

Marcus Spectrum Solutions, LLC

*Consulting Services in
Radio Technology and Policy*
8026 Cypress Grove Lane
Cabin John, MD 20818 USA

Secretary
Federal Communications Commission
445 12th St., SW
Washington DC 205554

EX PARTE FILING DOCKET 04-186 (TV WHITESPACE)

One of the key issues in this proceeding is how to deal with wireless microphones that operate in the UHF TV – most of which happen to be illegal. The Public Interest Spectrum Coalition (PISC) recently filed a complaint and Petition for Rulemaking on the wireless microphone issue. (http://www.newamerica.net/files/Wireless_Mic_FINAL.pdf) It proposes “authorizing the GWMS to use the 2020-2025 MHz channel potentially available following resolution of the AWS-2 and AWS-3 proceeding pending before the Commission.”

The issue of what to do with wireless microphones after to the DTV transition is not unique to the FCC’s jurisdiction. Wireless microphone use in TV whitespace was convenient worldwide in the analog TV era, especially when wireless microphone use was limited. With the more intense spectrum use resulting from DTV and the growing use of wireless microphones – partially due to the aggressive marketing described in the PISC complaint that may have been illegal – other alternatives are needed as a partial or total replacement of TV spectrum use - independent of how this proceeding is resolved.

The Commission’s European counterparts have been deliberating on this very issue and have a “public consultation” pending with comments due July 23, 2008. This consultation is entitled “Compatibility studies between Professional Wireless Microphone Systems (PWMS) and other services/systems in the L band”, Draft ECC Report 121 and is available at <http://www.cept.org/367C8D90-8C23-4A16-8B8D-349C5B086E5D?frames=no&>

While CEPT does not normally make consultation comments public, perhaps the Commission might be able to access them through collegial channels.

The CEPT document comes to the conclusions given in the attachment. I am also inserting the text of this report into the record of this proceeding as relocation of some or all wireless microphone use is closely related to the outcome. Thus the Commission may wish to consider *both* the PISC 2020-2025 MHz suggestion as well as the CEPT draft's L band recommendation.

The CEPT's suggested bands are Federal Government/non-Federal Government shared bands in the US context. However, the technical analysis should be independent of the agency jurisdiction involved in the spectrum regulation. Thus the Commission may wish to explore with NTIA the public interest considerations involved here if it concurs with the CEPT technical analysis about the feasibility of sharing existing bands.

Wireless microphones are a productive use of the spectrum in most cases. Dedicating nationwide spectrum for their use or precluding new sharing, such as that proposed in this proceeding, is inefficient since wireless microphone use is very uneven in both space and time. A partial or complete relocation could be a "win-win" for all involved and could bring this technology in line with overseas standards and increase the market choices for users.

/s/

Michael J. Marcus, Sc.D., F-IEEE
Director

Cc: Julius Knapp

ATTACHMENT

Conclusions from CEPT Draft ECC Report 121

Taking into account the conclusions of the compatibility analyses, it was found that the following bands could be used by PWMS:

1452 MHz – 1477.5 MHz, in this band the following restrictions are applicable:

- o To protect FS operating in the frequency range 1429 - 1452 MHz, the unwanted emissions defined in e.i.r.p of PWMS should not exceed -58 dBm in 200 kHz bandwidth
- o To protect FS/BSS operating above 1479.5 MHz, the unwanted emissions defined in e.i.r.p of PWMS in the frequency range 1479.5 – 1492 MHz should not exceed -58 dBm in 600 kHz bandwidth
- o The use of PWMS may be outdoor or indoor in this frequency range with a maximum radiated power of 50 mW (e.i.r.p) Administration may need to consider the following when deploying PWMS on their territory:
 - o To protect FS operating in the band 1452 – 1479 MHz:
 - a separation distance of 15 km between the FS receiving station and the PWMS transmitter should be considered in a co-frequency situation. It is possible to reduce this separation distance in case of indoor usage of PWMS;
 - the PWMS emissions at the frequency used by a FS receiver should not exceed -48dBm in 200 kHz for PWMS operating at a distance from the considered FS receiver lower than the separation distance (15 km).
 - o To protect ground stations in the Aeronautical Telemetry Service operating in the frequency range 1429-1492 MHz, separation distance of 36 km between aeronautical receivers and PWMS transmitter is required. In case of PWMS deployment on the territory of a neighbouring country this separation distance should not be less than 36 km to the national border (see 5.342). To protect airborne stations, separation distances are assumed to be greater.

1494 MHz – 1517.4 MHz, in this band the following restrictions are applicable:

- o To protect FS/Mobile/BSS operating below 1494 MHz, the unwanted emissions defined in e.i.r.p of PWMS in the frequency range 1479.5 – 1492 MHz should not exceed -58 dBm in 600 kHz bandwidth
- o The use of PWMS should be limited to indoor use in this frequency range with a maximum radiated power of 50 mW (e.i.r.p)
- o To protect Fixed/Mobile/MSS operating above 1518 MHz, the unwanted emissions defined in e.i.r.p of PWMS in the frequency range 1518 – 1559 MHz should not exceed -48 dBm in 200 kHz bandwidth

Administration may need to consider the following when deploying PWMS on their territory:

- o To protect FS operating in the band 1492 – 1518 MHz:
 - a separation distance of 15 km between the FS receiving station and the PWMS

transmitter should be considered in a co-frequency situation;

- the PWMS emissions at the frequency used by a FS receiver should not exceed -48dBm in 200 kHz for PWMS operating at a distance from the considered FS receiver lower than the separation distance (15 km).

o To protect ground stations in the Aeronautical Telemetry Service operating in the frequency range 1492-1535 MHz, separation distance of 28 km between aeronautical receivers and PWMS transmitter is required. In case of PWMS deployment on the territory of a neighbouring country this separation distance should not be less than 28 km to the national border (see 5.342). To protect airborne stations, separation distances are assumed to be greater.

These conclusions are valid for both analogue and digital cases. The compatibility studies between PWMS devices and Mobile Satellite service concluded that sharing is not feasible. Possible mitigation techniques (*e. g.*, DAA) will be further investigated. When these results are available, this report should be revised or a complementary report will be developed.