HD Radio Round-up

By Ken Reitz KS4ZR

Throughout 2007 *MT* has taken a look at as many HD Radio sets as we could coax out of manufacturers. This article looks at the complete list, fills in some of the gaps, and updates any changes that have occurred in the meantime. In addition, other moves in the HD Radio industry are explained and I'll look at the available reception aids listeners will need to ensure adequate reception.

❖ It's 2008, Do You Know Where Your HD Radio Is?

The most extraordinary thing about HD Radio is that, despite the millions of dollars poured into promotion, it's still the most unknown "latest thing" in home electronics. It's not like the products are hard to find. They've been in Walmart for almost a year! Still, most people I ask have never heard of it and, when I explain what it is, I get the same dull look I get when I tell people I have a shortwave receiver in my car. To most people it's incomprehensible. A radio trade journal had this headline: "HD Radio Ready for Prime Time." The date? February, 2004.

There have been many problems in the process of HD Radio getting a foothold in the market. First, was the delay in getting the first generation radios back from China. The months dragged on. The second was sending them back to China to work out the bugs. The months dragged on. Every manufacturer ran into the same problem; none were immune.

The third problem was getting radio stations to shell out the quarter million dollars for the up-grade to install the HD transmitter and antenna. That remains one of the biggest obstacles and will continue so for some time. Very few non-commercial radio stations have that kind of money. Most commercial radio stations are having a tough time returning a profit to their stockholders without piling on the up-front costs of switching to HD Radio.

The biggest problem in doing the switch may be in-house competition for other, more immediate expenditures. More stations are pouring money into translator and repeater transmitters to broaden their signal coverage. That's a much cheaper proposition and returns quick money for commercial and non-commercial broadcasters alike. More stations are also putting more money into on-line broadcasting. The burgeoning market in high-speed Internet access has brought millions of potential listeners to a station's signal on the web. The introduction of new web-based table radios may actually catch on faster than HD Radio. *[MT hopes to cover these new "receivers," too, in upcoming issues - ed.]*

There's a psychological component as well. Consumers are finally waking up to the fact that they are going to have to buy set-top digital TV tuners if they don't want to buy a brand new TV set in order to continue watching "Dancing with the Stars." There's been a lot of grumbling. The very last thing they want to hear is that some time in the future they'll have to do the same thing for their radios. Consumers see no compelling reason to hop on board the HD Radio train, currently side-tracked at the depot while no one can find the engineer.

Finally, there's consumer techno-fatigue, which is what happens when consumers are bombarded with new whiz-bang electronic gadgets year-round. Since HD Radio was introduced, America has been swept by personal GPS craziness, iPod hysteria, the BlackBerry and Blue Tooth bonanza, XBox and PlayStation mania, the iPhone, the GPhone, continual upgrades in satellite radio and plain old cell phones that send text messages, take pictures, surf the web, oh yeah, allow phone calls. It's no wonder HD Radio got buried.

❖ HD Radio Innovations

Despite the difficulties in attracting the public, manufacturers have persisted in making quality products with real innovations. The biggest innovation in HD Radio is in the listening. Hearing HD Radio on a primary HD channel is quite spectacular. The clarity of the music is unmatched against any analog or digital source, including satellite radio and especially against Internet radio. The only thing that comes close to the sound is the original compact disc.

The second innovation is the concept of multi-casting: broadcasting second and third audio channels on the same frequency as the main signal. Here, listeners are treated to a wide variety of format ideas. While most station simply broadcast an automated play-list, other stations, such as HD Radio pioneer WAMU-FM, a public radio station in Washington, D.C., are transmitting completely different formats and experimenting with the possibilities of the technology. I've heard reports from HD Radio listeners in other major cities who are listening to literally dozens of different formats that didn't exist in their city two years ago.

Non-commercial stations benefit the most from broadcasting in HD. Instead of competing with their main channel, they're enhancing their entire station by adding other formats, encouraging new listeners to tune in and, when pledge time rolls around, there's much more of a reason to donate. Commercial stations are prohibited by the FCC, during the "hybrid" period of the HD experiment, from having advertising on their second or third channels. There's little incentive for commercial stations to broadcast channels that will compete with their main channel which is commercial supported.

On the manufacturing side, despite the fact that, to this date, not a single manufacturer has made a portable HD Radio, the radios that are available are loaded with innovations. At first, manufacturers were more concerned with having a competitively low price and offered few innovations on their early units. Since then, the market seems to be splitting between two tiers: entry level (no-frills) and music-lover (radio enthusiast).

At the low end are the Radiosophy HD100 and Radio Shack's Accurian HD. At the high end are Polk Audio's iSonic and Sangean's HDT-1X. In between are Boston Acoustics Receptor HD, Cambridge SoundWorks 820HD, and Sony's XDR-S3HD.

Two and a half years ago, one of the first sets to make a splash was Radiosophy's Multi-Stream, which actually won a design award at the 2005 Consumer Electronics Show. But, production glitches and pricing issues forced the product completely off the market. Since then, Radiosophy recovered its balance with the HD 100, the cheapest of all HD Radio sets on the market.

Sangean's HDT-1 saw an up-grade during 2007, becoming the HDT-1X and rising to the top of the chart in performance and features. They've added the fiber optic output I asked for in my July 2007 review; they've made the display completely disappear when the set is off; they've made direct frequency access with the remote and on the front panel much easier; and they've added a signal strength indicator. Best of all, the HDT-1X remains the most sensitive of the HD crop with almost "brick wall" frequency separation.

Polk Audio's iSonic has added a separate model with a built-in iPod docking station which can be controlled by the iSonic's remote. The new iSonic ES2 also features iPod "tagging,"

a commercial boon to Apple's iTunes web site. The iSonic has the best audio of any of the stand-alone desk-top HD Radio sets.

❖ Tuning HD Signals in the Real World

Given all the innovations in sound and features, receiving HD Radio signals is mostly dependent on one thing: how close you are to the transmitter. If you're familiar with tuning digital TV signals, you already know the biggest problem with HD Radio. You either get perfect reception or you get no reception. Unlike listening to analog FM, there's nothing in between. The closer you are to the station you want to listen to, the more you'll like HD Radio. The days of listening to FM signals from distant cities are a thing of the past unless you're willing to make a substantial investment in an FM antenna system.

Unfortunately, all of the middle tier table-top sets made today appear to use nearly identical HD receivers and, as a result, reception capabilities are pretty much the same. Every set sold comes with a T-shaped folded dipole for FM listening, but, unless you live in a suburban or urban location, that will be nearly worthless. Some sort of external FM antenna is required if you hope to get the same kind of reception in HD that you've been used to in the analog world.

The cheapest solution is a six element FM Yagi antenna which costs about $22 from Solid Signal (**www.solidsignal.com**). This antenna on a short mast in your attic, pointed in the direction of the stations you want to hear and attached to a run of RG6 coax cable, should bring you back to your former analog reception capabilities. If necessary, add a mast-mounted pre-amplifier to boost the signals. It will make all the difference, especially tuning HD Radio signals.

If you want to listen to distant stations from different directions, add a rotator to the set-up. If the signals are still not quite making the radio lock on to the digital signal, then you'll have to go to a bigger antenna. You can see that eventually this will lead into serious money. But, it's what you'll have to do if you want to enjoy the full world of HD Radio.

❖ The Desert of Mobile HD Radio

When satellite radio first started, they put huge amounts of effort courting the world's automobile makers to make satellite radio available as an option. It took years for this to finally pay off. Unfortunately, makers were forced to decide with which satellite radio service to sign. Now, with the possibility of a merger, those who bought cars with built-in satellite radio capability may still end up having to buy add-on units to adapt to the new scheme.

I believe this recent history has kept car makers from rushing to sign up with HD Radio. Already wondering what to do with satellite radio, they are reluctant to add to their woes by offering HD Radio reception. The result is that very few automobiles are available with HD Radio and it's probably just as well. Unless your commute takes you from suburbs to city, you'll find little reason to want HD reception in your car. The little 29" whip antennas on cars aren't capable of bringing in HD signals from any distance.

A few manufacturers are trying the add-on approach, offering HD tuners which will work with your existing car radio. But, unless you have a car radio that actually has HD reception capability, you'll not hear the great audio. You will be able to tune the multi-cast channels, but the audio will be standard FM stereo.

One of the places that HD could shine in the car is on the AM band. AM HD Radio sounds great. It sounds like analog FM but not like CD. Still, the big problem here is programming. Most AM stations run non-stop talk shows. The only time you'll really enjoy AM HD is when there's music on during a commercial. Who cares?!

❖ HD Radio's Future

There's no doubt that eventually all analog FM signals will be turned off and we'll have a totally digital FM world. But, that date is so far away that no one in the industry even wants to speculate. Last year the best estimate I could get from anyone who knew anything in the industry was ten years.

Meanwhile, there is an inexorable march to the all-HD Radio world. Radio stations, both AM and FM, continue to replace their analog transmitters with new HD hybrid transmitters; programmers are developing more program sources for both commercial and non-commercial stations and manufacturers continue to add to their existing inventory and introduce new HD Radio models.

A number of big radio manufacturers are notably absent from the HD Radio market. Bose has been very quiet about its HD plans. Perhaps they're working on a special HD model or perhaps they're planning to upgrade their current Wave radio models to tune HD. I look for them to make some announcement just prior to the next CES show this spring.

Crosley Radio is another that has purposely stayed away from the HD fray. As stated in an interview with Crosely president Bo LeMastus in last month's *MT*, they're waiting to see how things develop in the industry before making a move. Finally, I look for major stereo producers such as Kenwood to introduce new products with built-in HD reception capabilities this year.

Listening to HD Radio (depending on where you live and what you can hear) is well worth the investment in a new radio. Luckily, that doesn't have to be too expensive. Even with the cheapest set you can take the output and put it into your stereo. You may not be getting the full HD sound, but you'll at least be able to listen to the multi-cast channels in your area. To find out which stations are broadcasting in HD in your area, go to **www.hdradio.com** and click on "find a station." The chart is kept up to date and includes all the stations in your state that are broadcasting in HD and are multi-casting. This will give you an idea of what you may (or may not) be missing.

See HD Radio Comparison Chart on next page.

A COMPARISON OF HD RADIOS

HD Radio sets by category in order of merit. There's no competition for the Sangean, as it's the only component model available. And, there's no competition for the Polk iSonic, because it's the most expensive thing out there and it does it all.

COMPONENT HD RADIO
Sangean HDT-1X $249 MSRP (Manufacturer's Suggested Retail Price)

Best of all HD sets in performance and features, but it's a component only. No speakers, no built-in amplifier, no CD/DVD player, no satellite radio. It's only as good as your stereo, but, on a good stereo it's great. Full review in July 2007 *MT*. Available from Crutchfield catalog store 888-955-6000

HIGH-END TABLE-TOP HD RADIOS
Polk iSonic $599 MSRP

Delivers the goods. All of them: XM/AM/FM/HD/TV/CD/DVD/MP3 with exceptional sound from clever 5-speaker arrangement. Sounds much larger than it is. Would be a superb audio system for a larger 16:9 screen computer with high speed connection and hi-rez display. Full review August 2007 *MT*. Order direct from Polk Audio 866-764-1801

MID-PRICED TABLE-TOP HD RADIOS
Cambridge SoundWorks $299 MSRP

Best audio of mid-priced sets. Would be a great desk-top audio for computer and fantastic audio in bedroom, study or living room. Full review in September 2007 *MT*. Buy direct from Cambridge SoundWorks 800-367-4434.

Sony XDR-S3HD $200-250 MSRP

Beautifully designed solid performer. Typical Sony quality and high price. Excellent audio. Full review in December 2007 *MT*. Available at a large number of retailers nationwide including Best Buy and Target.

Boston Acoustics Receptor $299 MSRP

Audio not up to BA heritage or price tag. Odd satellite speaker arrangement. Full review in June 2007 *MT*. Available direct from BA 888-627-1444

LOWEST PRICED TABLE-TOP HD RADIOS
Radio Shack Accurian $199 MSRP

Has smallest desk foot print of all. Audio is slightly better than Radiosophy HD-100. Full review in June 2007 *MT*. Available at most Radio Shack outlets.

Radiosophy HD-100 $99 MSRP

Smallest of the HD sets. Looks like it should be a portable but isn't. Very small speakers lack bass. Full review on *MT* web site. Available direct from Radiosophy 877-443-7234.