

Preview

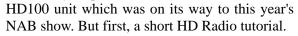
Radiosophy HD100 AM/FM HD Radio

By Ken Reitz

Competition in the HD Radio market is fierce with well known companies such as Polk Audio, Cambridge SoundWorks and Radio Shack introducing new products this year capable of receiving HD Radio transmissions. This new broadcast frontier has also attracted start-up companies such as Radiosophy, a group of techno-savvy escapees from the equally cutthroat computer industry.

Radiosophy's first effort in the HD Radio world was their Multistream HD [to be reviewed in an upcoming issue of *MT* as part of its series on available HD Radios] which garnered a "Pick to Hit" award from *Radio Magazine* when it was introduced at the April 2005 NAB show. Now the company is venturing

into the low cost HD Radio market with the introduction of its HD100. While the Multistream HD retails for \$269, the HD100 will be available for less than half that amount. I had an opportunity to check out an early production



Peculiarities of HD Radio

There appears to be some mystery surrounding reception of HD Radio signals. Most HD Radios use nearly identical digital receivers. The result is that there's very little

difference in reception capability among all available HD Radios. Success in receiving HD Radio signals has more to do with where you're located and what you're using for an antenna.

HD Radio reception is different from analog reception in several ways. While a station transmits both its analog and digital signals on its assigned frequency, the FCC requires stations to transmit their HD signal at a fraction of that of their analog signal. That means that stations you're used to picking up with solid analog signals might not be so solid in the HD version. That translates into audio drop-outs when the signal is not strong.

Second, as listeners, we're used to putting up with a certain amount of noise in distant FM signals. But, HD receivers require a lot of signal to

"lock on" to the digital data stream which is the HD programming. Just as with digital television signals, digital radios won't tolerate much noise. When it locks onto the signal you get perfect audio; if there's too much noise in the signal the radio will not

lock on. If the HD signal drops out, the receiver reverts to analog mode. This can be a problem if you have marginal reception and you're listening to a station's secondary channel with different program content. When the receiver reverts to analog, it's as if the secondary channel doesn't exist.

A third problem is *multipath distortion* which occurs when the signals bounce off large objects (high rise buildings or mountains) which cause the signals to arrive at the radio at slightly



different times or *out of phase*. Just as with digital television, multipath distortion creates confusion in the receiver; it doesn't know which signal to lock onto, regardless of how strong the signal is. The result is audio drop-outs or no signal. Multipath does not effect AM reception.

If you live in an urban or suburban location you'll probably get great HD Radio reception. But, as you move further away from the transmitters, you'll need to increase the signal by adding a better antenna. Folks in rural areas may find reception most difficult. But, the addition of an outdoor antenna, a mast-mounted pre-amplifier and a rotator will give you better FM reception. The higher up you can get the antenna, the better your results.

For best AM HD Radio reception, you'll need a tunable loop antenna such as the Terk AM Advantage (available from a number of online retailers including Grove Enterprises, C. Crane, and Crutchfield). On FM, depending on your antenna and terrain, you may only be able to hear stations in a 60 mile radius of your home. On AM you'll only receive HD Radio signals within a 30 to 50 mile radius, again depending on terrain and antenna used. Reliable reception of HD Radio is dramatically reduced from what you're used to with analog reception.

Tuning in with the HD100

The HD100 tunes both analog and digital radio signals on both AM and FM bands. I found that the HD100 performs as well as HDcapable radios costing much more. And that's just the point. In fact, the HD100 has many features found on other expensive models, including a versatile display panel which gives vou a static or scrolling display. You get a wakeup alarm and sleep function (turns off the radio up to 120 minutes after setting). There's a "seek" feature which can automatically tune all radio stations or just those transmitting HD Radio. There's also a signal strength meter and two line text display. The HD100 also has 5 front mounted station presets for each band, which gives you access to your favorite HD Radio channels at the touch of a button.

The HD100 has a headphone jack for

private listening and an auxiliary input jack for your iPod® or other MP3 player. You can also use this jack to take the audio output from your computer (if you listen to on-line radio stations or play music from your computer's CD player) or a portable CD player.

This radio's small footprint (just 1-ft. wide, 6-1/2-in. high and only 3-in. deep) makes it a natural choice for desk or counter top, bedside, or by your favorite chair. But, wherever you put it, you'll need to consider the antenna. You'll probably have to extend the 30-in. telescoping whip antenna or add a "T" shaped folded dipole antenna for HD reception. If you live in a less urban or suburban area, you'll probably need an outdoor antenna. To attach a coax antenna, just unscrew the telescoping whip which, when removed, reveals a 75 Ohm coax connector attached to the radio's back panel.

If you haven't heard HD Radio before, you'll appreciate the difference in audio even on the HD100's 2-1/2-in. speakers. While they don't pretend to be Hi-Fi speakers, they do deliver crisp audio which, in HD Radio mode, sounds wider than this little radio's actual width.

You'll also appreciate the extra channels of programming being offered by multicasting HD Radio stations. For example, some stations which traditionally transmit country music may have a second channel featuring oldies. Some public broadcasters transmit their regular classical music on one channel and a mix of talk programs from NPR and BBC on another. Multicast programming varies from station to station and area to area. Listeners in metro areas will have the widest choice of multicast programming, while those in rural areas may find their local HD Radio stations have no extra programming channels. To learn whether or not your local stations are transmitting in HD or are multicasting, go to www.hdradio.com. AM stations are not allowed to multicast.

When you tune across an analog FM station on the HD100, the red stereo LED on the front panel lights up. When you hit on an HD Radio signal, the blue LED on the right side will begin to blink until it locks onto the signal. Once it's locked on, the blue light stays on and you'll hear the audio change from stereo to HD. The display panel will show the text as sent by the radio station.

Some stations send only an ID. Others will have a promo message for their station, while still

others will send song information, including title, artist and album. Text selection is entirely up to the transmitting station.

Listening to AM HD Radio for the first time is a treat. If you can find a station actually programming music, you'll hear it in stereo and it'll sound as good as the audio you're now used to hearing from analog FM stations. However, right now there are far fewer AM stations transmitting in the HD Radio format than there are FM stations doing so.

Last Word

There are a number of HD Radio receivers costing several times the price of the HD100 with better audio and more features. But the HD100 could be the radio that will bring many buyers who have been put off by those higher prices into the world of HD Radio reception. Cost of the HD100 will be under \$120 and it will be available by the middle of May 2007 at the Radiosophy home page: www.radiosophy.com or by calling 877-4HD-RADIO (443-7234)

Specifications:

AM: 530-1710 kHz in 10 kHz increments FM: 87.9 to 107.9 MHz in .2 MHz increments

Dimensions: 6.5" H x 12" W x 3" D

Weight: 2 lbs. 12 oz. (without power supply) 3 lbs. 14. oz. (with power supply)

Antenna:

AM: internal ferrite loop.

External 300 Ohm spring terminals. Use these terminals to attach a Terk AM Advantage or similar tunable AM loop antenna.

FM: Telescoping whip 30" with F connector attached at the base, the connector/whip antenna can be removed to reveal an external 75 Ohm coax connector which can be attached to an outside FM antenna.

Input: mini-plug AUX input on rear panel for MP3, CD, computer audio etc.

Output: mini-plug 8 Ohm headphone jack

Features:

LCD display: 2 line scrolling or static text LED: Red Stereo and Blue Digital

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