

How Does Satellite Radio Work?

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Satellite radio is one of the biggest improvements in broadcasting since the introduction of FM. Satellite radio signal can be broadcasted for more than 35,000 kilometers (22,000 miles) with complete clarity and high quality sound. You will never get static interferences while listening to over 100 radio channels. The idea behind satellite radio has appeared in 1992, when the United States Federal Communications Commission granted a spectrum of the S band (the 2.3 GHz frequency) for Digital Audio Radio Service. The license to broadcast in that band was allocated to Sirius Satellite Radio and XM Satellite Radio in 1997. Now there are three companies that provide satellite radio in the world: Sirius and XM in Northern America and WorldSpace in Asia, Europe and Africa.

Each of these companies offer different broadcasting systems and a vast classifieds universe, since the radio signal of each is proprietary. This means that you will have to buy different hardware depending on your subscription to one of these companies. However, there are three components common to all satellite radio services: the satellites, the ground repeaters and the radio receivers. Different satellite radio companies broadcast the radio signal in different ways. For instance, XM satellite radio uses geostationary satellites which have orbits that are synchronized with the movement of Earth. These satellites are located above the equator. In order to allow subscribers to receive crystal-clear signal despite obstacles such as buildings, hills or bridges, XM satellite radio service has installed a network of repeaters antennas that receive the radio signal from the satellites and retransmit it to the subscriber's receiver. Sirius, on the other hand, uses satellites that have unique elliptical orbits around Earth. These kinds of orbits allow satellites to get higher in the sky than geostationary satellites and this prevents loss of signal. This is the reason why Sirius has fewer terrestrial repeaters than XM. Satellite radio services have digital broadcast centers where a huge amount of music in digital format as well as CD format is stored. Radio programmers have the task of selecting which song has to be played at which time. There are also a lot of studios managed by digital radio companies where artists perform live. All songs and material are transmitted to the satellites in digital format so that the signal contains very high quality sound. The signal is encoded by the satellite and then retransmitted to the repeaters antennas, which then transmit it to the radio receiver which decodes it and plays the sound. The entire process is very quick and reliable. Satellite radio would not be possible without digital compression. Digital compression is a technique that uses sophisticated algorithms to compress as much material as possible on the available bandwidth. Once you make a subscription to a satellite radio provider you will need the appropriate radio equipment. Traditional radios cannot decode the signal received from satellites so you will need special equipment. The popularity of satellite radio has exploded due to many technological advancements that enabled manufacturers to offer the receivers at very attractive prices. The fact that satellite radio is commercial free for many of its channels is also a major selling point. P P P P P (word count 528)