

# HEARING AID COMPATIBILITY WITH WIRELESS DEVICES: What Hearing Health Professionals Should Know

**A**s a professional audiologist, you have the ability to positively affect your patients experience with wireless devices— cell phones and other wireless handheld devices such as a Blackberry.™ This article is meant to help hearing professionals understand the new labeling and requirements for wireless device use with hearing aids.

## REQUIREMENTS FOR WIRELESS DEVICES AND SERVICES

Recent requirements by the Federal Communications Commission (FCC) oblige wireless service providers to provide wireless devices that are compatible with hearing aid devices as defined in the American National Standards Institute (ANSI) C63.19 Standard. The first compliance date is September 16, 2005, at which time wireless service providers must offer at least two handset models on each air interface offered by that service provider that comply with a minimum rating of M3 for RF emissions. By September 18, 2006, wireless service providers must offer at least two handset models on each air interface that comply with a minimum rating of T3 for magnetic coupling. Air interfaces are the way a wireless device “talks” to the service providers’ tower. In the US, air interfaces are CDMA, TDMA, GSM, and iDEN.™

## REQUIREMENTS FOR HEARING AIDS

While the FCC does not have regulatory authority over hearing aids, they have encouraged the hearing aid industry to test and label their products according to the level of immunity they have to digital wireless device emissions.

## HOW HEARING HEALTH PROFESSIONALS CAN ASSIST THEIR CLIENTS CHOOSING A COMPATIBLE WIRELESS DEVICE

The role of the hearing health professional will increase as clients ask questions and advice about what hearing aids and wireless devices they should use.

## THE ANSI C63.19 RATING SYSTEM FOR WIRELESS DEVICES EXPLAINED

Under the ANSI C63.19 Standard, the level of RF emissions compatibility will be rated with an “M” rating, like the M for the Microphone switch on the hearing aid. This rating is most important for hearing aid wearers who use acoustic coupling. The higher the “M” rating, the less likely the hearing aid user will experience interference when the hearing aid is set in the microphone mode while using a wireless device. Wireless device manufacturers are required to produce handsets that rate M3 or M4.

The magnetic coupling compatibility level will be rated with a

“T” rating, like the T for the Tele-coil switch on the hearing aid. This rating is most important for hearing aid wearers who use inductive coupling. The higher the “T” rating, the less likely the hearing aid user will experience interference when using a T-coil hearing aid while using a wireless device. Wireless device manufacturers are required to produce handsets that rate T3 or T4.

Only wireless devices that meet minimum M3 and T3 ratings will be labeled as compatible with hearing aids. Labels will appear on the outside packaging of compatible wireless devices, with further information available in the devices’ manual or packaging insert.

Under the ANSI C63.19 Standard, all hearing aids are expected to have an immunity rating. To determine whether a particular wireless device will interfere with a particular hearing aid, the immunity rating of the hearing aid is added to the emissions rating of the wireless devices. A sum of four would indicate that the combination of wireless device and hearing aid is usable; a sum of five would indicate that the wireless device and hearing aid would provide normal use; and a sum of six or greater would indicate that the wireless device and hearing aid would provide excellent performance. Most new hearing aids should rate to an immunity rating of U2, but audiologists should consult the manufacturer of the hearing aid to determine actual immunity ratings.

## OTHER CONSIDERATIONS FOR CHOICE OF HEARING AID

Hearing aid style seems to play a role in whether the user is able to effectively use a wireless device. Hearing aids that fit in the ear, such as ITEs, ITCs and CICs, seem to have less interference with wireless devices than BTE hearing aids. Hearing aid manufacturers have found that ITE hearing aids tend to have less of the hearing aid exposed to the RF because the hearing aid is farther away from the wireless device, reducing the overall interference.

Many wireless device manufacturers have reported that BTE hearing aids present challenges more than other hearing aid types. The best solution for the challenges with BTEs is T-coil compatibility with wireless devices. Many of the hearing aid manufacturers are installing or replacing old T-coils with T-coils that have immunity to RF interference. However, hearing health professionals should be aware that not all “new” T-coils are RF immune and many older models of T-coil that provide no immunity to RF are still on the market. In order to find out which T-coils are RF immune, it is recommended that hearing health professionals contact the individual hearing aid manufacturers.

## OTHER CONSIDERATIONS FOR CHOICE OF WIRELESS DEVICE AND SERVICE


The ANSI C63.19 ratings for hearing aid compatibility are not a guarantee of performance for each individual hearing aid user. Air interface, device design and device features are additional factors, in addition to variations within individual hearing loss.

Some anecdotal and clinical reports have indicated that CDMA and iDEN™ are perceived to cause less annoying interference than other air interfaces for some hearing aid wearers. Other research shows that some hearing aid wearers experience excellent performance with any of the digital technologies. Still other hearing aid wearers report no effective use of any digital wireless device or service.

While there is no rule about which style of wireless device works best with hearing aids, some hearing aid users have been reported that the “clam shell” or “flip up” design cause less interference. These designs tend to provide separation distance from the RF transmitter.

Other variables, including backlighting, display, keypad, battery and circuit board of the wireless device, may cause interference but are not tested under the ANSI C63.19 Standard and are not reflected in the M or T ratings. The ability to control the backlighting, an option available on some handset models, may assist

some T-coil users. Vibrating alerts for incoming calls, selectable ringer tones, short messaging service (e.g., text messaging), increased volume control, or use of a headset or neckloop have also been found to alleviate some interference issues.

Hearing health professionals should also encourage their clients to “try before they buy.” Service providers’ full retail stores may provide hearing aid wearers better product selection and in store assistance in finding a wireless device that they can effectively use. Hearing aid users should ask how long they have to cancel the service and return a phone without penalty if the wireless device doesn’t work with their particular hearing aid outside of their in-store experience. 

*The ATIS AISP.4-HAC (“Incubator”) is composed of technical experts from the wireless industry (wireless manufacturers and service providers), hearing aid industry, and representatives for consumer advocacy and disability groups. The Incubator is sponsored by the Alliance for Telecommunications Industry Solutions (ATIS). ATIS is a US based body committed to rapidly developing and promoting technical and operations standards for the communications and related information technologies industry worldwide using a pragmatic, flexible and open approach. <http://www.atis.org/hac/index.asp>*

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