



SAM/IG/1  
WP/22  
15/04/08

**International Civil Aviation Organization  
South American Regional Office**

**FIRST WORKSHOP/MEETING OF THE SAM IMPLEMENTATION GROUP (SAM IG/1)  
REGIONAL PROJECT RLA/06/901**

**Lima, Peru, 21 to 25 April 2008**

**Agenda Item 1: Optimization of the ATS routes structure in Terminal and en-route airspace and implementation of performance based navigation (PBN) in the SAM Region.**

**IMPLEMENTATION OF INSTRUMENTAL APPROXIMATION PROCEDURES AND  
RNAV/GNSS NORMALIZED DEPARTURE WITHIN FIR MAIQUETIA**

(Presented by the Secretariat)

**Summary**

Venezuela, within the scope of the implementation of Global ATM regional projects, is being investing significantly in airports and Air Traffic Management modernization, including RNAV-GNSS Navigation for approximation procedure and departure in 33 airports of Venezuela.

**References:**

- Project RLA/98/003
- Report of the AP/ATM/11 Meeting/Seminar

**1 Background**

1.1 During the AP/ATM/11 meeting, held in Lima, Peru, on 28 - 30 September 2005, under Agenda Item 2, the need to start up with SID/STAR implementation and RNAV/RNP Instruments Approximation procedures in the CAR/SAM Regions was agreed upon. The meeting recalled that during the RNAV routes implementation process in the CAR/SAM Regions, which are successfully being implemented, the need to start with SID/STAR implementation to permit the link of airports with the corresponding RNAV trajectories was recognized.

1.2 In this regard, and in order to achieve the objective of establishing an harmonious and integral RNAV and RNP implementation during all the flight phases, States were encouraged to develop within their National Plans the SID/STAR procedures implementation and of RNAV and/or RNP instrument approximation according to their needs and objectives.

## 2 Discussion

2.1 Venezuela is presently reviewing the content of the Air Navigation National Plan in order to present it and to make public the changes being done to it.

2.2 In the same way, the Venezuela INAC (Instituto Nacional de Aeronáutica Civil), is working in an ambitious project called MAGTA (Modernization of Airports and Air Traffic Management) which contemplates the replacement of 21 VOR/DME, the installation and replacement of 3 ILS systems, installation of extended rank stations for VHF/AM communications, fire-fighting equipment for aeronautical fire-fighters, modernization and construction of 34 aerodrome control towers, purchase of 3 helicopters MI-172 for search and rescue, installation of a meteorological information automated system (AWOS) in 11 principal airports, satellite detection system for the localization of COSPA-SARSAT beacons, geodesic raising under WGS-84 geoidal model in 33 airports, and the preparation of RNAV/RNP-GNSS procedures for the referred airports, installation of ten radars for air traffic control in the terminal and in route areas, 31 VSAT stations for communications and data link.

2.3 Most of sub-projects have already been initiated and are presently in its initial or intermediate stages, with the exception of WGS-84 raising in the 33 airports, which was finalized in July 2007 and certified by the Simon Bolivar Geographical Institute of Venezuela, with which the SID design and RNAV/RNP-GNSS instrument approximation procedures were initiated, these last in its final design stage.

2.4 RNAV/RNP-GNSS procedures are being designed strictly according to criteria established in Doc 8168, Vol. II (ICAO) and to TERPS (FAA) criteria, considering the last published amendments, in order to satisfy the concerns of future users. Approximation charts are being designed for a RNP 0.3 value and for procedures based on VNAV/LNAV.

2.5 National and international routes network and traffic flow were taken into consideration to create procedures adjusted to real and present needs, projecting in the future the replacement of some conventional routes by RNAV domestic routes and with PBN values according to specific routes and to users aircraft equipment.

2.6 Venezuela pretends to obtain the most profit with the implementation of procedures RNAV-GNSS, reason for including within the present project airports where, due to their distance and location, is impossible or difficult to install conventional radio aids, such as Canaima, Santa Elena de Uairen and La Esmeralda. In this way, certificate aircraft pilots can serve themselves of satellite navigation technology to access those aerodromes in a safety way.

2.7 The evaluation (Flight Check) of SIDs, as well as approximation procedures by RNAV/RNP instruments for all airports included in the project, is expected to be carried out during the second quarter of the year, and its regulation, publication and put into effect has been estimated for the third quarter of the present year.

### 3 **Conclusion**

3.1 In order to carry out a harmonious transition for the implementation of approximation procedures and RNAV-GNSS departures in the administrations of CAR/SAM Regions, procedures should be designed in connection with the existing route network, independently if these are conventional radio-navigation or RNAV route radio-navigation, in the measure that aircrafts fleets modernize their navigation systems.

### 4 **Suggested action**

4.1 The meeting is invited to:

- a) Take note of the information provided in this working paper.
- b) Consider this working paper conclusion as a conclusion proposal to encourage the Status, in a beginning, to design approximation procedures and RNAV-RNP departures connected to the existing route network.
- c) Analyze the information chart presented as Appendix A to have in consideration this information when SIDs and RNAV/RNP-GNSS instrumental procedures to be implemented by Venezuela go into force.

\* \* \* \* \*

**APPENDIX A**

ICAO IND.	AIRPORT NAME	T Y P E	ROAD SID	ROAD RNP, VNAV/ LNAV APROX.	NATIONAL AND INTERNATIONAL ROUTES CONNECTION
SVMI	MAIQUETÍA	I	10, 28, 09	10, 28	W19, A554, A315, G432, W17, G446
SVVA	VALENCIA	I	10, 28	10, 28	UL793, W14, W15
SVMC	MARACAIBO	I	03R,03L, 21R,21L	03R,03L, 21R,21L	R640, G445/A552, W43, A552, W5, W1
SVBM	BARQUISIMETO	I	09, 27	09, 27	W9, W14, W5, W3, W40, W8, W24,
SVJC	JOSEFA CAMEJO	I	09, 27	09, 27	R658, W1, UL795
SVCR	CORO	N	09, 27	09, 27	W1, W3, G431,
SVSO	SANTO DOMINGO	I	11	29	A550
SVSA	SAN ANTONIO	I	17	35	W34
SVSZ	STA. BARBARA ZULIA	N	18, 36	18, 36	W1, R568/A567/G431, W9, W40, W8, W41
SVVL	VALERA	N	03	21	W7, W9, W40, W11, UA553, UW7,
SVVG	EL VIGIA	N	09, 27	09	W8, W1/W9, G431/A567/R568, W40, W41
SVMD	MÉRIDA	N	06	24	W8, A550, W41
SVGD	GUASDUALITO	N	05, 23	05, 23	A550, W7, W22, G427
SVBI	BARINAS	N	13, 31, 03, 21	13, 31, 03, 21	A550, W7, W29G,
SVAC	ACARIGUA	N	11,29, 05, 23	29, 23, 05	A550,
SVRS	LOS ROQUES	N	07, 25	07, 25	A563, G432
SVCS	AEROPUERTO CARACAS	N	10, 28	10, 28	W17A, W27, W14, W17, W30, A552
SVSR	SAN FERNANDO	N	11, 29	11, 29	W17, W7
SVPA	PUERTO AYACUCHO	N	04, 22	04, 22	W17, W17G, W25G
SVLE	LA ESMERALDA	N	14, 32	14, 32	SIN CONEXIÓN
SVCL	CALABOZO	N	09, 27	09, 27	W17, W15
SVSE	SANTA ELENA UAIREN	N	11, 29	11	W20G, W4G
SVCN	CANAIMA	N	18, 36	18, 36	G678, W20G, W4G
SVCB	CIUDAD BOLIVAR	N	07, 25	07, 25	W20/G678, W27,W10, W16, W7
SVPR	PUERTO ORDAZ	N	07, 25	07, 25	W27, W4G, W7

<b>ICAO IND.</b>	<b>AIRPORT NAME</b>	<b>T Y P E</b>	<b>ROAD SID</b>	<b>ROAD RNP, VNAV/ LNAV APROX.</b>	<b>NATIONAL AND INTERNATIONAL ROUTES CONNECTION</b>
SVST	SAN TOME	N	08, 26	08, 26	W16, W20/G678, W27, W4, W10,
SVMT	MATURIN	N	06, 24	06, 24	G443, A300, W2
SVBC	BARCELONA	I	15, 33, 02, 20	15, 33, 02, 20	A552, W14, W2, W20, G443, W16
SVGI	GUIRIA	N	05, 23	05, 23	A552/A563, W10, A300, G443,
SVCP	CARUPANO	N	35	17	A552, A563
SVCU	CUMANA	N	08, 26	08, 26	W12, A552, A300,
SVMG	MARGARITA	I	09, 27	09, 27	W19, W14, A561, A563/A552, A300
SVLF	LA FRIA	N	01, 19	19	W1, R568/A567/G431, W9, W40, W8, W41