



August 7, 2019

*Via Electronic Filing*

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

Re: Expanding Flexible Use of the 3.7-4.2 GHz Band, GN Docket No. 18-122, *Ex Parte* Notice

Dear Ms. Dortch:

Pursuant to Section 1.1200, *et seq.*, of the Commission's Rules, National Public Radio, Inc. ("NPR") hereby notifies the Commission of the following *ex parte* presentation in the above-referenced proceeding. On Monday, August 5, 2019, Mike Riksen, Vice President for Policy & Representation, Michael Beach, Vice President for Distribution, Joni Lupovitz, Senior Director for Public Policy, and the undersigned met with the following Commission personnel: Barbara Pavon, Michael Ha, Julius Knapp, and joining by telephone, Bahman Badipour, of the Office of Engineering and Technology; Giulia McHenry, Evan Kwerel, and Paul Lafontaine of the Office of Economic Analysis; Jose Albuquerque and joining by telephone, Kerry Murray, of the International Bureau; Blaise Scinto, Jeff Tignor, Matthew Pearl, Anna Gentry, Ken Baker, Becky Schwartz, Max Staloff, and joining by telephone, Paul Powell, Kamran Etemad, and Thomas Derenge, of the Wireless Telecommunications Bureau.

The discussion focused on the attached presentation, which summarizes the public radio system's use of and dependence on C-band satellite spectrum to distribute local and national public radio programming, emergency alerting and public safety information among 1,265 local public radio stations, collectively broadcasting to 41 million American listeners weekly. The NPR representatives explained that C-band satellite service is essential for public radio because of its availability across the country, including in rural and extremely remote areas; its reliability for live radio programming; and its affordability for reaching hundreds of local communities across the continent and beyond. NPR noted the longstanding congressional investment in the Public Radio Satellite System, including ongoing support for a system upgrade. NPR further discussed the practical implications of proposals to reallocate C-band spectrum, and basic requirements to meet public radio needs for available, reliable and affordable means of program distribution going forward.

Please direct any questions you may have to the undersigned at 202.513.2050.

Sincerely,

*Gregory A. Lewis /s/*

Gregory A. Lewis  
Deputy General Counsel

Cc: Barbara Pavon  
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Max Staloff  
Paul Powell  
Kamran Etemad  
Thomas Derenge



## **FCC Inquiry: Expanding Flexible Use of the 3.7-4.2 GHz C-Band**

August 5, 2019

# The Nationwide Public Radio Satellite System (PRSS)

PRSS connects local public radio stations + programmers + American people

- Reaches all 50 States, including rural and extremely remote areas, Alaska & Hawaii
- Connects D.C., Puerto Rico and U.S. Virgin Islands



450,000+

hours of news, music,  
and other programming  
distributed annually



1,265

public radio stations  
connected



100+

program producers &  
distributors



98.5%

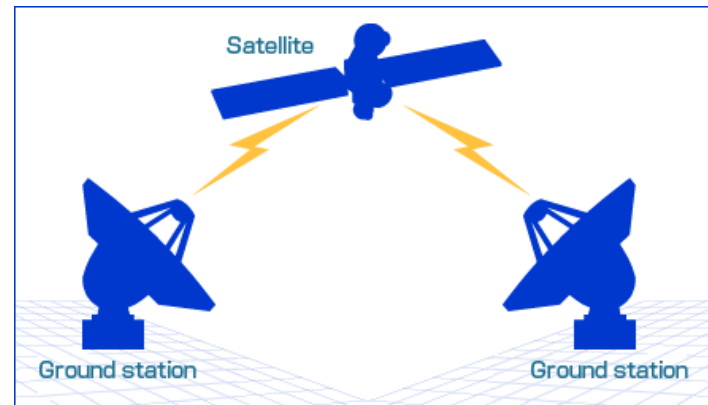
of the U.S. population  
reached



- **41 million American listeners per week**
- 80% of programming is broadcast **live**
- Local/regional journalism collaborations  
*e.g., Harvest Public Media, Ohio Valley ReSource*

# In-State Public Radio Networks Also Rely on C-Band Spectrum

- **Via PRSS:** West Virginia Public Broadcasting and others send local in-state programming via the PRSS Network Operations Center, bypassing need for and cost of operating a local satellite uplink.
- **Via PRSS bandwidth:** Colorado, Minnesota, New Hampshire, and others use PRSS's satellite space to distribute in-state public radio programming via C-Band using their own uplinks.
- **Via other C-band service:** Alaska uses C-Band satellite bandwidth for in-state public radio program distribution separate from PRSS.



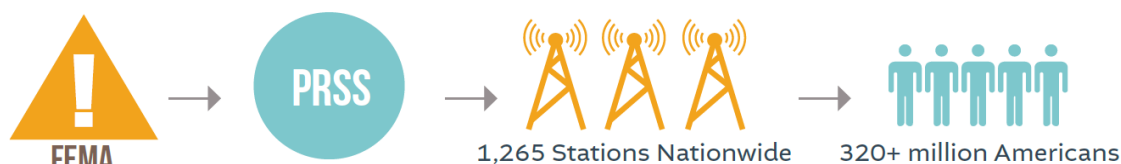
# Satellite is Vital for Public Safety & Emergency Alerts

**Public radio's satellite infrastructure provides resilient communications before, during & after disasters**

- even when power grids, Internet & other communications systems are down
- even in rural and remote areas

## ❖ **Nationwide emergency alerting**

PRSS receives the Presidential-level Emergency Alert System feed directly from FEMA



## ❖ **Regional emergency networks operate through NPR satellite bandwidth**

Examples: Minnesota, Louisiana, West Virginia

## ❖ **Temporary regional networks operate during disasters**

Example: Florida Public Radio Emergency Network (FPREN)

# Longstanding Congressional Support for PRSS & Next Gen System

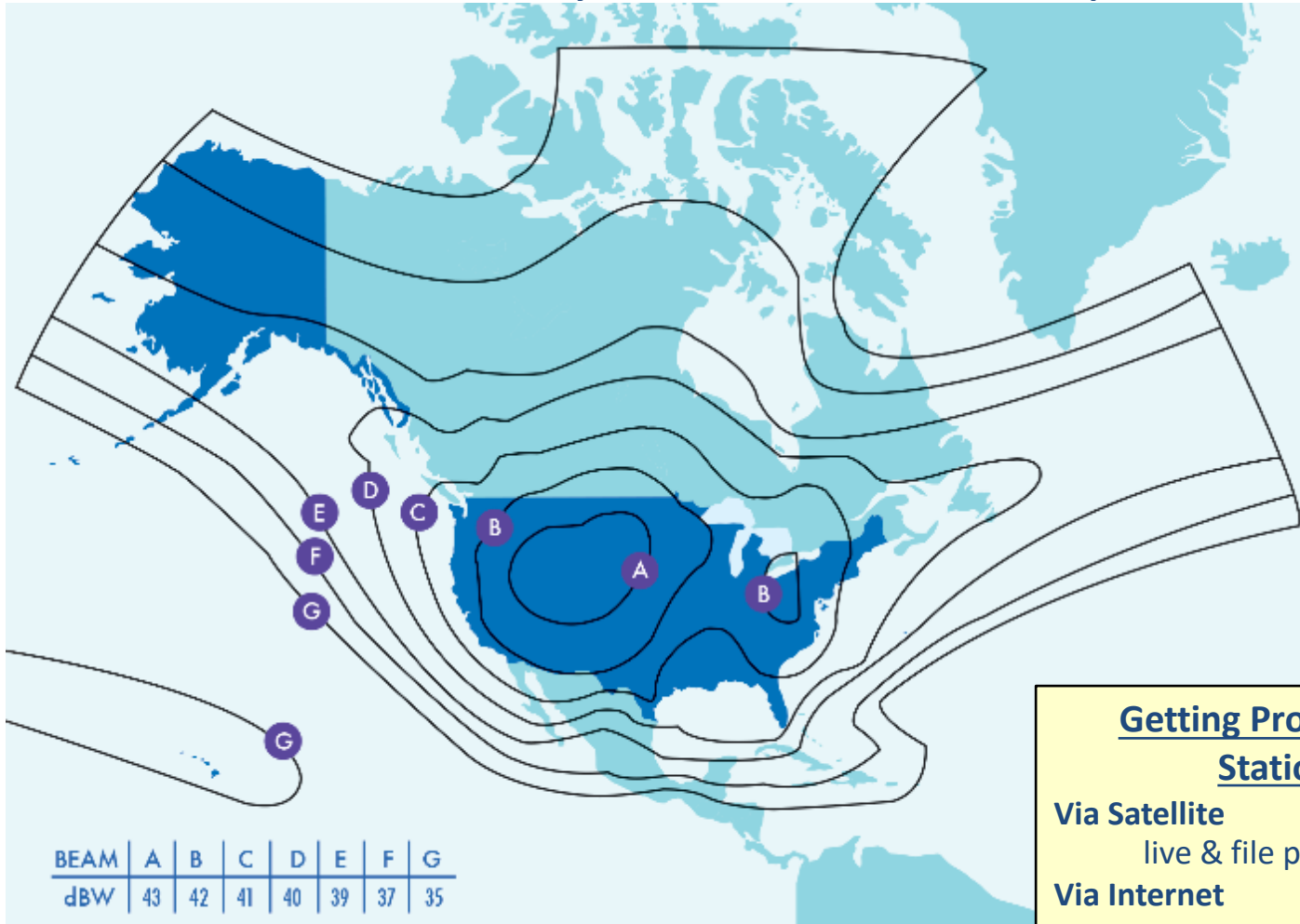
- Congress has provided federal funding for PRSS since the 1970s
- Current congressional funding for \$53.5 million upgrade
  - 10-year-long project; funded in one-year increments since FY 2018
  - Supports complete refresh of current system, including:
    - Improved satellite transponder efficiency
    - Software and equipment at local stations
    - Improvements at the network level (Network Operations Center & Backup NOC)
    - Satellite lease and insurance
- Independent review shows PRSS is utilizing the most cost-effective, secure, and reliable technologies on the market.
  - In June 2016, the Corporation for Public Broadcasting engaged an independent consultant to review the proposed replacement plan for PRSS.
  - The consultant found: “No other alternative discussed or examined – including commercially available options – is more cost effective or likely to result in success.”

# Why C-Band Satellite Service Is Essential For Public Radio

- **Availability:** Satellite is unparalleled in reaching even the most rural and remote regions of the United States.
  - Satellite covers areas where fiber is unavailable or unaffordable
- **Reliability:** Satellite delivery is the most secure, reliable technology currently available to serve the national public radio infrastructure.
  - C-band has unique propagation characteristics, less susceptible to “rain fade” in poor weather conditions than Ku- and Ka-band options
  - Full-band, full-arc licensing provides needed flexibility for live radio to change transponders/satellites in case of satellite disruptions
- **Affordability:** Satellite is the most cost effective means of reaching hundreds of local communities across the country.

# C-Band Satellite Delivery Provides Optimal Coverage

## Reach of the PRSS: Intelsat Galaxy 16 Satellite Transmission Footprint



### Getting Programs to Stations

**Via Satellite**  
live & file programs

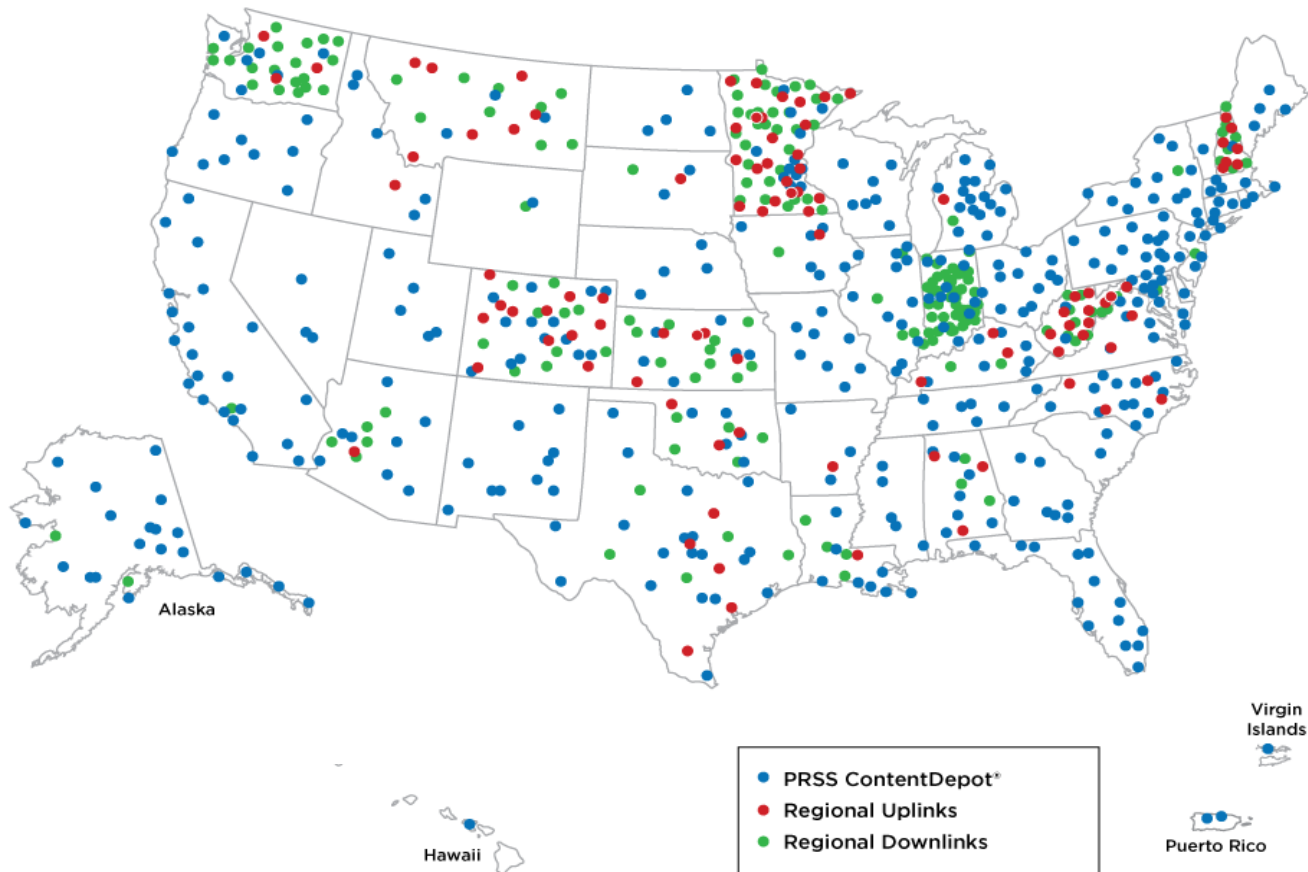
**Via Internet**  
file programs only



# 464 Total Public Radio Earth Stations in Markets of all Sizes

- PRSS downlinks in all 50 states + D.C., Puerto Rico, U.S. Virgin Islands

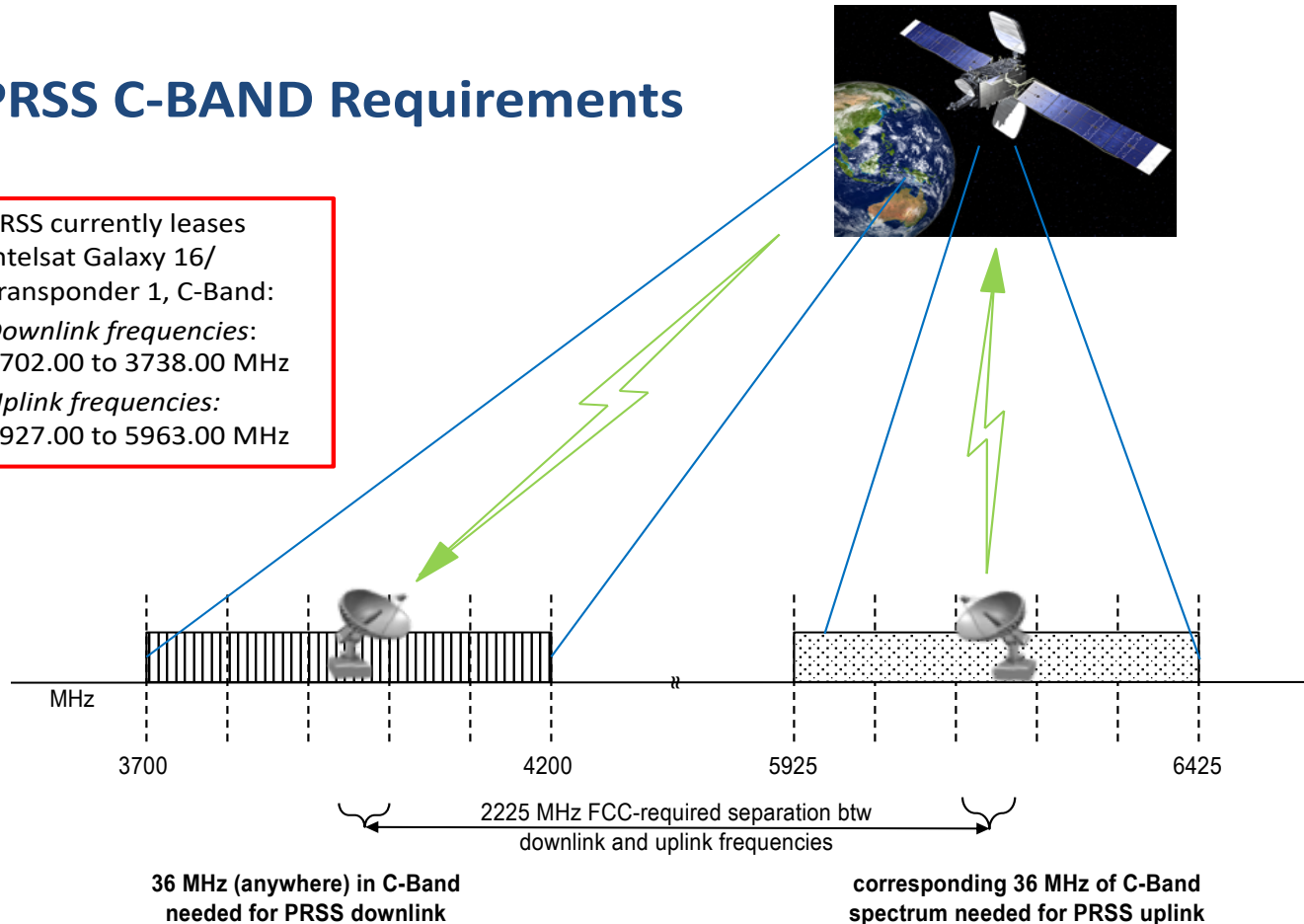
## Public Radio C-Band Downlinks



# PRSS Uses One Satellite Transponder – 36 MHz of C-Band Spectrum

## PRSS C-BAND Requirements

PRSS currently leases  
Intelsat Galaxy 16/  
Transponder 1, C-Band:  
*Downlink frequencies:*  
3702.00 to 3738.00 MHz  
*Uplink frequencies:*  
5927.00 to 5963.00 MHz



# What Public Radio Needs to “Remain Whole” During Any Spectrum Reallocation:

- **Availability** – across the United States continent and beyond
  - Coverage in Alaska, tribal lands, and other remote areas without fiber
  - Capacity for business growth
- **Reliability** – for delivering **live** radio programming
  - No harmful signal interference
  - Redundancy/back-up for program continuity in case of system disruption
    - e.g., full-band, full-arc satellite
- **Affordability** – critical for nonprofit, low-resource public radio stations
  - Cover all transition costs
  - Cover any increases in operational /service costs going forward

# Practical Implications of C-Band Frequency Transition for Public Radio

## Changing transponders on same satellite – some work:

- If new transponder has same polarity:
  - some earth stations can be transitioned with remote key strokes
  - some earth stations require on-site transition
  - takes about 18-months to transition entire PRSS network
- If new transponder has different polarity:
  - *Every* earth station requires on-site, manual transition
- Many stations don't have in-house capability to reprogram/repoint downlinks & need to hire a contractor to transition

## Moving to a new satellite is more difficult:

- Need to repoint *all* downlink antennas
- May need to move and/or replace satellite dishes
- Satellite footprint may not be sufficient
- Satellite may not have proper polarization type

## Transitioning to a hybrid satellite/fiber system is most difficult & most expensive:

- Requires new equipment for fiber, availability of redundant system
- Added cost of paying for new fiber connections on top of satellite delivery



# How the Stakeholder C-band Proposals Meet Public Radio Needs

|                             | CBA<br>(clear 200 MHz)   | AT&T<br>(CBA modified)  | ACA-CCA-Charter<br>(clear 370 MHz)  | T-Mobile<br>(clear 500 MHz)                        | WISPA/BAC<br>(share FSS MHz)                  |
|-----------------------------|--|---|---|--|---|
| <b>Availability</b>         | 300 MHz for incumbents   | 300 MHz for incumbents  | 130 MHz for non-video incumbents  | 0 MHz for incumbents                               |   |
| Alaska, remote areas        | If C-band service  | If C-band service   | If C-band service   | <b>X</b>   |   |
| Capacity for biz growth     | <b>X</b>   | <b>X</b>  | <b>X</b>  | <b>X</b>   |   |
| <b>Reliability</b>          |  |   |   |  |   |
| Interference risk mitigated | Guard band, filters, OOB emission masks  | <b>No</b> guard band; Unrestricted power levels could raise overall RF noise floor; alternative OOB emissions limit |   |  | No proven, real-world interference protection |
| Full-band, full-arc         | yes  | <b>?</b>  | Smaller more congested band   | <b>X</b>   | <b>X</b>                                      |
| <b>Affordability</b>        |  |   |   |  |   |
| Transition costs            | Transition costs   | Transition costs  | Repacking cost assumes TPEs interchangeable   | Cost to replace earth stations w/ fiber links      | N/A   |
| Operational costs           | <b>?</b><br>*need to ensure satellite availability w/ current contract pricing | <b>?</b><br>*need to ensure satellite availability w/current contract pricing                                       | <b>Likely increased cost of satellite service</b><br>Covers only 2 years lost revenue for satellite providers | <b>X</b><br><b>Increased cost of fiber service</b> |   |