INTERNATIONAL CIVIL AVIATION ORGANIZATION

FINAL

SUMMARY OF DISCUSSIONS AND CONCLUSIONS OF

THE FIFTY- THIRD MEETING OF

THE NORTH ATLANTIC SYSTEMS PLANNING GROUP

Paris, 26 to 29 June 2017

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INTRODUCTION

PLACE AND DURATION

0.1 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.

OFFICERS AND SECRETARIAT

0.2 The Meeting was chaired by Mr Ásgeir Pálsson, the Representative from Iceland. Mr George Firican, Deputy Regional Director, ICAO EUR/NAT, was the Secretary of the Meeting (on behalf of Mr Luis Fonseca de Almeida, Regional Director, ICAO EUR/NAT) and he was assisted by Mses Blandine Ferrier and Cornelia Ludorf and Messrs Arkadii Merkulov, Celso Do Couto Figueiredo, Elkhan Nahmadov and Sarantis Poulimenakos, Regional Officers from the same Office; additional assistance was provided by Mses Patricia Cuff, Leyla Suleymanova and Mihaela Brunette, also from the EUR/NAT Office of ICAO. Mr Erwin Lassooij, Chief of the ICAO Programmes Coordination and Implementation (PCI) Section at ICAO Headquarters, also attended and assisted the Meeting.

ATTENDANCE

0.3 The Meeting was attended by 31 participants from 8 States and 6 international organisations. In addition to the Representatives of the NAT SPG member States, representatives from the NAT Central Monitoring Agency (NAT CMA), the International Air Transport Association (IATA), the International Business Aviation Council (IBAC) International Federation of Air Line Pilots Association (IFALPA) and the International Federation of Air Traffic Controllers' Association (IFATCA) attended the meeting. A representative from the International Coordinating Council of Aerospace Industries Associations (ICCAIA) also participated part-time through an online conference call. Apologies were received from the International Federation of Aeronautical Information Management Association (IFAIMA). Lists of participants and contacts are at **Appendix A**.

AGENDA

0.4 The NAT SPG agreed to the following agenda for organising the work of the Meeting and the structure of the report:

Agenda Item 1: Review of significant international aviation developments

Agenda Item 2: Proposed air navigation systems performance monitoring and measurement

Agenda Item 3: NAT planning and implementation management issues

- **3.1** Implementation programme updates
- **3.2** Performance monitoring

Agenda Item 4: NAT operational and safety improvements

Agenda Item 5: Safety Monitoring

Agenda Item 6: NAT Documentation

Agenda Item 7: Work programme, including sub-groups

Agenda Item 8: Any Other Business

1. REVIEW OF SIGNIFICANT INTERNATIONAL AVIATION DEVELOPMENTS

1.1 ICAO UPDATE

1.1.1 The NAT SPG was informed about the latest ICAO developments at the global and regional levels, including the outcomes of the first meeting of the ICAO European and North Atlantic Regions Directors General of Civil Aviation (EURNAT-DGCA/2017) which took place in Paris, France, on 5 May 2017.

1.1.2 The NAT SPG also took note of the latest adopted amendments and proposals for amendment to a number of ICAO Annexes and Procedures for Air Navigation Services (PANS) , as well as ICAO State Letters and ICAO Documents on a wide range of subjects. Several ICAO global and NAT region-related meetings that would take place in the near future were also noted, including the 2nd Global Air Navigation Industry Symposium (GANIS) and the 1st Safety and Air Navigation Implementation Symposium (SANIS) on 11-15 December 2017, as well as the 13th Air Navigation Conference (AN-Conf/13) proposed to be held in October 2018 (ICAO State Letter 14/1-17/54 of 28 April 2017 refers). In this respect, the NAT SPG was informed that there would be a Global Planning and Implementation Regional Groups (PIRGs) /Regional Aviation Safety Groups (RASGs) Forum that would be held during the GANIS/SANIS meeting with the purpose to support the implementation of *Global Air Navigation Plan* (GANP, Doc 9750) /*Global Aviation Safety Plan* (GASP, Doc 10004)).

1.1.3 The NAT SPG was provided with a high-level briefing from the ICAO Programmes Coordination and Implementation (PCI) Section on the ICAO implementation strategy to ensure seamless harmonisation and integration of the ICAO global and regional implementation programmes. It was noted that the PCI Section was responsible for supporting States in the selection, planning and implementation of the GANP/GASP elements. This included providing assistance and support in the resolution of air navigation deficiencies and working with the PIRGs, RASGs and the Regional Offices to help determine regional and sub-regional priorities and targets for GANP/GASP implementation.

1.1.4 The briefing also included information on the preparation of the ICAO AN-Conf/13 and updates of the GANP that would further influence the ICAO global and regional implementation programmes. The NAT SPG also noted the work in progress on the next edition of the ICAO GASP, its proposed goals and targets.

1.1.5 The NAT SPG was informed about the ICAO implementation strategy aiming to increase quality in aeronautical charting products and their compliance with ICAO standards, including high priorities and deadlines. In the same vein, the NAT SPG was informed about the ICAO activities to develop a transition strategy for implementation of the new Performance Based Navigation (PBN) Approach Chart Identification that became applicable with Amendment 6 to *Procedures for Air Navigation Services – Aircraft Operations* (PANS-OPS, Vol. II, Doc 8168) in November 2014.

1.1.6 The NAT SPG was also presented with a report on ICAO developments in the field of Environment, including the information on the outcomes of the 39th ICAO Assembly and follow up actions at the global and regional levels.

1.1.7 The NAT SPG was provided with a briefing on the results of the 39th ICAO Assembly regarding Aviation Security, and specifically cybersecurity, developments of appropriate ICAO provisions and other activities undertaken by ICAO.

1.2 REVIEW BY THE AIR NAVIGATION COMMISSION OF THE NAT SPG/52 REPORT

1.2.1 The Secretariat presented the NAT SPG with the actions taken by the Air Navigation Commission (ANC) on the NAT SPG/52 Report. It was noted that, in the case of the NAT SPG/52 Report, as there were no specific items that required action by the Council, the report was not submitted to the Council.

1.3 STATUS OF NAT SPG CONCLUSIONS

1.3.1 The NAT SPG was presented with information on the status of the NAT SPG/52 agreed Conclusions. The NAT SPG noted that 19 of the 21 NAT SPG/52 Conclusions had been closed and the remaining two Conclusions would be addressed during the current meeting. Updates on the status of the extant NAT SPG/50 and NAT SPG/51 Conclusions were also provided.

1.3.2 Concerning NAT SPG Conclusion 52/17 (Coordination with ICAO Regions Adjacent to NAT Region on the NAT Concept of Operations), it was noted that the ICAO EUR/NAT Office had initiated a number of coordination activities to ensure better sharing of information, including access to the meeting material and exchange of meeting reports between different ICAO Regional Offices involved. In this respect, the NAT SPG was informed that the 7th meeting of the Central Atlantic Flight Information Regions (FIR) Satellite Network (CAFSAT) Network Management Committee (CNMC/7) , the 12th meeting of the South Atlantic Future Air Navigation System (FANS) 1/A Interoperability Team (SAT/FIT/12) and the 22nd meeting on the improvement of ATS over the South Atlantic (SAT/22) took place from 5 to 9 June 2017 in Paris, hosted by the Direction Générale de l'Aviation Civile (DGAC) of France. As part of the coordination process requested by the NAT SPG, this meeting was attended by one Regional Officer from the ICAO EUR/NAT Office.

1.3.3 The NAT SPG noted the information from Portugal, the United States, IATA and the Secretariat on the discussions that took place at the above-mentioned meetings and emphasised the importance of continuing coordination with the SAT groups for the sake of inter-regional harmonisation and interoperability. It was noted that both NAT and SAT Regions would mutually benefit from such coordination that would also help to avoid duplication of efforts. The NAT SPG highlighted that the ICAO PCI section could be useful in further facilitating this coordination and invited ICAO to present this issue to the next Caribbean and South American (CAR/SAM) Regional Planning and Implementation Group (GREPECAS) meeting in August 2017. The NAT SPG also noted information on the ongoing work on updating the Terms of Reference (ToRs) of PIRGs and RASGs. The NAT SPG felt that this could be used as an opportunity to discuss the SAT governance issues and the need for improved coordination between various Regions and regional groups. In this regard, the NAT SPG Chairman agreed to present this issue at the Global PIRGs/RASGs coordination Forum. In view of the above, the NAT SPG agreed that the status of Conclusion 52/17 would remain ongoing.

1.4 STATUS OF NAT SPG/53 CONCLUSIONS APPROVED BY CORRESPONDENCE

1.4.1 The NAT SPG was also presented with the status of NAT SPG/53 Conclusions related to amendments to NAT documentation that had been approved by the NAT SPG through correspondence since the previous meeting.

1.4.2 In particular, the NAT SPG recalled Conclusion 53/2 approving amendments to various NAT documents concerning Contingency Procedures, and Conclusion 53/3 related to Performance Based Communication and Surveillance (PBCS) . In this respect, it was noted that the Proposal for Amendment (PfA) to the *NAT Regional Supplementary Procedures* (NAT SUPPS, Doc 7030) on PBCS went through the ICAO global coordination and consultation process. Two comments had been received (namely from Canada and IATA) and the ICAO EUR/NAT was in consultation with both in order to find an acceptable resolution to the comments made. Concerning the PfA to the NAT SUPPs (Doc 7030) on contingency procedures, it

was noted that it had been put on hold by ICAO in view of the expected amendment to the *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) .

1.4.3 For the purposes of recording, the NAT SPG acknowledged the inclusion of the two NAT SPG Conclusions approved by correspondence prior to the NAT SPG/53 meeting in this report, as follows:

NAT SPG Conclusion 53/2 – PfA to NAT SUPPS Doc 7030, NAT Doc 007 and NAT OPS Bulletin RLatSM Special Emphasis Items, on Contingency Procedures

That:

a) the proposals for amendment (PfA) to the NAT Regional Supplementary Procedures (SUPPs, Doc 7030), North Atlantic Operations and Airspace Manual (NAT Doc 007) and NAT OPS Bulletin RLatSM Special Emphasis Items on Contingency Procedures provided at **Appendix B** to this Report be endorsed;

b) the ICAO Regional Director, Europe and North Atlantic, process the proposed amendment to the NAT SUPPs (Doc 7030) in accordance with the formal procedures and publish the updated NAT Doc 007 and NAT OPS Bulletin on RLatSM Special Emphasis Items.

and

NAT SPG Conclusion 53/3 – PfA to NAT Documentation, on PBCS provisions

That;

a) the ICAO Regional Director, Europe and North Atlantic:

   i) process the proposal for amendment (PfA) to the North Atlantic (NAT) Regional Supplementary Procedures (NAT SUPPs, Doc 7030/5) contained in **Appendix C** to this Report in accordance with the formal procedures; and

   ii) send a State letter urging States to upgrade their flight planning systems to ensure that flight plans that contain Performance Based Communication and Surveillance (PBCS) information are not rejected.

b) NAT IMG to;

   i) produce an amendment proposal to North Atlantic (NAT) Operations and Airspace Manual (NAT Doc 007), to ensure consistency with the foregoing proposal for amendment to the NAT SUPPs; and

   ii) revise the existing NAT common AICs)for the implementation of reduced lateral and longitudinal separation minima PBCS related provisions in accordance with the foregoing proposal for amendment to the NAT SUPPs;

   iii) report to NAT SPG/53;

c) the NAT SOG together with NAT IMG create a new project team specifically to:

   i) develop proposals on potential mechanisms to enable providing the relevant information (e.g. PBCS results showing non-conformity and/or corrective action) from its source (e.g. ANSP)) to the State of the Operator or Registry and NAT airspace users to RMAs)outside NAT Region;

   ii) Report to NAT IMG/50 and NAT SOG/16;

d) the NAT PBCS project team be disbanded by 31 December 2016.

2. PROPOSED AIR NAVIGATION SYSTEMS PERFORMANCE MONITORING AND MEASUREMENT

Not addressed at NAT SPG/53.

3. NAT PLANNING AND IMPLEMENTATION MANAGEMENT ISSUES

3.1 NAT DLM PHASE 2B

3.1.1 The NAT SPG recalled that the 49th Meeting of the NAT Implementation Management Group (NAT IMG/49) and 15th Meeting of the NAT Safety Oversight Group (NAT SOG/15) had been presented with the outcomes of the NAT Southeast Corner Routes Project Team (SCRPT) . The discussions on this topic resulted in NAT SPG Conclusion 53/1 (approved by correspondence by NAT SPG members, EUR/NAT letter 16-0610.TEC refers) concerning postponement of NAT Data Link Mandate (DLM) Phase 2B on Tango Routes.

3.1.2 The NAT SPG was informed that NAT IMG/50 and NAT SOG/16 had been presented with a proposal by Portugal to amend the original NAT SPG Conclusion 53/1 to expand the scope of the proposed postponement with:

a) a new route (to be named T13) and realigned T16; the new dual Air Traffic Services (ATS) routes would allow the split of the traffic between the northbound route (T13) and a southbound route (T16) within Santa Maria FIR; and

b) a new route (T25) connecting continental Portugal to the Azores Islands.

3.1.3 The NAT SPG noted that the proposal in a) above did not change the spirit of the initial decision on the postponement of Phase 2B until 30 January 2020 affecting T16, and that all supporting material substantiating the arguments for this decision was already produced and presented by the NAT SCRPT.

3.1.4 While agreeing in principle to Portugal's proposal to postpone Phase 2B on T16 and T13 routes, the NAT SPG also noted the NAT DLM implementation was safety driven. Therefore, any changes proposed could be only considered if there was clear and compelling rationale. It was recalled that the postponement of NAT DLM Phase 2B on Tango routes was agreed taking into account the unique traffic situation on these routes operated predominantly by aircraft flying in the European airspace and compelled to comply with both the European Union (EU) Data Link Services (DLS) Implementing Rule (IR) and NAT DLM mandate. The postponement was agreed only due to the unavailability of the dual stack equipment for the aircraft types operating on these routes and taking into account the commitment of the airspace users concerned to suitably equip by January 2020.

3.1.5 With regards to T25, it was noted that the motivation for this proposal was to improve the existing situation where, in order to remain within the ATS surveillance and very high frequency (VHF) voice service airspace, the current routes were not direct, thus imposing increased costs in fuel, time, and in certain cases, air traffic control (ATC) charges, as well as increased emissions. Although Portugal had invested to expand the ATS surveillance and VHF voice service areas, a full coverage was not feasible. The aircraft operating on these routes were mainly non-NAT DLM equipped and at the time of the meeting, dual-stack equipage was not available.

3.1.6 The NAT SPG was informed that in support of the foregoing proposal, Portugal, on request from the NAT IMG, had provided information on traffic statistics with aircraft types and flight levels, the economic impact as well as the assurance that the existing level of safety would not be compromised. This information had been coordinated with the NAT SOG and NAT IMG members.

3.1.7 The NAT SPG recalled that the work carried out within the NAT SOG demonstrated clear safety benefits generated by the NAT DLM implementation in terms of the vertical and lateral risk reduction. It was questioned whether the proposed postponement of Phase 2B on some routes would corrode this positive trend. It was noted that at this point there was no data to determine the potential for such degradation but the NAT SOG would continue to closely monitor the situation.

3.1.8 The NAT SPG also recalled the previous agreement that a similar "Shanwick and Santa Maria routes treatment" would be granted to Norway in case they would not succeed in the timely implementation of the planned automatic dependent surveillance-broadcast (ADS-B))/VHF voice corridor prior to December 2017. Norway informed that their current plan was to complete the implementation by November 2017. However, if circumstances would delay the implementation, they would request through the NAT IMG and by correspondence to NAT SPG, the inclusion of a specific portion of the Bodo Oceanic FIR in the same NAT SPG Conclusion.

3.1.9 Based on the foregoing, the following revised NAT SPG Conclusion was approved:

NAT SPG Conclusion 53/1 – NAT DLM Phase 2B and Tango Routes *(Revised: previously coordinated by correspondence, SL EUR/NAT 16-0610.TEC refers)*

That:

a) the implementation of the NAT Data Link Mandate (DLM) Phase 2B goes ahead on 7 December 2017 except for non-DLM equipped aircraft that are allowed to operate on:

i. T9 and T213 until solutions to provide ATS surveillance and VHF ~~coverage~~ services (eventually moving T213 to the east in order to be fully covered) are implemented, after which time the NAT DLM would no longer be applicable in this airspace. This implementation will be achieved as early as possible but no later than 30 January 2020 ~~*(target date of implementation to be confirmed by the SCRPT)*~~; and

ii. T13, re-aligned T16 and T25 until 30 January 2020;

b) there will be no other changes to the applicability of Phase 2B and that the date of implementation of Phase 2C remains on 30 January 2020; and

Note: the aircraft operators using Tango routes within the NAT DLM area of applicability will either complete their fleet upgrades by January 2020 or will not be allowed to operate in that volume of airspace.

c) the NAT IMG, NAT SOG, and their contributory bodies, be tasked to take the appropriate actions to implement a).

3.1.10 Iceland expressed concern with the potential dilution of the DLM safety benefits that would result from these exemptions. The trend which started with the exemption of certain existing fixed routes was now expanding to include creation of new routes for the specific purpose of expanding the scope of exemptions.

3.1.11 In connection with the above, the NAT SPG noted that the work undertaken was continuing to address a) i) of the above NAT SPG Conclusion and to report to NAT IMG/51.

3.2 SPACE BASED ADS-B

3.2.1 The NAT SPG was provided with an update on the NAT progress concerning the Space-based Automatic Dependent Surveillance – Broadcast (SB ADS-B) implementation.

3.2.2 It was noted that per NAT IMG Decision 49/7, the SB ADS-B project team (PT) handed over the updated provisional version of the NAT SB ADS-B Concept of Operations (CONOPS) to the NAT Procedures and Operations Group (NAT POG) that would be responsible for further maintenance. In this respect the NAT SPG noted that the outcome of the ICAO Separation and Airspace Safety Panel (SASP) work would need to be taken into account in the further updates to the NAT SB ADS-B CONOPS.

3.2.3 With regards to the NAT Safety Plan, the NAT SPG noted that the safety documentation in support of the SB ADS-B implementation would include the following:

a) documentation produced by the ICAO SASP, including collision risk modelling (CRM) work and guidance to implementers describing all actions that would need to be completed; and

b) safety management information produced by NAT air navigation service providers (ANSPs) implementing SB ADS-B.

3.2.4 In respect of the above, the NAT SPG noted that the guidance material was under consideration by the ICAO SASP and would be promulgated as appropriate, when available. The contents of the safety management information would be in line with the agreed definition and components of safety cases in support of changes to the NAT air navigation system (paragraphs 5.2.1-5.2.3 refer).

3.2.5 Concerning the Business Case Assessment (BCA), the NAT SPG noted that the Phase 1 BCA as developed by the NAT Economic, Financial and Forecast Group (NAT EFFG) , concluded that the savings arising from planned and tactical step climbs, increased use of variable Mach, reduced fuel loading and reduced flight time, through SB ADS-B implementation, would yield a positive Business Case for Gander and Shanwick Oceanic Control Areas (OCAs).

3.2.6 The NAT SPG was also advised that the Phase 2 BCA, based on the current provisional version of the NAT SB ADS-B CONOPS, indicated that implementing the reduced oceanic separation standards in the NAT, in conjunction with unrestricted climbs and Mach changes, would present a positive business case over the time span of 2019 to 2033. Furthermore, the Phase 2 BCA also suggested that there were potential benefits in terms of significant reduction in tactical conflicts to be gained through SB ADS-B implementation which warranted further investigation. In this respect, the NAT SPG commended the NAT EFFG for its work on the SB ADS-B BCA.

3.2.7 Based on the foregoing, the following NAT SPG Conclusion was endorsed:

NAT SPG Conclusion 53/4 – NAT SB ADS-B Phase 2 BCA

That,

a) the NAT Space Based Automatic Dependent Surveillance-Broadcast (SB ADS-B) Phase 2 Business Case Assessment (BCA) provided at **Appendix D** to this Report be endorsed; and

b) the ICAO Regional Director Europe and North Atlantic, on behalf of the NAT SPG, disseminate the NAT SB ADS-B Phase 2 BCA within the NAT SPG working structure, as appropriate, to support ongoing work and relevant decision making processes.

3.2.8 Furthermore, the NAT SPG was presented with a proposal outlining a set of prerequisites for an operational trial for application of Advanced Surveillance-Enabled Separation (ASEPS) Standards based on SB ADS-B in the ICAO NAT Region.

3.2.9 The NAT SPG recalled that a number of NAT ANSPs formalized, or were in the process of formalizing, arrangements with the SB ADS-B service provider. Once it was confirmed that service provided would meet the performance requirements, this new capability could be made available to support new and improved ATS in the NAT Region, as outlined in the NAT SB ADS-B CONOPS.

3.2.10 The NAT SPG noted that the collision risk modelling within the ICAO SASP to support ASEPS was nearing completion and that the joint Canada/United Kingdom concept of operations anticipated using the procedures developed by the SASP on a trial basis, pending publication of the minima in PANS-ATM (Doc 4444). The NAT SPG supported, in principle, the proposed operational trial for application of ASEPS based on SB ABS-B in the NAT Region and noted that such a trial would also provide valuable data and experience to support finalization of the global criteria. However, the completion of the work on the set of prerequisites would need to be reported and approved by the NAT SPG prior to the trial.

3.2.11 In this respect, IFALPA stated that while being supportive of the significant safety benefits derived from ASEPS implementation and their intention to participate proactively through various ICAO bodies in the development of operating procedures and standards, taking into account the significant remaining issues surrounding PBCS implementation and RLatSM Phase 2 expansion, consideration of "new" operational trials was premature. IFALPA believed that information on the forthcoming expansion of available satellites, further development of SB ADS-B CONOPS, data on current equipage levels, and feedback from various ICAO Groups (i.e. SASP) should be gathered and presented to the various NAT SPG contributory bodies to enable identifying specific proposed trial components that would form the basis for establishing an appropriate trial timeline.

3.2.12 In this respect, the NAT SPG recalled that the NAT Space Based ADS-B Project Team (SB ADS-B PT was developing an implementation plan and a supporting task list for implementation of SB ADS-B in the NAT that would be reviewed by NAT IMG and NAT SOG and approved by NAT SPG. The NAT SPG was presented with an initial list of tasks that was agreed for insertion into the above-mentioned SB ADS-B PT work.

3.2.13 Based on the foregoing, the following was agreed:

NAT SPG Conclusion 53/5 – Prerequisites for SB ADS-B Operational Trial

That the following prerequisites are to be fullfilled in order to enable an operational trial to use Space-Based Automatic Dependent Surveillance-Broadcast (SB ADS-B):

a) the Separation and Airspace Safety Panel (SASP) has agreed minima and associated requirements for Advanced Surveillance-Enabled Procedural Separation (ASEPS);

b) implementing Air Navigation Services Providers (ANSP) have:

   i) completed ASEPS implementation plans aligned to the NAT SB ADS-B Concept of Operations (CONOPS) and the SASP output referred to in a) above;

   ii) confirmed their SB ADS-B service meets identified performance requirements;

   iii) completed safety management activities as required by their respective regulatory authorities; and

   iv) confirmed that the Performance Based Communication and Surveillance (PBCS) performance is measured and reported in the same manner as other applications of reduced separation in the NAT;

c) the plans and the outputs of the safety management activities referred to in b) above have been reviewed by the NAT Implementation Management Group (NAT IMG) and the NAT Safety Oversight Group (NAT SOG);

d) the NAT IMG and NAT SOG identify success criteria and trial duration;

e) neither the NAT IMG nor the NAT SOG identifies an issue that, in their opinion, requires resolution before an operational trial should commence;

f) the NAT IMG has confirmed that implementing ANSPs have completed all required implementation activities; and

g) NAT SPG has approved the implementation plan and supporting task list that would also include the above listed prerequisites to enable a trial for implementation of SB ADS-B in the NAT.

3.3 RLATSM PHASE 2

3.3.1 The NAT SPG was presented with the outcomes of the NAT IMG and NAT SOG discussions related to the progress of the RLatSM programme and FANS 1/A data link problems resolutions. It was noted that the updated data in support of the success criteria for Phase 1 of the RLatSM trial was

provided by Canada and the United Kingdom. The data indicated that the status of the success criteria SF1-6 (Monitor the failures to properly achieve FANS logon, or to maintain or transfer controller pilot data link communications (CPDLC) connection and automatic dependent surveillance – contract (ADS-C) contract resulting in ATC reverting to another form of separation) remained Pending.

3.3.2 The NAT SPG recalled that Phase 2 of the RLatSM trial as per NAT IMG Decision 48/01 would start only when the ATC workload associated with FANS 1/A connection issues was adequately mitigated. It was noted that the connection issues were being tracked and resolutions were being investigated and actioned by Canada and the United Kingdom in coordination the NAT Data Link Monitoring Agency (DLMA) and NAT Technology and Interoperability Group (NAT TIG) problem resolution activities in a bid to meet SF1-6 and transition to Phase 2 of the RLatSM trial.

3.3.3 The NAT SPG noted that updated data would be provided to September 2017 meetings of the NAT IMG contributory groups to demonstrate whether the implemented resolutions resulted in meeting SF1-6 success criterion. Provided that this objective proved to be attainable by September 2017, a planned transition to Phase 2 would take place in November 2017. In any case, the implementing ANSPs and States would make the updated data available to the NAT SPG by correspondence, in support of the trial success criteria, providing an agreed two (2) AIRAC (Aeronautical Information Regulation and Control) cycle notification prior to the implementation date.

3.3.4 Iceland pointed out that the expansion of RLatSM trial to the entire NAT Organised Track System (NAT OTS) would inevitably affect the service provision in Reykjavik FIR, and therefore close coordination between implementing ANSPs would be essential.

3.3.5 The NAT SPG was presented with the FANS 1/A Problem Solution Tracker that was developed as a follow up to the NAT IMG Decision 49/1 which contained a prioritised list of identified data link issues pertaining to ground, aircraft and network systems. The NAT SPG was informed that the tracker had been handed over to the NAT Data Link Monitoring Agency (DLMA) for further maintenance with appropriate document control measures implemented. It was noted that a specific NAT data link solutions Project Team had been formed and it would further prioritise and coordinate the implementation of the solutions pertaining to ground systems with relevance to the RLatSM Phase 2 transition issues.

3.3.6 With respect to the list of avionics problems, the NAT SPG was provided with a list of recommended aircraft avionics software versions seen as instrumental to improving the data link performance (**Appendix E** refers). Whilst acknowledging that there was sufficient confidence that the recommended software versions would improve the data link performance, the NAT SPG noted that they should not necessarily be seen in connection with PBCS authorisations. To that end, the certification status of these software versions to the Radio Technical Commission for Aeronautics (RTCA) DO-306 requirements and PBCS authorisations would have to be clarified in coordination with aircraft operators and aircraft manufacturers. It was also recognised that aircraft operators planned their upgrades based on economic and operational needs and priorities.

3.3.7 The NAT SPG Conclusion 52/04 and associated State Letter (Ref. EUR/NAT 16-0336.TEC of 18 July 2016) on implementation of available data link software versions by aircraft operators were recalled. In view of the planned transition to Phase 2 RLatSM, the NAT SPG felt that another ICAO EUR/NAT State letter, as drafted in **Appendix F**, providing an updated list of the latest software versions, would be beneficial. In this regard, it was noted that the Secretariat would coordinate the contents of the list with the aircraft manufacturers prior to its circulation.

3.3.8 Therefore, the NAT SPG agreed to the following Conclusion:

NAT SPG Conclusion 53/6 – Recommended avionics data link software versions

That the ICAO Regional Director, Europe and North Atlantic, on behalf of the NAT SPG, encourage aircraft operators to upgrade their aircraft to the latest data link related software versions as provided in **Appendix E** to this Report in order to improve data link performance in the NAT.

3.4 NAT PBCS IMPLEMENTATION PLAN

3.4.1 The NAT SPG was apprised of the discussions concerning the updated NAT PBCS implementation plan and the need for another NAT PBCS workshop in the 2nd half of 2017 to share experience on PBCS authorisation procedures and processes. It was noted that the workshop could also be an opportunity to present the outcome of the NAT discussions on PBCS monitoring information sharing mechanisms and other NAT developments with regards to PBCS, e.g. Aeronautical Information Circulars (AIC), Advisory Circulars (AC), etc. It was emphasised that the main target audience for this workshop should be State authorities and airspace users, specifically those that are not represented in the NAT SPG working structure.

3.4.2 The NAT SPG was informed that the NAT IMG agreed (NAT IMG Decision 50/03 refers) on the following actions in order to assess the aircraft operators' readiness and their initial PBCS compliance:

a) IATA and IBAC to assist in obtaining information from the NAT airspace users on their readiness for PBCS based operations and report to NAT POG/4; and

b) States represented in the NAT POG to provide information on the readiness of their operators for PBCS based operations and report to NAT POG/4.

3.4.3 The NAT SPG noted that this information, complemented with similar data from any other source, would be essential to further progress the NAT PBCS implementation. It was also noted that consideration should be given to a suitable location for the workshop to ensure a large participation of the target audience. In view of the above, the NAT SPG agreed to the following:

NAT SPG Conclusion 53/7 – NAT PBCS Workshop 2017

That the ICAO Regional Director, Europe and North Atlantic, with support of the NAT Safety Oversight Group (NAT SOG), NAT Implementation Management Group (NAT IMG), NAT Performance Based Communication and Surveillance Implementation Project Team (PBCS-I PT), States and international organisations, organise a PBCS workshop in the second half of 2017 to share information on PBCS approval procedures and processes, PBCS information sharing mechanisms and NAT Region implementation on 29 March 2018.

3.4.4 Furthermore, the NAT SPG was provided with the outcome of the discussions concerning the NAT mechanisms for communicating PBCS monitoring information to NAT airspace users and user States, elaborating on possible implementation options and outlining the actions to be undertaken.

3.4.5 The NAT SPG agreed that the near-term proposed solution, until other centralized solutions were agreed and implemented, would be that the NAT ANSPs provide PBCS monitoring results of underperforming aircraft directly to the NAT airspace users and State authorities concerned. The routine monitoring information would also be made available directly by the ANSPs, either through sharing or by making it available on request. It was noted that this option would not require any regional or global coordination process to changes the ToRs of various organizations and/or requesting additional resources. However, the difficulty would be for the ANSPs to obtain and maintain all contact data for the recipients of information. In this respect, it was noted that this option could be implemented in two-steps; the first step

being through coordination between ANSPs and airspace users, escalated to the second step, if required, at the level of airspace users' State authorities.

3.4.6 In view of the above, the NAT SPG agreed to the following:

NAT SPG Conclusion 53/8 – NAT PBCS monitoring information sharing mechanisms

That NAT ANSPs in coordination with their State authorities, implement the following mechanisms for communicating the Performance Based Communication and Surveillance (PBCS) monitoring information to the NAT airspace users and States concerned:

a) For communicating the routine PBCS monitoring results the aggregated data would be provided through the joint NAT Data Link Monitoring Agency (DLMA)/Asia Pacific Central Reporting Agency (CRA) portal; and

b) PBCS information on underperforming aircraft be communicated directly by NAT ANSPs and NAT provider States to the NAT airspace users and States of Registry/Operator until other centralized solutions are agreed and implemented.

3.4.7 Concerning the future centralised solution for communicating information on underperforming aircraft, the NAT SPG was informed about the discussions during the 12th meeting of the Regional Monitoring Agencies Coordination Group (RMACG) held from 22 to 26 May 2017. It was noted that RMACG/12 discussed potential processes for reporting PBCS non-performance and for collecting and verifying PBCS approval status.

3.4.8 It was noted that the RMACG/12 meeting discussed concerns over the possible increase in the workload of RMAs with the proposed expansion of their roles and also the possible overlap with work already ongoing for other agencies or groups. The RMACG/12 thought that in order to implement these processes, changes to the *Performance Based Communication and Surveillance (PBCS) Manual* (Doc 9869) and *Operating Procedures and Practices for Regional Monitoring Agencies in Relation to the Use of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive* (Doc 9937) could be required and agreed that the North American Approvals Registry and Monitoring Organization (NAARMO) would take the lead and coordinate with the ICAO Operational Data Link Specific Working Group (OPDLWG) on potential updates to ICAO documents to reflect the proposed expanded role of RMAs in support of regional PBCS monitoring programmes.

3.4.9 In view of the above, the NAT SPG agreed that changes to the North Atlantic Central Monitoring Agency (NAT CMA) ToRs, as well as all other RMAs would need to be prepared and submitted to the appropriate PIRGs for review and approval. The United Kingdom pointed out that they would assess the impact of the proposed changes on the NAT CMA funding and coordinate, as appropriate.

3.4.10 Based on the foregoing, the NAT SPG agreed to the following:

NAT SPG Conclusion 53/9 – Terms of Reference of NAT CMA and RMAs

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

a) amend the *NAT SPG Handbook* (NAT Doc 001) section 4: Terms of Reference for the NAT SPG Services, 4:A "NAT Central Monitoring Agency (NAT CMA)", as presented in **Appendix G** to this Report; and

b) coordinate amendment to the ToRs of other Regional Monitoring Agencies (RMAs) to include the same elements as in a) above, through appropriate Planning and Implementation Regional Groups (PIRGs) and ICAO Regional Offices.

3.5 NAT PBCS IMPLEMENTATION ON 29 MARCH 2018

3.5.1 The NAT SPG discussed the readiness for the NAT PBCS implementation on 29 March 2018, in particular concerning the availability of necessary State regulations for PBCS authorisations and the unavailability of appropriate Statements of Compliance (SoC) from manufacturers for certain aircraft types.

3.5.2 In this regard, the NAT SPG was provided with information by IATA and IFALPA outlining some of the technical challenges and commercial implications related to PBCS implementation, including aircraft operators' and States' challenges concerning the airframe approval process, global ANSP readiness, operational deployment and economic impact.

3.5.3 The NAT SPG agreed with the proposed actions in order to encourage State authorities to urgently develop and implement appropriate regulations to enable the successful implementation of separation minima predicated on PBCS. Canada and the United Kingdom had made available their published Advisory Circular (Canada) and Aeronautical Information Circular (United Kingdom) related to the PBCS authorisation regulations and procedures. This material had been circulated by the ICAO Secretariat to the NAT airspace users and user States through a State letter on 20 June 2017 (State Letter reference: EUR/NAT 17-0341.TEC refers).

3.5.4 It was noted that there were about 64 States engaged in NAT operations that would potentially need to issue PBCS approvals, with 80% of the airframes associated with 11 States. Therefore, it was urgent to share information on the available regulations and best practices with all these 64 States, focussing, as the first step, on the 11 States where 80% of the NAT airspace users were concentrated. It was highlighted that the PBCS workshop and ICAO EUR/NAT State letters could be vehicles for disseminating this information.

3.5.5 Concerning the issue of SoC, it was noted that the *ICAO PBN Operational Approval Manual* (Doc 9997) provided guidance to aircraft operators and States regulators on obtaining operational approval in a situation where no SoC was available from aircraft manufacturers. It was felt that a similar approach could be considered by State authorities for granting PBCS operational authorization to aircraft operators based on the available PBCS monitoring data.

3.5.6 In this respect, ICAO commented that although the paragraph 7.1.3 of Annex 6 stated that an aeroplane shall "*have information relevant to the aeroplane RCP specification capabilities listed in the flight manual or other aeroplane documentation approved by the State of Design or State of Registry"*, the second part of this provision provided flexibility for a State of Registry to approve other documentation to include information relevant to the aeroplane RCP/RSP (required communication performance/required surveillance performance) specification capabilities based on the data link related procedures, training and existing performance monitoring results.

3.5.7 The NAT SPG noted the information from the United Kingdom about the update of their PBCS authorisation material to include an authorisation option based on satisfactory PBCS performance monitoring results. Canada stated that they would consider amending their regulatory documents in the same manner. The United States informed about their commitment to work with the operators to determine optimal solutions for those aircraft that would not be able to obtain necessary documentation from manufacturers but could demonstrate satisfactory PBCS performance.

3.5.8 The NAT SPG noted that there were two categories of aircraft for which SoCs would not be available:

a) aircraft that, according to the NAT data link performance results, would meet the PBCS requirements; and

b) aircraft that would not meet the requirements.

3.5.9 Concerning those aircraft with demonstrated non-performance in b), it was highlighted that improvements to aircraft systems would need to be considered.

3.5.10 The NAT SPG noted that the NAT 2016 Data Link Performance Report (NAT IMG/50 Summary of Discussions Appendix H and NAT IMG Decision 50/4 refer) included an analysis of the monitoring results by airframe which indicated that, in 2016, there were 309 airframes from 35 States identified with actual surveillance performance (ASP) below the required surveillance performance (RSP) 180 95% criteria or actual communication performance (ACP) below the required communication performance (RCP) 240 95% criteria. An analysis of the monitoring results done by operator/aircraft type pair concluded that there were 44 pairs from 22 States identified with ASP below the RSP 180 95% criteria or ACP below the RCP 240 95% criteria. According to the monitoring report, the majority of aircraft for which it appeared that SoC could not be issued, demonstrated acceptable performance according to the regular NAT data link performance reports. In this regard, the NAT SPG noted that the issue of SoC was mostly related to the RCTA DO-306 safety requirements and costs associated with retroactively demonstrating PBCS capability for legacy aircraft types predating the RCTA DO-306 publication.

3.5.11 The NAT SPG was provided with detailed information collected by the Secretariat, the United States, Airbus and Boeing, assessing the number of aircraft for which SoC was expected not to be available and, out of this population, the number of aircraft that performed well and the number of aircraft that underperformed, according to the NAT data link performance monitoring reports. It was noted that this information would be further analysed to also include International General Aviation (IGA) aircraft (expected to be finalised in September 2017).

3.5.12 The NAT SPG noted that the majority of aircraft for which SoC would not be available were of B757 and B767 types. At the time of the meeting, Boeing stated that they had no plans to demonstrate PBCS capability of the aircraft that were not certified to DO-306. Nevertheless, Boeing invited operators to contact them directly for any specific model/configuration to assess the impact on cost if demonstration of this capability was desired.

3.5.13 In view of the above, the NAT SPG felt that a NAT SPG position urging Boeing to consider necessary arrangements to enable the issuance of SoC for the above mentioned aircraft types would be helpful. Therefore, the NAT SPG agreed to the following:

NAT SPG Conclusion 53/10 – Statement of compliance (SoC)

That the ICAO Regional Director, Europe and North Atlantic, on behalf of the NAT SPG, urge The Boeing Company to consider appropriate measures to enable the issuance of Statements of Compliance (SoCs) for aircraft that are currently not Radio Technical Commission for Aeronautics (RTCA) DO-306 certified.

3.5.14 The NAT SPG emphasised that the potential non-availability of SoCs and, consequently, PBCS authorisations could unintentionally result in the delay of the planned NAT implementations and penalise airspace users. In this regard, the NAT SPG reaffirmed that the NAT would continue with the implementation of 23 nautical miles (NM) lateral and 5 min longitudinal separation minima based on PBCS/PBN as was planned on 29 March 2018. However, a transitional arrangement would be needed to accommodate aircraft with satisfactory PBCS performance but unable to obtain an authorisation on time prior to 29 March 2018.

3.5.15 The transition period would also allow for a continuous PBCS monitoring of the above-mentioned aircraft in particular and also for identifying and taking appropriate actions in case of non-satisfactory performance. During this transition period, aircraft that demonstrated satisfactory PBCS performance could file appropriate PBCS flight plan descriptors and participate in the reduced separation minima operations. Underperforming aircraft would be detected through the performance monitoring and followed up through the agreed mechanisms for communicating PBCS performance information.

3.5.16 The NAT SPG emphasised that the duration of this transition arrangement would be 6 months after 29 March 2018 which would be reviewed by NAT SPG/54 in June 2018. In this respect, the NAT SPG agreed to establish a NAT PBCS Implementation Project Team (NAT PBCS-I PT) with the task to support the implementation of the agreed NAT SPG Conclusions related to PBCS. The Terms of Reference of the project team would also include determining and proposing the success criteria for the transition period, potential options for accommodation of non-authorised aircraft after 29 March 2018, the assessment of the projected readiness of airspace users, the preparation of the PBCS workshop etc., as per the Project Team definition provided at **Appendix H**. The NAT SPG tasked the NAT IMG/NAT SOG Coordination Meeting (30 June 2017) to further develop the transition details and the project outcomes and high-level tasks of the NAT PBCS-I PT in order to respond to the concerns expressed during the meeting.

3.5.17 In view of the above, the following NAT SPG Conclusions were approved:

NAT SPG Conclusion 53/11 – Implementation of PBCS-based separation minima in the NAT Region

That the ICAO Regional Director, Europe and North Atlantic, urge NAT airspace user States to:

a) expedite the development and implementation of the Performance Based Communication and Surveillance (PBCS) authorisation processes;

b) share information on the availability of the PBCS regulatory material and on the expected readiness of their aircraft operators; and

c) consider provisions in their regulatory material to enable, in accordance with Annex 6, issuance of PBCS authorisations when appropriate Statements of Compliance are not available from the aircraft manufacturers.

NAT SPG Conclusion 53/12 – Establishing a NAT PBCS Implementation Project Team (PBCS-I PT)

That:

a) the NAT Performance Based Communication and Surveillance Implementation Project Team (NAT PBCS-I PT) with the draft project team definition as provided at **Appendix H** be established; and

b) NAT PBCS-I PT report its outcomes to the NAT IMG/51 and NAT SOG/17.

4. NAT OPERATIONAL AND SAFETY IMPROVEMENTS

4.1 VOLCANIC ASH EXERCISES

4.1.1 The NAT SPG was provided with information on a recently conducted volcanic ash exercise (VOLKAM17) and volcanic ash exercise (VOLCEX17) managed by the Volcanic Ash Exercises Steering Group for the (far) Eastern part of the EUR Region (EUR (EAST) VOLCEX/SG and the Volcanic Ash Exercises Steering Group for the EUR and NAT Regions (VOLCEX/SG)), respectively. The NAT SPG recalled that one of the main goals of these exercises was to test the volcanic ash contingency plan for the EUR and NAT Regions (EUR Doc 019, NAT Doc 006, Part II) with the objective to improve the response to volcanic eruptions and volcanic ash contamination by the relevant national supervisory authorities, service providers (ATS, aeronautical information services (AIS), air traffic flow management (ATFM), meteorology (MET)) and airspace users as well as improve the common volcanic ash contingency plan for the EUR and NAT Regions.

4.1.2 The NAT SPG noted that the EUR (EAST) VOLCEX/SG planned and conducted a volcanic ash exercise called VOLKAM17 that simulated a volcano eruption of Koshelev in Kamchatka, Russian Federation, from 2200 UTC on 20 April 2017 to 0130 UTC on 21 April 2017. The objectives of VOLKAM17 were to:

a) Demonstrate coordination procedures between all participating parties (ANSPs, air traffic management (ATM) Centres, AIS, volcano observatories (VO), Volcanic Ash Advisory Centre (VAACs)), Meteorological Watch Office (MWO) and users);

b) Demonstrate tactical re-routes using available methods (ANSPs provide reroute options and communicate via Notification for Airmen (NOTAM);

c) Demonstrate VAAC Tokyo / VAAC Anchorage / VAAC Washington handover;

d) Demonstrate transmission of air-reports on volcanic ash in accordance to Annex 3 (aircraft->ACC->MWO->VAAC) beginning with voice communication from pilot to Area Control Center (ACC)); and

e) Demonstrate information sharing via teleconferences and website.

4.1.3 The NAT SPG noted that the VOLKAM17 debrief meeting was held in Paris on 11 May 2017 which developed recommendations that would be considered in the next exercises and where appropriate, for real-time events.

4.1.4 The NAT SPG noted that future exercises would include aircraft diversions and the use of Dynamic Airborne Reroute Procedures (DARP) for contingency events would be explored by the ANSPs and operators in order to have a harmonized approach in managing revised flight plans accessible by all relevant ACCs.

4.1.5 In this respect, the NAT SPG was informed that the Cross Polar Working Group (CPWG) had come to the conclusion that DARP would be a universal method of re-routes in the foreseeable future. A DARP-like re-route was being considered for the next exercise (i.e. United or American Airlines to request a re-route via CPDLC from Magadan, which would be coordinated with the Main Air Traffic Management Centre Moscow (MATMC)). In view of the above, the NAT SPG observed that DARP was a data link procedure that would be available only in areas where data link was in use and for data link capable aircraft.

4.1.6 It was also noted that procedures for coordination of extensive re-routes (involving FIRs outside the scope of the initial flight plan) required by volcanic events needed to be dealt with at the global level as it required changes to the way flight plan (FPL) messages were distributed. Therefore, it was agreed to invite ICAO to consider developing the necessary provisions. A solution would benefit the airspace users since the existing situation did not allow them to realize the full benefits of utilizing contingency routes that involved multiple FIRs.

4.1.7 Therefore, the following Conclusion was approved:

NAT SPG Conclusion 53/13 – Development of ICAO Provisions concerning Coordination of Re-routes Involving Multiple FIRs

That the ICAO Regional Director, Europe and North Atlantic, coordinate with ICAO Headquarters in order to develop global provisions on the required messages and protocols for the coordination of re-routes involving multiple Flight Information Regions (FIRs) during contingency events.

4.2 APAC/NAT ADS-C RITF REPORT

4.2.1 The NAT SPG was provided with the outcomes of the Asia and Pacific/North Atlantic Automatic Dependent Surveillance – Contract Reporting Interval Task Force (APAC/NAT ADS-C RITF). It was recalled that the ADS-C RITF was established by NAT IMG Decision 45/11 and Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) Conclusion 26/46. It was recalled that the 52nd Meeting of the NAT SPG had been provided with an interim report of the ADS-C RITF.

4.2.2 The NAT SPG 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 *ICAO Global Operational Data Link (GOLD) Manual* (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.[1]

4.2.3 The NAT SPG was 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 additions 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.

4.2.4 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 task force

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.

5. SAFETY MONITORING

5.1 NAT SOG SAFETY KEY PERFORMANCE INDICATORS

5.1.1 The NAT SPG was presented with the outcomes of the NAT SOG discussions concerning the review of the key safety performance indicators.

[1] 4.2.2 *a)* is based on experience of operation of current systems. 4.2.2 *b)* is an assessment of the evolving future system supported by expanding on the experience, theory, and data from on-going evaluations. The effect of reporting intervals below 2 minutes on avionics performance needs to be assessed.

5.1.2 The NAT SPG discussed the proposal to delete the airborne collision avoidance system (ACAS) Resolution Advisory (ACAS-RA) safety key performance indicator (SKPI) and concurred with the NAT SOG position that events involving aircraft in unsafe proximity to other aircraft could be monitored through the correspondent revised loss of separation key performance indicator (KPI).

5.1.3 The NAT SPG also considered another proposal to eliminate the distinction between data link equipped and non-equipped aircraft. During the follow-up discussions it was agreed to keep this differentiation with the caveat that the information would address the aircraft "with Data Link in use" and aircraft "with Data Link not in use".

5.1.4 The NAT SPG noted the following proposed modifications of the SKPIs:

a) an additional SKPI capturing the number of fatal accidents should be included;

a) the targets for both the lateral and vertical losses of separation should be established as a reduction over the previous rolling three year period of performance;

b) for each of the targets measured against the previous rolling three year period of performance data calculated for 2017 should be considered the baseline and include the average of 2015, 2016, and 2017; and

c) the targets should be the average of the three year period measured as a rate of occurrence based on traffic activity.

5.1.5 The NAT SPG agreed that traffic activity for the purpose of NAT SKPI calculation should be measured in the flight hours flown in NAT airspace. It was agreed that before getting the actual flight hours flown, estimates could be used for preliminary calculation.

5.1.6 Accordingly, the following NAT SPG Conclusion was approved:

NAT SPG Conclusion 53/15 – Review of Safety Key Performance Indicators

That:

a) the modified list of Safety Key Performance Indicators and related targets as indicated in Table 1 (**Appendix J** to this report) is adopted;

b) safety performance targets are established in terms of reduction in rate of occurrence over a rolling three-year period of performance;

c) monitoring of performance against the target level of safety (TLS) for lateral and vertical domains be performed and reported by NAT CMA to NAT SOG and NAT SPG as referred to Table 2 (**Appendix J** to this report), but not included in the NAT Annual Safety Report (ASR) ; and

d) the ICAO Regional Director, Europe and North Atlantic, take appropriate actions to amend the *NAT SPG Handbook* (NAT Doc 001) section 5:B — SAFETY RELATED POLICIES to reflect the agreed changes.

5.2 NAT SAFETY PLAN DEFINITION AND COMPONENTS

5.2.1 The NAT SPG was provided with the outcomes of the NAT Safety Plan Components (SPC) Project Team (NAT SPC PT) comprised of experts from NAT SOG and NAT IMG (NAT SOG Decision 15/01 refers) which was tasked to formulate a definition of a safety case required in support of changes to the NAT air navigation system and its contents. This work also responded to the request from the NAT Space-Based ADS-B project team in regards to safety management documentation that would need to be presented

to the NAT SOG to discharge its responsibilities per ToRs and support the NAT implementation programme for SB ADS-B (paragraph 3.2.4 refers).

5.2.2 The NAT SPG congratulated the NAT SOG for this work and agreed to the following definition of a safety case and its components in support of changes to the NAT air navigation system:

a) A safety case in support of changes to the NAT air navigation system documents safety arguments relating to a proposal for a change in a specific FIR or multiple FIRs affecting operations in more than one NAT FIR; it references evidence, and includes the assessment of safety risk associated with the proposed change, risk controls and/or mitigations, and a monitoring plan to ensure that the effectiveness of the risk controls and mitigations is verified. A change may relate to the introduction of new operational concepts, new or modified procedures, novel separation minima, or the introduction of new systems. A safety case may be prepared by NAT IMG and/or a designated sub-group or project team within the NAT IMG working structure, or by one or several NAT ANSPs, and is owned by the change advocate.

b) Proposed safety case(s) prepared to support changes within the NAT Region requiring NAT SPG approval should be presented to the NAT SOG for review by or through the NAT IMG, and include the following components:

   i) Change advocate {the NAT IMG sub-group or ANSP(s) who propose the change(s)};

   ii) Description of and rationale for the proposed change(s);

   iii) Summary of hazard identification, risk analysis methodology and conclusions, including risk assessment;

   iv) Proposed risk controls and/or mitigations;

   v) Conclusion showing that the evidence and argument demonstrate the proposed change(s) increases neither the overall risk associated with the NAT, nor increases the risks associated with any component part of the NAT system beyond acceptable levels;

   vi) Post-implementation monitoring and reversion plans;

   vii) Index or bibliography referencing supporting evidence; and

   viii) Statements that the necessary State approvals and/or other State requirements necessary to accommodate the change will be in place prior to implementation.

5.2.3 Therefore, the following NAT SPG Conclusion was approved:

NAT SPG Conclusion 53/16 – Definition and Components of safety cases in support of changes to the NAT air navigation system requiring NAT SPG approval

That:

a) the definition and components of a safety case in support of changes to the NAT air navigation system requiring NAT SPG approval, as described in paragraph 5.2.2 of this Report, be endorsed; and

b) the ICAO Regional Director, Europe and North Atlantic, take appropriate actions to amend the *NAT SPG Handbook* (NAT Doc 001) section 5:B, Safety Related Policies, to include this definition and components of safety cases in support of changes to the NAT air navigation systems requiring NAT SPG approval, as described in paragraph 5.2.2 of this Report.

5.2.4 In this regard, the NAT SPG discussed a proposal to develop additional guidance material for processing safety cases in support of changes to the NAT air navigation system. The NAT SPG cautioned that there were already existing processes and procedures in each State and ANSP. It was noted that the NAT SOG would conduct a further review of the need for such additional guidance material and report to the next meeting.

5.3 NAT 2016 ANNUAL SAFETY REPORT (ASR)

5.3.1 The NAT SPG was presented with the NAT 2016 Annual Safety Report (ASR). The NAT SPG noted that in 2016, the NAT Region met 3 of the 5 safety targets, and the Region continued to be on track to meet the additional 2 targets in 2019.

5.3.2 Based on the foregoing, the following Conclusion was approved:

NAT SPG Conclusion 53/17 – 2016 Annual Safety Report

That,

a) the NAT 2016 Annual Safety Report in **Appendix K** to this Report is endorsed; and

b) the ICAO Regional Director, Europe and North Atlantic, takes necessary action to publish the NAT 2016 Annual Safety Report.

5.4 OUTCOMES OF THE WORK OF THE NAT MWG

5.4.1 The NAT SPG was informed about the request coming from the NAT Mathematicians' Working Group (NAT MWG) to review possibilities to improve the collision risk estimate by using the most up-to-date data. One of the parameters both lateral and vertical collision risk models use was total flight hours. The proposal from the NAT MWG was to enhance the data already provided by all the NAT ANSPs for occupancy calculation as per NAT SPG Conclusion 48/17 and to include time of entry and time of exit for each flight within each Oceanic Control Area (OCA).

5.4.2 Therefore, the following NAT SPG Conclusion was approved:

NAT SPG Conclusion 53/18 – Coordination with the ANSPs to ensure provision of additional data for risk estimate calculation

That the NAT Implementation Management Group investigate the feasibility of the Air Navigation Service Providers (ANSPs) serving Bodo, Gander, Shanwick, New York East, Reykjavik and Santa Maria Oceanic Control Areas (OCAs) add time of entry and time of exit to their OCA to the data submitted annually to the NAT Mathematicians' Working Group (NAT MWG) for the purpose of the occupancy calculation.

6. NAT DOCUMENTATION

6.1 NAT SUPPS (DOC 7030) AMENDMENTS

6.1.1 The NAT SPG was provided with a proposal for a revision to the NAT *Regional Supplementary Procedures* (SUPPs, Doc 7030) to remove an ambiguous Note which implied that Selective Calling (SELCAL)checks were obligatory even for aircraft operating exclusively on VHF. It was remarked that the Note in paragraph 3.5.1.1 might be misinterpreted as having a generic scope, as it referred to "areas of the regions where VHF coverage is available".

6.1.2 It was therefore agreed that the Note be deleted from the paragraph so that it was clear that the requirement for maintaining SELCAL watch only applied to aircraft which would, wholly or in part, operate in a high frequency (HF) air-ground environment.

6.1.3 In view of the above, the following NAT SPG Conclusion was approved:

NAT SPG Conclusion 53/19 – PfA to NAT SUPPs, concerning Selective calling (SELCAL)

That the ICAO Regional Director, Europe and North Atlantic, after coordinating with the NAT SOG, process the following proposed amendment to paragraph 3.5.1 of the *NAT Regional Supplementary Procedures* (NAT SUPPs, Doc 7030/5) in accordance with the formal procedures:

3.5.1 Selective calling (SELCAL)

3.5.1.1 While operating in an HF air-ground communications environment, pilots shall maintain a listening watch on the assigned radio frequency. This will not be necessary, however, if a SELCAL watch is maintained and correct operation is ensured. Correct SELCAL operation shall be ensured by:

a) the inclusion of the SELCAL code in the flight plan;
b) the issue of a correction to the SELCAL code if subsequently altered due to change of aircraft or equipment; and
c) an operational check of the SELCAL equipment with the appropriate radio station at or before initial entry into oceanic airspace. This SELCAL check must be completed successfully before commencing a SELCAL watch.

~~*Note.— A SELCAL watch on the assigned radio frequency should be maintained, even in areas of the region where VHF coverage is available and used for air-ground communications.*~~

6.2 PFA TO NAT ANP, VOLUME II

6.2.1 The NAT SPG was presented with information regarding the intent to create a new ATS route to improve the flow of aircraft moving from north-eastern United States to Rio de Janeiro (Brazil), Sao Paulo (Brazil) and Buenos Aires (Argentina) and a recommendation that the details of ATS route L576 be included in the *NAT Air Navigation Plan*, Volume II (NAT eANP, Doc 9634, Vol II), Table ATM II-1. It was noted that the route continued further in the CARSAM Region and had already been inserted in Table ATM II-CARSAM-1 of the *CARSAM Air Navigation Plan* (CARSAM eANP, Doc 8733, Vol II).

6.2.2 Therefore, the following NAT SPG Conclusion was approved:

NAT SPG Conclusion 53/20 – PfA to NAT eANP, Volume II to Include ATS Route L576

That the ICAO Regional Director, Europe and North Atlantic, on behalf of the NAT SPG, take the necessary actions to process the proposal for the amendment of the *NAT Air Navigation Plan* Volume II (NAT eANP, Doc 9634, Vol II), Table ATM II-1 as follows:

Insert in NAT eANP, Doc 9634, Volume II, Table ATM II-1:

Designator	Significant Points	Purpose/Usage/Restrictions
1	**2**	**3**
L576	BDA/VOR 32° 22´ 16.43” N 064° 41´ 33.28” W SEAVR 29° 41´ 55. 89N 063° 04´ 25.02W RKDIA 21° 00´ 00.00N 060° 00´ 00.00W CITRS 18° 00´ 00.00N 059° 00´ 00.00W (LESUD 15° 38´ 29.11N 058° 10´ 46.33W)	For flights southbound from the Bermuda VOR (BDA) between north-eastern United States to Rio de Janeiro (Brazil), Sao Paulo (Brazil) and Buenos Aires (Argentina).

6.3 APPROVAL OF EANP VOLUME III

6.3.1 The NAT SPG was provided with the updated *NAT Air Navigation Plan* (NAT eANP, Doc 9634) Volume III Tables providing a summary of the NAT progress on the planning and implementation of

the *ICAO Global Air Navigation Plan* (GANP) and Aviation System Block Upgrades (ASBU). It was recalled that this work was carried out in follow up to NAT IMG Decision 48/01 that tasked NAT POG and NAT TIG to populate the dynamic part of the eANP and report to NAT IMG/50.

6.3.2 The NAT SPG was also provided with the *NAT GANP ASBU 2016 implementation report* that was developed based on the NAT eANP Volume III Tables, ASBU, Air Navigation Report Forms (ANRF) and updated NAT Service Development Roadmap (NAT SDR) .

6.3.3 Therefore, the following NAT SPG Conclusion was approved:

NAT SPG Conclusion 53/21 – Volume III of the NAT eANP, v2016

That the ICAO Regional Director, Europe and North Atlantic, on behalf of NAT SPG, take the necessary actions to publish the updated *ICAO North Atlantic Air Navigation Plan*, Volume III (NAT eANP, Doc 9634, Vol III) as presented in **Appendix L** to this Report and *NAT GANP/ASBU 2016 Implementation Report* as presented in **Appendix M** to this Report as a Companion Document to the NAT eANP Vol III.

6.4 UPDATES TO THE NORTH ATLANTIC SYSTEMS PLANNING GROUP HANDBOOK (NAT DOC 001) (WP10)

6.4.1 The Secretariat presented the NAT SPG with a series of proposals to amend the current *North Atlantic Systems Planning Group* (NAT SPG) *Handbook* (NAT Doc 001) to keep it accurate and up to date. The changes included:

a) updates in the section 6:A "Documents Promulgated by the NAT SPG" and deletion of Appendix A;

b) amendment of the NAT bulletins definition for better alignment with existing practice of issuing NAT OESB to be focused on tips for operators to reduce oceanic errors identified by the NAT SG and avoiding duplication of provisions in NAT Doc 007;

c) update to the List of NAT SPG Representatives; and

d) with reference to the approval of the ICAO NAT eANP Volume III and Companion Document, NAT GANP ASBU Implementation Status Report (paragraph 6.3.3 refers), deletion of "[17] Mapping of the NAT SDR with the ICAO GANP/ASBU (C 49/10)" in section "5:C - IMPLEMENTATION PLANNING POLICIES".

6.4.2 The NAT SPG noted that new templates for the NAT OPS Bulletin and the NAT Oceanic Errors Safety Bulletin (OESB) would be applied to new NAT OPS Bulletins issued from June 2017 onwards.

6.4.3 Therefore, the following NAT SPG Conclusion was approved:

NAT SPG Conclusion 53/22 – Amendment to NAT Doc 001

That:

a) the *North Atlantic Systems Planning Group* (NAT SPG) *Handbook* (NAT Doc 001) be amended as presented at **Appendix N** to this Report; and

b) the ICAO Regional Director, Europe and North Atlantic, take appropriate action to publish and promulgate the updated NAT Doc 001.

6.5 COORDINATION OF AIRSPACE CHANGES IN THE NAT

6.5.1 The NAT SPG was presented with a proposed procedure that should be applied by States in the ICAO NAT Region with regards to planned airspace changes over high seas airspace in accordance with ICAO Annex 2 and Annex 11 provisions.

6.5.2 The NAT SPG recalled that major regional implementation programmes had always been coordinated and managed within the NAT SPG working structure. It was also a general practice that the ICAO Secretariat was involved in the development and implementation processes. These measures allowed to consider that the required regional coordination for such airspace changes in the high seas airspace were taking place as appropriate.

6.5.3 With regard to airspace changes that were initiated outside of the NAT SPG mechanism, it was suggested that such local initiatives be notified to the NAT SPG and its working structure to ensure that the necessary regional coordination of air navigation changes was taking place in an appropriate manner.

6.5.4 The NAT SPG noted the following list of airspace changes that were subject to a formal coordination procedure for regional air navigation agreement:

a) Flight Information Regions (FIR) / Search and Rescue Regions (SRR), establishment/changes to the FIR(s)/SRR(s): e.g. change of boundaries, names, etc. to be reflected in the *Regional Air Navigation Plan*;

b) Facilities and Services to be reflected in the *Regional Air Navigation Plan;* and

c) Airspace-related issues: ATS route network changes (including deletion of routes), changes to airspace classification, establishment/changes of terminal control area (TMA) and/or Danger Areas, Free Route Airspace Concept implementation, etc.

6.5.5 Whilst a formal procedure for amendment of the *Regional Air Navigation Plan* was well established, a practical process for coordination of other airspace changes as indicated in c) above did not exist. A formal coordination procedure for regional air navigation agreement for such changes in the high seas airspace (**Appendix O** refers) was proposed for inclusion in the *NAT SPG Handbook* (NAT Doc 001) as a new Appendix A.

6.5.6 The NAT SPG agreed in principle with the proposed procedure but noted that the practical aspects of its application should be reviewed based on the lessons to be learnt from future implementation. Based on this, the procedure could be revisited at the next meeting.

6.5.7 Accordingly, the following was approved:

NAT SPG Conclusion 53/23 – ICAO High Seas Coordination Procedure

That:

a) the *North Atlantic Systems Planning Group* (NAT SPG) *Handbook* (NAT Doc 001) be amended with the ICAO High Seas Coordination Procedure as provided at **Appendix O** to this Report; and

b) the ICAO Regional Director, Europe and North Atlantic, urge States to ensure proper coordination of ATS route developments and airspace improvements in High Seas airspace in adherence with the approved Procedure.

6.6 CHANGE OF SØNDRESTRØM FIR NAME

6.6.1 The NAT SPG was informed that Søndrestrøm Flight Information Center had been relocated from Søndrestrøm to Nuuk. In order to be aligned with the ICAO FIR naming convention, the Søndrestrøm

FIR would be renamed to Nuuk FIR. This change would take place on 1 March 2018. On this same date, the Søndrestrøm SRR would be renamed to Nuuk SRR. The ICAO EUR/NAT Office would be officially notified by the Danish Civil Aviation Authority.

7. WORK PROGRAMME INCLUDING SUB-GROUPS

7.1 NAT IMG OUTCOME

7.1.1 The NAT SPG noted the outcomes of the NAT IMG/49 and NAT IMG/50 meetings. The outcomes of these meetings have been reported in various parts of this report. It was agreed that NAT IMG/51 would take place in Santa Maria, Portugal, from 13 to 16 November 2017. The NAT IMG/52 would take place from 24 to 27 April 2018 in Paris, France, at the premises of the ICAO EUR/NAT Office back to back with the NAT EFFG/34.

7.2 REPORT OF THE NAT SOG

7.2.1 The NAT SPG was presented with the outcomes of the NAT SOG/15 and NAT SOG/16 meetings. The outcomes of these meetings were also reported in various parts of this report.

7.2.2 The NAT SPG was informed that the current NAT SOG chairmanship expired at the NAT SOG/16 meeting. In this regard, it was noted that NAT SOG/16 unanimously agreed to re-elect Mr. Anthony Ferrante from the United States as the NAT SOG Chairman for another 4 years. This selection was endorsed by the NAT SPG.

7.2.3 It was confirmed that the NAT SOG/17 would be held from 27 November to 1 December 2017 in Dublin, Ireland. The preliminary dates for the following meetings were identified as follows: the NAT SOG/18 from 4 to 8 June 2018 in Paris, France and NAT SOG/19 from 26 to 30 November 2018 in Miami, United States.

7.3 REPORT OF THE NAT EFFG

7.3.1 The NAT SPG was presented with the outcome of the NAT EFFG. It was noted that as part of its regular work programme, the NAT EFFG received updates from the United States concerning traffic levels and trends, in a briefing regarding economic and performance trends that could affect the ICAO NAT Region, providing wide information on past and present indicators, economic or aviation related, as well as projected trends for various aviation sectors, some of them at a global scale.

7.3.2 The NAT SPG noted that the global outlook pointed to the following results:

a) In the near-term, 2016 – 2021, based on fleet analysis and business plans, NAT traffic was projected to grow 5.3% annually. Contributing factors to first five years in the forecast are:
   i. Rapid growth in NAT due to operators including Norwegian, Icelandair, RyanAir, and WOW;
   ii. Large orders by Middle East carriers Etihad, Qatar, and United Emirates;
   iii. Long-Range capabilities of 737-MAX, 321-LRs, and 787s; and
   iv. Growth by legacy carriers expected to increase significantly from orders of A350s, A330s, B787s, A380s, and B777s; and
b) Over the next 20 years, 2016 – 2036, NAT traffic was projected to grow 3.6% annually.

7.3.3 As part of the established practice, the NAT SPG agreed that the information on the North Atlantic Performance Trends (*NAT EFFG/30 Summary of Discussions*, Appendix D refers) be made

available on the ICAO website (**www.icao.int/EURNAT/,** following "**EUR & NAT Documents**", then the folder "**NAT Economics and Forecast**".

7.3.4 The NAT SPG was informed that Mr. David Chin from the United States, Chairman of the NAT EFFG, accepted a new post within the FAA along with additional duties, and thus would not be able to continue his tenure as the NAT EFFG Chairperson. The NAT SPG commended David's excellent contributions as Chairperson of the EFFG and noted that the Secretariat would coordinate all relevant procedures for the election of a new NAT EFFG Chairperson during the next EFFG meeting.

7.3.5 It was confirmed that NAT EFFG/33 would take place in Copenhagen, Denmark, from 19 to 21 September 2017, and that NAT EFFG/34 would take place in Paris, France, from 24 to 26 April 2018.

NAT Project Teams Status

7.3.6 The NAT SPG was provided with a summary status of various NAT project teams and noted that the RLatSM Phase 2 Transition Project Team (RLatSM Ph 2 TPT), the Free Route Operations Implementation (FROI) PT, NAT Air Navigation Plan Volume III (eANPV3) PT and PBCS PT had completed their work and were disbanded.

7.3.7 Concerning the Aircraft Message Latency Monitor Evaluation (AMLME) project team, the NAT SPG was informed that most of the project tasks were completed. The project team was examining the feasibility of performing a limited trial on the NAT. Delta Air Lines and several ANSPs agreed to examine the workload and procedures which would be required for this trial. To produce the maximum benefit from the trial a coordinated effort across several ANSPs would be preferable. In addition the use of a Boeing and an Airbus aircraft in the trial would be best as their implementations were slightly different. The NAT SPG noted that the final report from the AMLME PT was anticipated at the NAT TIG/4 meeting.

7.3.8 With regard to NAT IMG Decision 48/17 (Establishment of an "Evaluation Of Need For Mid-Ocean SELCAL Checks" Trial Implementation Plan Project Team (SELCAL IPPT)), it was noted that it had not been possible for the SELCAL IPPT to complete all assigned tasks per project definition prior to NAT IMG/50. Therefore, the NAT IMG agreed to grant an extension to the project team to finalise its work until NAT IMG/51.

8. ANY OTHER BUSINESS

8.1 SECRETARIAT SUPPORT OF NAT SG WORK

8.1.1 The NAT SPG was presented with information concerning a request to provide ICAO Secretariat support to some of the so-called third level contributory bodies within the NAT SPG working structure. It was noted that the NAT Scrutiny Group (NAT SG) would be one of the groups that would benefit from Secretariat support. Since the NAT SG outcomes were important for the activities of both the NAT IMG and NAT SOG contributory groups, this support would benefit the whole NAT SPG work programme overall.

8.1.2 The NAT SPG noted that Secretariat support enhanced the outcome of meetings and ensured consistency in how outcomes were presented and explained. It was also highlighted that a designated Secretary served as a coordination mechanism between groups, including alerting a group when its discussions could be overlapping with the work ongoing or assigned to other groups.

8.1.3 It was noted the so-called third level contributory bodies, e.g. sub-groups (NAT SG, NAT MWG) and the project teams were only receiving limited Secretariat support, covering mostly administrative matters and occasional participation in meetings and/or teleconferences. More importantly, there was no Secretariat involvement in the screening of the meeting papers and no contribution to the report writing.

8.1.4 The NAT SPG noted that although it was acknowledged as beneficial, it would not be possible to extend Secretariat support on a regular basis to all the third level contributory bodies with the current staffing situation and the existing workload. This would only be possible by allocating additional human resources to the technical team, with the appropriate educational background, qualifications and professional experience.

8.1.5 It was noted that an increase in the number of staff would not be possible through the regular budget of ICAO (at least in the current triennium). Nevertheless, this could be achieved via external support from States or international organisations through alternative solutions such as secondments or the creation of supernumerary positions funded through means (e.g. en-route charges) other than the regular ICAO budget.

8.1.6 The NAT SPG was informed that ICAO invited regularly the civil aviation community to provide for secondments (e.g. ICAO State Letters ref: 44, 76, 82, 101 of 2016 and SL 13, 35, 37, 60, 72 of 2017, to list only the letters issued in the past two years). There were two methods by which a Government could second an individual to ICAO: the trust fund arrangement, where funds would be deposited by the Government to ICAO in advance, so as to finance the contractual period of the assignment; and the gratis arrangement, whereby the Government would take full responsibility for the remuneration of the seconded individual.

8.1.7 It was noted that the creation of a supernumerary position was in a way similar to the secondment of staff under a trust fund arrangement, with the difference that the recruitment of the staff would be done in full observance of the ICAO rules. If such a solution was agreed upon, the job description and the vacancy notice for the supernumerary position should be agreed upon by the NAT SPG members to clearly indicate the scope of his/her work.

8.1.8 In the subsequent discussions, Norway stated they would not be in a position to support the proposal to fund a new position from en-route charges at the time of the present meeting. IATA expressed their concerns about potentially setting a precedent for future ICAO staffing arrangements. In this respect, the NAT SPG did not support the Secretariat proposal to create a supernumerary position funded through en-route charges in the NAT Region and agreed to investigate the possibility to adjust the current arrangements (NAT CMA and NAT Document Management Office (DMO)) to ensure through practical solutions, the necessary support to the NAT Region related activities and NAT SPG working arrangements.

8.1.9 Based on the foregoing, the following was agreed:

NAT SPG Conclusion 53/24 – Secretariat Support to the NAT Scrutiny Group

That, the NAT SPG invites:

a) the ICAO Regional Director, Europe and North Atlantic, to consider providing Secretariat support to the NAT SG meetings;

b) Iceland, United Kingdom, IATA and the ICAO Secretariat investigate practical solutions to ensure the necessary support to the NAT Region related activities and NAT SPG working arrangements; and

c) report progress to the NAT SPG/54.

8.2 NEXT MEETING

8.2.1 The Group agreed to convene its Fifty-fourth Meeting at the EUR/NAT Office of ICAO in Paris, France, from 25 to 28 June 2018.

8.3 FAREWELLS

8.3.1 The NAT SPG bid warm farewells to:

a) Mrs Heather Hemdal, representative of the United States, who was stepping down in view of her future retirement;

b) Mr Kevin Haggerty, representative of the United States, who was stepping down in view of his new responsibilities;

c) Mr Mike Hynes, outgoing member of IFALPA, who was stepping down in his role as Vice-President of IFALPA;

d) Mr David Nicolas, Head of the NAT CMA, who was stepping down in view of his future retirement;

e) Mr David Chin, representative of the United States and Chairman of the NAT EFFG, who was stepping down in view of his new responsibilities;

f) Mrs Leslie McCormick, representative of the United States, who was stepping down in view of her future retirement; and

g) Mr George Firican, ICAO Deputy Regional Director, who was stepping down in view of his future retirement.

8.3.2 The NAT SPG commended all the outgoing persons for their active contributions and excellent work and wished them success in their future endeavours.

———————————

APPENDIX A — LIST OF PARTICIPANTS

(Paragraph 0.3 refers)

CHAIRMAN
Ásgeir PÁLSSON

CANADA
Jean-Pierre CÔTÉ
Rob THURGUR
Jeff DAWSON

DENMARK
Peter MAJGARD NORBJERG

ICELAND
Hlin HOLM
Leifur HAKONARSON
Thordis SIGURDARDOTTIR
Gudmundur HELGASON

IRELAND
Sean PATRICK
Joe TALBOT

NORWAY
Roald A. LARSEN
Per Harald PEDERSEN

PORTUGAL
Carlos ALVES
Antonio RITA

UNITED KINGDOM
Stuart LINDSEY
Alastair MUIR

UNITED STATES
Heather HEMDAL
Anthony FERRANTE
Kevin HAGGERTY
Thea GRAHAM
Travis FIEBELKORN

IATA
Jeffrey MILLER
Rich STARK

IBAC
Peter INGLETON

IFAIMA
Apologies

IFALPA
Mike HYNES
Carlos RODRIGUEZ

IFATCA
Tom LAURSEN

ICCAIA
Dung Q. NGUYEN (Boeing)
(part-time by conference call)

NAT CMA
David NICHOLAS
Charlotte ROBB

ICAO
George FIRICAN
(Acting NAT SPG Secretary)
Erwin LASSOOIJ
Arkadii MERKULOV
Blandine FERRIER
Celso DO COUTO FIGUEIREDO
Cornelia LUDORF
Elkhan NAHMADOV
Sarantis POULIMENAKOS
Leyla SULEYMANOVA
Mihaela BRUNETTE
Patricia CUFF

APPENDIX B — PFA TO NAT SUPPS DOC 7030, NAT DOC 007 AND NAT OPS BULLETIN RLATSM SPECIAL EMPHASIS ITEMS, ON CONTINGENCY PROCEDURES, APPROVED BY CORRESPONDENCE

(paragraph 1.4.3 refers)

PfA to the *NAT Regional Supplementary Procedures* (SUPPs, Doc 7030), *North Atlantic Operations and Airspace Manual* (NAT Doc 007) and *NAT OPS Bulletin RLatSM Special Emphasis Items on Contingency Procedures* (Circulated for NAT SPG approval under SL Ref: EUR/NAT 16-0611.TEC in December 2016)

PROPOSAL FOR AMENDMENT TO THE ICAO *REGIONAL SUPPLEMENTARY PROCEDURES*, (NAT SUPPS, DOC 7030), CHAPTER 9 – SPECIAL PROCEDURES, SECTION 9.6 – EN-ROUTE DIVERSION:

9.6.1 En-route diversion across the prevailing NAT air traffic flow

9.6.1.1 Before diverting across the flow of adjacent traffic, the aircraft should intercept the 15 NM lateral offset in the same direction of flight and then climb above FL 410 or descend below FL 280 using the procedures specified in 15.2.2 of the PANS-ATM. However, if the pilot is unable or unwilling to do so, the aircraft should be flown at a level as defined in 15.2.2.3 b) of the PANS-ATM for the diversion until a revised ATC clearance is obtained.

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PROPOSAL FOR AMENDMENT TO THE *NORTH ATLANTIC OPERATIONS AND AIRSPACE MANUAL* (NAT DOC 007), CHAPTER 13 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES:

. . .

13.2.3 It is appreciated that in such emergency situations communication with ATC may not be the highest priority for flight crews. Hence until a revised clearance is obtained the specified NAT in-flight contingency procedures should be carefully followed. Procedures for general use in Oceanic airspace are contained within the ICAO PANS ATM (Doc. 4444), specifically Amendment 2 effective November 2009. Procedures particular to the NAT HLA environment are contained in ICAO NAT Regional Supplementary Procedures (Doc.7030) and AIPs. The procedures are paraphrased below.

. . .

13.3 SPECIAL PROCEDURES

13.3.1 The general concept of these Oceanic in-flight contingency procedures is, whenever operationally feasible, to offset from the assigned route by 15 NM and climb or descend to a level which differs from those normally used by 500 ft if below FL410 or by 1000 ft if above FL410.

Initial Action

13.3.2 The aircraft should leave its assigned route or track by initially turning at least 45° to the right or left whenever this is feasible. The direction of the turn should, where appropriate, be determined by the position of the aircraft relative to any organised route or track system (e.g. whether the aircraft is outside, at the edge of, or within the system). Other factors which may affect the direction of turn are: direction to an alternate airport, terrain clearance, levels allocated on adjacent routes or tracks and any known SLOP off sets adopted by other nearby traffic.

Subsequent Action

13.3.3 An aircraft that **is able to maintain its assigned flight level**, after deviating 10 NM from its original cleared track centreline and therefore laterally clear of any potentially conflicting traffic above or below following the same track, should:

a) climb or descend 1000ft if above FL410
~~~~~~~~~~~~~~~

b) climb or descend 500ft when below FL410

c) climb 1000ft or descend 500ft if at FL410

13.3.4 An aircraft that **is unable to maintain its assigned** flight level (e.g. due to power loss, pressurization problems, freezing fuel, etc.) should, whenever possible, initially minimise its rate of descent when leaving its original track centreline and then when expected to be clear of any possible traffic following the same track at lower levels and while subsequently maintaining a same direction 15 NM offset track, ~~expedite descent~~ descend to an operationally feasible flight level, which differs from those normally used by 500ft if below FL410 (or by 1000ft if above FL410).

13.3.5 Before commencing any diversion across the flow of adjacent traffic or before initiating any turn-back (180°), aircraft should, ~~whilst~~ while subsequently maintaining a same direction 15 NM offset track ~~maintaining the 15 NM offset track~~, expedite climb above or descent below the vast majority of NAT traffic (i.e. to a level above FL410 or below FL280), and then maintain a flight level which differs from those normally used: by 1000ft if above FL410, or by 500ft if below FL410. However, if the pilot is unable or unwilling to carry out a major climb or descent, then any diversion or turn-back manoeuvre should be carried out at a level 500 ft different from those in use within NAT HLA airspace, until a new ATC clearance is obtained.

~~~~~~~~~~~~~~~

PROPOSAL FOR AMENDMENT TO THE NAT OPS BULLETIN RLATSM SPECIAL EMPHASIS ITEMS (2015_003):

5.8 Pilot In-flight Contingency Procedures and Weather Deviation Procedures (Diversions, Turn-backs, etc.):

In training and checking programs, operators shall place special emphasis on pilot knowledge of and preparation to execute the *Special Procedures for Inflight Contingencies in Oceanic Airspace* published in ICAO Doc 4444, paragraph 15.2 and *Weather deviation procedures* (paragraph 15.2.3).

Pilots must be aware that when crossing adjacent tracks without an ATC clearance, the potential vertical separation provided by the In-flight Contingency Procedure is 500 ft may not be adequately accounting for the allowed RVSM altimetry system error. Pilots must use all the steps called for in the Contingency Procedures to avoid conflict with other aircraft. Consideration should be given to intercepting the 15 NM lateral offset in the same direction of flight and then descending below FL 280 or climbing above FL 410 prior to crossing adjacent tracks or making a 180° turn back. Pilots must also be aware that when unable to obtain an ATC clearance, Weather Deviation Procedures call for a climb or descent of 300 ft. based on direction of flight and direction of deviation, and, in addition, guidance to the pilot is to adjust the path of the aircraft, if necessary, to avoid aircraft at or near the same flight level.

Pilots must stringently follow all measures for avoiding conflict with other aircraft provided for in the Doc 4444 Contingency and Weather Deviation Procedures.

. . .

ATTACHMENT A – SUMMARY OF RLATSM SPECIAL INTEREST ITEMS CONTAINED IN THIS NAT OPS BULLETIN

9. Pilot In-flight Contingency Procedures and Weather Deviation Procedures (Diversions, Turn-backs, etc.):

In training and checking programs, operators shall place special emphasis on pilot knowledge of and preparation to execute the *Special Procedures for Inflight Contingencies in Oceanic Airspace* published in ICAO Doc 4444, paragraph 15.2 and *Weather deviation procedures* (paragraph 15.2.3).
~~~~~~~~~~~~~~~

Pilots must be aware that when crossing adjacent tracks without an ATC clearance, the potential vertical separation provided by the In-flight Contingency Procedure is 500 ft may not be adequately accounting for the allowed RVSM altimetry system error. Pilots must use all the steps called for in the Contingency Procedures to avoid conflict with other aircraft. Consideration should be given to intercepting the 15 NM lateral offset in the same direction of flight and then descending below FL 280 or climbing above FL 410 prior to crossing adjacent tracks or making a 180° turn back.

Pilots must also be aware that when unable to obtain an ATC clearance, Weather Deviation Procedures call for a climb or descent of 300 ft. based on direction of flight and direction of deviation, and, in addition, guidance to the pilot is to adjust the path of the aircraft, if necessary, to avoid aircraft at or near the same flight level.

Pilots must stringently follow all measures for avoiding conflict with other aircraft provided for in the Doc 4444 Contingency and Weather Deviation Procedures.

_____

APPENDIX C — PROPOSAL FOR AMENDMENT TO NAT REGIONAL SUPPLEMENTARY PROCEDURES (DOC 7030/5) TO INCLUDE PBCS

(paragraph 1.4.3 refers)

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 (Parts I, II and III), Annex 8, Annex 10, Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168). They do not apply in the local areas established by the appropriate authorities around Bermuda, Iceland, the Faroe Islands and Santa Maria, and in Greenland. The area of application of the NAT Regional Supplementary Procedures is included on the Index to Application of Supplementary Procedures chart.

This PfA is based on a Working Copy of the Regional SUPPs

The version of the Working Copy used for this PfA is the 5th Edition of the NAT *Regional Supplementary Procedures* (SUPPS) (Doc 7030), **Amendment No. 9, dated 25 April 2014**, includes the following approved amendment(s) which have not yet been published:

P. f. Amdt. Serial No.	Originator	Brief Description	Date Approved	Date Entered
15/37-NAT 2.1	NAT SPG	Amendment Chapter 2, Flight Plan, Section 9.19	8 January 2016	1 March 2016
15/18-NAT 6.9	NAT SPG	Amendment Chapter 6, Air Traffic Serices, Section 6.9 „MNPS Procedures	19 February 2016	1 March 2016
15/39-NAT 5.2	NAT SPG	Amendment Chapter 5, Surveillance, adoption of word „Nil“ for para 5.3.1.1	26 February 2016	1 March 2016
15/22-NAT 6.1	NAT SPG	Amendment Chapter 6, Air Traffic Services, removal of paragraph 6.117	26 February 2016	3 March 2016
15/40-NAT 2-4	NAT SPG	Amendment Chapter 2, Flight Plans, para 2.1.16 „Aircraft Registration and Aircraft Address“	13 January 2016	16 March 2016
15/38 – NAT 4-1, 6-2	NAT SPG	Amendments in Chapter 4 „Navigation“ and Chapter 6 „ATS“	20 April 2016	21 April 2016
16/02-NAT 2-1	NAT SPG	Amendments in Chapter 2-4-6-7-9, clarifying requirements to operate in NAT HLA	20 Sept 2016	27 Sept 2016

Glossary

…

PBC	performance based communication
PBCS	performance based communication and surveillance
PBN	performance-based navigation
PBS	performance based surveillance

…

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Chapter 2. FLIGHT PLANS

…

2.1.14 Controller-pilot data link communications (CPDLC) ~~Data link services~~

. . .

2.1.15 Required communication performance (RCP) specifications

2.1.15.1All FANS 1/A CPDLC RCP 240 capable aircraft intending to operate in the NAT Region shall insert the descriptor P2 in Item 10a of the flight plan.

2.1.16 Automatic dependent surveillance – contract (ADS-C)

2.1.16.1All FANS 1/A ADS-C-capable aircraft planning to operate in the NAT Region shall insert the D1 descriptor in Item 10b of the flight plan.

2.1.17 Required surveillance performance (RSP) specifications

2.1.17.1All FANS 1/A ADS-C RSP 180-capable aircraft planning to operate in the NAT Region shall insert SUR/RSP180 in Item 18 of the flight plan.

Editorial Note. — All remaining paragraphs in Chapter 2 are renumbered accordingly.

Chapter 3. COMMUNICATIONS

3.1 PERFORMANCE-BASED COMMUNICATION (PBC)

(A6, Part I – Chapter 7; A6, Part II – Chapter 2.5; A6, Part III, Sections II and III – Chapter 5; A11 – Chapters 2, 3 and 6; A15 – Chapter 7, P-ATM – Chapters 4 and 5, and Appendix 2)

Note.— Additional guidance can be found in the ICAO Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

3.1.1 Required communication performance (RCP) specifications

3.1.1.1 RCP 400

Nil.

3.1.1.2 RCP 240

3.1.1.2.1 The RCP 240 specification shall be applicable to controller-pilot data link communications (CPDLC) service and aircraft capability described in para 3.4 and used to support the separation minima specified in 6.2.1.1 a), and 6.2.2.3.

Means of compliance

3.1.1.2.2 The aircraft operator shall:

a) participate in the NAT PBCS monitoring programmes; and

b) by 29 March 2018, be approved by the State of the Operator or the State of Registry, as appropriate, to file the RCP 240 flight plan designator.

3.1.1.2.3 NAT air navigation service providers shall:

a) establish PBCS monitoring programmes; and

b) from 29 March 2018, apply the RCP 240 flight plan designator to determine aircraft eligibility for relevant separation minima.

Editorial Note. — All remaining paragraphs in Chapter 3 are renumbered accordingly.

Editorial Note. — Chapter 4 is included for reference and consequential amendments resulting from PBCS PfA.

Chapter 4. NAVIGATION

4.1 PERFORMANCE-BASED NAVIGATION (PBN)

…

4.1.1 Area navigation (RNAV) specifications

4.1.1.1 RNAV 10 (RNP 10)

…

4.1.1.1.1 The RNAV 10 (RNP 10) specification shall be applicable to navigation systems used to support the separation minima specified in 6.2.1.1 b)~~, 6.2.1.1 c)~~ and 6.2.2.32 a) ~~when published in State AIPs~~.

Editorial Note. — Cross-references above need to be reviewed for correctness and consistency with Doc 4444. Maybe just refer to Chapter 6 and not be so specific.

…

4.1.2 Required navigation performance (RNP) specifications

4.1.2.1 RNP 4

4.1.2.1.1 The RNP 4 specification shall be applicable to navigation systems used to support the separation minima specified in 6.2.1.1 a), 6.2.1.1 b), ~~6.2.1.1 c),~~ and 6.2.2.32 ~~a) and 6.2.2.32 b) when published in State AIPs~~.

Editorial Note. — Cross-references above need to be reviewed for correctness and consistency with Doc 4444. Maybe just refer to Chapter 6 and not be so specific.

———————

Chapter 5. SURVEILLANCE

5.1 PERFORMANCE-BASED SURVEILLANCE (PBS)

(A6, Part I – Chapter 7; A6, Part II – Chapter 2.5; A6, Part III, Sections II and III – Chapter 5; A11 – Chapters 2, 3 and 6; A15 – Chapter 7, P-ATM – Chapters 4 and 5, and Appendix 2)

Note.— Additional guidance can be found in the ICAO Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

5.1.1 Required surveillance performance (RSP) specifications

5.1.1.1 RSP 400

Nil.

5.1.1.2 RSP 180

5.1.1.2.1 The RSP 180 specification shall be applicable to automatic dependent surveillance – contract (ADS-C) service and aircraft capability described in para 5.5 and used to support the separation minima specified in 6.2.1.1 a), and 6.2.2.3.

Means of compliance

5.1.1.2.2 The aircraft operator shall:

a) participate in the NAT PBCS monitoring programmes; and

b) by 29 March 2018, be approved by the State of the Operator or the State of Registry, as appropriate, to file the RSP 180 flight plan designator.

5.1.1.2.3 NAT air navigation service providers shall:

a) establish PBCS monitoring programmes; and

b) from 29 March 2018, apply the RSP 180 flight plan designator to determine aircraft eligibility for relevant separation minima.

…

Editorial Note. — All remaining paragraphs in Chapter 5 are renumbered accordingly.

Chapter 6. AIR TRAFFIC SERVICES

6.1 AIR TRAFFIC CONTROL (ATC) CLEARANCES

…

6.2 SEPARATION

6.2.1 Lateral

(~~A11 – Attachment B;~~ P-ATM – Chapter 5)

6.2.1.1 Minimum lateral separation shall be:

a) 42.6 km (23 NM) ~~55.5 km (30NM)~~ between aircraft operating within the control area of the Gander Oceanic FIR, New York Oceanic East FIR, Reykjavik Oceanic FIR, Shanwick Oceanic FIR and Santa Maria Oceanic FIR, except in some airspace 55.5 km (30 NM) may be applied instead, as published by the States concerned in national AIPs. These minima are applied in accordance with 5.4.1.2.1.6 b) of PANS-ATM and the following: ~~provided that the following conditions are met:~~

1) communication – CPDLC RCP 240 per para. 3.1.1.2;

2~~1~~) navigation – RNP 4 ~~specification in accordance with the provisions of~~ per para.4.1.2.1; and

~~2) communication – CPDLC shall be monitored against RCP 240; and~~

3) surveillance – ADS-C ~~shall be monitored against~~ RSP 180 per para. 5.1.1.2.

~~*Note – Guidance concerning RCP and RSP specifications, application and performance requirements can be found in Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).*~~

…

6.2.2 Longitudinal

(P-ATM – Chapter 5)

6.2.2.1 Minimum longitudinal separation based on time between turbo-jet aircraft shall be:

…

6.2.2.2 Minimum longitudinal separation based on time between non-turbo-jet aircraft shall be 30 minutes.

6.2.2.3~~2~~Performance-based longitudinal separation minima ~~Minimum longitudinal separation based on distance between turbo-jet aircraft~~ shall be:

a) 93 km (50 NM) between aircraft operating within the control area of the New York Oceanic East FIR and Santa Maria Oceanic FIR. This minimum is applied in accordance with 5.4.2.9 of PANS-ATM and the following:;~~provided that the following conditions are met:~~

1) communication – CPDLC RCP 240 per para. 3.1.1.2;

2~~1~~) navigation – RNP 10 or RNP4 ~~specification in accordance with the provisions of~~ per paras, 4.1.1.1 and .4.1.2.1, respectively; and

~~2) communication – CPDLC shall be monitored against RCP 240; and~~

3) surveillance – ADS-C ~~shall be monitored against~~ RSP 180 per para. 5.1.1.2.

~~*Note – Guidance concerning RCP and RSP specifications, application and performance requirements can be found in the Global Operational Data Link Document (GOLD).*~~

b) 55.5 km (30 NM) between aircraft operating within the control area of the New York Oceanic East FIR and Santa Maria Oceanic FIR. This minimum is applied in accordance with 5.4.2.9 of PANS-ATM and the following; and

1) communication – CPDLC RCP 240 per para. 3.1.1.2;

2~~1~~) navigation – RNP4 ~~specification in accordance with the provisions of~~ per para, 4.1.2.1; and

~~2) communication – CPDLC shall be monitored against RCP 240; and~~

3) surveillance – ADS-C ~~shall be monitored against~~ RSP 180 per para. 5.1.1.2.

c) 5 minutes between aircraft operating in the Gander Oceanic FIR, Reykjavik Oceanic FIR, Shanwick Oceanic FIR and Santa Maria Oceanic FIR. This minimum is applied in accordance with 5.4.2.9 of PANS-ATM and the following:;.

1) communication – CPDLC RCP 240 per para. 3.1.1.2;

2) navigation – RNP 10 or RNP4 per paras, 4.1.1.1 and .4.1.2.1, respectively; and

3) surveillance – ADS-C RSP 180 per para. 5.1.1.2.

~~*Note. Guidance concerning RCP and RSP specifications, application and performance requirements can be found in the Global Operational Data Link Document (GOLD)*~~

~~6.2.2.3 Minimum longitudinal separation based on time between non-turbo-jet aircraft shall be 30 minutes.~~

…

Chapter 7. SAFETY MONITORING

…

7.2 AIRSPACE MONITORING

…

7.2.4 PBCS

7.2.4.1 Adequate monitoring of flight operations in the NAT Region shall be conducted to assist in the assessment of continuing compliance of aircraft with PBCS requirements.

Note.— Additional guidance can be found in the ICAO Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

…

Editorial Note. — All remaining paragraphs in paragraph 7.2 are renumbered accordingly.

APPENDIX D — NAT SPACE BASED ADS-B BUSINESS CASE ASSESSMENT (NAT SB ADS-B BCA)

(paragraph 3.2.7 refers)

APPENDIX ISSUED SEPARATELY

(Attached to this file)

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APPENDIX E — RECOMMENDED AVIONICS DATA LINK SOFTWARE VERSIONS

(*paragraphs 3.3.6 and 3.3.8 refer*)

Recommended software versions for NAT data link operations

Aircraft type	FANS software	ACARS software	Notes
A318/A319/A320/A321	CSB7.4	CSB7.4	Aircraft with Thales FMS recommended standard is S6 or subsequent
A330/A340	CLR7.4	CLR7.4	Aircraft with Thales FMS recommended standard is T4 or subsequent
A350	CLV1.3.1	S3.1	
A380	CLA4.1	S2.1	
MD11	FMS Pegasus -921	Honeywell CMU Mark II: 998-6063-501 or -521 Rockwell Collins CMU-900: 832-9548-012	
B736/7/8/9	FMS U12		
B744	With original FMS: Load 16		
	With B748 FMS: BPV3.1		
B748	FMS BPV3.1		
B75x	FMS Pegasus 2009		
B76x			
B77X	With AIMS-1: BPV16		
	With AIMS-2: BPV17A		
B78X	CMF BPV4		

APPENDIX F — DRAFT STATE LETTER CONCERNING RECOMMENDED AIRCRAFT AVIONICS SOFTWARE UPDATES

(*paragraph 3.3.7 refers*)

The following language will be used for the draft State Letter to be issued in follow-up to the proposed NAT SPG Conclusion 53/6 related to recommended aircraft avionics software versions:

"Dear Sir/Madam,

1. I wish to inform you about the outcome of the 53rd meeting of the North Atlantic Systems Planning Group (NAT SPG/53) regarding actions addressed to aircraft operators to implement recommended FANS 1/A data link avionics software versions to improve the NAT data link performance and facilitate the transition to Phase 2 of the RLatSM trial (NAT SPG Conclusion 53/6 refers). In this respect, the NAT SPG Conclusion 52/04 and the associated ICAO State Letter (EUR/NAT 16-0336.TEC (NAE/DAC) of 18 July 2016) on implementation of available data link software versions by aircraft operators are recalled.

2. The list of recommended aircraft avionics software versions is provided in the Attachment to this letter. In this respect, while acknowledging there is confidence that the recommended software versions would improve the data link performance, it should be noted that these upgrades should not be necessarily seen as sufficient to ensure a PBCS authorization.

3. The certification versus EUROCAE ED-122 / RTCA DO-306 standards and PBCS authorization requirements should be clarified by aircraft operators in coordination with the manufacturers concerned, recognizing the operators' need to consider the economic and operational aspects and priorities.

…"

APPENDIX G — PROPOSED AMENDMENT TO NAT DOC 001 PARA. 4: TERMS OF REFERENCE FOR THE NAT SPG SERVICES, 4:A "NAT CENTRAL MONITORING AGENCY (NAT CMA)"

(*paragraph 3.4.10 refers*)

4: TERMS OF REFERENCE FOR THE NAT SPG SERVICES

4: A NAT CENTRAL MONITORING AGENCY (NAT CMA)

Terms of Reference

The NAT CMA is responsible to the NAT SOG for certain aspects of operations monitoring and reporting in the NAT Region. Specifically, its principle functions are:

…

13. receive reports of non-compliance (Doc 9869 refers) with RSP 180 and RCP 240 from NAT ANSPs and transmitting reports to the respective RMA associated with the State of the respective operator/aircraft;

14. receive and maintain records of RCP and RSP approvals issued by States of Operator/Registry associated with current State responsibility and incorporating into expanded RVSM/PBCS approvals database and follow-up as appropriate instances of non-approved aircraft being identified in PBCS airspace. This would be determined by augmenting the existing monthly RVSM approvals check to incorporate a similar check against PBCS Approvals where these have been included in the flight plan but no approvals record is held by RMAs;

15. sharing records of RCP and RSP approvals between RMAs in line with current sharing practices of RVSM approvals for the ability of States/ANSPs to verify that aircraft operators filing PBCS capabilities in the flight plan are authorized to do so.

APPENDIX H — PROPOSED NAT PBCS IMPLEMENTATION PROJECT DEFINITION

(*paragraphs 3.5.16 and 3.5.17 refer*)

Project Title	**NAT PBCS Implementation (PBCS-I)** (NAT PBCS-I PT)
Parent Group	NAT SPG
Project Supervisory body	NAT SOG and NAT IMG
Project Period	July 2017 – June 2018
Project Objective	To develop a plan to facilitate NAT PBCS implementation by 29 March 2018 and a transitional period of 6 months thereafter
Project Outcomes:	1. Determine the level of readiness for PBCS implementation, including appropriate data analysis. 2. Identified options for aircraft unable to meet the performance and safety requirements. 3. NAT Region plan for deployment of PBCS information sharing ahead of March 2018. 4. NAT Region PBCS transition period (6 months after 28 March 2018) plan, including success criteria to end the transition period. 5. PBCS implementation workshop 2017
Membership	Cross disciplinary team from NAT SPG Member States and International Organisations *Note: participants from regulators and operations and other subject matter experts, as deemed appropriate by the Project Team*
Coordination Requirements	NAT SOG, NAT IMG and their contributory bodies as appropriate
Project High level Tasks	• Identify and analyze available data to determine compliance with safety requirements. • Incorporate data analysis into NAT Region PBCS readiness assessment as described in NAT IMG Decision 50/3. • Develop NAT Region PBCS transition plan, to include at minimum: o Organization of at least one (1) PBCS workshop for regulators, ANSPs, and aircraft operators; and o Implementation plan to facilitate the assumption of PBCS monitoring tasks by the NAT CMA. • Provide proposal to NAT SOG, NAT IMG, and NAT SPG for review by correspondence by October 15, 2017.
Project Lead	NAT SOG Chairman
Project Secretariat Support	ICAO EUR/NAT Office

_____

APPENDIX I — PROPOSED UPDATES TO THE GOLD (DOC 10037) DEVELOPED BY ADS-C RITF

(*paragraph 4.2.4 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.

APPENDIX J — PROPOSED REVISION FOR THE NAT SAFETY KEY PERFORMANCE INDICATORS AND NAT CMA PERFORMANCE MONITORING

(*paragraph 5.1.5 refers*)

Table 1 - Safety Key Performance Indicators and related targets

Safety KPI		Target
i	Number of accidents	0
ii	Number of fatal accidents	0
iii	Number of fatalities related to aviation fatal accidents	0
iv	Rate of LHD events (N° of LHD events divided by N° of flight hours flown in the NAT region[2]), involving operations with Data Link in use	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline
iv.1	Rate of LHD events (N° of LHD events divided by N° of flight hours flown in the NAT region), involving operations with Data Link not in use	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline
v	Percent of Long Duration[3] LHD events	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline
vi	Rate of minutes that aircraft, with Data Link in use, spent at the wrong flight level (Amount of minutes spent at the wrong flight level divided by total duration of flights in minutes)	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline
vi.1	Rate of minutes that aircraft, with Data Link not in use, spent at the wrong flight level (Amount of minutes spent at the wrong flight level divided by total duration of flights in minutes)	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline
vii	Rate of GNE events[4] (N° of GNE events divided by N° of flight hours flown in the NAT region) , involving operations with Data Link in use	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline
Vii.1	Rate of GNE events (N° of GNE events divided by N° of flight hours flown in the NAT region), involving operations with Data Link not is use	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline
viii	Rate of losses of separation (vertical) (N° of losses of separation events divided by N° of flight hours flown in the NAT region)	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline
ix	Rates of losses of separation (lateral) (N° of losses of separation events divided by N° of flight hours flown in the NAT region)	Reduction over previous rolling three-year period of performance compared to 2015-2016-2017 baseline

[2] Before getting the actual figures flight hour estimates can be used for calculation

[3] Long Duration LHD event means an event exceeding 20 minutes, based on a threshold established after review of historical data reported to the NAT CMA

[4] GNE is a deviation of 10NM or greater

Table 2 - Target Level Of Safety (TLS) for lateral and vertical domains to be performed and reported by NAT CMA to NAT SOG and NAT SPG

NAT safety performance		Target
x	Performance in the vertical dimension	5 x 10^{-9} fapfh[5]
xi	Performance in the lateral dimension	20 x 10^{-9} fapfh

[5] Fatal accidents per flight hour

APPENDIX K — NAT 2016 ANNUAL SAFETY REPORT (ASR)

(*paragraph 5.3.2 refers*)

APPENDIX ISSUED SEPARATELY

(Attached to this file)

APPENDIX L — NAT AIR NAVIGATION PLAN, VOLUME III, EDITION JUNE 2017

(*paragraph 6.3.3 refers*)

APPENDIX ISSUED SEPARATELY

(Attached to this file)

APPENDIX M — NAT GANP/ASBU 2016 IMPLEMENTATION REPORT

(*paragraph 6.3.3 refers*)

APPENDIX ISSUED SEPARATELY

(Attached to this file)

APPENDIX N — UPDATES TO THE NORTH ATLANTIC SYSTEMS PLANNING GROUP HANDBOOK (NAT DOC 001)

(*paragraph 6.4.2 refers*)

APPENDIX ISSUED SEPARATELY

(Attached to this file)

APPENDIX O — HIGH SEAS COORDINATION PROCEDURE

(*paragraphs 6.5.5 and 6.5.7 refer*)

TO BE INSERTED IN THE NAT SPG HANDBOOK (NAT DOC 001)

APPENDIX A

REGIONAL AIR NAVIGATION AGREEMENT COORDINATION PROCEDURE FOR AIRSPACE CHANGES OVER THE HIGH SEAS

(Approved by NAT SPG/53 in June 2017)

This procedure is aimed to obtain regional air navigation agreement before implementing all airspace changes and ATS routes (regional and non-regional) over the High Seas (international airspace).

1. States send an official letter to the ICAO Secretariat or indicate the requirement in a NAT SPG Conclusion recorded in the NAT SPG Report, as a direct outcome of the NAT SPG meeting.

2. The ICAO Secretariat circulates the proposed changes over the High Seas on behalf of the "initiating" States.

3. The States consulted generally have a four-week deadline for comments.

4. The "silent procedure" applies (i.e. no comments received means agreement).

5. After the deadline, if no objections are received, the ICAO Secretariat officially informs all States consulted that the "initiating" State(s) may proceed with the implementation.

~~~~~~~~~~~~~~

The following is model text for the official letter from States to initiate the regional air navigation agreement coordination procedure:

Note: This should be used only as a guide for the content of the letter to ICAO. For all airspace changes, such as change of airspace classification, change of TMA boundaries, etc., States are invited to use their discretion to adjust the text and provide all necessary information concerning this change, as appropriate.

TO BE ISSUED AND SIGNED ON THE STATE'S LETTERHEAD PAPER

To: Mr [*Regional Director Name*][*], ICAO Regional Director, Europe and North Atlantic

[DATE]

Subject: [*Free Route Airspace Concept Implementation / ATS Route Network Changes over the High Seas*]

Dear Mr [*Regional Director Name*],

1. In accordance with the provisions in Annex 11, paragraph 2.1.2 and the established procedure for amendment of the North Atlantic Air Navigation Plan, [*STATE OR STATES*] wish to inform the ICAO EUR/NAT Office of their intention to implement [*airspace changes/ATS route changes/the Free Route*

[*] All text in italics between square brackets [text] to be adjusted accordingly.
~~~~~~~~~~~~~~

Airspace Concept] which will include airspace over the High Seas (international airspace) within [*FIR NAME*] FIR.

[2. The proposed area, principles and procedures of the Free Route Airspace Concept implementation are as follows:

a) definition of the implementation area in the vertical and horizontal planes;

b) brief description of the procedures to be applied in this area; and

c) indication of the reference material within the national Aeronautical Information Publication.]

[AND/OR]

[3. The proposed changes to the ATS route network are as follows:

Route Designator:	
Route description:	
Route characteristics/ remarks:	

]

4. Coordination between all parties concerned has been carried out and a chart indicating the changes concerned is attached to this letter for ease of reference.

5. The planned date of implementation of these changes is *[DD/MM/YY]*.

[SIGNED]

Attachment: [Chart showing changes]

LIST OF ACRONYMS

AC	Advisory Circular
ACAS-RA	Airborne Collision Avoidance System (ACAS) Resolution Advisory
ACC	Area Control Centre
ACP	Actual Communication Performance
ADS	Automatic Dependent Surveillance
ADS-B	Automatic Dependent Surveillance-Broadcast
ADS-C	Automatic Dependent Surveillance – Contract
ADS-C RITF	ICAO APAC/NAT Inter-regional ADS-C Reporting Interval Task Force
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIS	Aeronautical Information Services
ANC	Air Navigation Commission
AN-Conf	ICAO Air Navigation Conference
ANRF	Air Navigation Reporting Form
ANSP	Air Navigation Service Provider
APAC	(ICAO) Asia and Pacific (Regions), (ICAO) Asia and Pacific (Regions)
APAC CRA	Asia Pacific Central Reporting Agency
APANPIRG	Asia Pacific Air Navigation Planning and Implementation Regional Group
ASBU	Aviation System Block Upgrades
ASEPS	Advanced Surveillance-Enabled Separation
ASP	Actual Surveillance Performance
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATS	Air Traffic Services
BCA	Business Case Assessment
CAR	(ICAO) Caribbean (Region)
CAR/SAM	Caribbean and South American Regions
CARSAM eANP	*Regional Air Navigation Plan – Caribbean and South American* (Doc 8733)
CONOPS	Concept of Operations
CPDLC	Controller Pilot Data Link Communications
CPWG	Cross Polar Working Group
CRM	Collision Risk Modelling
DARP	Dynamic Airborne Reroute Procedures
DLM	(ICAO NAT Region) Data Link Mandate
Doc 10004	*Global Aviation Safety Plan* (GASP)
Doc 10037	*ICAO Global Operational Data Link* (GOLD) *Manual*
Doc 4444	*Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM)
Doc 7030	*Regional Supplementary Procedures* (SUPPs)
Doc 8168	*Procedures for Air Navigation Services - Aircraft Operations* (PANS-OPS)
Doc 8733	*Regional Air Navigation Plan – Caribbean and South American* (CARSAM eANP)

Doc 9634	*Regional Air Navigation Plan – North Atlantic* (NAT eANP)
Doc 9750	*Global Air Navigation Plan* (GANP)
Doc 9869	*Performance Based Communication and Surveillance (PBCS) Manual*
Doc 9937	*Operating Procedures and Practices for Regional Monitoring Agencies in Relation to the Use of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive*
Doc 9997	*ICAO PBN Operational Approval Manual*
EU	European Union
DLS IR	Data Link Services IR
IR	Implementing Rule
EUR	(ICAO) European (Region)
EUR (EAST) VOLCEX/SG	Volcanic Ash Exercises Steering Group for the (far) Eastern part of the EUR Region
EUR/NAT	European and North Atlantic
EUR/NAT VOLCEX SG	European and North Atlantic Volcanic Ash Exercises Steering Group
EURNAT-DGCA	Meeting of the ICAO European and North Atlantic Regions Directors General of Civil Aviation
FANS	Future Air Navigation System
FIR	Flight Information Region
FPL	Flight Plan
GANIS	Global Air Navigation Industry Symposium
GANP	*Global Air Navigation Plan* (Doc 9750)
GASP	*Global Aviation Safety Plan* (Doc 10004)
GOLD	*ICAO Global Operational Data Link Manual* (Doc 10037)
GREPECAS	CAR/SAM Regional Planning and Implementation Group
HF	High Frequency
IATA	International Air Transport Association
IBAC	International Business Aviation Council
ICAO PCI	ICAO Programmes Coordination and Implementation Section
ICCAIA	International Coordinating Council of Aerospace Industries Associations
IFAIMA	International Federation of Aeronautical Information Management Association
IFALPA	International Federation of Air Line Pilots Association
IFATCA	International Federation of Air Traffic Controllers' Association
IGA	General Aviation Aircraft
KPI	Key Performance Indicator
MATMC	Main Air Traffic Management Centre Moscow
MET	meteorology
MWO	Meteorological Watch Office
NAARMO	North American Approvals Registry and Monitoring Organization
NAT	(ICAO) North Atlantic (Region)
NAT AMLME PT	NAT Aircraft Message Latency Monitor Evaluation Project Team
NAT ASR	NAT Annual Safety Report
NAT Bulletin	North Atlantic Bulletin
NAT OESB	NAT Oceanic Errors Safety Bulletin
NAT OPS Bulletin	NAT Operational Bulletin
NAT CMA	North Atlantic Central Monitoring Agency
NAT DLMA	North Atlantic Data Link Monitoring Agency

NAT DMO North Atlantic Document Management Office
NAT Doc
NAT Doc 001 *North Atlantic Systems Planning Group Handbook*
NAT Doc 006 Part II (also EUR Doc 019) *Volcanic Ash Contingency Plan – European and North Atlantic Regions*
NAT Doc 009 *NAT Service Development Roadmap* (NAT SDR) - discontinued
NAT eANPV3 PT NAT Air Navigation Plan Volume III Project Team
NAT EFFG North Atlantic Economic, Financial and Forecast Group
NAT FROI PT NAT Free Route Operations Implementation Project Team
NAT IMG North Atlantic Implementation Management Group
NAT IMG SCRPT NAT IMG Southeast Corner Routes Project Team
NAT MWG North Atlantic Mathematicians' Working Group
NAT OTS North Atlantic Organized Track System
NAT PBCS-I PT NAT PBCS Implementation Project Team
NAT POG North Atlantic Procedures and Operations Group
NAT RLatSM Ph 2 TPT NAT IMG RLatSM Phase 2 Transition Project Team
NAT SB ADS-B PT NAT Space Based ADS-B Project Team
NAT SDR *NAT Service Development Roadmap* (NAT Doc 009) - discontinued
NAT SELCAL IPPT NAT Evaluation Of Need For Mid-Ocean SELCAL Checks
NAT SG North Atlantic Scrutiny Group
NAT SOG North Atlantic Safety Oversight Group
NAT SPC PT NAT Safety Plan Components (SPC) Project Team
NAT SPG North Atlantic Systems Planning Group
NAT SPG Handbook *North Atlantic Systems Planning Group Handbook* (NAT Doc 001)
NAT TIG North Atlantic Technology and Interoperability Group
NAT eANP *Regional Air Navigation Plan – North Atlantic* (Doc 9634)
NM Nautical Mile (approximately 1852 m)
NOTAM Notification for Airmen
OCA Oceanic Control Area
OPDLWG Operational Data Link Working Group
PANS Procedures for Air Navigation Services
PANS-ATM *Procedures for Air Navigation Services – Air Traffic Management* (Doc 4444)
PANS-OPS *Procedures for Air Navigation Services - Aircraft Operations* (Doc 8168)
PBCS Performance Based Communication and Surveillance
PBN Performance Based Navigation
PfA Proposal for Amendment
PIRG Planning and Implementation Regional Group
RASG Regional Aviation Safety Group
RCP Required Communication Performance
RMA Regional Monitoring Agency
RMACG Regional Monitoring Agencies Coordination Group
RSP Required Surveillance Performance
SAM (ICAO) South American (Region)
CAR/SAM Caribbean and South American Regions
SANIS Safety and Air Navigation Implementation Symposium
SASP ICAO Separation and Airspace Safety Panel
SAT (ICAO) South Atlantic (Region)
CNMC Central Atlantic Flight Information Regions (FIR) Satellite Network (CAFSAT) Network Management Committee
SAT Meeting on the improvement of ATS over the South Atlantic

SAT/FIT	Meeting of the South Atlantic Future Air Navigation System (FANS) 1/A Interoperability Team
SB ADS-B	Space-based ADS-B
SB-S	Inmarsat SwiftBroadband-Safety
SELCAL	Selective Calling
SKPI	Safety Key Performance Indicator
SoC	Statement of Compliance
SRR	Search and Rescue Region
SUPPs	*Regional Supplementary Procedures* (Doc 7030)
TLS	Target Level of Safety
TMA	Terminal Control Area
ToRs	Terms of Reference
UTC	Coordinated Universal Time
VAAC	Volcanic Ash Advisory Centre
VHF	Very High Frequency
VO	Volcano Observatories
VOLCEX SG	*see* EUR/NAT VOLCEX SG, *or* EUR (EAST) VOLCEX SG

— END —