

## **Shure Incorporated**

**Re: FCC new regulatory for February 19, 2009**

### **FICTION:**

- The FCC doesn't care about the audio industry.
- The FCC is taking away all the spectrum for wireless microphones.
- Future unlicensed devices won't interfere with wireless microphones.
- There is a digital or silver-bullet technology to solve shrinking spectrum problems.

### **Part I: TV Channels 52 through 69 – Shure UA and UB Bands:**

#### **FACTS:**

- All television stations using frequencies pertaining to TV channels 52 and above must cease to transmit on these frequencies by Feb 2009.
- Manufacturers, such as Shure, will no longer be allowed to sell wireless systems that operate on those frequencies (TV 52 and above).
- The FCC will most likely not force a recall of devices that operate in this frequency range. However, though it is unlikely that the FCC will issue a statement formally disallowing units with secondary use status such as wireless microphone to operate in this band, it is generally understood that once the primary allocation is revoked (TV broadcasts), secondary use in the band will also be disallowed.

#### **CONSEQUENCES**

- The most destructive sources of interference to wireless mics, TV stations which use transmitters with power of several million watts, will cease to operate.
- Un-expected interference from new wireless services will be possible to systems in these bands beyond that date, especially to those systems operating outdoors. However, following "best practices" for wireless mics minimizes the risk of dropouts due to interference from these sources, just like today.
- The relatively short range characteristics of wireless microphones makes it unlikely that they will cause interference to the new services in this band. However, if any interference from wireless microphones is experienced by users of the new "licensed" service, then the wireless microphone must cease operation.
- Manufacturer support will be key in keeping end users up-to-date on what frequencies to avoid in the different markets, just like today.
- The upper part of Shure's UA band, TV channels 68 and 69, were allocated for public safety communications. While wireless microphones typically have a transmission range of about 500 ft. and are very unlikely to interfere with government public safety equipment, Shure does not recommend users of the UA band continue to operate wireless microphones in the upper part of the band.

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### **Part II: TV Channels 14 through 51 – All Shure frequency bands except UA and UB:**

#### **FACTS:**

- By February of 2009 all analog TV stations will cease transmitting. Only the digital TV (DTV) stations will continue transmitting.
- The FCC plans to allow the operation of two different types of unlicensed devices in the unoccupied TV channels between 14 and 51.
  1. Point to multi-point WRAN devices:
    - 4 watt transmitters used to bring high speed Internet service for rural areas where DSL or Cable is not available.
    - Due to concerns about interference to and from DTV, the IEEE has proposed that devices should not be allowed to operate adjacent to occupied TV stations. According to Shure's analysis, this leaves a significant number of open TV channels on all markets in the US.
    - Thanks to Shure's lobbying with the FCC, they have agreed that these devices should not interfere with licensed devices such as wireless microphones. The FCC asked Shure to work with the IEEE on defining the technical standard that dictates the operation of these devices.
    - Shure is working with the IEEE to define a beacon device that owners of licensed wireless microphones can purchase to protect the operation of their wireless microphones.
  2. Personal Portable Wireless devices:
    - Low power devices sold to consumer markets for personal home use (i.e. wireless mouse, keyboards, phones, networks, etc.).
    - These devices may be allowed to operate anywhere in the UHF TV band between channels 21 and 51. They may not operate in frequencies for TV channels 14 through 20.
    - Their operation is subject to a non-interference basis. This means they cannot interfere with licensed devices such as TV stations and wireless microphones.
    - Thanks to Shure's lobbying with the FCC, they have agreed that these devices should not interfere with wireless microphones. The FCC asked Shure to work with the IEEE on defining the technical standard that dictates the operation of these devices.
    - The current principle of operation calls for these devices to check for a wireless mic occupying a frequency prior to starting transmission on it. It also calls for these devices to continuously monitor the frequency they are operating on and switch to a different frequency if they detect that a wireless mic has begun to operate on its frequency.

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### **CONSEQUENCES:**

- The operation of all current wireless systems operating from TV channel 14 through 51 will not be illegal or un-allowed beyond Feb 2009.
- Analog TV transmitters, which now account for about half of all occupied TV channels will be turned off, leaving extensive new spectrum available for the operation of wireless microphones.
- The FCC has protected and prioritized the use of wireless microphones over the use of unlicensed devices. These devices must stay away from active wireless microphones within their area.
- Interference from un-known sources may still be possible for any wireless systems operating in TV channels 21 through 69, especially to those systems operating outdoors or in very close proximity to unlicensed devices, just as is the case today (i.e. Interference from blackberry devices).
- Following “best practices” for wireless mics minimizes the risk of dropouts due to interference from un-known devices/sources, *just like today*.
- Manufacturer support will be key in keeping end users up-to-date on what frequencies to avoid in the different markets, *just like today*.