

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

In the Matter of)	
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Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions)	GN Docket No. 12-268
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Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band)	WT Docket No. 08-166
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Public Interest Spectrum Coalition, Petition for Rulemaking Regarding Low Power Auxiliary Stations, Including Wireless Microphones, and the Digital Television Transition)	WT Docket No. 08-167
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Amendment of Parts 15, 74, and 90 of the Commission’s Rules Regarding Low Power Auxiliary Stations, Including Wireless Microphones)	ET Docket No. 10-24
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COMMENTS OF NATIONAL FOOTBALL LEAGUE

In the above-captioned Notice of Proposed Rulemaking (“NPRM”), the Commission asked for comment on the impact of its plans to reallocate broadcast television spectrum on wireless microphones, and in particular how sports leagues use wireless microphones and the protections they would need in any new reallocation plan.¹ National Football League (“NFL”) submits these comments to stress the importance of wireless microphone systems to its games and the fan experience at many sports activities. Wireless microphones allow coaches, players, referees, and other game and team officials to communicate

¹ Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, Docket No. 12-268, *Notice of Proposed Rulemaking* (September 28, 2012) (“NPRM”).

efficiently before, during and after a game and thus help provide uninterrupted entertainment to millions of fans worldwide. But as the Commission well knows, spectrum for wireless microphones is growing scarce, resulting in increased interference during games. Unlicensed mobile Internet devices are consuming an increasing amount of spectrum, already congested with intensive use by television stations and their newsgathering operations. Accordingly, we urge the Commission to continue to reserve two UHF channels for wireless microphones. Without these designated channels, it would be impossible for NFL to reliably operate wireless microphones during sporting contests. NFL also urges the Commission to allow sports leagues to become licensed wireless microphone operators and receive protection from interference through a centralized database.

I. THE COMMISSION SHOULD CONTINUE TO RESERVE TWO CHANNELS FOR WIRELESS MICROPHONES

The NPRM invites comment “as to whether the Commission should maintain the designation of two channels for wireless microphones following the broadcast television spectrum incentive auction or whether this spectrum should be made available for unlicensed use.”² As explained in more detail below, these designated channels are vital to NFL’s wireless microphone operations, and we therefore urge the Commission to continue to reserve this spectrum for wireless microphone use.

Wireless microphones are essential to the reliable and seamless communications that modern sporting contests demand. Each football game relies on hundreds of wireless microphones. Coaches relay plays to quarterbacks via headsets that are installed in the players’ helmets. Referees on the field consult with replay officials in the press box. And journalists

² *Id.* at ¶ 238.

broadcast live reports from the sidelines. Wireless microphones are a promising method of providing the reliable and secure communications that professional football games require, and NFL recently spent nearly \$9 million to upgrade its microphones from analog to digital.

In the past few years, the amount of spectrum available for wireless microphones has decreased dramatically. Wireless microphones have long operated on unused UHF television broadcast spectrum, also known as “white space.” In January 2010, the Commission reclaimed the 700 MHz white space and prohibited wireless microphones from operating in that band, eliminating 18 potential channels.³ Later that year, the FCC adopted its White Spaces Order,⁴ which allows mobile broadband devices to operate in the white space. Recognizing that the mobile broadband devices would quickly consume most of the unused television spectrum, the Commission designated two channels for wireless microphones.⁵

Even with the two reserved channels, there is significantly less spectrum available for wireless microphones at NFL games than there was before 2010. Mobile broadband devices increasingly consume more UHF spectrum. Oftentimes, there is no spectrum available for microphones other than the two designated channels, forcing opposing teams to share the same

³ Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band; Public Interest Spectrum Coalition, Petition for Rulemaking Regarding Low Power Auxiliary Stations, Including Wireless Microphones, and the Digital Television Transitions; Amendment of Parts 15, 74 and 90 of the Commission’s Rules Regarding Low Power Auxiliary Stations, Including Wireless Microphones, WT Docket Nos. 08-166, 08-167, ET Docket No. 10-24, *Report and Order and Further Notice of Proposed Rulemaking*, FCC 10-16 (rel. January 15, 2010).

⁴ Unlicensed Operation in the TV Broadcast Bands, ET Docket No. 04-186, Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, ET Docket No. 02-380, *Second Memorandum Opinion and Order*, 25 FCC Rcd 18611 (“White Space Order”) (September 23, 2010).

⁵ *See id.* (Statement of Commissioner Michael Copps) (“Recognizing the importance of licensed wireless microphones to electronic newsgathering and the reality that many venues—Broadway theaters, sports arena, churches and schools—have come to rely on unlicensed wireless microphones, we have gone to great lengths to accommodate their needs.”).

frequency and limiting the number of users who could access their microphones during a game. Despite NFL's best efforts to manage its wireless microphones on its increasingly scarce spectrum, NFL has received numerous recent reports of wireless microphone interference during games, rendering coaches unable to communicate plays to their quarterbacks and referees unable to consult one another on calls.

Spectrum repacking will lead to even less white space for wireless microphones, as the Commission acknowledged in this NPRM.⁶ Accordingly, the two designated wireless microphone channels will be more important than ever. Without them, it is difficult to conceive of how NFL's wireless microphone system could function reliably and effectively.⁷

II. THE COMMISSION'S OTHER WIRELESS MICROPHONE PROPOSALS WOULD NOT REPLACE THE TWO DESIGNATED CHANNELS

Given the "possibility that two channels may no longer be designated for wireless microphone use," the NPRM asks whether there are "additional steps that we should take to promote more efficient or effective operations of wireless microphones in this spectrum."⁸ NFL supports the goal of efficiently managing the valuable white space spectrum. But in NFL's experience, technological improvements do not significantly alleviate the problem of scarce spectrum. Without dedicated spectrum for wireless microphones, it will be impossible to reliably communicate, no matter how efficient the technology.

⁶ NPRM ¶ 224 ("The repacking of television stations may result in a reduced amount of spectrum being available in the core television bands for use on a secondary basis by licensed wireless microphones under the LPAS rules and for unlicensed wireless microphone operations.").

⁷ See also Shure, Inc. *Ex Parte Notice*, Docket No. 12-268 (Nov. 16, 2012) ("[C]ontinued access to clear UHF spectrum is critical to wireless microphone operation, and key to ensuring United States leadership in media and content creation.").

⁸ NPRM ¶ 225.

The NPRM asks whether there are additional technologies that could increase the number of wireless microphones on a single channel.⁹ Although NFL is open to considering any new technology that would improve wireless microphone spectrum efficiency, NFL is unaware of any relevant technology that is not in use. Indeed, NFL has very recently invested millions of dollars to upgrade its wireless microphones to a state-of-the-art system that maximizes the available spectrum. Moreover, NFL carefully manages and coordinates its spectrum, often requiring specific wireless microphone users to limit their communications to certain parts of the game (*e.g.*, some users only have access to the spectrum during pre-game, while others may only use the microphones post-game). Even with these efficiencies, NFL's wireless microphone system is stretched to its capacity. NFL is unaware of additional improvements that could replace the two dedicated wireless microphone channels.

The NPRM also asks whether the Commission should reconsider its rule that wireless microphones be located at least 113 kilometers from television stations that operate on the same channel.¹⁰ Such a change could result in even more interference for wireless microphones. In some large cities, such as Miami, NFL already has encountered interference from television stations. Reducing the distance between wireless microphones and television stations would only exacerbate the problem.

The NPRM also asks whether wireless microphones could operate in guard bands.¹¹ Because NFL has not attempted to operate its microphones in this spectrum, it cannot say whether it is technically possible. But given NFL's recent experience with television station

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.* at ¶ 226.

interference, it is concerned that operating in narrow spectrum between television stations and mobile devices could result in additional interference.

III. THE COMMISSION SHOULD ALLOW SPORTS LEAGUES TO BECOME LICENSED WIRELESS MICROPHONE OPERATORS

We also urge the Commission to provide sports leagues with the same protection from interference that other wireless microphone users receive. The Commission recognizes two types of wireless microphone operators: licensed and unlicensed. Licensed operators register in a database and receive protection from interference from other devices. The FCC only grants permanent licenses for wireless microphones to broadcast stations, cable television operators, motion picture producers, and television program producers.¹² Thus, NFL and other sports leagues that rely on wireless microphones are not eligible for licensing.

In the wireless microphones proceeding, the Commission is considering whether to allow sports leagues and other venues to register for permanent wireless microphone licensing.¹³ NFL strongly supports this proposal. The database could help protect NFL from the troubling interference described above. Sports leagues have no less need for uninterrupted communications than movie producers or broadcast stations. Although the database would not alleviate all of NFL's interference problems, it would be a significant step in the right direction.

The Commission asks commenters to specify the types of wireless microphone users who should be eligible for licensing, and whether there should be a minimum size for the

¹² 47 C.F.R. § 74.832(a)(1)-(6).

¹³ The Wireless Telecommunications Bureau and the Office of Engineering and Technology Seek to Update and Refresh the Record in the Wireless Microphones Proceeding, WT Docket Nos. 08-166, 08-167, ET Docket No. 10-24 (October 5, 2012) ("Wireless Microphone Notice") ("We request that interested parties update and refresh the record on whether the Commission should expand license eligibility under Part 74, Subpart H for certain operators of unlicensed wireless microphones or other low power auxiliary devices at specified venues.").

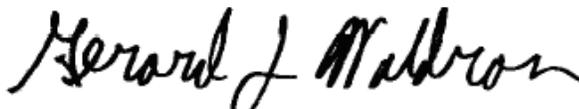
registrants.¹⁴ NFL can only speak from its own experience as a sports league, so we hesitate to comment on licensing other types of users, such as performing arts venues. Thus, we encourage the Commission to expand licensing to professional sports leagues. As to the size of eligible sports leagues, we believe that licensing should be available at any professional sports venue that attracts on average some threshold, such as 5,000 to 10,000 spectators per game. These significant operations require dozens or hundreds of wireless microphones, and are most prone to interference.

¹⁴ Wireless Microphone Notice at 4 (“To the extent that the Commission chooses to expand license eligibility only for certain users that have wireless microphone requirements substantially similar to those of broadcasters, precisely which class(es) of users and uses would fall into this category? More specifically, which type(s) or class(es) of entities and which type(s) of venues or events – whether by type of event, level of quality of service necessary for the event (e.g., “professional quality”), number of microphones needed, number of seats in auditorium, or some other qualification or measure – should become eligible to hold a license.”)



In short, NFL relies on its wireless microphones for effective communication during live games. NFL for one has invested millions of dollars in the most efficient wireless microphones available, yet it still cannot avoid interference on game days. These problems will only increase as the Commission proceeds with its plan to repack and auction spectrum. Thus, the two dedicated wireless microphone channels are more important than ever. NFL urges the Commission to continue to reserve this spectrum for this effective and reliable communications technology, and to allow professional sports leagues to register as licensed wireless microphone users.

Respectfully submitted,



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January 25, 2013