Agenda Item 1: Follow up to conclusions and decisions adopted by SAM/IG meetings, tasks for the States regarding the new Electronic Air Navigation Plan (e-ANP) and to the State-Industry collaborative process for the transition of the current systems to those specified in the ASBU

Amendment to the CAR/SAM ANP SSR Code Table

(Presented by the Secretariat)

SUMMARY

The purpose of this working paper is to meet the needs of some States that, due to traffic growth and the use of automated systems, need to have more SSR codes available to assign at domestic level, and to reserve an additional international family for a State that foresees the implementation of radar systems in the short term.

REFERENCE:

- CAR/SAM/3 RAN meeting
- CAR/SAM ANP, Vol. II, Part V, Appendix B

ICAO strategic objectives:	*A - Safety* *B - Air navigation capacity and efficiency* *E - Environmental protection*

Introduction

1. At the CAR/SAM/3 RAN meeting, the States of the Region reviewed the system for assigning international and domestic SSR codes to the CAR and SAM Regions, and prepared a new coordinated SSR Code Allocation Plan (CAP) for the allotment and use of 4096 SSR codes as efficiently and economically as possible.

1.1 These codes are expressed in terms of complete series (64 4-digit codes in each series). Certain codes are reserved for special global purposes.

2. Discussion

Use of Codes

2.1 According to guidelines on this subject, the States and organisations responsible for providing services should limit the use of SSR codes to the series allocated to them, and internally redistribute allocated codes, distributing the available code series or fractions thereof to ATC units equipped with radar systems under their jurisdiction, taking into account the volume of outgoing flights and overflights requiring codes.

2.2 Code series can be divided in fractions in such a way that they may be used as a whole or in halves, quarters or eighths of a series, as required, according to the volume of flights served by each ATC unit.

2.3 All efforts should be made to maintain the code already assigned to an aircraft. This assumes that the code is known at the time of coordination and that it may be introduced into the automated processing system, so that the system will recognise when the aircraft enters the radar system coverage area.

2.4 For maximum economy of codes, it is recommended that they be assigned as closely as possible to the time of flight activation. Likewise, when a flight has already been assigned a code and it is not activated within a reasonable time limit, the code assignment should be cancelled, releasing it for use by another flight.

2.5 In some cases, when the flight time within airspaces with radar coverage so permit, codes may be assigned in a cyclical manner; that is, codes are progressively assigned until reaching the last available code, at which time the assignment starts over again from the beginning, irrespective of the time elapsed. In some cases, when feasible, this procedure is simpler for ATC units.

Code Allotment

2.6 Code allotment must take into account the agreement reached by the CAR/SAM/3 RAN meeting, whereby allocation is based on 5 participating areas that have been established according to the air traffic flows, three of which belong to the SAM Region:

a) SOUTH SAM AP: Argentina, Chile, Montevideo
b) CENTRAL SAM AP: Asunción, Brazil, La Paz, Lima
c) NORTH SAM AP: Colombia, Guayaquil, Maiquetía, Panama

2.7 A code may accompany an aircraft across several FIRs, provided it remains within the same participating area, and the code must be changed when the aircraft crosses the boundaries of that area in order to preserve safety. These procedures should be established in the respective letters of agreement.

2.8 Notwithstanding the above, the unit that transfers one of its codes with the aircraft to another unit should take into account that such code can no longer be used until the aircraft arrives to its destination or changes allocation area.

2.9 Between FIRs with airports located close to each other and few codes available, this practice can be detrimental and, therefore, each case must be analysed in light of the operational requirements and the points of origin and destination.

Progressive Code Allotment

2.10 As traffic increases and automated systems need more codes available to meet adequate allotment, or when the partition of the assigned series is no longer sufficient, the Air Navigation Plan must be amended for the allocation of more codes.

2.11 In this sense, it becomes apparent that some States need to increase the code series for use at domestic level. In the case of a State that is in the process of acquiring a radar system, an additional series of international codes needs to be reserved sufficiently in advance.

2.12 In view of the foregoing, a proposal has been prepared in consultation with the CAR Region, which has expressed its agreement, to amend the existing code allotment table shown in the Air Navigation Plan.

2.13 It should be noted that, in order to optimize SSR code allotment, the States should take due account of the guidelines contained in the FASID Part V, Appendix B "*SSR Code Assignment System (International and Domestic) – CAR and SAM Regions*" and provide refresher sources on this matter to their operational personnel.

2.14 The proposal of amendment is shown in **Appendix A**, and the guidelines for the application of SSR codes are shown in **Appendix B** to this working paper.

3. Suggested action

3.1 The Meeting is invited to:

a) take note of the information provided herein;

b) review the proposal of amendment to the CAR/SAM ANP on code allotment in the SAM Region, as shown in Appendix A; and

c) recommend that the guidelines on the application of SSR codes shown in Appendix B to this working paper be included in the refresher courses for operating personnel.

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SSR CODE ASSIGNMENT SYSTEM / (INTERNATIONAL AND DOMESTIC) CAR AND SAM REGIONS
SISTEMA DE ASIGNACIÓN DE CÓDIGO / (INTERNACIONAL Y NACIONAL) REGIONES CAR Y SAM

I = International use / Uso internacional
D = Domestic use / Uso nacional

STATE OR FIR / ESTADO O FIR																						
CODIGO / CODE	Argentina	Asunción	Brasil	Cayenne	Central American	Chile	Colombia	Curacao	Georgetown	Guayaquil	Habana	Kingston	La Paz	Lima	Maiquetía	México	Montevideo	Panamá	Paramaribo	Piarco	Port au Prince	Santo Domingo
0	GENERAL PURPOSE / FINES GENERALES																					
0001 - 0077											D			D								
0100 - 0177																		I				
0200 - 0277																		I				
0300 - 0377	I				D						I									D		
0400 - 0477	I				D						I									D		
0500 - 0577	I				D																	
0600 - 0677	I						D					D				D						
0700 - 0777	I											D				D						
1000 - 1077		D	D	D	D											D				D		
1100 - 1177			D										D			D	D	D		D		
1200 - 1277			D		D	D	D		D							D	D	D		D		D
1300 - 1377			D		D	D	D									D				D	D	
1400 - 1477		D	D		D	D	D			D						D				D	D	
1500 - 1577	D		D		D					D					D	D				D		D
1600 - 1677	D	D	D		D						D			D	D	D		D	D	D		
1700 - 1777	D		D		D			D	D		D		D	D		D				D		
2000		SEE REFERENCE ANNEX 10, VOL IV, 2.~~5.4.7~~1.4.5 / VER REFERENCIA ANEXO 10, VOL. IV 2.1.4.5 ~~2.5.4.7~~																				
2001 - 2077	D										D											
2100 - 2177	D							D								I				D		

STATE OR FIR / ESTADO O FIR																						
CODIGO / CODE	Argentina	Asunción	Brasil	Cayenne	Central American	Chile	Colombia	Curacao	Georgetown	Guayaquil	Habana	Kingston	La Paz	Lima	Maiquetía	México	Montevideo	Panamá	Paramaribo	Piarco	Port au Prince	Santo Domingo
2200 - 2277						D	I															
2300 - 2377	D						I															
2400 - 2477							I															
2500 - 2577	I				D										D							
2600 - 2677			D													I						
2700 - 2777	I				D															I		
3000 - 3077					D	I														I		
3100 - 3177								I					I							D		
3200 - 3277													I			I						
3300 - 3377								I														
3400 - 3477											I											
3500 - 3577															I							
3600 - 3677															I							
3700 - 3777															I							
4000 - 4077			I																	D		I
4100 - 4177			I																			I
4200 - 4277			I													I				D		
4300 - 4377			I													I						
4400 - 4477			I													I				D		
4500 - 4577			I													I						
4600 - 4677			I		I															D		
4700 - 4777			I		I																	
5000 - 5077			D									I								D		
5100 - 5177			D									I										
5200 - 5277						I			I													
5300 - 5377				I		I															I	

STATE OR FIR / ESTADO O FIR																						
CODIGO / CODE	Argentina	Asunción	Brasil	Cayenne	Central American	Chile	Colombia	Curacao	Georgetown	Guayaquil	Habana	Kingston	La Paz	Lima	Maiquetía	México	Montevideo	Panamá	Paramaribo	Piarco	Port au Prince	Santo Domingo
5400 - 5477		I								I											I	
5500 - 5577										I												
5600 - 5677					I									I					I			
5700 - 5777					I									I								
6000 - 6077																	I			I		
6100 - 6177																I	I					
6200 - 6277			D													I						
6300 - 6377																D				I		
6400 - 6477																D				I		
6500 - 6577																D				I		
6600 - 6677			D																			
6700 - 6777			D								I											
7000 - 7077																I						
7100 - 7177		I																			I	
7200 - 7277																				I		
7300 - 7377										D							I		I			
7400 - 7477																						
7500	UNLAWFUL INTERFERENCE / INTERFERENCIA ILÍCITA																					
7600	COMMUNICATION FAILURE / FALLA DE COMUNICACIONES																					
7700	EMERGENCY / EMERGENCIA																					

Domestic and international code family according to each SAM Region State

STATE/PARTICIPATING AREA (AP)	NUMBER OF CAAs	DOMESTIC CODES	INTERNATIONAL CODES	REMARKS
ARGENTINA	5	1500 - 1577 1600 - 1677 1700 - 1777 2001 - 2077 2100 - 2177 2300 - 2377	0300 - 0377 0400 - 0477 0500 - 0577 0600 - 0677 0700 - 0777 2500 - 2577	
BOLIVIA	1	1100 - 1177 1700 - 1777	3100 – 3177 3200 - 3277	
BRAZIL	5	1000 - 1077 1100 - 1177 1200 - 1277 1300 - 1377 1400 - 1477 1500 - 1577 1600 - 1677 1700 - 1777 2600 - 2677 5000 - 5077 5100 - 5177 6200 - 6277 6600 - 6677 6700 - 6777	4000 - 4077 4100 - 4177 4200 - 4277 4300 - 4377 4400 - 4477 4500 - 4577 4600 - 4677 4700 - 4777	
CHILE	5	1200 - 1277 1300 - 1377 1400 – 1477 2200 – 2277	3000 - 3077 5200 - 5277 5300 - 5377	Note: Isla de Pascua FIR is not included in FASID CAR/SAM Chart ATM 1 "*SSR Code assignment system*", and is therefore not included in SSR code allocation plan (AP). If there is an amendment to

STATE/PARTICIPATING AREA (AP)	NUMBER OF CAAs	DOMESTIC CODES	INTERNATIONAL CODES	REMARKS
				ANP/FASID, amendment to this ATM 1 chart should also be considered.
COLOMBIA	2	0600 - 0677 1200 - 1277 1300 - 1377 1400 - 1477	2200 - 2277 2300 - 2377 2400 - 2477	
ECUADOR	1	1400 - 1477 1500 – 1577 7300 - 7377	5400 - 5477 5500 - 5577	
FRENCH GUIANA	1	1000 - 1077	5300 - 5377	
GUYANA	1	1200 - 1277	5200 - 5277	
PANAMA	1	1100 - 1177 1200 – 1277 1600 - 1677	0100 - 0177 0200 - 0277	
PERU	1	0001 - 0077 1600 - 1677 1700 - 1777	5600 - 5677 5700 - 5777	
SURINAME	1	1600 - 1677	5600 - 5677 7300 - 7377	
URUGUAY	1	1100 - 1177 1200 - 1277	6000 - 6077 6100 - 6177 7300 - 7377	
VENEZUELA	1	1500 – 1577 1600 – 1677 2500 - 2577	3500 - 3577 3600 - 3677 3700 - 3777	

APPENDIX B

CAR/SAM AIR NAVIGATION PLAN

VOLUME II – FASID

PART V – APPENDIX B

SSR CODE ASSIGNMENT SYSTEM

(INTERNATIONAL AND DOMESTIC)

CAR AND SAM REGIONS

GUIDELINES FOR THE

APPLICATION OF SSR CODES

Appendix B

SSR CODE ASSIGNMENT SYSTEM (INTERNATIONAL AND DOMESTIC) CAR AND SAM REGIONS

OBJECTIVES OF THE SSR CODE ALLOCATION PLAN (CAP)

1. The new SSR code allocation plan has been developed to provide CAR/SAM States with the means to coordinate the use of 4 096 Mode A/3 SSR codes as efficiently and economically as possible.

2. The new CAP will foster prompt implementation of a method that will allow the use of an assigned four-digit code for as long as possible during a flight in the CAR/SAM regions.

GENERAL PRINCIPLES FOR FULFILLING THE OBJECTIVES

3. The detailed principles governing the use of SSR codes in the CAR/SAM regions are based on general principles which supplement global provisions (PANS-ATM, Doc 4444, Chapter 8). These principles take into account a gradual transition from the current use of SSR codes to the CAP mentioned in 2 above.

4. Mode A/3 codes should be used for ATS purposes only.

5. Codes are allocated to ATS units based on duly-justified operational requirements, and the number of codes is established based on the number of aircraft to be served simultaneously within a specific area during peak traffic periods.

6. Code requirements are expressed in terms of complete code series (sixty-four four-digit codes in each series), or specific blocks thereof. In special cases, these requirements may also cover designated individual four-digit codes.

7. Codes to be used as international transit codes are allocated to certain ACCs for use in participating areas (PAs) formed by ATS responsibility areas of a suitable group of States.

8. Codes for domestic purposes are allocated to States for their use by ATS units that require limited geographical protection for such codes.

9. Provided that appropriate safeguards are followed, States outside the PAs in which codes are used for their main function may use international transit codes to meet domestic requirements. However, if this generates conflicts in the use of codes, the assignment as international transit code shall take precedence over domestic use.

RELEVANT OPERATIONAL AND TECHNICAL FACTORS

10. The following operational conditions are likely to persist while the new CAP is in effect:

a) for ATS purposes in the CAR/SAM regions, both self-activating and passive SSR decoding equipment will be used;

b) comparatively simple code allotment methods such as the allotment by reference to ATC sectors shall coexist and join vertically or horizontally with more refined computer-assisted code allotment methods;

c) since the 4 096 Mode A/3 code capacity is a prerequisite for full application of complex code allocation methods, it is essential to make this capacity a compulsory requirement for aircraft making international flights.

PERMANENT DISTRIBUTION AND CODE CATEGORIES

Distribution of codes

11. Certain codes are reserved for special global purposes. The remaining code series for use in the regions are divided into two different categories in this CAP: transit codes for international use and codes for domestic use.

12. The number of codes used for international transit purposes must be relatively high, due to the extent of geographical protection required to reduce to a minimum the possibilities of confusing the identity of two different aircraft to which the same four-digit code has been assigned. Sufficient protection should be provided to avoid interference to PAs in adjacent regions.

13. The number of codes used for domestic purposes can be kept relatively small, as these can be repeated in different States or even within the same State.

14. Through suitable arrangements in the CAP, international transit codes may be used for domestic purposes, subject to the provisions of 9 above.

15. When necessary, allocation possibilities may be increased considerably by dividing a specific code series into eight blocks of eight four-digit codes.

Codes for special purposes

16. Some codes of certain series are reserved for special purposes, as shown below:

Series 00 — Code 0000 is available to any State for general purposes. (Codes 0001 to 0077 are available for domestic purposes.)

Series 20 — Code 2000 is to recognize an aircraft that has not received instructions from the air traffic control units to operate the transponder. (Codes 2001 to 2077 are available for domestic purposes.)

Series 75 — Code 7500 is reserved for recognizing an aircraft subject to unlawful interference. (Codes 7501 to 7577 are available for domestic purposes.)

Series 76 — Code 7600 is reserved for recognizing an aircraft with radio communications failure. (Codes 7601 to 7677 are available for domestic purposes.)

Series 77 — Code 7700 is reserved for recognizing an aircraft in emergency. (Codes 7711 to 7717 and 7721 to 7727 are reserved for SAR operations and code 7777 for monitoring the ground transponder.)

17. States may use discrete codes 7501 to 7577 and 7601 to 7677 for domestic purposes provided they have ascertained that in the area concerned and in affected adjacent areas:

a) no sixty-four code ground decoding equipment is in operation; and

b) 4 096 code ground decoding equipment has the capability of permitting the use of such codes without generating aural or visual alarms associated with special codes 7500 and 7600 (cf. Annex 10, Volume IV, 2.1.4).

Transit codes

18. Transit codes are allocated to specific ACCs for their assignment to international flights. Aircraft shall keep their assigned code beyond national boundaries, but generally not beyond the limits of PAs in CAR/SAM regions [see 21 c)].

19. The allocation of transit codes in the CAR/SAM regions is based on five PAs, which have been established according to the air traffic flows. These areas are as follows:

SOUTH SAM PA: Argentina, Chile, Montevideo

CENTRAL SAM PA: Asuncion, Brazil, La Paz, Lima

NORTH SAM PA: Colombia, Guayaquil, Maiquetia, Panama

EAST CAR PA: Georgetown, Paramaribo, Piarco, Rochambeau

WEST CAR PA: Central America, Curaçao, Havana, Kingston, Mexico, Port-au-Prince, Santo Domingo.

Note.— Codes are allocated to a State when the airspace of that State is divided into two or more FIRs. Codes are allocated to an FIR when it is unique to a State or when an FIR covers the airspace of two or more States.

20. The ultimate objective, i.e. that aircraft keep an assigned code for as long as possible during an international

flight (i.e. through more than one PA) can only be achieved by gradually refining code protection criteria.

21. Transit codes shall be assigned in keeping with the following principles governing the originating regional code assignment method (ORCAM):

a) when an aircraft enters a PA (either when departing or during flight), the first ATS unit concerned in that PA shall assign to it a four-digit code. This code will be chosen from a group of code series allocated in such a way as to avoid duplicating codes assigned by different ACCs within the relevant PA;

b) each flight shall keep the original code assigned to it when entering the PA during the entire flight therein. Appropriate code protection criteria shall be applied to avoid any duplication resulting from a premature reassignment of the same code;

c) normally, when a flight crosses the boundaries of a PA, a change of code will be required. However, in certain cases and through agreements reached by ATS units affected by the flight path, the assigned code may be maintained beyond the PA boundaries;

d) since the number of available codes does not allow for the allocation of a complete code series that is exclusive to each PA within the CAR/SAM regions, certain code series will have to be shared between two or more PAs. The assignment of these shared codes in each of the respective PAs will be done by the ACCs in which there is less likelihood for code duplication in the bordering area of the respective PAs.

22. When setting the number of transit code series, the following factors have been taken into account:

a) the lifetime of the air navigation plan, of which the SSR is but one element;

b) air traffic forecasts for the CAR/SAM regions, in order to determine any increase of air traffic classified as international in these regions;

c) code series requirements for an ATS unit are estimated on the basis of the total number of aircraft requiring the assignment of a specific code during the peak period in that ATC unit;

d) in order to estimate code series required, in keeping with c) above, a “protection period” of six hours is used; i.e. all codes of an ATC unit assigned to aircraft are again available for use six hours after their initial assignment; and

e) a specific code is assigned to an aircraft when the aircraft is ready for take-off or when it is imminent that an in-flight aircraft will be controlled. As a general rule, a permanent code assignment based on flight number or any other systematic distinctive feature is unacceptable, due to the negative effects it could have on the efficient and economic use of codes.

23. Common criteria have been established to estimate the number of transit codes required by each ACC/FIC or APP of the various FIRs in the CAR/SAM regions. Transit codes have been distributed bearing in mind the number of peak flights (international flights only) to which each unit will have to assign a new code.

24. As the CAR/ SAM regions have been divided into five PAs and because the groups assigned to two of these PAs can be repeated without the risk of repeating codes, the number of codes available for international flights is high.

25. Considering the aforementioned, PAs (PA) would have the following code series available for international flights:

SOUTH SAM PA: 03, 04, 05, 06, 07, 25, 27, 30, 33, 52, 53, 60, 61, 62, 63, 64, 65, 73

CENTRAL SAM PA: 21, 26, 31, 32, 40, 41, 42, 43, 44, 45, 46, 47, 50, 51, 56, 57, 67, 70, 71

NORTH SAM PA: 01, 02, 22, 23, 24, 25, 34, 35, 36, 37, 54, 55, 66, 74

EAST CAR PA: 06, 07, 27, 30, 52, 53, 60, 63, 64, 65, 72, 73, 74

WEST CAR PA: 03, 04, 05, 21, 26, 31, 32, 33, 34, 40, 41, 42, 43, 44, 45, 46, 47, 50, 51, 56, 57, 61, 62, 66, 67, 70, 71

Domestic codes

26. Domestic codes are allocated for use by aircraft that remain within the boundaries of the area agreed for use of such codes (normally within a State) during their entire flight. The relevant code series are:

10, 11, 12, 13, 14, 15, 16, 17. Codes 0001 to 0077, 2001 to 2077, 7501 to 7577, and 7601 to 7677 could also be available, in keeping with the conditions specified in 16 and 17.

27. Domestic codes should be used in such a way as to allow for the greatest economy in the number of codes required (see also 9, 16 and 17). As domestic requirements vary considerably, definitive rules cannot be established for the time being. However, in order to assist States and facilitate the international coordination required on the use of domestic codes in border areas, the following guidelines are provided:

a) as a general rule, codes used mainly for transit purposes may be used for domestic needs in States where there is an intermediate FIR between the area in which the code is used for transit and that in which it is used for domestic purposes. Based on suitable agreements among the ATC units concerned, there may be some exceptions to this rule, provided it is made certain that this will cause no difficulties;

b) regarding domestic codes used mainly for terminal control purposes (TMA/APP), the area for operational use of the code in question should correspond to the area for use of the appropriate air-ground communications channels, unless otherwise specified;

c) domestic codes used for terminal purposes (TMA/APP) or within specific parts of the airspace (sectors) will have guaranteed protection in these functions. Adjacent States may use these codes for domestic purposes, providing a buffer zone equivalent to one sector or a distance of 60 NM between the closest borders of two areas in which such codes are used.

PLAN MONITORING

28. It is expected that, in the future, the gradual development of improved ground facilities will permit a greater number of States to adhere to the provisions of the CAP.

29. GREPECAS has approved provisions for the gradual implementation and monitoring of the SSR code allocation plan. In this respect, States planning to introduce SSR facilities are requested to inform the ICAO Regional Offices for North America, Central America, and the Caribbean (NACC), and South America (SAM), at least six months in advance, of their intention to use the codes, in order to carry out timely coordination.

ABBREVIATIONS AND MEANING OF TERMS

PA = Participating area	An area of specified dimensions comprising the areas of ATS responsibility of several States, wherein a four-digit code assigned to a specific aircraft engaged in an international flight is normally maintained by this aircraft while operating in the area.
CAP = ICAO SSR Code Allocation Plan	
Region = ICAO CAR and SAM Regions	
ORCAM = Originating region code allocation method	(See paragraph 21)
Four-digit code	An SSR identity code containing combinations of A, B, C and D pulses (any response generated by a 4 096-code responder): Z_1, Z_2, Z_3, Z_4 where Z_1 = 0....7
Code series	A group of 64 codes with four similar digits
Code block	A continuous sequence of four-digit code within a code series. Specific “octal” blocks of 8 sequential codes having common first three digits may be identified by reference to the third digit of the full four-digit code (i.e., 0-block = codes XX00 to XX07. Codes 0010 to 0017 may be designated as codes 00(1), codes 0020 to 0027 as codes 00(2), etc.).
Code assignment	Distribution of SSR codes to aircraft (cf. PANS-ATM, Doc 4444).
Code allocation	Distribution of SSR codes to States, unit or service (cf. PANS-ATM, Doc 4444).
Transit Codes	A code allocated to a specific ATC unit for assignment to an aircraft engaged in an international flight which will be retained by this aircraft at least while operating within the related PA.
Domestic Code	A code allocated to a specific State for use by a designated ATC unit within that State in relation to flights which remain throughout their operation within the agreed area of use of the code concerned.

GUIDELINES FOR THE APPLICATION OF THE TABLE

INTRODUCTION

1. In accordance with the implementation requirements of the table below, States and Organizations responsible for providing air traffic services in the CAR/SAM regions should properly apply the procedures of the CAR/SAM SSR code allocation plan (CAP) approved by the CAR/SAM Regional Planning and Implementation Group (GREPECAS). This document contains guidelines for achieving this objective.

2. It is impossible to cover all potential variables due to the diversity of circumstances and characteristics which, at a given point, might have a bearing on the application of procedures; therefore, it is expected that States will interpret correctly the application criteria and that this guide will serve as an auxiliary document for applying the procedures. It is also noted that the ICAO NACC and SAM Regional Offices will be responsible for monitoring the CAP, so States may therefore ask them for clarification when necessary.

GENERAL PROCEDURES

Use of codes

3. States and Organizations responsible for providing services should limit the use of SSR codes to the series allocated to them in the table below.

4. States and Organizations responsible for services should internally redistribute allocated codes, distributing the available code series or fractions thereof to ATC units equipped with radar systems under their jurisdiction, taking into account the volume of outgoing flights and overflights requiring codes.

Note.— In order to make better use of code series, they may be divided in fractions in such a way that they may be used as a whole or in halves, quarters or eighths of a series, as required, according to the volume of flights served by each ATC unit.

5. Codes are assigned to flights leaving the jurisdiction of the ATC unit where those flights originate. This means that they are assigned to departures from airports within the area and to overflights arriving from airspaces lacking radar service or to other aircraft which have not been previously assigned a code.

6. Efforts should be made to maintain the code already assigned to an aircraft. This assumes that the code is known at the time of coordination and that it may be introduced into the automated processing system, so that the system will recognize when the aircraft enters the radar system coverage area.

Code occupation period

7. In order to protect the use of a unique code for each flight, avoiding its double assignment to another flight within the airspace of a PA, each State or ATC unit shall determine a “protection period” within its area, i.e. the period of time in which the code used by a flight cannot be assigned to another flight.

8. The submitted proposal estimates a protection period of 6 hours for all cases, this period being considered the most critical. This gives ATC units greater capacity for using allocated codes through a reduction in the protection period, as long as it does not cause a duplication as mentioned in 11.

9. For maximum economy of codes, it is recommended that they be assigned as closely as possible to the time of flight activation; likewise, when a flight has already been assigned a code and it is not activated within a reasonable time limit, the code assignment should be cancelled, releasing it for use by another flight.

10. In some cases, when flight times within airspaces with radar coverage so permit, codes may be assigned in a cyclical manner; that is, codes are progressively assigned until reaching the last available code, at which time the assignment starts over again from the beginning, irrespective of the time elapsed. In some cases, when feasible, this procedure is simpler for ATC units.

Saturation

11. When the demand for codes exceeds the number available, due to an increase in traffic, and solutions such as the reduction of the protection period cannot be adopted, control units may apply the following measures:

a) in the case of transit flights, use can be made of code series allocated to States/FIRs belonging to non-adjacent PAs. This procedure should be used in extreme cases, after coordinating with those States which might be affected. The ICAO NACC and SAM Regional Offices may recommend this solution after studying the possibilities and assessing potential consequences;

b) in the case of domestic flights, use can be made of transit codes allocated to the State/FIR concerned or, if necessary, to another State/FIR within the same PA, at the same time taking the relevant protective measures to avoid any negative effects.

Assigning codes to domestic flights

12. The table recommends assigning codes from the series apportioned for domestic flights for use by States/FIRs.

Based on the needs of ATC units, this proposal could be modified to permit a more appropriate application, considering that:

a) the same code can be assigned to different domestic flights, as long as airspaces where the flights take place are not adjacent and there is no intermediate radar coverage area for at least 60 nautical miles;

b) the rule described in a) above may be applied within the same State/FIR and also between adjacent States/FIRs when relevant arrangements have been made;

c) in order to take maximum advantage of this procedure, it is preferable to allocate the same domestic codes in different smaller areas, instead of assigning codes taken from many different series; and

d) when saturation in the demand for domestic codes is foreseen, the procedure described in b) above may be applied.

I = International use
D = Domestic use

CODE	STATE OR FIR																					
	ARGENTINA	ASUNCIÓN	BRAZIL	CENTRAL AMERICAN	CHILE	COLOMBIA	CURACAO	GEORGETOWN	GUAYAQUIL	HABANA	KINGSTON	LA PAZ	LIMA	MAIQUETIA	MEXICO	MONTEVIDEO	PANAMA	PARAMARIBO	PIARCO	PORT-AU-PRINCE	ROCHAMBEAU	SANTO DOMINGO
0000	GENERAL PURPOSE																					
0001 - 0077										D												
0100 - 0177																	I					
0200 - 0277																	I					
0300 - 0377	I			D						I									D			
0400 - 0477	I			D						I									D			
0500 - 0577	I			D																		
0600 - 0677	I										D				D							
0700 - 0777	I										D				D							

CODE	STATE OR FIR																					
	ARGENTINA	ASUNCIÓN	BRAZIL	CENTRAL AMERICAN	CHILE	COLOMBIA	CURACAO	GEORGETOWN	GUAYAQUIL	HABANA	KINGSTON	LA PAZ	LIMA	MAIQUETIA	MEXICO	MONTEVIDEO	PANAMA	PARAMARIBO	PIARCO	PORT-AU-PRINCE	ROCHAMBEAU	SANTO DOMINGO
1000 - 1077		D	D	D											D				D		D	
1100 - 1177			D									D			D	D	D		D			
1200 - 1277			D	D	D	D		D							D	D	D		D			D
1300 - 1377			D	D	D	D									D				D	D		
1400 - 1477		D	D	D	D	D			D						D				D	D		
1500 - 1577	D		D	D					D					D	D				D			D
1600 - 1677	D	D	D	D						D			D	D	D			D	D			
1700 - 1777	D		D	D			D	D		D		D	D		D				D			
2000	SEE REFERENCE ANNEX 10, VOL. IV, 2.1.4.5																					
2001 - 2077	D									D												
2100 - 2177	D						D								I				D			
2200 - 2277						I																
2300 - 2377						I																
2400 - 2477						I																
2500 - 2577	I			D																		
2600 - 2677															I							
2700 - 2777	I			D															I			
3000 - 3077				D	I														I			
3100 - 3177							I					I							D			
3200 - 3277															I							
3300 - 3377							I															
3400 - 3477										I												
3500 - 3577														I								
3600 - 3677														I								
3700 - 3777														I								
4000 - 4077			I																D			I
4100 - 4177			I																			I
4200 - 4277			I												I				D			
4300 - 4377			I												I							

CODE	STATE OR FIR																					
	ARGENTINA	ASUNCIÓN	BRAZIL	CENTRAL AMERICAN	CHILE	COLOMBIA	CURACAO	GEORGETOWN	GUAYAQUIL	HABANA	KINGSTON	LA PAZ	LIMA	MAIQUETIA	MEXICO	MONTEVIDEO	PANAMA	PARAMARIBO	PIARCO	PORT-AU-PRINCE	ROCHAMBEAU	SANTO DOMINGO
4400 - 4477			I												I				D			
4500 - 4577			I												I							
4600 - 4677			I	I															D			
4700 - 4777			I	I																		
5000 - 5077			D								I								D			
5100 - 5177			D								I											
5200 - 5277					I			I														
5300 - 5377					I																I	
5400 - 5477		I							I											I		
5500 - 5577									I													
5600 - 5677				I									I					I				
5700 - 5777				I									I									
6000 - 6077																I			I			
6100 - 6177															I	I						
6200 - 6277			D												I							
6300 - 6377															D				I			
6400 - 6477															D				I			
6500 - 6577															D				I			
6600 - 6677			D																			
6700 - 6777			D							I												
7000 - 7077															I							
7100 - 7177		I																		I		
7200 - 7277																			I			
7300 - 7377																I		I				
7400 - 7477																						
7500	UNLAWFUL INTERFERENCE																					
7600	COMMUNICATIONS FAILURE																					
7700	EMERGENCY																					

SSR CODE ASSIGNMENT SYSTEM (INTERNATIONAL AND DOMESTIC) CAR AND SAM REGIONS
SYSTÈME D'ASSIGNATION DES CODES SSR (VOLS INTERNATIONAUX ET INTÉRIEURS), RÉGIONS CAR ET SAM
SISTEMA DE ASIGNACIÓN DE CLAVES SSR (INTERNACIONALES Y NACIONALES), REGIONES CAR/SAM

CAR/SAM FASID

CHART ATM 1

WEST CAR PA

EAST CAR PA

NORTH SAM PA

CENTRAL SAM PA

SOUTH SAM PA

FIR NASSAU
1830 MSL
GND

FIR MIAMI OCEANIC

FIR HOUSTON OCEANIC

FIR MEXICO

FIR MIAMI OCEANIC

FIR HABANA

FIR SAN JUAN

FIR KINGSTON

FIR SANTO DOMINGO

FIR CURACAO

FIR PIARCO

FIR MAZATLAN OCEANIC

FIR CENTRAL AMERICAN

FIR BARRANQUIL

FIR PANAMA

FIR MAIQUETIA

FIR GEORGETOWN

FIR ROCHAMBEAU

FIR PARAMARIBO

FIR BOGOTA

FIR GUAYAQUIL

FIR AMAZONICA

FIR RECIFE

FIR LIMA

FIR LA PAZ

FIR BRASILIA

FIR ATLANTICO

FIR ANTOFAGASTA

FIR ASUNCION

FIR CURITIBA

FIR CORDOBA

FIR RESISTENCIA

FIR SANTIAGO

FIR MENDOZA

FIR MONTEVIDEO

FIR PUERTO MONTT

FIR EZEIZA

FIR COMODORO RIVADAVIA

FIR PUNTA ARENAS

AIS/MAP 00/14