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U.S. Department of Transportation
Docket Management System
1200 New Jersey Ave., SE,
Room W12-140, West Building Ground Floor
Washington, DC 20590

Subject: Zipline – Request to Revise Certain Conditions and Limitations in Exemption No. 22475 (FAA-2024-1317) and Petition for Exemption From Specified Regulations in 14 CFR Parts 61 and 91

To Whom It May Concern:

Zipline International Inc. ("*Zipline*", "*we*", "*our*", or "*us*") respectfully submits this request to revise certain conditions and limitations ("*C&Ls*") in Exemption No. 22475 in the above-referenced docket ("*Exemption No. 22475*" or the "*Exemption*") and for additional relief from specified regulations in 14 CFR Parts 61 and 91 ("*Part 61*" and "*Part 91*", respectively). Exemption No. 22475 grants Zipline relief under 49 U.S.C. § 44807 ("*Section 44807*") and from certain operating rules in Parts 61 and 91 necessary to enable Zipline to conduct flight testing activities and data collection ("*R&D operations*") at our test sites of our Platform 2 ("*P2*") unmanned aircraft ("*UA*") at a weight that exceeds the maximum weight limit of 14 CFR Part 107 ("*Part 107*").

Zipline remains committed to continuing to work with the Federal Aviation Administration ("*FAA*") toward providing safe, reliable access to our on-demand, instant delivery services for more customers and communities in the United States. If granted, this request will allow Zipline to conduct additional R&D operations at Zipline test sites for our P2 UA, including to support future approvals for commercial delivery operations and demonstrate compliance with regulations and standards. The requested changes and relief discussed herein are supported by Zipline's seven years of experience conducting safe commercial and R&D operations around the world, including in the United States under 14 CFR Part 135 ("*Part 135*") and Part 107.

I. BACKGROUND INFORMATION ON ZIPLINE

Zipline designs, manufactures, and operates an unmanned aircraft system ("*UAS*") that delivers medical supplies, healthcare goods, and other consumer products. Zipline is transforming the way goods move so that every human on Earth has access to exactly what they need, when they need it—no matter where they live. We started by delivering blood to health and hospital systems in Rwanda in 2016 and have grown to operate in eight countries across three continents, including the United States. Zipline has flown more than 72 million autonomous miles and made more than 1,010,000 deliveries to customers to date. On average, someone receives a Zipline delivery every 70 seconds and, on a typical day, Zipline flies more than three times the circumference of Earth.

For over six years, Zipline has worked closely with the FAA on design and operational approvals to operate in the United States, including under a *Partnership for Safety Plan*[1] ("*PSP*") and as a *BEYOND program*[2] participant (and, previously, a *UAS Integration Pilot Program*[3] participant). In May 2020, Zipline petitioned for exemptions to enable operations under Section 44807 and Part 135. While these petitions were pending, Zipline operated under Part 107 waivers to begin serving customers in North Carolina (2020, with Personal Protective Equipment deliveries), Arkansas (2021, with healthcare and consumer goods), and Utah (2022, with healthcare goods). In May 2022, the FAA granted Zipline exemptions to enable operations under Section 44807 and Part 135. Zipline completed Part 135 validation and received our certificate in June 2022.

Today, Zipline has two delivery platforms: Platform 1, our long-range system, which is currently in use in commercial operations, and P2, our home delivery system, which Zipline intends to launch in commercial operations in 2024. Both platforms are highly automated, electric UAS designed for commercial package delivery.

In March 2023, Zipline publicly unveiled our P2 UA. P2 features significant innovations in aircraft and propeller design and is intended to provide safe, quiet, fast, and precise delivery directly to customers' homes. When the P2 UA arrives at its delivery destination, it hovers safely and quietly above, while it lowers a fully autonomous delivery droid down on a tether.

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[1] The PSP initiative was created to address and advance complex UAS operational capabilities. A PSP establishes a working relationship between the FAA and industry to help facilitate UAS integration into the National Airspace System. *See* https://www.faa.gov/uas/programs_partnerships/ipa.

[2] The BEYOND program ". . . focuses on working toward operating under established rules rather than waivers, collecting data to develop performance-based standards, collecting and addressing community feedback, understanding the potential and realized societal, economic and community benefits of drone use and streamlining the approval processes for drone integration." *See* https://www.faa.gov/uas/programs_partnerships/beyond.

[3] The IPP was intended to assist "the U.S. Department of Transportation (USDOT) and Federal Aviation Administration (FAA) craft new rules that support more complex low-altitude operations by: Identifying ways to balance local and national interests related to drone integration; Improving communications with local, state and tribal jurisdictions; Addressing security and privacy risks; and Accelerating the approval of operations that currently require special authorizations." *See* https://www.faa.gov/uas/programs_partnerships/completed/integration_pilot_program.

The droid automatically steers itself to the correct delivery location and gently drops off its package to areas as small as a patio table or the front steps of a home. The addition of the P2 UA to Zipline's services will enable Zipline to serve more customers and communities with reliable access to safe, sustainable instant delivery services, as well as further the FAA's objectives for UAS integration.

II. PETITION FOR AMENDMENT

A. Contact Information

For questions or additional information related to this request, please contact:

Mailing Address: Zipline International Inc.
Attention: Aviation Counsel
333 Corey Way
South San Francisco, CA 94080

Email: *legal@flyzipline.com*
Copy to: *amber.harrison@flyzipline.com*

B. Regulations From Which Zipline Seeks Exemption

In this petition, Zipline seeks to revise certain C&Ls in the Exemption. The Exemption provides relief from 14 CFR §§ 61.3(a)(1)(i), 61.3(c)(1), 61.23(a)(2), 91.7(a), 91.119(c), 91.121, 91.151(b), 91.403(b), 91.405(a), 91.407(a)(1), 91.409(a)(1), 91.409(a)(2), 91.417(a), and 91.417(b) to the extent necessary to allow Zipline to conduct R&D operations. Specifically, Zipline seeks to revise C&Ls 1, 10, 11, 14, 15, 18, 19, 20, 22, 23, 24, 25, and 26 in the Exemption. In addition, Zipline seeks relief under Section 44807 and, to the extent necessary, from 14 CFR §§ 61.23 (medical certificates); 91.113(b) (right-of-way rules); 91.155 (basic VFR weather minimums); and 91.167 (fuel requirements for flight in IFR conditions). As detailed herein, granting this request will benefit the public as a whole, and will provide a level of safety at least equal to existing regulations. See Appendix 1 for a table summarizing the revisions and relief requested herein.

The following documents (collectively, the "*Supporting Documentation*") were previously submitted on a confidential basis[4] under separate cover in support of our initial request for the Exemption and to provide further context and information to the FAA:

1. Platform 2 Concept of Operations (CONOPS)

[4] The Supporting Documentation is being submitted on a confidential basis pursuant to 14 CFR § 11.35(b), as its constituent manuals and other documents contain confidential commercial and proprietary information that would materially harm Zipline's competitive position if they were publicly disclosed. The information contained in the Supporting Documentation is not generally available to the public, is commercially sensitive, confidential, and proprietary, and is protected from release under the Freedom of Information Act, 5 U.S.C. § 552 *et seq*.

2. Test Operations Manual (including training information)
3. Safety Risk Analysis
4. Technical information and data supporting FAA 44807 determination

No substantive changes are being made to any of the previously filed operating documents at this time.

C. Nature of Relief Sought

Zipline seeks the relief detailed herein to allow us to conduct additional R&D operations at Zipline test sites for our P2 UA, including to support operational approvals and demonstrate compliance with regulations and standards. These P2 UA R&D operations would build upon the success of Zipline's Part 107 flight test program which has operated since 2017 and flown nearly 100,000 miles at our test sites. More specifically, Zipline requests these revisions to the C&Ls in the Exemption and this additional relief from specified regulations in Part 61 and 91 to establish consistency and alignment with certain requirements for Part 107 waivered R&D operations with the P2 UA.[5] This consistency will help avoid disruptions to ongoing P2 R&D testing and alignment in the requirements will help ensure regulatory compliance.

Revisions to C&Ls

Zipline proposes the following revisions to C&Ls 1, 10, 11, 14, 15, 18, 19, 20, 22, 23, 24, 25, and 26 (additions identified **in green bold** and deletions in ~~**red bold strikethrough**~~) in the Exemption, along with rationale for the proposed change and an explanation of why the change will not adversely affect safety. Except as noted below, Zipline is not proposing any other changes to the C&Ls in the Exemption.

Maximum Takeoff Weight:

> 1.Operations authorized by this exemption are limited to the Zipline Sparrow and P2 unmanned aircraft system (UAS) (hereafter referred to collectively as "the aircraft") by the Operator and are limited to the operations described in the petition for exemption and the operating documents. The maximum takeoff weight (MTOW) of the P2 must not exceed ~~**63**~~ **83** pounds (lbs.). Proposed operations of any other UAS requires a new petition or a petition to amend this decision.

Zipline seeks to revise C&L 1 to increase the maximum takeoff weight ("*MTOW*") of the P2 UA in our R&D operations from 63 lbs to 83 lbs. This revision will enable Zipline to conduct

[5] To the greatest extent possible, Zipline seeks to do the same R&D operations that we currently conduct with the P2 UA under Part 107 (for example, Waiver No. 107W-2024-00344A), except that those R&D operations will now occur under the Part 91 framework with associated exemptions.

R&D operations at Zipline test sites using multiple configurations, including increased payloads, in a safe, dedicated environment. Among other things, this revision will support certain R&D operations required for future approvals such as the Criteria for Making a 44807 Determination requirements to test an aircraft at its MTOW plus five percent (~66lbs). Notably, an existing Certificate of Waiver or Authorization ("*COA*") 2024-WSA-13984-COA, under which Zipline currently conducts R&D operations in partnership with the Northern Plains UAS Test Site, includes an MTOW of 83 lbs for the P2 UA. This revision better enables Zipline to demonstrate compliance with relevant standards in our R&D operations for the P2 UA and brings consistency without compromising safety in permitted MTOW for R&D operations among the regulatory frameworks being used to test the P2 UA at an MTOW that exceeds 55 lbs.

Medical Certificates:

> 10. The PIC must hold ~~at least~~ **either** a current FAA ~~third-class~~ airman medical certificate **or a valid United States driver's license issued by a State, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government**. ~~The PIC may not conduct the operation if the PIC knows or has reason to know of any medical condition that would make the pilot unable to meet the requirements for at least a third-class medical certificate or is taking medicine or receiving treatment for a medical condition that results in the pilot being unable to meet the requirements for at least a third-class medical certificate.~~ **The PIC may not operate the UAS if they know or have reason to know that they have a physical or mental condition that would interfere with the safe operation of the UAS.**

Zipline seeks to revise C&L 10 in the Exemption to enable R&D operations at Zipline test sites with remote pilots in command ("*RPICs*") holding certificates issued under Part 107 and without an FAA medical certificate issued under Part 61. Zipline has extensive experience safely conducting test operations under Part 107 and Part 107 waivers with flight crew without FAA medical certificates. Zipline's UAS are highly automated for safety and efficiency, and opportunities for manual intervention are limited. Zipline's trained flight crew will perform their duties on the ground, and for RPICs in beyond visual line-of-sight ("*BVLOS*") operations, in an office environment, monitoring screens. RPICs will receive training specific to the system and operations, including on § 107.17, which prohibits any person from manipulating the flight controls of a small UAS or acting as an RPIC, VO, or direct participant in a small UAS operation if they know or have reason to know they have a physical or mental condition that would interfere with the safety of the operation. This training will also include discussion of the IMSAFE checklist, fatigue, alcohol, and prohibited drugs and medications.

Zipline's UAS performance, crew qualification requirements including certification under Part 107, and company procedures and processes including tailored crew training will provide reasonable assurance of crew abilities to perform duties associated with the limited scope of this

request—without any physical or mental conditions that would interfere with safety—such that no incremental safety benefit is realized by requiring RPICs to hold medical certificates issued under Part 61. Accordingly, Zipline's R&D operations will achieve a level of safety at least equivalent to the level provided under current regulations, including but not limited to § 61.23. Additionally, this revision will help align crew qualification requirements for the proposed R&D operations with the existing qualification requirements for Zipline crew currently conducting R&D operations with the P2 UA under the Part 107 regulatory framework.

References to Visual Observers:

11. The PIC and visual observers (VO)**, if required,** must be qualified in accordance with the Operator's training program. The PIC and VO**, if required,** must remain current and qualified before conducting operations under this exemption.

14. The VO**, if required,** or any other direct participant may not participate in the operation if they know or has reason to know of any physical or mental condition that would interfere with the safe operation of the aircraft.

15. VOs**, if required,** must have adequate visual abilities to be able to see the unmanned aircraft (UA) clearly, recognize terrain, obstructions, see and avoid aerial or ground hazards and other aircraft without undue hesitation. The VOs**, if required,** must be able to establish and maintain by unaided vision, except vision that is corrected by the use of corrective lenses to maintain a normal field of vision allowing them to see all potential hazards without hesitation.

19. **Except as otherwise authorized by the FAA,** all operations must utilize the services of at least one or more VOs. ~~**The UA must be operated within the VLOS of the PIC and VO at all times. If either the PIC or a VO is unable to maintain VLOS with the UA during flight, the entire flight operation must be terminated as soon as practicable. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability.**~~

20. The VO**, if required,** and PIC must be able to communicate verbally at all times. **If a VO is required,** the PIC must ensure that the VO can perform the duties required of the VO. For purposes of this condition, a VO is someone: (1) who maintains effective communication with the PIC at all times; (2) who the PIC ensures is able to see the UA with human vision unaided by any device other than corrective lenses; and (3) coordinates with the PIC to scan the airspace where the UA is operating for any potential collision hazard and maintain awareness of the position of the UA through direct visual observation. **If a VO is required,** the operation must be conducted with a dedicated VO who has no collateral duties and is not the PIC during the flight.

22. All crew, including the PIC and VOs, **if required,** must maintain two-way voice communications with each other during operations. If unable to maintain two-way voice

> communication, the PIC will land the UA in a safe location as soon as the PIC determines it is practicable to do so. If communication occurs by electronic device: the device must be continuous full-duplex; the PIC must be able to use the device hands-free; and the PIC must ensure that there is a reliable back-up communication method. Electronic messaging or texting is not permitted during flight operations. During operations, no person on whom the PIC relies for safe conduct of the operation may engage in communications not relevant to the operation.

Zipline seeks to revise C&Ls 11, 14, 15, 19, 20, and 22 in the Exemption to clarify that visual observers ("*VOs*") may not be required for all of the proposed R&D operations. This request is consistent with recent FAA precedent[6] in which the FAA has granted relief from conditions and limitations in Section 44807 exemptions that otherwise assume VOs are required for all operations. This revision will not negatively affect safety; rather, it will enable the FAA to authorize updates and changes to any VO requirements as appropriate in light of a phased implementation of deconfliction approaches in Zipline's R&D operations without requiring additional burdensome exemption amendments.

Flight BVLOS of the RPIC:

> 18. **Except as otherwise authorized by the FAA**, the UA must remain within the VLOS of the PIC. VLOS means the PIC must be able to, with natural unaided vision except for corrective lenses, see the UA and determine its orientation, height above the surface, and direction of flight. The UA must be conspicuous so as to be obvious within the VLOS area. The PIC may use VOs as an operational mitigation; however, the PIC must be able to see the UA throughout the flight. The PIC retains the overall responsibility to see-and-avoid other aircraft, except as otherwise authorized by an ATO-issued COA.

Zipline seeks to revise C&L 18 in the Exemption to provide additional flexibility and an effective and efficient process for FAA to approve R&D operations at Zipline test sites conducted BVLOS under the Exemption. For further details on the rationale for this revision, reference our request for relief from § 91.113(b) below.

1: Many Operations:

> 23. **Except as otherwise authorized by the FAA,** each UA must be controlled by only a single ground control station and one PIC at a time. A PIC may not operate multiple UA at the same time, **except as otherwise authorized by the FAA**.

Zipline seeks to revise C&L 23 in the Exemption to provide additional flexibility and an effective and efficient process for FAA to approve R&D operations at Zipline test sites

[6] *See e.g.*, Exemption No. 19111B issued to Zipline International Inc. (Regulatory Docket No. FAA-2020-0499) and Exemption No. 18339D issued to UPS Flight Forward, Inc (Regulatory Docket No. FAA-2019-0628).

with an increased ratio of RPIC to UA under the Exemption in the future, without adversely affecting safety.

Weather Minimums

> 24. All operations must be conducted ~~under visual meteorological conditions (VMC).~~ **according to the following minimum weather requirements:**
> a. The PIC must obtain and use real-time weather information as described in the operating documents.
> b. Each operation may only occur when weather in the area of the operation is reported and forecast to be at least ~~1,000-foot ceiling and 3~~ **1** statute mile visibility within 1 hour before and 1 hour after takeoff and landing.
> c. The UA must remain ~~500 ft. below and more than 2,000 ft. horizontally from a cloud.~~ **clear of clouds.**
> d. The PIC must land the aircraft as soon as possible if the PIC is unable to comply with the required visibility and cloud clearance requirements.

Zipline seeks to revise C&L 24 in the Exemption to enable R&D and flight test operations in operationally representative conditions important to enable safe and reliable access to goods by all communities served by Zipline's services. For further details on the rationale for this revision, reference our request for relief from § 91.155 below.

Night Operations:

> 25. Operations under this exemption may ~~not~~ be conducted during night, as defined in 14 CFR § 1.1.

Zipline seeks to revise C&L 25 in the Exemption to allow for operations to be conducted both during day and night. Zipline's UAS is designed to operate safely 24 hours a day, 7 days a week, day and night. Zipline's UA is equipped with high visibility anti-collision lights that run continuously during operation, day or night. Zipline has confirmed that these lights are visible for at least three statute miles at night. Zipline currently conducts Part 107 flights at night consistent with the requirements of § 107.29, including with the P2 UA, as well as commercial operations at night under Part 135. Internationally, Zipline operates during nighttime hours nearly every night in multiple countries. As a result, Zipline has extensive experience operating safely at night, and all RPICs operating during night hours complete additional training specific to night operations. Finally, any night operations enabled by this requested change would be R&D operations occurring at Zipline test sites. For these reasons, this revision will not adversely affect safety.

Operating Distance:

> 26. All flight operations must be conducted at least ~~500 ft~~ **100 ft.** from all persons who are not directly participating in the operation, and from vessels, vehicles, and structures, unless when operating:
> a. Over or near people directly participating in the operation of the UAS. People directly participating in the operation of the ~~Harris Aerial Carrier H6 HL~~ **aircraft** include the PIC, crewmembers, and other consenting personnel whose presence is necessary to ensure the safety of the operation.
> b. ***Over or near people directly participating in the intended purpose of the UAS operation.*** **People directly participating in the intended purpose of the aircraft must be briefed on the potential risks and acknowledge and consent to those risks.**
> c. Near nonparticipating persons. The ~~Harris Aerial Carrier H6 HL~~ **aircraft** may be operated closer than ~~500~~ **100** ft. to a person who is not directly participating in the operation only when barriers or structures are present. Such barriers must sufficiently protect the person from the aircraft and from debris or hazardous materials from the aircraft. Under these conditions, the Operator must ensure the person remains under such protection for the duration of the operation. If a situation arises in which the person leaves such protection and is within ~~500~~ **100** ft. of the ~~Harris Aerial Carrier H6 HL~~ **aircraft**, flight operations must cease immediately in a manner that does not cause undue hazard to any person.
> c. Near vessels, vehicles and structures. Prior to conducting operations within ~~500~~ **100**ft. of any vessels, vehicles, or structures the Operator must obtain permission to proceed within ~~500~~ **100** ft. from a person with authority over such vessels, vehicles or structures. The PIC must first assess the risk of operating closer to those objects and determine that it does not present an undue hazard.

Zipline seeks to revise C&L 26 in the Exemption to provide additional flexibility for FAA to approve safe and operationally representative R&D operations at Zipline test sites in closer proximity to persons or obstacles under the Exemption in the future, without adversely affecting safety.

Additional Relief Sought

To the extent necessary to allow Zipline to conduct additional R&D operations at Zipline test sites using the P2 UA, including to support operational approvals and show compliance with regulations and standards, Zipline also seeks relief from the following specified regulations.

§ 61.23:

To the extent applicable to Zipline flight crew conducting the proposed R&D operations, Zipline requests further relief from § 61.23, medical certification requirements, as it relates to relief granted from § 61.3, to enable R&D operations at Zipline test sites with RPICs holding certificates issued under Part 107 and without an FAA medical certificate issued under Part 61. For the same

reasons discussed in our request to revise C&L 10 in the Exemption, granting this relief would not negatively impact safety of these R&D operations.

§ 91.113(b):

To the extent necessary and not otherwise addressed by an applicable COA, Zipline seeks relief from § 91.113(b) to enable BVLOS operations. The FAA recently provided relief from § 91.113 via exemption in Exemption No. 18339D in recognition of detect and avoid capabilities and operational mitigations. If deemed necessary by the FAA, Zipline also will submit a separate application for a COA waiving § 91.113(b).

Zipline has detailed in the Supporting Documentation how operations will safely deconflict from other aircraft when flying BVLOS. Zipline has extensive experience operating BVLOS in both test and commercial operations: globally, Zipline has safely completed more than one million BVLOS operations/deliveries/flights. These test operations will utilize detection technology and situational awareness tools, as well as VOs to ensure that the Zipline crew can monitor both UAs in flight as well as other traffic in the area when the RPIC cannot maintain visual line-of-sight. Flights will occur at Zipline test sites. Zipline's primary test sites are access-controlled and test sites in low-density areas of Class G airspace. As appropriate, Zipline will file a Notice to Air Mission ("*NOTAM*"), or update existing NOTAMs, to advise any pilots in the area of intended BVLOS operations. Accordingly, Zipline's operations will achieve a level of safety at least equivalent to the level provided under § 91.113(b).

§ 91.155:

Zipline seeks to conduct test operations below visual flight rule ("*VFR*") weather minimums, will submit a separate application for a COA from § 91.155, Basic VFR weather minimums, and requests relief here to the extent necessary. This relief will enable Zipline to conduct testing in operationally representative conditions important to achieving safe, fast, and reliable access to goods through Zipline's services.

Zipline has extensive experience safely conducting test operations under Part 107 waivers permitting zero statute mile flight visibility and flight into clouds, and the proposed R&D operations will occur in the same manner at the same Zipline test sites as we currently conduct under these Part 107 waivers. FAA recently granted Waiver No. 107W-2024-00334A, which was specific to the P2 UA and waived § 107.51(c), operating limitations for small unmanned aircraft - Visibility, and § 107.51(d), operating limitations for small unmanned aircraft - Cloud Clearance. In accordance with Zipline's procedures and processes, weather conditions will be monitored before and during flight operations. The RPIC will not permit launch if weather conditions are not acceptable for safe flight. VFR weather minimums are based on the principle of "see and avoid." Zipline's UAS and operations will utilize technology not exclusively dependent on visual detection methods, including ADS-B in and surveillance data feeds (as applicable), to monitor both the

UA(s) in flight as well as identify other traffic in the area. Additionally, flights will occur at Zipline test sites. Zipline's primary test sites are access-controlled and in low-density areas of Class G airspace. As appropriate, Zipline will file a NOTAM (or update existing NOTAMs) to advise any pilots in the area of intended UAS operations. Accordingly, Zipline's operations will achieve a level of safety at least equivalent to the level provided under § 91.155.

§ 91.167(a):

Zipline requests relief from § 91.167(a), which establishes fuel requirements for flight in instrument flight rules ("*IFR*") conditions. To be clear, Zipline is not currently proposing any IFR operations, however relief from § 91.167 is sought to the extent necessary to align with the request to operate in weather conditions below the minimums for flight under VFR in § 91.155, Basic VFR weather minimums. To the extent the FAA deems necessary, Zipline also requests relief from any other IFR regulations necessary to conduct these R&D operations (e.g., § 91.185).

Zipline has already been granted relief from § 91.151(b), fuel requirements for flight in VFR conditions. The same factors supporting an equivalent level of safety finding with respect to the relief granted from § 91.151(b), also support a finding that the proposed operations can be conducted safely without complying with § 91.167. Like § 91.151, § 91.167 is unduly restrictive given the UAS design, nature of the operations, including flight profiles, and compliance is not necessary to maintain the safety of operations. For the same reasons discussed above, Zipline's operations will achieve a level of safety at least equivalent to the level provided under § 91.167.

D. Why Granting this Request Would Not Adversely Affect Safety

For the reasons detailed above in Section C, granting the requested revisions to the C&Ls in the Exemption and the individual requests for relief in respect of Zipline's proposed R&D operations would not adversely affect safety.

E. Why Granting this Request Would Benefit the Public

None of the requested revisions negate or otherwise diminish the FAA's prior finding that granting Zipline relief needed to conduct R&D operations with the P2 UA is in the public interest. Granting the requested revisions and additional relief further benefits the public as a whole because it advances the deployment and expansion of safe, critical, efficient, and cost-effective medical, healthcare, and consumer good delivery services in the United States.

Zipline's core mission is focused on public benefit: creating the first logistics system that serves all humans equally. With more than seven years of global operating experience, Zipline sees every day the impact that UAS operations at scale can have—including providing rural communities with safe, fast, and reliable access to goods including lifesaving medicines, eliminating unnecessary waste, and improving the efficiency and resiliency of supply chains.

Zipline is transforming the way goods move, from powering Rwanda's national blood delivery network and Ghana's COVID-19 vaccine distribution, to providing on-demand home delivery for e-commerce in the United States, to enabling U.S. healthcare providers to bring care directly to people's houses. Several recent studies highlight the health impact of Zipline's service. The first, published in The Lancet, showed that Zipline's service resulted in a 67% reduction in blood wastage across Rwanda, contributing to greater access to this life-saving product.[7] The second, which was funded by the Bill & Melinda Gates Foundation, found that Zipline is increasing health access and equity across the health system in several ways, including that vaccine stockouts are 60% shorter at Zipline-served facilities than at non-Zipline facilities.[8] A third study, published by researchers at Wharton, found "evidence of improved blood inventory management and improved health outcomes as a result of drone delivery" provided by Zipline. Specifically the report found a reduction in Rwanda of in-hospital maternal deaths due to postpartum hemorrhage of 51% as a result of Zipline's work.[9]

This request also supports the FAA's goals of integrating UAS into the National Airspace System ("*NAS*"). Regarding Section 44807, the FAA states that the "Administrator has identified this as a high priority project to address demand for civil operation of drones for commercial purposes."[10] If granted, the relief for additional R&D operations with the P2 UA sought in this request will expand Zipline's ability to bring the benefits of our considerable UAS operating experience to the United States.

This request would also align Zipline's test campaign by establishing a regulatory framework under a Part 91 structure that is more consistent with the framework under our waivered Part 107 structure. Driving a similar structure with consistent permissions and limitations will not only simplify regulatory compliance, but also ensures easier oversight of operations by the FAA. It is in the public interest to create a consistent and easily administered regulatory framework, as it simplifies compliance while ensuring the highest levels of safety in all operations.

Zipline is committed to building a happier, healthier, more equitable world. As Zipline expands and evolves operations, Zipline continues to drive innovation and work to create an environment of opportunity for the public's benefit, improving health access and quality of life for more customers and communities we serve. Zipline not only offers a faster, more efficient delivery option, but also a cleaner alternative. Zipline's electric logistics solution supports decarbonizing

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[7] Nisingizwe, Marie Paul and Ndishimye, Pacifique, et al., *Effect of unmanned aerial vehicle (drone) delivery on blood product delivery time and wastage in Rwanda: a retrospective, cross-sectional study and time series analysis*, The Lancet (Apr. 2022). Available at: https://doi.org/10.1016/S2214-109X(22)00048-1.

[8] IDinsight, *Brief: Impact Evaluation of Zipline Ghana* (Apr. 2022). Available at: https://www.idinsight.org/wp-content/uploads/2022/06/Zipline-Brief-FINAL-Digital-v3-2.pdf.

[9] Jeon, H. Harriet and Lucarelli, Claudio and Mazarati, Jean Baptiste and Ngabo, Donatien and Song, Hummy, *Leapfrogging for Last-mile Delivery in Health Care* (October 12, 2022). Available at SSRN: https://ssrn.com/abstract=4214918 or http://dx.doi.org/10.2139/ssrn.4214918.

[10] *See* https://www.faa.gov/uas/advanced_operations/certification/section_44807 (also noting: "[Section 44807] grants UAS operators safe and legal entry into the NAS, thus improving safety. We anticipate this activity will result in significant economic benefits.").

delivery, decreasing road congestion, and reducing fossil fuel consumption and air pollution: Zipline flights reduce the carbon emissions of deliveries by 97% compared to gas cars, and are also far more efficient than electric vehicles. Additionally, Zipline engages with elected officials and local business leaders to explore how current and future partnerships can support grassroots economic development efforts.

For all of these reasons, granting the requested relief for additional R&D operations for the P2 UA will benefit the public as a whole.

III. SUMMARY FOR THE FEDERAL REGISTER

The following summary is provided for publication in the Federal Register, should it be determined that such publication is needed, and includes (i) the rule from which Zipline seeks the exemption and (ii) a brief description of the nature of the exemption that Zipline seeks:

Docket No.: FAA–2024-1317.

Petitioner: Zipline International Inc.

Section of 14 CFR Affected: §§ 61.23; 91.113(b); 91.155; and 91.167(a).

Description of Relief Sought: Petitioner seeks revisions to certain conditions and limitations in Exemption No. 22475 to enable additional flight testing and data collection operations using unmanned aircraft systems.

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IV. CONCLUSION

In consideration of the foregoing, Zipline respectfully requests that the FAA expeditiously grant this request to amend Exemption No. 22475. Doing so is in the public interest and will help advance the safe UAS integration into the NAS, as well as Zipline's goal to provide more customers and communities with equitable and reliable access to goods. Should you have any questions, or if any additional information would be helpful in support of this request, please do not hesitate to contact me.

Respectfully,

Amber Harrison

Amber Harrison
Aviation Regulatory Counsel
Zipline International Inc.

Appendix 1

Statute/Regulation	Relief Sought	Summary of Mitigations
14 CFR 61.23	Medical certificates for flight crew	Part 107 certificates with Zipline training.
14 CFR 91.113	For operationally representative BVLOS flights	Situational awareness tools, detection technology, and VOs, as appropriate. Flights at test sites. NOTAM to advise pilots of operations.
14 CFR 91.155	Basic VFR weather minimums	Company processes/procedures to monitor weather conditions for safe flight. Utilization of situational awareness tools, detection technology (e.g., ADS-B-in and surveillance data), and VOs, as appropriate. Flights at test sites. NOTAM to advise pilots of operations.
14 CFR 91.167(a)	Fuel requirements for flight in IFR conditions	Battery-powered UAS. Sufficient state of charge for mission automatically checked prior to take-off and monitored in-flight. Automated system responses and RPIC alerting for low state of charge.
C&L	**Revision Description**	**Category**
1	Increase MTOW from 63 lbs to 83 lbs	Consistency with Northern Plains COA, under which P2 currently operates.
10	Edited to reflect requirement for an airman medical certificate or valid U.S. Driver's License	Consistency with Northern Plains COA and current Part 107 operations.
11, 14, 15, 19, 20, 22	Edits to facilitate removal of VOs as approved by FAA	Consistency with current Part 107 test operations.
18	To enable BVLOS flight as approved by FAA	Consistency with Northern Plains COA and current Part 107 operations.
23	To enable greater than 1:1 RPIC to UA ratios as approved by FAA	Consistency with Northern Plains COA and current Part 107 operations.
24	To enable flights in reduced weather minimums	Consistency with current Part 107 test operations.
25	To enable flights conducted at night time	Consistency with Northern Plains COA and current Part 107 operations.
26	Reduced operating distances and edits to reflect Zipline aircraft	Consistency with current Part 107 test operations.