Medical Body Area Networks (MBANs)

Steven Jones
Technical Research Branch

Federal Communications Commission
Office of Engineering and Technology
Laboratory Division
MBANs Recon Order and FNPRM

FCC released a First Report and Order (R&O) and Further Notice of Proposed Rulemaking (FNPRM) in May, 2012 amending the Part 95 Medical Radio (MedRadio) rules to permit development and operation of wireless Medical Body Area Networks (MBANs)

- FNPRM issued to seek comment on qualifying criteria and selection process for choosing an MBAN frequency coordinator

Details regarding technical requirements for this new radio service were presented at the April 2013 TCB Workshop


- This presentation will provide an overview of this recent regulatory action
MBANs are low power medical networks that support wireless data communications between body (patient)-worn sensors and a dedicated programmer/control device.

MBANs are authorized to use the 2360-2400 MHz frequency band on a secondary basis with respect to existing primary radio services

- MBANs must not cause harmful interference to, and must accept interference from, other stations operating within the primary service(s) allocation.
In order to facilitate interference protection to primary radio services sharing the band, particularly the Aeronautical Mobile Telemetry (AMT) service operating in the 2360-2390 MHz segment of the band, requirements were adopted for the registration and coordination of all MBAN operations within the 2360-2390 MHz band segment with an MBAN frequency coordinator to be designated by the Commission.

See April 2013 TCB Workshop presentation and/or FCC 12-54 for additional details.
Changes to MBAN Rules by Order on Reconsideration

Health care facility definition
- Revised §95.1203 to limit the use of the 2360-2390 MHz band segment to hospitals and health care facilities that provide patient use beyond a 24-hour period for rendering medical treatment

Antenna location limitations
- Revised §95.1214 to remove perceived constraints on MBAN antenna siting in the 2390-2400 MHz band segment

MBAN configurations with a single body-worn device
- Appendix 1 to Subpart E of Part 95 amended to permit pairing of a program/control transmitter with a single body-worn sensor
Changes to MBAN Rules by Order on Reconsideration (cont.)

- **Flexibility in MBAN system design**
  - Modified §95.1209(g) to permit communications between programmer/control devices associated with separate MBANs for the sole purpose of avoiding mutual interference

- **Communication between body-worn sensing devices**
  - Amended §95.1209 to eliminate language that precludes body-worn devices from communicating with one another
“Coordinator node” functionality
- The modification to §95.1209 permitting communication between body-worn devices is deemed adequate to allow for designation of either the programmer/control or body-worn device to perform as a “coordinator node” as requested by petitioners

Transmission cessation in absence of control message
- Revised §95.628(c) to clarify that the requirement to cease transmission in absence of a control message also applies to body-worn sensing devices
Changes to MBAN Rules by Order on Reconsideration (cont.)

Registration requirements

- Modified §95.1223(a) to require that all MBANs capable of operation in 2360-2390 MHz band segment register with the MBAN coordinator, even if planned use is constrained to the 2390-2400 MHz band segment.
- Changed §95.1223(a) to limit registration requirements to programmer/control transmitters (i.e., body-worn sensors exempted).
- Modified §95.1223(b) to clarify that programmer/control transmitter replacements with same technical characteristics (i.e., same manufacturer, model, and FCC ID) do not require additional registration notification.

MBAN location changes

- Revised §95.1223(b) to clarify the procedures for how the AMT coordinator is to be consulted prior to an MBAN location or operational change.
The new rules require that MBAN operations in the 2360-2390 MHz band segment be registered and coordinated with an MBAN coordinator to protect AMT operations from harmful interference.

In the FNPRM, comment was requested on a number of issues related to designating an MBAN coordinator or coordinators.

The 2\textsuperscript{nd} R&O adopts specific procedures regarding the MBAN coordinator selection, terms of service, qualifying criteria and fees for service.

Certification Considerations

MBAN devices are on PBA List

- Application for certification may be filed with a TCB but a PBA must be filed with the FCC
- The MBAN operational description must clearly define how communications with the Control Point/Frequency Coordinator will be managed.
- A complete description of the communications protocol shall be provided for review.

Now that the MBAN rules have been finalized, a detailed compliance measurement guidance KDB is under preparation and will soon be released for comment.

- If questions arise before publication of the KDB guidance, they should be submitted to the FCC laboratory via the KDB inquiry system.
Questions and Answers

Thanks!