Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Space Modernization for the 21st Century	)	SB Docket No. 25-306
	)	
	)	

COMMENTS OF THE ASSOCIATION FOR COMPETITIVE TECHNOLOGY

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SUMMARY

The Association for Competitive Technology (ACT) represents the global small business technology developer community. That community includes companies that design applications and connected devices that depend on satellite links to serve users outside the reach of terrestrial networks. ACT endorses the Commission's new part 100 framework and the *FNPRM*'s proposals that licensees receive greater operational flexibility through operational envelopes, that a part 100 experimental license be established, and that the treatment of handsets and IoT devices communicating with satellites be updated.

ACT urges the Commission to set operational envelopes according to objective technical parameters and to incorporate recurring forms of relief directly into the rules rather than dispense them through successive individual waivers. Any newly created Nomadic Terminals category should permit consumers to operate satellite-capable handsets and IoT devices under the service provider's blanket license, eliminating any need for a distinct licensing step for each individual device. The Commission should also revise its ESIM definitions so that a handset remains in one consistent category no matter where its user takes it. Consumer devices should likewise be allowed to rely on their existing part 2 equipment authorization to demonstrate compliance with RF exposure limits.

ACT further requests that the Commission refrain from inserting cybersecurity requirements into its satellite licensing processes. Other federal agencies already gather national security information from satellite operators. An additional layer of Commission requirements would lengthen the licensing timeline, and the Commission's authority in this domain is not clearly established. Public-private partnerships and risk-based methods continue to offer the more effective route for strengthening security in the sector.

ACT supports safeguards for radio astronomy against harmful interference and asks the Commission to ground those safeguards in currently operating facilities, demonstrated interference risk, and contemporary mitigation techniques. Fixed protection zones should be replaced by contours tailored to each band, and entries for facilities that have ceased operations should be removed. Operators should be permitted to protect a site either by coordinating or by employing mitigation methods that meet bright-line criteria, and coordination should not be allowed to function as a condition that delays licensing. Characterization of satellite emissions in the 50-200 MHz range should stay a voluntary best practice until the record demonstrates a need for the information and the Commission has established technical criteria for assessing it.

I. Introduction and Statement of Interest

The Association for Competitive Technology (ACT) submits these comments in response to the Further Notice of Proposed Rulemaking issued in this proceeding.[1] ACT is a not-for-profit trade association that represents the global small business technology developer community. Its members produce software applications and connected devices employed by consumers, businesses, and public institutions both in the United States and internationally. Those products encompass location and messaging tools, connected-vehicle and fleet services, remote patient monitoring and other connected-health offerings, and IoT systems deployed in agriculture, energy, and logistics. Such products require broadly available connectivity and frequently deliver their greatest value in locations where terrestrial mobile coverage is thinnest.[2]

Satellite systems now communicate directly with consumer handsets and compact IoT devices. Consequently, the rules the Commission adopts for space and earth stations increasingly determine what small developers are able to create. When carriers, device manufacturers, and enterprise customers can select among competing satellite providers on the basis of coverage, capacity, reliability, and price, developers gain the ability to design products that function in a wider range of places for a broader set of users.[3] ACT therefore possesses a direct interest in a licensing framework that permits satellite operators to expand capacity and modify operations promptly, that treats consumer devices as consumer devices, and that resolves interference questions on the strength of technical evidence.

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[1] *Space Modernization for the 21st Century*, Report and Order and Further Notice of Proposed Rulemaking, SB Docket No. 25-306, FCC 26-47 (rel. July 23, 2026) (*Order* or *FNPRM*, as applicable); 91 Fed. Reg. 67225 (Oct. 26, 2026).

[2] *See* Reply Comments of the Association for Competitive Technology, *Kuiper Systems LLC*, ICFS File No. SAT-LOA-20260601-00224, at 2 (filed Oct. 5, 2026) (*ACT Amazon Leo Reply*).

[3] *See ACT Amazon Leo Reply* at 3.

II. Operational Envelopes Should Become the Default Way the Commission Authorizes Changes

The *FNPRM* proposes to recast the part 100 operational rules as operational envelopes that would allow a licensee to alter its operations inside approved boundaries without obtaining fresh Commission approval, and ACT supports that proposal.[4] At present, an operator seeking to adjust operations within limits the Commission has already deemed acceptable must typically submit a modification application, a request for special temporary authority, or a waiver. Each such filing consumes time, and the resulting delay affects the developers and device makers who plan products around a satellite system's coverage and capacity. The Commission's own analysis acknowledges that operational envelopes would eliminate repetitive paperwork, reduce reliance on temporary authority and waiver requests, and lower the likelihood that small applicants will need to retain lawyers or engineers for routine filings.[5]

ACT asks the Commission to define each envelope through objective technical parameters that an operator can verify independently, so that a licensee remaining inside its envelope knows further approval is unnecessary. The same principle should guide the *FNPRM*'s initiative to shorten the lists of major and minor modifications and to identify changes that may proceed without prior authorization.[6] Clear envelopes would also supply the Commission with a superior instrument to case-by-case waivers. When numerous applicants require identical relief, the Commission should embed that relief in its rules, because rules furnish every operator, including new entrants, with identical terms and identical predictability.[7]

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[4] *FNPRM* ¶ 344.

[5] *FNPRM*, App. D (Initial Regulatory Flexibility Analysis) ¶ 8.

[6] *FNPRM* ¶ 369.

[7] *See* Comments of the Association for Competitive Technology, *Unleashing Unlicensed Spectrum for Direct-to-Device*, ET Docket No. 26-169, Section II (filed Nov. 9, 2026).

These advantages extend to small entities across the satellite ecosystem. ACT requests that the Commission, in its final regulatory flexibility analysis, account for the small developers and device makers that construct products atop satellite services, in addition to the operators already addressed in the initial analysis.

III. The Commission Should Treat Consumer Handsets and IoT Devices as Consumer Devices

Part 100 continues to treat user terminals and handsets as earth stations, and the *FNPRM* inquires whether those devices should be defined formally and whether a Nomadic Terminals category, regulated according to use, should be created to encompass ESIMs, handsets, and IoT devices.[8] ACT asks the Commission to ensure that any new category permits consumers to employ satellite-capable handsets and IoT devices without a separate licensing step for each device.[9] A consumer who purchases a phone or a connected sensor that carries a valid equipment authorization should be able to use that device with an authorized satellite service, and the service provider's blanket license should cover the use. If the Commission adopts a two-tier approach that distinguishes continuously moving devices from devices that are ordinarily fixed yet relocatable,[10] the distinction should affect only the applicable technical parameters. It should not impose licensing or coordination obligations on consumers or on the developers whose software operates on those devices.

The *FNPRM* further recognizes that the present ESIM definitions predate current technology and could encompass a phone used aboard a vessel or inside a vehicle, or even the

[8] *FNPRM* ¶ 359.

[9] *See ACT Amazon Leo Reply* at 5.

[10] *FNPRM* ¶ 359.

connectivity of a wheelchair user, because the vehicle-mounted definition hinges on the presence of a motor.[11] ACT concurs that these definitions require revision and asks the Commission to revise them so that a handset or consumer IoT device remains in the same regulatory category wherever its user carries it, and so that rules written for antennas mounted on ships, aircraft, and trucks do not apply to devices that people carry or wear. The same reasoning supports the *FNPRM*'s objective of allowing unmanned aircraft to use satellite spectrum without individualized licensing, including by treating small unmanned aircraft like other consumer equipment where that treatment matches how they operate.[12]

The *FNPRM* also asks whether earth station applicants should certify compliance with the part 2 RF exposure limits and furnish technical showings only upon request.[13] ACT supports this approach because handsets and IoT devices already demonstrate RF exposure compliance through the part 2 equipment authorization process, and a second showing inside a satellite application adds cost and delay without increasing protection. A certification approach permits the Commission to rely on the process that device makers already follow and keeps that process as the single locus where a consumer device demonstrates compliance.

IV. A Part 100 Experimental License Would Help Smaller Firms Test New Satellite Services

The *FNPRM* proposes a new space-based experimental license administered by the Space Bureau that would retain the two-year term and the unprotected, non-interference status of part 5, omit public notice, rely on a certification that operations serve testing, experimentation,

[11] *FNPRM* ¶ 360.

[12] *FNPRM* ¶ 361.

[13] *FNPRM* ¶ 364.

demonstration, or validation, and provide a path to conversion into a regular part 100 license.[14] ACT supports the proposal because startups and other smaller firms frequently build and test payloads, software-defined radios, and ground-segment software before they possess customers or the resources required to prepare a full license application. A single, predictable experimental path inside the Space Bureau would shorten the interval these firms spend waiting to test, and a clear conversion path would allow a successful test to proceed to commercial service without restarting the licensing process. ACT asks the Commission to keep the certification simple and to adapt the product development and market trial provisions for space-based operations, so that experimental operators can test with the developers and device makers who will build upon a new service and so that testing mirrors how the service will function in practice.[15]

V. The Commission Should Not Add Cybersecurity Requirements to Satellite Licensing

The *FNPRM* asks whether the Commission should incorporate cybersecurity requirements into its satellite licensing processes, whether national security considerations support the collection of information about or the imposition of requirements on satellite operators' cybersecurity practices, and whether such requirements would complement or duplicate obligations that other federal agencies already impose.[16] ACT urges the Commission not to add cybersecurity requirements to its licensing processes. ACT joined other technology and communications associations in cautioning the Commission against regulating cybersecurity through its equipment authorization process, because that regulation risked duplicating or

[14] *FNPRM* ¶¶ 345-354.

[15] *FNPRM* ¶ 351.

[16] *FNPRM* ¶ 403.

disrupting work already under way in other agencies and in industry, would have strained the Commission's resources and slowed an authorization process it had worked to streamline, and rested on uncertain legal authority.[17] Those concerns apply with equal force to satellite licensing, where, as the *FNPRM* observes, other federal agencies already collect national security information from satellite operators and a separate set of Commission requirements would add another layer for operators to satisfy without a clear gain in security.

Cybersecurity review would also slow the licensing assembly line the *Order* created and would work against the speed and predictability that the operational envelope proposal seeks. Cybersecurity in the satellite sector is better advanced through public-private partnerships and risk-based approaches that industry develops with government, which can adapt to new threats faster than license conditions can.[18] If the Commission identifies a specific national security risk that existing federal requirements do not address, ACT asks the Commission to take it up in a separate proceeding with a targeted proposal, and not through general conditions attached to every license.

VI. Radio Astronomy Protection Should Rest on Current Facilities, Demonstrated Risk, and Modern Mitigation

The *FNPRM* proposes to collect radio astronomy requirements in one rule section and asks whether the existing power flux density limits around U.S. radio astronomy sites remain necessary, whether contours for each frequency band should define where coordination applies if

[17] Letter from ACT – The App Association et al. to Marlene H. Dortch, Secretary, FCC, ET Docket No. 21-232, at 1-3 (filed Sept. 20, 2021) (addressing the Notice of Inquiry) (*2021 Industry NOI Letter*); Letter from ACT – The App Association et al. to Marlene H. Dortch, Secretary, FCC, ET Docket No. 21-232, at 2 (filed Sept. 20, 2021) (addressing the Notice of Proposed Rulemaking).

[18] *See 2021 Industry NOI Letter* at 2.

the limits remain, and which mitigation techniques, if any, should serve as bright-line criteria that receive the public interest presumption.[19] ACT supports protecting radio astronomy from harmful interference and asks the Commission to retain only the restrictions that technical evidence shows are necessary to prevent harmful interference. Broader restrictions reduce satellite coverage and capacity across large areas, and the people who use handsets and IoT devices in those areas, many of them in rural communities, lose service without any corresponding benefit to astronomy. This approach also matches the standard ACT has urged for interference claims generally, under which a concrete risk shown through technical evidence leads to targeted conditions and coordination, while a speculative or unsupported claim does not delay service.[20]

The rules the *Order* carried into part 100 protect listed observatories from 1.6/2.4 GHz mobile-satellite service operations with fixed zones of 160 kilometers and 50 kilometers, and the 160-kilometer list still includes Arecibo, Puerto Rico, and Ohio State.[21] ACT asks the Commission to replace these fixed radii with contours specific to each band and each site, drawn from current facilities and actual interference risk. Outside a retained contour, operators should face no additional radio astronomy restrictions or coordination duties. The Commission should also remove any entry for a facility that no longer operates. The 305-meter Arecibo telescope collapsed in December 2020, and the National Science Foundation has decided not to rebuild it.[22]

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[19] *FNPRM* ¶ 404.

[20] *See ACT Amazon Leo Reply* at 5-6; Comments of ACT | The App Association, ET Docket No. 18-295, GN Docket No. 17-183 (filed May 26, 2022).

[21] *Order*, App. A, 47 CFR § 100.244(a)(1)(i)-(ii); *see also* 47 CFR § 25.213(a)(1)(i)-(ii).

[22] Nat'l Sci. Found., *Arecibo Observatory's 305-M Telescope Collapse*, https://www.nsf.gov/mps/ast/env_impact_reviews/arecibo/eis/305-meter_collapse.jsp; *Fallen Arecibo Observatory telescope won't be rebuilt despite scientists' hopes*, Space.com, https://space.com/arecibo-observatory-telescope-replaced-education-center.

Ohio State University's radio observatory closed at the end of 1997, and developers demolished it in 1998.[23] Any protection that remains at Arecibo should reflect the instruments that the observatory still uses.

Inside a retained contour, an operator should be able to choose between coordinating with the observatory and showing that its system protects the site through techniques such as geofencing, beam steering, dynamic frequency management, or operational data sharing. The *FNPRM* itself points to operational data sharing that avoids boresight encounters and to high-precision ephemerides that help telescopes schedule observations around satellites.[24] ACT asks the Commission to adopt these techniques as bright-line criteria that receive the public interest presumption and to accept a single showing for an entire system instead of separate showings for each site or frequency. Technology-neutral criteria of this kind let each operator use the method that fits its system and let the rules keep pace as mitigation improves.[25]

Coordination should help satellite operators and observatories share spectrum, and it should not work as a veto over licensing. The Commission should not condition a grant on the completion of negotiations with radio astronomy stakeholders, and it should not add new approvals before operations begin where the technical rules and demonstrated mitigation already address interference. Voluntary sharing of operational data between operators and observatories should remain the preferred approach. Protection should also follow the rights the Table of

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[23] Ohio State Univ. Radio Observatory & N. Am. AstroPhysical Observatory, *Big Ear Memorial Website*, https://bigear.org/.

[24] *FNPRM* ¶ 404.

[25] *See* Comments of ACT | The App Association to the Nat'l Oceanic & Atmospheric Admin. Office of Space Commerce and the Dep't of State Office of Space Affairs regarding the European Union's Space Act (Aug. 14, 2025), https://actonline.org/wp-content/uploads/ACT-Comment-re-NOAA-State-Dept-RFI-on-EU-Space-Act-14-Aug-2025.pdf.

Frequency Allocations already sets, so that radio astronomy observations in bands not allocated to or otherwise protected for that service do not create new restrictions on satellite operations authorized in those bands.

Finally, the *FNPRM* asks whether space station applicants should model or measure their emissions in the 50-200 MHz range and summarize other steps they take to reduce interference from space-to-Earth transmissions.[26] Until the record shows a need for this information and the Commission has set technical criteria for evaluating it, characterization of these emissions should remain a voluntary best practice and should not become an application requirement. A new mandatory showing without settled criteria would add cost and delay for every applicant, and that burden would fall hardest on smaller operators and new entrants.

VII. Conclusion

ACT appreciates the opportunity to submit these comments. ACT asks the Commission to adopt operational envelopes defined by objective technical parameters, to treat consumer handsets and IoT devices as consumer devices in any new terminal category, to create a part 100 experimental license, to leave cybersecurity to existing federal requirements and public-private efforts instead of adding licensing requirements, and to base radio astronomy protection on

[26] *FNPRM* ¶ 404.

current facilities, demonstrated interference risk, and modern mitigation. ACT looks forward to working with the Commission as it completes the move to part 100.

Respectfully submitted,

/s/ Brian Scarpelli
Brian Scarpelli
Senior Global Policy Counsel

Chapin Gregor
Global Policy Counsel

Association for Competitive Technology
1401 K St NW (Ste 501)
Washington, DC 20005
202-331-2130

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