SEMINAR/WORKSHOP ON NEW TECHNOLOGIES FOR SATELLITE AND GROUND NETWORKS

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REDDIG II SHORT-, MEDIUM- AND LONG-TERM SERVICE REQUIREMENTS IN SUPPORT OF AIR NAVIGATION

Onofrio Smarrelli
CNS Regional Officer
ICAO South American Office
os@lima.icao.int

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OBJECTIVE

PRESENT CURRENT AND FUTURE SERVICE REQUIREMENTS FORESEEN FOR THE PERIOD 2012-2018 IN SUPPORT OF AIR NAVIGATION IN THE SAM REGION,

REDDIG II

REDDIG II GENERAL SERVICE REQUIREMENTS

The new network, REDDIG II, must provide the necessary resources to establish and support voice and data digital communications required by:

- The aeronautical fixed service (AFS), involving current air navigation services provided by ATS, AIS ,COM, MET and SAR units.

  Air traffic service (ATS) speech circuits

  AFTN (ATS,AIS, COM, MET and SAR) data circuits

REDDIG II GENERAL SERVICE REQUIREMENTS

- The aeronautical fixed service (AFS), involving future air navigation services to be provided by ATS, AIS/AIM, COM, MET and SAR units in the short, medium and long run.

  New ATS speech circuits (including ATFM requirements)

  Speech circuits for the SAR service

  New data circuits (AMHS, AIDC , OLDI, surveillance, AIM and MET)

- Civil aviation authorities for administrative coordination purposes, including voice and data.

- REDDIG maintenance units for maintenance coordination between network nodes and between network nodes and network management.

CURRENT SERVICE REQUIREMENTS

ATS speech circuits

- ATS speech circuit requirements are specified in Table CNS 1C (*ATS direct speech circuit plan*) of the FASID (*CAR/SAM air navigation plan, Volume II, FASID Document 8733*)

- In order to meet ATS communication requirements between ATS units specified in Annex 11, Section 6.2, Annex 10, Volume III, Part II, Section 4 establishes three communication mechanisms or basic types of calls:

Instant access	(*1 second or less for 99% of established calls*) *
Direct access	(*2 seconds or less for 99% of established calls*)*
Indirect access	(*within 15 sec for 995 of established calls*)*

- REDDIG II must provide the resources to establish a private virtual switched telephone network (VSTN) within its domain

*** Reference: Doc 9804 (Manual on Air Traffic Services (ATS) Ground-ground voice switching and signalling)**

CURRENT SERVICE REQUIREMENTS

ATS speech circuits

- Communications must be full duplex
- End-to-end voice signal delay not greater than 400 msec
- High-quality compressed voice
- Echos controlled with speech circuit echo suppressors
- The VSTN must provide gateways to the (physical and virtual) network for communication devices and networks of the communication service provider

CURRENT SERVICE REQUIREMENTS

FASID TABLE CNS IC (ATS DIRECT SPEECH CIRCUIT PLAN)

requirements ATS for speech communications Requisitos ATS para comunicaciones orales			Circuit Circuito			Status of implementation Estado de implantación	Remarks Observaciones
Terminal I	Terminal II	Type Tipo	Service Servicio	D/S	To be switched via/ A ser conmutado vía		
1	2	3	4	5	6	7	8
ARGENTINA							
Aeroparque TWR	Colonia TWR	A	LTF	D		I	
Baires APP	Carrasco APP	D	LTF	D		I	REDDIG
	Montevideo ACC	D	LTF	D		I	REDDIG
Cataratas del Iguazú TWR	Foz APP	D	LTF	D		I	
Comodoro Rivadavia ACC	Ezeiza ACC	A	LTF	S	EZEIZA	I	
	Puerto Montt ACC	A	LTF	S	EZEIZA/SANTIAGO	I	REDDIG
	Punta Arenas ACC	A	LTF	S	EZEIZA/SANTIAGO	I	REDDIG
Córdoba ACC	Ezeiza ACC	A	LTF	S	EZEIZA	I	
	La Paz ACC	A	LTF	S	EZEIZA	I	REDDIG
	Mendoza ACC	A	LTF	S	EZEIZA	I	
	Resistencia ACC	A	LTF	S	EZEIZA	I	
	Santiago ACC	A	LTF	S	EZEIZA	I	REDDIG
Ezeiza ACC	Johannesburg ACC	A	LTF	D		I	CAFSAT
	Carrasco APP	A	LTF	D		I	REDDIG
	Comodoro Rivadavia ACC	A	LTF	S	EZEIZA	I	
	Córdoba ACC	A	LTF	S	EZEIZA	I	
	Mendoza ACC	A	LTF	S	EZEIZA	I	
	Montevideo ACC	A	LTF	D		I	REDDIG
	Resistencia ACC	A	LTF	S	EZEIZA	I	
Mendoza ACC	Córdoba ACC	A	LTF	S	EZEIZA	I	
	Ezeiza ACC	A	LTF	S	EZEIZA	I	
	Santiago ACC	A	LTF	D		I	REDDIG
Resistencia ACC	Asunción ACC	A	LTF	S	EZEIZA	I	REDDIG
	Córdoba ACC	A	LTF	S	EZEIZA	I	
	Curitiba ACC	A	LTF	S	EZEIZA	I	REDDIG
	Ezeiza ACC	A	LTF	S	EZEIZA	I	
	Foz APP	A	LTF	S	EZEIZA /CURITIBA	I	REDDIG
	Montevideo ACC	A	LTF	S	EZEIZA	I	REDDIG
Rio Gallegos TWR	Punta Arenas ACC	A	LTF	S	EZEIZA/SANTIAGO	I	REDDIG
S.C. de Bariloche APP	Puerto Montt ACC	A	LTF	S	EZEIZA/SANTIAGO	I	REDDIG
Ushuaia TWR	Punta Arenas ACC	A	LTF	S	EZEIZA/SANTIAGO	I	REDDIG
	Puerto Williams TWR	A	LTF	S	EZEIZA/SANTIAGO	I	REDDIG

CURRENT SERVICE REQUIREMENTS

ATS SPEECH CIRCUIT AND ADMINISTRATIVE REQUIREMENTS*

TABLA ATS			Req. ATS CNS1C			REDDIG		Interfaces voz instaladas			
			Directo	Switcheado		Directo	Switch	Digital E1	E&M	FXO	FXS
				Parcial	Total						
Argentina	Ezeiza	Bolivia (La Paz)		1	14		5	0	11	0	1
		Chile (Santiago)	1	6		1					
		Brasil (Curitiba)		3							
		Paraguay (Asunción)		1							
		Uruguay (Montevideo)	4	3		4					
		Administrativo					2				
Bolivia	La Paz	Argentina (Buenos Aires)		1	7		3	0	4	0	4
		Chile (Santiago)		1							
		Brasil (Manaos)		1		1					
		Brasil (Curitiba)		2							
		Paraguay (Asunción)		1							
		Perú (Lima)		1		1					
		Administrativo					3				
Brasil	Curitiba	Argentina (Buenos Aires)		3	9		4	0	6	2	1
		Uruguay (Montevideo)		1		1					
		Paraguay (Asunción)		3		1					
		Bolivia (La Paz)		2							
		Administrativo					3				
	Manaos	Colombia (Bogotá)		1	7	3	3	0	7	0	5
		Guyana (Georgetown)		1							
		Guayana Francesa (Cayena)		1							
		Bolivia (La Paz)		1		1					
		Venezuela (Maiquetía)		1		1					
		Perú (Lima)		1							
		Suriname (Paramaribo)		1							
		Administrativo					4				
	Recife	Uruguay (Montevideo)		1	2		5	0	7	0	1
		Guayana Francesa (Cayena)		1							
		Administrativo					3				
Chile	Santiago	Argentina (Buenos Aires)	1	6	8	1	4	0	8	0	0
		Bolivia (La Paz)		1							
		Perú (Lima)		1		1					
		Administrativo					2				

•Table 2B-1 ATS speech service interfaces (Study for the implementation of a new digital network for the SAM Region)

CURRENT SERVICE REQUIREMENTS

AFTN circuits

- The AFTN is a messaging network based on telegraphic procedures
- The REDDIG II must ensure that latency does not exceed 15 seconds in peak time 95% of the time, and 60 seconds 100% of the time
- Circuit speeds of 2400 to 9600
- AFTN circuit requirements are contained in FASID Table CNS 1 A of the CAR/SAM Air Navigation Plan

CURRENT SERVICE REQUIREMENTS

FASID TABLE CNS 1 A (AFTN PLAN)

State/Station État/Station Estado/Estación	Category Catégorie Categoría	Current Actuel Actual				Planned Prévu Planificado				Target date implementation Date cible de mise en œuvre Fecha de implantación	Remarks Remarques Observaciones
		Type Tipo	Signalling speed Débit de signalisation Velocidad señalización	Procotol Protocole Protocolo	Code Código	Type Tipo	Signalling speed Débit de signalisation Velocidad señalización	Protocol Protocole Protocolo	Code Código		
1	2	3	4	5	6	7	8	9	10	11	12
ARGENTINA											
Buenos Aires-M											
Asunción	T	SAT/d	2400	X.25	IA-5						REDDIG
Brazil	M	SAT/d	2400	X.25	IA-5						REDDIG
La Paz	T	SAT/d	2400	X.25	IA-5						REDDIG
Lima	M	SAT/d	2400	X.25	IA-5						REDDIG
Johannesburg	M	SAT/d	2400	None	IA-5						CAFSAT
Montevideo	T	SAT/d	2400	X.25	IA-5						REDDIG
Santiago	M	SAT/d	2400	X.25	IA-5						REDDIG
BOLIVIA											
La Paz-T											
Buenos Aires	T	SAT/d	2400	X.25	IA-5						REDDIG
Lima	T	SAT/d	2400	X.25	IA-5						REDDIG
Brazil	T	SAT/d	2400	X.25	IA-5						REDDIG
BRAZIL											
Brazil M											
Asunción	T	SAT/d	2400	X.25	IA-5						REDDIG
Bogota	T	SAT/d	2400	X.25	IA-5						REDDIG
Buenos Aires	M	SAT/d	2400	X.25	IA-5						REDDIG
Caracas	M	SAT/d	2400	X.25	IA-5						REDDIG
Cayenne	T	SAT/d	2400	X.25	IA-5						REDDIG
Dakar	M	SAT/d	2400	X.25	IA-5						CAFSAT
Georgetown	S	SAT/d	2400	X.25	IA-5						REDDIG
La Paz	T	SAT/d	2400	X.25	IA-5						REDDIG
Lima	M	SAT/ d	2400	X.25	IA-5						REDDIG
Madrid	M	SAT/d	4800	X25	IA-5						CAFSAT
Montevideo	T	SAT/d	2400	X.25	IA-5						REDDIG
Paramaribo	T	SAT/d	2400	X.25	IA-5						REDDIG
United States	M	SAT/ d	9600	X.25	IA-5						

CURRENT SERVICE REQUIREMENTS

AFTN REQUIREMENTS*

TABLA AFTN			Velocidad (Kbps)	Interfaces instaladas
Argentina	Ezeiza	Bolivia (La Paz) MET	1.2	9
		Paraguay (Asunción) MET	2.4	
		Perú (Lima) MET	1.2	
		Bolivia (La Paz)	2.4	
		Chile (Santiago)	2.4	
		Brasil (Curitiba)	2.4	
		Paraguay (Asunción)	2.4	
		Perú (Lima)	2.4	
		Uruguay (Montevideo)	2.4	
Bolivia	La Paz	Argentina (Ezeiza)	2.4	4
		Argentina (Ezeiza) MET	1.2	
		Brasil (Curitiba)	2.4	
		Perú (Lima)	2.4	
Brasil	Curitiba	Argentina (Ezeiza)	2.4	4
		Uruguay (Montevideo)	2.4	
		Paraguay (Asunción)	2.4	
		Bolivia (La Paz)	2.4	
	Manaos	Colombia (Bogotá)	2.4	6
		Colombia (Bogotá) - USA	9.6	
		Guyana (Georgetown)	2.4	
		Guayana Francesa (Cayena)	2.4	
		Perú (Lima)	2.4	
		Suriname (Paramaribo)	2.4	
	Recife	Venezuela (Maiquetía)	2.4	1
Chile	Santiago	Argentina (Ezeiza)	2.4	2
		Perú (Lima)	2.4	
Colombia	Bogotá	Ecuador (Guayaquil)	2.4	7
		Brasil (Manaos) - USA	9.6	
		Brasil (Manaos)	2.4	
		Perú (Lima)	9.6	
		Perú (Lima) - USA	2.4	
		Venezuela (Caracas)	2.4	
		Panamá (Panamá)	2.4	

*** Table 2 A -1 AFTN Interfaces (Study for the implementation of a new digital network for the SAM Region)**

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TURN

SUMMARY OF FUTURE REQUIREMENTS

- New MEVA II – REDDIG interconnection services
- Teleconferencing service for flow management units (FMU) or flow management positions (FMP), to be provided on a daily basis between all the units in the Region, initially for twenty users.
- Exchange of flight plans and/or radar information using conventional methods, in accordance with the respective MoUs (memoranda of understanding) signed or to be signed.
- AMHS interconnection requirements, gradually replacing the AFTN service in accordance with the respective MoUs (memoranda of understanding) signed or to be signed.
- AIDC interconnection requirements, gradually replacing the ATS speech service.
- Exchange of ADS-B data and multilateration between all the ACCs of adjacent FIRs.
- Interconnection of automated systems using Asterix 62 and 63, between all the ACCs of adjacent FIRs.
- AIM requirements: in this regard, there is no concrete requirement to date.

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

REGIONAL PERFORMANCE OBJECTIVE: SAM 08 IMPROVEMENTS TO THE AERONAUTICAL FIXED SERVICE IN THE SAM REGION				
Benefits				
Safety	• Reduction of operational errors of coordination between adjacent ACCs • Increase of ATM situational awareness • Reduction of pilot and controller workload			
Environmental protection and sustainable development of air transport	• Increase of aeronautical fixed services capacity and availability in support of ATS, MET, AIS and SAR applications • Support to the ATFM / CDM			
Metrics	• Number of States interconnected with the AMHS • Number of States that have operationally implemented the AIDC • Percentage of phases completed for the improvement of the regional ATN network			
2012 – 2018 Strategy				
ATM COMPONENTS	**TASKS**	**PERIOD START-END**	**RESPONSIBILITY**	**STATUS**
AOM ATM-SDM DCB CM AUO	a) Complete the implementation of AMHS systems in the States that do not have such systems yet	(*) - 2013	States	In progress
	b) Agreement for the implementation of AMHS system interconnection through the establishment of MoUs	(*) - 2014	States	In progress
	c) Implement communication services for the centralised ATFM	2015 - 2018+	States	Valid
	d) Implement AIDC at the automated centres of the SAM Region	(*) - 2013	States	In progress
	e) Operational implementation of AIDC for automatic “hand-off” of flight plans between ACCs of adjacent States	(*) - 2014	States	In progress
	f) Improvement of the regional ATN network	2012 -2015	States	Valid
	g) Monitor implementation progress	2012-2017	GREPECAS	Valid
Relationship with GPIs	GPI/6: ATFM, GPI/9: Situational awareness, GPI/ 16: Decision-making support systems and alert system, GPI/18: Aeronautical information, GPI/17: Data link applications, GPI/19: Meteorological systems, GPI/22: Communication infrastructure			

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

AMHS SYSTEMS INSTALLED IN THE SAM REGION

STATE/ ESTADO	MANUFACTURER/ FABRICANTE	YEAR OF INSTALLATION/ AÑO DE INSTALACION	REMARKS/ OBSERVACIONES
ARGENTINA	RADIOCOM	2005	Three MTAs installed: Ezeiza, Cordoba and Comodoro Rivadavia Se tienen instalados tres MTA: Ezeiza; Córdoba; y Comodoro Rivadavia
BOLIVIA	THALES	2011	Equipment in the country and national installation scheduled for the end of 2011 Todo el equipamiento ya se encuentra en el país y su instalación a nivel nacional está previsto para finales del 2011
BRASIL	RADIOCOM	2009	Two MTAs installed: Brasilia; and Manaos Se tienen instalados dos MTA: Brasilia; y Manaos
CHILE	THALES	2010	
COLOMBIA	COMSOFT	2009	AMHS interconnected with Peru. Only interconnection in the Region. Está interconectado en AMHS con Perú. Única interconexión en la Región
ECUADOR	RADIOCOM	2007	AMHS installed only in Guayaquil and operates only there, consists of an MTA and some terminals. Ecuador has purchased a new AMHS to become operational nationally in the beginning of 2012 El sistema AMHS está instalado únicamente en Guayaquil y funciona solamente en esa localidad consiste de un MTA y algunos terminales. Ecuador ha adquirido un nuevo sistema AMHS que estará en operación a nivel nacional a principio de 2012
GUYANA	SKYCOM	2011	Operational at the end of May 2011 Finales de mayo 2011 puesta en operación
FRENCH GUIANA (FRANCE)			No information available regarding AMHS implementation plans No se tiene información de planes para la implantación de un sistema AMHS
PANAMA	COCESNA	2009	
PARAGUAY	RADIOCOM	2007	
PERU	COMSOFT	2009	
SURINAME	SKYCOM	2011	Operational since the start of 2011 En operación desde inicios de 2011
URUGUAY			Currently in the purchasing process Se encuentra en el proceso de adquisición
VENEZUELA	RADIOCOM	2010	

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

ACTION PLAN FOR THE INTERCONNECTION OF AMHS SYSTEMS

ITEM	ACTIVITY	RESPONSIBLE	EXPECTED RESULT	STATUS	COMPLETION DATE
1	Review of the ATN Regional Plan in terms of the implementation of the AMHS system	Secretariat	Revised Regional ATN Plan for ground-ground applications (Table CNS 1Bb)	Finalised	Jun 2009
2	Review and assignment of IP addresses to intraregional routers	Secretariat	Assignment of IP addressing	Finalised	Jun 2009
3	Review of the CAAS addressing plan		Revised CAAS addressing plan	Finalised	Jun 2009
4	Prepare interconnection test protocol to determine the bandwidth required for the transmission of AMHS messages between MTAs through the REDDIG	CNS expert Project RLA/06/901	Interconnection test protocol. Guidelines were developed for the interconnection of AMHS systems	Finalised	Dic 2009
5	Prepare guidelines for the operational interconnection of AMHS systems in the SAM Region	CNS expert Project RLA/06/901	Guidelines for the operational interconnection of AMHS systems in the SAM Region	Finalised	Oct 2009
6	Development of a model MoU for the interconnection of AMHS systems	Argentina	Model MoU for the interconnection of AMHS systems	Finalised	Oct 2009
7	MoU for the interconnection of AMHS systems currently implemented in the SAM Region: a) Argentina-Brazil b) Argentina-Chile c) Argentina-Peru d) Argentina-Paraguay e) Brazil -Colombia f) Brazil -Paraguay g) Brazil -Peru h) Chile-Peru i) Colombia-Peru j) Colombia-Panama k) Colombia-Venezuela l) Peru-Venezuela m) Brazil-Suriname n) Guyana-Venezuela o) Suriname-Venezuela p) Brazil-Guyana q) Guyana-Suriname r) Brazil-Venezuela The MoUs for the interconnection of AMHS systems in Bolivia, Ecuador, French Guiana (France) and Uruguay should be prepared once the installation of AMHS systems at national level has been completed.	SAM States involved	MoU for interconnection between SAM States that have implemented AMHS systems	Valid a), b), c), d), f), g) and i) finalised	e) Jul 2011 h) Oct 2011 j) Jul 2012 k) Oct 2011 l) Oct 2011 m) Oct 2011 n) Oct 2011 o) Oct 2011 p) Oct 2011 q) Oct 2011 r) Oct 2011

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

ACTION PLAN FOR THE INTERCONNECTION OF AMHS SYSTEMS

ITEM	ACTIVITY	RESPONSIBLE	EXPECTED RESULT	STATE	COMPLETION DATE
8	Phase 1 Conduction of interconnection tests between MTAs of: a) Argentina-Brazil b) Argentina-Paraguay c) Brazil-Paraguay d) Colombia-Peru e) Argentina-Chile f) Argentina-Peru g) Brazil-Peru *Type of test to be carried out*: Network transportation; Network connectivity; and Exchange of messages; and preparatory phase. **Note**: Only the interconnection of AMHS systems between States that have implemented and signed the MoU has been included.	Argentina, Brazil, Chile, Colombia, Paraguay, Peru and REDDIG Management	Interconnection tests between MTAs of Argentina, Brazil, Chile, Colombia, Paraguay and Peru	Valid a) Network transportation and connectivity tests conducted with the Manaus node. The MoU was updated, since the entry node of Brazil will be Curitiba. Network connectivity, transportation and message exchange tests will be repeated. b) Network transportation, connectivity and message exchange tests conducted. c) The MoU was updated, since the entry node of Brazil will be Curitiba, together with the dates of network connectivity, transportation and message exchange tests. d) Operational interconnection tests completed e), f) and g) No tests conducted	a) Jun 2011 b) Jul 2011 c) Jul 2011 e) Jul 2011 f) Jun 2011 g) Jun 2011
9	Operational interconnection of the following MTAs: a) Argentina-Paraguay b) Argentina-Brazil c) Argentina-Chile d) Argentina-Peru e) Brazil-Paraguay f) Brazil-Peru g) Colombia-Peru **Note**: Only the interconnection of AMHS systems between States that have implemented and signed the MoU has been included.	Argentina, Brazil, Chile, Colombia, Paraguay and Peru	Operational implementation of AMHS systems	g) Colombia and Peru completed and operating	a) Oct 2011 b)Oct 2011 c) Oct2011 d)Oct 2011 e)Oct 2011 f) Oct 2011

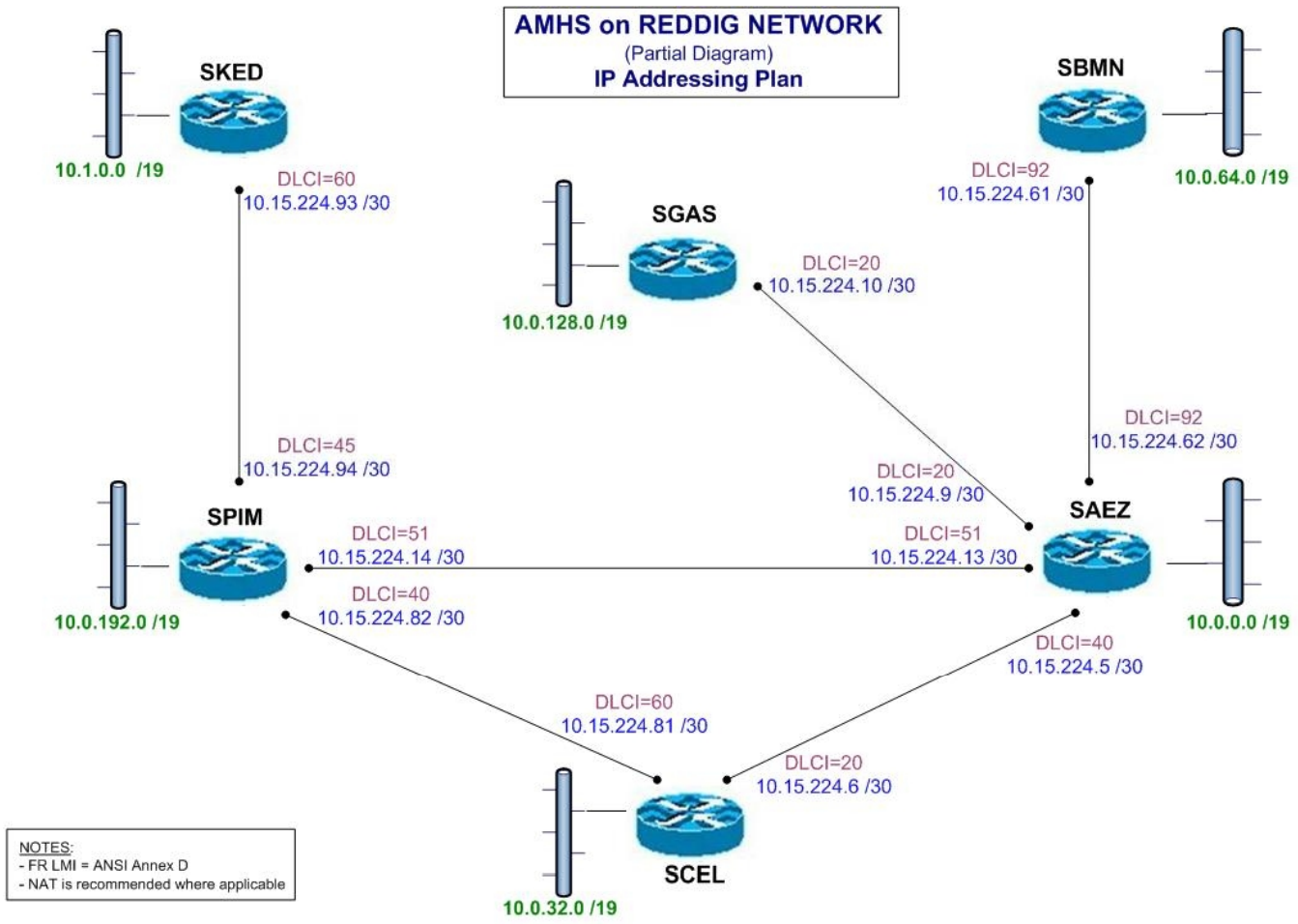
REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

Anexo 2

Enlaces Inter/Intra Regionales correspondientes a la Región SAM

Red	Enlace				
	Nro.	Subred	Extremos	Direcciones a utilizar	
10.15.224.0 / 19	10	10.15.224.36 / 30	Brasil-Peru	-	10 . 15 . 224 . 36 / 30
				Brasil	10 . 15 . 224 . 37 / 30
				Peru	10 . 15 . 224 . 38 / 30
				-	10 . 15 . 224 . 39 / 30
	11	10.15.224.40 / 30	Brasil-Surinam	-	10 . 15 . 224 . 40 / 30
				Brasil	10 . 15 . 224 . 41 / 30
				Surinam	10 . 15 . 224 . 42 / 30
				-	10 . 15 . 224 . 43 / 30
	12	10.15.224.44 / 30	Brasil-Venezuela	-	10 . 15 . 224 . 44 / 30
				Brasil	10 . 15 . 224 . 45 / 30
				Venezuela	10 . 15 . 224 . 46 / 30
				-	10 . 15 . 224 . 47 / 30
	13	10.15.224.48 / 30	Brasil-AFI (tentativo)	-	10 . 15 . 224 . 48 / 30
				Brasil	10 . 15 . 224 . 49 / 30
				AFI (Dakar)	10 . 15 . 224 . 50 / 30
				-	10 . 15 . 224 . 51 / 30
	14	10.15.224.52 / 30	Brasil-EUR (tentativo)	-	10 . 15 . 224 . 52 / 30
				Brasil	10 . 15 . 224 . 53 / 30
				EUR (Madrid)	10 . 15 . 224 . 54 / 30
				-	10 . 15 . 224 . 55 / 30
	15	10.15.224.56 / 30	Brasil-NAM	-	10 . 15 . 224 . 56 / 30
				Brasil	10 . 15 . 224 . 57 / 30
				NAM(Atlanta)	10 . 15 . 224 . 58 / 30
				-	10 . 15 . 224 . 59 / 30
	16	10.15.224.60 / 30	Brasil-Argentina	-	10 . 15 . 224 . 60 / 30
				Brasil	10 . 15 . 224 . 61 / 30
				Argentina	10 . 15 . 224 . 62 / 30
				-	10 . 15 . 224 . 63 / 30
	17	10.15.224.64 / 30	Brasil-Bolivia	-	10 . 15 . 224 . 64 / 30
				Brasil	10 . 15 . 224 . 65 / 30
				Bolivia	10 . 15 . 224 . 66 / 30
				-	10 . 15 . 224 . 67 / 30
	18	10.15.224.68 / 30	Brasil-Paraguay	-	10 . 15 . 224 . 68 / 30
				Brasil	10 . 15 . 224 . 69 / 30
				Paraguay	10 . 15 . 224 . 70 / 30
				-	10 . 15 . 224 . 71 / 30

REDDIG II SERVICE REQUIREMENTS IN THE SHORT MEDIUM AND LONG TERM



REDDIG II SERVICE REQUIREMENTS IN THE SHORT MEDIUM AND LONG TERM

TABLE CNS 1BB –GROUND-GROUND APPLICATIONS PLAN / TABLA CNS1 Bb – PLAN DE APLICACIONES TIERRA-TIERRA SAM REGION / REGIÓN SAM (FASID)

ATN Ground-Ground Applications Plan / Plan de Aplicaciones Tierra-Tierra					
Administration and Location/ Administración y localidad	Application Type/ Tipo de Aplicación	Conneted with Administration & Location of/ Conectada con Administración y Localidad de	Used Standard / Norma usada	Implementation Date/ Fecha de Implementación	Remarks/ Observaciones
1	2	3	4	5	6
Argentina, Buenos Aires	AMHS	Bolivia	IPS	TBD	
		Brasil	IPS	2010	
		Chile	IPS	2011	
		Paraguay	IPS	2010	
		Peru	IPS	2010	
		Uruguay	IPS	TBD/Por determinar	
		AFI	IPS	TBD/Por determinar	
	AIDC	Bolivia	IPS	TBD/Por determinar	
		Brasil	IPS	2012	
		Chile	IPS	2012	
		Paraguay	IPS	TBD/Por terminar	
		Uruguay	IPS	2012	
		AFI	IPS	TBD/Por terminar	
Bolivia , La Paz	AMHS	Argentina	IPS	TBD/Por terminar	
		Brasil	IPS	TBD/Por terminar	
		Peru	IPS	TBD/Por terminar	
	AIDC	Argentina	IPS	TBD/Por terminar	
		Brasil	IPS	TBD/Por terminar	
		Peru	IPS	TBD/Por terminar	
Brazil, Brasilia	AMHS	Argentina	IPS	2010	
		Bolivia	IPS	TBD	
		Paraguay	IPS	2010	
		Uruguay	IPS	TBD/Por determinar	
		NAM	IPS	TBD/Por determinar	
		EUR	IPS	TBD/Por determinar	
		AFI	IPS	TBD/Por determinar	
	AIDC	Argentina	IPS	2012	
		Bolivia	IPS	TBD/Por determinar	
		Paraguay	IPS	2012	
		Uruguay	IPS	2012	
		NAM	IPS	TBD/Por determinar	
		AFI	IPS	TBD/Por determinar	
Brazil, Manaus	AMHS	Colombia	IPS	2010	
		Guyana	IPS	TBD/Por determinar	
		Guyana Francesa	IPS	TBD/Por determinar	
		Perú	IPS	2010	
		Surinam	IPS	TBD/Por determinar	
		Venezuela	IPS	2012	
	AIDC	Colombia	IPS	TBD/ Por determinar	
		Guyana	IPS	TBD/ Por determinar	

REDDIG II SERVICE REQUIREMENTS IN THE SHORT MEDIUM AND LONG TERM

AMHS REQUIREMENTS*

AMHS TABLE			BW (Kbps)
Argentina	Ezeiza	Bolivia (La Paz)	4.8
		Chile (Santiago)	4.8
		Brazil (Curitiba)	4.8
		Paraguay (Asunción)	4.8
		Peru (Lima)	4.8
		Uruguay (Montevideo)	4.8
Bolivia	La Paz	Argentina (Ezeiza)	4.8
		Brazil (Curitiba)	4.8
		Peru (Lima)	4.8
Brazil	Curitiba	Argentina (Ezeiza)	4.8
		Uruguay (Montevideo)	4.8
		Paraguay (Asunción)	4.8
		Bolivia (La Paz)	4.8
	Manaos	Colombia (Bogota) (*)	14.4
		Guyana (Georgetown)	4.8
		French Guiana (Cayenne)	4.8
		Peru (Lima)	4.8
		Suriname (Paramaribo)	4.8
	Recife	Venezuela (Maiquetía)	4.8
Chile	Santiago	Argentina (Ezeiza)	4.8
		Peru (Lima)	4.8
Colombia	Bogota	Ecuador (Guayaquil)	4.8
		Brazil (Manaus) (*)	14.4
		Peru (Lima) (*)	14.4
		Venezuela (Caracas)	4.8
Ecuador	Guayaquil	Colombia (Bogota)	4.8
		Peru (Lima)	4.8
		Venezuela (Maiquetía)	4.8
French Guiana	Cayenne	Venezuela (Maiquetía)	4.8
		Brazil (Manaus)	4.8
Guyana	Georgetown	Brazil (Manaus)	4.8
		Suriname (Paramaribo)	4.8
		Trinidad and Tobago (Piarco)	4.8
		Venezuela (Caracas)	4.8
Paraguay	Asunción	Argentina (Ezeiza)	4.8
Peru	Lima	Venezuela (Maiquetía)	4.8
		Argentina (Ezeiza)	4.8
		Bolivia (La Paz)	4.8
		Brazil (Manaus)	4.8
		Chile (Santiago)	4.8
		Colombia (Bogota) (*)	14.4
		Ecuador (Guayaquil	4.8

* **Tabla 2E-4 Connectividad AMHS y calculo ancho de banda (Estudio para la implnatación de una nueva red digital en la Región SAM)**

REDDIG II SERVICE REQUIREMENTS IN THE SHORT MEDIUM AND LONG TERM

ATS speech circuits for ATFM*

Teleconference		FMU/ FMP (*)	Interfaces	
			E&M FXS	Digital E1
Argentina	Ezeiza	1	1	
	Mendoza	1		
	Córdoba	1		
	Resistencia	1		
	Comodoro Rivadavia	1		
Bolivia	La Paz	1	1	
Brazil	Curitiba	1	1	
	Manaus	1		
	Atlántico	1		
	Brasilia	1		
	Recife	1		
Chile	Santiago	1	1	
	Puerto Montt	1		
	Punta Arenas	1		
Colombia	Bogota	1		1
	Cali	1		
	Medellín	1		
	Barranquilla	1		
Ecuador	Guayaquil	1		1
French Guiana	Rochambeau	1	1	
Guyana	Georgetown	1	1	
Paraguay	Asunción	1	1	
Peru	Lima	1		1
Suriname	Panamaribo	1	1	
Trinidad and Tobago	Piarco	1	1	
Uruguay	Montevideo	1	1	
Venezuela	Maiquetía	1	1	

*** Table 2D-1 Teleconferencing service (Study for the implementation of a new digital network for the SAM Region)**

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

AIDC REQUIREMENTS*

AIDC TABLE			Quantity	Total	Ethernet interfaces
Argentina	Buenos Aires	Bolivia (La Paz)	1	5	1
		Chile (Santiago)	7		
		Brazil (Curitiba)	3		
		Paraguay (Asunción)	1		
		Uruguay (Montevideo)	7		
Bolivia	La Paz	Argentina (Buenos Aires)	1	6	1
		Chile (Santiago)	1		
		Brazil (Manaus)	1		
		Brazil (Curitiba)	2		
		Paraguay (Asunción)	1		
		Peru (Lima)	1		
Brazil	Curitiba	Argentina (Buenos Aires)	3	4	1
		Uruguay (Montevideo)	1		
		Paraguay (Asunción)	3		
		Bolivia (La Paz)	2		
	Manaos	Colombia (Bogota)	1	7	1
		Guyana (Georgetown)	1		
		Guayana Francesa (Rochambeau)	1		
		Bolivia (La Paz)	1		
		Venezuela (Maiquetía)	1		
		Perú (Lima)	1		
		Suriname (Paramaribo)	1		
	Recife	Uruguay (Montevideo)	1	2	1
		French Guiana (Rochambeau)	1		
Chile	Santiago	Argentina (Buenos Aires)	7	3	1
		Bolivia (La Paz)	1		
		Peru (Lima)	1		
Colombia	Bogota	Panama (Panama)	5	5	1
		Ecuador (Guayaquil)	4		
		Brazil (Manaus)	3		
		Peru (Lima)	2		
		Venezuela (Maiquetía)	1		
Ecuador	Guayaquil	Colombia (Bogota)	4	2	1
		Peru (Lima)	1		

* Tabla 2F-1 Servicio AIDC (Estudio para la implnatación de una nueva red digital en la Región SAM)

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

REGIONAL PERFORMANCE OBJECTIVE: SAM 11 IMPROVEMENTS TO THE ATS SURVEILLANCE SERVICE IN THE SAM REGION				
Benefits				
Safety	• Increases ATM situational awareness • Improves ATS coordination, reducing operational errors of coordination between adjacent ACCs • Reduces pilot and controller workload			
Environmental protection and sustainable development of air transport	• Facilitates ATS planning • Increases airspace capacity • Ensures the radio frequency spectrum for the air surveillance service assigned to aviation • Supports the implementation of PBN and random routes			
Métricas	• Number of ADS-C systems in oceanic FIRs implemented • Number of adjacent ACCs with ATS surveillance data exchange • Percentage of en-route airspace for upper levels with ADS-B • Number of A-SMGCS systems implemented			
2012 – 2018 Strategy				
ATM COMPONENTS	**TASKS**	**PERIOD START-END**	**RESPONSIBILITY**	**STATUS**
AOM AO TS CM ATM-SDM	a) Implement ADS-B and/or MLAT systems in terminal and en-route areas	2012-2018	States	Valid
	b) Implement surface movement guidance and control systems (A-SMGCS) at airports of high complexity and traffic	2013- 2018+	States	Valid
	c) Implement the ADS-C service in all States that are responsible for an oceanic FIR	(*) - 2018	States	In progress
	d) Implement the exchange of ATS surveillance data between adjacent ACCs	(*)- 2018+	States	In progress
	e) Protect the radio frequency spectrum used for current and foreseen radio navigation services	2012 - 2018	States ICAO	Valid
	f) Monitorear el avance de la implantación	2012-2018	GREPECAS	Valid
Relationship with GPI	GPI/5: RNAV and RNP; GPI/6: ATFM; GPI/9: Situational awareness; GPI/10: Terminal area design and management; GPI/11: RNP and RNAV SIDs and STARs; GPI/12: Functional integration of ground and on-board systems; GPI/13: Aerodrome design and management; GPI/14: Runway operations; GPI/17: Data link applications, GPI/22: Communication infrastructure, GPI 23: Aeronautical radio spectrum			

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

REGIONAL AUTOMATION ACTIVITIES

TASK	DURATION	START	END
SAM Region Interconnection Plan / Plan de Interconexión Región SAM	**1370 days**	**Mon 21/04/08**	**Fri 19/07/13**
Plan approval / Aprobación del Plan	1 day	Mon 21/04/08	Mon 21/04/08
Establishment of management team / Creación del equipo de gestión	1 day	Mon 21/04/08	Mon 21/04/08
Execution / Ejecución	1 day	Mon 21/04/08	Mon 21/04/08
Coordination meetings / Reuniones de coordinación	**770 days**	**Mon 03/11/08**	**Fri 14/10/11**
SAM/IG/2	5 days	Mon 03/11/08	Fri 07/11/08
SAM/IG/3	5 days	Mon 20/04/09	Fri 24/04/09
SAM/IG/4	5 days	Mon 19/10/09	Fri 23/10/09
SAM/IG/5	5 days	Mon 10/05/10	Fri 14/05/10
SAM/IG/6	5 days	Mon 18/10/10	Fri 22/10/10
SAMIG/7	5 days	Mon 23/05/11	Fri 27/05/11
SAMIG/8	5 days	Mon 10/10/11	Fri 14/10/11
MoU establishment / Establecimiento de MoU	**693 days**	**Wed 16/09/09**	**Fri 11/05/12**
Argentina - Uruguay	1 day	Wed 16/09/09	Wed 16/09/09
Argentina - Brasil	1 day	Wed 16/09/09	Wed 16/09/09
Argentina - Chile	10 days	Mon 18/10/10	Fri 29/10/10
Brasil - Uruguay	1 day	Wed 16/09/09	Wed 16/09/09
Brasil -Venezuela	1 day	Thu 21/10/10	Thu 21/10/10
Brasil Colombia	5 days	Mon 28/11/11	Fri 02/12/11
Colombia- Ecuador	5 days	Mon 23/05/11	Fri 27/05/11
Colombia=Panama	5 days	Mon 23/05/11	Fri 27/05/11
Colombia Venezuela	5 days	Mon 23/05/11	Fri 27/05/11
Peru Chile	5 days	Mon 07/05/12	Fri 11/05/12
Peru Colombia	5 days	Mon 07/05/12	Fri 11/05/12
Peru Ecuador	5 days	Mon 07/05/12	Fri 11/05/12
Paraguay Argentina	5 days	Mon 13/02/12	Fri 17/02/12
Paraguay Brasil	5 days	Mon 13/02/12	Fri 17/02/12
Flight plan interconnection / Interconexión de plan de vuelo	**641 days**	**Fri 30/07/10**	**Fri 11/01/13**
OLDI	**375 days**	**Mon 01/08/11**	**Fri 04/01/13**
EZEIZA-SANTIAGO	22 days	Tue 01/11/11	Wed 30/11/11
BOGOTA - GUAYAQUIL	5 days	Mon 21/11/11	Fri 25/11/11
BOGOTA - PANAMA	5 days	Mon 19/12/11	Fri 23/12/11
BOGOTA - BARRANQUILLA	5 days	Mon 21/11/11	Fri 25/11/11
BARRANQUILLA - PANAMA	5 days	Mon 19/12/11	Fri 23/12/11
SANTIAGO - CORDOBA	22 days	Tue 01/11/11	Wed 30/11/11
SANTIAGO - COMODORO RIVADAVIA	22 days	Tue 01/11/11	Wed 30/11/11
AMAZONICO-BOGOTA	20 days	Mon 01/08/11	Fri 26/08/11
LIMA - SANTIAGO	20 days	Mon 18/06/12	Fri 13/07/12
LIMA - GUAYAQUIL	20 days	Mon 02/07/12	Fri 27/07/12
LIMA - BOGOTA	20 days	Mon 10/12/12	Fri 04/01/13

REDDIG II SERVICE REQUIREMENTS IN THE SHORT, MEDIUM AND LONG TERM

AIDC REQUIREMENTS*

AIDC TABLE			Quantity	Total	Ethernet Interfaces
Argentina	Buenos Aires	Bolivia (La Paz)	1	5	1
		Chile (Santiago)	7		
		Brazil (Curitiba)	3		
		Paraguay (Asunción)	1		
		Uruguay (Montevideo)	7		
Bolivia	La Paz	Argentina (Buenos Aires)	1	6	1
		Chile (Santiago)	1		
		Brazil (Manaus)	1		
		Brazil (Curitiba)	2		
		Paraguay (Asunción)	1		
		Peru (Lima)	1		
Brazil	Curitiba	Argentina (Buenos Aires)	3	4	1
		Uruguay (Montevideo)	1		
		Paraguay (Asunción)	3		
		Bolivia (La Paz)	2		
	Manaus	Colombia (Bogota)	1	7	1
		Guyana (Georgetown)	1		
		French Guiana (Rochambeau)	1		
		Bolivia (La Paz)	1		
		Venezuela (Maiquetía)	1		
		Peru (Lima)	1		
		Suriname (Paramaribo)	1		
	Recife	Uruguay (Montevideo)	1	2	1
		French Guiana (Rochambeau)	1		
Chile	Santiago	Argentina (Buenos Aires)	7	3	1
		Bolivia (La Paz)	1		
		Peru (Lima)	1		
Colombia	Bogota	Panama (Panama)	5	5	1
		Ecuador (Guayaquil)	4		
		Brazil (Manaus)	3		
		Peru (Lima)	2		
		Venezuela (Maiquetía)	1		
Ecuador	Guayaquil	Colombia (Bogota)	4	2	1
		Peru (Lima)	1		

* Table 2F-1 AIDC Service (Study for the implementation of a new digital network in the SAM Region)

SLIDE REFERENCES

Slide 7 http://www.lima.icao.int/eDocuments/eDoc_Contents.asp?wLanguage=S&wArea=CNS#

Slide 10 http://www.lima.icao.int/eDocuments/eDoc_Contents.asp?wLanguage=S&wArea=CNS#

Slide 13 **Seminar/workshop on the SAM Performance-Based Air Navigation Implementation Plan (Lima, Peru, 9-13 May 2011)**

Slide 15-16 **SAM/IG/7 meeting report, Item 6 Appendix E (Lima, Peru, 23-27 May 2011)**

Slide 17 **CNS/ATM/SG/1 meeting report, Item 4, Appendix E (Lima, Peru, 15-19 March 2010)**

Slide 19 http://www.lima.icao.int/eDocuments/eDoc_Contents.asp?wLanguage=S&wArea=CNS#

Slide 23 **Seminar/workshop on the SAM Performance-Based Air Navigation Implementation Plan (Lima, Peru, 9-13 May 2011)**

Slide 24 **SAM/IG/7 meeting report, Item 7, Appendix A (Lima, Peru, 23-27 May 2011)**

MUCHAS GRACIAS

THANK YOU