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INFORMATION PAPER

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Miami, United States, 15 to 17 July 2015

Agenda Item 4: Air Navigation Matters

4.2 Follow-up on the implementation of the NAM/CAR Regional Performance Based Air Navigation Plan (RPBANIP) and the *Port-of-Spain* Declaration Air Navigation Targets in the Eastern Caribbean

INFORMATION, LIMITATIONS, PROCEDURES, PHRASEOLOGY AND AIC-FORMAT GOVERNING THE IMPLEMENTATION OF RADAR-ASSISTED SITUATIONAL AWARENESS (RASA) IN THE OECS

(Presented by ECCAA)

EXECUTIVE SUMMARY	
<p>This information paper, first presented as E/CAR/NTG/5 & E/CAR/RD/3 as IP/02 (22-24 October 2014), presents:</p>	
<p>a) the full text of the information, limitations, procedures, phraseology and AIC-format governing the implementation of Radar-Assisted Situational Awareness (RASA) in the OECS, as approved by the Director General of the ECCAA on 26 August 2014, and which was promulgated to the OECS States on 27 August 2014, and notified to the ICAO NACC Regional Office on 29 August 2014, and</p>	
<p>b) As Appendix 2, an OECS RASA status update 06Jul15, contained in E-CAR/NTG6 & RD4 IP02</p>	
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency• Environmental Protection
<i>References:</i>	<ul style="list-style-type: none">• Fourth Eastern Caribbean Network Technical Group and Second Eastern Caribbean Radar Data Sharing Adhoc Group Meetings (E/CAR/NTG/4- E/CAR/RD/2), Martinique, French Antilles, France, 17 to 18 June 2013• ICAO Annex 1 – <i>Personnel Licensing</i>• ICAO Annex 11 – <i>Air Traffic Services</i>• ICAO Doc 4444 – <i>ATM – Air Traffic Management</i>

1. Introduction

1.1 During the E/CARNTG/04 Meeting, ECCAA provided operational requirements for providing situational awareness and recalled the information exchange for operational experiences in situational awareness conducted between France, Saint Lucia and ECCAA.

2. Discussion

2.1 Considering that several of the States that are going to implement the PCs donated by France are members of the OECS States under ECCAA, and to provide guidance for these States on the specific use of this equipment for situational awareness, the Meeting formulated the decision E/CAR/NTG/4/10:

DECISION

E/CAR/NTG 4/10

REVIEW OF OPERATIONAL GUIDANCE MATERIAL FOR SITUATIONAL AWARENESS

That ECCAA, in collaboration with France and Saint Lucia, review the operational guidance material for using radar for situational awareness purposes and present a final draft to the Radar Sharing Rapporteur no later than 31 July 2013.

2.2 In this regard, **Appendix A** to this paper provides the full text of the information, limitations, procedures, phraseology and AIC-format governing the implementation of Radar-Assisted Situational Awareness (RASA) in the OECS, as approved by the Director General of the ECCAA on the 26 August 2014, and which was promulgated to the OECS States on 27 August 2014, and notified to the ICAO NACC Regional Office on 29 August 2014.

3. Conclusion

3.1 The OECS States have a guidance and reference document on situational awareness for the best and appropriate use of the equipment that is being donated by France as future equipment to be implemented for this purpose.

APPENDIX A

Information, limitations, procedures, phraseology and AIC-format governing the implementation of Radar-Assisted Situational Awareness (RASA) in the OECS

(Note: The RASA acronym was created for, and is initially specific to, the OECS states)

(References: ICAO Doc 4444, Annex 1, Annex 11 - relevant excerpts are contained in the attachments for ease of reference)

1.0 Radar-Assisted-Situational-Awareness (RASA) displays

1.1 It is intended that Radar-Assisted-Situational-Awareness (RASA) displays will be installed shortly on a trial basis in the ATC units of: Antigua/Barbuda, Dominica, Grenada, St; Kitts and St. Vincent. The units are already installed in St. Lucia with a direct data-feed from Martinique.

1.2 These displays are intended to provide Radar-Assisted Situational Awareness (RASA) to controllers, in order to enhance their provision of Procedural Air Traffic Control Service, but shall not be used for the provision of any form of Radar CONTROL service.

1.3 The RASA programme arises from decisions made at the E/CAR WG meetings which were approved by the E/CAR DCAs for Radar Data Sharing in the E/CAR utilizing the Piarco radar data server and the E/CAR AFS network, with data provided initially from the Guadeloupe, Martinique, Barbados, and Piarco radar systems; and from St. Maarten and Antigua in the future. It is intended that the RASA programme will be in two phases, as follows:

- a) Initially, the donation by Martinique of surplus used computer CPUs that are already programmed to receive the data, as per the systems installed in St. Lucia, which are intended to test the system on a relatively short-term basis.

Each State will, however, be required to provide its own off-the-shelf computer display and mouse;

- b) Subsequently, the acquisition by States of permanent display systems for either medium-term continuation of RASA (as decided by the States), or, in the case of Antigua, intended upgrade to full Radar Control Service.

2.0 Limitations

2.1 The RASA system will not be certified for the provision of Radar Control Service.

2.2 It is noted that controllers in the OECS are not yet certified for the provision of Radar Control Service.

2.3 The RASA system shall not be used for the provision of any form of Radar CONTROL service.

2.4 During the initial phase, the RASA system will not necessarily be available to controllers at all times, and will not be considered as essential operational equipment.

3.0 Procedures - general

3.1 In accordance with 2.3, and in order to avoid the possibility of misinterpretation by pilots, it is vital that controllers not take any action or make any transmission that could be misconstrued as being the provision of any form of Radar CONTROL Service.

3.2 Transponder codes other than those assigned by the relevant adjacent Air Traffic Services units **shall not be assigned**.

3.3 Except where necessary in an emergency situation, an aircraft **shall not be instructed** to squawk IDENT.

3.4 While the RASA system is intended to provide basic airspace-management situational-awareness assistance to controllers in their provision of Procedural Air Traffic Control Service, and while they are not qualified Radar Controllers, it is also recognised that, as controllers would now have a visual traffic-situation representation, it puts an obligation on them to take appropriate action in the event that an actual or potential safety-hazard is observed. In this regard, in accordance with the provisions of Annex 11, as follows:

2.23 Service to aircraft in the event of an emergency

2.23.1 An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, shall be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances;

and,

4.2-Scope of flight information service (précis):

4.2.1 Flight information service shall include the provision of pertinent..... information likely to affect safety;

and

4.2.2 Flight information service provided to flights shall include.... the provision of information concerning: b) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G;

the use of the RASA system by controllers, in addition to basic airspace-management situational-awareness assistance, shall be limited to the provision of:

- a) information on traffic which may pose a collision hazard, and, **where necessary and requested by the pilot**, basic traffic-avoidance advice;
- b) basic information on potentially conflicting traffic; and
- c) information, and when able, advice, during emergencies.

4.0 Procedures for the use of RASA in emergencies and for traffic-avoidance advice

4.1 As indicated in 3.4 above, in accordance with the provisions of Annex 11-2.23.1, an aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, shall be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.

4.2 It is to be particularly noted that, in accordance with Doc 4444, para 8.5.2.1, the transponder-codes 7700, 7600 and 7500 are used internationally by pilots to indicate that their aircraft is encountering a state of:

- a) emergency: 7700
- b) radio-communication failure: 7600
- c) unlawful interference, 7500.

4.3 Particularly with respect to the “suggested turn” phraseologies in 5.2(b)-Emergency, and 5.4(a) & (b)-avoiding action advice, strict attention must be paid to the applicable MSAs in the aircraft’s area of operation.

5.0 Phraseology

In order to clearly indicate the limitations of the information and advice that can be provided by controllers using the RASA, the following phraseologies will apply:

- a) In the event of unrealistic/inappropriate or ambiguous requests being made of controllers, the basic phraseology in 5.1 may be used.
and
- b) The phraseologies, “**appear(s) to be**” and “**suggest**”, shall be used, as modified below from Doc 4444, Chap 12:

	<i>Circumstances</i>	<i>Phraseologies</i>
5.1	ATS limitation - SITUATIONAL AWARENESS	THE RADAR IMAGE DISPLAYED AT THIS UNIT IS FOR THE PROVISION OF CONTROLLER AIRSPACE-SITUATIONAL-AWARENESS ONLY, AND NOT RADAR CONTROL SERVICE;
5.2	IDENTIFICATION OF AIRCRAFT <i>- see also 4.2 above</i> <i>(dependent upon equipment capability)</i>	a) REPORT HEADING [AND FLIGHT LEVEL (or ALTITUDE)]; * The following are not to be used, except in emergencies: * b) FOR IDENTIFICATION SUGGEST TURN LEFT (or RIGHT) HEADING (<i>three digits</i>)(<i>see also 4.2 above</i>); * c) TRANSMIT FOR IDENTIFICATION AND REPORT HEADING; * d) RADAR CONTACT [appears to be - <i>position</i>]; * e) IDENTIFIED [appears to be - <i>position</i>]; * f) NOT IDENTIFIED [<i>reason</i>], [RESUME (or CONTINUE) OWN NAVIGATION].
5.3	CONFLICTING-TRAFFIC INFORMATION	“TRAFFIC APPEARS TO BE.....” a) TRAFFIC (<i>number</i>) O’CLOCK (<i>distance</i>) (<i>direction of flight</i>)[<i>any other pertinent information</i>]: 1) UNKNOWN;

		2) SLOW MOVING; 3) FAST MOVING; 4) CLOSING; 5) OPPOSITE (<i>or</i> SAME) DIRECTION; 6) OVERTAKING; 7) CROSSING LEFT TO RIGHT (<i>or</i> RIGHT TO LEFT); 8) (<i>aircraft type</i>) ... (if known); 9) (<i>level</i>); 10) CLIMBING (<i>or</i> DESCENDING);
5.4	AVOIDING ACTION to request avoiding action when passing unknown traffic for avoiding action advice - <i>see also 4.2 above</i>	REQUEST VECTORS; (<i>pilot transmission</i>) APPEAR TO BE CLEAR OF TRAFFIC; a) SUGGEST TURN LEFT (<i>or</i> RIGHT), HEADING (<i>three digits</i>), TO AVOID THE TRAFFIC; b) SUGGEST TURN LEFT (<i>or</i> RIGHT), (<i>number of degrees</i>) DEGREES, TO AVOID THE TRAFFIC.

6.0 Contents-format of relevant AIC

Implementation of Radar-Assisted Situational Awareness (RASA) at (ATC unit)

1. (ATC unit) is now equipped with displays which are intended to provide Radar-Assisted Situational Awareness (RASA) to air traffic controllers, in order to enhance their provision of Procedural Air Traffic Control Service.
2. The RASA system at (ATC unit) is not certified for the provision of Radar Control Service.
3. Air traffic controllers at (ATC unit) are not certified for the provision of Radar Control Service.
4. The RASA system at (ATC unit) will not be used for the provision of any form of Radar CONTROL service.
5. The RASA system will not necessarily be available to controllers at all times.
6. The use of the RASA system by the controllers when practicable, and in addition to basic airspace-management situational-awareness assistance, is limited to the provision of:
 - a) Flight information service -
 - i) information on traffic which may pose a collision hazard, and, where necessary and requested by the pilot, basic traffic-avoidance advice;
 - ii) basic information on potentially conflicting traffic.
 - b) Information and, when able, advice, during emergencies.

7. (ATC unit) will not assign any transponder codes other than those assigned by the relevant adjacent Air Traffic Services units.

8. Except possibly in an emergency situation, (ATC unit) will not instruct an aircraft to squawk IDENT.

(Signed and dated 26/8//14)

.....
C. Anthony Meade
Director-ANS(Ag.)
Date:

(Signed and dated 26/8//14)

.....
Donald McPhail
Director General
Date:

RASA ATT-1: Definitions Doc 4444, Annex 1, Annex 11

Aircraft identification. A group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft call sign to be used in air-ground communications, and which is used to identify the aircraft in ground-ground air traffic services communications.

Air traffic control service. A service provided for the purpose of:

- a) preventing collisions:
 - 1) between aircraft, and
 - 2) on the manoeuvring area, between aircraft and obstructions; and
- b) expediting and maintaining an orderly flow of air traffic.

Air traffic service (ATS). A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

ATS surveillance service. A term used to indicate a service provided directly by means of an ATS surveillance system.

ATS surveillance system. A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

Note.— A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.

Flight information service. A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

Procedural control. Term used to indicate that information derived from an ATS surveillance system is not required for the provision of air traffic control service.

Radar contact. The situation which exists when the radar position of a particular aircraft is seen and identified on a situation display.

Rated air traffic controller. An air traffic controller holding a licence and valid ratings appropriate to the privileges to be exercised.

Rating. An authorization entered on or associated with a licence and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence.

Situation display. An electronic display depicting the position and movement of aircraft and other information as required.

Surveillance radar. Radar equipment used to determine the position of an aircraft in range and azimuth.

Traffic avoidance advice. Advice provided by an air traffic services unit specifying manoeuvres to assist a pilot to avoid a collision.

Traffic information. Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.

RASA ATT-2: Doc. 4444

Chapter 8 - ATS SURVEILLANCE SERVICE

8.1 ATS SURVEILLANCE SYSTEMS CAPABILITIES

8.1.1 ATS surveillance systems used in the provision of air traffic services shall have a very high level of reliability, availability and integrity. The possibility of system failures or significant system degradations which may cause complete or partial interruptions of service shall be very remote. Backup facilities shall be provided.

Note 1.— An ATS surveillance system will normally consist of a number of integrated elements, including sensor(s), data transmission links, data-processing systems and situation displays.

8.1.2 The provision of ATS surveillance services shall be limited to specified areas of coverage and shall be subject to such other limitations as have been specified by the appropriate ATS authority. Adequate information on the operating methods used shall be published in aeronautical information publications, as well as operating practices and/or equipment limitations having direct effects on the operation of the air traffic services.

8.2 PROVISION OF ATS SURVEILLANCE SERVICES

8.2.1 Information derived from ATS surveillance systems, including safety-related alerts and warnings such as conflict alert and minimum safe altitude warning, should be used to the extent possible in the provision of air traffic control service in order to improve capacity and efficiency as well as to enhance safety.

8.3 SSR CODE MANAGEMENT

8.3.1 Codes 7700, 7600 and 7500 shall be reserved internationally for use by pilots encountering a state of emergency, radio-communication failure or unlawful interference, respectively.

8.4 COLLISION HAZARD INFORMATION

8.4.1 When an identified controlled flight is observed to be on a conflicting path with an unknown aircraft deemed to constitute a collision hazard, the pilot of the controlled flight shall, whenever practicable:

- a) be informed of the unknown aircraft, and if so requested by the controlled flight or if, in the opinion of the controller, the situation warrants, a course of avoiding action should be suggested; and
- b) be notified when the conflict no longer exists.

8.5 FAILURE OF EQUIPMENT AIRCRAFT RADIO TRANSMITTER FAILURE

8.5.1 If two-way communication is lost with an aircraft, the controller should determine whether or not the aircraft's receiver is functioning by instructing the aircraft on the channel so far used to acknowledge by making a specified manoeuvre and by observing the aircraft's track, or by instructing the aircraft to operate IDENT or to make SSR code and/or ADS-B transmission changes.

Note 1.— Transponder-equipped aircraft experiencing radio-communication failure will operate the transponder on Mode A Code 7600.

8.5.2 If the action prescribed in 8.8.3.1.1 is unsuccessful, it shall be repeated on any other available channel on which it is believed that the aircraft might be listening.

8.5.3 In both the cases covered by 8.8.3.1.1 and 8.8.3.1.2, any manoeuvring instructions shall be such that the aircraft would regain its current cleared track after having complied with the instructions received.

8.5.4 Where it has been established by the action in 8.8.3.1.1 that the aircraft's radio receiver is functioning, continued control can be effected using SSR code/ADS-B transmission changes or IDENT transmissions to obtain acknowledgement of clearances issued to the aircraft.

8.6 USE OF ATS SURVEILLANCE SYSTEMS IN THE FLIGHT INFORMATION SERVICE

Note.— The use of an ATS surveillance system in the provision of flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities, including the final decision regarding any suggested alteration of the flight plan.

8.7 FUNCTIONS

The information presented on a situation display may be used to provide identified aircraft with:

- a) information regarding any aircraft observed to be on a conflicting path with the identified aircraft and **suggestions or advice** (see 9.1.4.1.3) regarding avoiding action;
- b) information on the position of significant weather and, as practicable, advice to the aircraft on how best to circumnavigate any such areas of adverse weather (see 8.6.9.2, Note);

c) information to assist the aircraft in its navigation.

9.0 Air traffic advisory service

9.1. OBJECTIVE AND BASIC PRINCIPLES

9.1.1 The objective of the air traffic advisory service is to make information on collision hazards more effective than it would be in the mere provision of flight information service. It may be provided to aircraft conducting IFR flights in advisory airspace or on advisory routes (Class F airspace). Such areas or routes will be specified by the State concerned.

9.1.2 Taking into account the considerations detailed in 2.4 of Annex 11, air traffic advisory service should only be implemented where the air traffic services are inadequate for the provision of air traffic control, and the limited advice on collision hazards otherwise provided by flight information service will not meet the requirement. Where air traffic advisory service is implemented, this should be considered normally as a temporary measure only until such time as it can be replaced by air traffic control service.

9.1.3 Air traffic advisory service does not afford the degree of safety and cannot assume the same responsibilities as air traffic control service in respect of the avoidance of collisions, since information regarding the disposition of traffic in the area concerned available to the unit providing air traffic advisory service may be incomplete.

To make this quite clear, air traffic advisory service does not deliver “clearances” but only “advisory information” and it uses the word “advise” or “suggest” when a course of action is proposed to an aircraft.

9.2 ATS SURVEILLANCE SERVICE PHRASEOLOGIES

	<i>Circumstances</i>	<i>Phraseologies</i>
9.2.1	IDENTIFICATION AIRCRAFT	OF
		a) REPORT HEADING [AND FLIGHT LEVEL (or ALTITUDE)]; b) FOR IDENTIFICATION TURN LEFT (or RIGHT) HEADING (<i>three digits</i>); c) TRANSMIT FOR IDENTIFICATION AND REPORT HEADING; d) RADAR CONTACT [<i>position</i>]; e) IDENTIFIED [<i>position</i>]; f) NOT IDENTIFIED [<i>reason</i>], [RESUME (or CONTINUE) OWN NAVIGATION].
9.2.2	POSITION INFORMATION	POSITION (<i>distance</i>) (<i>direction</i>) OF (<i>significant point</i>) (or OVER or ABEAM (<i>significant point</i>)).
9.2.3	TRAFFIC INFORMATION AND AVOIDING ACTION	a) TRAFFIC (<i>number</i>) O’CLOCK (<i>distance</i>) (<i>direction of flight</i>) [<i>any other pertinent information</i>]: 1) UNKNOWN; 2) SLOW MOVING; 3) FAST MOVING; 4) CLOSING; 5) OPPOSITE (or SAME) DIRECTION; 6) OVERTAKING; 7) CROSSING LEFT TO RIGHT (or RIGHT TO LEFT);

	... (if known)	8) (<i>aircraft type</i>); 9) (<i>level</i>); 10) CLIMBING (<i>or</i> DESCENDING);
	... to request avoiding action	*b) REQUEST VECTORS; c) DO YOU WANT VECTORS?;
	... when passing unknown traffic	d) CLEAR OF TRAFFIC [<i>appropriate instructions</i>];
	... for avoiding action	e) TURN LEFT (<i>or</i> RIGHT) IMMEDIATELY HEADING (<i>three digits</i>) TO AVOID [UNIDENTIFIED] TRAFFIC (<i>bearing by clock-reference and distance</i>); f) TURN LEFT (<i>or</i> RIGHT) (<i>number of degrees</i>) DEGREES IMMEDIATELY TO AVOID [UNIDENTIFIED] TRAFFIC AT (<i>bearing by clock-reference and distance</i>). * Denotes pilot transmission..

RASA ATT-3: Annex 1**Privileges of the holder of a licence**

A Contracting State shall not permit the holder of a licence to exercise privileges other than those granted by that licence.

Air traffic controller licence

Requirements for the issue of the licence Before issuing an air traffic controller licence, a Contracting State shall require the applicant to meet the requirements of 4.4.1 and the requirements of at least one of the ratings set out in 4.5. Unlicensed State employees may operate as air traffic controllers on condition that they meet the same requirements.

RASA ATT-4: Annex 11**2.23 Service to aircraft in the event of an emergency**

An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, shall be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.

CHAPTER 4. FLIGHT INFORMATION SERVICE**4.1 Application**

4.1.1 Flight information service shall be provided to all aircraft which are likely to be affected by the information and which are:

- a) provided with air traffic control service; or
- b) otherwise known to the relevant air traffic services units.

Note.— Flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities and the pilot-in-command has to make the final decision regarding any suggested alteration of flight plan.

4.1.2 Where air traffic services units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service whenever the provision of air traffic control service so requires.

4.2 Scope of flight information service

4.2.1 Flight information service shall include the provision of pertinent:

and of any other information likely to affect safety.

4.2.2 Flight information service provided to flights shall include, in addition to that outlined in 4.2.1, the provision of information concerning:

b) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G.

APPENDIX B**OECS ATS RASA IMPLEMENTATION-STATUS UPDATE 7JULY 2015**

State	IRMA Installation date	ATS RASA status update/comments
Antigua and Barbuda	19 Mar 15	Controllers continue to be briefed on the RASA procedures. RASA implementation date TBN.
Grenada	17 Apr 15	Providing good traffic information in the northern sector. Controllers have been briefed. RASA implementation date TBN.
Saint Vincent & The Grenadines	27 Apr 15	Installed, however, no equipment training was provided, as the data feed was not available at the time. Data is now being received, but the equipment training is still to be provided. Controllers are being briefed on the RASA procedures. RASA implementation date TBN.
Dominica	15 Jun 15	
St. Kitts	26 Jun 15	Some initial equipment-training was provided during the installation, but St. Kitts was told that the French technicians would be returning to provide additional training. Controllers are being briefed on the RASA procedures. RASA implementation date TBN.
Nevis	26 Jun 15	Some controllers received the initial equipment training, and the remainder are being departmentally trained. Controllers are being briefed on the RASA procedures. However, the CPU has recently failed (blue screen), and is being reported to the Fr. Civil Aviation authorities for possible help. Thus, the implementation date remains TBN.
St. Lucia		The 2003 FDF/SLU Radar data project continues. However, data is no longer received directly from FDF, but now from Piarco via the AFS. IRMA equipment training is scheduled for August. RASA implementation date TBN.

— END —