

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)
)
Revision of Part 15 of the Commission’s) **ET Docket No. 98-153**
Rules Regarding Ultra-Wideband)
Transmission Systems)

**COMMENTS OF AERONAUTICAL RADIO, INC. AND THE AIR TRANSPORT
ASSOCIATION OF AMERICA, INC. IN RESPONSE TO NTIA’S SPECIAL
PUBLICATION 01-43 AND REPORT 01-383**

Aeronautical Radio, Inc. (“ARINC”) and the Air Transport Association of America, Inc. (“ATA”), by their attorneys, hereby submit their comments in response to the Federal Communications Commission’s (“FCC’s” or “Commission’s”) *Public Notice* of January 24, 2001, requesting comment on two reports released by the National Telecommunications and Information Administration (“NTIA”) regarding interference from ultra-wideband systems (“UWB”) on non-Global Positioning Satellite (“non-GPS”) U.S. Government radio operations.¹

¹ Lawrence K. Brunson et al., *Assessment of Compatibility Between Ultrawideband Devices and Selected Federal Systems*, NTIA Special Publication 01-43, at <http://www.ntia.doc.gov/osmhome/reports/uwb/uwb.pdf> (last visited February 16, 2001)(“*NTIA UWB Special Report*”); *The Temporal and Spectral Characteristics of Ultrawideband Signals*, NTIA Report 01-383, (William A. Kissick, ed.), at <http://www.its.bldrdoc.gov/pub/ntia-rpt/01-383/> (last visited February 16, 2001)(collectively “*NTIA Reports*”); see also *Comments Requested on Test Data Submitted by the National Telecommunications and Information Administration Regarding Potential Interference from Ultra-Wideband Transmission Systems (ET Docket No. 98-153)*, Public Notice, DA 01-171 (rel. January 24, 2001).

The *NTIA Reports* reveal that UWB devices can cause harmful interference to robust U.S. Government systems.² Because of the interference experienced by the systems tested, NTIA concluded that “[o]perations of UWB devices below 3.1 GHz will be quite challenging.”³ NTIA concluded that for Air Route Surveillance Radar (“ARSR-4”), Distance Measuring Equipment (“DME”), Search & Rescue Satellite (“SARSAT”) Ground Station Land User Terminals (“LUT”), for example – all operating below 1610 MHz – “a significant reduction (in the order of 20 dB) in UWB device emission levels below the current levels permitted by Part 15 would be required to meet the receiver protection criteria.”⁴ NTIA reached similar conclusions about radar systems in the 1610-3100 MHz band.⁵ In both cases, NTIA emphasized the need for additional study and analysis before any firm conclusions could be reached regarding whether restrictions could be imposed that would permit UWB devices to operate below 3.1 GHz without the potential for causing harmful interference to non-GPS Government systems. Notably, GPS, which was *not* the subject of the instant *NTIA Reports*, is far more sensitive to interference than the robust radio systems that have been tested to date.

While NTIA found that it *might* be feasible to allow operation of UWB devices between 3.1 GHz and 5.650 GHz, those operations would have to be limited to heights of about 2 meters

² As indicated in our initial comments and our reply comments, ARINC and ATA are especially concerned with GPS as well as other safety-of-life radio operations used by the aviation industry, many of which are located below 3.1 GHz. We look forward to reviewing and commenting on NTIA’s anticipated report on the effect of UWB devices on GPS, as well as studies being conducted by the University of Texas and Stanford University.

³ *NTIA UWB Special Report* at x, 6-3; *see NTIA UWB Special Report* at vii, Table 1 (discussing greater separation distances and lower in-band EIRPs when UWB height was 30 meters). “UWB emitters located on top of buildings or mounted on poles/towers would significantly exceed receiver protection criteria for a wide variety of authorized radiocommunication systems.” *Id.* at 6-3.

⁴ *Id.* at 6-2. Emission levels for unlicensed devices can be found in Part 15 of the FCC’s rules. *See* 47 C.F.R. § Part 15.

⁵ *NTIA UWB Special Report* at 6-2.

or less and would require other operating constraints.⁶ However, NTIA’s conclusions are preliminary and the Administration emphasized that further measurements, study, and analyses are necessary before even this band could be cleared for UWB use.

The NTIA test results also confirm many commenters’ concerns about the adverse aggregate effect of proliferating UWB devices. NTIA found that “aggregate interference levels from UWB devices can exceed that from a single emitter at densities as low as a few emitters per square kilometer or more than 1000 emitters per square kilometer, depending on the specific receiver.”⁷ In short, the proliferation of UWB devices would pose a very real threat of harmful interference to existing systems in any band they overlay.

In sum, the NTIA test results unequivocally demonstrate the need for a better understanding of the interference potential of UWB devices *before* any Commission action is taken. The *NTIA Reports* underscore the validity of ARINC and ATA’s concerns that UWB devices are likely to cause harmful interference to safety-of-life systems below 5 GHz. The

⁶ *Id.* at x.

⁷ *Id.* at x, 6-4.

results make plain that without significant restraints – including possible exclusion from certain bands – it is unlikely that UWB devices will be able to operate without causing harmful interference to GPS and other safety-of-life operations.

Respectfully submitted,

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