Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
Revisions to 47 CFR Part 90 rules for Public Safety Communications and Signal Boosters	)	RM- [TO BE ASSIGNED]
	)	
	)	

PETITION FOR RULEMAKING

July 22, 2025

Filed By:
Safer Buildings Coalition
John Foley, Managing Director
950 SE Oak Ave
Roseburg, OR 97470
Tel: (610) 291-3856
email: john.foley@saferbuildings.org

NOTE: Corrected Filing

- Supersedes Submission IDs 1071895389395 and 107210863615884
- Removed words “SBC Internal Confidential” and “DRAFT” from footer of original filing.
- Added Footnote on page 24 and updated subsequent footnote numbering

Table of Contents

I. SUMMARY 3
A. Critical Problems Addressed: 3
B. Proposed Solution: 4
II. STATEMENT OF INTEREST 4
III. BACKGROUND 5
A. Current Regulatory Context and Need for Framework 6
B. Fire Code Evolution and Authority Having Jurisdiction Role 6

C. Implementation Challenges Despite Code Improvements: 7
D. Problem Statement and Critical Public Safety Implications 8
E. Root Cause Analysis 9
IV. PROPOSED RULE CHANGES 11
A. Proposed Framework Based on Frequency Coordination Precedents 11
1. Request for Permission Process 11
2. Evaluation and Grant Authority 13
3. Written Permission and Database Tracking 15
4. Third-Party Participation Framework 15
5. Renewal Cycle and Terms 16
6. Campus and Multi-Building Property Requirements 16
7. Registration of Class A and Class B signal boosters 17
8. Enhanced Equipment Labeling and Manufacturer's Instructions 17
V. JUSTIFICATION AND SUPPORTING ARGUMENTS 18
A. Legal Authority 18
B. Technical Justification 18
C. Public Interest Benefits 19
D. Supporting Data and Studies 22
VI. IMPLEMENTATION STRATEGY 24
A. Third-Party Involvement: 24
B. Examples of Successful Third-Party Management: 24
C. Potential Fee Structure Considerations 25
D. Existing FCC Fee Precedents 25
E. Potential Fee Structure Options 25
F. Fee Exemptions Considerations 26
G. Documentation of Pre-existing Signal Boosters 26
VII. CONCLUSION 27
A. Specific Relief Requested *(See specific rule change recommendations in **Section IV**)* 27
B. Supporting Education and Outreach Initiative 28

C. Justification for Urgent Action 29
D. Documented Evidence of Critical Need: 29
E. Public Interest Imperative 29
F. Legal and Technical Foundation 30
G. Conclusion 30
APPENDIX I 31
Bi-Directional Amplifier Focus Group (BDAFG) Planning Document 31
APPENDIX II 34
APCO Survey Summary: Signal Booster Deployment, Noise and Interference 34
APPENDIX III 37
Volunteer Members of the SBC No Noise Task Force 37
APPENDIX IV 39
Email from FCC Designating FCC Resources on Booster Information for SBC Task Force 39

I. SUMMARY

Current 47 CFR § 90.219[1] requires "express consent" from frequency licensees for signal booster operations but provides no specific guidelines for how consent is requested, granted, or tracked. This proposal establishes a comprehensive authorization framework modeled after existing frequency coordination procedures to address documented interference issues affecting public safety communications[2].

A. Critical Problems Addressed:

- **Life Safety Risks:** Improperly deployed signal boosters are interfering with, degrading, and disrupting public safety communications during critical emergency responses, potentially placing first responders and civilians in jeopardy
- **Resource Diversion:** Essential public safety communications staff and technical personnel are being diverted from maintaining critical infrastructure and supporting emergency operations

[1] 47 C.F.R. § 90.219 (2025).

[2] Federal Partnership for Interoperable Communications (FPIC) Bi-Directional Amplifier Focus Group (BDAFG) Planning Document (Nov. 27, 2023), Appendix I.

to locate and mitigate interference issues caused by uncoordinated signal booster deployments

- **Regulatory Violations:** Signal boosters are being installed without required frequency licensee consent[3] and in areas where they are not needed, violating FCC Part 90 rules[4] that require express permission and limit deployment to weak signal areas only
- **System Overload:** Public safety agencies lack sufficient resources to properly review the growing volume of signal booster requests, leading to inadequate technical oversight and approval of problematic systems
- **Coordination Breakdown:** Critical lack of coordination between fire and building code officials and frequency license holders, excluding frequency license holders from the approval process despite their legal authority under FCC rules
- **Authority Misdirection:** Fire codes and AHJ processes that are inadvertently diverting regulatory authority from frequency license holders (who have legal authority to grant rebroadcast permission under FCC rules) to AHJs who lack such authority
- **Education and Awareness Gaps:** Widespread lack of education and awareness among AHJs regarding FCC rules governing signal booster deployment and frequency rebroadcast authorization requirements
- **Guidelines Deficiency:** Absence of comprehensive written guidelines and standardized procedures for building owners, contractors, AHJs, and frequency license holders to follow in the signal booster authorization process
- **Competency Challenges:** The recent influx of inexperienced contractors into the signal booster market, combined with insufficient RF engineering expertise, is contributing to increased incidents of technical violations and interference incidents

B. Proposed Solution:

A structured authorization framework using proven frequency coordination precedents to establish clear procedures for requesting, evaluating, granting, and tracking rebroadcast consent while maintaining frequency licensee control over their spectrum rights.

II. STATEMENT OF INTEREST

The Safer Buildings Coalition (SBC) is an independent, not-for-profit 501(c)(4) organization providing thought leadership and education focused on advancing policies, ideas, and technologies that

[3] 47 C.F.R. § 90.219(b)(1)(i) (2025).
[4] 47 C.F.R. § 90.219(d)(1) (2025).

ensure effective in-building communications capabilities for public safety personnel and the communities they serve. The SBC is dedicated to the missions of eliminating in-building wireless "dead zones" while combating harmful RF noise and interference.

The SBC has conducted over 180 comprehensive seminars since 2013, attended by over 10,000 people from public safety, industry, government, and end-users involved in providing in-building coverage for public safety and the public. SBC leadership has presented globally at national and international conferences for public safety and commercial wireless communications, school safety, and workforce development.

In response to the problems identified in this petition, SBC established a comprehensive No Noise Task Force in 2021[5], with participation from industry veterans representing fire services, public safety communications, wireless technology, and equipment manufacturers. Additionally, the FCC designated representatives from the Enforcement Bureau, Public Safety and Homeland Security Bureau, Office of Engineering and Technology, and Wireless Telecommunications Bureau to serve as resources to the Task Force[6]. One of the key recommendations of that Task Force was the development and filing of this petition.[7] This carefully considered petition is the result of over four years of research, preparation, and cross-stakeholder collaboration.

III. BACKGROUND

The problem of “wireless dead zones” inside buildings that block critical public safety communications is well-established. The 2013 FCC Report and Order (WT Docket No. 10-4) acknowledged this problem and the important role that signal boosters play in mitigating such problems, stating: “Signal booster systems play a crucial role in allowing public safety first-responders to communicate in buildings, tunnels and other areas where signals would normally be blocked.” and, “We find that allowing third parties to operate signal boosters with express licensee consent serves the public interest by promoting reliable communications, particularly reliable public safety communications.” [8]

While signal boosters are not the only possible solution for correcting poor public safety communications coverage inside buildings, they do play an essential role and are likely to continue doing so for the foreseeable future. The Commission's recognition of their importance is further

[5] Safer Buildings Coalition, "SBC Issues No Noise Call to Action," https://www.saferbuildings.org/sbc-issues-no-noise-call-to-action; Volunteer Members of the SBC No Noise Task Force, Appendix III.
[6] Email from Michael Wilhelm, Chief, Policy and Licensing Division, Public Safety and Homeland Security Bureau, FCC, to John Foley, Managing Director, Safer Buildings Coalition (Feb. 24, 2021), Appendix IV.
[7] No members of FCC staff participated in preparing or reviewing this petition.
[8] Report and Order, In the Matter of Amendment of Parts 1, 2, 22, 24, 27, 90, and 95 of the Commission's Rules to Improve Wireless Coverage Through the Use of Signal Boosters, WT Docket No. 10-4, 28 FCC Rcd 1663 (2013) (2013 R&O) ¶ 151.

evidenced by the establishment of comprehensive technical standards and the requirement for express licensee consent to ensure proper coordination and interference prevention.

Unfortunately, the regulatory framework established in 2013, while comprehensive for consumer signal boosters, left significant implementation gaps for industrial signal booster deployment. As a result, poorly deployed or designed signal booster systems are now causing critical problems that directly impact public safety operations and first responder safety. Root cause analysis reveals three primary categories of problems requiring immediate attention:

- Failure of System Installers and Designers to Follow FCC Rules
- Lack of RF Design and Installation Competency
- Regulatory Framework Gaps from 2013 Rulemaking

Current 47 CFR § 90.219[9] requires "express consent" from frequency licensees for signal booster operations but provides no specific guidelines for how consent is requested, granted, or tracked. This critical process gap severely impacts the ability of frequency licensees to "maintain a reasonable level of control over these operations in order to resolve interference problems"[10] as contemplated by the Commission's 2013 framework.

The documented interference issues affecting public safety communications demonstrate that while the 2013 rulemaking correctly identified the need for express consent, the absence of standardized authorization procedures has prevented effective implementation of this requirement. This proposal establishes a comprehensive authorization framework modeled after existing frequency coordination procedures to address these documented problems while preserving the beneficial role that properly deployed signal boosters play in public safety communications.

A. Current Regulatory Context and Need for Framework

The 2013 FCC Report and Order (WT Docket No. 10-4)[11] established comprehensive rules for consumer signal boosters but left significant gaps in Part 90 industrial signal booster regulation. The current regulation mandates "express consent" but provides no standardized framework for obtaining, granting, or tracking such consent, leading to the deployment of signal boosters without proper coordination with frequency licensees.

B. Fire Code Evolution and Authority Having Jurisdiction Role

Since the inclusion of in-building wireless coverage requirements for public safety were published in fire and building codes and standards beginning in 2009, code enforcement Authorities Having

[9] 47 C.F.R. § 90.219, supra note 1.
[10] 47 C.F.R. § 90.219(b)(1), supra note 1.
[11] 2013 R&O, supra note 8.

Jurisdiction (AHJs) have had an increasing role in requiring the deployment of solutions called Emergency Responder Communication Enhancement Systems (ERCES), also sometimes known as Emergency Responder Radio Coverage Systems (ERRCS), Two-Way Radio Coverage Systems, and other nomenclature. These almost always rely on the deployment of Part 90 Signal Boosters, also known as Bi-Directional Amplifiers (BDAs).

Early versions of fire code did little to highlight FCC Part 90 rules that require permission from the Frequency License Holders to rebroadcast their licensed frequencies. Newer versions of the standard, such as NFPA 1225 Standard for Emergency Services Communications,[12] have made many improvements in this area, including the addition of 17 specific references to the authority and role of the Frequency License Holder in the standard. Key provisions include:

- **Frequency License Holder Definition (3.3.64):** "The person(s) or entity(ies) that hold the license from the licensing authority of the country of jurisdiction for the frequencies being used by both the in-building emergency responder communications enhancement system and the emergency services communications system that it enhances."[13]
- **Written Authorization Requirements (18.7.2):** "Written authorization by the frequency license holder shall be required upon initial installation and prior to activation of the emergency responder communications enhancement system."[14]
- **Non-Interference Requirements (18.6.1):** "No in-building emergency responder communications enhancement system capable of operating on frequencies or causing interference to frequencies assigned to the jurisdiction by the licensing authority of the country of jurisdiction shall be installed without prior coordination and approval of the AHJ and the frequency license holder(s)."[15]

C. Implementation Challenges Despite Code Improvements:

Despite these significant improvements to fire codes and standards, several factors have prevented effective implementation of frequency license holder coordination requirements:

- **Code Adoption Lag:** The typical multi-year lag in adopting newer versions of fire codes and standards means many jurisdictions continue operating under outdated requirements that lack frequency license holder coordination provisions
- **Educational Deficits:** Widespread lack of education and understanding among AHJs regarding these enhanced requirements and their importance for preventing interference

[12] NFPA 1225, Standard for Emergency Services Communications (2019 ed.).
[13] Id. § 3.3.64.
[14] Id. § 18.7.2.
[15] Id. at 4 § 18.6.1.

- **Outdated Jurisdiction Guidelines:** Failure to update existing local jurisdiction guidelines, procedures, and training materials to reflect the enhanced frequency coordination requirements in newer standards
- **Institutional Resistance:** Reluctance to modify established processes and add coordination steps that may be perceived as complicating or delaying fire code compliance
- **Resource Constraints:** Limited resources for training AHJ staff on new requirements and developing coordination procedures with frequency license holders

These implementation challenges have resulted in continued deployment of signal boosters without proper frequency license holder involvement, perpetuating the interference problems that the improved standards were designed to prevent.

D. Problem Statement and Critical Public Safety Implications

Severity of Current Problems

Poorly deployed or designed signal booster systems are causing the following critical problems that directly impact public safety operations and first responder safety:

1. Direct Interference with Public Safety Communications:
- Interfering with, degrading, or disrupting public safety agency communications networks
- Blocking or distorting critical emergency communications during incidents
- Creating dead zones where previously reliable communications existed
- Causing radio system failures during critical emergency responses

2. Resource Diversion and Operational Impact:
- Diverting essential public safety staff from emergency response duties to locate and mitigate interference issues[16]
- Requiring expensive emergency troubleshooting operations during critical incidents
- Forcing agencies to deploy backup communication systems at significant cost
- Creating delays in emergency response while communication issues are resolved

3. Rapid Escalation of Problems:
- Notable increase in frequency of interference complaints and incidents
- Growing complexity of interference issues as more systems are deployed without coordination
- Compounding problems as multiple uncoordinated systems interact in dense urban environments
- Cascading failures affecting multiple agencies simultaneously

4. Industry Competency Dilution:

[16] FPIC BDAFG Planning Document, supra note 2.

- More and more new contractor entrants into the sector, diluting the average experience level among practitioners
- Lack of understanding of public safety communications system architecture and interference mechanisms
- Inadequate training and certification requirements for personnel deploying these critical systems

5. Public Safety Agency Resource Constraints:

- Insufficient resources and funding in public safety agencies to handle the volume of requests for rebroadcast authorization and review of technical submittals[17]
- Overwhelming burden on already-stretched public safety technical staff
- Lack of dedicated personnel to properly evaluate signal booster deployment proposals
- Inadequate time for proper technical review leading to approvals of problematic systems

6. Improper and Unnecessary Deployments: Signal boosters are being deployed in areas where they are not needed, in violation of FCC Part 90 rules which state: **(d) Deployment rules.** Deployment of signal boosters must be carried out in accordance with the rules in this paragraph. **(1) Signal boosters may be used to improve coverage in weak signal areas only.**[18]

This leads to:

- Unnecessary RF noise injection into the spectrum environment
- Increased potential for interference with no corresponding benefit
- Waste of resources on systems that provide no improvement
- Additional complexity in interference troubleshooting and resolution

E. Root Cause Analysis

Root cause analysis reveals three primary categories of problems requiring immediate attention through this authorization framework:

1. Failure of System Installers and Designers to Follow FCC Rules

Documented violations include:

a. **Unauthorized Signal Booster Deployments:** Signal Boosters are being installed without the express consent of the licensee(s) of the frequencies for which the device or system is intended to amplify as required in 47 CFR § 90.219(b)(1)(i).[19] This fundamental violation undermines the frequency licensee's ability to manage their spectrum and coordinate operations to prevent interference.

[17] APCO Survey Summary: Signal Booster Deployment, Noise and Interference (2024), Appendix II.
[18] 47 C.F.R. § 90.219(d)(1), supra note 4.
[19] 47 C.F.R. § 90.219(b)(1)(i), supra note 3.

b. **Registration Non-Compliance:** Class B Signal Boosters are not being properly registered in the FCC signal booster database as required in 47 CFR § 90.219(d)(5).[20] Additionally, Class A Signal Boosters were never required to be registered under FCC rules, creating gaps in tracking and interference resolution capabilities.

c. **Poor Engineering Practices:** Some third-parties deploying Signal Boosters do not follow the requirement that "Good engineering practice must be used in regard to the radiation of intermodulation products and noise, such that interference to licensed communications systems is avoided" as required in 47 CFR § 90.219(d)(6).[21]

d. **Technical Standards Violations:** Installers (and possibly Signal Booster product designs) not following FCC rules regarding harmful noise and interference Effective Radiated Power (ERP) limits, including but not limited to:[22]

- Maximum ERP of intermodulation products
- Maximum ERP of noise within the passband
- Maximum ERP of noise on spectrum more than 1 MHz outside of the passband

2. Lack of RF Design and Installation Competency

A significant competency gap exists among some who deploy Signal Boosters, particularly Industrial Signal Boosters. This is complicated by:

- Absence of FCC qualifications guidelines for personnel
- Newness of certification regimes such as the NICET In-Building Public Safety Communications Certification Program[23] to identify individuals competent to perform such work
- Insufficient understanding of RF propagation principles and interference mitigation techniques
- Limited awareness of the impact of signal boosters on complex public safety communication systems

3. Regulatory Framework Gaps from 2013 Rulemaking (Priority for Future Action)

Rules and decisions made in the 2013 WT Docket No. 10-4[24] proceeding were based on observations or assumptions that have proven partially or totally incorrect in hindsight. While this authorization framework addresses the most critical gap, additional regulatory issues should be examined in future proceedings:

---

[20] 47 C.F.R. § 90.219(d)(5) (2025).
[21] 47 C.F.R. § 90.219(d)(6) (2025).
[22] See 47 C.F.R. §§ 90.203, 90.205, 90.209, 90.210, 90.213, 90.221 (2025).
[23] National Institute for Certification in Engineering Technologies (NICET) Certification Program information available at https://www.nicet.org/certification-programs/electrical-and-mechanical-systems/in-building-public-safety-communications/
[24] 2013 R&O, supra note 9.

a. **Authorization Framework Gap (PRIORITY):** The assumption that no formal authorization framework for Part 90 Industrial Signal Boosters needed to be developed or implemented has proven inadequate given the scale of deployment and interference issues. **This authorization framework directly addresses this critical priority need.**

b. **Future Considerations for Subsequent Rulemaking:**

- Enhanced network protection standards for Industrial Signal Boosters beyond current requirements
- FCC qualification of personnel and certification requirements
- Clarification of regulatory language, particularly regarding FirstNet Band 14 coordination

IV. PROPOSED RULE CHANGES

A. Proposed Framework Based on Frequency Coordination Precedents

[Final numbering and formatting to be determined once final language is approved]

1. Request for Permission Process

Proposed Addition: § 90.219(b)(3) - Rebroadcast Authorization Request Procedures

Drawing from 47 CFR § 101.103's[25] coordination notification requirements, establish framework for technical parameters that may be required for requests:

> **Technical Information for Authorization Requests:**
> The licensee shall maintain and provide a document containing technical information specific to its requirements for the use of signal boosters. This document shall be made available to applicants to rebroadcast their licensed frequencies.
> The technical information documents shall contain, but not be limited to, the following:
> - Frequencies and other modulation technologies required for the in-building emergency responder communications enhancement system and the point of contact for the frequency license holder(s)
> - Location and effective radiated power (ERP) of public safety radio sites used by the emergency responder communications enhancement system
> - Maximum propagation delay — in microseconds
> - Other supporting technical information necessary to direct system design such as signal strength and quality requirements, and other criteria as detailed in the section following
>
> **The following represents potential technical information that may be required for authorization requests:**
> - Frequency licensees shall have the authority to determine which parameters are necessary based on their specific operational requirements and technical criteria. This list is not exhaustive and licensees may require additional information as needed for proper evaluation:

[25] 47 C.F.R. § 101.103 (2025).

- Applicant's name, address, and contact information
- Signal booster classification (Class A or Class B per § 90.7 definitions)[26]
- Proposed signal booster technical specifications (make, model, FCC ID)
- Network protection features implemented (oscillation detection and automatic shutdown, etc.)
- Installation location coordinates (NAD 83)
- Complete building identification including:
    - Building name and street address
    - Floor(s) and room number(s) where equipment will be installed
    - Building type and occupancy classification
    - Building management company name and contact information
    - On-site building contact (security, facilities manager, etc.)
    - Building owner contact information if different from management
    - Campus or multi-property ownership disclosure (university, corporate, hospital, government, or commercial campus)
    - Existing signal booster installations in related campus properties
- Authority Having Jurisdiction (AHJ) requiring coverage (fire department, building official, etc.)
- Copy of fire code compliance requirement or building official mandate
- Technical contact information for interference resolution
- Emergency contact information (24/7 availability for interference issues)
- Affected frequencies and power levels
- Coverage area and service contour projections within building
- Antenna specifications and radiation patterns (including proposed donor antenna count and locations)
- Equipment certification information and compliance with network protection standards
- Proposed installation timeline
- Master antenna system feasibility analysis (for campus or multi-building properties under common ownership)
- Installer qualifications and credentials, such as the NICET In-Building Public Safety Communications (IB-PSC) Certification Program[27]

Notes:

- Frequency licensees should collaborate with stakeholders, including building owners, fire officials, and industry representatives, to refine this list and establish standardized requirements that balance technical needs with administrative efficiency. SBC looks forward to the public comment period to further refine these potential requirements during rulemaking proceedings.
- Per §90.532[28], the broadband 758-769 MHz and 788-799 MHz bands, licensed to the first responder network authority (FirstNet), is Part 90 public safety spectrum. These bands

[26] 47 C.F.R. § 90.7 (2025).
[27] NICET Certification Program, supra note 23.
[28] 47 C.F.R. § 90.532 (2025).

should be included and considered in all aspects of the proposed authorization framework. The first responder network authority is a frequency license holder just the same as all license holders of narrowband public safety spectrum covered in this proposal.

(ii) Contact Information Maintenance Requirements: Similar to 47 CFR § 1.65's[29] contact information requirements for licensees:

- All contact information must be updated within 30 days of any change
- Database must maintain current emergency contact available 24/7
- Building owner/manager and on-site contact changes must be reported immediately
- Changes in building management company must be reported within 15 days
- Equipment location changes (floor/room moves) require information update
- AHJ contact verification required annually
- Failure to maintain current contact information may result in authorization suspension

(iii) Interference Analysis Requirements: Similar to 47 CFR § 80.513's[30] field study requirements, mandate:

- In-building RF coverage analysis and justification for signal booster necessity
- Interference potential analysis within service contour
- Campus-wide interference analysis for multi-building properties under common ownership
- Donor antenna cumulative impact assessment across campus environment
- Master antenna system alternative analysis for campus properties (where applicable)
- Proposed mitigation measures for potential interference

2. Evaluation and Grant Authority

Proposed Addition: § 90.219(b)(4) - Licensee Evaluation Standards

Based on 47 CFR § 90.175's[31] coordinator recommendation framework:

(i) Response Timeline:

- Licensees must respond within 30 days of receiving complete authorization request
- Following precedent of 20-day response requirements in § 90.175 for concurrence requests[32]
- **Expedited Review Process:** Licensees should establish procedures for expedited review in critical situations including:
    - Building occupancy permits pending and imminent (requiring response within 5-7 business days)
    - Urgent negative impact to existing public safety communications capabilities (requiring response within 48-72 hours)
    - Emergency situations where life safety systems are compromised (requiring immediate response)
    - Time-sensitive fire code compliance deadlines that could affect building operations

[29] 47 C.F.R. § 1.65 (2025).
[30] 47 C.F.R. § 80.513 (2025).
[31] 47 C.F.R. § 90.175 (2025).
[32] Id.

- Expedited requests must include justification for urgency and may require expedited processing fees to cover additional administrative and technical review costs
- Licensees may establish different technical review criteria for expedited requests to balance speed with safety

(ii) Evaluation Criteria:

- Technical compatibility with existing operations
- Interference potential assessment
- Compliance with Part 90 technical standards including[33]:
    - Power limitations per § 90.203 (maximum power necessary for satisfactory operation)
    - Power and antenna height limits per § 90.205 and applicable ERP tables
    - Emission mask compliance per § 90.210 (unwanted emissions limits)
    - Bandwidth limitations per § 90.209 (authorized bandwidth requirements)
    - Frequency stability requirements per § 90.213 (frequency tolerance standards)
    - Adjacent channel power limits per § 90.221 (where applicable)
- Geographic service area considerations
- Campus and multi-building efficiency requirements including master antenna system viability for common ownership properties
- Infrastructure sharing feasibility analysis
- Donor antenna proliferation impact on licensee operations

(iii) Conditions for Grant:

- Licensee may impose operational conditions and design requirements including:
    - Equipment performance standards aligned with minimum FCC requirements
    - Compliance with specific Part 90 technical standards (§§ 90.203, 90.205, 90.209, 90.210, 90.213, 90.221)[34]
    - Operational power limitations or coverage restrictions within authorized parameters
    - Interference monitoring and resolution procedures
    - Coordination requirements with other licensees per § 90.173(b)[35]
    - Campus-specific design requirements for multi-building properties
    - Identification and documentation of other signal booster systems already existing in the same building
    - Donor antenna limitations (maximum number and placement restrictions)
    - Master antenna system requirements for properties under common ownership
    - Shared infrastructure mandates where technically and economically feasible
    - Periodic performance testing and reporting requirements
    - Equipment upgrade or replacement timelines
    - Access requirements for licensee inspection and maintenance

[33] See 47 C.F.R. §§ 90.203, 90.205, 90.209, 90.210, 90.213, 90.221 (2025).
[34] Id.
[35] 47 C.F.R. § 90.173(b)

3. Written Permission and Database Tracking

Proposed Addition: § 90.219(b)(5) - Authorization Documentation and Database

Following the existing Class B signal booster registration precedent in § 90.219(d)(5):[36]

(i) Written Authorization Requirements:

- Standardized FCC authorization form to be completed by non-licensee (such as a building owner or a signal booster installation contractor, or their third-party professional service provider)
- Unique authorization identification number
- Clear statement of granted authority and conditions
- Specific operational requirements and design restrictions imposed by licensee
- Campus-wide coordination requirements (if applicable)
- Master antenna system compliance timelines (where required)
- Digital signature or certified electronic submission

(ii) FCC Database Registration: Expand the existing signal booster database at www.fcc.gov/signal-boosters/registration[37] to include:

- Rebroadcast authorization records
- Licensee and authorized party information
- Complete building and location details (name, address, floors, rooms)
- Campus or multi-property relationship information (type of campus: university, corporate, hospital, government, commercial)
- Building management and on-site contact information
- Current emergency contact information (verified annually)
- Building owner/manager and on-site contact details (primary and backup)
- Technical parameters and operational conditions
- Licensee-imposed design requirements and restrictions
- Campus coordination status and master antenna compliance
- Authorization status and expiration dates
- Public search capability for interference resolution

4. Third-Party Participation Framework

Proposed Addition: § 90.219(b)(6) - Authorized Representatives and Service Providers

Drawing from frequency coordinator certification precedents in § 90.175[38]:

(i) FCC-Certified Authorization Service Providers:

- Professional service providers certified by the Federal Communications Commission to coordinate public safety license applications in the Part 90 Private Land Mobile Radio Services may assist with authorization requests

[36] 47 C.F.R. § 90.219(d)(5), supra note 20.
[37] See www.fcc.gov/signal-boosters/registration.
[38] 47 C.F.R. § 90.175, supra note 31.

- Professional service providers must maintain technical competency standards
- Subject to FCC oversight and audit

(ii) Representative Authority:
- Licensees may designate authorized representatives
- Written delegation of authorization authority
- Clear scope and limitations of delegated authority
- Database registration of authorized representatives

5. Renewal Cycle and Terms

Proposed Addition: § 90.219(b)(7) - Authorization Terms and Renewal

Based on FCC renewal procedures in § 1.949[39] and various license term precedents:

(i) Initial Authorization Term:
- 3-year initial authorization period (balancing administrative burden with oversight needs)
- Option for shorter terms for experimental or temporary installations

(ii) Renewal Requirements:
- Applications must be filed 90 days before expiration
- Following § 1.949's[40] renewal filing timeline
- Certification of continued compliance with original authorization conditions
- Updated contact information verification (all building contacts and responsible parties)
- Verification of equipment location (floor/room) and any relocations
- Confirmation of continued AHJ requirement for coverage
- Campus-wide coordination compliance verification (where applicable)
- Master antenna system implementation progress (if required)
- Updated interference analysis if operational parameters changed
- Performance review of interference resolution activities
- Building occupancy and use verification

(iii) Automatic Renewal Provisions:
- Safe harbor for installations with no interference complaints
- Streamlined renewal for unchanged technical parameters
- Administrative renewal process for compliant operations

6. Campus and Multi-Building Property Requirements

Proposed Addition: § 90.219(b)(8) - Campus and Multi-Building Property Requirements

(i) Campus and Common Ownership Properties: When multiple buildings under common ownership (including university campuses, corporate campuses, hospital complexes, government facilities, and multi-building commercial properties) require signal booster coverage within the same licensee's service area:

[39] 47 C.F.R. § 1.949 (2025).
[40] Id.

- Licensee may require coordinated design approach across all campus properties
- Master antenna system implementation may be mandated where technically and economically feasible
- Phased implementation timeline may be established for campus-wide coverage
- Shared infrastructure requirements may be imposed to minimize RF interference across the campus environment

(ii) Donor Antenna Limitations for Campus Environments:

- Licensees may impose restrictions on the number and placement of donor antennas across campus properties
- Campus environments may be required to minimize donor antenna proliferation to prevent RF interference
- Alternative coverage solutions (distributed antenna systems, master antenna systems) may be mandated for campus-wide coordination
- Cumulative interference thresholds may trigger design requirement modifications across the campus

(iii) Technical Feasibility Determinations for Campus Systems:

- Master antenna system requirements must be based on technical and economic feasibility analysis for the specific campus environment
- Licensee must provide technical justification for campus-wide design requirements
- Alternative compliance pathways must be available where master systems are not feasible across campus properties
- Cost-sharing arrangements between campus buildings may be considered in feasibility analysis

7. Registration of Class A and Class B signal boosters

Proposed Modification: § 90.219(d)(5) Registration of Class A and Class B signal boosters

§ 90.219(d)(5) Class A and Class B signal booster installations must be registered in the FCC signal booster database that can be accessed at the following URL: *[web address to be defined by FCC].*

8. Enhanced Equipment Labeling and Manufacturer's Instructions

Proposed Modification: § 90.219(e)(5) Enhanced Equipment Standards and Labeling

(i) § 90.219(e)(5) On or after **March 1, 2026**, a signal booster must be labeled to indicate whether it is a Class A or Class B device, and the label must include the following advisory

(1) In on-line point-of-sale marketing materials,
(2) In any print or on-line owner's manual and installation instructions,
(3) On the outside packaging of the device, and
(4) On a label affixed to the device:

"WARNING: INDUSTRIAL SIGNAL BOOSTER - NOT FOR CONSUMER USE. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC Licensee to activate and operate this device. You MUST register Class A and Class B signal boosters (as defined in 47 CFR 90.219) online at *[web address to be defined by FCC] before activation.* Unauthorized use may result in significant forfeiture penalties, including penalties in excess of $100,000 for each continuing violation."

(ii) § 90.219(e)(5)(5) Additional Instruction Manual Requirements: Manufacturers must provide detailed instruction manual warnings that:

- Rebroadcast of frequencies without express consent of the licensee is prohibited
- Proper filtering/configuration is required to avoid unauthorized frequencies, including broadband / cellular frequencies
- Device must be configured to operate only within authorized service passbands
- Installation must comply with all applicable FCC signal booster rules

V. JUSTIFICATION AND SUPPORTING ARGUMENTS

Present all facts, views, arguments and data deemed to support the action requested, including:

A. Legal Authority

FCC Regulatory Precedent:

- **WT Docket No. 10-4** (2013) - FCC Report and Order[41] establishing consumer signal booster framework, demonstrating Commission authority to regulate signal booster operations and establish authorization procedures
- **47 CFR § 90.175** - Existing frequency coordination framework for Industrial/Business Pool[42], providing direct precedent for third-party coordination and authorization procedures

B. Technical Justification

Engineering and Technical Basis for the Proposal

Interference Prevention Engineering:

- **Documented Interference Patterns:** APCO surveys[43] and CISA's Bi-Directional Amplifier Focus Group[44] have documented systematic interference patterns from uncoordinated signal booster deployments affecting critical public safety communications

[41] 2013 R&O, supra note 9.
[42] 47 C.F.R. § 90.175, supra note 31.
[43] APCO Survey Summary, supra note 15.
[44] FPIC BDAFG Planning Document, supra note 2.

- **RF Engineering Principles:** Uncontrolled signal booster deployment violates fundamental RF engineering principles by introducing uncoordinated amplification systems without proper isolation, filtering, and power control measures

Impact on Spectrum Efficiency, Interference, and Technical Considerations

Spectrum Efficiency Improvements:

- **Elimination of Unnecessary Deployments:** Authorization framework enforces 47 CFR § 90.219(d)(1)[45] requirement that signal boosters be used only in weak signal areas, preventing spectrum pollution from unnecessary systems
- **Coordinated Frequency Planning:** Technical review process ensures signal booster frequencies align with licensee frequency coordination plans and adjacent channel protection requirements
- **Master Antenna System Efficiency:** Campus coordination requirements promote shared infrastructure reducing overall spectrum loading and interference potential

Interference Reduction Mechanisms:

- **Proactive Technical Review:** Pre-deployment technical analysis identifies and prevents interference scenarios before system activation
- **Emergency Contact System:** 24/7 contact availability enables rapid interference resolution during critical public safety operations
- **Database Tracking:** Public database provides interference source identification capability essential for rapid troubleshooting during emergencies

FirstNet Band 14 Protection:

- **Broadband/Narrowband Coordination:** Framework addresses documented need for enhanced coordination between FirstNet broadband systems[46] and public safety PLMR narrowband systems to prevent mutual interference
- **Adjacent Channel Protection:** Technical compliance verification ensures signal booster operations comply with adjacent channel power limits protecting FirstNet operations

C. Public Interest Benefits

Life Safety Protection:

[45] 47 C.F.R. § 90.219(d)(1), supra note 4.
[46] 47 C.F.R. § 90.532, supra note 24.

- **First Responder Safety:** Framework directly addresses DHS/CISA documented concerns[47] that "unknown implementations and operations of uncoordinated Bi-Directional Amplifiers is causing interference to public safety radio systems, potentially placing first responders in jeopardy"
- **Emergency Communication Reliability:** Eliminates documented cases of signal booster interference blocking or distorting critical emergency communications during incidents
- **Resource Protection:** Prevents diversion of essential public safety personnel from emergency response duties to locate and mitigate preventable interference issues

Federal Agency Alignment:

- **DHS/CISA Coordination:** Framework directly supports objectives of Federal Partnership for Interoperable Communications Bi-Directional Amplifier Focus Group established specifically to address these coordination and interference issues
- **Interagency Efficiency:** Standardized procedures reduce burden on FCC Enforcement Bureau staff currently handling ad-hoc interference complaints and investigations

Benefits to Public Safety Operations

Operational Reliability:

- **Communication System Integrity:** Prevents degradation of previously reliable communication coverage areas that compromise emergency response effectiveness
- **System Availability:** Eliminates radio system failures during critical emergency responses caused by uncoordinated signal booster interference
- **Resource Optimization:** Allows public safety agencies to focus technical staff on maintaining critical infrastructure rather than resolving preventable interference issues

Emergency Response Enhancement:

- **Rapid Problem Resolution:** 24/7 emergency contact system enables immediate interference resolution during critical incidents
- **Proactive Prevention:** Technical review process prevents problems before they impact emergency operations
- **Coordinated Deployment:** Ensures signal boosters support rather than hinder public safety communication requirements

[47] FPIC BDAFG Planning Document, supra note 2.

Multi-Agency Coordination:

- **Stakeholder Integration:** Framework facilitates coordination between AHJs, frequency licensees, building owners, and contractors
- **Standardized Procedures:** Eliminates current jurisdictional confusion and authority conflicts that delay essential coverage deployment

Cost-Benefit Analysis

Quantifiable Benefits:

- **Prevented Emergency Response Delays:** Framework eliminates documented delays in emergency response while communication interference issues are resolved
- **Reduced Enforcement Costs:** Standardized authorization procedures reduce FCC Enforcement Bureau investigation and resolution costs
- **Technical Staff Efficiency:** Allows public safety agencies to redirect technical personnel from interference troubleshooting to critical infrastructure maintenance

Implementation Costs:

- **Database Enhancement:** Expansion of existing FCC signal booster database represents incremental cost building on established infrastructure
- **Third-Party Service Providers:** Certified service providers reduce burden on public safety agencies while providing professional review services funded through reasonable fees
- **Training and Education:** Initial stakeholder education costs offset by long-term reduction in interference incidents and enforcement actions

Economic Efficiency:

- **Professional Service Market:** Framework creates market for qualified service providers reducing administrative burden on licensees
- **Streamlined Compliance:** Standardized procedures reduce compliance costs for building owners and contractors
- **Expedited Processing:** Options for expedited review balance time-sensitive building occupancy needs with technical review requirements

Public Safety Return on Investment:

- **Life Safety Value:** Prevention of first responder communication failures during critical incidents provides immeasurable public safety value

- **Emergency System Reliability:** Enhanced communication system reliability during emergencies justifies framework implementation costs
- **Interference Prevention:** Proactive prevention costs significantly less than reactive enforcement and emergency troubleshooting operations

Long-Term Benefits:

- **Scalable Framework:** Structure accommodates growing signal booster deployment needs without proportional increase in administrative burden
- **Technology Evolution:** Framework provides foundation for addressing future public safety communication technology developments
- **Stakeholder Coordination:** Established procedures improve long-term relationships between all parties involved in public safety communication systems

D. Supporting Data and Studies

Federal Recognition of Problem: The Department of Homeland Security's Cybersecurity and Infrastructure Security Agency (CISA) established the Bi-Directional Amplifier Focus Group (BDAFG) under the Federal Partnership for Interoperable Communications (FPIC) in December 2023[48], specifically to "help diagnose and resolve issues related to Bi-Directional Amplifiers (BDAs), specifically focusing on BDA installation and operation, building codes, and communications between BDA installers and communications systems operators/managers." The FPIC Bi-Directional Amplifier Focus Group documented that "unknown implementations and operations of uncoordinated Bi-Directional Amplifiers is causing interference to public safety radio systems, potentially placing first responders in jeopardy." BDAFG Goals and Objectives document is available in **APPENDIX I.**

Survey Data: In 2024, the SBC collaborated with APCO to conduct a limited distribution, informal written survey of US public safety radio system operators to ask about the impact and problems associated to signal booster deployments in their jurisdictions. The APCO survey[49] revealed widespread signal booster deployment without proper coordination, leading to resource strain on public safety agencies and FCC Enforcement Bureau staff. This survey is available in **APPENDIX II.**

No Noise Task Force: As mentioned in the STATEMENT OF INTEREST section, the SBC established a comprehensive No Noise Task Force in 2021[50], chaired by Michelle Geddes, Chief Information Officer at City and County of San Francisco Department of Emergency Management, with participation from

[48] Federal Partnership for Interoperable Communications, Charter and Mission Statement (2023).
[49] APCO Survey Summary, supra note 15.
[50] SBC No Noise Task Force, supra note 5.

industry veterans representing fire services, public safety communications, wireless technology, and equipment manufacturers. Additionally, the FCC designated representatives from the Enforcement Bureau, Public Safety and Homeland Security Bureau, Office of Engineering and Technology, and Wireless Telecommunications Bureau to serve as resources to the Task Force[51]. A list of the Volunteer Members of the SBC No Noise Task Force is available in **APPENDIX III**.

The outcomes of that task force included but are not limited to:

- A recommendation to draft and submit a petition to the FCC for changes to Part 90 Rules pertaining to Signal Boosters
- SBC created public education and technical training content about in-building communications requirements and technologies:
    - SBC's publication of the Complete ERCES Handbook (ISBN 979-8-88955-863-7)[52] in May 2023. This extensive 550-page reference has become an industry recognized standard for Emergency Responder Communications Enhancement Systems
    - SBC's publication of the In-Building Property Stakeholder Toolkit[53] – a detailed pamphlet targeted to property owners for understanding ERCES.
- SBC's collaboration with the National Institute for Certification in Engineering Technologies (NICET), a non-profit division of the National Society of Professional Engineers (NSPE), to develop an industry-recognized Workforce Development and Certification Program for In-Building Public Safety Communications (IB-PSC)[54]

The following stakeholders were members of the SBC No Noise Task Force between 2021 and 2023:

No Noise Task Force Steering Committee:

- Michelle Geddes - [Task Force Chair] Chief Information Officer at City of San Francisco Department of Emergency Management
- Chief Alan Perdue [SBC Lead] – Executive Director, Safer Buildings Coalition
- Chief Michael O'Brian - Director, Fire & Life Safety Section for the IAFC, and Fire Chief with Brighton Area Fire Authority (MI)
- Andy Seybold – Noted thought leader in the public safety comms space.
- Richard Roberts - Senior Industry Affairs Manager - Honeywell
- Michael Baltrotsky - Assistant Chief, Technology Section Chief at Montgomery County (MD) Fire & Rescue Service

[51] Email from Michael Wilhelm, supra note 6.
[52] Safer Buildings Coalition, Complete ERCES Handbook, ISBN 979-8-88955-863-7 (May 2023).
[53] Safer Buildings Coalition, In-Building Property Stakeholder Toolkit (2023).
[54] National Institute for Certification in Engineering Technologies (NICET) Certification Program supra note 23

- Neil Horden – Principal Consultant; Wireless and Public Safety Practice at Horden Technology, LLC
- Mark Crosby - President/CEO at Enterprise Wireless Alliance
- Ed Steffens – Division Chief & Fire Marshall - Iona Fire District
- Kenny Blakeslee – President & CEO Pulse Signal Solutions / Apex Site Solutions
- Charlie Fleetham - President, Project Innovations [Task Force Master Facilitator]

No Noise Task Force Points of Contact designated by the FCC:[55]

- For the Enforcement Bureau: Axel Rodriguez
- For the Public Safety and Homeland Security Bureau, Brian Marenco
- For the Office of Engineering and Technology: Brian Butler
- For the Wireless Telecommunications Bureau, Moslem Sawez

    - Mr. Rodriguez can address questions related to boosters that are violating FCC rules and causing interference.
    - Mr. Marenco can address questions regarding booster interference to public safety licensees.
    - Mr. Sawez can address questions regarding booster interference to non-public safety licensees.
    - Mr. Butler can address questions about manufacturers' certification of boosters.
    - David Furth: available to answer any other questions and would appreciate being apprised of the progress made by the task force.
    - Michael Wilhelm (Former Public Safety Bureau Chief): available to answer any other questions and would appreciate being apprised of the progress made by the task force.

VI. IMPLEMENTATION STRATEGY

A. Third-Party Involvement:

Congress empowered the FCC in 1982 to use frequency coordinators as private organizations certified to assist with spectrum management. This establishes clear precedent for third-party involvement in authorization frameworks.[56]

B. Examples of Successful Third-Party Management:

- APCO International's frequency coordination services for public safety
- Multiple certified coordinators for Industrial/Business Pool frequencies
- Specialized coordinators for different frequency bands and services

[55] See APPENDIX IV

[56] Communications Act of 1934, as amended, 47 U.S.C. § 309(j) (2018); see also 47 C.F.R. § 90.175, supra note 31.

C. Potential Fee Structure Considerations

While not a core recommendation of this framework, the FCC has established precedent for charging fees to support specialized coordination and authorization programs that could provide guidance for funding the proposed authorization framework.

D. Existing FCC Fee Precedents

Application Processing Fees: 47 CFR § 1.1102[57] establishes comprehensive fee schedules for wireless telecommunications services applications, including fees for special temporary authority, waivers, and coordination-related applications.

Frequency Coordination Related Fees: The FCC currently charges fees for several coordination-related services:

- Special Temporary Authority (STA) applications per § 1.931[58], which often require frequency coordination evidence
- Waiver requests per § 1.925[59], including waivers of coordination requirements, with fees established in § 1.1102
- International coordination services for satellite communications per Part 25[60], requiring ITU coordination procedures

E. Potential Fee Structure Options

Should the Commission determine that fees are appropriate to support the authorization framework, several precedent-based approaches could be considered:

Option 1: Application-Based Fees Following the precedent of § 1.1102[61] fee schedules, establish modest fees for:

- Initial authorization requests (similar to STA application fees)
- Renewal applications
- Major modification requests
- Expedited processing for time-sensitive situations (building occupancy, emergency situations)

Option 2: Database Maintenance Fees Similar to regulatory fees that support FCC operations, establish annual fees for:

- Database registration and maintenance
- Emergency contact system operation
- Third-party service provider certification

[57] 47 C.F.R. § 1.1102 (2025).
[58] 47 C.F.R. § 1.931 (2025).
[59] 47 C.F.R. § 1.925 (2025).
[60] 47 C.F.R. Part 25 (2025).
[61] 47 C.F.R. § 1.1102, supra note 56.

Option 3: Service Provider Fees Following frequency coordinator precedents, allow certified service providers to charge reasonable fees for:

- Technical review and recommendation services
- Coordination with multiple licensees
- Ongoing compliance monitoring
- Expedited review services for time-sensitive requests

Option 4: Expedited Processing Fees Following precedent from Special Temporary Authority expedited processing under § 1.931[62], establish enhanced fees for expedited review services:

- Emergency processing (48-72 hour response): Premium fee to cover after-hours technical staff and priority review
- Urgent building occupancy situations (5-7 business day response): Moderate expedite fee for priority scheduling
- Critical public safety impact situations: Scaled fee based on urgency level and resource requirements
- Weekend/holiday processing: Additional fee to cover non-standard work schedule costs

The expedited fee structure would ensure that rush processing doesn't burden the regular authorization process while providing necessary funding for the additional resources required for time-sensitive reviews.

F. Fee Exemptions Considerations

Consistent with existing precedent in § 1.1116[63], fee exemptions could be considered for government entities and nonprofit organizations operating signal boosters for public safety purposes.

This fee structure discussion is presented as a consideration for future implementation rather than a core requirement of the authorization framework, allowing the Commission flexibility to determine appropriate funding mechanisms based on program scope and administrative needs.

G. Documentation of Pre-existing Signal Boosters

While this petition focuses on establishing an authorization framework for new signal booster deployments, the proposed database structure should accommodate the inclusion of pre-existing signal boosters. Comprehensive documentation of existing systems—including location data, performance characteristics, and contact information—would provide significant benefits for interference mitigation, inform design considerations for new installations, and expedite any necessary modifications during frequency reallocation or system consolidation projects. The Puget

[62] 47 C.F.R. § 1.931, supra note 57.
[63] 47 C.F.R. § 1.1116 (2025).

Sound Emergency Radio Network (PSERN) provides a compelling example of this approach, having conducted a comprehensive documentation effort to support their system migration project.[64]

VII. CONCLUSION

A. Specific Relief Requested *(See specific rule change recommendations in **Section IV**)*

The Safer Buildings Coalition respectfully requests that the Federal Communications Commission initiate a rulemaking proceeding to amend 47 CFR § 90.219[65] by adopting the comprehensive authorization framework detailed in this petition. Specifically, the SBC requests that the Commission:

1. Establish Formal Authorization Procedures (§ 90.219(b)(3))

- Require licensees to maintain and provide a technical criteria document for use by applicants wishing to rebroadcast licensed frequencies
- Implement standardized technical information requirements for rebroadcast authorization requests
- Establish mandatory contact information maintenance requirements with 24/7 emergency contact availability
- Require comprehensive interference analysis including in-building RF coverage justification and Part 90 technical compliance verification

2. Codify Licensee Evaluation Standards (§ 90.219(b)(4))

- Mandate 30-day standard response timelines with expedited review procedures for critical situations
- Establish clear evaluation criteria including technical compatibility assessment and Part 90 standards compliance
- Authorize frequency licensees to impose operational conditions and design requirements necessary to prevent interference

3. Create Authorization Documentation and Database Framework (§ 90.219(b)(5))

- Require standardized FCC authorization forms with unique identification numbers
- Expand the existing signal booster database to include comprehensive authorization records, building details, and emergency contact information
- Enable public search capability for rapid interference source identification and resolution

4. Authorize Third-Party Service Providers (§ 90.219(b)(6))

- Authorize service providers certified by the Federal Communications Commission to coordinate public safety license applications in the Part 90 Private Land Mobile Radio Services to assist with authorization requests
- Enable licensee designation of authorized representatives with defined scope and authority

[64] https://psern.org/das-migration-process/
[65] 47 C.F.R. § 90.219, supra note 1.

- Leverage professional service market to reduce administrative burden on public safety agencies

5. Implement Authorization Terms and Renewal Procedures (§ 90.219(b)(7))

- Establish 3-year initial authorization periods with streamlined renewal for compliant operations
- Require renewal applications 90 days before expiration with compliance certification
- Provide automatic renewal provisions for installations with no interference complaints

6. Address Campus and Multi-Building Properties (§ 90.219(b)(8))

- Require coordinated design approaches for properties under common ownership
- Mandate master antenna system implementation where technically and economically feasible
- Establish donor antenna limitations to prevent RF interference proliferation

7. Require Registration of both Class A and Class B signal boosters (§ 90.219(d)(5))

- Class A and Class B signal booster installations must be registered in the FCC signal booster database that can be accessed at the following URL: *[web address to be defined by FCC].*

8. Enhance Equipment Standards and Labeling (§ 90.219(e)(5))

- "WARNING: INDUSTRIAL SIGNAL BOOSTER - NOT FOR CONSUMER USE. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC Licensee to activate and operate this device. You MUST register Class A and Class B signal boosters (as defined in 47 CFR 90.219) online at *[web address to be defined by FCC]* before activation. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of $100,000 for each continuing violation."
- Mandate comprehensive instruction manuals warning against unauthorized frequency rebroadcast

B. Supporting Education and Outreach Initiative

The SBC further requests that the Commission collaborate with key stakeholders to develop a comprehensive education program addressing the widespread lack of awareness regarding FCC signal booster rules. This multi-stakeholder initiative should include:

- **Interagency Coordination** with DHS/CISA, APCO, NFPA, ICC, NASFM, IAFC, NENA, and EWA
- **Comprehensive Public Notice** clarifying frequency license holder authority under federal law
- **Stakeholder-Specific Educational Materials** for AHJs, building owners, contractors, and frequency licensees
- **Professional Training Programs** including certification for installers and continuing education for officials

- **Standardized Guidelines** with model procedures and template coordination agreements

C. Justification for Urgent Action

This authorization framework addresses critical life safety risks that demand immediate Commission attention. The Department of Homeland Security's establishment of the Bi-Directional Amplifier Focus Group[66] specifically recognizes that "unknown implementations and operations of uncoordinated Bi-Directional Amplifiers is causing interference to public safety radio systems, potentially placing first responders in jeopardy."

D. Documented Evidence of Critical Need:

- **Federal Recognition:** DHS/CISA's Federal Partnership for Interoperable Communications has identified this as a priority issue requiring immediate coordination improvements[67]
- **APCO Survey:** Documenting reports from 41 jurisdictions on problems associated with signal booster deployment[68]
- **Life Safety Threats:** Signal booster interference is blocking critical emergency communications during incidents and causing radio system failures during emergency responses
- **Resource Diversion:** Essential public safety personnel are being diverted from emergency operations to resolve preventable interference issues
- **Regulatory Violations:** Widespread deployment of signal boosters without required frequency licensee consent violates existing FCC rules
- **Industry Competency Concerns:** Rapid influx of inexperienced contractors combined with insufficient qualification standards is creating systemic technical violations

E. Public Interest Imperative

The Commission's action on this petition will directly serve the public interest by:

- **Protecting First Responder Safety** through elimination of preventable communication interference during critical emergency operations
- **Enhancing Emergency Response Effectiveness** by ensuring reliable public safety communications during incidents
- **Supporting Federal Coordination Objectives** established by DHS/CISA's Federal Partnership for Interoperable Communications
- **Reducing Regulatory Burden** through standardized procedures and professional service provider options
- **Preventing Spectrum Pollution** by enforcing existing requirements that signal boosters be deployed only in weak signal areas
- **Promoting Technical Excellence** through enhanced equipment standards and professional competency requirements

[66] FPIC BDAFG Planning Document, supra note 2.
[67] Id.
[68] APCO Survey Summary, supra note 15.

F. Legal and Technical Foundation

This framework builds upon solid legal precedent established in the Commission's 2013 consumer signal booster rulemaking (WT Docket No. 10-4)[69] and proven frequency coordination procedures in Parts 80, 90, and 101. The technical justification rests on documented interference patterns affecting public safety communications and fundamental RF engineering principles requiring coordinated deployment of amplification systems.

G. Conclusion

The current regulatory gap in 47 CFR § 90.219 has created a critical situation where essential public safety communications are being compromised by uncoordinated signal booster deployments. Federal agencies have recognized this as a priority issue threatening first responder safety, and the Commission has both the legal authority and technical expertise necessary to address this problem through the proposed authorization framework.

The Safer Buildings Coalition urges the Commission to act swiftly on this petition to prevent further degradation of public safety communications and to establish the regulatory foundation necessary for safe, effective signal booster deployment in support of emergency responder communication requirements.

Time is of the essence. Every day of delay perpetuates the documented interference problems threatening first responder safety and emergency response effectiveness. The Commission's prompt action on this petition will demonstrate its commitment to protecting public safety communications and supporting the critical coordination improvements identified by federal partners.

The SBC stands ready to support the Commission's rulemaking efforts and to continue its collaborative work with all stakeholders to ensure successful implementation of this essential authorization framework.

Dated July 18, 2025
Respectfully submitted

John Foley	Alan Perdue	Seth Buechley
Managing Director	Executive Director	Ex Officio Board, Founder
Safer Buildings Coalition	Safer Buildings Coalition	Safer Buildings Coalition
john.foley@saferbuildings.org	alan.perdue@saferbuildings.org	seth.buechley@saferbuildings.org

[69] 2013 R&O, supra note 9.

APPENDIX I

Bi-Directional Amplifier Focus Group (BDAFG) Planning Document

FEDERAL PARTNERSHIP FOR INTEROPERABLE COMMUNICATIONS (FPIC)

(11/27/2023)

Disclaimer: The members of the Focus Group mentioned below did not participate in the preparation of this petition, and the inclusion of this government document does not constitute endorsement of this petition or its recommendations by Focus Group members, FPIC, CISA, or the Department of Homeland Security.

Bottom Line Up Front:

The unknown implementations and operations of uncoordinated Bi-Directional Amplifiers (BDAs) is causing interference to public safety radio systems, potentially placing first responders in jeopardy. To eliminate these issues, the Bi-Directional Amplifier Focus Group (BDAFG) will work to identify the size and complexity of these issues and provide potential solutions. The creation of best practices and recommendations for building owners and operators, code enforcement officials, public safety systems owner/operators and fire inspection officials will target temporary relief work alongside industry organizations to update building codes, and work to update and strengthen Federal Communications Commission (FCC) rules and regulations.

Overview:

Currently, BDAs are used to enhance public safety system's radio coverage in and around buildings or areas that may have identified issues receiving or transmitting radio signals due to the location, depth, or the building materials. In many jurisdictions, building codes have been enacted to require the installation of a BDA and its ancillary components to improve indoor coverage for public safety personnel responding to incidents within these structures. Building owner/operators also have been enhancing commercial cellular services within their buildings by deploying BDAs that are supplanting cellular coverage. Regardless of the type of system the BDAs are working to enhance, close coordination with the Public Safety System owner/operators and the commercial cellular entities is essential to ensure that the BDAs enhance systems coverage and do not produce harmful interference that create life safety issues for public safety responders.

However, public safety radio systems administrators and users (fire, police, EMS, etc.) have expressed growing concerns about robust interference that is detrimentally impacting the critical voice services of their radio systems. This has led to scenarios that endanger both first responders and civilians involved in a public safety incident.

Issues:

Public safety systems owner/operators and users have identified the following issues:

- Flawed installation and inadequate maintenance of BDA devices,
- Ineffective operational processes for the BDA equipment put in place to comply with building codes fails to provide sufficient guidance,
- Lack of required coordination between building owner/operators and public safety systems owner/operators, and
- Lack of guidance on who can/should install BDA equipment or the required licenses or credentials to do proper installations

Goals and Objectives:

The below ideal goals and objectives would reduce the interference to public safety radio networks by BDA's and thereby reduce the risk to public safety responders and civilians they are obligated to serve and protect.

Goal 1: Improved Education/Coordination/Communication: Provide enhanced education between building/facility owners, public safety systems operators, and building code inspectors on how BDA's impact public safety radio networks and the establishment of proper processes for their installation, testing, and verification.

Objective 1: Create a best practice guide for building/facility owners, and public safety officials. This guide or white paper will discuss impacts of BDA usage on public safety radio networks and provide a roadmap for building/facility owners and BDA installation contractors on how to properly install, test and verify their BDA is working appropriately with the public safety radio networks. It should be made clear this is done for the safety of their occupants as well as first responders and installing a BDA device without the knowledge and concurrence of the public safety systems owner/operator is a violation of FCC rules and regulations. The guide or white paper can also provide recommendations to building/facility owners on the proper credentials that they should look for in their contractors when installing their BDA's so that potential issues may be prevented. Lastly, the white paper or guide will provide recommendations on updates to building code for municipalities to consider when working on BDA related issues.

Objective 2: Engage in an information campaign to discuss the current issues and potential solutions at industry association meetings. This includes alerting public safety user groups, industry groups, and regulatory groups on the availability of a best practices guide as well as providing relevant findings.

Objective 3: Provide recommendations to industry working groups and associations on proper training and credentialling for the installation and maintenance of BDA's.

Goal 2: Update Building Code: While it is impossible to dictate which building codes each municipality will chose to use, updating building codes that are universally utilized, such as the National Fire Protection Association (NFPA) and the uniform building codes should cause a trickle-down effect, mitigating problems created by BDA's.

Objective 1: Work alongside standards making organizations like the NFPA to identify gaps in existing building codes to provide updated revisions. This will have a "trickle down" effect, positively impacting future issues.

Objective 2: Publish recommendations on which building standards it has identified that will effectively resolve issues that stem from a lack of coherent building codes.

Goal 3: Update FCC Rules: Update current FCC rules and regulations governing the installation and use of BDAs. This should effectively enhance and strengthen regulations and enforcement options.

Objective 1: Currently, the FCC rules do not recognize Class A BDAs. Work alongside industry partners and the FCC to revamp and enhance regulatory/rules changes to include Class A BDAs.

Recommended Next Steps:

To effectively capitalize on the goals and objectives above, the Federal Partnership for Interoperable Communications is recommending the creation of the Bi-Directional Amplifier Focus Group (BDAFG). This Focus Group will would be composed of the following initial members:

[Name Redacted]	CISA Support/Volunteer Firefighter
[Name Redacted]	Connecticut Public Safety
John Foley	Safer Building Coalition
[Name Redacted]	New York City Fire Department
[Name Redacted]	Federal Communications Commission
[Name Redacted]	Arlington County
[Name Redacted]	Montgomery County Hospital District
[Name Redacted]	Government Service Administration (GSA) Property Management
[Name Redacted]	Virginia Fire Prevention Association
[Name Redacted]	Metropolitan Washington Council of Governments (COG)
[Name Redacted]	National Fire Protection Association (NFPA) 1221 Committee
[Name Redacted]	SAFECOM/NCSWIC Liaison
[Name Redacted]	Charlotte Fire Department

Each of these members brings expertise and experiences and will allow comprehensive solutions to be proposed. However, the Focus Group would, and should, be able to engage with different industry groups to resolve gaps, build industry related support, and acquire new methods of resolving BDA related issues. The BDAFG would support the different lines of effort needed to accomplish the above goals while acknowledging that goals two and three would require a longer timeline, where goal one would provide temporary relief to problems caused by BDAs but is not a long-term fix.

APPENDIX II

APCO Survey Summary:
Signal Booster Deployment, Noise and Interference

Survey conducted by APCO in 2024 with 41 valid responses from public safety radio system operators across the United States. This survey was distributed to a limited number of APCO members with known or presumed visibility to signal booster deployment in the US. Survey summary report reviewed and approved by APCO.

Executive Summary

The Association of Public-Safety Communications Officials (APCO) conducted a comprehensive survey in 2024 of public safety radio system operators regarding signal booster (BDA/ERRCS/ERCES) deployment, regulatory compliance, and interference issues. The survey collected 41 valid responses from across the United States, revealing significant challenges with signal booster implementations affecting public safety communications.

Key Findings

Signal Booster Deployment and Awareness

Signal Booster Installations: 78% of respondents (32 out of 41) reported that building owners or contractors have installed signal boosters in their service areas, indicating widespread deployment across jurisdictions.

Regulatory Awareness Gap: A concerning 56.1% of respondents (23 out of 41) reported that building owners and contractors are generally **not aware** of FCC requirements for BDA installations, with only 22% indicating awareness.

Compliance Issues: Nearly half (48.8%) of respondents are aware of instances where signal boosters have been installed without proper FCC certification or compliance with Part 90 rules, highlighting significant regulatory compliance problems.

Impact on Public Safety Systems

System Performance: The impact on public safety system performance varies:

- **29.3% reported worsened performance** since BDA installations increased
- 17.1% reported unchanged performance
- 17.1% reported improved performance
- 36.6% were unsure of the impact

Noise and Interference: Signal booster interference is a significant problem:

- **53.7% experienced noise or interference** from signal boosters affecting their radio systems

- 26.8% reported no interference issues
- 19.5% were unsure

Resource Impact
Testing and Review Burden: Signal booster testing and plan review requests have impacted resources (staff, budget, or both) for **53.7% of agencies**.

Interference Response: The same percentage (53.7%) reported that signal booster noise or interference has impacted their resources for investigation and resolution.

Need for Additional Resources: An overwhelming **70.7% of agencies** would benefit from additional resources (funding, personnel, equipment) to address BDA testing, interference, and regulatory compliance.

Geographic Distribution
The survey received responses from 28 states and territories, with notable participation from:

- **New York**: 11 responses (including variations)
- **Nevada**: 2 responses
- **Iowa**: 4 responses (including variations)
- **California**: 2 responses
- **Connecticut**: 3 responses (including variations)
- **Arizona**: 2 responses

Single responses were received from 22 additional states, showing nationwide scope of the issues.

Respondent Profile
Survey respondents included senior public safety communications officials:

- 911 Directors
- Emergency Management Directors
- Radio Communications Supervisors
- Public Safety Communications Managers
- Fire and Emergency Management Directors
- FCC Coordinators and Local Advisors

Coordination and Collaboration

Inter-agency Coordination: Regular coordination between agencies and neighboring jurisdictions regarding signal booster use and interference mitigation appears limited, though specific percentages were not clearly captured in the initial analysis.

Process and Criteria: Many jurisdictions lack established signal booster criteria, test procedures, permit rules, and process instructions.

Interference Investigation Workload

Respondents reported varying levels of monthly interference investigations, with some agencies handling multiple cases per month while others have no current signal booster presence in their jurisdictions.

Challenges Identified

Regulatory and Education Gaps

- Widespread lack of awareness about FCC requirements among building owners and contractors
- Limited education and resources for local codes enforcement officials
- Insufficient technical expertise at the municipal level

Technical and Operational Issues

- Signal booster noise and interference affecting public safety radio systems
- Resource strain from testing, review, and interference investigations
- Performance degradation in some public safety systems

Coordination Challenges

- Limited inter-agency coordination on signal booster deployment
- Inconsistent processes and criteria across jurisdictions
- Need for better collaboration between public safety agencies and commercial installers

Recommendations Based on Survey Results

1. **Enhanced Education and Outreach**: Develop comprehensive education programs for building owners, contractors, and local officials about FCC requirements and proper BDA installation procedures.
2. **Resource Allocation**: Provide support to public safety agencies for BDA testing, interference investigation, and regulatory compliance activities.
3. **Standardized Processes**: Establish consistent criteria, test procedures, and permit processes across jurisdictions.
4. **Improved Coordination**: Enhance coordination mechanisms between public safety agencies, neighboring jurisdictions, and Regional Planning Committees.
5. **Technical Support**: Provide technical assistance and equipment to agencies lacking the expertise to properly evaluate and manage signal booster installations.

Conclusion

The APCO survey reveals that while signal booster deployment is widespread, significant challenges exist in regulatory compliance, system performance impact, and resource allocation. The high percentage of agencies experiencing interference issues and requesting additional resources indicates an urgent need for improved education, coordination, and support mechanisms to ensure signal boosters enhance rather than hinder public safety communications.

APPENDIX III

Volunteer Members of the SBC No Noise Task Force

Disclaimer: The individuals listed below did not participate in the preparation of this petition, and their inclusion here does not constitute endorsement of this petition or its recommendations.

Name	Job Title	Organization
Dennis Burns	Director, Public Safety	ADVANCED RF TECHNOLOGIES, INC. (ADRF)
Merisa Gamler	Assistant Project Manager	AJ Kirkwood and Associates
Erik Skuja	Owner	American Fire-Comm LLC
Andy Seybold	CEO	Andrew Seybold, Inc.
Gregg Toback	National Sales Manager	Anritsu
Kenny Blakeslee	CEO	Apex Site Solutions & Pulse Signal Solutions
Ryan Kreitz	Project Manager	CalNotifier
Michelle Geddes	Dept. of Emergency Mgt., City & County of San Francisco	Chief Information Officer
Gary Gray	Radio Systems Manager	City Of Fort Lauderdale
Steven Hall	Radio System Analyst	Collier County Gov
Matt Lunny	Sales Engineering Manager	Comba Telecom
Steve Hronek	Deputy CIO, City of Glendale (ret.)	Comsec Associates, Inc.
Nathaniel Hinkle	Telecommunications Systems Supervisor	County of Sacramento
Kyle McConnell	Fire Systems Specialist	Denver Fire
Ben Wilson	COO	ECD Systems, LLC
Mark Crosby	President/CEO	Enterprise Wireless Alliance
Alan Perdue	Safer Buildings Coalition	Executive Director
Matthew Dombrowski	Director of Sales Engineering	Fiplex Communications, Inc.
Tom Warfield	Training Manager	Fiplex Communications, Inc.
Mark Sanders	Communications Manager	Fire Controls, Inc.
Guillermo Parra	RF design Engineer III	Goodman Telecom Services, LLC
David Thompson	National Business Development Manager BDA	Honeywell
Richard Roberts	Senior Industry Affairs Manager	Honeywell
Michael O'Brian	Fire Chief & Technology Section Chief	IAFC and Brighton Area Fire & Rescue Service
Dick Abbott	Owner	InBuildingRadio
Tony Locatelli	Director	Intrepid Electronic Systems
Edward Steffens	Div Chief / Fire Marshal	Iona Fire Department

Name	Job Title	Organization
Steve Wheeler	RCDD - Technology Department Manager	JDRM Engineering
Chris Smith	Electronic Communications Specialist	King County Radio Communications Service
Don Rooks	Fire Marshal	Largo Fire Rescue
John Foley	Safer Buildings Coalition	Managing Director
Javier Jaramillo	Director	Mann Wireless
John Ruggiero	Engineer	Massachusetts State Police
Michael Baltrotsky	Assistant Chief	Montgomery County Fire
Eric Potter	President	Network Fire & Security
Don Brittingham	Principal	Northern Lights / iCERT
Don Root	Subcommittee Chair, Spectrum Mgt. Comm.	NPSTC
Mathew Theisz	RF Consultant	DC-OUC - Office of Unified Communications, Washington DC
Nancy Hoppe	Safer Buildings Coalition	Operations Manager
David Adams	Director	PCTEL
Matt Nulton	Construction Manager	Piper Fire Protection, Inc.
Seth Hall	Project Manager	Piper Fire Protection, Inc.
Corey Vaughan	Project Manager	PMC Wireless
Charlie Fleetham	Project Innovations	President/CEO
Creighton Watley	DAS Coordinator	PSERN - King County IT
Derek Case	Global Director of Marketing & Business Development	Radio Solutions, Inc.
Joe Rohlic	Program Manager	RadioOne Inc
Steve Jordan	Communications Manager	Sacramento Metropolitan Fire Dist.
Brandon Davis	VP, Business Operations	SpeakEZ Communications LLC
Kenneth Barnard	President	Threesixty Wireless
Ray Hild	Principal	Triangle Advisory Group
Tom Presnak	Engineering Assoc. Lead	UL LLC
Bruce Johnson	Regulatory Services Regional Manager	UL, LLC
Justin Daniels	Fire Marshal, President	University of Oklahoma, CCFS
Brian Laflure	Director (ret)	Warren County OES
Rick Rausch	Sales Director	Westell
Gabriel Guevara	VP Channels & IBW sales	Westell
Tim Duitsman	President and CEO	Westell

APPENDIX IV

Email from FCC Designating FCC Resources on Booster Information for SBC Task Force

Disclaimer: The individuals listed below did not participate in the preparation of this petition, and their inclusion here does not constitute endorsement of this petition or its recommendations.

From: Michael Wilhelm
Date: 2/24/21 12:15 PM (GMT-05:00)
To: John Foley
Cc: David Furth, Axel Rodriguez, Brian Marenco, Brian Butler, Moslem Sawez, Jamison Prime
Subject: FCC Resources on Booster Information

Dear Mr. Foley,

David Furth has asked me to send along the names and contact information for Commission staff who could serve as a resource for members of the Safer Buildings Coalition task force on signal boosters. That information follows:

- For the Enforcement Bureau: Axel Rodriguez, [email redacted], [phone redacted].
- For the Public Safety and Homeland Security Bureau, Brian Marenco: [email redacted], [phone redacted].
- For the Office of Engineering and Technology: Brian Butler, [email redacted], [phone redacted].
- For the Wireless Telecommunications Bureau, Moslem Sawez: [email redacted], [phone redacted].

- Mr. Rodriguez can address questions related to boosters that are violating FCC rules and causing interference.
- Mr. Marenco can address questions regarding booster interference to public safety licensees.
- Mr. Sawez can address questions regarding booster interference to non-public safety licensees.
- Mr. Butler can address questions about manufacturers' certification of boosters.

Of course David or I would be pleased to answer any other questions and would appreciate being apprised of the progress made by the task force.

Michael J. Wilhelm, Chief
Policy and Licensing Division
Public Safety and Homeland Security Bureau
Federal Communications Commission
[email redacted], [phone redacted].