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Advancing Liberty from the Economy to Ecology

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Docket Operations, M-30
U.S. Department of Transportation (DOT)
Attention: Docket No. FAA-2026-6935
1200 New Jersey Avenue SE, Room W12-140
West Building Ground Floor
Washington, DC 20590-0001

Enabling Supersonic Overland Flight

Comments of the Competitive Enterprise Institute

Dear Administrator Bedford and Staff,

The Competitive Enterprise Institute (CEI) respectfully submits these comments in response to the Federal Aviation Administration's (FAA) Notice of Proposed Rulemaking, "Enabling Supersonic Overland Flight," Docket No. FAA-2026-6935.[1]

Founded in 1984, CEI is a nonpartisan public policy organization whose mission is to reform America's unaccountable regulatory state by advancing policies that eliminate unnecessary government burdens and promote a freer, healthier, and more prosperous nation.[2] Consistent with that mission, CEI supports policies that allow American entrepreneurs, manufacturers, and innovators to develop and deploy new technologies without unnecessary government barriers.

CEI supports the FAA's effort to remove this unnecessary barrier. However, the final rule should go further in establishing a flexible, technologically neutral framework that allows innovators to demonstrate compliance through appropriate performance standards instead of rigid, prescriptive metrics or recurring flight-by-flight authorization.

A modern regulatory regime should give aircraft manufacturers and operators a clear and durable path to market while ensuring that FAA oversight remains focused on measurable effects and public safety. For these reasons, CEI urges the FAA to adopt a genuinely performance-based approach that will enable the United States to realize the economic and technological benefits of next-generation supersonic aviation.

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[1] Federal Aviation Administration, "Enabling Supersonic Overland Flight," *Federal Register,* Vol. 91, no. 126 (July 2, 2026): p. 40470, https://www.govinfo.gov/content/pkg/FR-2026-07-02/pdf/2026-13440.pdf.
[2] Competitive Enterprise Institute, "About CEI," Accessed August 13, 2026. https://cei.org/about/.

Replacing an obsolete categorical ban with a technologically current standard

Since 1973, FAA regulations have prohibited routine civil supersonic flight over land by barring operation at a true flight Mach number greater than 1 except under the conditions and limitations of a Special Flight Authorization issued by the Administrator. The rule was developed in response to concerns about sonic boom effects associated with the aircraft technologies available at the time. [3]

By establishing a categorical restriction based on aircraft speed, however, the regulation did not distinguish between aircraft based on the magnitude of their sonic boom impacts or other performance characteristics.[4]

Over time, however, the speed-based approach has become less closely aligned with the specific concern motivating the regulation. The FAA has recognized that advances in technology and flight techniques have created new opportunities to address sonic boom impacts directly rather than relying on a categorical prohibition of supersonic flight.[5]

Modern aviation research has demonstrated that the relationship between supersonic speed and ground-level sonic boom impacts is more complex than assumed when the FAA adopted its original restriction.

Advances in aerodynamic design, computational modeling, and aircraft engineering have improved the ability to predict, shape, and reduce sonic boom impacts. Low-boom aircraft research has shown that sonic boom characteristics are influenced by design choices,[6] meaning that supersonic speed alone does not determine the magnitude of impacts experienced on the ground.

To move past a rigid speed restriction, regulators and engineers utilize pounds per square foot (psf) as a metric, which measures the instantaneous static pressure change, or overpressure, exerted against a surface when a shockwave passes. Relying on a physical overpressure metric is fundamentally superior to a blanket speed ban because it directly tracks environmental and community impact instead of arbitrary velocity.[7]

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[3] Federal Aviation Administration, "Civil Aircraft Sonic Boom," *Federal Register,* Vol. 38, no. 59 (March 28, 1973): p. 8051, https://archives.federalregister.gov/issue_slice/1973/3/28/8051-8057.pdf.

[4] "Civil Aircraft Sonic Boom," 14 C.F.R. § 91.817, https://www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-91/subpart-I/section-91.817.

[5] Federal Aviation Administration, "Enabling Supersonic Overland Flight," *Federal Register,* p. 40470.

[6] Frank Jennings Jr. and Karen Rugg, "NASA Centers Team Up to Tackle Sonic Boom," National Aeronautics and Space Administration (NASA), March 17, 2014, https://www.nasa.gov/centers-and-facilities/ames/nasa-centers-team-up-to-tackle-sonic-boom.

[7] Federal Aviation Administration, "Enabling Supersonic Overland Flight," pp. 40474-40475.

While a traditional supersonic aircraft like the Concorde produced an unshaped sonic boom of the type NASA researchers describe as an N-wave, measured at 1.94 psf at Mach 2 and 52,000 feet,[8] modern engineering can tailor an aircraft's volume, lift distribution, and geometry to limit ground overpressure significantly. A standard written in terms of the acoustic effect at the surface therefore permits flight above Mach 1 whenever the aircraft's ground signature stays within the limit, which is the premise of NASA's own program to replace the current prohibition with a noise-based *en route* standard.[9]

In parallel, operational advances also provide additional tools for managing sonic boom impacts. For example, Mach cutoff procedures can, under appropriate atmospheric conditions, prevent sonic booms from reaching the ground altogether.[10] Operators can also reduce the likelihood of more intense "focus booms" by employing milder maneuvers and controlled acceleration and deceleration, avoiding operational conditions that concentrate shock waves and produce stronger ground-level noise.[11]

These technological developments weaken the connection between aircraft speed alone and the ground-level impacts the regulation seeks to address. The FAA's proposed approach appropriately reflects this shift by evaluating aircraft performance on the grounds of whether its operations produce unacceptable ground-level sonic boom impacts.

By focusing on measurable outcomes, performance standards avoid relying on assumptions that all supersonic operations create equivalent effects. They also provide regulated parties with the flexibility to achieve compliance through a combination of aircraft design, operational procedures, and future technologies.

Regulatory frameworks are most effective when they remain connected to the specific concerns they are designed to address. Federal regulatory principles recognize that agencies should identify the problems they seek to address and evaluate whether regulatory approaches are appropriately tailored to those problems.[12]

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[8] National Aeronautics and Space Administration, "Sonic Booms," NASA Facts, p. 2, November 2003, https://www.nasa.gov/wp-content/uploads/2021/09/120274main_fs-016-dfrc.pdf. The fact sheet gives the Concorde figure as "Concorde SST: 1.94 pounds, speed of Mach 2, 52,000 feet." For the N-wave terminology, see Kevin A. Bradley et al., *Sonic Booms in Atmospheric Turbulence (SonicBAT): The Influence of Turbulence on Shaped Sonic Booms*, NASA/CR-2020-220509, at xix, 30 (2020) (contrasting "traditional N-wave booms" with "shaped sonic boom signatures (non N-wave)").

[9] Jay Brandon, "Low Boom Flight Demonstrator Project" (keynote presentation, EuroGNC 2024 Conference, National Aeronautics and Space Administration, June 10–12, 2024), https://ntrs.nasa.gov/api/citations/20240006461/downloads/EuroGNC%202024%20Keynote%20X-59.pdf. Slides 5 and 34 (calling for "en route certification standards based on acceptable sound levels" and describing the X-59 as helping "develop noise-based speed limits"); slides 10 and 11 (contrasting the merged "N wave" signature that produces "a LOUD sonic boom at the ground" with a shaped pressure signal). The presentation states NASA's target for the X-59 in perceived level rather than overpressure, and CEI cites it for the premise that a noise-based standard should replace the prohibition, not for the choice between metrics.

[10] Federal Aviation Administration, "Enabling Supersonic Overland Flight," p. 40473.

[11] Federal Aviation Administration, "Enabling Supersonic Overland Flight," p. 40478.

[12] Exec. Order No. 12,866, "Regulatory Planning and Review," 58 Fed. Reg. 51,735 (Oct. 4, 1993), Section 1, https://www.archives.gov/files/federal-register/executive-orders/pdf/12866.pdf; Office of Management and Budget, *Circular No. A-4: Regulatory Analysis* (Sept. 17, 2003), pp. 6-7, https://www.whitehouse.gov/wp-content/uploads/2025/08/CircularA-4.pdf.

The FAA's proposal reflects this approach by evaluating supersonic operations according to their measurable sonic boom impacts. A performance-based framework creates a more durable regulatory structure because compliance can be achieved through evolving aircraft designs and operational practices. The result is a regulatory structure capable of adapting as aviation technology continues to evolve.

Unlocking the domestic market through performance-based regulation

The NPRM is significant not simply because it permits overland supersonic flight under certain conditions, but because it changes the incentives facing innovators. Regulatory systems that prohibit entire categories of activity suppress experimentation regardless of technological capability.[13] Performance-based regulation instead rewards firms that discover better solutions.

Equally important, manufacturers gain greater regulatory certainty. Instead of wondering whether future advances will remain categorically prohibited, firms now have a clear performance objective around which to plan long-term research, investment, certification, and product development. In doing so, the FAA transforms compliance from a legal constraint into a competitive challenge.

Furthermore, the United States possesses a unique comparative advantage for civil overland supersonic transportation. Its continental geography, high-density premium travel market, and unified federal aviation system create conditions under which meaningful travel-time savings can be realized at commercial scale.

Unlike Europe, where air traffic management remains divided among multiple national authorities and air navigation service providers,[14] the United States benefits from a unified federal airspace system administered by a single regulator. This structure provides consistent operating rules, reduces coordination costs, and creates a more predictable environment for scaling emerging aviation technologies nationwide.

Technology neutrality further strengthens these incentives. The proposed standard neither assumes that current low-boom designs represent the technological frontier nor privileges any particular engineering approach. Manufacturers remain free to pursue competing advances in aircraft geometry, propulsion systems, flight controls, and operational procedures, allowing private investment to determine which innovations deliver the greatest reduction in sonic boom impacts at the lowest cost.

The challenges of a fixed overpressure limit

The proposed 0.11 psf surface overpressure limit represents an important advancement because it measures the physical effect the regulation seeks to address. However, it presents a separate challenge since the regulatory value of any numerical limit depends on whether it accurately reflects achievable performance in real-world conditions.

Sonic boom propagation depends not only on aircraft characteristics but also on atmospheric conditions along the propagation path. Variations in temperature structure, wind, and turbulence can alter how shock waves propagate through the atmosphere and affect the intensity and shape of the sonic boom signature observed at the surface.[15]

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[13] Brian A. Rankin, *No Permission Needed: Unlicensed Spectrum, Wi-Fi, and America's Competitive Advantage*, (Competitive Enterprise Institute, November 19, 2024), pp. 2–3, https://cei.org/studies/no-permission-needed.
[14] European Parliamentary Research Service, *Single European Sky 2+ Package*, Briefing PE 659.421 (Brussels: European Parliament, November 22, 2024), https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2020)659421.
[15] Kevin A. Bradley et al., *Sonic Booms in Atmospheric Turbulence (SonicBAT): The Influence of Turbulence on Shaped Sonic Booms*,

These variables introduce uncertainty that cannot be addressed through aircraft design alone and must instead be accounted for through modeling, operational procedures, and empirical validation.[16] As a result, firms may need to incorporate conservative assumptions into certification models and operational planning to account for conditions outside their control.

The consequence is a potential compliance paradox. Manufacturers may know the performance standard they must achieve, but operators may lack sufficient confidence that compliance can be demonstrated consistently across the full range of operating environments they may encounter. If uncertainty leads firms to impose excessive operating margins, route restrictions, or conservative flight planning requirements, the practical market opportunity could be substantially stymied.

This paradox does not undermine the move toward performance-based regulation. Rather, it highlights the need for adaptive implementation mechanisms that allow regulatory standards to improve as scientific understanding develops.

Existing NASA research demonstrates the value of this approach. The Sonic Booms in Atmospheric Turbulence (SonicBAT) program used flight testing, atmospheric measurements, and acoustic data collection to improve understanding of how real-world conditions affect sonic boom signatures.[17]

Building on this model, the FAA should establish mechanisms for collecting and sharing certification and operational data as low-boom aircraft advance toward commercial service. This approach would reduce uncertainty in predictive models, limit reliance on overly conservative assumptions, and improve confidence during certification by allowing firms to operate closer to demonstrated capabilities instead of margins driven primarily by incomplete information.

The FAA should also attach a review mechanism to the interim standard itself. Executive Order 14304 § 2(b) already directs that the future part 36 rule "specify a process for periodic review and update of the rule to reflect future advances in aircraft noise reduction technology," and the FAA acknowledges that obligation.

That obligation attaches to the final standard. The interim 0.11 psf limit proposed here carries no comparable provision, and it will govern civil supersonic operations in the meantime.

The gap matters because of how the FAA derived the number: it identified 0.11 psf as "the appropriate demarcation threshold where sonic booms were sufficiently abated at the surface" using Mach cutoff, drawing on the FaINT and NTSC datasets, and it selected that level in part "due to the lack of integrated metric data available to determine a tolerable level of sonic boom at the surface."

A limit set on acknowledged incomplete data should carry a scheduled occasion to revisit it. CEI recommends that the final rule state a date, three years after the effective date, by which the FAA will reassess the interim limit against certification and operational data then available, and that the reassessment address whether a shaped-boom aircraft producing a signature above 0.11 psf but demonstrably acceptable to affected communities should be permitted to operate overland.[18]

NASA/CR–2020–220509 (Edwards, CA: NASA Armstrong Flight Research Center, 2020), https://ntrs.nasa.gov/citations/20200002482.

[16] Kevin A. Bradley et al., *Sonic Booms in Atmospheric Turbulence (SonicBAT): The Influence of Turbulence on Shaped Sonic Booms*.

[17] Kevin A. Bradley et al., *Sonic Booms in Atmospheric Turbulence (SonicBAT): The Influence of Turbulence on Shaped Sonic Booms*.

[18] Alex J. Adams, *The Beauty of Regulatory Sunsets: Lessons from Idaho's Zero-Based Regulation* (Washington, DC: Competitive Enterprise Institute, 2026), https://cei.org/studies/the-beauty-of-regulatory-sunsets. On the periodic review required of

Instead, the standard could evolve as low-boom aircraft designs mature, atmospheric modeling improves, and additional evidence becomes available regarding community response. Adaptive review would preserve regulatory certainty while ensuring that the certainty provided is grounded in increasingly accurate scientific and operational knowledge.

The compliance criteria belong in the regulation, and review should reach the method rather than the flight

The FAA asks whether any material in the draft Advisory Circular should be included in the regulation. It should be. The preamble lists five considerations the agency expects to apply when approving a proposed method of compliance, among them whether the method is "based on, or validated by, physical noise measurement" and whether it is "technologically practicable and appropriate for the aircraft to which it would apply."[19]

Those criteria decide whether an operator may fly, because under proposed §91.817(a)(2)(i) a method approved by the Administrator is the only route to the required finding. Guidance can be revised without notice and comment and does not bind the agency, which means that criteria that determine market access should sit in the rule where they are enforceable and where a later change is subject to comment.

Placing them in the regulation also serves the regulatory certainty the FAA identifies as this rule's principal benefit. CEI recommends codifying the five considerations in proposed § 91.817(a)(2), leaving the draft Advisory Circular to describe particular collection methods that satisfy them.

The FAA also asks whether its review should be limited to the method of compliance, and whether conditions and limitations should pertain only to that method rather than to the operation of the aircraft. Both should be so limited.

The agency has already identified the reason: it does not intend conditions and limitations to "address operation-by-operation specific items, such as geographical limitations, or mirror those under a special flight authorization in 91.818."[20] Writing that intent into the rule is what distinguishes this framework from the authorization regime it replaces.

If conditions may reach the operation itself, the one-time finding can carry the same route-specific and area-specific constraints that make the Special Flight Authorization unsuited to scheduled service, and the administrative savings the FAA projects would be recovered as operational restrictions.

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the future rule, see Exec. Order No. 14,304, "Leading the World in Supersonic Flight," § 2(b), 90 Fed. Reg. 24,717, 24,717 (June 11, 2025) (signed June 6, 2025), https://www.federalregister.gov/documents/2025/06/11/2025-10800/leading-the-world-in-supersonic-flight; Federal Aviation Administration, "Enabling Supersonic Overland Flight," p. 40473 (acknowledging that obligation). The quoted derivation of the 0.11 psf limit appears at id. p. 40475.

[19] Federal Aviation Administration, "Enabling Supersonic Overland Flight," pp. 40475-40476. The request for comment on whether Advisory Circular material belongs in the regulation appears at p. 40476.

[20] Federal Aviation Administration, "Enabling Supersonic Overland Flight," p. 40477. The FAA states there that it "invites comments on whether FAA review should be limited to the method of compliance and whether potential conditions and limitations should pertain only to the method of compliance, rather than the operation of the aircraft." The quoted statement of intent regarding operation-by-operation items appears on the same page.

Limiting review to the method of compliance also matches what the operator can actually control. Atmospheric variability along a route is not a property of the aircraft, so the appropriate object of agency review is the adequacy of the operator's means of predicting and managing that variability. CEI recommends that proposed §91.817(a)(3) state expressly that conditions and limitations pertain to the approved method of compliance.

Replacing recurring authorization with a one-time finding

The proposed regulatory changes would also lower the burden on both the industry and the FAA itself. Currently, supersonic flights are allowed only with a Special Flight Authorization (SFA), an operation-specific flight authorization considered and granted only after agency review. The information collection covering the authorization process has long assumed 20 requests a year.

Actual demand has been a small fraction of that. The FAA reported in 2019 that it had received "only a handful of inquiries since 1973" and had "only granted three authorizations." It also reports here that only four SFAs have ever been issued, to Scaled Composites for SpaceShipOne in 2003, Gulfstream Aerospace for the Model 650 in 2010, Boom Supersonic for the XB-1 demonstrator in 2024, and Hermeus for the Supersonic Quarterhorse Mark 2.1 in 2026.[21]

Two of the four were issued in the last three years, which reflects the arrival of aircraft capable of the flight the rule was written to prevent. The constraint is not the volume of paperwork. It is that an SFA authorizes a limited number of flights within an isolated test area, so the authorization has to be obtained again for each new campaign. As the proposed rule recognizes, that structure limits the scalability of the technology.

The proposal does not remove the requirement for agency authorization, and CEI does not read it to. Proposed § 91.817(a)(2) provides that no person may operate a civil aircraft above Mach 1 unless "[t]he operator demonstrates and the Administrator finds" each of the stated conditions, and that finding precedes flight.

The FAA describes what replaces the SFA as a "less burdensome, one-time authorization from the Administrator," and the SFA itself survives: the agency states that "[t]he SFA process would remain unchanged by this proposal," and § 91.818 receives only conforming amendments.[22]

What changes is the frequency and scope of the required approval, and that change is the source of the benefit. Authorization moves from a recurring, per-operation review tied to a specific test area to a one-time review per operator per aircraft type, valid so long as the operator meets the criteria that are the basis of the finding.

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[21] Federal Aviation Administration, "Special Flight Authorizations for Supersonic Aircraft," *Federal Register*, Vol. 84, no. 125 (June 28, 2019): pp. 30,961, 30,962, 30,965, https://www.govinfo.gov/content/pkg/FR-2019-06-28/pdf/2019-13079.pdf.

[22] Proposed 14 C.F.R. § 91.817(a)(2), 91 Fed. Reg. at 40,486. The quoted description of the one-time authorization appears at Federal Aviation Administration, "Enabling Supersonic Overland Flight," p. 40479, and the statement that the SFA process would remain unchanged appears id. at p. 40471.

The FAA has quantified what that shift is worth. Under the current framework each SFA application costs an operator $110,928 a year in administrative costs, and the agency incurs $58,973 to process each one. Under the proposal an operator would spend an estimated 200 hours obtaining a one-time authorization, at $19,257 per operator, and the FAA would spend $6,492 to process each. Over the five-year analysis period the agency projects savings of $1,567,636 to industry and $852,135 to the government, totaling $2,419,771.[23]

Those figures understate the gain, because the recurring cost is what forecloses scheduled commercial operation rather than what makes it expensive. An authorization tied to a set number of flights in an isolated area cannot support a route flown daily, however cheap each renewal becomes. CEI notes as well that the projected savings assume five operators, none in the first two years, and that a rule which succeeds in enabling the industry will produce savings larger than the estimate rather than smaller.

The rule accordingly qualifies for the treatment the FAA anticipates for it. The agency states that it "expects this rule, if finalized as proposed, to be an E.O. 14192 deregulatory action."[24] CEI agrees, and the record supports the characterization on the order's own terms. Executive Order 14192 directs agencies to ensure that the total incremental cost of new regulations is "significantly less than zero" and to offset new costs by eliminating existing ones.

This rule repeals a prohibition, replaces a recurring authorization with a single one, and produces net administrative savings of $2,419,771 against costs the FAA describes as minimal because they are "already captured within the existing costs of obtaining a flight authorization."

The savings are also unusually well founded for a deregulatory estimate, since they rest on the agency's own processing costs and wage rates rather than on projected compliance behavior. CEI urges the FAA to carry the finding into the final rule and to record the full $2,419,771 as cost savings for purposes of the order's regulatory budget.

The rule supports high-skilled manufacturing without the need for industrial policy

It is the stated policy of the administration to support US-based manufacturing.[25] Assembling supersonic jets and engines is exactly the sort of manufacturing at which the USA has a clear, demonstrable comparative advantage. Reducing regulatory barriers to the development of this industry is therefore supportive of this goal.

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[23] Federal Aviation Administration, "Enabling Supersonic Overland Flight," pp. 40479-40481 (Tables 1 through 3 and accompanying text). The five-operator assumption and the year-by-year application schedule appear on 40479.

[24] Federal Aviation Administration, "Enabling Supersonic Overland Flight," p. 40479. The quoted "significantly less than zero" direction and the offset requirement appear at Exec. Order No. 14,192, "Unleashing Prosperity Through Deregulation," § 3(b)-(c), 90 Fed. Reg. 9,065, 9,065 (Feb. 6, 2025). The statement that compliance costs are already captured within existing flight authorization costs appears at 91 Fed. Reg. at 40,480.

[25] See, e.g., White House press releases, "Manufacturing Jobs Flock to the U.S. Thanks to President Trump's America First Economic Agenda," August 4, 2026, https://www.whitehouse.gov/releases/2026/08/manufacturing-jobs-flock-to-the-u-s-thanks-to-president-trumps-america-first-economic-agenda/, "Made in America Agenda Delivers Manufacturing Boom," August 13, 2025, https://www.whitehouse.gov/releases/2025/08/made-in-america-agenda-delivers-manufacturing-boom; "MADE IN THE USA: President Trump's Vision is Revitalizing American Industry," May 30, 2025, https://www.whitehouse.gov/releases/2025/05/made-in-the-usa-president-trumps-vision-is-revitalizing-american-industry/.

Moreover, such a step promotes high-tech manufacturing without necessarily requiring any sort of industrial policy such as subsidies, tariffs, or import restrictions, which can distort the market and technological developments in unanticipated fashion. This rule change will therefore be welcomed by both free market supporters and by supporters of domestic manufacturing.

Conclusion: Finalize the rule with a performance-based standard

The FAA's proposal presents an important opportunity to replace an outdated regulatory framework with rules that reflect the capabilities of modern supersonic aircraft. A speed-based prohibition is no longer an appropriate substitute for evaluating the actual effects of aircraft operations. Regulation should focus on measurable performance and public safety while allowing technological innovation to determine how those standards are met.

The FAA should therefore finalize a rule that establishes clear compliance criteria, avoids unnecessarily rigid performance metrics, and provides a durable path to approval once an aircraft's compliance method has been demonstrated. Replacing recurring authorization with a one-time finding would provide greater regulatory certainty while allowing the agency to retain appropriate oversight of safety and environmental performance.

A flexible, performance-based framework would benefit more than supersonic aircraft operators. It could support high-skilled American manufacturing, expand opportunities throughout the domestic aerospace supply chain, and reinforce the United States' longstanding leadership in aviation technology. The best way for the government to encourage those outcomes is not to pick winners, but to ensure that outdated regulations do not prevent innovators from competing.

As such, CEI urges the FAA to finalize a technologically current, performance-based rule that enables supersonic overland flight while avoiding unnecessary regulatory constraints on innovation. Thank you for this opportunity to present the views of the Competitive Enterprise Institute.

Sincerely,

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