RDS Tagging

In September 2007, iBiquity Digital Corporation, developers of the HD Radio in-band/on-channel digital radio system, announced the roll-out of "iTunes tagging" technology, providing radio listeners who have iPods a new, easy way to purchase songs they hear on the radio. iTunes tagging relies on the data broadcasting capabilities of the HD Radio system, which make it possible for broadcasters to send a unique numerical identifier to receivers along with every song, as well as the song title and artist information which listeners can see on the receiver's display.

Now, a similar capability has been developed for analog FM radios utilizing the Radio Data System (RDS) data subcarrier used by many broadcasters to broadcast song title and artist information to RDS-capable receivers. Called "RDS tagging," Microsoft last month announced that Zune portable media players, which have built-in FM receivers, will support RDS tagging and that users will be able to tag songs they hear on their Zune FM radios for purchase (a copy of the Microsoft press release is available on the Zune Web site at www.zune.net/en-us/press/2008/0908-fall2008.htm).

According to press reports, nine broadcast groups have indicated their intention to broadcast RDS tagging information: Beasley, Bonneville, CBS Radio, Citadel, Clear Channel Radio, Cox Radio, Emmis, Entercom and Greater Media. Clear Channel was the first on-the-air with RDS tags, on over 450 stations. So far, only the Zune device can make use of RDS tagging information but other devices are under development.

One of the newest Zune players is shown in the photograph, operating in FM receiver mode, and demonstrating how this new capability looks. When a listener hears a song they want to tag (note the song title and artist information on the Zune display, beneath the tuner "dial") they press the large button and the display changes to what is shown in the inset. The first choice on this new display is "add to cart" and when selected, the song is "tagged."

If the Zune is within range of a Wi-Fi Internet connection, then the song can immediately be purchased and downloaded into the player. This particular capability was recently demonstrated at The NAB Radio Show and the entire process, from hearing and tagging the song, to purchasing it then downloading it, was actually completed before the selected song had finished playing on the radio! If there is no Wi-Fi network available, then tagged songs can be purchased the next time the Zune is connected to the Internet through a PC.
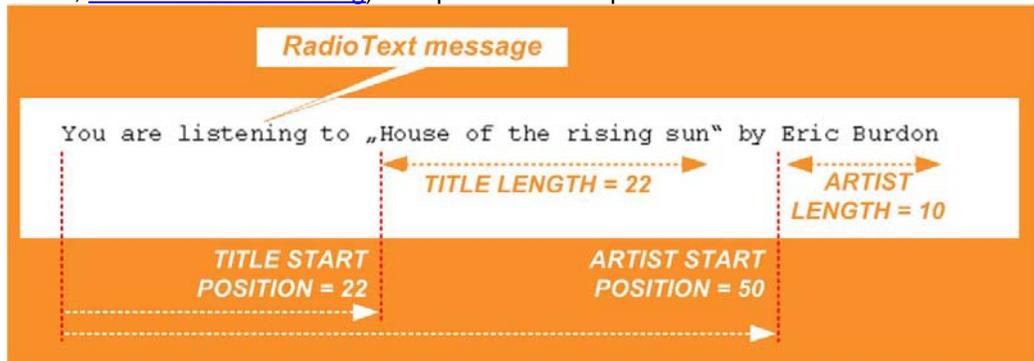
RDS tagging makes use of an RDS feature called "Open Data Application" (ODA). RDS tagging is just one of many ODAs (a list of ODAs is available on the National Radio Systems Committee Web page at www.nrscstandards.org/RBDS/RDS%20ODA%20AIDs.pdf). A code ("the ODA ID"), unique to the RDS tagging ODA, is included in the broadcast RDS data stream; when an FM radio that supports RDS tagging receives this code, it knows that song tag information will follow. Zune players sold from this point forward will all have the RDS tagging technology included, and Microsoft has released a software update for earlier models of Zune

which will upgrade those earlier models with RDS tagging functionality (this update is available online at www.zune.net/en-us/products/zunesoftware/download.htm).

These RDS tagging receivers also make use of a new RDS feature called "RadioText Plus" which is an enhancement to the RadioText feature that is often used by broadcasters for sending song title and artist information over an RDS subcarrier. RadioText Plus allows the receiver to "understand" the information being sent in a RadioText message by identifying specific portions of the RadioText message as individual objects. This will allow receivers to implement advanced display features which, for example, can consistently place song title and artist information in a particular place on the display, or allow for a more seamless transition between RDS and HD Radio displays in HD Radio receivers which are blending between analog and digital.

An example of how RadioText plus is used to identify objects, taken from the RadioText specification, is shown in the diagram below for the RadioText message "You are listening to 'House of the Rising Sun' by Eric Burdon." The RadioText Plus information corresponding to this message would identify two objects, song title and artist, by the start position and length (in number of characters) of each object (as shown in the figure). RadioText Plus is currently being incorporated in the European RDS Standard (IEC 62106, maintained by the International Electrotechnical Commission, Geneva, Switzerland, www.iec.ch), and the National Radio Systems Committee (NRSC, www.nrscstandards.org) is expected to incorporate it into the U.S. version of the RDS Standard, NRSC-4 (called the "U.S. RBDS Standard") in 2009. Additional information about RadioText Plus is available in an EBU Technical Review article entitled "RadioText Plus: a new enhancement to the RDS RadioText Service," online at www.ebu.ch/en/technical/trev/trev_307-radiotext.pdf.

The FCC Adopted Computer Modeling for AM Antenna Proof of Performance on September 24, 2008

Attend NAB's AM Antenna Computer Modeling Seminar and Learn How It's Done

Computer modeling for AM Antenna proof of performance was adopted by the FCC on September 24. To learn the basics needed to utilize modeling software, such as MININEC and nodal analysis – used for designing performance-optimized AM directional antenna phasing and coupling systems and proving the performance of directional antenna patterns –- plan on attending NAB's AM Antenna Computer Modeling Seminar in Washington, D.C. November 20 and 21.

You will learn about:

- Moment Method Modeling Basics
- DA Proofing Using Moment Method Modeling
- Overcoming Limitations of Using Field Strength Measurements for DA Proofs
- State of the Art in Phasing System Design Nodal Analysis of AM DA Phasing and Coupling Systems
- Pattern Design Considerations for Optimum Performance

AM antenna experts Ron Rackley and Ben Dawson, along with antenna modeling software specialist Jerry Westberg, will lead the seminar demonstrating how moment method modeling makes analysis of actual tower current distributions possible and how a model can be used to proof an array provided the proper criteria are considered. All instructors are well known in the radio industry as experts in the field of directional antenna

design and maintenance. Their decades of experience offer station engineers an opportunity to learn techniques, tips and tricks that can be immediately useful.

Seminar fee: $395.00 (NAB members) and $495.00 (non-members). For more information on the curriculum, how to register or housing go to AM DA Seminar on the NAB Web site or call Sharon Devine at (202)-429-5338. Register now for the NAB AM Antenna Computer Modeling Seminar!

Share Your Expertise with Your Fellow Engineers
Deadline Extended for 63rd NAB Broadcast Engineering Conference
Call for Papers

The NAB Show will host the 63rd NAB Broadcast Engineering Conference (BEC) on April 18 – 23 at the Las Vegas Convention Center in Las Vegas, Nev. This world-class conference addresses the most recent developments in broadcast technology and focuses on the opportunities and challenges that face broadcast engineering professionals around the world. The BEC is a highly technical conference where presenters deliver technical papers ranging over a variety of topics relevant to the broadcast and allied industries. We invite you to submit a proposal to present a technical paper at our conference. The deadline for submitting your proposal is **October 27, 2008**.

To submit a technical paper proposal, click here and complete the electronic form. If you have questions regarding the NAB Broadcast Engineering Conference, please contact John Marino.