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October 9, 2019

Marlene H. Dortch, Esq.
Secretary
Federal Communications Commission
445 12th St., N.W.
Washington, DC 20554

Re: **Notice of *Ex Parte* Communication, GN Docket No. 18-122**

Dear Ms. Dortch:

This letter reports on a meeting on October 8, 2019, during which Matthew Richards of Kirton McConkie, Bart Eichelberger, and Del Clawson of The Church of Jesus Christ of Latter Day Saints (the "Church"), Jason Rademacher and the undersigned of Cooley LLP met with William Davenport, Chief of Staff and Sr. Legal Advisor, Wireless and International, of Commissioner Starks' office. Representatives of the Church discussed the Church's positions in the above-referenced proceeding as summarized in the attached presentation.

A copy of this letter is being filed in the above-referenced docket through the Commission's Electronic Comment Filing System and a copy is being provided by email to each of the meeting participants.

Sincerely,

Christina H. Burrow

Christina H. Burrow
Counsel for The Church of
Jesus Christ of Latter Day Saints

cc (via email): William Davenport

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Expanding Flexible Use of 3.7 to 4.2 GHz Band

GN Docket No. 18-122

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Introduction

The Church of Jesus Christ of Latter-day Saints is a global religious denomination with over 16 million members organized into more than 30,000 congregations worldwide (14,000 in the United States)

The Church uses C-band extensively as part of its religious mission:

- Began distributing programming via C-band as early as 1962
- Built a permanent network in the early 1980s
- Has invested an estimated $70M in this network
- Has registered 3,476 C-band downlinks in the United States and its territories
- Connects senior leaders of the Church with members through hundreds of live and tape-delayed meetings, conferences, devotionals, worship services, trainings, and other events each year

Locations of the Church's North America C-Band Earth Stations

Church's Position

Registered earth station operators are entitled to interference protection and should be made whole in any C-band restructuring.

The Church is willing to consider alternative technologies, but a transition plan must include:

- **Functionality** comparable to C-band
- **Flexibility** for current C-band users to adopt the technical solution that works best for them long-term
- **Full reimbursement** of all reasonable direct and indirect costs of a C-band transition

Functionality and Flexibility

If changes are made to C-band spectrum, users need the flexibility to determine for themselves the best long-term solution for each location to ensure benefits and functionality are maintained.

- A long-term solution is best for everyone.
- Each operator should be able to select a solution that fits its long-term strategic direction.
- The operator best understands the impact of any proposed solutions on its internal program distribution workflow and support infrastructure.
- For the Church, any solution that requires onsite work will require substantial time and money resources because chapels do not have staff present during regular business hours. The best long-term solution will limit the number of additional site visits.

Full Reimbursement of Transition Costs

Make certain all direct and indirect costs of C-band transition are covered for registered earth station operators.

- Mandate full and fair reimbursement of each earth station operator's reasonable transition costs.
- Hold Transition Facilitator accountable to ensure such reimbursement are fulfilled.
- The Church has unique costs that need to be covered, such as costs associated with providing onsite access to "unstaffed" facilities, retrofitting integrated A/V systems, and providing encryption, access control, and multi-language capability.

Critical Functionality of C-Band

- **Global Reach, Central Management** – C-band enables a small, centralized support staff to deliver video to thousands of chapels worldwide without the need to train local members, who typically do not have technical expertise (chapels do not have a professional staff).
- **Cost-Effective** – The Church pays flat monthly fee for space capacity with no additional charges if additional sites are added, thus allowing delivery of programming at a low monthly per site cost.
- **Reliable** – 99.996% signal availability.
- **Encryption and Access Control** – Encryption and conditional access capabilities are very important, since some Church events are sacred and not made available to the general public.
- **Backend Integration** – The A/V system in chapels seamlessly integrates with the satellite earth station, so audio and video feeds can play simultaneously in the main sanctuary and other assembly rooms in the building.
- **Multi-Language Support** – Church programs are translated into as many as 97 languages; 2 to 6 of these languages are played simultaneously in any given downlink site.
- **Simplicity** – A simple remotely-managed and unified communications solution is essential because receive sites are staffed by non-technical volunteers.

Potential Functional Alternatives

Transition to Ku-band	Fixed Terrestrial Solution (Fiber)
Remain on C-band & Install Filters	Combination

Ku-Band

Benefits:

- The Church currently operates 683 Ku-band earth stations in the United States.
- Transitioning some or all existing C-band earth stations to Ku-band network will require no additional monthly transmission charges.
- Moving to Ku-Band will avoid risk of interference from 5G and future reallocations of C-band spectrum for 5G.
- Transitioning to Ku-band will provide the same seamless integration with backend A/V systems and multi-language support.
- Likely a more long-term, cost effective solution than installing filters.

Concerns:

- Ku-band's signal has limited geographic coverage compared to the C-band.
- The Church's current Ku-band network operates on a satellite with limited line-of-sight access that does not reach all the Church's existing C-band locations.
- Limited Ku-band capacity will make it challenging for the Church to move to a satellite with a more desirable orbital position.
- Ku-band is less reliable in inclement weather.

Fixed Terrestrial Broadband (Fiber)

The most likely fixed-fiber solution is a **distributed fiber solution** where major providers install fiber to demarcation points and local ISPs provide the "last mile" of connectivity. Based on that assumption:

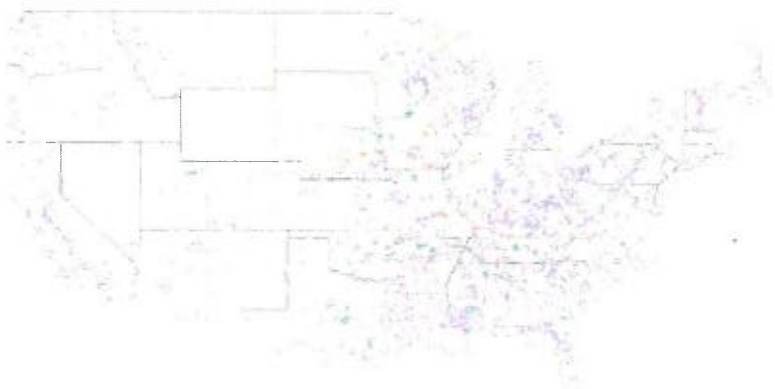
Benefits:

- Significant advancements in fiber have made fixed terrestrial broadband more viable as a distribution system.
- Additional investment in fiber will increase nationwide access to broadband.
- Increased bandwidth speeds can be utilized for religious programing as well as other Internet-enabled services.

Concerns:

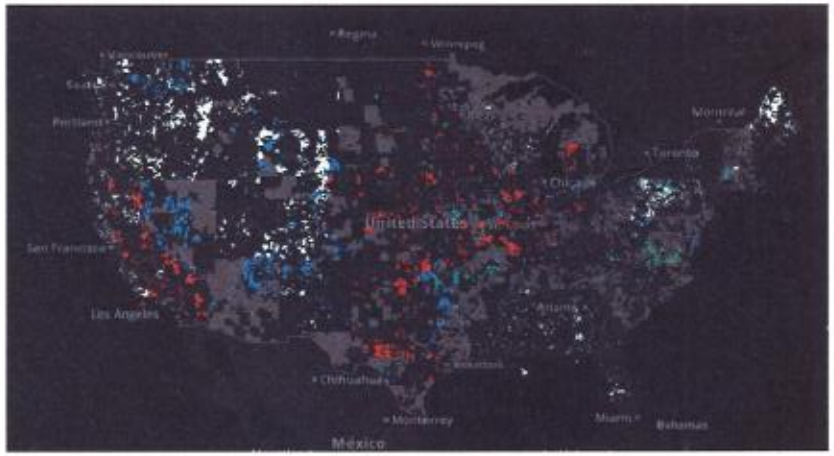
- Fiber networks have not penetrated rural America.
- Any fiber solution will increase program costs per location:
  - Backend equipment and new software, as well as other capital costs
  - Ongoing costs for cloud storage, rights management software, and local ISPs
- A distributed fiber solution will decentralize the Church's network, and result in:
  - Less network reliability
  - Varying service levels site-by-site
  - Additional overhead to manage

Fixed Terrestrial Broadband (Fiber)



Connect America Fund Broadband Map

Shows areas where fixed broadband has already been deployed (the dark colors) and where it has not been deployed (everywhere else).



Connect America Fund Phase II: Auction 903 Results

As of April 3, 2019, 103 bidders won contracts worth $1.49 billion over 10 years to provide fixed broadband to over 700,000 locations in 45 states. Still, large swaths of the country lack reliable fiber networks.

Remain on C-Band, Install Filters

Benefits:

- Maintains existing C-band benefits and network functionality.

Concerns:

- Ongoing risk of interference from 5G.
- Future reallocations of C-band spectrum for 5G will require additional costs and interruptions.
- No protection for new or relocated earth stations as a result of the registration freeze.
- Some doubt as to whether remaining earth stations will receive full band, full arc protection.

Combination

Benefits:

- Not all solutions will work everywhere.
  - Lack of fiber
  - Insufficient Ku-band coverage
  - 5G interference
  - The need of a large network to avoid relying on a single provider
  - Other technical limitations
- May need different solutions in different geographies (e.g., urban vs. rural).
- Earth station operators are in the best position to decide which option, or combination of options, will be the most long-term, cost-effective solution at each location or group of locations

Concerns:

- Combination should not be dictated by government or private parties who are not familiar with how a particular earth station operator organizes and uses its network.
- Combination should not include requiring earth station operators to receive at different C-band frequencies in different geographical areas. Simultaneous transmission on multiple, regional C-band frequencies undermines the Commission's objective of clearing the maximum amount of C-band satellite bandwidth for reallocation for 5G services. It also would be difficult and expensive to manage.

THE CHURCH OF

JESUS CHRIST

OF LATTER-DAY SAINTS

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