Third parties continue to be responsible for the manufacture and distribution of satellite radios, including devices with particular interoperable capabilities. Several aftermarket and OEM radio manufacturers have taken advantage of the Company's interoperable designs for head units, antennas and wiring harnesses, and now produce head units that operate with the receiver boxes of either service provider. Some are branded and marketed as "SAT Ready" to denote their ability to work with both systems. A consumer then purchases only a trunk-mounted box for either XM or Sirius, and this unit can be swapped at any time for a trunk-mounted box from the other satellite radio provider. For example, Visteon's Satellite Radio System features a head unit that can accept the decoded signals of either company. Onkyo offers a product that, with the purchase of appropriate kits, can receive XM, Sirius, and HD radio signals. It sells for $400.[7] Pioneer and Sony offer similar devices. Other manufacturers have been in negotiations to acquire non-exclusivity agreements or have already obtained such agreements. These companies include: Yamaha, Panasonic, Denon, Audiovox, Harman Kardon, JVC, and Sharp.

The market will ultimately determine the success of any interoperable products. XM has not had any substantive discussions with OEMs, retailers, or manufacturers about offering an interoperable radio. Due to the current size and cost constraints of an interoperable radio, manufacturers have expressed little interest in producing or distributing such a fully interoperable product. No OEM has opted to include an interoperable radio in its vehicles. Currently, Sirius and XM have limited incentives to subsidize and advertise the sale of interoperable radios because of the uncertainty of

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[7] http://www.proaudiosolutions.com/product-p/c-hdsat.htm (last visited Aug. 28, 2007).

recouping that investment. Specifically, neither individual company can fully capture the benefits of subsidizing and promoting interoperable radios, since some of those benefits would accrue to the other company when a subscriber switches services. *See* CRA International's Economic Analysis of the Competitive Effects of the Sirius-XM Merger, at ¶ 127, for further discussion on the incentives and free-rider problems regarding the introduction and promotion of interoperable radios in the absence of a merger.[8]

The merger will reduce if not eliminate these limitations on the commercial availability of interoperable radios. In addition to resolving the competitive and confidentiality concerns noted above, the increased subscribership that the companies expect following their merger will likely encourage radio manufacturers to produce, consistent with customer demand and with appropriate subsidies, radios that tune to all channels of the combined company's service. Thus, following consummation of their merger, the companies expect to be better positioned to make interoperable radios available to consumers on a commercial basis. See the response to Request IV(D)(1) below for a discussion of the combined company's post-merger incentives to make interoperable radios commercially available.

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

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8 *See also* XM Satellite Radio Holdings Inc., Transferor, and Sirius Satellite Radio Inc., Transferee, Joint Ex Parte Submission of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc., Exhibit A, CRA International, Further Economic Analysis of the Sirius-XM Merger, at ¶¶ 105–07, MB Docket No. 07-57 (filed Nov. 13, 2007) (discussing how free-rider problems hinder the introduction of interoperable radios).

RESPONSE:

Because the merger has not been completed, XM has not engaged in detailed discussions with Sirius to explore specific steps necessary to migrate subscribers onto a common technology platform or the costs of any such plans. Because integration planning and the exchange of confidential information has not yet occurred, this response reflects XM management's high-level view of the issues that integration planning will raise, which may change with access to Sirius confidential information and more detailed integration discussions with Sirius executives.

Although some aspects of the technology platform could be integrated in a relatively short time frame (as described in greater detail below), the process of combining all aspects of the two companies' technology platforms will take an extended period of time because of the millions of single-platform radios in use, most of which are built into automobiles. XM believes that the combined company will need to broadcast a full complement of programming to both the XM and Sirius platforms for many years, including the useful life of the current XM satellite constellation.[9] There are more than 8.5 million XM radios—with 4 million more already built into automobile audio systems but not currently activated—and 7.6 million Sirius radios in use today, all of which are able to receive only one satellite radio service and cannot be modified to receive the other service. Another 5 million XM radios have been factory-installed, but are not currently active. Further, because of the long lead times involved in designing and producing automobiles, the Company is already coordinating with OEMs on engineering, design, and deployment of single-platform radio devices for model years [**HC** [redacted]]. Thus,

[9] A number of efficiencies, including those related to the satellite fleet, could be achieved in a shorter time frame, as discussed further below.

even disregarding any time that would be needed to transition to entirely interoperable devices, XM anticipates that [**HC**] million of XM's single-platform devices will be factory-installed in cars sold for the period [**HC**], which, because of automobile usage patterns, are likely to remain in widespread use for [**HC**]. XM also anticipates [**HC**] million single-platform aftermarket devices will be sold at retail over the next five years. Thus, the Company believes that a full migration to a common technology platform could not occur for many years.

If the combined company migrated to a common technology platform while a significant number of single-platform devices were still in use, then the combined company would either (1) risk losing potentially millions of its embedded customer base by forcing everyone to purchase new radios, or (2) face prohibitively expensive financial burdens by agreeing to replace the millions of single-platform radios that remain in the marketplace, most of which will be hard-wired into cars.[10] In addition to radios that receive XM's service, there are a number of third-party manufacturers (*e.g.*, device manufacturers such as Garmin and Bushnell, as well as aircraft manufacturers such as Cessna) that depend on our technology platform for data services such as traffic and weather. In short, the effort to consolidate all of the broadcasting onto a single technology platform on one of the existing networks (XM or Sirius) without regard for the millions of consumers who have legacy radios, most of which will be hard-wired into

[10] Automobile manufacturers would likely be involved in any such replacement process, which would be highly disruptive both to the car companies and their consumers. Indeed, one of XM's OEM partners has stated to XM that it believes such a replacement program may not even be possible.

automobiles, would have catastrophic economic consequences that would jeopardize the viability of the satellite radio service.[11]

The Company believes that there are a number of steps that the combined company can take in a shorter time frame to consolidate the two companies' technology platforms, which will unlock significant synergies with forward-looking improvements. For instance, publicly available information reflects that Sirius has developed a chipset which, through hierarchical modulation technology, has enabled the deployment of video technology, which it is currently marketing as Sirius Backseat TV. [**HC** [redacted]]. Furthermore, XM has proprietary compression technology that could be used on Sirius' platform, resulting in additional capacity that could be used to provide new services.[12]

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[11] To assuage any concerns that a new radio purchased today will become obsolete after the merger, both XM and Sirius have committed to subscribers and to the public generally that "[n]o customer will need to purchase a new radio in order to keep substantially similar service." (See the Company's response to Request IV(C)(6)(a) for additional details about this commitment.)

[12] Sirius and XM commissioned a detailed study from a third-party consultant of the efficiencies arising from the proposed merger. The resulting report (the "Efficiencies Report") 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

The merged company will also achieve significant efficiencies in the near term by combining certain aspects of its satellite operations. For example, the companies will be able to consolidate satellite operations personnel and facilities—*generating annual* savings of [**HC**]—as well as their backup control sites—generating additional annual savings of [**HC**].[13] [**HC**], the companies will, with appropriate regulatory approval, be able to collocate many existing and planned Sirius terrestrial repeaters with existing XM repeaters, producing annual savings of [**HC**] and enhancing the coverage that consumers receive.[14] The companies will also be able to consolidate the companies' respective broadcast operations into a single facility, resulting in [**HC**] annual savings in connection with personnel, operational expenses (including software licenses, hardware, and telecommunication costs), and capital expenditures on broadcast network development projects.[15]

The two companies have significantly different system architectures that will need to be coordinated post-merger, and it is difficult to make any reasonable assessment about either the steps necessary or time frame involved in integrating other aspects of each

(continued...)

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. The Efficiencies Report is provided by Sirius, located at Bates Nos. SIRIUS-FCC-I.A.000001 through SIRIUS-FCC-I.A.000167, and should be considered a joint submission by both companies. Detailed information regarding merger-specific efficiencies arising from the use of XM's proprietary compression technology may be found at § 5.2 of that report.

13 *Id.* at 54.

14 *Id.* at 54-55

15 *Id.* at 57.

company's technology. XM has a general understanding of Sirius' transmission specification and compression technology based on publicly available information, but the detailed implementation of the Sirius infrastructure, encryption technologies, receiver architecture, signal combining, and compression algorithms remain confidential and proprietary and are unknown to XM at this time. Although both companies broadcast in adjacent 12.5 MHz segments of the S-band, Sirius divides its bandwidth into thirds (*i.e.*, three RF carriers), while XM divides its bandwidth into sixths (*i.e.*, six RF carriers). There are also differences between each company's orbit satellite constellations, uplink systems, modulation techniques, and terrestrial repeater networks. Additionally, both companies use unique and proprietary compression and conditional access technologies. It is therefore unclear at this time what additional steps would be involved for the combined company to migrate all the satellite transmission and related technology to a common platform, and in what time frame.

Long-term integration planning to develop a common technology platform and to migrate all subscribers onto a common platform will involve a number of strategies and steps across several areas of the Company's business. The Efficiency Report provides further discussion on certain aspects of technological integration, including the long term consolidation of the satellite fleet, satellite operations, and terrestrial networks. *See* Sections 3.2.6, 3.2.7, and 3.2.8 for the discussion of likely steps and financial aspects of integrating those aspects of the two companies' technology platforms. These 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 (including in-house or outsource discussion)
  - Terrestrial network delivery
- Disaster recovery site integration
  - Broadcast studio
  - Satellite uplink facilities
  - Terrestrial networks monitoring

Technology Development

- System design
- Integrated circuit design
- Antenna design
- Conditional access design
- Satellite engineering
- Compression technologies
- Data services integration
- Radio activations over satellite
- Factory activations for OEMs

Product Development

- Short-term product strategies
- Long-term product strategies
- Supply chain management (including selection of manufacturing partners)
- Manufacturing support
- Manufacturing quality control
- OEM application support

The development of an integrated network system will involve, among other things:

- Analysis of current network capabilities
- Analysis of planned network improvements, including hierarchical modulation

- Assessment of infrastructure costs and implementation timeline, including terrestrial network and broadcast infrastructure
- Assessment of chipset costs and implementation timeline
- Assessment of product costs and implementation timeline

Once the integrated network system has been planned, additional steps will be required to implement a transition plan. These steps are likely to include:

- Development of specifications, including network transmission specifications, chipset specifications, and receiver specifications
- Computer simulation system performance, including satellite and repeater networks and chipsets
- Hardware design of receiver chipsets
- Layout of receiver chipsets
- Production of sample chipsets
- Evaluation of sample chipsets
- High volume production of chipsets
- Integration of chipsets into product design

Additionally, the combined company must integrate its information technology ("IT") systems and create an IT strategy for the combined company going forward. Steps for integrating IT systems include:

- Review of current application portfolio, including database systems such as Siebel, ODS, and SCEMS
- Development of integration strategies
- Development of technology architecture and migration strategy
- Determination of IT organization, including web applications, data warehouse, and technical operations
- Development of a strategic IT plan

Steps for migrating the IT systems into a combined IT system include:

- Establishment of communications systems, including phone, email, and voicemail
- Integration of marketing and e-commerce websites
- Consolidation of administrative applications, including human resources, payroll, and financial
- Consolidation of business intelligence applications, including subscriber reporting
- Consolidation of promotion and partner management applications

- Consolidation of billing, customer service, and customer contact applications

G. *Provide maps, in .gxt format where possible, of the actual or* expected geographic coverage area(s) for each of the XM 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 XM satellite networks, as well as any technical, economic, or other considerations that limit the ability of the XM satellite network to serve U.S. states and territories outside the contiguous United States.

RESPONSE:

(1) **Satellites.** XM has four satellites in orbit (XM-1 through XM-4) and one spacecraft (XM-5) under development/construction. XM-3 and XM-4 are providing the XM service and XM-1 and XM-2 are in-orbit spares. XM-5 is a ground spare. XM is currently authorized by the FCC to operate its satellites as follows:

XM-1 85.2 +/- 0.05 deg WL
XM-2 85.2 +/- 0.05 deg WL
XM-3 85.1 +/- 0.05 deg WL
XM-4 115.0 +/- 0.05 deg WL

XM-1, XM-3, and XM-4 are currently operating at their authorized locations. XM-2 is currently being moved from its prior approved location at 115.1 deg WL to the location above authorized by STA SAT-STA-20070608-00079, dated September 28, 2007. XM filed an application on September 11, 2007 (SAT-MOD-20070911-00123) for approval to operate XM-1, XM-2, and XM-3 at the following orbital locations:

XM-1 85.150 +/- 0.033 deg WL
XM-2 85.217 +/- 0.033 deg WL
XM-3 85.083 +/- 0.033 deg WL

Following FCC approval, XM-5 is designed to operate at either 85 deg WL or at 115 deg WL with similar EIRP performance as XM-3 or XM-4.

XM has provided the power flux density contours for XM-1 through XM-4 planned orbital locations in Figures 1 through 4 below. Figures 5 and 6 illustrate the XM-5 power flux density contours at 85 deg WL and 115 deg WL, respectively. XM has also provided the .gxt files used to generate these contours, as requested. They are provided on the CD entitled, "Exhibits and .xls, .gxt files."

(2) **Satellite Coverage.** When first specifying the XM-1 through XM-3 satellites in 1997-1998, XM considered its primary objective to be high-quality coverage of the contiguous United States (CONUS). At that time, XM optimized performance (within the available satellite power) for CONUS to achieve maximum link margin for the highest practical percentage of CONUS geography and population. [**HC** [redacted]]. XM-4 was built to essentially the same specifications as XM-1 through XM-3.

[**HC** [redacted]

[redacted]

(3) **Terrestrial Repeater Coverage.** XM operates terrestrial repeaters only in CONUS. [**HC** [redacted]. Subject to obtaining necessary legal and regulatory approvals, the combined company would intend to explore its options to provide better coverage to these geographic regions.

Figure 1 – XM-1 Power Flux Density Contours
85.150 deg WL
(dBW/m^2/4kHz)

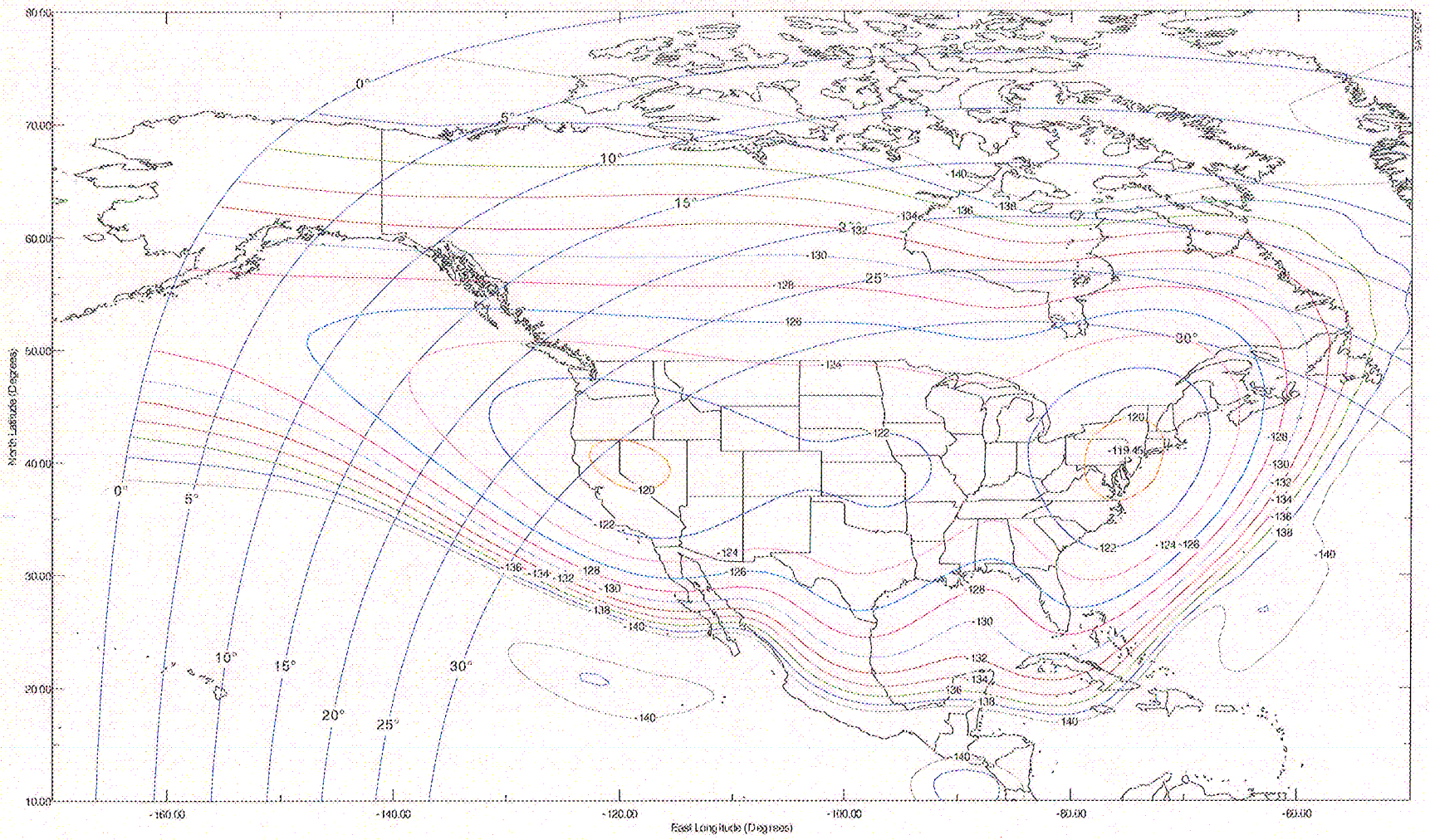


Figure 2 – XM-2 Power Flux Density Contours
85.217 deg WL
(dBW/m^2/4kHz)

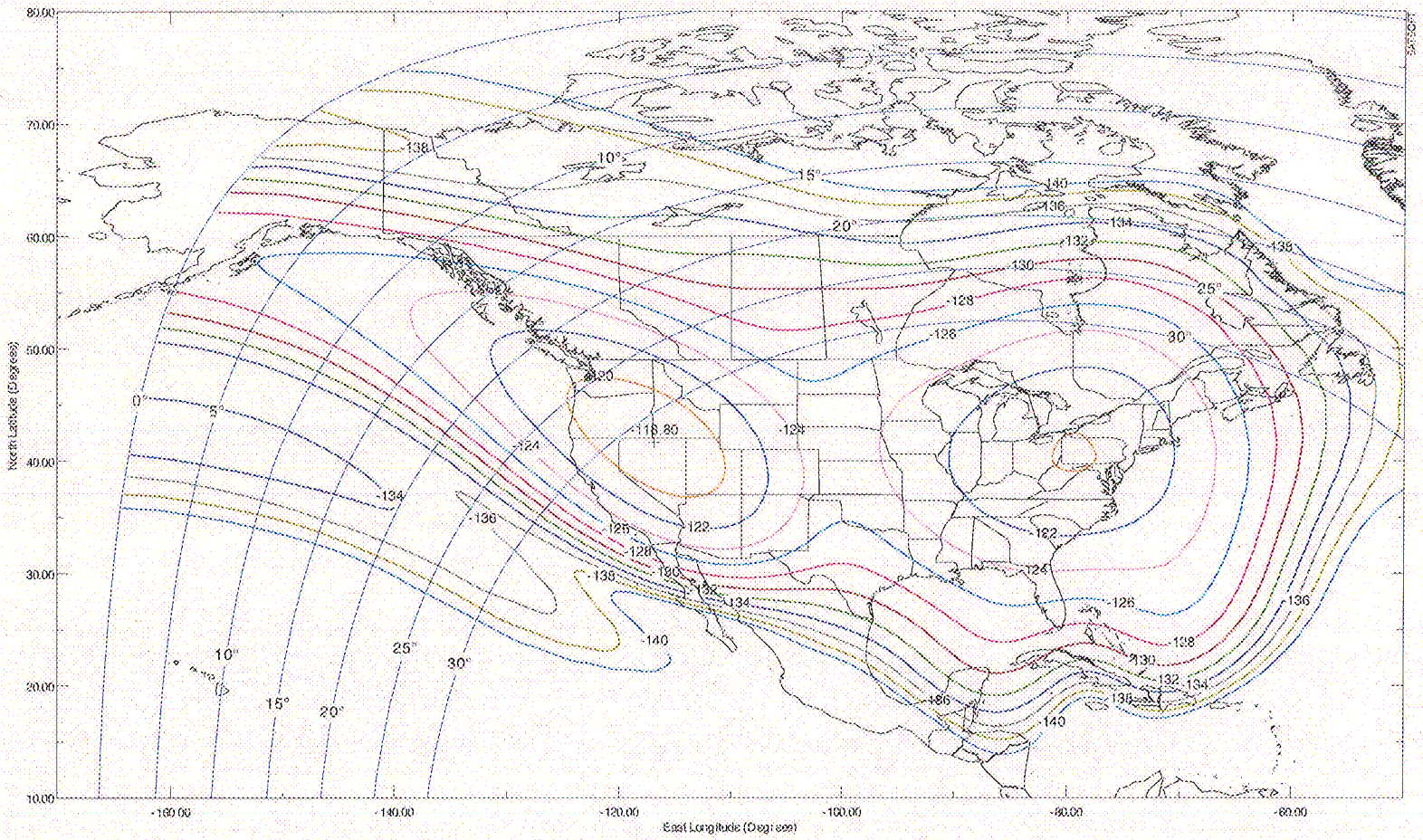


Figure 3 – XM-3 Power Flux Density Contours
85.083 deg WL
(dBW/m2/4kHz)

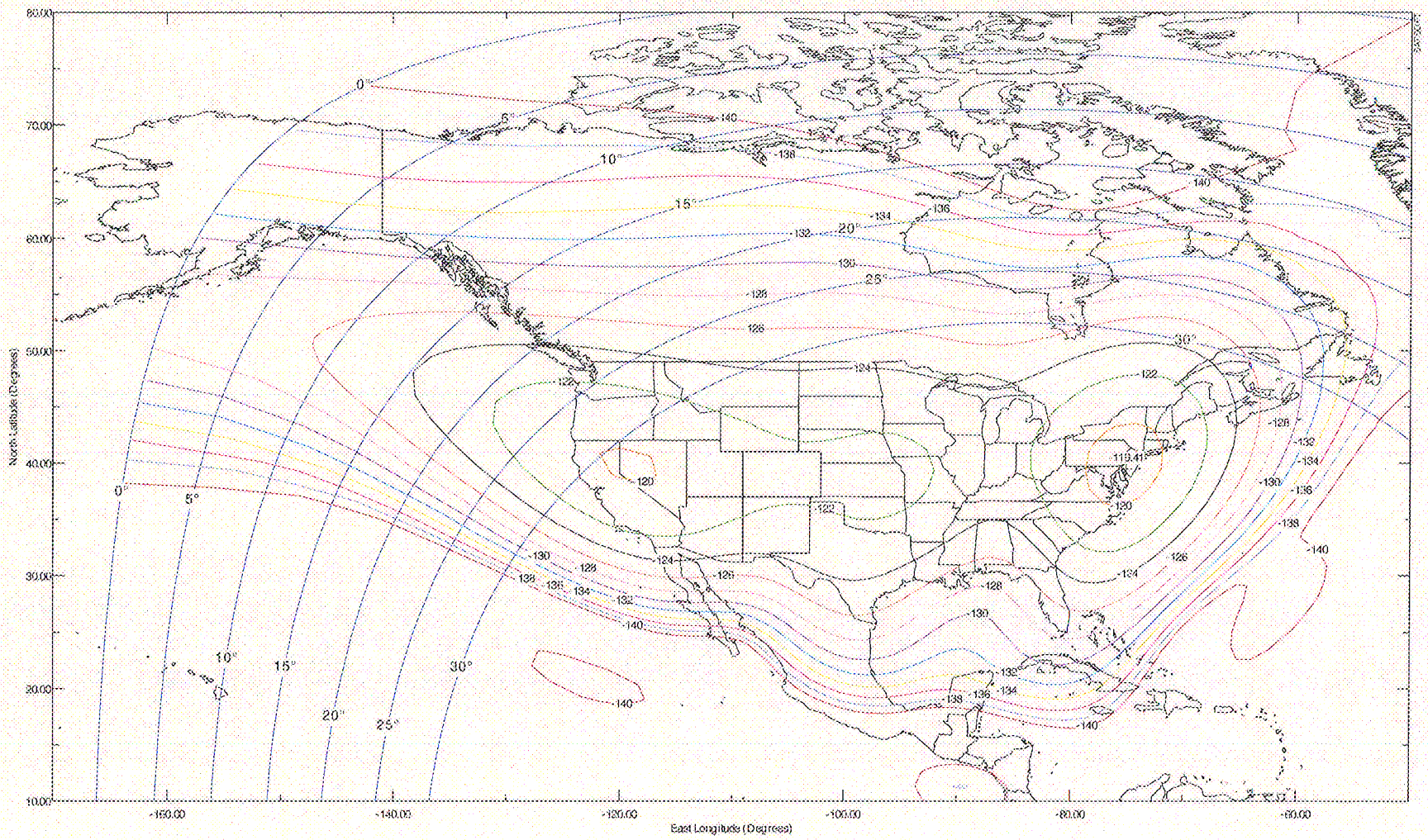


Figure 4 – XM-4 Power Flux Density Contours
115.0 deg WL
(dBW/m^2/4kHz)

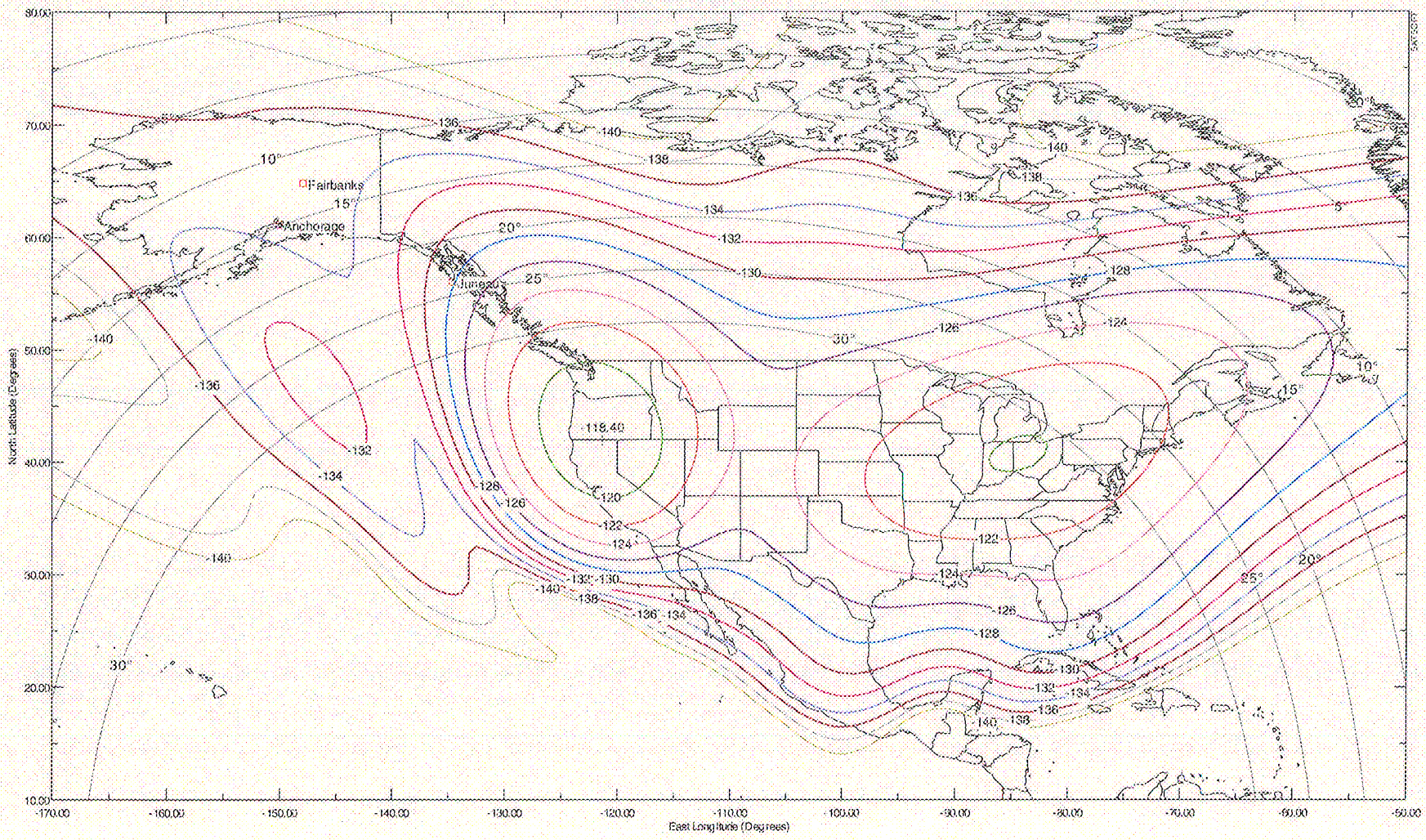


Figure 5 – XM-5 Power Flux Density Contours
85 deg WL
(dBW/m²/4kHz)

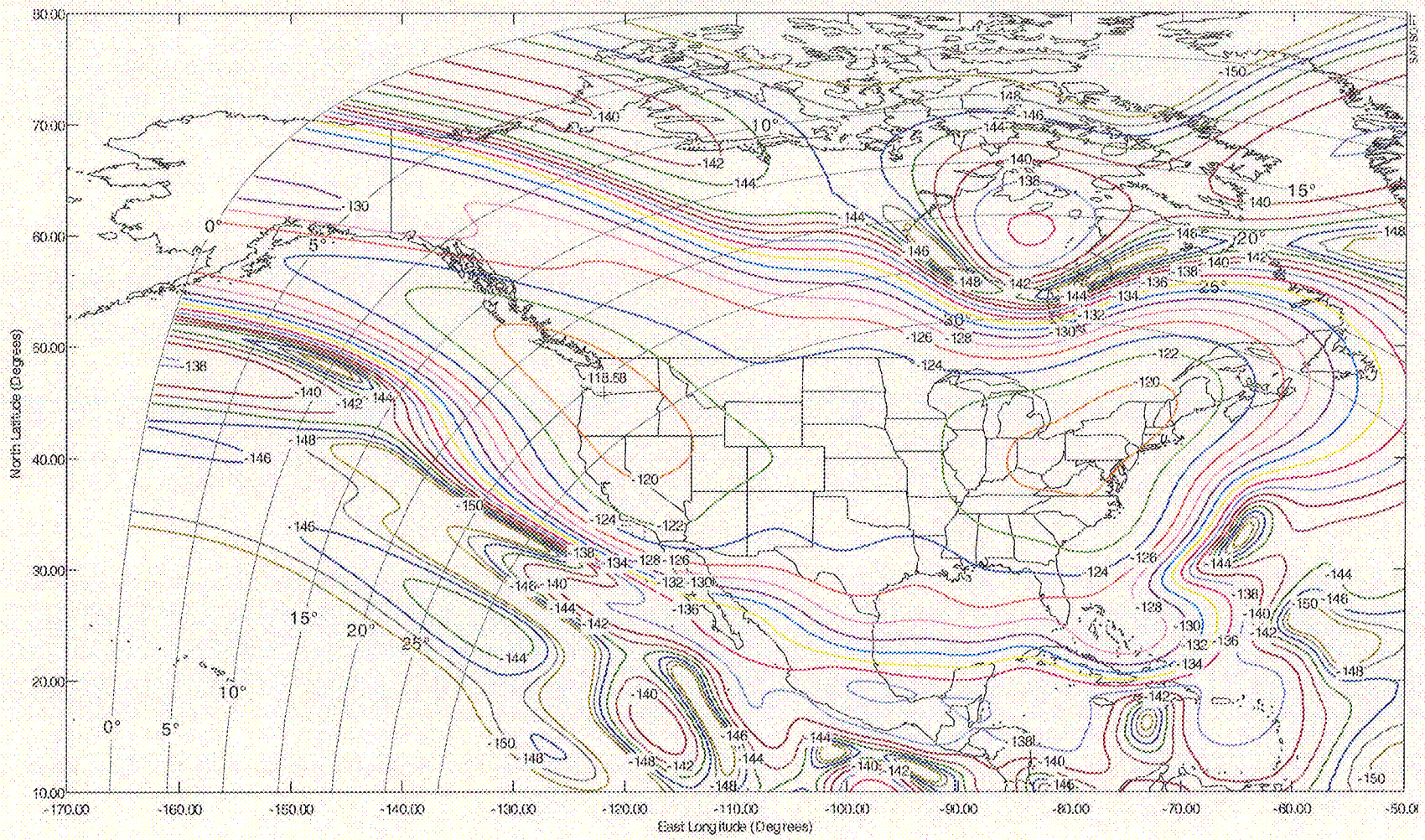
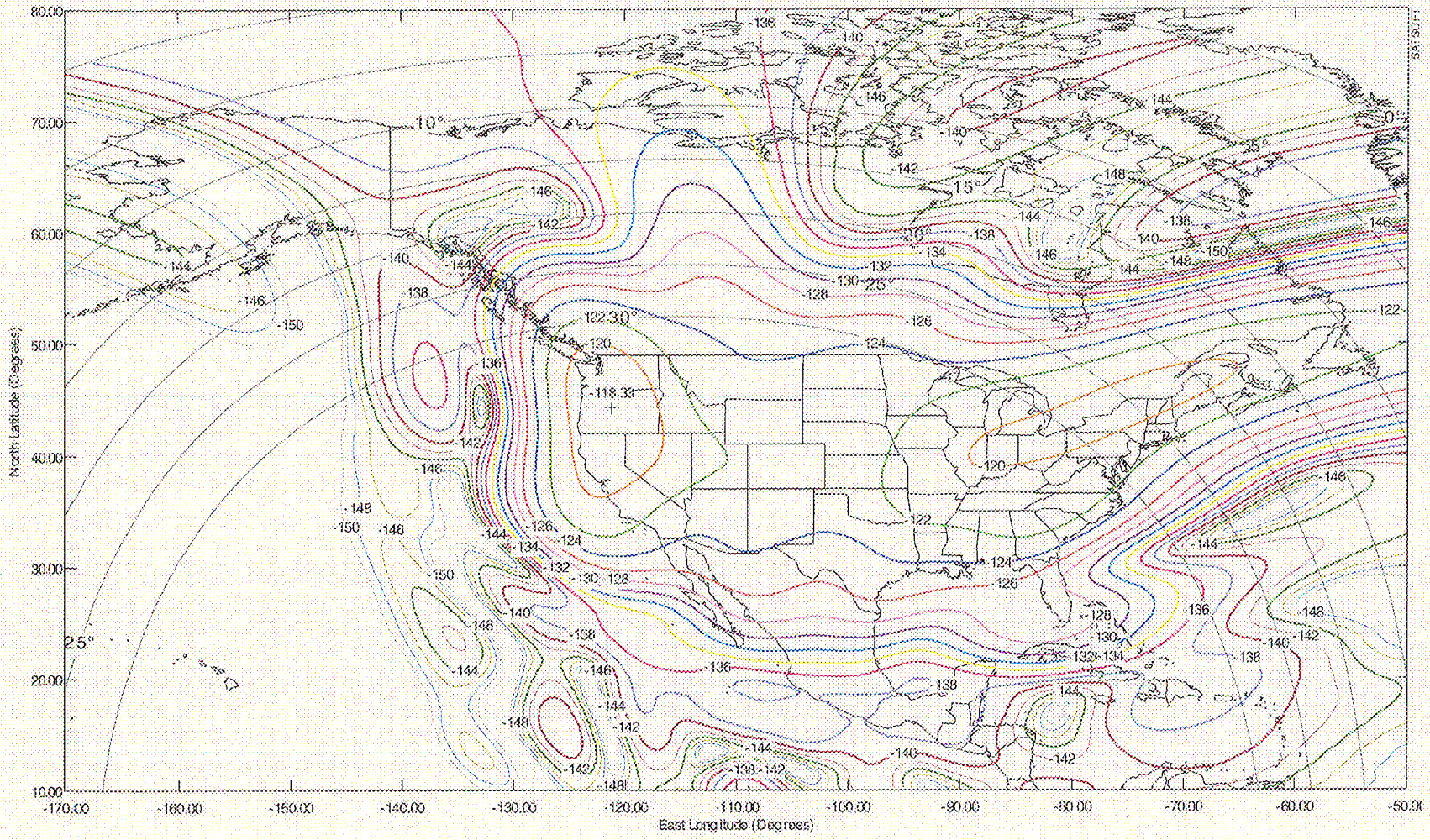


Figure 6 – XM-5 Power Flux Density Contours
115 deg WL
(dBW/m²/4kHz)



REQUEST IV. Claimed Public Interest Benefits

The Efficiencies Report identifies numerous consumer benefits that will result from the merger. These include better program offerings,[16] the introduction of new programs and services through the more efficient use of spectrum,[17] lower consumer prices for satellite radios,[18] and more reliable satellite service.[19]

Based on the information reviewed and its extensive business experience, the consultant expressed confidence "[C [redacted]]."[20]

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:

RESPONSE:

After a detailed examination of costs and revenues, the Efficiencies Report concludes that the merger will result in approximately [**HC** [redacted]] in annual steady state cost savings, as well as [**C** [redacted]].[21] The [**HC** [redacted]] in annual steady state cost synergies breaks down into [**HC** [redacted]] in fixed-cost efficiencies and [**HC** [redacted]] in variable-cost efficiencies.[22] Since the savings

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16 *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.

17 *Id.* at 86-88.

18 *Id.* at 86.

19 *Id.*

20 *Id.* at 4.

21 *Id.* at 5, 76-77, 81.

22 *Id.* at 6.

are steady state based on 2007 budgets, the actual realized synergies will be greater due to growth in subscribership in years after 2007.[23]

As described in detail in the Efficiencies Report, the merger would allow the merged company to reduce duplication, realize scale benefits, and offer additional opportunities to cost-efficiently alter business models.[24] In fact, cost efficiencies are predicted to result across the board from the great majority of the line-items in the companies' budgets and public reporting income statements, including:

- [C [redacted]]

(1) provide a full explanation as to why those cost savings would not be achieved absent the proposed transaction;

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23 *Id.* at 16, n. 12.

24 *Id.* at 4.

RESPONSE:

The Efficiencies Report fully explains why these cost savings cannot be captured by alternatives other than this transaction.[25] In short, the merger would not allow the companies the same opportunity to reduce duplicative costs, realize scale benefits, or alter business models.

> **(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.[26] 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.[27] 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 [**HC**] steady state

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25 *Id.* at 34, 35, 50–51.

26 *Id.* at 6.

27 *Id.* at 5.

fixed-cost savings and at least [**HC**] of steady state variable-cost savings annually (or the equivalent of [**HC**]).[28]

(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 Request 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.[29] 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 [**HC**] of incremental advertising revenue annually.[30]

(1) provide a full explanation as to why those efficiencies would not be achieved absent the proposed transaction;

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28 *Id.* at 6.

29 *Id.* at 83–86.

30 *Id.* at 5.

RESPONSE:

The Efficiencies Report details why these efficiencies cannot be captured by alternatives other than this transaction.[31] For example, as the Report explains, 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 can 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 churn. Neither of these revenue synergies would be achieved absent the merger. For a more extensive discussion of these efficiencies, see Section 3.4.1 of the Efficiencies Report.[32]

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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31 *Id.* at 83–86.

32 *See also* CRA International, Economic Analysis of the Competitive Effects of the Sirius-XM Merger, at ¶ 131.

to advertisers. Absent the merger, it is unlikely that such tools will be developed in a cost-effective manner.[33]

(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.[34]

(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.[35]

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 significantly improved programming and better package offerings. For example, as the Efficiency Report states, "[C [redacted]

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33 Efficiencies Report at 80 ("[C [redacted]]").

34 *Id.* at 5–6.

35 *See generally id.*

[redacted]].”[36] 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 lower 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.[37]

None of these consumer options would be available absent the merger.[38] 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. Moreover, offering a la carte programming requires modifications to important elements of the companies' infrastructure including significant changes to subscriber management, customer service, and billing systems – none of which would be financially feasible absent the merger. Moreover, new programming packages that offer

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36 *Id.* at 83.

37 The Efficiencies Report predicts that additional content offerings will lead to an increase in subscribers and lower customer churn, helping to make satellite radio a more viable competitor. *Id.* at 84, 85.

38 The final content available via a la carte and on the "best of" packages 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.