

# The Magic Tech Road: Audio Equipment Revisited

## By David Reed-Brown

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Given the current state of electronics available to the average magician, this is a good time to revisit the issue of audio equipment.

However, let me first restate that **the purpose of our “Magic Tech” column is to consider some of the technical issues for a practical one or two person stand-up show.** In several years of producing my own self-contained cabaret act for 50 to 300+ people, locations often demanded that I bring most everything with me: lights, sound, backdrop, and props. At one time, it all needed to fit in my Honda Civic hatchback. Somehow I sense that I am not alone... Hopefully, Magic Tech will continue to meet some of the practical needs of the versatile cabaret / stand-up / banquet performer.

**WHEN I USE A SOUND SYSTEM:** I have come to realize that a sound system of some kind is essential in my stand-up work. Not only does music double or triple the emotional effectiveness of my magic, but with all the practicing I do, what's the point if they cannot hear me as I direct them towards wonder? After all, the magic only exists in their experience. I may only use a “boom box” in a brief show for a small audience (e.g. a birthday party for twelve children or a small dinner party in a home), but if I am doing a show for more than 25 youngsters, I will use a microphone to help them maintain focus on the magic. If I am performing for more than 25 senior citizens, I will use a sound system because some may be hard of hearing. However, I will not turn up the volume too high because hearing aids are sensitive devices which feedback easily. If I am doing a banquet for 50 people or more I will definitely use my sound system.

**PORTABLE PA:** As in my earlier *Sound Advice* articles, I still recommend that magicians seriously consider “portable public address” systems because they pack small and significantly reduce the number of connections one needs to worry about. I believe they have become more popular because video projectors, DVD players and powerful laptop computers continuing dropping in price. Portable PA systems are used for business presentations, tradeshow, worship, solo musicians, law enforcement, sporting events, and school gatherings. From the front they look like a speaker, but the housing holds a powerful amplifier, battery, wireless microphone receiver, mixer, CD and or tape player, possibly a connection for running a companion speaker, and multiple outputs and inputs for microphones, CD, tape or minidisk. Many companies, like Anchor Audio ([www.anchoraudio.com](http://www.anchoraudio.com)) and Sound Projections ([www.soundprojections.com](http://www.soundprojections.com)), custom build the system with the options you desire. In recent years, quality has increased dramatically and many more companies manufacture them than even two years ago. A heavy-duty rechargeable battery is a helpful feature for outside or large indoor spaces, but it is not absolutely necessary. A built in CD player is handy for “audience warm-up music” before you go on, or even for the performance if you have an assistant to run the controls for you. Overall, though, what we are aiming for is fewer wires and connections to fowl up our performances.

**LOUDNESS:** A good system should have at least 50 watts of clean sound with a broad dynamic range (at least 70 hz to 15,000 hz) with relatively little white noise. Be careful, though, there is more to loudness than wattage. One 50 watt system will cover a few hundred people, while another with a much more highly compressed signal will reach 2,500 people. The overall question is, “How many decibels (dB) of sound does a system produce at full volume at a distance of one meter in front of the speaker?”

**LOUDNESS VS. AUDIENCE COVERAGE:** As one looks at specification sheets for various products, it is tempting to reason that if you want to provide more sound for a larger audience, then you should simply purchase a louder, more powerful system (watts, decibels, etc.). However, consider this: There is an “angle of coverage” coming out of the front of the speaker. On average, this angle is somewhere between 100 and 120 degrees (a bit wider than a 90 degree angle). Now, let’s say a speaker is rated to cover 1,000 people. First of all, that figure is for an indoor audience where the sound will be bouncing off the walls, ceiling and floor as it heads towards the back of the room. Second, it will cover 1,000 people if they are facing you in a deep column. As good as these angles might be for my billiard ball routine, this is not the way most audiences are arranged. It might be wiser to consider a **LESSER POWERED PA WITH AN UNPOWERED EXTENSION SPEAKER** coming off the main unit. The extension speaker looks the same as the PA from the front, but all its power is transmitted through the speaker cable. Having one on each side of the stage will cover many more people than a stronger single unit, especially in large open spaces or outside where there is nothing to bounce the sound back on to the audience. General Motors is right, “Wider is better.”

**WIRELESS MICROPHONES:** Quality wireless microphones in good portable PA systems are at least VHF (very high frequency) that allow you to select several different channels. Better ones are “diversity” mikes with two antennae that automatically select different channels in case of interference. UHF (ultra high frequency) is even better because it is “diversity” by nature and uses a wider spectrum of channels. Both VHF and UHF are television-broadcasting frequencies. VHF covers channels 2 through 13 while UHF covers channels 14 through 69. It used to be that the lower channels were more crowded, but now in some areas the UHF range is running out of room, and VHF is more open. If you have relatively few broadcasting television stations between channels 2 and 13 in the region where you perform, you will probably be fine with a VHF system that allows you to select different channels. UHF does not necessarily sound any better than VHF. However, if you travel across a wide geographic area, you may want to consider UHF or a system that allows you to select frequencies while traveling. (NOTE: Avoid FM wireless microphones at all costs because the quality is awful, and there is too much interference from baby monitors, cordless telephones and radios.)

## MICROPHONES

**HANDHELD:** I know a couple excellent magicians who are masters of hand-held microphone management. Max Maven is one of them. The advantage of a hand-held is

control. You can amplify yourself and your volunteers. With directional microphones (vs. omni-directional) feedback is not a significant issue. Also, your hand is always near the mute switch. The disadvantage is that it requires one of your hands. There are clever little devices sold in magic and music stores that hold a handheld mike on a cord around your neck. I keep a long, soft black shoelace in every gig bag I own, for those surprising occasions when I must use a hand-held. I just tie it to the mike and let it hang – it works fine, and I wear black so it usually matches. I have also seen wonderful performers put a handheld mike under an arm or in their jacket breast pocket on an angle towards their mouth. Like all good things in magic, the handheld microphone is an important prop that requires practice.

**LAVALIERS:** Honestly, I prefer a lavalier microphone because I put it on and forget about it – one of my key technical goals! That way I can focus on performing magic. Lavaliers tend to be omni-directional, so they pick up more sound around you. If you direct someone to speak up and stand next to them, their voice can be amplified some. The disadvantage is that lavaliers are prone to feedback if you walk in front of a speaker. This requires my attention and practice, or it will get my attention for me. Also, with a lavalier you can lose sound if you talk while tilting your head up or to the side. Finally, the smaller your microphone is, the better. A black lollypop hanging on someone's white shirt distracts my eye away from the magic. Shure ([www.shure.com](http://www.shure.com)) makes a small lavalier microphone head (#93) about half the size of a Tic Tac mint. It is amazing and very reliable because the mike head is molded in as part of the wire.

**HEADSETS AND COLLAR MICS:** These have become more popular because no matter how you move your head, your voice always comes through the same, and they are less prone to feedback. Honestly, though, they are visually distracting to me. I just don't like them. While it might be cool to look like Justin Timberlake or Britney Spears, to me it is not about performers' gadgetry, it's about how their performance reveals who they are. Now, maybe that high-tech look is what our character is all about, and that's fine, but I believe technology should enhance our magic to the level we need it and then get out of the way. The one "headset exception" I have seen in popular use is the Countryman E6. ([www.countryman.com](http://www.countryman.com)) This \$350 microphone is an extremely thin flesh-colored wire (available in different skin tones), which slides over the ear and down  $\frac{3}{4}$  of the cheek. There is no large windscreen on the mike either. You bend it to the shape you want, place it on your ear, and a wire goes down your collar to wherever you put your transmitter. Different E6 models will connect to different brands of transmitters (Shure, Sennheiser, etc.) I hear through the grapevine, though, that the E6 is more prone to feedback than other headsets. We pay a price for everything...

# ISOMAX

E6 EARSET MICROPHONE

NOT JUST HEADSET EVOLUTION.

THE E6 EARSET IS A TRULY  
REVOLUTIONARY COMBINATION OF  
BEAUTIFUL FORM  
AND  
OUTSTANDING SOUND  
IN A PACKAGE SO SMALL  
IT'S INVISIBLE FROM THE FIRST ROW.

NOTHING ELSE EVEN COMES CLOSE



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