

# SUMMARY OF DISCUSSIONS OF THE NORTH ATLANTIC COMMUNICATIONS, NAVIGATION and SURVEILLANCE GROUP (NAT CNSG)

## SECOND MEETING

*(Limerick, 22 – 26 March 2010)*

### 1. Introduction

1.1 The Second Meeting of the ICAO North Atlantic Communications, Navigation and Surveillance Group (CNSG/2) was convened from 22 to 26 March 2010 in Limerick, Ireland. The Meeting was hosted by the Irish Aviation Authority (IAA). The principal objective of the meeting was to address the tasks assigned to the Group by the NAT IMG, including:

- a) Finalize the common Global Operational Data Link Document (GOLD);
- b) Address issues related to the establishment and functioning of the NAT Data Link Monitoring Agency (DLMA);
- c) Advance implementation of the ADS-C based conformance monitoring;
- d) Review the progress of the FANS over Iridium trials;
- e) Advance implementation of the NAT AIDC plan;
- f) Develop a work plan on amalgamation of the NAT and ASIAPAC AIDC ICDs;
- g) Address the issue of nuisance reports; and
- h) Progress implementation of CPDLC route re-clearances.

1.2 The Meeting was chaired by Mr Norman Dimock (Canada) and Mr Elkhan Nahmadov (ICAO EUR/NAT) was the Secretary. Lists of participants and of contacts are provided at Appendix A and Appendix B. A list of documentation submitted to the Group is provided at Appendix C. In the opening session the Group noted that Mr. Frederic Lecat from France was not present at this meeting as he had received new assignments and will not attend further CNSG meetings. The Group wished all the best for Frederic in his future endeavours and was grateful for his contributions to the CNSG work. The Group was informed that David Strand, who was to represent IATA, had sent his regrets that difficulties enroute had prevented him from completing his travel to the meeting. The Group noted this with regret as there were several issues on the agenda that would have benefited from the IATA inputs. The IMG will be informed of the foregoing.

1.3 The Group adopted the following agenda:

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|-----------------------|--|
| <b>Agenda Item 1:</b> | <b>Report on activities since NAT CNSG/1</b>                               |
| <b>Agenda Item 2:</b> | <b>Monitoring of ongoing trials</b>  |
| <b>Agenda Item 3:</b> | <b>Performance monitoring</b>  |
| <b>Agenda Item 4:</b> | <b>Examine ways and means to enhance the use of data link technologies</b> |

**Agenda Item 5: Optimise communications services**

**Agenda Item 6: Planning and Implementation**

**Agenda Item 7: Documentation**

**Agenda Item 8: Any other business**

## **2. Report on activities since NAT CNSG/1**

### *Review of the NAT CNSG/1 follow up action list*

2.1 Under this agenda item the Group reviewed the NAT CNSG/1 follow up action list.

2.2 Updates were provided with regards to the action to determine the timeline for ground systems upgrades to support the data collection for the NAT Data link Monitoring Agency (DLMA). The updates were reflected in the NAT Table of implementation dates (**Appendix D** refers). The Group noted that work was in progress and tentative timelines were determined, in most cases aiming to implement the upgrades by the end of 2010. Further updates will be provided at the next meeting.

2.3 The status of the action on verifying ground systems compliance with DO306/ED122 safety requirements remained unchanged with Santa Maria and Bodo still being at the TBD stage.

2.4 With regards to the FDPSS readiness in support of the reduced longitudinal separation implementation, the Group was informed that the United Kingdom will be ready by May 2010 and Canada by the 4Q 2010.

2.5 The Group recalled that there was an aircraft equipage database purchased by Portugal from commercial database suppliers and the Group had been intending to produce a projection of the future FANS 1/A equipage levels based on this information. In reviewing the progress on this action, the Group noted that there were several parallel activities within the NAT sub-groups aimed at achieving the same objective. In particular, the Group noted the equipage survey planned to be carried out by the NAT Mandate Analysis Task Force (NATMA TF). In order to avoid any duplication of work, the Group felt that the NATMA TF would be the best forum to further advance the project on determining the FANS1/A future equipage levels as the survey would provide the most up to date information. The Group proposed to make the content of the commercial database purchased by Portugal available to the NATMA TF and expressed its readiness to provide any further assistance that might be required. It was noted that several CNSG members were already taking active part in the work of the NATMA TF. Therefore, it was agreed to delete Task 1-9 from the Action list.

2.6 In regard to Action 1-10, the Group was provided with an update by Airbus informing that there were some minor differences in the loading of uplink data in the FMS between Airbus and Boeing aeroplanes. The Group recalled that this verification request was related to the discussion on the CPDLC reroutes. It was noted that Airbus plans to initiate a study to further clarify this issue and that an update will be provided to the next meeting.

2.7 In concluding the follow up action list review, the Group noted that all actions were either completed or documented and presented to the current meeting.

### *Review the outcome of NAT SARSIG/10*

2.8 In reviewing the report of the 10<sup>th</sup> meeting of the NAT SARSIG, the Group noted that the NAT SARSIG agreed with the outcome of the comparative analysis conducted by the NAT CNSG. The analysis corroborated that actual communications system performance in the NAT supported the

assumptions used in the Collision Risk Modelling (CRM) for reduced longitudinal separation. Therefore, the SARSIG supported the proposal to begin the trials in May 2010.

2.9 The Group noted the SARSIG comments that the CRM assumptions used did not include significant outages, as experienced in the Atlantic, Indian Ocean and Pacific region and that monitoring will need to be carried out during the trials to ensure that the actual communications performance continued to support the assumptions used in the CRM.

2.10 In response to a request by the SARSIG that communications performance analysis should include the time required for the pilot's response the Group agreed that the United Kingdom will carry out an additional analysis taking the overall response time including the pilot response time to the controller into account and present it to the next meeting. The foregoing will be brought to the attention of the SARSIG and IMG.

#### *Review the outcome of NAT IMG/35*

2.11 In reviewing the outcome of the 35th meeting of the NAT Implementation Management Group (NAT IMG), the Group noted that the CNSG was assigned to be the focal point for implementation of AIDC throughout the NAT Region. The Group agreed that the NAT Table of implementation dates combined with the list developed by the NAT AIDC Task Force would be the most practical mechanism to oversee the implementation. Updates were provided and reflected in **Appendix D and E**.

2.12 The Group noted the progress of the ICAO EUR Task Force on implementation of the new format of the ICAO flight plan. The Group felt that implementation of FPL2012 would require a regionally coordinated effort in the NAT as well. It was felt that the CNSG could act as a focal point for the NAT work in this respect. It was proposed to reuse part of the EUR FPL2012 implementation plan that already contains some information on contact points and tentative national plans from the NAT States that are also part of the EUR Region (**Appendix F** refers). It was agreed that this information including the status of national planning and impact analysis will be further updated by all NAT members and provided to the next meeting. The foregoing will be brought to the IMG attention.

2.13 The Group noted that the NAT IMG considered a possibility of establishing a separate NAT DLMA website in the future. It was recalled that currently such service is provided by Airways New Zealand to support collection, distribution and tracking of problem reports in support of the NAT DLMA. The same website provides services in support of data link monitoring in the ICAO ASIA/PAC Region. It was also recalled that the NAT DLMA function is also provided by the FAA as an extension of the existing service to the ICAO ASIA/PAC Region. The Group felt that if such a separate NAT website solution is to be pursued in the future then necessary measures would need to be undertaken to ensure uniformity of data to be collected and disseminated. The efforts to establish such a website would need to be evaluated against benefits expected to be derived. A possible solution could be an ICAO administered multiregional website funded within the framework of the current arrangements for the existing website. The foregoing will be brought to the attention of the IMG.

2.14 The Group noted the IMG decision that the ADS-C periodic update interval to be used in connection with the reduced longitudinal separation trials would be 18 minutes. The Group was informed by the United Kingdom that this periodic update interval will be applied to all ADS-C equipped aircraft during the trial which was in line with the original concept of operations. The Group also noted that such reduced periodic update interval would increase the load on the air/ground communications network.

2.15 The Group noted that its work programme was amended to include a task on determining and validating the performance based criteria for the use of portable satellite phones. The following describes the scope of this task as outlined by the IMG:

- a) Determine and validate the performance based criteria for the use of portables phones compared with HF voice and installed satellite voice communication systems;
- b) Investigate regulatory requirements and available guidance material for the use of similar devices on board aircraft; and
- c) Determine the impact, if any, on the concept of operations for the use of portable satellite phones for ATC communications in the NAT Region.

2.16 While recalling its previous discussions on various technical issues associated with the use of portable phones, the Group discussed ways and means to address this task and agreed that further analysis could be undertaken with regards to the performance criteria and guidance material, pending receipt of State conclusions from investigating regulatory requirements for the use of portable electronic devices.

2.17 The Group was informed that the NAT *Regional Supplementary Procedures* (SUPPS) (Doc 7030) proposal for amendment with regards to the use of SATCOM voice for ATC communications went through the formal process of coordination and was presented to the ICAO Air Navigation Commission (ANC). The ANC based on the comments received from Australia decided that an interregional task force should be established in order to review the available regional guidance material on the use of SATCOM voice for ATC communications for its potential global applicability. Such a Task Force was established in coordination between ICAO EUR/NAT and ASIA/PAC Offices and had begun the work. The Group noted that the EUR/NAT Office has requested the Task Force to produce a revised amendment proposal to Doc 7030 by the time of the next NAT SPG meeting. The Group felt that the issue of portable phones and other matters, e.g Minimum Equipment List (MEL) could be a consideration as a next step after clarifying the current issue with the current proposal for amendment. The foregoing will be brought to the IMG attention.

#### *Review the outcome of NAT ATMG/35*

2.18 The Group was presented with the report of the 35<sup>th</sup> Meeting of the NAT Air Traffic Management Group (ATMG).

2.19 The Group noted the NAT ATMG recommendation to amend the NAT Common Coordination Interface Control Document (NAT ICD) and the NAT Aeroradio ICD to incorporate the text documenting a requirement for forwarding of position reports. The Group discussed ways and means to implement this requirement and its implication on ground systems. The Group agreed that a review of ground systems will need to be conducted in order to determine a timeline for implementation of this requirement by the time of the next meeting. The Group also agreed that a clarification from the ATMG should be sought on the need for forwarding based on the location of NEXT+1 positions. It was believed that such forwarding might generate unnecessary alarms in the receiving unit as it might cause reports to be received too early in the process for the receiving unit to have information with regards to an incoming flight. Presently, all forwarding was based on only the current and next positions. The foregoing will be brought to the attention of the IMG and ATMG.

2.20 The Group noted the recommendation by the ATMG and the Scrutiny Group (SG) to change the aircraft and ATC presentation of the CPDLC message elements currently containing the words AT and BY on the basis that despite previous attempts to clarify the meaning of such messages, errors were continuing to occur. The Group noted the ATMG and SG concerns that this issue constituted a significant safety concern and required urgent resolution.

2.21 The Group felt that it was premature to conclude that the attempts to clarify the meaning of such messages will not be effective. The Group recalled that IMG/35 in November 2009 had endorsed a draft State letter to address various misunderstandings by flight crews of data link procedures and clarify the intent of CPDLC message elements containing the words AT and BY. The Group also recalled that for a certain time period the NAT Region had been without a functioning data link monitoring agency. Now with the

NAT DLMA being operational, we have a means to track the problems on individual basis. The Group agreed that this would provide an effective and efficient way to deal with this problem. The Group also noted that there were solutions currently being implemented, e.g ADS-C based conformance monitoring that would provide mitigation against such misinterpretations and errors. Also, the Group recalled that the issue of the data link *operational authorization* requirement was being studied by the OPS/AIR Group and implementing such processes could provide additional mitigation.

2.22 If, despite the mitigations described above, the IMG deem the proposal of the ATMG to require action at this time, then an assessment of implications on ground and avionics systems would need to be carried out. FMSs and ground systems will need to be changed. Preliminary assessments have determined that implementing such changes would be a lengthy and costly process. The Group noted that the change proposed would require, inter alia, amendment to the ICAO global documentation including Doc 4444 and GOLD as well as a variety of RTCA/EUROCAE standards, e.g. DO258A/ED100A.

2.23 The Group also noted the ATMG's alternative proposal that a mixture of pre-defined message elements and pre-formatted free text messages be used in lieu of message elements containing the words AT and BY. The Group noted that use of free text in this way would defeat automation (e.g condition monitoring) on those aeroplanes that have it, such as B787s. The Group considered that pursuing regional solutions to address the issues of global nature would result in inconsistent procedures on the flight deck, potentially leading to further safety issues associated with misinterpretation and confusion. In this regard the conclusion of the ICAO Data link Steering Group (DLSG) that was endorsed by the NAT SPG as the regional data link implementation strategy was recalled. One of important postulates of the Strategy was that current data link implementations should be based on the current message set and divergent regional procedures should be avoided as those are detrimental to global harmonisation. The foregoing will be brought to the attention of the IMG.

2.24 Finally, the Group agreed that issues associated with messages containing the words AT and BY might best be addressed by a group composed of experts from both the CNSG and ATMG as most of the potential solutions have both technical and operational implications. The Group agreed to recommend to the IMG that such an ad-hoc group be constituted if the proposal to change the message set is deemed to require action at this time.

### **3. Ongoing monitoring of various data link trials**

#### *FANS1/A over Iridium*

3.1 The Group was provided with an update on the FANS 1/A over Iridium (FOI) project undertaken by the United States Federal Aviation Administration (FAA)-sponsored Performance-Based Operations Aviation Rulemaking Committee's Communications Working Group (PARC CWG). The paper also invited the NAT CNSG to continue to support FOI operational trials and cooperate in providing FOI data in accordance with Appendix D of the GOLD.

3.2 The Group noted that the objective of the FOI project was to substantiate recommendations to the FAA to use Iridium as a viable sub-network for FANS 1/A applications. The FOI project provides a means to collect sufficient statistical evidence in support of such recommendation.

3.3 The Group noted that initial statistical data samples gathered in the course of the FOI data collection that had commenced in December 2009, provided promising results but some further work was required. It was felt that participation in the project and providing the FOI data in line with the GOLD defined requirements was important and would contribute towards completing the FOI project. In this respect the Group noted that cooperation of the DLMA was important and would be appreciated by the PARC CWG.

3.4 The Group discussed ways and means to organise participation by the NAT service providers to support the PARC CWG initiative. In this regard the Group noted the announcement from Cargolux that would commence operational use of FOI on 25 March 2010. In particular, the Group discussed potential requirements for operators for participation in the FOI trials in the NAT Region and how to promulgate these requirements. In concluding, it was agreed that no special additional procedures would be required and the NAT Region could start participating in the data collection for the FOI project. The Group believed that data currently available on FOI performance substantiates that this is safe for current operations but cautioned that FOI use in support of reduced longitudinal separation should not be allowed until more data is collected. Therefore, the United Kingdom have reserved their position with regards to conditions for allowing the use of FOI in their airspace after 25 May 2010 when the reduced longitudinal separation will be implemented.

3.5 It was highlighted that while the PARC CWG provides a forum to coordinate and exchange information on the FOI project, operators are not required to participate. Furthermore, an operator's authorization from the State of the Operator or State of Registry does not necessarily include any special requirements or restrictions regarding the use of Iridium in FANS 1/A operations. The NAT service providers may need to consider any special requirements or restrictions in service provisions published in respective Aeronautical Information Publication (AIP), or equivalent. The foregoing will be brought to the IMG attention.

#### *FMC WPR over Iridium*

3.6 Another paper was presented to the Group that contained the results of a NAT pre-operational trial of Iridium data link for delivery of automatic Flight Management Computer (FMC) Waypoint Position Reports (WPR) from Continental Airlines (COA) B757 flights. The Group recalled that FMC WPR provides a way for non-FANS equipped fleets to greatly reduce their use of voice radio, saving workload for pilots and radio operators and eliminating errors.

3.7 The data presented demonstrated that performance of FMC WPR over Iridium met FMC WPR success criteria as stipulated in the current NAT Data link Guidance Material. The Group noted that these criteria were used in view of the fact that the GOLD documents was not a formally approved document for the NAT yet. However, it was highlighted that FMC WPR assessment criteria were more stringent than RCP400 criteria as described in the GOLD. Therefore, it is safe to assume that the FMC WPR performance over Iridium will meet the RCP400 criteria too.

3.8 Based on this data, the Group agreed that COA's Iridium data link equipped aircraft should be allowed to participate in the FMC WPR operation. However, it was noted that COA do not yet have a process to uplink revised reporting points whenever an oceanic clearance differs from filed flight plan. The Group was informed that the airline was establishing a time line for implementing such a process. Therefore, it was agreed that continuation of the use of COA FMC WPR would be contingent upon COA implementing a process to uplink revised reporting points by the end of 2010.

3.9 The Group agreed that Canada, Iceland, the United Kingdom and Portugal will review their ground automation configurations aiming to start operational ATC use from 1 May 2010. The foregoing will be brought to the IMG attention.

#### *ATC data link over Inmarsat I4*

3.10 In concluding this agenda item, the Group noted that the imminent implementation of FANS 1/A over Inmarsat I4 Classic Aero and/or SwiftBroadBand (SBB) would also require appropriate performance verification programme in accordance with guidelines provided in the GOLD (or equivalent).

#### 4. Performance monitoring

##### *Report of the DLMA*

4.1 The Group was provided with an update on the status of the NAT DLMA and was invited to address several administrative issues including updating the Points of contact, submission of problem reports and updates to ground systems to support data collection in the format suitable for the DLMA.

4.2 The Group updated the Points of contact for each reporting NAT ANSPs and other stakeholders.

<b>NAT stakeholder</b>	<b>Name</b>	<b>Email</b>
United States (NAT DLMA admin)	Mr. Tom Kraft (FAA)	tom.kraft@faa.gov
United States (primary NAT DLMA tech inputs)	Mr. Brad Cornell (Boeing)	bradley.d.cornell@boeing.com
United States (alternate NAT DLMA tech inputs)	Mr. Gordon Sandell (Boeing)	gordon.r.sandell@boeing.com
Canada	Mr. Ben Girard	giraben@navcanada.ca
Iceland	Mr. Heimir Örn Hólmarsson	heimir.holmarsson@isavia.is
United Kingdom	Mr. Tim Murphy	tim.murphy@nats.co.uk
Portugal	Mr. Jose Cabral	jcabral@nav.pt
United States (New York)	Mr. Vincent Gerry Mr. Thomas Winkler	vincent.gerry@faa.gov thomas.winkler@faa.gov

4.3 The NAT sub-groups were invited to submit problem reports via the joint NAT DLMA/ISPACG-FIT-CRA web site at <http://www.ispacg-cra.com> through their national focal points.

4.4 With regards to the progress of developing plans and implementation schedules for automation support to provide data to the NAT DLMA per Appendix D of the GOLD, it was highlighted that continued commitment from the NAT service providers is required to complete the upgrades as soon as possible. The foregoing will be brought to the attention of the IMG.

4.5 The Group also noted that it was essential to increase involvement of the operators as part of the airspace users organisations delegations, communication service providers and other stakeholders in the NAT DLMA activities, e.g., attend NAT CNSG meetings. This matter would be brought to the attention of the IMG.

##### *DLMA Problem Reports*

4.6 A review of the NAT DLMA problem reports analysis covering the work accomplished since the previous meeting was presented to the Group.

4.7 In total 15 problem reports (PR) were received in the reporting period and the following summarizes the problem reports under investigation:

- a) Two PRs related to waypoint change event reports;
- b) Two PRs involving ground termination immediately after connection establishment;
- c) Seven PRs concerned flight plan filing/processing issues;

- d) One PR dealing with route uplink issues;
- e) Two PRs were related to SATCOM sub system issues; and
- f) One PR relating to duplicate message delivery issues.

4.8 The Group noted this information and discussed ways and means to resolve the problems. In particular, with regards to problem reports concerning flight plan filing/processing issues it was felt that implementation of AIDC to improve coordination should eliminate this issue. In respect to the problem involving ground termination immediately after connection establishment, the Group noted that this issue was under investigation.

#### *Actual Communications System performance*

4.9 The Group was provided with performance data collected by the FAA on the use of CPDLC and ADS-C and measured against the Required Communication Performance (RCP) 240 specification to demonstrate that safety objectives which rely on the communications infrastructure can be met by the aircraft and ground systems. The data presented was from the New York Flight Information Region (FIR) and included the sample period of 1 August 2009 through 28 February 2010 (5–26 August 2009 was excluded due to technical problems). In addition, similar data was presented from the operational data link system at Oakland Oceanic Centre for the sample period of 1 August 2009 through 31 January 2010.

4.10 The performance was measured in terms of Actual Communication Performance (ACP), Actual Communication Technical Performance (ACTP), pilot operational response time (PORT) and ADS-C downlink message delivery time. The data was presented as performance by media type, by month, by operator and by type by operator.

4.11 The summary of SATCOM data link performance by operator is provided in the following Table:

	New York	Oakland	remarks
ACP 95%	Not Compliant	Compliant	Not met by 1 operator in New York
ACTP 95%	Compliant	Compliant	
PORT 95%	Not Compliant	Not Compliant	Not met by all top 13 operators in New York and by 2 operators in Oakland
ADS-C 95%	Not Compliant	Compliant	Not met by 1 operator in New York

4.12 Information presented had identified areas for improvement. In particular, the Group noted that the technical performance was generally good but for some operators was still not meeting the RCP240 99,9 % latency requirements. It was noted that ACP performance in New York that includes pilot operational response time was significantly worse than similar performance in the Pacific. The Group noted that one possible explanation for such variation might be differences in traffic density and complexity of procedures. Another explanation was that the Pacific had been working with these issues over a number of years with an active central reporting agency (CRA) and that the data over the last 6 months had reflected the improvements to the system from implementation of the CRA function.

4.13 In concluding, the Group pointed out that the presented data highlighted the importance of performance data being collected and provided to the DLMA by all NAT providers. This would enable continuous measurement of performance throughout the whole Region and tracking problems individually to pin down the source of the issues and to implement appropriate mitigation. The IMG will be informed of the foregoing.

*ADS-C and CPDLC equipage statistics*

4.14 The Group was presented with information on the actual FANS 1/A usage percentage in the NAT as summarized in the following Table:

<b>FIR</b>	<b>CPDLC/ADS-C usage (CNSG/2)</b>	<b>CPDLC/ADS-C usage (CNSG/1)</b>
Reykjavik	46%	37%
Santa Maria	48%	37%
Gander	50%	44%
New York	40% (NAT portion)	22% (WATRS+NAT portion)
Shanwick	41% (Feb 2010)	N/A

4.15 The Group noted that there was a significant increase in the FANS 1/A usage compared to the average data presented at the previous meeting. It was agreed to continue collecting this data on a 12 month basis for each calendar year and present the annual statistics to the regular spring meetings of the Group. The foregoing will be brought to the attention of the IMG.

4.16 The Group agreed that in evaluating the percentage of aircraft using FANS for communications only those operating at or above FL280 would be included. To be considered ADS-C equipped an aircraft must have made an ADS-C report. Receipt of a Connect Confirm (CC1) message would constitute confirmation of a CPDLC capability.

*Data link performance during transitions between communication media*

4.17 The Group was provided with information on observed performance during transitions between communication media in the New York FIR. In these cases, the CPDLC message was initiated through a different medium than the WILCO/Unable response was received. The performance data observed from the CPDLC systems were measured against the RCP 240 specification to demonstrate that safety objectives which rely on the communications infrastructure can be met by the aircraft and ground systems. The sample period of 1 August 2009 through 28 February 2010 was examined.

4.18 The Group noted that the information indicated potential degradation of data link performance in areas of VHF/satellite media transition. More data needs to be collected in order to enable determination of corrective actions.

*Errors in ETA at NEXT position in ADS-C reports*

4.19 The Group was provided with summary information on cases where the estimated time to go contained in ADS-C reports was zero. These errors were contained in reports received at both Oakland (ZOA) and New York (ZNY) oceanic centres.

4.20 The Group was informed that the problem analysis carried out by the FAA had determined that the offending ADS-C reports received at ZNY were all provided by Airbus aircraft. The analysis also had indicated that the errors were occurring whenever the flight leg extended across midnight i.e. the NEXT position would be reached in the following day.

4.21 The Group was informed that a process was started by Airbus to fix this problem by the 4<sup>th</sup> quarter of 2012. The Group encouraged Airbus to give this issue higher priority and to urge operators to retrofit as soon as possible.

## **5. Enhancing the use of data link technologies**

### *Use of CPDLC for oceanic route re-clearances*

5.1 The Group was presented with a proposal to expand implementation of CPDLC route clearances in the NAT, document this in the GOLD and define additional procedures related to uplinking of CPDLC reroutes to flights that are already in oceanic airspace in order to address the problem of FMC route discontinuities.

5.2 The Group recalled that there is a potential for a route discontinuity when ATC delivers a reroute to a NAT flight by either voice or CPDLC. The Group was cognizant that pilots have the ability to cope in such situations and to successfully re-determine their full route to destination. It was believed that use of CPDLC in such situations could provide improvements over voice. The Group concurred that the main advantage of CPDLC instead of voice was that it would reduce or eliminate manual entry errors by the crew. Even though it may not in itself solve the discontinuity problem, it will not exacerbate it, and it will reduce human errors. Therefore it will provide a substantial safety benefit.

5.3 It was acknowledged that technically the issue of uplinking oceanic re-routes did not pose significant problems for ATC once aircraft had entered oceanic airspace and were logged on to the appropriate controlling data authority. It was reported that such clearances were already being issued by Santa Maria and New York.

5.4 Furthermore, the Group noted that route discontinuities encountered using CPDLC for delivering oceanic clearances would in effect be no different than those in clearances which are delivered today via other means. That issue was beyond the scope of the current proposal for CPDLC reroute procedures. However the rationale and procedures proposed for dealing with discontinuities would be applicable in that context too.

5.5 Additionally, it was pointed out that when reduced lateral separation is implemented, the ability for pilots to import any route changes directly into their FMC's will be an important element in reducing potential lateral deviations due to human factors issues associated with manually loaded changes. In this respect it was recalled that current issues with manual entry of re-routes would be compounded by the implementation of ½ degree reduced separations due to the more complex waypoint specifications (inclusion of latitude minutes).

5.6 The member for IFALPA stated that ideally route discontinuities should be eliminated. The unique requirement in the NAT to obtain a separate oceanic clearance prior to entering oceanic airspace poses a significant change from any other oceanic airspace in the world. Also, it is common practice for aircraft to receive an initial oceanic clearance which is different from their planned routing. Such an initial clearance clears the aircraft to a different oceanic exit point than originally flight planned that would often cause a route discontinuity. This procedure and associated route discontinuities are identical for voice only aircraft, aircraft using ARINC 623 for oceanic clearance delivery, or aircraft using CPDLC for oceanic clearance delivery.

5.7 While acknowledging the desirability and capability of using CPDLC for initial oceanic clearance delivery, the Group felt that this issue requires further investigation. Therefore the Group agreed to first address implementation of uplinking the CPDLC reroutes to flights already in oceanic airspace.

5.8 In advancing this decision, the Group reviewed and modified the proposed GOLD procedures and agreed that further refinement will take place via correspondence among the Group members prior to the NAT IMG meeting. Following presentation of the proposed approach to the IMG, the amendment proposal will be forwarded to the GOLD ad-hoc group to coordinate further for global acceptance as an amendment to the GOLD. These procedures may be validated by bench testing and perhaps a trial.

#### *FANS 1/A over Inmarsat*

5.9 The Group was provided with an update on the FANS SATCOM Improvements Task Force (FSIT) activities, and upgrades to Classic Aero I3 and I4 as well as ADS-C performance statistics over I3 that showed improvements to performance since implementation of Release 15 GES upgrades. A presentation was also provided that outlined Inmarsat's roadmap for implementation of oceanic SwiftBroadband safety services. This described the system concept, expected performance, and current activities in respect of requirements capture, system design and partner outreach.

5.10 The Group was informed that a transparent SwiftBroadband/I4/I3 solution is under investigation and development under the Inmarsat SwiftBroadband oceanic safety concept. The Group was informed that the future SwiftBroadband Oceanic Safety Service I4 solution is looking to the use of FANS 1/A over ACARS/IP. It was pointed out that upgrades to support SwiftBroadband Oceanic Safety would be required involving new gateways in the ground systems. Inmarsat is currently investigating solutions to support SwiftBroadband oceanic safety that aim to minimise any changes to aircraft systems.

5.11 In view of possible beginning of ramp-down of Inmarsat I3 services post 2016 (noting that the I3 lifetime may be longer than this), the Group sought clarification on Inmarsat policies with regards to the future provision of the Classic Aero service. The Group also requested clarification of whether the current I3 Classic Aero equipped fleet will continue to be FANS over Inmarsat capable after shutdown of the I3 satellite component. The Group urged Inmarsat to provide response to this question by the next meeting. The foregoing will be brought to the IMG attention.

## **6. Optimisation of communications services**

### *Report of the Aeronautical Communications Sub-Group (ACSG)*

6.1 The Group was provided with the report of the ACSG that met in Reykjavik from 8 to 10 of March of 2010. The report was presented by the ACSG Rapporteur Mr Jose Cabral from Portugal. The Group noted that no issues were found with the current network operations that needed to be addressed. The Group noted that the current network congestion continues to happen in peak periods due to traffic volume at these times. Ongoing deployment of additional frequencies was aimed at resolving this issue.

6.2 The Group noted that the ACSG was investigating ways and means to improve delivery of the SIGMETs including intentions to automate the process of SIGMET delivery via CPDLC for FANS 1/A equipped aircraft.

6.3 The Group noted the results of the analysis of the HF network messages volume and distribution for 2009. The total amount of HF and GP VHF contacts for all Aeronautical Stations for the year 2009 was 3,465,794 messages, distributed as follows; 74% by HF, 25% by VHF and 0.12 % by SATCOM. The relative percentage of traffic for each Aeronautical Station was 30% by Canada, 16% by Iceland, 1% by Norway, 12% by Portugal, 30% by the United Kingdom and 11% by the United States.

6.4 The analysis indicated a decrease of 8% occurred from 2008 to 2009 in the air-ground message volume. The main reason for the reduction in the number of messages was seemed to be related to the traffic downturn due to the economic crisis. It also appeared that the number of data link equipped aircraft had not increased. Rather the ratio of equipped to non-equipped had increased.

6.5 The ACSG report included an analysis of so-called “nuisance reports” generated by data link equipped aircraft reverting to voice therefore creating voice network workload. The analysis indicated that 14 % of data link equipped aircraft (FMC-ADS-CPDLC) reverted to HF voice in Shanwick and 7% in Gander. This was higher than in the previous analysis in 2008.

6.6 The category with the most messages was ATC requests for missing position reports. The Group noted that this issue needs to be investigated via problem reporting to the DLMA.

6.7 The Group noted that information collected in so far represented sufficient data sample for the DLMA to start investigation and determine causes and mitigations. In addition and if required, the ACSG was ready to provide detailed reports of the nuisance reports occurrences for the months of March, April and May of 2010.

6.8 The Group was presented with the progress of implementation of the NAT SPG/45 Conclusion related to the plan for future HF network operations (Conclusion 45/27 refers). Frequency monitoring campaign was conducted and contacts with national radio regulators were established with regard to frequencies licensing.

6.9 The RDARA 1, 1B, 1E and 10E HF networks were identified as most suitable and were approved as the basis for the next steps to be carried out. With this in mind the possible sub-networks will be formed using the frequencies available in the referred areas as follows:

- a) Region 1/1E - possible sub network frequencies for Portugal and Ireland are 3491, 5583, 6667, 10021 and 10036 MHz;
- b) Region 1B - possible sub network frequencies for Ireland and Iceland are 2890, 5484, 5568, 6550 and 6595 MHz; and
- c) Region 10E - possible sub network frequencies for Canada, Ireland and Iceland are 2944, 3446, 4651, 5460, 5481, 5559, 5577 and 6547 MHz.

6.10 The Group noted that the ACSG continues to work on licensing of the most urgently needed frequencies through national radio regulators. The IMG will be informed accordingly on the issues reflected in the ACSG report.

## **7. Planning and Implementation**

### *PBN transition plan*

7.1 The Group was presented with a working paper discussing factors related to transitioning from Minimum Navigation Performance Specification (MNPS) requirements to Required Navigation Performance (RNP) navigation specifications in the NAT. The paper identified tasks that will have to be planned and scheduled and listed preliminary elements of a transition plan.

7.2 The Group was asked to provide comments on the preliminary elements of the PBN transition plan as drafted by the OPS/AIR. The Group noted that the majority of the issues raised in the plan were outside of the CNSG terms of reference. However, the Group has specifically noted that any PBN transition plan should be based on the ICAO PBN concept and implementation methodology as laid down in the ICAO PBN Manual (Doc 9613). The preliminary PBN plan suggested continuation of the MNPS. That suggestion seemed to be incompatible with the ICAO PBN Concept. The foregoing will be brought to the attention of the SARSIG and IMG.

7.3 It was also highlighted that new initiatives planned for the NAT were predicated on communication and surveillance capability and performance and that any transition strategy from MNPS to PBN should be accompanied by similar communication and surveillance transition strategies based on the ICAO RCP Manual (Doc 9869) and GOLD.

*Key tasks for implementation of the reduced lateral separation*

7.4 The Group was presented with a draft task list that could be used to track progress on the key tasks required to be completed for the implementation of 25 NM lateral separation. The Group noted that this list was already reviewed by the NAT ATMG. Using the ATMG updated list, the Group undertook a review of the items on the list and suggested modifications in the column assigning responsibilities to various tasks (**Appendix G** refers). The Group was presented with a list of crucial questions regarding the implementation. Those questions were then allocated among the listed tasks. With regards to the overall management of the tasks, the Group noted that this would be in the purview of the NAT IMG. The foregoing will be brought to the IMG attention.

7.5 In connection with this the Group also noted that the requirements for 25 NM lateral separation needed to be formally prescribed, e.g., through amendment to the NAT SUPPs. The requirements should include associated performance requirements for CPDLC, e.g., RCP 240, and ADS-C, e.g., type 180, similar to RNP 4/GNSS requirements.

*Data link mandate*

7.6 The Group was presented with a working paper urging clarification on certain aspects of the NAT data link mandate being progressed in line with the NAT SPG Conclusion 45/11.

7.7 In reviewing the paper, the Group concurred that without further guidance the Group will be unable to determine what aircraft would need to equip for the 2015 NAT data link mandate. The Group agreed that it is beyond their remit to recommend what criteria the NAT should apply in determining what aircraft would be deemed *unable to equip*. However it is the responsibility of the Group to indicate the scope of the issue and its various aspects, and to seek clarification from the IMG for the benefit of other groups.

7.8 One issue regarding the 2015 NAT data link mandate that stands out as crucial and controversial, is this: What will “*aircraft unable to equip in the time frame*” really mean?.

- a) The content of the recently drafted Proposal For Amendment (PFA) to Doc 7030 implies that eventually the States will need ICAO NAT guidance as to what categories of aircraft should be deemed *unable to equip*; and
- b) It will be very helpful to the NATMA Task Force to have some guidance as to what categories of aircraft will be deemed unable to equip. Otherwise they will have a lot of ‘what if’s to deal with in that regard, and consequently their results will be much less clear and conclusive.

7.9 The following are some potential categories of *aircraft unable to equip* in the time frame specified by the mandate:

- a) aircraft that do not have GNSS navigation equipment;
- b) aircraft that are not equipped with FMCs capable of supporting FANS 1/A;
- c) aircraft that are not equipped with satellite data link;
- d) aircraft that are equipped with ATN B1 CPDLC (to support the EUR Region 2015 mandate);
- e) aircraft for which FANS 1/A equipment will not be commercially available; and

- f) aircraft that will be removed from service by 2017, state aircraft and flights for test or maintenance purposes (to reflect the similar EUR Region 2015 exemption)

7.10 The handling of aircraft equipped to meet the EUR mandate is particularly problematic because the EUR Region 2015 mandate will not exclude from desirable flight levels those aircraft that have been equipped with FANS 1/A before 2014.

7.11 The following question also needs to be answered - “how will aircraft unable to equip be accommodated” for the 2013 initiative. The NAT SPG Conclusion 45/10 indicates that *entire* OTS between FL 350 and FL 400 will require data link equipage in 2013. Perhaps this conclusion should be reconsidered to provide *partial* OTS (optimal tracks) based on equipage, but not the *entire* OTS. This will be brought to the IMG attention.

7.12 The Group was provided with the preliminary estimates of one-time costs to NAT operators to retrofit their aircraft with FANS 1/A to comply with the NAT 2015 data link mandate. The Group noted that this estimate was recently circulated to the NATMA Task Force. The Group provided comments to improve the text and noted that the final version of the estimate will be submitted to the IMG.

#### *NAT Table of implementation dates*

7.13 The Group provided updates to the NAT Table of implementation dates that is included in **Appendix D**. The Group agreed to add sections on the progress of AIDC, ADS-B surveillance and GOLD implementation to the Table and provide updates at the next Meeting.

#### *Gulfstream/CPDLC over Inmarsat I3*

7.14 The Group was informed that since September 2008, NATS have been working with Gulfstream and Honeywell to develop their Certification F software for CPDLC in the G450/G550 aircraft.

7.15 In October 2008 NATS conducted bench tests with GVSITS (a bench at Honeywell running CPDLC software specified to ED-100a) and a test instance of the Shanwick SAATS system. This test was completed and reported back to Honeywell for some minor fixes. A further bench test was completed in November 2008 running the fixed avionics software. All tests were passed and a full flight trial was recommended as the next logical step. In April 2009, the Gulfstream test aircraft N401SR running certificate F CPDLC software was flight tested in the NAT with full co-operation of all NAT ANSP's. From mid October 2009, G450 and G550 aircraft have been utilizing CPDLC in the NAT on the basis that NATS were notified of the flights. To date no operational issues have been seen with any of the notified flights utilizing CPDLC. Approximately 30 crossings have been recorded.

7.16 The Group noted that further work was required on performance assessment to be carried out against GOLD requirements by the respective State of Registry or Operator in the framework of the operational authorization process, as appropriate. The foregoing will be brought to the IMG attention.

7.17 In addition, the Group noted that the operational tests were conducted predominantly over I3 services and further investigations and the same level rigorous tests were needed in relation to I4 services.

## **8. Documentation**

### *Amalgamation of the NAT and ASIA/PAC AIDC Interface Control Documents*

8.1 The Group was presented with a proposal on how to advance with the task assigned to it by the NAT IMG on harmonisation of the NAT and ASIA/PAC AIDC ICDs.

8.2 The Group agreed to identify experts to review the proposed amalgamated NAT/ASIAPAC AIDC ICD by 1 June 2010. The Rapporteur of the CNSG will coordinate this activity with the ASIA/PAC Region via a distribution list maintained by the United States of America (point of contact – karen.L.chiodini@faa.gov). The work will be conducted via electronic means of communication as far as possible. This will be brought to the IMG attention.

*Global Operational Data Link document (GOLD)*

8.3 The Group was provided with the status of the GOLD document. The Group recalled that the document was developed by an ICAO Ad-Hoc Working Group that was established by the decision of the North Atlantic Systems Planning Group (NAT SPG) and Asia-Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) in June and September 2008, respectively.

8.4 The purpose of the GOLD is to facilitate global harmonization of existing data link operations and resolve regional and/or State differences impacting seamless operations. It includes required communication performance (RCP) and surveillance specifications, based on RTCA DO-306/EUROCAE ED-122, and guidelines on post-implementation monitoring and corrective action to address issues with satellite data communication services that were discussed during the special NAT SPG meeting in November 2007.

8.5 The GOLD is intended primarily for those who are involved in planning and implementation of data link services, and day-to-day operations, and will be key to harmonizing oceanic and continental (domestic) data link operations worldwide.

8.6 The GOLD will effectively replace the Guidance Material for ATS Data Link Services in North Atlantic Airspace (NAT Data Link GM) and the FANS-1/A Operations Manual (FOM) for the Asia-Pacific, South American and African-Indian Ocean Regions.

8.7 The Group agreed that the GOLD has reached the sufficient level of maturity to recommend its adoption by the NAT SPG as replacement for the NAT Data Link Guidance Material. The Group was aware that there were 3 *standardized free text messages for ADS-C out-of-conformance detection and alerting* which originated from NAT ATMG/34 and that their review was not yet completed. The Group noted that the NAT ATMG was planning to provide a response by 1 May 2010.

8.8 The Group agreed that in the initial period the ad-hoc group will continue to play a role in maintaining the document with the view to transfer this function to the ICAO Regional Offices at the later stage. In concluding the Group thanked Mr. Tom Kraft who led this work for this excellent achievement. The foregoing will be brought to the IMG attention.

## **9. Any other business**

*And a bit of poetry*

9.1 On the final day a visit to the Flying Boat Museum was organised by the IAA. This was the airport terminal where the first commercial transatlantic flights had started back in the 1930s. Inspired by the excellent atmosphere of Limerick, the Group could only conclude the following:

*“The discussions can get quite pedantic,  
The drinking is generally frantic,  
So here we are, In a Limerick bar,  
Redesigning the whole North Atlantic.”  
(Courtesy of Gordon Sandell- Boeing)*

*Future work programme*

9.2 The Group agreed to recommend to the NAT IMG that the CNSG's work programme should include the following:

- a) monitor ongoing data link trials;
- b) implement data collection algorithms and problem reporting to support the DLMA;
- c) implement ADS contracts to enhance conformance monitoring capabilities and analyse its lateral aspects;
- d) implement regional AIDC plan;
- e) maintain the RCP implementation plan;
- f) update the NAT ICD and GOLD as required;
- g) analyse and chase down nuisance reports occurrences;
- h) optimise the use of the NAT communications resources and plan for future operations;
- i) monitor communications system performance;
- j) provide inputs to the regional safety management;
- k) determine ways and means to harmonise NAT and ASIA/PAC regional ICDs; and
- l) Study technical aspects of the use of portable SATCOM voice devices.

*Follow up action list*

9.3 The Group updated its follow up action list, which is at **Appendix H**.

*Next meeting*

9.4 The Group agreed to recommend to the NAT IMG that the third meeting of the NAT CNSG should be held in Halifax (Canada) from 27 September to 1 October 2010 and the 4<sup>th</sup> meeting will take place in Paris (France) in March 2011.

*Report to NAT IMG/36*

9.5 On the basis of the tasks dealt with and considering its proposed work programme, it was agreed that the following should be brought to the attention of NAT IMG/36:

- a) Note the CNSG position with regards to the IATA participation (para 1.2. refers);
- b) Note the intention to carry out an additional comparative actual communications system performance analysis against reduced longitudinal separation CRM assumptions, taking the overall response time, which includes the pilots response into account (para 2.10 refers);
- c) Agree with the proposal in regard to the NAT FPL 2012 implementation plan (para 2.12 refers);
- d) Note the Group's position with regard to the establishment of a website in support to the NAT DLMA problem reporting (para 2.13 refers);
- e) Note the progress of the NAT SATCOM voice proposal for amendment to Doc 7030 (para 2.17 refers);
- f) Note the CNSG approach to implementation of the proposal to forward position reports and its position with regards to the need for forwarding NEXT+1 positions. (para 2.19 refers);
- g) Note the CNSG position with regards to the changes proposed to the CPDLC message set and the use of free text (para 2.23 refers);
- h) Urge NAT service providers to complete the upgrades to ground systems to enable data collection in support of the NAT DLMA as soon as possible (para 4.4. refers);
- i) Invite operators to take active part in the work of the NAT DLMA through participation as part of the users organisations delegations at the NAT CNSG meetings (para 4.5 refers);
- j) Note the outcome of the actual communications system performance analysis in New York and Oakland FIRs (para 4.13 refers);
- k) Note the increase in FANS equipage in the NAT (para 4.15 refers);
- l) Agree with the CNSG approach to the implementation of the CPDLC to eliminate/reduce route discontinuities (para 5.8 refers);
- m) Invite Inmarsat to respond to the questions related to the Inmarsat policies with regards to the future provision of the Classic Aero services (para 5.11 refers);

- n) Note the report on the current status of the NAT HF networks and implementation of the NAT plan for future HF operations (para 6.10 refers);
- o) Note the Group's comments with regards to the PBN transition plan (para 7.2 refers);
- p) Note the comments to the draft task list for the implementation of the reduced lateral separation (para 7.4 refers);
- q) Review the issues/questions related to the NAT data link mandate (para 7.11 refers);
- r) Agree with the proposed amendments to the NAT Table of implementation dates (para 7.13 refers);
- s) Note the successful outcome of the CPDLC trials involving G450/550 aircraft pending the completion of the appropriate operational authorization processes by the State of Registry or Operator (para 7.16 refers);
- t) Agree with the proposed approach to harmonisation of the NAT and ASIA/PAC AIDC documents (para 8.2 refers);
- u) Adopt the GOLD as replacement for the NAT Data Link Guidance Material (para 8.7 refers);
- v) Endorse the CNSG work programme (para 9.2. refers);
- w) Agree that CNSG/3 should be held in Halifax (Canada) from 27 September to 1 October 2010.

9.6 In addition the Group agreed that the following should be brought to the attention of the NAT SARSIG:

- a) Note the intention to carry out an additional comparative actual communications system performance analysis against reduced longitudinal separation CRM assumptions, taking the overall response time include the pilots response into account (para 2.10 refers);
- b) Note the Group's comments with regards to the PBN transition plan (para 7.2 refers);and
- c) Note the comments to the draft task list for the implementation of the reduced lateral separation (para 7.4 refers).

9.7 In addition the Group agreed that the following should be brought to the attention of the NAT ATMG;

- a) Note the CNSG approach to implementation of the proposal to forward position reports and its position with regards to the need for forwarding based on NEXT+1 positions. (para 2.19 refers); and
  - b) Note the CNSG position with regards to the changes proposed to the CPDLC message set and the use of free text (para 2.23 refers);
-

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## Appendix C – LIST OF DOCUMENTATION

*(Paragraph 1.2 refers)*

<b>WP</b>	<b>Agenda Item</b>	<b>Working Papers/Title</b>	<b>Presented by</b>
<b>WP01</b>	1	Draft Agenda	Secretariat
<b>WP02</b>	7b	Global Operational Data Link Document (GOLD)	United States
<b>WP03</b>	7b	Global Interface Control Document (ICD)	United States
<b>WP04 RevA</b>	3a	NAT Data Link Monitoring Agency – Administrative Matters	United States
<b>WP05</b>	2a 5c	FANS 1/A over Iridium Operational Trials	United States
<b>WP06</b>	6	Key Task List for the Implementation of North Atlantic (NAT) Initiatives	United States
<b>WP07</b>	6	North Atlantic Data Link Mandate and Separation Reduction initiatives: Issues to be addressed	United States
<b>WP08</b>	6	Transition from Minimum navigation Performance Specifications (MNPS) to Performance Based navigation (PBN)/Required Navigation Performance (RNP)	United States
<b>WP09</b>	4b	CPDLC Routes + Appendix A	Canada
<b>WP10</b>	6	NAT Data Link Mandate – accommodation of aircraft that are not equippable	Canada
<b>WP11</b>	3c	FANS equipage	Iceland
<b>WP12</b>	6	Recommendation to approve G450/G550 Certificate F a/c for NAT CPDLC	United Kingdom
<b>WP13</b>	2	COA FMC WPR via Iridium	Canada

	<b>Agenda Item</b>	<b>Information Papers/Title</b>	<b>Presented by</b>
<b>IP01</b>	1	Tentative work programme	Secretariat
<b>IP02</b>	1	Proposal to amend Strategic Lateral Offset Procedure (SLOP)	United Kingdom
<b>IP/03</b>	3a	NAT DLMA - FAA post-implementation monitoring and analysis results	United States
<b>IP/04</b>	3a	NAT DLMA - NAT Problem Report Review	United States
<b>IP/05</b>	6	Future ATS Service status	Iceland
<b>IP/06</b>	6	Data collection for DLMA	Iceland
<b>IP/07</b>	8	Operator costs related to 2015 NAT Data Link Mandate	Canada
<b>IP/08</b>	3a	ADS-C ETA at Next Position Errors	United States
<b>IP/09</b>	3c	ADS CPDLC levels	United States
<b>IP/10</b>	3a	Observed Data Link Performance Through VHF/SAT COM Transitions in the New York Flight Information Regions (FIR)	United States
<b>Flimsy</b>	<b>Agenda Item</b>	<b>Title</b>	<b>Presented by</b>
<b>FL01</b>		CPDLC Reroutes Portugal	Portugal
<b>FL02</b>		IPSACG review of Out-of-Conformance Messages	United States
<b>FL03</b>		Comments received fr NAT pilots reWP09 CPDLC Reroutes	Canada

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	N°	POWER POINT PRESENTATION	Presented by
IP/04		NAT DLMA Problem Report-Attachment PowerPoint	United States

	Agenda Item	Reference Documents/Title	Presented by
	7a)	Data Link Guidance Material v19.1	Secretariat
	7d)	NAT ICD 1-2-7	Secretariat
		GOLDv56	Secretariat
	1	NAT SPG/45 report	Secretariat
	1	NAT IMG/35 report	Secretariat
	1	NAT ATMG35 report	Secretariat
	1	NAT SARSIG/10 report	Secretariat
	1	ACSG/10 report	Secretariat
	1	NAT CNSG/1 report	Secretariat

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**Appendix D – TABLE OF NAT DATA LINK IMPLEMENTATION DATES  
AS OF OCTOBER 2009**

*(Paragraph 2.42.2 refers)*

	<i>Gander</i>	<i>Shanwick</i>	<i>Reykjavik</i>	<i>Santa Maria</i>	<i>New York</i>	<i>Bodo</i>	<i>Shannon</i>
<i>ADS</i>							
<i>ADS Waypoint and Met reporting</i>	<i>Jan 2001</i>	<i>Jan 2001</i>	<i>Aug 2001</i>	<i>Oct 2001</i>	<i>Sep 2003</i>	<i>Mar 2004</i>	
<i>Local ADS</i>	<i>Feb 2005</i>	<i>Nov 2006</i>		<i>Dec 2006</i>	<i>June 2005</i>		
<i>CPDLC</i>							
<i>NAT Phases 1&amp;2</i>	<i>Nov 2002</i>	<i>Nov 2002</i>	<i>Apr 2005</i>				
<i>NAT phase 3</i>	<i>Dec 2003</i>	<i>Dec 2003</i>		<i>Dec 2006</i>			
<i>NAT Phase 4</i>	<i>Jan 17 2008</i>	<i>Jan 17 2008</i>	<i>Jan 17 2008</i>	<i>Jan 17 2008</i>	<i>Mar 2003</i>	<i>TBD</i>	
<i>Special cases</i>							
<i>Uplink SSR Code&amp;frequency</i>							<i>1Q2011</i>
<i>FMC WPR</i>	<i>Nov 25 2004</i>	<i>Nov 25 2004</i>	<i>2Q 2006</i>	<i>Nov 25 2004</i>		<i>2Q2005</i>	
<i>Local FMC</i>				<i>Apr 2007</i>			
<i>OCL</i>							
<i>ARINC 623/ED106A Voiceless operation</i>	<i>May 2006</i>	<i>Nov 1996</i>	<i>2Q 2010</i>	<i>Sep 2007</i>			
<i>CPDLC OCL</i>					<i>current</i>		
<i>Conformance monitoring</i>							
<i>Automation of Altitude Range Event Contract (AREC)</i>	<i>4Q 2010</i>	<i>1Q2010</i>	<i>1Q 2011</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	
<i>Automation of Lateral Deviation Event</i>	<i>TBD</i>	<i>1Q2010</i>	<i>1Q2011</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	

<b>Contract (LDEC)</b>							
<b>Performance monitoring</b>							
<b>Support tools for DLMA in ground systems</b>	<i>TBD</i>	<i>4Q2010</i>	<i>3Q2010</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	
<b>DO306/ED122 compliance</b>	<i>Completed</i>	<i>Completed</i>	<i>Completed</i>	<i>TBD</i>	<i>Completed</i>	<i>TBD</i>	
<b>Implementation of ADS-B surveillance</b>	<i>TBD</i>		<i>1Q2012</i>				
<b>GOLD implementation</b>							
<b>CPDLC reroutes</b>							
<b>AIDC implementation</b>							



**Appendix F**  
**(para 2.11 refers)**

**AIDC plan.xls**

**- END -**

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**Appendix G**  
**(para 7.4 refers)**  
**Proposed Task List for the Implementation of 25 NM Lateral Separation**

	<b><u>SUBJECT</u></b>	<b><u>DATE TO COMPLETE BY</u></b>	<b><u>RESPONSIBLE ORG or NAT SUB-GROUP</u></b>	<b><u>KEY IMPLEMENTATION TASKS</u></b>
1	<b>ICAO SARPS and Guidance</b>		ATMG/ <u>CNSG/SARSIG</u>	Review related ICAO SARPS and guidance documents: ICAO Doc 4444; Annexes 2, 6, 11.
2	<b>RNP and Data Link authorization criteria</b>		SARSIG/OPS AIR	1. Review ICAO Performance Based Navigation (PBN) Manual (ICAO Doc 9613) for current criteria for RNP authorization. (Third Edition – 2008 is current). 2. Review GOLD for data link authorization criteria.
3	<b>Coordination with ICAO HQ/SASP</b>		IMG	What coordination of 25-lat and 5-minute long criteria with SASP will be necessary? Does NAT SPG desire/expect approval from ICAO HQ? Will 25 NM lateral and 5 minute longitudinal become a new separation minimum published in ICAO DOC 4444 for global use?
3A	<b>NAT Regional Supplementary Procedures</b>		ATMG/ <u>CNSG/SARSIG</u>	Plan for amendment of NAT Regional SUPPS for: 25 NM-lateral and Data Link mandate. Date for submittal of a draft 7030 amendment to ICAO Paris? Target date for ICAO distribution for comment? Target date for publication?
3B	<b>NAT SPG document revision</b>		ATMG/ <u>CNSG</u>	Identify NAT SPG documents to be revised and plan for their revision.
4	<b>Concept of Operations</b>		ATMG	Develop and coordinate Concept of Operations and incorporate into appropriate operational policy and procedures documents (e.g., ICAO State Letters, State AIP Supplements, AIC's)
5	<b>Operator/aircraft fleet readiness projection</b>		OPS AIR/ <u>CNSG</u>	Make projection of percentage of flights that will be conducted by 25-lateral eligible and data link equipped aircraft: by 2012? By 2013? By 2015? Target: establish the approximate percentage of flights to be conducted by data link equipped aircraft to proceed with implementation.
6	<b>ATC system modification</b>		ATMG/CNSG	Identify the time schedule required to modify ATS provider ATC systems for 25-lateral.
7	<b>Task List and Schedule</b>		AS ASSIGNED BY IMG	Develop a Task List and schedule for completion of individual tasks.

Appendix F

	<u>SUBJECT</u>	<u>DATE TO COMPLETE BY</u>	<u>RESPONSIBLE ORG or NAT SUB-GROUP</u>	<u>KEY IMPLEMENTATION TASKS</u>
8	<b>Safety Assessment</b>		SARSIG	Complete Safety Management System (SMS) required documents (e.g., Safety Assessment/Collision Risk Modelling) to be available at time of Doc 7030 submission.
9	<b>NAT Safety Oversight Group coordination</b>		IMG TO COORD. SOG	SOG to monitor safety cases in progress and review completed safety cases prepared to support changes to the NAT air navigation system.
10	<b>Data Link System Performance</b>		<u>SARSIG/CNSG</u>	Determine requirement for data link system performance and establish whether or not it is being met.
11	<b>Safety Risk Management Document(s)</b>			<b>ATS provider requirement:</b> complete and submit SRMD (Safety Risk Management Document) for approval approx ___ months prior.
12	<b>Route structure redesign</b>		ATMG	Identify steps necessary to introduce ½ degree track spacing.
13	<b>Plan and schedule for aeronautical chart data publication</b>		OPS AIR	Develop plan and schedule for publication of aeronautical chart data. Work with chart providers to revise chart panels, etc.
14	<b>Information Dissemination Program</b>		IMG	Develop NAT Initiatives Webpage? Develop distribution list for State and industry organizations and key individuals. Distribute ICAO State letters, as necessary. Include Training Centers.
15	<b>Job Aids for ADS-C, CPDLC, RNP X Authorization Process</b>		OPS AIR	Develop Job Aids (a repository for how-to guides or summaries to help understand and comply with policies and standards), as necessary, based on ICAO and NAT guidance. Post on Webpage. Ensure current PBN Manual and GOLD references incorporated. Have ICAO State letter advocate use of Job Aids.
16	<b>Advance notice</b>		IMG	Provide advance notice to States and operators of intent to implement (key dates, basic plan and operating policy, etc.).
17	<b>ICAO State Letter</b>		ATMG	ICAO Regional Office distribute ICAO State letter to: outline project and advocate use of Job Aids and other guidance posted on the Webpage.
18	<b>Coordination with NAT SPG Working Groups</b>			Submit Working Papers and Information papers to appropriate NAT SPG Subgroups.
19	<b>State regulator preparation</b>		STATES	States prepare responsible offices to complete State tasks related to operators for which they are responsible.

	<b><u>SUBJECT</u></b>	<b><u>DATE TO COMPLETE BY</u></b>	<b><u>RESPONSIBLE ORG or NAT SUB-GROUP</u></b>	<b><u>KEY IMPLEMENTATION TASKS</u></b>
20	<b>State regulations and guidance</b>		STATES	States revise or develop regulations and guidance, as necessary.
21	<b>Operational Policy &amp; Procedures documents</b>		STATES/ATMG	1. Prepare and distribute documents (e.g., State AIC's, FAA Notice) containing applicable operational policy and procedures.
22	<b>State ATS policy documents</b>		STATES	States revise or develop Air Traffic Services policy documents, as necessary.
23	<b>Transition Plan</b>	Not applicable?	STATES/ATMG	Determine if a transition plan is required.
24	<b>Publish Transition Plan (if required)</b>	Not applicable?	STATES	If required, publish coordinated plan and schedule to transition to new separation standard.
25	<b>Pre-implementation Safety Assessment &amp; Implementation Decision</b>		STATES	Update and complete final Safety Assessment and Readiness Review.
26	<b>Performance Monitoring</b>		SARSIG/ <a href="#">CNSG</a>	Develop and agree on system safety performance monitoring criteria.
27	<b>Notice of decision to implement</b>		NAT SPG	Provide notification to States and operators of decision to implement.
28	<b>State controller training</b>		STATES	States train controllers.
29	<b>Aeronautical chart and navigation databases</b>		STATES	Publish and distribute revised aeronautical chart and navigation information.
30	<b>State ATC automation systems</b>		STATES	Modify ATC automation systems and programs, as necessary.
31	<b>Operator readiness</b>		OPS AIR	Operators should plan to be ready by one month in advance of implementation.
32	<b>Target Implementation Date</b>		NAT SPG	Implement 25 NM lateral separation.
33	<b>Post implementation monitoring</b>		SARSIG/ <a href="#">CNSG</a>	Conduct post-implementation monitoring and convene specialists as necessary for monitoring.

### Appendix H – FOLLOW UP ACTION LIST

*(Paragraph 9.3 refers)*

ID #	TASK ID	WHO	WHEN	X-REF
1-1	Determine the timeline for ground systems upgrade to support data collection for the DLMA	ANSPs	CNSG/3	2.2
1-2	Provide update on DO306/ED122 SR compliance	Portugal	CNSG/3	2.3
1-3	FDPS readiness to support 5 minute reduced longitudinal	Canada	CNSG/3	2.4
1-5	Collect FANS 1/A equipage data	ANSPs	CNSG/4	4.15
1-6	Conduct an analysis of percentage of data link equipped aircraft reverting to voice	Portugal	CNSG/3	CNSG/1 report
1-10	Clarify the difference in the loading of uplink data	Airbus	CNSG/3	2.6
2-1	Conduct a comparative actual communications system performance against RLongSM CRM assumptions taking the pilot response into account	United Kingdom	CNSG/3	2.10
2-2	Provide updates to the NAT AIDC implementation plan	ANSPs	CNSG/3	2.11
2-3	Provide updates to the NAT FPL2012 implementation plan, including POCs, impact assessment and expected readiness	ANSPs	CNSG/3	2.12 Appendix E
2-4	Investigate regulatory requirements for use of PEDs	ANSPs	CNSG/3	2.16
2-5	Participate in the data collection for the FOI project	ANSPs	CNSG/3	3.4
2-6	Review ground automation configuration to enable COA Iridium equipped aircraft for FMC WPR over Iridium operation	Canada, Iceland, Portugal, United Kingdom	1 May 2010	3.9
2-7	Submit problem reports via the NAT DLMA website. Provide the problem reports analysis	ANSPs/DLMA	CNSG/3	4.3
2-8	Update/Review the GOLD proposal in regard to CPDLC reroutes	Canada/ANSPs	Before IMG/36	5.8

<b>ID #</b>	<b>TASK ID</b>	<b>WHO</b>	<b>WHEN</b>	<b>X-REF</b>
2-9	Provide HF networks operations report	ACSG	CNSG/4	6.10
2-10	Update on the progress of licensing of new HF channels	ACSG	CNSG/3	6.10
2-11	Review the proposed amalgamated NAT and ASIA/PAC ICDs. Coordinate with the ASIA/PAC	ANSPs/ Rapporteur	1 June 2010	8.2
2-12	Determine a timeline for implementing forwarding of position reports to downstream units	ANSPs	CNSG/3	2.19
2-13	Update estimates of operator costs to retrofit NAT fleets for FANS 1/A, taking account of comments received at CNSG/2, and provide as information to IMG	Canada	IMG/36	7.12
2-14	Provide clarification with regards to Inmarsat policy on the future provision of the Classic Aero services	Inmarsat	CNSG/3	5.11

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