INTERNATIONAL CIVIL AVIATION ORGANIZATION

TWENTY EIGHTH MEETING OF THE ASIA/PACIFIC AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (APANPIRG/28)

Bangkok, Thailand, 11 to 14 September 2017

Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.4 CNS

DISSOLUTION OF APAC/NAT ADS-C REPORTING INTERALS TASK FORCE

(Presented by the Secretariat)

SUMMARY

This paper proposes to disband the APAC/NAT ADS-C Reporting Interval Task Force which was established by APANPIRG/26 through Conclusion 26/46. This proposal is resulted from **a NAT SPG** Conclusion 53/14 to disband the inter-regional Task Force.
Strategic Objectives:

*B: **Air Navigation Capacity and Efficiency**—Increase the capacity and improve the efficiency of the global aviation system*

*E: **Environmental Protection** — minimize the adverse environment effects of civil aviation activities.*

1. INTRODUCTION

1.1 The Asia and Pacific/North Atlantic Automatic Dependent Surveillance – Contract Reporting Interval Task Force (APAC/NAT ADS-C RITF) was established by NAT IMG Decision 45/11 and APANPIRG (Asia Pacific Air Navigation Planning and Implementation Regional Group) Conclusion 26/46.

Conclusion APANPIRG/26/46 – Inter-regional ADS-C Reporting Interval Task Force

That,

a) the Terms of Reference of the inter-regional ADS-C Reporting Interval Task Force provided by NAT Implementation Management Group at **Appendix M** to WP/9 is endorsed; and

b) States in Asia/Pacific Regions with experience of ADS-C implementation and in a position to do so, are encouraged to participate in the Task Force to contribute the study.

1.2 The first meeting of the Task Force (ADS-C RITF/1) was held from 21 to 23 June 2016 in the ICAO EUR/NAT Office Paris, France. A few teleconferences were held before the first meeting of the Task Force. The APANPIRG/27 was provided with an interim report of the Task Force which was highlighted in Appendix O to APANPIRG/27-WP/9.

1.3 Very few States from APAC Region participated the first meeting. No further face to face Task Force meetings were held. Only some e-mails exchanged between the rapporteur, secretariat and some Task Force members that were preparing a draft GOLD amendment proposal based on outcome of the first meeting.

2. DISCUSSION

2.1 The Fiftieth meeting of the North Atlantic Implementation Management Group (NAT IMG/50) was held in Paris, France, from 9 to 12 May 2017. The NAT IMG agreed that the APAC/NAT ADS-C RITF had completed all assigned tasks and proposed a draft Conclusion for consideration by NAT SPG/53 meeting.

2.2 The Fifty-Third Meeting of the North Atlantic Systems Planning Group (NAT SPG) was held in the European and North Atlantic (EUR/NAT) Office of ICAO from 26 to 29 June 2017.

2.2.1 The meeting noted the ADS-C RITF conclusion that, provided the coordination of new operational concepts and requirements for reduced separation standards supported by higher ADS-C periodic reporting rates was taking place based on requirements and guidance to be included in the GOLD Manual (ICAO Doc 10037) and a future ICAO Circular, the minimum ADS-C periodic reporting interval would be as follows:

a) For the current Inmarsat Classic/VHF datalink system:

I. 3 minutes was feasible, if needed, to support a new separation standard at RSP 180: if widely used, financial impacts may be incurred to support additional system capacity;

II. 64 seconds was feasible for abnormal/distress reporting: if used more widely, financial impacts may be incurred to support additional system capacity.

b) For the Inmarsat SwiftBroadband-Safety (SB-S) system over oceanic and remote airspace:

I. 2 minutes was feasible to support a new separation standard at RSP 180: if widely used, financial impacts may be incurred to support additional system capacity;

II. 64 seconds was feasible for abnormal/distress reporting: if used more widely, financial impacts may be incurred to support additional system capacity.

2.2.2 It was also informed that in order to help providers manage the process of implementing reduced reporting intervals in support of reduced longitudinal separation minima, the ADS-C RITF developed appropriate guidance material for consideration as addition to the following documents:

a) *ICAO Global Operational Data Link (GOLD) Manual* (Doc 10037); and

b) *ICAO Circular providing implementation guidance for reduced separation minima.*

2.3 In view of the above, the NAT SPG agreed that the APAC/NAT ADS-C RITF had completed all its assigned tasks and agreed with the following Conclusion:

NAT SPG Conclusion 53/14 – Final report of the APAC/NAT ADS-C reporting intervals TF

That, ICAO Regional Director, Europe and North Atlantic, take appropriate actions to:

a) Provide the outcomes of the Asia and Pacific/North Atlantic Automatic Dependent Surveillance – Contract Reporting Interval Task Force (APAC/NAT ADS-C RITF) and the proposal for amendment to the *ICAO Global Operational Data Link Manual* (Doc 10037) as provided at **Appendix I** to this Report to the appropriate ICAO groups for further consideration; and

b) In coordination with the ICAO APAC Regional Office, disband the APAC/NAT ADS-C RITF.

2.3.1 The Appendix I mentioned above is provided in **Attachment A** to this paper for easy reference.

2.4 Accordingly, coordination for dissolving the inter-regional Task Force was received from Paris Office in later July 2017 with the final report of the NAT SPG/53 meeting.

3. ACTION BY THE MEETING

3.1 Considering that the assigned tasks having been completed, the proposal for amendment to the *ICAO Global Operational Data Link Manual* (Doc 10037) will be forwarded to the appropriate ICAO group for further consideration, the meeting is invited to endorse of the following Decision:

<table>
<tr><td colspan="2">APANPIRG/28 Decision X: Dissolution of APAC/NAT ADS-C reporting intervals Task Force</td></tr>
<tr><td>What:

That, noting that the assigned tasks having been completed and proposals for amendment to ICAO relevant document being forwarded to appropriate ICAO groups for consideration, the APAC/NAT ADS-C reporting intervals Task Force be dissolved.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☐Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td colspan="2">Why: proposal and coordination for dissolving APAC/NAT ADS-C reporting intervals Task Force was received from NAT Region and assigned tasks having been completed.</td></tr>
<tr><td>When: September 2017</td><td>Status: To be adopted by PIRG</td></tr>
<tr><td colspan="2">Who: ☒Sub groups ☐APAC States ☒ICAO APAC RO ☐ICAO HQ ☐ Other:</td></tr>
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Attachment A-Proposed updates to the GOLD (Doc 10037) developed by ADS-C RITF *(paragraph **Error! Reference source not found.** refers)*

1. Generic guidance on Satcom usage to include in Doc 10037 GOLD:

The following points should be included in a new section in the document, possibly as part of 2.2.5.1 "ADS-C – general":

a) Communication Service Providers (CSP) and Satellite Service Providers (SSP) actively monitor both the demand and delivered performance of Satellite based services. In this way the satellite and ground communications networks can be managed to ensure performance requirements are met and a high quality of service is maintained.
b) FANS and Airline Operational Communications (AOC) datalink communications utilise common network resources. CSP and SSP have to proactively monitor the demand generated by both user communities, the SSP capacity planning the required satellite network resources and the CSP the required VHF station and ground network resources.
c) Changes in ANSP operational concepts to deliver reduced separation standards demand higher periodic reporting rates at ANSP, regional, or global levels. Such changes can impact the performance of satellite communications networks.
d) ANSP and AOC coordination with CSP, and in turn SSP, early in the concept development process is important to ensure potential impacts on the networks are considered and the actions needed to manage the networks can be accomplished.

2. Doc 10037 GOLD Extracts suitable for amendment to include further Satcom usage guidance:

2.2.5.3.3 Periodic contract

2.2.5.3.3.1 A periodic contract allows an ATS unit to specify:

a) The time interval at which the aircraft system sends an ADS-C report; and

b) The optional ADS-C groups that are to be included in the periodic report. Each optional group may have a unique modulus which defines how often the optional group is included with the periodic report (e.g. a modulus of five indicates that the optional group would be included with every fifth periodic report sent).

Note. — ADS-C groups are operationally defined as data blocks in ICAO Doc 4444.

2.2.5.3.3.2 The range and resolution of the time interval parameter in the periodic contract allows for an interval to be specified between 1 second and 4,096 seconds (approximately 68 minutes). However, RTCA DO 258A/EUROCAE ED 100A limits the minimum interval to 64 seconds. If the ground system specifies a time interval less than 64 seconds, the aircraft system will respond with a non-compliance notification and establish a periodic contract with a 64-second reporting interval. If the ground system does not specify a time interval, the aircraft will establish a periodic contract of 64 seconds for emergency periodic reporting and 304 seconds for normal periodic reporting.

Note — It is recommended that, if possible, the usage of a ground initiated 64 second contract rate be of short duration and the number of connections operating at this rate be limited. It is understood that in emergency situations usage will be determined by operational need, however, an ANSP should avoid arbitrarily selecting short periodic default intervals because of the economic cost to the users. Satcom is also delivered as a shared frequency resource and excessive system loading imposed by these short default intervals in one region can potentially impact performance for other users.

2.2.5.3.3.3 The ground system may permit the controller to alter the periodic reporting interval to allow for situations where the controller desires a longer or shorter reporting interval. The controller may select a shorter reporting interval to obtain more frequent surveillance information, for example, during an off-route deviation or an emergency.

Note.— The ANSP ensures that separation minima are applied in accordance with appropriate standards. The ground system may prevent the controller from selecting a periodic reporting interval that is longer than the maximum interval specified in the standard for the separation minima being applied.

4.5.4 ADS contract - periodic

4.5.4.1 When setting a default periodic reporting interval, the ANSP should take into account requirements for the separation standard in use, conformance monitoring, traffic levels, and alerting service. Typically, default periodic contract intervals are set to satisfy the position reporting requirements of the default separation standard in use.

4.5.4.2 The ANSP should avoid arbitrarily selecting short periodic default intervals because of the economic cost to the users. ~~and~~ In addition, Satcom frequency resources are shared by users and, as a result, excessive system loading imposed by these short default intervals in one region can potentially impact performance ~~imposed by these short default intervals~~ for other users.

4.5.4.3 There are a number of situations where a controller or ground automation may use a reporting interval other than the default interval in the periodic contract. A change to the default interval for an aircraft may be warranted or useful when:

a) The aircraft is cleared to deviate from areas of known significant weather;

b) The application of a smaller separation standard requires a shorter periodic interval;

c) There are periods of turbulence;

d) An unauthorized deviation from the clearance is detected; or

e) The aircraft is approaching a crossing route on which there is other traffic.

4.5.4.4 The ANSP should ensure that the periodic reporting interval in use is in accordance with the position reporting requirements of the separation standard being used. In some circumstances, such as an emergency situation, the ATS unit may establish a shorter periodic reporting interval. When not required for the application of separation, or other circumstances, the ANSP should return to a longer periodic reporting interval to reduce operators' costs and unnecessary loading of the system.

Note.— Normally, the controlling ATS unit should not establish an ADS-C periodic reporting at an interval that is shorter than ADS-C periodic interval that has been coordinated as normal between the ANSP and the CSP~~. than five minutes~~. An adjacent non-controlling ATS unit should not establish ADS-C periodic reporting at an interval shorter than what is required for application of any reduced separation in effect for the flight. In unusual circumstances, the ATS unit may specify a periodic reporting interval for a few aircraft as short as 64 seconds, per paragraph 2.2.5.3.3.2.

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