Federal Aviation Administration

Memorandum

Date:

To: Lawrence Fields, Acting Executive Director, Flight Standards Service, AFX-1

From: Laura Megan-Posch, Assistant Chief Counsel for Regulations, AGC-200

Laura J Megan-Posch

Digitally signed by Laura J Megan-Posch
Date: 2023.05.03 15:27:41 -04'00'

Subject: AGC Response to Request for Legal Interpretation regarding Long-Range Communication system (LRCS) for up to 180-minute Extended Operations (ETOPS)

This legal interpretation has been drafted in response to your May 16, 2022, request for clarification regarding § 121.99 of Title 14 of the Code of Federal Regulations (14 CFR). You asked if: (1) § 121.99(a), (b), and (c) require two voice communication systems for up to 180-minute ETOPS where voice communication facilities are available and (2) if § 121.99 requires simultaneous voice communications between each airplane and the appropriate dispatch office, and between each airplane and the appropriate air traffic control (ATC) unit. The answer to your first question is yes, and the answer to your second question is no, as discussed below.

14 CFR § 121.99(a) requires that a certificate holder conducting flag or domestic operations make an approved two-way communication system available over the entire route. This system may be direct links or via another approved communication link that will provide rapid and reliable communications under normal operating conditions between the airplane and dispatch office and between the airplane and appropriate air traffic control unit.

14 CFR § 121.99(b) states that "except in an emergency, for all flag and domestic kinds of operations, the communications systems between each airplane and the dispatch office must be independent of any system operated by the United States." The requirement for communications systems independent of any system operated by the United States, such as air traffic control, indicates that two communication systems must be present.

14 CFR § 121.99(c) states that each certificate holder conducting flag operations must provide voice communications for ETOPS where voice communication facilities are available. In determining whether facilities are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where facilities are not available or are of such poor quality that voice communication is not possible, another communication system must be substituted.

While § 121.99(a) does not necessarily require two forms of voice communication for non-ETOPS, § 121.99(b) indicates that the certificate holder must have two separate systems for communications between the aircraft and dispatch and the aircraft and ATC, and § 121.99(c) requires voice communications between the aircraft and dispatch and the aircraft and ATC, no matter the duration, for ETOPS where voice communication facilities are available. Accordingly, read together, § 121.99(b) and (c) require two voice communication systems for up to 180-minute ETOPS where voice communication facilities are available. This determination is supported by the regulatory history, as indicated in the paragraphs that follow.

Paragraph 121.99(a) provides the baseline requirement for all domestic and flag certificate holders operating under part 121. The FAA noted in its proposed rulemaking that the equipage and communication performance requirements for ETOPS should be separate and distinct from the baseline communication requirement for non-ETOPS part 121 operations.[1]

In 2007, § 121.99(a) removed the requirement that a certificate holder have a two-way radio communication available and instead changed the requirement to "two-way communication system." The purpose of this amendment was to make the regulation "more flexible for modern means of communication."[2] This added flexibility applies to non-ETOPS. The removal of the "radio" requirement from § 121.99(a) does not impact ETOPS, as set forth in § 121.99(c). 14 CFR § 121.99(c) expressly states that voice communications must be used unless unavailable, at which point another method must be substituted.

That requirement dates back to 2003, when the FAA proposed that a certificate holder would have to provide for voice communication between the crew and air traffic services and the crew and the certificate holder wherever and whenever it is available.[3] In areas where voice communication is not possible, the certificate holder would have to provide a non-voice communication system, such as High Frequency (HF) data link, to ensure communication capability.

In Advisory Circular 120-42B, the FAA reiterated that the certificate holder must use voice communications services and facilities for communication with air traffic control and the dispatch office. Specifically, "[c]ertificate holders operating ETOPS routes must use the most reliable voice-based communications technology available for communications between the flightcrew and air traffic services, and the flightcrew and the certificate holder per § 121.99."[4]

Subsequently, the FAA issued the Duncan Interpretation[5] in 2011 which supports this stance. In Question 1 of this interpretation, the FAA responded that text messaging technology can be used instead of voice when non-ETOPS are conducted. In response to Question 3, the FAA specifically stated that only when voice communication is not possible or is of poor quality, a text messaging technology may be used in ETOPS. The Duncan interpretation is clear that the use of non-voice technology is a substitution when voice is unavailable, and not an alternative form of communication in place of voice communications in ETOPS from the outset. Non-voice

[1] *Id*. at 64760
[2] 67 Fed. Reg. 77326, 77334 (Dec. 17, 2002).
[3] 68 Fed. Reg. 64730, 64759-64760 (November 14, 2003)
[4] Advisory Circular 120-42B, 403(c)(7), page 42, June 13, 2008.
[5] Legal Interpretation from Rebecca MacPherson to John Duncan, December 6, 2011.

technology must be available for use when voice communication is an impossibility while in ETOPS. This applies to ETOPS generally, not only those over 180 minutes.

Both satellite and high frequency voice are acceptable forms of voice communications for ETOPS up to 180 minutes. When ETOPS are limited to under 180 minutes, the air carrier may elect to use high frequency voice to communicate with air traffic control and dispatch. Once ETOPS exceed 180 minutes, § 121.99(d) requires the second voice system to be capable of immediate satellite-based voice communications of landline-telephone fidelity, unless voice communications are not available or are of such poor quality that voice communications are not possible. The FAA noted in the Extended Operations (ETOPS) of Multi-Engine Airplanes final rule that if a satellite-based communications system is installed to meet the requirements of § 121.99(c), then there is not a requirement for a second ''additional'' satellite system to satisfy § 121.99(d).[6] The preamble explains that an air carrier is not required to install "two 'additional' satellite-based communication systems to meet the regulatory requirement."[7] Only one of the two systems onboard need to be capable of this form of communication when ETOPS extend beyond 180 minutes.

In response to your second question, the plain language of the regulations at issue does not require that the voice communications between each airplane and the appropriate dispatch office and the appropriate air traffic control (ATC) be simultaneous.

We appreciate your patience and trust that the above responds to your inquiry.

[6] *72 Fed. Reg. 1808, 1843 (Jan. 16, 2007).*
[7] *Id*.

Federal Aviation Administration

Memorandum

Date: May 16, 2022

To: Lorelei D. Peter, Assistant Chief Counsel for Regulations, AGC-200

From: David H. Boulter, Executive Director, Flight Standards Service, AFX-1

ROBERT C CARTY

Digitally signed by ROBERT C CARTY
Date: 2022.05.16 08:49:59 -04'00'

Prepared by: Thomas F. Malone, Manager, Air Transportation Division, AFS-200

Subject: Request for legal interpretation regarding long-range communication systems (LRCS) for up to 180-minute Extended-range Twin-engine Operational Performance Standards (ETOPS)

This memorandum is a request for a legal interpretation regarding LRCS for up to 180-minute ETOPS.

Airlines for America (A4A), through its Master Minimum Equipment List Industry Group (MMEL IG) took issue with the Federal Aviation Administration's reading of Policy Letter 106[1] (PL-106) and 14 Code of Federal Regulations, Section 121.99, Communications facilities—domestic and flag operations. As a result, A4A requested a legal interpretation on May 13, 2020, and at that time the Air Transportation Division (AFS-200) determined the questions could be addressed with a policy interpretation.

A4A and industry members of the MMEL IG believe two means of voice communications are not required for ETOPS up to 180-minutes under § 121.99. For several years, AFS-200's position was that ETOPS up to 180-minutes require two means of voice communications.

However, after considerable deliberations, AFS-200 now believes a legal interpretation is necessary to determine if § 121.99 and the Duncan Interpretation[2] are such that two means of voice communications are required for up to 180-minute ETOPS.

Therefore, the Flight Standards Service (FS) requests your analysis and inputs regarding the following questions:

[1] MMEL Policy Letters (PL) clarify FAA MMEL policy regarding specific kinds of equipment that may be deferred. While developing its MEL, an operator may need to refer to one or more aircraft or equipment-specific PLs with a Global Change (GC) designation, as these PLs may provide additional relief for items until the MMEL is revised.

[2] On December 6, 2011, AGC-200 issued an interpretation as to whether Part 121 air carriers can use data communications instead of voice communication.

1. Does § 121.99 (a), (b) and (c) require two voice communications systems for up to 180-minute ETOPS where voice communication facilities are available?
2. Does § 121.99, require simultaneous voice communications between each airplane and the appropriate dispatch office, and between the appropriate air traffic control (ATC) unit?

The information below identifies regulations, legal interpretations, and AGC inputs associated with § 121.99 and PL-106, as they relate to LRCS:

1. § 121.628 (b)(3), indicates instruments and equipment may not be included in an MEL if they are required under Part 121.
2. § 121.303, identifies specific regulatory requirements (SRRs) wherein certain instruments and equipment must be approved and installed.
3. § 121.351[3] provides regulatory requirements for long-range navigation and communication systems.
4. §§ 121.99 and 121.122 establish regulations governing the design, operation and maintenance of certain airplanes operated on flights that fly long distances from an adequate airport.
5. §§ 91.135, 91.703, and Annex 2 (Rules of the Air) to the Convention on International Civil Aviation, require a two-way radio and a continuous listening watch on ATC-assigned frequencies while in controlled (Class A) airspace.
6. The Duncan Interpretation of December 5, 2011, responds to a request from FS as to whether Part 121 certificate holders can use data communications, such as text messaging, *instead* of voice communications.
7. PL-106, Revision 5 Global Change, dated June 6, 2014, provides standardized MMEL requirements for High Frequency (HF) communication systems.
8. An email from AGC-200, dated September 14, 2020, summarized the regulatory issues and supported AFS-200's policy interpretation that two voice communication systems are required, but clearly noted AGC relied on FS's assessment to reach that conclusion.

If you have any questions regarding this request for legal interpretation, please contact Thomas F. Malone, Manager, Air Transportation Division, AFS-200, at (202) 267-8166.

Attachments
MMEL IG Request for Legal Interpretations #1, A4A MMEL Policy Letter 106 #2
Email from Katie Inman, #3, Legal Interpretation Duncan, #4, PL-106, #5

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[3] 14 CFR 1.1 defines extended operations (Extended-range Twin-engine Operational Performance Standards [ETOPS]) and extended over-water operations as follows:

a) ETOPS: means an airplane flight operation, other than an all-cargo operation in an airplane with more than two engines, during which a portion of the flight is conducted beyond a time threshold identified in Part 121 or Part 135 of this chapter that is determined using an approved one-engine-inoperative cruise speed under standard atmospheric conditions in still air.

b) Extended over-water: indicates extended over water operation means, with respect to aircraft other than helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline.