

APPENDIX B

FOLLOW-UP OF ULTERIOR MEASURES OF RNAV5 SAFETY PLAN TO REDUCE RISKS

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
1. Non-RNAV5 aircraft flying on RNAV5 routes															
Inability of the aircraft to maintain RNAV5 route															
1.1 RNAV5 operational approval of aircraft with potential for approval.		YES	*										NO	YES	Venezuela: continuous
1.2 Direct access of ATS units to updated database of RNAV5-approved aircraft		NO	NO										NO	NO	Brazil: there are doubts as to whether this mitigating measure would be a problem that is not responsibility of the ATCO to supervise airspace. Venezuela: in process.
1.3 Improve surveillance in the necessary areas (implement VHF, HF, ADS-CPDLC, ADS-B, Radar and other types of communications)		NO	YES										YES	YES	Uruguay: in bidding process. New VHF AM stations and AMHS moved in addition to SSR Mode S for Montevideo. With the acquisition of 2100 ADS C will be implemented. Digital voice IP recently acquired.
1.4 Direct access of ARO/AIS units to updated database of RNAV5-approved aircraft		NO	NO										NO	YES	Brazil: data base could be outdated. This mitigating measure would only be possible if this data base were updated online by CADs. Uruguay: both the SIHA and the en-route navigation charts are updated and regularly suffer amendments. No data base for RNAV5 approved

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
															aircraft is available. Venezuela: radar coverage in all the territory.
1.5 Training of operators and air navigation service providers		NO	YES										NO	YES	Venezuela: in process.
1.6 Applicable contingency procedures upon identifying a non-RNAV5 aircraft on an RNAV5 route		NO	YES										NO	NO	Brazil: foreseen in AIP SUP Model prepared for SAM/IG/6.
1.7 Updating and, if applicable, development of the Operational Manuals of the ANSP, incorporating the appropriate procedures		NO	NO										NO	YES	
1.8 Designate a responsible party in each State to maintain the database of RNAV5-approved aircraft		YES	*										NO	YES	Uruguay: Lovrich and Ledesma but not in written. Venezuela: safety.
2. Loss of RNAV5 capacity on board															
Inability of the aircraft to maintain the RNAV5 route															
2.1 Standardization of operator procedures in case of loss of RNAV5 capability		NO	NO										NO	NO	Uruguay: in view that there is none approved.

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
2.2 Improve surveillance in the necessary areas (implement VHF, HF, ADS-CPDLC, ADS-B, Radar and other types of communications)		NO	YES										YES	YES	Uruguay: in bidding process, new VHF AM moved and AMHS. Recently acquired Voice IP. Venezuela: radar coverage in all the territory.
2.3 Applicable contingency procedures upon identifying an aircraft that has lost RNAV5 capability		NO	YES										NO	YES	Brazil: foreseen in AIP SUP Model prepared for SAM/IG/6. Venezuela: in continental flight
2.4 Training of operators, including training of the crew in the application of contingency procedures		NO	*										NO	YES	Venezuela: continuous
2.5 Training of air navigation service providers		YES	NO										NO	YES	
2.6 ATC simulations		NO	NO										NO	YES	Brazil: ATC simulations will not be necessary. Uruguay: will be improved with a simulator acquired by the IAA (aeronautical training centre).
2.7 RNAV system integrity oversight plan													NO	NO	Uruguay: we have a surveillance plan. As approval is achieved, integration to the plan will occur.

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
3. Lack of GND NAVAID coverage															
Inability of the aircraft to maintain RNAV5 route		NO	NO										NO		Brazil: depends on the study to be carried out in order to determine coverage and geometry of radio navigation aids. Uruguay: in process.
3.1 Publish the areas with no GND NAVAIDS RNAV5 (DME/DME) and VOR/DME coverage													-	NO	Venezuela: next amendment to AIP
3.2 Ensure an appropriate coverage by:		YES	-										-	-	
a) Implementing the required GND NAVAIDs; or		YES	NO										-	NO	Brazil: depends on the study to be carried out in order to determine coverage and geometry of radio navigation aids.
b) Establish GNSS and/or INS as requirement to use the route affected.		NO	YES										YES	YES	Uruguay: in bidding process, new VHF AM moved and AMHS. Recently acquired Voice IP
3.3 Improve surveillance in the required areas (implement VHF, HF, ADS-CPDLC, ADS-B, Radar and other types of communications)		YES	NO*										NO	YES	Uruguay: specific training received in acquired equipment, general training required on new technologies, networks, fiber, IP voice.
3.4 Training of operators and air		NO	NO										NO	YES	

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Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
4.5 Updating and, if applicable, drafting of the operational manuals of the ANSP, incorporating the appropriate procedures		NO	NO										-	YES	Brazil: depends on the study to be carried out in order to determine coverage and geometry of radio navigation aids.
4.6 Disseminating information about solar storms that might affect the satellite and HF systems		NO	NO										-	NO	Venezuela: will request to MET on capacity to carry out this measure.
5. Volcanic eruption															
Volcanic ash															Bolivia: not applicable.
Reduced availability of the route network															
5.1 Re-routing of air traffic		-	NO										YES	YES	Uruguay: conventional ATS routes.
5.2 Training of operators, including training of the crew on the application of contingency procedures			*										NO	NO	Venezuela: in process
5.3 Determine ATC sector capacity		-	YES										NO	NO	Venezuela: in process
5.4 ATFM		-	YES										NO	NO	Venezuela: in process
5.5 Updating of LOAs between MET/ATM services		-	NO										NO	YES	
5.6 Develop regional contingency procedures		-	NO										-	YES	Venezuela: LOAs adjacent States.
5.7 Alternate routes		-	YES										YES	YES	Venezuela: agreements among States

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
5.8 Updating of the operational manuals of the operator		-	*										NO	NO	
5.9 Updating and, if applicable, drafting of the operational manuals of the ANSP, incorporating the procedures foreseen in Chapter 15 (15.8 of Doc 4444)		-	NO										NO	YES	
6. Adverse meteorological effects															
Large deviations															
6.1 Updating of LOAs between MET/ATM services		YES	NO										NO	YES	
6.2 Alternate routes		NO	NO										YES	YES	
6.3 QMS/MET/AIS		YES	NO										YES	YES	Bolivia: in process. Uruguay: AIS has presented documentation of the QMS. The same is in an adjustment stage to external pre-audit process.
6.4 Updating of the operational manuals of the operator and the ANSP		NO	NO*										-	YES	Venezuela: ANSP
7. Operational manuals of operators – ANSP not updated															
Wrong application of procedures															
Implement SMS		NO	YES										NO	YES	

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
8. Inadequate civil/military coordination															
Unauthorised entry of civil aircraft in restricted airspaces		-	-										NO		Uruguay: the SIAA is updated and suffers amendments. Integrated system of aeronautical information (AIP, NOTAM, AIP Supplement, AIC, etc.)
Unauthorised entry of military aircraft from restricted airspaces into ATS routes		-	-										NO		
8.1 Updating of video charts		NO	YES										NO	YES	
8.2 Updating of LOAs and general civil/military ATM procedures		NO	YES										NO	YES	
8.3 ATFM		NO	YES										NO	NO	
8.4 Training of ATCOs and pilots		NO	YES										NO	YES	
8.5 Restructuring of segregated sectors/airspace		NO	YES										NO	YES	
8.6 Optimise or, if applicable, implement a civil/military coordination committee		NO	YES										NO	YES	
8.7 Flexible use of airspace		NO	YES										NO	NO	Venezuela: committee in process

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
8.8 Updating and, if applicable, drafting of the operational manuals of the ANSP, incorporating the procedures foreseen in Chapter 16 (16.1) of Doc 4444 and the standards and recommended practices of Annex 2 and 11		NO	YES										NO	YES	Venezuela: in process
9. Discrepancy of aeronautical information concerning the route network															
Lack of integrity of the data published by the States															
Loss of separation															
9.1 Implement quality management system (QMS) in AIS		NO	NO										NO	YES	Uruguay: the AIS has presented the document on QMS. The same is in stage of adjustment to external pre-audit process.
9.2 Comply with AIRAC cycles States ANSPs		YES	YES										YES	YES	Uruguay: compliance of AIRAC cycles is carried out for more than 10 years.
Outdated airborne navigation database, if used													-		
Loss of separation		YES	YES										YES		Uruguay: compliance of AIRAC cycles is carried out for more than 10 years.

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
9.3 Comply with AIRAC cycles		YES	YES										YES	YES	Uruguay: the GIS/TF/1 generated model documents to exchange information among States and with other organizations.
9.4 Improve and/or formalise coordination between States and navigation database providers		NO	NO										NO	YES	
9.5 Publish specific navigation database regulations		YES	*										YES	YES	Uruguay: DNA has an inspection programme for users.
9.6 Schedule operator inspections		NO	*										-	YES	
9.7 Comply with navigation database regulations established by the States		YES	YES										YES	YES	Uruguay: AIS has already presented QMS documentation. The same is in a state of adjustment to external pre-audit process.
9.8 Increased ATCO workload		NO	NO										NO	No	Uruguay: compliance of AIRAC cycles is carried out for more than 10 years. Venezuela: in process
10. Inadequate airspace design															
10.1 Analyse sector workload after route optimisation		YES	YES										NO	NO	Venezuela: in process
10.2 Provide a sufficient number of air traffic controllers		NO	NO										NO	NO	Venezuela: in process
10.3 Drafting of the safety plan for sectors		NO	NO										NO	NO	Venezuela: in process

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12.4 Training of ATCOs in the application of procedures to avoid ATC coordination errors and completion of the lateral deviation reporting form		-	-										-	NO	
12.5 Use of data available in CARSAMMA to visualise potential errors		NO	NO										YES	NO	Uruguay: YES by the administration NO by ATCOs.
12.6 Updating and, if applicable, drafting of the operational manuals of the ANSP, incorporating procedures to reduce operational errors in the ATC coordination loop between adjacent ACCs		NO	NO										YES	YES	
12.7 Implement ATC system alarms to detect lateral deviations		NO	NO										NO	NO	Venezuela: survey on automation
12.8 Implement AIDC		NO	NO										NO	NO	

Instrucciones para el llenado del formulario - Instructions to fill in the form

- Cumplida: colocar **SÍ** en el casillero correspondiente. / Accomplished: place **YES** in the corresponding box
- No cumplida: colocar **NO** en el casillero correspondiente y, de ser el caso, hacer comentarios en columna de observaciones/ Not complied: place **NO** in the corresponding box and if such were the case, make comments in the remarks column