

Original Paper

White Paper—Satellite Radio: The First Decade

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Abstract

This white paper discusses the evolution of the satellite radio industry during its first decade. Since their inception, both Sirius & XM have gone through major developments as well as changes include the acquisition of Sirius by XM in March 2008. This paper is an important to the current literature in this field as it preserves the history of the origins and development of the satellite radio industry during its first and most important decade.

Keywords

Satellite Radio, Digital Radio, XM, Sirius, Radio Media, Digital Radio Industry

1. Introduction

In 1992, the satellite radio industry began when the Federal Communications Commission (FCC) designated a spectrum in the “S” band (2.3 GHz) for the nationwide broadcasting of satellite-based Digital Audio Radio Service (DARS). Two of the companies that applied for a license to broadcast were CD Radio, which became Sirius Satellite Radio and American Mobile Radio, which changed to XM Radio, Inc. in 1998. Sirius Satellite Radio and XM Radio both transmit in North America. World Space began satellite audio services in 1999 and broadcasts throughout Asia, Europe, the Middle East, and Africa.

Satellite radio is dependent on listeners that are willing to pay a monthly subscription fee to retrieve a wider range of programs than conventional AM or FM radio stations. The FCC license continues for eight years, and it has been estimated that the total expense of initiating a satellite service is approximately one and one-half billion dollars. Satellite radio utilizes the 2.3GHz “S” band in North America and shares the 1.4 GHz “L” band with local Digital Audio Broadcast (DAB) stations elsewhere. Satellite radio does not require a satellite dish to receive, but there is a four-second delay due to the distance of twenty-two thousand and three hundred miles into space to the orbiting satellites

and the rebroadcast back to Earth. As long as the listener is able to receive the orbiting satellite's line of sight, he is able to obtain the programming services. Satellite radio uses a network of land repeaters, usually cell phone towers, to enhance reception in urban locations or sites with tall buildings to eliminate "dead spots." I often wonder exactly how this technology works inside buildings with no windows, because my GPS system that works similarly does not function inside a building.

2. Industry Origins

With Satellite Digital Audio Radio Services (SDARS), customers are able to listen to the same radio stations coast-to-coast. The digital satellite radio transmissions permit a deep forceful sound with near CD quality audio signals that are not available from analog radio stations. Satellite radio broadcasts are not subject to the same FCC rules as regular radio programming, so content that may not be appropriate for conventional radio can be located on satellite radio. Most satellite radio companies offer very few, if any commercials, so they must charge a subscription fee for their services, roughly ten to fifteen dollars per month plus an initial price of two hundred and fifty to three hundred dollars. Most subscribers feel that this small fee is worth the price. Satellite radio service eliminates the crackling of AM radio and the hissing of the shorter ranges that FM broadcasts because the service is completely digital. Each receiver has an Electronic Serial Number (ESN)-Radio ID that distinguishes it, and when the unit is activated with the subscription and the authorization code is sent in, the digital stream advises the receiver to allow access to the blocked channels. Like other radio services, satellite radio also transmits program-associated data (PAD) with the artist and title of each song or program and often, the name of the channel. My XM radio, however, does not transmit the PAD, and it is a 2004 model. Accessories are also available in order for the customer to listen to satellite radio at home through a stereo, a boombox, or online.

In eighty-seven metropolitan markets, satellite radio has attracted a sixty-three percent male audience. Over seventy-six percent of all adult listeners are over the age of thirty-five, and almost fifty percent are over the age of forty-five. The demographic profile is affluent with household incomes of fifty thousand dollars or more and well educated with fifty-five percent possessing at least one college degree.

Two companies dominate the satellite radio industry in the United States: Sirius Satellite Radio and XM Radio, Inc. CD Radio paid eighty-nine million dollars for the FCC's approval, and in February 2002, Sirius introduced its service in the four markets of Denver, Houston, Phoenix, and Jackson, Mississippi. Sirius Satellite Radio is based out of a facility located at Rockefeller Center in New York City and was officially launched on July 1, 2002. Sirius uses three SS/L-1300 satellites to form an inclined elliptical satellite constellation to guarantee that each satellite spends about sixteen hours a day over the continental United States, with at least one satellite over the country at all times. The three-satellite constellation was completed on November 30, 2000. A fourth satellite remains on the ground ready to be launched if any of the three active satellites encounter transmission problems. Sirius

is traded on the NASDAQ (SIRI) at a current price of seven dollars, giving the company a market cap of nine and one-half billion dollars. Sirius Satellite Radio features sixty-five music channels and forty specialized sports, news, and entertainment channels.

XM Radio paid ninety-three million dollars to receive the approval from the FCC to broadcast in 1997 and like Sirius Radio, XM covers most of North America but is only licensed for the United States. WorldSpace originally owned XM Satellite Radio and is responsible for some proprietary technology, original programming, and format structure. The official launch date for XM Radio was September 25, 2001, as it debuted in its two lead markets of Dallas/Ft. Worth and San Diego. Two months later, XM Radio was introduced nationwide. XM Radio is headquartered in Washington, DC in a state-of-the-art broadcast complex with eighty-two all-digital broadcasting studios in a one hundred and fifty thousand square foot facility. The sixty-five million dollar site also houses two, seven-meter satellite dishes. XM Radio broadcasts live daily from studios in Washington, D.C., New York City, and Nashville at the Country Music Hall of Fame.

XM Radio uses two satellites, identified as Rock and Roll, that are positioned in parallel geostationary orbits. One is at eighty-five degrees west longitude, and the other is at one hundred and fifteen degrees west longitude. XM also has a third satellite on the ground that is ready for take-off in case one of their existing satellites fails. As of March 20, 2006, XM Radio declared over six million subscribers. XM Radio is traded on the NASDAQ (XMSR) with a current price of approximately thirty-five dollars, providing the company with a market cap of just over seven billion dollars. XM Radio subscribers have access to sixty-seven commercial-free music channels; thirty-nine channels of news, sports, talk, and entertainment; twenty-one traffic and weather channels; twenty-three sports channels; three comedy channels; two premium channels; and one special-features channel. There are more than one thousand, five hundred hours of live programming every week.

3. Evolution over the First Ten Years

Car manufacturers of the 2001 and 2002 models installed satellite radio receivers, and soon after, electronics companies began to distribute models of portable satellite radio receivers. In 2001, there was a merger between General Motors and XM Radio when the two companies agreed to add the availability of the XM Radio to the forty GM models starting with the 2003 models. In 2002, the Cadillac division of GM was the first to successfully offer the option in the Deville model. XM Radio announced agreements totaling four hundred and seventy five million dollars worth of business within the auto industry that included Honda, Toyota, and GM Motors. Sirius has exclusive partnerships with Audi and VW from 2007 through 2012, brands that previously offered both XM and Sirius services.

XM Radio offers subscriber traffic information in twenty-one markets with the unique features of a system called XM NavTraffic that allows the user to be updated on current traffic problems. The NavTraffic system can be added to the car's navigation system and alerts the driver about pending traffic problems and alternate routes. In 2004, XM launched XM Emergency Alert, a channel dedicated

to providing listeners updated information during natural disasters, weather emergencies, and other hazardous incidents. The Emergency Alert channel delivers key survival information such as evacuation routes, shelter locations, and updated weather emergency information for impacted areas.

XM raised its monthly rates last year from \$9.95 per month to \$12.95 per month and Sirius Satellite Radio CEO Mel Karmazin stated that Sirius would raise the monthly fee for Sirius, up from \$12.95 in the future. Although getting

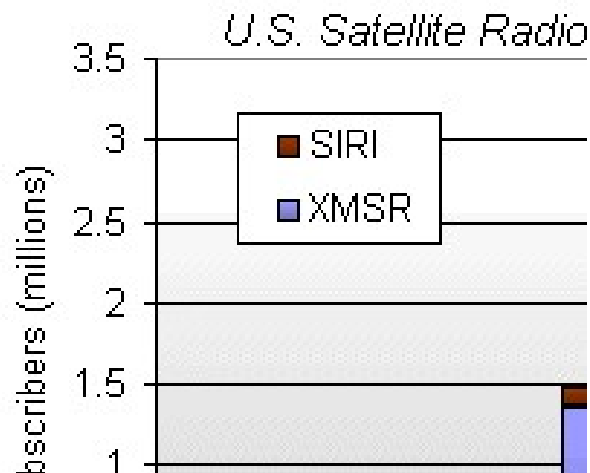


Figure 1. US Satellite Radio Subscribers

Howard Stern was a major coup for Sirius, according to Business Week, “Sirius has signed up just 350,000 to 500,000 more subscribers than XM during the two critical quarters in which Stern left CBS in December and launched his new show in January.”

Presently, both XM and Sirius are posting losses. XM reported a loss of \$268.3 million for Q1 of 2006 while Sirius reported a \$311.4 million loss for the same period. Although these losses seem to be growing each year, the rapid growth of subscribers, in addition to the deals both XM and Sirius are making with artists and car manufacturers are a clear indication that the future looks bright for both players. According to XM CEO Hugh Panero, “Satellite-radio companies are at the beginning of their growth curve” and Sirius and XM, will start turning profits by 2008. There are more than two hundred and eight million drivers in the United States and most of them listen to traditional broadcast radio while commuting. By contrast, XM and Sirius Satellite radio have a combined subscriber base of 10.5 million subscribers as of the first quarter of 2006.

The competition for satellite radio is not just between XM and Sirius but rather, satellite radio as a technology competes with traditional broadcast radio and a host of new technologies such as iPods, portable MP3 players, and audio content on cell phones. The way the industry has attracted, and continues to attract, a huge subscriber base is by using a four-pronged approach. First, by offering customers extensive choices from talk shows, to live coverage of college football and NBA playoffs, to uncensored comedy, in addition to many more choices – all without the constant botheration of

commercials. The second strategy is to offer content, which may not be deemed appropriate for traditional broadcast. Both XM and Sirius offer many channels that use explicit language and contain adult content like the Playboy Channel and adult comedy channels and hence, attract an audience, which demands freedom of expression from the airwaves. The third strategy is to hire celebrities to host and guest host shows on the various channels. Sirius created and broke many industry records when it hired Howard Stern for more than one hundred million dollars per year for five years while XM got Oprah Winfrey for fifty million dollars. The fourth strategy is to partner with automobile manufacturers to offer XM or Sirius radios as standard equipment, often with three to six months of free programming, in many car models. XM has joined with Chrysler, Honda, and Ford, while Sirius offers its receivers in GM, Mercedes, and Kia automobiles.

The future looks bright for satellite radio with a projection of twenty million subscribers by 2010. The cost of the receivers has been reduced, and the subscription rate has maintained around twelve to fifteen dollars a month. XM Radio's CEO recently announced plans to work with cell phone manufacturers to place satellite receivers into cell phones that allow subscribers to access their satellite radio service via their cell phone. With the popularity of the Ipod and MP3 players, both Sirius and XM have made the leap away from satellite radio only in the car and into the consumers' homes. The introduction of units such as XM Radio's IM2GO, a walkman-like portable receiver, should increase the number of potential users. Sirius has developed the Kenwood Portable Satellite Radio Tuner, Here2Anywhere, and the Sirius S50.

The satellite radio programming channel line-up is also expected to continue to improve over time. Video streaming through the satellite radio system is a possibility and would be similar to having a satellite television service in your car. There is a possibility of future mandates by the FCC for interoperability between XM and Sirius hardware within the next few years. XM Satellite Radio has recently partnered with WLW-AM, Cincinnati and is rebroadcasting the renowned AM radio station on XM channel 173. This legendary AM radio station deserves a national audience and though satellite radio is known for its specialty programming, analysts believe this is a good move.

On November 1, 2004, the Canadian Radio-television and Telecommunications Commission (CRTC) began hearing applications for Canada's first satellite radio operations. Three applications were filed including one by Standard Broadcasting and the CBS in partnership with Sirius; one by Canadian Satellite Radio in partnership with XM; and one by CHUM Limited and Astral Media. XM Satellite Radio was introduced in Canada on November 29, 2005, with Sirius Radio following on December 1, 2005.

4. Discussion

Critics of satellite radio state that the service could result in the downsizing and eliminating of many

local radio stations including the jobs of the disc jockeys, producers, and other employees. They are concerned that there will be a greater concentration of mass media in the hands of fewer companies. I believe, however, that the domain of satellite radio was integrated at an opportune time. Consumers have become vocal about the FCC's regulation of standard radio stations, and they constantly complain about Clear Channel playing the same music repeatedly. Satellite radio provides a great escape from the tribulations presented by regular AM and FM radio. I enjoy the satellite radio in my car, and it is always turned to XM channel 43XMU. Though Sirius and XM presently have complete domination of the satellite radio industry, and I have not seen or heard advertising from any other companies that have tried to make a move into the market, satellite radio may be a viable option worth investing in for other companies. The price of one and one-half billion dollars to initiate the satellite service, however, is a definite drawback for my pocketbook!

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