

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
Amendment of the Commission’s Rules to Promote Aviation Safety)	WT Docket No. 19-140
)	
WiMAX Forum Petition to Adopt Service Rules for the Aeronautical Mobile Airport Communications System (AeroMACS))	RM-11793
)	
Petition of Sierra Nevada Corporation for Amendment of the Commission’s Rules to Allow for Enhanced Flight Vision System Radar under Part 87)	RM-11799
)	
Petition of Aviation Spectrum Resources, Inc. for Amendment of Sections 87.173(b) and 87.263(a) of the FCC’s Rules to Allow Use of the Lower 136 MHz Band by Aeronautical Enroute Stations)	RM-11818
)	
Petition of Airports Council International-North America Regarding Aeronautical Utility Mobile Stations)	RM-11832
To: The Commission		

COMMENTS OF THE AEROSPACE INDUSTRIES ASSOCIATION

The Aerospace Industries Association (“AIA”) is pleased to respond to the Notice of Proposed Rulemaking¹ (“NPRM”) in the above-captioned matters.²

INTRODUCTION

The Aerospace Industries Association (AIA) represents an aerospace and defense (A&D) industry that is at the heart of the American economy, generating \$929 billion in economic

¹ FCC 19-53, released June 7, 2019.

² iBId.

output and a trade surplus of nearly \$90 billion in 2018 – the largest of any U.S. exporting sector. Our industry is supported by more than 2.5 million dedicated employees – representing 20 percent of the nation’s manufacturing workforce – who are responsible for the continuous stream of innovations that improve American lives.

Our members are supportive of innovative uses of aviation spectrum provided that they do not cause harmful interference with systems already operating and allow for fair access to the band itself. Some of our members may provide comments that address in depth technical issues raised by the NPRM. AIA focuses here on a high level matter important to the entirety of the aerospace and defense industry.

FLIGHT TESTING IS CRITICAL TO THE AEROSPACE AND DEFENSE INDUSTRY

The aerospace and defense industry has long relied on flight test spectrum in order to continue to innovate new products for both civil and military applications, as well as deliver on specific contract requirements. Development, pre-production and delivery of sophisticated aircraft -- from passenger planes and jets to fighters to missiles—require many test flights that collect and use large amounts of data in real time. Flight testing can involve large and complex arrangements, some of which include chase planes, search and rescue aircraft and many different tests during a single mission, and involve hundreds of ground personnel. These tests ensure that the specific piece of equipment is appropriate to be delivered to the customer and can be extremely costly, representing up to 15-20% of the total cost of developing a new aircraft.

As our industry continues to innovate and produce new products, there also continues to be a steep increase in the number of data points that need to be collected, evaluated, and acted upon throughout the test to ensure the aircraft and missiles performance are at peak levels. For

example, testing the Boeing 707 aircraft only required a few hundred data points whereas the more modern Boeing 787 required more than 100,000. In addition, flight testing incorporates an increasing amount of digital video which captures information other sensors cannot and places significant bandwidth demands. This digital transformation of flight testing has led to exponentially increased spectrum demand to perform individual flight tests.

The aeronautical mobile telemetry (“AMT”) community is made up of industry companies and groups that require access to dedicated flight test spectrum. As the FCC correctly points out in the NPRM, the AMT community has long sought access to additional spectrum resources to supplement the safety-of-life spectrum at 1435-1525 and 2360-2390 MHz.³ This stems from the repurposing of spectrum to perform this testing at bands such as 2310-2360 MHz, combined with the aforementioned growth in demand.

As stated above, flight testing data is essential for both civil aviation and defense applications. The FAA requires this data to achieve an airworthiness certification, and military aircraft must have it to achieve certification for the aircraft or missile performance in accordance with contract specifications. These requirements, along with the recognition that more spectrum would be required to complete them, led the United States to seek the allocation of the 5090-5150 MHz band for AMT purposes at the 2007 World Radiocommunication Conference.⁴

During those efforts, it was also determined that the AMT community would need up to 650 MHz of additional spectrum in order to meet the increased demands, and the 2007 World

³ iBid

⁴ See *In the Matter of Amendment of Parts 1, 2, 15, 25, 27, 74, 78, 80, 87, 90, 97, and 101 of the Commission's Rules Regarding Implementation of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) (WRC-07), Other Allocation Issues, and Related Rule Updates*, FCC 15-50, 30 FCC Rcd 4183 (2015)(hereinafter, “*Report and Order*”) at para. 53.

Radiocommunication Conference allocated a total of 1374 MHz of bandwidth for AMT purposes. While 1374 MHz of bandwidth was allocated in 2007, the FCC has thus far only allocated 59 MHz of it domestically —the 5091-5150 MHz spectrum band on a co-primary basis with AM(R)S, which received an allocation at the same time. Gaining access to this new allocation is critical to industry to be able to perform flight testing.

FAIR ACCESS TO THE BAND IS CRITICAL FOR THE AEROSPACE AND DEFENSE INDUSTRY

Unfortunately, AMT is unable to secure reasonable access to the 5091-5150 MHz band due to the potential emergence of an Aeronautical Mobile Airport Communication System (“AeroMACS”) system; AeroMACS intends to operate in the 5091-5150 MHz band, and indicates that it will use that spectrum to “enable ground-to-aircraft communications to support both current applications and new.”⁵ As the FCC correctly recognizes in the NPRM, this band was allocated in 2015 for both federal and non-federal AeroMACS use on a co-primary basis, but since that time AeroMACS has yet to establish any services in the band.⁶

In order for the aerospace and defense industry to continue to develop innovative new platforms and to meet contract requirements, access to dedicated flight test spectrum is critical. AMT takes place both on the ground and in the air, and at a small number of aerospace companies’ manufacturing plants, which are at sites where airports are located in close proximity. Therefore, as a result of the potential emergence of AeroMACS, the AMT community may be unable to secure access to the band and ultimately unable to properly conduct AMT operations without an appropriate sharing arrangement with AeroMACS. While the NPRM lists six current sites⁷,

⁵ See, <http://wimaxforum.org/Page/AeroMACS>

⁶ FCC 19-53, released June 7, 2019.

⁷ Those airports are Boeing Field/King County Int’l Airport, Seattle, WA; Lambert-St. Louis Airport, St. Louis, MO; Charleston AFB/Int’l Airport, Charleston, SC; Wichita Dwight D. Eisenhower National Airport, Wichita, KS;

where the parties were encouraged by the FCC in 2015 to exchange information toward development of sharing arrangements, AIA and our members believe that certain additional sites should be added at this time as other sites have begun doing similar operations that require access to the 5091-5150 MHz band. Further, it is critical that accommodations are made for additional AMT sites going forward so that all parties have access to the spectrum band near airports where AeroMACS may be deployed as needed. If the Commission proceeds with its proposal, it should work with relevant stakeholders on which sites should be added to the list. In the meantime, the Commission should not deploy AeroMACS at airports within radio line of sight of the flight testing locations listed in footnote 7 and the NPRM.

Industry has long looked to work together on a solution that would allow the AMT community to access this spectrum for flight testing on a long-term basis and operate in compatibility with the AeroMACS system.⁸

The foregoing highlights the complex nature of the band and managing the access of both AMT and AeroMACS. The NPRM inquires whether deployment of the AeroMACS system should be delayed until such time as sharing criteria have been established among stakeholders in the two co-primary allocations in the band.⁹ AIA and its members are in strong support of such deferral until such time that proper sharing criteria are in place.

THE CHANNEL MANAGER SHOULD HAVE DEEP EXPERTISE IN AVIATION SAFETY

Roswell Int'l Air Center Airport, Roswell, NM; William P. Gwinn Airport, Jupiter, FL; Boeing Field, Paine, WA; Florence, SC; Moses Lake, WA; Tucson International Airport, Tucson, AZ; Oklahoma City, OK; SeaTac International Airport, Seattle, WA; and Philadelphia International Airport, Philadelphia, PA., with additional locations authorized on a case-by-case basis per US111.

⁸ Additionally, as AeroMACS is still not operational in the 5091-5150 MHz spectrum band, the AMT industry is working with the FAA for a short-term solution at certain locations that would allow for flight testing to take place immediately since the risk of interference at these locations would be minimal.

⁹ FCC 19-53, released June 7, 2019.

The Commission also recognizes the complexities of these few locations by proposing site-based licensing with coordination by the Federal Aviation Administration (FAA) under Part 87.¹⁰ This is also consistent with other Part 87 allocations and will allow for maximum coordination with the FAA regional offices to ensure aviation safety.

In AIA's view, reliance on the FAA to coordinate aeronautical safety spectrum usage on an individual station licensing basis (not licensing by rule) would be most consistent with the aeronautical safety allocation in the 5091-5150 MHz band. However, if the Commission should consider a channel manager or managers, the selection criteria should-focus on a demonstrated familiarity with complex safety-related aviation spectrum operations, and ideally a history of managing such operations. It would be doing a disservice to the public interest and the flying public if a channel manager (or managers) did not meet that description.

CONCLUSION

Flight testing has long been a critical part of the aerospace and defense industry. Every time a new product is flown or missile is launched it had to go through the complex flight testing procedures in order to do so. Furthermore, the aerospace and defense industry's own digital transformation of its manufacturing processes is leading inevitably toward increased flight testing demands.

The United States has long recognized this important part of the industry and protected and promoted spectrum resources that are dedicated to letting flight testing take place efficiently

¹⁰ iBId.

even as the demands for real-time flight test data and video increases. This recognition has in part led the Aerospace and Defense sector to have a substantial positive trade balance.¹¹

Gaining fair long-term access to the 5091-5150 MHz band for the years to come will help our industry continue to test new innovative products and continue to strengthen our industry's already consequential economic output. AIA and its members look forward to continuing to work with our industry partners, the FAA, the FCC, and AeroMACS proponents to allow all parties fair access to the 5091-5150 MHz spectrum band.

Respectfully submitted,

AEROSPACE INDUSTRIES ASSOCIATION

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¹¹See, Facts and Figures, U.S. Aerospace and Defense, Aerospace Industry Association (2019).