



**BEFORE THE  
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION  
U.S. DEPARTMENT OF COMMERCE  
WASHINGTON, D.C.**

**In the matter of:**

**Development of a National Spectrum  
Strategy**

**Docket No. NTIA-2023-0003**

**COMMENTS OF THE INTERNATIONAL AIR TRANSPORT ASSOCIATION**

The International Air Transport Association (IATA) appreciates the opportunity to respond to the National Telecommunications and Information Administration (NTIA)'s request for comments on the development and implementation of a National Spectrum Strategy for the United States.<sup>1</sup>

IATA represents the interests of some 300 airlines globally, including the majority of carriers that fly to, from, and within the United States. As such, we have a significant interest in the outcome of this proceeding.

We fully endorse the comments submitted by Aviation Spectrum Resources, Inc. in this matter and would like to take this opportunity to supplement their comments herein.

**Baseline Consideration**

Competition for radiofrequency spectrum is fierce and, recently, incumbent users have seen increasing challenges to portions of spectrum that had been historically allocated. The Ligado applications in the U.S. and Canada – and the implications of the recent 5G roll-out on radio altimeters – demonstrate that new entrants for spectrum adjacent to those allocated to aviation have very different, and in many cases, unfounded assumptions regarding system performance and their related concept of operations. Today, the resolution of spectrum issues more closely resembles litigation than sound regulatory policy. Government agencies need to do a better job of coordinating future changes in spectrum usage that impact multiple communities to ensure that engineering and analysis criteria are established and agreed upon among the stakeholders. This will remove government regulators from the role of picking “winners and losers” and enables them to facilitate a negotiated solution between incumbent communities and new entrants.

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<sup>1</sup> 88 Fed. Reg. 16244.

Experience derived from the troubled implementation of C-Band 5G in the United States highlights that any revised spectrum policy must not start from a blank canvas. Legacy aeronautical radio frequency (RF) systems, especially those considered in the “safety of life” category, must be protected. The cost to IATA member airlines (including many registered in the U.S.) due to the failure of government agencies to coordinate 5G implementation for the betterment of the U.S. economy is currently estimated to be more than \$600 million, and that is for enhancing just one avionics system to account for the FCC’s failure to plan for real-world spectrum usage. All evidence suggests that most radio altimeters (that have been previously certified for safe use) will require a second modification within five years of the first one. Spectrum theory must be overlaid with a pragmatic understanding of what it takes to “do no harm” to legacy aeronautical systems.

The alternative is that the government must pay for damage caused to commercial airlines. There is certainly precedent for this. For example, in advance of reallocating approximately 100 MHz of ultra high frequency spectrum allocated to television in the 600 MHz band, Congress authorized \$1.75 billion for the reasonable expenses of relocating television stations to other bands of spectrum.<sup>2</sup> More recently, in its 2020 Ligado Order, the FCC required Ligado to “take all necessary mitigation measures to prevent or remediate any potential harmful interference to U.S. Government devices,”<sup>3</sup> and to develop “a program to repair or replace” any affected devices.<sup>4</sup> Unfortunately, these requirements were not applied to non-federal government entities.

### **Repurposing**

A significant element of any NTIA revised spectrum policy will involve the concept of “repurposing” and/or “sharing.” However, some spectrum usage, especially in safety of life services, warrants continued protection from in-band and adjacent band radio frequency interference (RFI). It is unreasonable to expect that in-service avionics designed a decade or more ago can match today’s technology in terms of RF selectivity or RFI performance. Also, ignoring the practical realities (e.g., cost and time) surrounding any forced avionics upgrades is unacceptable to an industry that closely matches the telecommunications domain in economic value to the United States.

### **Global not Local Perspective**

Prior to the COVID-19 pandemic, civil aviation contributed \$1 trillion to U.S. GDP. It cannot function without access to globally protected and internationally coordinated spectrum. The

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<sup>2</sup> Sec. 6402 of the Middle Class Tax Relief and Job Creation Act of 2012 (Public Law 112-96).

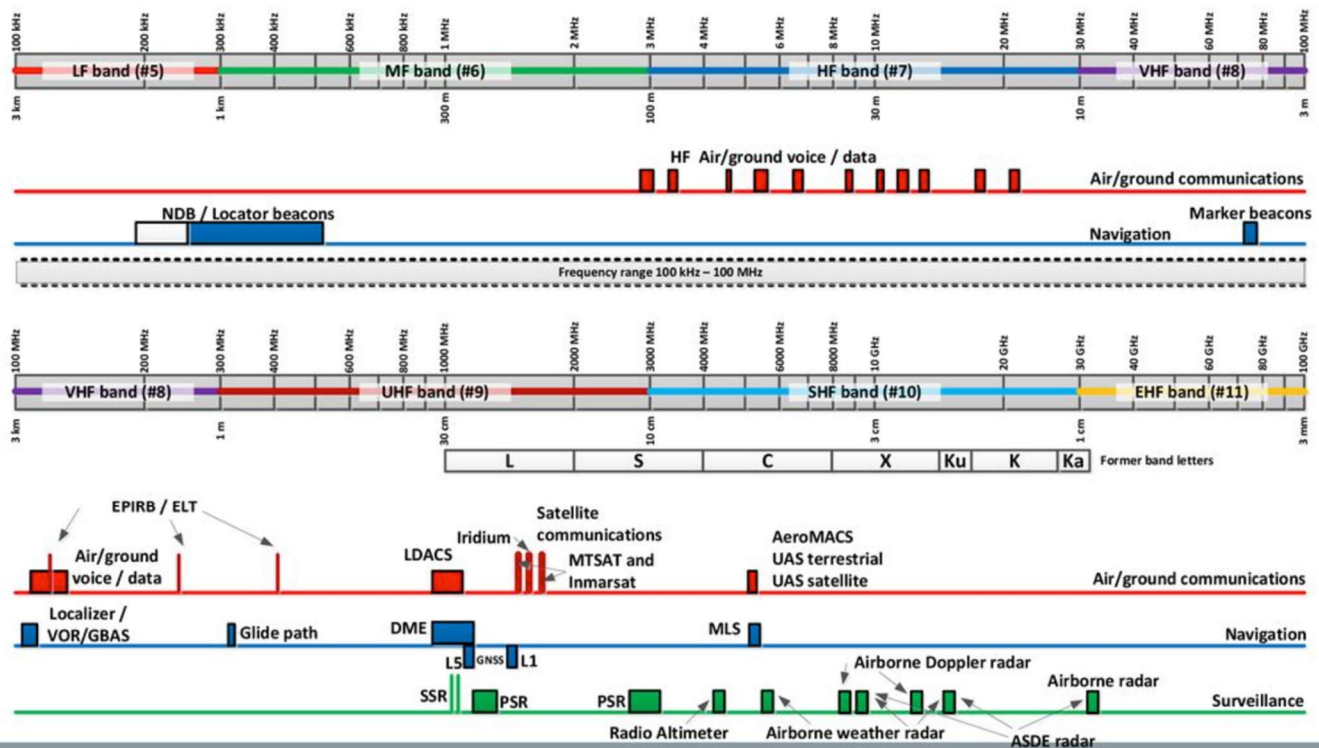
<sup>3</sup> Federal Communications Commission Order 20-48 at 52.

<sup>4</sup> *Id.* at 53.

International Civil Aviation Organization (ICAO), of which the United States is a member, has well-established procedures for evaluating and coordinating any proposals for change to the mission critical spectrum guaranteed to aviation safety of life applications. As a matter of self-interest, the U.S. actively engages with a range of ICAO panels associated with aircraft communications, navigation, and surveillance, and has implemented the spectrum allocations shown in Graphic 1 in the full expectation that other States will also protect these allocations for U.S.-registered aircraft flying internationally.

**Aeronautical Frequency Spectrum Management**  


# Aeronautical Frequency Spectrum Management



Graphic 1.

## **Discussion**

We are pleased to offer the following responses to specific questions asked in the request for comments:

### **Pillar #1 – A Spectrum Pipeline to Ensure U.S. Leadership in Spectrum-Based Technologies**

**Question: How much, if at all, should our strategy be informed by work being performed within recognized standards-setting bodies (e.g., 3GPP, IEEE), international agencies (e.g., ITU), and non-U.S. regulators or policymakers (e.g., the European Union)? What relationship (if any) should our strategy have to the work of these entities?**

It is critical to the interests of U.S. civil aviation that any revised spectrum “pipeline” be reflective of related work being conducted internationally. U.S.-registered airlines fly worldwide and costly “dual stacking” of airborne avionics because of avoidable differences in spectrum (and system) usage across continents serves neither the U.S. nor the traveling public.

The United States has signed a Memorandum of Understanding with Europe under the banner of NextGen/SESAR Air Traffic Management Research and Development. The spectrum usage of proposed new airborne and ground-based technologies under this agreement needs to be reflected in any change of policy.

**Question: For purposes of the Strategy, we define “spectrum pipeline” to mean a process for identifying spectrum bands, regardless of allocation (i.e., both federal and non-federal) that should be studied for repurposing (i.e., allowing new or additional uses) to meet future requirements for non-federal and federal use alike. We seek input on what requirements such a pipeline needs to address, and which spectrum bands may be best suited for particular purposes.**

It is imperative for the NTIA to not repeat the mistakes of a partner agency as has been done in the case of the 5G rollout. The U.S. has international agreements and responsibilities for the protection of aeronautical spectrum and the term “regardless of allocation” suggests that the NTIA’s mindset is not reflective of the lessons learned from 5G. Do no harm (to existing safety of life services) should always be a critical element of any new policy. The assumption that spectrum-dependent avionic systems have a (close to) 90-degree roll off in terms of selectivity is imprudent. We recommend that a pragmatic approach to filtering adjacent bands be a high priority in any new policy.

**Question: What are projected future spectrum requirements of the services or missions of concern to you in the short (less than 3 years), medium (3-6 years) and long (7-10 years) term?**

In terms of future spectrum requirements for the aeronautical domain, the NTIA is reminded of the tremendous economic and operational impact in both the short and medium term of unmanned aircraft systems (UAS). Adequate spectrum must be allocated to UAS command and control and payload communications. IATA is aware of other aviation organizations planning to submit comments on the current FCC UAS NPRM<sup>5</sup>, so will refrain from making further comment on this topic here.

**Question: Describe why the amount of spectrum now available will be insufficient to deliver current or future services or capabilities of concern to stakeholders.**

New avionic systems are being developed such as the L-band Digital Aeronautical Communications System (LDACS), an upcoming air-to-ground communications standard. There is concern that operating LDACS in currently allocated spectrum will result in interference with aeronautical Distance Measuring Equipment (DME) and Automatic Dependent Surveillance – Broadcast (ADS-B). The FAA has invested heavily in both DME and ADS-B and has a mandate for aircraft to be equipped with the latter technology.

While the FAA has no immediate plans to implement LDACS technology, and the ICAO approval process for the system is likely to extend into what the NTIA considers the mid-term, it would nonetheless be wise to assume that Europe will proceed to implement the technology and equipped aircraft will be flying in U.S. airspace. Prevention of any LDACS RFI should therefore be a part of any new spectrum policy.

IATA encourages the NTIA to coordinate with the FAA and FCC to ensure that avionic technologies under development elsewhere and likely to be implemented first by States other than the U.S. are accounted for in the propose new spectrum policy.

**Question: Should the Strategy prioritize for repurposing spectrum bands that are internationally harmonized and that can lead to economies of scale in network equipment and devices?**

Internationally harmonized aeronautical bands serve to protect U.S. interests when operating overseas. The reference to economies of scale applies insofar as most avionic manufacturers are based in the U.S., so any revised spectrum policy needs to be cognizant of not just international agreements but also the commercial interests of U.S. manufacturers. Imposing

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<sup>5</sup> 88 Fed. Reg. 7910.

new and novel avionic equipment requirements might be viewed by some as an opportunity to create a new avionic market for U.S. manufacturers. However, the negative consequences for U.S.-registered airlines and the traveling public cannot be ignored.

**Question: For purposes of the Strategy, we propose to define “spectrum sharing” as optimized utilization of a band of spectrum by two or more users that includes shared use in frequency, time, and/or location domains, which can be static or dynamic. To implement the most effective sharing arrangement, in some situations incumbent users may need to vacate, compress, or repack some portion of their systems or current use to enable optimum utilization while ensuring no harmful interference is caused among the spectrum users.**

Techniques such as time-division multiplexing, frequency-division multiplexing, and geographic multiplexing are used to the greatest extent possible in civil aviation. For example, very high frequency communications frequencies are re-used beyond the radio horizon of any one station to enable the same frequency to serve many different airports, airlines, and air traffic control facilities. Similar arrangements apply to other avionic systems operating in geographically diverse areas. Spectrum sharing is done within a single, highly regulated industry with the common goal of the safe transport of the traveling public with no external commercial vested interest competing for the spectrum. IATA suggests that civil aviation is already sharing spectrum to the greatest extent possible and that the NTIA should instead look to other less efficient users of spectrum for possible sharing or repurposing.

## **Pillar #2 – Long-Term Spectrum Planning**

**Question: Learning from prior experiences, what can be done to improve federal/non-federal spectrum coordination, compatibility, and interference protection assessments to avoid unnecessary delays resulting from non-consensus?**

It is clear that it was irresponsible for the FCC to auction the C-band spectrum to support 5G deployment without addressing the valid concerns by the FAA and the commercial aviation industry. Spectrum allocation cannot take place in a vacuum. First and foremost, any new spectrum policy must be developed in adherence with established international standards and regulations. There also needs to be greater emphasis on improving information gathering and sharing during the early stages of the process. Also, government agencies should work more collaboratively with one another to resolve potential interference disputes and at a technical, rather than political, level.

**Question: Are additional spectrum-focused engagements beyond those already established today (e.g., FCC's Technical Advisory Committee (TAC), NTIA's Commerce Spectrum Management Advisory Committee (CSMAC), and NTIA's annual Spectrum Policy Symposium) needed to improve trust, transparency, and communication among the federal government, industry, and other stakeholders (including Tribal Nations) and why?**

Yes. As previously stated, U.S. airlines operate globally only because of harmonized and protected spectrum allocations. ICAO is the global civil aviation organization that manages this. IATA recommends that the NTIA and FCC become more familiar with ICAO's frequency spectrum processes and engage with the organization as appropriate.

Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in black ink that reads "Douglas E. Lavin". The signature is written in a cursive, flowing style.

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