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MAR - 8 2001

March 8, 2001

**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY**

Ms. Magalie Roman Salas, Secretary
Federal Communications Commission
The Portals, Room TW-A325
445 Twelfth Street, S. W.
Washington, D. C. 20554

Re: ET Docket No. 00-221
Comments of Aerospace and Flight Test Radio Coordinating Council
Computer Diskette

Dear Ms. Salas:

Submitted herewith on behalf of the Aerospace and Flight Test Radio Coordinating Council ("AFTRCC") is a computer diskette containing a copy of AFTRCC's comments in response to the Commission's Notice of Proposed Rule Making in ET Docket No. 00-221, *Reallocation of the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands*, FCC 00-395, released November 20, 2000. We are concurrently providing a copy of the diskette to the Commission's copy contractor, International Transcription Service, Inc.

Should any question arise concerning this matter please contact Ken Keane of this office (202-775-7123) or undersigned counsel.

Sincerely,


Mark Van Bergh

cc (w/encl.): ITS

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Before the
FEDERAL COMMUNICATIONS COMMISSION
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MAR - 8 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	
Reallocation of the 216-220 MHz,)	ET Docket No. 00-221
1390-1395 MHz, 1427-1429 MHz,)	RM-9267
1429-1432 MHz, 1432-1435 MHz,)	RM-9692
1670-1675 MHz, and 2385-2390 MHz)	RM-9797
Government Transfer Bands)	RM-9854

To: The Commission

**COMMENTS OF THE AEROSPACE AND FLIGHT TEST
RADIO COORDINATING COUNCIL**

The Aerospace and Flight Test Radio Coordinating Council (“AFTRCC”), by its counsel, hereby submits its comments in response to the Commission’s Notice of Proposed Rule Making in the above-captioned proceeding (the “NPRM”), FCC 00-395, released November 20, 2000.¹ In the NPRM the Commission proposes to allocate a total of 27 megahertz in certain bands transferred from Government to non-Government use pursuant to the Omnibus Budget Reconciliation Act of 1993 (“OBRA-93”) and the Balanced Budget Act of 1997 (“BBA-97”).

AFTRCC focuses these comments on the Commission’s proposed re-allocation of the 2385-2390 MHz band. Specifically, AFTRCC urges the Commission to protect the use of the 2385-2390 MHz band for flight test operations in a number of locations beyond those that NTIA has already identified, and to make clear that flight test licensees displaced from the band should be eligible for reimbursement.

¹ By *Order Granting Extension of Time*, DA 01-451, released February 16, 2001, the Chief, Office of Engineering and Technology, extended the time for filing comments in this proceeding until March 8, 2001.

INTRODUCTION

AFTRCC is an association of aerospace companies engaged in the design, development, manufacture and testing of commercial and military aircraft, space vehicles, missiles and weapons systems. Members of AFTRCC include, in particular, the major U.S. manufacturers of military and commercial aircraft. AFTRCC is the FCC-recognized advisory committee for coordination of flight test frequencies shared by Government and non-Government users. *See* 47 C.F.R. Section 87.305. AFTRCC works closely with its counterpart Government coordinators in order to ensure prompt, efficient coordination of the flight test frequencies.

AFTRCC has a long history of participating in spectrum policy issues. For example, AFTRCC initiated the private sector efforts which led to the allocation of radio spectrum for aeronautical telemetry, including its 1975 initiative which culminated with the allocation of the 1435-1535 MHz band for flight testing. Similarly, AFTRCC successfully petitioned for regulatory changes which eliminated potential regulatory handicaps to the global competitiveness of the U.S. commercial space launch industry. AFTRCC also has represented the interests of the aerospace industry in connection with proposals which contemplated reallocation of U.S. flight test spectrum to other non-aviation uses -- such as the 1452-1492 MHz band for DARS. AFTRCC's experience makes it well qualified to comment on matters concerning the 2385-2390 MHz band which is currently used for flight testing.

Aeronautical telemetry is used to provide critical flight test, telemetry and telecommand operations data and communication between ground facilities and the aircraft, space vehicle, missile or weapon system under test. Telemetry operations use facilities licensed by the Commission under 47 C.F.R. Part 87, Subpart J. Flight test operations occur in various areas of the country. They take place at altitudes up to and exceeding 60,000 feet in an operational radius

of 160 kilometers or more from a specific ground receiving station. The flight test, telemetry and telecommand operations are critical to the U.S. aerospace industry's ability to produce, deliver and operate safe and efficient aircraft, space vehicles and military equipment. Moreover, this vital data link enables ground-based engineers to abort test maneuvers whenever a monitored condition indicates a possible threat to the life of the pilot, to neighboring communities, or to the tremendous investment in one-of-a-kind aircraft.

THE COMMISSION'S PROPOSALS

The 2385-2390 MHz band is currently allocated on a primary basis to Government and non-Government Mobile Service for purposes of aeronautical telemetry. The Federal Government plans to vacate the band by January 2005 except at certain sites which are to be protected until 2007.² The Commission also noted NTIA's recommendation that receiver and transmitter standards accompany the band's reallocation.³ Because the band was transferred to non-Government use pursuant to the Balanced Budget Act of 1997 ("BBA-97"),⁴ the Commission may award licenses in accordance with Section 309(j) of the Communications Act (providing for competitive bidding). Further, new licensees must compensate in advance

² *NPRM* at para. 44, citing *Spectrum Reallocation Report, Response to Title III of the Balanced Budget Act of 1997*, NTIA Special Publication 98-36, February 1998 ("*Spectrum Reallocation Report*"), Section 3 at 46-49 and Table 3-6. The 17 protected sites are listed in Appendix A to the *NPRM*.

³ *Id.* at para. 45. NTIA stated, "[a] concern in reallocating this band for non-Federal use is that it is immediately adjacent to airborne telemetry systems [2360-2385 MHz]. Reallocation of the 2385-2390 MHz band must be accompanied by mandatory commercial receiver and transmitter standards to reduce the potential for mutual adjacent band interference." *Spectrum Reallocation Report*, Section 3 at 46.

⁴ Pub. L. 105-33, 111 Stat. 251 (1997).

Government entities for the marginal costs they will incur in relocating their services to another band.

In these comments AFTRCC responds to several issues the Commission raised in the *NPRM*. In particular, the Commission inquires whether non-Government aeronautical telemetry uses exist outside of the 17 NTIA-identified sites and how the Commission can preserve 2385-2390 MHz for aeronautical telemetry as new services enter the band, including whether the Commission should reduce aeronautical telemetry to secondary status or protect telemetry operations in limited areas.

DISCUSSION

Protection of Aeronautical Telemetry. NTIA's *Spectrum Reallocation Report* identified those locations at which certain aeronautical telemetry operations, primarily Government, required protection. However, there are additional, non-Government locations which also need protection. AFTRCC has identified ten sites, which are listed in Exhibit 1 to these comments, which the Commission should protect until 2007 in addition to the 17 Government sites listed in Appendix A to the *NPRM*.

The primary band used for both Government and non-Government flight testing telemetry is 1435-1525 MHz. However, this band is heavily used and as a result congested. Consequently, many flight test operations have moved to the 2360-2390 MHz band, which in the last several years has seen increasing use. *See Spectrum Reallocation Report*, Section 3 at 41. NTIA described some of the problems that have resulted and can result from the loss of available spectrum for aeronautical telemetry:

Aeronautical testing is now conducted on a very tight time schedule. Flight programs that suffer longer than normal delays will incur cost overruns. Test flight delays as a result of insufficient spectrum for simultaneous operations

could add several months to larger test programs. ... Wideband [aeronautical telemetry] is becoming increasingly more important as a result of the high data rates and the corresponding high bandwidths anticipated for future flight test telemetry. Since there is only 30 MHz remaining in the 2360-2390 MHz band, reallocation of a large part of the band would all but eliminate the ability to perform wideband [aeronautical telemetry] functions.

Spectrum Reallocation Report, Section 3 at 41, 42.

NTIA's reference to wideband telemetry is particularly important. The data rates required for aeronautical telemetry have grown exponentially over the years as the number of data points monitored have increased. For example, 40 years ago flight testing the Boeing 707 required monitoring approximately 300 data points. In the early 1990's, flight testing the Boeing 777 required monitoring approximately 40,000 data points. This growth is largely the result of far more complex avionics and electronics equipment that modern aircraft and flight systems rely on. The increasing use of information-intensive technologies in commercial and military aircraft and in weapons systems has driven the need for increased bandwidth for flight testing operations. *Id.*, Section 3 at 46.

Unfortunately, while bandwidth requirements for aeronautical telemetry have increased, the available spectrum has actually decreased *by one-third*. Over the past twelve years, the Commission has reallocated the 1525-1535 MHz and 2310-2360 bands from aeronautical telemetry to other uses. Thus, the spectrum available for flight testing has declined from 180 MHz (1435-1535 MHz and 2310-2390 MHz) to 120 MHz (1435-1525 MHz and 2360-2390 MHz). Now, in response to BBA-97 and NTIA's report, the Commission proposes to reallocate another 5 MHz for non-telemetry purposes.

Aeronautical telemetry cannot coexist with other uses of the spectrum. Indeed, the Commission has determined that the sharing of flight test telemetry with other services risks

safety of life and property.⁵ Reducing aeronautical telemetry to secondary status would of course not solve this problem, but simply exacerbate it. Any secondary service is, by definition, subject to interference from and required to protect primary services. Thus, it is critical that flight testing telemetry remain a primary service in those bands where it remains allocated.⁶

Under all the circumstances, it remains important that the Commission protect aeronautical telemetry operations in the ten areas listed in Exhibit 1 in the same manner as the 17 flight test operation areas listed in Appendix A to the *NPRM*. AFTRCC members use these sites for flight testing under a Commission authorized license or under assignment from the Department of Defense. AFTRCC therefore proposes that the Commission provide a 160 kilometer protected radius around the ten sites listed in Exhibit 1 until January 1, 2007.⁷ This will minimize the impact of reallocation on current flight test operations and those that are planned to commence in the near future. *Id.*, Section 3 at 47. The reasons that led NTIA to require protection of the 17 flight test sites listed in Appendix A apply equally to the ten flight test sites listed in Exhibit 1 hereto.

Reimbursement of Relocation Costs. If, as a result of the reallocation of the 2385-2390 MHz band, an incumbent user were to incur more than nominal costs to modify or relocate its aeronautical telemetry equipment to other frequency bands, any new service provider that

⁵ See *In the Matter of an Inquiry Relating to Preparation for the International Telecommunication Union World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum*, Second Notice of Inquiry, 5 FCC Rcd 6046, 6061 (1990) (discussing the infeasibility of telemetry sharing spectrum with DARS).

⁶ Neither NTIA, nor the Commission have identified alternative spectrum that would be available for non-Government flight test operations displaced from 2385-2390 MHz. If alternative spectrum exists, it would have the significant disadvantage of not being contiguous with other telemetry bands, *i.e.* 2360-2385 MHz.

⁷ 15 of the 17 Government sites have a protection radius of 160 kilometers. *Spectrum Reallocation Report*, Section 3 at 48, Table 3-6.

benefits from that relocation should be required to reimburse the incumbent. Such a requirement is consistent with the Commission's reallocation policies for other spectrum, and is similar to the reimbursement that new service providers must make to incumbent Government users under the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 ("NDAA-99").⁸

In other spectrum reallocations contexts (e.g. 2 GHz microwave), the Commission has required new service providers that benefit from the involuntary relocation of an incumbent to guarantee payment of the incumbent's relocation expenses, build the new facilities at the relocation frequencies, and demonstrate that the new facilities are comparable to the old. See e.g., *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, First Report and Order and Third Notice of Proposed Rule Making*, 7 FCC Rcd 6886, 6890 (1992). A similar policy should apply for any non-Government flight licensees forced to incur costs more than those entailed in simply re-tuning transmitters to the adjacent 2360-2385 MHz band.

CONCLUSION

AFTRCC's members use the 2385-2390 MHz band for flight test, telemetry and telecommand operations vital to the U.S. aerospace industry's ability to produce safe, efficient and effective commercial and military aircraft, space vehicles and weapons systems.⁹ Over the years the Commission has reallocated one-third of the spectrum available for flight testing. At the same time the increasing complexity of avionics and flight systems has increased the need for

⁸ Pub. L. 105-261, 112 Stat. 1920, Section 1064(c)(3) (codified at 47 U.S.C. Section 923(c)(3)(B)).

⁹ See *In the Matter of an Inquiry Relating to Preparation for the International Telecommunication Union World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum*, Second Notice of Inquiry, 5 FCC Rcd at 6061.

spectrum to accommodate the use of wideband telemetry. In considering its proposal to reallocate the 2385-2390 MHz band, the Commission must take cognizance of the importance that flight testing operations play in maintaining the strength of the nation's defense and economy.

If the Commission decides to reallocate the 2385-2390 MHz band, it should, at a minimum, provide additional protection until 2007 for the ten flight test areas listed in Exhibit 1. Additionally, the Commission should require new licensees benefitting from the reallocation to reimburse incumbent flight test users for more than nominal costs incurred in relocating their operations to other frequencies.

Respectfully submitted,

**AEROSPACE AND FLIGHT TEST
RADIO COORDINATING COUNCIL**

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Its Attorneys

March 8, 2001

EXHIBIT 1

**FLIGHT TEST SITES REQUIRING
PROTECTION UNTIL 2007**

<u>USERNAME</u>	<u>CITY OR BASE</u>	<u>STATE</u>	<u>N. LATITUDE</u>	<u>W. LONGITUDE</u>
Bell Helicopter Textron	Alamosa	CO	37-26-04	105-52-03
Bell Helicopter Textron	Albuquerque	NM	35-11-39	106-34-30
Bell Helicopter Textron	Amarillo	TX	35-12-49	101-42-31
Bell Helicopter Textron	Arlington	TX	32-40-00	097-05-53
Bell Helicopter Textron	Leadville	CO	39-13-13	106-19-03
Bell Helicopter Textron	Thermal	CA	33-37-35	116-09-36
Learjet	Phoenix	AZ	33-18-28	111-39-19
Lockheed Martin	Marietta	GA	33-54-24	084-31-09
Raytheon Systems	Greenville	TX	33-04-01	096-03-09
Sikorsky Aircraft	Fairfield County	CT	41-15-03	073-06-01