFIRAN meeting

Agenda Item 4: Interconnection and interoperability of CAFSAT with its neighbouring networks

Agenda Item 5: Outcome of ITU WRC-12 pertaining to VSATs Networks and preparation of WRC-15

Agenda Item 6: CAFSAT modernization and re-engineering

Agenda item 7: Review of the Terms of Reference and Work Programme of CNMC

Agenda Item 8: Review of the draft Conclusions/Decisions of CNMC/4 Meeting

Agenda Item 9: Any other business

6. Summary of Conclusions

After deliberation the meeting adopted three (3) Decisions and eleven (11) Conclusions.

The conclusions/decisions are presented below:

Agenda Item 1: Review of the status of implementation of the Conclusion/Decision of the third meeting of CNMC (CNMC/3)

Conclusion 4/01: Implementation of the outstanding Conclusions/Decisions of the third meeting of CNMC (CNMC/3)

That:

CNMC Members States/Organizations that have not done so, implement the outstanding conclusions/decisions of the third meeting of CNMC as per Appendix B.

Conclusion 4/02: Reporting on CAFSAT Performance Statistics data to CNMC coordinator

That;

- a) Argentina nominate a coordinator for CNMC activities until next CNMC meeting, and communicate his details to the Secretariat;
- b) SAT States/Organizations be encouraged to use electronic mail to forward CAFSAT Performance Data to the current CNMC Coordinator for compilation, with copy to the Secretariat.

Decision 4/03: Establishment of a Study Group for the Automation of CAFSAT Performance Data and Assignment of focal points and a Team Leader

That;

- a) A Study Group is established to develop under the leadership of Brazil a framework for a cost effective and efficient automation of CAFSAT Performance Data Collection;
- b) SAT States/Organizations nominate focal points to participate in the activities of the Study Group;

- c) The Study Group will assess the existing statistics tools with regard to the Performance Data Collection Form (PDCF) and make proposals for possible automation to CNMC/5 meeting.

Agenda Item 2: Review of the performance of CAFSAT earth stations and the operational statistics of availability for supported links

Conclusion 4/04: Restoration of the AFTN & ATS/DS circuits between Nouakchott and Casablanca

That;

In collaboration with the industry SAT concerned States and Organizations urge to expedite the restoration of the AFTN & ATS/DS circuits between Nouakchott and Casablanca and report to CNMC coordinator with copy to the appropriate ICAO Regional Offices.

Conclusion 4/05: Reinforcement of the Coordination between Johannesburg and Recife, Johannesburg and Ezeiza

That;

South Africa provides a technical focal point in order to facilitate the technical coordination between Johannesburg and Recife, Johannesburg and Ezeiza and minimize the failure duration period of AFS (AFTN & ATS/DS) circuits supported by the CAFSAT nodes.

Agenda Item 3: Implementation of recommendations 6/19 of Special AFIRAN meeting

Conclusion 4/06: Reinforcement of SAT members participation in VSAT coordinating meetings seminars and workshops

That;

SAT concerned States/Organizations reinforce their participation to the meetings seminars and workshops conveyed in the framework of the implementation of Recommendations 6/19 of Special AFIRAN meeting calling upon to hold regular joint meetings under the auspices of ICAO regional offices for the purpose of harmonization and eventual realization of a seamless AFI communication network supporting all present and future CNS Systems.

Agenda Item 4: Interconnection and interoperability of CAFSAT with its neighboring networks

Conclusion 4/07: Consideration of upcoming services to increase the availability and reliability of CAFSAT Network

That;

SAT States/Organizations consider the requirements of the upcoming services to be supported by the CAFSAT Network (AMHS, AIDC, ATM Automated Systems Interconnection) to conduct bilateral/multilateral actions to reinforce the availability and reliability of the circuits supported by the CAFSAT Network.

Conclusion 4/08: Need of back up for the CAFSAT Network

That;

SAT States/Organizations take benefit of the example of backup system implemented in the CAR/SAM

Region for the satellite based REDDIG II network and envisage adequate techniques in order to ensure a seamless ground communication provision with regard to the requirements of the services supported by the CAFSAT Network.

Agenda Item 5: Outcome of ITU WRC-12 pertaining to VSATs Networks and preparation of WRC-15

Conclusion 4/09: Preparation of ITU WRC-15

That;

SAT States/Organizations reinforce the coordination of their CAAs with their National Authority of Regulation of Telecommunication in order to strengthen the support to ICAO position for WRC-15.

Conclusion 4/10: Future preparatory actions on WRC-15 Agenda item 9.1.5: Resolution 154 (WRC-12)

That;

As a matter of urgency, SAT States/Organizations:

- a) Consider the outcome of ITU Working Party 4A (as attached at **Appendix C**) which reflects ICAO inputs as the basis they may use to make their proposals to be included in the national position to the Conference (November 2015).
- b) Develop the adequate strategies with all the stakeholders in order to maintain/strengthen this draft CPM text during the future CPM meeting.
- c) Report to the current CNMC coordinator with copy to the Secretariat in the table attached at **Appendix D** on their effective actions conducted in the matter.

Agenda Item 6: CAFSAT modernization and re-engineering

Decision 4/11: Update of the deadline of the completion of Phase 1 of the CAFSAT modernization and re-engineering

That;

The deadline of the completion of Phase 1 of the CAFSAT modernization and re-engineering exercise is updated as attached at **Appendix E**.

Conclusion 4/12 Implementation of the CAFSAT node in Luanda

That;

Angola (ENANA) expedites the completion of the installation of the CAFSAT node in Luanda no later than 31 December 2014 in order to implement the required ATS/DS circuit between Luanda and Recife.

Conclusion 4/13: Future Phase of the CAFSAT modernization and re-engineering

That;

- a) A Joint Technical Team (JTT) is established under the leadership of Portugal in order to conduct a comprehensive evaluation of the future technical requirements to be considered for the future phases of the CAFSAT modernization and re-engineering;
- b) The Joint Technical Team composed with experts appointed by SAT States/Organizations will conduct its work with electronic mailing support and regularly report to the current CNMC coordinator and present his final report to next CNMC meeting.

Agenda Item 7: Review of the Terms of Reference and Work Programme of CNMC

Decision 4/14: Adoption of the Terms of Reference and Work Programme of CNMC

That:

The Term of Reference and Work arrangement of CNMC are adopted as attached in **Appendix F**.

PART II – REPORT ON AGENDA ITEMS

Agenda Item 1: Review of the status of implementation of the Conclusion/Decision of the third meeting of CNMC (CNMC/3)

1.1 Under this Agenda Item the Meeting reviewed the status of implementation of the Conclusion/Decision of the third meeting of CNMC (CNMC/3) held in Dakar, Senegal from 15 to 16 July 2013.

1.2 The meeting noted the progress made by Administration and Organizations in the implementation of these conclusions/decisions updated the table of conclusion and decisions as attached in **Appendix B** and encouraged SAT States /Organizations to implement those outstanding.

The following conclusion was formulated:

Conclusion 4/01: Implementation of the outstanding Conclusions/Decisions of the third meeting of CNMC (CNMC/3)

That:

CNMC Members States/Organizations that have not done so, implement the outstanding conclusions/decisions of the third meeting of CNMC as per **Appendix B**.

1.3 The meeting discussed the issue related to the collection of the Performance Statistics Data to CNMC coordinator. The Secretariat reported that only Portugal was sending regularly under the PDCF format the performance statistic of the Santa Maria and Lisbon stations. Some other States/organizations are sending from time to time.

1.4 The meeting was reminded on the key role of the current CNMC meeting coordination by the hosting States and encouraged CNMC members to E-report to Argentina the current coordinator until next CNMC meeting.

The following conclusion was formulated:

Conclusion 4/02: Reporting on CAFSAT Performance Statistics data to CNMC coordinator

That;

- a) Argentina nominate a coordinator for CNMC activities until next CNMC meeting, and communicate his details to the Secretariat;
- b) SAT States/Organizations be encouraged to use electronic mail to forward CAFSAT Performance Data to the current CNMC Coordinator for compilation, with copy to the Secretariat

1.4 Addressing the issue related to the automation of the collection of CAFSAT Performance Data, the meeting noted that there was not much progress accomplished. The meeting agreed on the idea of the establishment of a Study Group tasked to develop a framework for a cost effective and efficient scheme for the automation of the CAFSAT Network.

1.5 Brazil was nominated to lead this Study Group and States urged to designate Focal Points in this regard.

The following Decision was formulated:

Decision 4/03: Establishment of a Study Group for the Automation of CAFSAT Performance Data and Assignment of focal points and a Team Leader

That;

- a) A Study Group is established to develop under the leadership of Brazil a framework for a cost effective and efficient automation of CAFSAT Performance Data Collection;
- b) SAT States/Organizations nominate focal points to participate in the activities of the Study Group;
- c) The Study Group will assess the existing statistics tools with regard to the Performance Data Collection Form (PDCF) and make proposals for possible automation to CNMC/5 meeting.

Agenda Item 2: Review of the performance of CAFSAT earth stations and the operational statistics of availability for supported links

2.1 Under this agenda item the meeting reviewed and analyzed the performance of the Network based on statistics of availability of the links.

2.2 Analyzing the figures, the meeting acknowledged a good rate of availability of AFS links supported by CAFSAT. However it has been noted the outage of the Nouakchott/ Casablanca AFS link for a long period, despite the coordination carried out between the two centers.

2.3 The meeting strongly encouraged Nouakchott and Casablanca ACCs to take the appropriate actions in collaboration with the industry to restore as soon as possible the AFTN & ATS/DS circuits between the two ACCs.

The following conclusion was formulated.

Conclusion 4/04: Restoration of the AFTN & ATS/DS circuits between Nouakchott and Casablanca

That;

In collaboration with the industry SAT concerned States and Organizations urge to expedite the restoration of the AFTN & ATS/DS circuits between Nouakchott and Casablanca and report to CNMC coordinator with copy to the appropriate ICAO Regional Offices.

2.4 The Meeting was also informed by Argentina and Brazil on the difficulties encountered to coordinate maintenance operation with South Africa due to lack of a technical focal point in Johannesburg, language barrier and time differences resulting in long period of restoration of failing AFS

circuits.

2.5 The meeting encouraged the concerned States to improve their collaboration process and called upon South Africa to nominate a technical focal point.

The following conclusion was formulated:

Conclusion 4/05: Reinforcement of the Coordination between Johannesburg and Atlántico, Johannesburg and Ezeiza

That:

South Africa provides a technical focal point in order to facilitate the technical coordination between Johannesburg and Recife, Johannesburg and Ezeiza and minimize the failure duration period of AFS (AFTN &ATS/DS) circuits supported by the CAFSAT nodes.

Agenda Item 3: Implementation of recommendations 6/19 of Special AFIRAN meeting

3.1 Under this item the meeting was reminded on the recent activities conducted in the framework of the implementation of Recommendation 6/19 of the Special AFI/RAN meeting that calls for regular meetings of all AFI networks managers.

3.2 The meeting noted the progress made by the Task Force for the AFI Aeronautical VSAT Networks Regional Project and was briefed on the new orientation given to APIRG to conduct its task through regional project and encouraged concerned CNMC members to implement the Conclusion/Decisions derived from the outcome of the meetings of the Task Force and pursue their effort to actively participate in the future activities of the project.

The following conclusion was formulated.

Conclusion 4/06: Reinforcement of SAT members participation in VSAT coordinating meetings seminars and workshops

That;

SAT concerned States/Organizations reinforce their participation to the meetings seminars and workshops conveyed in the framework of the implementation of Recommendations 6/19 of Special AFIRAN meeting calling upon to hold regular joint meetings under the auspices of ICAO regional offices for the purpose of harmonization and eventual realization of a seamless AFI communication network supporting all present and future CNS Systems.

Agenda Item 4: Interconnection and interoperability of CAFSAT with its neighboring networks

4.1 Under this Agenda Item, the meeting reviewed the status of interconnection of CAFSAT with its neighboring networks (REDDIG, AFISNET) and addressed interoperability issues.

4.2 The Meeting was reminded on the actions agreed by CNMC/3 for the establishment of direct links based on the existing satellite VSAT networks (AFISNET and CAFSAT) after a case by case technical analysis and consideration of cost effective possible technical solutions.

4.3 The Meeting was informed on the coordination activities undertaken by the ICAO Regional Offices of Dakar, Lima and Mexico for the implementation of air traffic coordination required communication between Abidjan, Cayenne, Dakar, Piarco, Recife, Sal and Santa Maria.

4.4 The Meeting noted that a low pace of progression was made since then and encouraged the concerned stakeholders to take the opportunity to have side coordination meetings in order to make tangible proposal to clear out these deficiencies.

4.5 ASECNA, Brazil, Cape Verde, and Trinidad & Tobago held a meeting in this regard.

4.6 The meeting also discussed the requirements of upcoming services that must be supported by the network. It was agreed that the sensitivity of the future services such as AIDC will require the increment of the reliability of the Network. The participants encouraged SAT members to take due account of these requirements in the operation of interconnection and interoperability.

The following conclusion was formulated.

Conclusion 4/07: Consideration of upcoming services to increase the availability and reliability of CAFSAT Network

That;

SAT States/Organizations consider the requirements of the upcoming services to be supported by the CAFSAT Network (AMHS, AIDC, ATM Automated Systems Interconnection...) to conduct bilateral/multilateral actions to reinforce the availability and reliability of the circuits supported by the CAFSAT Network.

4.7 The Meeting examined the issue related to the need for the continuation of communication operation in case of satellite failure. An example was given with the REDDIG II Network which has a terrestrial fiber optic Network as back up.

4.8 It was agreed to envisage adequate techniques in order to ensure a seamless ground communication provision with regard to the requirements of the services supported by the CAFSAT Network.

The following conclusion was formulated:

Conclusion 4/08: Need of back up for the CAFSAT Network

That;

SAT States/Organizations take benefit of the example of backup system implemented in the CAR/SAM Region for the satellite based REDDIG II network and envisage

adequate techniques in order to ensure a seamless ground communication provision with regard to the requirements of the services supported by the CAFSAT Network.

Agenda Item 5: Outcome of ITU WRC-12 pertaining to VSATs Networks and preparation of WRC-15

5.1 The meeting was reminded on the main outcomes of ITU World Radiocommunication Conference (ITU-WRC-12) which was held in Geneva during the first quarter of year 2012.

5.2 The Secretariat provided the meeting with the details of the ongoing actions undertaken by ICAO in preparation of WRC-15 to be held in Geneva on November 2015.

5.3 The meeting recognized that the preparation of WRC needs a deep implication of Civil Aviation Authorities in liaison with the National Authorities of Regulation of Telecommunication which leads the conference preparation process by capturing and arbitrating the requests from the spectrum users. It was agreed therefore that SAT CAAs should hold the flag of the Civil Aviation community by summarizing the position of ICAO as well as the local concerns of aviation industry in terms of spectrum availability and harmful interferences prevention and mitigation.

5.4 Example of similar actions already undertaken in this regard were provided by Senegal and Argentina indicating that the concerned CAAs are fully involved in the preparatory meetings organized at the national level. The Secretariat confirmed that the ICAO WACAF regional office is involved in the preparatory meetings of Senegal.

5.5 The meeting encouraged these initiatives and confirmed the necessity to widely sensitize the respective CAAs to provide the regional organization of National Telecommunication Regulators (ATU, CITEL and CEPT) with the concerns of the aviation community what supposes that the position of ICAO is captured understood and shared with these stakeholders.

The following conclusion was formulated:

Conclusion 4/09: Preparation of ITU WRC-15

That;

SAT States/Organizations reinforce the coordination of their CAAs with their National Authority of Regulation of Telecommunication in order to strengthen the support to ICAO position for WRC-15

5.6 The meeting examined in particular the issue dealing with the protection of the C band 3400-4200 MHZ operated by the CAFSAT Network.

5.7 The Secretariat presented the outcome of ITU Working Party 4A (25 July 2014) which reflects ICAO inputs as the basis that may be used by SAT members to make their proposals to be included in the national position to WRC 15.

5.8 The Secretariat presented a table developed for the follow up of the identified future actions to be undertaken by SAT CAAs in preparation to the Conference. It was agreed that this follow up table will be filled up by Sat members and forwarded to the current CNMC coordinator (Argentina) for compilation and sharing.

The following conclusion was formulated:

Conclusion 4/10: Future preparatory actions on WRC-15 Agenda item 9.1.5: Resolution 154 (WRC-12)

That;

As a matter of urgency, SAT States/Organizations:

- a) Consider the outcome of ITU Working Party 4A (as attached at **Appendix C**) which reflects ICAO inputs as the basis they may use to make their proposals to be included in the national position to the Conference (November 2015).
- b) Develop the adequate strategies with all the stakeholders in order to maintain/strengthen this draft CPM text during the future CPM meeting.
- c) Report to the current CNMC coordinator with copy to the Secretariat in the table attached at Appendix D on their effective actions conducted in the matter.

5.9 The attention of the meeting was also reminded on the necessity to register CAFSAT nodes in order to ensure a suitable protection of the operation on the frequency C-band used by the CAFSAT Network

Agenda Item 6: CAFSAT modernization and re-engineering

6.1 Under this Agenda item the meeting examined the status of implementation of Phase 1 of the CAFSAT modernization and re-engineering project.

6.2 Based on the information received in real time, the meeting updated the follow up table and noted the progress made since CNMC/3 meeting. The Secretariat was tasked to collect the unavailable data from Casablanca FIR in order to complete the table.

The following Decision was formulated:

Decision 4/11: Update of the deadline of the completion of Phase 1 of the CAFSAT modernization and re-engineering

That;

The deadline of the completion of Phase 1 of the CAFSAT modernization and re-engineering exercise is updated as attached at **Appendix E**.

6.3 The meeting was informed by ENANA (Angola) on the status of implementation of the Luanda CAFSAT node (ongoing civil work for the installation of the antenna) and planning for the installation of the indoor unit. The crucial need for the establishment of the AFS ATS/DS circuit between Luanda and Recife was confirmed as a key element to ensure the coordination of air traffic between the two ACCs. The meeting therefore encouraged ENANA (Angola) to expedite the completion of the installation of the CAFSAT node in Luanda no later than 31 December 2014 in order to implement the required ATS/DS circuit.

The following conclusion was formulated:

Conclusion 4/12: Implementation of the CAFSAT node in Luanda

That;

Angola (ENANA) expedites the completion of the installation of the CAFSAT node in Luanda no later than 31 December 2014 in order to implement the required ATS/DS circuit between Luanda and Recife.

6.4 The meeting discussed the issue related to Step 3 of the document “Technical Study for CAFSAT upgrade (February 2012) adopted by CNMC. Portugal as Team Leader for the modernization presented technical proposals to be considered in order to improve the main transmission parameters of the CAFSAT Network (Bandwidth, FEC, Type of Access to the satellite...).

6.5 The meeting noted a real interest in the proposal made by Portugal and considering the technical complexity of the subject decided to establish a Joint Technical Team (JTT) led by Portugal and tasked to conduct a comprehensive evaluation of the future technical requirements to be considered for the future phases of the CAFSAT modernization and re-engineering.

The following conclusion was formulated:

Conclusion 4/13: Future Phase of the CAFSAT modernization and re-engineering

That;

- a) A Joint Technical Team (JTT) is established under the leadership of Portugal in order to conduct a comprehensive evaluation of the future technical requirements to be considered for the future phases of the CAFSAT modernization and re-engineering;
- b) The Joint Technical Team composed with experts appointed by SAT States/Organizations will conduct its work with electronic mailing support and regularly report to the current CNMC coordinator and present his final report to next CNMC meeting.

Agenda Item 7: Review of the Terms of Reference and Work Programme of CNMC

7.1 Under this Agenda Item the meeting reviewed the Terms of Reference and Work Programme of CNMC.

7.2 It was confirmed that ENANA, the Angola Air Navigation service provider currently CNMC observer will fully be core member after the implementation of the CAFSAT node in Luanda.

7.3 The meeting also agreed to clearly identify the ANSPs in the list of CNMC members and therefore added **DIRGENCTA** for Argentina and **DECEA** for Brazil in order to accordingly align the denomination similarly with those of the SAT ANSPs.

7.4 The meeting also replaced the name of the SAT facilities Provider INSA by ISDEFE and

identified REDDIG as a CAFSAT neighboring Networks (AFISNET, REDDIG) which can join the Committee as observers.

The following decision was formulated:

Decision 4/14: Adoption of the Terms of Reference and Work Programme of CNMC

That:

The Term of Reference and Work arrangement of CNMC are adopted as attached in **Appendix F**.

Agenda Item 8: Review of the draft Conclusions/Decisions of CNMC/4 Meeting

Under this agenda item the meeting discussed, amended and approved the draft conclusion/decisions presented by the Secretariat.

Agenda Item 9: Any other business

The Meeting expressed its gratitude to the Argentinean CAA for hosting and facilitating the holding of this meeting.

APPENDIX A
List of participants CNMC/4

| Name / Nombre Position / Título | Address / Datos |
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Appendix B

Status of Conclusions related to CNMC/3 Meeting

| Title | Status Implementation | Remarks |
|---|--|--|
| <p><u>Agenda Item 1:</u> Review of the status of implementation of the Conclusion/Decision of the second meeting of CNMC (CNMC/2)</p> <p><u>Conclusion 3/1:</u> Implementation of the outstanding conclusions/decisions of CNMC/2</p> <p><i>That;</i></p> <p><i>SAT members implement the outstanding conclusions/decisions of CNMC/2 as presented in Appendix B to the Report.</i></p> | Still valid | Implementation on going |
| <p><u>Agenda Item 2:</u> Review of the performance of CAFSAT earth stations and the operational statistics of availability for supported links</p> <p><u>Decision 3/2:</u> Periodic report on CAFSAT Performance</p> <p><i>That;</i></p> <p><i>States pursue their effort in the collection of CAFSAT Performance under the Performance Data Collection Form (PDCF) format and report quaternary to CNMC current coordinator (ASECNA) with copy to the secretariat.</i></p> | Partially implemented Portugal is reporting Regularly | ASECNA received regularly from Portugal States to be urged to send the report to the CNMC current coordinator. Details of Focal points to be sent to the coordinator |
| <p><u>Conclusion 3/3:</u> Automation of the collection of CAFSAT Performance</p> <p><i>That;</i></p> <p style="padding-left: 20px;">a) <i>SAT members undertake the automation of the collection of CAFSAT performance based on the PDCF data collection format.</i></p> <p style="padding-left: 20px;">b) <i>Portugal to share the software tool currently used to monitor AFS performance.</i></p> | Still valid | Collection to be undertaken quaternary |
| <p><u>Decision 3/4:</u> Establishment of a study Group for the Automation of CAFSAT Performance</p> <p><i>That;</i></p> <p><i>A CNMC specialized Study Group be established in order to develop by end of year 2013 technical requirements for the automation of CAFSAT</i></p> | Still valid not implemented | Team leading assignment to be established |

| Title | Status Implementation | Remarks |
|---|-----------------------|--|
| <i>Performance with Terms of Reference Composition and Work Programme presented in Appendix C.</i> | | |
| <p>Agenda Item 3: Implementation of recommendations 6/19 of Special AFIRAN meeting</p> <p>Conclusion 3/5: Participation of SAT members to the AFI Task Force on Integrated Regional telecommunication Infrastructure</p> <p><i>That;</i></p> <p><i>CNMC concerned members (Cape Verde, Cote d'Ivoire, Mauritania, Morocco, Senegal) endeavor to regularly attend the meeting of the AFI Task Force on Integrated Regional telecommunication Infrastructure.</i></p> | Still valid | <p>Low pace of participation of concerned States/Organization to the Regional meeting</p> <p>Participation noted for ASECNA & ATNS</p> |
| <p>Agenda Item 4: Interconnection and interoperability of CAFSAT with its neighboring networks</p> <p>Conclusion 3/6: Communication Requirement between Abidjan, Cayenne, Dakar, Piarco, Recife, Sal and Santa Maria</p> <p><i>That;</i></p> <p>a) <i>In order to ensure a sustainable Aeronautical Fixed Service between ATCs, Atlántico (Brazil), Sal Fir (Cape Verde), Dakar Fir (Cote d'Ivoire, Senegal), Cayenne Fir (French Guyana), Santa Maria Fir (Portugal), and Piarco Fir (Trinidad & Tobago) envisage the establishment of direct links based on the existing satellite VSAT networks (AFISNET and CAFSAT) and conduct case by case technical analysis taking into consideration the cost effectiveness of the possible solutions.</i></p> <p>b) <i>SAT Secretariat to coordinate technical meetings (including teleconferences and e-meetings) for collaborative decision making and report to next CNMC meeting.</i></p> | Still valid | <p>Coordination between ASECNA & Cayenne ASECNA & Piarco ASECNA & Recife and Piarco & Sal on going</p> |

| Title | Status Implementation | Remarks |
|--|-----------------------|--|
| <p><u>Agenda Item 5: Outcome of ITU WRC-12 pertaining to VSATs Networks and preparation of WRC-15</u></p> <p><u>Conclusion 3/7: Support to ICAO position for WRC-15 and Protection of the C-Band operated by CAFSAT Network</u></p> <p><i>That;</i></p> <p><i>CNMC members support ICAO position for WRC-15 and take the appropriate actions aiming to protecting the C-Band operated by CAFSAT Network by:</i></p> <ul style="list-style-type: none"> <i>a) Registering CAFSAT nodes in the ITU data base through their National Regulator of Telecommunication;</i> <i>b) Sensitizing their National Regulator of Telecommunication on international Civil Aviation requirements for spectrum;</i> <i>c) Promoting the ICAO contribution to the ITU-R Working Parties in preparation to WRC-15.</i> | Still valid | <p>ASECNA sent information including spectrum and stations coordinates to Telecommunication Regulators;</p> <p>Ongoing sensitization</p> <p>Argentina registered CAFSAT stations</p> <p>Argentina submitted to the Regulator the requirement of ICAO</p> <p>Angola submitted details to the Regulator</p> |
| <p><u>Agenda Item 6: CAFSAT modernization and re-engineering</u></p> <p><u>Decision 3/8: Appointment of the Team Leader of the Joint Technical Team for CAFSAT Modernization and Re-engineering</u></p> <p><i>That;</i></p> <p><i>Nav Portugal is appointed as Team Leader for the Joint Technical Team for CAFSAT Modernization and Re-engineering</i></p> | Implemented | |

| Title | Status Implementation | Remarks |
|--|---------------------------|---------|
| <p><u>Conclusion 3/9: Re-schedule of CAFSAT re-engineering</u></p> <p><i>That;</i></p> <p><i>CAFSAT modernization and re-engineering be rescheduled taking into consideration the recent progress development reported by CNMC members;</i></p> <p><i>a) The Team Leader in collaboration with the industry develop by end of September, a table aiming to facilitating the coordination of the re-engineering exercise;</i></p> <p><i>b) The table will contain the planned actions with expected deadline and the components of the nodes upgrades.</i></p> | <p>Still valid</p> | |
| <p><u>Agenda Item 7: Review of the Terms of Reference and Work Programme of CNMC</u></p> <p><u>Conclusion 3/10: Terms of Reference and Work Programme of CNMC</u></p> <p><i>That;</i></p> <p><i>The Terms of Reference and Work Programme of CNMC are adopted as presented in Appendix D.</i></p> | <p>Implemented</p> | |
| <p><u>Agenda Item 8: Review of the draft Conclusions/Decisions of CNMC/3 Meeting</u></p> | | |
| <p><u>Agenda Item 9: Any other business</u></p> <p><u>Decision 3/11: Follow up of the outcome of the ICAO 12th Air Navigation Conference</u></p> <p><i>That;</i></p> <p><i>When conducting CAFSAT modernization, CNMC members consider the requirement of ICAO Aviation System Blocs Upgrades (ASBU) and the CNS Roadmap developed by ICAO 12th Air Navigation Conference.</i></p> | <p>Still valid</p> | |

APPENDIX C
Outcome of ITU Working Party 4A



Radiocommunication Study Groups

Source: Document 4A/TEMP/249

**Annex 12 to
Document 4A/591-E
25 July 2014
English only**

Subject: WRC-15 agenda item 9.1, issue 9.1.5
Resolution **154 (WRC-12)**

Annex 12 to Working Party 4A Chairman's Report

DRAFT CPM TEXT ON WRC-15 AGENDA ITEM 9.1, ISSUE 9.1.5

AGENDA ITEM 9.1

2. 9 *to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:*

9.1 *on the activities of the Radiocommunication Sector since WRC-12;*

5/9.1.5 Resolution 154 (WRC-12)

Consideration of technical and regulatory actions in order to support existing and future operation of fixed-satellite service earth stations within the band 3 400-4 200 MHz, as an aid to the safe operation of aircraft and reliable distribution of meteorological information in some countries in Region 1

(**WP 4A** (technical and regulatory aspects), **SC** (regulatory and procedural aspects) / -)

5/9.1.5/1 Executive summary

Resolution **154 (WRC-12)** invites the ITU-R to study possible technical and regulatory measures in some countries in Region 1 to support the existing and future fixed-satellite service (FSS) earth stations in the 3 400-4 200 MHz band used for satellite communications related to safe operations of aircraft and reliable distribution of meteorological information, considering that where an adequate terrestrial communication infrastructure is not available, FSS earth stations are the only viable option to augment the communication infrastructure in order to satisfy the overall communications infrastructure requirement of the International Civil Aviation Organization (ICAO) and to ensure distribution of meteorological information under the auspices of the World Meteorological Organization (WMO).

5/9.1.5/2 Background

The efficient provision of air navigation services requires the implementation and operation of ground communications infrastructure with high availability, reliability and integrity. In some countries in Africa, the difficulty of fulfilling these requirements, given the extent of the airspace and weakness in terrestrial communication infrastructure, has led to the extensive deployment of an aeronautical communication infrastructure based on very small aperture terminal (VSAT) systems operating in the FSS. The frequency

band of operation is the 3 400-4 200 MHz band (with the standard C-band frequency range being 3 700-4 200 MHz and the extended C-band frequency range being 3 400-3 700 MHz), which, due to more pronounced rain attenuation at higher frequency bands, is the most viable option for satellite links with high availability in tropical regions.

This infrastructure currently spans the entire region and is crucial to ensure the continued growth of traffic while maintaining safe operation of aircraft. The same band is also used for the distribution of meteorological data via satellites under the auspices of the WMO.

WRC-07 allocated the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service on a primary basis in 81 countries in Region 1, subject to regulatory and technical restrictions (see RR No. **5.430A**). The deployment of mobile service systems in the vicinity of airports has led to an increased number of cases of interference into the FSS (VSAT) receivers. Consequently, some additional measures are needed to improve the protection of the FSS links supporting aeronautical and meteorological communications. Depending on whether the interference cases are between two stations in the same country (domestic case) or between two stations in neighbouring countries (cross-border case), the consideration of such measures is either a national spectrum-regulatory matter, or an issue of international spectrum regulation between countries.

WRC-12 adopted Resolution **154 (WRC-12)**, and invited the ITU-R to study possible technical and regulatory measures in some countries in Region 1 to support the existing and future FSS earth stations in the 3 400-4 200 MHz band used for satellite communications related to safe operations of aircraft and reliable distribution of meteorological information referred to in *considering c*).

Regional coordination was carried out between African Civil Aviation Authorities, air navigation service providers (ANSPs) and the African Telecommunication Union (ATU) in preparation for WRC-15. As a result, the first ATU preparatory meeting to ITU WRC-15 held in Dakar (Senegal), from 18 to 20 March 2013 recommended ATU Member States to “reinforce their support to the existing and future FSS earth stations in the 3 400-4 200 MHz band used for satellite communications related to safe operation of aircraft and reliable distribution of meteorological information by participating in the studies for possible technical and regulatory measures called upon by ITU Resolution 154 (WRC-12).”

5/9.1.5/3 Summary of technical and operational studies, including a list of relevant ITU-R Recommendations

Report ITU-R [M.2109](#) contains sharing studies between IMT-Advanced systems and geostationary satellite networks in the FSS in the 3 400-4 200 and 4 500-4 800 MHz frequency bands.

Report ITU-R [S.2199](#) contains studies on compatibility of broadband wireless access systems and FSS networks in the 3 400-4 200 MHz band.

Recommendation ITU-R [SF.1486](#) contains a sharing methodology between fixed wireless access systems in the fixed service and VSATs in the FSS in the 3 400-3 700 MHz band.

Recommendation ITU-R [S.1856](#) contains methodologies for determining whether an IMT station at a given location operating in the band 3 400-3 600 MHz would transmit without exceeding the power flux-density limits in RR Nos. **5.430A**, **5.432A**, **5.432B** and **5.433A**.

These studies show a potential for interference from IMT and broadband wireless access stations into FSS earth stations at distances of up to several hundred kilometers. Such large separation distances would impose substantial constraints on both mobile and satellite deployments. The studies also show that interference can occur when IMT systems are operated in the adjacent frequency band.

5/9.1.5/4 Regulatory and procedural considerations

Resolution **154 (WRC-12)** could be modified, calling for relevant administrations in Region 1 to use special care in the coordination, assignment, and management of frequencies taking into consideration the potential impact on FSS earth stations used for satellite communications related to safe operation of aircraft and reliable distribution of meteorological information in the band 3 400-4 200 MHz.

In parallel to the modification of Resolution **154 (WRC-12)**, consideration may be given to modifying RR No. **5.430A** to include a reference to the modified Resolution.

An example of modification of Resolution **154 (WRC-12)** follows.

MOD

RESOLUTION 154 (REV.WRC-15)

Technical and regulatory actions in order to support existing and future operation of fixed-satellite service earth stations within the band 3 400-4 200 MHz, as an aid to the safe operation of aircraft and reliable distribution of meteorological information in some countries in Region 1

The World Radiocommunication Conference (Geneva, 2015),

Considering

- a) that the band 3 400-4 200 MHz is allocated worldwide to the fixed-satellite service (FSS) in the space-to-Earth direction and to the fixed service on a primary basis;
- b) that the band 3 400-3 600 MHz is allocated on a primary basis to the mobile, except aeronautical mobile, service in the countries in Region 1 specified in No. **5.430A** and identified for International Mobile Telecommunications (IMT) in those countries;
- c) that in Region 1 the allocation to the mobile, except aeronautical mobile, service in the band 3 400-3 600 MHz is subject to the technical and regulatory limitations listed in No. **5.430A**, aimed at ensuring compatibility with co-primary services of neighbouring countries;
- d) that a number of developing countries rely, to a great extent, on FSS systems using very small aperture terminals (VSAT) in the band 3 400-4 200 MHz for provision of communications related to safe operation of aircraft and reliable distribution of meteorological information;
- e) that, in some cases where an adequate terrestrial communication infrastructure is not available, VSAT networks referred to in *considering d)* above are the only viable option to meet the safety requirements of the International Civil Aviation Organization (ICAO) and to ensure distribution of meteorological information under the auspices of the World Meteorological Organization (WMO);
- f) that the relevant ITU-R studies showed a potential for interference from fixed wireless access and IMT stations into FSS receiving earth stations at distances from tens of kilometres up to hundreds kilometres, depending on the parameters and deployment of stations of these services;
- g) that WRC-12 recognized these sharing difficulties and decided to study technical and regulatory measures to support the FSS earth stations referred to in *considering e)* above,

noting

- a) that by the date of WRC-15 several cases of harmful interference to FSS VSATs used for aeronautical safety communications from fixed wireless access or IMT stations of the same administration were reported;
- b) that these reported cases of interference revealed some national difficulties in the coordination of frequencies between the respective national telecommunication regulators responsible for licensing fixed wireless access or IMT systems and national aviation authorities responsible for the management of frequencies for aeronautical purposes, including assignments for VSATs;
- c) that in many countries FSS VSAT earth stations are not subject to individual licencing and not registered as specific stations in national frequency databases and in the ITU Master International Frequency Register (MIFR) due to considerable administrative work;
- d) that the knowledge of the location and operational frequencies of VSAT stations used for communications related to the safe operation of aircraft and/or distribution of meteorological information is critically important for ensuring compatibility with applications of other services,

recognizing

- a) that ITU-R conducted comprehensive studies of compatibility between FSS on the one hand and the fixed wireless access systems and IMT applications on the other hand in the band 3 400-4 200 MHz and summarized the results of the studies in Recommendation ITU-R SF.1486 as well as Reports ITU-R S.2199 and ITU-R M.2109;
- b) that the Recommendation and Reports identified in *recognizing a)* offer a set of mitigation techniques that could be employed for international coordination and at a national level and to facilitate coexistence of FSS, fixed and mobile services systems;
- c) that Recommendation ITU-R S.1856 contains methodologies for verification of the power flux-density (pfd) limit set forth in No. **5.430A**,

resolves

- 1 that administrations shall ensure the compliance of the IMT stations subject to No. **5.430A** with the pfd limit set forth therein and apply the relevant coordination procedures before bringing these applications in use;
- 2 to urge administrations, when planning and licencing fixed point-to-point, fixed wireless access, and IMT systems in bands referred to in *considering b)* above, to take into account the protection needs of existing and planned FSS VSAT earth stations by coordinating the deployment of the systems mentioned above with the respective aviation and meteorological authorities at a national level;
- 3 to invite administrations, taking into account the number of earth stations involved for this particular type of usage, to consider the possibility of licencing FSS VSAT earth stations used for communications related to the safe operation of aircraft and/or distribution of meteorological information on an individual basis and registering them in the MIFR as specific earth stations;
- 4 to encourage administrations to employ the appropriate mitigation techniques described in the ITU-R publications referred to in *recognizing a)* above;
- 5 to invite administrations to ensure that the application of these technical and regulatory measures to the FSS and mobile service does not limit the use of the band 3 400-4 200 MHz by other existing and planned systems and services in other countries,

instructs the Secretary-General

to bring this Resolution to the attention of ICAO and WMO.

Appendix D**Action by SAT States & Organizations to support ICAO position for WRC-15
(in particular Agenda Item 9.5.1)****Name of the States:****Name of the ANSP:****Date of the Report:**

| WRC Agenda item | Date of formal submission to the Nation Authority of Regulation Of Telecommunication | Date of discussion on the concerned WRC Chapter | National position on ICAO position | Future action | Comments |
|------------------------------|---|--|---|----------------------|-----------------|
| 9.1.5 VSATs on C BAND | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

APPENDIX E

CAFSAT stations upgrade plan (*)

| Station | Current situation | Schedule | Deadline | Notes |
|--------------|---|---|--------------|------------|
| Casablanca | Request for proposal from ONDA to implement the domestic network including the upgrade of the CAFSAT Station beginning by October | Six(6) months after contract signature (around June 2015) | June 2015 | Casablanca |
| Dakar | Done on May 2014 | | | |
| Ezeiza | Contract with ISDEFE via ICAO TCB around end 2014 | Six(6) months after contract signature (around June 2015) | June 2015 | |
| Johannesburg | Finalizing purchase of equipment and contract for upgrade | November/December 2014 | December | |
| Las Palmas | Done. April 2014 | NA | 2014 | |
| Lisbon | Partially done. Upgrade will be completed by September/October | September / October 2014 | NA | 1) |
| Luanda | Civil work for the antenna ongoing | | October 2014 | |
| Nouakchott | Done. June 2014 | | | |
| Recife | Done. November 2013 | | 2014 | 2) |
| Sal | Done. November 2013 | | NA | |
| Santa Maria | Partially done. | September /October 2014 | NA | 3) |

(*) Upgrade according Phase 1 – Step 3 of document “Technical Study for CAFSAT network upgrade – February 2012“

Notes:

- 1) Link Lisbon – Santa Maria already done (October 2010).
- 2) Links Recife-Dakar and Recife-Las Palmas done. Links Recife - Johannesburg and Recife - Luanda will be established when sites finish upgrading.
- 3) Links Lisbon (October 2010) and Sal (November 2013), already done



Appendix F

TERMS OF REFERENCE OF THE CAFSAT NETWORK MANAGEMENT COMMITTEE (CNMC)

1. Mandate of the CAFSAT Management Committee

- 1.1 Decide on the network concept and topology in accordance with the relevant ATM operation requirements and based on ICAO SARPs and guidance materials.
- 1.2 Ensure the continued operation of the CAFSAT network, meeting the CNS/ATM plan requirements of the AFI /NAT/EUR/SAM Regions while taking into consideration CNS/ATM plans of adjacent regions, and including approval of deployment plans and/or extension plans.
- 1.3 Decide on type and levels of service to be provided, and monitor the performance of the Network providers (facilities and leased band) to ensure that service delivery meets required service performance for Aeronautical Fixed Service criteria previously pre-determined in accordance with the Manual of ATS ground-ground Voice Switching and Signaling (Doc 9804), the Procedures for Air Navigation Services - ATS Management (DOC. 4444), Annex X Vol.II, Chap. 4 and Annex XI.
- 1.4 Ensure that participating States/Organizations provide statistics on the Network Performance, and investigate service delivery complaints from users.
- 1.5 Review and take the appropriate actions to clear the service dysfunctions within the required service performance defined criteria in line with ATM PBN and SMS requirements.
- 1.6 Monitor the harmonization of the implementation of facilities and services and, where necessary, ensure interregional connectivity, taking due account of cost/benefit analysis, business case development and financing issues:
 - Study the extension of the network to other countries.
 - Propose the network integration and interoperability with other neighboring networks
- 1.7 Monitor and harmonize the Network maintenance operation and management by defining a cooperation methodology between network centers in regard with:
 - Maintenance personnel team training and exchange, redeployment if necessary of a technical assistance;
 - Spare parts exchange, fault location/repairs, and turnaround time
 - Development and modernization of CAFSAT after a Joint Technical Evaluation and Re-engineering team assessment.
- 1.8 Review and adopt the annual follow up on the meeting conclusion and update the future work programme.
- 1.9 The report of CAFSAT Network Management Committee is to be addressed to SAT/CNS-WG

2. Composition and organization of the Committee

The CAFSAT Network Management Committee (CNMC) is composed of member States/Organizations hosting/operating CAFSAT nodes, namely:

- **AENA (Spain)**
- **ANAC-DIRGENCTA (Argentina)**
- **ASA (Cape Verde)**
- **ASECNA (Congo, Côte d'Ivoire, Mauritanie, Senegal)**
- **ATNS (South Africa)**
- **DECEA (Brasil)**
- **NAV Portugal (Portugal)**
- **ONDA (Morocco)**

Observers as facilities providers (**ISDEFE**), satellite spectrum providers (**INTELSAT**), Airline Associations (**IATA**), Maintenance Personnel Association (**IFATSEA**), neighboring Networks (**AFISNET**, **REDDIG**) can join the Committee.

- 2.1 The Chair of the Committee shall be elected by the Committee from among the Committee members every year. The Chair may be re-elected for no more than two periods of one year each. The mandate as Chair of the Committee shall not exceed three years.
- 2.2 ICAO shall be the Secretary of the Committee.
- 2.3 To ensure that the Committee functions optimally, the designated representatives of Air Navigation Service Providers should have experience in the provision of air navigation infrastructure and services. Advisors may accompany the Representative.

3. Participation by International Organizations

Moreover those listed in paragraph 2, the Committee may invite representatives of appropriate regional and international organizations (**ATU**, **CITEL**, **CEPT**, **ITU**, **EUROCONTROL...**) to attend meetings in the capacity of observer.

4. Establishment and Dissolution of Contributory Bodies

- 4.1 In order to assist in its work, the Committee may establish bodies, e.g. task forces, charged with preparatory work on specific issues. Representation in such contributory bodies should be by specialists in the subjects concerned and familiar with the issues under consideration.
- 4.2 The establishment and work of contributory bodies shall be governed by the following provisions:
 - a) A contributory body shall only be formed when it has been clearly identified that it is likely to make a substantial contribution to the resolution of the issue in question.
 - b) A contributory body shall be given clear and concise terms of reference describing its task and an expected target date for its completion.

- c) The composition of a contributory body shall be such that, although intended to be as small as possible, all participating States and any organization deemed to be able to make valid contributions shall be given an opportunity to participate in it.
- d) A contributory body shall be dissolved as soon as it has either completed its assigned task or it has become apparent that work on the subject in question cannot be usefully continued.

5. Working arrangements

- 5.1 The Committee ordinary meeting will be hosted by one of the State\organizations and held at least once a year in principle in parallel with the SAT /FIT meeting;
- 5.2 The committee can hold in case of absolute necessity extraordinary meetings to clear out urgent problems that may be a threat to the service provided by the network;
- 5.3 The invitation letter to the meetings is issued by the Secretariat in coordination with the hosting State/Organization.
- 5.4 Decisions shall be reached by consensus.
- 5.3 Two-thirds of members shall constitute a quorum and, where a quorum is not achieved, decisions will be reached through correspondence under the Chair Person coordination.

– END –