

Agenda Item 1: Review of the Implementation Programme of RNAV routes***List of CAR/SAM RNAV Routes***

1.1 When reviewing the proposals to the List of RNAV Routes of some CAR/SAM States and IATA, the meeting took note of the need to make a more in depth study of the trajectories, considering the number of daily flights, distance and fuel savings, and requested IATA to carry out an analysis of the benefits of each of the proposed trajectories, for which the results of the analysis of the 18 main air traffic flows of the CAR/SAM Regions made by Project RLA/98/003 could additionally be used. In view of the above, the meeting formulated the following conclusion:

Conclusion AP/ATM/5/1 List of RNAV/CAR/SAM routes

That, IATA carries out an analysis of the benefits of each of the trajectories of the list of possible RNAV routes presented in **Appendix A** to this part of the report, considering the number of flights carried out per day and the distance/fuel savings and present the results in the AP/ATM/6 or AP/ATM/7 meeting.

RNAV/RNP Survey

1.2 When reviewing the information contained in the replies to the Survey for the updating of the List of RNAV Routes and CAR/SAM RNP Application Strategy, the meeting was aware that, so far, only eleven (11) administrations have answered the survey. Therefore, considering that the proposed trajectories would be matter of a greater analysis by the users, the meeting considered that the new list of trajectories of possible RNAV routes is not sufficiently studied to be analyzed by CAR/SAM States/Territories/International Organizations and formulated the following conclusion:

Conclusion AP/ATM/5/2 RNAV/RNP Survey

That, based on the analysis to be carried out to the new List of RNAV Routes, as per Conclusion AP/ATM/5/1, the RNAV/RNP Task Force, in coordination with the NACC and SAM Regional Offices, prepare a new RNAV/RNP Survey to be distributed to CAR/SAM States/Territories/International Organizations in a date to be determined by the AP/ATM/6 meeting.

Effects of RNAV routes Implementation in the Safety Assessment for RVSM Implementation in the CAR/SAM Regions

1.3 The meeting was informed by the CARSAMMA that the air traffic sample for the last safety assessment prior to RVSM Implementation will be collected in June or July 2004. In this respect, the Safety and Airspace Monitoring Working Group (SAM/WG) of the RVSM Task Force (RVSM/TF) expressed their concern with the significant number of RNAV routes foreseen to be implemented after May 2004 in the CAR/SAM Regions. Considering that the new routes could modify the airspace

structure and, consequently, the safety assessment to be carried out prior to RVSM implementation in the CAR/SAM Regions could lose validation due to the new structure of CAR/SAM routes, the SAM/WG requested that before any implementation is made after the above indicated date (May 2004), coordination should be carried out with the RVSM Task Force. In view of the above, the meeting formulated the following conclusion:

Conclusion AP/ATM/5/3 Coordination of RNAV routes implementation among RNAV/RNP and RVSM Task Forces

That, taking into account the safety assessment requirements prior to RVSM Implementation in the CAR/SAM Regions, RNAV routes implementation foreseen to be developed after May 2004 should be previously coordinated among the RNAV/RNP and RVSM Task Forces.

Planning of trunk routes and intermediate airports connection with RNAV routes through SID and STAR implementation

1.4 Taking into account the need to take advantage of RNAV trunk routes by the intermediate airports users, the meeting formulated the following conclusions:

Conclusion AP/ATM/5/4 Trunk routes Planning

That, the RNAV/RNP Task Force considers in the RNAV Routes Implementation Programme, trunk routes planning that satisfy the users and ATS needs, integrating intermediate airports through SID and STAR.

Conclusion AP/ATM/5/5 SID and STAR implementation at intermediate airports

That, CAR/SAM States/Territories/International Organizations involved implement SID and STAR at the airports presented in **Appendix B** to this part of the report.

Need to assign five letters name-code designators for the identification of significant points

1.5 The meeting took note of the need to establish significant points for already implemented RNAV routes and those foreseen to be implemented in the CAR/SAM Regions, as well as the identification requirements assigning the five letters name-code designators to such significant points, as stated in ICAO'S Annex 11. In this respect, the Secretariat informed that the procedure for such assignment is already established and it is only necessary to make the corresponding request to the respective ICAO NACC and SAM Offices.

NEW RNAV ROUTES PROPOSED

1.6 The meeting took note of the new RNAV routes proposed by Argentina, Bolivia, Brazil, Chile, Panama, Paraguay, Uruguay and IATA and in order to expedite the discussions Ad hoc Groups

were formed integrated by the delegations of the FIRs involved to analyze the feasibility of their implementation. After listening to the Ad hoc Groups reports, the meeting agreed the following:

Deletion of the VIR VOR - Moreno VOR/DME segment of route UA 301

Conclusion AP/ATM/5/6 Deletion of the VIR VOR - Moreno VOR/DME segment of route UA 301

That,

- a) the ICAO SAM Regional Office initiates the process of amendment of the CAR/SAM ANP Basic Vol. for the deletion of the **VIR VOR - Moreno VOR/DME segment of route UA 301**; and
- b) the deletion of the **VIR VOR - Moreno VOR/DME segment of route UA 301** be carried out three AIRAC cycles after approval of the proposal for amendment by the ICAO Council.

RNAV Route ASIMO - VOR SLI

Conclusion AP/ATM/5/7 RNAV Route ASIMO - SLI VOR

That, the Administrations of Argentina, Brazil, Chile and Paraguay carry out the necessary coordinations for the pre-operational implementation of RNAV route among **ASIMO, La Rioja VOR, Catamarca VOR, Monte Quemado VOR and SLI VOR.**

RNAV route TBG VOR - MELLA

Conclusion AP/ATM/5/8 RNAV route TBG VOR - MELLA

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for the inclusion of RNAV route **TBG VOR/SELAN/VESKA/MELLA** in the CAR/SAM ANP Basic Vol.; and
- b) the implementation of RNAV route **TBG VOR/SELAN/VESKA/MELLA** be carried out three AIRAC cycles after the approval of the proposal of amendment by the ICAO Council.

*RNAV routes Asuncion/Sao Paulo and Sao Paulo/Asuncion***Conclusion AP/ATM/5/9 RNAV routes Asuncion/Sao Paulo and Sao Paulo/Asuncion**

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for:
 1. the inclusion of RNAV route **VAS VOR/CTB VOR (one-way Asuncion/Sao Paulo)** in the CAR/SAM ANP Basic Vol.;
 2. the realignment of route **UL 301 in the CPN VOR/VAS VOR segment by CGO VOR/VAS VOR segment (one-way Sao Paulo/Asuncion);**
 3. the deletion of route **UA 311**; and
- b) the implementation of RNAV route **VAS VOR/CTB VOR**, the realignment of route **UL 301** and the deletion of route **UA 311** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

*RNAV routes Santiago de Chile/Sao Paulo and Sao Paulo/Santiago de Chile***Conclusion AP/ATM/5/10 RNAV Route Santiago de Chile/Sao Paulo**

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for the inclusion of RNAV route **POS VOR/PNG NDB (one-way)** in the CAR/SAM ANP Basic Vol.; and
- b) the implementation of RNAV route **POS VOR/PNG NDB (one-way)** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

Conclusion AP/ATM/5/11 RNAV Route Sao Paulo/Santiago de Chile

That,

- a) the ICAO SAM Regional Office initiates the process of amendment of the CAR/SAM ANP Basic Vol. for the realignment of route **UL 310 in the POS VOR/SCB VOR segment by POS VOR/CGO VOR one-way segment**; and
- b) the implementation of the realignment of route **UL 310** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

*Extension of Route UN 741***Conclusion AP/ATM/5/12 Extension of Route UN 741**

That,

- a) the ICAO SAM Regional Office initiates the process of amendment of the CAR/SAM ANP Basic Vol. for the extension of route **UN 741 in FLZ VOR/ PSN VOR/ BGE VOR/DUR VOR/EZE VOR one-way segment** and the deletion of **SCB VOR/EZE VOR segment of route UA 318**; and
- b) the implementation of the extension of route **UN 741** and the deletion of the **SCB VOR/EZE VOR segment of route UA 318** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

*RNAV Route KUKEN/FLZ VOR***Conclusion AP/ATM/5/13 RNAV Route KUKEN/FLZ VOR**

That, the Administrations of Argentina, Brazil and Uruguay carry out the necessary studies to implement the RNAV route **KUKEN/FLZ VOR (one-way)** and present their results in the AP/ATM/6 or AP/ATM/7 meeting.

*Realignment and Extension of Route UN 857***Conclusión AP/ATM/5/14 Realignment and Extension of Route UN 857**

That,

- a) the ICAO SAM Regional Office initiates the process of amendment of the CAR/SAM ANP Basic Vol. for the realignment and extension of route **UN 857 in the NOR VOR/ REC VOR/PCX VOR segment by the NOR VOR/MRC VOR/POR VOR/MLO VOR/PTA VOR segment (one-way PTA VOR/MLO VOR; two-way MLO VOR/POR VOR/MRC VOR; one-way MRC VOR/NOR VOR)** and;
- b) the implementation of the realignment and extension of route **UN 857** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

*Realignment and Extension of Route UN 873***Conclusion AP/ATM/5/15 Realignment and Extension of Route UN 873**

That,

- a) the ICAO SAM Regional Office initiates the process of amendment of the CAR/SAM ANP Basic Vol. for the realignment and extension of route **UN 873 in the NTL VOR/CNF VOR segment by NTL VOR/BBC NDB one-way segment**; and

- b) the implementation of the realignment of route **UN 873** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

Realignment and Extension of Route UN 866

Conclusion AP/ATM/5/16 Realignment and Extension of Route UN 866

That,

- a) the ICAO SAM Regional Office initiates the process of amendment of the CAR/SAM ANP Basic Vol. for the realignment and extension of route **UN 866 in the VOR CNF/VOR MSS segment by the BCO VOR/ MSS VOR one-way segment**; and
- b) the implementation of the realignment of route **UN 866** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

Routes Buenos Aires/Sao Paulo and Sao Paulo/Buenos Aires

Conclusion AP/ATM/5/17 Route Buenos Aires/Sao Paulo

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for the inclusion of RNAV route **MLO VOR/CXS VOR/SAT NDB (one-way)** in the CAR/SAM ANP Basic Vol. and the deletion of **PTA VOR/VTR VOR segment of route UA 302**; and
- b) the implementation of RNAV route **MLO VOR/CXS VOR/SAT NDB (one-way)** and the deletion of **PTA VOR/VTR VOR segment of route UA 302** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

Conclusion AP/ATM/5/18 Route Sao Paulo/Buenos Aires

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for the inclusion of RNAV route **CGO VOR/PNG NDB/BGE VOR (one-way)** in the CAR/SAM ANP Basic Vol.; and
- b) the implementation of RNAV route **CGO VOR/PNG NDB/BGE VOR (one-way)** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

Routes Montevideo/Sao Paulo and Sao Paulo/Montevideo

Conclusion AP/ATM/5/19 Route Montevideo/Sao Paulo

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for the inclusion of RNAV route **CRR VOR/POR VOR/SAT NDB (one-way)** in the CAR/SAM ANP Basic Vol.; and
- b) the implementation of RNAV route **CRR VOR/POR VOR/SAT NDB (one-way)** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

Conclusion AP/ATM/5/20 Route Sao Paulo/Montevideo

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for the inclusion of RNAV route **CGO VOR/PNG NDB /CRR VOR** in the CAR/SAM ANP Basic Vol. and the deletion of route **UA 425**; and
- b) the implementation of RNAV route **CGO VOR /PNG NDB/CRR VOR** and the deletion of route **UA 425** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

Route Sao Paulo/Santa Cruz de la Sierra

Conclusion AP/ATM/5/21 Route Sao Paulo/Santa Cruz de la Sierra

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for the inclusion of RNAV route **SCB VOR/VIR VOR** in the CAR/SAM ANP Basic Vol. and the deletion of **VIR VOR / BCO VOR segment of route UA 304**; and
- b) the implementation of RNAV route **SCB VOR/ VIR VOR** and the deletion of **VIR VOR/BCO VOR segment of route UA 304** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

Route Asuncion/Manaus

Conclusion AP/ATM/5/22 Route Asuncion/Manaus

That,

- a) the ICAO SAM Regional Office initiates the process of amendment for the inclusion of RNAV route **VAS VOR/MAN VOR** in the CAR/SAM ANP Basic Vol. and the deletion of **EZE VOR/MAN VOR segment of route UA 300**; and
- b) the implementation of RNAV route **VAS VOR/MAN VOR** and the deletion of **EZE VOR/MAN VOR segment of route UA 300** be carried out three AIRAC cycles after the approval of the proposal for amendment by the ICAO Council.

1.7 In order that the ICAO NACC and SAM Regional Offices could initiate the process of amendment for the inclusion of the proposed routes in the CAR/SAM ANP, Basic Vol., the Administrations involved should provide the required information, according to the procedures established to amend such ANP.

DIFFICULTIES IN THE IMPLEMENTATION OF RNAV ROUTES IN THE UNITED STATES AIRSPACES

1.8 Some delegates expressed their concern regarding the difficulties encountered in the implementation of RNAV Routes originating in the CAR/SAM Regions to cities located within the United States airspaces and that, in spite of the efforts made by the Federal Aviation Administration (FAA), the objectives foreseen have not been achieved. In this respect, the United States delegation and the ICAO NACC Regional Office informed the meeting about the actions taken by the FAA in order to solve the above mentioned problems. The meeting took note of this matter and formulated the following conclusion:

Conclusion AP/ATM/5/23 Implementation of RNAV Routes in the United States airspaces

That, the Federal Aviation Administration (FAA) of the United States continues the necessary efforts in order to achieve the objective of implementing, where practicable, RNAV routes which trajectories proceed from the ICAO Caribbean and South American Regions.

Appendix A

| Num | Origin - Intermediate airports - Destination | Requested by | Status | Notes |
|-----|---|--------------|--------------------------------|------------------------|
| 1 | Sao Paulo - Rio - Barbados - New York | | | |
| 2 | Sao Paulo - Aruba - Miami | AA DL | Implemented | |
| 3 | Sao Paulo - Rio - Salvador - Los Angeles | | Implemented | |
| 4 | Sao Paulo - Santa Cruz - Lima | TA | | |
| 5 | Sao Paulo - Santiago | LA | | |
| 6 | Buenos Aires - Montevideo - Sao Paulo - Rio | BA AR | | |
| 7 | Buenos Aires - Santa Cruz - Caracas - Aruba - New York | AR | Implemented UL793 | Pending segment in USA |
| 8 | Buenos Aires - Bogotá - Kingston - Montego Bay - Miami | AA AR DL | Implemented | |
| 9 | Buenos Aires - Santiago | LA AF AR | | |
| 10 | Santiago - Lima - Guayaquil - Quito - Panama - Miami | LA | | |
| 11 | Santiago - Los Angeles | | | |
| 12 | Quito - Bogotá - Caracas | BA | | |
| 14 | San Jose - Managua - Tegucigalpa - San Pedro - Belize - Merida - Houston/Dallas | TA | | |
| 15 | Panama - Cancun - Houston/Dallas | | | |
| 16 | Mexico - Miami | AM | | |
| 17 | Guatemala - Belize - Miami | DL | | |
| 18 | Salvador - San Pedro - Miami | AA TA IB | Postponed UL 471 | Pending segment in USA |
| 19 | Tegucigalpa - Miami | | | |
| 20 | Managua - Miami | TA BA | | |
| 21 | San Jose - Gran Cayman - Miami - New York | TA | In progress - UL403 | Pending segment in USA |
| 22 | Port of Spain - Santo Domingo - Miami | AA 9D | Implemented/cancelled UL337 | Pending segment in USA |
| 23 | Barbados - Miami | BW | | |
| 24 | Antigua - Miami | | | |

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|----|--|-------|-----------|-----------------------------|
| 25 | Asuncion - Buenos Aires | | | |
| 26 | Aruba - San Juan | | | |
| 27 | Buenos Aires - Lima | AR | | |
| 28 | Buenos Aires - San Jose - Cancun | | | |
| 29 | Cancun - New York | AM | | |
| 30 | Sao Paulo - Dallas | | | |
| 31 | Bogotá - Guatemala - Mexico | TA | | |
| 32 | San Jose - Salvador - Guatemala - Mexico | | | |
| 33 | Mexico - San Pedro | | | |
| 34 | Kingston - Montego Bay - New York | | | |
| 35 | Cancun - Havana | | | |
| 36 | Havana - Mexico | | | |
| 37 | Santiago - Caracas | | | |
| 38 | Guatemala - Houston | | | |
| 39 | Lima - Houston | | | |
| 40 | Lima - Guadalajara - Los Angeles | LA | | |
| 41 | Mexico - Houston/Dallas | AM AF | | |
| 42 | Mexico - Los Angeles | AM | | |
| 43 | Salvador - Houston/Dallas | | | |
| 44 | San Pedro - New Orleans | | | |
| 45 | Guadalajara - Houston/Dallas | | | |
| 46 | Bogotá - New York | | Postponed | Pending segment in USA |
| 47 | Lima - New York | LA | | |
| 48 | Caracas - San Jose | | | |
| 49 | Lima - Guayaquil - San Jose | | | Portion LIM-GYE implemented |
| 50 | Caracas - Habana | | | |
| 51 | Panama - Habana | | | |
| 52 | Santo Domingo - Havana | | | |

| | | | | |
|-----|---|-------------|--------------------|------------------------|
| 53 | Rio - Caracas – Puerto Principe - Miami | AF | | |
| 101 | Caracas – Miami | DL | | |
| 103 | Panama – Miami | DL | Implemented | |
| 104 | Barbados - New York | BW | | |
| 105 | Barbados - Antigua | BW | | |
| 107 | Bonaire – Guayaquil | KL | | |
| 108 | Bonaire – Quito | KL | | |
| 109 | Bonaire – Lima | KL | | |
| 110 | Lima – México | AM | | |
| 111 | Mexico - Santiago | AM | | |
| 112 | Mexico - Sao Paulo | AM | | |
| 113 | Punta Arenas VOR - Chatham NDB | AR | | |
| 114 | Ushuaia VOR - Napier NDB | AR | | |
| 115 | Balmaceda VOR - Gisborne NDB | AR | | |
| 116 | Puerto Montt VOR - Gisborne NDB | AR | | |
| 117 | Buenos Aires - Balmaceda | AR | | |
| 118 | Buenos Aires – Puerto Montt | AR | | |
| 119 | Asuncion - Campo Grande - Viru Viru | Brazil | in progress UL660 | ATM 5 |
| 120 | Asuncion - Sao Paulo | | in progress | |
| 121 | Buenos Aires - Caracas - New York | AA AR LB CO | Implemented UI793 | Pending segment in USA |
| 122 | Buenos Aires - Chicago | | Continuation UL417 | |
| 123 | Cap Hatien - Puerto Plata | Cuba | in progress | |
| 124 | Caracas - Houston | CO | Implemented UL674 | Pending segment in USA |
| 125 | EGODY – URPOS | CM | to be evaluated | |
| 126 | ELORZA - San Gabriel | Colombia | UL309 | |
| 127 | Guayaquil - San Jose | Ecuador, LR | | |
| 128 | JUA VOR - Sao Paulo | Brazil | to be evaluated | |
| 129 | KILE – TULÚA | Colombia | to be evaluated | |

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|-----|--|----------------|----------------------------|------------------------|
| 130 | Kingston - Great Inagua | Jamaica | in progress | |
| 131 | Lima - Madrid | IB LA | to be evaluated | |
| 132 | Montego Bay - Santiago Cuba - Great Inagua | Jamaica | to be evaluated | ATM 5 |
| 133 | Panama - San Juan | | Pending for fix | ATM 5 |
| 134 | Quito - Miami | Ecuador | to be evaluated | |
| 135 | Quito - New York | Ecuador | to be evaluated | |
| 136 | Quito - San Jose | Ecuador | to be evaluated | Ecuador |
| 137 | Rio Janeiro - New York | RG | Implemented UT419/UL776 | Pending segment in USA |
| 138 | Santiago - Fortaleza | | stand by | |
| 139 | Santiago - Sao Luis | | pending for fix | |
| 140 | Santiago - Sao Paulo | | in progress | |
| 141 | Santiago de Cuba - Cap Hatien | Cuba Haiti | in progress | |
| 142 | Santiago de Cuba - Port au Prince | Cuba Haiti | in progress | |
| 143 | Santo Domingo - New York | AA | | |
| 144 | Sao Paulo - Barbados - Antigua - New York | CO AA RG JL BW | Implemented UL776 | Pending segment in USA |
| 145 | Sao Paulo - Lima | | in progress | |
| 146 | Viru Viru - Miami | Bolivia | to be evaluated | Bolivia |

Appendix B

- a) Lima – Callao, Jorge Chávez Intl.: SID and STAR for route UL 780, north sector
- b) Guayaquil – Simón Bolívar Intl.: SID and STAR for route UL 780, north and south sectors
- c) Panamá – Tocumen Intl.: SID and STAR for route UL 780, north sector
- d) Manaus – Eduardo Gomes Intl.: SID for route UL 793, north sector
- e) Barranquilla – Ernesto Cortissoz: SID and STAR for route UL 417, north sector
- f) San José – Juan Santamaría Intl.: SID and STAR for route UL 655, north sector
- g) San Salvador – El Salvador Intl.: SID and STAR for route UL 655, north sector
- h) Guatemala, La Aurora Intl.: SID and STAR for route UL 655, north sector
- i) San Pedro Sula – La Mesa Intl.: SID and STAR for route UL 471, north sector
- j) Kingston – Norman Manleand Intl.: SID and STAR for route UL 417, north sector