

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)
)
Amendment of the Commission’s Rules to) ET Docket No. 08-59
Provide Spectrum for the Operation of)
Medical Body Area Networks)

COMMENTS OF AT&T INC.

AT&T Inc., on behalf of itself and its affiliates, (“AT&T”) respectfully submits these comments in response to the Commission’s Notice of Proposed Rulemaking (the “Notice”) in the foregoing docket.¹

I. INTRODUCTION

The Commission seeks comment on a proposal to allocate spectrum and establish service and technical rules for the operation of Medical Body Area Network (“MBAN”) systems using body sensor devices. AT&T supports the allocation of spectrum for MBAN systems and the creation of rules for the operation of MBAN service. AT&T proposes that the MBAN service rules adopted by the Commission allow for the flexible use of MBAN systems, without restrictions on geographic usage, outdoor usage, voice usage, usage for life-threatening situations, and the manner of interconnection with the monitoring station. The spectrum allocated should allow for this flexibility. Flexible use rules will encourage investment in MBAN services and devices and promote innovation, to the betterment of health care in the United States.

¹ *Amendment of the Commission’s Rules to Provide Spectrum for the Operation of Medical Body Area Networks*, Notice of Proposed Rulemaking, ET Docket No. 08-59 (rel. June 29, 2009).

II. DISCUSSION

In response to an *ex parte* filing by GE Healthcare in another docket,² the Commission released the Notice soliciting comment on a proposal to allocate up to 40 MHz of spectrum in the 2360-2400 MHz band for use on a secondary basis with MBAN networks.³ The Commission also proposes service and technical rules for the operation of MBAN service. As envisioned, MBAN systems would improve safety, quality, and efficiency of patient care by reducing or eliminating hardwired, patient-attached wires and cables used to monitor a patient's vital signs and other physiological information.

AT&T applauds the Commission's continued efforts to foster the growth of wireless healthcare technologies through the allocation of spectrum and adoption of rules for the operation of MBAN systems. Despite a history of Commission efforts to promote wireless healthcare technologies,⁴ its use remains slow to develop. The creation of the MBAN service has the potential to accelerate that development and to generate new investment and growth in the field of wireless medical technologies, improvements that will extend directly to patients. Commercial wireless carriers are rolling out high speed 3G and 4G wireless networks that can assist in that development, offering a chance for the medical industry to leverage those networks for the benefit of patients.

² See "Office of Engineering and Technology to Treat Ex Parte Comments of GE Healthcare as Petition for Rule Making and Seeks Comment," ET Docket No. 08-59, *Public Notice*, DA 08-953 (Apr. 24, 2008).

³ The Notice also explores the potential to allocate alternative spectrum bands for MBAN use, namely 2300-2305 MHz coupled with 2395-2400 MHz; 2400-2483.5 MHz, and 5150-5250 MHz.

⁴ Amendment of Parts 2 and 91 of the Commission's Rules to Permit Medical Telemetry and Other Low-Power Uses of Offset Frequencies in the Business Radio Service," *First Report and Order*, Docket No. 19478 and RM-1842, 41 F.C.C.2d 8 (1973); Amendment of Parts 2 and 95 of the Commission's Rules to Create a Wireless Medical Telemetry Service, *Report and Order*, ET Docket No. 99-255 and PR Docket No. 92-235, 15 FCC Rcd 11206 (2000); Amendment of Parts 2 and 95 of the Commission's Rules to Establish a Medical Implant Communications Service in the 402-405 MHz Band," *Report and Order*, WT Docket No. 99-66, 14 FCC Rcd 21040 (1999); Investigation of the Spectrum Requirements for Advanced Medical Technologies, Amendment of Parts 2 and 95 of the Commission's Rules to Establish the Medical Device Radio Communications Service at 401-402 and 405-406 MHz, DexCom, Inc. Request for Waiver of the Frequency Monitoring Requirements of the Medical Implant Communications Service Rules, Biotronik, Inc. Request for Waiver of the Frequency Monitoring Requirements for the Medical Implant Communications Service Rules," *Report and Order*, ET Docket No. 06-135, RM-11271, FCC 09-23, (rel. March 20, 2009).

Untethering patients from cables, wires and stationary bedside monitors improves the quality of care by increasing the mobility of patients, whether interned in a hospital room or benefiting from home care, and reducing the potential for problems associated with accidental removal of those wires and cables. A MBAN system can alert the hospital of changes in a patient's vital signs before a heart attack occurs or of the low insulin condition of a diabetic patient before serious health complications occur, all without the physical constraints posed by wires or cables. Yet, for MBAN systems to operate and evolve to their maximum potential, the MBAN rules should be flexible enough to allow for monitoring in varying situations, in varying locations, and via varying communications technologies. The spectrum band allocated for the use of MBAN systems should facilitate, or at a minimum not constrain, that flexibility.

A. Exclusion Zones and Indoor Use Limitations Would Unduly Restrict the Utility of MBAN Systems.

Currently, Federal and non-Federal Aeronautical Mobile Telemetry ("AMT") services operate on a primary basis in the 2360-2390 MHz range. Thus, MBAN systems would operate in this frequency range on a secondary basis only. Nevertheless, to protect AMT receive sites from interference generated by MBAN systems, the Commission suggests a number of possible options, including alternate band ranges other than 2360-2390 MHz for MBAN operations, exclusion zones around AMT test facilities, limiting MBAN operations to indoor use, frequency coordination between MBAN users and AMT licensees, and frequency monitoring.

The low power levels contemplated for use with MBAN systems significantly reduce the chance for real-world interference with the AMT services of incumbent licensees. However, to the extent that an interference potential exists, AT&T proposes that the Commission utilize one or a combination of alternate band ranges, frequency coordination, frequency monitoring, or other interference protection measures. Rules that create exclusion zones or limit MBAN systems to indoor use within healthcare facilities should not be adopted, as they would substantially limit the usefulness of the service and thus, work against the public interest.

1. MBAN Systems are Needed for Outdoor/Mobile Use.

The Notice seeks comment on the prospect of limiting MBAN operations to indoor use within healthcare facilities to reduce the likelihood of interference with AMT services because building structures would attenuate the MBAN signals. While prohibiting the outdoor use of MBAN systems might reduce the potential for interference with incumbent licensees, it would also substantially limit the use of MBAN systems and the prospect of fully realizing one of the primary benefits of those systems—mobility. AT&T envisions remote MBAN systems that healthcare professionals can use throughout the nation to help patients with a variety of conditions and regardless of whether the patient’s continuing care is in-patient or out-patient. Allowing MBAN system use in that manner gives patients who can maintain their health with monitoring alone the best opportunity to return to a sense of normalcy.

MBAN systems can be used for a variety of needs, and should not be limited to indoor use. Healthcare providers often need to monitor patients’ physiological data in settings outside of a healthcare facility. For example, some patients can benefit from continuous monitoring as a part of a diagnostic procedure that does not require hospitalization. Other patients need monitoring for a chronic condition. Still other patients may benefit from supervised recovery and rehabilitation following an acute event or surgical procedure. MBAN operations without outdoor/mobile use restrictions would facilitate home-monitoring, allowing physicians to remotely track a patient’s progress in each of these non-acute medical situations.

Home monitoring offers the greatest potential for MBAN systems, as it has the potential to provide patients with an increased level of confidence and feeling of normalcy, which in turn may improve quality of life. The use of MBAN systems for home monitoring would also allow for earlier release of patients from hospitals, to the substantial benefit of society as a whole. Healthcare costs would be reduced as overnight hospital stays drop and healthcare facilities are freed-up to handle new patients. Releasing patients earlier also helps speed patient recovery times and reduces a patient’s chances of contracting staph or other infection while in the hospital environment.

Further, the development of unrestrictive MBAN service rules would spur innovation, as investment would flow to supply healthcare facilities, patients, and physicians with the devices needed to realize the public interest benefits from mobile MBAN systems. Restricting MBAN systems to indoor use at healthcare facilities would significantly reduce the market that would otherwise exist for MBAN system devices, reducing the incentive for investment and the advances that would develop in those devices. These significant public interest benefits strongly speak to the need for MBAN service rules without restrictions on mobile use.

2. The Commission Should Not Impose Exclusion Zones.

The Commission should adopt rules that allow for the operation of MBAN systems throughout the country. Depending on its size, which the Commission has not yet proposed, an exclusion zone could potentially exclude significant geographic areas in rural America or significant population centers from the ultimate benefits of MBAN systems. Moreover, exclusion zones would almost certainly have to restrict all healthcare facilities and patients in and around AMT facilities from using MBAN devices. The natural result of such a policy would be to discourage the establishment of healthcare facilities in and around AMT facilities and preclude the use of such devices for persons living or working in the vicinity of AMT facilities. These consequences are not in the public interest.

Imposition of exclusion zones would also restrict MBAN systems from use in the mobile settings described above. Such a restriction would presumably preclude patients with remote MBAN systems from utilizing healthcare facilities within an exclusion zone, forcing travel to a healthcare facility outside of an exclusion zone for care. This would unnecessarily create confusion for patients who do not know the location of a healthcare facility outside of an exclusion zone. Delays associated with travel to a healthcare facility within an exclusion zone could also create health complications for those patients. Further, patients with remote MBAN systems could inevitably travel within an exclusion zone for reasons unrelated to healthcare. It would be impossible to enforce an exclusion zone in these situations.

B. MBAN Systems Should Not Restrict Voice Usage.

In the Notice, the Commission recognized the benefits of allowing the use of MBAN systems for performing diagnostic or therapeutic functions, rather than limiting MBAN system use to data monitoring. AT&T agrees that the Commission should be flexible with MBAN system uses and that such use should not be unreasonably restricted.

Although Commission rules limit MedRadio use to non-voice data,⁵ the Commission should not adopt a similar approach for MBAN systems. Instead, the Commission should remain flexible as to the type of media that are transmitted over MBAN frequencies. Diagnostic or therapeutic functions might necessitate visual or even audio communications between the body sensor and the control transmitter. While the reduced size of body sensors or other technical limitations may currently preclude such video or audio transmissions, the Commission should not restrict the ability of MBAN devices to evolve to the advantage of the healthcare system by preventing non-voice use by rule.

C. MBAN Operations Should be Permitted for all Health Related Conditions.

In the Notice, the Commission sought comment on whether health care professionals and medical device manufacturers should be permitted to use MBAN devices in life-critical and time-sensitive situations. AT&T agrees that the Commission should not limit by rule the healthcare situations where MBAN systems can be used and that those decisions are best left to healthcare professionals, with the assistance of medical device manufacturers.

Imposing a restriction on life-critical or time-sensitive uses may rob patients who most need critical advanced medical technologies of the benefits that mobile and flexible MBAN systems should offer. Further, it is doubtful that a rule attempting to define “life-critical” or “time-sensitive” conditions would be flexible enough to deal with the myriad of medical conditions that might arise. For example, MBAN systems may be installed on a patient with a

⁵ See 47 C.F.R. § 95.401.

condition that is not considered, but later becomes, life-critical. These types of healthcare decisions are best left to the health care industry.

D. Interconnection of Communications Should Not be Restricted.

The Notice seeks comment on whether control transmitters should be allowed to interconnect with other telecommunications systems, including the public switched telephone network, and how to perform backhaul from a control transmitter to a monitoring station. AT&T encourages the Commission to allow control transmitters to interconnect with other telecommunications systems, including the public switched telephone network, and to not restrict the manner in which that communication occurs. The health care industry, device manufacturers and standards bodies will decide on the best and most efficient systems to utilize for MBAN system communications.

Commercial wireless operators have spent decades building out their wireless networks over large areas of the United States and are introducing 3G and 4G systems. Only commercial networks can provide the type of consistently reliable, ubiquitous wireless coverage that healthcare operators would need to rely on mobile MBAN systems. Healthcare facilities utilizing MBAN systems indoors at their facilities could utilize the broadband system they choose to communicate with the monitoring station, and should be able to do so over the public switched network. Standards bodies will set the technical characteristics and security protections for those transmissions.

III. CONCLUSION

For the foregoing reasons, AT&T supports allocating spectrum for the operation of MBAN systems, provided that the MBAN rules should be flexible enough to use anywhere in the United States for a variety of conditions, for outdoor or mobile use, and in a manner that can be

communicated over the public switched telephone network. Any spectrum band allocated to MBAN use should not limit this flexibility.

Respectfully submitted,



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October 5, 2009