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February 18, 2022

Via Electronic Comment Filing System (ECFS)
Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street, NE
Washington, DC 20554

Re: AURA Network Systems OpCo, LLC and A2G Communications, LLC Petition for Rulemaking, RM-11912; Notice of *Ex Parte* Presentation

Dear Ms. Dortch:

On February 17, 2022, Bill Tolpegin, Chief Executive Officer, Tamara Casey, President and Chief Technology Officer, and Sue Crandall, Vice President of Legal & Regulatory, AURA Network Systems OpCo, LLC ("AURA"), and Michele Farquhar and John Castle, counsel to AURA, met with Ethan Lucarelli, Acting Wireless Legal Advisor to Chairwoman Jessica Rosenworcel, to discuss the following topics included in the attached presentation:

(1) Recent AURA business developments, including the signing of a four-year Cooperative Research and Development Agreement ("CRADA") with the FAA to develop performance standards for air traffic control voice communications that support uncrewed aircraft systems ("UAS"); and

(2) The need for FCC action on AURA's pending Petition for Rulemaking ("Petition") to modernize the general aviation Air-Ground Radiotelephone Service in the 450 MHz band (454.675-454.975 MHz and 459.675-459.975 MHz), which would enable more efficient, effective, and timely service to crewed aircraft and UAS.

Consistent with the overwhelmingly supportive record developed in response to the Petition in the above-referenced proceeding, AURA urged the Commission to adopt a Notice of Proposed Rulemaking. If you have questions or comments, please do not hesitate to contact the undersigned.

Sincerely,

/s/ Michele C. Farquhar
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Partner
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Counsel to AURA Network Systems OpCo, LLC

cc: Ethan Lucarelli

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AURA NETWORK SYSTEMS

AURA Overview

February 2022

Company Overview

FOUNDED
2019

UNIQUE
FCC LICENSED,
AVIATION APPROVED
454/459MHz
SPECTRUM

Exceptional propagation capabilities

Manned & unmanned use

ACQUIRED

AURA NETWORK SYSTEMS

55
BASE STATIONS

BUILT

CRITICAL SAFETY
DATA LINKS
for
MANNED AVIATION,
TELEMETRY,
CNPC,
ATC VOICE
COMMUNICATIONS,
AIR-BASED DAA
etc.

NETWORK

NATIONWIDE
"MACRO CELL"
GROUND STATION
COVERAGE

No altitude restrictions

Authorized
to provide service
anywhere in US

DELIVERING

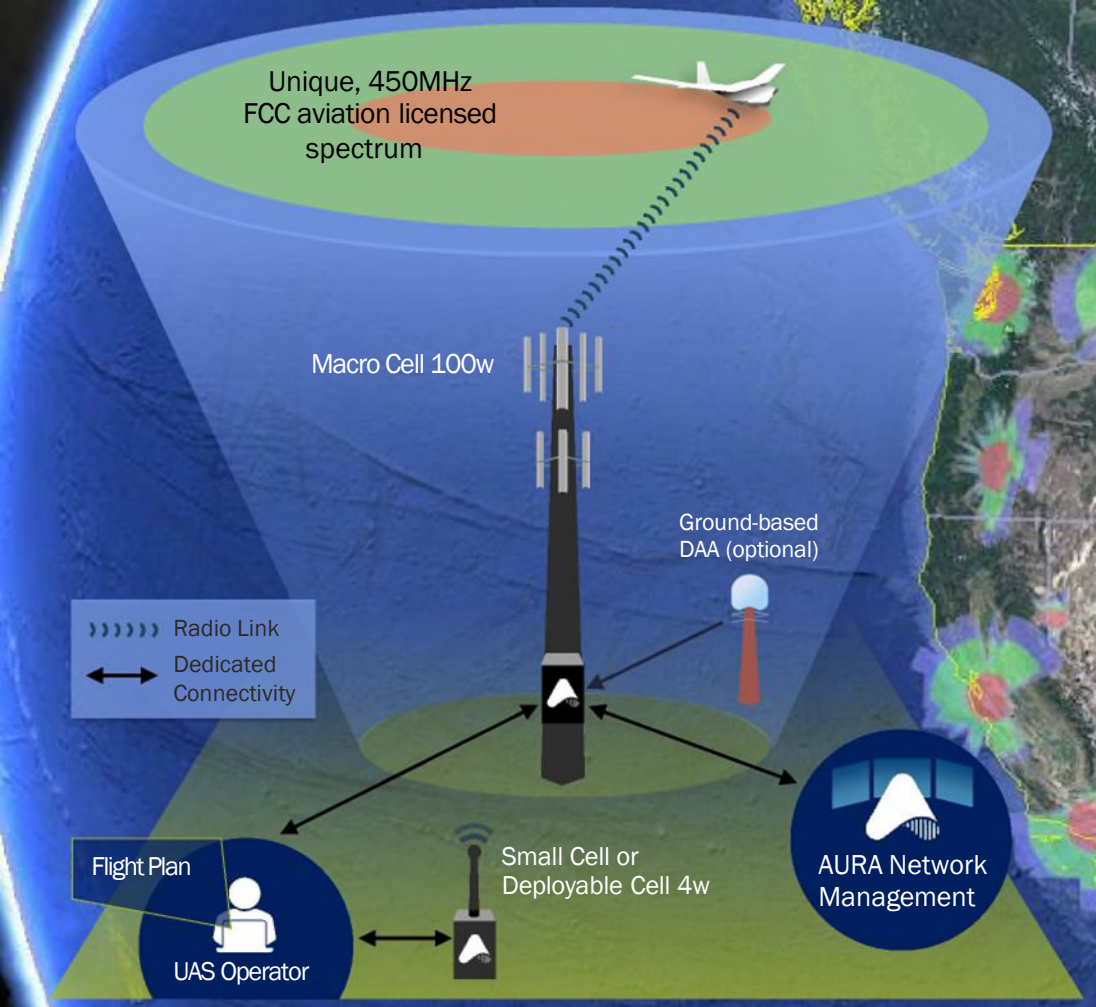
CARGO,
UAM/AAM,
USG,
LINEAR INSPECTION,
HAPS,
etc.

CONOPS

AURA NETWORK SYSTEMS

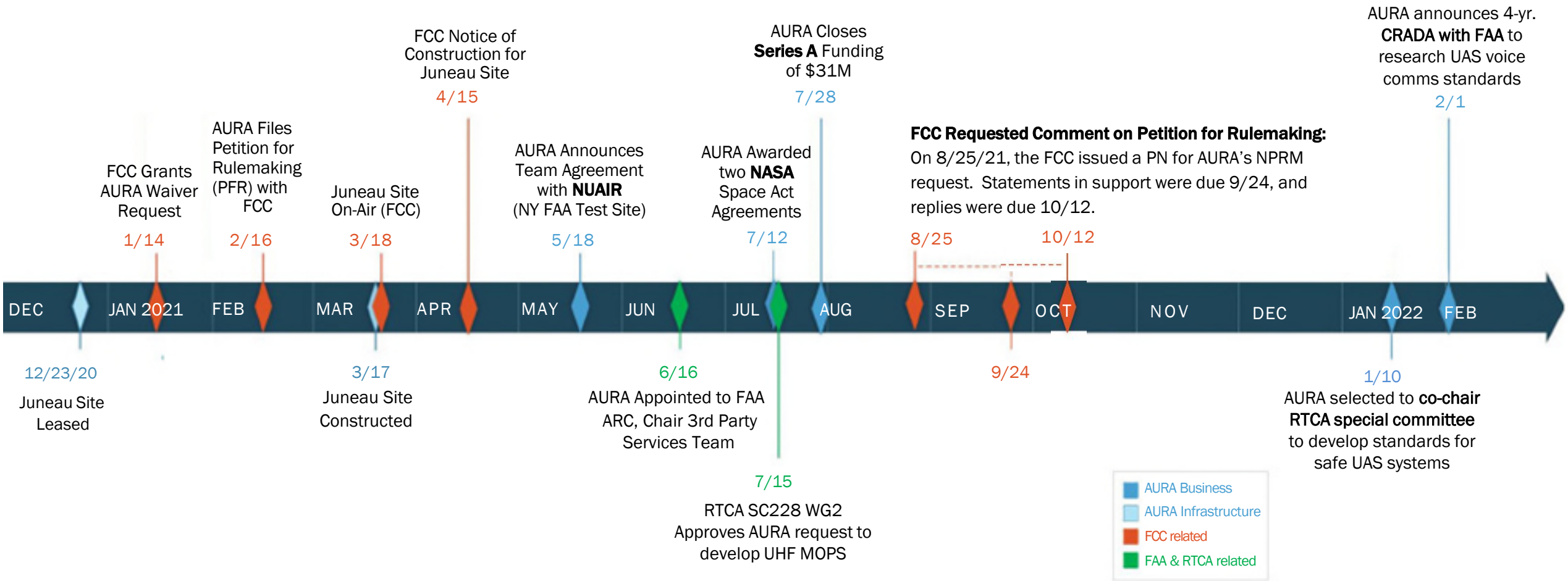
55 Sites

CONOPS SOLUTION	UAS RLP DESIGN	ATTRIBUTES	THIS COVERAGE MAP	SERVICE KEY
Cargo UAM/AAM	CNPC	Ultra reliable radio link	Uplink Plots	Enhanced
Linear Inspection	Airborne DAA	Aviation-standard safety	4-Watt Airborne Radio	Nominal
USG	Voice	Privacy & Security	Air to Ground	Cell Edge
HAPS, etc.	Telemetry	Low latency	5,000 ft Elevation	



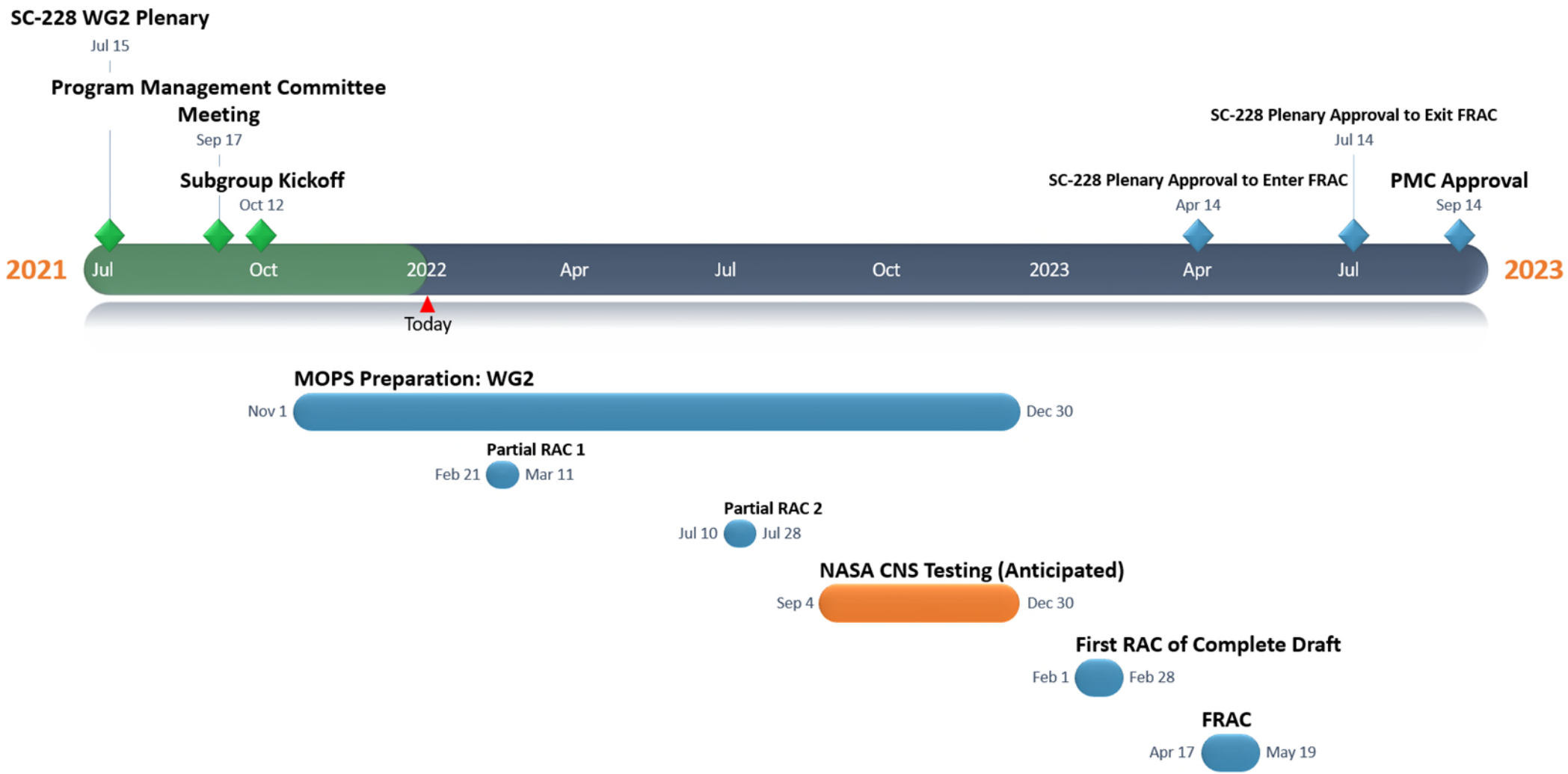
AURA's unique, aviation-approved spectrum enables extensive BVLOS coverage thanks to excellent propagation characteristics

Post FCC Waiver - AURA Milestones 2021-2022



AURA

RTCA Special Committee 228 (SC-228) Timeline



FCC Background

- Benefits of the Small 450 MHz Band: AURA controls a small amount of aviation designated spectrum used for manned aviation (< 1 MHz) that could also be used to create a low cost, secure and reliable nationwide network to support command and control services (C2) for UAS
- AURA's Waiver Request: AURA filed a Waiver Request with the FCC on June 6, 2020, to modify the rules of the band to enable the development of its C2 network and to enable UAS to integrate into the National Airspace
  - Current rules in the band were established a generation ago and need to be updated to provide flexible services and comply with modern network practices
- Widespread Support: Broad support was expressed in the record for the waiver: 20 out of 21 comments fully supported the waiver request, including public safety, utilities, and aerospace companies
- No Other Licensees or Lessees in the Band: Since AURA occupies the entire band, the waiver does not impact other stakeholders and allows airframe partners to plan FAA certification efforts around AURA's network
  - AURA enables a wide range of safety cases for aviation service providers. For example, we are working with NASA under two Space Act agreements to demonstrate this capability and the FAA on Air Traffic Control voice communications supporting UAS.
- FCC Grants Waiver: On January 14, 2021, the FCC's Mobility Division granted the waiver request, and on February 16, AURA filed a Petition for Rulemaking (PFR) as required by a condition in the waiver grant. AURA would like the FCC to codify the rule changes requested in the PFR in order to provide certainty to our aviation partners and enable AURA to best serve the aviation industry in the future (both manned and unmanned)

AURA Petition for Rulemaking (RM-11912)

- Public Notice: The FCC sought comment on AURA's Petition on August 25, 2021 (Report No. 3181)
- Comment Cycle: Initial filings were due September 24, and responses were due no later than October 12
- The record was overwhelmingly positive: No party objected to the Petition's request
  - More than two dozen separate entities supported updating the FCC's rules so that the 450 MHz band could efficiently and effectively support both crewed aircraft and UAS
  - Support came from a wide range of entities, including:
    - **Public safety organizations** (e.g., NPSTC)
    - **Critical infrastructure and utilities** (e.g., Utilities Technology Council)
    - **UAS testing locations** (e.g., Choctaw Nation of OK, University of Maryland UAS Test Site, Northern Plains UAS Test Site)
    - **Network technology companies** (e.g., Ondas Networks, Federated Wireless)
    - **Private aeronautical industry** (e.g., Metro Aviation, Wisk, AeroVironment, Xwing)

RM-11912: Modernizing the 450 MHz Band

> Waiver Order (DA 21-58): On January 14, 2021, the FCC granted AURA's request to waive certain Part 22 rules subject to the conditions expressed in the Waiver Order

> Even with the Waiver Order, AURA remains subject to unnecessary administrative burdens: Section 22.817 limits AURA to adding only one channel per application, and each application must go through a 30-day public notice period. This process is time-consuming, expensive, and unnecessary, slowing down further deployment and AURA's ability to efficiently serve manned and unmanned customers

- The administrative burdens negatively affect AURA and the FCC by dramatically increasing the number of applications that must be filed and granted.
- For example, to license an already existing 5-channel location so that it may serve UAS on each channel, Section 22.817 requires AURA to file five separate applications, each of which is subject to a 30-day public notice period. Therefore, under Section 22.817, it could take at least five months to enable UAS at an already licensed location.

> AURA is investing its resources to expand network capabilities and efficiently provide innovative services to all types of aviation aircraft: Permanent rule changes would provide more regulatory certainty

> Modernizing the FCC's rules consistent with the Petition will resolve these issues: Quickly adopting an NPRM will serve the public interest by allowing AURA to more efficiently address the demand for AURA's services

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PFR Summary

	Change Requested	Section	Comments
1	Enable UAS	2.106	Change allocation table to permit provision of expanded "air ground radio telephone service."
		22.99 & 22.805	Change "air ground telephone service" definition to include information (data) services to all aviation subscribers
2	Relax in-band Guard Band Regulation	22.805	Don't require in-band guard bands for contiguous channels licensed to a single entity
			• An entity can manage in-band guard bands
			• Guard bands at band edges are still required
			• Since AURA effectively exclusively occupies the entire band, it will be able to harness new digital technology developments without regard to 20 KHz channel requirement
3	Eliminate Power Restrictions	22.809	Remove the 50-watt (ground station) and 4-watt (airborne transmitter) minimum power requirements
			• These requirements are unnecessary given current technology and market incentives to meet customer demands cost-effectively
4	Allow Short Spacing to Our Own Facilities	22.813(a)	The colocation requirements should only apply to parties other than the applicant, that is, a licensee should be able to short space itself
			• There is no policy basis for barring a licensee from short spacing itself
			• AURA as the effective exclusive licensee will be able to build out its network as it sees fit
		22.813(b)	Is unnecessary and should be removed. Petitioners' nationwide network makes concerns about regional gaps moot.
5	Eliminate Channel by Channel Licensing	22.817	Should be eliminated
			• There is no need to require applicants to request channels individually
			• The Petitioners have the incentives to manage their network for maximum efficiency and avoid interference
			• Elimination would be consistent with previous waivers and reduce unnecessary FCC workload

AURA

Additional Updates

> Pending Assignment Application: AURA has filed an assignment application to become the licensee for the 450 MHz band licenses that it currently leases from A2G Communications LLC

- AURA and A2G filed the application (ULS File No. 0009752785) on October 13, 2021. The application remains pending.

> Experimental Operations: AURA currently has five experimental authorizations for testing equipment combinations in different aeronautical environments

- AURA has two experimental licenses that were previously STAs and three experimental STAs.

> FAA Agreement to Test ATC: On February 1, AURA announced the launch of a four-year research project with the FAA to develop performance standards for air traffic control (ATC) voice communications that support UAS

- The project will inform regulations that empower a variety of applications, including cargo flights, infrastructure inspection, and first-responder operations.
- The project was launched pursuant to a four-year Cooperative Research and Development Agreement (CRADA).