LMK
Landeszentrale für
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First technical basis towards digitization of VHF FM broadcast radio service has been created

Final report from the University of Applied Sciences of Kaiserslautern is available

Ludwigshafen, Nov. 13, 2007
For the first time, the German State Media Authority of Rhineland-Palatinate (Landeszentrale für Medien und Kommunikation - LMK) and the University of Applied Sciences of Kaiserslautern have published their final report on the results obtained from exhaustive laboratory measurements about the interference potential of DRM+ and HD-Radio™ into existing radio services. As a result, green light was given for field trials with these systems in Germany.

In the debate on future digitization of the VHF FM broadcasting service, two competitive systems are being discussed at the moment, namely DRM+ and HD-Radio™. Both systems, however, may not be used in Germany because there has not yet been evidence about appropriate technical parameters to operate these systems with existing radio services in an interference-free manner.

Since February 2007 the University of Applied Sciences of Kaiserslautern had evaluated the interference potential of both systems into the existing VHF FM broadcasting service as well as into the adjacent radio services, i.e. aeronautical radio navigation services and radio services for public authorities and organizations with security tasks (BOS). Engineers from the German Federal network Agency (BNetzA) supported the measurements and confirmed their correctness.

The measurement assignment was given to the University of Applied Sciences of Kaiserslautern by the LMK, which also worked responsibly for the Directors' Conference of the German State Media Authorities (DLM). The following results were obtained:

- HD-Radio™ has been standardized for the US market and does not comply with the transmitter mask defined for ITU Region 1. Therefore, regular use in Germany is formally impossible. Technically spoken, HD-Radio™ is principally compatible with the VHF FM broadcasting scenario, whereby interference occurs right in the 200 kHz frequency offset.
- DRM+ fulfils with the transmitter mask defined for ITU Region 1. With a bandwidth of slightly less than 100 kHz, it fully complies with the European 100 kHz frequency grid. Therefore, DRM+ can be used to migrate existing analogue VHF FM stations as well as to introduce new

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digital stations in the VHF FM broadcasting scenario. The DRM+ ETSI standard will be finished in 2008.

- The radio services of the public authorities and organizations with security tasks, which use the frequency range just below the VHF FM band, is not interfered by either system. Also, the aeronautical radio navigation devices, operating in the frequency band right above the VHF FM band, are not affected. Yet, the operators running the aeronautical radio services have 'basic' doubts that the aeronautical radio navigation services could be interfered and therefore categorically reject the use of these systems.

On the basis of the technical data of the final report, the German Federal Network Agency has granted licences for upcoming filed trials which will be run during the following periods:

- DRM+ field trial in Hannover from Nov. 20, 2007 to Feb. 29, 2008
- HD-Radio™ field trial in Heidelberg from Dec. 1, 2007 to Feb. 29, 2008
- DRM+ field trial in Kaiserslautern from March 1, 2008 to May 31, 2008, following the HD radio trial.

Joachim Lehnert, technical director of the LMK, is satisfied that the cooperation between partners from the Rhineland-Palatinate and other committed parties from all over Germany succeeded in proving that digitization of the public radio broadcasting services in the European VHF FM band is basically possible from a technical perspective. Ultimately, planning guidelines for digital broadcast services need to be developed in order to ensure a regular coexistence situation in the medium-term. During this process, the validity of seemingly outdated VHF FM planning guidelines, introduced several decades ago, should also put to the test. In the report, first approaches regarding this issue are outlined.

Prof. Dr.-Ing. Andreas Steil and Felix Schad (University of Applied Sciences of Kaiserslautern), who responsibly conducted the laboratory measurement campaign and who will carry out the field trial in Kaiserslautern, see the unique chance to complement the results already obtained with the field trial results, and thus, to significantly contribute to the standardization process of DRM within ETSI during the next year.

Lehnert and Steil confirm that the field trial as well as the continuing work in 2008 will be carried out in the proven partnership between the LMK and the University of Applied Sciences of Kaiserslautern, also including the Technical University of Kaiserslautern.

Further information about this project can as well as the final report can be found in electronic format (pdf file) under http://www.fh-kl.de/~drm.

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