



HD Radio EPG Lab and Field Trial Report Released

NAB, through its FASTROAD (Flexible Advanced Services for Television and Radio On All Devices, www.nabfastroad.org) technology advocacy program, has been funding the development and testing of an Electronic Program Guide (EPG) “ecosystem” for radio using HD Radio data broadcasting technology. The final report for Phase 2 of this project was recently released and presents the findings of EPG lab and field trials which were conducted throughout 2009, culminating with on-air demonstrations in the Boston, Providence, R.I. and Worcester, Mass. radio markets. This report is available for download free-of-charge on the FASTROAD Web site.



BIA/Kelsey (Chantilly, Va., www.bia.com) and Broadcast Signal Lab (Cambridge, Mass., www.broadcastsignalab.com) were managers for this FASTROAD project, working with partners Unique Interactive (London, UK, www.uniqueinteractive.co.uk) who developed EPG service bureau and client software, and consumer electronics manufacturer Cydle Corp (www.cydle.com) who developed a prototype HD Radio device with EPG capabilities (see photos below). iBiquity Digital Corporation (Columbia, Md., www.iBiquity.com) was also involved, providing extensive support for both transmission and reception aspects of the system.

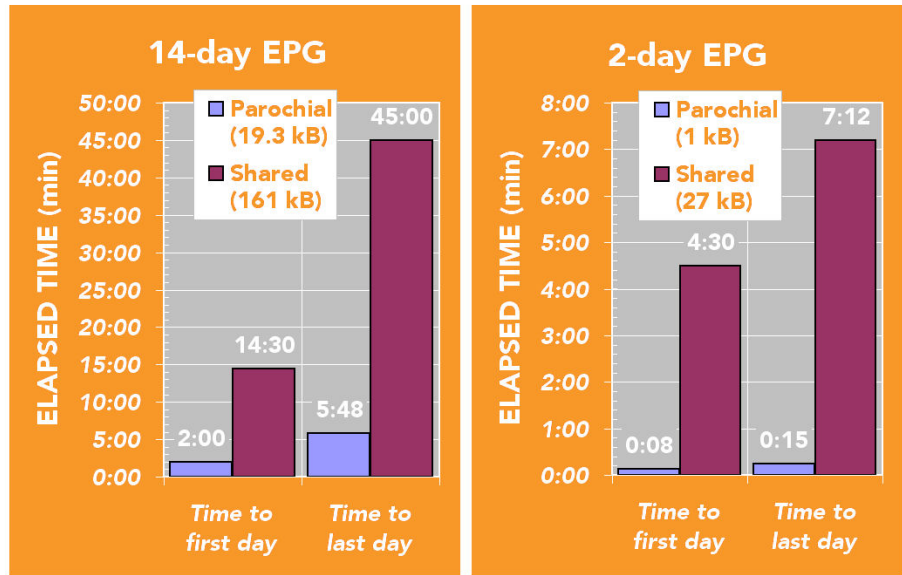


Previously (in Phase 1 of the project), this same development team described the requirements and a proposed architecture for an HD Radio-based EPG service. The results of this earlier phase are summarized in a report entitled “HD Radio EPG Project: Business Requirements and Use Cases,” also available for download free-of-charge from the FASTROAD Web site. The Phase 2 report concludes that a radio EPG service is indeed a viable option for U.S. radio, and presents recommendations for how to best and most quickly implement it. Detailed in the report are methods for transmitting EPG data over HD Radio broadcasts and via Internet delivery (including to mobile devices).

Also included is detailed information on the EPG field trials, conducted in the Boston/Providence/Worcester markets in the summer of 2009, and culminating in a remote real-time demonstration of the Boston-area EPG system on the exhibit floor of the 2009 NAB Radio Show in Philadelphia (see the [September 14, 2009](#) and [September 28, 2009](#) issues of *Radio TechCheck* for additional information on the NAB Radio Show demo). Radio stations owned by Greater Media, Clear Channel, Citadel, CBS, Boston College, Emerson

College and the University of Massachusetts Boston actively participated in the field trials. Three adjacent Arbitron markets were selected as the trial location in part because this triple-market area provided a geographically compact example of the overlapping service areas of stations in adjacent markets, which presents a challenge for EPG system design. The selected markets also represent the scope of market sizes in the nation – large, medium, and small.

As part of the field trial experiments, EPG information for various EPG schedule lengths (2-or 14-day) and various numbers of stations (a single station i.e., the “Parochial” model, or shared-station data, for many stations in a market) was sent and the length of time required for a receiver to obtain this information was observed. The graphs illustrate some of the results for an EPG transmission rate of 1.7 kbps (i.e., an HD Radio data channel capacity of 1.7 kbps was used for EPG data; this is the minimum bit rate that can be used). Each graph shows the length of time required to transmit the first day of EPG information and the time to transmit the entire EPG file (“time to last day”), for both Parochial and Shared cases. Shown in the legend is the size of the data file which was sent for each case. Other tests were also performed for the shared-station case (not shown in the graphs) for transmission rates varying from 3.4 kbps to 32 kbps.



In very general terms, the Shared data transmission for two days of EPG data took similar amounts of time to deliver as 14 days of Parochial data for one station. Note that for this test, the Shared model trials consisted of listings for 55 program services on 32 FM stations (32 main plus 22 supplemental services) and 1 AM station. The project team welcomes comments and/or questions on any of this work and asks that they be sent to Rick Ducey, BIA/Kelsey’s Chief Strategy Officer, at rducey@bia.com.

A paper on the EPG project will be presented at the upcoming NAB Broadcast Engineering Conference (BEC) by David Maxson, Managing Partner, Broadcast Signal Lab. This paper, entitled “Electronic Program Guide Field Trial: How HD Radio EPG Works,” will be given on Sunday, April 11, 2010 at 10:30 a.m. in room S226 of the Las Vegas Convention Center. Additional information on the BEC is on the NAB Show Web site at www.nabshow.com (click on “Education” then look for “Broadcast Engineering” at left).

2010 NAB Broadcast Engineering Conference Summary of Presentations

Check out the [papers](#) that will be presented at the 2010 NAB Broadcast Engineering Conference in Las Vegas, April 10 –15, 2010.

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