MIXING WITH A GRID DIP

Q. *Recently, I accidentally made a discovery that has led to many hours of listening enjoyment. While varying the frequency of my grid dip meter, which was placed near an FM radio tuned off-channel (about 90 MHz), I found that I could receive many different r-f transmissions. Some of those I've received are TV sound, aircraft, police, CB, 2-meter FM, telephone calls, and even WWV. I'm fascinated! But how does it do it?*

—Dennis Cole, Lincoln Park, MI

A. You have created a frequency converter stage The grid-dip meter is the local oscillator, and some nonlinear element inside the receiver is acting as a mixer. The result is an additional heterodyne process Exactly where the heterodyning is taking place is hard to determine, because one variation on Murphy's Law states that a linear circuit will often behave nonlinearly Furthermore, just imagine how many *pn* junctions there are inside the radio's case, each of which can act as a diode mixer Interestingly, you are receiving AM as well as FM transmissions I imagine that is the result of slope detection A variation of your technique has been used by many shortwave listeners who copy CW and SSB signals on shortwave portables lacking bfo's. By tuning a signal generator or the local oscillator of another receiver to the proper frequency, they could reinsert a "carrier" for proper detection Happy Listening!