

White Spaces, Auctions, and Wireless Microphones

The FCC is reorganizing the UHF television band, coinciding with the transition from analog to digital television broadcasting. Beginning on February 18, 2009, television stations will occupy a smaller section of the UHF spectrum (470 – 698 MHz) than is currently used. This is possible because digital stations can be spaced more closely together -- even on adjacent channels -- without interfering with each other.

The remaining spectrum (698 – 806 MHz) has been divided up into blocks. Some blocks are being auctioned to companies that will provide new wireless services (either local, regional, or national). Other blocks have been reserved for Public Safety communications.

Even after condensing the TV stations into a smaller piece of spectrum, there will still be unoccupied channels in every market, just as there are now. These “White Spaces” are used by wireless microphones, in-ear monitors, and production intercoms. The FCC is considering using the “White Spaces” to deliver wireless broadband internet service to consumer wireless devices.

Because the “White Spaces” in each city are different, the FCC will require the consumer devices that operate there to include a “spectrum sensing” capability that will allow them to detect and avoid TV broadcasts and wireless microphone signals. The FCC is in the process of testing this technology to determine whether it works in both laboratory and real-world situations. If it does work, the FCC may permit new devices to be sold beginning in February 2009 or a later date. The final decision will probably not be announced until mid-2008.

Important points:

The “White Spaces” are not being auctioned. The White Spaces are all **below** 698 MHz; the auctions affect the spectrum from 698 MHz to 806 MHz, often referred to as ‘the 700 Megahertz band.’

Existing wireless microphones will not stop working or become illegal in 2009. Any consumer device that the FCC allows to operate in the White Spaces must be able to detect and avoid both TV broadcasts and wireless microphone signals. The FCC is unlikely to authorize new devices until this capability has been proven. The FCC has not given any indication that wireless microphones will not be allowed to operate after February 2009 as they do now.

Some wireless microphone users may need to change frequencies. Users operating in the blocks reserved for Public Safety should change to other frequencies (preferably below 698 MHz) to avoid interference from emergency communications. Users operating in spectrum to be auctioned should monitor auction results to determine which frequency ranges may be subject to interference in their area.

The UHF TV band is still the best for wireless microphones. The UHF TV band has much more usable spectrum available than the 902 MHz or 2.4 GHz bands, and there are fewer types of devices allowed – even after taking into account any new unlicensed devices that may exist after 2009. More spectrum translates into more wireless microphone channels available to the user. Also, providing interference-free, high quality audio is even more challenging in these bands, where wireless microphones must compete with other signals such as Wi-Fi and Bluetooth.

For more information, visit www.shure.com/whitespaces.