

The Case for Audio Quality and Audio Processing in Streaming Radio

The changing role of audio
processing in the radio industry

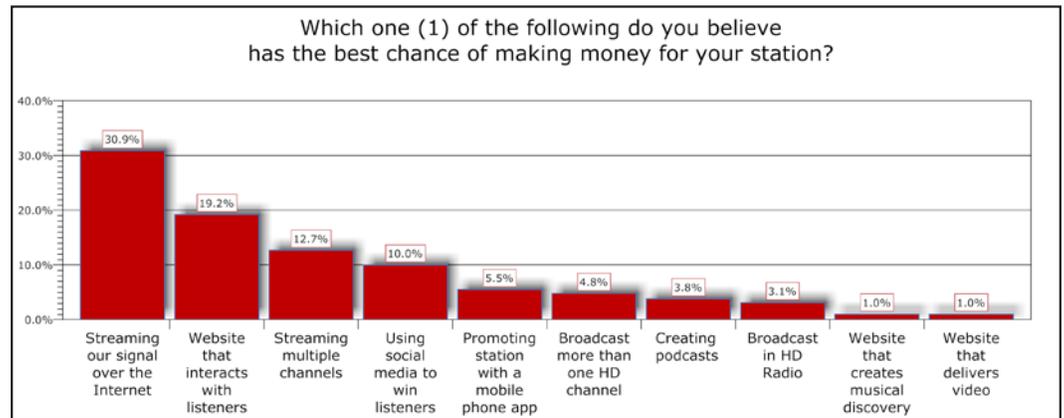
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for Wheatstone Corporation

In 2011, about 40% of the new cars sold in the United States could connect to wireless data networks, enabling drivers to listen to Internet radio stations. And that number is going up. At the January 2012 Consumer Electronics Show, Ford, Subaru and Honda [announced](#) plans to put Internet radio capability into their cars as well. Increasingly more car makers are adding these features because they are following consumer demand, especially the demand of younger car buyers.

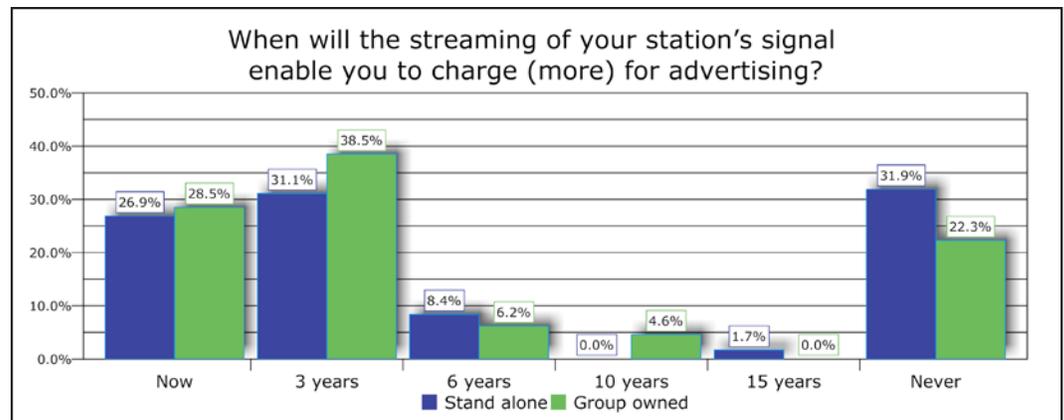
In a January 2012 [article](#), The Wall Street Journal quoted a study from Deloitte LLP which found that 59% of car buyers between the ages of 19 and 31 view in-car connectivity to the Internet as the most important aspect of a car's interior. The article summarized, "In the not too distant future, a car with a radio that receives only AM or FM will qualify as an antique." Leo McCloskey, Vice President of Marketing at Airbiquity Inc., a company that manages wireless communications for Internet connected cars, [predicts](#) that by the year 2014, "nearly all vehicles from every auto manufacturer will have a connected vehicle option." This means that within a few years, drive time, the primary ad sales engine of local radio, will be open to competition from Internet radio stations.

Currently, however, the amount of effort that stations are putting into creating their own Internet streams varies widely. While a number of stations are looking ahead and streaming their signal, many of them are doing it with little enthusiasm and minimal attention to sound quality. As Bill Tanner, owner of the radio consulting firm Bill Tanner & Associates, Inc., comments, "At one station I worked with, when I mentioned that the sound quality of their stream was off, a manager pulled up their Arbitron ratings and pointed to the fact that there were very few actual people listening to the stream. 'Why invest in it?' he asked. At another station I brought up level problems in the online stream to the staff. Because they felt very little of their income was coming from that channel, they told me not to worry -- they would take care of it, 'whenever.' It didn't get fixed for a while. Until streams become more important to stations, it might be hard to fight for quality technology to improve the signal."

The divide between stations that do and do not believe in the potential of streaming was well documented in a recent study by Alethea Research. When radio station personnel were asked which of the many new technologies they could deploy had the best chance of making money for their station, streaming led the pack by a wide margin, with 30.9% saying they thought it had the best chance of generating new revenue. But while respondents see streaming as the option with the most potential, they are less sure about when – if ever -- that potential will be realized.



When the same radio station personnel were asked how soon streaming would enable them to charge (more) for advertising, about one quarter said they could do this right now, (26.9% for standalone stations, 28.5% for group owned stations), and about a third thought they could do it within 3 years (31.1% for standalone stations, 38.5% for group owned stations). But about another third (31.9% for stand-alone stations and 22.3% for group owned stations) said they thought streaming would “never” enable a station to make more money on advertising sales. “Never” is a long time. As you can see from the chart below, this is a big divide.

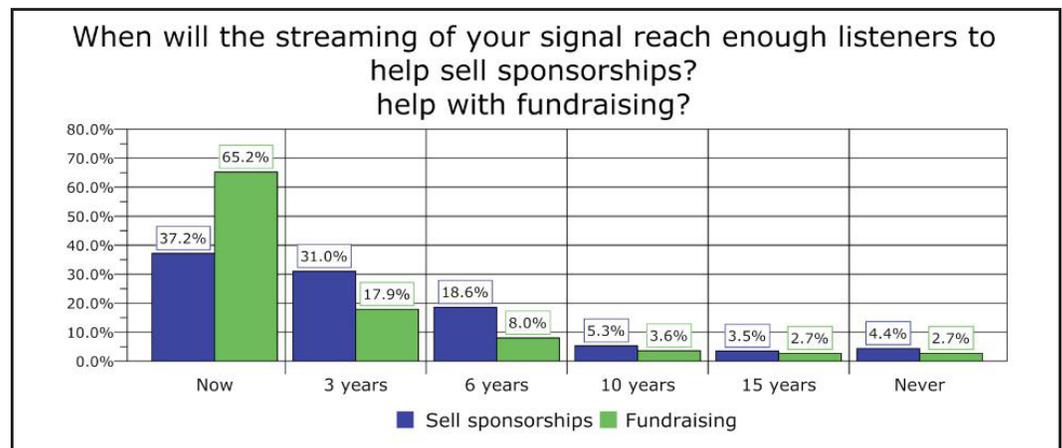


As I interviewed radio station personnel about the audio quality of their streams, I found a stark contrast between organizations that had a business rationale for streaming and those that did not. At stations where streaming could be described as a money maker, investment in sound quality was high because, in many cases, sound quality is actually more important to the business success of an online stream than it is for an over-the-air signal.

Where's the money?

Ironically, one way to see the commercial potential of streaming is in public radio. In another study by Alethea Research which asked about the monetization of technology at public radio stations, streaming was found to be an exceptional help at fund raising.

When public radio station personnel were asked how soon they would have enough streaming listeners to sell sponsorships, there were mixed results, just as in the previously mentioned Alethea study on commercial stations. At public stations, 37.2% of respondents said they have enough streaming listeners to help sell sponsorships now; 31.1% thought they would have enough streaming listeners to help within three years; 18.6% within six years, etc. However, when respondents were asked how soon they would have enough streaming listeners to help with fund raising, almost two thirds (65.3%) said "now."



To be effective at fund raising, streaming needs to reach a smaller number of higher value listeners who become donors, not the mass numbers of listeners that advertisers or sponsors are looking for. Given the extra programming that public stations typically offer online, it is natural for a station's most passionate listeners to gravitate toward Internet listening, where more programming from a station is available. What makes streaming work as a money maker is its ability to give extra value to a focused group of higher value listeners, in this case listeners who are potential donors.

Can this business model work at a commercial radio station? According to Bill Goldsmith, it can. Goldsmith is the co-owner of Radio Paradise, an online-only eclectic rock radio station with listeners from around the world. His station has been profitable for many years. He does not sell advertising and relies on contributions from listeners for all the station's funding.

When a station has a business model which targets a specific audience, unless audio quality is competitive with other programming which targets the same audience, listeners will be lost. For this reason, Goldsmith pays careful attention to audio quality. He reports, "Our sound quality is one of the reasons we are as popular as we are. This is one of the consistent reasons listeners give us for tuning in, second only to the selection of music

we play. We often get the comment that our station sounds better than their iPod music library does. In most cases that's true because we take really great care in encoding our streams and we do a significant amount of dynamics processing."

Some stations are finding value in streaming even when it does not directly contribute to media sales. Paul Maloney, editor of RAIN: Radio And Internet Newsletter, explains: "Many local stations, which have small streaming audiences, use it as branding for the station and a way to deliver extra programming to listeners." Maloney gives these examples:

- If listeners like a morning show, it can be streamed as a loop throughout the day
- If listeners are in an office without good over-the-air reception, they can listen to the station online
- Extra programming (for example, more in-depth interviews, etc.) can be streamed
- If listeners are out of town they can listen online
- Stations can post videos of what's going on in the studio

Continues Maloney, "With this model, the stream itself is just a small part of extending the broadcaster's brand online. All of this drives a social media program which can help engage more listeners." More listeners equal higher ad rates.

Some believe that this social part of radio can be used as incentive to sell advertising. Because radio is on during the day in offices and homes, it has a unique opportunity to drive social interaction. Live radio has always looked to interact with listeners using call-ins and contests. Now, social and electronic media provide avenues to expand this kind of interaction. DJs can encourage listeners to Tweet, text, and post on Facebook. When listeners are in front of an office or home computer they can easily send email or visit a station's web pages. When this kind of interactivity is documented and presented to media buyers it becomes evidence of customer engagement, which they highly value in today's crowded media markets.

In a recent issue of Media Life Magazine, an online publication for media buyers, Bill Cromwell [writes](#), "Radio is really the original social medium. It has always had a close connection with listeners, through on-air promotions delivered by DJs to remote broadcasts that highlight local events and businesses.

At a time when traditional radio is worried about the threat of online music services like Pandora, social media has actually given radio a chance to strengthen those community ties and emphasize the personal nature of radio that online music services cannot replicate."

Mark Ramsey, president of MRM, a media research and strategy consulting company, encourages stations to develop a more direct strategy for making money: "Many stations are just streaming because they think they need to be streaming, but have no revenue model associated with it. Why would you stream to just one person unless you have a model which allows you to monetize what you're doing?" He challenges his clients to think outside the box and consider opportunities beyond just streaming their existing over-the-air signal: "The question isn't, 'should I stream my station or not,' the question is, 'am I in the business of providing audio content to people regardless of the channel in which it's provided'."

Ramsey advises his clients to start with a clean sheet of paper and come up with a streaming business plan: "Stations are doing many things -- some have Christmas channels, some will loop their morning shows. But everything should flow from some kind of a business logic which takes into account what marketplace opportunities are, what strengths and weaknesses of the radio brand are, what assets you have at your disposal, how much you want to invest, and what your competitive advantage is."

Gary Kline, Senior VP of Engineering at Cumulus Media, cautions that a streaming plan needs to extend beyond technology: “Just implementing technology does not assure profitability. None of these technologies will make money for your station unless they are combined with the right tools to monetize them. You need to have the right people, resources, technology training, sales training, and company-wide education. For example, what good is a large investment in streaming going to do for you if your sales force is not prepared to properly sell or monetize it?”

Winning streaming listeners with audio quality

When a station has a business plan to monetize its stream, part of the plan is to identify a target audience. Because there are competitors for every audience, audio quality and audio processing of the stream can be optimized to compete against them. Says Bill Tanner, “A question a station manager should ask, as cars get more Internet savvy and listeners spend more time on services like Pandora is, ‘How will my streamed signal sound when it is stacked against those of Internet services?’ If the same song sounds better on one stream over another, listeners will migrate to it. This is true with local over-the-air-radio, but with Internet radio there is a big difference. Instead of having a few local stations to compete, there can be hundreds of competing streams.”

Larry Langford, Chief Engineer and Owner of WGTO AM-FM, suggests that audio processing can help a station’s stream sound better than some online services: “When you listen to Pandora, you listen to anything that you want to pick, so the processing has to accommodate many formats. We tune our processing to match the music format and era we are playing. With a broad based service it will be harder to process for each particular music style.”

According to Bill Goldsmith, the need to be competitively loud is much less important with streaming because listeners are not set up for the kind rapid button punching that over-the-air radio tuning has: “With less side-by-side station comparisons, having the biggest sound on the dial is less important,” explains Goldsmith. “We do not use aggressive multiband clipping or hard limiting that an FM station might use because our goal is not to be loud, but to provide a really good sounding clean signal -- a signal not inferior in any way to an FM signal.” But some things Goldsmith does are similar to traditional radio: “We do the same things as an FM station to achieve consistency from song to song. A lot of our station’s listeners are at work, so the AGC action of our processing makes it less likely that something is going to suddenly jump at them or that the sound will disappear into the ambient noise.”

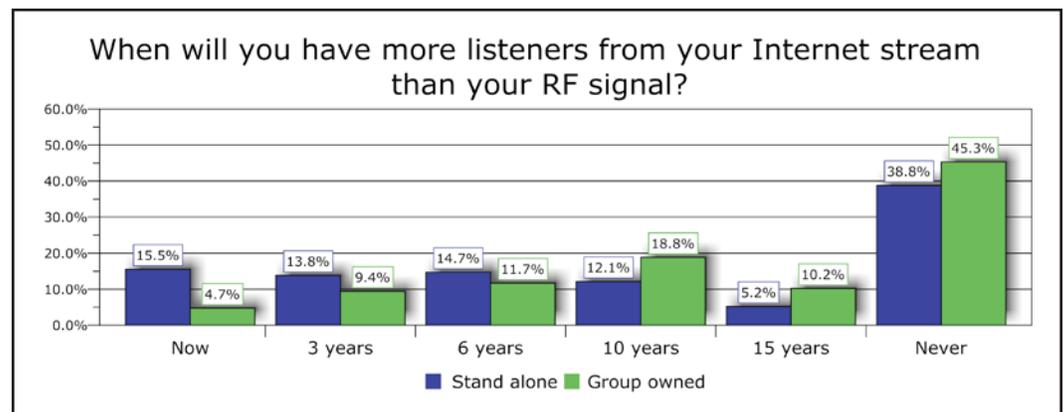
The good news with processing a streamed signal is that there may be less background noise to overcome. Says Larry Langford, “If you are listening to an FM signal on the edge of a station’s coverage area there could be a co-channel interference. You can increase loudness to reduce that effect. But if you are streaming with a decent speed, you are pretty much dealing with a clean plate. You will not need loudness to work against background noise. This can give more latitude to think about the texture and feel of the sound, freeing you up to work more on the dynamics of the sound and achieve the best quality sound for your format.” Because a lot of streaming is listened to in offices, he advises that processing should be adjusted for longer listening sessions: “With streaming, it is very important to process for high TSL [time spent listening]. Because you want listeners to set to your station and leave it there, processing should be adjusted so there is as little listener fatigue as possible. I would go for a smooth sound rather than edgy and loud, so people listen longer.”

According to Joshua Pierce, Chief Engineer at Blue Ridge Broadcasting/Media Tech Inc., his facility sends out two streams which are processed differently, one for computer listening and one for mobile devices: “Our assumption is that our mobile stream is being listened to through external devices, such as car sound systems, so we process for more dynamic listening. By contrast, our stream for computer listening is processed with the assumption that it is being played on small computer speakers.”

Competitive pressure affects the use of processing. In Finding #2 we saw how larger market stations put more emphasis on loudness than stations in smaller markets. Here we see similar motivation, as stations in larger markets feel they must adjust processing more often to stay ahead of the competition.

A look ahead

As radio personnel look to the future, they see streaming gaining listeners at a slow but steady rate. However, as we see in the chart below from the Alethea study of radio station personnel, few believe their station will have more online than over-the-air listeners in the near future; in time, however, the forecast changes. If we add the number of respondents between now and 15 years from now who forecast more online than over-the-air listeners, we see a majority. After 15 years, the total for stand-alone stations is 61.3%; for group owned stations, 54.8%.



In this chart we see a number of pioneering radio stations who are “Now” making money at streaming (15.5% for stand-alone stations and 4.7% for group owned). Some are targeting their most enthusiastic listeners for extended engagement, some are targeting a local audience of higher value listeners, and some are targeting a national or international audience by offering a unique programming format. Many of the pioneers profiting from streaming today take advantage of its ability to target audiences economically anywhere in the world.

Today, revenue from streaming may represent a small percentage of overall radio industry revenue, but streaming revenue is growing significantly faster than over-the-air revenue. According to BIA/Kelsey, in 2011, national over-the-air ad revenue grew by a modest 1.2% over the year prior, while the digital/online segment grew by 15%. BIA Kelsey forecasts 2012 will follow a similar pattern. Taking into account a year with a national election, over-the-air revenue will rise 3.5% over 2011, while online revenue will rise by 15.1%. As revenue builds, so will the importance of investing in the sound quality and processing of streaming.

While we might not be able to predict exactly how the future of radio will unfold, we can get a good idea of what it will look by examining how young people are using the medium today. Eventually, their listening habits will shape the market. Consider these recent news items:

- A recent [study](#) by Nielsen reports that Pandora has become the 7th most actively used Android app among 18 to 23 year olds, 8th among 25 to 34 year olds, and 13th among 35 to 44 year olds. Younger listeners are more digitally oriented. The younger the listener, the more traction with Pandora.
- An [analysis](#) of the July 2011 Arbitron ratings compiled by Edison Research showed that in the 18 to 34 year old demographic, Pandora's listening scores were higher than any terrestrial radio station in all of the five largest U.S. radio markets.
- The beginning of this report a Deloitte LLP [study](#) was cited which found that 59% of car buyers between the ages of 19 and 31 view in-car connectivity to the Internet as the most important aspect of a car's interior.

Looking ahead, every station will need to find a way to profitably coexist with the Internet. But the clock is ticking. In about two years, Internet radio will be a part of every new car's dashboard. A few years after that, younger listeners, with their more digital orientation, will become more prominent customers of every advertiser. While profits from streaming are starting low for many, there are some pioneering stations and services finding them now. The key is to use streaming to target and service an audience better. Whenever an audience is targeted, audio quality must be maintained at competitive levels to ensure that listeners don't slip away to other media competitors.

The charts in this study came from two studies conducted by Alethea Research which were sponsored by Wheatstone Corporation. Both studies can be downloaded for free from the Wheatstone website at [this link](#).



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This report was researched and written by Josh Gordon, President of [The Strategic Content Group](#), a market research and consulting firm which helps companies increase sales through marketing services and increasing customer understanding.