

May 24, 2018

VIA ELECTRONIC FILING

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

Re: *Notice of Ex Parte Presentation*
GN Docket Nos. 17-183, 18-122

Dear Ms. Dortch:

Per FCC Rule 1.1206, this letter provides notice that on May 22, 2018, the representatives of LinkUp Communications Corporation (“LinkUp”), the Society of Broadcast Engineers (“SBE”), Intelsat Corporation (“Intelsat”), and SES Americom, Inc. (“SES”) listed in Attachment A (collectively, the “Parties”) met with representatives from the Commission listed in Attachment B.

The SBE representatives noted that there is still tremendous reliance on C-band today for the distribution of video and audio programming. They stated that Ku-band is not a substitute for C-band and that they have seen a migration from Ku-band to C-band in recent years due to the higher quality and reliability demanded by video and audio distributors.

The LinkUp representatives described how their company serves as broadcast integrator to second- and third-tier broadcasters, many of which are non-commercial and/or serve smaller communities. These smaller broadcasters rely upon C-band communications for as much as 98% of the programming distributed by their stations into local communities. The LinkUp representatives also stated that C-band is increasingly utilized by the broadcasters they serve due to its superior quality. In the past 24 months, they have installed approximately 50 receive-only antennas for their customers, more C-band activity than they have experienced in the preceding 16 years. They further stated that based upon the number of C-band downlink antennas serving a small community of 120,000 citizens in Florida, extrapolated to the entire U.S. population, the number of C-band downlinks serving U.S. communities could total between 25,000 and 30,000.

The LinkUp and SBE representatives expressed their appreciation for the Commission’s effort to obtain information about receive-only earth station operations. They described their efforts to publicize the 90-day filing window and to encourage receive-only earth station operators to register. They noted, however, three specific concerns that they believe are serving as practical deterrents to obtaining registrations from receive-only antenna operators.

First, the LinkUp and SBE representatives noted that while the waiver of the requirement to file a coordination report is helpful, the fee associated with filing numerous applications is proving to be a deterrent to registration for many receive-only antenna operators. They noted that the

application fee is a factor both for larger operators with many antennas -- for whom the filing costs could total in the tens of thousands of dollars or higher -- as well as for the smaller “mom and pop” operators for whom filing fees in the hundreds of dollars is a financial burden.

Second, the LinkUp and SBE representatives discussed how the complexity of the forms and the need to file individual Form 312s for each site they operate is serving as a deterrent to registering for some receive-only operators. They noted that because many receive-only operators elected not to register in the past, many are unfamiliar with the FCC’s Form 312 and Schedule B and, additionally, do not have the technical staff required to complete multiple applications in a timely fashion. The Parties asked whether the Commission would consider allowing some method of batch filing, whereby multiple receive-only antennas, along with location information, could be included in a single application.

Third, the LinkUp and SBE representatives expressed concern that given these practical realities, the 90-day window is too short a time-period to ensure that most receive-only antennas would be registered. They asked that the Commission consider extending the filing window.

The Parties agreed that it is important that the FCC obtain an accurate count of C-band downlinks and expressed their willingness to help the Commission achieve that goal. They stressed that obtaining some form of relief on the concerns addressed above would, in their opinion, greatly improve the likelihood of receive-only antenna operators registering their antennas. Such a result would serve the public interest by resulting in a more accurate understanding by the Commission of the magnitude of Fixed Satellite Service use of the C-band downlink nationwide.

Finally, the LinkUp representatives distributed the attached presentations to the Commission representatives.

Please contact the undersigned with any questions regarding this letter.

Respectfully submitted,

 /s/
Susan H. Crandall
Associate General Counsel
Intelsat Corporation

 /s/
Petra Vorwig
Senior Legal & Regulatory Counsel
SES Americom, Inc.

ATTACHMENT A

LinkUp Communications Corporation:

Mark Johnson, Founder/Operations
Karen R. Johnson, Co-Founder/Marketing

Society of Broadcast Engineers:

Jim Leifer, President
Christopher D. Imlay, General Counsel

Intelsat Corporation:

Susan H. Crandall, Associate General Counsel
Dianne VanBeber, VP, Investor Relations
Alexander Gerdenitsch, Manager, Spectrum Policy, Americas

SES Americom, Inc.:

Petra Vorwig, Senior Legal & Regulatory Counsel

ATTACHMENT B

International Bureau:

Paul Blais
Jennifer Gilsenan
Kerry Murray
Diane Garfield
Christopher Bair
Jim Schlichting
Stephen Duall

Office of Engineering and Technology:

Jamison Prime (by phone)
Bahman Badipour
Barbara Pavon
Robert Pavlak
Martin Doczkat
Michael Ha

Wireless Telecommunications Bureau:

Jeffrey Tignor (by phone)
Peter Daronco (by phone)
Ariel Diamond



Caution:The C-Band Issue

Mark and Karen Johnson
Founders of LinkUp Communications
Panama City, FL

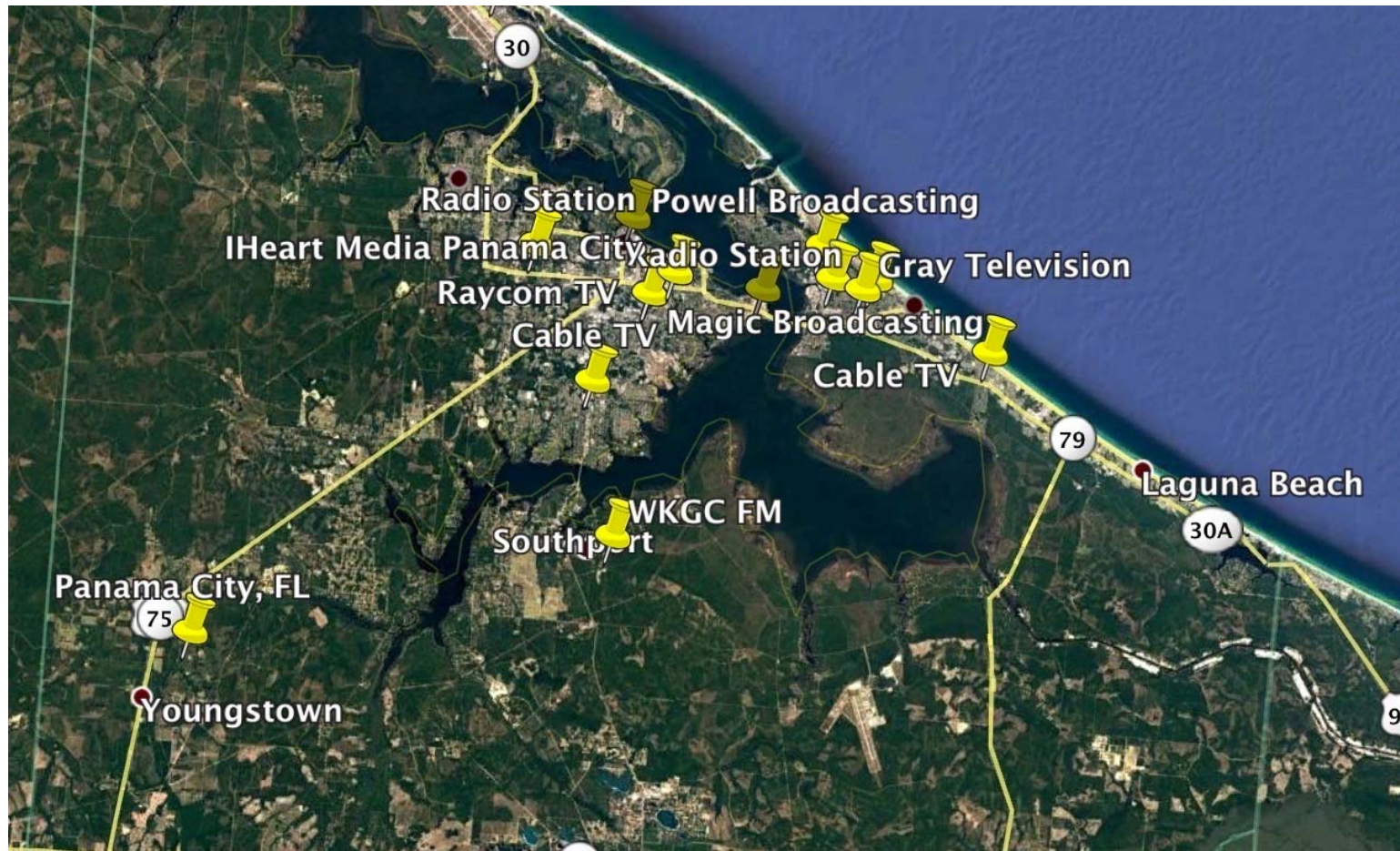
mark@linkupcommunications.com

karen@linkupcommunications.com

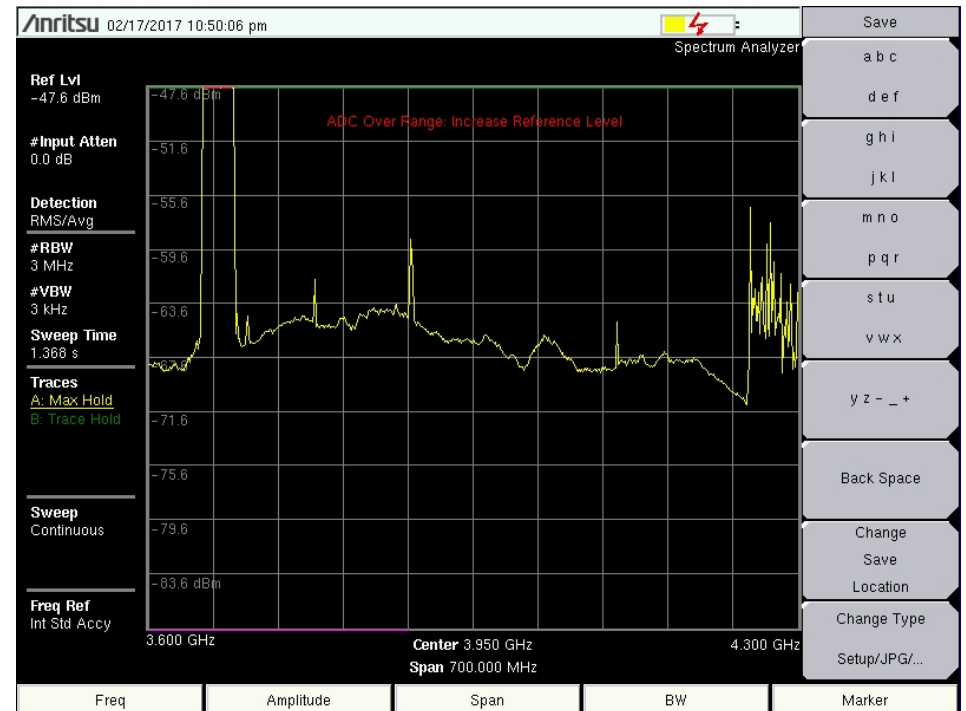
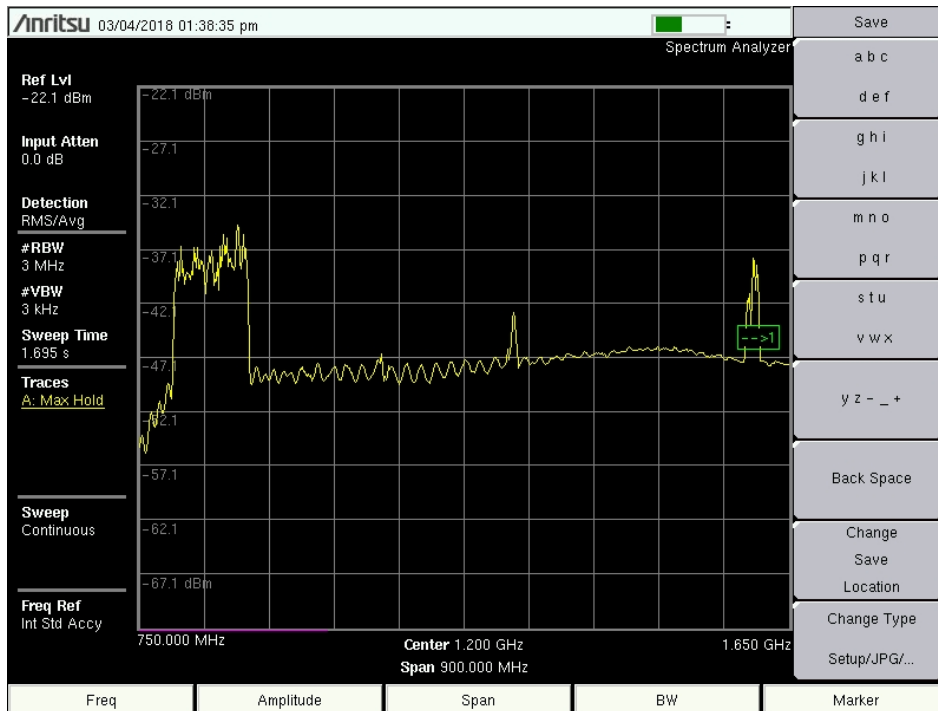
Our customers' increased dependence on C-band

- LinkUp provided more new C-band facilities and upgrades in the last 24 months than we did in the preceding 15 years as principles of Ka You Communications.
- New C-band uplink facilities, 3 new fully redundant uplinks
- New C-band downlink facilities, 50 new downlink installations
- Update to existing C-band downlinks, 32 updated facilities

Typical non-media centric community - Panama City, Bay County, FL



Interference: The Reality



The impact of WiMax is an example of the impact of terrestrial signals on the reliability of broadcast content delivery. Spectrum analyzer images taken on site with an LNA directly into a Anritsu Spectrum analyzer.

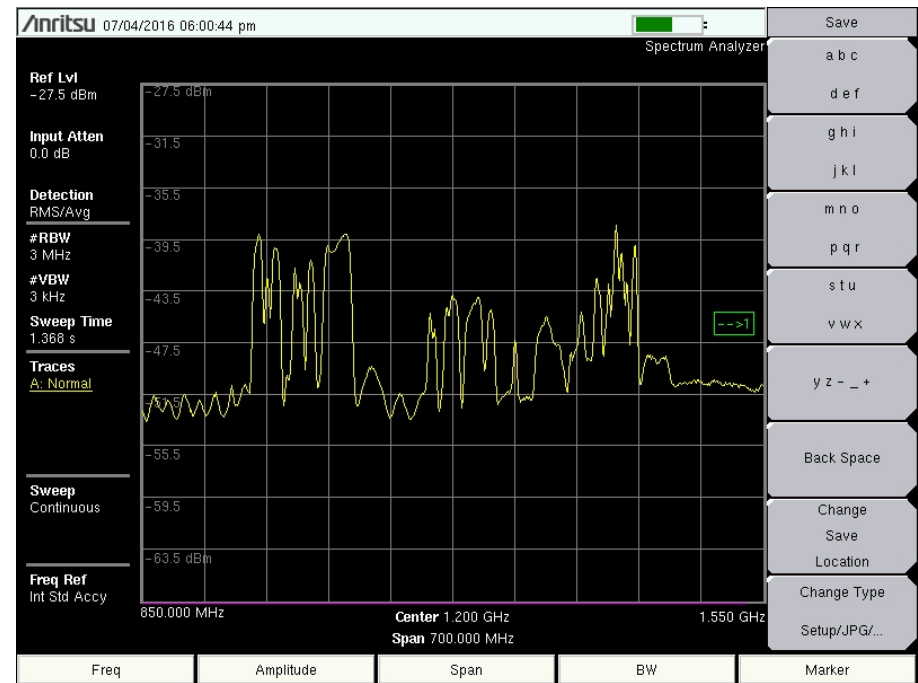
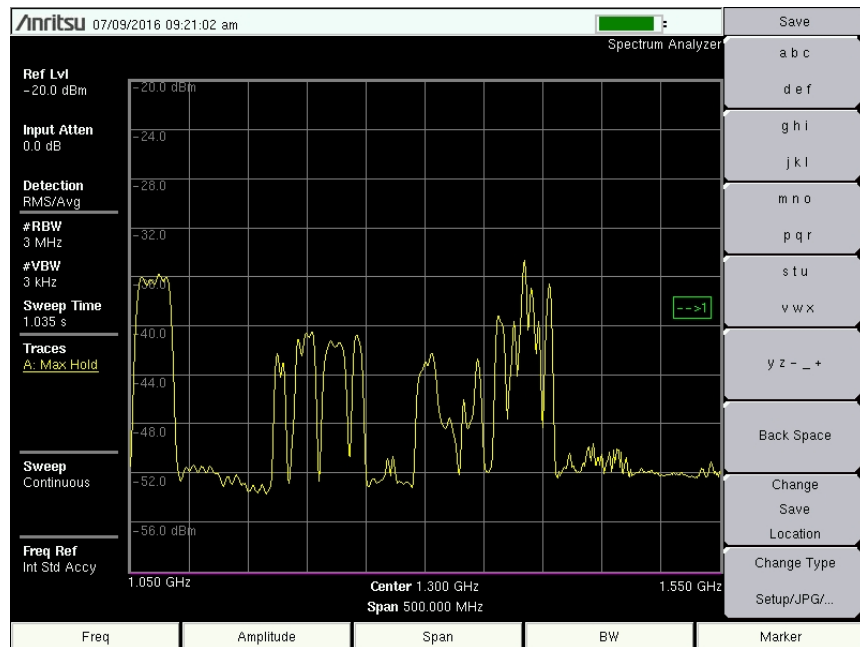
WAYW, New Johnsonville, TN and WAYD, Bowling Green, KY. Both sites are impacted by the signal produced off band by WiMax systems.

Interference: The Reality



Example of the same image parameters without interference from WiMax. Note that in this image the average noise floor is 5 to 10 db lower across the entire spectrum from the previous images. Spectrum analyzer images taken on site with an LNA directly into a Anritsu Spectrum analyzer. WAYH, Huntsville, AL

Interference: The Reality



Example of the similar image parameters on SES-11. Image on the left is from WFOF Covington, IN. directly from the LNB. Image on the right is from WIWC Kokomo, IN directly from LNB that includes a Microwave Filter Co. Model 13961 WE. Note that the noise floor is still elevated after the enhanced filter is in the system. This reduces the E_b/N_0 , reliability and overall performance.

OUR CORPORATE STORY

**LinkUp a small company.
We provide services for
broadcasters who
serve 144 communities
with 24/7/365 broadcasts.**

Customers	City	State			
A	Glenwood Springs	CO			
A	Anchorage	AK			
A	Hot Springs	AR			
A	La Porte	TX			
A	Lafayette	LA			
A	Los Angeles	CA			
A	Pueblo	CO			
A	Cotton Valley	LA			
A	Hot Springs	AR			
A	Clinton	MO			
A	Covington	WA			
A	Mammoth	AZ			
A	Wahiawa	HI			
A	Wahiawa	HI			
A	Aloha	OR			
A	Alexandria	LA			
A	Thibodaux	LA			
A	Central Park	WA			
A	Joplin	MO			
A	Severence/Fort Collins	CO			
A	Sulphur	LA			
A	El Dorado	KS			
A	Mart	TX			
A	Ocean Park	WA			
A	Azle	TX			
A	Hutto	TX			
A	Homer	LA			
A	Lytle	TX			
A	Sandy	OR			
A	Clinton	LA			
A	Hartford	CT			
A	Butler	AL			
A	Fort Myers	FL			
A	West Palm Beach	FL			

OUR CORPORATE STORY

Most of the broadcast licensees we serve are second and third-tier companies. Most turn to LinkUp specifically for the extreme attention to customer service we provide.

Customers	City	State			
A	West Palm Beach	FL			
A	West Palm Beach	FL			
A	Lumberton	NC			
A	Sylvester	GA			
A	New Hope	AL			
A	Seymour	IN			
A	Brownsburg	IN			
A	North Myrtle Beach	SC			
A	Monticello	FL			
A	Semora	NC			
A	Georgetown	KY			
A	Chickasaw	AL			
A	Belle Meade	TN			
A	Belle Meade	TN			
A	Greenville	PA			
A	Collins	MS			
A	Bolling Springs	NC			
A	Columbia	SC			
A	Columbia	SC			
A	Miami	FL			
A	Shorter	AL			
A	Wauseon	OH			
A	Delhi Hills	OH			
A	Alcoa	TN			
A	Navarre	FL			
A	Greencastle	IN			
A	Wingate	NC			
A	Lexington	NC			
A	Hubbard	OH			
A	Maynardville	TN			
A	Cape Charles	VA			
B	Eufaula.	AL			
B	Dothan	AL			
B	Montgomery	AL			
B	Andalusia	AL			
C	Batesburg	SC			
C	Chadbourn	NC			
C	Alley	Ga			
C	Blackville	Sc			

OUR CORPORATE STORY

**LinkUp specializes in serving
broadcast licensees that are
faith-based non-profits.
Often these community-centric
networks service very small,
rural communities where
they might be the only
local source of information.**

Customers	City	State			
C	Sparta	Ga			
C	Soperton	Ga			
C	Newport	Nc			
C	North Augusta	Sc			
C	Alapaha	Ga			
C	Effingham	Sc			
C	Jesup	Ga			
C	Elko	Ga			
C	Greensboro	Ga			
C	Jeffersonville	Ga			
C	Valley Head	Al			
C	York	Al			
C	Gibson	Ga			
C	Donalsonville	Ga			
C	Leesburg	Ga			
D	Indianapolis	IN			
D	Kokomo	IN			
D	West Lafayette	IN			
D	Covington	IN			
D	Bloomington	IN			
E	Nashville	TN			
F	Crystal River	FL			
F	Lakeland	FL			
F	St. Petersburg	FL			
F	Sarasota	FL			
F	Fort Myers	FL			
G	Montgomery	AL			
G	Huntsville	AL			
G	Gadsden	AL			
G	Florence	AL			
G	Muscle Shoals	AL			
G	Auburn	AL			
G	Anniston	AL			
G	Birmingham	AL			
G	Fort Collins	CO			
G	Denver	CO			
G	Trinidad	CO			
G	Colorado Springs	CO			

OUR CORPORATE STORY

Our clients depend heavily on C-band for content not produced locally. Without this ultra-reliable form of delivery, these non-profits would very likely be unable to continue to broadcast and serve in these communities.

Customers	City	State			
G	Fort Morgan	CO			
G	Pueblo	CO			
G	Sterling	CO			
G	West Palm Beach	FL			
G	Tallahassee	FL			
G	Stuart	FL			
G	Panama City	FL			
G	Fort Myers	FL			
G	Charlotte County	FL			
G	Naples	FL			
G	Fort Lauderdale	FL			
G	Evansville	IN			
G	Bowling Green	KY			
G	Central City	KY			
G	Louisville	KY			
G	Madisonville	KY			
G	Murray	KY			
G	Owensboro	KY			
G	Charleston	SC			
G	Dallas/ Fort Worth	TX			
G	Vancouver	WA			
G	Spokane	WA			
G	Nashville	TN			
G	Hendersonville	TN			
G	Cookeville	TN			
G	Columbia	TN			
G	Cleveland	TN			
G	Clarksville	TN			
G	Chattanooga	TN			
G	Portland	OR			
G	Wichita	KS			
G	Thomasville	GA			
G	Cordelle	GA			
Total					



Executive Summary

Dated: Monday, March 14, 2018

From: Senior Management at LinkUp Communications

Re: FCC GN Docket Nos. 17-183, 18-122

C-BAND SATELLITES PROVIDES LISTENERS – AN INDISPENSABLE LINK WHICH CONNECTS LOCAL RADIO AND TELEVISION STATIONS + NETWORKS + MINISTRIES + AMERICAN PEOPLE

We have grave concerns about possible changes to the Federal Communication Commission's rules regarding the use and licensing of C-band spectrum (3.7-4.2 GHz), on which the broadcast satellite systems in the US depend for reliable distribution of programming to radio, television stations and cable providers. Together, these groups broadcast programming to hundreds of millions of Americans each week. Most of the broadband proposals set forth for re-allocating or implementing co-frequency sharing of spectrum are technically impractical or would take years to implement given the interests at stake.

The FCC has made identifying additional spectrum for 5G services a national priority. In 2017, the FCC announced a notice of inquiry regarding 5G and possible use of the frequencies (C-band spectrum/ 3.7-4.2 GHz) used by broadcast tv, radio and cable nationwide. The FCC has seemingly had the impression that the spectrum in question was under-utilized. Yet, quietly and steadily over the last several years, C-band spectrum has become quite popular. In fact, it is now a limited and highly valuable commodity. Due to its propagation characteristics — including the signal's resistance to rain fade — it has proven an attractive target for mobile operators who seek additional spectrum to leverage for future 5G networks.

There is a lack of available, cost-effective alternatives to satellite for reliable radio and television program distribution to broadcast stations across the country. Radio stations cannot afford alternative means of program distribution - such as terrestrial/fiber networks - which are significantly more expensive than satellite distribution. These stations also include rural and remote

areas of the country where fiber does not reach and, regardless of cost, there are no alternatives to satellite distribution.

Because C-band receive-only antennas must be highly sensitive in order to communicate with Geostationary satellites 22,300 miles in orbit, these earth stations are very vulnerable to interference from nearby terrestrial transmitters. We have witnessed first-hand similar interference caused by adjacent channel WiMax facilities near rural C-band downlinks. These WiMax transmissions produce interference similar to what we expect 5G facilities will produce. Wimax interference issues are proving difficult to mitigate and have even sometimes left locations with little or no C-band capability. **It is our firm belief that the high power and density proposed by 5G broadband supporters would be even more destructive than WiMax,** causing severe interference with the operations of free broadcast radio and tv as well as pay cable systems.

5G has the potential to be a valuable commodity to the broadband players. Yet, this “gold rush” should not come at the expense of local radio and television broadcasters. Populations in smaller, more rural communities could lose access to free and local content, including news, sports, entertainment and religious content. Due to this expected interference from 5G, a small, rural community's access to C-band programming may vanish immediately - their providers fiscally unable to provide a viable alternative. Then, when and if 5G arrives in their area, many of the population in these small, rural communities will not be able to afford the services 5G would offer at a monthly cost.

Any plan to use 5G near the nation's C-band frequency must demonstrate a lack of interference with the delivery of free radio and television programming to broadcast locations anywhere in the United States, Puerto Rico and Guam.

Satellite Delivery Is Essential for Broadcast Radio and Television

- Universal and free service for the American people

- All of broadcast TV and Radio's infrastructure relies on satellite distribution to deliver content to and among its affiliate and owned and operated stations. From news, talk, sports, entertainment and religious programming; satellite delivers programming to nearly every one of the more than 15,499 radio stations and 1,765 UHF and VHF television stations nationwide.*
- Without satellite delivery for the country's broadcast radio stations, nationwide radio and public safety information distribution systems could, for all intents and purposes, cease to exist. Thousands of rural radio stations could not afford to stay on the air without programming provided by C-band. Without C-band, smaller market TV stations would be left with an insurmountable financial burden.
- Broadcast TV and radio's infrastructure system provides Americans with timely, critical information before, during, and after emergencies.
- Satellite delivery is the most cost-effective, secure, and reliable technology currently available to serve this national infrastructure. It is unparalleled in reaching even the most rural and remote regions of the U.S.
- Please note an example of typical population and C-band usage. Panama City (Bay County), FL has a population of 183,563 people. There are 9 radio groups with C-band downlinks, 4 TV groups with multiple C-band downlinks each and 2 cable headend locations with multiple downlinks. That is nearly one C-band downlink site for every 12,000 people in the county. Apply this average nationwide and one could assume that there are actually over 27,000 C-band downlink locations nationally.
- To demonstrate how the use of C-band continues to expand, one needs to look no further than our recent work orders. LinkUp Communications has provided more new C-band facilities and upgrades **in the last 24 months than we had in the preceding 15 years** (operating under the previous name, Ka You Communications).
 - New C-band uplink facilities, 3 new fully redundant uplinks
 - New C-band downlink facilities, 50 new downlink installations

- Update to existing C-band downlinks, 32 updated facilities

Satellite Delivery Is Essential for Faith-based Radio and Television

- The Christian radio and television infrastructure relies heavily on satellite distribution to deliver content to and among its affiliates, as well as owned and operated stations.
- There are over 2000 Christian radio stations across the US.
- Christian radio has over 69 million listeners daily**
- Christian Radio Programming is broadcast live, and connects to local listeners daily
- The typical Christian radio listener is a female between the ages of 18-54. **
- There are more than 100 Christian television stations and dozens of Christian cable networks across the US.
- At LinkUp Communications, we are very familiar with the needs of the Christian broadcaster. The majority of our space segment is used to deliver the 24/7 content for Christian radio networks. Without reliable satellite delivery for these small networks, many stations will be forced to go dark.
- Due to reliability issues, several of our customers in the last several years have recently migrated away from Ku-band to C-band.
- Christian radio stations in rural areas could not afford to stay on the air without programming provided by C-band. Even Christian television will suffer; without C-band, smaller market Christian stations would be left with an insurmountable financial burden.
- Ministries served by LinkUp Communications:
 - Are broadcast to 144 communities with C-band downlinks at transmitters and studio sites.

- Are heard by 14 million Americans daily.

Satellite, Particularly C-band, Is Our Most Reliable Form of Communications Before, During & After National Disasters

- Broadcast TV and radio's infrastructure system provides Americans with timely, critical information before, during, and after emergencies.
- Satellite delivery is THE most cost-effective, secure, and reliable technology currently available to serve our national infrastructure. It is unparalleled in reaching even the most rural and remote regions of the U.S.
- Because of its unparalleled reliability, regional emergency networks operate almost exclusively through C-Band.
- Radio keeps local residents informed when disaster strikes and power grids, Internet & other communications systems are down. A C-band downlink and a fully fueled generator are all a broadcaster may need to continue operations following a natural disaster, especially in rural and remote areas.
- No other alternative discussed or examined – including commercially available options – is as cost effective or as likely to result in success.

* https://apps.fcc.gov/edocs_public/attachmatch/DOC-350110A1.pdf

** <https://www.dunhamandcompany.com/2008/05/attitudes-behaviors-towards-christian-radio/>

<https://www.census.gov/quickfacts/fact/table/baycountyflorida/PST045216>