



The

# **Broadcasters' Desktop Resource**

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... edited by Barry Mishkind – the Eclectic Engineer

## **Broadcast Operations**

### **A Surprising Discovery About 5G That You Need To Know**



**By Karen Johnson**

*[September 2021] Big changes are coming to satellite distribution on the C-Band. Some places will be affected more than others, but a number of stations are getting an early taste of what is to come.*

Have you listened critically to your satellite feed of late?

If you are in Pittsburgh, Omaha, or Honolulu, among other cities, you might find annoying interference with the audio and/or video. And I am not just talking about networks and stations in the top 46 PEA (Population Economic Area) markets.

Fellow satellite broadcasters: Your station could be affected by 5G interference sooner than you think.

#### **REAL INTERFERENCE**

In June, we spent some time with the engineer for Gray TV in Honolulu, One of several that have noted the problem.

He mentioned to us that his antennas have been experiencing intermittent interference from an unidentified source. We put a spectrum analyzer on one of his downlinks and confirmed his suspicions, and ours: 5G in the lower band was the culprit.

This interference is not just happening in Hawaii. We have had reports from places like Miami, Jacksonville, FL and Omaha, NE of occasional interference. How much interference, you ask? Enough to cause concern that the C-band signal they receive is in jeopardy.

#### **BIG CHANGES ON C-BAND**

Most of you are aware that up to 60 percent of the C-band spectrum is in the process of being repackaged for 5G.

By the end of 2021 – in just three months – the Mid-Band spectrum of 3.7 to 3.82 GHz will be firmly in the hands of broadband carriers, followed by 3.7 to 4.0 GHz by the end of 2023. At the end of the transition period, only the upper

frequency of 4.0 to 4.2 GHz has been left as allocated for broadcasting.

But something is happening right now – and if you take any programming from C-Band satellites, this is something you need to know about.

### **THE QUESTION WAS WHEN**

By December 5, the top 46 markets will be lighting up 5G, which is why most of us believed that 5G interference would be limited (at least initially) to these larger markets – and not until December.

However, now our perception has changed.

What we are seeing is that broadcasters in markets inside and outside the top 46 PEA's are experiencing 5G interference – and this is happening right *now*.

### **THE SOURCE OF THE PROBLEM**

It turns out that there are two issues.

Some carriers are “testing” their new 5G gear. Yet, while most of the immediate problem is coming from broadband – it is actually not from the lower C-Band frequencies.

In fact, it is the use by broadband carriers of 5G in a lower band range close to the C-Band: the adjacent 3.5 to 3.7 GHz. And this is causing many broadcasters major heartburn. In Pittsburgh, Crown Castle is starting on a \$10 million, 10-year contract to connect Pittsburgh's fire, EMS and other city services with a single high-speed fiberoptic network.

The good news for Gray TV is the interference did not cause any downtime, but it did lower the receiver Eb/No's enough to affect the network's margin. It was enough interference to inhibit reliability, and that is never acceptable.

In the end, we installed a High-Pass filter to eliminate the interference. It actually worked so well that Gray TV quickly ordered seven more filters to use at other stations!

### **NO PROTECTION HERE!**

What really stinks in this scenario is the knowledge that – whether you registered your C-Band antenna with the FCC or not — the location of the source of this specific interference, the lower-band range, is *not* protected by the FCC.

Meaning? There is no FCC appointed clearing-house covering the cost of these issues; your station or network will need to deal with the filter install and peaking of the antenna yourselves. You might wish to note what we refer to as the [Four Essential Steps here](#).

For several months now, Team LinkUp has been involved in assisting both our customers and satellite owners like SES and Intelsat in preparing stations and networks for the coming 5G transmissions. We have already handled dozens of repack projects around the country.

If you have the time and capability, and want to tackle this yourself, great. If not, our seasoned team of satellite antenna experts are always available to help.

*A broadcaster and entrepreneur, Karen has spent two decades championing the power of satellite to deliver broadcast-quality radio and video that is live and immediate.*

*Karen and Mark Johnson are the principals of LinkUp Communications Corp., a broadcast integration company in Panama City, Florida specializing in satellite technology.*

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