

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
Review of Part 87 of the Commission's) WT Docket No. 01-289
Rules Concerning the Aviation Radio Service)

EX PARTE COMMENTS OF THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

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SUMMARY

In its Notice of Proposed Rulemaking in this proceeding, the Commission solicited comment on its tentative conclusion to reinstate its June 2010 Order prohibiting certification, manufacture, importation, sale, or use of 121.5 MHz-only emergency locator transmitters (ELTs). The Commission also requested comment as to the appropriate effective dates for such prohibitions. Based on NTIA's review of the record, and the impact on federal search and rescue (SAR) agencies if continued use of 121.5 MHz-only ELTs is permitted, we believe that public policy supports the measured elimination of 121.5 MHz-only ELTs. Continued use of 121.5 MHz-only ELT technology increases the risk and cost of search and rescue operations.

As demonstrated below, 406 MHz ELTs are superior to 121.5 MHz-only equipment in their ability to increase the efficiency and accuracy of search and rescue operations, thereby minimizing threats to life and property, reducing costs of federal and state search and rescue operations, and improving the likelihood that such operations will be successful. There is also strong support in the record for prohibiting the certification, manufacture, importation, sale, and use of 121.5 MHz-only ELTs after reasonable transition periods.

The costs to aircraft owners to transition from 121.5 MHz-only to 406 MHz ELTs have declined in recent years and likely will continue to do so in the years to come. These costs are significant but must be balanced against other compelling factors in this proceeding, such as social costs. SAR service organizations estimate that replacing 121.5 MHz-only ELTs with 406 MHz devices will lead to significantly reduced risk to SAR service personnel (and SAR

equipment) and fewer passenger deaths. These public policy benefits outweigh potential costs to individual owners where costs also have the ability to be amortized over multiple years.

Based on the information and arguments set forth below, NTIA respectfully requests that the Commission prohibit: (1) certification of 121.5 MHz-only ELTs as of the effective date of a final order in this proceeding; (2) manufacturing and importation of such devices 12 months after the effective date of a final order in this proceeding; and (3) sale and use of 121.5 MHz-only ELTs 96 months after the effective date of a final order in this proceeding.

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**EX PARTE COMMENTS OF THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION**

The National Telecommunications and Information Administration (NTIA) respectfully submits these comments on the *Third Further Notice of Proposed Rulemaking (Notice)* in the above-captioned proceeding¹ in its capacity as the President's principal adviser on telecommunications and information policies. NTIA is authorized to coordinate the telecommunications activities of the executive branch and to assist in the formulation of policies and standards for those activities, including, but not limited to, considerations of interoperability, privacy, security, spectrum use, and emergency readiness. It also has the responsibility to ensure that the views of the executive branch on telecommunications matters are effectively presented to the Commission.² These comments include contributions and input from the United States

¹ Review of Part 87 of the Commission's Rules Concerning the Aviation Radio Service, *Third Further Notice of Proposed RuleMaking*, 28 FCC Rcd. 512 (Jan. 8, 2013) (*Notice*). For convenience, unless otherwise indicated, all citations herein to comments and letters shall refer to documents filed in WT Docket No. 01-289.

² 47 U.S.C. § 902 (b)(2)(D), (H), (J).

Search and Rescue Satellite Aided Tracking (SARSAT) program³ and the Federal Aviation Administration (FAA), and reflect the views of the Executive Branch on the issues raised in the *Notice*.⁴

I. INTRODUCTION AND STATEMENT OF POSITION

In June 2010, the Commission amended section 87.195 of its Rules to prohibit certification, manufacture, importation, sale or use of emergency locator transmitters (ELTs) that operate solely on frequency 121.5 MHz (121.5 MHz-only ELTs).⁵ Because Federal law requires most multipassenger “fixed wing powered civil aircraft” to have an installed ELT,⁶ the

³ SARSAT members are the Coast Guard, the Air Force, the National Oceanic and Atmospheric Administration, and the National Aeronautics and Space Administration.

⁴ The Federal Aviation Administration (FAA) is an operating administration of the U.S. Department of Transportation. These comments represent the position of the Executive Branch on this matter, taking into consideration the positions presented in the letter from Kathryn B. Thomson, U.S. Dep’t of Transportation, to Marlene H. Dortch, FCC, filed in this docket on August 5, 2013, <http://apps.fcc.gov/ecfs/document/view?id=7520936189>.

⁵ Review of Part 87 of the Commission’s Rules Concerning the Aviation Radio Service, *Third Report and Order*, 25 FCC Rcd. 7610, 7619-21, ¶¶ 16-18 (June 15, 2010) (*Third Report and Order*). ELTs are radiobeacons that are activated manually or automatically to alert search and rescue personnel that an aircraft has crashed and to identify the location of that aircraft. *Notice*, at ¶ 1; *Third Report and Order* at n. 66.

⁶ See 49 U.S.C. § 44712(a),(d) (2011) (providing that an “aircraft meets the requirements of subsection (a) if it is equipped with an [ELT] that transmits on the 121.5/243 megahertz frequency or the 406 megahertz frequency or with other equipment approved by the Secretary...”); see also Letter from Robert Hackman, Aircraft Owners & Pilots Ass’n (AOPA), to Marlene Dortch, FCC, at 2 (Apr. 1, 2013) (*AOPA Letter*) (stating that “[b]y statute, an ELT must be installed in virtually every U.S.-registered civil aircraft”), <http://apps.fcc.gov/ecfs/document/view?id=7022283007>. Section 44712, however, specifically exempts “aircraft equipped to carry only one individual.” 49 U.S.C. § 44712(c)(1)(H) (2011).

Commission's Order would have required aircraft owners, over time, to install alternative devices, such as ELTs operating at frequency 406 MHz (406 MHz ELTs).⁷

Following that Order, NTIA conveyed to the Commission a stay request from the FAA, which questioned whether the then-existing supply of 406 MHz ELTs was sufficient to replace all 121.5 MHz-only devices and expressed concern about the cost of equipping aircraft with 406 MHz equipment.⁸ In January 2011, the Commission stayed its June 2010 Order, and the rules adopted therein.

In the *Notice*, the Commission solicited comment on its tentative conclusion to reinstate the June 2010 Order, as well as on the appropriate effective dates for the proposed prohibitions

⁷ The term "406 MHz ELT" is somewhat misleading because a 406 MHz ELT typically includes an auxiliary beacon operating at frequency 121.5 MHz. The device's 406 MHz signal is monitored by satellite and is used to identify, with considerable precision, the approximate location of a crash site. Search and rescue personnel then "home" in on the 121.5 MHz signal to find the crash site. See Letter from Robert Hackman, Aircraft Owners & Pilots Ass'n, to Marlene Dortch, FCC, at 2-3 (June 24, 2010) (*AOPA June 2010 Request*), <http://apps.fcc.gov/ecfs/document/view?id=7020922423>. For convenience, NTIA will use the term "406 MHz ELTs" to refer to these multi-band devices.

⁸ See Review of Part 87 of the Commission's Rules Concerning the Aviation Radio Service, *Order*, 26 FCC Rcd. 685-86, at ¶ 4 (Jan. 11, 2011); see also Letter from Karl Nebbia, NTIA, to Julius Knapp, FCC, Attach. at 1 (July 14, 2010) (transmitting letter from James Eck, FAA) (*FAA July 2010 Request*), <http://apps.fcc.gov/ecfs/document/view?id=7020549761>. The FAA, echoed by AOPA, also noted that even after the international search and rescue satellite system, Cospas-Sarsat, ceased monitoring 121.5 MHz distress signals, 121.5 MHz ELTs continued to have some air safety benefits because their signals are still monitored by search and rescue organizations, including the Civil Air Patrol. *Id.*; see also *AOPA June 2010 Request* at 2. This monitoring is very limited, however. First, the Federal Aviation Regulations Aeronautical Information Manual, Section 6-2-5 Emergency Locator Transmitter (paragraph (d)), states only that pilots are "encouraged" to monitor 121.5 and or 243.0 MHz while in-flight to assist in identifying possible ELT transmissions. Second, there is no formal Civil Air Patrol monitoring nor is there any monitoring station. CAP pilots, if they have an extra radio, will monitor 121.5 MHz when they are in flight. If they are not flying, they will not be monitoring. See also Letter from Deborah A.P. Hersman, Chairman, National Transportation Safety Board, to FCC, at 4 (filed Feb. 27, 2013) (*NTSB Letter*) (stating that 121.5 MHz-only ELTs have no residual value to the general aviation community), <http://apps.fcc.gov/ecfs/document/view?id=7520960120>.

on certification, manufacture, importation, sale, or use of 121.5 MHz-only ELTs.⁹ Based on our review of the record and the impact on the SARSAT program if continued use of 121.5 MHz-only ELTs is permitted, we believe that public policy supports the measured elimination of 121.5 MHz-only ELTs. Continued use of 121.5 MHz-only ELT technology increases the risk and cost of search and rescue operations. As demonstrated below, 406 MHz ELTs are superior to 121.5 MHz-only equipment in their ability to increase the efficiency and accuracy of search and rescue operations, thereby minimizing threats to life and property, reducing costs of Federal and state search and rescue operations, and improving the likelihood that such operations will be successful. There is also strong support in the record for prohibiting the certification, manufacture, importation, sale, and use of 121.5 MHz-only ELTs after reasonable transition periods.¹⁰

The costs to aircraft owners to transition from 121.5 MHz-only to 406 MHz ELTs have declined in recent years and likely will continue to do so in the years to come. These costs are significant but must be balanced against other compelling factors in this proceeding, such as

⁹ Notice at ¶ 8.

¹⁰ See, e.g., *NTSB Letter* at 2-3; *RTCM Comments* at 3-5; Comment of Laurence Gilliam (pilot and AOPA member) (filed Apr. 12, 2013), <http://apps.fcc.gov/ecfs/document/view?id=7022274601>; Comments of Aircraft Electronics Ass'n, at 1 (filed Apr. 1, 2012) (*AEA Comments*) (supporting ban on manufacture and importation), <http://apps.fcc.gov/ecfs/document/view?id=7022137026>; Comments of the National Business Aviation Ass'n (filed Apr. 1, 2013) (grandfather use of installed 121.5 MHz ELTs until end of their useful life), <http://apps.fcc.gov/ecfs/document/view?id=7022136816>; Comments of ACR Electronics, Inc., at 2 (filed Mar. 29, 2013) (*ACR Comments*), <http://apps.fcc.gov/ecfs/document/view?id=7022135776>; Comments of Experimental Aircraft Association, at 1 (filed Mar. 29, 2013) (*EAA Comments*) (opposing ban on sale or use), <http://apps.fcc.gov/ecfs/document/view?id=7022136732>; Comments of Emerging Lifesaving Technologies, at 1 (filed Jan. 29, 2013) (*ELT Comments*), <http://apps.fcc.gov/ecfs/document/view?id=7022119477>; Comments of ACK Technologies, at 2 (filed Jan. 26, 2013) (*ACK Comments*), <http://apps.fcc.gov/ecfs/document/view?id=7022112939>.

social costs. Search and Rescue (SAR) service organizations estimate that replacing 121.5 MHz-only ELTs with 406 MHz devices will lead to significantly reduced risk to SAR service personnel (and SAR equipment) and fewer passenger deaths. These public policy benefits outweigh potential costs to individual owners where costs also have the ability to be amortized over multiple years.

Based on the information and arguments set forth below, NTIA respectfully requests that the Commission prohibit: (1) certification of 121.5 MHz-only ELTs as of the effective date of a final order in this proceeding; (2) manufacturing and importation of such devices 12 months after the effective date of a final order in this proceeding; and (3) sale and use of 121.5 MHz-only ELTs 96 months after the effective date of a final order in this proceeding.

II. 406 MHz ELTs' ADVANCED TECHNOLOGY ELIMINATES RISK ATTRIBUTABLE TO 121.5 MHz-ONLY ELT TECHNOLOGY.

A key reason to phase out use of 121.5 MHz-only ELTs is that the available alternatives have features and capabilities that better safeguard the public safety personnel who are called upon to locate and rescue downed or missing aircraft, as well as the pilots and passengers of those aircraft. The superiority of 406 MHz ELTs over 121.5 MHz-only equipment is well established:

- **Improved notification:** 406 MHz ELTs are monitored by Cospas-Sarsat geostationary and low earth orbiting satellites with global coverage, which enables prompt alerts to SAR services.¹¹ Since February 2009, Cospas-Sarsat has not

¹¹ See Federal Aviation Administration, *Technical Standard Order (TSO)-C91a, Emergency Locator Transmitters (ELTs)*, 77 Fed. Reg. 28668 (May 15, 2012), (*TSO-C91a Order*), available at <http://www.gpo.gov/fdsys/pkg/FR-2012-05-15/pdf/2012-11678.pdf>; see also *ELT Comments* at 10-11. Between 1997 and 2000, for example, 121.5 MHz beacons were responsible for 350,000 false alerts. See Amendments of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications,

monitored 121.5 MHz-only ELTs. Because of this action, for those aircraft that are equipped only with 121.5 MHz-only ELTs, no one may know that an aircraft is down unless the incident occurs near an airport, the plane's 121.5 MHz signal is detected by an overflying aircraft, or the downed plane fails to arrive at its intended destination. In any of these circumstances, SAR organizations may not be notified for hours after the crash.

- **Reduction in false alerts:** 406 MHz ELTs transmit a digital signal which typically contains unique information about the aircraft and its owner.¹² SAR organizations can use that information to verify quickly that a possible incident has occurred. In contrast, 121.5 MHz-only ELTs transmit an analog signal that cannot contain any information about the aircraft involved. As a result, 121.5 MHz-only ELTs have been plagued by false distress alerts,¹³ leading to risky, costly, and unnecessary search efforts. That was a major reason why Cospas-Sarsat chose to cease monitoring 121.5 MHz signals.¹⁴
- **More precise location of crash sites:** Satellite detection and the enhanced transmission characteristics of 406 MHz ELTs enable greater position accuracy, which reduces the search area for a crash to less than two nautical miles (3.7 km) in radius, or approximately 43 square kilometers.¹⁵ Additionally, a 406 MHz device, unlike a 121.5 MHz-only ELT, can be equipped with a GPS chip that can refine the search area to within 100 meters of a crash. In the absence of satellite monitoring, SARSAT calculates that the majority of all detections of 121.5 MHz distress signals comes via commercial airliners, which typically fly at altitudes in excess of 20,000 feet. The U.S. SARSAT program estimates that, if a commercial airliner flying at 30,000 feet detects a 121.5 MHz signal, the probable search area would have a radius of 198 miles (about 317 km), and an area of 123,163 square miles (315,696 km²).

Notice of Proposed Rulemaking and Memorandum Opinion and Order, 15 FCC Rcd. 5942, ¶ 30 (Mar. 24, 2000) (citing Coast Guard data).

¹² See National Oceanic and Atmospheric Administration, *406 MHz Delta Study: Advantages of 406 MHz Emergency Locator Transmitters (ELTs) over 121.5/243 MHz ELTs*, at 4 (July 1996), (*NOAA Delta Study*) (copy attached hereto as Appendix 1).

¹³ See *TSO-C91a Order* at 28668; *ELT Comments* at 11-12.

¹⁴ See *Third Report and Order* at ¶ 16; *TSO-C91a Order* at 28668.

¹⁵ *TSO-C91a Order* at 28668; see also *NOAA Delta Study* at 5 (controlled tests indicated that 85 percent of 406 MHz ELT location results were less than 2 km in radius, or about 12.6 km); *ELT Comments* at 11 (search radius of 2-5 km, or 12.6-78.5 km).

In light of the clear superiority of 406 MHz ELTs, industry and regulators have been moving away from 121.5 MHz-only ELTs for over fifteen years.¹⁶ All general aviation aircraft produced since 2006 have been equipped with 406 MHz ELTs.¹⁷ In May 2012, the FAA precluded certification of any new or substantially modified 121.5 MHz-only ELTs, “which will effectively phase out the 121.5 MHz ELTs over time.”¹⁸ In October 2010, the FAA proposed to require all helicopters conducting extended over-water operations to be equipped with 406 MHz ELTs because they “provide[] an enhancement and more life-saving benefits” than 121.5 MHz-only ELTs.¹⁹ Available evidence indicates that there is only one domestic manufacturer of such equipment,²⁰ reflecting the declining viability of 121.5 MHz-only ELTs. In light of the risks and

¹⁶ As the *Notice* points out, Cospas-Sarsat satellite system announced plans to cease monitoring 121.5 MHz distress signals in 2000. *Notice* at ¶ 4. In 2002, the Commission prohibited maritime vessels from using 121.5 MHz emergency beacons after December 31, 2006. Amendment of Parts 13 and 80 of the Commission’s Rules Concerning Maritime Communications, *Report and Order and Further Notice of Proposed Rule Making*, 17 FCC Rcd. 6741, 6761-62, ¶ 47 (Apr. 9, 2002). In 2007, the National Transportation Safety Board (NTSB), an independent Federal Agency with the statutory responsibility to promote transportation safety by formulating safety improvement recommendations, urged the FAA to require 406 MHz ELTs for all applicable aircraft at the earliest possible opportunity. Letter from Mark V. Rosenker, NTSB, to Honorable Marion C. Blakely, Administrator, FAA (Sept. 4, 2007), available at http://www.nts.gov/doclib/reletters/2007/A07_51.pdf.

¹⁷ Comments of Office of Advocacy, U.S. Small Business Administration, at 5 (filed Apr. 24, 2013) (*Advocacy Comments*), <http://apps.fcc.gov/ecfs/document/view?id=7022294100>; Comments of General Aviation Manufacturers Ass’n, at 2 (filed Apr. 1, 2013), <http://apps.fcc.gov/ecfs/document/view?id=7022136804>; *TSO-91a Order* at 28668.

¹⁸ *TSO-91a Order*, *supra*; *Advocacy Comments* at 5.

¹⁹ Federal Aviation Administration, *Air Ambulance and Commercial Helicopter Operations, Part 91 Helicopter Operations, and Part 135 Aircraft Operations; Safety Initiatives and Miscellaneous Amendments*, 75 Fed. Reg. 62640-58 (Oct. 12, 2010), available at <http://www.gpo.gov/fdsys/pkg/FR-2010-10-12/pdf/2010-24862.pdf>.

²⁰ *Advocacy Comments* at 5; *ELT Comments* at 15 (no manufacturer currently trying to certify any 121.5 MHz ELT; only one model currently for sale in the U.S.); *ACR Comments* at 4 (company has not manufactured, imported, or sold a 121.5 MHz ELT since 2008).

costs imposed on federal and state rescue personnel, the Commission should ratify its June 2010 Order and prohibit the certification, manufacturing, importation, sale, and use of 121.5 MHz-only ELTs.

III. THE BENEFITS OF PHASING OUT 121.5 MHz-ONLY ELTs OUTWEIGH THE COSTS.

Much of the debate concerning the Commission's June 2010 Order has focused on its costs for aircraft owners. The Commission must also consider the risks and costs inherent in the continued use of an inferior technology that burdens the first responder community more than is necessary. One could argue that aviators should be allowed to retain their 121.5 MHz-only ELTs, because they bear the risks of doing so. That argument is true only if they are flying solo, only so long as their planes remain in the air, and only so long as false alarms are not signaled. When disaster strikes, the effects and costs ripple far beyond the pilot. Every year, state and federal SAR agencies conduct several thousand operations involving personnel in the air and on the ground.²¹ The hardships and dangers for those rescuers posed by weather and terrain are magnified if a search is prolonged or if the rescuers are not sure where the crash site is. As noted above, the principal benefits of 406 MHz ELTs over 121.5 MHz-only ELTs are (1) significantly more rapid notification and verification that a crash has occurred, and (2) a dramatic reduction in the size of the search area. To the extent that 406 MHz ELTs can reduce the risks of injury and death for SAR personnel and aircraft passengers, greater use of those devices will produce real benefits that must be weighed against the costs to aircraft owners and operators.

²¹ See NTSB Letter at 4 (in 2004, the Air Force and Civil Air Patrol alone conducted more than 2,500 missions involving 121.5 MHz ELTs).

A. The Potential Benefits Are Significant.

In 1996, the National Oceanic and Atmospheric Administration (NOAA) conducted an extensive analysis of the search and rescue benefits resulting from the replacement of 121.5 MHz-only ELTs with 406 MHz equipment. It concluded that 406 MHz ELTs would reduce SAR organization operating costs by \$802,000 per year.²² NOAA also estimated that use of 406 MHz ELTs would save 111 lives per year. Assuming a value of \$2.5 million per life saved, the agency calculated a benefit of approximately \$278 million.²³

The benefits estimated by NOAA may be understated, because estimates of the value of human life have risen significantly since 1996. The Department of Transportation, for example, recently updated its valuation to \$9.1 million, with provisions for future inflation adjustments.²⁴ Applying this figure to the 111 additional lives saved calculated in the NOAA's 1996 Study generates a benefit of approximately one billion dollars, in addition to the estimated annual savings in operating costs.

NTIA recognizes that the NOAA study is nearly two-decades old, and that developments in the intervening years may call into question the lives saved as estimated in that study. For example, flying is safer today. In 1996, according to the National Transportation Safety Board, there were 1,907 general aviation accidents, with 614 fatalities among onboard passengers. In

²² NOAA *Delta Study* at 19, Table 4. The annual savings would be approximately \$1,180,000 in current dollars.

²³ *Id.* at 23 and n.28.

²⁴ See, e.g., Dep't of Transportation, *2013 Guidance on Treatment of the Value of Preventing Fatalities and Injuries in Preparing Economic Analysis*, available at <http://www.dot.gov/regulations/economic-values-used-in-analysis>.

2012, there were 1,471 accidents, with 432 passenger deaths (reductions of 22.9 and 29.6 percent, respectively).²⁵ The reduction in accidents and fatalities since 1996 suggests that the earlier estimate of lives saved by the use of 406 MHz ELTs may be substantially overstated. Notably, however, in a 2008 unpublished study, an FAA analyst estimated that “mandatory equipage of 406 MHz ELTs” could potentially save 31 lives each year. Applying a value of \$5.8 million for each life, the analyst calculated an annual benefit of \$179.8 million.²⁶ Using the Department of Transportation’s recent figure of \$9.1 million would increase that annual benefit to \$282.1 million.

The U.S. SARSAT program also recently prepared an estimate of the costs and duration of a Civil Air Patrol (CAP)-conducted search over open, level terrain for two hypothetical aircraft – one equipped with a 121.5 MHz-only ELT and the other with a 406 MHz device.²⁷ The U.S. SARSAT program estimated that a 121.5 MHz signal, detected by a commercial aircraft at an altitude of 30,000 feet, would yield a search area with a radius of 198 miles (encompassing approximately 123,163 square miles), roughly the size of New Mexico. SARSAT estimates that it would take four CAP Cessna aircraft at least 10.5 hours combined to search that area. At a CAP’s standard estimate of \$277 per flight hour, the total cost of the search would be \$2,908.

²⁵ NTSB, “2012 Aviation Statistics,” Table 1, http://www.nts.gov/data/aviation_stats.html; National Transportation Safety Board, *1997 Annual Report to Congress*, at 51, Table 10, http://www.nts.gov/doclib/agency_reports/SPC9902.pdf.

²⁶ Michael Lenz, *Analysis: Satellite Monitoring of 121.5 MHz Emergency Locator Transmitters*, at 2 (FAA Oct. 2, 2008).

²⁷ A copy of that estimate is attached to these comments as Appendix 2.

For a hypothetical 406 MHz search, SARSAT calculated that satellite detection of the distress signal would produce a search area less than two miles in radius, or approximately 11 square miles, roughly the size of Los Alamos, New Mexico. A single Cessna aircraft could complete the search in about 1.5 hours at a cost of \$415. In this scenario, use of a 406 MHz ELT would reduce the duration of a search, and thus search and rescue risks and costs, by more than 85 percent.²⁸ In 2004, the Air Force and Civil Air Patrol devoted 5,458 flights hours to 121.5 MHz-related aircraft searches, at a cost of approximately \$1.3 million.²⁹ If use of 406 MHz devices would reduce flights times by 85 percent, the cost savings would exceed \$1.1 million and reduce the aggregate time during which search and rescue aircraft must be in the air by more than 4,600 hours.

If the same search posited above occurred over water, in the 121.5 MHz case, the Coast Guard would have to dispatch one fixed-wing aircraft to find the crash site and then one helicopter to conduct the rescue operation. The U.S. SARSAT program estimates that the entire operation would take at least 8.5 hours – 5.5 hours for the search and 3 hours for the rescue – and cost between \$56,795 and \$69,363. In the 406 MHz case, the greater locational precision would obviate the need to dispatch a search plane; the operation would therefore require only a rescue helicopter, take 3 hours, and cost between \$15,732 and \$20,985, a reduction of approximately 70 percent.

²⁸ Looking beyond the reduced risk and cost to the search personnel (and relying on the survivability data used in the 1996 NOAA Study), decreasing search time from 10.5 hours to 1.5 hours would also increase living crash victims' probability of survival from approximately 40 percent to more than 80 percent. *See NOAA Delta Study* at B-12.

²⁹ NTSB Letter at 4.

B. The Estimated Replacement Costs Are Likely Overstated.

In the *Notice*, the Commission cites estimates that mandatory replacement of 121.5 MHz-only ELTs with 406 MHz devices would affect about 200,000 aircraft, with the aggregate cost ranging from \$300 million to \$500 million, or between \$1,500 and \$2,500 per aircraft.³⁰ Although phasing out 121.5 MHz-only ELTs would unquestionably impose significant costs on the general aviation industry as a whole, the costs are very unlikely to approach those levels. First, it appears that the change would affect fewer than 200,000 aircraft. One commenter suggests that the number may be only 180,000 aircraft,³¹ and there is some evidence for an even lower figure. According to its most recent statistical publication, the General Aviation Manufacturers Association projected that there would be 222,985 general aviation aircraft in the United States in 2013.³² About 11,000 of that number are “rotorcrafts,” non-fixed wing aircraft that are not required by law to have an installed ELT. The U.S. SARSAT program believes, based on registration data, that 75,000 aircraft are already equipped with 406 MHz ELTs. These figures suggest that the number of planes affected by the phasing out of 121.5 MHz-only ELTs may be lower than 150,000.

Similarly, the costs to equip an aircraft with a 406 MHz ELT is likely less than the \$1,500-\$2,500 (equipment plus installation) cited in the *Notice*. One ELT manufacturer estimates that it would cost between \$620 and \$830 (including installation) to replace a 121.5

³⁰ *Notice* at ¶ 12 (citing estimates from AOPA and FAA).

³¹ *Advocacy Comments* at 5.

³² *GAMA 2012 Statistical Databook*, at 56.

MHz-only ELT with a 406 MHz device (without GPS) in a single engine aircraft.³³ Another manufacturer estimates that it will cost \$1,330 per aircraft to retrofit the entire fleet with 406 MHz ELTs.³⁴ Multiplying these figures (\$725 to \$1,330 per plane) by the revised figures for the number of planes affected (150,000 to 180,000) yields total costs in the range of \$108 million to \$239 million.³⁵ Although not trivial, these are one-time costs that, when spread over an eight-year transition period, amount to between \$22 million and \$48 million per year. As such, the costs of phasing out 121.5 MHz-only ELTs for the aircraft industry are outweighed by the reduction in risk and costs for the SAR community and the increase in pilot and passenger safety.

IV. THE COMMISSION SHOULD ESTABLISH A REASONABLE TRANSITION PERIOD FOR PHASING OUT 121.5 MHz-ONLY ELTs.

Because the benefits of replacing 121.5 MHz-only ELTs outweigh the costs, the Commission should establish a transition period for phasing out those devices. As for certification, the Commission should follow the FAA's lead and ban certification of new 121.5 MHz-only ELTs on the effective date of the order in this proceeding. With respect to

³³ *ACK Comments* at 2. *See also* Reply Comments of ACK Technologies Inc. at 2 (filed Apr. 25, 2013) (cost to retrofit 200,000 aircraft with 406 MHz ELTs would be \$175-225 million, implying a cost per plane of \$875-1125), <http://apps.fcc.gov/ecfs/document/view?id=7022307421>.

³⁴ *ELT Comments* at 18.

³⁵ These equipment and installation costs would have to be adjusted upward to some degree to account for such factors as maintenance costs and loss of use while a plane is being retrofitted. *See* Comments of Alaska Airmen's Ass'n, Inc. at 1 (filed Mar. 1, 2013).

manufacture and importation,³⁶ the *Notice* reasonably suggests a one-year delay to minimize economic burdens associated with stranded inventory.³⁷ A case could be made for a more aggressive deadline, such as six months.³⁸ As noted above, there appears to be only a single firm producing 121.5 MHz-only ELTs, and only one model being sold. Accordingly, the adverse impact of a more accelerated manufacturing ban would likely be minimal. Further, companies have known for nearly three years that a manufacturing prohibition was on the horizon, so they have had ample opportunity to mitigate any adverse impacts.³⁹

As for a use prohibition, NTIA believes that an eight-year transition would minimize the impact on aircraft owners.⁴⁰ Manufacturers commenting in this proceeding assert that there is enough manufacturing capability and qualified mechanics to equip all aircraft with 406 MHz ELTs within 2-4 years.⁴¹ Extending the transition to eight years would provide additional assurance that the supply will be there if aircraft owners opt for 406 MHz equipment to satisfy their legal obligation to have an installed ELT. In some instances, especially with regard to

³⁶ The prohibitions on manufacturing and importation should have the same effective date; so long as the manufacture of 121.5 MHz-only ELTs is permitted, foreign manufacturers should be allowed to export those devices to the United States, consistent with other applicable laws.

³⁷ *Notice* at ¶ 10.

³⁸ See *ACR Comments* at 4 (immediate manufacturing ban would prevent firms from flooding the market with 121.5 MHz-only ELTs during a transition period).

³⁹ Assuming the Commission prohibits the use of 121.5 MHz-only ELTs, there is no need also to ban the manufacture, sale, or installation of replacement components (such as batteries) for existing devices. See *Notice* at n.30.

⁴⁰ Cf. *NTSB Letter* at 3 (proposing 3-year transition for a use prohibition).

⁴¹ *ACR Comments* at 5 (“sufficient manufacturing capability and depth in supply chain to meet the demand” over 2-3 years); *ELT Comments* at 3 (“four years to handle the 300,000 aircraft worldwide that have not been modified to date”).

vintage aircraft, it may not be feasible to retrofit the aircraft with 406 MHz ELT. We recommend that Commission take into account this issue in determining the applicability of any use prohibition.⁴²

V. PHASING OUT 121.5 MHz-ONLY ELTs WILL NOT DETER DEPLOYMENT OF ALTERNATIVE AVIATION SAFETY TECHNOLOGIES.

The Aircraft Owners and Pilots Association (AOPA) asserts that a Commission order phasing out 121.5 MHz-only ELTs would, in effect, mandate use of 406 MHz devices. It claims that would deter manufacturers from investing in new and more efficient technologies and preclude aircraft owners from using newer devices should they appear.⁴³ AOPA contends that personal locator beacons (PLBs - portable devices that transmit a radio signal), GPS-equipped mobile phones, and the Automatic Dependent Surveillance – Broadcast (ADS-B) are adequate substitutes for 406 MHz ELTs.⁴⁴ AOPA's claims overstate the capabilities of those technologies and misunderstand the effects of a Commission decision to phase out 121.5 MHz-only ELTs.

The technologies that AOPA cites have features that limit their effectiveness in a distress situation. Wireless service is not available in some parts of the country and mobile phones are not designed to survive aircraft crashes. PLBs do not activate automatically; a pilot may not have time or the presence of mind to active a PLB when a plane is going down, and may not be

⁴² *Notice* at ¶ 1. See Comments of Paige Hoffart (filed Mar. 31, 2013), <http://apps.fcc.gov/ecfs/document/view?id=7022136432>; see also Comment of Richard Scott (filed Mar. 29, 2013), <http://apps.fcc.gov/ecfs/document/view?id=7022136145>.

⁴³ *AOPA Comments* at 4.

⁴⁴ *Id.* at 4-5.

capable of doing so after the crash. Further, if a PLB lacks an external antenna, its signal may be too weak to alert rescuers effectively.

ADS-B, which the FAA has required most U.S. aircraft to have by 2020, may have some promise.⁴⁵ Among other things, ADS-B will provide the last known position of an equipped aircraft within one second of flight time.⁴⁶ Depending on the aircraft altitude and airspeed before a crash, ADS-B information may establish a search area similar to that fixed by a 406 MHz ELT. As the NTSB points out, however, ADS-B, is a “line-of-sight” technology; “an ADS-B-equipped aircraft must be in sight of a ground-based receiver in order to be ‘seen.’” Therefore, it is undisputed that there will be numerous coverage gaps in a terrestrial ADS-B system, especially in remote and mountainous areas.”⁴⁷ And in any event, the FAA has stated that the ADS-B system may not be operable after a crash and is not compatible with SAR distress alerting technology and, therefore “currently cannot replace the ELT function.”⁴⁸

Should a superior distress alert technology emerge, a Commission order in this proceeding will not prevent aircraft owners from using it. Although the *Notice* occasionally speaks of transitioning to 406 MHz ELTs, this proceeding concerns only the treatment of 121.5 MHz-only devices. Section 44712(d) ensures that if an aircraft is equipped with a 406 MHz

⁴⁵ See Federal Aviation Administration, *Automatic Dependent Surveillance – Broadcast (ADS-B) Out Performance Requirements To Support Air Traffic Control (ATC) Service*, 75 Fed. Reg. 30160 (May 28, 2010), available at <http://www.gpo.gov/fdsys/pkg/FR-2010-05-28/pdf/2010-12645.pdf>.

⁴⁶ *EAA Comments* at 10.

⁴⁷ NTSB Letter, at 4-5.

⁴⁸ *TSO-C91a Order* at 28669. See also *NTSB Letter* at 5 (“there will be numerous coverage gaps in a terrestrial ADS-B system, especially in remote and mountainous areas”).

device, the aircraft has satisfied its 44712(a) obligation to have an ELT. But section 44712(d) also states an aircraft complies with 44712(a) if it is equipped with “other equipment” approved by the Secretary of Transportation, preserving the Secretary’s authority to certify appropriate ELT technology.

VI. CONCLUSION

For the foregoing reasons, NTIA respectfully requests that the Commission reinstate its June 15, 2010, Order in this docket and prohibit the certification, manufacture, importation, sale or use of ELTs operating solely on frequency 121.5 MHz in accordance with the schedule proposed herein.

Respectfully submitted,



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