MR/TF

INTERNATIONAL CIVIL AVIATION ORGANIZATION

MEVA II / REDDIG
INTERCONNECTION TASK FORCE MEETING

FINAL REPORT

(Mexico City, Mexico 3 to 5 May 2006)

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REPORT OF THE MEVA II / REDDIG INTERCONNECTION TASK FORCE MEETING

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Prepared by the Secretariat May 2006

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History of the Meeting

ii.1 Place and duration

The Meeting of the MEVA II / REDDIG Interconnection Task Force was held on the premises of the ICAO North America, Central America and Caribbean Office in Mexico City. The Meeting initiated its sessions in 3 May and finalized in 5 May 2006.

ii.2 Opening ceremony

Mr. José A. Díaz de la Serna, Acting Regional Director of the NACC Office welcomed the Delegates and opened the Meeting wishing them success in attaining the objectives and emphasized the necessity of close inter-regional cooperation in order to analyze possible solutions for the interconnection of MEVA and REDDIG networks in accordance with the GREPECAS conclusions and of the ALLPIRG/5 Meeting. Also, Mr. Aldo Martínez, Communications, Navigation and Surveillance regional Officer of the ICAO NACC Office, welcomed the participants to this Meeting and congratulated the REDDIG members for the results achieved in the MEVA II / REDDIG Coordination Meeting, in which two working papers were prepared for this Meeting. He also thanked the participation of the members of the Group in this Meeting.

ii.3 Organization, Officers and Secretariat

Mr. Aldo Martínez acted as Chairman and as Secretary assisted by Mr. Onofrio Smarrelli, ICAO SAM CNS Regional Officer.

ii.4 Working languages

The working languages of the Meeting and its documentation were in Spanish and English. The Meeting Report was edited in Spanish and English.

ii.5 Agenda

The following Agenda was adopted:

Agenda Item 1: Analysis to the proposals for the MEVA II / REDDIG Networks total homogeneous integration/interoperation

Agenda Item 2: Analysis to the proposals for the interconnection/interoperability between nodes in the MEVA II and REDDIG networks requiring it

Agenda Item 3: Development of a proposal for actions to implement the recommended option for the integration/interconnections of the MEVA II and REDDIG networks

Agenda Item 4: Other matters

ii.6 **Schedule and Working Method**

The Meeting examined its agenda items as a Plenary.

ii.7 **Attendance**

The Meeting was attended by 9 delegates from 5 States, one International Organization, COCESNA and one Oberver, Americom Government Services. The List of participants is included in this part of the report.

ii. 8 **List of Draft Conclusions**

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LIST OF DOCUMENTATION

WORKING PAPERS

Number	Agenda Item	Title	Date	Presented by
WP/01	--	Proposal on the Agenda, Organization and working Schedule of the MEVA II / REDDIG Interconnection Task Force Meeting	05/04/06	Secretariat
WP/02	1,2,3	Follow-up to the conclusions formulated by the MEVA II / REDDIG Coordination Meeting	11/04/06	Secretariat
WP/03	1,3	Feasibility Study on Homogeneous Integration / Interoperability	28/04/06	Working Group Rapporteur
WP/04	2,3	Feasibility Study on the Interconnection / Interoperability between nodes requiring it in MEVA II and REDDIG Networks	28/04/06	Working Group Rapporteur

INFORMATION PAPERS

N°	Agenda Item	Title	Date	Prepared by
IP/01	--	General Information	31/03/06	Secretariat
IP/02	--	List of Working and Information Papers	**Rev.** 04/05/06	Secretariat
IP/03	1	Results of the ALLPIRG/5 Meeting on the use of VSAT Regional Networks	05/04/06	Secretariat
IP/04	3	Description of FAA Security requirements for MEVA II	03/05/06	United States

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LISTA DE PARTICIPANTES / LIST OF PARTICIPANTS

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Agenda Item 1: Analysis to the proposals for the MEVA II / REDDIG Networks total homogeneous integration/interoperation

Follow-up to the Conclusions of the MEVA II-REDDIG Coordination Meeting

1.1 The Meeting followed-up the three Conclusions formulated by the MEVA II-REDDIG Coordination meeting, held in Lima, Peru from 20 to 22 March 2006; the follow-up status is shown in **Appendix A** to this Report. Also, the Meeting based in the work developed by the mentioned Coordination Meeting indicated as follows:

- Summary of the CAR/SAM interoperability requirements
- Summary of the NAM/SAM interoperability requirements
- Diagram of a proposal for a MEVA / REDDIG integration
- Diagram of a proposal for a MEVA II / REDDIG Interconnection
- Preliminary Memorandum of Understanding of a cooperative technical-operational agreement for the establishment of the integration/interconnection/interoperability of the MEVA II and REDDIG networks
- REDDIG institutional arrangements
- MEVA II institutional arrangements
- Preliminary proposal of institutional aspects for the establishment of an homogeneous integration/interconnection between the MEVA II and REDDIG Networks

Follow-up to the Conclusions formulated by the ALLPIRG/5 Meeting

1.2 The Meeting was also informed on the results of the fifth Meeting of the ALLPIRG/Advisory Group (ALLPIRG/5), held in ICAO Headquarters in Montreal, Canada from 23 to 24 March 2006, in relation to its Agenda item 5, under which the mentioned Meeting reviewed the items related with the implementation of the VSAT networks.

1.3 The ALLPIRG/5 Meeting by considering the items associated to the implementation of the ground communication networks using a very small aperture terminal (VSAT), noted that in certain ICAO Regions, VSAT has been the technology of choice for the provision of aeronautical fixed service (AFS) and other ground-ground communications. However, the continuing trend towards proliferation of such networks has been of concern due to cost and complexity of their interconnections and potential degradation of end-to-end performance. It was agreed that any network upgrade or renewal opportunity should be used to integrate neighboring VSAT networks.

1.4 With regards to the network protocols used in VSAT networks, the Meeting noted the widespread availability of Internet Protocol (IP) products and services and the work of the Organization on the development of provisions relating to the use of the Internet Protocol Suite (IPS) in aeronautical communications as well the use of the public Internet. As such, it was agreed that the use of IP and IPS would greatly facilitate the interconnection of various regional VSAT or terrestrial networks and would also provide their connection to the public Internet when and where necessary.

1.5 The ALLPIRG/5 Meeting when completing the discussions on the related items with the proliferation of VSAT networks, consequently, adopted Conclusion 5/16 – *Implementation of very small aperture terminals (VSATs)*, as well as Conclusion 5/17 - *Provisions for digital communication networks.* The texts of these conclusions are shown in **Appendix B** to this part of the Report.

1.6 When analyzing the ALLPRIG/5 Meeting results, the Meeting considered that guidelines above-mentioned were taken into account with the technical configurations and analysis of cost-benefit for the integration of the MEVA II and REDDIG networks.

VSAT MEVA II and REDDIG networks homogeneous integration option

1.7 With respect to this agenda item, the Meeting deepen in the technical-operational study of Option 1 for the homogeneous integration of MEVA I and REDDIG Networks, including the cost/benefit analysis, the definition of the necessary resources and the elaboration of proposals for the operation and control of the required services and other related aspects in order to achieve this objective.

1.8 The Meeting indicated that the homogeneous integration option would allow the interoperability of the VSAT MEVA II and REDDIG networks in an homogeneous form, that is like if there was only one VSAT network without the need to implement other mean of communications for the interconnection.

1.9. This interconnection would be facilitated due to the fact that the MEVA II VSAT Network shall be developed under a full mesh topology network using TDMA/Frame Relay satellite access, PAS 1R satellite with a beam over United States/Latin America, C-band operation frequencies and vertical linear polarization. The main technical characteristics of the MEVA II are of the same type of the VSAT REDDIG network. Additionally, the MEVA II network would be using similar and compatible equipment with as with REDDIG, such as the FRAD and MODEN satellites, contributing even more to the homogeneous integration of the two networks.

1.10 The Meeting proposed two phases for the homogeneous integration of the VSTA MEVA II and REDDIG Networks:

a) *Initial Phase: Develop a Memorandum of Understanding between REDDIG and the COCESNA and CAR/NAM State, meanwhile the MEVA II first contract lasts with AGS, with the objective to establish different levels of this American Integrated Network organization and the involved responsibilities, maintaining the actual service providers.*

b) *Consolidation Phase: Consists in the creation of a Multiregional Organization (OMR) integrated by the States/Territories/International Organizations Members of the networks, to hire the operation and "outsourcing" services of the telecommunications integrated network to only one service provider entity.*

1.11 The Meeting recommended the initial general techniques for the homogeneous integration of the VSAT MEVA II and REDDIG networks: The two MEVA II VSAT network are develop under a Full Mesh topology, using TDMA/Frame Relay satellite access, as well as the transponder use in PAS 1R satellite with a beam directed over United States / Latin America, frequency operation in C band and linear vertical polarization. In addition the following particular premises:

a) Network Management Centre
- Equipment redundancy with hemispheric geographical diversity.
- MRT and AMRT use with geographical diversity to avoid solar interference.
- Dedicated circuit between MRT and AMRT.
- 24x7x365 operation of the network management centre in English, Spanish and Portuguese.
- Use of up to 1.25 Msps carriers with QPSK and FEC 1/2 modulation.
- Establishment of three user groups: NAM/CAR, SAM and NAM/CAR-SAM.
- 99.95% minimum availability.
- The network is exclusive and closed for all member States, and should not be interconnected with any public network.

b) Remote nodes
- Redundant equipment desirable.
- 99.95% minimum availability.
- BER equal or more than 10^{-6}.

1.12 Based on the results of the studies carried out by the REDDIG Group, the Meeting determined the incorporation of additional electronic cards necessary to perform the implementation of the REDDIG nodes according to the expressed as follows:

a) Colombia: FOUR (4) digital voice modules.

b) Ecuador: TWO (2) digital voice modules.

c) Venezuela: FOUR (4) Analogue voice cards.

1.13 In respect to the MEVA II nodes, considering that with the exception of COCESNA ‘s node, the MEVA II members have leased the equipment of their nodes, the determination of the additional electronic cards only concerned to the MEVA Service Provider and to COCESNA.

Cost/benefit analysis

A. Costs

1.14 To carry out the traffic study and determine the use of the satellite segment, THREE (3) user groups were established:

a) Group “A” for communications between the NAM-CAR Regions.
b) Group “B” for communications in the SAM Region.
c) Common Group “C” for communications between NAM-CAR/SAM Regions.

1.15 The cost of REDDIG referred to the following aspects:

a) One Time Charge.

a.1) Group “A”

a.1.1) Equipment refers to additional implementations for the indicated nodes.

a.1.2) Installation and operation of additional equipment.
Estimate cost = US$ 3.500

b) Monthly or Annual Recurring Charges.

b.1) Group "B"

b.1.1) Network Operations Center.

b.1.2) Spare parts support, maintenance and logistics (Outsourcing).
Annual Budget Group "B" 2006 (b.1.1 + b.1.2)

b.1.3) Satellite Segment (Bandwidth).
Annual Budget Group "B" 2006

b.2) Group "C"

b.2.1) Network Operations Center.

b.2.2) Spare parts support, maintenance and logistics (Outsourcing).
Annual Budget Group "C" 2006 (b.2.1 + b.2.2) = included within the costs expressed in b.1.2)

b.2.3) Satellite Segment (Bandwidth).
Estimate Annual Budget Group "C"

1.16 The REDDIG AND MEVA II costs are presented in the Table contained in **Appendix C** to this part of the Report.

B. Benefits per cost savings

1.17 The current links implemented are expressed as follows:

a) Brazil / USA
b) Peru / USA
c) Ecuador / COCESNA
d) Colombia / COCESNA
e) Venezuela / San Juan
f) Colombia / Panama
g) Colombia / Jamaica
h) Colombia / Curacao
i) Venezuela / San Juan
j) Venezuela / Aruba
k) Venezuela / Curacao

1.18 The annual costs of the mentioned links are: US$ 279.320 X 2 equals to US$ 558.640.

1.19 The Member from Brazil informed that their State will present a proposal of amendment to the FASID to eliminate the Brazil / United States AFTN circuit requirement.

C. Cost/Benefit

1.20 Considering the relevant the costs analysis and the benefits obtained by the links to be disconnected, and on the basis of a 5-year horizon in MEVA II contract with a 12% discount rate, a positive value is obtained which renders this option profitable, as shown in Appendix C to this part of the report.

Conclusion

1.21 Based on the results of the analysis carried out under this agenda item, the meeting agreed that the total homogeneous integration/interoperability solution is viable, therefore formulated the following Draft Conclusion:

DRAFT CONCLUSION 1/1 **TECHNICAL OPERATIONAL AND COST-BENEFIT FEASIBILITY OF THE MEVA II / REDDIG HOMOGENEOUS INTERCONNECTION /INTEROPERATION SOLUTION**

That, based on the analysis carried out on the total homogeneous interconnection /interoperation solution of the VSAT MEVA II and REDDIG networks:

a) from the technical-operational point of view and in accordance with the cost/benefit analysis results, this solution is feasible and would report important benefits to provide the communications for the air navigation systems/services performance between NAM, CAR and SAM Regions; and

b) a initial stage could be transitory to achieve the consolidation stage, which would be the final target of both networks for the integration process, in order to achieve its implementation as soon as possible, the pertinent institutional arrangements should be adopted which are dealt with in Agenda item 3 to this Report.

APPENDIX A

FOLLOW UP TO THE CONCLUSIONS OF THE MEVA II / REDDIG COORDINATION MEETING

CONCLUSION	ACTION FOR	REMARKS AND FOLLOW-UP	STATUS/ TARGET DATE
CONCLUSION 2/1 - IMPLEMENTATION OF COMMUNICATIONS INTEROPERATION REQUIREMENTS AMONG THE CAR, NAM AND SAM REGIONS SUPPORTED BY VSAT NETWORKS That, taking into account current and future communications interoperation requirements among the CAR, NAM and SAM regions, whose summaries are presented in Appendices A and B to this part of the Report, and taking advantage of the hemispheric coverage of the satellites available, CAR/SAM States, Territories and International Organizations should implement the mentioned requirements through a simple MEVA II and REDDIG VSAT digital network integration/interconnection solution, to provide high performance at low cost and avoid the use of multiple VSAT networks.	States, Territories and International Organizations	Considering this Conclusion and Conclusion 5/16 of the ALLPIRG/5 Meeting, efforts should continue aimed at integrating the MEVA II and REDDIG networks simply with an operational control (centralized).	Valid / Feb. 2007
CONCLUSION 2/2 - STUDY OF OPTIONS 1 AND 2 ON INTEGRATION / INTERCONNECTION AND INTEROPERABILITY SOLUTIONS That, the members of MEVA II and REDDIG networks, with the aim of broadening studies regarding implementation of either Options 1 or 2 described in this part of the Report, for the integration/interconnection and interoperability between MEVA II and REDDIG networks: a) establish a Task Force on Interconnection of MEVA II and REDDIG Networks composed by the following States, International Organization and enterprise: Argentina, Brazil, Colombia, United States, Venezuela, COCESNA, Americom Government Services (AGS), and the REDDIG Administrator, under the coordination of ICAO, to mainly analyze aspects related with control and technical-operational management,	MEVA II and REEDIG Members and Task Force	This MEVA II / REDDIG Interconnection Task Force Meeting performed its task in accordance with this Conclusion.	Valid / May 2006

CONCLUSION	ACTION FOR	REMARKS AND FOLLOW-UP	STATUS/ TARGET DATE
financial, security, technical-operational and other institutional aspects; b) propose the preliminary text of the Memorandum of Understanding presented in **Appendix 3D** to this part of the report; c) hold a meeting of the Task Force in the ICAO NACC Regional Office in Mexico, tentatively from 3 to 5 May 2006; and d) distribute the results of the mentioned Task Force meeting to the MEVA II and REDDIG parties involved, through the corresponding ICAO NACC and SAM Regional Offices.			
CONCLUSION 2/3 - ANALYSIS OF INSTITUTIONAL ARRANGEMENTS PROPOSED FOR AN INTEGRATION/INTERCONNECTION OF MEVA II AND REDDIG VSAT NETWORKS That, the Task Force created under Agenda Item 3 of this Meeting, as part of its work, takes into account the institutional arrangements: a) established for MEVA II and REDDIG networks, whose summaries are being presented in Appendices A and B to this part of the Report, and b) proposed for the integration/interconnection of MEVA II and REDDIG networks presented in Appendix C to this part of the Report.	MEVA II / REDDIG Task - Force	This MEVA II / REDDIG Interconnection Task Force Meeting proposed institutional arrangements for the integration/interconnection of the MEVA II / REDDIG networks in accordance with this Conclusion.	Valid / May 2006

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APPENDIX B

Conclusion 5/16: – Implementation of very small aperture terminals (VSATs)

That PIRGs:

a) discourage the proliferation of VSAT networks where one/some of the existing ones can be expanded to serve the new areas of interest;

b) work towards integrated regional/interregional digital communication networks with a single (centralized) operational control and preferably based on the Internet Protocol (IP); and

c) give due consideration to managed network services (e.g. a virtual private network (VPN)), subject to availability and cost-effectiveness.

Conclusion 5/17: – Provisions for digital communication networks

That ICAO:

a) expedite the development of provisions relating to the use of the Internet Protocol Suite (IPS) in the aeronautical telecommunication infrastructure; and

b) initiate the development of provisions governing the end-to-end performance of digital communication networks, irrespective of the technologies and protocols utilized therein.

APPENDIX C

	1	2	3	4	5
SATELLITE SEGMENT REDDIG COST					
REDDIG Costs	*112,620*	*112,620*	*112,620*	*112,620*	*112,620*
MEVA Costs	*29,820*	*29,820*	*29,820*	*29,820*	*29,820*
DEDICATED LINE COST	*36,000*	*36,000*	*36,000*	*36,000*	*36,000*
TOTAL COSTS	***178,440***	***178,440***	***178,440***	***178,440***	***178,440***
DEDICATED LINES COST SAVING BENEFITS					
Brasil/USA	*24,000*	*24,000*	*24,000*	*24,000*	*24,000*
Peru/USA	*88,000*	*88,000*	*88,000*	*88,000*	*88,000*
Ecuador/COCESNA	*60,000*	*60,000*	*60,000*	*60,000*	*60,000*
Colombia/COCESNA	*75,600*	*75,600*	*75,600*	*75,600*	*75,600*
Venezuela/San Juan	*44,000*	*44,000*	*44,000*	*44,000*	*44,000*
Colombia/Panama	*70,800*	*70,800*	*70,800*	*70,800*	*70,800*
Colombia/Jamaïca	*96,000*	*96,000*	*96,000*	*96,000*	*96,000*
Colombia/Curaçao	*48,000*	*48,000*	*48,000*	*48,000*	*48,000*
Venezuela/Aruba	*26,136*	*26,136*	*26,136*	*26,136*	*26,136*
Venezuela/Curaçao	*26,136*	*26,136*	*26,136*	*26,136*	*26,136*
TOTAL COST SAVINGS	***558,672***	***558,672***	***558,672***	***558,672***	***558,672***
NET BENEFIT	***380,232***	***380,232***	***380,232***	***380,232***	***380,232***

			Cost Average	
5 nodes	Colombia	1,877	22,524
	Venezuela	1,877	22,524
	Ecuador	1,877	22,524
	Brasil	1,877	22,524
	Peru	1,877	22,524
			112,620
			Cost Average	
7 nodes	COCESNA	355	4,260
	Aruba	355	4,260
	Curacao	355	4,260
	Panama	355	4,260
	Jamaica	355	4,260
	USA	355	4,260
	PR	355	4,260
			29,820

INVESTMENT	
MEVA II Memotec extra cards (budgetary)	-6,000
04 Digital voice Modules E1 DIM	
02 Digital voice Modules E1 DIM	
04 Analog voice Cards	
	-9,500
Installation and execution	*-3,500*
TOTAL INVESTEMENT	***-19,000***
VAN	**1,206,831**

Agenda Item 2: Analysis to the proposals for the interconnection/interoperability between nodes in the MEVA II and REDDIG networks requiring it

2.1 The Meeting deepen in the technical-operational study of Option No. 2 indicated by the MEVA II / REDDIG Coordination Meeting for the interconnection/interoperability between nodes requiring it and reach one partially homogeneous solution between the MEVA II and REDDIG Networks, including the definition of the necessary resources and the development of proposals for the operation and necessary control services and other related aspects in order to achieve this solution.

2.2 The Meeting recommended the general techniques premises for the partially homogeneous interconnection/interoperability of the VSAT MEVA II and REDDIG networks: The two MEVA II VSAT network are develop under a Full Mesh topology, using TDMA/Frame Relay satellite access, as well as the transponder use in PAS 1R satellite with a beam directed over United States / Latin America, frequency operation in C band and linear vertical polarization, as well as the following premises:

a) Network Management Centre
- Equipment redundancy with hemispheric geographical diversity.
- MRT and AMRT use with geographical diversity to avoid solar interference.
- 24x7x365 operation of the network management of each centre.
- 99.95% minimum availability.
- The network is exclusive and closed for all member States, Territories and International Organization and should not be interconnected with any public network.

b) Remote nodes
- Redundant equipment is desirable.
- 99.95% minimum availability.
- BER equal or more than 10^{-6}.

2.3 The Meeting noted the possible technical configurations for this MEVA II / REDDIG interconnection/interoperability. In this respect the Meeting considered three options of partially homogeneous interconnection/interoperability.

Option A: Addition of MEVA II Linkway MODEMS and other devices involved in REDDIG node.

Option B: Addition of REDDIG Linkway MODEMS and other devices involved MEVA node.

Option C: Addition of Linkway MODEMS and other devices in a combined form in the two networks.

2.4 Regarding the three above-mentioned options, the Meeting noted that these were mainly based in the following aspects; Option A through the installation of the MEVA II Linkway MODEMS in the REDDIG nodes of Brazil, Colombia, Ecuador, Peru and Venezuela; Option B through the implementation of REDDIG Linkway MODEMS in the MEVA II nodes in Aruba, Curacao, COCESNA (Honduras), Jamaica, Panama and Puerto Rico and finally Option C involving the installation of MEVA II MODEMS in the REDDIG nodes of Colombia and Venezuela and the REDDIG MODEMS installation in the MEVA II nodes of COCESNA and Puerto Rico.

2.5 With the implementation of the REDDIG in the MEVA II node in Puerto Rico, the Meeting took note that the FAA security requirements should be considered which are mentioned in Agenda Item 3 of this Meeting.

2.6 Additionally, the Meeting analyzed for each afore mentioned options the additional equipments to be installed in the corresponding MEVA II / REDDIG nodes, the administrative arrangements to carry out the control and supervision, the space segment arrangements, the maintenance, the spare parts managements and the cost-benefit analysis of the three options. To this respect, **Appendix A** to this part of the Report presents the additional equipments list to be installed in each of the options. **Appendix B** shows the results of the cost-benefit analysis carried out for each option. The administrative aspects in each option will be dealt in the Agenda Item of this Meeting.

2.7 As a result of the option's analysis indicated in paragraph 1.1 to this agenda item, the meeting considered that Option C represented the best technical configuration since it reflects the best cost-benefit (See Appendix B).

2.8 In the analysis of the options the Meeting considered the relevant costs of the analysis of costs' and the benefits obtained by links that will be disconnected on the basis of a 5-year horizon in the MEVA II contract with a 12% interest rate, a positive value is obtained which renders in Option C (see Appendix B).

2.9 Moreover, the Meeting considered that if Option C is implemented, it would be necessary to elaborate procedures for the coordination of operative maintenance work in those MEVA II nodes installed with REDDIG MODEMS, as well as those nodes of the REDDIG that would have installed MEVA II MODEMS with the purpose to expedite such operations.

2.10 Based in all this analysis, the Meeting formulated the following Draft Conclusion:

DRAFT
CONCLUSION 1/2: **PROPOSALS FOR THE VSAT MEVA II / REDDIG NETWORKS PARTIALLY HOMOGENEOUS INTEGRATION / INTEROPERATION**

That, based on the results of the technical-operational feasibility studies and the cost-benefit analysis, a partially homogeneous solution that could be transitory can be implemented to achieve the consolidation target of the MEVA II and REDDIG networks,

a) through the adoption of Option C described in this part of the report; and

b) by adopting administrative-operational arrangements to satisfy the premise of this type of solution also describes in this part of the Report, taking into account the factors involved.

APPENDIX A

INVESTEMENT FOR ADDITIONAL EQUIPMENT FOR OPTIONS A, B AND C OF A PARTIAL HOMOGENEOUS INTERCONNECTION/INTEROPERABILITY

OPTION A

REDDIG Nodes

Brazil
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.

Colombia
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
Four (4) digital voice modules in El DIM card (Equipment MEMOTEC CX950)

Ecuador
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
Two (2) digital voice modules in El DIM. (Equipment MEMOTEC CX950)

Peru
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.

Venezuela
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
Four (4) Analogue voice Cards. (Equipment MEMOTEC CX950)

MEVA II Nodes

COCESNA
One analogue voice Card. (Equipment MEMOTEC CX960)

Puerto Rico
One analogue voice Card. (Equipment MEMOTEC CX960)

Panama
Four analogue voice channels (Equipment MEMOTEC CX960)
One AFTN data channel. (Equipment MEMOTEC CX960)

Aruba
One analogue voice Card. (Equipment MEMOTEC CX960)

Curacao
One analogue voice Card. (Equipment MEMOTEC CX960)
One multi I/O V24 Card. (Equipment MEMOTEC CX960)

Jamaica
One analogue voice Card. (Equipment MEMOTEC CX960)

OPTION B

MEVA II Nodes

COCESNA
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
One analogue voice Card. (Equipment MEMOTEC CX. 960)
One I/0 universal Card. (Equipment MEMOTEC CX. 960)

Puerto Rico
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
One analogue voice Card. (Equipment MEMOTEC CX. 960)
One I/0 universal Card. (Equipment MEMOTEC CX. 960)

Panama
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
Four analogue voice channels (Equipment MEMOTEC CX. 960)
One multi I/O Card. (Equipment MEMOTEC CX. 960)
One I/O universal Card. (Equipment MEMOTEC CX. 960)

Aruba
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.

One analogue voice Card. (Equipment MEMOTEC CX. 960)
One I/0 universal Card. (Equipment MEMOTEC CX. 960)

Cucacao
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
One analogue voice Card. (Equipment MEMOTEC CX. 960)
One multi I/O V24 Card. (Equipment MEMOTEC CX. 960)
One I/0 universal Card. (Equipment MEMOTEC CX. 960)

Jamaica
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
One analogue voice Card. (Equipment MEMOTEC CX. 960)
One I/0 universal Card (Equipment MEMOTEC CX. 960)

REDDIG Nodes

Brasil

Colombia
Four (4) digital voice modules in El DIM Card. (Equipment MEMOTEC CX950)

Ecuador
Two (2) digital voice modules in El DIM Card. (Equipment MEMOTEC CX950)

Peru

Venezuela
Four (4) Analogue Voice Cards. (Equipment MEMOTEC CX950)

OPTION C

REDDIG Nodes

Colombia
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
Four (4) digital voice modules in El DIM Card. (Equipment MEMOTEC CX950)

Venezuela
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
Four (4) Analogue voice Cards. (Equipment MEMOTEC CX950)

MEVA II Nodes

COCESNA
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it..
One analogue voice Card. (Equipment MEMOTEC CX. 960)
One I/0 universal Card. (Equipment MEMOTEC CX. 960)

Puerto Rico
Two (2) MODEM Linkway with (1) Interface FR;
Two (2) L Band splitters/combinators and integration material: and
Two (2) SSPA de ***75*** W in the event the link budget for the transmission of two simultaneous carriers confirms it.
One analogue voice Card. (Equipment MEMOTEC CX. 960)
One I/0 universal Card. (Equipment MEMOTEC CX. 960)

Note*: The Miami MEVA II node has not been included in this analysis, this will depend on the results of the future studies.*

APPENDIX B

COST/BENEFIT ANALYSIS OF OPTIONS A, B and C

OPTION A

		1	2	3	4	5
REDDIG NODES ADMINISTRATIVE COSTS						
Admin MEVAII in REDDIG station Brasil	*1348*	*16,176*	*16,176*	*16,176*	*16,176*	*16,176*
Admin MEVAII in REDDIG station Colombia	*1348*	*16,176*	*16,176*	*16,176*	*16,176*	*16,176*
Admin MEVAII in REDDIG station Ecuador	*1348*	*16,176*	*16,176*	*16,176*	*16,176*	*16,176*
Admin MEVAII in REDDIG station Peru	*1348*	*16,176*	*16,176*	*16,176*	*16,176*	*16,176*
Admin MEVAII in REDDIG station Venezuela	*1348*	*16,176*	*16,176*	*16,176*	*16,176*	*16,176*
Use of segm satelital MEVA II Brasil	*245*	*2,940*	*2,940*	*2,940*	*2,940*	*2,940*
Use of segm satelital MEVA II Colombia	*1085*	*13,020*	*13,020*	*13,020*	*13,020*	*13,020*
Use of segm satelital MEVA II Ecuador	*105*	*1,260*	*1,260*	*1,260*	*1,260*	*1,260*
Use of segm satelital by MEVA II Peru	*245*	*2,940*	*2,940*	*2,940*	*2,940*	*2,940*
Use of segm satelital MEVA II Venezuela	*805*	*9,660*	*9,660*	*9,660*	*9,660*	*9,660*
TOTAL COSTS		***110,700***	***110,700***	***110,700***	***110,700***	***110,700***
COSTS SAVINGS BENEFIT DEDICATED LINES						
Colombia/Panama		*70,800*	*70,800*	*70,800*	*70,800*	*70,800*
Colombia/Jamaïca		*96,000*	*96,000*	*96,000*	*96,000*	*96,000*
Colombia/Curaçao		*48,000*	*48,000*	*48,000*	*48,000*	*48,000*
Venezuela/Aruba		*26,136*	*26,136*	*26,136*	*26,136*	*26,136*
Venezuela/Curaçao		*26,136*	*26,136*	*26,136*	*26,136*	*26,136*
Brasil/USA		*24,000*	*24,000*	*24,000*	*24,000*	*24,000*
Peru/USA		*88,000*	*88,000*	*88,000*	*88,000*	*88,000*
Equator/COCESNA		*60,000*	*60,000*	*60,000*	*60,000*	*60,000*
Colombia/COSESNA		*75,600*	*75,600*	*75,600*	*75,600*	*75,600*
Venezuela/San Juan		*43,968*	*43,968*	*43,968*	*43,968*	*43,968*
TOTAL BENEFITS		***558,640***	***558,640***	***558,640***	***558,640***	***558,640***
NET BENEFITS		***418,120***	***418,120***	***418,120***	***418,120***	***418,120***

INVESTMENT	
Equipment MEVA II in Brasil	
Modem+Splitter+SSPA	*71,825*
Memotec extra cards	*0*
Equipment MEVA II in Colombia	
Modem+Splitter+SSPA	*71,825*
Memotec extra cards	*2,200*
Equipment MEVA II in Ecuador	
Modem+Splitter+SSPA	*71,825*
Memotec extra cards	*1,100*
Equipment MEVA II in Peru	
Modem+Splitter+SSPA	*71,825*
Memotec extra cards	*0*
Equipment MEVA II in Venezuela	
Modem+Splitter+SSPA	*71,825*
Memotec extra cards	*4,950*
MEVA II Memotec extra cards (budgetary)	*6,000*
TOTAL INVESTMENT	***-373,375***
VAN	***1,012,370***

		1	2	3	4	5
MEVA NODES ADMINISTRATIVE COSTS						
Admin MEVAII in Curacao	*0*	*0*	*0*	*0*	*0*	*0*
Admin MEVAII in Panama	*0*	*0*	*0*	*0*	*0*	*0*
Admin MEVAII in COCESNA	*0*	*0*	*0*	*0*	*0*	*0*
Admin MEVAII in Aruba	*0*	*0*	*0*	*0*	*0*	*0*
Admin MEVAII in Jamaica	*0*	*0*	*0*	*0*	*0*	*0*
Admin MEVA II in USA						
Admin MEVA II in PR						
Use of segm satelital by MEVA II Curacao	*455*	*5,460*	*5,460*	*5,460*	*5,460*	*5,460*
Use of segm satelital by MEVA II Panama	*770*	*9,240*	*9,240*	*9,240*	*9,240*	*9,240*
Use of segm satelital by MEVA II COCESNA	*210*	*2,520*	*2,520*	*2,520*	*2,520*	*2,520*
Use of segm satelital by MEVA II Aruba	*105*	*1,260*	*1,260*	*1,260*	*1,260*	*1,260*
Use of segm satelital by MEVA II Jamaica	*105*	*1,260*	*1,260*	*1,260*	*1,260*	*1,260*
Use of segm satelital by MEVA II USA	*490*	*5,880*	*5,880*	*5,880*	*5,880*	*5,880*
Use of segm satelital by MEVA II PR	*350*	*4,200*	*4,200*	*4,200*	*4,200*	*4,200*
TOTAL COSTS		***29,820***	***29,820***	***29,820***	***29,820***	***29,820***

COST/BENEFIT ANALYSIS OF OPTIONS A, B and C

OPTION B

	Monthly		1	2	3	4	5
ADMINISTRATIVE COSTS TO MEVA NODE							
Admin REDDIG in MEVA II station Aruba	$	515	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8
Admin REDDIG in MEVA II station COCESNA	$	515	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8
Admin REDDIG in MEVA II station Curazao	$	515	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8
Admin REDDIG in MEVA II station Jamaica	$	515	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8
Admin REDDIG in MEVA II station Panama	$	515	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8
Admin REDDIG in MEVA II station Puerto Rico	$	515	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8	$ 6,181.8
Administrative support in Manaus							
Uso segmento satelital REDDIG station Aruba	$	289	$ 3,469.0	$ 3,469.0	$ 3,469.0	$ 3,469.0	$ 3,469.0
Uso segmento satelital REDDIG stationCOCESNA	$	1,156	$ 13,875.8	$ 13,875.8	$ 13,875.8	$ 13,875.8	$ 13,875.8
Uso segmento satelital REDDIG station Curacao	$	578	$ 6,937.9	$ 6,937.9	$ 6,937.9	$ 6,937.9	$ 6,937.9
Uso segmento satelital REDDIG station Jamaica	$	289	$ 3,469.0	$ 3,469.0	$ 3,469.0	$ 3,469.0	$ 3,469.0
Uso segmento satelital REDDIG station Panama	$	1,542	$ 18,501.1	$ 18,501.1	$ 18,501.1	$ 18,501.1	$ 18,501.1
Uso segmento satelital REDDIG station Puerto Rico	$	1,156	$ 13,875.8	$ 13,875.8	$ 13,876.0	$ 13,876.0	$ 13,876.0
TOTAL COSTS			**97,220**	**97,220**	**97,220**	**97,220**	**97,220**
COSTS SAVINGS BENEFIT DEDICATED LINES							
Colombia/Panama			70,800	70,800	70,800	70,800	70,800
Colombia/Jamaïca			96,000	96,000	96,000	96,000	96,000
Colombia/Curaçao			48,000	48,000	48,000	48,000	48,000
Venezuela/Aruba			26,136	26,136	26,136	26,136	26,136
Venezuela/Curaçao			26,136	26,136	26,136	26,136	26,136
Brasil/USA			24,000	24,000	24,000	24,000	24,000
Peru/USA			88,000	88,000	88,000	88,000	88,000
Equator/COCESNA			60,000	60,000	60,000	60,000	60,000
Colombia/COSESNA			75,600	75,600	75,600	75,600	75,600
Venezuela/San Juan			43,968	43,968	43,968	43,968	43,968
TOTAL BENEFITS			**558,640**	**558,640**	**558,640**	**558,640**	**558,640**
NET BENEFITS			**431,600**	**431,600**	**431,600**	**431,600**	**431,600**

INVESTMENT	
Equipment REDDIG in Aruba	
Modem+Splitter+SSPA	71,825
Memotec extra cards	2,035
Equipment REDDIG in COCESNA	
Modem+Splitter+SSPA	71,825
Memotec extra cards	2,035
Equipment REDDIG in Curazao	
Modem+Splitter+SSPA	71,825
Memotec extra cards	2,585
Equipment REDDIG in Jamaica	
Modem+Splitter+SSPA	71,825
Memotec extra cards	2,035
Equipment REDDIG in Panama	
Modem+Splitter+SSPA	71,825
Memotec extra cards	3,823
Equipment REDDIG in Puerto Rico	
Modem+Splitter+SSPA	71,825
Memotec extra cards	2,585
TOTAL INVESTMENT	**-446,048**
VAN	**990,871**

	Monthly		1	2	3	4	5
MEVA NODES ADMINISTRATIVE COSTS							
Admin MEVAII in Curacao	$	-	0	0	0	0	0
Admin MEVAII in Panama	$	-	0	0	0	0	0
Admin MEVAII in COCESNA	$	-	0	0	0	0	0
Admin MEVAII in Aruba	$	-	0	0	0	0	0
Admin MEVAII in Jamaica	$	-	0	0	0	0	0
Admin MEVA II in USA							
Admin MEVA II in PR							
Use of segm satelital by MEVA II Curacao	$	455	5,460	5,460	5,460	5,460	5,460
Use of segm satelital by MEVA II Panama	$	770	9,240	9,240	9,240	9,240	9,240
Use of segm satelital by MEVA II COCESNA	$	210	2,520	2,520	2,520	2,520	2,520
Use of segm satelital by MEVA II Aruba	$	105	1,260	1,260	1,260	1,260	1,260
Use of segm satelital by MEVA II Jamaica	$	105	1,260	1,260	1,260	1,260	1,260
Use of segm satelital by MEVA II USA	$	490	5,880	5,880	5,880	5,880	5,880
Use of segm satelital by MEVA II PR	$	350	4,200	4,200	4,200	4,200	4,200
TOTAL COSTS			**29,820**	**29,820**	**29,820**	**29,820**	**29,820**

		22 Nodes	Monthly
$136,000	$	6,182	$ 515

Does not consider cost of NCC/NMC personnel

COST/BENEFIT ANALYSIS OF OPTIONS A, B and C

OPTION C

	Monthly	1	2	3	4	5
ADMINISTRATIVE COSTS						
REDDIG Administration						
MEVA II Station San Juan (cost to operate on REDDIG)	$ -	*0*	*7,556*	*7,556*	*7,556*	*7,556*
MEVA II Station COCESNA (cost to operate on REDDIG)	$ -	*0*	*7,556*	*7,556*	*7,556*	*7,556*
Administrative Support in Manaus						
MEVA II AGS Administration						
Estacion Colombia (cost to operate on MEVA II)	$ 1,380	*16,560*	*16,560*	*16,560*	*16,560*	*16,560*
Estacion Venezuela (cost to operate on MEVA II)	$ 1,380	*16,560*	*16,560*	*16,560*	*16,560*	*16,560*
SATELLITE SEGMENT COSTS						
Satellite use segment REDDIG San Juan	$ 1,349	*16,189*	*16,189*	*16,189*	*16,189*	*16,189*
Satellite use segment MEVA Venezuela	$ 1,349	*16,189*	*16,189*	*16,189*	*16,189*	*16,189*
Satellite use segment MEVA Colombia	$ 1,085	*13,020*	*13,020*	*13,020*	*13,020*	*13,020*
Satellite use segment MEVA Venezuela	$ 805	*9,660*	*9,660*	*9,660*	*9,660*	*9,660*
TOTAL COSTS		***88,178.00***	***103,289.12***	***103,289.12***	***103,289.12***	***103,289.12***
COSTS SAVINGS BENEFIT DEDICATED LINES						
Brasil/USA		*24,000*	*24,000*	*24,000*	*24,000*	*24,000*
Peru/USA		*88,000*	*88,000*	*88,000*	*88,000*	*88,000*
Ecuador/COCESNA		*60,000*	*60,000*	*60,000*	*60,000*	*60,000*
Colombia/COCESNA		*75,600*	*75,600*	*75,600*	*75,600*	*75,600*
Venezuela/San Juan		*44,000*	*44,000*	*44,000*	*44,000*	*44,000*
Colombia/Panama		*70,800*	*70,800*	*70,800*	*70,800*	*70,800*
Colombia/Jamaïca		*96,000*	*96,000*	*96,000*	*96,000*	*96,000*
Colombia/Curaçao		*48,000*	*48,000*	*48,000*	*48,000*	*48,000*
Venezuela/Aruba		*26,136*	*26,136*	*26,136*	*26,136*	*26,136*
Venezuela/Curaçao		*26,136*	*26,136*	*26,136*	*26,136*	*26,136*
TOTAL BENEFITS		***558,672***	***558,672***	***558,672***	***558,672***	***558,672***
NET BENEFITS		***470,494***	***455,383***	***455,383***	***455,383***	***455,383***

INVESTMENT			*18 Nodes*	*Monthly*
MEVA Equipments in Colombia		*$136,000*	*$ 7,556*	*$ 630*
Modem+Splitter+SSPA	*-71,825*	*Does not consider cost of NCC/NMC personnel*		
Memotec extra cards	*-2,200*			
MEVA Equipments in Venezuela				
Modem+Splitter+SSPA	*-71,825*			
Memotec extra cards	*-4,950*	(Admin = Cost of network, NMC/NCC personnel)		
REDDIG Equipments in San Juan				
Modem+Splitter+SSPA	***-71,825***			
Memotec extra cards	***-2,035***			
REDDIG Equipments in COCESNA				
Modem+Splitter+SSPA	***-71,825***	What about Brazil, Peru and USA Conenctivity??		
Memotec extra cards	***-2,585***			
TOTAL INVESTEMEN	***-299,070***			

VAN	**1,210,692**

Agenda Item 3: Development of a proposal for actions to implement the recommended option for the integration/interconnections of the MEVA II and REDDIG networks

3.1 Under this agenda item and according to the results of the analysis to the Agenda Item 1 and 3, the Meeting reviewed the administrative arrangements proposed in WP/03 and WP/04 in order to implement the recommended options of a total homogeneous interconnection / interoperability or partially homogeneous interconnection / interoperability, including the establishment of a Memorandum of Understanding and administrative arrangements and other institutional aspects necessary for these MEVA II and REDDIG implementations. The arrangements considered by the Meeting for the options studied are the following:

Institutional arrangement for the integration of homogeneous VSAT META II and REDDIG networks implementation

3.2 Based on WP/03, the Meeting noted the proposal for the adoption of two types of institutional arrangements to achieve the implementation of an integrated-homogeneous network resulting from the integration of VSAT MEVA II and REDDIG networks, which would be implemented in two stages described as follows:

a) Initial Stage: Elaboration of a Memorandum of Understanding (MoU) between REDDIG and MEVA II States, Territories and International Organization, which would be applied during the first of 5 years of the MEVA II Service Provider contracts with the network Members, with the purpose of establishing the different levels of the "Integrated American Network" organization, resulting from the MEVA II / REDDIG integration, as well as the involved responsibilities, maintaining the actual MEVA II and REDDIG service providers.

b) Consolidation Stage: Will consist in the establishment of a Multiregional Organization (OMR), composed by the network's States, Territories and International Organization, which would hire the operation and outsourcing services of the Telecommunications Integrated Network to one service provider to be agreed.

Applicable arrangements in the Initial Stage

3.3 The MoU would established that States, Territories and International Organization Members of the MEVA II and REDDIG to be at the highest level of the Integrated Network as partners, equal in voice and vote. In addition, given the number of Members involved, a Directive Council should be elected. In this manner, work would be carried out in line with GREPECAS, receiving support from this Regional group with the consequent achievement of objectives to which both, VSAT MEVA II and REDDIG were created.

3.4 The services providers would be at a second level of the Integrated Network, being in this case, the MEVA II Service Provider (AGS) and the REDDIG Administrator, through the Regional project RLA/03/901. The Directive Council would have the option, among other mechanisms to request the ICAO Technical Cooperation Bureau to supervise both providers for the compliance of agreements or other mechanism.

3.5 At the initial stage, both MEVA II and REDDIG Managements will continue with its respective Service Provider, i.e, REDDIG would keep with RLA/03/901 project and MEVA II with AGS during the complete initial stage. Under this regulatory framework, the Meeting also proposed that a joint agreement should be established between AGS and the REDDIG Administrator under ICAO's coordination, as regards to the network control, either through the applications of one of the following alternatives:

a) One alternation, for a determined period of time, between the main NCC and the alternate NCC.
b) The AGS main NCC and the REDDIG alternate NCC.
c) The REDDIG main NCC and the AGS alternate NCC.

3.6 The Meeting noted that WP/03 considered that this would be as long as the benefits at least maintain themselves and the costs for the provision of services are equal or less to the current ones for the MEVA II and REDDIG partners. In addition, it is important to take into consideration that the availability of the network is kept for it to have possibility to exchange information between the administrations; in the case of REDDIG, this is ensured through the equipment redundancy and a ground backup network. In the case of MEVA II, the Meeting was informed that the availability is ensured by a specialized service provider which capacity, organization and VSAT networks experience is worldwide recognized.

3.7 Likewise, according to WP/03, the alternation referred in pa. 3.5) should be complemented through the establishment of a general agreement between AGS and the MEVA II Members, to define responsibilities when the main NCC is REDDIG's. In a similar manner, an addendum to the REDDIG Project Document would be required to define when the main NCC is MEVA II.

3.8 During the analysis of alternatives a), b) and c) expressed in afore pa. 3.5, resulting from the Meeting's request, AGS stated the following comments:

Alternative a): Means that AGS and REDDIG overtake the network's management main and alternate responsibilities on or for a pre-determined period. On this AGS declared:

1. AGS cannot overtake or give in the MEVA II administrative or operational supervision due to its SLA. The SLA indicated in the MEVA II RFP, as it is contracted between AGS and the Members stipulates penalties or credits in case that a network or a node remains out of service. This means that AGS should maintain the network and/or its operation management, generally called Network Control Centre, which consists in maintaining the Sun Linkway work stations (main and alternate), the MRT, the AMRT and the NMS to access these systems and the remote nodes ensuring that the general availability is kept.
2. The Network Control Centre or the Network Management Centre (NCC/NMC) for AGS consist also in solving the personnel management and the problems or service interruptions reports. The timely solution by the personnel also affects the SLA.

Alternative b): Means the Network Control Centre or the Network Management Centre (NCC/NMC) main in AGS and the REDDIG alternate in NCC. In this respect AGS declared:

1. From a supportive point of view this is possible. This means that REDDIG could be the alternate NCC/NMC and assist the REDDIG nodes problems and only in emergency situations take control of the network operations.

2. For AGS the Network Control Centre or the Network Management Centre (NCC/NMC) consist in personnel management and to solve the failure reports or "service outage". The timely solution of failures from the personnel also impacts the SLA. The REDDIG Members could have more knowledge and control on the configuration and operation of its nodes, since they own them and AGS will not be responsible of the availability of those equipments.

Alternative c): Means that the main NCC in REDDIG and the alternate in AGS. In this respect AGS declared:

1. This is not an option for the same reason discussed in Alternative a), paragraphs 1 and 2.

3.9 Also, the Meeting took note of IP/04 presented by the United States, which overviews the FAA security requirements requested the MEVA II Service Provider to fulfill. Additionally, the Meeting noted that if the REDDIG Administration assumes certain responsibilities in respect to the MEVA II network, would also have to comply with the FAA's requirements for this network.

Consolidation Stage applicable arrangements

3.10 According to the proposed in WP/04, the Meeting noted that once the MEVA II first contract with AGS fixed for a 5 year period is finalized, it would pass to the Consolidation Stage consisting in the creation of a Multiregional Organization (OMR), to hire the telecommunications integrated network operation services and "outsourcing" to only one services provider entity. Likewise, the OMR would coordinate the planning and development of aeronautical communication services in the regions, as well as the respective implementations and the telecommunication integrated network as the platform.

3.11 Also, during this consolidation stage, the OMR would supervise the compliance of the "Service Level Agreement" (SLA) with the services provider entity.

3.12 With respect to the conditions described in the two above-mentioned paragraphs contained in WP/04, the Meeting concurred that this integration expected for the consolidation stage is the goal to be achieved as soon as possible; this would be the VSAT MEVA II and REDDIG networks integration in order to achieve a communications platform totally integrated which facilitates the AFS communications implementation, as well as the required performance levels required for the ICAO air navigation systems/services for the CAR, NAM and SAM regions.

Administrative arrangements for the implementation of interconnection/interoperability partially homogeneous options of the VSAT MEVA II and REDDIG networks

3.13 Based in WP/04 paragraph 4, the Meeting analyzed the following aspects of the three options related to supervision and control, space segment control, maintenance and administration of spare parts of the technical configuration for a partially homogeneous interconnection:

Option A (Addition of MEVA II Linkway MODEMs in REDDIG node involved).
Option B (Addition of REDDIG Linkway MODEMs in MEVA II node involved).
Option C (Addition of mixed Linkway MODEMs).

3.14 As per the results of the cost-benefit analysis of the partially homogeneous interconnection/interoperability options contained in the Report on Agenda Item 2, the meeting agreed that between the three options presented, Option C presented most benefits; therefore, the Meeting focused its attention to the necessary administrative arrangements analysis for Option C's implementation, described in **Appendix A**. The administrative arrangements proposed for Options A and B are shown in **Appendix B** to this part of the Report

General considerations on the administrative arrangements for the partially homogeneous interconnection solution.

3.15 The Meeting expressed the general considerations in order to solve the partially homogeneous interconnection as follows:

a) Agreed that for this option's implementation would only be required the described administrative arrangements, without the need to apply other institutional arrangements.
b) The implementation of this option would not involve substantial modifications to the technical and operational management of the MEVA II and REDDIG networks and both networks control.
c) The partially homogeneous interconnection solution would contribute to fulfil all the NAM/CAR/SAM AFS inter-regional requirements, nevertheless, due to its partially solution nature, initially it would not represent a total integration solution. Therefore this solution should be provisional towards achieving the total integration of the two networks.
d) The security requirements established by FAA for MEVA II should also be fulfilled by the REDDIG Administration as it is with MEVA II.
e) The application of administrative arrangements described for this solution would need the application of operational administrative procedures, so that the availability of requirements on both networks has no unfavourable impact.

3.16 As a result of the review of this item, the Meeting formulated the following Draft Conclusion:

DRAFT
CONCLUSION 1/3: ACTION PROPOSALS FOR THE ADOPTION OF AN INTEGRATION/INTERCONNECCTION AND INTER-OPERABILITY MODALITY OF THE MEVA II AND REDDIG NETWORKS.

That, based on the results of technical-operational and cost-benefit analysis, the options mentioned in conclusions 1/1 and 1/2, are feasible and would require that:

a) Members of States/Territories/International Organization inform their requirements for the mentioned options;

b) the MEVA II Service Provider analyze in regards to the costs, operational and administrative arrangements analysis for the mentioned solutions;

c) the REDDIG Administrator prepares a detailed application of action b) detailed above;

d) for each adopted recommendation prepare an appropriate MoU; and

e) actions a), b) and c) expressed in the above-mentioned paragraphs are comply before ***9 June 2006.***

APPENDIX A

ADMINISTRATIVE ARRANGEMENTS FOR THE ADDITION OF MIXED LINKWAY MODEM AND OTHER SPARE PARTS IN THE TWO NETWORK'S NODES

1. This option would represent that in some MEVA II nodes requiring it, a Linkway MODEM and other REDDIG devices would be added and in other REDDIG nodes MEVA II spare parts would be added. The Meeting analyzed the aspects related to the supervision and control, space segment and maintenance arrangements which results are described as follows:

Supervision and control

2. For this configuration, MEVA II MODEM in REDDIG nodes supervision and control will be carried out through MEVA II NCC while REDDIG MODEM supervision and control at MEVA II nodes will be carried out by the REDDIG NCC. All REDDIG MODEMs will be synchronized from the Manaos, Brazil ACC with Ezeiza NCC as alternate, while the MEVA II MODEMs installed in the REDDIG nodes will be synchronized by the Alexandria NCC with Miami NCC as alternate.

Space segment arrangements

3. The carriers, as well as the band width requirement for communications among REDDIG nodes will be the same currently leased with Panamsat. Payment of the space segment to Panamsat will continue being carried out through the ICAO Technical Cooperation, who will be in charge of collecting contributions from each SAM State member of REDDIG.

4. The carriers, as well as the band width requirement for communications among MEVA II nodes will be carried out through the MEVA II provider. MEVA II States will pay for the band width consumption to the MEVA II provider.

5. Band width requirements for communications between REDDIG nodes having MEVA II MODEM (Colombia and Venezuela) would be administrated by the MEVA II service provider. Band width consumption for the mentioned States will be measured by the MEVA II provider, and the respective payment to the provider will be made through the ICAO Technical Cooperation (RLA/03/901 Project).

6. Band width requirements for communications between MEVA II nodes having REDDIG MODEM (COCESNA and Puerto Rico) would be administrated by the REDDIG. Band width consumption for the mentioned States will be measured by the REDDIG Administrator, and the respective payment to the provider will be made through the ICAO Technical Cooperation (RLA/03/901 Project).

Maintenance

7. The additional equipment to be installed at each of the REDDIG nodes with communications requirements with MEVA II nodes, will be maintained by the respective REDDIG States, under the coordination of the REDDIG Administrator. The additional equipment to be installed in the REDDIG nodes would be purchased by the REDDIG members.

8. Upon failure in a MEVA II MODEM in a associated REDDIG node, the person in charge of the REDDIG node maintenance will inform of the event to the REDDIG Administrator, who will coordinate with the MEVA II Administrator to carry out appropriate procedures. Also, if the MEVA II Administrator detects a failure in a REDDIG node where a MEVA II MODEM is installed, he will inform so to the REDDIG Administrator for the carrying out of respective procedures for the repair. As possible, there will be no direct contact between the REDDIG node having a MEVA II MODEM installed there, with the MEVA II Administrator.

9. The additional equipment to be installed in each MEVA II nodes with REDDIG nodes communications requirements, would be maintained by the MEVA II service provider. The additional equipment installed in the MEVA II nodes would be purchased by the MEVA II members (States, Territories, International Organization or the service provider AGS).

10. Likewise, upon failure in a REDDIG MODEM, the person in charge of the MEVA II node maintenance will inform of the event to the MEVA II Administrator, who will coordinate with the REDDIG Administrator to carry out appropriate procedures. Also, if the REDDIG Administrator detects a failure in a MEVA II node where a REDDIG MODEM is installed, he will inform so to the MEVA II Administrator for the carrying out of respective procedures for the repair. As possible, there will be no direct contact between the MEVA II node having a REDDIG MODEM installed there, with the REDDIG Administrator.

Spare parts management

11. The spare parts for the additional equipment to be installed at the REDDIG nodes with MEVA II MODEM requirements, will be purchased by REDDIG and will form part of the spare parts lot existing in REDDIG.

12. Spares for the additional equipment to be installed at MEVA II nodes with REDDIG MODEM requirements shall be purchased from the MEVA II

APPENDIX B

ADMINISTRATIVE ARRANGEMENTS FOR OPTIONS A AND B

OPTION A

Supervision and control

The MEVA II MODEM supervision and control at REDDIG nodes will be carried out by the MEVA II NCC.

The MEVA II MODEMs installed at REDDIG nodes would be synchronized from the Alexandria (Virginia) NCC with Miami (Florida) NCC.

The communications between REDDIG and MEVA II nodes and vice versa will be controlled by the MEVA II NCC.

Space segment arrangements

The carriers, as well as the bandwith between MEVA II nodes will be in charge by the MEVA II service provider.

The REDDIG States with communications requirements with MEVA II will only pay consumptions measured by the MEVA II service provider to the ICAO Technical Cooperation, who will be in charge of paying said amount to the MEVA II service provider.

Maintenance

The additional equipment to be installed in each REDDIG nodes with communication requirements with MEVA II nodes, MEVA will be purchased and maintained by the REDDIG corresponding States.

Upon failure in a MEVA II MODEM in REDDIG node, the person in charge of node maintenance will inform of the event to the REDDIG Administrator, who will coordinate with the MEVA II Administrator to carry out appropriate procedures.

Also, if the MEVA II Administrator detects a failure in a REDDIG node where a MEVA II MODEM is installed, he will inform so to the REDDIG Administrator for the carrying out of respective procedures for the repair.

As possible, there will be no direct contact between the REDDIG node having a MEVA II MODEM installed with the MEVA Administrator.

Spare parts management

The spare parts for the additional equipment to be installed at the REDDIG nodes with MEVA II MODEM requirements will be purchased by REDDIG and will form part of the spare parts lot existing in REDDIG.

OPTION B

Supervision and control

The REDDIG MODEM supervision and control at MEVA II nodes will be carried out by the REDDIG NCC.

The REDDIG MODEMs installed in the MEVA II nodes will be synchronized by the NCC installed in Manaos, with Ezeiza NCC as alternate.

The communications between the REDDIG and MEVA II nodes and vice versa will be carried out by the REDDIG NCC.

Space segment arrangements

The carriers, as well as the communications bandwidth between MEVA II and REDDIG nodes will be administrated by the REDDIG service provider.

MEVA II members with communications requirements with REDDIG nodes will pay their respective consumptions measured by the REDDIG Administrator, to the ICAO Technical Cooperation, (Project RLA/03/901).

Maintenance

The additional equipment to be installed in each MEVA II node with communications requirements with REDDIG nodes will be maintained by the MEVA II provider.

Upon failure in a REDDIG MODEM in the MEVA II node, the person in charge of the node maintenance will inform of the event to the MEVA II Administrator, who will coordinate with the REDDIG Administrator to carry out appropriate procedures. Also, if the REDDIG Administrator detects a failure in a MEVA II node where a REDDIG MODEM is installed, he will inform so to the MEVA II Administrator for the carrying out of respective procedures for the repair.

As possible, there will be no direct contact between the MEVA II node having a REDDIG MODEM installed there, with the REDDIG Administrator.

Spare parts management

The spare parts for the additional equipment to be installed at the MEVA II nodes with REDDIG MODEM requirements will be purchased by MEVA II and will form part of the spare parts lot existing in MEVA II.

Agenda Item 4: Other matters

Convening of the Third MEVA II / REDDIG Coordination Meeting

4.1 Under the coordination of the ICAO NACC and SAM Regional Offices, the Meeting recommended that a Third MEVA II / REDDIG Coordination Meeting should be convened in 45 days as minimum, after de invitation-letter is circulated. With the purpose to facilitate the member's participation, it was also proposed that this meeting be held in connection with the next MEVA Team Management Group Meeting (TMG) that is the same week and place. This would be in similar manner as organized by the Second Coordination Meeting of MEVA II / REDDIG and the RCC/9 REDDIG Meeting under project RLA/03/901, held in Lima, Peru.

4.2 The purpose of the Meeting would be basically to present the States/Territories/International Organization MEVA II and REDDIG members, the Report and discussed the results of this MEVA II / REDDIG Task Force Group Interconnection Meeting.