22 May 2009

By: Bogdan Popa

How Satellite Radio Works

Technology evolves a lot nowadays and, at the same time, consumers have bigger expectations from all the things they buy. Including cars. And today's automakers continuously struggle to design and roll out new systems, features or services that would better comply with buyers' requirements and help them attract more customers than its direct competitors. A new trend in the automotive industry is surely pushing new car buyers towards satellite radio, although not all of them understand the main advantages of such a service.

Some people even talk about satellite radio as a gadget, despite the fact that it is more like a service. Nevertheless, the whole system is indeed relying on some hardware components, but we'll talk about them a bit later.

So, why should we opt for a satellite radio service instead of a traditional AM/FM radio? First of all, it provides a more powerful signal over a larger area - it is said that two digital broadcast satellites are strong enough to cover an area of up to a whole continent. However, don't imagine that its frequency isn't experiencing interferences in crowded cities. Large urban locations with tall building could often represent a problem but, with the help of a repeater, this problem is solved too.

Secondly, satellite radio systems do not include commercial or ads as they are often subscription-based - some of you might consider this a disadvantage but lots of people are actually willing to pay a few bucks to get rid of those annoying commercials broadcast every once in a while. Last but not least, such a service brings a better sound quality compared to traditional systems - both AM and FM usually broadcast in moderate quality, in contrast to satellite radio which is said to achieve almost the same quality as an audio CD.

A satellite radio system is very similar with a digital TV system and relies on almost the same three parts: the digital broadcast satellite per se, a ground repeater for increasing the signal and a receiver mounted inside the car. Just like in the case of a digital TV service, the consumer is paying a subscription fee and buys exactly the channels he wants to listen to while driving. The receiver is then mounted inside the car and connected to the vehicle's audio system - an operation usually made before the car gets out of the factory, because installing it by your own could prove to a tough challenge.

Every single receiver is identified by a so-called Electronic Serial Number, similar to an ID, which is automatically transmitted to the digital streamer along with an authorization code. Most satellite radio services are usually offering a free station for testing purposes, especially to allow the configuration of the system for new subscribers.

In the United States, satellite radios make use of the 2.3 GHz S band and usually require no satellite dish or repeater. However, in some cases, such as tunnels or in cities with tall buildings or skyscrapers, a repeater is almost a must as the

signal might become weaker and obviously reduce the audio quality of the transmission.

At this time, the satellite radio sector in the United States is clearly dominated by Sirius XM Radio who calims it has around 18.5 million subscribers (as of July 29, 2008). The company offers a wide array of channels, no matter if we're talking about music, news stations or even traffic information. Most of the channels are commercial-free but still, the company is also offering some cheaper alternatives with a few commercials.

But the most important factor of its success is that Sirius XM Radio (Sirius Satellite Radio and XM Satellite Radio merged in February 2007), partnered with several automakers selling cars in the United States, thus offering satellite radio directly to their buyers. BMW, Chrysler, Ford, General Motors, Honda, Hyundai, Mitsubishi, Porsche, Volkswagen and Suzuki are all offering either Sirius or XM services to their customers. Furthermore, the company has signed a partnership with Harley-Davidson so satellite radio can be listened to on motorcycles as well.