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European broadcasters gauge digital radio alternatives

Michael Hedges January 1, 2008

Mounting interest in Europe for HD Radio is encouraging its supporters. The formation of the European HD Radio Alliance and growing participation in strategy round-tables show that broadcasters digital interest is leading to digital strategies. More than 200 broadcasters attended the two-day HD Radio conference in Lucerne, Switzerland to chart concrete steps for a way forward.



Organized by Markus Ruoss, one of Europe's leading digital broadcasting technical experts, and supported by iBiquity, the Swiss broadcasters association and the Swiss media regulator (Bundesamt für Kommunikation –

BAKOM) HD Radio Days, held in early October, offered results of technical testing meant to resolve nagging questions about HD Radio's capacities and viabilities in Europe.

All testing described at the conference was conducted in Switzerland, much of it in and around the Lucerne area where a HD radio platform has been established by Ruoss with the radio station he owns, Radio Sunshine. Energy Zürich (NRJ Group) also contributed technical assistance in the testing, providing content for the 'second' 48kbs digital channel.

Ruoss introduced his round of testing results by reminding the audience that the FM systems used now for decades are "still very good overall." The objective for HD Radio is to make "98% of radio listeners happy. Real world listeners listen to music and content, in real world environment, not decibels or kilocycles."

"Most technical arguments why HD Radio does not work in Europe have either been proven wrong, solvable by operational introduction or not relevant for the commercial radio listener."

The remaining technical issue "seems to be +/- 200 KHz interferers in the fringe and overspill area of actual FM networks," he added.

The basis for the testing environments was determining acceptable interference levels with on the market FM

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Digital future or rainbows end?

Digital radio has made exciting advances over the last decade, leaving little doubt of a digital future. Broadcasters have invested in a range of technologies, which continue expanding into their own universe. A UK consultancy has taken exception to all the happy talk.

Don't Touch That Dial

Broadcasters have long cast a wary eye toward the digital realm. Even with grudging acceptance that 'the world is going digital' the unease is endemic. And the answers from consumers only reinforce every digital fear.

Digital milestones and millstones

As summer began digital broadcasting passed a significant milestone. The UK's last analogue FM license was issued in May. When the license for GCap's XFM in South Wales expires in 2019 digital radio broadcasting in the UK will be the dominant broadcast platform.

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receivers. Referring to the receiver study conducted by BAKOM, Ruoss observed, "FM receivers are very different."

For a variety of technical, geographic and jurisdictional reasons FM radio coverage in Europe is achieved with many transmitters, translators and repeaters. For example, Ruoss calculates that Radio Sunshine will require 3 to 4 sites for 80% coverage and 8 to 12 sites for 98% digital coverage. The stations' current analog coverage requires 15 transmitters.

For testing indoor reception and interference Ruoss selected two sites, one on the fringe of the Radio Sunshine coverage area – 12 km from the primary transmitter site – and the other in the Lucerne city center – "with a lot of man made noise." Test subjects were recruited through an on-air Radio Sunshine promotion.

From this testing phase, Ruoss concluded, "where FM (reception) is good, HD Radio is also good. DAB faces the same limitations as FM and HD." But he also noted that FM reception deep inside buildings is not "as good as we think."

Radio Sunshine listeners' personal cars were outfitted with either JVC or the Visteon Jump receiver. Test subjects were encouraged to drive "all around" central Switzerland. Ruoss said all HD Radio testers were "enthusiastic" about digital robustness. "Everybody likes HD Radio's ease of use."

A separate test, using a specially equipped BMW automobile, was conducted on a Swiss Air Force base runway to attack an often heard criticism that HD Radio cannot be received in a car traveling faster the 100 miles per hour. At 227 kilometers per hour (roughly 140 mph), according to Ruoss, HD reception was "just fine."

Hans-Ulrich Rohrbach presented a quite different test conducted for comparing HD Radio induced interference levels among a variety of receivers in a laboratory environment. "The main focus," said the BAKOM technical consultant, "was on modern receivers measured with HD Radio signals compared to FM signals."

Receivers used in the testing were categorized first by FM reception characteristics. Simply put, receivers ranged from 'micros' to 'car radios' to 'vintage 1980's home stereo FM tuners' to 'HD Radio receivers.' Reception interference was measured against ITU standards. Car radios and HD receivers showed the best performance. The suggested car radio performed well because "they are built for the most adverse conditions."

"Modern car receivers showed far less noise than expected," he added.

Micro HiFi receivers, perhaps characterized as cheap and old, showed the weakest performance. The 1980's home stereo tuner "had problems with an HD signal as host."

"Results," he said, "show a large variation among receivers tested." BAKOM is proposing further testing on up to date car receivers.

Verbandes Schweizer Privatradios (VSP) president Jürg Bachmann, recently elected chair of the European HD Radio Alliance, addressed the other realities of HD Radio implementation in Europe. He, like most other speakers and conference participants, believe HD will 'arrive' in Europe within months not decades.

One of the paradigm shifts is the relationship between HD Radio and DAB. Local private sector broadcasters, said Bachmann, are drawn to HD-R for cost advantages while public broadcaster SSR-SRG has invested in the exclusivity of DAB and DAB+ for its regional channels. SwissCom Broadcast has a virtual monopoly as analogue transmission system provider.

HD Radio's advantage for European broadcasters is accessibility, said Bachmann, until recently Managing Director at Radio Energy Zürich. "It's a tested technology, which doesn't have to be developed from the beginning, only adapted for Europe."

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