INTERNATIONAL CIVIL AVIATION ORGANIZATION

SUMMARY OF DISCUSSIONS AND CONCLUSIONS OF

THE FORTY-NINTH MEETING OF

THE NORTH ATLANTIC SYSTEMS PLANNING GROUP

Paris, 24 to 28 June 2013

PREPARED BY THE EUROPEAN AND NORTH ATLANTIC OFFICE OF ICAO JUNE 2013

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0. INTRODUCTION

PLACE AND DURATION

0.1 The Forty-Ninth Meeting of the North Atlantic Systems Planning Group (NAT SPG) was held in the European and North Atlantic (EUR/NAT) Office of ICAO from 24 to 28 June 2013.

OFFICERS AND SECRETARIAT

0.2 The Meeting was chaired by Mr Ásgeir Pálsson, the Representative of Iceland. Mr Luis Fonseca de Almeida, ICAO Regional Director, Europe and North Atlantic, was the Secretary of the Meeting and he was assisted by Mr George Firican, Deputy Regional Director / Technical Team Leader and Messrs Celso Do Couto Figueiredo, Elkhan Nahmadov, Nicolas Rallo, Rodolphe Salomon, Regional Officers from the same Office; additional assistance was provided by Mrs Patricia Cuff, Mrs Nikki Goldschmid and Ms Isabelle Hofstetter from the EUR/NAT Office of ICAO.

ATTENDANCE

0.3 In the opening session, Mr Ásgeir Pálsson welcomed Mr Roald Anton Larsen as the new member for Norway and Mr Mike Hynes as the new representative for IFALPA.

0.4 In addition to the Representatives of the NAT SPG member States, representatives from the International Air Transport Association (IATA), the International Business Aviation Council (IBAC) and the International Federation of Air Line Pilots Associations (IFALPA) attended the meeting. The International Federation of Air Traffic Controllers' Associations (IFATCA) did not attend and apologies were received from Inmarsat. Lists of participants and contacts are at **Appendix A**.

AGENDA

0.5 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 recent significant international aviation developments and took note of the amendments to a number of ICAO Annexes and Procedures for Air Navigation Services (PANS) (Annexes 1, 2, 3, 4, 6, 8, 10, 11, 13, 14, 15, 17, 18, 19, the *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444), the *Procedures for Air Navigation Services - Aircraft Operations* (PANS-OPS, Doc 8168) and the *Procedures for Air Navigation Services - Training* (PANS-TRG, Doc 9868)) that had been adopted since the NAT SPG/48 meeting. A number of ICAO State Letters, ICAO Documents on a wide range of subjects had also been published since the last meeting.

1.1.2 With particular attention to the adoption of Annex 19 – Safety Management, by the Council at the fourth meeting of its 198th Session on 25 February 2013, it is highlighted that when adopting Annex 19, the Council prescribed 15 July 2013 as the date on which it would become effective, except for any part concerning which a majority of Contracting States would have registered their disapproval before that date. In addition, the Council resolved that Annex 19, to the extent it would become effective, would become applicable on 14 November 2013.

1.1.3 The NAT SPG was informed that the Proposal for Amendment (PfA) to the NAT *Regional Supplementary Procedures* (SUPPs) (Doc 7030/5) related to the format of issuing Oceanic clearances via voice (NAT IMG/35 Summary of Discussions, paragraph 2.30 and Attachment D to Appendix C refers) was rejected by ICAO Headquarters as contradicting global provisions (PANS ATM, Doc 4444).

1.2 REVISED GLOBAL AIR NAVIGATION PLAN

1.2.1 The NAT SPG noted that the Fourth Edition of the *Global Air Navigation Plan* (GANP), which had been reviewed at the 12th Air Navigation Conference (AN-Conf/12), was approved by the Council at the fifth meeting of its 199th Session on 29 May 2013. It was noted that the ICAO Air Navigation Commission (ANC) would review the GANP as part of its triennial work programme, reporting to the Council a year in advance of each ICAO Assembly. The ANC report would provide a review of global progress made in achieving the GANP objectives and would consider lessons learned by States, industry and PIRGs. Moreover, the ANC report would consider possible changes in future aviation needs, the air navigation context and other influencing factors, proposing suitable adjustments to the GANP to accommodate these eventualities. Prior to being presented to the Council, proposed updates would be circulated to Member States for consultation. Following approval by the Council, the updated GANP would be submitted for endorsement by ICAO Member States at the next ICAO Assembly.

1.3 ALIGNMENT OF ANPS WITH 4TH EDITION OF GANP

1.3.1 The NAT SPG was provided with a brief on the actions that were being taken in follow-up to Recommendation 6/1 made at the AN-Conf/12 [*Regional performance framework – planning methodologies and tools*] regarding the alignment of regional *air navigation plans* (ANP) with the Fourth Edition of the *Global Air Navigation Plan* (GANP). It was noted that the AN-Conf/12 agreed (Recommendation 6/1 [Regional performance framework – planning methodologies and tools] refers) that Planning and Implementation Groups (PIRGs) should focus initially on implementing ASBU Block 0 Modules and finalizing the alignment of their regional ANPs with the GANP/ASBU by May 2014.

1.3.2 The NAT SPG was informed that ICAO Headquarters had established a Secretariat working group, composed of a representative from each Regional Office and ICAO Headquarters, to prepare an action plan and monitor the review/development of the ANP/eANP project. The first meeting of the eANP-WG was held from 4 to 8 February 2013 in the ICAO EUR/NAT Office in Paris and agreed on the objective, scope and procedure for amendment of the future ANP. A revised structure, format and Table of Contents of the ANP was developed taking into account the ASBU methodology. In this regard, it was agreed that the new ANP should be composed of three volumes: Volume I to contain stable plan elements whose

amendment necessitated approval by the Council; Volume II to contain dynamic plan elements whose amendment did not necessitate approval by the Council; and Volume III to contain dynamic (flexible) plan elements whose amendment did not need approval by the Council and these elements be related to the implementation of certain air navigation systems, based mainly on the ASBU modules endorsed at regional or sub-regional level.

1.3.3 It was expected that the work of eANP-WG be finalised in time to facilitate the alignment of the regional ANPs with the GANP/ASBU by May 2014.

1.4 ALIGNMENT OF AIR NAVIGATION PLANS AND REGIONAL SUPPLEMENTARY PROCEDURES

1.4.1 The NAT SPG was provided with a brief on the actions that were being taken in follow-up to Recommendation 6/11 [*Regional performance framework – alignment of air navigation plans and regional supplementary procedures*] made at the 12th Air Navigation Conference. The NAT SPG noted that the process to align the areas of applicability of ANPs and SUPPs would be undertaken in two phases. Firstly, the submission and approval of PfAs to the corresponding ANPs (Basic and FASID) in coordination with the Regional Offices concerned, followed by the submission and approval of a single amendment to restructure the SUPPs as a whole.

1.4.2 The first phase to amend the ANPs, to be conducted from April to August 2013, would commence by the corresponding Regional Offices (in coordination with ICAO Headquarters) to amend the AFI, ASIA/PAC, CAR/SAM, EUR, MID and NAT ANPs. The second phase to amend the SUPPs, which was planned to take place from August to December 2013, would be conducted by ICAO Headquarters, in coordination with the affected Regional Offices. A single proposal for amendment would be submitted to the Council. This phase would commence after the PfAs to amend the related ANPs were approved to ensure consistency with the spirit of the alignment recommended by Recommendation 6/11.

1.4.3 As the changes recommended by the AN-Conf/12 Recommendation 6/11 would take several months to be completed, Regional Offices would invite the States concerned by these changes to the meetings of the PIRGs as observers as an interim measure while the changes to the alignment of Flight Information Regions (FIR) and procedures in the ANPs and SUPPs would be completed.

1.4.4 The NAT SPG noted that the relevant proposals for amendment to the EUR Basic ANP (Serial no: EUR/NAT-B 13/22-AOP/ATM) and Facilities and Services Implementation Document (FASID) (Serial no: EUR/NAT-F 13/23-AOP/MET/SAR) originated by Norway, removing all requirements pertaining to FIR Bodo Oceanic from the EUR ANP, and maintaining them only in the NAT Basic ANP and FASID, had been circulated to States concerned (ICAO EUR/NAT State letters reference: EUR/NAT 13-0401.TEC and EUR/NAT 13-0400.TEC of 13 June 2013 refer).

1.5 REVISED GLOBAL AVIATION SAFETY PLAN (GASP)

1.5.1 The NAT SPG was presented with detailed information about the proposed revised Global Aviation Safety Plan (GASP) which had been approved by the ANC on 14 March 2013 and provisionally approved by the Council on 29 May 2013. The NAT SPG took note that the revised GASP, once fully approved by the Council, would be presented to the Assembly for endorsement and that it would be supported by planning tools to assist the stakeholders concerned, including Regional Aviation Safety Groups (RASGs), States and industry in the planning and implementation process.

1.5.2 The ICAO Secretariat highlighted the four performance areas of the revised GASP (Standardization, Collaboration, Investment and Safety Information Exchange) as well as the three phases (near-term, mid-term and long-term) of the GASP implementation (with 2017, 2022 and 2027 as the respective implementation target dates for the objectives associated with these three phases).

1.5.3 The NAT SPG noted that the ICAO ANC would review the GASP on a triennial basis, reporting to the Council in advance of each session of the ICAO Assembly. The ANC report would provide a

review of global progress made in achieving the GASP objectives and would consider lessons learned by States and industry. Moreover, the report would consider possible changes in future aviation needs regulatory context and other influencing factors and would propose adjustments to relevant components of the GASP. Prior to being presented to Council, proposed updates would be circulated to Member States for consultation.

1.5.4 In order to support the implementation of the GASP in the ICAO NAT Region, and in line with the NAT SPG Safety Policy, the NAT SPG agreed to the following:

NAT SPG Conclusion 49/01 – ICAO NAT Region "annual safety report" and "safety priorities and targets" documents

That the NAT Safety Oversight Group:

a) develop a draft 2013 annual safety report for the ICAO NAT Region, for review and approval by NAT SPG/50; and

b) develop a draft document, for review and approval by NAT SPG/50, in which safety priorities and targets for the ICAO NAT Region consistent with the Global Aviation Safety Plan and the NAT Safety Policy are consolidated.

1.5.5 The NAT SPG was informed that ICAO had not yet developed a template for the annual safety report, and that there was therefore some flexibility for the NAT SOG to develop a template for the ICAO NAT Region annual safety report. It was also highlighted that this report would use the safety related information already available within the NAT SPG, including such data as that contained in the Safety Performance Report.

1.5.6 With respect to the document containing safety priorities and targets for the ICAO NAT Region, it was also highlighted that, in the absence of an approved format, the NAT SOG would draft a concept document for review and approval by NAT SPG/50.

1.6 REVIEW BY THE AIR NAVIGATION COMMISSION OF THE NAT SPG/48 REPORT

1.6.1 The Secretariat presented the NAT SPG with the actions taken by the ANC on the NAT SPG/48 Report. The NAT SPG recalled that following each PIRG meeting, the report was first reviewed by the Working Group for Strategic Review and Planning (WG/SRP) of the ANC followed by the ANC itself. In the case of the NATSPG/48 Report, as there were no specific items that required Council action, the report was not submitted to the Council. During these reviews, the ANC noted the report, made comments thereon and provided guidance to the PIRG as appropriate. Furthermore, the ANC took specific actions on certain conclusions contained therein, since the follow-up to some conclusions could require approval by the ANC. Follow-up actions by the ICAO Secretariat on conclusions and decisions of PIRG were then guided by the outcome of the ANC and the Council (when required) actions described above (**Appendix B** refers).

1.6.2 The NAT SPG noted that the ANC agreed to take action on several NAT SPG Conclusions, as presented at **Appendix B**.

1.7 STATUS OF NAT SPG/48 CONCLUSIONS

1.7.1 The ICAO Secretariat presented the NAT SPG with information on the status of the NAT SPG/48 agreed Conclusions. The NAT SPG noted most of the Conclusions had been closed. The NAT SPG noted the following:

- NAT SPG Conclusion 48/17 – *Collection of traffic activity data to improve system performance estimation*, the ANSPs would provide data already available and the Mathematicians Working Group would be invited to evaluate if the data made available would satisfy their requirements (paragraphs 5.1.5 and 5.1.6 also refers);

- NAT SPG Conclusion 48/20 – *Consolidated ICAO NAT Region safety occurrence reporting requirements document*, the NAT SOG/08 produced a draft document that would require further refinement before its presentation to the NAT SPG/50 (paragraph 0 also refers);

- NAT SPG Conclusion 48/29 – *Proposal for Amendment of the NAT Basic ANP*, the process was put on hold considering the development of the new regional eANPs and their alignment with the *Global Air Navigation Plan*.

2. PROPOSED AIR NAVIGATION SYSTEMS PERFORMANCE MONITORING AND MEASUREMENT

2.1 SAFETY KEY PERFORMANCE INDICATORS (SKPIS) FOR 2012

2.1.1 The NAT SPG reviewed the values of the safety key performance indicators (SKPIs) for 2012 (**Appendix C** refers), which had been provided by the NAT Scrutiny Group. The NAT SPG noted with satisfaction that, due to better adoption of the Strategic Lateral Offset Procedure (SLOP), the estimated vertical collision risk, once the SLOP was incorporated, had been reduced by 30% compared to 2011, reaching a value of 16.8×10^{-9}.

2.1.2 The NAT SPG reviewed recommendations from the seventh and eighth meetings of the NAT Safety Oversight Group (NAT SOG) regarding the amendment of the list of safety key performance indicators for the ICAO NAT Region. It was recalled that the NAT SOG/07 had recommended adding the number of losses of separation to the list. With respect to the NAT SOG/08, it had recommended removing the "number of minutes spent away from air traffic cleared route", which was not routinely reported, and had made additional recommendations for amendments to the list of SKPIs to address data link implementation as the NAT SOG had been tasked with developing and updating performance targets and metrics related to the implementation of data link in the ICAO NAT Region. Accordingly, the NAT SPG agreed to the following:

NAT SPG Conclusion 49/02 – Amendments to the list of safety key performance indicators for the ICAO NAT Region

That the list of Key Performance Indicators (KPI) in the area of safety for the ICAO NAT Region be amended as follows:

(i) number of hull loss events;

(ii) number of Airborne Collision Avoidance System (ACAS) Resolution Advisory (RA) events;

~~(iiii) number of Large Height Deviation (LHD) events;~~

(iii) number of Large Height Deviation (LHD) events involving data link equipped aircraft;

(iv) number of LHD events involving non data link equipped aircraft;

~~(iv) number of minutes that aircraft spend at the wrong flight level;~~

(v) number of minutes that data link equipped aircraft spend at the wrong flight level;

(vi) number of minutes that non data link equipped aircraft spend at the wrong flight level;

~~(v)~~ (vii) performance in the vertical dimension against the vertical Target Level of Safety (TLS);

~~(vi) number of minutes spent away from air traffic control cleared route;~~

~~(vii) number of Gross Navigation Error (GNE) events;~~

(viii) number of Gross Navigation Error (GNE) events involving data link equipped aircraft;

(ix) number of GNE events involving non data link equipped aircraft;

~~(viii)~~ (x) performance in the lateral dimension against the lateral TLS; and

(xi) number of losses of separation.

3. NAT PLANNING AND IMPLEMENTATION MANAGEMENT ISSUES

3.1 IMPLEMENTATION PROGRAMME UPDATES

Performance Based Communication and Surveillance Implementation Plan

3.1.1 The NAT SPG was provided with the updated NAT Performance Based Communication and Surveillance Implementation Plan (NAT PBCS). The updates concerned the following tasks of the NAT PBCS plan and status report:

a) Task 6 – Develop material for inclusion in the Global Operational Data Link Document (GOLD), as appropriate. Also refers to Tasks 5, 7-9;

b) Task 7 – Develop flight crew and controller contingency procedures in the event of service outage, malfunction or failure that would cause performance to degrade below that required by performance specifications;

c) Task 8 – Develop the criteria for resuming data link service, RLatSM, or RLongSM operations after service communication and/or surveillance capabilities are restored to acceptable level of performance;

d) Task 9 – Draft guidance material for the flight plan to define the descriptors for performance specifications, as appropriate, using the new format planned for 2012 implementation;

e) Task 5 – Development of operational concepts; and

f) Task 15 – Guidelines on operator eligibility.

3.1.2 The NAT SPG noted that updates of Tasks 7 and 8 were based on the conclusion that the current GOLD material should be considered as providing sufficient guidance and no additional material was required. Updates of Task 9 were based on the outcome of the discussion within the ICAO Operational Data Link Panel (OPLINK) that agreed on appropriate *Procedures for Air Navigation Services – Air traffic Management* (PANS-ATM) (Doc 4444) amendments and the on-going work on developing a proposal for amendment to the NAT SUPPs (Doc 7030) in support of implementation of reduced separations predicated on required communication performance (RCP) and required surveillance performance (RSP). Task 5 was amended to clarify that RLatSM and RLongSM concepts were developed and no additional input was required. All these updates had a consequential effect on Task 6 which was also amended.

3.1.3 In view of the above, the NAT SPG approved to the following:

NAT SPG Conclusion 49/03 – Updated NAT PBCS Implementation Plan

That the ICAO Regional Director, Europe and North Atlantic take appropriate actions to publish and promulgate the updated NAT Performance Based Communication and Surveillance (PBCS) Implementation Plan V.2013.1 and the NAT PBCS Status Report V.2013.1, as detailed in **Appendix D** to this report.

NAT 2025 Task Force

3.1.4 The NAT SPG recalled its previous discussion on the major changes arising from SESAR and NextGen programmes and the resulting pressures on surrounding regions such as the ICAO NAT Region. It was considered necessary to ensure that the NAT and adjacent airspace would operate in an optimal, integrated manner. In support of this, it was felt that the NAT SPG working structure had to play a

key leadership role in managing the change to ensure that airspace users would benefit from a seamless service. It was further considered that the NAT SPG was a relatively agile body able to drive the establishment of the correct rules to align with the adjacent areas and effectively influence other ATC related developments such as SESAR and NextGen.

3.1.5 Therefore, the NAT SPG invited Canada and the United Kingdom to conduct a gap analysis on the current situation, including the developments that were or were not taking place, and that the Terms of Reference (ToR), deliverables and composition of the Task Force be presented to the next meeting of the NAT IMG. As a result of the above action, the NAT IMG set up the NAT 2025 Task Force with agreed terms of reference and a work plan. The task force, consisting of members from Canada, IATA, Ireland and the United Kingdom (representatives from Iceland, British Airways, FedEx, Lufthansa and United Airlines had also participated in some meetings) conducted a series of meetings, teleconferences and workshops to progress the work plan. An interim report was provided to NAT IMG members in December 2012 and the final report of the NAT 2025 Task Force was presented to NAT IMG/42.

3.1.6 The outcome of the Task Force included the following deliverables:

a) A proposed Concept of Operation for the NAT in 2025;

b) A Gap Analysis and Action Plan identifying the major differences between the current operation and the proposed 2025 operation;

c) An initial draft Roadmap to provide a basis for further discussion and development in the NAT IMG subgroups; and

d) A PowerPoint presentation to facilitate briefing of the stakeholder community.

3.1.7 The NAT SPG noted that the deliverables would be further reviewed by the NAT IMG working groups. In this respect, a statement from IATA and IBAC was noted that the future work and tasking should include collaborative and coordinated analysis that would provide further insights regarding future capabilities and technical requirements of NextGen and SESAR programmes and appropriate comparisons that would render the best possible solution to address the needs of operators evolving in the ICAO NAT Region airspace.

GNSS Trial

3.1.8 The NAT SPG was presented with a recommendation from NAT IMG/42 on a proposed operational trial to use GNSS for improving lateral separation of flights evolving in the airspace over Greenland, which was a follow-up to NAT IMG Decision 41/18.

3.1.9 The NAT SPG noted that the NAT IMG had reviewed a proposal for an operational trial of Global Navigation Satellite System (GNSS) based Lateral Separation Minima, supported by an impact statement produced by the ICAO SASP, a draft ICAO Circular – Guidelines for the Implementation of Lateral Separation Minima – and a detailed implementation plan for the lateral separation in the Greenland airspace below FL285 within the Reykjavik CTA, and a draft Air Information Circular (AIC).

3.1.10 The NAT SPG reviewed the implementation plan for this operational trial, and noted the concerns expressed by Denmark that neither the number of movements between FL195 and FL285, nor the total number of aircraft that would benefit from this operational trial was mentioned in the arguments for the trial. Denmark roughly estimated that this operational trial would only impact 10 to 15 aircraft (operated by Air Iceland, Air Greenland and Royal Danish Air Force). In addition to the foregoing, Denmark highlighted that the impact on the workload of the controllers involved in Greenland was not addressed in the documentation presented, and that a cost benefit analysis in support of such an operational trial was advisable. Denmark also indicated that the regional consultation in preparation of this operational trial proposal to the NAT SPG had not included all the involved Stakeholders, or otherwise had not taken place in a timely manner. In response, Iceland indicated that full consultation had taken place within the technical sub

groups of the NAT IMG and expressed regret that Denmark had been unable to attend those meetings. In addition, both NAVIAIR personnel and operators in Greenland had been consulted by visits by Isavia personnel. The NAT SPG took note of the above listed concerns and approved the following:

NAT SPG Conclusion 49/04 – Operational Trial of GNSS Lateral Separation Minima

That the Implementation Plan for an Operational Trial of GNSS Lateral Separation Minima, as presented at **Appendix E** to this report, be endorsed.

NAT Regional SUPPS for Reduced Separations predicated on RCP/RSP

3.1.11 The NAT SPG was provided with the outcome of the NAT SUPPs PfA for reduced separations predicated on required communication (RCP) and surveillance performance (RSP) task force that was established by the NAT IMG (NAT IMG Decision 41/21 refers) to address Task 9 of the NAT performance based communication and surveillance implementation (PBCS) plan.

3.1.12 The task force, composed of multidisciplinary experts with relevant knowledge as nominated by NAT IMG members, met on 18-19 February 2013 in Paris, France. The task force concluded the two day session with a completed draft PfA that, by consensus, satisfied all aspects of the assigned ToR. The PfA was coordinated with the NAT IMG sub-groups and endorsed by NAT IMG/42 for approval by the NAT SPG.

3.1.13 In connection with the PfA, the NAT SPG approved the following statement as proposed by the task force for inclusion in the *NAT SPG Handbook* in order to provide clarification and guidance on RCP240 and RSP180 compliance determination and applicability to RLatSM and RLongSM and agreed to the following:

NAT SPG Conclusion 49/05 – RCP and RSP for RLatSM and RLongSM

That the Required Communication Performance (RCP) 240 and Required Surveillance Performance (RSP) 180 are applicable to 25 NM lateral separation minimum (RLatSM) and 5 min longitudinal separation minimum (RlongSM) implementations in the NAT with the following additional provisos:

a) When the actual communication transaction time or surveillance data delivery time does not meet the 95% values, appropriate action should be taken to improve performance to an acceptable level before providing the air traffic service (ATS) function predicated on RCP/RSP;

b) The 99.9% values provide a target value for design changes to the overall system to improve performance;

Note 1 – Guidance concerning RCP and RSP specifications, application and performance requirements, including elements to be considered when calculating the 99.9% value, can be found in the Global Operational Data Link Document (GOLD);

Note 2 – With regards to the 99.9% criteria, if the performance is less than 99 % contact the data link monitoring agency (DLMA), operator and/or communications service provider (CSP) to determine any action that can improve the performance;

and

c) When the actual communication transaction time or surveillance data delivery time does not meet the 99.9% target value, the air navigation service provider (ANSP) should assess the effects of actual performance against local factors, such as increased controller workload, increases in fleet equipage and expanded use of the data link services and implement appropriate controls and mitigation measures as appropriate.

3.1.14 The NAT SPG supported the PfA but noted that some editorial changes would need to be made in connection with another PfA on application of 30 NM separation in the New York Oceanic FIR. Acknowledging the urgency of the latter to go through the ICAO machinery for approval first, the NAT SPG agreed that following the approval of the New York Oceanic PfA, the RLatSM and RLongSM PfA would be submitted to NAT IMG/43 for review and endorsement approval. The NAT SPG noted the support expressed by the United States with respect to the RLatSM and RLongSM PfA. Therefore, the NAT SPG agreed the following:

NAT SPG Conclusion 49/06 – Proposal for amendment to NAT SUPPS in support of reduced separations predicated on RCP and RSP

That:

a) The NAT IMG be mandated to review and approve the proposal for amendment to the NAT SUPPs (Doc 7030) in support of the RLatSM and RLongSM predicated on RCP and RSP, as detailed in **Appendix F**;

b) Canada, Iceland and the United Kingdom submit the approved proposal for amendment to the NAT *Supplementary Procedures* (SUPPS, Doc 7030); and

c) ICAO Regional Director, Europe and North Atlantic process the proposed amendment in accordance with the formal procedures.

Implementation of 30 NM lateral, 30 NM and 50 NM longitudinal separation minima in New York Flight Information Region (FIR)

3.1.15 The NAT SPG was presented with the outcome reached at NAT IMG/42 on a PfA to the *North Atlantic Regional Supplementary Procedures* (NAT SUPPs, Doc 7030) to support the implementation of 30 NM lateral, 30 NM and 50 NM longitudinal separation minima in New York Oceanic FIR (KZNY) for endorsement and subsequent submittal to ICAO for processing in time for the planned December 2013 implementation.

3.1.16 The NAT SPG was informed that NAT IMG/42 had agreed that efforts should be spent in order to merge the PfA related to reduced separation predicated on RCP/RSP with the current PfA related to the 30 NM lateral, 30 NM and 50 NM longitudinal separation minima implementation in New York Oceanic FIR and to present the NAT SPG/49 with the outcome of such efforts. In this regard, the NAT IMG invited Canada, Iceland, the United Kingdom and the United States to endeavour to produce a merged proposal for amendment on reduced separations predicated on RCP and RSP to the NAT SUPPs (Doc 7030), based on the two draft proposals for amendment.

3.1.17 The United States, in consideration of a planned implementation of 30 NM lateral, 30 NM and 50 NM longitudinal separation minima in December 2013 in the New York Oceanic FIR, felt that the merge could potentially delay the planned implementation. The NAT SPG understood the rationale, and therefore agreed that a sequential submission and circulation of the PfAs concerned was advisable, with priority being placed on the PfA related to the New York Oceanic FIR. It was agreed that the second PfA, related to reduced separation predicated on RCP/RSP, would be submitted after the approval of the first PfA. Nevertheless the NAT SPG noted some differences in the wording of parts of the two PfAs, and considered that further alignment of the two proposals for amendment should be addressed before either of them was submitted.

3.1.18 Taking into account the foregoing, the NAT SPG agreed to the following:

NAT SPG Conclusion 49/07 – Proposal for amendment to NAT SUPPS on 30 NM Lateral, 30 NM and 50 NM Longitudinal Separation Minima in New York Oceanic FIR

That:

a) the United States revise its PfA to the *North Atlantic Regional Supplementary Procedures* (SUPPs), (Doc 7030), provided at **Appendix G** to address some potential discrepancies with the future PfA on separation minima predicated on RCP/RSP;

b) the United States submit the revised proposal for amendment to the *North Atlantic Regional Supplementary Procedures* (SUPPs), (Doc 7030); and

c) ICAO Regional Director, Europe and North Atlantic process the proposed amendment in accordance with the formal procedures.

NAT RLatSM Planning

3.1.19 The NAT SPG was presented with the outcome reached at NAT IMG/42 on a proposed update to the *Draft Implementation Plan for the Trial Application of reduced lateral separation minima* (RLatSM) in the NAT Region (Draft NAT RLatSM Plan), along with an explanation on the process that led to the proposed update, with key supporting figures on forecast of percentage of aircraft FANS 1/A equipage.

3.1.20 The NAT SPG noted the need to identify various versions of the same document affected by regular amendments and the NAT IMG agreement to associate to all documents concerned (e.g. Implementation Plans etc.) a version number with the format: V.YYYY.N (where YYYY representing the year when the specific version of the document was approved and N a sequential number identifying the number of the versions within that year).

3.1.21 Based on the foregoing, the NAT SPG agreed on the following:

NAT SPG Conclusion 49/08 – Updates to the Draft NAT RLatSM Plan

That:

a) the updated *Draft Implementation Plan for the Trial Application of Reduced Lateral Separation Minima* (RLatSM) *in the NAT Region* (Draft NAT RLatSM Plan V.2013.1) as detailed in **Appendix H** be endorsed; and

b) the ICAO Regional Director, Europe and North Atlantic take appropriate action to publish the updated Draft NAT RLatSM Plan.

3.1.22 The NAT SPG noted that the NAT IMG had endorsed a review by the NAT Safety Analysis and Reduced Separation Implementation Group (SARSIG) of a Safety Analysis of Input and Display of ½ Degree Coordinates in Support of RLatSM, which summarised the Hazard Identification and Risk Assessment (HIRA) activity that took place to assess the hazard caused to incorrect ½ degree coordinates input into the flight management computer (FMC) by crew (NAT SPG Conclusion 45/22 refers). The NAT SPG noted the HIRA team outcome, and the view from NAT IMG that this addressed item a) of NAT SPG Conclusion 45/22, and also concurred with the NAT IMG recommendation to further address mitigation of ½ degree misconstrued routes. The NAT SPG agreed that with that exception, all other items of the said conclusion have already been addressed in the current work programme of the NAT IMG.

3.1.23 IFALPA expressed their concern that manual inputs were prone to errors, and that they were in favour of a better use of automated means to upload routes directly.

3.1.24 Based on the foregoing the NAT SPG agreed on the following:

NAT SPG Conclusion 49/09 – Completion of ½ degree coordinates hazard analysis

That:

a) the Safety Analysis of Input and Display of ½ Degree Coordinates in Support of Reduced Lateral Separation Minima (RLatSM) meets the requirements set forth in NAT SPG Conclusion 45/22; and

b) NAT IMG work programme be updated to include actions to address the mitigation of ½ degree misconstrued flight routes, and to facilitate the use of automated systems to upload routes directly into the flight management computer (FMC).

MNPS to PBN PfA to the NAT Regional SUPPs

3.1.25 The NAT SPG was presented with a recommendation from the NAT IMG for a PfA to the NAT SUPPs (Doc 7030) to address step 2.4 of the NAT MNPS to PBN Transition Plan, and agreed on the following:

NAT SPG Conclusion 49/10 – NAT SUPPs Proposal for Amendment (MNPS to PBN)

That:

a) the United States submit the proposal for amendment to the *NAT Regional Supplementary Procedures* (SUPPs) (Doc 7030) as detailed in **Appendix I**; and

b) the ICAO Regional Director, Europe and North Atlantic, process the proposed amendment in accordance with the formal procedures.

ADS-B via Low Earth Orbiting Satellites

3.1.26 The NAT SPG was presented with an overview of the results of the benefits assessment performed to support NAV CANADA's plans to implement reduced aircraft separation minima between aircraft operating within portions of the ICAO NAT Region through the use of automatic dependent surveillance-broadcast (ADS-B) OUT via Low Earth Orbiting Satellites (LEOS).

3.1.27 The LEOS benefits assessment included an assumption that RLongSM and RLatSM would have already been implemented, in accordance with the current plans endorsed by NAT SPG. The analysis estimated the effects if a 15 NM longitudinal separation minimum and a 30 NM lateral separation minimum could be applied between applicable aircraft, using ADS-B. Scenarios using the NAT organised track system (OTS) traffic from June 2012, with some adjustments to account for expected fleet changes, were run on NAV CANADA's Total Airspace and Airport Modeller (TAAM) fast time simulation tool in order to estimate possible fuel savings. Wind forecasts from the National Oceanic and Atmospheric Administration (NOAA) were used to provide the wind effects. The scenarios assumed that by 2018 all aircraft would be data link capable and that 90% of them would be equipped with ADS-B. 600 flights were simulated.

3.1.28 A conservative estimation of fuel savings per ADS-B equipped flight was 450 litres, for the oceanic portion only, although it could be expected that some benefits would be accrued outside this airspace. It was estimated that, over a year, at least 282,000 flights could benefit from LEOS ADS-B, with potential fuel savings of 127 million litres.

3.1.29 The high level assessment took into account the potential benefits from implementing LEOS ADS-B in 8 oceanic areas (for comparison purposes, the Gander and Shanwick oceanic control areas (OCA) were included as one of the areas). This assessment estimated fuel savings accruing from up to 3 climbs per flight being accommodated. Such an operational improvement was viewed as achievable and also

conservative. This assessment estimated total fuel savings in 2018 of approximately 439 million dollars (Canadian) and a concomitant savings of more than 1 million tonnes of CO_2 emissions.

3.1.30 The NAT SPG noted the information and invited NAV CANADA to provide further updates on the future development of this project, including financial and system performance aspects.

NAT Region Data Link Mandate Phase 2

3.1.31 The NAT SPG was presented with the outcome reached at NAT IMG/42 on a proposed text for the Recommendation for Phase 2 of the NAT Data Link Mandate (DLM Phase 2), along with an explanation on the process that led to this Recommendation, with key supporting figures on forecast of percentage of FANS 1/A equipage in aircraft.

3.1.32 The NAT SPG noted the recommendation that Phase 2 of the NAT DLM should be implemented in a 3-step progression to support an end-state goal of at least 90% of aircraft operating in the ICAO NAT Region non-ATS surveillance airspace being equipped in accordance with NAT SUPPs (Doc 7030) paragraphs 3.3.1 and 5.4.1 by the end of 2018, and of 95% of aircraft being equipped by 2020. This goal would be supported by implementing airspace requirements that would become effective prior to 2018 mainly affecting the NAT OTS, but with the notification that requirements affecting the entire ICAO NAT region would become effective in 2017 and 2020.

3.1.33 The NAT SPG also noted that the initial time frame would support the implementation of Module B0-40 of Aviation Systems Block Upgrade (ASBU) Block 0 within the expected time frame (Module B0-40 related to "*safety and efficiency improvements in en-route airspace through the implementation of data link, including ADS-C capabilities for conformance monitoring*").

3.1.34 The NAT SPG agreed on the specific vertical and horizontal boundaries of Phase 2 of the DLM airspace including the airspace to be excluded from it, and agreed that the rationale supporting the exclusion of portions of airspace, should be inserted in the form of footnotes to the Recommendation. The NAT SPG also discussed the need for a PfA to the NAT SUPPs (Doc 7030/5) to reflect the agreed DLM Phase 2, and recalled that the current NAT SUPPs provisions already indicated that NAT DLM Phase 2 implementation was to commence on 2015. Furthermore, since it was also agreed that the NAT SPG should review the NAT DLM Implementation Plan on an annual basis, amending the NAT SUPPs to take into account each possible adjustments, was considered as inappropriate. Therefore, only harmonised AIP provisions announcing Phase 2 implementation steps (2A, 2B and 2C) and associated policies would be required.

3.1.35 Finally, the NAT SPG commended the outstanding work of all stakeholders that contributed to the development of the DLM Phase 2 Implementation Plan and agreed to the following:

NAT SPG Conclusion 49/11 – NAT Region Data Link Mandate (DLM) Phase 2

That, with the main objective of mitigating safety risk in the NAT Region:

a) the Phase 2 of the implementation of the NAT Region Data Link Mandate, as contained in **Appendix J** be approved;

b) the United States coordinate the development of a draft document to support NAT Provider States to publish harmonised AIP provisions announcing Phase 2 implementation steps (2A, 2B and 2C) and associated policies and present a draft to the next NAT ATMG;

c) NAT IMG/43 be mandated to review and approve the draft document mentioned in b) above;

d) the Secretariat develop a NAT OPS bulletin based on the document approved as per c) above; and

e) the NAT SPG review the NAT DLM Implementation Plan on an annual basis.

Volcanic Ash Exercises

3.1.36 The NAT SPG was informed about the progress of the volcanic ash exercises conducted in the EUR/NAT Regions that included one exercise conducted in the far Eastern Russian Federation from 15-16 January 2013 (called VOLKAM13) and one exercise conducted in Iceland and Northern Europe from 23-24 April 2013 (called VOLCEX13/01).

3.1.37 The NAT SPG noted that, in general, the objectives of VOLKAM13 were met, with many lessons learned and recommendations identified at the VOLKAM13 debrief meeting held in Paris on 19 February 2013. In addition, the VOLKAM14 planning meeting is expected to take place in Magadan, Russian Federation from 20-22 August 2013, to simulate a volcano eruption in Kamchatka in January 2014.

3.1.38 It was also noted that the most recent volcanic ash exercise conducted in the EUR/NAT Regions, VOLCEX13/01, simulated a volcano eruption of Katla in Iceland on 23 and 24 April 2013. The NAT SPG was informed that the objectives were mostly achieved, noting the special air-reports on volcanic ash were mainly sent from dispatch to VAACs via email, which was not in compliance with Annex 3 requirements. The NAT SPG also noted that, as VAACs London and Toulouse served as backups for each other in different days, the handover occurred after a several hour pause in the exercise, and it could not be considered a real-time handover.

3.1.39 With respect to this exercise, the NAT SPG noted the significant participation amongst airspace users (53 operators, both civil and military participated in the exercise).

3.1.40 The NAT SPG was informed that several issues were identified and expected to be provided in the final exercise report that would be available at the following website:

http://www.paris.icao.int/Met/Volc_Ash/Volc_Ash_Reports-home.htm.

3.1.41 The NAT SPG noted that the VOLCEX13/01 debrief meeting took place on 4 June 2013 and produced a list of lessons learned and actions.

3.1.42 The NAT SPG was informed that the next exercise (VOLCEX13/02) would take place on 23 October 2013 from 0730 to 1730 UTC with a simulated eruption occurring at 0900 on 22 October 2013. Its debrief meeting was expected to be held on 3 or 4 December 2013 in Exeter, United Kingdom.

3.1.43 Finally, the NAT SPG was presented with proposed changes to the terms of reference of the European and North Atlantic Volcanic Ash Exercises Steering Group (EUR/NAT VOLCEX/SG) meant to streamline its work and ensure an appropriate and effective composition/representation. Therefore the NAT SPG agreed to the following:

NAT SPG Conclusion 49/12 – Update terms of reference of EUR/NAT VOLCEX/SG

That:

a) the terms of reference of the European and North Atlantic Volcanic Ash Exercises Steering Group (EUR/NAT VOLCEX/SG) be amended as presented at **Appendix K** to this report; and

b) the ICAO Secretariat coordinate with EANPG the approval of the revised terms of reference.

Space Weather

3.1.44 The NAT SPG was informed about the decision taken by the NAT IMG/42 meeting (NAT IMG Decision 42/6 refers) involving the development of a contingency procedure in the NAT Region to respond to the negative effect of space weather on NAT operations. The NAT SPG noted that the work programmes of NAT ATMG, NAT CNSG and NAT ACSG had been amended to develop draft contingency

procedure for extreme space weather events for inclusion in NAT Doc 006, taking into account the developments at the global level (e.g. outcomes of the International Airways Volcano Watch Operations Group, amendment 77 to Annex 3, the Manual on Space Weather Impacts on International Air Navigation (available November 2013) and the concept of operations for the provision of space weather information in support of international air navigation (available July 2014).

3.2 PERFORMANCE MONITORING

NAT Data Link Performance

3.2.1 The NAT SPG was presented with a trial 2012 data link performance report covering the controller pilot data link communications (CPDLC)/automatic dependent surveillance –contract (ADS-C) performance reports and equipage statistics for the ICAO NAT Region. The NAT SOG noted that the 2012 trial data link performance report would be used as a template for future annual reports (NAT IMG Decision 42/3 refers).

3.2.2 The NAT SPG was informed that the data link performance data indicated a notable improvement of the data link performance observed from 2010 to 2013 as a result of collaborative efforts by the NAT air navigation service providers (ANSPs), communications service providers (CSPs), satellite service providers (SSPs), NAT DLMA and aircraft operators. However, two parameters remained challenging, namely consistently meeting pilot operational response time (PORT) and the 99.9% time criterion of RCP240 and RSP180.

3.2.3 With regards to the PORT, it was noted that this parameter was an estimate and the main measurement of the performance was the actual communication performance (ACP) and that PORT can be improved through pilot training and flight deck procedures. It was also noted that when considering time measurements, the 95% time measurement was the key safety one based on which decisions on whether to continue or not providing the associated separation minima predicated on RCP/RSP would be taken. The 99.9% criterion was a target value for further system improvements. These methods for determining compliance with RCP/RSP performance specifications as described above were consistent with the GOLD provisions and were considered to be fully in line with the safety management system (SMS) notion of targets and indicators.

3.2.4 The NAT SPG recalled that with regard to the NAT SPG/48 discussion (NAT SPG/48 report paragraph 3.2.15 refers) concerning compliance of ARINC and SITA with paragraph 2.2.3 of the ARINC 620 (Data Link Ground System and Interface) specification, a fast track procedure for safety occurrences was initiated. As a result, ARINC had implemented in September 2012 a solution meeting the foregoing specification requirements and SITA was in the process of discussing technical implementation details and would inform about agreed implementation timelines by September 2013.

I4 Classic Aero sub-network performance acceptability for FANS 1/A data link services

3.2.5 The NAT SPG was informed that a performance assessment of the communications services provided by Inmarsat I4 Classic Aero satellites and sub-network had been carried out and demonstrated that the performance was suitable for FANS 1/A data link operations. Therefore, it was agreed that FANS 1/A over Inmarsat I4 Classic Aero should be recognized as an acceptable means of compliance to the NAT Region data link mandate requirements and be considered eligible for CPDLC and ADS-C operations in the ICAO NAT Region, as had been done for other sub-networks via NAT SPG Conclusion 48/10. Therefore, the NAT SPG approved the following:

NAT SPG Conclusion 49/13 – Acceptability of I4 Classic Aero sub-network for FANS 1/A data link services

That FANS 1/A over Inmarsat I4 Classic Aero sub-network demonstrate performance acceptable for the use of data link services on a continuous basis.

Future of the NAT DLMA GOLD- performance analysis service (G-PAS)

3.2.6 The NAT SPG was informed that at the 41st Meeting of the NAT IMG, the United States had advised that the contractual arrangements which provided some of the NAT DLMA analytical and problem report resolution activities would expire in 2 years and that a significant fee increase would be required to renew the arrangement. Accordingly, the United States was developing a concept for a web-based service called the GOLD performance analysis service (G-PAS). The NAT IMG acknowledged that a solution would need to be found to allow the NAT DLMA to continue to function effectively in supporting the ICAO NAT Region data link programme.

3.2.7 The NAT SPG noted that the need for ensuring a continuous regional data link performance monitoring function in the NAT had also been highlighted by the NAT performance based communication and surveillance workshop which was held from 20 to 22 February 2013 in the ICAO EUR/NAT Office. The workshop had identified the following main issues that need to be addressed with respect to the implementation of the G-PAS:

a) funding;

b) security; and

c) resource management.

3.2.8 The NAT SPG noted that the issue needed to be urgently addressed due to the limited time available until the current contractual arrangements expire (end of 2014). Furthermore, the technical and financial aspects would need to be studied to identify an optimal solution. In view of the above, the NAT SPG agreed to the following:

NAT SPG Conclusion 49/14 – Evolution of the NAT DLMA towards the NAT G-PAS

That:

a) the NAT IMG develop (by the NAT IMG/43 meeting) the Terms of Reference defining the NAT Region requirements for the NAT GOLD-Performance Analysis Service (G-PAS), including information technology, supporting tools and security policies;

b) the NAT EFG study and identify (by the NAT EFG/25 meeting) regional funding solutions for the implementation of the NAT G-PAS;

c) the ICAO Regional Director, Europe and North Atlantic, circulate by e-mail correspondence the outcome of the NAT IMG and NAT EFG work to the NAT SPG members for approval; and

d) a report be provided to NAT SPG/50.

4. NAT OPERATIONAL AND SAFETY IMPROVEMENTS

4.1 ENGAGE

4.1.1 The NAT SPG was presented with an update on the Europe North America Go ADS-B for a Greener Environment (ENGAGE) project, conducted under the auspices of the Single European Sky ATM Research Programme (SESAR) Joint Undertaking (SJU). The NAT SPG noted also that NAV CANADA

was the project leader for ENGAGE, working collaboratively with partner airlines and the United Kingdom ANSP, UK NATS.

4.1.2 The NAT SPG noted that, as reported to NAT SPG/48, the first phase of the project (ENGAGE I), completed in 2011, provided evidence that fuel and emissions reductions would be realized when flight profiles in the ICAO NAT Region were modified dynamically at the pilot's discretion, without individual ATC clearances for previously coordinated and approved changes in altitude or speed. An average reduction of 500 litres of fuel consumption and 1300 kg of carbon dioxide equivalents (CO_2) emissions were achieved during each of the 23 successful trials involving commercial aircraft which occurred in the Gander and Shanwick OCAs.

4.1.3 The NAT SPG noted that the second phase of this project, ENGAGE II - Safety Analysis (October 2012 to 28 May 2013), expanded the project airspace by involving additional ANSPs (ISAVIA and NAV Portugal), more operators and also an increased number of operations from single to multiple operations a day in a successful cooperation with the ATC units, ANSPs and airspace users. The NAT SPG recognized the importance of the ANSPs participation and also the relevant contribution of the airspace users in the progress of this project.

4.1.4 The NAT SPG noted that an assessment of the changes required to procedures and documentation would be conducted in order to sustain the implementation of ENGAGE-like initiatives beyond the demonstration and trial stages. Canada was in charge to coordinate development of the necessary documentation proposals and seek support and endorsement through the NAT SPG working structure. Additionally, the NAT SPG agreed that the related documentation to this project should be amended to reflect all possible changes in order to help airspace users apply the new procedures in a safe way.

4.1.5 The representative from IATA appreciated the initiative of the ENGAGE project and highlighted the benefits in terms of fuel savings. However the implementation of ENGAGE and future projects would be more beneficial to operators if ATC flight data processing systems were adapted to accept variances from operators of the planned flight profile. This capability could allow operators the opportunity to adopt optimal pre-departure fuelling policies.

4.1.6 The representative of Iceland reminded the NAT SPG of the existence of two populations of aircraft, i.e. data link and non-data link equipped aircraft. With regard to the future updates in the ATC automated systems, the representative from Iceland highlighted the existing technical inadequacy[1] in the architecture of the current FDPS (Flight Data Processing systems) to accept and treat the flight profiles when associated with dynamic changes made at the pilot's discretion.

4.1.7 The NAT SPG noted that the ENGAGE Project II trial period closed on 28 May 2013, as scheduled. Although not all of the environmental, economic and safety surveys had been received from operators and analyzed, preliminary results indicated savings in line with the ENGAGE I series of trials completed in 2011.

4.1.8 The NAT SPG invited the NAT IMG to use the procedures supporting the ENGAGE trials as a basis to further address the NAT IMG Decision 40/27 – Development of variable altitude and speed clearance procedures, including the development of a safety case.

5. SAFETY MONITORING

5.1 NAT SOG OUTCOME

5.1.1 The NAT SPG reviewed the outcome of the eighth meeting of the NAT SOG, which had taken place from 28 to 31 May 2013.

[1] ARINC 623-3 Character-Oriented Air Traffic Service (ATS) Applications does not allow variable Mach number.

5.1.2 The NAT SPG reviewed a proposal to include a copy of the Oceanic Errors Safety Bulletin (OESB) in post-occurrence correspondence from reporting agencies to air operators, and agreed to the following:

NAT SPG Conclusion 49/15 – Inclusion of the OESB in post-occurrence correspondence from reporting agencies to air operators

That:

a) Air Navigation Services Providers (ANSPs) which provide services in the ICAO NAT Region include, when appropriate, a copy of the Oceanic Errors Safety Bulletin (OESB) in their correspondence when notifying air operators of an occurrence; and

b) this procedure be included in the ICAO NAT Region consolidated reporting document currently under development.

5.1.3 The NAT SPG discussed a proposal to establish target levels for the vertical risk, which had originated initially from recommendations by the NAT Vertical Risk Task Force (VRTF), further reviewed and amended by NAT SOG/08. Accordingly, the NAT SPG agreed to the following:

NAT SPG Conclusion 49/16 – Target levels for the vertical risk

That:

a) Long Duration (LD) Large Height Deviations (LHDs) in the vertical dimension are defined as those LHD events which are 10 minutes or more;

b) The definition of LD LHD be reviewed annually in order to maintain improvement in reduction to LHD's;

c) A target is to reduce the number of LHDs in the NAT RVSM airspace over a three year rolling average;

d) A target is to reach a total number of LHD events within the NAT RVSM airspace by 2018 not exceeding 85 per year;

e) A target is to reduce the total number of minutes associated with the three longest LHDs within the NAT RVSM airspace;

f) A target is to eliminate the LD LHD events within the NAT RVSM airspace by the end of 2018; and

g) The NAT SOG request trend specific action when any adverse trend develops.

5.1.4 The NAT SPG discussed ways to optimize the work undergoing within its contributory bodies to amend the guidance regarding the application of SLOP contained in the *North Atlantic Operations and Airspace Manual* (NAT Doc 007). Recalling that the NAT VRTF was working on this matter and that this task force gathered expertise from both the NAT SOG and NAT IMG, the NAT SPG agreed to the following:

NAT SPG Conclusion 49/17 – Review and consolidation of proposals made within the NAT SPG for the amendment of the guidance related to the Strategic Lateral Offset Procedure (SLOP) in the NAT Doc 007 and associated documentation

That the VRTF:

a) in coordination with the NAT DMO, review and consolidate proposals made within the NAT SPG working structure for the amendment of the guidance material related to the Strategic lateral offset procedure (SLOP) in the NAT Doc 007 and associated documentation; and

b) report the outcome to NAT SOG/09.

Reporting of the required traffic activity data to the NAT Mathematicians' Working Group (NAT MWG)

5.1.5 With respect to the reporting of flight activity data by ANSPs to support the determination of estimates of safety performance, the NAT SPG was informed that the existing reporting formats, as specified in the GOLD, could be augmented to act as a basis for exchanging such data (paragraph 1.7.1 also refers). The NAT SPG noted the willingness expressed by the United States to act as the repository for the data. The NAT SPG was also informed that currently, raw data was not exchanged nor confirmed at the NAT MWG and that, for commercial reasons, Canada and the United Kingdom could not contribute to a common flight activity database outside of Canada or the United Kingdom. It was suggested that if required, Canada or the United Kingdom could act as a repository for the data capitalizing on their non-disclosure agreement. Bilateral agreements between ANSPs could be used to increase the area of consideration for improving the calculation of regional risk estimates.

5.1.6 Regarding the frequency of the flight activity data collection, it was recalled that the NAT MWG work was accomplished annually and that the NAT MWG requested data samples to be made available by the end of January, or as soon as practical following the end of the calendar year. The NAT SPG agreed that the required traffic activity data should be provided by the ANSPs serving Gander, Shanwick, New York, Reykjavik and Santa Maria OCAs to the NAT MWG as soon as practicable after the end of each calendar quarter (paragraph 1.7.1 also refers).

Safety aspects of Data Link Mandate

5.1.7 The NAT SPG took note of the safety work on the effect of data link implementation in the ICAO NAT Region, for various implementation scenarios/options, which had been performed by the United States in the latter half of 2012 and updated in early 2013, and reviewed in various NAT SPG contributory groups including NAT SOG/07. The NAT SPG agreed that continuation of such safety analyses was necessary for it to make informed decisions about moving forward with Phase 2 of the data link expansion (paragraph 1.7.1 also refers). Accordingly, the NAT SPG agreed to the following:

NAT SPG Conclusion 49/18 – Safety Aspects of Data Link Mandate (DLM) Implementation

That the NAT Implementation Management Group (NAT IMG) ensure the continuation of the following safety analysis work ongoing under the auspices of its contributory Safety Analysis and Reduced Separation Implementation Group (NAT SARSIG):

a) continued analysis and monitoring of the effect of data link, ATS interfacility data communication (AIDC) and enhanced automation on safety;

b) evaluation of DLM Phase 1;

c) continued assessment of DLM equipage on the NAT Organised Track System (OTS) and in the ICAO NAT Region; and

d) analysis of future scenarios for DLM Phase 2B and 2C.

Issue of Oceanic Clearances

5.1.8 The NAT SPG received a short briefing on a fast track procedure initiated by Canada who expressed their concerns on some recent changes that had been implemented by New York ARTCC with respect to the oceanic clearance delivery procedures. The NAT SPG took note that, during NAT SOG/08, a small group of representatives from Canada, Iceland, the United Kingdom and the United States, with the support of the NAT SOG and NAT IMG Chairmen, had agreed to exchange their views and any relevant information available to them regarding the issue of oceanic clearances.

6. NAT DOCUMENTATION

6.1 NAT SERVICE DEVELOPMENT ROADMAP

6.1.1 The NAT SPG was provided with an updated *NAT Service Development Roadmap* (NAT SDR), containing the mapping of the ICAO NAT Region plans with the appropriate modules of the revised *ICAO Global Air Navigation Plan* (GANP) and associated Aviation System Block Upgrades (ASBU). The NAT SPG recalled that the NAT SDR was a living document outlining the major NAT programmes and timelines for their implementation. At the lower level, the SDR was supported by executive summaries of the NAT programmes with hyperlinks to more detailed programme documentation. The NAT SPG noted that the NAT SDR underwent a recent format and content revision to make it more suitable for overall management and coordination of the NAT programmes. The recent revision included a mapping versus ASBU modules, facilitating the alignment of regional planning with the global one and identifying the NAT regional priorities and targets. This would also assist in further reporting on the progress of ASBU implementation in the ICAO NAT Region.

6.1.2 Therefore, the following NAT SPG Conclusion (policy statement) was approved for inclusion in the *NAT SPG Handbook*, the *NAT Air Navigation Plan* (Doc 9634) and FASID (Doc 9635):

NAT SPG Conclusion 49/19 – Mapping of the NAT SDR with the ICAO GANP/ASBU

That:

a) the *NAT Service Development Roadmap* (SDR) and executive summaries (**Appendix L** to this Report) is endorsed as a formal document providing a mapping of the NAT Region implementation plans with the ICAO *Global Air Navigation Plan* (Doc 9750) and Aviation System Block Upgrades (ASBU) modules, identifying priorities and setting targets; and

b) the ICAO Regional Director, Europe and North Atlantic, take appropriate actions to amend the *NAT SPG Handbook*, the ICAO *NAT Air Navigation Plan* (Doc 9634) and *Facilities and Services Implementation Document* (Doc 9635) to include a reference to the *NAT Service Development Roadmap* (SDR) and its executive summaries.

6.2 GLOBAL OPERATIONAL DATA LINK DOCUMENT

6.2.1 The NAT SPG was presented with Edition 2.0 of the *Global Operational Data Link Document* (GOLD) as developed by the GOLD ad-hoc working group. It was noted that Edition 2.0 was applicable to the existing data link implementations, i.e. FANS 1/A, ATN B1 and FANS 1/A-ATN B1, merging and harmonising the FANS 1/A and Link2000+ guidance material. The remaining regional differences were included in Appendix E of the GOLD (which was also amended to group differences per ICAO Region).

6.2.2 The NAT SPG noted that Edition 2.0 of the GOLD had been reviewed by NAT IMG/42 that recommended the approval of the document for application in the NAT. It was also noted that the ICAO Operational Data Link Panel (OPLINKP) agreed to add an action on its work programme to review the GOLD aiming at approving it as a global ICAO document.

6.2.3 In view of the above, the NAT SPG thanked the GOLD ad-hoc working group for the excellent work done and approved the following:

NAT SPG Conclusion 49/20 – Approval of Edition 2.0 of the GOLD

That:

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

i) publish the approved *Global Operational Data Link Document* (GOLD), Edition 2.0, for application in the ICAO NAT Region, as presented at **Appendix M** to this Report; and

ii) promulgate Edition 2.0 of the GOLD to the ICAO NAT user and provider States for perusal as guidance material in the implementation of data link, as appropriate;

b) the GOLD Edition 2.0 be frozen in order to allow the progress of the work at global level aiming at approving GOLD as a global ICAO document.

6.3 UPDATES TO DOCUMENTS MANAGED BY THE NAT IMG

Air Traffic Management Operational contingency plan - North Atlantic Region (NAT Doc 006) and North Atlantic Operations and Airspace Manual (NAT Doc 007)

6.3.1 The NAT SPG was presented with an update to the *Air Traffic Management Operational contingency plan - North Atlantic Region* (NAT Doc 006) originating from Canada, along with an update to the *North Atlantic Operations and Airspace Manual* (NAT Doc 007) for consistency reasons, that had been endorsed at NAT IMG/42. Consequently the NAT SPG agreed to the following:

NAT SPG Conclusion 49/21 – Amendments to NAT Doc 006 and NAT Doc 007

That:

a) the proposal for amendment to the *Air Traffic Management Operational contingency plan - North Atlantic Region* (NAT Doc 006), as detailed in **Appendix N** be endorsed;

b) the *North Atlantic Operations and Airspace Manual* (NAT Doc 007) be amended accordingly, to be consistent with NAT Doc 006; and

c) the ICAO Regional Director, Europe and North Atlantic, take appropriate actions to publish and promulgate the updated NAT Doc 006 and NAT Doc 007.

NAT Doc 007 and NAT IGA updates

6.3.2 The NAT SPG was also presented with a proposed update to the NAT Doc 007, endorsed at NAT IMG/42, to make more visible in the NAT documentation that, in regard to the NAT Data Link Mandate (DLM), an agreement reached amongst the Shanwick OACC, the Gander OACC, the Santa Maria OACC and the Reykjavik ACC did not allow non-equipped aircraft for Phase 1 of the DLM to join or cross the tracks specified in the mandate during the NAT OTS validity period. The continuous climb or descent through the specified levels was nevertheless available, subject to the traffic situation. Consequently the NAT SPG agreed to the following:

NAT SPG Conclusion 49/22 – Amendment to NAT Doc 007 concerning NAT Operating Procedures

That:

a) the *NAT Operations and Airspace Manual* (NAT Doc 007) be amended as follows:

4.1.6 Aircraft without the equipage necessary for the Data Link Mandate will not be permitted to join or cross the tracks specified in the mandate during the OTS validity period. For such aircraft, however, continuous climb or descent through the specified levels may be available, subject to traffic; and

Note: Subsequent paragraphs renumbered

b) the ICAO Regional Director, Europe and North Atlantic take appropriate actions to publish and promulgate the updated NAT Doc 007.

6.3.3 The amendment to NAT Doc 007 as a result of the above two recommendations (paragraphs 6.3.1 and 6.3.2 refer) are presented at **Appendix O** to this Report.

6.3.4 The NAT SPG reviewed a proposal from the NAT Document Management Office (DMO) to address the need to update NAT Doc 007 to ensure consistency with the existing NAT documentation as well as to promote it as the NAT reference "Operations and Airspace Manual" as its recent title suggested. It was noted that NAT Doc 007 was currently the primary North Atlantic Region guidance material for both aircraft operators and the regulators responsible for their operating approval, and that as such, it needed to include reference to all current procedures and practices which were unique to the ICAO NAT Region and to provide sufficient detail and the intended schedule of all future proposed changes and/or developments, so that all parties concerned could be properly prepared to embrace these changes.

6.3.5 The NAT SPG also noted the need to address the current and future status of the *North Atlantic International General Aviation Operations Manual* which was still extant, although it had not been updated since 2004. The group concurred that the NAT Doc 007 was the appropriate vehicle for all NAT operation and airspace related matters, and therefore agreed to the following:

NAT SPG Conclusion 49/23 – Amendment to NAT Doc 007 by NAT DMO

That:

a) the NAT DMO develop, in coordination with the NAT SPG contributory bodies, the necessary amendments to NAT Doc 007 to address the changes listed in **Appendix P**;

b) the *North Atlantic International General Aviation Operations Manual* be discontinued after relevant portions have been incorporated into NAT Doc 007; and

c) the ICAO Regional Director, Europe and North Atlantic, take appropriate actions to publish and promulgate the updated NAT Doc 007.

Application of Separation Minima – NAT Region (NAT Doc 008)

6.3.6 The NAT SPG noted that the NAT IMG/42 agreed the amendment to the *Application of Separation Minima – NAT Region* (NAT Doc 008) and that, in consideration of the current procedures for amending documents promulgated in the ICAO NAT Region (*NAT SPG Handbook* (NAT Doc 001) refers), no further action was required by the NAT SPG. Nevertheless, considering the specific nature of NAT Doc 008, the NAT SPG agreed to amend the provisions of the *NAT SPG Handbook* regarding NAT Doc 008 as follows:

NAT DOC 008 - Application of Separation Minima – North Atlantic Region
Kept under review by NAT ATMG - Amendments approved by NAT IMG after coordination with NAT SOG

7. WORK PROGRAMME INCLUDING SUB-GROUPS

7.1 NAT IMG OUTCOME

7.1.1 The NAT SPG noted that the NAT IMG met twice since NAT SPG/48 (NAT IMG/41 took place from 6 to 9 November 2012 in Lisbon, Portugal and NAT IMG/42 was held from 13 to 16 May 2013 in Oslo, Norway).

7.1.2 The NAT SPG was advised that the NAT IMG was presented with the initiative of the United States (US) Federal Aviation Administration (FAA) Oceanic & Offshore Operations Group to develop an integrated NextGen Oceanic and Offshore concept of operations and associated documents that would be used as a basis to identify, implement and ensure funding of current and future oceanic and offshore concepts and programs. This process would culminate in an oceanic/offshore operational roadmap that would be derived from research, coordination, and collaboration with stakeholders. The NAT SPG noted that these products would identify benefits, and recommend concepts for automation systems, equipment, and procedures, taking into account future technologies both nationally and internationally. This vision would be harmonized with domestic US procedures and operating systems, and coordinated with adjacent international air navigation service providers (ANSP). The project was scheduled to be completed by September 2015.

7.1.3 The NAT SPG noted that the United Kingdom presented the NAT IMG with the results of the operational trial of RLongSM against the agreed success criteria, based on data collected in Shanwick OCA between 31 March 2011 and 31 December 2012. The collected data for this period covered over 3500 RLongSM pairs, of which 2225 pairs involved climb/descent. Analysis of the 3752 validated pairs (up to end December 2012) suggested that only two pairs of flights had minimum longitudinal separations of less than 5 minutes. A further, more detailed investigation of these two flight pairs had revealed that adequate separation had existed. It was noted that no safety events related to RLongSM[2] or evidence of changes to the trends in occupancy or Strategic Lateral Offset Procedures (SLOP) usage were observed during this period. Parameters related to systems/communication performance were all similar to the values assumed for the purposes of collision risk modelling.

7.1.4 The NAT SPG also noted that the collision risk assessment in support of RLongSM was presented by the United Kingdom to both the main plenary of the ICAO Separation and Airspace Safety Panel (SASP) (29 October – 2 November 2012) and its Mathematicians Sub Group (MSG). Following review and discussion by both groups, the safety assessment was fully accepted as a proof of concept of the RLongSM procedure for global use. The United Kingdom accepted the request from NAT SPG to provide a similar briefing to the NAT SOG.

7.1.5 The NAT SPG noted the NAT IMG agreement that the NAT Safety Analysis and Reduced Separation Implementation Group (SARSIG) had completed the work required for safety assessments in support of the planned reductions in RLongSM in the ICAO NAT Region and the agreement that the OCAs continue to monitor the uptake and safety performance of RLongSM and report any safety occurrences.

7.1.6 The NAT SPG noted that the NAT IMG was presented by the NAT Vertical Risk Task Force (VRTF) with information concerning several mitigation measures identified to reduce Large Height Deviations (LHD) in the NAT Region and the review of the last three years' LHDs and investigations, analyses detailing common vertical LHD causes and proposed mitigations.

7.1.7 The NAT SPG recalled that at its 48th meeting, the NAT SPG empowered the NAT IMG to review and, if appropriate, endorse the first edition of the SATVOICE Guidance Material (SVGM) on its behalf (NAT SPG Conclusion 48/8 refers). The NAT SPG noted that the NAT IMG/41 had endorsed, on behalf of the NAT SPG, Edition 1.0 of the SVGM as guidance material applicable to the ICAO NAT Region.

[2] Large Height Deviations (LHDs), Gross Navigation Errors (GNEs), Traffic Collision Avoidance System (TCAS) reports, wake vortex reports and controller overload reports)

7.1.8 The NAT SPG noted that that NAT IMG/43 would be held from 5 to 8 November 2013 in the EUR/NAT Office of ICAO in Paris and the plan to hold the NAT IMG/44 meeting from 13 to 16 May 2014 in Canada.

ADS-B equipage requirements

7.1.9 The NAT SPG was informed that a PfA to the NAT SUPPs (Doc 7030) had been initiated to indicate that aircraft should not operate ADS-B equipment in ADS-B surveillance provided areas unless position information transmitted was of a quality consistent with the values of the quality indicators. The proposed amendment was intended to duplicate a similar amendment being developed by the Asia and Pacific (APAC) Office of ICAO.

7.1.10 The NAT SPG noted that coordination was taking place between ICAO EUR/NAT and APAC Regional Offices, Headquarters and States in both Regions, to finalize a harmonized proposal for amendment.

7.1.11 The NAT SPG agreed that the resulting proposal would be circulated by the ICAO Secretariat to the NAT SPG members for comments prior to being processed through the formal ICAO machinery.

7.2 REPORT OF THE NAT EFG

7.2.1 The NAT SPG was presented with the outcome of the NAT Economic and Financial Group (EFG) twenty-fourth meeting that took place in the European and North Atlantic (EUR/NAT) Office of ICAO, from 17 to 19 April 2013.

7.2.2 The NAT SPG noted the suggestion from NAT EFG that the Alternative Benefits Model (NAT SAM) could be used as a common model to support both NAT IMG's and NAT EFG's recommendations. The NAT SPG also noted the subsequent request of the NAT EFG to have Key Performance Indicators (KPIs) in the NAT SAM tool that were consistent with the one used by the NAT IMG.

7.2.3 Based on the forgoing, the NAT SPG agreed to the following:

NAT SPG Conclusion 49/24 – Harmonization of the list of NAT EFG and NAT IMG KPIs

That the NAT EFG and NAT IMG:

a) review their respective list of Key Performance Indicators (KPIs), and identify those of common interest;

b) agree on the definition, unit, and usefulness of the KPIs identified in a) above; and

c) report to NAT SPG/50.

7.3 IMPROVED EFFICIENCIES FOR ICAO NORTH ATLANTIC REGIONAL GROUPS

7.3.1 The NAT SPG recalled that a NAT SPG Symposium on Structure and Working Methods had been convened in the European and North Atlantic (EUR/NAT) Office of ICAO in Paris from 3 to 5 November 2008 to, *inter-alia*, review the structure and working methods of the NAT SPG.

7.3.2 The United States presented the NAT SPG with some views meant to implement cost-saving measures while maintaining safe and efficient management of the North Atlantic airspace and invited the NAT SPG to direct the NAT IMG and NAT SOG to explore ways to expedite current work processes, and to convene a working group to work with the NAT IMG and NAT SOG to improve efficiency and achieve cost savings.

7.3.3 The United States expressed their concern that the current structure of the NAT SPG (based on the three pillars: the Economic and Financial Group (NAT EFG), the NAT Implementation Group (NAT IMG), the NAT Safety Oversight Group (NAT SOG) and their contributory bodies) and the existing process, wherein each subgroup reviews material and forwards inputs through the hierarchy ultimately to the NAT SOG and/or NAT IMG, was not only time-consuming, but restricted open discussion and resolution of issues between the subgroups. In many cases, the same representatives attended different subgroup meetings and addressed the same issues.

7.3.4 The NAT SPG discussed the proposals presented in the working paper and agreed to invite the NAT IMG and NAT SOG to explore ways to expedite current work processes through alternative ways such as web and telephone conferences. It was however considered premature to convene a working group to work with the NAT IMG and NAT SOG to explore ideas on improving working group efficiencies. Instead, it was considered more appropriate that the Chairmen of NAT IMG and NAT SOG bring up the discussion within their own Groups, involving the Rapporteurs of their subgroups and explore and identify avenues to improve the efficiency of the work. Therefore the NAT SPG agreed to the following:

NAT SPG Conclusion 49/25 – Explore ideas to expedite current work processes

That:

a) the NAT IMG and NAT SOG explore ways to expedite current work processes through web conferences and telephone conferences;

b) the Chairmen of NAT IMG and NAT SOG, together with the *Rapporteurs* of their subgroups, explore ideas to improve NAT SPG contributory bodies efficiencies; and

c) report the outcome to NAT SPG/50.

7.4 TRANS-REGIONAL AIRSPACE AND SUPPORTING ATM SYSTEMS STEERING GROUP

7.4.1 The United States presented the NAT SPG with a proposal inviting the ICAO Secretariat to schedule a Trans-Regional Airspace and Supporting Air Traffic management Steering Group (TRASAS) meeting in late 2013 or early 2014. The NAT SPG recalled that TRASAS, led by the Directors from the ICAO EUR/NAT, ICAO Asia Pacific (APAC), and ICAO North American, Central American and Caribbean (NACC) Regional Offices, consisted of representatives from Canada, China, Democratic People's Republic of Korea, Denmark, Finland, Iceland, Japan, Mongolia, Norway, Republic of Korea, Russian Federation, United States, International Air Carriers Association (IACA), the International Air Transport Association, and the International Business Aviation Council (IBAC).

7.4.2 The NAT SPG noted that this multi-regional forum provided an opportunity for the regions to provide information on current initiatives and to identify and discuss potential issues in a global and harmonized approach. The past TRASAS meetings included updates from the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), European Air Navigation Planning Group (EANPG), CAR/SAM Regional Planning and Implementation Group (GREPECAS) and North Atlantic Systems Planning Group (NAT SPG) as well as global areas such as Flight Plan 2012. It was also noted that TRASAS would work closely with aircraft operators' international organizations to ensure that known and expected requirements for international and domestic routings and cost-effective implementation were taken into account.

7.4.3 The NAT SPG recalled that TRASAS was called to coordinate international civil aviation requirements for coherent and economically viable and operationally optimal structures of ATS routes, linking city pairs in Europe and Asia, Europe and North America, and Asia and North America. TRASAS was also responsible for ensuring coordination between the regions on various technical and operational aspects and providing one coherent overall plan.

7.4.4 In considering the inter-regional coordination required to implement the outcome of the 12th Air Navigation Conference and the future outcome of the 38th Session of the ICAO Assembly, the NAT SPG agreed to invite the ICAO Secretariat (ICAO EUR/NAT Regional Office, in cooperation with the ICAO APAC, and ICAO NACC Regional Offices) to schedule a TRASAS/4 meeting early 2014.

8. ANY OTHER BUSINESS

8.1 NAT FAST TRACK PROCEDURE FOR SAFETY OCCURRENCES

8.1.1 The NAT SPG agreed that the current NAT fast track procedure for safety occurrences needed revision and that this matter would be addressed by the ICAO Secretariat as a proposed draft, along with the revision of the terms of reference of the NAT SPG and its contributory bodies. The newly developed procedures would be presented by the Secretariat to the next NAT IMG and NAT SOG meetings and the consolidated final draft would be presented for revision and approval to NAT SPG/50.

8.2 UPDATE TO TORS OF NAT SPG AND ITS SUBGROUPS

Updates to the NAT SPG Terms of Reference concerning requests to attend NAT SPG as Observers

8.2.1 The NAT SPG noted that a user State that was not a member State of the NAT SPG had submitted a request to attend the NAT SPG meeting as an Observer. In this respect, it was noted that the current provisions in the NAT SPG Terms of Reference did not provide sufficient guidance on the actions to be taken in such situations. Consequently, the NAT SPG agreed that the text as shown in **Appendix Q** be inserted in its Terms of Reference under the section concerning "Observers" (p. 8) in the *NAT SPG Handbook* (NAT Doc 001).

Updates to the NAT SPG Terms of Reference concerning elections of Chairmen and Rapporteurs

8.2.2 The NAT SPG recalled that, at NAT SPG/47 in June 2007, the ICAO Secretariat had been tasked to coordinate a common approach for the nomination/review of chairmanship/rapporteurship for discussion at the NAT SPG sub-groups and report the outcome of the deliberations at the next NAT SPG.

8.2.3 Accordingly, an initial proposal to amend the ToRs of the NAT SPG and its Contributory Groups was presented to the NAT IMG/42 (Oslo, 13-16 May 2013) and the NAT SOG/08 (Reykjavik, 28-31 May 2013) meetings. It was noted however that the proposal had not been presented to the NAT EFG and NAT TFG for comments.

8.2.4 The initial proposal from the Secretariat suggested that:

a) the review of chairmanship be conducted for the NAT SPG, NAT EFG, NAT IMG, NAT SOG and NAT TFG, upon request by its member States, every four years. In the absence of a request by a member State, it would be considered implicit that the Chairman's term was renewed for the next four years; and

b) the review of rapporteurship be conducted for the NAT IMG and NAT SOG Contributory Groups, upon request by their respective member States, every two years. In the absence of a request by a member State, it would be considered implicit that the Rapporteur's term was extended for another period of two years. Requests for changes should be made only when necessary.

8.2.5 The NAT IMG/42 reviewed the proposal and made the following comments:

a) review of rapporteurship term be extended from two years to four years (same as chairmanship);

b) the ACSG and OPS/AIR sub-groups Terms of Reference be updated to reflect the same provisions as for the parent groups;

c) a vice-Chairman position be created and reflected in the ToRs of the NAT SPG, NAT EFG, NAT IMG and NAT SOG;

d) the *NAT SPG Handbook* (NAT Doc 001) be amended to state basic requirements for chairmen, vice-chairmen and rapporteurs (e.g. a minimum working experience within the working structure of NAT SPG, professional credibility etc); and

e) a staggered transition be set up in order to avoid that the leadership structure of NAT SPG be changed at the same time.

8.2.6 In their considerations of the proposal by the Secretariat and the views expressed by NAT IMG/42, the NAT SOG/08 proposed that:

a) a vice-Chairman position be created for the NAT IMG and the NAT SOG, and that the NAT SOG and NAT IMG Chairmen serve as NAT SPG vice-Chairmen;

b) the Chairmanship of the NAT SPG be reviewed, through an election, on a four-year basis;

c) the Chairmanship/Rapporteurship of the NAT SPG Contributory Groups be reviewed, through an election, on a two-year basis;

d) in the event that a Chairman was unable to complete a term, another election be held;

e) guidelines regarding the qualifications and experience needed for Chairmen, vice-Chairmen and Rapporteurs be included in the *NAT SPG Handbook* (NAT Doc 001); and

f) an election, even if unopposed, was the preferred option for the review of the NAT SOG Chairmanship at the end of each term.

8.2.7 After considering the varying arguments put forward regarding the process and period for the review of Chairmanship/Rapporteurship and the relevant updates to the ToRs of the NAT SPG, the following working arrangements and principles were agreed:

a) elections of Chairmen and Rapporteurs of the NAT SPG and its Contributory Groups would be conducted routinely every four years, and in the event that a Chairman is unable to complete a term, another election would be held;

b) the number of terms that a Chairman/Rapporteur could serve would not be limited in view of the routine election process;

c) a vice-Chairman position would be created for the NAT IMG and the NAT SOG;

d) the NAT IMG and NAT SOG Chairmen would serve as NAT SPG vice-Chairmen;

e) the elections of vice-Chairmen of the NAT IMG and NAT SOG would be conducted normally at the same time as the elections of the NAT IMG and NAT SOG Chairmen;

f) increased commitment was required of the NAT IMG and NAT SOG Chairmen in light of their roles as NAT SPG vice-Chairmen;

g) the newly elected NAT SPG Chairman would assume his functions at the conclusion of the meeting during which he was elected;

h) the newly elected Chairmen and Rapporteurs of the NAT SPG Contributory Bodies would assume their functions at the next meeting following confirmation of their elections by their parent groups;

i) the ACSG and OPS/AIR sub-groups Terms of Reference would reflect the same provisions as for the parent groups; and

j) the following calendar of review/elections of Chairmen and Rapporteurs of the NAT SPG and its Contributory Groups would be followed:

MEETING	1ST REVIEW	2ND REVIEW	CONFIRMED BY
NAT SPG	2015	2019	NAT SPG
NAT TFG	2016	2020	NAT SPG
NAT EFG	2015	2019	NAT SPG
NAT IMG	Spring 2014	Spring 2018	NAT SPG
NAT SOG	Spring 2013	Spring 2017	NAT SPG
NAT ATMG	Fall 2014	Fall 2018	NAT IMG
NAT SARSIG	Fall 2015	Fall 2019	NAT IMG
NAT CNSG	Fall 2016	Fall 2020	NAT IMG
NAT ACSG	2016	2020	NAT CNSG
NAT OPS/AIR	2014	2018	NAT SARSIG
NAT MWG	2015	2019	NAT SOG
NAT SG	Fall 2016	Fall 2020	NAT SOG

8.2.8 Regarding the issue that the NAT SPG Chairman would not serve as Chairman of NAT IMG or NAT SOG during his term as NAT SPG Chairman, supported by Canada, Ireland, the United Kingdom and the United States, the NAT SPG did not reach a consensus and therefore agreed to readdress this issue at NAT SPG/50.

8.2.9 Bearing in mind that the above calendar was established to avoid disruption to the NAT SPG work programme caused by too many changes to the leadership structure of the NAT SPG, the following NAT SPG Conclusion was agreed:

NAT SPG Conclusion 49/26 – Calendar of nomination/review of chairmanship/ rapporteurship of the NAT SPG and its Contributory Groups

That the NAT SPG and its Contributory Groups conduct the review for the Chairmanship/ Rapporteurship of their respective Groups according to the calendar shown in paragraph 8.2.7 of the NAT SPG/49 Report.

8.2.10 Based on the above considerations, the NAT SPG agreed that the proposed process for the nomination/review of chairmanship/rapporteurship and the guidelines concerning the basic requirements for chairmen, vice-chairmen and rapporteurs to be inserted in the *NAT SPG Handbook*, (NAT Doc 001) under "Conduct of the meetings of the NAT SPG groups and sub-groups" (p. 9) and the relevant updates to the

ToRs of the respective groups as shown in **Appendix R** should form the basis of Amendment 2 to the *NAT SPG Handbook* (NAT Doc 001).

8.2.11 In considering all the above proposed updates to the NAT SPG Terms of Reference and *NAT SPG Handbook*, as shown in Appendices **Q, R and S**, the following NAT SPG Conclusion was agreed:

NAT SPG Conclusion 49/27 – Revised terms of reference for the NAT SPG and its Contributory Groups

That:

a) the terms of reference of the NAT SPG and its Contributory Groups be modified as shown in **Appendices Q, R** and **S** to this report;

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

i. take the necessary steps to update the *NAT SPG Handbook* (NAT Doc 001) to reflect the revised terms of reference for the NAT SPG and its Contributory Groups; and

ii. publish the updated version of NAT Doc 001 on the ICAO EUR/NAT website by the end of July 2013.

8.3 FAREWELLS

8.3.1 A fond farewell was bid to Mr Mark Seal, the outgoing Representative of IFALPA, who would be stepping down in view of his retirement. Mark had a long experience working with the NAT SPG since 2006 and his constructive contribution would be missed. The Group wished Mark and his family all the best in their future endeavours.

8.4 NEXT MEETING

8.4.1 The Group agreed to convene its Fiftieth Meeting in the EUR/NAT Office of ICAO in Paris, France, from 23 to 27 June 2014.

Appendix A – List of Participants

(Paragraph 0.3 refers

Chairman

Ásgeir PÁLSSON

CANADA

Larry LACHANCE
Denis GUINDON
Rob THURGUR

DENMARK

Kirsten SONDERBY
Henrik HOLM

FRANCE

Murielle SUFFRIN

ICELAND

Hlín HÓLM
Leifur HAKONARSON
Ingunn ÓLAFSDÓTTIR

IRELAND

Peter KEARNEY
John Mc GRATH

NORWAY

Roald Anton LARSEN

PORTUGAL

Carlos ALVES
Albano COUTINHO

UNITED KINGDOM

Finlay SMITH
Alastair MUIR
Stuart LINDSEY

UNITED STATES

Heather HEMDAL
Anthony FERRANTE
Leslie SMITH
Kevin HAGGERTY
Dave KNORR

NAT CMA

David NICHOLAS

IATA

Jeffrey T. MILLER

IBAC

Peter INGLETON

IFALPA

Mike HYNES
Mark SEAL

ICAO

Luis FONSECA DE ALMEIDA
(ICAO RD, NAT SPG Secretary)
George FIRICAN *(NAT IMG secretary)*
Celso FIGUEIREDO
Elkhan NAHMADOV
Nicolas RALLO
Rodolphe SALOMON
Patricia CUFF
Nikki GOLDSCHMID
Patricia CAVISTON
Catherine DALY
Isabelle HOFSTETTER

Appendix B – Review of Conclusions and Decisions of NAT SPG/48

(*paragraph 1.6.1 refers*)

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/1	**Updated NAT RLatSM Task List**	That the ICAO Regional Director, Europe and North Atlantic, publish the updated *Task List Supporting the Trial Implementation of RLatSM in the ICAO NAT Region*, as provided at Appendix C to this report, on the ICAO EUR/NAT website no later than 2 July 2012.	ICAO European and North Atlantic Office	Posting on ICAO EUR/NAT website	July 2012 - completed	To note
C48/2	**Updated NAT RLatSM Concept of Operations**	That: a) the NAT Implemenation Management Group use the updated RLatSM Concept of Operations provided in Appendix D to this report to further develop an implementation plan for reducing lateral separation to 25 nautical miles in the ICAO NAT Region; b) the ICAO Regional Director, Europe and North Atlantic: i) coordinate with ICAO Headquarters in order to initiate the development of global provisions; and ii) publish the updated RLatSM Concept of Operations on the ICAO EUR/NAT website no later than 2 July 2012; and c) this conclusion supersedes NAT SPG Conclusion 47/2.	ICAO European and North Atlantic Office/ NAT IMG ICAO European and North Atlantic Office/HQ-ATM	Implementation plan Global provisions	July 2012 a) completed b)i) coordination complete b)ii) complete June 2013	the ANC to issue a Job-card on RLatSM (for the SASP) for global implementation

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/3	**Updated Draft NAT RLatSM Plan**	That the ICAO Regional Director, Europe and North Atlantic, publish the updated Draft Implementation Plan for the Trial Application of RLatSM in the NAT Region (Draft NAT RLatSM Plan) as provided in Appendix E to this report on the ICAO EUR/NAT website no later than 2 July 2012.	ICAO European and North Atlantic Office	Publication of Draft Implementation Plan on the EUR/NAT website	July 2012 - complete	To note
C48/4	**Updated NAT RlongSM Plan**	That the ICAO Regional Director, Europe and North Atlantic, publish the updated Implementation Plan for the Trial Application of RLongSM in the NAT Region (NAT RLongSM Plan) and accompanying success criteria for the Reduced Longitudinal Separation of 5 minutes between Automatic Dependent Surveillance – Contract (ADS-C) equipped aircraft (RLongSM) validation trial as provided in Appendix F of this report on the ICAO EUR/NAT website no later than 2 July 2012.	ICAO European and North Atlantic Office	Publication of updated Implementation Plan on the EUR/NAT website	July 2012 - complete	To note
C48/5	**MNPS to PBN Transition Plan**	That the: a) ICAO Regional Director, Europe and North Atlantic, publish the MNPS to PBN Transition Plan for the ICAO NAT Region as provided in Appendix G to this report on the ICAO EUR/NAT website no later than 2 July 2012; and b) NAT Implementation Management Group continue to update the Plan.	ICAO European and North Atlantic Office/IMG	Publication of Transition Plan on the EUR/NAT website	July 2012 - complete	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/6	**NAT SUPPs PfA for Milestone 1 of MNPS to PBN Transition**	That Iceland submit the Proposal for Amendment (PfA) of the North Atlantic Regional Supplementary Procedures (NAT SUPPs, Doc 7030), provided in Appendix H to this report, to the European and North Atlantic Office of ICAO for processing	Iceland	Submission of PfA ICAO EUR/NAT Office	Proposal submitted via IOM 12-0502 to HQ on 27 June 2012 HQ advised okay to circulate Circulation initiated via State Letter 12-0542.TEC dated 16 July 2012 - deadline for replies 7 September 2012 PfA submitted to HQ 23 October 2012 - IOM 12-0755	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/7	**Applicability of communication and surveillance performance specifications**	That: a) the current separation standards/minima are strategic in nature and not predicated on RCP and RSP; b) communication and surveillance performance specifications will be prescribed when required for reduced separation minima that are predicated on communications and surveillance performance; c) although current separation minima are not predicated on RCP or RSP, NAT data link operations will use RCP and RSP for gauging communications and surveillance performance as follows: i) CPDLC performance will be measured against RCP 240, as defined in GOLD; ii) ADS-C performance will be measured against RSP 180, as defined in the GOLD. d) the performance specifications envisaged for the operational RlongSM and RLatSM implementations, RCP 240 and RSP 180 are the candidate specifications to be prescribed, subject to validation by the RLongSM and RLatSM trials; and e) further applications of RCP/RSP to communication and surveillance capability may be considered by NAT SPG in situations where it has been found to be beneficial. At such time, the NAT Performance Based Communication and Surveillance Implementation Plan will be amended.	NAT SPG	Amendment to NAT Performance Based Communication and Surveillance Implementation Plan as necessary	Complete - added to the NAT SPG Handbook as a Policy Conclusion (Implementation Planning) as part of Amendment 1 (July 2012).	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/8	**SATVOICE Guidance Material (SVGM) Review and approval process**	That, at its 41st meeting, the NAT Implementation Management Group be mandated, on behalf of the NAT SPG, to review, approve and process further, as appropriate, the SATVOICE Guidance Material (SVGM) v 1.0.	NAT SPG/ NAT IMG	Approval of SVGM	-IRSVTF provided with updated version via email (SVGM (6 July 2012) V1 to group IRVSTF.msg) -NAT ATMG/40 WP/12 distributed on 31 July 2012 to provide latest SVGM draft for review NAT ATMG/40 - 10-14 September 2012 NAT CNSG/07 - 24-28 September 2012 -Presented to NAT IMG/41 with input from NAT CNSG and NAT ATMG in WP/05 -NAT IMG/41 approved the document. Amendment to be sent to APAC for consideration	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/9	**Addressing the Pilot Operational Response Time (PORT) issue**	That the ICAO Regional Director, Europe and North Atlantic, invite aircraft operators to review their flight crew procedures and training programmes to ensure that the data link use related issues are properly addressed and in accordance with the Global Operational Data Link Document (GOLD) provisions.	ICAO European and North Atlantic Office	Communication with aircraft operators	Complete - State Letter 12-0482.TEC dated 22 June 2012	To note
C48/10	**Acceptability of various sub-networks' performance for FANS 1/A data link services**	That FANS 1/A or equivalent over Inmarsat I3 Classic Aero, Iridium Short Burst Data and Very High Frequency (VHF) sub-networks demonstrate performance acceptable for the use of data link services.	ICAO European and North Atlantic Office	Amendment to NAT SPG Handbook	Added to NAT SPG Handbook as a Policy Conclusion (Implementation of Data Link) as part of Amendment 1 (July 2012)	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/11	**NAT Vertical Risk Task Force**	That: a) the terms of reference of the NAT Vertical Risk Task Force as provided at Appendix J to this report are endorsed; b) the ICAO Regional Director, Europe and North Atlantic, initiate coordination no later than 2 July 2012 with the members of the NAT Implementation Management Group and the NAT Safety Oversight Group to nominate participants; and c) a NAT Vertical Risk Reduction Implementation Plan be submitted to NAT SPG/49.	ICAO European and North Atlantic Office	Nomination of participants to NAT Vertical Risk Task Force Submission of Implementation Plan	Initial coordination completed with NAT IMG and NAT SOG Chairmen. Task Force co-chairs nominated (Hlin Holm (Iceland - NAT SOG) and Ted Fudge (Canada - NAT IMG)). Request for nominations via State Letter 12-0503.TEC dated 26 June 2012 Initial coordination started by the two co-chairs c)June 2013	To note
C48/12	**Recommendations to the NAT SPG**	That the: a) procedure for formulating recommendations to contributory groups as detailed in Appendix K to this Report is endorsed; and b) NAT SPG contributory groups be advised to use the procedure to formulate recommendations for consideration by the NAT SPG.	ICAO European and North Atlantic Office	Amendment to NAT SPG Handbook	Procedure added to NAT SPG Handbook as part of Amendment 1 (July 2012)	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/13	**Prevention of lateral deviations at domestic/oceanic interfaces**	That the NAT Implementation Management Group initiate action to determine and implement processes and procedures to support the prevention of lateral deviations occurring immediately after entering oceanic airspace	NAT IMG	Implementation of processes and procedures	June 2013 Task given to NAT ATMG, report back to NAT IMG in May and NAT SPG in June	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/14	**Confirm placement of reroute notification in CPDLC messages**	That all Air Navigation Services Providers which provide services in the ICAO NAT Region confirm to the NAT Implementation Management Group that Controller Pilot Data Link Communications (CPDLC) messages contain a ―reroute‖ notification at the beginning of the message rather than at the end.	ICAO European and North Atlantic Office and member ANSPs	Confirmation of message format	Complete - at NAT ATMG/40, Portugal and United States (only NAT States which currently use CPDLC to provide route clearances) confirmed that a re-route indication is the first element in such a CPDLC message; Iceland, which plans to use CPDLC to provide route clearances, confirmed a reroute indication will be first element in such CPDLC messages when the capability is implemented. NAT IMG/41 advised via WP/16	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/15	**Clarify SLOP guidance within NAT Doc 007**	That the text within paragraph 8.5.3 b) of the North Atlantic Operations and Airspace Manual (NAT Doc 007) pertaining to the application of the Strategic Lateral Offset Procedures (SLOP) be amended as follows: It is recommended that pilots of aircraft capable of programming automatic offsets should preferably not fly the centre line but rather elect to fly an offset one or two nautical miles to the right of the centre line in order to obtain lateral spacing from nearby aircraft (ie those immediately above and/or below). Pilots should use whatever means are available (e.g. TCAS, communications, visual acquisition, GPWS) to determine the best flight path to fly.	ICAO European and North Atlantic Office	Amendment to NAT doc 007	New proposal made by IATA to NATIMG/41 - WP23 refers. Task given to ATMG to review the text and provide input to NAT IMG/42 June 2013	To note
C48/16	**Resolution of Automatic Dependent Surveillance – Contract (ADS-C) related system design issues**	That the NAT Implementation Management Group, taking account of the trend in recent long-duration large height deviations exacerbated by data link log-on issues: a) initiate action to identify the system weaknesses and failures which result in position information provided via data link not being used appropriately, or not being received; b) implement appropriate mitigation(s); and c) provide information to the NAT Safety Oversight Group concerning the effectiveness of the implemented mitigation(s).	NAT IMG	Report to NAT SOG	June 2013 Task given to NAT ATMG and CNSG, report back to NAT IMG in May and NAT SPG in June	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/17	**Collection of traffic activity data to improve system performance estimation**	That the: a) NAT IMG investigate the feasibility of the ANSPs serving Gander, Shanwick, New York, Reykjavik and Santa Maria OCA to provide air traffic activity data from the 4th and the 15th of each month to the NAT Mathematicians' Working Group (NAT MWG); b) data requested in a) include: i) operator and aircraft type, time, position, level and assigned Mach number from all compulsory reporting points (waypoints), including oceanic entry and oceanic exit points; ii) estimated time of arrival at each subsequent waypoint to the waypoints listed in i), except the oceanic exit point; and iii) suitable identification, e.g., registration or other unique indication, so that the disparate data sources can be combined; c) data described in (b) be provided in ASCII text in comma-separated-variable (CSV) format; and d) the NAT SOG advise NAT SPG/49 of how often and to whom the requested data should be provided.	NAT SOG, NAT IMG and member ANSPs	NAT SOG report to NAT SPG	June 2013	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/18	**Establishment of safety KPIs for the ICAO NAT region**	That the NAT SPG: a) adopt the following as safety Key Performance Indicators (KPI) for the ICAO NAT Region: i) number of hull loss events; ii) number of Airborne Collision Avoidance System (ACAS) Resolution Advisory (RA) events; iii) number of Large Height Deviation (LHD) events; iv) number of minutes that aircraft spend at the wrong flight level; v) performance in the vertical dimension against the vertical Target Level of Safety (TLS); vi) number of minutes spent away from air traffic control cleared route; vii) number of Gross Navigation Error (GNE) events; viii) performance in the lateral dimension against the lateral TLS;and b) add to the NAT Safety Oversight Group terms of reference the responsibility to: i) collect data on and monitor the safety KPIs as listed in a); ii) advise the NAT SPG annually on the performance of the ICAO NAT Region in relation to the safety KPIs; and iii) keep under review and, when appropriate, propose revisions to the safety KPIs.	NAT SPG	Adoption of KPIs Changes to NAT SOG TOR	NAT SPG Handbook amended to include this as a Policy Conclusion (Safety Related Policies) and to amend the NAT SOG Terms of Reference as part of Amendment 1. June 2013 – report to NAT SPG/49	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/19	**Provision of detailed oceanic event reports to the NAT CMA**	That the ICAO Regional Director, Europe and North Atlantic, request States responsible for providing air navigation services in the ICAO NAT Region to take the necessary steps to ensure that the appropriate Air Navigation Services Providers will, as of 30 September 2012, include at least the information detailed in Appendix L to this report in occurrence reports submitted to the NAT Central Monitoring Agency (NAT CMA).	ICAO European and North Atlantic Office	Updated occurrence reports to NAT CMA	Sep 2012 – complete State Letter 12-0504.TEC sent 7 August 2012 Content of Appendix L added to the NAT SPG Handbook as part of Amendment 1 (Detailed Event Report Content) (July 2012)	To note
C48/20	**Consolidated ICAO NAT Region safety occurrence reporting requirements document**	That the NAT Safety Oversight Group develop a document in which all safety occurrence reporting requirements within the ICAO NAT Region will be consolidated and present it to NAT SPG/49.	NAT SOG	Consolidated report	June 2013	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/21	**Lateral deviation classifications**	That the: a) following definitions be used when classifying reports made to the NAT CMA: i) a lateral deviation is any actual deviation from the cleared track other than those covered by the Strategic Lateral Offset Procedures (SLOP); ii) a Gross Navigation Error (GNE) is a lateral deviation from a cleared track by 10 Nautical Miles (NM) or more; iii) an ATC Intervention is an event where the Air Traffic Controller (ATCO) caught and corrected a lateral deviation before it developed into a GNE; and iv) an ATC Prevention is an event where the ATCO intervention prevented a lateral deviation; and b) NAT CMA initiate GNE-related follow up actions in regard to GNEs of 25 NM or more	NAT SOG / NAT CMA	New report classification and follow-up activities	Complete State Letter 12-0504.TEC sent 8 August 2012. NAT CMA advised Conclusion added to NAT SPG Handbook as part of Amendment 1 (July 2012) as a "Safety Related Policy"	The ANC requests the Secretariat informs the SASP of the classification of lateral deviations work
C48/22	**Provision of information to the NAT CMA**	That, in order to ensure a complete picture of safety occurrences: a) the NAT CMA establish a safety occurrence follow-up procedure to request missing information from service providers that have been involved in an occurrence; and b) the ICAO Regional Director, Europe and North Atlantic, request States responsible for providing air navigation services in the ICAO NAT Region to implement appropriate procedures to ensure the effective and timely provision of the information needed or requested by the NAT CMA	NAT CMA / ICAO European and North Atlantic Office	Procedures	a)CMA on going b) Complete - State Letter 12-0504.TEC sent 8 August 2012	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/23	**Updates to NAT Doc 001**	That the ICAO Regional Director, Europe and North Atlantic: a) take the necessary steps to update the NAT SPG Handbook (NAT Doc 001) in accordance with the outcome of NAT SPG/48; and b) publish the updated version of NAT Doc 001 on the ICAO EUR/NAT website no later than 20 July 2012.	ICAO European and North Atlantic Office	Update and publication of NAT Doc 001	July 2012 Amendment 1 to the NAT SPG Handbook completed 4 July 2012. State Letter 12-0521.TEC dated 4 July 2012 sent	To note
C48/24	**Update of NAT Doc 007 on basis of NAT IMG inputs**	That the: a) title of NAT Doc 007 be changed to North Atlantic Operations and Airspace Manual; b) NAT Document Management Office use the material provided in Appendix M and Appendix N of this Report to develop appropriate material for inclusion in the next amendment to NAT Doc 007; and c) next update of NAT Doc 007 be completed no later than 31 October 2012.	NAT Document Management Office	NAT Doc 007 updated and title changed	December 2012 Amendment to NAT Doc007 under process. New edition expected at the end of 2012	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/25	**ATS surveillance charts**	That Iceland, in coordination with the NAT Document Management Office, prepare up to two charts depicting where Air Traffic Services (ATS) surveillance services are provided in the ICAO NAT Region for inclusion in the North Atlantic Operations and Airspace Manual.	Iceland/ NAT Document Management Office	Charts	December 2012 Amendment to NAT Doc007 under process. New edition expected at the end of 2012	To note
C48/26	**NAT Doc 007, 2012 Edition**	That the NAT Document Management Office: a) continue to manage the North Atlantic Operations and Airspace Manual (NAT Doc 007); b) in coordination with the ICAO Secretariat, prepare an amendment to NAT Doc 007 taking into account the decisions of NAT SPG/48 and changes to the air navigation system in the ICAO NAT Region since June 2011; and c) arrange to publish the 2012 Edition of NAT Doc 007 electronically no later than 31 October 2012	ICAO European and North Atlantic Office/ NAT Document Management Office	Publication of 2012 edition of NAT Doc 007	October 2012 Amendment to NAT Doc007 under process. New edition expected at the end of 2012	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/27	**Approval of the NAT FPL2012 and AIDC implementation plan**	That the ICAO Regional Director, Europe and North Atlantic, take appropriate measures for publication of the ICAO NAT FPL2012 and AIDC Implementation Plan (Appendix O to this Report).	ICAO European and North Atlantic Office	Publication of ICAO NAT FPL2012 and AIDC Implementation Plan	Complete - State Letter 12-0480.TEC dated 19 June 2012 sent. FPL2012 and AIDC implementation plan uploaded to website 25 June 2012 (EUR & NAT Documents >> NAT Documents >> Planning documents supporting separation reductions and other initiatives)	That the ANC requests the Secretariat to provide an accurate report on the transition to FPL2012 and in particular to provide information on the extent of true implementation as opposed to the use of conversion fixes. That the AIDC implementation plan is considered a global issue and takes appropriate action.
C48/28	**Establishment of an inter-regional APAC/NAT AIDC task force**	That the ICAO Regional Director, Europe and North Atlantic: a) take appropriate measures to coordinate with the Asia and Pacific (APAC) Office of ICAO regarding the need to establish an inter-regional APAC/NAT Air Traffic Services (ATS) Inter-Facility Data Communication (AIDC) task force; and b) following a positive opinion of the APAC Office of ICAO, take appropriate measures for the establishment of the inter-regional APAC/NAT AIDC task force with the Terms of Reference as provided at Appendix P to this Report.	ICAO European and North Atlantic Office	Coordinate the establishment of an inter-regional APAC/NAT AIDC TF	Complete - IOM 12-0479 sent 19 June 2012 Positive response from APAC Office of ICAO received Invitation letter sent: reference EUR/NAT 12-0714.TEC (NAE/DAC) of 9 October 2012	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/29	**Proposal for Amendment of the NAT Basic ANP**	That: a) the new format of the Air Navigation Plan - North Atlantic Region (NAT ANP, Doc 9634), Volume I, Basic ANP, as presented in Appendix Q to this report, is endorsed; and b) the ICAO Regional Director, Europe and North Atlantic, on behalf of the NAT SPG, undertake appropriate action to ensure that the new format is processed as a proposal for amendment of the NAT ANP, Volume I, Basic ANP.	ICAO European and North Atlantic Office	Processing of new format for ANP	Complete - Coordination carried out with focal point at ICAO HQ via IOM 12-0505 dated 26 June 2012. Regional Offices have been instructed to await outcome of 12th Air Navigation Conference and to develop ANP updates accordingly, to be submitted by 1 June 2013, with expected approval by end of July 2013. It should be noted that NAT update did not include AGA, CNS or MET	To note

Conclusion/ Decision No	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Reporting/ Completion date	Action Recommended to the ANC by the WG/SRP
C48/30	**Publicizing potential benefits of RLongSM trial**	That the NAT SPG, desiring to maximize the fuel savings and associated reductions in CO2 emissions which could result from aircraft operating at more optimimum flight profiles in the ICAO NAT Region, invite airspace users and professional organisations together with NAT DMO to: a) develop and implement appropriate measures to: i) increase awareness in the airspace user community regarding the increased operational flexibility resulting, inter-alia, from the validation trial for the implementation of a Reduced Longitudinal Separation Minimum of 5 minutes between Automatic Dependant Surveillance - Contract (ADS-C) equipped aircraft (RLongSM) in the ICAO NAT Region; and ii) encourage flight crews to request vertical and speed changes for more fuel-efficient flight profiles; and b) provide an update to NAT SPG/49.	NAT SPG States	Report on requests for vertical and speed changes	June 2013	To note

The Council agreed to three Strategic Objectives for the triennium 2011to 2013 as follows (C-DEC 188/13 refers):

Strategic Objective A: Safety — Enhance global civil aviation safety

Strategic Objective B: Security — Enhance global civil aviation security

Strategic Objective C: Environmental Protection and Sustainable Development of Air Transport — Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment

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Appendix C – 2012 Safety KPIs

(paragraph 2.1.1 refers)

Reporting period: from 01/01/2012 to 31/12/2012			
safety KPI			**Value**
i)	number of hull loss events		0
ii)	number of Airborne Collision Avoidance System (ACAS) Resolution Advisory (RA) events		1
iii)	number of Large Height Deviation (LHD) events		93
iv)	number of minutes that aircraft spend at the wrong flight level		724
v)	performance in the vertical dimension against the vertical Target Level of Safety (TLS)**		16.8×10^{-9} fapfh*
vi)	number of minutes spent away from air traffic control cleared route		See note***
vii)	number of Gross Navigation Error (GNE) events	GNEs ≥ 25 NM	19
		GNEs ≥ 10 NM < 25 NM	33
		Total GNEs	52
viii)	performance in the lateral dimension against the lateral TLS		0.0×10^{-9} fapfh

*fatal accidents per flight hour
** incorporating the effect of the Strategic Lateral Offset Procedure (SLOP)

***Note- Not routinely reported (requires currently undefined criteria to determine).

Appendix D – NAT Performance Based Communication and Surveillance Implementation Plan (NAT PBCS)

(Paragraph 3.1.3 refers)

NAT Performance Based Communication and Surveillance Implementation Plan (NAT PBCS)

v-2013-1

As approved by NAT SPG Conclusion 49/03

Note 1.— This plan addresses the application of Required Communication Performance (RCP) and Required Surveillance Performance (RSP) to Associated with the NAT data link operations, including the NAT Data Link Mandate, services in support of RLongSM and RLatSM . Further applications of RCP/RSP to communication and surveillance capability may be considered by NAT SPG in situations where it has been found to be beneficial. At such time, the NAT Performance Based Communication and Surveillance Implementation Plan would be amended. The application of RCP and RSP may include any one or more of the following:

a) Air traffic services (ATS) provision and prescription (in accordance with ICAO Annex 11, paragraph 2.8) in ICAO Doc 7030 and/or Aeronautical Information Publication (or equivalent publication) of a RCP specification for a communication capability and/or a RSP specification for a surveillance capability, either of which is required for the ATS in a particular airspace;

b) Operator authorization (under Air Operator Certificate, special authorization or equivalent, in accordance with ICAO Annex 6) of a communication and/or surveillance capability including aircraft equipage where RCP and/or RSP specifications have been prescribed for the communications and/or surveillance capabilities supporting the ATS provision; and

c) Post-implementation monitoring of actual communication and surveillance performance, including compliance determination against RCP and RSP specifications, as provided in the Global Operational Data Link Document (GOLD), Appendix B and C, respectively, and corrective action, as appropriate, in accordance with ICAO Annex 11, paragraph 2.27.5, and the GOLD, Appendix D.

Note 2.— Consistent with ICAO Doc 4444, Appendix 2, Item 10, a communication or surveillance capability comprises the following elements: a) presence of relevant serviceable equipment on board the aircraft; b) equipment and capabilities commensurate with flight crew qualifications; and c) where applicable, authorization from the appropriate authority.

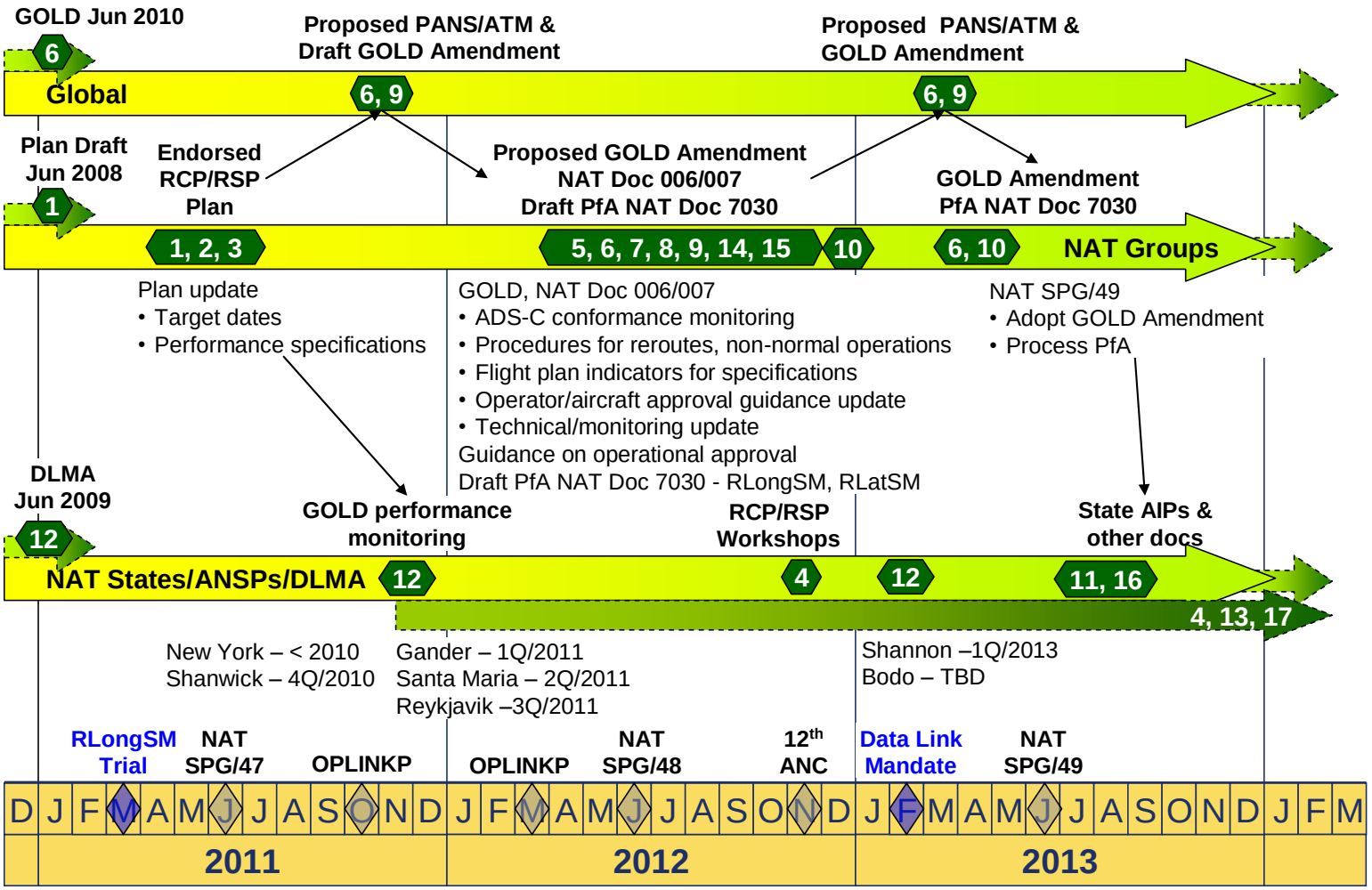
TASK ID	TASK DESCRIPTOR	COMPLETE BY	LEAD	TASK DETAILS
GENERAL PROJECT DEVELOPMENT & MANAGEMENT				
1	**Plan**	NAT IMG/38 and NAT SPG/47	NAT CNSG	Prepare a draft plan outlining the tasks to implement performance based communication and surveillance for consideration by the NAT IMG.
2	**Target dates**	NAT IMG/38 and NAT SPG/47	NAT IMG	Identify Key Target Dates on implementing performance based framework for communication and surveillance and prescribing RCP/RSP specifications to support RLongSM, and RLatSM. NAT SPG Conclusion 44/11 targets 2015. Target dates for prescribing RCP/RSP specifications and related operational authorizations are dependent on target dates for associated operations and need to be coincident with or prior to the target dates for RLongSM and RLatSM operational implementation.
3	**RCP/RSP specifications**	NAT SPG/47	NAT SARSIG	a) Confirm applicable performance specifications that will be used for operational implementation of data link services in support of RLongSM. Detail and validate CRM assumptions against actual performance measurements in accordance with GOLD. b) Confirm applicable performance specifications that will be used for operational implementation of data link services in support of RLatSM. Detail and validate CRM assumptions against actual performance measurements in accordance with GOLD. For NAT data link operations, specifications are not prescribed, but RCP 240 and RSP 180 will provide guidelines against which the actual performance is measured. RCP 240 and RSP/180 are the candidate's specifications to be prescribed for RLatSM and RLongSM operations (subject to validation during the trials and Doc 4444 amendments).
4	**Workshop(s)**	2012-2013	ICAO/ States	Conduct workshops to raise awareness on performance based communication and surveillance. Establish a planning team to work with ICAO and subject matter experts to develop and present material at the workshop.

TASK ID	TASK DESCRIPTOR	COMPLETE BY	LEAD	TASK DETAILS
DOCUMENTATION				
5	**Operational concepts**	NAT IMG/42and NAT SPG/49	NAT ATMG in coordination with CNSG	a) Update operational concepts for implementation of RLatSM, RLongSM supported by data link to include associated RCP/RSP specifications. b) Develop operational concept (of use), including procedures using CPDLC and ADS C to reduce the number and exposure of operational errors and pilot deviations, regardless of whether or not reduced ADS C based separations are applied. For example, concept of use should detail conformance monitoring, intervention and route re-clearances when using data link. c) Review and comment on material for incorporation in GOLD, as appropriate, NAT Doc 006 and Doc 007.
6	**GOLD amendments**	NAT IMG/42 and NAT SPG/49	GOLD ad-hoc group	Develop GOLD material, as appropriate, in support of reduced separations: -the provisions for data link service (AIC, guidance for AIPs, eligibility requirements etc) -performance specifications -initial qualifications for operations of operators, aircraft and ATC -post implementation monitoring Specific amendments to GOLD are identified in Tasks 5, 7, 8, 9, 14 and 15.
7	**Contingency procedures**	NAT IMG/42 and NAT SPG/49	NAT ATMG/ CNSG	Develop flight crew and controller contingency procedures in the event of service outage, malfunction or failure that would cause performance to degrade below that required by performance specifications. Doc 006 will include reference to GOLD, Chapters 4 and 5. Review and comment on material for incorporation in GOLD, as appropriate, NAT Doc 006 and Doc 007.

TASK ID	TASK DESCRIPTOR	COMPLETE BY	LEAD	TASK DETAILS
8	**Restoration of service**	NAT IMG/42 and NAT SPG/49	NAT ATMG/ CNSG	Develop the criteria for resuming data link service, RLatSM, or RLongSM operations after service communication and/or surveillance capabilities are restored to acceptable level of performance. Include in NAT Doc 006. Amendments are needed to ensure that long duration outages/degradations are also considered. Similar provisions should be included in the GOLD and NAT Doc 007. Review and comment on material for incorporation in GOLD, as appropriate, NAT Doc 006 and Doc 007.
9	**Flight plan requirements**	a) NAT IMG/42 and NAT SPG/49 (as part of the NAT SUPPs PfA) and GOLD b) amend Doc 4444 target date - NAT SPG/50	NAT CNSG ICAO (Global)	Draft guidance material for the flight plan to define the descriptors for performance specifications, as appropriate, using the new format planned for 2012 implementation. Include definition of P descriptors in Item 10a and expansion or redefinition of descriptors for ADS-C. Review and comment on material for incorporation in GOLD, as appropriate.
10	**PfA for NAT *Regional Supplementary Procedures* (NAT SUPPS)**	NAT IMG/42 and NAT SPG/49	NAT CNSG NAT ATMG	Draft or update PfA (or revise existing drafts) to the *NAT Regional Supplementary Procedures* (SUPPs) (Doc 7030) to prescribe the performance specifications for communication and surveillance to support RLatSM and RLongSM. PfA should include criteria for operator eligibility, aircraft equipage, requirements for flight planning, monitoring, alerting and reporting. This timeline for this PfA is dependent on the timeline for the PfA for RLatSM and RLongSM and Doc 4444 amendment.
11	**AIPs and other State documents supporting NAT SUPPS**	Consistent with Task 10	States	Amend AIPs and other State documents to support NAT SUPPs amendment proposed in Task 10.

TASK ID	TASK DESCRIPTOR	COMPLETE BY	LEAD	TASK DETAILS
14	**GOLD proposal for RCP/RSP compliance determination**	NAT IMG/42 and NAT SPG/49	CNSG	Develop a guidance material to clarify the interpretation of performance specifications in terms of compliance/non-compliance. Review and comment on material for incorporation in GOLD, as appropriate. See related Task 17.
15	**GOLD proposal for guidelines on operator eligibility**	NAT IMG/42 and NAT SPG/49	OPS/AIR	Provide guidance to State regulators related to aircraft equipage and operator eligibility requirements taking into account the GOLD and performance specifications. Refer to FAA AC 20-140A and AC 120 70B. Other State material may apply. Review and amend GOLD, if required. See related Task 16.
IMPLEMENTATION ACTIVITIES				
12	**ATC automation changes**	Before the start of operational trials of RLongSM or RLatSM	NAT ANSPs	Implement post-implementation monitoring capability in ATC automation. Implement changes to recognize new flight plan descriptors defined under Task 9. This task should be complete prior to effective date of data link mandate and start of RLatSM or RLongSM trials. See related Task 17.
13	**Confirm actual CPDLC and ADS C performance**	Prior to operational implementation	ANSPs/ DLMA/ CNSG/ SARSIG	Measure actual performance against specifications for feasibility, i.e., ACP, ACTP, PORT, ADS C latency for operators and aircraft types. Collect and analyze data in accordance with GOLD, Appendix D. Provide a clear indication of whether or not RCP 240 is being met in each NAT Oceanic Control Area currently being assessed. Identify, if RCP 240 is not being met, what aspects of the system's performance are not compliant with the RCP 240 specification. Determine the potential effects of those shortcomings on the implementation of reduced separation minima. See related Task 17.

TASK ID	TASK DESCRIPTOR	COMPLETE BY	LEAD	TASK DETAILS
AIRWORTHINESS AND OPERATIONAL ELIGIBILITY				
16	**State regulations and guidance material**	End of 2014 Prior to operational implementation of RLatSM or RLongSM	SOG/ States/ ANSPs/ Users	Develop or revise State guidance and/or regulations, as necessary. Establish State airworthiness requirements. Establish operational policy/procedures requirements for operational approval. Prepare State inspectors to perform tasks for operational approval. Develop plan to issue operational approval to national operators by [date], to extent possible. Train pilots and, if applicable, dispatchers on RCP/RSP aspects of reduced separation. Develop and distribute operations manuals, pilot bulletins or other appropriate docs containing RCP/RSP policy/procedures. Implementation tasks in this plan need to be completed by NAT SPG/49 (June 2013) to allow time for operational readiness to implement RCP/RSP by 2015. See related Task 15.
POST IMPLEMENTATION TASKS				
17	**Post-implementation monitoring**		ANSP/s/ DLMA/ CNSG	Post-implementation monitoring, analysis and corrective action per GOLD, Appendix D and any other necessary monitoring tasks. When performance falls below specified levels, operational judgment may be a consideration in determining appropriate actions. See related Tasks 12, 13 and 14.


GOLD Jun 2010
6
Global
Proposed PANS/ATM & Draft GOLD Amendment
6, 9
Proposed PANS/ATM & GOLD Amendment
6, 9
Plan Draft Jun 2008
1
Endorsed RCP/RSP Plan
Proposed GOLD Amendment NAT Doc 006/007 Draft PfA NAT Doc 7030
GOLD Amendment PfA NAT Doc 7030
1, 2, 3
5, 6, 7, 8, 9, 14, 15
10
6, 10
NAT Groups
Plan update
• Target dates
• Performance specifications
GOLD, NAT Doc 006/007
• ADS-C conformance monitoring
• Procedures for reroutes, non-normal operations
• Flight plan indicators for specifications
• Operator/aircraft approval guidance update
• Technical/monitoring update
Guidance on operational approval
Draft PfA NAT Doc 7030 - RLongSM, RLatSM
NAT SPG/49
• Adopt GOLD Amendment
• Process PfA
DLMA Jun 2009
12
GOLD performance monitoring
RCP/RSP Workshops
State AIPs & other docs
NAT States/ANSPs/DLMA
12
4
12
11, 16
4, 13, 17
New York – < 2010
Shanwick – 4Q/2010
Gander – 1Q/2011
Santa Maria – 2Q/2011
Reykjavik –3Q/2011
Shannon –1Q/2013
Bodo – TBD
RLongSM Trial
NAT SPG/47
OPLINKP
OPLINKP
NAT SPG/48
12th ANC
Data Link Mandate
NAT SPG/49
D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M
2011
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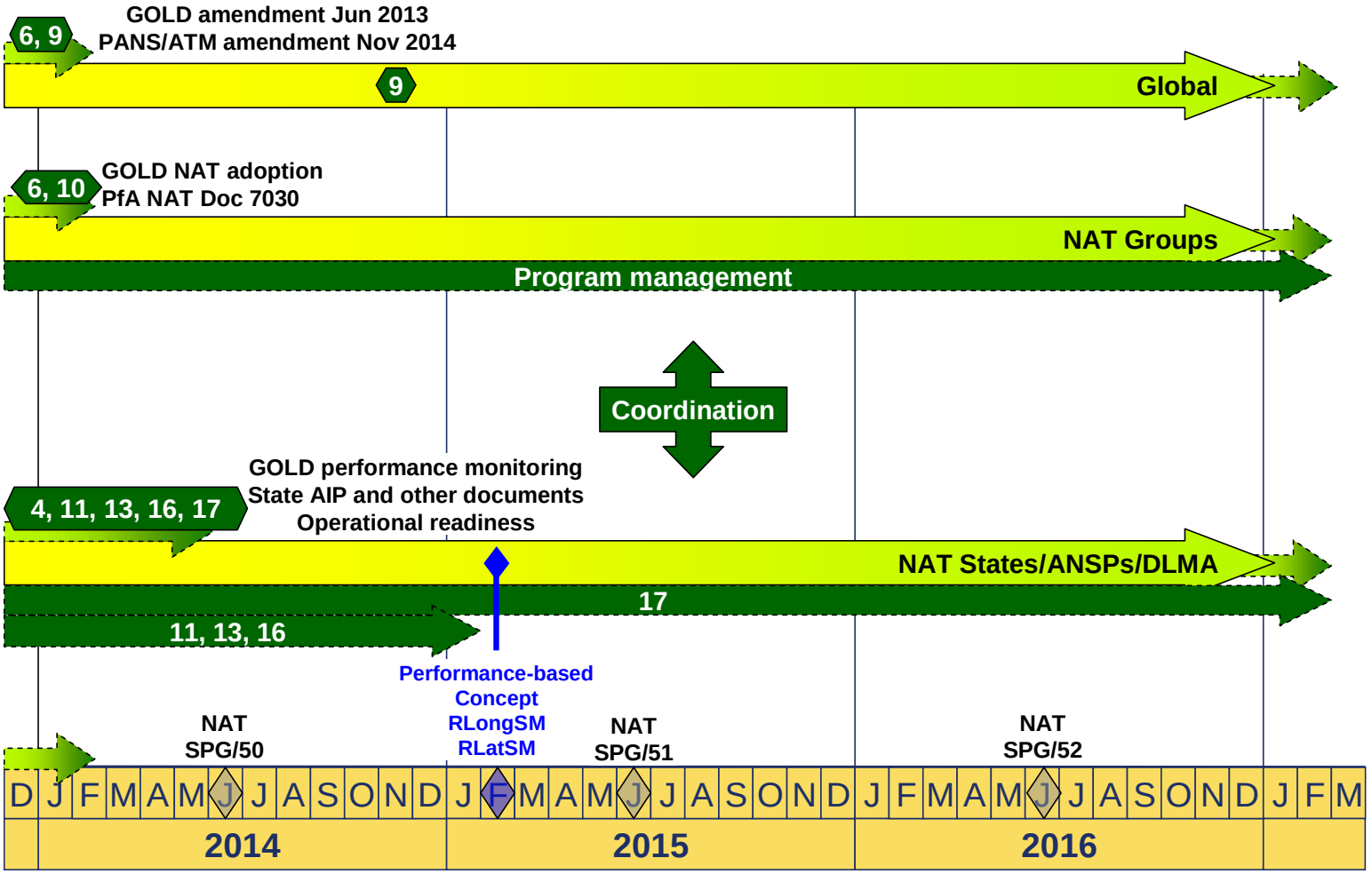
GOLD amendment Jun 2013
PANS/ATM amendment Nov 2014
6, 9
9
Global
GOLD NAT adoption
PfA NAT Doc 7030
6, 10
NAT Groups
Program management
Coordination
GOLD performance monitoring
State AIP and other documents
Operational readiness
4, 11, 13, 16, 17
NAT States/ANSPs/DLMA
17
11, 13, 16
Performance-based
Concept
RLongSM
RLatSM
NAT
SPG/50
NAT
SPG/51
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SPG/52
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NAT PBCS Status Report

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TASK NO	TASK	DETAILS	STATUS
		GENERAL PROJECT DEVELOPMENT & MANAGEMENT	
1	**Plan**	*NAT PBCS Implementation Plan*.	The plan was completed and endorsed by NAT SPG/47 (NAT SPG Conclusion 47/5). The NAT IMG was directed to manage and execute the plan. The NAT CNSG was assigned lead. The plan was updated at NAT SPG/48. (NAT SPG/48 Summary of Discussions (SOD), Appendix I, refers) and IMG/41 (Decision 41/7).
2	**Target dates**	This task concerns the target date for RCP/RSP implementation, which is pending target dates for associated operations. NAT SPG Conclusion 44/11 targets 2015 for RCP/RSP implementation. Target dates for implementing RLongSM and RLatSM are predicated in the implementation target date for RCP/RSP implementation. Target dates for prescribing RCP/RSP specifications need to be coincident with or prior to the target dates for RLongSM and RLatSM operational implementation. RLatSM plan and task list target 2015 timeframe. (NAT SPG Conclusion 44/11 and NAT SPG/48 SOD, Appendix C, Task 8, refers)	Pending decisions on the RLongSM and RLatSM operational implementation dates.

TASK NO	TASK	DETAILS	STATUS
3	**RCP/RSP specifications**	This task concerns the identification of RCP/RSP specifications specifically for RLongSM and RLatSM. NAT SPG concluded that: a) For NAT data link operations, CPDLC performance will be measured against RCP 240 and ADS-C performance will be measured against RSP 180. (NAT SPG Conclusion 48/7 refer) b) RCP 240 and RSP/180 are the candidate's specifications to be prescribed for RLatSM and RLongSM operations (subject to validation during the trials and Doc 4444 amendments). *Note.— As agreed in the plan, during trials of RLongSM and RLatSM, specifications are not prescribed, but will provide guidelines against which the actual performance is measured.* (NAT SPG Conclusion 48/7 and NAT SPG/48 SOD, Appendix I, refers)	Completed Additional clarification is proposed by CNSG/8
4	**Workshop(s)**		1 workshop was held on 20-22 Feb 2013. More workshops will be convened, if needed Completed

TASK NO	TASK	DETAILS	STATUS
		DOCUMENTATION	
5	**Operational concepts**	This task concerns the development of GOLD, as appropriate, NAT Doc 006 and NAT Doc 007 proposals for operational concept of data link supporting RLatSM, RLongSM and current separation. The operational concepts for RLongSM and RLatSM are complete. RLongSM Concept of Operations – NAT SPG/48 SOD, Appendix F RLongSM Plan – NAT SPG/48 SOD, Appendix F RLongSM Task List – NAT SPG/48 SOD, Appendix F RLatSM Concept of Operations – NAT SPG/48 SOD, Appendix D RLatSM Plan – NAT SPG/48 SOD, Appendix E RLatSM Task List – NAT SPG/48 SOD, Appendix C Data Link Mandate (for safety) Concept of operations – including procedures using CPDLC and ADS-C to reduce the number and exposure of operational errors and pilot deviations, regardless of whether or not reduced ADS-C based separations are applied. For example, concept of use should detail conformance monitoring, intervention and route re-clearances when using data link. Data Link Mandate Plan – NAT SUPPs Data Link Mandate Task List – NAT IMG/40 SOD, Appendix H	Completed for RLongSM and RLatSM. Clarification is needed on NAT DLM.

TASK NO	TASK	DETAILS	STATUS
6	**GOLD amendments**	This task generally concerns developing amendments for the GOLD, as appropriate, taking account new or revised material to support NAT planning and implementation initiatives for data link supporting reduced separations. See Tasks 5, 7, 8, 9, 14 and 15 for specific topics	Completed with regards to Tasks 5, 7-9 and 15 14 to be continued
7	**Contingency procedures**	This task concerns the development of GOLD, NAT Doc 006 and NAT Doc 007 proposals for flight crew and controller procedures for handling service outage, malfunction or failure of the data link system. (NAT SPG/48 SOD, Appendices E and F, refer)	Completed NAT ATMG/42 report refers
8	**Restoration of service**	This task concerns GOLD, NAT Doc 006 and NAT Doc 007 proposals for guidelines on restoration of service.	Completed NAT ATMG/42 report refers
9	**Flight plan requirements**	This task concerns the definition of P descriptors in Item 10a and expansion or redefinition of descriptors for ADS-C. ATC automation would use these descriptors in the flight plan to determine RCP/RSP capability of the aircraft and its eligibility to participate in a reduced separation application. OPLINKP agreed: Item 10 for CPDLC P1 = RCP400 P2 – RCP240 P3-P9 – [reserved] Item 18, for ADS-C SUR/RSP400 or SUR/RSP180 (OPLINKP/WG/WHL/3 SOD, paragraph 9 refer) Above changes will require change to the GOLD. Above changes will potentially affect ATC automation. See proposed changes to Task 12.	Completed Awaiting Doc 4444 and Doc 7030 amendments

TASK NO	TASK	DETAILS	STATUS
10	**PfA for NAT Regional *Supplementary Procedures* (NAT SUPPS)**	The task concerns the development of a draft PfA for NAT SUPPS to prescribe RCP/RSP specifications to communications and surveillance supporting RLongSM and RLatSM. The NAT IMG established the NAT RCP/RSP SUPPS PfA Development Task Force and approved Terms of Reference (TORs~~)~~ (NAT IMG Decision 40/18, NAT IMG/40 SOD, Appendix N, NAT SPG/48 SOD, paragraph 3.1.20, NAT CNSG/7 WP/6 refers)	The Pfa was developed . Pending approval by NAT SPG/49
11	**AIPs and other State documents supporting NAT SUPPS**	This task concerns the States developing AIPs and other state documents that are consistent with the NAT SUPPS. The work is pending completion of the PfA for the NAT SUPPS in Task 10.	Pending
14	**GOLD proposal for RCP/RSP compliance determination**	When the NAT SPG endorsed the plan, the need was recognized to develop guidance material to clarify the interpretation of complying with RCP/RSP specifications and the role of operational judgment in determining appropriate actions when performance would fall below specified levels. As a result, this task was added to the plan. (NAT SPG/47 SOD, paragraph 4.2.10, NAT SARSIG/15 PP/2 and NAT CNSG/7 WP/14 refers)	CNSG/8 proposed a draft NAT SPG Conclusion to address. Pending
15	**GOLD proposal for guidelines on operator eligibility**	This task concerns the assessment of current GOLD guidelines, Chapter 3, on operator eligibility, including aircraft equipage, and determining if guidelines are adequate or should be revised. Also, refer to FAA AC 20-140A and AC 120-70B. Other State material may apply. Draft and review through end 2012. See also status of Task 14.	Completed

TASK NO	TASK	DETAILS	STATUS
		IMPLEMENTATION ACTIVITIES	
12	**ATC automation**	This task concerns the implementation of support tools in ATC automation for ANSPs to collect data for post-implementation monitoring, in accordance with GOLD, Appendix D. The status is reported be each NAT ANSP at NAT CNSG meetings. Gander – completed Shanwick – completed Reykjavik - completed Santa Maria – completed New York – completed Bodø – TBD Shannon - 1Q 2013 This task should be complete prior to effective date of data link mandate and start of RLatSM or RLongSM trials. See Task 9. Changes will be needed to recognize flight plan descriptors when Doc 4444 or 7030 is amended. (NAT SPG/48 SOD, Appendix R, refer)	Data collection function is completed. FPL related functions – pending Doc 7030 and Doc 4444 amendments

TASK NO	TASK	DETAILS	STATUS
13	**Confirm CPDLC and ADS-C performance**	This task concerns the initial measurements of actual operational performance against RCP/RSP specifications, in accordance with the GOLD, Appendix D, guidelines, to determine the acceptability for operational implementation. See Task 17 for on-going post-implementation monitoring (and measurements). *Note.— The intent of this task is to initially determine compliance with RCP/RSP specifications. It includes compliance to safety requirements per RCP 240 and RSP 180, which was completed by all NAT ANSPs, except for one. (NAT SPG/48 SOD, Appendix R refer)* NAT SPG concluded that for NAT data link operations, CPDLC performance will be measured against RCP 240 and ADS-C performance will be measured against RSP 180. (NAT SPG Conclusion 48/7 refer)	Measuring against RSP180 and RCP240 is implemented. CNSG/8 confirmed that the 99.9% criterion of RCP and RSP is not met at the moment. See also Task 14.
		AIRWORTHINESS AND OPERATIONAL ELIGIBILITY	
16	**State regulations and guidance material**	This task concerns the development of State regulatory and guidance material for implementation of RCP/RSP. Implementation tasks in this plan need to be completed by NAT SPG/49 (June 2013) to allow time for operational readiness to implement RCP/RSP by 2015. The FAA has published Advisory Circular (AC) 20-140A for design approval of aircraft data link installations and AC 120-70B for operational authorization to use data link services. These ACs are in process of being updated to consider RCP/RSP implementations and to address other issues with data link implementation.	Pending

TASK NO	TASK	DETAILS	STATUS
		POST IMPLEMENTATION TASKS	
17	**Post-implementation monitoring**	This task concerns the post-implementation monitoring of data link services in accordance with the GOLD. It is an on-going task. When performance falls below specified levels, operational judgment may be a consideration in determining appropriate actions. The results of this monitoring are currently planned to be reported at every NAT CNSG meeting. See status of Tasks 12, 13 and 14. (NAT CNSG SODs refers)	On-going

Appendix E – Implementation Plan for an Operational Trial of Application of GNSS based Lateral Separation below FL 285 over and in the vicinity of Greenland within the Reykjavik CTA

(Paragraph 3.1.10 refers)

(Due to its size, this document is provided separately)

Appendix F – Proposal for Amendment of the
***Regional Supplementary Procedures* - North Atlantic (NAT) Region**
(Doc 7030/5)
~
In support of reduced separations predicated on RCP and RSP

(Paragraph 3.1.14 refers)

(Serial No.: EUR/NAT 13/XX – NAT)

Regional Supplementary Procedures:

NAT

Proposed by:

TBD

Proposed amendment:

Editorial Note: Amendments are arranged to show deleted text using strikeout (~~text to be deleted~~), and added text with grey shading (text to be inserted).

1. *Amend* the following in the NAT SUPPS, Chapter 2, Flight Plans:

Chapter 2. FLIGHT PLANS

2.1 CONTENT – GENERAL
(A2 – Chapter 3; P-ATM – Chapter 4 and Appendix 2)

…

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

2.1.14.1 All aircraft planning to operate in the NAT Region and intending to use ~~data link~~ CPDLC services shall insert one or more of the following ~~appropriate~~ descriptors: ~~(~~J2, J3, J4, J5 and~~or~~ J7~~)~~ in Item 10a of the flight plan to indicate FANS 1/A or equivalent interoperable equipment.

2.1.15 Required communication performance (RCP) specifications

2.1.15.1 All CPDLC RCP 240 compliant 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)

2.1.16.1 All aircraft planning to operate in the NAT Region and intending to use ADS-C services shall insert the descriptor D1 in Item 10b of the flight plan to indicate FANS 1/A or equivalent interoperable equipment.

2.1.17 Required surveillance performance (RSP) specifications

2.1.17.1 All ADS-C RSP 180 compliant aircraft intending to operate in the NAT Region shall insert SUR/RSP180 in Item 18 of the flight plan.

2.1.~~15~~18 Automatic Dependent Surveillance – Broadcast (ADS-B)

2.1.~~15~~18.1 All ADS-B approved aircraft intending to operate in the NAT Region shall insert either the B1 or B2 descriptor as appropriate in Item 10b of the flight plan.

2. *Insert* the following in the NAT SUPPS, Chapter 3, Communications:

Chapter 3. COMMUNICATIONS

. . .

3.8 Required Communication Performance (RCP)

3.8.1 When an RCP specification is prescribed:

a) the aircraft and operator shall meet the RCP specifications and, where appropriate, shall be approved to the RCP specifications,, by the State of the Operator or the State of Registry; and

b) the air navigation service provider shall measure the communication system performance to ensure that the RCP specifications are met.

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

3.8.2 RCP 400

Nil.

3.8.3 RCP 240

3.8.3.1 The RCP 240 specification shall be applicable to CPDLC communication systems used to support the separation minimum specified in 6.2.1.1 a) and 6.2.2.1 c), when published in State AIPs.

3.8.4 RCP 120

Nil.

3.8.5 RCP 60

Nil.

3.8.6 RCP 10

Nil.

3. *Amend* the following in the NAT SUPPS, Chapter 4, Navigation:

Chapter 4. NAVIGATION

4.1 PERFORMANCE-BASED NAVIGATION (PBN)

. . .

4.1.2 Required navigation performance (RNP) specifications

4.1.2.1 RNP 4

~~Nil.~~

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) when published in State AIPs. Additionally, the air navigation service provider shall measure the navigation performance to ensure that the following criteria are met:

1) the proportion of the total flight time spent by aircraft 27.8 km (15 NM)] or more off the cleared track shall be less than 1.07×10^{-5}; and

2) the proportion of the total flight time spent by aircraft between 46.3 and 64.8 km (25 and 35 NM)] off the cleared track shall be less than 2.36×10^{-6}.

Means of compliance

4.1.2.1.2 The aircraft and operator shall be approved RNP 4 by the State of the Operator or the State of Registry, as appropriate.

Note – Guidance on RNP 4 can be found in the Performance-based Navigation *(PBN)* Manual *(Doc 9613).*

.

4. *Insert* the following in the NAT SUPPS, Chapter 5, Surveillance.

Chapter 5. SURVEILLANCE

. . .

5.6 Required Surveillance Performance (RSP)

5.6.1 When an RSP specification is prescribed:

a) the aircraft and operator shall meet the RSP specification and, where appropriate, shall be approved to the RSP specification by the State of the Operator or the State of Registry; and

b) the air navigation service provider shall measure the surveillance system performance to ensure that the RSP specification is met.

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

5.6.2 RSP 400

Nil.

5.6.3 RSP 180

5.6.3.1 The RSP 180 specification shall be applicable to the ADS-C surveillance system used to support the separation minimum specified in 6.2.1.1 a) and 6.2.2.1 c), when published in State AIPs.

5. *Amend* the following in the NAT SUPPS, Chapter 6, Air Traffic Services:

Chapter 6. AIR TRAFFIC SERVICES

. . .

6.2 SEPARATION

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

6.2.1.1 Minimum lateral separation shall be:

a) 46.5 km (25 NM) between aircraft when the following conditions are met:

1) Navigation – RNP 4 in accordance with the provisions of 4.1.2.1;

2) Communication – CPDLC and RCP 240 in accordance with the provisions of 3.8.3, 3.3.2 and 3.3.3; and

3) Surveillance – ADS-C and RSP 180 in accordance with the provisions of 5.6.3, 5.4.2 and 5.4.3.

. . .

Secretariat note: Subsequent paragraphs to be renumbered.

6.2.2 Longitudinal
(P-ATM – Chapter 5)

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

. . .

c) 5 minutes between aircraft where Mach number technique is applied whether in level, climbing or descending flight, and when the following conditions are met:

1) Navigation – MNPS in accordance with the provisions of 4.1.1.5;

2) Communication – CPDLC and RCP 240 in accordance with the provisions of 3.8.3, 3.3.2 and 3.3.3; and

3) Surveillance – ADS-C and RSP 180 in accordance with the provisions of 5.6.3, 5.4.2 and 5.4.3.

6. *Amend* the following in the NAT SUPPS, Chapter 7, Safety Monitoring.

Chapter 7. SAFETY MONITORING

. . .

7.2 AIRSPACE MONITORING

7.2.1 General

~~Nil.~~

7.2.1.1 Adequate monitoring of operations shall be conducted to provide data to assist in the assessment of the achieved system performance. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met. Data shall include operational errors due to all causes.

Note.— Detailed guidance on monitoring is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689), Safety Management Manual (SMM) (Doc 9859), Manual on a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574), Manual of Operating Procedures and Practices for Regional Monitoring Agencies in Relation to the Use of a 300 m (1 000 ft) Vertical Separation Minimum above FL 290 (Doc 9937, and Global Operational Data Link Document (GOLD).

7.2.2.2 ~~MNPS~~Lateral Navigation Performance

7.2.2.2.1 Adequate monitoring of flight operations in the NAT Region shall be conducted to assist in the assessment of continuing compliance of aircraft with the lateral navigation capabilities specified in 4.1.1.5.1.2 and 4.1.2.1.

Note.— Monitoring will be conducted in accordance with the appropriate guidance material issued by ICAO.

. . .

7.2.5 RCP

7.2.4.1 Adequate monitoring of flight operations in the NAT Region shall be conducted to assist in the assessment of continuing end-to-end system compliance with required communication performance as specified in 6.2.1.1 a) and 6.2.2.1 c).

7.2.6 RSP

7.2.5.1 Adequate monitoring of flight operations in the NAT Region shall be conducted to assist in the assessment of continuing end-to-end system compliance with the required surveillance performance as specified in 6.2.1.1 a) and 6.2.2.1 c).

Date when proposal received:

TBD

Proposers reason for amendment:

1. Advancements in aircraft avionics and air traffic management flight data processing systems have driven analysis of whether additional separation minima could be developed for application in the current North Atlantic (NAT) minimum navigation performance specification (MNPS) airspace to increase capacity at optimum flight levels. The NAT Region is planning, for appropriately equipped aircraft, the progressive implementation of a reduced longitudinal

separation minimum of five minutes between aircraft pairs and a reduced lateral separation minimum of 25 nautical miles (NM) between aircraft tracks. Operational trials for the five minute separation minimum have already begun and a limited introduction of the 25 NM lateral minimum, termed Phase 1, is expected to begin as early as February 2015. These separation minima require the publication of global standards, i.e. amendment to the Procedures for Air Navigation – Air Traffic Management (PANS-ATM) (ICAO Doc 4444), as well as a regional agreement prior to operational implementation.

2. The proposed amendment recognizes that amendments to add performance specifications for communications and surveillance to the Annexes and PANS are still under development and it assumes that the standards for 46.5 km (25 NM) lateral and 5-minute longitudinal separation minima will specify the requirement for criteria for communication, navigation and surveillance capabilities within a global performance-based framework. The changes to the SARPS and PANS will accommodate the relevant NAT Regional implementation plans and the proposal for amendment is supplemental to these changes to the global documents.

3. The proposed amendment to Chapter 2, Flight Plans is consistent with the ICAO Operational Data Link Panel (OPLINKP) agreement for flight plan requirements associated with RCP and RSP specifications. While the ICAO Doc 4444 indicates that elements P1 through P9 in Item 10 (Equipment and Capabilities) of the filed flight plan (FPL) are reserved for RCP specifications, these indicators should be defined by amendment to SUPPs once approved. It is not the intent that an FDPS should reject flight plans if these codes are filed by operators.

4. Other changes proposed to Chapter 2 include new sections to address ADS-C services and associated RSP specifications.

5. Additions are proposed to Chapter 3, Communications, and Chapter 5, Surveillance, to include the provisions for RCP and RSP specifications, respectively. These amendments are modeled after the existing Chapter 4, Navigation, which includes provisions for area navigation (RNAV) and required navigation performance (RNP) specifications. New sections for RCP and RSP are created rather than supplementing existing sections for CPDLC and ADS-C because RCP and RSP as they could be applied to other technologies.

6. The proposed amendment to Chapter 6 includes provisions for lateral and longitudinal separation in paragraph 6.2.1 and paragraph 6.2.2, respectively. These provisions refer to the appropriate sections of Chapters 3, 4 and 5 in order to establish the link between the separation minimum and the performance requirements. This approach is intended to simplify future amendments as existing Performance Based Navigation (PBN), RCP and RSP specifications may be applied to future air traffic services without affecting the provisions of Chapters 3, 4 and 5.

7. The changes proposed to Chapter 6 include provisions for 46.5 km (25 NM) lateral and 5-minute longitudinal separation minima and they refer to appropriate specifications provided in Chapter 3, 4 and 5.

8. Chapter 6 also refers to the CPDLC provisions in Chapter 3 and the ADS-C provisions in Chapter 5. It is noted that Chapter 5 includes the ADS lateral deviation event contract set at 5 NM, which is generally applicable in NAT airspace where ADS-C services are provided regardless of the separation minima being applied. Additionally, the provisions for ADS-C in Chapter 5 indicate that States publish the actual ADS-C periodic reporting interval in national Aeronautical Information Publications (AIPs).

9. In addition, an amendment is proposed to paragraph 4.1.2.1.1 to state the constraints on the "tails" of the distribution. These tails will be associated with the separation minimum and to

certain characteristics (expected aircraft exposure) of the airspace and are used in the monitoring process.

10. Additions are proposed for Chapter 7 to include monitoring requirements, based on RCP and RSP, to ensure that the risk associated with the separation minima is being contained.

Proposed implementation date of the amendment:

Upon approval by the Council.

Action by the Secretary General:

The proposal has been circulated to the following States and international organizations.

XXX

Secretariat's comments:

Appendix G – Proposal for Amendment of the
***Regional Supplementary Procedures* - North Atlantic (NAT) Region**
(Doc 7030/5)
~
To support the implementation of 30 NM lateral, 30 NM and 50 NM longitudinal separation minima in New York Oceanic Flight Information Region (FIR)

(Paragraph 3.1.18 refers)

(Serial No.: EUR/NAT 13/XX – NAT)

a) Regional Supplementary Procedures:

NAT

b) Proposed by:

United States

c) Proposed amendment:

Editorial Note: Amendments are arranged to show deleted text using strikeout (~~text to be deleted~~), and added text with grey shading (text to be inserted).

1. *Amend* the following in the NAT SUPPS, Chapter 4, Navigation:

Chapter 4. NAVIGATION

4.1 PERFORMANCE-BASED NAVIGATION (PBN)

Note.— As the North Atlantic (NAT) Region transitions to PBN as contained in the Performance-based Navigation (PBN) Manual (Doc 9613), the contents of 4.1 will be amended. Doc 9613 provides guidance on aircraft, operations and maintenance programmes for the initial achievement and continued compliance with the authorized navigation specification.

4.1.1 Area navigation (RNAV) specifications

4.1.1.1 RNAV 10 (RNP 10)

Note.— RNAV 10 retains the RNP 10 designation, as specified in ~~the~~ Performance-based Navigation (PBN) Manual (Doc 9613), 1.2.3.5.

~~*Area of applicability*~~

4.1.1.1.1 The RNP 10 specification shall be applicable to navigation systems used to support the separation minima specified in 6.2.1.1 c) when published in State AIPs. Additionally, the navigation performance shall be measured to ensure that the following criteria are met in order for this separation minima to be utilized in the New York Oceanic FIR:

a) the proportion of the total flight time spent by aircraft 46 km (25 NM) or more off the cleared track shall be less than 9.11×10^{-5}; and

b) the proportion of the total flight time spent by aircraft between 74 and 111 km (40 and 60 NM) off the cleared track shall be less than 1.68×10^{-5}.

~~A lateral separation minimum of 93 km (50 NM) may be applied between flights operating within the control area of the New York Oceanic FIR.~~

Means of compliance

~~4.1.1.1.2 For application of 4.1.1.1.1, operators and civil aviation authorities must follow the provisions listed below.~~

4.1.1.1.~~3~~2 The aircraft and operator must be approved RNP 10 ~~or RNP 4~~ by the State of the Operator or the State of Registry, as appropriate. ~~RNP 10 is the minimum navigation specification for the application of 93 km (50 NM) lateral separation.~~

~~4.1.1.1.4 States shall ensure, when granting approval for RNP 10 or RNP 4, that operators establish programmes to mitigate the occurrence of large lateral track errors due to equipment malfunction or operational error.~~

~~*Note. — The* Performance-based Navigation (PBN) Manual *(Doc 9613) provides guidance on aircraft, operations and maintenance programmes for the initial achievement and continued compliance with the authorized navigation specification.*~~

4.1.1.1.3 Operator programmes shall be established to mitigate the occurrence of navigational errors due to equipment malfunction or operational error:

a) operator in-flight operating drills shall include mandatory navigation cross-checking procedures to identify navigation errors in sufficient time to prevent aircraft from inadvertent deviation from ATC-cleared route; and

b) the operator shall establish programmes to provide for the continued airworthiness of aircraft navigation systems necessary to navigate to the degree of accuracy required.

…

4.1.2 Required navigation performance (RNP) specifications

4.1.2.1 RNP 4

~~Nil.~~

4.1.2.1.1 RESERVED

4.1.2.1.2 The RNP 4 specification shall be applicable to navigation systems used to support the separation minima specified in 6.2.1.1 b) when published in State AIPs. Additionally, the navigation performance shall be measured to ensure that the following criteria are met in order for this separation minima to be utilized in the New York Oceanic FIR:

1) the proportion of the total flight time spent by aircraft 28 km (15 NM) or more off the cleared track shall be less than 5.44×10^{-5}; and

2) the proportion of the total flight time spent by aircraft between 44 and 67 km (24 and 36 NM) off the cleared track shall be less than 1.01×10^{-5}.

Means of compliance

4.1.2.1.3 The aircraft and operator shall be approved RNP 4 by the State of the Operator or the State of Registry, as appropriate.

4.1.2.1.4 Operator programmes shall be established to mitigate the occurrence of navigational errors due to equipment malfunction or operational error:

a) operator in-flight operating drills shall include mandatory navigation cross-checking procedures to identify navigation errors in sufficient time to prevent aircraft from inadvertent deviation from ATC-cleared route; and

b) the operator shall establish programmes to provide for the continued airworthiness of aircraft navigation systems necessary to navigate to the degree of accuracy required.

2. *Amend* the following in the NAT SUPPS, Chapter 6.

Chapter 6. AIR TRAFFIC SERVICES

…

6.2 SEPARATION

6.2.1 Lateral

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

6.2.1.1 Minimum lateral separation shall be:

a) RESERVED

b) 55.5 km (30 NM) between aircraft operating within the control area of the New York Oceanic FIR provided that the following conditions are met:

1) navigation – RNP 4 specification in accordance with the provisions of 4.1.2.1;

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

3) surveillance – ADS-C shall be monitored against RSP 180.

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

c~~a~~) 93 km (50 NM) between aircraft ~~meeting the provisions in 4.1.1.1, except minimum lateral separation between aircraft transitioning from MNPS airspace~~ operating in the New York Oceanic FIR.~~/CTA to other MNPS airspace shall be 110 km (60 NM)~~ meeting RNP 10 or RNP 4 specification in accordance with the provisions of 4.1.1.1 or 4.1.2.1, respectively.

~~*Note. — NAT MNPS airspace is defined in 4.1.1.5.1.1.*~~

d~~b~~) 110 km (60 NM) between aircraft which meet the minimum navigation performance specifications (MNPS) provided that a portion of the route of the aircraft is within, above, or below MNPS airspace;

Note. — NAT MNPS airspace is defined in 4.1.1.5.1.1.

e~~c~~) 167 km (90 NM) between aircraft operating outside the MNPS airspace and at least one aircraft does not meet the MNPS:

1) between the Iberian Peninsula and the Azores Islands; and

2) between Iceland and points in Scandinavia and in the United Kingdom;

f~~d~~) 167 km (90 NM) between aircraft not approved RNP 10 or RNP 4 operating outside MNPS airspace where no portion of the route of the aircraft is within, above, or below MNPS airspace:

1) between the United States/Canada and Bermuda; and

2) west of 55°W between the United States, Canada or Bermuda and points in the CAR Region;

~~*Note. — NAT MNPS airspace is defined in 4.1.1.5.1.1.*~~

g~~e~~) 223 km (120 NM) between other aircraft;

except that lower minima in 5.4.1.1.2 of the PANS-ATM may be applied, or further reduced in accordance with 5.11 when the conditions specified in the relevant PANS-ATM provisions are met (see 5.4).

6.2.1.2 In the practical application of the minima in 6.2.1.1 ~~a), b), c)~~ d), ~~and~~ e), f) and g), tracks may be spaced with reference to their difference in latitude, using one degree instead of 110 km (60 NM); one and

one half degrees instead of 167 km (90 NM); and two degrees instead of 223 km (120 NM), provided that in any interval of ten degrees of longitude, the change in latitude of at least one of the tracks does not exceed:

a) three degrees at or south of 58°N;

b) two degrees north of 58°N and south of 70°N; and

c) one degree at or north of 70°N and south of 80°N.

At or north of 80°N, or where the above rates of change of latitude are exceeded, the required lateral separation must be ensured by reference to the track spacing expressed in nautical miles.

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 distance between turbo-jet aircraft shall be:

a) 93 km (50 NM) between aircraft operating within the control area of the New York Oceanic FIRprovided that the following conditions are met:

1) navigation – RNP 10 or RNP 4 specification in accordance with the provisions of 4.1.1.1 or 4.1.2.1, respectively;

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

3) surveillance – ADS-C shall be monitored against RSP 180.

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 FIR provided that the following conditions are met:

1) navigation – RNP 4 specification in accordance with the provisions of 4.1.2.1;

2) communication – CPDLC shall be monitored against RCP240;

3) surveillance – ADS-C shall be monitored against RSP 180.

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.~~2~~3 Minimum longitudinal separation based on time between non-turbo-jet aircraft shall be:

a) 30 minutes; and

b) 20 minutes in the West Atlantic route system (WATRS) area.

Note.— The WATRS area is defined as beginning at a point 27°00'N/77°00'W direct to 20°00'N/67°00'W direct to 18°00'N/62°00'W direct to 18°00'N/60°00'W direct to 38°30'N/60°00'W direct to 38°30'N/69°15'W, thence counterclockwise along the New York Oceanic control area/FIR boundary to the Miami Oceanic control area/FIR boundary, thence southbound along the Miami Oceanic control area/FIR boundary to the point of beginning.

d) Date when proposal received:

XXX

e) Proposers reason for amendment:

1) In accordance with ICAO Doc 4444, the internationally agreed distance-based separation minima values available for application in oceanic and remote airspace are 50 NM longitudinal, 30 NM longitudinal and 30 NM lateral. Specifics for 30 NM lateral separation are provided in paragraph 5.4.1.2.1.6, "Lateral separation of aircraft on parallel or non-intersecting tracks or ATS routes," with references to pertinent ICAO documents cited therein. Paragraph 5.4.2.6.4, "Longitudinal Distance-Based Separation Minima in an RNP RNAV Environment Using ADS-C" provides the corresponding details for the 50 NM and 30 NM longitudinal separation minima, again with references to other relevant ICAO documents.

2) In non-radar oceanic airspace where traffic is increasing by approximately five percent a year, flight efficiency (e.g., user preferred routes and altitude profiles) is dependent on reductions in the horizontal separation standards. ICAO has developed guidelines for oceanic separation standards of 50 NM longitudinal, 30 NM longitudinal and 30 NM lateral provided a set of requirements are met or exceeded. These requirements include that aircraft be authorized for RNP-10 or RNP-4, have direct pilot-controller communication or CPDLC, and provide ADS-C position reports.

3) Additionally, ICAO Doc 4444, paragraph 5.4.2.6.4.3.2 stipulates that CPDLC allows a controller, within 4 minutes, to contact an aircraft, intervene and resolve a potential conflict, and paragraph 5.4.2.6.4.3.3 stipulates that an ADS-C periodic or waypoint change event report that is not delivered within 3 minutes of the time it should have been sent is considered overdue. These requirements are satisfied through the prescription of RCP 240 and RSP 180 specifications, respectively, consistent with the *NAT Performance Based Communication and Surveillance Implementation Plan*.

4) The use of these separation standards has been implemented within the Australian Eastern Oceanic airspace, Auckland Oceanic FIR, Honiara FIR, Nauru FIR, Nadi FIR and the Oakland Oceanic FIR. In December 2005, 30 NM longitudinal and 30 NM lateral operational trials began in Oakland Air Route Traffic Control Center (ARTCC) Oceanic Control Sector 3. Since June 2007, Oakland ARTCC has applied 30 NM longitudinal and 30 NM lateral separation to pairs of suitably equipped aircraft throughout the Oakland Oceanic FIR.

5) This amendment proposes to allow 50 NM longitudinal, 30 NM longitudinal and 30 NM lateral separation to be applied in the New York Oceanic FIR.

6) The application of the reduced separation minima is to enable level changes to transition through or to transition to the level of a longitudinally adjacent aircraft not presently available with the 10-minute longitudinal separation standard with Mach Number Technique (MNT). A level change is known to provide reduced fuel burn if an aircraft is transitioning in order to operate at a level recommended, for example, by the aircraft's flight management system; facilitating more level changes thus results in greater overall system fuel efficiency. A level change initiated by air traffic control (ATC) in the New York Oceanic FIR could reduce operational complexity at intersections of published routes in the West Atlantic Route System (WATRS) airspace, for example, thereby reducing controller workload relative to the present system; facilitating more level changes thus resulting in lowered operational complexity.

7) The ICAO Review of the General Concept of Separation Panel (RGCSP), later to be subsumed under the Separation and Airspace Safety Panel (SASP) and the North Atlantic System Planning Group (NAT SPG) have adopted a Target Level of Safety (TLS) of 5×10^{-9} fatal accidents per flight hour per dimension to pertain for implementation of separation reductions after the year 2000. As a consequence, the FAA William J. Hughes Technical Center (WJHTC) assessed the lateral separation minimum against this TLS. The resulting "Safety Assessment to Support Use of 30 NM Lateral Separation Standard in the New York Airspace" was developed. When separation of 50 NM longitudinal, 30 NM longitudinal and 30 NM lateral is initially implemented in the New York Oceanic airspace, the risk estimate is expected to be below the TLS recommended for use by the regional planning group. The assessment shows that given

prevailing conditions and expected performance, the separation reduction in the New York Oceanic airspace will meet international guidelines for implementation.

f) Proposed implementation date of the amendment:

Upon approval by the Council.

g) Action by the Secretary General:

The proposal has been circulated to the following States and international organizations.

XXX

h) Secretariat's comments:

_____

Appendix H – Draft Implementation Plan for the Trial Application of RLatSM in the NAT Region

(paragraph 3.1.21 refers)

1. INTRODUCTION

1.1 Advancements in aircraft avionics and air traffic management flight data processing systems have driven analysis of whether the lateral separation standard in the current NAT MNPS airspace can be reduced to increase the number of tracks available and therefore increase capacity at optimum flight levels. The proposed change is to reduce lateral separation for aircraft operating at the flight levels associated with the NAT Region Data Link Mandate (NAT SPG Conclusion 46/2 refers) airspace, which can be practically achieved by establishing tracks which are spaced by ½ degree of latitude. This track spacing initiative will be referred to as Reduced Lateral Separation Minimum (RLatSM).

1.2 This implementation plan follows the guidelines provided in ICAO Doc 9689 (Manual on Airspace Planning Methodology for the Determination of Separation Minima).

2. IDENTIFICATION OF THE NEED FOR CHANGE

2.1 NAT customers request more fuel-efficient flight profiles and routes that will reduce operating costs and show a return on operator investment in aircraft avionics. Applying reduced lateral separation is expected to enhance the provision of fuel-efficient profiles and routes with minimal change to NAT operations.

2.2 The new separation standard is expected to result in a reduction in fuel burn and a consequent reduction in greenhouse gas emissions through an increased likelihood of flights being able to operate at their optimum flight levels and routes.

3. DESCRIPTION OF THE CURRENT AIRSPACE AND THE CNS/ATM SYSTEMS

3.1 Airspace Structure

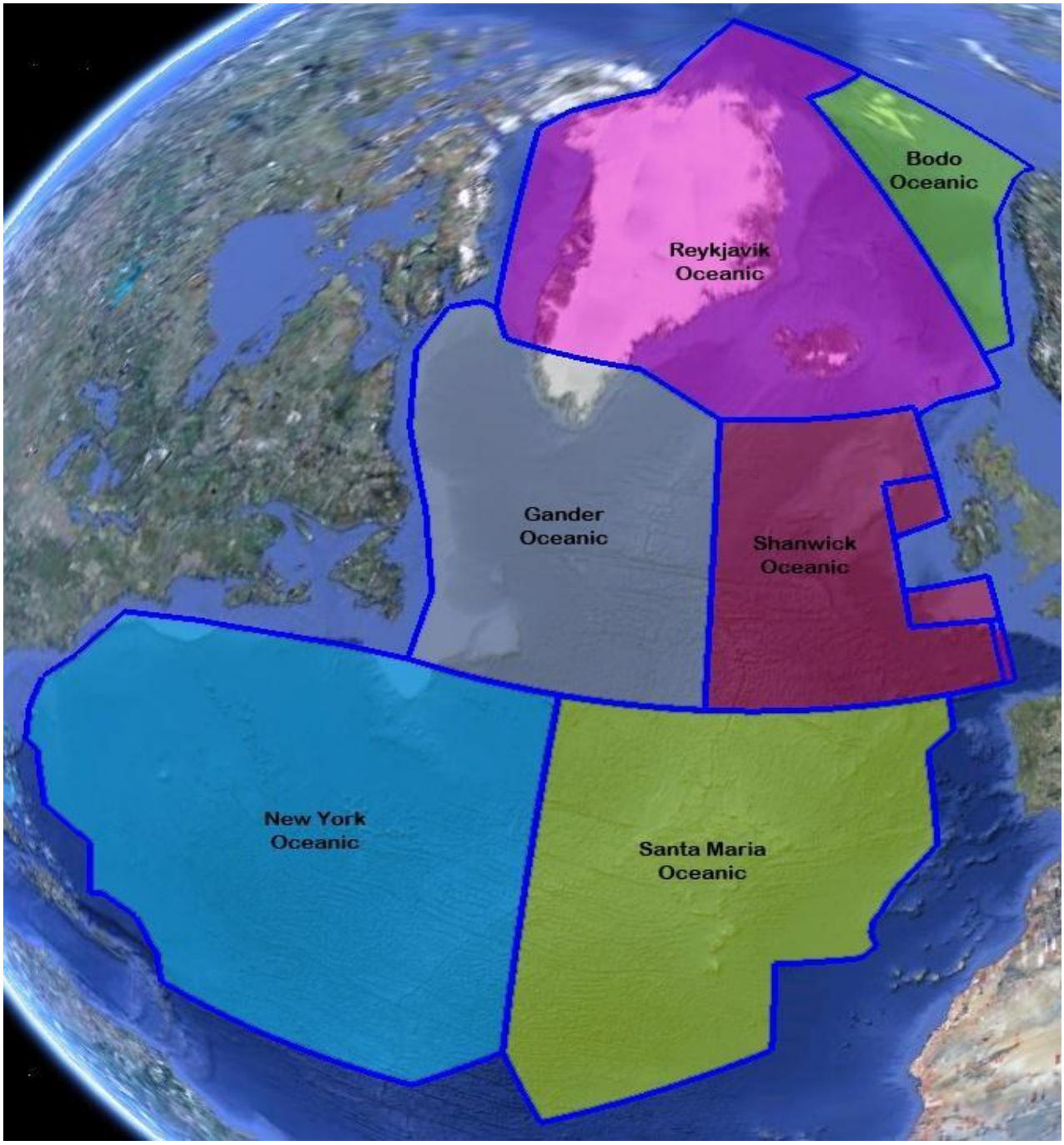
3.1.1 The responsibility for air traffic control services within the North Atlantic (NAT) Region is shared among nine states: Canada, Denmark, France, Iceland, Ireland, Norway, Portugal, the United Kingdom and the United States.

3.1.2 The NAT Region mainly consists of Class A airspace; in which Instrument Flight Rules (IFR) apply at all times. Class A airspace has been established at and above FL 55 except in the Bodø Oceanic Control Area (OCA) and in the Søndrestrøm Flight Information Region (FIR) where it has been established above FL 195 and in the domestic portion of the Reykjavik Flight Information Region (FIR) where it has been established at and above FL 200.

3.1.3 The NAT airspace is divided into seven FIRs or Control Areas (CTA) for the implementation of the Communications Navigation Surveillance/Air Traffic Management (CNS/ATM) systems. The NAT Region comprises the following FIRs/CTAs: Bodø Oceanic, Gander Oceanic, New York Oceanic, Reykjavik, Santa Maria, Shanwick. and Søndre Strømfjord.

3.1.4 Traffic is controlled by Oceanic centres at Reykjavik, Bodø, Gander, New York, Santa Maria, Søndre Strømfjord and Prestwick and by Shannon and Brest ACCs.

3.1.5 The following diagram illustrates;



3.1.6 NAT traffic is predominantly commercial. International General Aviation (IGA) Business aircraft comprise a high proportion of the higher altitude airspace operations.

3.1.7 For most of the North Atlantic (NAT) airspace radar surveillance and VHF voice communications is unavailable. Therefore, procedural control is exercised. The exception is the south and east sector of the Reykjavik area, Bødø oceanic airspace with the exception of the north-west part, the NOTA, SOTA and BOTA airspaces in the eastern portion of Shanwick FIR controlled by Shannon and Brest ACCs and in the central portion of the Santa Maria OCA where radar aided services are provided.

3.2 Strategic Lateral Offset Procedure (SLOP)

3.2.1 Strategic lateral offsets of one or two miles right of a route or track centreline have been introduced as a means of reducing collision risk and is now standard operating procedure in the entire NAT Region.

3.3 Airborne Collision Avoidance Systems (ACAS)

3.3.1 In addition to the requirements of Annex 6, (Part I, paragraph 6.16 and Part II, paragraph 6.14) ACAS II shall be carried and operated in the NAT Region by all turbine-engine aeroplanes having a maximum certificated take-off mass exceeding 5 700 kg or authorized to carry more than 19 passengers.

4. TRAFFIC PATTERNS

4.1 General

4.1.1 The traffic is dominated by three major axes. First, there is the axis linking Europe (and the Middle East) to North America (excluding Alaska). Second, there is the axis linking the Eastern seaboard of North America with the Caribbean, South America and Bermuda. Third, there is the axis linking Europe to the Caribbean and South America. A substantial proportion of NAT traffic, namely that operating between cities in Europe and those in North America operate on the first axis.

4.1.2 The major traffic flow between Europe and North America takes place in two distinct traffic flows during each 24-hour period due to passenger preference, time zone differences and the imposition of night-time noise curfews at the major airports. The majority of the Westbound flow leaves European airports in the late morning to early afternoon and arrives at Eastern North American coastal airports typically some 2 hours later - local time - given the time difference. The majority of the Eastbound flow leaves North American airports in mid/late evening and arriving in Europe early to mid morning - local time. Consequently, the diurnal distribution of this traffic has a distinctive tidal pattern characterised by two peaks passing 30° W, the Eastbound centred on 0400 Universal Co-ordinated Time (UTC) and the Westbound centred on 1500 UTC.

4.2 North Atlantic Organised Track System (NAT OTS)

4.2.1 Although a number of fixed trans-Atlantic tracks exist, the bulk of traffic operates on tracks, which vary from day to day dependent on meteorological conditions. The variability of the wind patterns would make a fixed track system unnecessarily penalising in terms of flight time and consequent fuel usage. Nevertheless, the volume of traffic along the core routes is such that a complete absence of any designated tracks (i.e. a free flow system) would currently be unworkable given the need to maintain procedural separation standards in airspace largely without radar surveillance.

4.2.2 As a result, an OTS is set up on a diurnal basis for each of the Westbound and Eastbound flows. Each core OTS is comprised of a set, typically 4 to 7, of parallel or nearly parallel tracks, positioned in the light of the prevailing winds to suit the traffic flying between Europe and North America.

4.2.3 The main difference between the North American-Caribbean traffic axis and that between Europe and North America is that the former is constrained by the fixed track structure. Some of these fixed tracks are tied to Non Directional Beacon (NDB) and Very High Frequency Omni directional Range/Distance Measuring Equipment (VOR/DME) radio navigation aids and, where this is the case, appropriate separation standards apply. Where tracks are beyond the range of such aids, long-range navigation systems are required. However, this part of the NAT Region is not yet designated as Minimum Navigation Performance Specifications (MNPS) Airspace and the 60 NM lateral separation minimum does not apply (see below).

4.2.4 The designation of an OTS facilitates a high throughput of traffic by ensuring that aircraft on adjacent tracks are separated for the entire oceanic crossing - at the expense of some restriction in the operator's choice of track. In effect, where the preferred track lies within the geographical limits of the OTS, the operator is obliged to choose an OTS track or fly above or below the system. Where the preferred track lies clear of the OTS, the operator is free to fly it by nominating a random track. Trans-Atlantic tracks, therefore, fall into three categories: OTS, Random or Fixed.

4.3 Minimum Navigation Performance Specification

4.3.1 MNPS airspace[3] has been established between FL285 and FL420. Longitudinal separation between in-trail aircraft using the Mach Number Technique is 10 minutes - a reduced longitudinal separation minimum (RLongSM) of 5 minutes between eligible aircraft pairs is to be trialed commencing 2010. Aircraft tracks are separated using the earth's coordinate system to define tracks and effect separation laterally by *60 NM* or *1 degree* provided a portion of the route is within, above, or below MNPS airspace. Given the curvature of the earth, "Gentle Slope Rules" have been adopted to ensure that the actual separation never falls below distances which vary with latitude but never fall short of 50.5 NM. To ensure the safe application of the reduced separation minimum, only MNPS certified aircraft are permitted to operate within the MNPS airspace. The current MNPS was established to ensure that the risk of collision as a consequence of a loss of horizontal separation would be contained within an agreed Target Level of Safety (TLS).

4.4 Reduced Vertical Separation Minimum (RVSM)

4.4.1 RVSM airspace has been established within the confines of MNPS airspace and associated transition areas. In RVSM airspace, 1000 ft vertical separation is applied between approved aircraft. Currently, RVSM is only applied between FL 290 and FL 410 inclusive. To ensure the safe application of the separation minimum, only RVSM approved aircraft are allowed to operate within RVSM airspace. Aircraft are monitored to ensure that the TLS is being met.

4.5 Aircraft Equipage in Target Environment

4.5.1 The on-board equipment that provides the CPDLC and ADS-C capabilities required for the use of RLatSM is provided by FANS 1/A or equivalent. The State of Registry or the State of the Operator should verify that the equipment has been certified in accordance with the requirements specified in RTCA DO-258/EUROCAE ED-100 and RTCA DO-306/ED 122 Annex B (see also paragraph 8.1.4) or equivalent.

4.5.2 The navigational accuracy component to support RLatSM will be provided by the RNP 4 navigation specification which explicitly requires GNSS.

4.5.3 The following performance values are valid for phase one of the RLatSM operational trial since the current CRM only supports same direction traffic.

a) Required navigation specification is RNP 4; and

b) due to the fact that all RNP 4 approved aircraft are GNSS equipped the standard deviation of lateral track errors is assumed to be less than 1.852 km (1 NM); and

c) the proportion of the total flight time spent by aircraft 27.8 km (15 NM) or more off the cleared track shall be less than 1.07×10^{-5}; and

d) the proportion of the total flight time spent by aircraft between 46.3 and 64.8 km (25 and 35 NM) off the cleared track shall be less than 2.36×10^{-6}.

[3] MNPS airspace is fully defined in the *North Atlantic Operations And Airspace Manual* (NAT Doc 007).

4.5.4 ADS-C position reports provide time-keeping accuracy of ± 1 second or better (Annex 2 paragraph 3.5.3 refers).

5. DETERMINATION OF THE PROPOSED SYSTEM

5.1 RLatSM will be introduced to improve the efficiency of NAT operations. Initially it will involve establishment of tracks between core OTS published routes using the same vertical and longitudinal standards as conventional tracks.

5.2 RLatSM spacing between core tracks in the NAT OTS will be ½ degree as measured between segments anchored every 10^0 meridians.

5.3 RLatSM separation between adjacent tracks will be at least 25 NM as measured perpendicularly between tracks.

5.4 FDPs will receive and process position (POS) reports to an accuracy of ± 1 second or better.

5.5 In accordance with the outcome of NAT SPG/47 and NAT IMG/3~~8~~9, RLatSM is planned to be implemented using the following phased approach:

a) Phase 1 – 2015 – introduce 25 NM lateral separation by implementing ½ degree spacing between the two core tracks within the vertical limits applicable to the airspace associated with the NAT Region Data Link Mandate (NAT SPG Conclusion 46/2 refers); only aircraft with the appropriate RNP approval, ADS-C and CPDLC would be permitted to operate on the ½ degree spaced tracks.

Note 1 – Each Phase will be applicable in whatever vertical band is currently associated with NAT Region data link mandatory airspace.

Note 2 - The dates will also be harmonized with the dates applicable to the NAT Performance Based Communication and Surveillance Implementation Plan.

b) Phase 2 – To Be Determined – introduce 25 NM lateral separation by implementing ½ degree spacing through the entire NAT Organised Track System (OTS), within the vertical limits applicable to the airspace associated with the NAT Region Data Link Mandate; only aircraft with the appropriate RNP approval, ADS-C and CPDLC would be permitted to operate on the ½ degree spaced tracks.

c) Phase 3 – To Be Determined – introduce 25 NM lateral separation throughout the entire NAT Region, including for converging and intersecting track situations, within the vertical limits applicable to the airspace associated with the NAT Region Data Link Mandate. The application of the reduced separation standard between targets of opportunity should be permissible in any part of the NAT Region outside the OTS (mixed mode operations).

Note 1: The final decision to implement segregated airspace in the OTS should be supported by:

a) *the establishment of a target percentage of flights that should be RLatSM-eligible in order for segregated tracks and FL's to be implemented without causing significant disruption to air traffic in the NAT or disproportionate dis-benefit to the NAT operator fleet; and.*

b) *an assessment of NAT operator/aircraft fleet capability to meet RCP, ADS-C performance and RNP requirements in the timeframes proposed including a projection of the percentage of flights to be conducted by RLatSM-eligible aircraft.*

Note 2: The vertical limits associated with each Phase of the RLatSM implementation will be harmonized with the vertical limits of the airspace associated with the NAT Region Data Link Mandate.

Note 3: As regards the planned phased introduction of segregated airspace, the NAT SPG supported the philosophy that expanding such airspace beyond the Phase 1 limits should be based upon a positive business case. The NAT SPG has interpreted "business case" as a clear indication from airspace users or a quantified benefits analysis.

Note 4: When it is feasible, the target day, month and year that implementation is planned should be specific and States and operators informed in order to give States and operators sufficient lead time to prepare. The dates, to be specified at a later date by the NAT IMG; will be harmonized with the dates applicable to the MNPS to PBN Transition Plan and the NAT Performance Based Communication and Surveillance Implementation Plan for the ICAO NAT Region.

Note 5: It is planned that Phase 2 will involve promulgating approximately the same number of tracks as is the current practice, thus achieving an overall reduction of the lateral extent of the OTS, thereby increasing the flexibility for random operations and providing both economic and environmental benefits.

Note 6: Consideration will be given to implementing Phase 2 and Phase 3 in parallel, if supported by appropriate safety assessments and business case analyses.

5.6 The introduction of RLatSM to any of the FIRs within the NAT will require changes to the associated ATC system. Respective ANSP FDPs will need to depict and conflict probe the RLatSM tracks.

5.7 Operational Application

5.7.1 In order to issue a flight with an RLatSM clearance, the following conditions must be met:

a) the aircraft concerned are RNP4 approved and confirm navigating using GNSS;

b) tracks are established with ½ degree spacing and aircraft are capable of navigating the waypoints;

c) the aircraft concerned will provide ADS-C position reports; and

d) CPDLC communication will be established with the aircraft concerned to minimise the time required for any interventions. It is also noted that the use of CPDLC to upload RLatSM clearances would significantly decrease the risk of FMS waypoint input errors, should this functionality be enabled.

5.8 Concept of Use (Phase 1)

Introduction

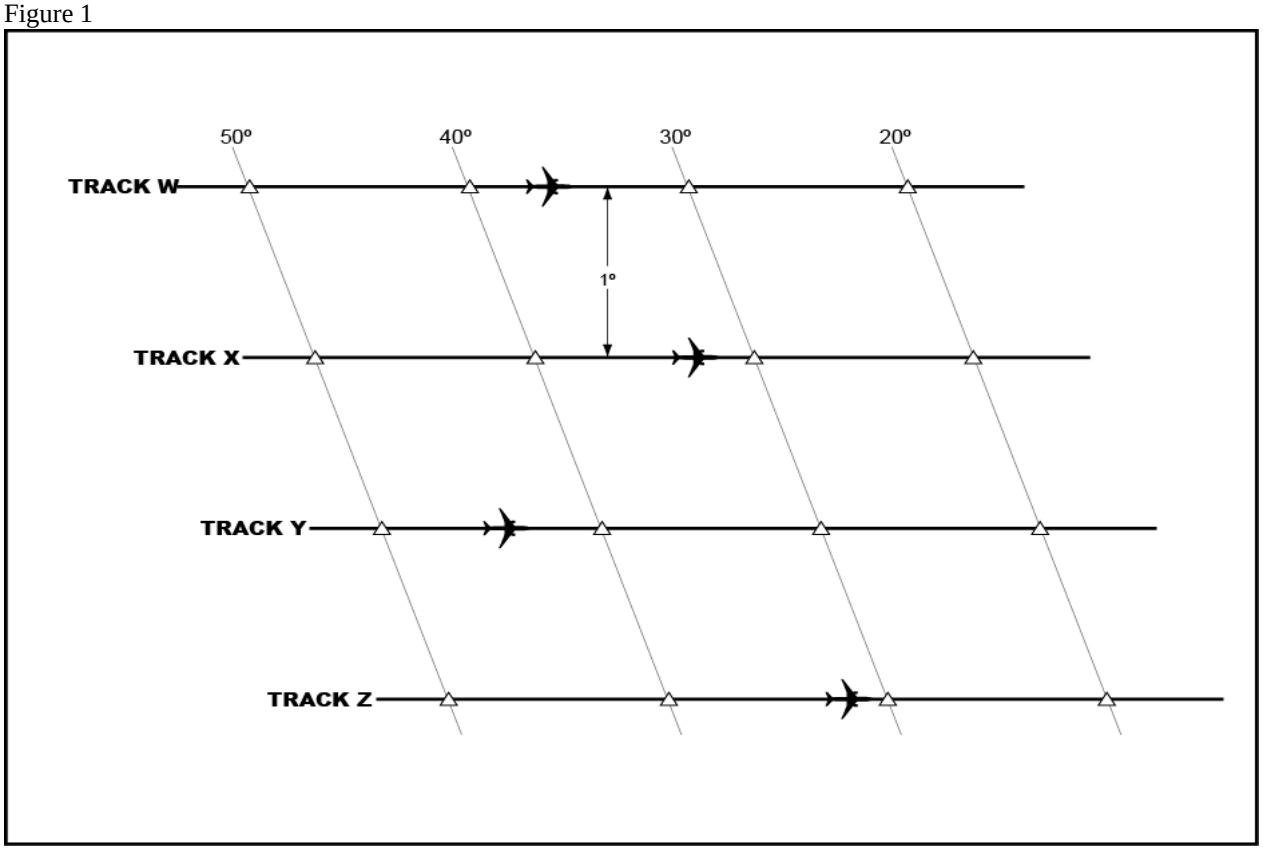
Commencing at a to be determined date within the 2014/2015 time frame, a reduced lateral separation minimum (RLatSM) of 25 Nautical Mile (NM) will be applied in the current North Atlantic (NAT) minimum navigation performance specification (MNPS) airspace between flight planned tracks of aircraft authorized for Required Navigation Performance 4 (RNP 4) operations and having Automatic Dependent Surveillance – Contract (ADS-C) and Controller-Pilot Data Link Communications (CPDLC) capability. Initial implementation will involve insertion of a single, unidirectional track within the NAT Organised Track System (OTS).

Note: When it is feasible, the target day, month and year that implementation is planned should be specific and States and operators informed in order to give States and operators sufficient lead time to prepare. The dates, to be specified at a later date by the NAT IMG; will be harmonized with the dates applicable to the MNPS to PBN Transition Plan and NAT Performance Based Communication and Surveillance Implementation Plan for the ICAO NAT Region.

Background

All flights in NAT MNPS airspace which generally route in an eastbound or westbound direction are normally flight planned so that specified ten degrees of longitude (20°W, 30°W, 40°W etc.) are crossed at whole degrees of latitude. Aircraft tracks are separated using the earth's coordinate system to define tracks and effect separation laterally by 60 NM or 1 degree (see Figure 1) provided a portion of the route is within, above, or below MNPS airspace. Given the curvature of the earth, 'Gentle Slope Rules' have been adopted to ensure that the actual separation never falls below distances which vary with latitude but never fall short of 50.5 NM.

Figure 1



RLatSM Objectives

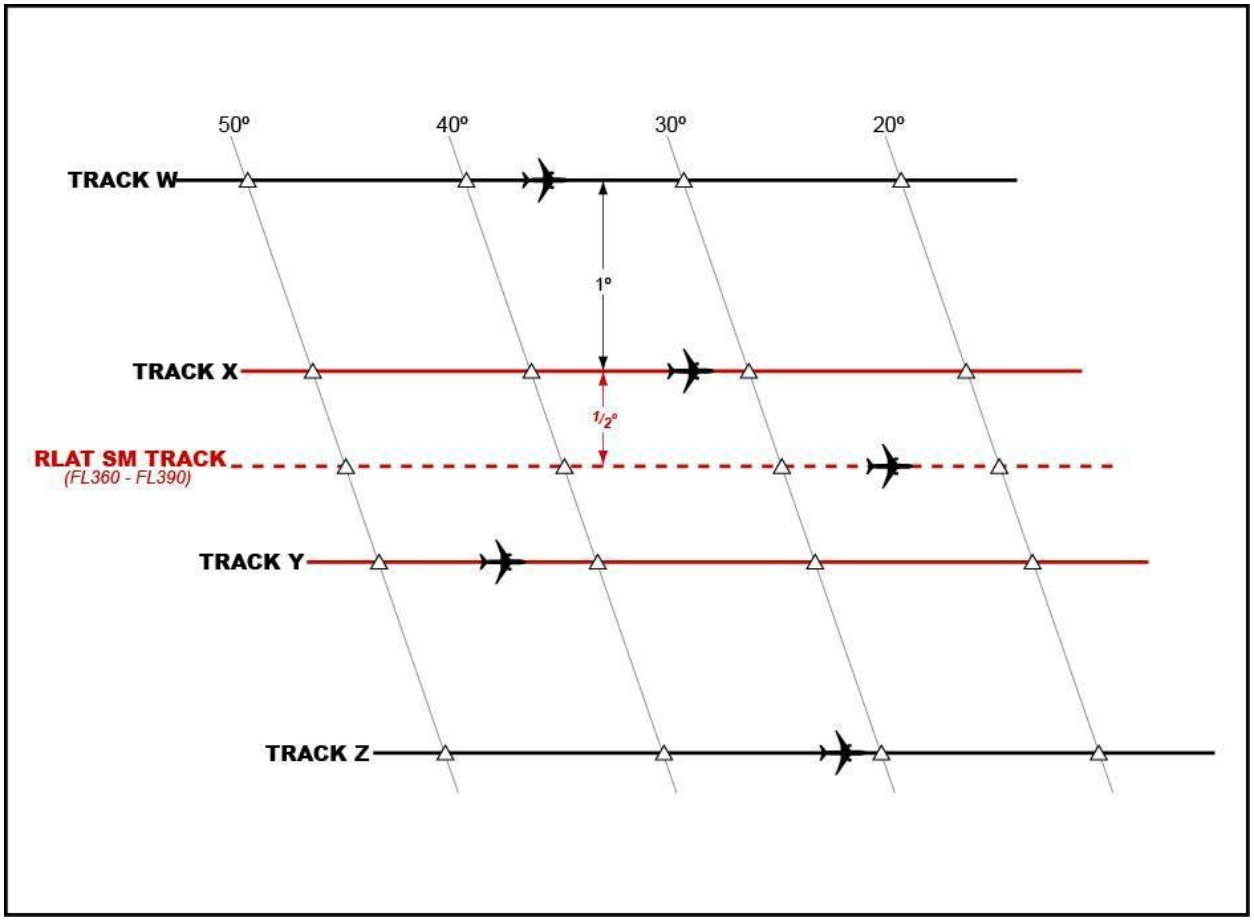
Collision risk modelling work conducted within the NAT region has determined that aircraft certified RNP 4, a navigation specification requiring navigation using GNSS, can be separated by 25 NM. The objectives of RLatSM implementation are to:

- reduce lateral track spacing from one degree (nominal 60 NM with gentle slope rules) to one half degree (nominal 30 NM with gentle slope rules) within the vertical limits applicable to the airspace associated with the NAT Region Data Link Mandate (NAT SPG Conclusion 46/2 refers) between aircraft authorized RNP 4 and having ADS-C and CPDLC capability;

Note 1: Phase 1 of RLatSM implementation will involve insertion of a single, unidirectional track within the NAT OTS with half degree spacing between that track and the adjacent tracks immediately to the north and south. All other tracks within the OTS and those randomly flight planned will be spaced by one degree (see Figure 2). Future phases are anticipated to encompass first the entire OTS and then the entire NAT region within the vertical limits of the airspace associated with the NAT Region Data Link Mandate.

Note 2: As indicated in NAT SPG Conclusion 47/1, the vertical limits applicable to the airspace associated with the NAT Region Data Link Mandate are flight level 360 to flight level 390 inclusive.

Figure 2



- increase the number of tracks available and therefore increase capacity at optimum flight levels;
- enhance the provision of fuel-efficient profiles and routes for NAT customers to reduce operating costs with minimal change to NAT operations;
- allow for reduction in fuel burn and a consequent reduction in greenhouse gas emissions through an increased likelihood of flights being able to operate at their optimum flight levels and routes.

OTS Design and Promulgation

The eastbound OTS is produced by Gander Oceanic Area Control Centre (OAC) and the westbound OTS by Shanwick OAC (Prestwick), each incorporating any requirement for tracks within the New York, Reykjavik, Bodø and Santa Maria Oceanic Control Areas (OCAs). A full description of the OTS concept is contained within ICAO NAT Doc 007 (Guidance concerning Air Navigation in and above the NAT MNPSA).

The use of RLatSM tracks requires ½ degree of latitude coordinates to be filed at each ten degrees of longitude (20°W, 30°W, 40°W etc.) and also the establishment of additional oceanic entry and exit points located midway between the existing points.

OTS samples with Phase 1 of RLatSM implementation are at Figure 3 and Figure 4 below.

Figure 3

TRACK	OCEAN FIX	ROUTE				OCEAN FIX	ALTITUDES
U	STEAM OYSTR	55/50	57/40	59/30	59/20	GOMUP GINGA	320 330 340 350 360 370 380 390 400
V	REDBY CARPE	54/50	56/40	58/30	58/20	SUNOT ELPIN	320 330 340 350 360 370 380 390 400
W	YAY HECKK	53/50	55/40	57/30	57/20	PIKIL ODLUM	320 330 340 350 360 370 380 390 400
WX	WXQX1 WXQX2	5230/50	5430/40	5630/30	5630/20	WXPK1 WXPK2	360 370 380 390
X	DOTTY CRONO	52/50	54/40	56/30	56/20	RESNO BABAN	320 330 340 350 360 370 380 390 400
Y	CYMON DENDU	51/50	53/40	55/30	55/20	DOGAL BURAK	320 330 340 350 360 370 380 390 400
Z	YQX KOBEV	50/50	52/40	54/30	54/20	MALOT DOLIP	320 330 340 350 360 370 380 390 400

Figure 4

A	SUNOT	58/20	58/30	57/40	55/50	OYSTR STEAM	310 320 330 340 350 360 370 380 390
B	PIKIL	57/20	57/30	56/40	54/50	CARPE REDBY	310 320 330 340 350 360 370 380 390
C	RESNO	56/20	56/30	55/40	53/50	HECKK YAY	310 320 330 340 350 360 370 380 390
CD	CDPK1 CDPK2	5530/20	5530/30	5430/40	5230/50	CDQX1 CDQX2	360 370 380 390
D	DOGAL	55/20	55/30	54/40	52/50	CRONO DOTTY	310 320 330 340 350 360 370 380 390
E	MALOT	54/20	54/30	53/40	51/50	DENDU CYMON	310 320 330 340 350 360 370 380 390
F	LIMRI	53/20	53/30	52/40	50/50	KOBEV YQX	310 320 330 340 350 360 370 380 390

RLatSM tracks require all aircraft operating on the tracks immediately adjacent to them to contain RLatSM eligible aircraft at the designated flight levels. All RLatSM affected tracks and flight levels will be identified as part of the track message content. Flights not eligible for RLatSM separation are not to flight plan on those tracks or flight levels.

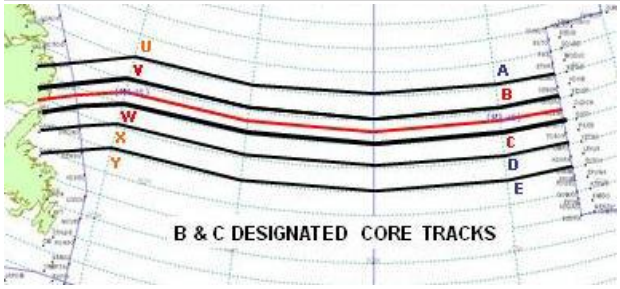
Implementation of RLatSM will have no requirement for alteration of OTS promulgation procedures.

Rules for Establishing an RLatSM track when Split Track structure is in use

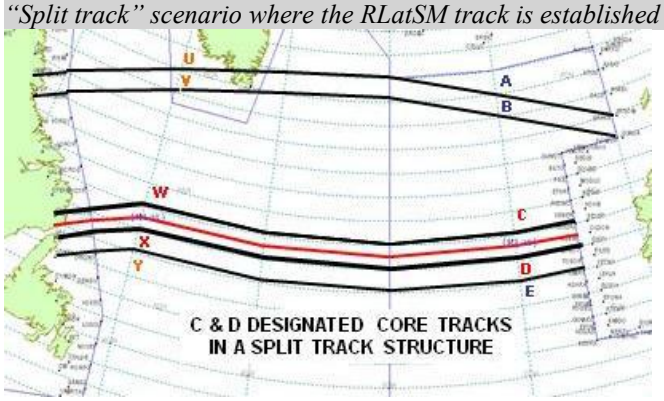
1. If the two identified core tracks in a split track structure are parallel, the ½ degree RLatSM track will be established between them.
2. If the two core tracks are split but are adjacent to other parallel tracks, the ANSP responsible for the OTS promulgation may select ONE core track next to which the ½ degree RLatSM track will be established.
3. If the core tracks do not have appropriate associated parallel tracks, no ½ degree RLatSM track shall be established.
4. Establishment of the ½ degree RLatSM track is not mandatory.

The following diagrams illustrate the intended application of these rules:

"Non-split" scenario, with the RLatSM track placed between the designated core tracks.

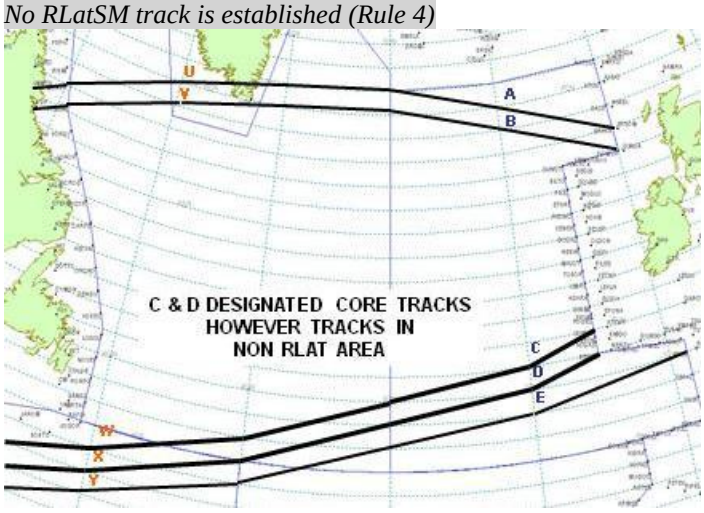


"Split track" scenario where the RLatSM track is established between the core tracks (Rule 1)



This diagram also applies in a scenario where B and C are the core tracks. In this case, the ANSP could choose to establish the RLatSM track between one of the core tracks and another parallel track (Rule 2).

No RLatSM track is established (Rule 4)



In this scenario, it would not be possible to establish an RLatSM track between the core tracks (C and D) because RLatSM cannot be applied in the New York OCA (Rule 3)

If the core tracks were B and C, it would still be unlikely an RLatSM track would be established because there are only two tracks in the northern part of structure.

Oceanic Clearance Production and Delivery

NAT oceanic clearance procedures are contained within ICAO NAT Doc 007 (Guidance concerning Air Navigation in and above the NAT MNPSA) and further detailed in NAT OPS Bulletins for the Gander Reykjavik, Santa Maria and Shanwick OACs.

Implementation of RLatSM currently contains no requirement for alteration of oceanic clearance procedures. It is has been recognized that the upload of route clearances containing ½ degree coordinates would benefit from the use of CPDLC technology.

6. IDENTIFICATION OF THE METHOD OF SAFETY ASSESSMENT

6.1 Collision risk for same direction traffic only has been estimated using the Reich model. This is considered to be applicable under phase 1 of the RLatSM operational trial.

6.1.1 Calculations used in the safety assessment are sufficient to allow provisions for the application of SLOP where RLatSM is being applied.

6.1.2 Additional collision risk modelling work will be necessary to consider opposite direction traffic for application in future phases of RLatSM implementation. It is not anticipated that this will have an effect on the core navigational component but may have some effect on the choice of the limit associated with maximum acceptable rate of large navigation errors.

7. EVALUATION OF THE RISK

7.1 The TLS for NAT MNPS airspace in the lateral dimension is currently 20 x 10^{-9} fatal accidents per flight hour (fapfh). For RLatSM the TLS will be 5 X 10^{-9} fapfh. Ongoing monitoring will determine whether the risk in the vertical and longitudinal dimensions is affected by the introduction of RLatSM.

7.2 Hazard Identification and Risk Analyses (HIRA) to assess the impact of the proposed change on the current system shall be carried out. These will be made available to the appropriate regulatory authorities and planning bodies as they are completed.

7.3 In accordance with NAT SPG Conclusion 45/22, the NAT Implementation Management Group will:

a) ensure that the errors arising from the input and display of ½ degree coordinates (for example, 48º30' North) are subject to specific hazard analysis and mitigation developed to address the identified hazards;

b) develop a robust plan to capture and contain errors arising from flight crews misconstruing ½ degree coordinates as a full degree coordinate or vice versa (for example, flying to 43º30' rather than 43º00' or vice versa); and

c) ensure that the results of a) and b) are an integral part of the implementation plan for reduced lateral separation.

8. SATISFACTION OF SAFETY CRITERIA

8.1 System Performance Criteria

8.1.1 Aircraft will be required to meet communication, navigation and surveillance requirements for
RLatSM operations.

8.1.2 Aircraft will be authorized for an RNP 4 navigation specification and the aircraft found eligible for RNP 4 operations by the State of the Operator or the State of Registry, as appropriate.

> *Note: Volume II, Part C, Chapter 1 of the* Performance-based Navigation Manual *(Doc 9613) provides guidance on the authorization of operators and aircraft for RNP 4. Paragraph 1.3.3.1 contains a statement that "GNSS must be used and can be used as either a stand-alone navigation system or as one of the sensors in a multi-sensor system".*

8.1.3 GNSS may be approved using one of the following FAA Technical Standard Orders (TSO): C129a, C145c, C146c, or C196 or, one of the following Joint Technical Standard Orders (JTSO): C129a or C146. TSO C115b and JTSO C115b are applicable to GNSS equipment using Aircraft Autonomous Integrity Monitoring. Airworthiness approval for GNSS can be obtained using the guidance contained in the advisory circulars listed below (or their equivalent):

a) for multi-sensor systems integrating GNSS: U.S. FAA AC 20-130 (as amended); and

b) for all GNSS equipment: U.S. FAA AC 20-138 (as amended).

8.1.4 Operators intending to conduct RLatSM operations should obtain CPDLC/ADS-C operational authorization, where applicable, either from the State of Registry or the State of the Operator. The State of Registry or the State of the Operator should verify that the equipment has been certified in accordance with the requirements specified in RTCA DO-258/EUROCAE ED-100 (or equivalent) and DO-306/ED-122, Annex B (or equivalent).

8.1.5 During the NAT RLatSM validation trial, RCP 240, as defined in the GOLD, would be the guideline against which actual communication performance would be measured. Surveillance performance specification 180, as defined in the GOLD, would be the guideline against which actual surveillance performance would be measured (NAT IMG/38 report, para 5.16-5,17 refer). In this period, monitoring will be carried out to ensure that the NAT communications and surveillance performance requirements of the RLatSM safety assessment are met. Concerning the performance specifications for the full RlatSM operations, RCP 240 and surveillance performance specification 180 are the candidate specifications to be prescribed for the RLatSM.

8.1.6 ANSP FDP software development to support RLatSM is expected to be fully functional in time for operational trials.

8.1.7 Air traffic management and control procedures are in development and will be finalized to provide timely training prior to implementation.

9. MODIFICATION OF THE PROPOSED SYSTEM

9.1 The requirement for modification will be a result of constant assessment of the system performance.

10. IMPLEMENTATION AND MONITORING OF THE PROPOSED SYSTEM

10.1 It is envisaged to introduce RLatSM via an operational trial starting 2014/2015. Operators will be advised via Aeronautical Information Circular (AIC) of requirements of the trial applicable to operators at least 12 months in advance and of operational trial details no less than three AIRAC cycles (84 days) prior to implementation. Any delay in the implementation date or significant change to the implementation plans shall be notified by NOTAM as soon as the information is available.

10.2 Eligible flights are those that meet all of the following requirements:

a) MNPS approval

b) RNP4 approval;

c) ADS-C and CPDLC equipped and, where applicable, authorized; and

d) the required CNS systems are operational.

10.3 ATS systems use Field 10 (Equipment) of the standard ICAO flight plan to identify an aircraft's data link and navigation capabilities. The operator should insert the following items into the ICAO flight plan (as per the proposed 2012 flight plan format) for FANS 1/A or equivalent aircraft:

a) Field 10a (Radio communication, navigation and approach aid equipment and capabilities); insert"J5" to indicate CPDLC FANS1/A SATCOM (Inmarsat) or "J7" to indicate CPDLC FANS1/A SATCOM (Iridium) data link equipment

b) Field 10b (Surveillance equipment and capabilities); insert "D1" to indicate ADS with FANS 1/A capabilities.

c) Field 18 (Other Information); insert the characters "PBN/" followed by "L1" for RNP4.

10.4 RLatSM will not be applied to flights with only HF equipment due to the inherent communication delay.

10.5 The use of RLatSM will be enabled by the improved confidence in aircraft position due to the navigation accuracy of GNSS, the position reporting using ADS-C and the intervention capability provided by CPDLC. Controllers will intervene via CPDLC free text or voice as appropriate if an aircraft track was forecast to drop below the specified minimum separation, to prevent loss of separation.

10.6 Monitoring of NAT communication system performance and analysis of problem reports will be assisted by the NAT Data Link Monitoring Agency (NAT DLMA). In accordance with NAT SPG CONCLUSION 45/18 the NAT States, ANSPs and industry support the DLMA according to the GOLD requirements.

Failures and degradations of systems

10.7 In the event of a data link system failure, the following provisions, documented in the *Global Operational Data Link Document* (GOLD), 1st Edition, are applicable:

4.7.5 Data link service failures

4.7.5.1 CPDLC connection failure

4.7.5.1.1 If a CPDLC dialogue is interrupted by a data link service failure, the controller should re-commence the entire dialogue by voice communication.

4.7.5.1.2 When the controller recognizes a failure of the CPDLC connection, the controller should instruct the flight crew to terminate the connection, by selecting ATC COM OFF, and then initiate another AFN logon. The controller or radio operator should use the following voice phraseology:

Controller (or radio operator)	ATC DATA LINK FAILED. SELECT ATC COMM OFF THEN LOGON TO [facility designation]
Flight crew	ROGER

Note.— The [facility designation] is the 4 character ICAO code.

4.7.5.1.3 Once the AFN logon is established, the ATS system should send a CPDLC CR1 message to re-establish the connection.

4.7.5.2 Data link service failure

4.7.5.2.1 In the event of an unplanned data link shutdown, the relevant ATSU should inform:

a) All affected aircraft using the following voice phraseology:

Controller (or radio operator)	ATC DATA LINK FAILED. SELECT ATC COMM OFF. CONTINUE ON VOICE
Flight crew	ROGER

b) The adjacent ATSUs by direct coordination; and

c) All relevant parties via the publication of a NOTAM, if appropriate.

Note.— In the event of a planned or unexpected network or satellite data service outage (e.g. ground earth station failure), the CSP will notify all ATSUs within the affected area in accordance with paragraph 3.1.3.1 so the controller can inform affected aircraft.

10.8 In the event of degraded aircraft performance, the following provision documented in the *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444), 15th Edition, is applicable:

5.2.2 Degraded aircraft performance

Whenever, as a result of failure or degradation of navigation, communications, altimetry, flight control or other systems, aircraft performance is degraded below the level required for the airspace in which it is operating, the flight crew shall advise the ATC unit concerned without delay. Where the failure or degradation affects the separation minimum currently being employed, the controller shall take action to establish another appropriate type of separation or separation minimum.

_____

Appendix I – Proposal for Amendment to the *Regional Supplementary Procedures* – North Atlantic (NAT) Region

(Paragraph 3.1.25 refers)

MNPS to PBN

a) **Regional Supplementary Procedures:**

Doc 7030/5 – NAT SUPPs

b) **Proposed by:**

United States of America

c) **Proposed amendment:**

Editorial Note: Amendments are arranged to show deleted text using strike out (~~text to be deleted~~) added text with grey shading (text to be inserted).

Modify the following in NAT SUPPSs, Chapter 4 – Performance-Based Navigation section 4.1

Chapter 4 – Navigation

4.1 Performance-Based Navigation

4.1.1.5 Pre-PBN navigation specifications

4.1.1.5.1 Minimum navigation performance specifications (MNPS)

Area of applicability

4.1.1.5.1.1 The MNPS shall be applicable in that volume of airspace between FL 285 and FL 420 within the Oceanic Control Areas of Santa Maria, Shanwick, Reykjavik, Gander Oceanic and New York Oceanic, excluding the area west of 60°W and south of 38°30′N.

Note.— This volume of airspace is referred to as the "MNPS airspace".

Means of compliance

(A2 – Chapter 5; A6, Part I – Chapters 3, 4 and 7; A6, Part II – Chapters 3 and 7; A8 – Chapter 8)

4.1.1.5.1.2 Except for those flights specified in 4.1.1.5.1.8, aircraft operating within the volume of airspace specified in 4.1.1.5.1.1 shall have lateral navigation performance capability such that:

a) the standard deviation of lateral track errors shall be less than 11.7 km (6.3 NM);

b) the proportion of the total flight time spent by aircraft 56 km (30 NM) or more off the cleared track shall be less than 5.3×10^{-4}; and

c) the proportion of the total flight time spent by aircraft between 93 and 130 km (50 and 70 NM) off the cleared track shall be less than 1.3×10^{-4}.

4.1.1.5.1.3 The State of Registry or the State of the Operator, as appropriate, should verify that the lateral navigation capability of approved aircraft meets the requirements specified in 4.1.1.5.1.2.

Note. — Guidance material of use to those involved in the initial achievement and continued maintenance of the navigation capability set forth in 4.1.1.5.1.2 has been issued by ICAO under the title North Atlantic Operations and Airspace Manual (NAT Doc~~.~~ 007) *and will be supplemented and updated as required and as new material becomes available.*

4.1.1.5.1.4 Aircraft that have been approved by the State of Registry or the State of the Operator, as appropriate, for RNP 10 (PBN application of RNAV 10) or RNP 4 are considered to meet the requirements specified in 4.1.1.5.1.2.a).

Note. – The Performance-based Navigation (PBN) Manual *(Doc 9613) provides guidance on aircraft approval, operations and maintenance programmes for initial achievement and continued compliance with RNAV 10 (Designated and Authorised as RNP 10) and RNP 4.*

4.1.1.5.1.5 From 1 January 2015 the means of compliance for demonstrating performance to 4.1.1.5.1.2 a) above shall be in accordance with the *Perfomance Based Navigation Manual* (Doc 9613). Aircraft that have been MNPS approved by the State of Registry or the State of the Operator based on standard deviation of lateral track error of 11.7 km (6.3 NM) before 1 January 2015 shall be permitted to operate in NAT MNPS airspace until 1 January 2020.

4.1.1.5.1.6~~5~~ When granting approval for operations in MNPS airspace, States should take account of the RNP 10 time limits for aircraft equipped with dual INS or inertial reference unit (IRU) systems.

Note. – (RNP 10 time limits are discussed in (Doc 9613) Part B, Volume II Chapter 1.

4.1.1.5.1.7~~6~~ When granting approval for operations in MNPS airspace, States of Registry shall ensure that in-flight operating drills include mandatory navigation cross-checking procedures which will identify navigation errors in sufficient time to prevent the aircraft inadvertently deviating from the ATC-cleared route. Guidance on procedures is detailed in NAT Doc 007.

4.1.1.5.1.8~~7~~ Flights not subject to an Oceanic Clearance, which flight plan to route through Brest Oceanic Transition Area (BOTA) and/or Shannon Oceanic Transition Area (SOTA), are not subject to MNPS approval.

Note 1.—SOTA is defined as that airspace from DINIM (510000N 0150000W) — LESLU (510000N 0080000W) — 483000N 0080000W — BEDRA (490000N 0150000W) to DINIM (510000N 0150000W).

Note 2.— BOTA is defined as that airspace from 483400N 0084500W — 483000N 0080000W — 450000N 0080000W — 450000N 0084500W to 483400N 0084500W.

d) **Proposed implementation date of the amendment:**

Upon approval by the Council.

e) **Proposer's reason for amendment:**

To execute task 2.4 in the NAT MNPS to PBN transition plan which has been approved by the NATSPG

f) **Action by the Secretary General:**

The proposal has been circulated to the following States and international organizations.
XXX

g) **Secretariat's comments:**

Appendix J – Recommendation for the implementation of Phase 2 of the NAT Region Data Link Mandate

(Paragraph 3.1.35 refers)

2018 and 2020 Goals

The 2018 date is associated with the timing for ASBU Block 0, which ends in 2018 and in particular, Module B0-40 (2013-2018), which includes safety and efficiency improvements enroute supported by data link.

The goals are that: by 2018, 90% of aircraft operating in the NAT Region airspace at FL290 and above will be equipped with FANS 1/A or equivalent ADS-C and CPDLC and that by 2020, 95% of aircraft operating in that airspace will be so equipped.

Phase 2 Implementation

- Phase 2A, commencing 5 February 2015: FL350 to FL390 within the NAT OTS;
- Phase 2B, commencing 7 December 2017: FL350-FL390 throughout the ICAO NAT Region;
- Phase 2C, commencing 30 January 2020: FL290 and above throughout the ICAO NAT Region.

Airspace Not Included in the NAT Region Data Link Mandate Airspace

- ATS surveillance (radar and ADS-B) airspace depicted in State AIPs (provided the aircraft is suitably equipped)
- Airspace north of 80° North[4]
- New York Oceanic FIR[5]

Flight Planning

The following flights are permitted to flight plan to enter the airspace associated with the NAT Region Data Link Mandate:

1. Flights equipped with and prepared to operate the required FANS 1/A or equivalent equipment (NAT SUPPs 3.3.2 for CPDLC and 5.4.2 for ADS-C); and

2. Non-equipped flights which file STS/FFR, HOSP, HUM, MEDEVAC SAR, or STATE in Item 18 of the flight plan. However, depending on the tactical situation at the time of flight, such flights may not receive an ATC clearance which fully corresponds to the requested flight profile.

Operations

- Any non-DLM flight may request to climb or descend through the NAT DLM airspace. Such requests will be considered on a tactical basis.
- ALTRV requests will be considered on a case by case basis (as is done today regarding NAT MNPS airspace), irrespective of the equipage status of the participating aircraft.
- If a flight experiences an equipment failure AFTER departure which renders the aircraft non-DLM compliant, requests to operate in the NAT Region Data Link Airspace will be considered on a tactical basis. Such flights must indicate their non-DLM status prior to entering the airspace. If the failure

[4] Airspace north of 80°N lies outside the reliable service area of geostationary satellites.
[5] Until revisions are made to the U.S. Code of Federal Regulations for regulations related to NAT operations.

occurs while the flight is in NAT Region Data Link Mandate Airspace, ATC must be immediately advised. Such flights may be re-cleared so as to avoid the airspace, but consideration will be given to allowing the flight to remain in the airspace, based on tactical considerations.

- If a flight experiences an equipment failure PRIOR to departure which renders the aircraft non-DLM compliant, the flight should not flight plan to enter the NAT Regional DLM Airspace.
- NAT DLM airspace restrictions are not applicable to aircraft experiencing a contingency situation.

EUR/NAT Interface

Where the NAT interfaces with the EUR Data Link Implementation Rule airspace, agreement will be established between the NAT and EUR ANSPs that will facilitate the vertical transition of traffic to and from the NAT Region Data Link Mandate and the EUR Data Link Implementation Rule areas. The transition will be conducted as soon as is practicable by the initial EUR Domestic area along the common FIR/UIR boundary bordering the NAT Region Data Link Mandate and the operator shall ensure the transition is complete prior to crossing any subsequent FIR/UIR boundary.

Appendix K – VOLCEX ToRs

(paragraph 3.1.43 refers)

PROPOSED AMENDMENT TO THE EUROPEAN and NORTH ATLANTIC VOLCANIC ASH EXERCISES STEERING GROUP (EUR/NAT VOLCEX/SG)

The EUR/NAT VOLCEX/SG has been established by the EANPG COG Conclusion 41/11 (COG/41 meeting, Bodø, 24 to 26 June 2008) and NAT SPG Conclusion 44/17 (NAT SPG/44 meeting 17 to 20 June 2008). The main task of the EUR/NAT VOLCEX/SG is to ensure the continuation of regular volcanic ash exercises in the EUR and NAT Regions.

TERMS OF REFERENCE

(as updated by EANPG COG/48 and NAT IMG/37)

Objective: Improve the response to volcanic eruptions and volcanic ash contamination by the relevant national supervisory authorities, service providers (ATS, AIS, ATFM, MET) and airspace users (airlines) in the EUR and NAT Regions through organizing regular volcanic ash exercises in accordance with the current Volcanic Ash Contingency Plan – EUR and NAT Regions and the VOLCEX OPINS in order to validate and continually improve the common volcanic ash ~~contingency plan and~~ procedures for the EUR and NAT Regions.

Tasks:

- Co-ordinate ~~with all participants in the volcanic ash exercises (ACCs, airlines, VAACs, MWOs, CFMU, MATMC)~~ the schedule for the exercises and their main objectives and scenarios; ensuring that exercises cover ~~all~~ those parts of the EUR and NAT Regions that ~~could~~ would likely be affected by volcanic ash. Prepare a two year working plan of steering group meetings, planning meetings, exercises, and debrief meetings. ~~, except for e~~

  Note: Exercises in the (far) Eastern part of the EUR Region ~~which~~ are the responsibility of the Volcanic Ash Exercises Steering Group for the (far) Eastern part of the EUR Region (EUR (EAST) VOLCEX/SG) established by EANPG COG/48.

- Each SG member is to represent a number of entities, in order to ensure that the interests of these entities are included in the collective decision making, while keeping the number of SG entities within limits.

- ~~Keep under review the regional VA exercise procedures, including VA Exercise Operating Instructions (VOLCEX OPINS), and make improvements based on the lessons learnt. (Regional VA exercise procedures, and other relevant material, to be posted on the EUR/NAT Regional Office website).~~

- ~~Organize in parallel with the VA exercises, awareness events, such as seminars and presentations, in order to enhance the awareness of the participants regarding the hazardous effects of volcanic ash and the established contingency measures.~~

- Based on the outcome of the VA exercises, propose (to EANPG COG and NAT IMG) improvements to the common volcanic ash contingency ~~plan~~ procedures for the EUR and NAT Regions.

- Report the results of its activities to the EANPG COG and the NAT IMG on an annual basis. The group should also liaise with the METG of EANPG and the NAT ATMG. Additionally, through the Secretary, the group should liaise with the EUR (EAST) VOLCEX/SG~~)~~ of the EANPG COG.

Composition: Canada (incl. VAAC Montréal), France (incl. VAAC Toulouse), Germany, Iceland (Co-Rapporteur), Ireland, Italy, Norway, Portugal, Russian Federation (incl. MATMC), United Kingdom (Co-Rapporteur) (incl. VAAC London), United States of America (incl. VAAC Washington), EUROCONTROL (incl. CFMU), ICAO (Secretary) and IATA.

Attendance: One representative per State or organization
VOLCEX/SG meetings to be held back to back with planning and debrief meetings as appropriate.
As appropriate work to be done through correspondence.
Entities which exchange responsibility stay a two year term.

Appendix L – ROADMAP

(paragraph 6.1.2 refers)

Draft executive summaries

Reduced Longitudinal Separation of 5 minutes between FANS equipped aircraft (RLongSM)

RLongSM allows for the application of 5 minutes longitudinal separation between aircraft providing position reports using Automatic Dependent Surveillance – Contract (ADS-C). ADS-C reports must be provided in accordance with a periodic contract with a maximum reporting interval of 18 minutes. Aircraft must also be equipped with Controller Pilot Data Link Communications.

RLongSM may be applied between a suitably equipped aircraft climbing/descending TO or THROUGH the flight level of another suitably equipped aircraft. RLongSM may also be applied between pairs of suitably equipped aircraft operating at the same flight level, where the following aircraft is faster than the leading aircraft.

The goal of the RLongSM validation trial is to provide the necessary data so as to support the development of global provisions. The application of RLongSM in the ICAO NAT Region will continue on a trial basis until global provisions have been promulgated. The applicability of Required Communication Performance (RCP) and Required Surveillance Performance (RSP) specifications is in accordance with NAT SPG Conclusion 48/7.

RLongSM provides fuel saving and environmental benefits to operators as aircraft have a greater probability of flying closer to their optimum profile.

Key Dates

25 May 2010 - RLongSM Validation Trial initiated in the Gander and Shanwick OCAs

June 2010 - RLongSM Validation Trial suspended, due concerns about potential overload of Flight Data Processing Systems (FDPS)

21 March 2011 - RLongSM Validation Trial re-initiated in the Gander and Shanwick OCAs

Supporting Documents

The following documents, related to the RLongSM initiative, are available on the ICAO EUR/NAT website via the following URL:

http://www.paris.icao.int/documents_open/files.php?subcategory_id=143

- Implementation Plan for the Trial Application of RLongSM in the NAT Region
- Success Criteria for the RLongSM Validation Trial
- SASP-WG/WHL/20 (May 2012) IP/09 - The Reduced Longitudinal Separation Minimum Concept
- SASP-WG/WHL/20 (May 2012) IP/10 - The Longitudinal Reich Collision Risk Model
- SASP-WG/WHL/20 (May 2012) - WP/24 Estimating the Longitudinal Separation Loss Distribution under Periodic Reporting using Waypoint Reporting Data
- SASP-WG/WHL/20 (May 2012) - WP/25 Collision Risk Estimates under Reduced Longitudinal Separation Minimum Operations
- SASP-WG/WHL/20 (Nov 2012) WP/29 - Longitudinal Collision Risk Estimates under the NAT RLongSM Operational Trial

Interdependencies • Implementation of RCP and RSP
GANP ASBU modules **B0-FRTO** Improved Operations through Enhanced En-Route Trajectories **B0-NOPS** Improved Flow Performance through Planning based on a Network-Wide view

Reduced Lateral Separation Minima between FANS equipped aircraft (RLatSM)

RLatSM will allow aircraft to be separated laterally by a minimum of 25Nm at the same flight level, improving the efficiency of NAT operations. The practical application of this will be that flights are separated by ½ degree of latitude rather than the 1 degree currently applied between MNPS certified aircraft.

Flights will be issued clearances using RLatSM provided they are equipped with ADS-C/CPDLC, are RNP4 approved and are navigating using GNSS.

RLatSM is planned to be implemented using a three phased approach. Phase 1 is planned for 2015 by implementing ½ degree spacing between two core OTS tracks. In effect this will allow the creation of additional core track. Expansion into phase 2 will be subject to a proven business case, but it is anticipated that ½ degree separation would be applied throughout the whole OTS. The final phase would see ½ degree separation throughout the NAT region. The vertical extent of RLatSM airspace will be co-incident with the vertical extent of the NAT FANS Mandate airspace in effect at the time.

Changes to ground systems will be required but RLatSM can be introduced with limited procedural changes to NAT operations, allowing flight profiles closer to optimum with reduced fuel burn and lower CO2 emissions.

Key Dates

2015 – RlatSM Phase 1 introduction

Phases 2 and 3 dates are yet to be determined.

Supporting Documents

The following documents, related to the RLatSM initiative, are available on the ICAO EUR/NAT website via the following URL: http://www.paris.icao.int/documents_open/files.php?subcategory_id=143

- RLatSM Concept of Operations
- RLatSM Plan
- RLatSM Task List

Interdependencies

- FANS Mandate
- Introduction of RCP/RSP

GANP ASBU modules

B0-FRTO

Improved Operations through Enhanced En-Route Trajectories

B0-NOPS

Improved Flow Performance through Planning based on a Network-Wide view

FANS Mandate for the NAT Region

ADS-C and CPDLC data link systems are widely used in the NAT region and NAT SPG has endorsed a major safety initiative to mandate the use of ADS-C/CPDLC in the NAT. ADS-C enables conformance monitoring of flight profiles in the vertical and lateral plane giving controllers immediate warning when a flight deviates from a cleared profile and the ability to intervene quickly, with the potential to substantially reduce the incidence of Large Height Deviations. The use of ADS-C also greatly facilitates search and rescue operations and location of an aircraft following an accident in oceanic airspace.

ADS-C and CPDLC are also pre-requisites for RLongSM and RLatSM so increased equipage on aircraft enables the expansion of airspace within which these reduced separations can be applied.

It is acknowledged that aircraft equipage requires substantial investment and planning, thus it was decided to take a phased approach to the implementation of the FANS mandate. In February 2013 aircraft were mandated to operate ADS-C/CPDLC when flying on two designated OTS tracks between FL360 and FL390. The tracks designated as FANS tracks are those forecast to be the most heavily loaded. With all aircraft on these tracks ADS-C/CPDLC equipped, RLongSM can be applied between any aircraft and the associated efficiency benefits derived.

Further phases from 2015 onwards will see the extent of FANS mandated airspace expanded in the lateral and vertical planes until the majority of NAT airspace is included at FL290 and above. Progress through the planned phases will take into account aircraft equipage levels and reasonable accommodation for non-equipped aircraft.

It should be noted that aircraft equipped with ADS-C/CPDLC before 1st January 2014 are exempt from the 2014 European Data link Mandate for the life of the airframe.

Key Dates

February 2013 – Introduction of Phase 1 of the FANS Mandate
2015 – Progress to phase 2 of the Fans Mandate

Supporting Documents

The following documents, related to the FANS Mandate, are available on the ICAO EUR/NAT website via the following URL: http://www.paris.icao.int/documents_open/files.php?subcategory_id=143

- NAT Data link Mandate Implementation Plan

Interdependencies

- RLatSM

GANP ASBU modules

B0-TBO

Improved Safety and Efficiency through the initial application of Data Link En-Route Implementation of an initial set of data link applications for surveillance and communications in ATC.

B0-SNET (conformance monitoring)

Increased Effectiveness of Ground-based Safety Nets This module provides improvements to the effectiveness of the ground-based safety nets assisting the Air Traffic Controller and generating, in a timely manner, alerts of an increased risk to flight safety (such as short terms conflict alert, area proximity warning and minimum safe altitude warning).

Required Communications Performance/Required Surveillance Performance (RCP/RSP)

Current NAT separation standards are strategic in nature and are not subject to RCP/RSP, but any separation reductions will require to have RCP/RSP values applied. These values are given a numerical 'label' and their definitions are included in the Global Operational Data Link Document (GOLD).

RCP240 is the value attached to communications performance where communications are conducted using CPDLC. This relates to the controllers intervention capability and can be considered to be the number of seconds within which a message is dispatched to an aircraft and a reply received by the controller. Essentially this is the number of seconds within which this action can be expected to be completed most of the time.

RSP180 is the value attached to surveillance performance where this is conducted using ADS-C. The 180 value relates to the ADS-C report delivery from an aircraft.

The NAT Performance Based Communication and Surveillance Implementation Plan (NAT PBCS) sets out the requirements for NAT data link operations in relation to RLongSM and RLatSM. It includes requirements for ATS provision, operator authorisation and post implementation monitoring of actual communications and surveillance performance. The plan will be amended as required as other RCP/RSP applications are introduced in the NAT.

Key Dates

February 2013	NAT Performance Based Communication and Surveillance Workshop held
2013	GOLD amended to incorporate the Performance Based Communication and Surveillance Manual.
2015	RCP/RSP implementation

Supporting Documents

The following documents, related to the RCP/RSP, are available on the ICAO EUR/NAT website via the following URL: http://www.paris.icao.int/documents_open/files.php?subcategory_id=143

- NAT Performance Based Communications and Surveillance Implementation Plan
- Presentation on RCP and RSP
- RCP and RSP Reference Document

Interdependencies

- RLatSM

GANP ASBU modules

B0-TBO

Improved Safety and Efficiency through the initial application of Data Link En-Route Implementation of an initial set of data link applications for surveillance and communications in ATC.

Performance Based Navigation (PBN)

The NAT Region was the first ICAO Region to implement separation standards with minimum

navigation performance standards. This became known as MNPS airspace and aircraft must be suitably equipped and certified to fly in MNSP airspace. The Performance Based Navigation (PBN) concept has subsequently been developed to enable further reductions in separation standards and the NAT SPG has agreed that the NAT Region will transition to PBN airspace as described in the Performance Based Navigation (PBN) Manual (Doc 9613).

The planned evolution strategy is detailed in the MNPS to PBN Transition Plan for the ICAO NAT Region.

The plan covers the full range of tasks necessary to complete the transition including redefining the lateral and vertical limits of NAT PBN airspace, all necessary regulatory actions, transitioning the current MNPS approval system to an RNP based system, changes to ground systems, training and documentation.

The plan also considers which crew and operator procedures, in addition to navigation performance requirements, are necessary to support approval to fly in NAT PBN airspace.

Key Dates

2013 Aircraft certified for RNP10 and/or RNP4 can be issued an MNPS approval without further examination of the navigation component.

2015 MNPS approvals will be based on RNP10 or RNP4 specification. Aircraft with MNPS approvals can still operate in MNPS airspace.

2015 MNPS airspace redefined as PBN airspace.

2020 All aircraft in NAT PBN airspace will have approvals based on RNP10 or RNP4 specification. Aircraft with existing MNPS approvals may no longer operate in NAT PBN airspace.

Supporting Documents

The following documents, related to PBN, are available on the ICAO EUR/NAT website via the following URL: http://www.paris.icao.int/documents_open/files.php?subcategory_id=143

- MNPS to PBN Transition Plan for the ICAO NAT Region.

Interdependencies

- RLatSM

GANP ASBU modules

B0-FRTO

Improved Operations through Enhanced En-Route Trajectories

AIDC

Air Traffic Services Inter-Facility Data Communication (AIDC) is a ground/ground communications system which enables the transmission of ATS messages by data link. Data interchange between NAT facilities without the need for verbal co-ordination has been in existence for many years, but the current plan will ensure that all NAT providers are equipped to a common standard and to the highest level.

It is acknowledged that non-verbal data interchange, whereby a range of flight data messages can be shared, co-ordination offered and agreed and subsequent changes effected, provides major safety benefits by reducing inter-facility coordination errors. Analysis has shown that AIDC, at the level specified in the plan, would have played a role in mitigating a number of Large Height Deviations in the NAT over recent years with corresponding performance improvements against the NAT Target Levels of Safety.

NAT Doc 002, the North Atlantic Common Coordination Interface Control Document, defines message sets and procedures designed to meet today's needs and beyond.

Key Dates

15th November 2012 – Publication of V1.3 of NAT Doc 002
End 2013 – Completion of AIDC rollout in the NAT region.

Supporting Documents

The following documents, related to AIDC, are available on the ICAO EUR/NAT website via the following URL: http://www.paris.icao.int/documents_open/files.php?subcategory_id=143

- AIDC Implementation Plan

Interdependencies

Nil

GANP ASBU

Performance Improvement Area 2:
Globally Interoperable Systems and Data – Through Globally Interoperable System Wide Information Management
Phase 1
Module B0-FICE
2013-2018
Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration Supports the coordination of ground-ground data communication between ATSU based on ATS Inter-facility Data Communication (AIDC) defined by ICAO Document 9694
Phase II
Module B1-FICE
2018-2023
Increased Interoperability, Efficiency and Capacity though FF-ICE, Step 1 application before
Departure Introduction of FF-ICE step 1, to implement ground ground exchanges using common flight information reference model, FIXM, XML and the flight object used before departure.
Associated modules
B0-DATM

Service Improvement through Digital Aeronautical Information Management Initial introduction of digital processing and management of information, by the implementation of AIS/AIM making use of AIXM, moving to electronic AIP and better quality and availability of data.

B1-DATM

Service Improvement through Integration of all Digital ATM Information Implementation of the ATM information reference model integrating all ATM information using UML and enabling XML data representations and data exchange based on internet protocols with WXXM for meteorological information.

Additional modules to be considered

B0-AMET

Meteorological information supporting enhanced operational efficiency and safety Global, regional and local meteorological information provided by world area forecast centres, volcanic ash advisory centres, tropical cyclone advisory centres, aerodrome meteorological offices and meteorological watch offices in support of flexible airspace management, improved situational awareness and collaborative decision making, and dynamically-optimized flight trajectory planning.

B0-ASUR (as part of LEO ADS-B)

Initial Capability for Ground Surveillance Ground surveillance supported by ADS-B OUT and/or
wide area multilateration systems will improve safety, especially search and rescue and capacity through separation reductions. This capability will be expressed in various ATM services, e.g. traffic information, search and rescue and separation provision.

B0-OPFL

Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B
This prevents an aircraft being trapped at an unsatisfactory altitude and thus incurring non-optimal
fuel burn for prolonged periods. The main benefit of ITP is significant fuel savings and the uplift of greater payloads.

B0-ACAS

ACAS Improvements

To provide short term improvements to existing airborne collision avoidance systems (ACAS) to reduce nuisance alerts while maintaining existing levels of safety. This will reduce trajectory perturbation and increase safety in cases where there is a breakdown of separation.

B0-SNET (other than conformance monitoring using ADS)

Increased Effectiveness of Ground-based Safety Nets This module provides improvements to the effectiveness of the ground-based safety nets assisting the Air Traffic Controller and generating, in a timely manner, alerts of an increased risk to flight safety (such as short terms conflict alert, area proximity warning and minimum safe altitude warning).

B1-RPAS

Initial Integration of Remotely Piloted Aircraft (RPA) Systems into non-segregated airspace
Implementation of basic procedures for operating RPA in non-segregated airspace including detect and avoid.

Appendix M – Global Operational Data Link Document (GOLD), Edition 2.0

(paragraph 6.2.3 refers)

(Due to its size, this document is provided separately)

Please note that this appendix refers to the **Global Operational Data Link Document** (**GOLD**) edition 2.0 which can be found on the EUR/NAT Paris website in the "EUR/NAT Documents" section, in the "NAT Documents" main category, in "GOLD" subcategory.

Alternatively it can be found with the following link:

http://www.paris.icao.int/documents_open/files.php?subcategory_id=112

Appendix N – Update to NAT ATM Contingency Plans (NAT Doc 006)

(Paragraph 6.3.1 refers)

Editorial Note: Amendments are arranged to show deleted text using strikeout (~~text to be deleted~~), and added text with grey shading (text to be inserted).

. . .

2.3 NOTIFICATION PROCEDURES

In a **limited service** situation notification of any service limitations and traffic management measures will be promulgated to operators and adjacent ANSPs via AFTN and through NAV CANADA National Operations Centre.

. . .

2.7 GANDER OACC – CONTINGENCY ROUTE STRUCTURE

. . .

Eastbound Aircraft operating with a received and acknowledged ocean clearance should proceed in accordance with the clearance. Flight should not request changes in altitude, speed or route except for reasons of flight safety or to comply with the oceanic clearance.

The Eastbound Organized Track System will be extended to begin at the western boundary between the Gander FIR and the Moncton and Montreal FIR's. ~~as follows:~~

Based on the Oceanic Entry Point, eastbound flights shall proceed in accordance with the following table, until communication is established with, and a re-clearance issued by the next agency.

Aircraft north of MOATT continue on oceanic clearance as received from YUL ACC.		
FIR boundary fix	Landfall fix	Oceanic Entry Point in OTS message
YKL	LOMTA	MOATT
YWK	YDP	PRAWN
MUNBO	HO	PORGY
TASTI	FOXXE	LOACH
SERBO	VALIE	SCROD
VERTU	STEAM	OYSTR
PIKNA	REDBY	CARPE
NAPLO	YAY	HECKK
MIGLI	DOTTY	CRONO
LOPRO	CYMON	DENDU
VINSI	YQX	KOBEV
TAGRA	VIXUN	LOGSU
SUTKO	YYT	NOVEP
RUBDA	COLOR	RONPO
PEPRA	BANCS	URTAK
NANSO	RAFIN	VODOR
LOMPI	JAROM	~~BOBTU~~ TALGO

Appendix O – Update to North Atlantic Operations and Airspace Manual (NAT Doc 007)

(paragraph 6.3.3 refers)

CHAPTER 2: The Organised Track System (OTS)

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2.5 Examples of Day-time Westbound and Night-time Eastbound Track Messages and Associated Track Systems

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Example 2 - EXAMPLE OF EASTBOUND NAT TRACK MESSAGE

(NAT- TRACKS FLS 320/400 INCLUSIVE
FEB 23/0100Z TO FEB 23/0800Z
U CYMON DENDU 51/50 52/40 54/30 55/20 RESNO NETKI
EAST LVLS 320 330 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N95B N97B N99A-
V YQX KOBEV 50/50 51/40 53/30 54/20 DOGAL BEXET
EAST LVLS 320 330 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST LFPG E349A
NAT N79B N83B N85A-
W VIXUN LOGSU 49/50 50/40 52/30 53/20 MALOT GISTI
EAST LVLS 320 330 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST LFPG E391A
NAR N63B N67B-
X YYT NOVEP 48/50 49/40 51/30 52/20 LIMRI DULUL
EAST LVLS 320 330 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N53B N59A-
Y COLOR RONPO 47/50 48/40 50/30 51/20 DINIM ELSOX
EAST LVLS 320 330 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N43A N49A-
Z DANER 40/60 43/50 47/40 49/30 50/20 SOMAX ASTUR
EAST LVLS 320 340 360 380
WEST LVLS NIL
EUR RTS EAST NIL
NAR NIL-
REMARKS:
1. TMI NUMBER IS 054 AND OPERATORS ARE REMINDED TO INCLUDE THE TRACK MESSAGE IDENTIFICATION NUMBER. AS PART OF THE OCEANIC CLEARANCE READ BACK
2. CLEARANCE DELIVERY FREQUENCY ASSIGNMENTS FOR AIRCRAFT OPERATING FROM KENKI TO BOBTU TALGO INCLUSIVE:
KENKI TO VIMLA 132.02
MIBNO TO LAKES/KENRI 134.**2**
MOATT TO SCROD 128.7
OYSTR TO YAY 135.45
DOTTY TO YQX 135.05
VIXUN TO COLOR 128.45
BANCS TO BOBTU TALGO 119.42
3. 80 PERCENT OF NAVIGATIONAL ERRORS RESULT FROM POOR COCKPIT PROCEDURES. ALWAYS CARRY OUT PROPER WAYPOINT CHECKS.
4. NAT EASTBOUND FLIGHT PLANNING RESTRICTIONS IN FORCE
REFER TO EGGX G0344/04.)
5. CREWS ARE REMINDED THAT, WITHIN THE NAT REGION, THE STRATEGIC LATERAL OFFSET PROCEDURES, SLOP, SHOULD BE USED AS A STANDARD OPERATING PROCEDURE TO REDUCE THE RISK OF COLLISION AND NOT SOLELY FOR TURBULENCE/WEATHER

CHAPTER 4: Flight Planning

4.1 FLIGHT PLAN REQUIREMENTS

. . .

1) Routings

. . .

4.1.6 Aircraft without the equipage necessary for the Data Link Mandate will not be permitted to join or cross the tracks specified in the mandate during the OTS validity period. For such aircraft, however, continuous climb or descent through the specified levels may be available, subject to traffic.

Note: Subsequent paragraphs renumbered

Appendix P – Identified changes and additions to the content of NAT Doc 007

(Paragraph 6.3.5 refers)

Following is a list of identified changes and additions to the content of Doc. 007 for inclusion in Edition 2013.

1. Confirmation in Chapter 1 Section 1.2 "Approval" that in accordance with Milestone 1 of the MNPS to PBN Transition Plan, existing RNAV10 and RNP4 Approvals constitute MNPS Approval without further examination of the navigation component.
2. Provide advance notification of Milestone 2 of the MNPS to PBN NAT transition plan that with effect from January 2015 the longevity of 6.3NM based MNPS Approvals is limited.
3. Similarly provide advance notification of Milestone 3 of the MNPS to PBN NAT Transition Plan in which the current NAT MNPS airspace will be re-designated for PBN based operations.
4. Describe procedures relating to Phase 1 of the DLM, including planning and operating restrictions on non-compliant aircraft.
5. Advise NAT SPG intentions regarding the suggested staged implementation of Phase 2 of the DLM and their consequences.
6. Explain the basic concepts of RCP and RSP and introduce the NAT PBSC Implementation Plan including the proposals for RLatSM and RLongSM predicated upon RCP and RSP.
7. Reference the planned Dec 2013 implementation of reduced lateral and longitudinal separation minima between suitably equipped aircraft in the New York Oceanic FIR.
8. Reference is required to the SVGM.
9. Amendments required to align Doc. 007 with a recent update to Doc. 006.
10. Any SPG required amendments or augmentations of SLOP application text.
11. Updates of any/all other document references.
12. Updates of annual error statistics.
13. Route T213 to be included in Figure 3
14. Replace the separate jurisdiction charts in Chapter 10 with two NAT-wide conglomerations, based on consistent coverage criteria and in similar format to the VHF Coverage chart at Attachment 5 in Doc. 007.
15. Merge the "*North Atlantic International General Aviation Operations Manual*" into the *NAT Airspace and Operations Manual* NAT Doc 007, perhaps as one or more additional Chapters.

———————

Appendix Q – Updates to the NAT SPG Handbook

(paragraphs 8.2.1and 8.2.3 refer)

1. Insert the following highlighted text in the NAT SPG Terms of Reference under the section concerning "Observers" (p. 8) in the *NAT SPG Handbook*, (NAT Doc 001):

"Observers **International organizations recognized by the Council may be invited as necessary to attend PIRG meetings as observers.**

Representatives from the Russian Federation and Spain as well as Observers from IATA, IACA, IFALPA, IAOPA, IBAC, IFATCA, Iridium and Inmarsat are invited to participate in the work of the NAT SPG.

Requests from any other ICAO Contracting State or an international organization to attend the NAT SPG meetings will be reviewed on a case-by-case basis and decided by the NAT SPG Chairman. Such requests must be supported by the appropriate rationale to attend the meeting."

2. Insert the following highlighted text in the list of documents promulgated by the NAT SPG under the section concerning "References" (p. 44) in the *NAT SPG Handbook*, (NAT Doc 001):

LIST OF DOCUMENTS PROMULGATED BY THE NAT SPG		
NUMBER	**TITLE &** ***notes on configuration management***	**CURRENT EDITION/VERSION**
. . .		
NAT Doc 008	Application of Separation Minima – North Atlantic Region *Kept under review by NAT ATMG - Amendments approved by NAT IMG after coordination with NAT SOG*	1st Edition Amendment 1 – June 2011

Appendix R – Process for the nomination/review of chairmanship/rapporteurship of the NAT SPG and its Contributory Groups and updates to Terms of Reference of NAT SPG and its Contributory Bodies

(paragraphs 8.2.10 and 8.2.11 refer)

NORTH ATLANTIC SYSTEMS PLANNING GROUP (NAT SPG)

. . .

Conduct of the meetings of the NAT SPG groups and sub-groups (NAT SPG Conclusions 45/3 and 49/27 refer)

Rapporteur – The Rapporteur facilitates the work of the meeting so as to encourage consensus or clearly identify barriers to consensus. The tasks of the Rapporteur include ensuring the efficient conduct of the meeting, ensuring that the tasks associated with the work programme are addressed or reported upon during the course of the meeting and reporting the findings of the meeting to the group(s) specified in the terms of reference. In the NAT SPG working structure, contributory groups to the NAT IMG and NAT SOG operate with Rapporteurs.

Chairman – In addition to the duties of a Rapporteur, the Chairman may make decisions regarding the conduct of the meeting and, in cases where it is not possible to reach consensus, determine the recommendation(s) that will be made by the meeting. In the NAT SPG working structure, the NAT SPG, NAT IMG, NAT SOG and NAT EFG operate with a Chairman.

Vice-Chairman – The vice-Chairmen will be called upon to preside over the meeting should circumstances prevent the Chairmen from being present at the meeting. The vice-Chairmen may also be requested to support the Chairmen in his/her role, taking over some of the Chairmen's work load whenever appropriate. The vice-Chairmen do not automatically succeed as chairmen at the conclusion of the term of the incumbent Chairman. In the NAT SPG working structure, the NAT SPG, NAT IMG and NAT SOG operate with a vice-Chairman. The NAT IMG and NAT SOG Chairmen will serve as NAT SPG vice-Chairmen.

Election of Chairmen/vice-Chairmen/Rapporteurs of the NAT SPG and its Contributory Groups (NAT SPG Conclusion 49/27 refers)

Review of chairmanship will be conducted by a routine process of elections for the NAT SPG, NAT EFG, NAT IMG, NAT SOG and NAT TFG every four years. In the event that a Chairman is unable to complete a term, another election would be held.

Review of vice chairmanship will be conducted by a routine process of elections for the NAT IMG and NAT SOG every four years, normally at the same time as the routine elections of the NAT IMG and NAT SOG Chairmen.

Review of rapporteurship will be conducted by a routine process of elections for the Contributory Groups of the NAT IMG and NAT SOG every four years. Efforts will be made to avoid changes in rapporteurship for multiple groups during the same year.

Chairman – Nominations and Election for the NAT SPG

1. Candidates for election to the post of Chairman must be from a NAT SPG member State and nominated by a member State of the NAT SPG and seconded by another member State of the NAT SPG.

2. Nominations should be submitted to the EUR/NAT Office of ICAO and be promulgated by the EUR/NAT Office of ICAO to the NAT SPG member States by e-mail two months before the next meeting of the NAT SPG.

3. The NAT SPG will elect the Chairman from the list of candidates by open vote at the NAT SPG meeting and the newly elected Chairman will assume his functions at the conclusion of the meeting.

Chairman – Nominations and Election for the NAT EFG, NAT IMG, NAT SOG and NAT TFG

1. Candidates for election to the post of Chairman must be from a NAT SPG member State and nominated by a member State of the Group concerned and seconded by another member State of the Group.

2. Nominations should be submitted to the EUR/NAT Office of ICAO and be promulgated by the EUR/NAT Office of ICAO to the NAT SPG member States by e-mail two months before the next meeting of the Group concerned.

3. The Group will elect the Chairman from the list of candidates by open vote at its meeting.

4. The NAT SPG will confirm the election of the Chairman at its meeting and agree that the newly elected Chairman will assume his functions as Chairman at the next meeting of the Contributory Group concerned.

Note: the election of vice-Chairmen of the NAT IMG and NAT SOG will be conducted informally by open vote at the meeting of the Group concerned following the election of the Chairman.

Rapporteur – Nominations and appointment of the NAT IMG and NAT SOG Contributory Groups (NAT ATMG, NAT CNSG, NAT SARSIG, NAT SG, NAT MWG and NAT ACSG, NAT OPS/AIR)

1. Candidates for election to the post of Rapporteur must be from a NAT SPG member State and nominated by a member State of the Group concerned and seconded by another member State of the Group.

2. Nominations should be submitted to the EUR/NAT Office of ICAO and be promulgated by the EUR/NAT Office of ICAO to the NAT SPG member States by e-mail two months before the next meeting of the Group concerned.

3. The Group will elect the Rapporteur from the list of candidates by open vote at its meeting.

4. The parent Group concerned will confirm the election of the Rapporteur and agree that the newly elected Rapporteur will assume his functions at the next meeting of the Contributory Group concerned.

Note: Parent Groups of the Contributory Groups:
NAT IMG - NAT ATMG, NAT CNSG, NAT SARSIG
NAT SOG - NAT SG, NAT MWG
NAT CNSG - NAT ACSG
NAT SARSIG - NAT OPS/AIR

Guidelines for the basic requirements for Chairmen/vice-Chairmen/Rapporteurs of the NAT SPG and its Contributory Groups (NAT SPG Conclusion 49/27 refers)

1. Professional background:
- extensive experience in a civil aviation authority, airport, airline, air navigation services or similar aviation-related organization;
- practical experience in the planning and administration of civil aviation programmes; and
- have a good understanding of ICAO's role.

2. Experience with the NAT SPG and its working groups:
- have a clear understanding of and adhere to the terms of reference of the NAT SPG and its Contributory Groups; and
- have a sound knowledge of the NAT SPG working and reporting structure by having participated and contributed to the work of the Group concerned (e.g. participation for a minimum of 4 meetings).

Appendix S –
Updates to Terms of Reference of the NAT SPG and its Contributory Groups

(paragraph 8.2.11 refers)

NORTH ATLANTIC SYSTEMS PLANNING GROUP

(NAT SPG)

. . .

Chairman	In accordance with NAT SPG Conclusion 49/27, the Chairmanship of the NAT SPG will be reviewed by an election every four years.
Vice-Chairman	In accordance with NAT SPG Conclusion 49/27, the NAT IMG and NAT SOG Chairmen will serve as NAT SPG Vice-Chairmen.
Secretary	The ICAO Regional Director, European and North Atlantic Office, serves as the Secretary of the NAT SPG.

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NAT AIR TRAFFIC FORECASTING GROUP (NAT TFG)

. . .

Meetings of the NAT TFG

. . .

a) the NAT TFG meet once every two years to update the short and medium term forecasts; and

. . .

Composition	The NAT TFG is composed of Members from Canada, Portugal, the United Kingdom and the United States.
Chairman	~~The chairmanship rotates among the Members.~~In accordance with NAT SPG Conclusion 49/27, the Chairmanship of the NAT TFG will be reviewed by an election every four years and confirmed by the NAT SPG.

. . .

NAT SPG ECONOMIC AND FINANCIAL GROUP (NAT EFG)

. . .

Composition

The NAT EFG is composed of Members from Canada, Denmark, Iceland, Ireland, Norway, Portugal, the United Kingdom and the United States, IACA, IATA and IBAC and with the participation of France as an observer.

The NAT EFG may invite other participants as and when required in order to ensure that the relevant expertise is available when addressing specific tasks or issues.

In accordance with NAT SPG Conclusion 49/27, the Chairmanship of the NAT EFG will be reviewed by an election every four years and confirmed by the NAT SPG.

. . .

NAT IMPLEMENTATION MANAGEMENT GROUP (NAT IMG)

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Composition

The NAT IMG is composed of representatives of the NAT SPG member States. In order to ensure that NAT users' views are represented and to provide valuable operational experience, NAT IMG meetings are also attended by representatives from IACA, IATA and IBAC.

The NAT IMG might invite other participants as and when required in order to ensure that the relevant expertise is available when addressing specific tasks.

~~In accordance with NAT SPG Conclusion 45/4, the Chairmanship of the NAT IMG will be reviewed every two years.~~ In accordance with NAT SPG Conclusion 49/27, the Chairmanship and vice-Chairmanship of the NAT IMG will be reviewed by an election every four years and confirmed by the NAT SPG.

. . .

NAT SAFETY OVERSIGHT GROUP (NAT SOG)

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Composition

The NAT SOG is composed of representatives from the NAT SPG member States. State representatives should be in a position to address service delivery and flight operations regulatory issues in the NAT Region, and as necessary regulatory issues related to the conduct of flight operations in the NAT Region. In order to ensure that NAT users' views are represented and to provide valuable operational experience, NAT SOG meetings are also attended by representatives from Spain, IATA, IBAC, IFALPA and IFATCA. The NAT SOG may invite participants from other States or organisations as required.

~~The Chairmanship of the NAT SOG will be reviewed in the fall every two years.~~ In accordance with NAT SPG Conclusion 49/27, the Chairmanship and vice-Chairmanship of the NAT SOG will be reviewed by an election every four years and confirmed by the NAT SPG.

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THE NAT IMG CONTRIBUTORY GROUPS

NAT AIR TRAFFIC MANAGEMENT GROUP (NAT ATMG)

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Composition

The NAT ATMG is composed of representatives from NAT SPG member States as well as participants from Spain, IATA, IBAC and IFALPA.

The Group may invite participants from other States, organisations or industry as required.

In accordance with NAT SPG Conclusion 49/27, the Rapporteur of the NAT ATMG will be reviewed by an election every four years and confirmed by the NAT IMG.

. . .

NAT SAFETY ANALYSIS AND REDUCED SEPARATION IMPLEMENTATION GROUP (NAT SARSIG)

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Composition

The NAT SARSIG is composed of representatives from NAT SPG member States as well as participants from IATA and IFALPA.

The Group may invite participants from other States, organisations or industry as required.

In accordance with NAT SPG Conclusion 49/27, the Rapporteur of the NAT SARSIG will be reviewed by an election every four years and confirmed by the NAT IMG.

. . .

THE NAT COMMUNICATIONS, NAVIGATION AND SURVEILLANCE GROUP

(NAT CNSG)

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Composition

The NAT CNSG is composed of representatives from NAT SPG member States as well as participants from IATA, IBAC and IFALPA.

The Group may invite participants from other States, organisations or industry as required.

In accordance with NAT SPG Conclusion 49/27, the Rapporteur of the NAT CNSG will be reviewed by an election every four years and confirmed by the NAT IMG.

NAT AERONAUTICAL COMMUNICATIONS SUB GROUP
(NAT ACSG)

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Composition

The NAT ACSG is composed of representatives from Canada, Iceland, Ireland, Norway, Portugal, the United States and IATA.

In accordance with NAT SPG Conclusion 49/27, the Rapporteur of the NAT ACSG will be reviewed by an election every four years and confirmed by the NAT CNSG.

. . .

NAT OPERATIONS AND AIRWORTHINESS SUB-GROUP
(NAT OPS/AIR)

. . .

Composition

Representatives from members and observers of the NAT SPG and from manufacturers.

Note: The *Rapporteur* may invite participants from other States, organisations or industry as required.

In accordance with NAT SPG Conclusion 49/27, the Rapporteur of the NAT OPS/AIR will be reviewed by an election every four years and confirmed by the NAT SARSIG.

THE NAT SOG CONTRIBUTORY GROUPS

NAT MATHEMATICIANS' WORKING GROUP

(NAT MWG)

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Composition

The NAT MWG is composed of experts from the NAT SPG member States, Spain, IATA and IFALPA. Representatives from EUROCONTROL may also be invited as observers in order to ensure consistency between related European and North Atlantic work programmes.

In accordance with NAT SPG Conclusion 49/27, the Rapporteur of the NAT MWG will be reviewed by an election every four years and confirmed by the NAT SOG.

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NAT SCRUTINY GROUP

(NAT SG)

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Composition

The NAT SG is composed of nominated experts from the NAT SPG member States, Spain, NAT MWG, NAT CMA, IATA, IBAC, IFALPA and IFATCA.

In accordance with NAT SPG Conclusion 49/27, the Rapporteur of the NAT SG will be reviewed by an election every four years and confirmed by the NAT SOG.

List of Acronyms

ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
ADS-B	Automatic Dependent Surveillance–Broadcast
ADS-C	Automatic Dependent Surveillance – Contract
AFI	(ICAO) Africa-Indian Ocean (Region)
AIDC	Air Traffic Services Interfacility Data Communications
AIM	Aeronautical Information Manual
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIRE	Atlantic Interoperability Initiative to Reduce Emissions
AIS	Aeronautical Information Services
ANC	Air Navigation Commission
AN-Conf/12	Twelfth Air Navigation Conference
ANP	Air Navigation Plan
ANSP	Air Navigation Services Provider
AOC	Airline Operations Centre
APANPIRG	Asia/Pacific Air Navigation Planning and Implementation Regional Group
ARTCC	Air Route Traffic Control Centre
ASAS	Airborne Separation Assistance System
ASBU	Aviation System Block Upgrades
ATC	Air Traffic Control
ATCO	Air Traffic Controller
ATM	Air Traffic Management
ATSU	Air Traffic Services Unit
BORPC	Basic Operational Requirements and Planning Criteria
CAA	Civil Aviation Authority
CAR	(ICAO) Caribbean (Region)
CNS	Communications, Navigation and Surveillance
CO_2	Carbon Dioxide
CONOPS	Concept of Operations
CPDLC	Controller Pilot Data Link Communications
CTA	Control Area
DENICE	Danish and Icelandic
DLM	(ICAO NAT Region) Data Link Mandate
Doc 4444	*Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM)
Doc 7030	*Regional Supplementary Procedures* (SUPPs)
Doc 8168	*Procedures for Air Traffic Services – Aircraft Operations* (PANS OPS)
Doc 9613	*Performance-based Navigation (PBN) Manual*
Doc 9750	*Global Air Navigation Plan* (GANP)
DSP	Data Link Service Provider
eANP	Electronic Air Navigation Plan
EANPG	European Air Navigation Planning Group
ENGAGE	Europe-North America Go ADS-B for a Greener Environment
EUR	(ICAO) European (Region)
EUR ANP	*Air Navigation Plan - European Region* (Do 7754)
EUR/NAT	European and North Atlantic
FAB	Functional Airspace Block
fapfh	Fatal Accidents Per Flight Hour
FASID	Facilities and Services Information Document
FDPS	Flight Data Processing System
FIR	Flight Information Region
FMS	Flight Management System

FPL2012	New format of the ICAO Flight Plan Form arising from Amendment 1 to Doc 4444, 15th Edition
GANP	*Global Air Navigation Plan* (Doc 9750)
GNE	Gross Navigation Error
GOLD	*Global Operational Data Link Document*
GPI	Global Plan Initiative
GREPECAS	Caribbean/South American Regional Planning Group
GSI	Global Safety Initiative
HF	High Frequency
IATA	International Air Transport Association
IBAC	International Business Aviation Council
ICD	Interface Control Document
IFALPA	International Federation of Air Line Pilots Associations
IFATCA	International Federation of Air Traffic Controllers' Associations
IRSVTF	ICAO Inter-Regional Satellite Communications (SATCOM) Voice Task Force
iSTARS	Integrated Safety Trend Analysis and Reporting System
JFA	Joint Financing Agreement
kg	Kilogram
km	Kilometre
KPA	Key Performance Area
KPI	Key Performance Indicator
LEOS	Low Earth Orbiting Satellites
LHD	Large Height Deviation
MEL	Minimum Equipment List
MID	(ICAO) Middle East (Region)
MNPS	Minimum Navigation Performance Specifications
MTOW	Maximum Take Off Weight
NACC	North American and Caribbean (Office of ICAO)
NAT	(ICAO) North Atlantic (Region)
NAT ANP	*Air Navigation Plan - North Atlantic Region* (Doc 9634)
NAT ATMG	North Atlantic Air Traffic Management Group
NAT CC ICD	*NAT Common Coordination Interface Control Document* (NAT Doc 002)
NAT CMA	North Atlantic Central Monitoring Agency
NAT CNSG	North Atlantic Communications, Navigation and Surveillance Group
NAT DLMA	North Atlantic Data Link Monitoring Agency
NAT DMO	North Atlantic Document Management Office
NAT EFG	North Atlantic Economic and Financial Group
NAT FAM	NAT Fee Analysis Model
NAT IMG	North Atlantic Implementation Management Group
NAT MWG	North Atlantic Mathematicians' Working Group
NAT OISO WG	NAT Oceanic Interface Safety Occurrences Working Group
NAT OTS	North Atlantic Organized Track System
NAT SOG	North Atlantic Safety Oversight Group
NAT SPG	North Atlantic Systems Planning Group
NM	Nautical Mile (approximately 1852 m)
OCA	Oceanic Control Area
OPLINKP	Operational Data Link Panel
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)
PBN	Performance Based Navigation
PfA	Proposal for Amendment
PIRG	Planning and Implementation Regional Group
PORT	Pilot Operational Response Time
RA	Resolution Advisory

RCP	Required Communications Performance
RLatSM	Reduced Lateral Separation of 25 Nautical Miles
RLongSM	Reduced Longitudinal Separation of 5 minutes between ADS-C equipped aircraft
RNP	Required Navigation Performance
RPI	Regional Planning Initiative
RVSM	Reduced Vertical Separation Minimum
SARPs	Standards and Recommended Practices
SASP	Separation and Airspace Safety Panel
SATCOM	Satellite Communication
SATVOICE	Satellite Voice Communications
SBD	(Inmarsat) Short Burst Data
SDR	(NAT) Service Development Roadmap
SES	Single European Sky
SESAR	Single European Sky ATM Research Programme
SJU	SESAR Joint Undertaking
SLOP	Strategic Lateral Offset Procedures
SRR	Search and Rescue Region
SUPPs	*Regional Supplementary Procedures* (Doc 7030)
SVGM	SATVOICE Guidance Material
TA	Traffic Advisory
TF	Task Force
TLS	Target Level of Safety
ToR	Terms of Reference
VHF	Very High Frequency
WG/SRP	Working Group for Strategic Review and Planning (of the ANC)

- END -