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IMPLEMENTATION OF 50 NM LONGITUDINAL, 30 NM LONGITUDINAL AND 30 NM LATERAL SEPARATION MINIMA IN THE NEW YORK OCEANIC FLIGHT INFORMATION REGION (FIR)

Introduction. On 10 December 2013, at approximately 1200 UTC, New York Air Route Traffic Control Center (ARTCC) will begin applying 30 NM lateral and 30 NM longitudinal separation minima, and 50 NM longitudinal separation minimum between appropriately authorized and equipped aircraft throughout the New York Oceanic Control Area (CTA). New York ARTCC will continue to accommodate operators that are not eligible for 30 NM lateral/30 NM longitudinal separation minima throughout the CTA. Lateral, longitudinal and vertical separation minima for aircraft not eligible for 30 NM lateral/ 30 NM longitudinal minima will not change.

This notice provides operational policies, requirements and recommendations for operators planning to operate using 30 NM longitudinal, 30 NM lateral and 50 NM longitudinal separation minima in the New York CTA. Paragraph 6 provides guidance for in-flight contingency actions/procedures. Paragraph 12 provides guidelines/policy for maneuvering to avoid convective weather.

Enabling Technology - FANS-1/A Aircraft Systems and Advanced Technologies and Oceanic Procedures (ATOP)/Ocean21 Ground Automation System.

- **FANS 1/A Capabilities.** Aircraft FANS-1/A communications, navigation and surveillance (CNS) capabilities, are required in order for 30 NM lateral, 30 NM longitudinal and 50 NM longitudinal separation minima to be applied.
- **Ocean21 Capabilities.** The FAA Ocean21 system with integrated communication, surveillance and air traffic management is required for application of 30 NM lateral, 30 NM longitudinal and 50 NM longitudinal separation in oceanic airspace where the FAA provides Air Traffic Services (ATS). Ocean21 provides oceanic air traffic controllers with a set of automated decision support tools to assist in aircraft separation assurance, coordination, flight data management and controller-pilot communication. Ocean21 enhanced ATS automation capabilities are enabled by integrating Automatic Dependent Surveillance-Contract (ADS-C) and conventional position reports, system-maintained electronic flight data, controller-pilot data link communication (CPDLC), flight data message processing, automated interfacility and intrafacility coordination, automated conflict prediction and reporting (CPAR), graphic dynamic situation display to the controller and interactive electronic flight strips, aircraft labels and aircraft position symbols.

Application of 30 NM lateral, 30 NM longitudinal and 50 NM Longitudinal Separation Minima.

New York ARTCC will apply the following policies in order to use these separation reductions:

- 30 NM lateral, 30 NM longitudinal and 50 NM longitudinal separation will be applied between pairs of eligible aircraft throughout the New York Oceanic CTA.
- Published ATS routes and other tracks (e.g. WATRS) will not change. Minimum separation based on ADS-C between aircraft pairs eligible for 30 NM lateral, 30 NM longitudinal separation minima and aircraft authorized for Required Navigation Performance 10 (RNP 10) will continue to be 50 NM. Lateral and longitudinal separation standards applied between RNP-10 and non-RNP aircraft also remain unchanged.

Operator Flight Planning. Other than the flight plan annotation requirements discussed in paragraph 5 below, application of 30 NM lateral, 30 NM longitudinal and 50 NM longitudinal separation minima does not affect operators' processes or procedures for filing flight plans. Operators whose aircraft possess the

functional capabilities are encouraged to file all those capabilities in the flight plan as that data will be used to determine eligibility for the separation minima.

Operational Benefits. 30 NM lateral and 30 NM longitudinal separation minima provides ATC with enhanced capability to manage air traffic and enhances the capability to respond to operator requests by accommodating enroute climbs by crews to fuel-efficient altitudes, weather avoidance and to provide other operational flexibilities.

Safety Benefits. These reduced separation standards require enhanced CNS capabilities in air traffic systems and on board the aircraft. The enhanced air traffic surveillance systems provide controllers with automated tools to assist in separation assurance and with tools to better monitor flight plan conformance. Enhanced communication and surveillance systems enable both controllers and pilots to better communicate and manage weather deviations and contingency situations such as aircraft turn-backs and diversions.

CNS Requirements. Application of any of these minima is dependent upon the two aircraft of a pair meeting specific requirements for CNS. Navigation requirements are stated in terms of specific Required Navigation Performance (RNP) values, communication requirements by means of mandated Direct Controller-Pilot Communication (DCPC) or Controller-Pilot Data Link Communication (CPDLC), and surveillance requirements stated in terms of DCPC/CPDLC or Automatic Dependent Surveillance – Contract (ADS-C) with specific periodic update rates for position reports. The combination of RNP values, specified communications capability and necessary surveillance and the associated separation minimum are given in Table 1:

Separation Minimum	Navigation Requirement	Communications Requirement	Surveillance Requirements
50 NM longitudinal	RNP 10	CPDLC	Position report at least every 27 minutes (at least every 32 minutes if both aircraft are approved for RNP-4 operations)
30 NM longitudinal	RNP 4	CPDLC	ADS-C position report at least every <u>10</u> minutes
30 NM lateral	RNP 4	CPDLC	ADS-C-based lateral deviation event contract with 5NM lateral deviation from planned routing set as threshold for triggering ADS report of lateral deviation event

Table 1. Communications, Navigation and Surveillance Requirements for Reduced Separation in New York Oceanic CTA (based on ICAO Doc 4444 Global Standards)

OPERATIONAL POLICY AND PROCEDURES

1. **Requirements for Aircraft and Operators.** For aircraft/operators to be eligible for application of 30 NM lateral, 30 NM longitudinal and 50 NM longitudinal separation, the following requirements must be met:
 - a. The aircraft and operator must be authorized by the State of the Operator or the State of Registry, as appropriate, for RNP 10 or RNP 4 for the application of 50 NM longitudinal, or RNP 4 for the application of 30 NM longitudinal and 30 NM lateral operations.
 - b. The aircraft must be equipped with a minimum of two approved long range navigation systems that will enable the aircraft to maintain the required navigation performance for the duration of flight in the applicable airspace.

- c. The aircraft must be equipped with a FANS-1/A package (or equivalent) that includes satellite CPDLC and ADS-C that meet the standards of RTCA Document 258 (Interoperability Requirements for ATS Applications using ARINC 622 Data Communications Standard).
 - d. CPDLC communications (satellite based for 30 NM lateral and 30NM longitudinal separation minima) and ADS-C surveillance must be conducted in accordance with the ICAO Global Operational Data Link Document (GOLD), as amended, and maintained for the duration of the flight in the applicable FIR. (See paragraph below for web access to the GOLD)
 - e. Pilots and, if applicable, dispatchers must be trained on policies and procedures applicable to 50 NM longitudinal, 30 NM longitudinal and 30 lateral separation requirements including the use of satellite CPDLC and ADS-C in oceanic airspace.
2. **RNP 10 or RNP 4 Authorization.** In accordance with ICAO guidance, RNP 10 and RNP 4 are the only Navigation Specifications (NavSpecs) currently applicable to oceanic and remote area operations. However, the current ICAO PBN Manual has introduced RNP 2 for oceanic operations and work is underway to develop necessary guidance for this NavSpec. Other RNAV and RNP NavSpecs are applicable to continental en route, terminal area and approach operations.

Note: Operators who qualify are encouraged to obtain RNP 4 authorization. Operators who hold an RNP 4 authorization qualify for RNP 10 based separation standards.

3. **References for Operational Policy and Procedures.** Guidance documents for the operational policy/procedures related to these separation reductions are available in the FAA NAT Resource Guide for U.S. Operators on the following web page:
http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/afs400/afs470/media/NAT.pdf. Basic reference Documents for RNP 10, RNP 4, CPDLC and ADS-C operations are discussed below:

- a. ICAO Performance-based Navigation (PBN) Manual (ICAO Doc 9613). Guidance for authorization of RNP 10 and RNP 4 is addressed in Volume II, Part B; Chapter 1. RNP 4 is addressed in Volume II, Part C; Chapter 1.
 - b. RNP 10 and RNP 4 Job Aids. Operators and authorities are encouraged to use the RNP 10 or RNP 4 Job Aids. These Job Aids address the operational and airworthiness elements of aircraft and operator authorization and provide references to appropriate Document paragraphs. The Job Aids provide a method for operators to develop and authorities to track the operator/aircraft program elements required for RNP 10 or RNP 4 authorization. Job Aids are available both with FAA references and also ICAO references.
 - c. FAA Order 8400.33 (as amended), “Procedures for Obtaining Authorization for RNP 4 Oceanic/Remote Area Operations”, paragraph 9 (Operational Requirements) and paragraph 10 (Training Programs, Operating Practices and Procedures).
 - d. FAA Order 8400.12, “RNP 10 Operational Authorization”, (as amended), paragraph 10 (Training programs, Operating Practices and Procedures).
4. **Data Link Operational Authorization.** U.S operators are required to obtain operational authorization prior to using FANS 1/A data link systems. U.S. FAA guidance on the process and procedures for operational authorization and aircraft data link system approval can be found in the following documents:

- a. AC 20-140 (as amended), “Guidelines for Design Approval of Aircraft Data Link Communication Systems Supporting Air Traffic Services (ATS)”.

Note: In accordance with the North Atlantic Systems Planning Group (NAT SPG) agreement, data link communications may be conducted via Inmarsat Classic Aero or Iridium Short Burst Data. Data link communication service provision is

accomplished via a separate agreement between the aircraft operator and a recognized data link communication service provider, such as ARINC or SITA.

- b. AC 120-70 (as amended), “Operational Authorization Process for Use of Data Link Communication System”
5. **Flight Planning Requirements.** To inform ATC and to key Ocean21 automation that aircraft operators have appropriate authorizations and are eligible for 30 NM lateral, 30 NM longitudinal or 50 NM longitudinal, operators must have annotations as follows:
 - Item 10a. (Radio communication, navigation and approach aid equipment and capabilities)
 - a) CPDLC capabilities
 - J5 (CPDLC FANS 1/A SATCOM (INMARSAT)) and/or J7 (CPDLC FANS 1/A SATCOM(Iridium)), and
 - b) Navigation
 - R (PBN approved) (see related Item 18 entry below)
 - Item 10b. (Surveillance equipment and capabilities)
 - D1 (ADS-C with FANS 1/A capabilities)
 - Item 18. (Other Information)
 - “PBN/L1” (RNP 4)
 - If “PBN/A1” (RNP 10) is filed, only 50 NM separation can be applied.
6. **In-flight Contingency Actions/Procedures and Emphasis on Situational Awareness In a 30 NM Lateral, 30 NM Longitudinal Separation Minima Environment.** Pilots should be aware that 30 NM separation minima can be applied between their aircraft and another eligible aircraft at any time while in the New York CTA. They should use all available tools to maintain an awareness of other aircraft in their proximity in case an in-flight contingency occurs (e.g., aircraft or ATC system malfunction).
7. **Aircraft Navigation or Data Link System Malfunction.** Pilots must advise ATC of a loss of CPDLC and/or ADS-C capability or an inability to continue to meet RNP-4. ATC will then apply the separation standard appropriate to the situation.
8. **Air Traffic System Malfunction.** If there is a known malfunction of the CPDLC or ADS-C system, ATC will contact aircraft and apply separation appropriate to the situation.
9. **ICAO Doc 4444, In-flight Contingency Procedures.** Pilots will use guidance published in ICAO “Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM) (Doc 4444)”, Chapter 15.
10. **15 NM Track Offset for In-flight Contingency Maneuvers.** Guidance published in ICAO Doc 4444, Chapter 15.2 reflects current ICAO guidance calling for a 15 NM track offset when unable to obtain ATC clearance prior to executing maneuvers for contingencies such as rapid descent, turn-back or diversion. This is of particular importance for aircraft to which 30 NM separation minima can be applied.
11. **Measures to Avoid Conflict with Other Aircraft.** When forced to deviate from cleared track and/or altitude prior to obtaining an ATC clearance, pilots should use all published measures to mitigate the potential for conflict with other aircraft. The full text of the in-flight contingency procedures is published in the ICAO Doc 4444 discussed above. Published guidance calls for the pilot to:
 - a. if unable to maintain the assigned flight level, initially minimize the rate of descent to the extent that is operationally feasible (pilots should take into account the possibility that aircraft below on the same track may be flying a 1 or 2 NM strategic lateral offset

procedure (SLOP)) and select a final altitude which differs from those normally used by 500 feet if at or below FL 410, or by 1 000 feet if above FL 410; or

- b. if able to maintain the assigned flight level, once the aircraft has deviated 10 NM from the assigned track centreline, climb or descend to select a flight level which differs from those normally used by 500 feet, if at or below FL 410, or by 300 m 1 000 feet if above FL 410.
- c. Watch for other aircraft visually or, if equipped, with ACAS.
- d. Broadcast appropriate information on 121.5 MHz or the back-up frequency 123.45 MHz.
- e. Turn on exterior lights (commensurate with operating limitations).
- f. Keep the SSR transponder on at all times.
- g. Notify ATC and obtain a revised clearance at the earliest opportunity.

12. Maneuvering to Avoid Convective Weather in a 30 NM lateral and 30 NM Longitudinal Separation Minima Environment (Special Emphasis). Weather deviation procedures can be

found in Chapter 15.2.3 of the ICAO Doc 4444. Pilots are required to maneuver (deviate) around convective weather on a regular basis in the course of operations. Weather, therefore, was a major factor considered in establishing the ATC, operator and aircraft requirements for reducing horizontal separation minima to 30 NM. The enhanced CNS requirements and capabilities discussed in the paragraph on “Enabling Technology” and paragraph 1, “Requirements for Aircraft and Operators” aid pilots and controllers in situations where aircraft are required to maneuver around convective weather. For weather avoidance maneuvers in areas where 30 NM lateral and 30 NM longitudinal separation minima are applied, operators must emphasize the following items in pilot training programs:

- a. Pilots should not assume that the Ocean21 system will automatically quickly detect significant changes to the aircraft flight path. Unlike radar, the Ocean21 system does not receive aircraft position updates in real-time. Aircraft position is updated to the Ocean21 system at intervals of up to 10 minutes, when 30 NM lateral and 30 NM longitudinal separation is applied. Controllers can change the update intervals as the situation warrants.
- b. It is therefore imperative that pilots keep ATC advised via CPDLC (or HF voice, if necessary) of their intentions (including significant airspeed changes and/or turbulence conditions) during the initial weather avoidance maneuver and any subsequent maneuvers to avoid convective weather.
- c. Pilots must be aware that other aircraft could be approximately 30NM ahead or behind on the same track and inform ATC expeditiously of changes to flight path or airspeed that could erode longitudinal separation.
- d. Pilots must be familiar with the “Weather Deviation Procedures” published in ICAO Doc 4444, chapter 15.2.3. In particular, pilots should be aware of the provision to climb or descend 300 feet (depending on the direction of flight and direction of deviation from track) to mitigate the chance of conflict with other aircraft when forced to deviate without a clearance.
- e. It is recommended that ACAS be operational for aircraft to which 30 NM lateral and 30 NM longitudinal separation minima can be applied. ACAS is not a separation maintenance tool, but provides a valuable data to alert the pilot to the presence and proximity of nearby aircraft in contingency and weather deviation situations. Paragraph 5.3.1.1 of the NAT Supplementary Procedures (ICAO Doc 7030) states, “ACAS II shall be carried and operated in the NAT Region by all turbine-engined aeroplanes having a maximum certificated take-off mass exceeding 5700 kg (12,500lbs.) or authorized to carry more than 19 passengers.”

- f. In accordance with ICAO Doc 4444, pilots are reminded that, regardless of the magnitude of a deviation from assigned route, whenever possible, clearance should be requested in advance from ATC. This does not apply to deviations associated with Strategic Lateral Offset Procedures (SLOP). Prior coordination with ATC will help prevent the aircraft generating unnecessary alerts to ATC for lateral deviation events.
- g. Operators should consider adopting guidance for pilots to use heading mode to maneuver around areas of convective weather. Use of heading mode will prevent transmission of unnecessary lateral deviation event alerts that some flight management systems (FMS) automatically transmit to ATC when the FMS automatic lateral offset feature is used for weather avoidance. It should be emphasized that, when using heading mode, pilots must monitor cross track and heading and return to track when weather avoidance maneuvering is complete.

13. Strategic Lateral Offset Procedures (SLOP). Pilots should use SLOP procedures in the course of regular oceanic operations. SLOP procedures are published in ICAO Document 4444, paragraph 16.5 and FAA Notices.

14. ICAO Global Operational Data Link Document (GOLD), Chapter 5, Flight crew procedures for Data Link Operations and Conditional Clearances (Special Emphasis). A conditional clearance is an ATC clearance given to an aircraft with certain conditions or restrictions such as changing a flight level based on a time or place. Conditional clearances add to the operational efficiency of the airspace. However, conditional clearances have been associated with a large number of pilot deviations. These types of clearances require special attention by the flight crew and operators should develop training material to emphasize proper procedures for executing them accordingly. Resources available for aircrew to properly interpret conditional clearances and assist in developing training material can be found in the ICAO Global Operational Data Link Document (GOLD), Chapter 5 and paragraph 5.3.3. Additionally the North Atlantic Oceanic Error Safety Bulletin (OESB) provides operators information on procedures and best practices for dealing with conditional clearances. Both the GOLD and the latest version of the OESB can be found in the “NAT Resource Guide for US Operators”. See the web link in paragraph 3.

15. Monitoring Aircraft Navigation. The FAA will monitor and document aircraft navigation errors and system malfunctions. Operators are required to cooperate in follow up investigation of these events. Monitoring is used to verify separation safety and as a means to detect trends in operational practice.

16. Contacts.

ATC questions or comments should be directed to:

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