Behind the scenes of sounds: Sound engineering

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For all you engineers out there looking to infiltrate the radio station scene with your awesome technical knowhow, not so fast. Being a good engineer doesn’t necessarily make you a great sound technician. As Darren Hushak knows, you need an ear for music and sound to take on that job.

Studying electrical engineering, music and music technology, Hushak is well qualified for his position as the general manager and chief sound engineer for KURE 88.5, Iowa State’s own student-run radio station. During the past five years, Hushak has also worked at music venues such as Vaudeville Mews and Hoyt Sherman Place in Des Moines, and DG’s Tap House in Ames. He does sound checks for Iowa State’s Music Department and is one of three sound technicians at the M-Shop. With instincts honed over years of experience, he was willing to spill a few details about the science of sound for Revival.

Hushak lists three types of sound situations in the music industry: live sound, as in the precarious business of recording shows as they happen for those sweet live show renditions we love; studio recording for albums, or broadcasts for bands; and broadcasting, which exists in the turbulent waters between the two, involving more control than live, but less of the style-killing complexity of a studio. KURE’s mission is to eliminate the difference in quality of sound between a broadcast song and one played off an album and clarify the voice of the broadcast artists.
Not all microphones are created equal. Mics are developed for one of three situations: live, studio, or broadcast. They vary in price and quality and have their own pros and cons. According to Hushak, mics range in frequency response, or their ability to pick up different types of sound, such as bass versus treble. Broadcast mics don’t aim for a range of extremes in frequency because a flat sound is what you need to transmit, while studio mics have a high sound sensitivity and low durability, making them less convenient for live shows. Choosing the right equipment, whether we’re talking a mic, cable, soundboard, instrument, or something as abstract as software, is crucial to music quality.

We listen to the radio on a pretty regular basis, but do you ever wonder how it works? The results are straightforward enough that most people don’t care beyond the mechanics of sound goes in one end and comes out the other. While it would be cool if radio mechanics were as simple as Wonkavision, it’s obviously a little more complicated. Hushak explains the five-step procedure for sound travel.

First, sound is picked up by mics, as previously discussed. From there it travels by cables to a pre-amp, which boosts the weak mic signal to a volume more suitable for electronics. The signal goes to an equalizer, which a sound tech uses to adjust the sound qualities based on creative preference or genre. From there, the sound segment is sent to a converter that records snippets of the analog signal and changes them to a series of zeros and ones before offloading them to an interface. Finally, the sound goes to the computer’s Digital Audio Workstation (DAW) where sound mixing happens.

Even fancy engineering knowhow doesn’t guarantee a perfect product. Hushak, a pro at sound technology, still has to think on his feet to deal with challenges that arise. He lists managing frequency as a key issue, which involves balancing the song; this is achieved by cutting the overlapping portions of a multiple instrument spectrum, balance keeps sounds from fighting each other. All this really comes into play when many instruments are on the same frequency making it harder for the human ear to differentiate, like in the bluegrass genre. Similarly, volume management is another tricky obstacle to good sound. Faders control the volume of sound coming from each instrument. A compressor narrows the dynamics of the sound, making it easier to move in the volume range of the song.

So next time you’re jamming out to the radio or singing along at a concert, maybe you’ll think about the technology and hard work it takes to get the sound from the musicians to you. Go ahead, use this to sound smart at a party. And if you’re at all interested learning more or being a part of the action, stop in to the KURE station in the basement of Friley Hall, or fill out an application online. Funded by the Government of the Student Body, KURE 88.5 is a free-form station, offering music not heard on mainstream radio. Besides incorporating multiple DJ personalities to mix up the tunes, KURE also hosts local bands for live studio sessions on Saturdays at 5 p.m. ELAINE GODFREY