

## NAT Performance Based Communication and surveillance (NAT PBCS) Implementation Plan

v- 2015-1

*(NAT IMG Decision 45/13 refers)*

Note 1.— This plan addresses the application of Required Communication Performance (RCP) and Required Surveillance Performance (RSP) 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:

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;

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

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.

See **Task 3** of this plan for the conditions under which each of the items above apply to the data link operations in support of the Data Link Mandate, RLongSM and RLatSM.

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	STATUS
<b>GENERAL PROJECT DEVELOPMENT &amp; MANAGEMENT</b>					
1	<b>Plan</b>	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.	<b>COMPLETED</b> Periodically reviewed and updated 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.
2	<b>Target dates</b>	Nov 2016- target date	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.	<b>PENDING</b> NAT SPG Conclusion 44/11 targets 2015. Target dates for prescribing RCP/RSP specifications 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. Pending determination of operational implementation dates for RLongSM and RLatSM and some dependencies on activities undertaken at the global level by OPLINKP and SASP. Inclusion of PBCS provision and standards for applying RLongSM and RLatSM are targeted for November 2016.

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3	RCP/RSP specifications	NAT SPG/48	NAT SARSIG	<p>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.</p> <p>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.</p>	<p><b>COMPLETED</b></p> <p>a) For NAT data link operations, CPDLC performance will be measured against RCP 240 and ADS-C performance will be measured against RSP 180.</p> <p>b) RCP 240 and RSP/180 are the specifications to be prescribed for RLatSM and RLongSM operations (subject to ICAO activities undertaken at the global level by OPLINK and SASP).</p> <p><i>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.</i></p> <p><i>(NAT SPG Conclusion 48/7, NAT SPG/48 SoD, Appendix I, and NAT SPG Conclusion 49/05 refers).</i></p>
4	Workshop(s)	<p>1<sup>st</sup> Workshop 2012-2013</p> <p>2<sup>nd</sup> Workshop Mid-2015</p>	ICAO/ States	<p>Conduct workshops to raise awareness on performance based communication and surveillance.</p> <p>Establish a planning team to work with ICAO and subject matter experts to develop and present material at the workshop.</p> <p>Conduct a second workshop to facilitate the roll out of Guidance material being developed by OPLINKP, SASP and FLTOPSP.</p>	<p><b>PENDING</b></p> <p>One workshop held on 20-22 Feb 2013.</p> <p>More workshops will be convened, if needed</p> <p>Pending availability of additional guidance, e.g. operational approvals, and global developments by OPLINKP, SASP and FLTOPSP. ICAO EUR-NAT Regional Office Secretariat lead the planning for a 2<sup>nd</sup> workshop in mid-2015 (following the ANC approval).</p>

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<b>DOCUMENTATION</b>					
5	<b>Operational concepts</b>	NAT IMG/42 and NAT SPG/49	NAT ATMG in coordination with CNSG	<p>a) Update operational concepts for implementation of RLatSM and RLongSM supported by data link to include associated RCP/RSP specifications.</p> <p>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.</p> <p>c) Review and comment on material for incorporation in GOLD, as appropriate, NAT Doc 006 and Doc 007.</p>	<p><b>COMPLETED</b> for RLongSM and RLatSM.                      RLongSM – Concept of Operations – NAT SPG/48 Appendix F                      RLongSM Plan                      RLatSM – Concept of Operations – NAT SPG/48 SOD, Appendix D. IMG Decision 43/04, Appendix F                      RLatSM Plan                      RLatSM Task List                      Mandate Plan – NAT SUPPs Data Link Mandate Task List.</p>
6	<b>GOLD amendments</b>	NAT IMG/42 and NAT SPG/49	GOLD ad-hoc group	<p>Develop GOLD material, as appropriate, in support of reduced separations:</p> <ul style="list-style-type: none"> <li>- the provisions for data link service (AIC, guidance for AIPs, eligibility requirements etc)</li> <li>- performance specifications</li> <li>- initial qualifications for operations of operators, aircraft and ATC</li> <li>- post implementation monitoring</li> </ul> <p>Specific amendments to GOLD are identified in Tasks 5, 7, 8, 9, 14 and 15.</p>	<p><b>COMPLETED</b>                      Completed with regards to Tasks 5, 7 through 9, 14 and 15.</p>

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7	Contingency procedures	NAT IMG/42 and NAT SPG/49	NAT ATMG/CNSG	<p>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.</p> <p>Review and comment on material for incorporation in GOLD, as appropriate, NAT Doc 006 and Doc 007.</p>	<p><b>COMPLETED.</b></p> <p>No additional/specific material is needed. NAT ATMG/42 report refers.</p>
8	Restoration of service	NAT IMG/42 and NAT SPG/49	NAT ATMG/CNSG	<p>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.</p> <p>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.</p> <p>Review and comment on material for incorporation in GOLD, as appropriate, NAT Doc 006 and Doc 007.</p>	<p><b>COMPLETED.</b></p> <p>No additional/specific material needed. NAT ATMG/42 report refers.</p>

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9	Flight plan requirements	Doc 4444 target date – November 2016	NAT CNSG ICAO (Global)	<p>Draft guidance material for the flight plan to define the descriptors for performance specifications, as appropriate, using the new format planned for 2012 implementation.</p> <p>Include definition of P descriptors in Item 10a and expansion or redefinition of descriptors for ADS-C.</p> <p>Review and comment on material for incorporation in GOLD, as appropriate.</p>	<p><b>PENDING</b></p> <p>Awaiting Doc 4444 and/or Doc 7030 amendments</p> <p>OPLINKP agreed: Item 10 for CPDLC</p> <p>P1 – RCP400</p> <p>P2 – RCP240</p> <p>P3-P9 – [reserved]</p> <p>Item 18, for ADS-C SUR/RSP400 or SUR/RSP180</p> <p>(OPLINKP/WG/WHL/3 SOD, paragraph 9 refer)</p> <p>Above changes were incorporated into the GOLD, 2nd Edition, and ICAO is planning to include in ICAO Doc [GOLD] together with proposed amendment to Doc 4444. Above changes will affect ATC automation. See Task 12.</p>

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10	<b>PfA for NAT Regional Supplementary Procedures (NAT SUPPS)</b>	NAT IMG/42 and NAT SPG/49 Pending the outcome of the work on the global provisions (NAT SPG/50 report refers)	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.	<b>PENDING</b> NAT SPG Conclusion 49/06, Appendix F provides a draft developed by the NAT task force. NAT IMG Decision 43/15, appendix Q provides a draft PfA on RLongSM. This timeline for this task is dependent on the timeline for the PfA for RLatSM and RLongSM. (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) Pending completion of work by ICAO on documents relating to RCP and RSP the NAT is progressing reduced separation trials based on performance in the airspace being monitored against RCP 240 and RSP 180. This task remains open for NAT SPG action in accordance with NAT SPG Conclusion 48/7 (Applicability of communication and surveillance performance specifications) and NAT SPG Conclusion 49/5 (RCP and RSP for RLatSM and RLongSM)
11	<b>AIPs and other State documents supporting NAT SUPPS and/or PANS ATM</b>	Consistent with Task 10	States	Amend AIPs and other State documents to support NAT SUPPs amendments proposed in Task 10 and/or PANS-ATM.	<b>PENDING</b> The work is pending completion of the PfA for the NAT SUPPS in Task 10 and global developments by OPLINKP, SASP and FLTOPSP.

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14	<b>GOLD proposal for RCP/RSP compliance determination</b>	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.	<b>COMPLETED.</b> NAT SPG Conclusion 49/05 refers The intent of NAT SPG Conclusion 49/5 was incorporated into GOLD, 2nd Edition, and is contained in the OPLINKP draft Doc 9869 (PBCS Manual), targeted for publication in 1st Quarter 2015.
15	<b>GOLD proposal for guidelines on operator eligibility</b>	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.	<b>COMPLETED</b> Guidelines on operator eligibility were updated in the GOLD, 2nd Edition, and is contained in the OPLINKP draft Doc 9869 (PBCS Manual), targeted for publication in 1st Quarter 2015.
<b>IMPLEMENTATION ACTIVITIES</b>					
12a	<b>ATC automation changes</b> for monitoring	Before the start of operational trials of RLongSM or RLatSM.	NAT ANSPs	Implement post-implementation monitoring capability in ATC automation. See related Task 17	<b>PENDING</b> Data collection function is completed. The status is reported by each NAT ANSP at NAT CNSG meetings. Gander – completed Shanwick – completed Reykjavik – completed Santa Maria – completed New York – completed Bodø – March 2015 TBC Shannon – completed



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12b	ATC automation changes to use flight plan designators	Prior to operational implementation of RLatSM or RLongSM (i.e. prior to publication of Doc 7030 per Task 10 and is no longer in a "trial" status)	NAT ANSPs	<p>Implement changes to recognize new flight plan descriptors defined under Task 9 to configure system, as necessary (e.g. set timers) for operations predicated on communication and surveillance performance and apply operations only to eligible aircraft.</p> <p>This task should be complete prior to operational implementation of RLatSM or RLongSM.</p>	<p><b>PENDING.</b></p> <p>FPL related functions – pending Doc 7030 and Doc 4444 amendments. See <b>Task 9.</b></p>
13	Confirm actual CPDLC and ADS-C performance	Prior to operational implementation	ANSPs/ DLMA/ CNSG/	<p>Measure actual performance against specifications for feasibility, i.e., ACP, ACTP, PORT, ADS C latency for operators and aircraft types.</p> <p>Collect and analyze data in accordance with GOLD, Appendix D.</p> <p>Provide a clear indication of whether or not RCP 240 is being met in each NAT Oceanic Control Area currently being assessed.</p> <p>Identify, if RCP 240 is not being met, what aspects of the system's performance are not compliant with the RCP 240 specification.</p> <p>Determine the potential effects of those shortcomings on the implementation of reduced separation minima.</p> <p>See related Task 17.</p>	<p><b>COMPLETED</b></p> <p>Performance reports provided at CNSG, IMG and SPG meetings.</p> <p>Measuring against RSP180 and RCP240 is implemented</p> <p>NAT SPG Conclusion 48/7 and 49/05 refer)</p> <p>NAT Sarsig work completed for the task (NAT Sarsig/19 SoD, para 4.7 refers)</p> <p>This task is has been completed and the ongoing status of performance from continued monitoring will be maintained under Task 17.</p>

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<b>AIRWORTHINESS AND OPERATIONAL ELIGIBILITY</b>					
16	State regulations and guidance material	Prior to operational implementation of RLatSM or RLongSM (i.e. prior to publication of Doc 7030 per Task 10 and is no longer in a “trial” status)	NAT CNSG, OPS/AIR States/Users	<p>Provide guidance to States on application of PBCS to communication and surveillance supporting data link mandate, RLongSM and RLatSM;</p> <p>Develop or revise State guidance and/or regulations, as necessary.</p> <p>a) Establish State airworthiness requirements. Establish operational policy/procedures requirements for operational approval.</p> <p>b) Prepare State inspectors to perform tasks for operational approval.</p> <p>c) 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.</p> <p>d) Develop and distribute operations manuals, pilot bulletins or other appropriate docs containing RCP/RSP policy/procedures. See related Task 15.</p>	<p><b>PENDING.</b></p> <p>The following sequence of events will facilitate States having the capability to authorize their operators and aircraft to RCP 240/RSP 180:</p> <p>a) Review ICAO Annexes, PANS and Doc 9869 (PBCS Manual), Doc [GOLD], Doc [SVGM] – mature drafts expected to be available in October 2014) – complete date TBD;</p> <p>b) <b>See Task 10</b> – Revise NAT SUPPS to include RCP 240 and RSP 180 requirements for specified separation standards – complete date TBD;</p> <p>c) <b>See Task 11</b> – Establish lead time for States to establish State regulations and guidance using ICAO documents – complete date TBD;</p> <p>d) NAT OPS/AIR update the Data Link Job Aid Template to include RCP 240/RSP 180 per NAT IMG/44 SoD, paragraph 4.83 – complete date TBD;</p> <p>e) Inform States of example RCP/RSP authorization documents published by other States – possibly as part of <b>Task 4</b> workshop suggested in mid-2015;</p> <p>f) Notify States by State letter of date by which operators/aircraft must be authorized, could be extended following outcome of <b>Task 2</b> – complete date TBD; and</p> <p>g) ICAO Annexes, PANS and Manuals applicable – target date November 2016.”</p>

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