

August 21, 2007

VIA ELECTRONIC FILING

Chairman Kevin J. Martin
Commissioner Jonathan S. Adelstein
Commissioner Michael J. Copps
Commissioner Robert M. McDowell
Commissioner Deborah Taylor Tate
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Ex Parte* Comments of **MLB, NBA, NCAA, NFL, NHL,**
The PGA TOUR, and ESPN as members of the
SPORTS TECHNOLOGY ALLIANCE

Introduction of Unlicensed Devices in the “White Spaces”
ET Docket Nos. 04-186, 02-380

Dear Chairman Martin and Commissioners Adelstein, Copps, McDowell and Tate:

The undersigned are major U.S. professional and collegiate sports leagues and organizations and the major national sports programming distributor engaged in the creation, production and distribution of sporting events and other sports-related programming vital to tens of millions of Americans. We strongly object to recent comments made by the White Spaces Coalition (“Coalition”)¹ minimizing the significant risk of devastating interference that unlicensed devices in the TV band present to wireless microphone uses in high-quality sports programming and urge the Commission to permit unlicensed devices in the TV band without adequate interference protection.

In recent filings and discussions with the Commission, we urged the Commission to carefully consider the serious adverse impact that unlicensed device interference will have on American sports.² The TV spectrum is not vacant and, today, wireless microphones and related audio equipment are used extensively by television and radio journalists covering sporting events, as well as by coaches, officials, and athletes participating in sporting events taking place every day across the Nation. Proponents of new devices in the TV frequencies bear the burden of demonstrating that interference will not occur to existing operations; however, to date, the proponents have failed to carry that burden. In fact, no unlicensed TV band device proponent has offered any real analysis, test data or equipment that addresses the debilitating interference that will result if unlicensed devices, particularly portable devices, are permitted to operate in the

¹ Letter to Marlene H. Dortch, Secretary, Federal Communications Commission from Edmond J. Thomas, Senior Technology Policy Advisor, Harris Wiltshire & Grannis LLP on behalf of the White Spaces Coalition, ET Docket Nos. 04-186, 02-380, dated July 30, 2007 (“Coalition Letter”).

² *Ex Parte* Comments of MLB, NASCAR, NBA, NCAA, NFL, NHL, The PGA TOUR, and ESPN as the SPORTS TECHNOLOGY ALLIANCE, ET Docket No. 04-186, dated June 26, 2007.

TV band as proposed by the Coalition. We therefore reaffirm our previous recommendations for protecting wireless microphones -- including our recommendation that portable unlicensed devices should *not* be permitted in the TV bands.³

Rather than focusing on the real issue before the Commission -- *i.e.*, the significant interference caused by unlicensed devices -- in the Coalition Letter, the Coalition put forth several irrelevant and inaccurate claims that do little to resolve the Coalition's interference problem. The Coalition suggests that our concerns are simply "unfounded" and that we have ignored technical specifications and information that, according to the Coalition, would "resolve" the interference issues. This view is gravely mistaken.

In the interest of maintaining a complete public record, we briefly address each of the claims raised by the Coalition below. At the outset, however, we note that since the Coalition filed its comments, the Commission has released its 85-page test report which conclusively demonstrates that the spectrum sensing "prototype" devices submitted by the Coalition do not reliably sense wireless microphone operations (or TV broadcasting for that matter) and in fact can cause interference to wireless microphones and TV broadcasting.⁴ This test report provides undeniable evidence that the proponents' claimed technology solution simply does not work. Certainly, all further assurances by the Coalition that new unlicensed devices will protect against interference must be scrutinized with the results of this evaluation in mind.

1. The Coalition suggests that interference will not occur because unlicensed devices would use transmit power control ("TPC") and "in most instances" will not transmit at the maximum proposed power of 100 mW.⁵ The Coalition's assurance is really no protection at all for existing operations designed to transmit absolutely interference-free live audio. The interference potential of a device will be at its greatest when it is operating at the maximum power level. TPC, however, will not prevent an unlicensed device from transmitting at maximum output power, and peak power will be used whenever the device is operating over an obstructed path or at the limits of its useful range. Even with TPC, there is no way of predicting when an unlicensed device will transmit at maximum power or how frequently. While we support the use of TPC, the promised use of TPC does not suffice as interference protection.

2. According to the Coalition, wireless microphones use spectrum sensing and such use is proof that sensing "is a workable and proven technology."⁶ While some wireless microphone receivers (which are much larger than personal/portable devices) employ a

³ The Sports Technology Alliance recommended that the Commission limit its action to "fixed" TV band devices for rural broadband services and not permit portable devices in the TV band, conduct both laboratory and field testing of proposed TV band devices to assess their ability to protect wireless microphones from interference, and adopt effective interference avoidance measures, including a prohibition on new TV band devices in channels adjacent to assigned TV channels, other measures to protect super scale events, and geolocation requirements to locate fixed base stations in areas where there will be no interference. *Id.* at 2.

⁴ See *Initial Evaluation of the Performance of Prototype TV-Band White Space Devices*, OET Report, FCC/OET 07-TR-1006, at 61-67 (July 31, 2007).

⁵ Coalition Letter at 2.

⁶ *Id.*

basic scanning capability that professional frequency coordinators use in setting their wireless microphone systems on compatible channels, these features do not provide the highly reactive, constantly monitoring sensing capabilities that portable devices would require in order to operate without interference to wireless microphones. In short, the Coalition's technology solution for interference protection, as described, is not what is employed in wireless microphone products currently on the market.

3. The Coalition challenges our suggestion that unlicensed devices could cause interference to wireless microphones located kilometers away and that a portable unlicensed device down the street from a wireless microphone would be unable to detect a microphone signal.⁷ This situation can easily occur because the potential effectiveness of sensing or Listen-Before-Talk devices are dramatically reduced when those devices operate with significantly *more* power than the wireless microphone (or other device) that they are trying to protect. Effective interference protection depends on successful detection of the wireless microphone at distances equal to or greater than those at which the sensing device would interfere. The record in this proceeding is replete with technical data and analysis discussing the interference from unlicensed devices to wireless microphones.⁸

4. The Coalition also complains that wireless microphones are claiming protection in excess of 100 meters beyond their "permitted" distances under Part 74 of the Commission's Rules.⁹ The Coalition is mistaken in this analysis. Unlicensed TV band devices will cause interference to wireless microphones within the typical 100 meter operating distance of many microphones. Further, unlike DTV stations, the Commission's Rules do not define a "protected contour" for wireless microphones. Many wireless microphones are used at distances shorter than 100 meters and some are used at significantly greater distances, such as those in use in a stadium, large convention hall, or at outdoor events. Certain audio equipment, such as wireless assist video equipment, is intended to operate at approximately 300 meters, as contemplated in the Commission's Rules. *See* 47 C.F.R. § 74.801.

⁷ Coalition Letter at 2.

⁸ *See, e.g.*, Comments of IEEE 802.18, ET Docket Nos. 04-186 and 0238, at 12-13, 16, 27 (filed Jan. 31, 2007) ("IEEE Comments"); *see also, e.g.*, Comments of Shure Incorporated, ET Docket Nos. 04-186 and 0238 (filed Nov. 30, 2004); Reply Comments of Shure Incorporated, ET Docket Nos. 04-186 and 0238 (filed Jan. 31, 2005); Letter to Marlene H. Dortch, Secretary, Federal Communications Commission from Catherine Wang *et al.*, Counsel to Shure Incorporated, ET Docket No. 04-186, dated Dec. 13, 2006; Letter to Marlene H. Dortch, Secretary, Federal Communications Commission from Catherine Wang *et al.*, Counsel to Shure Incorporated, ET Docket No. 04-186, dated June 13, 2007. In addition to relative output power, other parameters are critical in determining whether an unlicensed device will be able to protect existing services from interference: (1) the amount of power from the sensing device that falls within the wireless microphone receiver's detection bandwidth (typically 400 kHz); (2) the amount of out-of-band spurious emissions, in the event that the sensing device operates on an adjacent channel; (3) the required D/U ratio for the wireless microphone signal at the wireless microphone receiver input; (4) the detection threshold and the detection bandwidth of the sensing device; and (5) the use of network (multi-unit) detection by the sensing device to address hidden node problems.

⁹ Coalition Letter at 3.

5. The Coalition claims that many wireless microphones in use transmit at powers in excess of what is required to communicate at 100 meters, some as high as 100 mW. While there are some specialized wireless microphone products that transmit at or near these higher powers, the vast majority of wireless microphones in use transmit at far lower powers. To our knowledge, most wireless microphones are designed to transmit at the minimum power necessary to cover the required range for two very important user reasons: a) to conserve battery life, and b) to maximize the number of wireless microphones that can operate simultaneously in a given band. For these reasons, although wireless microphones are permitted by rule to operate with up to 250 mW in the UHF band, only a few are available that can operate at 100 mW or more. In fact, most wireless microphones operate with 10-50 mW of output power and the actual radiated power is in fact significantly lower due to body absorption. (For a body pack, the EIRP (radiated) power will often be less than 10 mW.) To our knowledge, the few wireless microphones that can operate at 100 mW or more are typically used for special types of productions where distance is of paramount importance, such as outdoor events.

6. The Coalition attempts to diminish the importance of the IEEE 802.22 work in this area by describing the 802.22 conclusions as only an “unapproved draft document” and not a proposal.¹⁰ It is worth reminding the Commission that the IEEE is an open engineering and technical forum with unparalleled expertise in which parties with all interests may participate. The 802.22 is the only public forum that has been actively working on the development of a standard for unlicensed wireless broadband transmission in the TV bands and, today, after years of hard work in this area the 802.22 has developed important recommendations that provide essential guidance to the Commission.

7. Finally, the Commission should reject the Coalition’s contorted reasoning in support of personal/portable devices in the TV band. According to the Coalition, allowing only fixed rural systems will “frustrate the very benefits this proceeding aimed to provide to rural residents” because “prices of devices will be burdensomely high.” Despite the Coalition’s candid disclosure of its marketing approach, the Coalition’s marketing preferences should have no bearing on the public interest, technical or policy challenges at issue in this proceeding.

The Commission’s goal in this proceeding is to ensure that the potential introduction of new devices in the TV band will not cause interference and disruption to existing authorized services. The results of the Commission’s own tests demonstrate that unlicensed portable devices present an enormous interference risk to wireless microphones and other incumbents in the TV band. In light of these technical findings, we urge the Commission to limit its action in this proceeding to “fixed” unlicensed devices for rural broadband services.

¹⁰ Coalition Letter at 3. The IEEE agreed with the Commission’s conclusion that “the protection of incumbent operations in the TV bands is a much more tractable problem when devices are limited to fixed operations.” IEEE Comments at 4. The IEEE recommended a combination of approaches to protect existing users, including a ban on unlicensed device operation in channels adjacent to assigned TV channels. *Id.* at 8.

Questions regarding this letter should be directed to Ken Kerschbaumer, Sports Video Group, at 212-481-8140.

Sincerely,

Members of the **SPORTS TECHNOLOGY ALLIANCE**

MAJOR LEAGUE BASEBALL (“MLB”)



NATIONAL BASKETBALL ASSOCIATION (“NBA”)



NATIONAL COLLEGIATE ATHLETIC ASSOCIATION (“NCAA”)



NATIONAL FOOTBALL LEAGUE (“NFL”)



NATIONAL HOCKEY LEAGUE (“NHL”)



THE PGA TOUR



ESPN

