13. For all these reasons, the merger of Sirius and XM is highly unlikely to reduce competition and harm consumers. It is not likely to raise prices, relative to the outcome without the merger. Instead, the merger is likely to benefit consumers and increase the attractiveness and the output of the merged firm, regardless of how the market is defined.

14. The vehement opposition to this merger by the NAB indicates both that the merger benefits competition and that the relevant market extends beyond just satellite radio. In fact, as Judge Posner has suggested, under contemporary principles of antitrust law, competitor complaints are a "telling point" that support the view that a merger is lawful. Posner's economic reasoning is directly applicable here, in light of the absence of any threat of anticompetitive exclusion. In particular, the NAB and its consultants have argued that the merger will create a monopoly in satellite radio. But, if this were the case, terrestrial broadcasters would benefit from the resulting higher prices and reduced output of satellite radio after the merger. Accordingly, the fact that the NAB opposes the merger suggests that the NAB membership fears the procompetitive effects of the merger and recognizes that satellite radio competes extensively with AM/FM, as the NAB has always argued in the past.

15. The remainder of this Report sets out the economic analysis that forms the basis for our conclusions that the Sirius/XM merger likely will be procompetitive and benefit consumers. Section II discusses the scope of demand substitution, competitive responses and their implications for market definition. This section also discusses the impact of the dynamic demand spillover on pricing incentives and the implementation of the *ssnip* test. Section III evaluates market shares and concentration in the audio entertainment market. Section IV carries out a competitive effects analysis of the merger, discussing inter-modal competition, rival repositioning, cost savings, quality improvements, and the impact of the merger on the incentives for penetration pricing and other procompetitive investments. Section V analyzes the potential for geographic price discrimination against consumers in geographic areas with very few AM/FM radio stations. Section VI restates our conclusions. Certain technical economic issues are discussed in detail in Appendix A and Appendix B. Exhibits follow.

II. MARKET DEFINITION

16. Many Comments focus on market definition.[1] In our view, the relevant market is audio entertainment, a broad set of listening devices that include AM/FM radio, HD radio, Internet radio, iPods and other MP3 players, audio content-enabled wireless phones (including those with MP3 capability), and CD players, as well as satellite radio, and the

---

[1] *See, for example, Petition to Deny of the National Association of Broadcasters*, MB Docket No. 07-57 (July 9, 2007) (hereinafter "NAB Petition") at 11-23; *Petition to Deny of the Consumer Coalition for Competition in Satellite Radio*, MB Docket No. 07-57 (July 9, 2007) (hereinafter "C3SR Petition") at 29-32.

content and services associated with these devices. (We refer to these devices, content services and content collectively as audio entertainment "products.") The market shares of Sirius and XM and market concentration in this market are very small. Even if the market were erroneously defined as satellite radio-only, our analysis of competitive effects below demonstrates that the merger will be procompetitive.

17. In this section, we will explain why the correct relevant market definition for evaluating the impact of this merger is not limited solely to satellite radio, but also includes other audio entertainment products. This analysis involves evaluation of inter-modal competition as well as demand substitution, product differentiation, and the demand for satellite radio in this growth phase of the product life cycle. We will explain why the "small but significant and nontransitory increase in price" (*ssnip*) test for market definition from the antitrust agencies' Horizontal Merger Guidelines[2] must take into account the dynamic nature of demand and the important role of longer-term profit-maximization for Sirius and XM. This analysis will show that the extensive demand (and supply) substitution at current prices understates the disincentive of the merged firm to raise post-merger prices because of intertemporal linkages in demand, which make each lost customer today, as well as any slowdown in growth (*i.e.*, each lost prospective customer), costly in terms of foregone future profits.

18. In subsequent sections, we also will explain why the proposed merger is procompetitive, even if the relevant market definition were erroneously limited solely to satellite radio.[3]

A. Inter-modal Demand Substitution and Competition

19. Sirius and XM compete with many others, not just each other. They compete with other audio entertainment products that are used by many more people than the 14 million subscribers to satellite radio. If Sirius and XM were to raise their prices, fewer people would choose to subscribe because of the variety of other alternatives available. In addition, producers of other audio entertainment devices and content services would respond to higher satellite radio prices by extending or repositioning their products to increase the substitutability with satellite radio. There are many other popular audio entertainment options to which satellite subscribers can and do substitute, and vice versa.

- When XM and Sirius first were licensed in 1997 – before any satellite receiver had been built – terrestrial radio receivers were ubiquitous: in 98 million U.S. households

[2] U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines* (Apr. 8, 1997) (hereinafter "Merger Guidelines") at § 1.0.

[3] *See* Section IV (Competitive Effects).

(99 percent of all households), with over 2.1 radio receivers per person and 5.6 receivers per household.[4]

- There were more than 243 million vehicles on the road in the U.S in 2004[5] and virtually all of them are equipped with AM/FM radios and CD players. Additional radios and CD players are used at home.
- There are 46 million current users of MP3s and iPods, and 30% of Americans are estimated to own MP3 players, up from 22% just a year ago.[6] In fact, Apple sold its 100 millionth iPod in April of this year and subscribers to Apple's iTunes Store downloaded over 1 billion songs in 2006 alone.[7] There also are over 2 million subscribers to the Rhapsody and Napster music subscription services.[8,9] Yahoo, a leading Internet portal, provides a similar music service.[10] These players can be used in vehicles as well as elsewhere. Many vehicles have auxiliary input jacks and various aftermarket devices are sold to connect iPods to auto sound systems without input jacks – everything from cassette player adapters to FM modulators. Additionally, iPod integration by OEM car companies has increased rapidly.[11]

---

[4] U.S. Census Bureau, *Statistical Abstract of the United States: 2001, Information and Communications*, Table 1126, *available at* http://www.census.gov/prod/2002pubs/01statab/inforcomm.pdf (last visited July 21, 2007); U.S. Census Bureau, *Statistical Abstract of the United States:2001,Comparitive InternationalStatistics*, Table 1375, *available at* http://www.census.gov/prod/2002pubs/01statab/intlstat.pdf (last visited July 21, 2007).

[5] Bureau of Transportation Statistics, *National Transportation Statistics 2006* (December 2006), Table 1-11, *available at* http://www.bts.gov/publications/national_transportation_statistics/2006/index.html (last visited July 17, 2007).

[6] Jupiter Research, *US Music Forecast, 2006 to 2011* (Vol.2, 2006) at 8; Arbitron/Edison Media Research, *The Infinite Dial 2007: Radio's Digital Platforms* at 14.

[7] Apple Press Release, *100 Million iPods Sold* (April 9, 2007), *available at* http://www.apple.com/pr/library/2007/04/09ipod.html (last visited July 2, 2007); Apple Press Release, *iTunes Store Tops Two Billion Songs* (January 9, 2007), *available at* http://www.apple.com/pr/library/2007/01/09itunes.html (last visited July 13, 2007).

[8] Real Networks Press Release, *Real Networks Launches Rhapsody 4.0 & Teams To Deliver First Rhapsody-Optimized MP3 Players* (October 5, 2006), *available at* http://www.realnetworks.com/company/press/releases/2006/rhap4.html (last visited July 2, 2007).

[9] Napster Press Release, *Napster Reports Record Sales of $28.4 Million in the Third Quarter, Expects to End Fiscal Year at Record Subscriber Levels* (February 8, 2007), *available at* http://www.napster.com/press_releases/pr_070208.html (last visited July 2, 2007).

[10] *See* Yahoo! Music Offer Details, *available at* http://music.yahoo.com/ymu/default.asp?ovchn=GGL&ovcpn=YMU&ovcrn=Yahoo+Music&tab=togo (last visited July 21, 2007).

[11] Apple Press Release, *Apple Teams Up With Ford, General Motors & Mazda To Deliver Seamless iPod Integration* (August 3, 2006), *available at* http://www.apple.com/pr/library/2006/aug/03ipod.html (last visited June 5, 2007).

- By the end of this year, Americans are expected to own nearly 28 million mobile phones that can receive and play audio and video content, more than double the number at the end of 2006.[12] This number will far exceed the number of satellite radio subscribers at the end of this year. These phones also increasingly can be integrated into auto sound systems.[13]
- Internet Radio is popular with home users. There are thousands of radio stations streamed over the Internet.[14] Approximately 49 million Americans listened to Internet radio in the past month, according to a recent estimate.[15] In fact, Avis has begun to offer Internet in some of its rental cars via Autonet.
- Thus, there are many other popular audio entertainment options to which satellite subscribers can and do substitute, and vice versa.

20. The relevant market should include all the products that are reasonably interchangeable with the products sold by the merging firms. In this section, we examine a number of indicia of substitutability, including evidence of likely demand substitution and evidence of producers of one type of audio entertainment product responding competitively to developments elsewhere in the market.

1. Changes in Listening Patterns

21. Usage data from Sirius and XM demonstrate that there is substantial demand substitution between satellite radio and other audio entertainment devices.

22. When people activate satellite radio subscriptions, their listening behavior changes in a predictable way.

- **[[REDACTED** [redacted]]].[16]

---

12 Jupiter Research, *US Music Forecast, 2006 to 2011* (Vol.2, 2006) at 8.

13 Mobile phones can be connected to the auxiliary input jacks now provided for many vehicle sound systems. In addition, more advanced options are becoming available. See, for example, the discussion of Ford Sync below.

14 For a list of over 2,500 Internet radio stations, *see* http://radio-locator.com (last visited July 17, 2007).

15 Arbitron/Edison Media Research, *The Infinite Dial 2007: Radio's Digital Platforms* at 5.

16 **[[REDACTED** [redacted]]].

- **[[REDACTED** [redacted]]].[17]

23. Sirius and XM also must compete with other audio entertainment modes to keep their existing subscribers. When XM subscribers deactivate their subscriptions, nearly all switch their listening to other audio entertainment modes, not Sirius. A similar pattern is seen for Sirius subscribers.

- **[[REDACTED** [redacted]]].[18]
- **[[REDACTED** [redacted]]].[19]
- **[[REDACTED** [redacted]]].[20]
- **[[REDACTED** [redacted]

---

17 **[[REDACTED** [redacted]]].

18 **[[REDACTED** [redacted]]].

19 **[[REDACTED** [redacted]]].

20 **[[REDACTED** [redacted]]].

[redacted].[21] [redacted]]].

2. Satellite Radio Penetration versus Terrestrial Radio Coverage

24. Analysis of the relationship between satellite radio penetration and terrestrial radio coverage provides clear evidence of demand substitution between satellite radio and AM/FM radio. The submission of the American Antitrust Institute (AAI) suggested the relevance of data on the relationship between satellite radio penetration and the number of terrestrial radio stations for evaluating competition and market definition.

> A degree of cross elasticity might be shown if the rate of satellite radio subscriptions is higher in markets with fewer terrestrial radio stations. On the other hand, if the rate of satellite subscriptions is geographically uniform throughout the country, this would tend to indicate little cross elasticity.[22]

25. We have carried out such a substitution analysis. Sirius and XM commissioned BIA Research, Inc. to provide data on the number of AM/FM radio stations reaching each census block in the lower-48 U.S. states.[23] These data on AM/FM coverage at the census block level were aggregated up to ZCTAs (*i.e.*, a Census Bureau area approximating a ZIP code) and combined with data on the location by ZIP code of Sirius and XM subscribers.[24]

---

[21] **[[REDACTED** [redacted]]].

[22] *Comments of the American Antitrust Institute in Opposition to Transfer Application*, FCC Filing, MB Docket No. 07-57 (June 5, 2007) (hereinafter "AAI Comments") at n.68. *See also* Philip M. Napoli, *Market Definition in Satellite Radio: Why the Sirius/XM Merger Would Result in Anti-Competitive Conditions*, Statement Prepared for the National Association of Broadcasters (April 2007), Submitted to FCC, June 29, 2007, (hereinafter "Napoli") at 5 ("no evidence to date suggesting that the quantity or quality of available terrestrial radio stations are significantly related to satellite radio penetration in individual radio markets"). Sidak also raises the relevance of this relationship. *Supplemental Declaration of J. Gregory Sidak*, Exhibit B, C3SR Petition (July 9, 2007) (hereinafter "Sidak-II") at ¶25.

[23] The BIA Research, Inc. data use the 2 mV/m contours for AM stations and the 60dBu contours for FM stations to determine the number of AM or FM stations reaching the centroid of each census block in the lower-48 states.

[24] ZCTAs, or ZIP Code Tabulation Areas (ZCTAs), are areas that closely approximate ZIP code areas and were developed by the Census Bureau to allow ZIP code and census block data to be merged. Census blocks do not map into ZIP codes, but may be mapped into ZCTAs. The BIA Research, Inc. data reported AM/FM coverage by census blocks, while data on the locations of satellite radio subscribers are available only by ZIP code. Our analysis used the BIA Research data on the number of AM/FM stations received in each census block within ZCTAs, together with population data, to calculate the population-weighted average number of AM/FM stations received in each ZCTA. Subscribers with valid ZIP codes in the lower-48 states were assigned to the ZCTA that corresponds to their ZIP code, and the number of subscribers in each ZCTA was divided by ZCTA population to determine the satellite radio penetration in each ZCTA. **[[REDACTED** [redacted]]]. Subscribers without valid ZIP codes necessarily also were excluded. Some ZIP codes correspond to a point, such as those for P.O. Boxes; there is no corresponding ZCTA for

These data then were used to calculate the relationship between satellite radio penetration (*i.e.*, the number of subscribers paying for satellite radio service as a percentage of population in a ZCTA area) and the average number of AM/FM stations received in that ZCTA area.

26. Exhibit B contains a table and chart reporting the relationship. Figure B1 plots the average satellite radio penetration in areas receiving each number of AM/FM stations from zero to 68 (the maximum number received anywhere).[25] Table B1 reports these same data, together with other information on satellite radio penetration and the proportion of population in the lower-48 states receiving various numbers of AM/FM stations.

27. Figure B1 and Table B1 show a clear, relatively smooth inverse relationship between average satellite radio penetration and the number of AM/FM radio stations received. Satellite radio penetration generally is higher in geographic areas where there are fewer AM/FM stations. The inverse relationship between satellite radio penetration and AM/FM coverage **[[REDACTED** [redacted]]]. Average satellite radio penetration **[[REDACTED]]**% in ZCTAs receiving zero AM/FM stations, **[[REDACTED]]**% in ZCTAs receiving two AM/FM stations. Average satellite radio penetration **[[REDACTED** [redacted]]].[26] **[[REDACTED** [redacted]]].[27] This clear inverse relationship shows that

---

these ZIP codes assigned by the Census Bureau, and therefore subscribers with these ZIP codes were excluded. **[[REDACTED** [redacted]]].

[25] The population-weighted average number of AM/FM stations received across the lower-48 states, according to these data, is just under 31. Note that the average number of AM/FM stations received in a ZCTA is not necessarily an integer value because it is the population-weighted average of the number of AM/FM stations received in the census blocks contained within the ZCTA. For example, the average satellite radio penetration in areas with "zero" terrestrial radio stations is defined in this paper as the penetration for all ZCTAs receiving (on average) 0.5 or fewer AM/FM stations.

[26] About 9% of population in the lower-48 states lives in ZCTAs receiving 11 or fewer AM/FM stations, as reported in column 5 of Table B1. This column also shows that only very small percentages of the population live in areas receiving small numbers of AM/FM stations. Less than 0.05% of the population lives in areas receiving "zero" (*i.e.*, fewer than 0.5) AM/FM signals.. Only 0.2% of the population lives in areas receiving 2 or fewer AM/FM stations, and only 2% in areas receiving 6 or fewer AM/FM stations.

[27] Nearly 45% of lower-48 population lives in areas receiving 33 or more AM/FM stations. **[[REDACTED** [redacted]]].

consumers view AM/FM radio and satellite radio as reasonably close substitutes. As discussed in Section V below, price discrimination against consumers in areas that receive very limited numbers of terrestrial radio stations would not be profitable and so would not be attempted.

28. We have carried out an econometric analysis of the relationship between satellite radio penetration and the number of terrestrial radio stations. We estimated the impact of the number of terrestrial radio stations on the penetration of satellite radio, after controlling for a number of relevant factors for each area, including income, gender mix, and the percentage of the population commuting by car.[28] There is a statistically significant negative relationship between the number of terrestrial radio stations and satellite radio penetration, as pictured in Figure B2 in Exhibit B.[29] The regression results are reported in Table B2. Thus, this econometric analysis supports the conclusion that terrestrial radio and satellite radio are good substitutes.

3. Inter-modal Competitive Responses

29. Economic evidence supporting a broad market definition also comes from the fact that firms operating in one format have responded directly to competition from developments in other modes by rapidly adding new products and repositioning the products they sell.[30]

---

[28] The regression used a fifth order polynomial form for the number of terrestrial radio stations, which allows for great flexibility in the shape of the relationship between satellite radio penetration and terrestrial radio coverage. It also included a variable for the percentage of population in each ZCTA in census blocks classified by the Census Bureau as urban and a variable interacting the percentage urban with the percentage that commute by car.

[29] Figure B2 plots the relationship between the number of AM/FM stations received and satellite radio penetration predicted by the regression, when the other variables take on their median values.

[30] Sidak suggests that this type of competitive response evidence is not relevant for market definition because market definition involves consumer perceptions, not the perspective of competitors. Sidak-II at ¶22. Sidak is wrong to discard competitive response evidence in defining markets for three reasons. First, as is widely understood, the conduct of industry participants provides information about buyer substitution because it shows how buyer substitution is understood by sellers, who are experts on their buyers. For example, "evidence about the extent to which firms monitor and respond to the price changes and new product introductions of rival sellers, and about the products and locations of the rivals that have their greatest attention, is commonly employed as a guide to the products and locations where buyer substitution is the most likely." Jonathan B. Baker, *Market Definition: An Analytical Overview* 74 ANTITRUST L.J. 129, 141 (2007). Accordingly, the competitive responses of Sirius and XM, which reflect the types of products from which they fear demand substitution, provide useful evidence as to the nature of likely demand substitution. Second, in order to understand whether buyer substitution would make unprofitable a price increase, the market definition question in the Merger Guidelines, it is necessary to identify the competing products to which consumers could substitute in the event of a price increase. The competitive responses of competitors to satellite radio services are relevant to this issue. Third, in a mature market, those alternatives would be available now. But in a market with dynamic demand like this one, the products that will be introduced in the future also are relevant to understanding longer-term demand substitution, and thus to applying the market definition test in the Merger Guidelines. In addition, going beyond strict market definition, competitive response evidence also is relevant because firms that can extend or reposition their products would be considered as "market participants" into a narrow market and assigned market shares, which would affect the HHI.

These competitive responses also provide evidence of how some of these audio entertainment products and content are being blended together. This evidence of substitution supports the conclusion that producers of other audio entertainment devices participate in the market in competition with Sirius and XM.[31] We examine this evidence for the various types of audio entertainment products that compete with Sirius and XM.

a) Terrestrial Radio: AM/FM and HD Radio

30. There have been substantial substitution and competitive responses between XM and Sirius on the one hand and terrestrial radio broadcasters on the other. The entries of Sirius and XM are themselves competitive responses to AM/FM radio. Since being introduced in late 2001 and early 2002, XM and Sirius have obtained a base of about 14 million subscriptions, a small fraction of the 300 million population of the U.S., almost all of whom have access to AM/FM radio. Before subscribing to satellite radio, those people were listening to terrestrial radio and other forms of audio entertainment. This need to attract subscribers away from other audio entertainment products continues, as the growth of new satellite radio subscribers greatly exceeds the loss of old subscribers. Over the 4-year period 2007-2010, analysts have projected that XM and Sirius will add at least 12 million net new subscriptions to their 2006 base.[32] If the annual churn rate is 20% per year, then these subscriptions also would need to be replaced, which would imply the need to add 28 million new subscriptions to replace the lost subscriptions and attain that forecast growth rate. (As discussed elsewhere, only a small percentage of exiting subscribers switch from one satellite radio to the other service.) In other words, absent a merger, Sirius and XM would have to focus primarily on inducing demand substitution away from other audio entertainment modes, not on inducing substitution away from one another.[33]

31. Terrestrial radio stations in turn have responded to competition from Sirius and XM and repositioned their products in a number of ways. First, in response to the success of the commercial-free options available on satellite radio, some AM/FM radio stations have

---

[31] For a general discussion of the definition of "participants" in a relevant market *see* Merger Guidelines at §1.3.

[32] David Bank (Managing Director-Equity Research RBC Capital Markets), ***Testimony to the U.S. Senate*** *Committee on Commerce, Science and Transportation* (April 17, 2007), ***available at*** http://commerce.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=1848&Witness_ID=6583 (last visited July 12, 2007) (hereinafter "Bank Testimony").

[33] Sidak suggests that there are switching costs from satellite radio to HD radio because of the need to purchase an HD radio. J. Gregory Sidak, *Expert Declaration of J. Gregory Sidak Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio Inc. and XM Satellite Radio Inc.*, Prepared for the Consumer Coalition for Competition in Satellite Radio (March 16, 2007), Submitted to the FCC March 28, 2007 (hereinafter "Sidak-I") at 12. That switching cost would only apply only if the consumer already has satellite radio. There would be no switching cost for a potential satellite radio subscriber who was deciding whether to subscribe to satellite radio versus whether to purchase an HD radio instead. Of course, there also would be no switching costs if the HD radio came as standard equipment in a new vehicle.

reduced the number of commercial minutes.[34] Clear Channel also reduced the length of its commercials.[35] More recently, Clear Channel's 92.5 Lone Star in Dallas has decided to forego radio commercials altogether and instead try to rely on an hourly corporate sponsor.[36] Second, AM/FM stations have repackaged music to better compete with satellite radio.[37] Clear Channel has responded by adding prominent on-air personalities.[38] Third, terrestrial radio also has responded to the superior sound and increased variety offered through satellite radio by introducing HD Radio, which provides digital broadcasts.[39]

[34] For example, consider the following: "More and more would-be radio listeners, especially teenagers, are now opting for on-demand and choice-driven listening provided by new technologies like MP3 players and satellite radio." In response, "Radio executives have also moved to reduce the length and number of advertisements heard on the broadcast waves. Clear Channel launched a 'Less is More' campaign designed to reduce the total number of ad minutes per hour of airtime. They're also trying to teach advertisers how to make shorter, more entertaining commercial spots. A guide on Clear Channel's Web site is entitled 'How to Make Commercials that Don't Suck'." NewsHour with Jim Lehrer, *Revolutions in Radio* (May 4, 2005), *available at* http://www.pbs.org/newshour/media/radio/broadcast.html (last visited July 2, 2007).

[35] Brett Corbin, *Clear Channel Advertising Strategy Aims For Less Clutter*, BUSINESS FIRST OF LOUISVILLE (Oct. 8, 2004), *available at http://www.bizjournals.com/louisville/stories/2004/10/11/story5.html?t=printable* (last visited July 15, 2007). ("Kelly Carls, regional vice president of programming for Clear Channel, said the cuts work out to an average of 20 percent for all the Clear Channel radio stations across the country.... Carls said the move by Clear Channel was 'pre-emptive,' with the radio giant making an active move to counter emerging technology instead of waiting a few years to react to competitors such as satellite radio.") *See also* Tom Lowry, *Antenna Adjustment; Clear Channel is pulling apart its empire as it scrambles to compete in a changed media world*, BUS. WK. (June 20, 2005), *available at* http://www.businessweek.com/magazine/content/05_25/b3938093_mz016.htm (last visited July 11, 2007).

[36] Andrew Adam Newman, *In Dallas, Commercial Radio Without Commercials*, NEW YORK TIMES (April 23, 2007), *available at* http://www.nytimes.com/2007/04/23/business/media/23radio.html?ei=5088&en=670c621e96d488ef&ex=1334980800&partner=rssnyt&emc=rss&pagewanted=print (last visited July 10, 2007).

[37] NewsHour with Jim Lehrer, *Revolutions in Radio* (May 4, 2005), *available at* http://www.pbs.org/newshour/media/radio/broadcast.html (last visited July 2, 2007). ("Spanish talk shows, eclectic music mixes, and entertaining ads were not the common fare on American broadcast radio just a few years ago. But these new sounds and new ideas are making their way to market only as broadcasters seek to stem the flow of listeners headed for other audio formats."); *see also* Randy Dotinga, *Radio Industry Hits Shuffle*, WIRED (June 6, 2005), *available at* http://www.wired.com/entertainment/music/news/2005/06/67727 (last visited July 17, 2007). ("Boasting they're 'like an iPod on shuffle,' the new stations typically dump their disc jockeys in favor of huge song playlists that mimic a well-stocked portable music player. The Jack format, which is already spawning imitators, could be a key to FM's survival as an alternative to satellite radio, internet radio and MP3 players.")

[38] Tom Lowry, *Antenna Adjustment; Clear Channel Is Pulling Apart Its Empire As It Scrambles To Compete In A Changed Media World*, BUS. WK. (June 20, 2005), *available at* http://www.businessweek.com/magazine/content/05_25/b3938093_mz016.htm (last visited July 11, 2007). ("Clear Channel is also hellbent on winning back some of the status it has lost to satellite newcomers XM and Sirius by signing big names to host their own shows, including Donald Trump and Jesse Jackson.")

[39] *Clear Channel answering satellite radio with HD rollout*, CINCINNATI BUSINESS COURIER (December 5, 2005), *available at* http://cincinnati.bizjournals.com/cincinnati/stories/2005/12/05/05/daily1.html (last visited July 15, 2007); *see also HD Radio Could Cure US Broadcasters' Satellite Radio Woes, says ABI Research*, BUSINESS WIRE (May 22, 2006), *available at* http://findarticles.com/p/articles/mi_m0EIN/is_2006_May_22/ai_n16374685 (last visited *July 15, 2007).* ("Fear of satellite radio is prompting an unprecedented level of cooperation among

32. *Today, the approximately 1350 HD Radio stations broadcasting in digital* cover 82% of the U.S. population.[40] Of these stations, 620 are HD2 or side channels.[41] For now, HD radio side channels are being provided on a commercial-free basis, as are many satellite radio channels. Additionally, these HD2 channels tend to provide more specialized genres than traditional FM broadcasts, which allows a response to satellite radio programming.[42] According to one report, some of the genres for initial HD2 channels included the following: "Classical Alternative, Traditional Jazz & Blues, Coffee House, Female Talk, Future Country, Extreme Hip Hop and in-depth news," and, among rock genres, "Deep Cuts Classic Rock, Live Rock, New Alternative, Fusion Hispanic-Anglo Rock, Chick Rock, Indie & New Rock."[43] Over 3,000 HD Radio stations are predicted to be in operation in the next few years and iBiquity forecasts 5700 channels by 2011.[44] HD radio offers better sound than standard terrestrial radio and the technology also permits more channels to be broadcast over the available spectrum than does analog technology. Moreover, the HD Digital Radio Alliance, a consortium of terrestrial radio groups such as Bonneville International, Citadel Broadcasting, Clear Channel Radio, Emmis Communications, Entercom, Greater Media, and Infinity Broadcasting, committed $200 million in airtime in 2006 for advertising to raise the profile of HD radio and expects to commit $250 million in 2007. This is the largest-ever radio advertising campaign **[[REDACTED** [redacted]]].[45] This campaign

---

broadcasters in their efforts to launch HD Radio and HD2"); Robert Mullins, *Digital HD Radio Offers Option – at a price*, SAN JOSE BUSINESS JOURNAL (June 24, 2005), *available at* http://sanjose.bizjournals.com/sanjose/stories/2005/06/27/focus4.html (last visited July 7, 2007).

[40] In Washington, DC, for example, there are 35 HD channels broadcasting with 5 more scheduled to begin broadcasting soon. iBiquity, *Find a Station, available at* http://ibiquity.com/hd_radio/hdradio_find_a_station/DC/StnMarket (last visited July 19, 2007); *see also* Bear Stearns, *XM-SIRI – More Competition Coming* (June 29, 2007) ("reporting on the iBiquity presentation").

[41] Bear Stearns, *XM-SIRI – More Competition Coming* (June 29, 2007) ("reporting on the iBiquity presentation").

[42] Tom Lowry, *Antenna Adjustment; Clear Channel Is Pulling Apart Its Empire As It Scrambles To Compete In A Changed Media World*, BUS. WK. (June 20, 2005), *available at* http://www.businessweek.com/magazine/content/05_25/b3938093_mz016.htm (last visited July 17, 2007). ("Clear Channel is busy converting 1,000 of its stations to digital, which could mean up to 3,000 more channels to program.")

[43] FMQB, *HD Digital Radio Alliance Launches 264 New Channels* (January 18, 2006), *available at* http://fmqb.com/Article.asp?id=165202 (last visited July 11, 2007).

[44] HD Radio Press Release, *Jaguar Joins Digital HD Radio™ Revolution* (Apr. 4, 2007), *available at* http://www.hdradio.com/press_room.php?newscontent=81 (last visited July 11, 2007); *see also* Bear Stearns, *XM-SIRI – More Competition Coming* (June 29, 2007). *See also* HD Radio Digital Alliance Press Release, *HD Radio Celebrates Major Milestone: Rollout in Top 100 Markets* (May 14, 2007), *available at* http://www.hdradio.com/the_buzz.php?thebuzz=93 (last visited July 2, 2007). "HD Radio is now available in the Top 100 Radio Markets."

[45] *See* HD Radio Digital Alliance website, *available* at http://www.hdradioalliance.com/i/Activate_Brochure.pdf (last visited July 17, 2007); *see also* Bear Stearns, *XM-SIRI – More Competition Coming* (June 29, 2007); *see also*

follows a previous advertising campaign in 2005 for AM/FM with the tag line, "Radio: You shouldn't have to pay for it."[46]

33. HD radios also are beginning to be introduced in automobiles, in competition with satellite radio and standard AM/FM radio for dashboard space.[47] BMW offers a factory-installed digital HD Radio receiver as an option across its entire 2007 product line.[48] Hyundai recently announced that it will offer HD Radio on its Genesis premium sports sedan scheduled for introduction in 2008. Jaguar announced that it will offer HD Radio technology in its redesigned 2008 luxury XJ sedan. Overall, iBiquity estimates that nine OEMs will offer HD radio in over 50 models by 2010.[49]

34. The developer of HD radio technology, iBiquity, recently projected that HD radio will be used to provide a variety of new content services, including (a) on-demand radio, including traffic and weather, (b) TiVo-like sort and play capabilities, (c) the ability to purchase music, (d) program-associated data, such as stock quotes or scores, and (e) electronic program guides. iBiquity also expects subscription services to be provided over HD Radio.[50] The FCC is finalizing rules for the use of encrypted subscription services for HD radio. Encryption would permit some station owners to reposition by offering audio content on a subscription basis, like XM and Sirius, rather than relying solely on advertising to earn revenues.[51] The ability to use encryption technology to support a subscription model for HD radio permits a choice of business models that predictably would lead to further expansion of HD radio stations.

NAB Website, *Unprecedented Radio Partnership Sends "Unmistakable Signal"* (Dec. 12, 2005), *available at* http://www.nab.org/xert/corpcomm/newsletters/RadioRave/radiorave_121205.asp (last visited July 12, 2007).

[46] NAB Press Release, *Radio Industry Launches New On-Air Ad Campaign* (Nov. 30, 2005), *available at* http://www.nab.org/AM/Template.cfm?Section=Press_Releases1&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=5170 (last visited July 19, 2007).

[47] *For example, see* S. Diaz, *HD Radio Grabs the Ear of Satellite Rivals*, WASHINGTON POST (July 3, 2007) at D4, *available at* http://www.washingtonpost.com/wp-dyn/content/article/2007/07/02/AR2007070201730.html (last visited July 15, 2007). ("Over the past few months, high-definition radio technology, which delivers clearer and crisper sound for over-the-air radio, has made inroads into the new-car market, a major battleground for audio entertainment.")

[48] iBiquity Press Release, *HD Digital Radio Alliance Launches First Ad Campaign for BMW* (February 14, 2007), *available at* http://www.ibiquity.com/press_room/news_releases/2007/432 (last visited July 15, 2007).

[49] *Hyundai, Jaguar Offer HD Radio*, TWICE (April 23, 2007), *available at* http://www.twice.com/article/CA6435612.html (last visited June 5, 2007).

[50] Bear Stearns, *XM-SIRI – More Competition Coming* (June 29, 2007).

[51] Federal Communications Commission, *Digital Audio Broadcasting Systems and Their Impact on the Terrestrial Radio Broadcast Service, Second Report and Order, First Order on Reconsideration and Second Further Notice of Proposed Rulemaking*, MM Docket No. 99-325 (May 31, 2007) at ¶49.

35. The fact that satellite radio has induced market responses by terrestrial radio broadcasters was summarized succinctly by David K. Rehr, President and CEO of the NAB:

> In 2006, we have satellite and Internet radio. And barely a day passes without the introduction of a new competing device or service. But we have news for our competitors: "We will beat you – as we have beaten those change agents in the past."[52]

b) Wireless Phones

36. There also is competition and potential demand substitution between Sirius, XM and audio entertainment on wireless phones. Wireless companies began offering competing products in 2005, and today most offer audio content-enabled phones and audio services.[53]

37. Combined cell phone/MP3 players that can play streaming music and other content, either distributed by wireless companies or sideloaded from other sources, have become increasingly common. Of 81 phones currently listed on AT&T's website, 29 can receive audio entertainment.[54] AT&T offers the new iPhone, which is a combined cell phone, iPod and Internet communication device.[55] The iPhone has enjoyed enormous initial success, with as many as 700,000 phones purchased over the first weekend after its launch.[56] It has been forecast that 10 million iPhones will be sold next year.[57] AT&T is not alone. Verizon offers multiple models, including the Chocolate; Sprint also has multiple models including the dual-screen Upstage, while Alltel has the Wafer. Additionally, some phones, such as the Sony Ericsson W810i for AT&T, now include an FM tuner. Clear Channel has begun to distribute some of its programming to mSpot Radio for streaming on wireless phones.

38. The sales of audio content-enabled phones are increasing. Sales of such phones rose from 18% of second quarter 2006 U.S. phone sales to 38% of first quarter 2007 U.S. phone

[52] David K. Rehr, *The 2006 NAB Radio Show* (Sept. 21, 2006), *available at* http://www.nab.org/AM/Template.cfm?Section=Press_Releases1&CONTENTID=6802&TEMPLATE=/CM/ContentDisplay.cfm (last visited July 12, 2007).

[53] *See, for example,* Fierce Wireless News, *Cingular Wireless, MobiTV to launch MobiRadio* (Nov. 14, 2005), *available at* http://www.fiercewireless.com/story/cingular-wireless-mobitv-to-launch-mobiradio/2005-11-15 (last visited July 21, 2007).

[54] *See* http://www.wireless.att.com/cell-phone-service/cell-phones/music-phones.jsp (last visited July 17, 2007).

[55] *See* http://www.apple.com/iphone/ (last visited July 3, 2007).

[56] Connie Guglielmo, *Apple IPhone Sold Out at Most Stores After Four Days*, BLOOMBERG NEWS (July 3, 2007), *available at* http://www.bloomberg.com/apps/news?pid=20601087&sid=afGVODED.wHU&refer=home (last visited July 21, 2007).

[57] Janet Whitman, *Apple's Big Talk,* NEW YORK POST (March 1, 2007), *available at* http://www.nypost.com/seven/03012007/business/apples_big_talk_business_janet_whitman.htm (last visited July, 12, 2007).

sales.[58] One study projects that MP3/video-capable mobile phones will grow from about 28 million in 2007 to 50 million in 2008 to 77 million in 2009. This study projects that by 2009 and beyond, the number of MP3/Video-capable mobile phones will exceed the number of users of MP3 players.[59] It also will far exceed the number of satellite radio subscribers.

39. Wireless companies also compete with satellite radio by offering subscribers a wide range of audio and other content. Sprint, AT&T, and Alltel each offer multiple streaming news, music, and sports channels, many of which are commercial-free, plus downloads of MP3s to subscribers with audio content-enabled phones. Verizon offers sports programming and music downloads with VCast.[60]

- Sprint offers channels of music and other audio content as part of its Power Vision data packages, as well as additional choices.[61]
    - The basic Power Vision access pack, at $15 a month, includes 10 commercial-free music channels as part of package that also provides access to Power View Music with exclusive videos and artist interviews, NFL Mobile, unlimited data access, Sprint Mobile Email, Sprint Picture Mail, and unlimited web browsing.[62]
    - For $5 more, the Music Power Vision Pack at $20 a month adds to the basic offering another 40 commercial-free music channels (bringing the total to 50), plus streaming of over 95 local terrestrial radio stations from around the country that can be listened to no matter where the customer is.[63]
    - Subscribers who want more streaming audio have a choice of other options they can add:[64]

---

[58] NPD Group, *Music Enabled Phones* (2007), *available at* http://wireless.npd.com/bulletin_music_phones.html (last visited July 12, 2007).

[59] Jupiter Research, *US Music Forecast, 2006 to 2011* (Vol.2, 2006) at 8.

[60] T-Mobile has minimal music offerings.

[61] In almost all cases, to avoid paying for data usage charges, a cellular subscriber must have a data package.

[62] Sprint Press Release, *Power of Mobile Music Now More Accessible Than Ever To Sprint Customers* (March 26, 2007), *available at* http://www2.sprint.com/mr/news_dtl.do?id=15821 (last visited July 12, 2007). *See also* Sprint Press Release, *Sprint Offers NFL Mobile – The Exclusive Source of Real-Time NFL Information – Free of Charge to Vision or Power Vision Subscribers* (July 24, 2006), *available at* http://www2.sprint.com/mr/news_dtl.do?id=12760 (last visited July 17, 2007).

[63] Sprint Press Release, *Power of Mobile Music Now More Accessible than Ever to Sprint Customers* (March 26, 2007), *available at* http://www2.sprint.com/mr/news_dtl.do?id=15821 (last visited July 12, 2007). *See also* http://datapack.sprint.com/Radio.html (last visited July 19, 2007). *See also* http://datapack.sprint.com/MapSearch.aspx (last visited July 15, 2007). *See also* Sprint service brochure (2007).

[64] In addition to the packages listed above, Sprint customers can also purchase monthly subscriptions to a number of video services such as International Music Feed, Hip Hop Official and Music Choice.

- 50 MSpot channels (not included in any Vision pack), includes over 50 channels of music radio and videos, news, sport and talk, including NPR and Fox Sports, for $5.95 a month;[65]
- Sony Music Box Connect, with 15 commercial-free radio stations, for $5.95 a month;[66]
- Rock on Attitude, with rock music, tour info, news etc., for $5.99 a month;[67]
- Multiple sports channels that offer scores, audio highlights and photographs, including Fox Sports Mobile Pro, CBS SportsLine Mobile, and PGA Tour's TOURCast Mobil, each for $4.99 a month);[68]
- An assortment of Rhapsody channels, for $5.95 a month;[69]
- Pandora's streaming service, for $2.99 a month;[70]
- 20 Sirius channels, for $6.95 a month;[71]
- Live audio broadcasts of MLB games from MLB GameDay, for $5.99 a month;[72]
- Various audio, graphic, and video news and weather channels at prices from $2.99-$4.99 a month, including The Weather Channel, Weather News, NYTimes and many local stations.[73]

---

[65] This is also known as Sprint Radio Extra. *See* Sprint's Digital Lounge, *Entertainment, Music and Radio, available at* https://manage.sprintpcs.com/Manage/portal/goTo?action=DigitalLounge&ATR_ExtraOne=UHPCHP_DME_Link_ShopDigitalLounge (last visited July 21, 2007).

[66] *Id.*

[67] *Id.*

[68] *See* Sprint's Digital Lounge, *Applications,Sports, available at* https://manage.sprintpcs.com/Manage/portal/goTo?action=DigitalLounge&ATR_ExtraOne=UHPCHP_DME_Link_ShopDigitalLounge (last visited July 21, 2007)..

[69] *See also* Sprint's Digital Lounge, *Entertainment, Music and Radio, available at* https://manage.sprintpcs.com/Manage/portal/goTo?action=DigitalLounge&ATR_ExtraOne=UHPCHP_DME_Link_ShopDigitalLounge (last visited July 21, 2007).

[70] Stefanie Olsen, *Pandora's music box on Sprint phones*, CNET NEWS (May 23, 2007), *available at* http://news.com.com/8301-10784_3-9722106-7.html (last visited July 12, 2007).

[71] *See* https://manage.sprintpcs.com/Manage/portal/!ut/p/_s.7_0_A/7_0_AFHH/.cmd/ad/.ar/sa.spf_Action Listener/.c/6_0_310/.ce/7_0_50NJ/.p/5_0_18L/.d/0?PC_7_0_50NJ_spf_strutsAction=%212fselectFolder.do%213ff olderId%3DFLD101011#7_0_50NJ (last visited July 12, 2007).

[72] Sprint Press Release, *Sprint and Major League Baseball Advanced Media Reach Landmark Agreement Offering Live Major League Baseball Gameday Audio - Fans' Mobile Lifeline To Every Game* (August 9, 2006), *available at* http://www2.sprint.com/mr/news_dtl.do?id=12980 (last visited July 16, 2007).

- AT&T offers access to:
  - MobiRadio, with over 50 commercial-free radio channels, including NPR, Fox News, ESPN Radio, The Weather Channel, and music channels, for $8.99 a month;[74]
  - XM Radio Mobile, with 25 channels, for $8.99 a month;[75]
  - A variety of sports offerings, including CBS SportsLine Mobile, with the latest scores and insider sports info, for $4.99 a month; Fox Sports Mobile which offers news, scores, standings, schedules, odds and more for $4.99 a month; as well as other sports offerings including MLB Gameday, ESPN and Soccer '06;[76]
  - Napster, Yahoo, and eMusic subscription services, for their normal rates;[77]
  - MobiTV, which offers live television from MSNBC, ABC, Fox Sports, The Discovery Channel and other music, comedy, and cartoon channels, for $9.99 a month;[78]
  - Mobilcast, which offers access to a catalog of podcasts from news, music, and comedy channels including MTV News, Onion Radio News, NPR, NY Times and CNN, for $4.99 a month;[79]
  - Hip Hop Official by GoTV, with new hip hop music, news and interviews, for $5.99 a month;[80]

---

[73] *See* Sprint's Digital Lounge, *Applications, Weather, News &Traffic, available at* https://manage.sprintpcs.com/Manage/portal/goTo?action=DigitalLounge&ATR_ExtraOne=UHPCHP_DME_Link_ShopDigitalLounge (last visited July 21, 2007).

[74] *See* http://mediamall.wireless.att.com/sf/storefront/endUserHTMLHome.jsp?dc=0 (last visited July 21, 2007). To avoid data usage charges, customers subscribing to these AT&T plans likely will also subscribe to a data usage plan, which will include both data usage and other services. For example, The Media Works plan, at $15 a month, includes both 5 MB of usage for services including mobile music, web, or email and 1500 text messages, and the Media Max 200 plan, at $19.99 per month, includes unlimited usage for mobile music, web, or email, and 200 text messages. AT&T, *AT&T Nation Calling Plans* (rev. June 3, 2007).

[75] *See* http://mediamall.wireless.att.com/sf/storefront/endUserHTMLDir.jsp?dc=0&c1=CFWEB2048&sf=CFHTML&dc=0 (last visited July 21, 2007).

[76] *See* http://mediamall.wireless.att.com/sf/storefront/endUserHTMLDir.jsp?dc=0&c1=CFWEB2048&c2=CFWEB5926&c3=CFWEB2695&trail=all%20CFWEB2695 (last visited July 21, 2007).

[77] *See* http://www.wireless.att.com/source/music/mobilemusic.aspx (last visited July 16, 2007); *see also* Grace Aquino, *Dialed In: Cingular Plays a New Tune*, PC WORLD (November 29, 2006), *available at* http://www.pcworld.com/printable/article/id,127998/printable.html (last visited July 12, 2007).

[78] *See* http://mediamall.wireless.att.com/sf/storefront/endUserHTMLHome.jsp?pc=U&dc=0 (last visited July 16, 2007).

[79] *See* http://mediamall.wireless.att.com/sf/storefront/endUserHTMLDir.jsp?trail=all+CFWEB4655&c3=CFWEB4655&c2=CFWEB5926&c1=CFWEB2048&resourceIndex=7&sf=CFHTML&dc=0 (last visited July 21, 2007).

- Alt Rock, with new rock music, news, tour info and more, for $5.99 a month;[81]
- Weather channels with information on current U.S. weather conditions and radar and satellite imagery, including Weather News, My Cast Weather, NBC Weather Plus and the Weather Channel at rates of $2.99 - $3.99, and more specialized channels for flying or fishing conditions cost for $5.99 to $9.99.[82]

- Alltel offers two streaming radio packages:
  - Alltel's Axcess Radio, with 40 commercial-free music channels for $6.99 a month;[83]
  - XM Radio Mobile, with 20 XM channels, for $7.99 a month;[84]
  - Alltel also offers:
    - Axcess TV, with more than 25 music, news, sports, fashion, weather and comedy video channels, including Fox Sports, ESPN, Fox News, and MLB for $9.99 per month;[85]
    - Axcess Mobilcast, which offers access to a catalog of over 4000 on-demand podcasts and radio shows with music, comedy, sports programming, from channels including NPR, MSNBC, Fox Sports, CNN, Fox TV, ESPN Radio, and MLB for $3.99 a month.[86]
- Verizon offers both sports audio and audio downloads:
  - Live broadcasts of MLB games are available at $6.99 a month, or 29.99 for a season pass;[87]
  - V Cast Music offers a choice of 1.8 million songs for purchase at $1.99 via the phone or $0.99 via computer.[88]

---

80 http://mediamall.wireless.att.com/sf/storefront/endUserHTMLDir.jsp?trail=all+CFWEB4655&c3=CFWEB4655&c2=CFWEB5926&c1=CFWEB2048&resourceIndex=1&sf=CFHTML&dc=0 (last visited July 21, 2007).

81 *Id.*

82 *See* http://mediamall.wireless.att.com/sf/storefront/endUserHTMLDir.jsp?dc=0&c1=CFWEB2048&c2=CFWEB5926&c3=CFWEB2693&trail=all%20CFWEB2693 (last visited July21, 2007).

83 *See* http://www.alltel.com/axcess/tv_radio.html (last visited July 12, 2007). Subscribers to these packages also likely will want to subscribe to Alltel's Axcess Minutes plan, which provides unlimited airtime minutes for Axcess Radio, TV, and Axcess Web and more for $10 per month.

84 *Id.*

85 *Id.*

86 *Id.*

87 Major League Baseball, *Gameday plus Gameday Audio*, *available at* http://mlb.mlb.com/mobile/gameday.jsp (last visited July 17, 2007).

- Still other services are available to wireless subscribers on an "off-deck" basis, *i.e.*, without distribution support from wireless carriers. These services are accessible to wireless users with a data plan by direct access to a mobile portal.
  - Mercora M offers over a hundred thousand channels of digital radio and other services for $4.99 a month or $49.99 a year.[89]
  - Mobzilla for $9.99 a month offers commercial-free music channels, including artist DJ channels and music that is personalized based on the consumer's choice of style and rating and skipping of songs.[90]

40. Delivery of audio content to wireless phones is still a relatively new service that undoubtedly will expand over the next few years, but these services already are attracting substantial numbers of subscribers.[91] Sirius and XM have not ignored this competition. In addition to offering satellite radio service, they also offer their radio streams on a wholesale basis to wireless phone companies in competition with firms including Pandora, mSpot Radio, MobiTV, Music Choice, and Clear Channel.

c) iPods and Other MP3 Players

41. Sirius and XM similarly face competition from iPods and other MP3 players. Content and service providers for iPods and other MP3 players (including the subscription services) have responded to satellite radio, making available a wide variety of audio content, including Internet radio programs. Subscription services now permit audio content to be loaded onto compatible players at Wi-Fi hotspots, for about $15 per month.[92] This permits users to gain continual access to new music and the playlists of others. This product extension and repositioning has involved changing the type of product offered, not merely trying to change the consumer perceptions of the products. The new Slacker product will be introduced later in 2007 and will involve a music service distributed via the Internet and

---

[88] *Verizon Wireless Service Brochure* (July/Aug/Sept 2007) at 23. Associated usage is covered by separate data package, such as V Cast V Pak, which gives users unlimited airtime for V Cast Music, Video and Mobile Web services, as well as access to unlimited basic video clips, unlimited monthly access to Mobile Web services (e.g. Hotmail, Yahoo!), and ESPN MVP (manage fantasy sports teams, etc.). *Verizon Wireless Service Brochure* (July/Aug/Sept 2007) at 20.

[89] *See* http://www.mercora.com/m/ (last visited July 17, 2007).

[90] *See* http://www.mobzilla.com/what.is.aspx (last visited July 21, 2007).

[91] Sprint had nearly 1.2 million subscribers for its Sprint Power Vision packages, which include audio content, by the end of Q2 2006. Seeking Alpha, *Sprint Nextel Q2 2006 Earnings Conference Call Transcript* (August 3, 2006), *available at* http://seekingalpha.com/article/14951 (last visited July 21, 2007). mSpot, which launched the first service streaming radio service to cell phones in 2005, announced that it had passed 1 million paying subscribers for its audio and video services. mSpot Press Release, *MSPOT Surpasses One Million Subscribers* (March 26, 2007), *available at* http://www.mspot.com/press-releases11.php (last visited July 21, 2007).

[92] *For details, see* http://music.yahoo.com/ymu/?tab=togo (last visited July 12, 2007); *see also* http://www.napster.com/napstermobile/ (last visited July 12, 2007).

Ku band satellite to both portable devices and vehicles. Sirius and XM have attempted to meet this competition by adding recording and storage capacity to their receivers, and by then expanding that storage capacity. In addition to permitting time shifting, the storage capacity also permits users to listen to songs from their MP3 or other digital files, CD collections, or Napster in order to self-program their music mix.[93] XM and Sirius also allow subscribers to stream music on their computers. In fact, **[[REDACTED** [redacted]]].[94]

42. More than 70% of new vehicles in the 2007 model year will have an option that allows integrated use of their iPod player over the vehicle's audio system.[95] Many vehicle radios also have auxiliary input jacks, often paired with 12 volt outlets, to which iPods or other MP3 players, as well as audio content-enabled wireless phones such as the new iPhone, can be connected. The number of iPods and other MP3 players in use is projected to grow by about 60 million between now and 2009.[96] Those players allow consumers to listen to music from the owner's CD collection, songs and podcasts from the iTunes Music Store and its competitors, and music from subscription services like Rhapsody and Napster. Owners of MP3 players also can load their players with playlists programmed by others or with their own collections shuffled up.[97]

d) Feature Convergence and New Product Innovation

43. This discussion indicates that there has been substantial blending among products as features associated with one type of device become incorporated into other devices. In this market, product extension and repositioning is a constant process of product innovation. For example, satellite radios and wireless phones are adding more storage capability; wireless phones are adding audio streaming; and iPods and other MP3 players are gaining more capability to acquire additional content (*e.g.*, radio-style podcasts), even when away from home (*i.e.*, at Wi-Fi hotspots, on WiMAX networks and over Ku Band). The

---

[93] Orbitcast, *Samsung Nexus - Orbitcast Review* (May 27, 2006), *available at* http://www.orbitcast.com/archives/samsung-nexus-orbitcast-review.html (last visited July 12, 2007); *see also* Adotas, *XM's Push-and-Purchase Function Glimpses at Advertising's Future* (February 23, 2006), *available at* http://www.adotas.com/2006/02/xms-push-and-purchase-function-glimpses-at-advertisings-future/ (last visited July 19, 2007).

[94] **[[REDACTED** [redacted]]]; XM Satellite Radio, *Form 10-Q, 3Q* 2006.

[95] Apple Press Release, *Apple Teams Up With Ford, General Motors & Mazda To Deliver Seamless iPod Integration* (August 3, 2006), *available at* http://www.apple.com/pr/library/2006/aug/03ipod.html (last visited June 5, 2007).

[96] Jupiter Research, *US Music Forecast, 2006 to 2011* (Vol.2, 2006) at 8.

[97] *For example, see* Rhapsody, Music to go, *available at* *http://learn.rhapsody.com/players?src=rcom_footbox* (last visited July 17, 2007); *see also* Yahoo! Music Unlimited To go, available at http://music.yahoo.com/ymu/default.asp?tab=togo (last visited July 17, 2007).

excitement created by the iPhone reflects the growing competition from blended devices. These market developments will tend to increase the degree of demand substitution (and cross-elasticities of demand) between the satellite radio providers and other forms of audio entertainment as devices blend and become less differentiated. These developments also indicate the potential for rapid supply-side repositioning in response to any post-merger price increases.

44. In this dynamic market, new products are being introduced on a regular basis to create more convergence among audio entertainment modes. One product that highlights this convergence is the new joint Ford-Microsoft product called Sync. Using Bluetooth or a USB port, Sync allows music and cellular devices to instantly become integrated with the car. Then, using voice commands, a driver can dial contacts in their cell phone or have an MP3 player switch to the next track. Ford, which offers Sirius radios on many models, also will have the Sync system available for 12 models later this year.[98] Another product, SelectRadio software, permits owners of wireless phones and PDAs that use Windows Mobile software to stream music (including Sirius and XM programming) and podcasts.[99] Sprint soon will be offering a new phone that connects through the FM radio.[100]

45. Other products, such as Slacker, are blurring the lines between different audio mediums. Slacker also shows how nimble new entrants can quickly expand their product offerings. Initially, Slacker launched an online streaming radio player, which allowed users to rate and customize the music they hear (as do Pandora and other Internet-based services such as Mercora), as well as load a user's MP3s and other music files.[101] Next, Slacker will launch a portable player, which integrates the streaming music player and allows users to update their radio stations over Wi-Fi. Finally, Slacker will introduce a music service using Ku band satellite capacity, which will allow Slacker users to receive updates for their portable player in their cars. Slacker recently received an additional $40 million in funding for the launch of their service.[102]

---

[98] Ford Press Release, *Ford Teams Up with Microsoft to Deliver Sync; In-Car Digital System Exclusive to Ford* (January 7, 2007), *available at* http://media.ford.com/newsroom/release_display.cfm?release=25168 (last visited July 3, 2007).

[99] *See* http://www.selectradio.com/SelectRadioFeatures.html (last visited June 7, 2007).

[100] This phone is the Musiq by LG. *See* John Biggs, *Transmit Your Music to FM Right From Your Cellphone*, NEW YORK TIMES (July 12, 2007), *available at* http://www.nytimes.com/2007/07/12/technology/circuits/12phone.html?_r=1&oref=slogin (last visited July 12, 2007).

[101] Erica Ogg, *Slacker's new wavelength for satellite radio*, CNET.COM (March 14, 2007), *available at* http://news.com.com/2100-1041_3-6166934.html (last visited June 5, 2007). For a description of Slacker's products, *see* http://www.slacker.com/company/products.html (last visited July 17, 2007).

[102] Robert Nelson, *$40 million more in funding for Slacker*," GADGETELL (June 5, 2007), *available at* http://www.gadgetell.com/2007/06/40-million-more-in-funding-for-slacker/ (last visited June 11, 2007).

46. New cars may well come with connections for Internet radio over the next few years. Internet offerings for the car already are becoming more robust, as discussed earlier. Autonet Mobile will begin selling a portable router that turns a car into a "rolling hotspot," allowing multiple users to connect to the Internet.[103] The router, which is being released this summer, will sell for $400 and the monthly network connection will be $50 a month. Autonet has already reached an agreement with Avis to offer their service in select cars.[104] Moreover, Aeris is finalizing the integration of broadband service into the telematic system of automobiles in the 2008 model year car.[105] By 2009 automobiles may have IP addresses to communicate information over broadband networks.[106] As discussed below, new access technologies and networks will make mobile broadband access widely available in the coming years. The emergence of mobile Internet connectivity will enhance the competitive significance of Internet radio companies. Pandora has already begun discussions with OEMs about integrating Pandora into new vehicle models.[107]

47. The importance of inter-modal demand substitution in this dynamic market also is suggested by the pattern of satellite radio sales growth. Inter-modal competition and emerging competition has increased substantially and both XM and Sirius have missed their initial subscriber projections for 2006. Increased competition from other forms of audio entertainment also has led several analysts to make significant downward revisions in

---

[103] Dan Tynan, *Cruising the Internet at 70 MPH: Soon you'll be able to surf the Web, download music, and check e-mail in your car*, PC WORLD (March 21, 2007), *available at* http://www.pcworld.com/printable/article/id,129779/printable.html (last visited June 15, 2007). *See also* http://www.autonetmobile.com/wp/service (last visited July 16, 2007).

[104] *Id. See also* Avis Press Release, *Rent From Avis and Get Your Own Mobile Wi-Fi Hot Spot* (May 21, 2007), *available at* http://www.autonetmobile.com/wp/wp-content/uploads/2007/05/avis_release_may07.pdf (last visited July 17, 2007). The connection to the Internet works best in areas that have EV-DO Rev. A coverage. The EV-DO Rev A upgrade allows CDMA wireless networks to offer mobile, broadband access with faster download and upload speeds. Verizon Wireless has upgraded its entire wireless network to EV-DO Rev A, and Sprint reaches more than 203 million people nationwide with its upgrade EV-DO Rev A network. Verizon Press Release, *Verizon Wireless: 100 Percent Of Wireless Broadband Network Now Enhanced With Fast Speeds* (June 29, 2007), *available at* http://news.vzw.com/news/2007/06/pr2007-06-28h.html (last visited July 12, 2007); Sprint Press Release, *American's Largest and Fastest Mobile Broadband Network Just Got Even Larger – Sprint Customers Can Do More, In More Places, And At Fast Speeds* (June 19, 2007), *available at* http://www2.sprint.com/mr/news_dtl.do?id=17121 (last visited July 12, 2007).

[105] Dan Tynan, *Cruising the Internet at 70 MPH: Soon you'll be able to surf the Web, download music, and check e-Mail in your car*, PC WORLD (March 21, 2007), *available at* http://www.pcworld.com/printable/article/id,129779/printable.html (last visited June 15, 2007). *See also* http://www.aeris.net/index.html (last visited July 18, 2007).

[106] Dan Tynan, *Cruising the Internet at 70 MPH: Soon you'll be able to surf the Web, download music, and check e-Mail in your car*, PC WORLD (March 21, 2007), *available at* http://www.pcworld.com/printable/article/id,129779/printable.html (last visited June 15, 2007).

[107] Sarah McBride, *Going Wireless: Internet Radio Races To Break Free of the PC – Pushing Portability In Cars, Music Players; Static Over WiFi*, WALL STREET JOURNAL (June 18, 2007).

their projections for 2010, with figures as much as 20% lower.[108] Over the same period, growth of iPods and MP3 portable players has greatly exceeded expectations.

B. Product Differentiation

48. Product differentiation is ubiquitous among audio entertainment products and most consumer products and brands are differentiated in some way. Audio entertainment products and content services are differentiated along a number of dimensions – for example, programming mix, sound quality, number of commercials, number of channels, and price. XM and Sirius also are differentiated from each other because of exclusive content and exclusive installation with automobile manufacturers, as well as program mix and DJs. The existence of product differentiation does not mean that every differentiated product comprises its own separate relevant market. Indeed, automatically to treat differentiation as determinative would imply that XM and Sirius each would be in separate markets.

49. The relevant economic issue for market definition is whether XM and Sirius are especially close substitutes, relative to the other audio entertainment products and content services, such that a small but significant post-merger price increase would be profitable. As discussed above, there is significant demand substitution between satellite radio on the one hand, and the other modes of audio entertainment on the other. Over time, the potential for demand substitution will increase, not decrease. At the same time, the differentiation between Sirius and XM reduces the degree of substitution between them. Thus, the main constraints on Sirius and XM's pricing and product offerings are substitution to other audio entertainment products and the need to build demand through penetration pricing, not buyer substitution to the other satellite radio provider.

1. Product Differentiation and Switching Costs Between Sirius and XM

50. Some Comments have suggested that XM and Sirius are basically fungible products, or at least especially close substitutes to each other relative to other audio entertainment products.[109] These claims are incorrect. Substituting between Sirius and XM involves

[108] Bank Testimony. *See also* Goldman Sachs, *Conundrum Squared: Why XM And Sirius Should Wait* (February 11, 2007) at 1 ("An already competitive environment is slowing retail net adds and a measured pace of OEM penetration faces an increasingly competitive in-car market.") Goldman Sachs revised downward its year end subscriber projections for XM and Sirius for 2007 and 2008 by about 6-7% and 14-16% respectively, and its projections for net additions in 2007 by 20-25% and in 2008 by 39-41%. *Id.* at 4, 30-31. *See also* JP Morgan, *XM Satellite Holdings Inc* (January 16, 2007) at 2 ("This reflects our view that 2005 and 2006 retail sales were skewed by an early adopter surge that will be hard to top in the future, especially with strong competition from iPod, cell phones and other music devices.")

[109] AAI Comments at 22-25; *Cf.* David Balto, Testimony of David A. Balto before the Antitrust Subcommittee of the Senate Judiciary Subcomittee on Antitrust, Competition Policy and Consumer Rights (March 20, 2007) (hereinafter "Balto") at 3-4; *see also* Sidak-1 at 25-32.

substantial switching costs for current subscribers. For example, a 10% increase in the current subscription price of $12.95 per month would increase service costs by less than $16 per year; if a subscriber switched to the other service in response, it would take about 9 years to recover incremental equipment and accessory costs of $150. These switching costs tend to differentiate the two products for current subscribers. In addition, Sirius and XM are differentiated on the basis of content and OEM distribution. These sources of differentiation have been increasing over time.

a) Content Differentiation

51. XM and Sirius each have substantial exclusive content. This exclusive content comprises some of the most popular stations offered by each firm. For example, Sirius has Howard Stern, NFL, NASCAR, and Martha Stewart, among others. XM has MLB, NHL, Opie and Anthony, and Oprah Winfrey, among others. Subscribers also may have preferences among the disk jockeys who program or host the various channels for each of the genres offered by the two services. For example, XM has Bob Dylan, Willie Nelson, and Snoop Doggy Dog.[110] Sirius has personalities such as Steve Van Zandt, Jamie Foxx, 50 Cent, and Tony Stewart.[111]

52. This exclusive content differentiation is important to many consumers. For example, **[[REDACTED** [redacted].[112] [redacted].[113] [redacted].[114] [redacted]]].[115]

[110] A list of exclusive content on XM can be found on XM Satellite Radio website, *available at* http://www.xmradio.com/onlyonxm/index.xmc (last visited July 18, 2007).

[111] A list of DJs and show hosts for Sirius can be found at Sirius website, *available at* http://www.sirius.com/servlet/ContentServer?pagename=Sirius/Page&c=Page&cid=1107787275024& (last visited July 5, 2007).

[112] **[[REDACTED** [redacted]]].

[113] **[[REDACTED** [redacted]]].

[114] **[[REDACTED** [redacted]]].

[115] **[[REDACTED** [redacted]]].

53. *This type of content product differentiation makes it less likely that satellite radio* comprises a market separate from other audio entertainment products. This is because the product differentiation reduces the degree of demand substitution between the two services, relative to the degree of demand substitution with other audio entertainment devices and modes of listening. For example, a diehard fan of Opie and Anthony would find AM/FM a closer substitute than Sirius for XM because Opie and Anthony also are available on CBS radio, as well as on XM, but not on Sirius.[116] The same situation would apply to baseball fans. For instance, in Washington, D.C., listeners can choose between XM and Bonneville Radio's AM1500/FM107.7 for coverage of Nationals games, but they cannot choose Sirius.[117] Similarly, Redskins fans in Washington can choose between WJFK and Sirius, but not XM. Sports content from MLB, NFL, NBA, and NASCAR are also available on AM/FM, but not from the other satellite radio provider. Games also are streamed on the Internet by the Leagues.[118] They also are increasingly being offered on wireless phones.[119] Indeed, Major League Baseball expects to have over a million subscribers this season for its GameDay package of audio baseball game broadcasts or its video content.[120]

54. As discussed in more detail below, this product differentiation also is relevant for unilateral competitive effects analysis, regardless of how the market is defined. The product differentiation between XM and Sirius reduces the impact of the merger on their pricing incentives, *ceteris paribus*.

b) OEM Distribution Differentiation

55. Sirius and XM are differentiated in a second key way. Sirius and XM each have distribution agreements with a large number of automobile manufacturers, most of whom pre-install the radios of only one of the two services. XM's OEM partners (GM, Honda, Hyundai, Toyota, Nissan and others) accounted for a little under 60% of U.S. car and light truck sales in 2006. Sirius' OEM partners (Daimler Chrysler, BMW, Mitsubishi, Ford and

---

[116] Peter Johnson, *Opie & Anthony Airing on XM & CBS*, USA TODAY (April 24, 2006), *available at* http://www.usatoday.com/life/people/2006-04-24-opie_x.htm (last visited June 7, 2007).

[117] Barry Svrluga & Paul Farhi, *Nationals Announce 3-Year Radio Broadcast Deal*, WASH POST (Jan. 20, 2006), *available at* http://www.washingtonpost.com/wp-dyn/content/article/2006/01/19/AR2006011903073.html (last visited July 5, 2007).

[118] *See* http://mlb.mlb.com/mlb/subscriptions/gameday_audio.jsp?c_id=mlb (last visited July 20, 2007); *see also* http://www.nfl.com/fieldpass/faq (last visited July 16, 2007).

[119] For example, as noted above, live game day broadcasts of MLB games are offered by both Sprint and Verizon. Sprint Press Release, *Sprint and Major League Baseball Advanced Media Reach Landmark Agreement Offering Live Major League Baseball Gameday Audio - Fans' Mobile Lifeline To Every Game* (August 9, 2006), *available at* http://www2.sprint.com/mr/news_dtl.do?id=12980 (last visited July 17, 2007). *See also* http://mlb.mlb.com/mobile/gameday.jsp (last visited July 17, 2007).

[120] Steven Levy, *Major League Baseball's Digital Fortunes,* NEWSWEEK (June 25, 2007), *available at* http://www.msnbc.msn.com/id/19196667/site/newsweek (last visited July 17, 2007).

others) accounted for about 40% of U.S. sales.[121] The OEMs install integrated receivers as standard or optional equipment in many of their models. These are long term contracts, many of which will not expire for more than 5 years. Subaru, which accounted for about 1% of U.S. car and light truck volume in 2006, is the only manufacturer to offer a factory-installed option between Sirius and XM in the 2008 model year.[122] One important reason for these *de facto* exclusive relationships is that it is less costly to deal with a single supplier and integrate only a single type of unit into the auto sound system.

56. The effect of car manufacturers offering only one satellite radio service is to reduce the cross-elasticity of demand between Sirius and XM. It is unlikely that any consumers would sell their current automobile and purchase a different brand in response to a price increase by either Sirius or XM. Replacing the installed radio that is integrated into the sound system with a plug-and-play aftermarket model is possible, but that product substitution would involve the switching costs of having to purchase new equipment, and perhaps somewhat inferior sound quality. This OEM practice of installing only XM or Sirius radios, rather than offering a choice, obviously significantly reduces the degree of demand substitution among current subscribers between Sirius and XM in response to price changes. The cost of purchasing new equipment also reduces the cross-elasticity of demand between Sirius and XM for subscribers who have already purchased an aftermarket radio for one or the other service, though not to the same degree.

57. It is therefore not surprising that the actual incidence of substitution by current subscribers of one satellite radio service to the other is quite low. **[[REDACTED** [redacted].[123] [redacted]**]]**. This substitution evidence supports the conclusion that the relevant market should not be defined as just satellite radio.

[121] Motor Intelligence, *New Vehicle Sales* (2007 CYTD), *available at* http://www.motorintelligence.com/body.asp (last visited July 20, 2007).

[122] Nissan/Infiniti previously offered both Sirius and XM, but will offer only offer XM radios beginning in the 2008 model year. Only XM radios are factory-installed by Toyota, although Sirius radios can be dealer-installed on certain Toyota models.

[123] Calculated from **[[REDACTED** [redacted]]].