

## EXECUTIVE SUMMARY

Even though the satellite digital radio service has been available for several years in many areas around the world, there is not such a service available in Europe yet. However, it seems that this situation will change soon, as there are several projects to offer a satellite digital radio service in Europe.

This document gives an overview of the current state of satellite digital radio in Europe.

Chapter 2 describes the characteristics that are unique to satellite radio when compared to terrestrial radio, either analogue or digital. Despite of the fact that they both implement the same service, there are some differences that must be considered. The first one is the business model, which in traditional radio is based on the income from advertising whereas in satellite radio is based on the subscription fees, with few or no advertising. Market competition is also different: in traditional radio, stations compete individually with each other, whereas in satellite radio competition is based on packages of programmes. The global coverage provided by satellite affects also to the nature of the programmes, which in traditional radio usually have a strong local or regional focus.

Chapter 3 analyzes the services currently available, which are five. In order of appearance, WorldSpace operates in Africa and south and southeast of Asia; XM Satellite Radio and Sirius Satellite Radio in USA and Canada, MobaHO! in Japan and S-DMB in South Korea. The last two are really mobile television services but they offer some radio programmes as a secondary benefit, so they are described with less detail.

The service that are analyzed with greater detail are XM and Sirius, because they present the greatest similarity to what could be a satellite digital radio service in



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Europe. Both operate in the 2.3 GHz band, with a bandwidth of 12.5 MHz, and use an hybrid system with terrestrial repeaters for areas which do not have a direct line of sight to the satellites (usually urban areas). XM uses two geostationary satellites, whereas Sirius uses three satellites in a highly elliptical orbit. Programmes, additional services, available terminals and subscription fees are analyzed for both systems. Despite the success in terms of number of subscribers (8 and 5 million, respectively), both companies still report big losses, due to the high costs of network deploying (satellites and terrestrial repeaters) and of subscriber attraction (subsidy of terminals, payment of rights for transmission of sports events, etc.).

Chapter 4 analyzes the future tendencies of audio broadcast. First, the current situation of the terrestrial digital radio (DAB) is analyzed. Despite of the fact that its deployment is relatively advanced, it is in a standstill in most European countries. It is very likely that in a short time it will either receive a technical update (DMB) or be substituted for other system (DVB-H). Any of those possibilities will allow the use of modern audio codecs, raising the number of available programmes and lowering the operation costs for each one.

Second, the foreseeable future of satellite radio in Europe is analyzed, describing the systems that could start operating in one to three years time. They are:

- WorldSpace. It plans to offer the service in southern Europe using the satellite that currently covers Africa. It has already obtained the operation license from the Italian government.
- Alcatel. It is a video service for mobile receivers, though it is likely that audio programmes are also included. Alcatel is proposing a system (based on a geostationary satellite) very related to the 3G mobile telephony networks (UMTS), which would allow to use the already existing base stations as terrestrial repeaters. Alcatel is promoting a new DVB group standard for



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transmission to mobile receivers which is currently known as DVB-SSP (Satellite Services to Portables).

- ONDAS Media. It is a Madrid based company established in 2004 which is planning to offer a DAB based service with some 150 channels. It would use HEO (Highly Elliptical Orbit) satellites, much like Sirius. It has raised funding from Delphi, a manufacturer of multimedia components for automobiles.
- Europa Max. It is a Luxembourg based company which plans to offer a mixture of audio and video service, with 25 to 30 audio channels and 10 of television.

Chapter 5 offers an overview of the research activity in the form of research projects with UE and ESA funding, scientific literature publications and patents. The conclusion is that Alcatel is currently the most active entity in Europe.

Chapter 6 studies the Spanish radio listener profile, with the main goal of compare it with the USA listener profile and check whether the business forecasts obtained from extrapolation of the XM and Sirius experience to Europe are sound or not.

Finally, chapter 7 offers some conclusions as factors that must be taken into account if satellite digital radio is not to follow the same path in Europe as terrestrial digital radio.



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