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November 16, 2007

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**VIA HAND DELIVERY**

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, D.C. 20554

**Re: REDACTED – FOR PUBLIC INSPECTION  
MB DOCKET NO. 07-57**

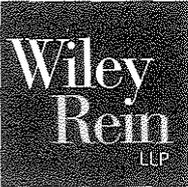
Dear Ms. Dortch:

In accordance with the Order adopting the Protective Order<sup>1</sup>, the Order adopting the Second Protective Order<sup>2</sup>, and the instructions we have received from the Staff of the Media Bureau, enclosed please find two *redacted* copies of the narrative response of Sirius Satellite Radio Inc. (“Sirius”) to the Bureau’s Initial Information and Document Request dated November 2, 2007, together with the redacted exhibits, responsive documents, master index and production log.

Per the Protective Orders and staff instructions, Sirius is filing today, under separate transmittal, one redacted, public version of its narrative response, exhibits, master index, and production log via ECFS; one electronic unredacted copy of the narrative response, exhibits, responsive documents, master index, and production log with the Secretary’s Office; two unredacted paper copies of the narrative response, exhibits, responsive documents, master index, and production log with the Secretary’s Office; and twelve electronic unredacted copies of the narrative response, exhibits, responsive documents, master index, and production log with Jamila Bess Johnson of the Industry Analysis Division of the Media Bureau. The unredacted version of confidential information will be made available for inspection, pursuant to the terms of the First Protective Order or the Second Protective Order, as applicable, at the offices of Wiley Rein LLP, 1776 K Street NW, Washington, D.C. 20006. Counsel

<sup>1</sup> *Applications of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc. For Approval to Transfer Control*, MB Docket No. 07-57, Protective Order, DA 07-3135 (rel. Jul. 11, 2007) (“First Protective Order”).

<sup>2</sup> *Applications of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc. For Approval to Transfer Control*, MB Docket No. 07-57, Protective Order, DA 07-4666 (rel. Nov. 16, 2007) (“Second Protective Order”).



Marlene H. Dortch  
November 16, 2007  
Page 2

for parties to this proceeding should contact the undersigned at (202) 719-3249 or Nicholas M. Holland at (202) 719-4632 to coordinate access after they comply with the terms of the First Protective Order or Second Protective Order, as applicable. Parties seeking access to Confidential or Highly Confidential documents should serve the required Acknowledgement of Confidentiality on Peter D. Shields and Nicholas M. Holland at Wiley Rein LLP, 1776 K Street, NW, Washington, D.C. 20006.

If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in cursive script, appearing to read "Peter D. Shields".

Peter D. Shields

Enclosures

cc: Jamila Bess Johnson, Industry Analysis Division, Media Bureau

**REDACTED – FOR PUBLIC INSPECTION**

**Before the Federal Communications Commission**



**SIRIUS SATELLITE RADIO INC.**

**RESPONSE TO THE INFORMATION AND DOCUMENT REQUEST  
ISSUED ON NOVEMBER 2, 2007 BY  
THE FEDERAL COMMUNICATIONS COMMISSION**

**NOVEMBER 16, 2007**

MB Docket No. 07-57  
INITIAL INFORMATION AND DOCUMENT REQUEST  
FOR SIRIUS SATELLITE RADIO INC.  
Filed: November 16, 2007

MASTER INDEX

**I. Corporate Documents and Other Agreements:**

- A. Provide any and all agreements and like documents relating to the Transaction, including but not limited to the Merger Agreement and any and all attachments, appendices, side or separate letter agreements and like documents by and between the Applicants.**

Narrative response p. 2.

No Exhibits

Documents: SIRIUS-FCC-I.A.000001—SIRIUS-FCC-I.A.000167

**B. Provide any documents relating to:**

- 1. Agreements with major retailers, including, but not limited to, Wal-Mart, Best Buy, Radio Shack, Crutchfield and Circuit City, relating to the marketing and sale of Sirius radio receivers and related equipment (including FM wireless transmitter modulators), including commissions, advertising credits, subsidies, co-share advertising arrangements and the provision of complimentary Sirius service subscriptions to equipment purchasers;**

Narrative response p. 2.

No Exhibits

Documents: SIRIUS-FCC-I.B.000001—SIRIUS-FCC-I.B.000191

- 2. Agreements with aftermarket equipment manufacturers or distributors regarding the manufacture, distribution and/or marketing of Sirius radio receivers and/or related equipment (including FM wireless transmitter modulators), including commissions, advertising credits, subsidies, co-share advertising arrangements and the provision of complimentary Sirius service subscriptions to equipment purchasers;**

Narrative response p. 3.

No Exhibits

Documents: SIRIUS-FCC-I.B.000192—SIRIUS-FCC-I.B.000929

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- 3. Programming contracts related to specialized channels, including sports and entertainment programming, including, but not limited to, the National Football League, NASCAR, the National Basketball Association, the National Hockey League, the NCAA, CNN, CNBC, Fox, the BBC, Radio Disney and ESPN;**

Narrative response p. 3.

No Exhibits

Documents: SIRIUS-FCC-I.B.000930—SIRIUS-FCC-I.B.001560

- 4. Programming and/or talent contracts for programming with celebrity talent including, but not limited to, Howard Stern, Steven Van Zandt, Frank Sinatra Enterprises and Bruce Morrow;**

Narrative response p. 3.

No Exhibits

Documents: SIRIUS-FCC-I.B.001561—SIRIUS-FCC-I.B.001703

- 5. Agreements with car, truck, boat, recreational vehicle and motorcycle manufacturers for the marketing, sale and/or installation of Sirius equipment and service contracts, including revenue sharing, training for vehicle sales staff, service activation, subsidies, provision of complimentary Sirius subscriber service to vehicle purchasers and lessees, and other services;**

Narrative response p. 4.

No Exhibits

Documents: SIRIUS-FCC-I.B.001704—SIRIUS-FCC-I.B.002154

- 6. Licensing agreements with, including provisions regarding subsidies to, chipset manufacturers for chip and other equipment component sales to consumer electronic manufacturers for use with licensed Sirius radio receivers;**

Narrative response p. 4.

No Exhibits

Documents: SIRIUS-FCC-I.B.002155—SIRIUS-FCC-I.B.002902

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- 7. Joint operations with Internet Service Providers, mobile phone companies, program providers, including, but not limited to, satellite video distributors (such as EchoStar of the DISH Network) or other entities regarding the use or distribution of Sirius-branded programming, including music, talk or sports channels, or other non-Sirius branded channels, e.g., National Public Radio;**

Narrative response p. 4.

No Exhibits

Documents: SIRIUS-FCC-I.B.002903—SIRIUS-FCC-I.B.002977

- 8. Agreements with car, truck, recreational vehicle and motorcycle rental companies, such as Hertz, for the provision of Sirius radios and Sirius service in rental vehicles, including revenue sharing, training for vehicle rental staff; commissions, advertising credits, subsidies, co-share advertising arrangements and the provision of complementary Sirius service to vehicle renters;**

Narrative response p. 5.

No Exhibits

Documents: SIRIUS-FCC-I.B.002978—SIRIUS-FCC-I.B.003103

- 9. Agreements between XM and Sirius relating to the joint engineering operation for the research and development of interoperable radio receivers; and**

Narrative response p. 5.

No Exhibits

Documents: SIRIUS-FCC-I.B.003104—SIRIUS-FCC-I.B.003137

- 10. Agreements between XM and Sirius between 1997 and the present relating to sales, programming, service or equipment.**

Narrative response p. 5.

No Exhibits

Documents: SIRIUS-FCC-I.B.003138—SIRIUS-FCC-I.B.003139  
SIRIUS-FCC-I.B.003104—SIRIUS-FCC-I.B.003137

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

**II. Data, Studies and Analyses**

- A. Provide all company-sponsored surveys and studies cited in the Joint Opposition to Petitions to Deny and Reply Comments or otherwise submitted to the Commission by or on behalf of Sirius, or XM and Sirius, in this proceeding, and any underlying data and analysis.**

Narrative response p. 6.

No Exhibits

Documents: SIRIUS-FCC-II.A.000001—SIRIUS-FCC-II.A.004084

- B. Provide the following materials, as well as any underlying data or analyses, used in the CRA Economic Analysis of the Competitive Effects of the Sirius-XM Merger:**

- 1. The number of FM and AM stations reaching each census block in the lower-48 United States states (“lower-48 states”);**
- 2. The average number of FM and AM stations reaching each Zip Code Tabulation Area (“ZCTA”) in the lower-48 states;**
- 3. The number of Sirius subscribers in each ZCTA in the lower-48 states; and**
- 4. The cited demographic information for each ZCTA in the lower-48 states.**

Narrative response pp. 6-7.

No Exhibits

Documents: SIRIUS-FCC-II.F.002363—SIRIUS-FCC-II.F.002414  
SIRIUS-FCC-II.E.000287—SIRIUS-FCC-II.E.000364  
SIRIUS-FCC-II.F.001438—SIRIUS-FCC-II.F.001557  
XM-II-B-00000001—XM-II-B-00041874

- C. Provide any underlying data and analyses used in the Furchtgott-Roth Economic Enterprises’ study of the Sirius-XM Merger that are not already on the public record.**

Narrative response p. 7.

No Exhibits

Documents: SIRIUS-FCC-II.C.000001—SIRIUS-FCC-II.C.000421

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- D. Provide all studies, analyses, evaluations, and strategic discussion materials prepared by or for Sirius or Sirius and XM after January 1, 2005 that are intended to offer guidance on the economic advisability of the proposed merger.**

Narrative response pp. 7-8.

No Exhibits

Documents: SIRIUS-FCC-II.D.000001—SIRIUS-FCC-II.D.000272

- E. Provide all studies, analyses, and evaluations prepared by or for Sirius of subscriber churn from the automobile and retail sales sectors, respectively, for the period January 2001 to the present.**

Narrative response p. 8.

No Exhibits

Documents: SIRIUS-FCC-II.E.000001—SIRIUS-FCC-II.E.021465

- F. Provide all surveys, analyses, and evaluations of listener behavior prepared by or on behalf of Sirius, including but not limited to, audience studies (*i.e.*, ratings data, usage, audience demographics, and geographic distribution of audience) for the period January 2001 to the present.**

Narrative response p. 8.

No Exhibits

Documents: SIRIUS-FCC-II.F.000001—SIRIUS-FCC-II.F.002414

- G. Provide all studies, analyses, and evaluations prepared by or on behalf of Sirius or XM and Sirius performed after January 1, 2005 regarding price projections for proposed new programming options and a la carte packages, including information relating to price stability, channels per programming package, and pricing comparison between the current basic \$12.95 package and new programming options on a per-channel basis.**

Narrative response p. 9.

No Exhibits

No Documents

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

**H. Provide the following information on all promotions conducted by Sirius involving pricing, rebates, coupons, and all other forms of discounts offered to new or existing subscribers (including, but not limited to, discounts on equipment, service activation fees, installation charges, and service fees, such as free or discounted service trial periods), for the period January 1, 2005 to the present.**

- 1. The name of the promotion**
- 2. The beginning date of the promotion**
- 3. The ending date of the promotion**
- 4. The nature of the promotion (coupons, rebates, promotional pricing, etc.);**
- 5. The effect of the promotion on prices (e.g., reduced monthly price by \$5 per month for three months, two free months of service, \$50 rebate on radio, no activation fee, etc.);**
- 6. The eligibility and other requirements (e.g., new customers only, minimum subscription periods, purchases from specific retailers or original equipment manufacturers (“OEMs”), or of specific equipment, geographical limitations, etc.); and**
- 7. The number of subscribers that took advantage of the promotion.**

Narrative response pp. 10-15.

Exhibit II.H.

No Documents

**I. For each such promotion described in the response to Question H above, provide copies of all documents supporting the response or otherwise relating to the promotion.**

Narrative response pp. 10-15.

Exhibit II.H.

No Documents

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

**III. Technical Information**

- A. Provide a list of the Sirius terrestrial repeaters deployed in each market since January 2001, and, for each such terrestrial repeater, provide the following information:**
- 1. Latitude, longitude, and community;**
  - 2. Antenna type;**
  - 3. Antenna orientation;**
  - 4. Antenna downtilt;**
  - 5. Antenna height;**
  - 6. Equivalent Isotropically Radiated Power (“EIRP”);**
  - 7. Dates that operation of the facility with those parameters commenced and ended;**
  - 8. Description of any technical modification to the facility; and**
  - 9. Dates that operation of the modified facility commenced and ended.**

Narrative response p. 16.  
Exhibit III.A.  
No Documents

- B. Provide the methods or technologies of coding, compression, encryption, modulation, signal bandwidth and bit rate for both satellite and terrestrial repeater networks used since January 2001.**

Narrative response pp. 16-18.  
Exhibit III.B.  
No Documents

- C. List all receiver models sold since January 2001 and include all chipsets data including the manufacturer of the chipset used in them. Provide any statistics showing whether these receivers could become interoperable with minor changes in the chipset design or in the software program of these receiver chips.**

Narrative response pp. 18-31.  
No Exhibits  
No Documents

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- D. Provide the data sheet of technical characteristics for each chipset used in all receiver models sold since January 2001.**

Narrative response pp. 32-34.

No Exhibits

Documents: SIRIUS-FCC-III.D.000001—SIRIUS-FCC-III.D.000550

- E. Provide a description of all efforts to develop and commercialize interoperable satellite radio receivers and any difficulties in such development and commercialization.**

Narrative response pp. 34-35.

No Exhibits

No Documents

- F. Describe all steps necessary to migrate all of Sirius's subscribers to a common technology platform and the cost the company and its customers will incur to implement such a migration.**

Narrative response pp. 35-48.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- G. Provide maps, in .gxt format where possible, of the actual or expected geographic coverage area(s) for each of the Sirius satellites already in orbit or under development, including associated power flux density contours. Describe what factors went into the selection of the geographic coverage areas for the Sirius satellite networks, as well as any technical, economic, or other considerations that limit the ability of the Sirius satellite network to serve U.S. states and territories outside the contiguous United States.**

Narrative response pp. 48-51.

Exhibit III.G.

No Documents

**IV. Claimed Public Interest Benefits**

- A. Provide a detailed description of each of the cost savings expected to be realized as a result of the proposed transaction. For each of these anticipated cost savings:**

Narrative response pp. 52-53.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- 1. Provide a full explanation as to why those cost savings would not be achieved absent the proposed transaction;**

Narrative response p. 53.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- 2. Provide a quantification of the cost savings and an explanation of how the quantification was calculated, including all assumptions and their sources;**

Narrative response p. 54.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- 3. State separately the one-time fixed cost savings, recurring fixed cost savings, and variable cost savings (in dollars per unit and dollars per year); and**

Narrative response p. 54.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- 4. Provide sufficient supporting evidence to demonstrate that these cost savings will result in cognizable public interest benefits under our merger review standard.**

Narrative response p. 55.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- B. Describe any other efficiencies that are expected to occur as a result of the proposed transaction. For each of these other anticipated efficiencies:**

Narrative response p. 55.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- 1. Provide a full explanation as to why those efficiencies would not be achieved absent the proposed transaction;**

Narrative response pp. 55-56.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- 2. Provide a quantification of the efficiencies and an explanation of how the quantification was calculated, including all assumptions and their sources; and**

Narrative response p. 57.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- 3. Provide sufficient supporting evidence to demonstrate that these efficiencies will result in cognizable public interest benefits under our merger review standard.**

Narrative response pp. 57-60.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- C. With respect to the synergies Applicants expect will materialize and result in more programming choices at lower prices, including claimed benefits from a la carte programming and programming efficiencies (see Consolidated Application at 9-11, 13, 17; Joint Opposition at 10-14, 19-21):**

- 1. List each audio and video channel distributed in the United States currently by [Sirius] and for each such channel state:
  - a. Whether the content is exclusive to [Sirius]; and**
  - b. Whether the content also is available on [XM] or over other media, including, but not limited to, terrestrial broadcast radio, cable television, Internet stream or download/podcast, or HD radio;****

Narrative response pp. 60-61.

Exhibit IV.C.

No Documents

- 2. For each channel identified in question (1)(a), indicate whether the company has obtained the rights necessary, if any, to distribute the programming by the combined company on an a la carte basis or as part of the “best of” or other proposed programming packages;**

Narrative response p. 61.

No Exhibits

No Documents

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- 3. With respect to the claim that the “combined company will be able to consolidate redundant programming,” provide a list of channels that are duplicative on Sirius and XM and expect to be consolidated;**

Narrative response p. 62-63.

No Exhibits

No Documents

- 4. Explain why the proposed billing credit for subscribers who do not elect adult programming is a merger-specific benefit. In addition, address whether the Company would offer such a credit in the absence of merger approval;**

Narrative response p. 63.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- 5. Explain what short-term and long-term plans currently exist to “provide increased opportunities for a wider variety of content providers,” to distribute niche programming to a wider audience via the merged entity. Explain why this benefit will only be achieved through the Transaction;**

Narrative response pp. 64-65.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- 6. With respect to radio receivers and other equipment needed to access the proposed, new programming packages:**
- a. Provide all documents regarding the claim that “subscribers will be able to continue to use their existing radios.” Explain in detail what equipment, including any enhancements or additional devices, will be needed by subscribers to access these packages. Identify Applicants’ plans regarding target dates and the projected costs to subscribers for any enhancements or additional devices;**

Narrative response pp. 65-66.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000138

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- b. If certain equipment or enhancements will be needed to access certain of these programming packages, but not others, specify the exact equipment and/or enhancements (e.g., chipsets, compression techniques) that will be required to make each of these programming packages available; and**

Narrative response p. 67.

No Exhibits

No Documents

- c. Provide all documents regarding the claim that “subscribers will eventually purchase new radios capable of receiving all of the content of both services.” Explain whether all Sirius and XM subscribers – not just subscribers that select a la carte programming – will be required to purchase new radios capable of receiving all of the content of both services.**

Narrative response pp. 67-68.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000138

- 7. Provide any and all documents that discuss, identify, quantify, or otherwise relate to the anticipated synergies.**

Narrative response p. 68.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- D. With respect to Applicants’ claim that the merger will “foster the commercial introduction of interoperable satellite radios” thereby providing greater customer choice and convenience (see Consolidated Application at 15-16):**

- 1. Explain whether Applicants will make commercially available the “radio that is interoperable with each other’s networks” as developed by the jointly funded engineering team and described in the Consolidated Application. If so, explain when this interoperable radio prototype will be commercially available;**

Narrative response pp. 68-70.

No Exhibits

No Documents

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- 2. If not, explain whether Applicants will make commercially available a different radio prototype capable of receiving Applicants' combined signals, and when it will be available for commercial distribution;**

Narrative response p. 70.  
No Exhibits  
No Documents

- 3. Provide all documents that detail the intermediate steps, internally and with regard to equipment manufacturers, that will occur prior to the commercial availability of radios capable of receiving all of the content of both services;**

Narrative response pp. 70-72.  
No Exhibits  
Documents: SIRIUS-FCC-IV.000139—SIRIUS-FCC-IV.000197

- 4. Identify Applicants' plans and target dates for the commercial distribution of interoperable radios at retail distribution centers and via automobile manufacturers. As part of this response, explain Applicants' plans for making new receiver equipment or enhancements available to consumers who have existing automobile SDARS receivers;**

Narrative response pp. 72-73.  
No Exhibits  
No Documents

- 5. Identify electronics manufacturers who have committed to, or have expressed an interest in, producing Applicants' interoperable radio;**

Narrative response p. 73.  
No Exhibits  
No Documents

- 6. Identify anticipated prices for such equipment;**

Narrative response p. 73.  
No Exhibits  
No Documents

- 7. Identify and describe Applicants' plans to subsidize interoperable radios;**

Narrative response p. 73.  
No Exhibits  
No Documents

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

**8. Identify OEMs that have committed to installing interoperable radios;**

Narrative response p. 74.

No Exhibits

No Documents

**9. Provide any and all documents that discuss, identify, quantify, or otherwise relate to the anticipated synergies; and**

Narrative response p. 74.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

**10. Explain why these claimed benefits will be achieved only through the Transaction.**

Narrative response p. 74.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

**E. With respect to Applicants' claim that the merger will accelerate deployment of advanced technology (see Consolidated Application at 14):**

**1. Identify the "wider range of low cost, easy-to-use, multi-functional devices" that will result from the merger.**

Narrative response p. 75.

No Exhibits

No Documents

**2. Identify the planned new services, such as advanced data and telematics services, including enhanced traffic, weather and infotainment offerings that will result from the merger;**

Narrative response pp. 75-76.

No Exhibits

No Documents

**3. Explain how the merger will enhance the delivery of emergency services programming and information (see Joint Opposition at 24);**

Narrative response p. 76.

No Exhibits

No Documents

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- 4. With regard to Sirius' services to business/commercial customers:**
  - a. Identify services offered by Sirius and subscription fees; and**
  - b. Identify which services will be available post-merger, their subscription fees, and any distinctions between services currently available; and**

Narrative response p. 77.

No Exhibits

Documents:

- 5. Explain why these claimed benefits will be achieved only through the Transaction;**

Narrative response p. 77.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- 6. Provide any and all documents that discuss, identify, quantify, or otherwise related to the anticipated synergies and claims.**

Narrative response p. 78.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

- F. With respect to Applicants' claim that the merger will safeguard the future of satellite radio and produce a stronger, more stable competitor in the audio entertainment market (see Consolidated Application at 17-20):**

- 1. State whether the merged entity will eliminate any of the satellites currently deployed by Applicants, respectively;**

Narrative response p. 78.

No Exhibits

No Documents

- 2. State whether the merged entity will eliminate any of the repeater networks currently deployed by Applicants, respectively;**

Narrative response p. 79.

No Exhibits

No Documents

**SIRIUS SATELLITE RADIO INC.  
MASTER INDEX  
REDACTED – FOR PUBLIC INSPECTION**

- 3. State whether Applicants, absent the merger, will have access to capital markets to sustain continued research, development and technological innovation; and**

Narrative response p. 79.

No Exhibits

No Documents

- 4. Provide any and all documents that discuss, identify, or otherwise relate to forecasts projecting ahead for periods beyond three years regarding the financial performance of the firm, including but not limited to subscribers, revenues, costs, profits, cash flow, and overall viability of the firm.**

Narrative response p. 80.

No Exhibits

No Documents

- G. Describe any other public interest benefits that are expected to occur as a result of the proposed transaction, and provide a full explanation as to why these benefits would not be achieved absent the proposed transaction. Provide documents that serve to provide sufficient support for these benefit claims so that the Commission can verify the likelihood and magnitude of each claimed benefit.**

Narrative response pp. 80-83.

No Exhibits

Documents: SIRIUS-FCC-IV.000001—SIRIUS-FCC-IV.000092

**MB Docket No. 07-57**  
**SIRIUS SATELLITE RADIO INC.**  
**RESPONSE TO INITIAL INFORMATION AND DOCUMENT REQUEST**  
**Submitted November 16, 2007**

This document, with its attachments, exhibits, and other supporting documents, constitutes the response of Sirius Satellite Radio Inc. (“Sirius”) to the Initial Information and Document Request issued to Sirius on November 2, 2007 (the “Request”), by the Federal Communications Commission (the “Commission” or the “FCC”).

Some of the information and documents called for by this Request are confidential or highly confidential and are subject to protection under the Freedom of Information Act (“FOIA”), the Commission’s implementing rules, and, where so designated, the First and Second Protective Orders the Commission issued in this proceeding. With respect to such confidential or highly confidential information, the Company has followed the instructions set forth in the Protective Orders of July 11, 2007<sup>1</sup> and November 16, 2007.<sup>2</sup> Individuals seeking access to such information should consult those protective orders.

Sirius requests the return of all confidential and highly confidential material at the conclusion of this proceeding.

The Exhibits and supporting documents referenced in the text of the narrative below are attached as follows.

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<sup>1</sup> See *Applications of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc. for Approval to Transfer Control*, Protective Order, MB Docket No. 07-57, DA 07-3135 (July 11, 2007).

<sup>2</sup> See *Applications of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings, Inc. for Approval to Transfer Control*, Second Protective Order, MB Docket No. 07-57, DA 07-4666 (Nov. 16, 2007).

**I. Corporate Documents and Other Agreements:**

- A. Provide any and all agreements and like documents relating to the Transaction, including but not limited to the Merger Agreement and any and all attachments, appendices, side or separate letter agreements and like documents by and between the Applicants.**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.A.000001 through SIRIUS-FCC-I.A.000167.

**B. Provide any documents relating to:**

- 1. Agreements with major retailers, including, but not limited to, Wal-Mart, Best Buy, Radio Shack, Crutchfield and Circuit City, relating to the marketing and sale of Sirius radio receivers and related equipment (including FM wireless transmitter modulators), including commissions, advertising credits, subsidies, co-share advertising arrangements and the provision of complimentary Sirius service subscriptions to equipment purchasers;**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.000001 through SIRIUS-FCC-I.B.000191. For the purpose of this Specification, Sirius has defined “major retailers” as Best Buy Stores, L.P.; Circuit City Stores, Inc.; Costco Wholesale Corporation; Crutchfield Corporation; RadioShack Corporation; Target Corporation; and Wal-Mart Stores, Inc.

2. **Agreements with aftermarket equipment manufacturers or distributors regarding the manufacture, distribution and/or marketing of Sirius radio receivers and/or related equipment (including FM wireless transmitter modulators), including commissions, advertising credits, subsidies, co-share advertising arrangements and the provision of complimentary Sirius service subscriptions to equipment purchasers;**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.000192 through SIRIUS-FCC-I.B.000929.

3. **Programming contracts related to specialized channels, including sports and entertainment programming, including, but not limited to, the National Football League, NASCAR, the National Basketball Association, the National Hockey League, the NCAA, CNN, CNBC, Fox, the BBC, Radio Disney and ESPN;**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.000930 through SIRIUS-FCC-I.B.001560.

4. **Programming and/or talent contracts for programming with celebrity talent including, but not limited to, Howard Stern, Steven Van Zandt, Frank Sinatra Enterprises and Bruce Morrow;**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.001561 through SIRIUS-FCC-I.B.001703.

5. **Agreements with car, truck, boat, recreational vehicle and motorcycle manufacturers for the marketing, sale and/or installation of Sirius equipment and service contracts, including revenue sharing, training for vehicle sales staff, service activation, subsidies, provision of complimentary Sirius subscriber service to vehicle purchasers and lessees, and other services;**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.001704 through SIRIUS-FCC-I.B.002154.

6. **Licensing agreements with, including provisions regarding subsidies to, chipset manufacturers for chip and other equipment component sales to consumer electronic manufacturers for use with licensed Sirius radio receivers;**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.002155 through SIRIUS-FCC-I.B.002902.

7. **Joint operations with Internet Service Providers, mobile phone companies, program providers, including, but not limited to, satellite video distributors (such as EchoStar of the DISH Network) or other entities regarding the use or distribution of Sirius-branded programming, including music, talk or sports channels, or other non-Sirius branded channels, e.g., National Public Radio;**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.002903 through SIRIUS-FCC-I.B.002977.

8. **Agreements with car, truck, recreational vehicle and motorcycle rental companies, such as Hertz, for the provision of Sirius radios and Sirius service in rental vehicles, including revenue sharing, training for vehicle rental staff; commissions, advertising credits, subsidies, co-share advertising arrangements and the provision of complementary Sirius service to vehicle renters;**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.002978 through SIRIUS-FCC-I.B.003103.

9. **Agreements between XM and Sirius relating to the joint engineering operation for the research and development of interoperable radio receivers; and**

**RESPONSE:**

Sirius and XM are parties to an amended Joint Development Agreement relating to interoperable radio receivers. Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.003104 through SIRIUS-FCC-003137.

10. **Agreements between XM and Sirius between 1997 and the present relating to sales, programming, service or equipment.**

**RESPONSE:**

Sirius and XM are parties to a Low Power In-Building Booster Interference Agreement and the amended Joint Development Agreement identified in Response to Specification I.B.9. Responsive documents are located at Bates Nos. SIRIUS-FCC-I.B.003138 through SIRIUS-FCC-I.B.003139 and as set forth in the Response to Specification I.B.9.

**II. Data, Studies and Analyses**

- A. **Provide all company-sponsored surveys and studies cited in the Joint Opposition to Petitions to Deny and Reply Comments or otherwise submitted to the Commission by or on behalf of Sirius, or XM and Sirius, in this proceeding, and any underlying data and analysis.**

**RESPONSE:**

Documents cited in the Application and Joint Opposition to Petitions to Deny and Reply Comments, except for documents already filed in MB Docket No. 07-57 and documents in the FCC Record, are located at Bates Nos. SIRIUS-FCC-II.A.000001 through SIRIUS-FCC-II.A.004084.

- B. **Provide the following materials, as well as any underlying data or analyses, used in the CRA Economic Analysis of the Competitive Effects of the Sirius-XM Merger:**
1. **The number of FM and AM stations reaching each census block in the lower-48 United States states (“lower-48 states”);**
  2. **The average number of FM and AM stations reaching each Zip Code Tabulation Area (“ZCTA”) in the lower-48 states;**
  3. **The number of Sirius subscribers in each ZCTA in the lower-48 states; and**
  4. **The cited demographic information for each ZCTA in the lower-48 states.**

**RESPONSE:**

Data and analyses specific to Sirius are provided in Sirius’ Response to Specification II.E. and II.F. at Bates Nos. SIRIUS-FCC-II.F.002363 through SIRIUS-FCC-II.F.002414; SIRIUS-FCC-II.E.000287 through SIRIUS-FCC-II.E.000364; and SIRIUS-FCC-II.F.001438 through SIRIUS-FCC-II.F.001557. All other materials that CRA cited in its Report are provided in XM Radio Holdings Inc.’s documentary response

at Bates Nos. XM-II-B-00000001 through XM-II-B-00041874, and should be deemed a joint response. The materials specifically called for in items (1) through (4) of this Specification are being provided by XM Radio Holdings Inc. in electronic form on a separate CD entitled “CRA Data Set,” along with an executable file to access the data, and should be deemed a joint response.

- C. **Provide any underlying data and analyses used in the Furchtgott-Roth Economic Enterprises’ study of the Sirius-XM Merger that are not already on the public record.**

**RESPONSE:**

Documents cited in the Furchtgott-Roth Study, except for documents already filed in MB Docket No. 07-57 and documents in the FCC Record, are located at Bates Nos. SIRIUS-FCC-II.C.000001 through SIRIUS-FCC-II.C.000421.

- D. **Provide all studies, analyses, evaluations, and strategic discussion materials prepared by or for Sirius or Sirius and XM after January 1, 2005 that are intended to offer guidance on the economic advisability of the proposed merger.**

**RESPONSE:**

Sirius is providing the materials produced to the Department of Justice in response to Item 4(c) of Sirius’ Pre-Merger Notification filing under the Hart-Scott-Rodino Act, which call for:

“all studies, surveys, analyses and reports which were prepared by or for any officer(s) or director(s) ... for the purpose of evaluating or analyzing the acquisition with respect to market shares, competition, competitors, markets, potential for sales growth or expansion into product or geographic markets,”



- F. **Provide all surveys, analyses, and evaluations of listener behavior prepared by or on behalf of Sirius, including but not limited to, audience studies (i.e., ratings data, usage, audience demographics, and geographic distribution of audience) for the period January 2001 to the present.**

**RESPONSE:**

Responsive documents are located at Bates Nos. SIRIUS-FCC-II.F.000001 through SIRIUS-FCC-II.F.002414.

- G. **Provide all studies, analyses, and evaluations prepared by or on behalf of Sirius or XM and Sirius performed after January 1, 2005 regarding price projections for proposed new programming options and a la carte packages, including information relating to price stability, channels per programming package, and pricing comparison between the current basic \$12.95 package and new programming options on a per-channel basis.**

**RESPONSE:**

Sirius has neither commissioned nor produced any final studies regarding price projections for proposed new programming options and a la carte packages.

- H. **Provide the following information on all promotions conducted by Sirius involving pricing, rebates, coupons, and all other forms of discounts offered to new or existing subscribers (including, but not limited to, discounts on equipment, service activation fees, installation charges, and service fees, such as free or discounted service trial periods), for the period January 1, 2005 to the present.**
1. **The name of the promotion**
  2. **The beginning date of the promotion**
  3. **The ending date of the promotion**

4. **The nature of the promotion (coupons, rebates, promotional pricing, etc.);**
  5. **The effect of the promotion on prices (e.g., reduced monthly price by \$5 per month for three months, two free months of service, \$50 rebate on radio, no activation fee, etc.);**
  6. **The eligibility and other requirements (e.g., new customers only, minimum subscription periods, purchases from specific retailers or original equipment manufacturers (“OEMs”), or of specific equipment, geographical limitations, etc.); and**
  7. **The number of subscribers that took advantage of the promotion.**
- I. **For each such promotion described in the response to Question H above, provide copies of all documents supporting the response or otherwise relating to the promotion.**

**RESPONSE TO II.H. AND II.I.:**

**General Promotions.** Exhibit II.H. provides the requested information on all promotions conducted by Sirius since October 1, 2003 kept in the regular course of business. This chart identifies responsive discounts, rebates, promotional offers, subsidies, free periods of subscription service, bundling of relevant services and Sirius radios, and offers for reduced prices from Sirius to consumers from October 2003 to present for which Sirius has maintained information. Sirius does not maintain records of retailer-driven promotions or the number of subscribers who take part in a promotion in the regular course of business. Consequently, this information is not included in Exhibit II.H.

This chart is not exhaustive of every offer for discounted prices to consumers extended by Sirius since 2003. Sirius has not historically tracked or maintained information about every offer extended – notably, short-term event-specific offers and



[H.C.]

Details as to this program are not captured in Exhibit II.H. because Sirius does not track detailed offers by offer information on the Winback promotion.

**New Vehicle Promotions.** Sirius also offers promotional periods to new vehicle purchasers and lessees during which the purchaser or lessee does not have to pay a subscription fee. These promotional periods are detailed below by OEM and model year.

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Before the Federal Communications Commission

OEM	2003 model year*	2004 model year	2005 model year	2006 model year	2007 model year	2008 model year
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]

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OEM	2003 model year*	2004 model year	2005 model year	2006 model year	2007 model year	2008 model year
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]
[C.]	[C.]	[C.]	[C.]	[C.]	[C.]	[C.]

\*Each model year generally rolls out the summer of the prior year (*i.e.*, 2003 model year vehicles typically roll out in summer of 2002; 2004 model year vehicles typically roll out in summer of 2003), but the model year roll outs can vary from automaker to automaker and model to model at the automaker’s discretion.



**III. Technical Information**

- A. **Provide a list of the Sirius terrestrial repeaters deployed in each market since January 2001, and, for each such terrestrial repeater, provide the following information:**
1. **Latitude, longitude, and community;**
  2. **Antenna type;**
  3. **Antenna orientation;**
  4. **Antenna downtilt;**
  5. **Antenna height;**
  6. **Equivalent Isotropically Radiated Power (“EIRP”);**
  7. **Dates that operation of the facility with those parameters commenced and ended;**
  8. **Description of any technical modification to the facility; and**
  9. **Dates that operation of the modified facility commenced and ended.**

**RESPONSE:**

Responsive information is attached as Exhibit III.A.

- B. **Provide the methods or technologies of coding, compression, encryption, modulation, signal bandwidth and bit rate for both satellite and terrestrial repeater networks used since January 2001.**

**RESPONSE:**

Sirius employs a proprietary audio compression algorithm based on Perceptual Audio Coding (“PAC”) originally developed by Lucent Technologies. This sophisticated algorithm uses advanced psychoacoustic models in order to provide high-quality audio and highly compressed rates required by the limited spectrum available for satellite radio. Additionally, Sirius employs statistical multiplexing across the audio channels in order to

dynamically allocate bits to the channels that require the most bits in order to enhance the audio quality. To provide robust delivery of the satellite radio signal, the channel coding scheme includes Reed Solomon coding, byte interleaving, convolutional coding, scrambling, and finally bit interleaving.

In order to provide very high service availability, the Sirius data is sent in redundant fashion across three independent paths – two satellite paths as well as via a terrestrial repeater network that fills in gaps not adequately served by the satellite signals. One of the satellite signals and the terrestrial signal are delayed on the ground prior to transmission by approximately four seconds in order to provide time diversity across the system. The satellite signal that is not delayed on the ground is buffered in the receiver to time align the three received signals. The receiver then intelligently weights and combines the three received signals.

The satellite signals are modulated with QPSK modulation. The bandwidth of the QPSK signals is 4.51008 MHz supporting a data rate of 7.5168 Mbps (including coding overhead). The terrestrial network signal is modulated utilizing Coded Orthogonal Frequency Division Multiplexing (“COFDM”). The bandwidth of the COFDM signal is 4.012 MHz. The resultant payload delivered by the QPSK and COFDM modulation is 4.4 Mbits per second.

In 2005, Sirius developed a hierarchical modulation scheme (also known as overlay modulation) that provided additional capacity to be delivered through both the satellite and terrestrial networks while maintaining backwards compatibility with existing receivers. This development yielded nearly an additional 1 Mbit/sec to be delivered within the existing 12.5 MHz of licensed spectrum without disturbing the reception of the

existing receivers. The overlay data is transmitted by slightly perturbing the constellation phase in the QPSK satellite signals and by slightly perturbing the constellation amplitude in the COFDM terrestrial signal. The perturbations are kept to a minimum in order to minimize any impact to existing receivers, while still allowing reception by an advanced overlay capable receiver. State-of-the-art channel coding technologies assist in the robust reception of the overlay data. The hierarchical modulation system was commercially launched in July 2007 with the sale of Chrysler vehicles featuring Sirius Backseat TV.

Additional details of the Sirius transmission system are provided in Exhibit III.B.

- C. **List all receiver models sold since January 2001 and include all chipsets data including the manufacturer of the chipset used in them. Provide any statistics showing whether these receivers could become interoperable with minor changes in the chipset design or in the software program of these receiver chips.**

**RESPONSE:**

In the tables that follow, the receivers sold, developed, or currently under development by Sirius (or on Sirius' behalf), have been listed by type along with the Sirius Chipset version.<sup>3</sup>

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<sup>3</sup> In some instances, two versions of the product were marketed with either a Generation 2.5 chipset or a Generation 3 chipset (e.g., Product Code AXTR3CK). The specific chipsets used within each Generation are detailed in Sirius' Response to Specification II.D. Specifically, Generation 1 is a CDRFRG2 RF Receiver, CDIFRG2 IF Receiver, CDADSE Dual ADC, CDDDT2 Digital Downconverter, CDODTB COFDM Demodulator, CDRCTC TDM Demodulator MRC, CDCDT Concatenated Decoder Chain, and CDAPT DSP ARM Processor; Generation 2 is a CDRFRG2 RF Receiver, CDIFRG2 IF Receiver, CDADSE Dual ADC, and DBC 2nd Generation Digital Baseband; Generation 2.5 is a CDIFRFWUD2 RF IF Receiver, CDADSE Dual ADC, and DBC 2nd Generation Digital Baseband; Generation 3 is a STA240 3<sup>rd</sup> Generation Digital Baseband; Generation 4 is a STA260 4th Generation Digital Baseband; STA210 is a 3<sup>rd</sup> Generation RF Tuner; STA 264 is a Sirius Overlay decoder; and Sirenza is a S520077 Low power tuner for use with Generation 3 or Generation 4 Digital Baseband ICs.

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**1. Plug & Play Radios**

Plug & Play (“P&P” or “PNP”) radios enable subscribers to transport a radio easily to and from their cars, trucks, homes, offices, boats, or other locations with available adapter kits. P&P radios adapt to existing audio systems through FM modulation or direct connection and can be installed easily by a retailer or the purchaser. Boom boxes, which enable Sirius’ subscribers to use their Sirius radios virtually anywhere, are available for various models of P&P radios.

Product Code	Marketing Name	Description	Chipset Version
AXTR3CK	Xact Visor	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
BXTR1UK	Xact Stream Jockey	Plug & Play and Vehicle Kit	Generation 2.5
BXTR3CHK	Xact Visor	Plug & Play and Vehicle and Home Kit	Generation 2.5 Generation 3 + STA210
BXTR3CK	Xact Visor	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
BXTR7UK	Xact XTR7	Plug & Play and Vehicle Kit	Generation 2.5
BXTR8CHK	Xact Replay	Plug & Play and Vehicle Kit	Generation 3 + STA210
CALYPSO	Clarion Calypso	Plug & Play and Vehicle Kit	Generation 2.5
CK100SR-JENSN-PNP	Jensen CK100SR	Plug & Play and Vehicle Kit	Generation 2
CRSR-10-SANYO-PNP	Sanyo CRSR10	Plug & Play and Vehicle and Home Kit	Generation 2.5
JBX100SR	Jensen Boombox & Audiovox PNP2 Receiver Bundle	Jensen Boombox & Audiovox PNP2 Receiver Bundle	Generation 2
JPNPR1-JENSN-PNP	Jensen JPNPR1	Plug & Play receiver	Generation 2
KTC-H2A1-KENWD-PNP	Kenwood KTC-H2A1	Plug & Play receiver	Generation 2
KTC-H2A2-KENWD-PNP	Kenwood KTC-H2A1	Plug & Play receiver	Generation 2
KT-PK1000	JVC KT-PK1000	Plug & Play receiver	Generation 2
KT-PK2000	JVC KT-PK2000	Plug & Play and Vehicle Kit	Generation 2.5
KT-PK3000-JVCKR-PNP	JVC KT-SR3000	Plug & Play and Vehicle Kit	Generation 2.5
KT-SR1000-JVCKR-PNP	JVC KTSR1000	Plug & Play and Vehicle Kit	Generation 2
KT-SR2000-JVCKR-PNP	JVC KTSR2000	Plug & Play and Vehicle Kit	Generation 2.5
PANPC-PNP	Brix Streamer GT	Plug & Play and Vehicle Kit	Generation 2.5

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Product Code	Marketing Name	Description	Chipset Version
PROPAK12	Brix Streamer SIR-STRPNP1 bundled with 1 year of service	Plug & Play bundled with 1 year of prepaid service	Generation 2 Generation 2.5
PROPAK180	Brix Streamer SIR-STRPNP1 bundled with 1 year of service	Plug & Play bundled with 1 year of prepaid service	Generation 2 Generation 2.5
SI2TK1	Sirius InV2 SI2TK1	Plug & Play and Vehicle Kit	Generation 3 + Sirenza
SIR-CMB2	Audiovox Jam Pack SIR-CMB2	Plug & Play and Vehicle Kit	Generation 2
SIR-CMB3	Audiovox Jam Pack SIR-CMB3	Plug & Play and Vehicle Kit	Generation 2.5
SIR-CMB5	Audiovox SIR-CMB5	Plug & Play and Vehicle Kit	Generation 3 + STA210
SIR-GTRC1	Brix Streamer GTR Replay Radio with Car Kit	Streamer GTR and Vehicle Kit	Generation 3 + STA210
SIR-GTRC1 - PANPC-PNP	Brix Streamer GTR	Plug & Play and Vehicle Kit	Generation 3 + STA210
SIRPNP	Clarion SIRPNP	Plug & Play and Vehicle Kit	Generation 2 Generation 2.5
SIR-PNP1-AUDVX-PNP	Audiovox Shuttle SIR-PNP1	Plug & Play Receiver	Generation 2
SIR-PNP2-AUDVX-PNP	Audiovox Shuttle SIR-PNP2	Plug & Play Receiver	Generation 2
SIR-PNP3-AUDVX-PNP	Audiovox SIR-PNP3	Plug & Play and Vehicle Kit	Generation 2.5
SIR-PNP3-JENSN-PNP	Jensen JSIR900	Plug & Play and Vehicle Kit	Generation 2.5
SIR-PNP5-AUDVX-PNP	Audiovox SIR-PNP5	Plug & Play and Vehicle Kit	Generation 3 + STA210
SIRPNP-CLARN-PNP	Clarion SIRPNP	Plug & Play and Vehicle Kit	Generation 2 Generation 2.5
SIR-PP2235	Brix Streamer GT Bundled with 3 Months of Service	Plug & Play and Vehicle Kit with 3 months of prepaid service	Generation 2.5
SIR-PP2236	Brix Streamer GT Bundled with 6 Months of Service	Plug & Play and Vehicle Kit with 6 months of prepaid service	Generation 2.5
SIR-PROKIT1	Brix Streamer SIR-ProKit1	Plug & Play and Vehicle Kit	Generation 2 Generation 2.5
SIR-SL1-PANPC-PNP	Brix Streamer GT SIR-SL1	Plug & Play and Vehicle Kit	Generation 2.5
SIR-STRC1-PANPC-PNP	Brix Streamer Replay SIR-STRC1	Plug & Play and Vehicle Kit	Generation 2.5
SIR-STRPNP1-PANPC-PNP	Brix Streamer SIR-STRPNP1	Plug & Play and Vehicle Kit	Generation 2 Generation 2.5
SIR-SV1B-PANPC-PNP	Sirius One	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
SIR-SYS1-SIRI-PNP	Sirius SIR-SYS1	Plug & Play and Vehicle and Home Kit	Generation 2.5
SP3-TK1B-KRIKR-PNP	Sirius Sportster 3 SP3-TK1B	Plug & Play and Vehicle Kit	Generation 3 + STA210
SP3-TK1R-SIRI-PNP	Sirius Sportster 3 SP3-TK1R	Plug & Play and Vehicle Kit	Generation 3 + STA210
SP3-TK1-SIRI-PNP	Sirius Sportster 3 SP3-TK1	Plug & Play and Vehicle Kit	Generation 3 + STA210
SP3-TX1B-KRIKR-PNP	Sirius Sportster 3 SP3-TK1B	Plug & Play and Vehicle Kit	Generation 3 + STA210

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Product Code	Marketing Name	Description	Chipset Version
SP4-BK1-BOSEA-PNP	Bose Sportster 4 SP4-BK1	Plug & Play and Home Kit	Generation 3 + STA210
SP4-KRIKR-DLP	Sirius Sportster 4	Plug & Play and Vehicle Kit	Generation 3 + STA210
SP4-TK1R-RADSH-PNP	Sirius Sportster 4 SP4-TK1R	Plug & Play and Vehicle Kit	Generation 3 + STA210
SP4-TK1-SIRI-PNP	Sirius Sportster 4 SP4-TK1	Plug & Play and Vehicle Kit	Generation 3 + STA210
SP5TK1	Sirius Sportster 5 SP5TK1	Plug & Play and Vehicle Kit	Generation 4 + STA210
SP5TK1B	Sirius Sportster 5 SP5TK1B	Plug & Play and Vehicle Kit	Generation 4 + STA210
SP5TK1R	Sirius Sportster 5 SP5TK1R	Plug & Play and Vehicle Kit	Generation 4 + STA210
SP5VP1	Sirius Sportster 5 SP5VP1	Plug & Play and Vehicle and home Kit	Generation 4 + STA210
Sportster IR-RADSH-PNP	Sirius Sportster Replay SP2-TK1R	Plug & Play and Vehicle Kit	Generation 2.5
SP-R1	Sirius Sportster SP-R1	Plug & Play receiver	Generation 2.5
SP-R1R	Sirius Sportster SP-R1R	Plug & Play receiver	Generation 2.5
SP-R2R	Sirius Sportster Replay SP-R2R	Plug & Play receiver	Generation 2.5
SP-R2-SIRI-PNP	Sirius Sportster Replay SP-R2	Plug & Play receiver	Generation 2.5
SPRB1	Sirius SPRB1	Plug & Play and Vehicle Kit and boom box	Generation 2.5
SP-TK1	Sirius Sportster SP-TK1	Plug & Play receiver	Generation 2.5
SP-TK1R	Sirius Sportster SP-TK1R	Plug & Play receiver	Generation 2.5
SP-TK2	Sirius Sportster SP-TK2	Plug & Play receiver	Generation 2.5
SP-TK2R	Sirius Sportster SP-TK2R	Plug & Play receiver	Generation 2.5
SR04-BLPKT-PNP	Blaupunkt America	Plug & Play receiver	Generation 2.5
SR200	Dish SR200	Plug & Play and Vehicle Kit	Generation 2 Generation 2.5
SR250-ECHOS-PNP	Dish Network SR250	Plug & Play and Vehicle Kit	Generation 2.5
SR4000-ORBIT-PNP	Sirius Orbiter SR4000	Plug & Play and Vehicle Kit	Generation 2 Generation 2.5
ST-1R	Sirius Starmate ST1R	Plug & Play and Vehicle Kit	Generation 2.5
ST1-SIRI-PNP	Sirius Starmate ST1	Plug & Play and Vehicle Kit	Generation 2.5
ST2R-RADSH-PNP	Sirius Starmate Replay ST2R	Plug & Play and Vehicle Kit	Generation 3 + STA210
ST2R-SIRI-PNP	Sirius Starmate Replay ST2R	Plug & Play and Vehicle Kit	Generation 3 + STA210
ST2-SIRI-PNP	Sirius Starmate Replay ST2	Plug & Play and Vehicle Kit	Generation 3 + STA210
ST3-TK1-SIRI-PNP	Sirius Starmate 3 ST3-TK1	Plug & Play and Vehicle Kit	Generation 3 + STA210
ST4TK1(a)	Sirius Starmate 4 ST4TK1 (A)	Plug & Play and Vehicle Kit	Generation 4 + STA210
ST4TK1(a)B	Sirius Starmate 4 ST4TK1B (A)	Plug & Play and Vehicle Kit	Generation 4 + STA210
ST4TK1(a)R	Sirius Starmate 4 ST4TK1R (A)	Plug & Play and Vehicle Kit	Generation 4 + STA210
ST4-TK1R-RADSH-PNP	Sirius Starmate 4 ST4-TK1R	Plug & Play and Vehicle Kit	Generation 3 + STA210

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Product Code	Marketing Name	Description	Chipset Version
ST4-TK1-SIRI-PNP	Sirius Starmate 4 ST4-TK1	Plug & Play and Vehicle Kit	Generation 3 + STA210
ST4VP1(a)	Sirius Starmate 4 ST4VP1 (A)	Plug & Play and Vehicle and Home Kit	Generation 4 + STA210
SV1C-SIRI-PNP	SiriusOne SV1	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
SV1R-RADSH-PNP	SiriusOne SV1R	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
SV1R-SIRI-PNP	SiriusOne SV1R	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
SV1-SIRI-PNP	SiriusOne SV1	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
SV2-TK1-SIRI-PNP	Sirius InV SV2-TK1	Plug & Play and Vehicle Kit	Generation 3 + STA210
SV3-TK1B-WSTRN-PNP	Sirius Stratus SV3-TK1B	Plug & Play and Vehicle Kit	Generation 3 + STA210
SV3-TK1R	Sirius Stratus SV3-TK1R	Plug & Play and Vehicle Kit	Generation 3 + STA210
SV3-TK1R-RADSH-PNP	Sirius Stratus SV3-TK1R	Plug & Play and Vehicle Kit	Generation 3 + STA210
SV3-TK1-SIRI-PNP	Sirius Stratus SV3-TK1	Plug & Play and Vehicle Kit	Generation 3 + STA210
SV3-TK1VP	Sirius Stratus SV3TK1VP	Plug & Play and Vehicle and Home Kit	Generation 3 + STA210
SYSTEM-H2A1	Kenwood Here 2 Anywhere SYSTEM-H2A1	Plug & Play and Vehicle Kit	Generation 2
SYSTEM-H2EC-KENWD-PNP	Kenwood Here2Everywhere SYSTEM-H2EC	Plug & Play and Vehicle Kit	Generation 2.5
SYSTEM-H2EV	Kenwood Here2Everywhere SYSTEM-H2EV	Plug & Play and Vehicle and Home Kit	Generation 2.5
X3 Sportster-SIRI-PNP	Sirius Sportster SP-R1	Plug & Play Receiver	Generation 2.5
XTR1CK	Xact Stream Jockey XTR1CK	Plug & Play and Vehicle Kit	Generation 2.5
XTR1UK	Xact XTR1UK	Plug & Play and Universal Kit	Generation 2.5
XTR1-USELC-PNP	Xact Stream Jockey XTR1	Plug & Play receiver	Generation 2.5
XTR2CK	Xact XTR2CK Satellite Plug + Play Receiver and Vehicle Kit	Plug & Play and Vehicle Kit	Generation 2.5
XTR2-USELC-PNP	Xact Stream Jockey 2 XTR2	Plug & Play receiver	Generation 2.5
XTR3 -USELC-PNP	Xact Visor XTR3	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
XTR3CK-USELC-PNP	Xact Visor XTR3	Plug & Play and Vehicle Kit	Generation 2.5 Generation 3 + STA210
XTR5	Xact Rego XTR5	Plug & Play receiver	Generation 2.5
XTR5CMK	Xact ReGo XTR5CMK	Plug & Play and Vehicle and Portable Kit	Generation 2.5
XTR7CK	Xact XTR7CK	Plug & Play and Vehicle Kit	Generation 2.5

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Product Code	Marketing Name	Description	Chipset Version
XTR7-USELC-PNP	Xact XTR7	Plug & Play receiver	Generation 2.5
XTR8 -USELC-PNP	Xact Replay XTR8	Plug & Play receiver	Generation 3 + STA210
XTR8CK	Xact Replay XTR8CK	Plug & Play and Vehicle Kit	Generation 3 + STA210

**2. Portable/Wearable Units**

Portable radios, also known as personal radios or wearable radios, enable subscribers to receive the satellite radio signal through a small, portable device.

Product Code	Marketing Name	Description	Chipset Version
S50C1	Sirius S50C1	S50 Vehicle Kit	STA210
S50C1R	Sirius S50C1R	S50 Vehicle Kit	STA210
S50EX1	Sirius S50-EX1	S50 Executive Audio System	STA210
S50EX1R	Sirius S50-EX1R	S50 Executive Audio System	STA210
S50H1	Sirius S50H1	S50 Home Kit	STA210
S50H1R	Sirius S50H1R	S50 Home Kit	STA210
S50-TK1R-RADSH-Personal	Sirius S-50 S50-TK1R	S50 and Vehicle Kit	Generation 3 + STA210
S50-TK1-SIRI-Personal	Sirius S-50 S50-TK1	S50 and Vehicle Kit	Generation 3 + STA210
San Disk	Wearable Receiver	Under discussion to develop San Disk portable/MP3 player that can access Sirius content through WiFi or as a Sirius ready device.	NA
SL 10 (a)	Sirius Stiletto 10(a)	Version of Stiletto with G4 chipset. Development was cancelled 2007	Generation 4 + STA210
SL 100 (a)	Sirius Stiletto 100(a)	Version of Stiletto with G4 chipset. Development was cancelled.	Generation 4 + STA210
SL100PK1B-WSTRN-Personal	Sirius Stiletto SL100-PK1	Stiletto 100 radio with portable accessories	Generation 3 + Sirenza
SL100-RADSH-Personal	Sirius Stiletto SL100-PK1R	Stiletto 100 radio with portable accessories	Generation 3 + Sirenza
SL100-SIRI-Personal	Sirius Stiletto SL100-PK1	Stiletto 100 radio with portable accessories	Generation 3 + Sirenza
SL10-SIRI-Personal	Sirius Stiletto SL10-PK1	Stiletto 10 radio with portable accessories	Generation + Sirenza
SL10-WSTRN-Personal	Sirius Stiletto SL10-PK1	Stiletto 10 radio with portable accessories	Generation 3 + Sirenza
Stiletto 2 ("SL2")	Sirius Stiletto 2	Under development; available October 2007. Sirius Stiletto 2 portable radio with portable accessories.	Generation 4 + STA210

**3. Home and Commercial Units**

Home tuners connect to most home stereo systems. In addition, various multi-tuner and multi-zone units are available through commercial dealers and custom installation dealers. These units allow the user to listen to the Sirius service from multiple locations within a home or business. Stand-alone tabletop radios are also available. There are also specially-designed Sirius home units designed to interface with multiple audio and video components.

Product Code	Marketing Name	Description	Chipset Version
Audiovox CE1000SR-AUDVX- Home	Audiovox CE1000SR	Home Component Tuner	Generation 2
CE1000SR	Audiovox CE1000SR	Home Component Tuner	Generation 2
DT-7000S-KENWD- HOME	Kenwood DT-7000S	Home component tuner with RS232 interface and fiber optic output	Generation 2 Gen2.5
MSATPE	N/A	Tabletop Radio w/integrated Rcv'r	Generation 2.5
Niles ICS -WSTRN- Home	Niles TM-SIRIUS	Niles Home Component Tuner	Generation 2.5
Polk Audio Designs SR-H1000	Polk Audio Designs SRH-1000	Polk Audio Designs Home Component Tuner	Generation 3 + STA210
SC-H1P1 and SC- H1P2-KRIKR-DLP	Sirius SC-H1	SiriusConnect Home Tuner	Generation 3 + STA210
SC-H1R-KRIKR- Home	Sirius SC-H1	SiriusConnect Home Tuner for use with SIRIUS-ready home products	Generation 3 + STA210
SC-H1-SIRI-Home	Sirius SC-H1	SiriusConnect Home Tuner	Generation 3 + STA210
SC-H1W-SIRI-Home	Sirius Conductor	Sirius Conductor and Wireless Display Controller	Generation 3 + STA210
SR-H550-SIRI- HOME	Sirius SR-H550	Home Component Tuner	Generation 2.5
SRX-3-ANTEX- Home	Antex Triple Play	3 zone multi-room home component tuner	Generation 2
SSM-1-AUDVX- Home	Audiovox SSM-1	Development module	Generation 2.5
ST2S-RUSND-Home	Russound ST2S	Smart tuner for Russound's whole- house audio system Home tuner	Generation 2.5
Tivoli Home KRI G25 SSM-TIVLI- Home	Tivoli Satellite	Tivoli tabletop radio with SIRIUS	Generation 2.5

#### 4. *OEM Receivers*

OEM satellite radio equipment consists of in-dash radios integrated into the vehicles that allow the user to listen to AM, FM, Sirius, and other audio entertainment options in the vehicle with the push of a button. The Sirius receiver can be connected as a hidden external unit (a Down Link Processor (“DLP”) plus a Head Unit/Navigation Unit (“HU/NAV”)); or built into the radio (an Integrated Head Unit/Integrated Navigation Unit (“IHU/INAV”) that has the chipset in it and does not need to connect to a DLP).

For OEM units, Sirius contributes a chipset and a module (an electronic assembly that contains the chipset), which is either in the DLP or in the IHU/INAV. Every chipset (within the same generation) is the same, and the functionality of the chipsets does not differ among automakers. All OEM units contain the Sirius chipset and receive the audio signal. The DLP manufacturers are chosen by the automakers. Historically, the majority of Sirius’ DLP’s have been produced by Delphi and Visteon.

Currently, automakers are moving away from installing DLPs and instead are opting for IHUs/INAVs. For instance, Chrysler has installed an INAV that is able to receive Sirius audio and Sirius traffic (without speed and flow data); the future Volkswagen INAV will be able to receive Sirius audio and complete Sirius traffic service (speed, flow, and incident data); and the future Ford INAV will be able to receive Sirius audio, traffic, and data services.

Product Code	Marketing Name	Description	Chipset Version
12212939 DB2-DELPH-DLP	Delphi DLP	Gen 2 audio receiver / D2B	Generation 2
12212939 MOST-DELPH-DLP	Delphi DLP	Gen 2 audio receiver / MOST	Generation 2

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Product Code	Marketing Name	Description	Chipset Version
Audi/VW Most-DELPH-DLP	Delphi DLP	Gen 1 Delphi audio receiver - Most; for Audi/VW	Generation 1
Audi/VW MOST-DELPH-DLP	Delphi DLP	Gen 2.5 Delphi audio receiver - Most; for Audi/VW	Generation 2.5
Audiovox Toyota UDLP-AUDVX-DLP	Audiovox UDLP	Gen 2.5 WNC module audio only, in UDLP; for Toyota	Generation 2.5
Audiovox Toyota WNC G25 UDLP-AUDVX-DLP	Audiovox UDLP	Gen 2.5 WNC module audio only, in UDLP; for Toyota	Generation 2.5
AUDVX Toyota UDLP WNC G25-AUDVX-DLP	Audiovox UDLP	Gen 2.5 WNC module audio only, in UDLP; for Toyota	Generation 2.5
BMW iBus-FLXTR-DLP	Flextronics DLP	Gen 2.5 Flextronics DLP; for BMW	Generation 2.5
BMW MOST-bus-VISTN-DLP	Visteon DLP	Gen 2.5 audio DLP; for BMW	Generation 2.5
BMW MOST-VISTN-DLP	Visteon DLP	Gen 1 audio receiver/dealer and factory; for BMW	Generation 1
BMW-ALPIN-DLP	Alpine DLP	Gen 1 audio receiver; for BMW	Generation 1
CHRYSLER J1850-DELPH-DLP	Delphi DLP	Gen 2.5 audio 0 J1850 for Chrysler	Generation 2.5
DCX J1850 MOPAR-DELPH-DLP	Delphi DLP	Gen 1 - J1850 Mopar for Chrysler	Generation 1
DCX J1850 FPO-DELPH-DLP	Delphi DLP	Gen 2.5 FPO audio only/J1850 for Chrysler	Generation 2.5
DCX J1850-DELPH-DLP	Delphi DLP	Gen 1 factory audio receiver for Chrysler	Generation 1
DCX NTG4-REQ-ALPIN-DLP	Alpine DLP with WNC SSM	Gen 2.4 audio receiver for Chrysler	Generation 2.5
Ford ACP-VISTN-DLP	Visteon DLP	Gen 1 factory audio receiver for Ford	Generation 1
Ford MY06-DELPH-DLP	Delphi DLP	Gen 2.5 audio receiver for Ford	Generation 2.5
Ford MY07 Mopar-DELPH-DLP	Delphi DLP	Gen 2.5 Service receiver - audio only; for Ford	Generation 2.5
Ford MY07-DELPH-DLP	Delphi DLP	Gen 2.5 audio receiver for Ford	Generation 2.5
Ford MY07-VISTN-DLP	Visteon DLP	Gen 2.5 Vistem Service receiver for Ford	Generation 2.5
LAND ROVER MOST-VISTN-DLP	Visteon DLP	Gen 1 audio receiver for Land Rover	Generation 1
MAZDA-SANYO-DLP	Sanyo DLP	Gen 2 audio receiver for Land Rover	Generation 2
MB D2B-DELPH-DLP	Delphi DLP	Gen 1 D2B for Mercedes-Benz	Generation 1
MB MOST-DELPH-DLP	Delphi DLP	Gen 1 audio receiver for Mercedes-Benz	Generation 1
Mitsubishi CAN-Bus MY07-MITSU-DLP	Delphi DLP	Gen 2.5 audio DLP (DCC version)	Generation 2.5
Mitsubishi M-Bus MY07-MITSU-DLP	Mitsubishi DLP	Gen 2.5 audio M Bus	Generation 2.5

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Product Code	Marketing Name	Description	Chipset Version
MY08-DELPH-DLP	Delphi DLP	Gen 3 audio receiver for Mercedes-Benz	Generation 3 + STA210
Nissan VP6ASF-18C961-AB-VSALT-DLP	Visteon DLP	Gen 2.5 audio DLP	Generation 2.5
NISSAN-CLARN-DLP	Clarion DLP	Gen 1 audio DLP	Generation 1
NTG4 DCX - RER REU-HARMN-DLP	Harman DLP with WNC DSSM	Gen 2.5 audio and traffic	Generation 2.5
Porsche MOST-DELPH-DLP	Delphi DLP	Delphi DLP for Posche	Generation 1
TBD J1850-DELPH-DLP	Delphi DLP	Gen 2.5 mopar	Generation 2.5
Visteon Land Rover G25 DLP G2V8-VISTN-DLP	Visteon DLP	Gen 2.5 audio receiver for Land Rover	Generation 2.5
VISTN Jaguar 1-input G25 DLP-VISTN-DLP*	Visteon DLP	Gen 2.5 audio receiver for Jaguar	Generation 2.5
Volvo CQ-SR2XAS-MITSU-DLP	Melco DLP	Gen 2 audio receiver for Volvo	Generation 2
Volvo S80-VISTN-DLP	Visteon DLP	Gen 2.5 audio receiver for Volvo	Generation 2.5
Volvo-VISTN-DLP	Visteon DLP	Gen 2.5 audio receiver for Volvo	Generation 2.5
WNC Clarion Subaru G3 DLP 16 channel pre-enable-CLARN-DLP	WNC Clarion DLP	Gen 3 audio receiver for Subaru	Generation 3 + STA210
WNC Siemens NTG4 Headunit for DCX - RES-SIEME-DLP*	Siemens DLP with WNC SSM	Gen 2.5 audio receiver	Generation 2.5

In addition to receivers that are installed in vehicles by automakers, there are aftermarket DLP tuners that can be used in vehicles in conjunction with a Sirius-ready or satellite-ready in-dash car radio. They are available to individual consumers as well as automakers and/or dealers for factory or dealer installation. There are also aftermarket in-dash radios with integrated Sirius tuners.

Product Code	Marketing Name	Description	Chipset Version
CMF1	Sirius Starbase SC-FM1	FM modulated car system. Includes DCU /FM Modulator and DLP Tuner	Generation 2.5
CRSRF100	Panasonic CRSF100	Panasonic Compatible DLP Tuner	Generation 1
DSH-920S-CLARN-DLP	Clarion DSH920S	Clarion Compatible DLP Tuner	Generation 1
ESR-T100-SANYO-DLP	Sanyo ESR-T100	Sanyo Compatible DLP Tuner	Generation 2.5

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Product Code	Marketing Name	Description	Chipset Version
Ez700SR-KENWD-DLP	Kenwood EZ700SR	Kenwood AM/FM/CD with integrated SIRIUS tuner	Generation 2.5
Ez900HDS-KENWD-DLP	Kenwood EZ900SR	Kenwood AM/FM/CD with integrated SIRIUS tuner	Generation 2.5
JBLSIR25-JBLPR-DLP	JBL SIR2.5	JBL Compatible DLP Tuner	Generation 2.5
KCA-R70FM	Kenwood KCA-R70FM	FM Modulator/DCU	NA
KTC-SR901-KENWD-DLP	Kenwood KTC-SR901	Kenwood Compatible DLP Tuner	Generation 1
KTC-SR902-KENWD-DLP	Kenwood SR902	Kenwood Compatible DLP Tuner	Generation 2
KTC-SR903-KENWD-DLP	Kenwood SR903	Kenwood Compatible DLP Tuner	Generation 2
M9-SIR	Magnadyne M9-SIR	Magnadyne Compatible DLP Tuner	Generation 2.5
Magnadyne M9SIR DLP for RV-MGDYN-DLP	Magnadyne M9-SIR	Magnadyne Compatible DLP Tuner	Generation 2.5
MCRZX0161Z-MCUSA-DLP	Panasonic CRSRF100	Panasonic FM Modulator tuner	Generation 1
MCRZX0161ZQ-MCUSA-DLP	Panasonic CRSRF100	Panasonic FM Modulator tuner	Generation 1
NAVSIR	Clarion NAVSIR	Clarion NICE Compatible DLP Tuner	Generation 2.5
NAVSIR-CLARN-DLP	Clarion NAVSIR	Clarion NICE Compatible DLP Tuner	Generation 2.5
SC-C1-KRIKR-DLP	Sirius SC-C1	SiriusConnect DLP Tuner	Generation 3 + STA210
SC-FM1-SIRI-DLP	Sirius Starbase SC-FM1	FM modulated car system – Includes DCU /FM Modulator and DLP Tuner	Generation 2.5
SIR-ALP10T-SIRI-DLP	Sirius SIR-ALP10T	Alpine Compatible Audio and Traffic DLP Tuner	Generation 2.5
SIR-ALP1-SIRI-DLP	Sirius SIR-ALP1	Alpine Compatible DLP Tuner	Generation 2.5
SIR-ALP1-WSTRN-DLP	Sirius SIR-ALP1	Alpine Compatible DLP Tuner	Generation 2.5
SIR-CL1-CLARN-DLP	Clarion SIR-CL1	Clarion Compatible DLP Tuner	Generation 2
SIR-CL2	Clarion SIR-CL2	Clarion Compatible DLP Tuner	Generation 2
SIR-CL3-CLARN-DLP	Sirius SIR-CL3	Clarion Compatible DLP Tuner	Generation 2.5
SIR-CL3M	Sirius SIR-CL3M	Clarion Compatible DLP Tuner (no antenna)	Generation 2.5
SIR-ECL1-ECLPS-DLP	Sirius SIR-ECL1	Eclipse Compatible DLP Tuner	Generation 2.5
SIR-ECL2nt-SIRI-DLP	Sirius SIR-ECL2nt	Eclipse Compatible Audio and Traffic DLP Tuner	Generation 2.5
SIR-GM1-SIRI-DLP	Sirius SIR-GM1	GM Class-2 Compatible DLP Tuner	Generation 2.5
Sirius SCV1	Sirius SCV1	Sirius Backseat TV™ Audio plus Video Tuner System (Currently in development)	Generation 3 + STA264 + STA210
Sirius SIRGM2L	Sirius SIRGM2L	GM LAN Compatible DLP Tuner (For Hertz Program)	Generation 3 + STA210

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Product Code	Marketing Name	Description	Chipset Version
Sirius SIRGM3A	Sirius SIRGM3A	GM Compatible (Class-2/LAN) DLP Tuner (Currently in development)	Generation 3 + STA210
Sirius SIR-SC10T	Sirius SIR-SC10T	SiriusConnect Audio and Traffic Tuner System (Currently in development)	Generation 3 + STA210
SIR-JVC1-SIRI-DLP	Sirius SIR-JVC1	JVC Compatible DLP Tuner	Generation 2.5 Generation 3 + STA210
SIR-KEN1-KENWD-DLP	Sirius SIR-KEN1	Kenwood Compatible DLP Tuner	Generation 2.5 Generation 3 + STA210
SIR-KEN1-SIRI-DLP	Sirius SIR-KEN1	Kenwood Compatible DLP Tuner	Generation 2.5 Generation 3
SIR-PAN1-SIRI-DLP	Sirius SIR-PAN1	Panasonic Compatible DLP Tuner	Generation 2.5
SIR-PNR1-PNEER-DLP	Sirius SIR-PNR1	Pioneer Compatible DLP Tuner	Generation 2.5
SIR-PNR2-PNEER-DLP	Sirius SIR-PNR2	Pioneer Compatible DLP Tuner	Generation 3
SIR-SNY1-SIRI-DLP	Sirius SIR-SNY1	Sony Compatible DLP Tuner	Generation 2.5
SIR-SNY1-WSTRN-DLP	Sirius SIR-SNY1	Sony Compatible DLP Tuner	Generation 2.5
SIR-UFM1-AUDVX-DLP*	Audiovox DLP	Audiovox Compatible DLP Tuner	Generation 2.5
SRL1KSQ-RECTN-DLP	Jensen SSR2000	DCU/FM Modulator and DLP Tuner	Generation 1
SRP2002-RECTN-DLP	Jensen SRP2002	DCU/FM Modulator and DLP Tuner	Generation 1
SRSIR-001FM-AUDVX-DLP	Audiovox SSRSIR-001FM	DCU FM Modulator and DLP Tuner	Generation 1
SSR2000-RECTN-DLP	Jensen SSR2000	DLP/DCU Combo with FM Modulator	Generation 1
SSR-FMP1	Kenwood SSR-FMP1	FM Modulator/DCU/DLP	Generation 1
SSR-FMP2CX	Kenwood FMP2CX	Kenwood FM Modulator/DCU/DLP/Ant	Generation 1
SSR-FMP902	Kenwood FMP902	Kenwood FM Modulator/DCU/DLP	Generation 2
SSR-TP1CX	Kenwood SSR-TP1CX	Kenwood Compatible DLP with Antenna	Generation 1
Visteon Ford ACP G25 DLP Aftermarket-VISTN-DLP	Visteon DLP	Aftermarket Visteon DLP for Ford	Generation 2.5

**5. Other Equipment.**

The following receivers for boats, trucks, and airplanes are also available.

Product Code	Marketing Name	Description	Chipset Version
AI-SSR	Avionics Innovations Aviation Tuner	Aviation Tuner; Modified DSC-920S	Generation 1

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Product Code	Marketing Name	Description	Chipset Version
DLP2500	Jensen Marine DLP2500 Sirius Satellite Receiver	ASA/Jensen Marine DLP Tuner	Generation 2.5
DLP2500RTL	Jensen DLP2500	Jensen Compatible DLP Tuner	Generation 2.5
DSL2500-AUDVX-DLP	Audiovox DLP	Audiovox DLP for Marine/RV	Generation 2.5
FREIGHTLINER J1850-DELPH-DLP	Delphi DLP	Gen 1 audio receiver	Generation 1
JBLSIR2.5	JBL SIR2.5	JBL Compatible DLP Tuner (without antenna)	Generation 2.5
M9-SIR	Magnadyne M9-SIR	Magnadyne Compatible DLP Tuner (without antenna)	Generation 2.5
NAVSIR	Clarion NAVSIR	Clarion NICE Compatible DLP Tuner	Generation 2.5
PanaFrl DEA-300 G25-PANPC-DLP	Delphi DLP	Delphi DLP for Freightliner	Generation 2.5
Panapacific FRL DEA-300 G25 DLP-PANPC-DLP	Delphi DLP	Delphi DLP for Freightliner	Generation 2.5
PCU50-00	Avionics Innovations PCU50-00	AVI Panel mount all-in-one tuner/control for aviation (currently in development)	Generation 2.5
PS Engineering PMA8000-SR Aeronautic-PSENG-DLP	PS Engineering PMA8000-SR	Aviation Receiver	Generation 2.5
River Park-VISTN-DLP	Visteon DLP	Visteon DLP for RVs	Generation 1
SIR-CL1	Clarion SIR-CL1	Clarion Compatible DLP Tuner (without antenna)	Generation 2
SIR-CL3M	Sirius SIR-CL3M	Clarion Compatible DLP Tuner (without antenna)	Generation 2.5
Sirius SC-C1M	Sirius SC-C1M	SiriusConnect DLP Tuner (without antenna)	Generation 3 + STA210
Sirius SC-C1ML	Sirius SC-C1ML	SiriusConnect DLP Tuner (With 4.5m cable and Without antenna) (currently in development)	Generation 3 + STA210
SIR-KEN1S	Sirius SIR-KEN1S	Kenwood Compatible DLP Tuner (without antenna)	Generation 2.5
SIR-PAN1B	Panasonic SIR-PAN1B	Panasonic 2006-present model headunit compatible UDLP for Heavy Truck	Generation 2.5
SIR-SNY1M	Sirius SIR-SNY1M	Sony Compatible DLP Tuner (without antenna)	Generation 2.5
SIR-STRVK1	Brix Streamer Commercial Vehicle Car Kit	Additional Car Kit for SIR-STRPNP1 and SIR-PROKIT1 (suction cup, antenna plate, FM Transmitter)	Generation 2 Generation 2.5
SIR-SV1B	Sirius One/Brix PNP	SIRIUS One for Brix	Generation 2.5 Generation 3 + STA210
SSR30-00	Avionics Innovations SSR-30-00	AVI Remote DLP Tuner for aviation (currently in development)	Generation 2.5

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Product Code	Marketing Name	Description	Chipset Version
Visteon River Park G25 DLP for Recreation Vehicle-VISTN-DLP	Visteon DLP	Gen 2.5 audio receiver for RV	Generation 2.5

**6. Interoperability of Current Receivers**

Receiver models sold since January 2001 have limitations that preclude them from becoming interoperable. There are many significant differences between Sirius' and XM's systems. Commercially available Sirius receivers only have the ability to tune to the 12.5 MHz of spectrum licensed to Sirius and do not have the ability to tune to the spectrum licensed to XM. Additionally, the Sirius and XM transmitted signals have different bandwidths, modulation schemes, error correction, and encryption technologies that are hardwired within the chipsets.

When Sirius deployed products based on third-generation chipsets, the company included the capability to update software in the chipset through Sirius' transmitted satellite signal. While this capability allows Sirius to modify certain elements in the chipset performance, it cannot modify the functions identified above.

However, as the Commission is aware, Sirius and XM, through a joint venture, have developed interoperable receivers and produced them in noncommercial quantities.

*See infra* Response to Specification III.E.

- D. **Provide the data sheet of technical characteristics for each chipset used in all receiver models sold since January 2001.**

**RESPONSE:**

**Generation 1 Chipset.** The first generation of chipsets for the Sirius service were designed and produced by Agere Systems (the division of Agere that produced these devices is now a part of Infineon Technologies). The Generation 1 chipset consisted of 8 individual custom integrated circuits (“IC”):

- 1) CDRFRG2 – RF Receiver IC
- 2) CDIFRG2 – IF Receiver IC
- 3) CDADSE – Dual Analog to Digital Converter IC
- 4) CDDDT2 – Digital Downconverter IC
- 5) CDODTB – COFDM Demodulator IC
- 6) CDRCTC – TDM Demodulator and Maximum Ratio Combiner IC
- 7) CDCDT – Concatenated Decoder Chain IC
- 8) CDAPT – DSP and ARM Processor IC

Data sheets providing the technical specifications for the Generation 1 chipset are located at Bates Nos. SIRIUS-FCC-III.D.000001 through SIRIUS-FCC-III.D.000198.

**Generation 2 Chipsets.** Subsequently, Sirius directed Agere to integrate five of the digital ICs into a single custom integrated circuit in order to reduce cost, power, and size of the receiver. This second generation chip is denoted as a Digital Baseband Chip (“DBC”) and incorporates the functionality of the digital downconverter, COFDM Demodulator, TDM Demodulator, and MRC, Concatenated Decoder Chain and DSP and ARM Processor into a single package. When combined with the RF Receiver IC, IF Receiver IC, and Dual Analog to Digital Converter IC, the four chips comprise a Second Generation Chipset. Data sheets providing the technical specifications for the Generation 2 chipsets are located at Bates Nos. SIRIUS-FCC-III.D.000199 through SIRIUS-FCC-III.D.000304.

**Generation 2.5 Chipsets.** In 2004, further integration was achieved by combining the functionality of the RF Receiver and IF Receiver into a single package. When this RFIF integrated circuit was combined with a Dual ADC and DBC they formed a Generation 2.5 chipset. Data sheets providing the technical specifications for the Generation 2.5 chipsets are located at Bates Nos. SIRIUS-FCC-III.D.000305 through SIRIUS-FCC-III.D.000392.

**Generation 3 Chipsets.** In 2005, Sirius introduced its Generation 3 chipset designed by Sirius engineers and produced by STMicroelectronics. The Generation 3 chipset is comprised of a tuner IC (STA210) and a digital baseband IC (STA240). A second tuner IC implementation was developed and produced by Sirenza (S520077) that was used in place of the STA210 in several products. Data sheets providing the technical specifications for the Generation 3 chipsets are located at Bates Nos. SIRIUS-FCC-III.D.000393 through SIRIUS-FCC-III.D.000482.

**Generation 4 Chipset.** In 2007, Sirius introduced its fourth generation digital baseband device (STA260), similarly designed by Sirius and STMicroelectronics. Receivers incorporating the STA260 utilize either the STA210 or S520077 tuner chips to form a receiver. The data sheet providing the technical specifications for the STA260 chipset is located at Bates Nos. SIRIUS-FCC-III.D.000483 through SIRIUS-FCC-III.D.000550.

**Overlay Decoder Chipset.** To support Sirius Backseat TV, Sirius and STMicroelectronics introduced the STA264 Hierarchical Demodulation IC in 2007. This device, when coupled with the STA210 and STA240, forms a complete receiver that provides reception of Sirius audio, data applications, and compressed video data. The

data sheet providing the technical specifications for the overlay decoder chipset is located at Bates Nos. SIRIUS-FCC-III.D.000517 through SIRIUS-FCC-III.D.000550.

- E. **Provide a description of all efforts to develop and commercialize interoperable satellite radio receivers and any difficulties in such development and commercialization.**

**RESPONSE:**

By the end of 2007, Sirius and XM will have jointly spent approximately [C. █████] developing an interoperable satellite radio receiver. In November 2003, Sirius and XM created a joint venture to explore and develop an interoperable receiver. The companies felt that the creation of a separate entity would allow it to focus solely on the development of interoperable solutions and allow the entity to access current and future technology developments in each company while maintaining appropriate firewalls between the companies.

Since its inception, the joint venture has developed and refined interoperable receiver designs based on available chipsets and technologies. The first interoperable receiver implementation, or Proof of Concept (“POC”), was based on combining an available receiver module from Sirius and an available receiver module from XM. The interoperable receiver used a common power supply, a common audio amplifier, and was controlled by a common software application initially running on a handheld PC. The POC implementation was dubbed “Velcro radio” because it involved tying together two separate but readily available receiver modules. The prototype demonstrated true interoperability and was able in some respects to reduce receiver cost by using a common

software interface and eliminating duplicative external equipment (such as the power supply and audio amplifier).

The latest generation of interoperable receiver design has leveraged features of the Sirius third generation tuner chip to provide the spectrum to both the XM and Sirius baseband chips simultaneously. Use of a common tuner makes the overall design smaller and less expensive by reducing the number of components. As a result, this interoperable receiver has roughly the same size and shape as current Sirius and XM products that can be installed in a vehicle trunk or behind the dashboard. Also, the controller and display unit is consistent with a unit currently marketed by Sirius and XM.

The commercial introduction of interoperable receivers has been hampered by a number of factors, particularly the increased costs of producing a radio capable of receiving signals from two different and unique operating systems. However, as more fully explained in Response to Specification IV.D., Sirius believes that the merger will create the commercial incentive for the introduction of interoperable receivers.

- F. **Describe all steps necessary to migrate all of Sirius's subscribers to a common technology platform and the cost the company and its customers will incur to implement such a migration.**

**RESPONSE:**

The steps required to merge the parties onto a common technology platform from the standpoint of both engineering technology and information technology, are discussed below. Until the merger is consummated, Sirius and XM by law remain independent

companies.<sup>4</sup> As a result, neither company has access to detailed non-public information from the other satellite radio provider, and there is only limited information from which to estimate an optimal integration strategy. This narrative reflects Sirius' high-level view of the issues that integration planning must address and the process by which those issues will be addressed after integration planning begins. This view is subject to modification pending access to XM's confidential information, as well as post-merger discussions with XM executives.

Sirius and XM commissioned a detailed study from a third-party consultant of the efficiencies arising from the proposed merger. The resulting report ("Efficiencies Report" or "Report"),<sup>5</sup> which is produced at Bates Nos. SIRIUS-FCC-IV.000001 through SIRIUS-FCC-IV.000092, examined the effect of the merger on each category of the firms' costs and revenues. It was based on an extensive analysis of the companies' confidential financial data and other information, including several hundred megabytes of financial models and internal presentations, as well as more than 100 hours of interviews with the companies' top management and consultation with various business experts. This report contains detailed information regarding the operational integration of the two companies.

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<sup>4</sup> Until the actual closing of the transaction, antitrust authorities take the view that the parties are required to act as separate and independent businesses. Although the parties are allowed to plan for the integration process and exchange certain information to that end, taking certain steps towards integration or the exchange of certain information could be deemed "gun jumping." More specifically, the Hart-Scott-Rodino ("HSR") Act prohibits parties from integrating their operations before the period of antitrust review has expired. Joint activity between the parties can also be subject to review under Section 1 of the Sherman Act. The concerns generally arise from the possibility that pre-consummation exchange of information can lessen competition between the parties before closing and that, if the transaction ultimately is not completed, the information exchanged by the competing companies could be used to coordinate future competitive behavior.

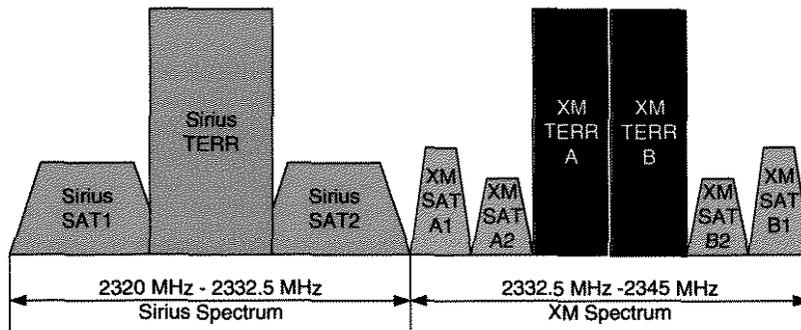
<sup>5</sup> *Efficiencies Arising from the Proposed Merger of Sirius and XM* (July 2007).

## 1. Engineering Technology

### *Overview*

Sirius has a reasonable understanding of the high-level attributes of the XM Satellite Radio transmission specification and compression technology. However, of necessity, the operational details of XM's infrastructure, encryption technologies, receiver implementations, and compression algorithms will remain proprietary information and unknown to Sirius before the merger is consummated.

There are differences between the systems implemented by Sirius and XM that will impact the integration of the two services. As shown in Figure 1, both Sirius and XM broadcast their signals in adjacent 12.5 MHz bands of licensed spectrum. While both Sirius and XM each simultaneously broadcast their content from two satellites as well as through a network of terrestrial repeaters, the format in which Sirius and XM use their 12.5 MHz spectrum is quite different. While each company divided its spectrum among these three paths (two satellite paths and one terrestrial path), XM further divided its spectrum into two "ensembles" (A and B). Dividing their spectrum into these two ensembles enables XM to deliver programming to its terrestrial repeater network from one of their two geostationary satellites. For example one XM satellite could feed the repeaters with both the A and B ensembles. The ensemble approach also allows XM receivers to selectively tune and process only half of the 12.5 MHz spectrum at a time. Although it facilitates the feeding of the repeaters and provides some added signal-to-noise benefit, this ensemble approach is less spectrum efficient than the Sirius approach, which yields additional payload bits for Sirius services (4.4 Mb/s vs. 4 Mb/s).



**Figure 1. Satellite Radio Spectrum for Sirius and XM**

The differences between the two systems extend beyond spectrum utilization issues. While both Sirius and XM deploy the same basic modulation techniques (Quaternary Phase Shift Keying (“QPSK”) for satellite transmissions and COFDM for terrestrial transmissions), there are differences in the sample rates, filtering, error correction coding, service encryption, and audio compression algorithms, leading to different chipset implementations.

The satellite constellation used to broadcast the signals provides another area of distinction between the two companies. XM satellites are maintained in geostationary (“GEO”) orbit (staying at a fixed point in the sky) which is traditional for communication satellites. By contrast, Sirius operates its current satellites in highly inclined, elliptical orbits (“HIEO”) that are constantly moving and provide much higher elevation angles for receivers to have a clear view of the satellite. *See infra* Response to Specification III.G. As a result, there are fewer blockages from small buildings and mountains.

The receiver antennas for XM and Sirius also are optimized differently in order to provide the best reception given the different elevation angles needed to view the satellites. An interoperable antenna specification currently exists that provides a compromise of the individual optimized antenna specifications. This specification

requires further study to determine if there are more tradeoffs to be made based on the collective knowledge learned from operating the Sirius-XM joint venture.

From an infrastructure perspective, there are differences that need to be accounted for as the integration scenario is developed. As mentioned previously, XM delivers programming to its terrestrial repeater network via one of its satellites while Sirius delivers programming to its terrestrial repeater network via leased bandwidth on a separate VSAT satellite.

The satellite orbits for the two services also mandate different technical approaches for the uplink and tracking systems. Since the Sirius HIEO satellites are constantly moving in the sky and travel both above and below the equator, the uplink antennas require full motion in order to track the satellites across the sky and maintain a clear line of sight to the satellites throughout their entire 24-hour orbit both north and south of the equator.

The terrestrial repeater network configurations for the two services also differ. Since Sirius satellites provide much higher elevation angles for receiver reception, there are fewer geographic areas that require terrestrial transmitters to fill in the reception gaps. Given the number of overlapping areas that require terrestrial transmitters from both services, the integration team would need to examine the placement, monitoring and maintenance of all the sites to determine the optimum synergies.

In the broadcast infrastructure, both Sirius and XM operate studios at their respective headquarters, and both companies have deployed large storage systems to support the hundreds of music and entertainment channels offered. Sirius' understanding from publicly available information is that the storage systems and the associated

scheduling software systems used by the companies are based on incompatible, but commercially available, technology. The integration effort will need to focus on whether to continue to operate these studios independently or to seek further synergies by migrating to common platforms. Once the audio content has been scheduled and played, each company employs unique and proprietary technologies to compress the content for delivery through the licensed spectrum.

Receivers designed for each of the services are dependent on highly integrated chipsets that have been developed for Sirius and XM on a proprietary basis. While both Sirius and XM have employed STMicroelectronics as a silicon manufacturer, Sirius also uses Infineon (formerly Agere) as a silicon manufacturer while XM uses a number of providers for tuner chips, including Maxim, Analog Devices, and Silicon Labs. These chipsets must be highly integrated in order to provide the lowest cost receiver products and are highly tuned to address only the transmissions of Sirius or XM, respectively. As outlined below, the future design and development of chipsets will depend upon the network system migration strategy determined as an initial step in the integration process.

#### ***Integration Strategies Development***

Initial emphasis will likely be on the development of the long-term network system migration strategy since that will have an impact on development of new infrastructure, chipsets, and products. There are three broad alternative scenarios that Sirius and XM may pursue to allow customers to receive the content broadcast across both licensed spectrums.

- i. **Continue both legacy networks.** This approach would require the fewest changes to the individual networks. At some future time, when a radio base

that supports both networks is dominant, additional capacity could be made available by removing redundant programming from each network.

- ii. Migrate subscriber base to one legacy network.** Another possibility would be to utilize either the Sirius or XM network and transmission specifications across all spectrum in the future. As an example, Sirius would change the infrastructure that currently delivers services over XM's current spectrum, and future XM receivers would need to include electronics and chipsets capable of receiving the Sirius system. Future Sirius receivers would need to have some modifications to their tuner sections in order to tune to the portion of the band currently licensed to XM, but the remainder of the electronics in the Sirius receivers would be unchanged. If such an approach were to be adopted, however, its implementation would be many years in the future.
- iii. Develop new system to migrate future subscribers.** The combined company could develop a new system definition to yield more efficient utilization of the spectrum, given the trends of silicon and memory capabilities and costs over time. Future receivers would have the capability of receiving either of the current legacy systems as well as the new system capability. This approach would require infrastructure changes. At some future time when these capabilities are broadly available to consumers, one or both networks could be completely switched to delivering service under the newer, more efficient system specifications.

From a high-level integration strategy perspective, other areas to be addressed would include: (1) organizational structure; (2) application strategies for audio, data, and video; (3) technology integration strategy; and (4) product roadmap strategy.

Aside from determining a high-level strategy and roadmap, a number of specific functions of the parties' infrastructure, technology, and product development must be addressed as part of the integration planning to develop an integrated network system.

These areas include:

#### Infrastructure

- Broadcast Segment
  - Studio Operations
  - Compression Encoders and Multiplexers
  - Program Scheduling Applications
  - Streaming Applications
  - Conditional Access
  - Connections to Uplink Facilities
- Terrestrial Network Operations
  - Leased Properties
  - Monitoring and Control Operations
  - Maintenance Operations
  - Common Platform for Future Repeaters
- Satellite Operations
  - Uplink Facilities
  - Monitoring and Control Operations
    - In-House or Outsource
  - Terrestrial Network Delivery
- Disaster Recovery Site Integration
  - Broadcast Studio
  - Satellite Uplink Facilities
  - Terrestrial Networks Monitoring

#### Technology Development

- System Design
- Integrated Circuit Design

- Antenna Design
- Application Design
- Satellite Engineering
- Compression Technologies
- Data Services Integration

#### Product Development

- Short Term Product Strategies
- Long Term Product Strategies
- Supply Chain Management
- Selection of Manufacturing Partners
- CE ODM Manufacturing Support
- Manufacturing Quality Control
- OEM Application Support

#### *Developing the Integrated Network System*

The steps necessary to develop the integrated network system will include the following<sup>6</sup>:

- 1) **Analysis of current network capabilities.** Sirius and XM will need to develop a detailed understanding of the two networks, including strengths, weaknesses and limitations. This knowledge may also provide insights that will strengthen the current networks based upon their joint experience. For the three alternate migration scenarios, it will be important to gain as full an understanding of the current networks as possible.
- 2) **Analysis of planned network improvements.** Sirius has developed a recent enhancement to its network by upgrading to a hierarchical modulation scheme. This allows the delivery of additional payload bits to new receivers while retaining backwards compatibility with older receivers (*i.e.*, older receivers continue to receive the 4.4 Mb/s audio and data services.). Further, Sirius engineers have developed a proposal for an advanced system that could be deployed at a future date that may be consistent with the third migration strategy identified above. While Sirius does not have public information that XM has developed similar technologies, it is likely that there has been some effort to upgrade XM's delivery system in a similar fashion. As with understanding current network capabilities, further enhancements can be made to these future

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<sup>6</sup> All of these steps would occur post merger. Unless specifically noted otherwise, the steps would occur in serial fashion (*i.e.*, one after the other).

network improvements based on the collaboration of the two teams. Sirius and XM will need to develop an understanding of the benefits and costs of these planned network improvements, to determine how they will factor into a network migration strategy.

**3) Assessment of infrastructure costs and implementation.**

Understanding of the implementation costs for the various migration scenarios will be a critical factor in defining strategic direction. Since the infrastructure analysis should factor in future satellite procurement, this study phase will likely be the longest assessment period. Terrestrial network and broadcast infrastructure also will be analyzed to understand the cost and implementation timeline.

**4) Assessment of chipset costs and implementation.** The cost impact on the chipsets must be assessed for the various migration scenarios. Since chipsets form the fundamental building blocks of these products, this will be a critical component in the selection of the migration strategy. Due to the business sensitivities, both Sirius and XM regard as highly proprietary the cost structure of their current and planned chipsets. The integration teams will need to gain a strong understanding of the costs of both companies' currently available chipsets as well as those under development. This understanding will form the basis to analyze the impact of the alternate integration scenarios.

**5) Assessment of product costs and implementation timeline.** While the chipsets form the fundamental building blocks of products, there are a number of other factors that contribute to the final product cost. Sirius and XM likely have fundamentally different means by which products are developed, and here is where efforts will be shared between the design teams and the manufacturing teams. It will be important to understand these approaches and determine the best manner in which to bring integrated products to market.

***Engineering Transition***

Once a decision has been made on the network system to be deployed, the engineering transition plan incorporating the following steps would be deployed:

**1) Development of specifications.** Documentation specifying the relevant characteristics of the selected migration scenario will be needed. These specifications will need to be fundamentally sound for designs to be executed; however, they will be updated and become more precise over time as further engineering design and analysis is performed. The specifications will need to address the following general areas:

- Network Transmission specifications
  - Chipset specifications
  - Receiver specifications
- 2) **Detailed computer simulation system performance.** Computer simulations will be used to model the final customer experience. These simulations will model both the transmitted characteristics of the satellite and terrestrial networks as well as the behavior of the chipsets themselves. They will allow design tradeoffs to be made prior to committing larger resources and dollars to the implementation of the network infrastructure and receiver chipsets. Sirius has modeled the behavior of its system and chipsets currently in production, which would form the basis for this analysis. Sirius has no knowledge of the software tools that XM has utilized and developed for their design process, so some effort may be needed to reconcile the information and transfer the modeling to a unified platform.
  - 3) **Detailed hardware design of receiver chipsets.** Sirius develops the detailed design of its chipsets with in-house engineering staff. Sirius understands that XM provides high-level specifications to its silicon partners and relies on their staff to perform the detailed design. The detailed designs are done both utilizing industry standard software packages as well as creating prototypes that emulate the chipset design for field testing. In all of the migration strategies, it is assumed that new chipsets will be developed.
  - 4) **Layout of receiver chipsets.** Due to the very specialized skill and software tools, this process is performed by the silicon provider, such as STMicroelectronics. This step uses the detailed design as an input and arranges the circuitry to allow the most optimal implementation of the chipset. During this process, there is feedback to the design team to confirm that the chosen layout does not negatively impact the performance of the receiver.
  - 5) **Fabrication of sample chipsets.** Sample chips must be produced and delivered by the silicon provider, following standard rules and processes to ensure very high quality. Typically, a small quantity of (*i.e.*, less than 200) sample chips is delivered for analysis by Sirius.
  - 6) **Evaluation of sample chipsets.** Sample chips undergo a rigorous evaluation process by both the silicon provider and the Sirius engineering team. Evaluation boards are developed to host the sample chips so that their full functionality can be evaluated to determine compliance with the specifications. The evaluation boards are tested in a controlled lab environment and also subjected to field testing in vehicles to ensure that

the delivered product is faithful to the design intent. Should any problems be uncovered in this step, design changes may be required, which would likely extend the timeline. This could require as much as 9 months of additional effort to arrive at fully validated chip designs.

- 7) **Release for production.** Once Sirius has validated and accepted the design, the silicon provider will create a set of masks that will be used in high-volume production. As with the development of the sample chipsets, the silicon provider has very rigorous processes that must be followed in order to ensure quality at high production volumes.
- 8) **Integration into product.** Product designs have their own cycles that are largely driven by the desired feature set and cost targets. When new technology is also employed, as in a new chipset, then additional effort is typically expended to ensure that the product design remains faithful in its performance to the evaluation boards that validated the sample chipsets. While much of the product design can be performed in advance, once chipset specifications and package details are known, there will remain several iterations of the product design to fine tune the performance.

## 2. Information Technology

The steps that the information technology (“IT”) integration team would take to develop a plan to combine the IT systems, address migration issues, and create an IT strategy for the combined company are outlined below:

1. **Review Current Application Portfolio**
  - a. Current Application Portfolio
  - b. Customer Relationship Management (“CRM”) / Revenue and Billing Management Gap Analysis
  - c. Supply Chain Management Gap Analysis
2. **Develop Integration Strategies**
  - a. Summary of Enterprise business strategies
  - b. Application Strategy
  - c. Technology Strategy
  - d. Organization Strategy
  - e. Hi-Level Migration Strategy
  - f. Hi-Level Integration Plan
3. **Develop Technology Architecture and Migration Strategy**
  - a. Application Architecture
  - b. Technology Architecture (Hardware / Operating Systems)
  - c. LAN/WAN Network Architecture

d. Facilities Architecture (Data Center)

**4. Determine IT Organization**

- a. Transactional Applications (Development, Support, Quality Assurance (“QA”))
- b. Web Applications (Development, Support, QA)
- c. DataWarehouse / Business Intelligence Reporting (Development, Support, QA)
- d. Marketing and Campaign Management
- e. Technical Operations (Unix, Oracle, Windows)
- f. Data Center Management
- g. Desktop Support

**5. Develop Strategic IT Plan**

- a. Master Project Plan
- b. Short-Term Project Plan
- c. Hardware/Software Procurement Plan
- d. Operating Expense / Capital Expense Forecast

The steps needed to migrate the information systems include:

- 1) Establishing Communications Systems: This includes phone systems/PBX, email, and voicemail.
- 2) Integrating Marketing Websites.
- 3) Consolidating Administrative Applications including Human Resources (Human Resources Information System/Payroll) and Financials (General Ledger, Accounts Payable).
- 4) Integrating E-Commerce Sites.
- 5) Consolidating Business Intelligence Applications including subscriber reporting (Scorecard) and Data Warehouse (Teradata).
- 6) Consolidating Promotion/Campaign Management Applications including Siebel and Unica Campaign Management.
- 7) Consolidating Operational Edge Application including partner payments and partner Electronic Data Interchange/Supply Chain Management.
- 8) Consolidating CRM/Revenue and Billing Management Applications including subscriber self-service, customer service interface, customer contact and call center scripting, pricing and service plan integration,

billing and revenue management, interactive voice response, and conditional access integration.

- G. **Provide maps, in .gxt format where possible, of the actual or expected geographic coverage area(s) for each of the Sirius satellites already in orbit or under development, including associated power flux density contours. Describe what factors went into the selection of the geographic coverage areas for the Sirius satellite networks, as well as any technical, economic, or other considerations that limit the ability of the Sirius satellite network to serve U.S. states and territories outside the contiguous United States.**

**RESPONSE:**

**Sirius FM 1, 2, 3, and 4 Non-Geostationary Satellite Coverage.** The actual coverage area for Sirius' non-geostationary satellites, including the associated power flux density contours, are attached as Figure 1 in Exhibit III.G. These maps are provided in PDF format since it is not possible to provide them in .gxt format.<sup>7</sup>

The satellites, Sirius FM-1, FM-2, and FM-3, are currently in service operating from HIEO that are spaced 120° apart in Right Ascension of Ascending Node ("RAAN"). The orbit ground track for these HIEO satellites are shown in Figure 4 in Exhibit III.G. Each satellite provides service for 16 hours per day when north of the equator, and there are always two satellites in service at any given time. The three satellites are identical in design, including coverage area.

A fourth satellite, Sirius FM-4, is a ground spare that is currently in environmentally controlled storage at Space Systems/Loral, the satellite manufacturer. It

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<sup>7</sup> As the Commission recognized in 2003: "[T]he .gxt format does not lend itself to NGSO applications. Sirius also notes that the ITU does not require antenna gain contour diagrams for NGSO satellites in the .gxt format. Therefore, Sirius adopts its .gxt format proposal only for GSO applications." *Amendment of the Commission's Space Station Licensing Rules and Policies*, Third Report and Order and Second Further Notice of Proposed Rulemaking in IB Docket Nos. 02-34 and 00-248, 18 FCC Rcd 13486, ¶ 29 (2003).

is identical in design to the three satellites currently in service, including coverage area.

It is designed to operate in a HIEO orbit.

The coverage area for Sirius' nongeostationary satellites was selected to conform to the FCC's geographic coverage requirement<sup>8</sup> and to provide high power services to mobile users in the continental United States and Canada. Originally, Sirius planned, and was licensed for, a two-satellite geostationary network.<sup>9</sup> But after several years of investigation of the scope of signals of terrestrial radio competitors and technological research, Sirius obtained FCC approval to modify its system to add a third in-orbit satellite and to place the entire constellation in highly elliptical orbit.<sup>10</sup> Since the satellites are HIEO and not in geostationary orbits, a very broad coverage area is required to compensate for movement of the satellite relative to the earth over the 16 hour service period.

This re-design allowed Sirius to supply vastly improved signal coverage in the northern United States and Canada, making it a more effective competitor to terrestrial radio stations in these areas. The change also limited the scope of areas with satellite signal coverage challenges and reduced the number of terrestrial repeaters that Sirius had to deploy. Outside the continental United States ("CONUS"), Sirius serves customers in

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<sup>8</sup> 47 C.F.R. § 25.144(a)(3)(i) (requiring satellite radio to provide "at a minimum, service the 48 contiguous the United States.").

<sup>9</sup> *Satellite CD Radio Inc.*, 12 FCC Rcd 7971 (1997).

<sup>10</sup> *Sirius Satellite Radio Inc.*, 16 FCC Rcd 2001 (2001).

Puerto Rico and Southern Alaska.<sup>11</sup> Coverage was not extended to all of Alaska and/or Hawaii due to both technical limitations (need to keep high power density in primary services areas combined with low look angles in Alaska/Hawaii) and relatively low population densities in those states that limit the economic benefits of extending the coverage. Consistent with the FCC's desire that Sirius serve areas outside the contiguous United States "where practical to do so,"<sup>12</sup> in November 2006, Sirius applied for Special Temporary Authority ("STA") to install three terrestrial repeaters in Alaska and one in Hawaii.<sup>13</sup> Regulatory limitations currently prevent the Sirius service from being offered in Mexico.

**Sirius FM-5 Satellite Coverage.** Figure 2 of Exhibit III.G. shows the downlink contour map for a fifth satellite currently under construction, Sirius FM-5.<sup>14</sup> Sirius FM-5 is currently under construction at Space Systems/Loral and is planned to launch in the fourth quarter of 2008. Sirius FM-5 is a geostationary satellite that takes advantage of new technology to offer higher power services to CONUS and Canada. Shaped reflector technology and the geostationary orbit allow the coverage area to be fine-tuned to

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<sup>11</sup> There have been reports that customers are able to receive Sirius' service in southeastern areas of Alaska; however, the reception is likely from a single satellite in the apogee loop and may only be available for portions of the day.

<sup>12</sup> *Establishment of Rules and Policies for Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, 12 FCC Rcd 5754, 5794 (1997).

<sup>13</sup> Application of Sirius Satellite Radio Inc. for Special Temporary Authority to Operate Four Satellite DARS Terrestrial Repeaters in Alaska and Hawaii, File No. STA-STA-20061107-00131 (filed Nov. 7, 2006).

<sup>14</sup> The downlink contour map for Sirius FM-5 is also available on the FCC's International Bureau Filing System in .gxt format. See File No. SAT-LOA-20060901-0096 (filed Sept. 1, 2006).

provide higher power levels in those regions with very high population densities and/or subject to more attenuation due to foliage or other natural blockages.

**Sirius FM-6 Satellite Coverage.** Figure 3 of Exhibit III.G. shows the draft downlink contour map for a sixth planned satellite, Sirius FM-6, which is still in the preliminary design stage. Sirius FM-6 is currently starting construction at Space Systems/Loral and is planned to be ready for launch in the third quarter of 2010. FM-6 will be operated in a HIEO orbit. While the design is not yet finalized, the contour is expected to take advantage of reflector shaping technology similar to FM-5 but with a broader pattern to accommodate the HIEO orbit movement to provide high service levels to mobile users in CONUS and Canada.

#### **IV. Claimed Public Interest Benefits**

The Efficiencies Report identifies numerous consumer benefits that will result from the merger. These include better program offerings,<sup>15</sup> the introduction of new programs and services through the more efficient use of spectrum,<sup>16</sup> lower consumer prices for satellite radios,<sup>17</sup> and more reliable satellite service.<sup>18</sup>

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<sup>15</sup> *Id.* at 83-85. Better program offerings are also calculated to lead to an increase in subscribers and less subscriber churn. *Id.* at 85-86.

<sup>16</sup> *Id.* at 86-88.

<sup>17</sup> *Id.* at 86.

<sup>18</sup> *Id.*





2. **Provide a quantification of the cost savings and an explanation of how the quantification was calculated, including all assumptions and their sources;**

**RESPONSE:**

The Efficiencies Report quantifies the cost savings and explains the efficiencies calculations made in the report, including all assumptions and their sources.<sup>25</sup> The cost savings were calculated by examining each area of XM's and Sirius' businesses in detail and forming a judgment of the synergy value that could be achieved by merging the companies.<sup>26</sup> The cost savings were calculated by comparing each company's 2007 budget with what a post-merger firm would look like.

3. **State separately the one-time fixed cost savings, recurring fixed cost savings, and variable cost savings (in dollars per unit and dollars per year); and**

**RESPONSE:**

The Efficiencies Report examines the post-merger firm in terms of the steady state fixed-cost savings and steady state variable cost savings. According to the Efficiency Report, the merger will give rise to approximately [H.C. █████] steady state fixed-cost savings and at least [H.C. █████] of steady state variable-cost savings annually (or the equivalent of [H.C. █████]).<sup>27</sup>

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<sup>25</sup> *Id.* at 6.

<sup>26</sup> *Id.* at 5.

<sup>27</sup> *Id.* at 6.

4. **Provide sufficient supporting evidence to demonstrate that these cost savings will result in cognizable public interest benefits under our merger review standard.**

**RESPONSE:**

*See* Response to Specification IV.B.3. below.

- B. **Describe any other efficiencies that are expected to occur as a result of the proposed transaction. For each of these other anticipated efficiencies:**

**RESPONSE:**

In addition to the cost synergies, the transaction will result in significant revenue synergies. For example, as mentioned above, the Efficiencies Report concludes that the merged company would be able to add subscribers due to a better line-up of channels and packages, incremental programming and services, and lower-priced consumer devices.<sup>28</sup> Similarly, because of the merged company's ability to provide a better platform for advertisers than either stand-alone company, the Efficiencies Report concludes that the merged firm would be able to generate at least [H.C. █████] of incremental advertising revenue annually.<sup>29</sup>

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<sup>28</sup> *Id.* at 83-86.

<sup>29</sup> *Id.* at 5.

1. **Provide a full explanation as to why those efficiencies would not be achieved absent the proposed transaction;**

**RESPONSE:**

The Efficiencies Report details why these cost savings and efficiencies cannot be captured by alternatives other than this transaction.<sup>30</sup> For example, as demonstrated by the report, the combined company will have better content offerings for consumers than XM and Sirius alone, which will lead to increased subscribership. Each company has exclusive content that helps attract and retain subscribers. By merging, the companies will be able to pool the best content from each line-up and use it to offer programming that is attractive to previously reluctant potential subscribers. Moreover, the additional content brought to subscribers by the merger would lead to a reduction in subscriber churn. Neither of these revenue synergies would be achieved absent the merger.

In addition, the combined company would be more effective at selling advertising than either firm standing alone. Each satellite radio channel delivers a small audience relative to other national media. However, the merged entity could draw a larger audience per channel than either company operating alone, particularly among niche demographics attractive to advertisers. The extension of the best programming on each service to the combined subscribership will also lead to growth in audience size.

Moreover, while there are currently very few tools for accurate audience measurement, the scope of the merged company's audience would accelerate adoption of objective audience measurement tools that also would make satellite radio more attractive

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<sup>30</sup> *Id.* at 83-86.

to advertisers. Absent the merger, it is unlikely that such tools will be developed in a cost-effective manner.<sup>31</sup>

2. **Provide a quantification of the efficiencies and an explanation of how the quantification was calculated, including all assumptions and their sources; and**

**RESPONSE:**

The Efficiencies Report quantifies the cost savings and explains how the efficiencies calculations were made, including all assumptions and their sources.<sup>32</sup>

3. **Provide sufficient supporting evidence to demonstrate that these efficiencies will result in cognizable public interest benefits under our merger review standard.**

**RESPONSE:**

The Efficiencies Report provides detailed evidence regarding how the cost savings and other efficiencies resulting from the merger will result in cognizable public interest benefits under the Commission's merger review standard.<sup>33</sup>

**Additional Program Offerings, Including A La Carte Offerings, at Lower Prices.** As a result of the merger, the combined company will be able to offer consumers

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<sup>31</sup> *Id.* at 80 (“[C.

[REDACTED]

D.)

<sup>32</sup> *Id.* at 5-6.

<sup>33</sup> *See generally id.*

significantly improved programming and better package offerings. For example, as the Efficiencies Report states, “[C. [REDACTED]

[REDACTED]  
[REDACTED]”<sup>34</sup> These additional packages clearly benefit customers by offering programming not currently available (*e.g.*, NFL and Martha Stewart to XM customers; baseball and Oprah to Sirius customers), as well as by offering customers a number of new pricing options including packages priced significantly less than the packages available today. The cost efficiencies resulting from the merger will similarly make it possible to offer a la carte programming and lower price points. All of these program offerings will give customers greater control over the programming they receive. Increasing choice through the introduction of these new packages, without taking away current options, necessarily increases consumers’ welfare.<sup>35</sup>

None of these consumer options would be available absent the merger.<sup>36</sup> These new options are linked to the significant cost efficiencies available from the transaction. Without the efficiencies arising from the transaction, neither company could afford to introduce a la carte packages given the billions of dollars in losses that the companies have endured to date. In addition, offering a la carte programming requires modifications to important elements of the companies’ infrastructure including significant changes to

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<sup>34</sup> *Id.* at 83.

<sup>35</sup> The Efficiencies Report predicts that [C. [REDACTED]  
[REDACTED] ]. *Id.* at 84, 85.

<sup>36</sup> The final content available via a la carte and on the “best of” tiers is, of course, subject to negotiations with the companies’ respective content providers, and, thus, could change as a result of those discussions. In addition, all content is subject to change from time to time due to contractual relationships with these third-party providers and for other reasons.



[REDACTED]

[REDACTED]”<sup>39</sup> Additional capacity could also be used

“[C. [REDACTED]

[REDACTED]”<sup>40</sup>

**More Reliable Satellite Fleet.** By improving the redundancy of the satellite fleet, the merger will increase the reliability of satellite radio, “[C. [REDACTED]

[REDACTED]”<sup>41</sup>

C. **With respect to the synergies Applicants expect will materialize and result in more programming choices at lower prices, including claimed benefits from a la carte programming and programming efficiencies (see Consolidated Application at 9-11, 13, 17; Joint Opposition at 10-14, 19-21):**

1. **List each audio and video channel distributed in the United States currently by [Sirius] and for each such channel state:**
  - a. **Whether the content is exclusive to [Sirius]; and**
  - b. **Whether the content also is available on [XM] or over other media, including, but not limited to, terrestrial broadcast radio, cable television, Internet stream or download/podcast, or HD radio;**

**RESPONSE:**

A chart listing each of Sirius’ 136 channels (133 audio, 3 video) and whether the content on each channel is exclusive to Sirius is provided at Exhibit III.C. This chart shows the availability of the relevant content on XM, terrestrial radio, HD radio, cable television, the Internet via streaming, and the Internet via download. As demonstrated by

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<sup>39</sup> *Id.* at 87.

<sup>40</sup> *Id.* See also *supra* Response to Specification III.F.

<sup>41</sup> Efficiencies Report at 86.

the chart, all programming genres, and much of Sirius' specific content is available through other media, and, in fact, most of the content is available through multiple sources. In particular, Sirius' music offerings are accessible on an extensive number of platforms as part of a vibrant competitive market for audio entertainment.

In evaluating whether the content is exclusive to Sirius or is available on other platforms, Sirius answered in the affirmative if there was a close analogue available on another media. However, where the Sirius channel was differentiated from content available on other platforms by exclusive talent, Sirius answered no. For example, although E Street Radio provides music that is widely available on other outlets, Sirius indicated that this content is not available from other outlets because it also includes unique, artist-provided content.

2. **For each channel identified in question (1)(a), indicate whether the company has obtained the rights necessary, if any, to distribute the programming by the combined company on an a la carte basis or as part of the "best of" or other proposed programming packages;**

**RESPONSE:**

Sirius has reviewed its major contracts to determine the scope of its rights to distribute programming on an a la carte basis or as part of other programming packages.

[H.C. [REDACTED]  
[REDACTED]  
[REDACTED]

] After the merger, the combined company will conduct a thorough analysis of the existing contracts and negotiate any new terms that may be necessary to implement the proposed programming options.

3. **With respect to the claim that the “combined company will be able to consolidate redundant programming,” provide a list of channels that are duplicative on Sirius and XM and expect to be consolidated;**

**RESPONSE:**

As the companies stated in their Consolidated Application, in the long term it is expected that “the combined company will be able to consolidate much redundant programming.”<sup>42</sup> In the short term, the combined company would be able to achieve significant merger-specific cost savings by providing the same company-generated content to subscribers on both platforms, thereby eliminating duplicative programming and other costs. For instance, as explained in the Consolidated Application, there are 75 channels that provide substantially similar programming by genre (*e.g.*, each network offers a set of “decades” channels with music from the 1960s, 1970s, and 1980s, a classic soul channel, and an “indie rock” channel).<sup>43</sup> Moreover, 12 additional channels are duplicated in their entirety by Sirius and XM, as detailed in Exhibit IV.C., and the merged company will be able to achieve short-term merger-specific efficiencies by consolidating origination of broadcast signals and by negotiating a single contract with each of the third-party content providers. However, because the merger has not been completed, the parties have not yet engaged in detailed discussions regarding the operations of the merged company. *See supra* n.4.

Sirius anticipates that over the long-term, the merged company will be able to achieve even greater efficiencies when existing single-platform radios have transitioned

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<sup>42</sup> XM Satellite Holdings Inc. and Sirius Satellite Radio Inc., Consolidated Application for Authority to Transfer Control, 13 (filed Mar. 20, 2007) (“Consolidated Application”).

<sup>43</sup> *Id.*

from use and the adoption of interoperable radios has become widespread. The Efficiencies Report, provides an independent assessment as to the efficiencies associated with the elimination of duplicative programming.<sup>44</sup> However, as set forth above, the speed with which the parties can fully realize these efficiencies ultimately will depend upon how the parties decide to and are able to integrate and migrate their systems. It will certainly be necessary for the combined company to continue broadcasting content separately to both the Sirius and XM platforms for a significant period of time.

4. **Explain why the proposed billing credit for subscribers who do not elect adult programming is a merger-specific benefit. In addition, address whether the Company would offer such a credit in the absence of merger approval;**

**RESPONSE:**

Absent the efficiencies resulting from the merger, Sirius would not be able to expend the financial resources to provide a billing credit for subscribers who do not elect adult-themed programming. Absent the merger, Sirius has no plans to offer a billing credit to subscribers who do not elect adult-themed programming.

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<sup>44</sup> See Efficiencies Report at 19-21.

5. **Explain what short-term and long-term plans currently exist to “provide increased opportunities for a wider variety of content providers,” to distribute niche programming to a wider audience via the merged entity. Explain why this benefit will only be achieved through the Transaction;**

**RESPONSE:**

Because the merger has not yet been completed, Sirius has not engaged in detailed discussions with XM to explore plans, either in the short or long term, to provide increased opportunities for a wider variety of content providers, such as niche and diverse audiences. *See supra* n.4. However, both Sirius and XM detailed in their Consolidated Application and Joint Opposition why such opportunities are likely to follow as a result of the merger.<sup>45</sup> Although both Sirius and XM have demonstrated their commitment to provide a wide variety of programming and although each company already offers a vast number of choices for consumers seeking niche and diverse programming content, there are several reasons why a combined company would be even better situated to offer such content and why a wider variety of content providers would be better able to reach the combined audience of XM and Sirius after the merger. First, because the merger will enable the combined company to realize considerable cost savings that could not be achieved absent the merger, the combined company will be in a stronger financial position to take more risks on programming that may attract a smaller audience.<sup>46</sup> Second, the combined company will have a far larger subscriber base than the companies

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<sup>45</sup> *See, e.g.*, Consolidated Application at 13; Joint Opposition to Petitions to Deny and Reply Comments of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc., MB Docket No. 05-57 (filed July 24, 2007) at 19-21 (“Joint Opposition”).

<sup>46</sup> *See* Joint Opposition at 19.

individually and thus many content providers will find it more financially attractive to seek distribution arrangements through satellite radio. And third, in the longer term, the merger will accomplish spectrum efficiencies that will free additional capacity that can be used to provide additional content sought by diverse and niche audiences.<sup>47</sup>

6. **With respect to radio receivers and other equipment needed to access the proposed, new programming packages:**
  - a. **Provide all documents regarding the claim that “subscribers will be able to continue to use their existing radios.” Explain in detail what equipment, including any enhancements or additional devices, will be needed by subscribers to access these packages. Identify Applicants’ plans regarding target dates and the projected costs to subscribers for any enhancements or additional devices;**

**RESPONSE:**

Sirius has publicly and repeatedly committed to ensuring that subscribers will be able to continue to use their existing radios immediately following the merger. In their March 20 Joint Application, Sirius and XM specifically and unequivocally stated that “[n]o customer will need to purchase a new radio in order to keep substantially similar service.”<sup>48</sup> Mr. Karmazin repeated this assurance in a speech to the National Press Club

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<sup>47</sup> *See id.*

<sup>48</sup> XM Satellite Radio Holdings Inc., Transferor, and Sirius Satellite Radio Inc., Transferee, Consolidated Application for Authority to Transfer Control, MB Docket No. 07-57, 15 (filed Mar. 20, 2007). This FCC filing was preceded by numerous statements to Congress from Sirius’ chief executive officer to the effect that “individual radios will not become obsolete as a result of this combination. Any radios or other equipment that subscribers currently use will be fully supported by Sirius and XM.” *See* Testimony of Mel Karmazin, Chief Executive Officer, Sirius Satellite Radio, Before the House Judiciary Committee’s Antitrust Task Force Regarding the “Competition and the Future of Digital Music,” Feb. 28, 2007 (included at Bates Nos. SIRIUS-FCC-IV.000093 through SIRIUS-FCC-IV.000096). *See also* Testimony of Mel Karmazin, Chief Executive Officer, Sirius Satellite Radio, Before the House Energy and Commerce Committee’s Subcommittee on Telecommunications and the Internet Regarding The Digital

on July 23, 2007, stating that “with the exception of the two a la carte offers, the rest of [the new programming options] will work with existing radios.”<sup>49</sup>

As explained by Mr. Karmazin, it will not be necessary for current Sirius subscribers to purchase or install additional devices or enhancements to existing radios to allow them to continue to use current equipment to listen to current subscription plans. In addition, it will not be necessary for current Sirius subscribers to purchase or install additional devices or enhancements to existing radios to allow them to continue to use current equipment to listen to “best of” programming offered by XM. Because current equipment will not support a la carte programming, subscribers seeking to purchase programming on an a la carte basis will be required to purchase new radios. The merged company will work expeditiously to deploy new radios capable of receiving programming on an a la carte basis and from both services in the near term at a variety of price points. Eventually, however, as explained more fully in Response to Specification III.F. above and IV.C.6.c. below, it is anticipated that subscribers may migrate to services utilizing and equipment capable of receiving the full range of spectrum licensed to Sirius and XM.

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Future of the United States: The Future of Radio, Mar. 7, 2007 (included at Bates Nos. SIRIUS-FCC-IV.000097 through SIRIUS-FCC-IV.000106); Testimony of Mel Karmazin, Chief Executive Officer, Sirius Satellite Radio, Before the Senate Judiciary Committee’s Subcommittee on Antitrust, Competition Policy and Consumer Rights Regarding the XM-Sirius Merger: Monopoly or Competition from New Technologies, Mar. 20, 2007 (included at Bates Nos. SIRIUS-FCC-IV.000107 through SIRIUS-FCC-IV.000111); Testimony of Mel Karmazin, Chief Executive Officer, Sirius Satellite Radio, Before the Senate Committee on Commerce, Science & Transportation Regarding the XM-Sirius Merger, Apr. 17, 2007 (included at Bates Nos. SIRIUS-FCC-IV.000112 through SIRIUS-FCC-IV.000120).

<sup>49</sup> Speech of Mel Karmazin, Chief Executive Officer, Sirius Satellite Radio, National Press Club Luncheon Speech, July 23, 2007 (included at Bates Nos. SIRIUS-FCC-IV.000121 through SIRIUS-FCC-IV.000138).

- b. **If certain equipment or enhancements will be needed to access certain of these programming packages, but not others, specify the exact equipment and/or enhancements (e.g., chipsets, compression techniques) that will be required to make each of these programming packages available; and**

**RESPONSE:**

As just noted, current subscribers will need to purchase a new radio if they want to purchase an a la carte subscription plan or listen to all programming offered by both Sirius and XM. The new radios will be based on a new chipset designed to accommodate a la carte and interoperable operations.

- c. **Provide all documents regarding the claim that “subscribers will eventually purchase new radios capable of receiving all of the content of both services.” Explain whether all Sirius and XM subscribers – not just subscribers that select a la carte programming – will be required to purchase new radios capable of receiving all of the content of both services.**

**RESPONSE:**

With the exception of Mel Karmazin’s testimony described above, there are no Sirius documents regarding the purchase of new radios. In the long term, it is anticipated that consumers who want to access all of the programming offered by the merged company will have to purchase new interoperable radios capable of receiving signals on the spectrum now licensed separately to Sirius and XM.

However, no current Sirius or XM subscriber will be *required* to purchase a new radio in order to receive current programming or “best of” programming offered by the other provider. A subscriber will be required to purchase a new radio only if they choose an a la carte programming package *or* if they choose to have access to all stations on both

services. For those customers who do not replace their equipment, Sirius and XM are committed to continuing to provide them with service. *See infra* Response to Specification IV.C.6.a. However, to ensure the continued functionality of subscribers' existing radios, the combined entity will need to maintain full access to both companies' current spectrum.

7. **Provide any and all documents that discuss, identify, quantify, or otherwise relate to the anticipated synergies.**

**RESPONSE:**

The Efficiencies Report details the anticipated synergies.<sup>50</sup>

- D. **With respect to Applicants' claim that the merger will "foster the commercial introduction of interoperable satellite radios" thereby providing greater customer choice and convenience (see Consolidated Application at 15-16):**

1. **Explain whether Applicants will make commercially available the "radio that is interoperable with each other's networks" as developed by the jointly funded engineering team and described in the Consolidated Application. If so, explain when this interoperable radio prototype will be commercially available;**

**RESPONSE:**

The combined company will make interoperable radios commercially available. As Sirius and XM have explained previously, while interoperable receivers have been designed and "proved," they consume more power, are less feature rich, and remain more expensive than Sirius-only or XM-only receivers. Consequently, no manufacturer has

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<sup>50</sup> *See generally* Efficiencies Report.

expressed a desire to manufacture an interoperable radio absent a subsidy, and no OEM has opted to include an interoperable receiver in any vehicle.

Heretofore, there has been little incentive for either Sirius or XM to subsidize an interoperable receiver since there is no certainty that a purchaser of the radio would subscribe to the company's service. (That is, a consumer purchasing a Sirius-subsidized interoperable receiver could choose to subscribe to XM rather than Sirius.) However, Sirius believes that the merger will provide commercial incentives for the introduction and distribution of interoperable radios. The merger will remove the current economic disincentive to subsidize interoperable radios. Sirius, for example, would no longer worry that a Sirius-subsidized radio would be used by an XM subscriber.

Moreover, the merged company will have every incentive to fully exploit its combined spectrum in order to attract additional subscribers. It is anticipated that this will include the addition of more varied programming and technical features, and in the long term, may include the provision of service fully utilizing the combined spectrum of Sirius and XM that will necessitate the use of interoperable receivers.

Additionally, Sirius believes that the attraction of better, more varied programming and technical and functional upgrades eventually will create a consumer market for interoperable radios. That has certainly been the case with other consumer electronics where individuals ultimately seek to purchase new equipment even in cases where the old equipment continues to work.<sup>51</sup> There is no reason to believe that

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<sup>51</sup> In fact, media and governmental reports indicate that the average lifespan of various consumer electronic devices ranges from only 1.5 years in the case of cellular handsets and iPods to 4-5 years for televisions. See, e.g., *Alltel Expands Wireless Phone Recycling Efforts*, *Wireless News*, Nov. 24, 2004 (cell phones have average lifespan of 18 months); Anthony Bruno, *Market for Refurbished, Used iPods Growing*, *Billboard Magazine*, Nov. 12, 2005, at 13 (iPods have average lifespan of 1.5 years); Mid-

consumer behavior with respect to satellite radios will be any different. To the contrary, Sirius believes that the benefits resulting from the merger (*i.e.*, access to programming on an a la carte basis and access to programming currently provided by both companies) will likely increase equipment turnover.

2. **If not, explain whether Applicants will make commercially available a different radio prototype capable of receiving Applicants' combined signals, and when it will be available for commercial distribution;**

**RESPONSE:**

As noted above, Sirius believes that the merger will lead to the commercial introduction of interoperable receivers.

3. **Provide all documents that detail the intermediate steps, internally and with regard to equipment manufacturers, that will occur prior to the commercial availability of radios capable of receiving all of the content of both services;**

**RESPONSE:**

In preparation for the commercial availability of interoperable radios, Product Marketing and Research will conduct a survey of current subscribers to both services to determine the potential market size and target retail price points. The study will also gather information on form factor and feature set preferences.

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Atlantic Electronics Recycling (ecycling), EPA Website, <http://www.epa.gov/reg3wcmd/ecyclingyoudo.htm> (computers have an average lifespan of 2-3 years or 3-5 with upgrades); Peter Nowak, *Feeling Silly for Buying that \$3,000 TV? "That's technology"*, (average age of televisions in Canada is 4.6 years).

Based on the data collected, a Product Definition Document (“PDD”) will be prepared. The PDD includes a detailed overview of the target market, design criteria, features, user interface, and cost targets. The PDD will serve as the basis for a cost and manufacturability analysis, to be conducted by the interoperable group, Sirius Engineering and its contract manufacturer (“CM”). A technology transfer regarding the XM chipset and architecture will be required, as Sirius’ current aftermarket CM’s do not have experience with XM hardware. The existing designs from the interoperable joint venture will be utilized as a reference design for the CMs to analyze their design cost and performance.

The CM will prepare a proposal, including Bill of Materials and manufacturing cost estimates. Following cost negotiations and approvals, the development and manufacturing process will begin.

In parallel, Product Marketing will begin preparation of the marketing materials and programs necessary to support the commercial introduction and sale of the receiver.

Sirius Engineering employs a rigorous type acceptance process in order to validate the product design matches its service performance requirements and that the implementation of the features is consistent with the Product Definition Document. This process is outlined in Sirius Type Acceptance document RX000064b, which is provided at Bates Nos. SIRIUS-FCC-IV.000139 through SIRIUS-FCC-IV.000197. This document also references a number of other Sirius specifications that detail individual requirements that are tested according to the documented process.

The type acceptance process involves several quality gates that must be passed in order for the product to go to market. Each product must pass a Design Validation



target date will depend on the development of the product. Consumers always have the option of trading up to new products when they are introduced.

5. Identify electronics manufacturers who have committed to, or have expressed an interest in, producing Applicants' interoperable radio;

**RESPONSE:**

[C. [REDACTED]  
[REDACTED] ] [H.C. [REDACTED]  
[REDACTED] ] [C. [REDACTED] ]

6. Identify anticipated prices for such equipment;

**RESPONSE:**

[C. [REDACTED]  
[REDACTED]  
[REDACTED] ] [H.C. [REDACTED] ].

7. Identify and describe Applicants' plans to subsidize interoperable radios;

**RESPONSE:**

Subsidization levels will depend on conditions subsequent to the merger. [C.  
[REDACTED] ]

8. **Identify OEMs that have committed to installing interoperable radios;**

**RESPONSE:**

To date, [C. [REDACTED]].

9. **Provide any and all documents that discuss, identify, quantify, or otherwise relate to the anticipated synergies; and**

**RESPONSE:**

The Efficiencies Report details the technical synergies anticipated as a result of the merger.

10. **Explain why these claimed benefits will be achieved only through the Transaction.**

**RESPONSE:**

The Efficiencies Report details why these efficiencies cannot be captured by alternatives other than this transaction. In fact, all of the chipset-related savings outlined above are contingent on the merger. The merger will allow for design costs to be borne by one firm instead of two. Moreover, the merger will allow the new entity to employ the best in-house and third-party personnel, while limiting recurring engineering expenses.

- E. **With respect to Applicants’ claim that the merger will accelerate deployment of advanced technology (see Consolidated Application at 14):**
1. **Identify the “wider range of low cost, easy-to-use, multi-functional devices” that will result from the merger.**

**RESPONSE:**

Since the merger is pending, the companies have not made specific long-term decisions about what new devices the combined company will deploy. *See supra* n.4. The combined research, top personnel, and development resources of the merged firm, however, will lead to increased efficiency in chip set and radio design. In addition, common engineering standards will accelerate the involvement of cutting edge, third party manufacturers and technology providers that are developing and offering innovative devices. Finally, the financial wherewithal of the combined company will be much greater than either individual company, thereby facilitating the subsidization of receivers. As a result, less expensive and more innovative designs will be available in the marketplace shortly after the merger, including devices that are capable of receiving all of the content that is currently provided on both Sirius and XM and capable of receiving content on an a la carte basis.

2. **Identify the planned new services, such as advanced data and telematics services, including enhanced traffic, weather and infotainment offerings that will result from the merger;**

**RESPONSE:**

The record demonstrates that both companies acting separately have provided a number of advanced services to subscribers. Both companies provide integrated traffic and navigation systems for automobiles and weather and navigation products specially

designed for maritime and aviation use. Both companies also maintain emergency alert channels that transmit to receivers regardless of subscription status and provide immediate information on emergencies, evacuation plans, and disaster recovery efforts. With the consolidated resources available for research and development as a result of the merger, the merged company will continue its efforts to expand these services.

3. **Explain how the merger will enhance the delivery of emergency services programming and information (see Joint Opposition at 24);**

**RESPONSE:**

Both Sirius and XM have attempted to work with the Commission, the Department of Homeland Security, and other government agencies to develop and implement effective programs to distribute safety and survival information. Since the merger is still pending, Sirius cannot make specific long-term decisions regarding enhanced emergency information. However, the combined company will be able to draw on the resources and past efforts of both companies to provide emergency services more efficiently.



6. **Provide any and all documents that discuss, identify, quantify, or otherwise related to the anticipated synergies and claims.**

**RESPONSE:**

The Efficiencies Report details these anticipated synergies.

- F. **With respect to Applicants' claim that the merger will safeguard the future of satellite radio and produce a stronger, more stable competitor in the audio entertainment market (see Consolidated Application at 17-20):**

1. **State whether the merged entity will eliminate any of the satellites currently deployed by Applicants, respectively;**

**RESPONSE:**

Because the merger has not been completed, the parties have not engaged in detailed discussions to explore specific steps necessary to integrate their operations; nor have they determined the degree to which the companies' satellite fleets can or will ultimately be consolidated. Sirius presently believes that under any integration and migration approach there can be no "flash cut" by the merged company to a common system platform, given the vastly different satellite and system architectures of each company. Sirius believes that the maintenance and co-existence of the legacy Sirius and XM platforms, along with the satellite and spectrum assets of each company, will be required for a number of years to maintain continuity of service with OEM customers (who maintain relatively long product design and deployment cycles) and the embedded base of Sirius and XM retail subscribers, as well as to realize several synergies and efficiencies of the merger over time.

2. **State whether the merged entity will eliminate any of the repeater networks currently deployed by Applicants, respectively;**

**RESPONSE:**

*See supra* n.4. As indicated above, during the pendency of the merger, Sirius and XM have not had detailed discussions regarding the technical integration of the two companies. As a result, no decisions have been reached with regard to the legacy repeater networks. However, it is anticipated that some efficiencies may be gained as a result of the merger through the ability to co-locate certain existing repeaters within the parties' respective terrestrial networks.

3. **State whether Applicants, absent the merger, will have access to capital markets to sustain continued research, development and technological innovation; and**

**RESPONSE:**

Sirius believes that absent the merger it will continue to enjoy access to capital markets, and it is committed to continued innovation to improve and expand current services within the financial limitations of a stand-alone company. Nonetheless, the record in this proceeding clearly shows that the merger will result in significant decreases in capital costs including depreciation costs as the combined company will realize substantial capital expenditure efficiencies related to, *inter alia*, satellite expenditures, leasehold improvements, and IT equipment. In fact, as the companies have demonstrated, the elimination of redundancies in research and development investment will spur superior innovation at lower costs, prompting greater returns for investors and better products for subscribers.

4. **Provide any and all documents that discuss, identify, or otherwise relate to forecasts projecting ahead for periods beyond three years regarding the financial performance of the firm, including but not limited to subscribers, revenues, costs, profits, cash flow, and overall viability of the firm.**

**RESPONSE:**

Sirius does not have any documents that discuss, identify, or otherwise relate to forecasts projecting ahead for periods beyond three years regarding the financial performance of the merged firm.

- G. **Describe any other public interest benefits that are expected to occur as a result of the proposed transaction, and provide a full explanation as to why these benefits would not be achieved absent the proposed transaction. Provide documents that serve to provide sufficient support for these benefit claims so that the Commission can verify the likelihood and magnitude of each claimed benefit.**

**RESPONSE:**

As described in Response to Specification IV.A. through F, the merger will have significant benefits for investors, subscribers, and the public. As the companies' filings and the record in this proceeding have consistently demonstrated, the merger of the two companies will provide subscribers with greater choice in programming options and packages and will attract new subscribers and new content. Subscribers will have the ability to tailor programming choices to their unique interests on an a la carte basis in ways the companies separately cannot now do.

Moreover, with efficiencies from the merger, the combined company will be able to offer revolutionary programming customization at lower costs. As the record demonstrates, the merged company will offer a la carte packages to subscribers at costs significantly less than, or equal to, less customized packages available from each of the

companies individually and certainly far less than the cost to a subscriber who would otherwise need to purchase service from both companies to hear, for example, NFL and MLB games. A la carte offerings and other similar customization packages can only occur through the synergies and efficiencies created by the merger.

The record also demonstrates that the merger will also spur the development of advanced services and technologies and the widespread availability of commercially viable interoperable radios. The merger will also benefit the public interest by enhancing the distribution of safety and critical emergency information including EAS messages in cases where terrestrial radio and other communications systems are more vulnerable to disruption.

Finally, the merger represents a significant opportunity to ensure satellite radio's growth at a crucial stage in its development. To date both companies have made considerable capital investments and have engaged in aggressive marketing and pricing strategies to roll out and create demand for satellite radio. Much of the benefit of these investments and strategies will be recouped only with the synergies and efficiencies made possible by the merger.

For all of these reasons, the merger has drawn the support of a wide array of consumer groups, businesses, and elected leaders, including:

- Members of Congress including: Sanford Bishop, Rick Boucher, Corrine Brown, Yvette Clarke, Danny Davis, Eliot Engel, Ralph Hall, Alcee Hastings, Connie Mack, Carolyn Maloney, Greg Meeks, Bobby Rush, Pete Sessions, Ed Towns, and Anthony Weiner;
- Americans for Tax Reform;
- American Honda Motor Co. Inc.;

REDACTED – FOR PUBLIC INSPECTION  
Before the Federal Communications Commission

- Circuit City Stores, Inc.;
- Crutchfield Corporation;
- FamilyNet Radio;
- The Federation of Southern Cooperatives/LAF;
- Ford Motor Company;
- The Hispanic Federation;
- Hyundai Motor America;
- The Independent Women’s Forum;
- The Intertribal Agriculture Council;
- Kia Motors America;
- Latinos in Information Sciences and Technology Association (“LISTA”);
- The League of Rural Voters;
- NASCAR Digital Entertainment, LLC;
- The National Association for the Advancement of Colored People (“NAACP”);
- The National Council of Women’s Organizations (“NCWO”);
- The National Latino Farmers and Ranchers Trade Association;
- New York State Federation of Hispanic Chambers of Commerce (“NYSFHCC”);
- The Oklahoma Black Historical Research Society, Inc.;
- Parents Television Council;
- RadioShack Corporation;
- The Second District of the African Methodist Episcopal Church (“AME”);  
and
- Women Involved in Farm Economics (“WIFE”).

REDACTED – FOR PUBLIC INSPECTION  
Before the Federal Communications Commission

Accordingly, and for the reasons advanced in the companies' numerous record filings, the FCC should approve this merger.

**REDACTED – FOR PUBLIC INSPECTION IN MB DOCKET NO. 07-57  
Before the Federal Communications Commission**

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of )  
 )  
XM Satellite Radio Holdings Inc., ) MB Docket No. 07-57  
 *Transferor*, )  
and )  
Sirius Satellite Radio Inc., )  
 *Transferee*. )  
Consolidated Application for Authority to )  
Transfer Control of XM Radio Inc. and Sirius )  
Satellite Radio Inc. )  

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**RESPONSE OF SIRIUS SATELLITE RADIO INC. TO  
INITIAL INFORMATION AND DOCUMENT REQUEST**

**EXHIBITS**

November 16, 2007

**REDACTED – FOR PUBLIC INSPECTION IN MB DOCKET NO. 07-57**  
**Before the Federal Communications Commission**

**Exhibit II.H.**

**[REDACTED]**

**REDACTED – FOR PUBLIC INSPECTION IN MB DOCKET NO. 07-57**  
**Before the Federal Communications Commission**

**Exhibit III.A.**

**[REDACTED]**

**REDACTED – FOR PUBLIC INSPECTION IN MB DOCKET NO. 07-57**  
**Before the Federal Communications Commission**

**Exhibit III.B.**

**[REDACTED]**

**REDACTED – FOR PUBLIC INSPECTION IN MB DOCKET NO. 07-57**  
**Before the Federal Communications Commission**

**Exhibit III.G.**

**Satellite Coverage Maps**

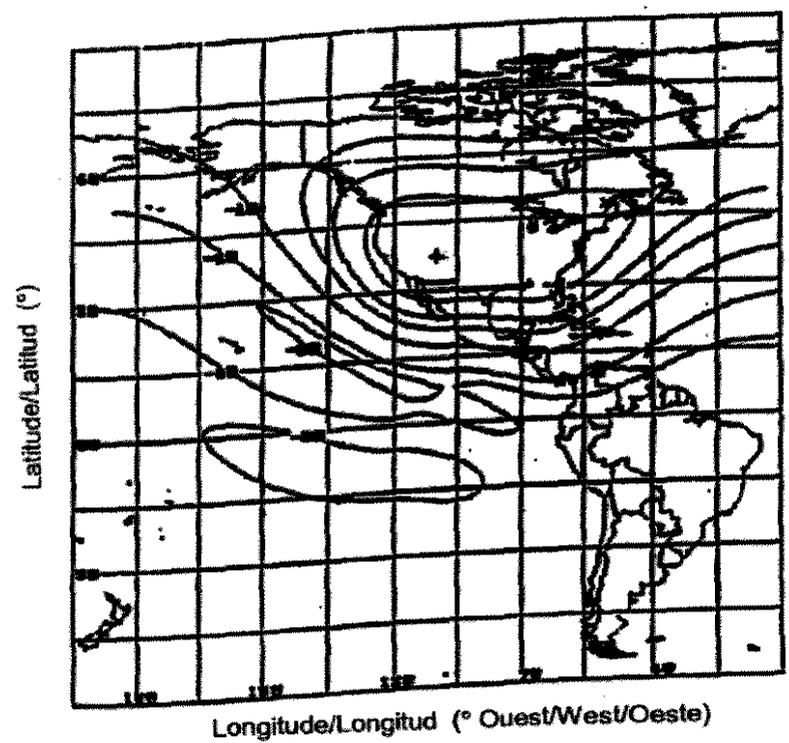
SIRIUS RESPONSE TO INITIAL INFORMATION AND DOCUMENT REQUEST  
REDACTED – FOR PUBLIC INSPECTION

EXHIBIT III.G.

Figure 1: Contour Map for Sirius FM-1, FM-2, FM-3 and FM-4

SPACE STATION TRANSMITTING ANTENNA GAIN CONTOURS

USASAT-28C  
Faisceau/Beam/Haz : DN1R



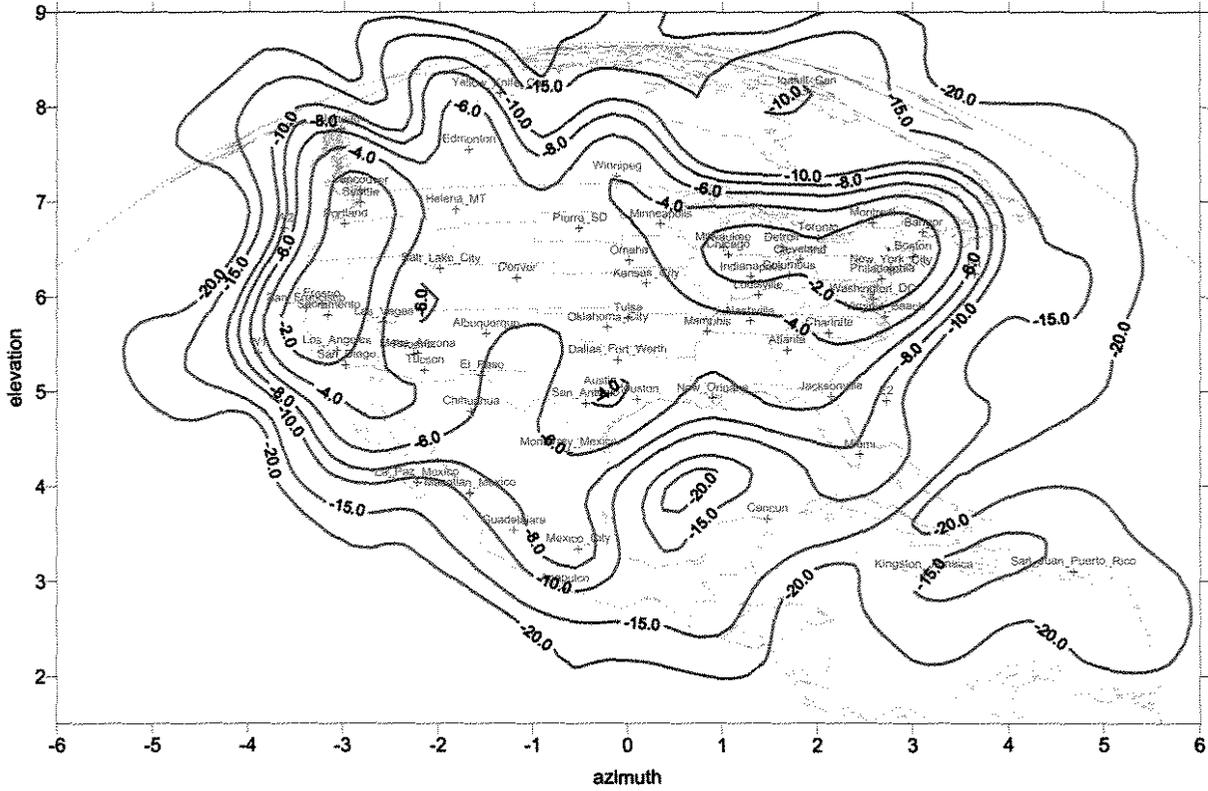
The service area is the lower 48 contiguous states

Note: The satellite transmitting beam is continuously steered to cover the defined service area when activated.

SIRIUS RESPONSE TO INITIAL INFORMATION AND DOCUMENT REQUEST  
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EXHIBIT III.G.

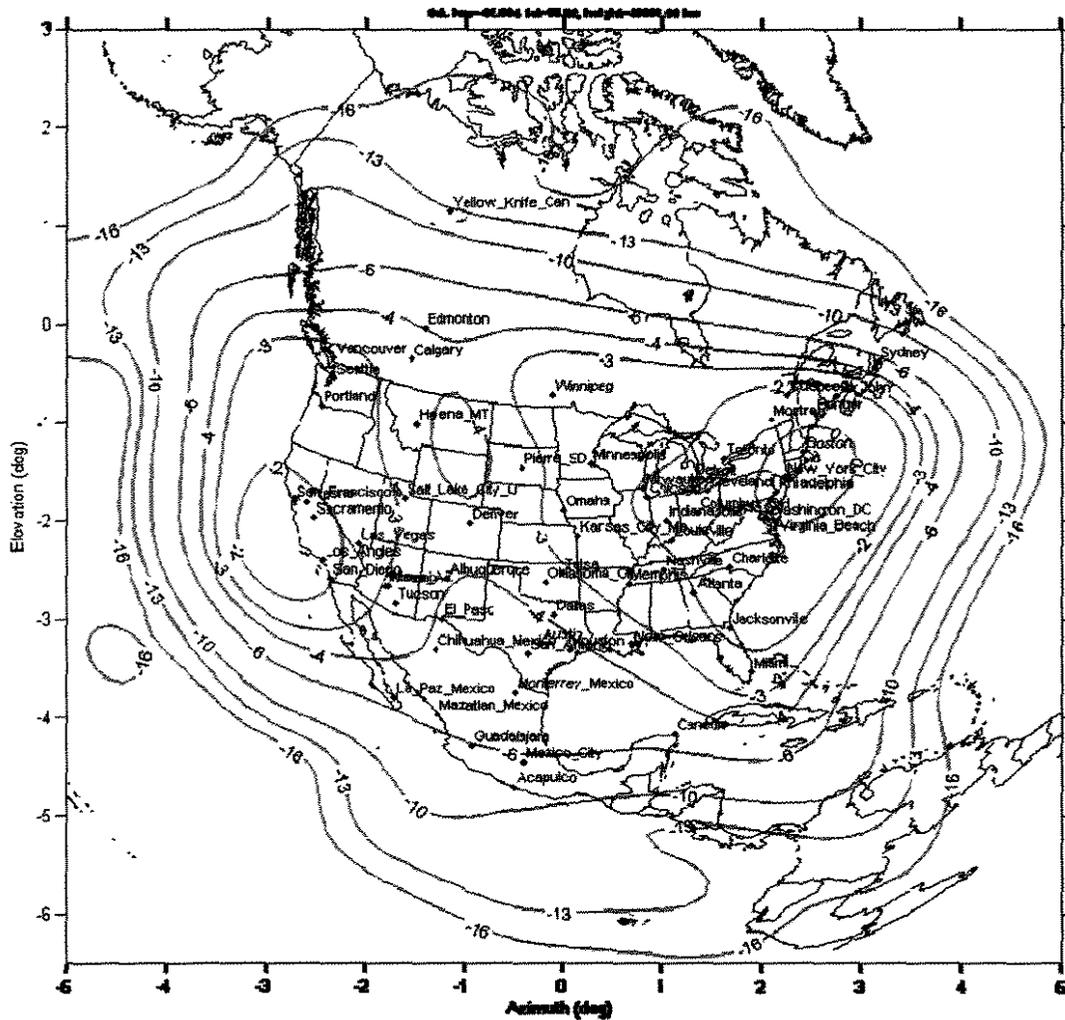
Figure 2: Downlink Contour Map for Sirius FM-5 (dBW relative to peak power)



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EXHIBIT III.G.

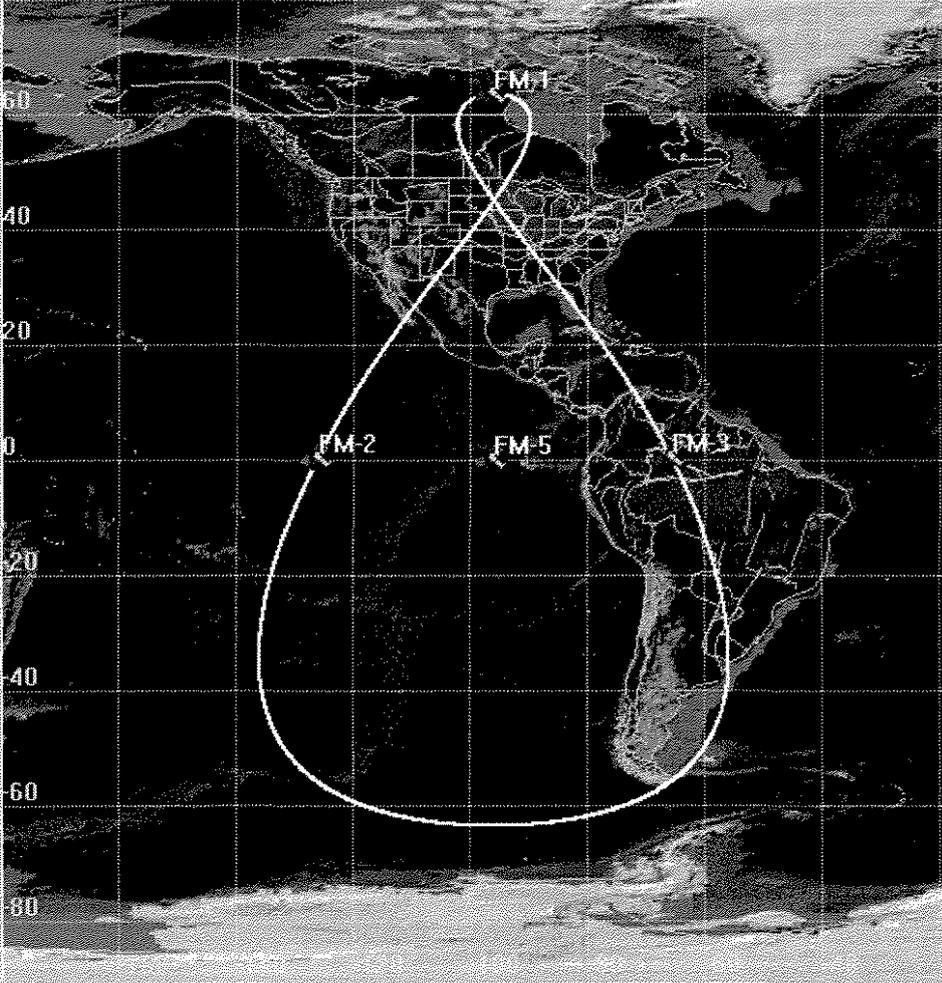
Figure 3: Draft Downlink Contour Map for Sirius FM-6 (dBW, Satellite at apogee)



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REDACTED – FOR PUBLIC INSPECTION

EXHIBIT III.G.

**Figure 4: Orbit Track of Sirius Satellite Radio Constellation**



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**Before the Federal Communications Commission**

**Exhibit IV.C.**

**Sirius Programming Chart**

## EXHIBIT IV.C.

Sirius Channel Number	Sirius Channel Name	Description	Genre	Exclusive?	Available on XM?	Terrestrial Broadcast?	Cable Television?	Internet Stream	Download/Podcast	HD Radio
1	SIRIUS Hits 1	Top 40 Hits	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
2	Starlite	Lite Pop	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
3	SIRIUS Love	Love Songs	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
4	Movin' Easy	Easy Listening	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
5	SIRIUS Gold	The 50s	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
6	'60s Vibrations	The 60s with Cousin Bruce	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
7	Totally '70s	70s Pop	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
8	Big '80s	80s Pop	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
9	The Pulse	90s Hits and Now	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
10	E Street Radio	Bruce Springsteen 24/7	Pop	Yes	No	No	No	No	Yes	No
11	BBC Radio 1	New Music From the U.K.	Pop	No	No	No	No	Yes	Yes	No
12	Super Shuffle	SIRIUS Super Mix	Pop	No	No	Yes	No	Yes	Yes	Yes
13	Elvis Radio	All Elvis Presley, All The Time	Pop	No	Yes	Yes	Yes	No	Yes	Yes
SIR-2	The Bridge	Mellow Rock	Pop	No	Yes	Yes	Yes	Yes	Yes	Yes
14	Classic Vinyl	Early Classic Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
15	Classic Rewind	Later Classic Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
16	The Vault	Deeper Classic Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
17	Jam ON	Jam Bands	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
18	The Spectrum	Adult Album Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
19	Buzzsaw	Classic Hard Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
20	Octane	Pure Hard Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
21	Alt Nation	Alternative Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
22	First Wave	Classic Alternative	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
23	Hair Nation	80s Hair Bands	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
24	Lithium	Grunge & 90s Alternative Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
25	Underground Garage	Little Steven's Underground Garage	Rock	No	No	Yes	Yes	Yes	Yes	Yes
26	Left Of Center	Indie/College Rock with Blog Radio	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
27	Hard Attack	Heavy Metal	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
28	Faction	Action Sports Music	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
29	Punk	New and Vintage Punk Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
30	The Coffee House	Singer-Songwriters & Acoustic Rock	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
31	Radio Margaritaville	Escape to Margaritaville	Rock	No	No	Yes	Yes	Yes	Yes	Yes
32	Grateful Dead Channel	The Dead 24/7	Rock	No	No	No	No	No	Yes	No
33	Area 33	Trance & Progressive House	Electronic & Dance	No	Yes	Yes	Yes	Yes	Yes	Yes

## EXHIBIT IV.C.

Sirius Channel Number	Sirius Channel Name	Description	Genre	Exclusive?	Available on XM?	Terrestrial Broadcast?	Cable Television?	Internet Stream	Download/Podcast	HD Radio
34	Boombox	Breakbeats, Electronic Rock & Mash-Ups	Electronic & Dance	No	No	Yes	Yes	Yes	Yes	Yes
35	Chill	Smooth Electronic	Electronic & Dance	No	Yes	Yes	Yes	Yes	Yes	Yes
36	The Beat	Dance Hits	Electronic & Dance	No	Yes	Yes	Yes	Yes	Yes	Yes
37	The Strobe	Disco/Classic Dance	Electronic & Dance	No	Yes	Yes	Yes	Yes	Yes	Yes
40	Hip-Hop Nation	Hip-Hop Hits	Hip-Hop	No	Yes	Yes	Yes	Yes	Yes	Yes
43	BackSpin	Old Skool Rap	Hip-Hop	No	Yes	Yes	Yes	Yes	Yes	Yes
45	Shade 45	Eminem's Uncut Hip-Hop	Hip-Hop	No	No	No	No	No	Yes	No
50	Hot Jamz	R&B/Hip-Hop Hits	Hip-Hop	No	Yes	Yes	Yes	Yes	Yes	Yes
51	Heart & Soul	R&B Hits	R&B	No	Yes	Yes	Yes	Yes	Yes	Yes
53	Soul Town	Classic Soul	R&B	No	Yes	Yes	Yes	Yes	Yes	Yes
60	New Country	Today's Country Hits	Country	No	Yes	Yes	Yes	Yes	Yes	Yes
61	Prime Country	80s and 90s Country Hits	Country	No	Yes	Yes	Yes	Yes	Yes	Yes
62	The Roadhouse	Classic Country	Country	No	Yes	Yes	Yes	Yes	Yes	Yes
63	Outlaw Country	Outlaw Country	Country	No	Yes	Yes	Yes	Yes	Yes	Yes
65	Bluegrass	Bluegrass	Country	No	Yes	Yes	Yes	Yes	Yes	Yes
66	Spirit	Christian Hits	Christian	No	Yes	Yes	Yes	Yes	Yes	Yes
67	Praise	Gospel	Christian	No	Yes	Yes	Yes	Yes	Yes	Yes
70	Sirius Disorder	Eclectic/Free Form	Rock	No	Yes	Yes	Yes	Yes	Yes	Yes
71	Jazz Café	Smooth Jazz	Jazz & Blues	No	Yes	Yes	Yes	Yes	Yes	Yes
72	Pure Jazz	Classic Jazz	Jazz & Blues	No	Yes	Yes	Yes	Yes	Yes	Yes
73	Spa 73	New Age	Jazz & Blues	No	Yes	Yes	Yes	Yes	Yes	Yes
74	SIRIUS Blues	Blues	Jazz & Blues	No	Yes	Yes	Yes	Yes	Yes	Yes
75	Siriusly Sinatra	Frank Sinatra Standards & Swing	Standards	No	Yes	Yes	Yes	Yes	Yes	Yes
77	Broadway's Best	Broadway Show Music	Standards	No	Yes	No	Yes	Yes	Yes	No
80	Symphony Hall	Symphonic & Chamber Music	Classical	No	Yes	Yes	Yes	Yes	Yes	Yes
85	Metropolitan Opera Radio	Metropolitan Opera Radio	Classical	No	No	No	No	Yes	No	No
86	SIRIUS Pops	Classic Pops	Classical	No	Yes	Yes	Yes	Yes	Yes	Yes
90	Universo Latino	Latin Pop Mix	Latin & International	No	Yes	Yes	Yes	Yes	Yes	Yes
92	Rumbon	Tropical/Reggaetown	Latin & International	No	Yes	Yes	Yes	No	Yes	Yes
93	bande a part	New French-language Music	Latin & International	No	Yes	No	No	Yes	Yes	No
94	CBC Radio 3	Canadian Indie Music	Rock	No	No	No	No	Yes	Yes	No
95	Iceberg Radio	Canadian Adult Alternative Music	Rock	No	No	No	No	Yes	Yes	No
97	Reggae Rhythms	Reggae	Rock	No	Yes	Yes	Yes	No	Yes	Yes
100	Howard 100	Howard 100	Howard Stern	Yes	No	No	No	No	No	No

EXHIBIT IV.C.

Sirius Channel Number	Sirius Channel Name	Description	Genre	Exclusive?	Available on XM?	Terrestrial Broadcast?	Cable Television?	Internet Stream	Download/Podcast	HD Radio
101	Howard 101	Howard 101	Howard Stern	Yes	No	No	No	No	No	No
102	SIRIUS Stars	The SIRIUS Difference	Entertainment	No	No	No	Yes	No	No	No
103	Blue Collar Comedy	Blue Collar Comedy	Comedy	No	No	No	Yes	No	Yes	No
104	Raw Dog	Comedy Uncensored	Comedy	No	Yes	No	Yes	No	Yes	No
105	Laugh Break	Family Comedy	Comedy	No	No	Yes	Yes	Yes	Yes	No
106	The Foxxhole	Presented by Jamie Foxx	Comedy	Yes	No	No	No	No	No	No
107	E! Entertainment Radio	E! Entertainment Radio	Entertainment	No	Yes	No	Yes	Yes	Yes	No
108	Maxim Radio	Maxim Radio	Entertainment	Yes	No	No	No	No	No	No
109	SIRIUS OutQ	Gay & Lesbian Radio	Entertainment	No	No	No	Yes	Yes	Yes	No
110	Court TV Radio	Court TV Radio	Entertainment	No	No	No	Yes	No	No	No
111	Cosmo Radio	Cosmo Radio	Entertainment	Yes	No	No	No	No	No	No
112	Martha Stewart Living Radio	How-To For Living	Entertainment	No	No	No	Yes	No	Yes	No
114	Lime	Healthy Living with a Twist	Family & Health	No	No	No	No	Yes	Yes	No
115	Radio Disney	Radio Disney	Family & Health	No	Yes	Yes	Yes	Yes	Yes	No
116	Kids' Stuff	Commercial-Free Kids' Music	Family & Health	No	Yes	Yes	Yes	Yes	Yes	Yes
118	Radio Classics	Classic Radio Shows	Family & Health	No	Yes	No	No	Yes	Yes	No
119	Sports Play-By-Play 4	Sports Play-By-Play	Sports	No	Yes	Yes	Yes	Yes	No	Yes
120	ESPN Radio	ESPN Radio	Sports	No	Yes	Yes	Yes	Yes	Yes	No
121	ESPNEWS	ESPNews	Sports	No	Yes	Yes	Yes	Yes	Yes	No
122	Sports Play-by-Play 1	Sports Play-By-Play	Sports	No	Yes	Yes	Yes	Yes	No	Yes
123	SIRIUS Sports Central	Sports Talk & Play-By-Play	Sports	No	Yes	Yes	Yes	Yes	Yes	Yes
124	SIRIUS NFL Radio	Nonstop NFL Talk	Sports	No	No	Yes	Yes	Yes	Yes	Yes
125	Sports Play-by-Play 2	Sports Play-By-Play	Sports	No	Yes	Yes	Yes	Yes	No	Yes
126	Sports Play-by-Play 3	Sports Play-By-Play	Sports	No	Yes	Yes	Yes	Yes	No	Yes
127	NBA Radio on SIRIUS	NBA Radio on SIRIUS	Sports	No	No	Yes	Yes	Yes	Yes	Yes
128	SIRIUS NASCAR Radio	SIRIUS NASCAR Radio	Sports	No	No	Yes	Yes	Yes	Yes	Yes
129	CNBC	CNBC	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	No
130	Bloomberg Radio	Bloomberg Radio	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	No
131	Fox News Channel	Fair and Balanced News	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	No
132	CNN	The Most Trusted Name in News	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	No
133	CNN Headline News	CNN Headline News	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	No
134	NPR Now	NPR Now	Talk, News, & NPR	No	No	Yes	No	Yes	Yes	Yes
135	NPR Talk	NPR Talk	Talk, News, & NPR	No	No	Yes	No	Yes	Yes	Yes
137	CBC Radio One	National/International News	Talk, News, & NPR	No	No	No	Yes	Yes	Yes	No

EXHIBIT IV.C.

Sirius Channel Number	Sirius Channel Name	Description	Genre	Exclusive?	Available on XM?	Terrestrial Broadcast?	Cable Television?	Internet Stream	Download/Podcast	HD Radio
138	Premiere Plus	Current Affairs French Language	Talk, News, & NPR	No	No	No	Yes	Yes	Yes	No
140	World Radio Network	News Around the World	Talk, News, & NPR	No	No	Yes	No	No	Yes	No
141	BBC World Service News	BBC World Service News	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	No
144	SIRIUS Patriot	Conservative Talk	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	Yes
145	Fox News Talk Channel	Fox News Talk	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	No
146	SIRIUS Left	Liberal Talk	Talk, News, & NPR	No	Yes	Yes	Yes	Yes	Yes	Yes
147	Road Dog Trucking	Just for Truckers	Entertainment	No	Yes	No	No	No	No	No
148	Traffic & Weather: New York	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
149	Traffic & Weather: Boston / Philadelphia	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
150	Traffic & Weather: Los Angeles	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
151	Traffic & Weather: Chicago / St. Louis	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
152	Traffic & Weather: Baltimore / Washington D.C.	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
153	Traffic & Weather: Atlanta / Miami	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
154	Traffic & Weather: Dallas-Ft. Worth / Houston	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
155	Traffic & Weather: Detroit / Las Vegas	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
156	Traffic & Weather: San Francisco / Seattle	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
157	Traffic & Weather: San Diego / Phoenix	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
158	Traffic & Weather: Orlando / Tampa-St. Petersburg	Local Traffic and Weather	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	Yes
159	The Catholic Channel	The Catholic Channel	Religion	No	No	Yes	Yes	Yes	Yes	No
160	EWTN Global Catholic Network	EWTN Global Catholic Network	Religion	No	No	Yes	Yes	Yes	Yes	No
161	FamilyNet Radio	Christian Talk	Religion	No	Yes	No	Yes	No	No	No
181	ESPN Deportes	ESPN Deportes Radio	Sports	No	No	Yes	Yes	No	No	No
182	CNN En Espanol	CNN En Espanol	Talk, News, & NPR	No	Yes	No	Yes	Yes	No	No
183	JBC	Korean Language Radio	Talk, News, & NPR	No	No	No	Yes	Yes	No	No
184	SIRIUS Weather & Emergency	Powered by The Weather Channel	Traffic & Weather	No	Yes	Yes	Yes	Yes	Yes	No
185	The Weather Network	Canadian Weather	Traffic & Weather	No	No	No	Yes	No	Yes	No
187	Info Plus	All News Radio French Language	Talk, News, & NPR	No	Yes	No	No	Yes	Yes	No
188	RCI Plus	International Talk French Language	Talk, News, & NPR	No	No	No	No	No	Yes	No
192	Rock Velours	Canadian Soft Rock	Latin & International	No	No	No	No	No	Yes	No
193	Energie 2	Canadian Pop, Rock & Urban Music	Latin & International	No	No	No	No	No	Yes	No
198	Playboy Radio	Playboy Radio	Entertainment	No	No	No	Yes	No	Yes	No
Backseat TV	Nickelodeon	Popular kids' programming	Children's	No	No	No	Yes	Yes	Yes	No
Backseat TV	Disney Channel	Popular kids' programming	Children's	No	No	No	Yes	No	Yes	No
Backseat TV	Cartoon Network Mobile	Short cartoon programming	Children's	No	No	No	Yes	Yes	Yes	No

**SIRIUS SATELLITE RADIO INC.  
PRODUCTION LOG – REDACTED FOR PUBLIC INSPECTION  
MB DOCKET NO. 07-57**

<b>Description</b>	<b>Date</b>	<b>Spec #</b>	<b>CONFIDENTIALITY LEVEL</b>	<b>BEGIN BATES</b>	<b>END BATES</b>	<b>CUSTODIAN</b>
Agreement and Plan of Merger (Vernon Merger Corp. and XM)	02/19/2007	I.A.	PUBLIC	SIRIUS-FCC-I.A.000001	SIRIUS-FCC-I.A.000065	P. Donnelly
REDACTED SIRIUS-FCC-I.A.000066 THROUGH SIRIUS-FCC-I.A.000125						
Sirius and XM Forms 8-K (Filed on 2/20/07) Nos. 00-24710, 00-27441	02/20/2007	I.A.	PUBLIC	SIRIUS-FCC-I.A.000126	SIRIUS-FCC-I.A.000136	P. Donnelly
Sirius and XM Forms 8-K (Filed on 2/21/07-2/19/07) Nos. 000-24710, 000-27441	02/21/2007	I.A.	PUBLIC	SIRIUS-FCC-I.A.000137	SIRIUS-FCC-I.A.000149	P. Donnelly
REDACTED SIRIUS-FCC-I.A.000150 THROUGH SIRIUS-FCC-I.A.000163						
Press Release: Sirius and XM to Combine in \$13 Billion Merger of Equals	02/19/2007	I.A.	PUBLIC	SIRIUS-FCC-I.A.000164	SIRIUS-FCC-I.A.000167	P. Donnelly
REDACTED SIRIUS-FCC-I.B.000001 THROUGH SIRIUS-FCC-I.B.003139						
Public Documents	Various	II.A.	PUBLIC	SIRIUS-FCC-II.A.000001	SIRIUS-FCC-II.A.004084	Public
Public Documents	Various	II.C.	PUBLIC	SIRIUS-FCC-II.C.000001	SIRIUS-FCC-II.C.000421	Public
REDACTED SIRIUS-FCC-II.D.000001 THROUGH SIRIUS-FCC-II.D.000226						

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Press Release Sirius & XM to Combine in \$13 Billion Merger of Equals	3/19/2007	II.D.	PUBLIC	SIRIUS-FCC-II.D.000227	SIRIUS-FCC-II.D.000230	P. Donnelly
XM Schedule 14A Proxy Statement	2/21/2007	II.D.	PUBLIC	SIRIUS-FCC-II.D.000231	SIRIUS-FCC-II.D.000252	P. Donnelly
REDACTED SIRIUS-FCC-II.D.000253 THROUGH SIRIUS-FCC-II.D.000272						
REDACTED SIRIUS-FCC-II.E.000001 THROUGH SIRIUS-FCC-II.E.021465						
REDACTED SIRIUS-FCC-II.F.000001 THROUGH SIRIUS-FCC-II.F.002414						
REDACTED SIRIUS-FCC-III.D.000001 THROUGH SIRIUS-FCC-III.D.000550						
REDACTED SIRIUS-FCC-IV.000001 THROUGH SIRIUS-FCC-IV.000092						
Karmazin Sirius Antitrust Task Force	2/28/2007	IV	PUBLIC	SIRIUS-FCC-IV.000093	SIRIUS-FCC-IV.000096	Public
Karmazin Sirius Telecom and Internet Subcommittee	3/7/2007	IV	PUBLIC	SIRIUS-FCC-IV.000097	SIRIUS-FCC-IV.000106	Public
Karmazin Sirius Senate Judiciary	3/20/2007	IV	PUBLIC	SIRIUS-FCC-IV.000107	SIRIUS-FCC-IV.000111	Public

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Karmazin Sirius Senate Commerce	4/17/2007	IV	PUBLIC	SIRIUS-FCC-IV.000112	SIRIUS-FCC-IV.000120	Public
Karmazin National Press Club Transcript	7/23/2007	IV	PUBLIC	SIRIUS-FCC-IV.000121	SIRIUS-FCC-IV.000138	Public
REDACTED SIRIUS-FCC-IV.000139 THROUGH SIRIUS-FCC-IV.000197						
REDACTED SIRIUS-FCC-Priv.Log.00001 THROUGH SIRIUS-FCC-Priv.Log.02739						