

Europeans Look at HD Radio

By Michael Hedges

LUZERN, Switzerland The mounting interest in Europe for HD Radio is encouraging for supporters of the in-band, on-channel digital radio technology.

The formation of the European HD Radio Alliance and growing participation in strategy roundtables show that digital interest is leading to further digital discussions.

More than 200 broadcasters attended the two-day HD Radio conference, held here in Luzern, 4–5 October, to chart concrete steps for a way forward.

Nagging questions

Organized by Markus Ruoss, an early adopter and proponent of HD Radio, and supported by iBiquity, by the Verband Schweizer Privatradios (VSP) broadcasters association and by BAKOM, the Swiss media regulatory, HD Radio Days offered results of testing meant to resolve nagging questions about HD Radio capacities and viabilities in Europe.

All the testing discussed took place in Switzerland, much of it in the Luzern area, where Ruoss established an HD Radio platform for the radio station he owns, Radio Sunshine.

NRJ Group station Energy Zürich also contributed technical assistance for the tests, providing content for the multicast second channel, which occupied 48 kbps of the digital signal.

Ruoss introduced his test results by reminding the audience that the FM systems used now for decades are still “very good” overall.

The objective for HD Radio, said Ruoss, is to make “98 percent” of radio listeners happy. “Real world listeners,” he said, “listen to music and content in a real world environment, not decibels or kilocycles.”

According to Ruoss, most technical arguments on why HD Radio does not work in Europe have either turned out to be 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,” Ruoss said.

Testing environments

The basis for the testing environments was determining acceptable interference levels with on-the-market FM receivers. Referring to a receiver study conducted by BAKOM, Ruoss said that FM receivers are “very different.”

For a variety of technical, geographic and jurisdictional reasons, FM radio coverage in Europe requires many transmitters, translators and repeaters.

For example, according to Ruoss, Radio Sunshine will require three to four sites to achieve 80 percent coverage and eight to 12 sites for 98 percent digital coverage. The current analog coverage of the station requires 15 transmitters.

For testing indoor reception and interference, Ruoss selected two sites: one on the fringe of the Radio Sunshine coverage area — 12 kilometers from the primary transmission site — and the other in the Luzern city center, with a lot of “man-made” noise.

Recruitment of test subjects was by means of an on-air Radio Sunshine promotion.

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

The cars of Radio Sunshine listeners were equipped with either a JVC receiver or the Visteon HD Jump receiver, with test subjects encouraged to drive all over central Switzerland.

Ruoss said all HD Radio testers were “enthusiastic” about digital robustness. “Everybody likes HD Radio’s ease of use.”

Digital robustness

A separate test, using a specially-equipped BMW automobile, took place on a Swiss Air Force base runway to attack an often-heard complaint that it is not possible to receive HD

Radio in a car traveling faster than 160 kilometers per hour. At 227 kilometers per hour, according to Ruoss, HD reception was “just fine.”

Hans-Ulrich Rohrbach, a consultant to BAKOM, presented a quite different test conducted to compare HD Radio-induced interference levels in a variety of receivers in a laboratory environment. The main focus 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 1980s” home stereo FM tuners to HD Radio receivers.

Measurement of reception interference was against ITU standards. Car radios and HD Radio receivers

showed the best performance. According to Rohrbach, the car radios performed well because they are built for the most adverse conditions. “Modern car receivers showed far less noise than expected,” he said.

Micro hi-fi receivers, perhaps characterized as cheap and old, showed the weakest performance. A 1980s home stereo tuner had problems with an HD Radio signal as host.

“Results,” said Rohrbach, “show a large variation among receivers tested.” BAKOM is proposing further testing on up-to-date car receivers.

VSP President Jürg Bachmann, recently elected chair of the European HD Radio Alliance and, until recently, managing director of Energy Zürich, addressed the other realities of HD Radio implementation in Europe.

According to Bachmann, agreeing with most other



Jürg Bachmann, Konrad Volanthen (OFCOM), Markus Ruoss and Perry Priestley (iBiquity)

speakers and conference participants, HD Radio will arrive in Europe within months not decades.

One of the paradigm shifts is the relationship between HD Radio and DAB. HD Radio, according to Bachmann, is the “overwhelming” digital radio platform choice of local and regional broadcasters, while national, largely public broadcasters prefer the DAB and DAB+ platform.

The advantage of HD Radio for European broadcasters, said Bachmann, is accessibility. “It is a tested technology, which does not have to be developed from the beginning, only adapted for Europe.”

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